Appendix A
Groundwater Sampling Forms and Gauging Sheets

GROUNDWATER SAMPLING FORM

PROJECT: Former GLCC, Ashland , Ohio Spring 2012 Field Event	WELL ID: MW03 DATE/TIME: 04/19/12, 1050
Sampler(s): D. Tede / R. Flowers Well Diameter: 2" PID Reading: 0.0	Weather Conditions: partly cloudy Purge Method: (Circle One) Low Flow / Volumetric

SECTION 1: Purge Volume Information

(1) TD = Total Depth of Well (ft):	(2) DTW = Depth to Water (ft): 19.07

SECTION 2: For Volumetric Sampling Only

(3) Height of Water in Well = TD - DTW = [(1)-(2)]: —	(4) One Purge Volume[2,3]: —

SECTION 3: Field Parameter Data

Parameter	DTW	Time	pH[1]	Sp Cond.[1]	DO[1]	ORP	Turbidity	Temperature
Parameter Units	ft	--	SU	mS/cm	mg/L	mV	NTUs	C°
Acceptable Range	--		6.00 - 8.00	0.300-1.300 mS/cm	See Note [4]	-190.0 - 240.0 mV	--	4.00 - 20.00 C°
Tolerance Levels	0.4		+/- 0.1	+/- 3%	+/- 0.3 mg/L	+/- 10 mV	<50	+/- 0.2
First Water	~~19.03~~	1100	6.55	~~2.239~~	3.97	-8.8	11.6	13.61
1	19.05	1105	6.55	2.059	1.11	-3.3	7.3	12.85
2	19.04	1110	6.54	1.905	0.61	10.2	4.25	12.68
3	19.06	1115	6.54	1.898	0.50	18.3	2.81	12.53
4	19.05	1120	6.54	1.850	0.49	25.1	3.13	12.68
5	19.04	1125	6.53	1.841	0.49	26.2	2.23	12.69
6	19.06	1130	6.53	1.839	0.51	28.1	1.82	12.59

Stabilization Parameters Used (min. three): (pH) Sp Cond. (DO) (ORP)

SECTION 4: Equipment and Method Information

Purging Equipment: Peristaltic pump

Purge/Flow Rate: ~110 ml/min | Total Volume Purged: ~2 gallons

Field Parameter Instruments: YSI, Turbidity meter

SECTION 5: Sample Information

Samples	ID	Time	VOCs	Other	Other
Parent	MW03GW1626-041912	1130	X	—	
Duplicate					
MS/MSD					
Equipment Blank					

REMARKS:

NOTES:
1 - DENOTES STABILIZATION PARAMETERS.
2 - One purge volume (gallons) for a 1.25" dia. well: (Height of Water in Well) x 0.06 gal/ft
3 - One purge volume (gallons) for a 2" dia. well: (Height of Water in Well) x 0.16 gal/ft
4 - Varies from 0.0 to 9.5 at water temperature 15-25C°; 0.0 to 14.5 at water temperature 1-14C°
- milliliters per minute = gallons per minute/0.0002641

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GROUNDWATER SAMPLING FORM

PROJECT: Former GLCC, Ashland , Ohio Spring 2012 Field Event		**WELL ID:** MW09	
		DATE/TIME: 04/19/12, 1135	
Sampler(s): D-T/R. Flower	**Well Diameter:** 2"	**Weather Conditions:** Cloudy	
	PID Reading: 0.0	**Purge Method:** (Circle One)	Low Flow / Volumetric

SECTION 1: Purge Volume Information

(1) TD = Total Depth of Well (ft): | (2) DTW = Depth to Water (ft): 17.64

SECTION 2: For Volumetric Sampling Only

(3) Height of Water in Well = TD - DTW = [(1)-(2)]: — | (4) One Purge Volume[2,3]: —

SECTION 3: Field Parameter Data

Parameter	DTW	Time	pH[1]	Sp Cond.[1]	DO[1]	ORP	Turbidity	Temperature
Parameter Units	ft		SU	mS/cm	mg/L	mV	NTUs	C°
Acceptable Range	--	--	6.00 - 8.00	0.300-1.300 mS/cm	See Note [4]	-190.0 - 240.0 mV	--	4.00 - 20.00 C°
Tolerance Levels	0.4		+/- 0.1	+/- 3%	+/- 0.3 mg/L	+/- 10 mV	<50	+/- 0.2
First Water	17.63	1145	6.67	1.787	4.97	60.7	71.3	14.10
1	17.65	1150	6.60	1.725	2.75	76.2	52.6	13.51
2	17.63	1155	6.60	1.729	2.76	80.3	43.4	13.44
3	17.62	1200	6.59	1.720	1.97	88.0	35.2	13.47
4	17.61	1205	6.58	1.725	1.83	87.3	23.1	13.51
5	17.63	1210	6.58	1.730	1.79	90.1	18.3	13.81
6								

Stabilization Parameters Used (min. three): (pH) Sp. (Cond.) (DO) / (ORP)

SECTION 4: Equipment and Method Information

Purging Equipment: Peristaltic pump

Purge/Flow Rate: ~ 100 ml/min | Total Volume Purged: 1.25 gallons

Field Parameter Instruments: YSI, Turbidity meter

SECTION 5: Sample Information

Samples	ID	Time	VOCs	Other	Other
Parent	MW09GW1424-041912	1215	X	—	—
Duplicate	FD01-041912	1215	X	—	—
MS/MSD	—				
Equipment Blank	—				

REMARKS:

NOTES:

1 - DENOTES STABILIZATION PARAMETERS.

2 - One purge volume (gallons) for a 1.25" dia. well: (Height of Water in Well) x 0.06 gal/ft

3 - One purge volume (gallons) for a 2" dia. well: (Height of Water in Well) x 0.16 gal/ft

4 - Varies from 0.0 to 9.5 at water temperature 15-25C°; 0.0 to 14.5 at water temperature 1-14C°

- milliliters per minute = gallons per minute/0.0002641

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GROUNDWATER SAMPLING FORM

PROJECT: Former GLCC, Ashland , Ohio Spring 2012 Field Event		WELL ID:	MW 12
		DATE/TIME:	04/18/12, 1535
Sampler(s):	Well Diameter: 2"	Weather Conditions:	Sunny
D.T / R.F	PID Reading: 0.0	Purge Method: (Circle One)	Low Flow / Volumetric

SECTION 1: Purge Volume Information

(1) TD = Total Depth of Well (ft): | (2) DTW = Depth to Water (ft): 10.24

SECTION 2: For Volumetric Sampling Only

(3) Height of Water in Well = TD - DTW = [(1)-(2)]: — | (4) One Purge Volume[2,3]: —

SECTION 3: Field Parameter Data

Parameter	DTW	Time	pH[1]	Sp Cond.[1]	DO[1]	ORP	Turbidity	Temperature
Parameter Units	ft		SU	mS/cm	mg/L	mV	NTUs	C°
Acceptable Range	--	--	6.00 - 8.00	0.300-1.300 mS/cm	See Note [4]	-190.0 - 240.0 mV	--	4.00 - 20.00 C°
Tolerance Levels	0.4		+/- 0.1	+/- 3%	+/- 0.3 mg/L	+/- 10 mV	<50	+/- 0.2
First Water	10.84	1540	6.87	0.476	3.47	9.7	44.4	13.46
1	12.31	1545	6.78	0.429	0.53	21.4	39.2	12.73
2	— Switched to Volumetric due to observed drawdown —							
3	17.83	1555	6.74	0.418	0.26	34.7	55.3	13.12
4	18.91	1605	6.75	0.492	0.47	45.3	345	13.41
5	19.21	1615	6.79	0.624	0.52	35.0	612	13.77
6	Dry	1620	6.76	0.694	0.39	28.8	601	13.78

Stabilization Parameters Used (min. three): N/A pH Sp. Cond. DO ORP

SECTION 4: Equipment and Method Information

Purging Equipment: Peristaltic pump

Purge/Flow Rate: 100 → 300 ml/min | Total Volume Purged: ~ 4.5 gallons

Field Parameter Instruments: YSI / Turbidity meter

SECTION 5: Sample Information

Samples	ID	Time	VOCs	Other	Other
Parent	MW12 GW1424 — 041812	1630	X	—	
Duplicate					
MS/MSD					
Equipment Blank					

REMARKS:

NOTES:
1 - DENOTES STABILIZATION PARAMETERS.
2 - One purge volume (gallons) for a 1.25" dia. well: (Height of Water in Well) x 0.06 gal/ft
3 - One purge volume (gallons) for a 2" dia. well: (Height of Water in Well) x 0.16 gal/ft
4 - Varies from 0.0 to 9.5 at water temperature 15-25C°; 0.0 to 14.5 at water temperature 1-14C°
- milliliters per minute = gallons per minute/0.0002641

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GROUNDWATER SAMPLING FORM

PROJECT: Former GLCC, Ashland , Ohio Spring 2012 Field Event		**WELL ID:** MW 16	
		DATE/TIME: 04/18/12, 1335	
Sampler(s): D. Teele / R. Flower	**Well Diameter:** 2"	**Weather Conditions:** Sunny	
	PID Reading: 0.0	**Purge Method:** (Circle One)	Low Flow → Volumetric

SECTION 1: Purge Volume Information

(1) TD = Total Depth of Well (ft):	(2) DTW = Depth to Water (ft): 5.44

SECTION 2: For Volumetric Sampling Only

(3) Height of Water in Well = TD - DTW = [(1)-(2)]: —	(4) One Purge Volume[2,3]: —

SECTION 3: Field Parameter Data

Parameter	DTW	Time	pH[1]	Sp Cond.[1]	DO[1]	ORP	Turbidity	Temperature
Parameter Units	ft		SU	mS/cm	mg/L	mV	NTUs	C°
Acceptable Range	--	--	6.00 - 8.00	0.300-1.300 mS/cm	See Note [4]	-190.0 - 240.0 mV	--	4.00 - 20.00 C°
Tolerance Levels	0.4		+/- 0.1	+/- 3%	+/- 0.3 mg/L	+/- 10 mV	<50	+/- 0.2
First Water	5.37	1340	6.50	1.105	1.83	-48.1	18.34	13.12
1	7.45	1345	6.51	1.095	1.37	-46.2		12.76
2	— Switched to Volumetric method due to							—
3	— observed drawdown				—			—
4	11.78	1350	6.54	1.040	0.25	-56.5	13.0	12.61
5	15.01	1400	6.52	1.033	0.26	-58.4	11.9	12.90
6	Dry	1415	6.54	1.071	0.31	-54.2		13.41

Stabilization Parameters Used (min. three): N/A pH Sp. Cond. DO ORP

SECTION 4: Equipment and Method Information

Purging Equipment: Peristaltic pump

Purge/Flow Rate: ~ 80 ml/min → 300 ml/min | Total Volume Purged: ~ 5.5 gallons

Field Parameter Instruments: YSI, Turbidity meter

SECTION 5: Sample Information

Samples	ID	Time	VOCs	Other	Other
Parent	MW16GW1020-041812	1430	X	—	
Duplicate	—				—
MS/MSD	MW16GW1020-041812-MS/MSD	1430	X	—	
Equipment Blank	—				—

REMARKS:

NOTES:

1 - DENOTES STABILIZATION PARAMETERS.

2 - One purge volume (gallons) for a 1.25" dia. well: (Height of Water in Well) x 0.06 gal/ft

3 - One purge volume (gallons) for a 2" dia. well: (Height of Water in Well) x 0.16 gal/ft

4 - Varies from 0.0 to 9.5 at water temperature 15-25C°; 0.0 to 14.5 at water temperature 1-14C°

- milliliters per minute = gallons per minute/0.0002641

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GROUNDWATER SAMPLING FORM

PROJECT: Former GLCC, Ashland , Ohio Spring 2012 Field Event		WELL ID:	MW-18
		DATE/TIME:	04/18/12, 1240
Sampler(s): D. Tecle / R. Flower	Well Diameter: 2"	Weather Conditions:	Sunny
	PID Reading: 0.0	Purge Method: (Circle One)	Low Flow / Volumetric

SECTION 1: Purge Volume Information

(1) TD = Total Depth of Well (ft):	(2) DTW = Depth to Water (ft): 16.94

SECTION 2: For Volumetric Sampling Only

(3) Height of Water in Well = TD - DTW = [(1)-(2)]: —	(4) One Purge Volume[2,3]: —

SECTION 3: Field Parameter Data

Parameter	DTW	Time	pH[1]	Sp Cond.[1]	DO[1]	ORP	Turbidity	Temperature
Parameter Units	ft		SU	mS/cm	mg/L	mV	NTUs	C°
Acceptable Range	--	--	6.00 - 8.00	0.300-1.300 mS/cm	See Note [4]	-190.0 - 240.0 mV	--	4.00 - 20.00 C°
Tolerance Levels	0.4		+/- 0.1	+/- 3%	+/- 0.3 mg/L	+/- 10 mV	<50	+/- 0.2
First Water	17.15	1250	7.01	0.832	2.10	-55.0	3.47	13.19
1	17.09	1255	6.99	0.834	1.09	-60.6	2.58	13.16
2	17.10	1300	7.01	0.830	0.92	-57.2	2.31	13.32
3	17.04	1305	7.00	0.838	0.52	-58.6	1.90	13.42
4	17.02	1310	7.02	0.845	0.71	-60.4	2.30	14.06
5	17.01	1315	6.90	0.851	0.83	-61.6	1.28	14.46
6	17.03	1320	6.90	0.848	0.84	-62.9	1.42	14.64

Stabilization Parameters Used (min. three): (pH[1]) (Sp. Cond.) DO (ORP[1])

SECTION 4: Equipment and Method Information

Purging Equipment: Peristaltic pump	
Purge/Flow Rate: ~ 120 ml/min	Total Volume Purged: ~ 1.25 gallons
Field Parameter Instruments: YSI, Turbidity meter	

SECTION 5: Sample Information

Samples	ID	Time	VOCs	Other	Other
Parent	MW18GW3035-041812	1320	X	—	—
Duplicate					
MS/MSD					
Equipment Blank					

REMARKS:

NOTES:
1 - DENOTES STABILIZATION PARAMETERS.
2 - One purge volume (gallons) for a 1.25" dia. well: (Height of Water in Well) x 0.06 gal/ft
3 - One purge volume (gallons) for a 2" dia. well: (Height of Water in Well) x 0.16 gal/ft
4 - Varies from 0.0 to 9.5 at water temperature 15-25C°; 0.0 to 14.5 at water temperature 1-14C°
- milliliters per minute = gallons per minute/0.0002641

Form Checked by

GROUNDWATER SAMPLING FORM

PROJECT: Former GLCC, Ashland , Ohio Spring 2012 Field Event		WELL ID: MW 19	
		DATE/TIME: 04/19/12, 0950	
Sampler(s): D. Tecle / R. Flower	Well Diameter: 2"	Weather Conditions: partly cloudy	
	PID Reading: 0.0	Purge Method: (Circle One)	Low Flow / Volumetric

SECTION 1: Purge Volume Information

(1) TD = Total Depth of Well (ft): | (2) DTW = Depth to Water (ft): 19.09

SECTION 2: For Volumetric Sampling Only

(3) Height of Water in Well = TD - DTW = [(1)-(2)]: — | (4) One Purge Volume[2,3]: —

SECTION 3: Field Parameter Data

Parameter	DTW	Time	pH[1]	Sp Cond.[1]	DO[1]	ORP	Turbidity	Temperature
Parameter Units	ft		SU	mS/cm	mg/L	mV	NTUs	C°
Acceptable Range	–	–	6.00 - 8.00	0.300-1.300 mS/cm	See Note [4]	-190.0 - 240.0 mV	–	4.00 - 20.00 C°
Tolerance Levels	0.4		+/- 0.1	+/- 3%	+/- 0.3 mg/L	+/- 10 mV	<50	+/- 0.2
First Water	~~19.10~~ 1005 Dr	1005	6.59	2.056	2.29	250	49.8	13.55
1	19.11	1010	6.59	2.030	1.68	247.1	34.9	13.30
2	19.11	1015	6.60	2.029	1.29	240.1	29.3	13.30
3	19.12	1020	6.60	2.029	1.23	236.5	8.53	13.35
4	19.11	1025	6.61	2.026	1.29	231.3	5.72	13.35
5								
6								

Stabilization Parameters Used (min. three): (pH) Sp. (Cond.) (DO) (ORP)

SECTION 4: Equipment and Method Information

Purging Equipment: Peristaltic pump

Purge/Flow Rate: ~ 150 ml/min | Total Volume Purged: 1.2 gallons

Field Parameter Instruments: YSI, Turbidity meter

SECTION 5: Sample Information

Samples	ID	Time	VOCs	Other	Other
Parent	MW19GW1828-041912	1030	X	—	
Duplicate					
MS/MSD					
Equipment Blank					

REMARKS:

NOTES:
1 - DENOTES STABILIZATION PARAMETERS.
2 - One purge volume (gallons) for a 1.25" dia. well: (Height of Water in Well) x 0.06 gal/ft
3 - One purge volume (gallons) for a 2" dia. well: (Height of Water in Well) x 0.16 gal/ft
4 - Varies from 0.0 to 9.5 at water temperature 15-25C°; 0.0 to 14.5 at water temperature 1-14C°
- milliliters per minute = gallons per minute/0.0002641

Form Checked by

GROUNDWATER SAMPLING FORM

PROJECT: Former GLCC, Ashland , Ohio Spring 2012 Field Event		**WELL ID:** MW-22	
		DATE/TIME: 04/18/12, 1450	
Sampler(s): D. Tecle/ R. Flowers	**Well Diameter:** 2"	**Weather Conditions:** Sunny	
	PID Reading: 0.0	**Purge Method:** (Circle One)	Low Flow / Volumetric

SECTION 1: Purge Volume Information

(1) TD = Total Depth of Well (ft):	(2) DTW = Depth to Water (ft): 15.88

SECTION 2: For Volumetric Sampling Only

(3) Height of Water in Well = TD - DTW = [(1)-(2)]: —	(4) One Purge Volume[2,3]: —

SECTION 3: Field Parameter Data

Parameter	DTW	Time	pH[1]	Sp Cond.[1]	DO[1]	ORP	Turbidity	Temperature
Parameter Units	ft		SU	mS/cm	mg/L	mV	NTUs	C°
Acceptable Range	--	--	6.00 - 8.00	0.300-1.300 mS/cm	See Note [4]	-190.0 - 240.0 mV	--	4.00 - 20.00 C°
Tolerance Levels	0.4		+/- 0.1	+/- 3%	+/- 0.3 mg/L	+/- 10 mV	<50	+/- 0.2
First Water	~~15.50~~ 15.50 of	1500	6.83	2.064	3.48	-2.5	51.3	14.06
1	15.53	1505	6.81	2.031	0.52	11.8	54.3	13.68
2	15.52	1510	6.81	2.050	0.62	15.4	58.1	14.61
3	15.56	1515	6.82	2.074	0.64	14.5	52.3	14.72
4	15.53	1520	6.83	2.069	0.46	14.5	34.1	14.71
5	15.54	1525	6.84	2.073	0.43	14.2	28.2	14.78
6	15.55	1530	6.83	2.081	0.47	14.1	30.6	14.61

Stabilization Parameters Used (min. three): (pH) Sp (Cond.) (DO) (ORP)

SECTION 4: Equipment and Method Information

Purging Equipment: Peristaltic pump	
Purge/Flow Rate: ~ 100 ml/min	Total Volume Purged: ~ 2 gallons
Field Parameter Instruments: YSI, Water level meter	

SECTION 5: Sample Information

Samples	ID	Time	VOCs	Other	Other
Parent	MW 22 GW2535-041812	1530	X	—	—
Duplicate	—				
MS/MSD	—				
Equipment Blank	—				

REMARKS:

NOTES:

1 - DENOTES STABILIZATION PARAMETERS.

2 - One purge volume (gallons) for a 1.25" dia. well: (Height of Water in Well) x 0.06 gal/ft

3 - One purge volume (gallons) for a 2" dia. well: (Height of Water in Well) x 0.16 gal/ft

4 - Varies from 0.0 to 9.5 at water temperature 15-25C°; 0.0 to 14.5 at water temperature 1-14C°

- milliliters per minute = gallons per minute/0.0002641

Form Checked by

PROJECT: Former General Latex and Chemical Corporation		**WELL ID:** MW-18
		DATE/TIME: 10/31/12 / 1230
Sampler(s): R. Flowers + R. Delancy	**Well Diameter:** 2	**Weather Conditions:** Wind / light Rain 39°
	PID Reading: 0.0	**Purge Method:** (Circle One) (Low Flow) Volumetric

SECTION 1: Purge Volume Information

(1) TD = Total Depth of Well (ft):	(2) DTW = Depth to Water (ft): 21.24

SECTION 2: For Volumetric Sampling Only

(3) Height of Water in Well = TD - DTW = [(1)-(2)]: —	(4) One Purge Volume[2,3]:

SECTION 3: Field Parameter Data

Parameter / *Parameter Units* / *Acceptable Range* / *Tolerance Levels*	DTW ft 0.4	Time – 	pH[1] SU 6.00 - 8.00 +/- 0.1	Sp Cond.[1] mS/cm 0.300-1.300 mS/cm +/- 3%	DO[1] mg/l See Note [4] +/- 10%	Turbidity NTUs – <20	ORP mV -190.0 - 240.0 mV +/- 10 mV	Temperature C° 4.00 - 20.00 C° +/- 0.2
First Water	21.24	1240	7.69	0.796	1.67	5.4	-58.9	11.52
1	21.26	1245	7.62	0.797	1.27	3.8	-56.0	11.51
2	21.36	1250	7.61	0.799	1.10	2.9	-53.4	11.53
3	21.42	1255	7.62	0.801	0.89	3.3	-49.9	11.55
4	21.45	1300	7.63	0.803	0.85	4.1	-48.0	11.58
5	21.46	1305	7.64	0.804	0.82	3.6	-46.9	11.54
6								

SECTION 4: Equipment and Method Information

Purging Equipment: Peristalic Pump	
Purge/Flow Rate: ~150 ml/min	Total Volume Purged: ~1.25 gal
Field Parameter Instruments: YSI, HACH LDO meter	

SECTION 5: Sample Information

Samples	ID	Time	VOCs	Other	Other
Parent	MW18GW3035-103112	1305	X	—	
Duplicate					
MS/MSD					
Equipment Blank					

REMARKS:

NOTES:
1 - DENOTES STABILIZATION PARAMETERS.
2 - One purge volume (gallons) for a 1.25" dia. well: (Height of Water in Well) x 0.06 gal/ft
3 - One purge volume (gallons) for a 2" dia. well: (Height of Water in Well) x 0.16 gal/ft
4 - Varies from 0.0 to 9.5 at water temperature 15-25C°; 0.0 to 14.5 at water temperature 1-14C°
- milliliters per minute = gallons per minute/0.0002641

PROJECT: Former General Latex and Chemical Corporation		WELL ID: MW-16	
		DATE/TIME: 10/31/12/ 1315	
Sampler(s): R. Flowers R. Delancy	Well Diameter: 2	Weather Conditions: Wind/Light Rain 40 45	
	PID Reading: 0.0	Purge Method: (Circle One)	Low Flow → Volumetric

SECTION 1: Purge Volume Information

(1) TD = Total Depth of Well (ft):	(2) DTW = Depth to Water (ft): 15.64

SECTION 2: For Volumetric Sampling Only

(3) Height of Water in Well = TD - DTW = [(1)-(2)]:	(4) One Purge Volume[2,3]:

SECTION 3: Field Parameter Data

Parameter Parameter Units Acceptable Range Tolerance Levels	DTW ft – 0.4	Time –	pH[1] SU 6.00 - 8.00 +/- 0.1	Sp Cond.[1] mS/cm 0.300-1.300 mS/cm +/- 3%	DO[1] mg/l See Note[4] +/- 10%	Turbidity NTUs – <20	ORP mV -190.0 - 240.0 mV +/- 10 mV	Temperature C° 4.00 - 20.00 C° +/- 0.2
First Water	15.64	1325	7.03	1.188	0.97	21.8	-42.8	13.80
1	17.14	1330	6.96	1.186	0.65	16.9	-43.8	13.84
2	——	switched to Volumetric due to Drop				>.5ft	——	
3	18.18	1335	6.84	1.148	0.41	20.9	-43.3	14.02
4	19.78	1340	6.81	1.145	0.42	22.4	-40.5	13.89
5	Dry	1345	6.79	1.136	0.44	24.9	-39.6	13.86
6								

SECTION 4: Equipment and Method Information

Purging Equipment: Peristalic Pump	
Purge/Flow Rate: ~100 ml/min → 350 ml/min	Total Volume Purged: ~3.0 gal
Field Parameter Instruments: YSI, HACH LDometer	

SECTION 5: Sample Information

Samples	ID	Time	VOCs	Other	Other
Parent	MW16GW1020-103112	1345	X	——	——
Duplicate	——				
MS/MSD	MW16GW1020-103112MS/MSD	1345	X		
Equipment Blank	——				

REMARKS:

NOTES:
1 - DENOTES STABILIZATION PARAMETERS.
2 - One purge volume (gallons) for a 1.25" dia. well: (Height of Water in Well) x 0.06 gal/ft
3 - One purge volume (gallons) for a 2" dia. well: (Height of Water in Well) x 0.16 gal/ft
4 - Varies from 0.0 to 9.5 at water temperature 15-25C°; 0.0 to 14.5 at water temperature 1-14C°
- milliliters per minute ÷ gallons per minute/0.0002641

PROJECT: Former General Latex and Chemical Corporation		**WELL ID:** MW-22
		DATE/TIME: 10/31/12/ 1400
Sampler(s): R. Flowers, R. Delancy	**Well Diameter:** 2	**Weather Conditions:** Wind / Light Rain 40°
	PID Reading: 0.0	**Purge Method:** (Circle One) (Low Flow) Volumetric

SECTION 1: Purge Volume Information

(1) TD = Total Depth of Well (ft):	(2) DTW = Depth to Water (ft): 19.31

SECTION 2: For Volumetric Sampling Only

(3) Height of Water in Well = TD - DTW = [(1)-(2)]:	(4) One Purge Volume[2,3]:

SECTION 3: Field Parameter Data

Parameter	DTW	Time	pH[1]	Sp Cond.[1]	DO[1]	Turbidity	ORP	Temperature
Parameter Units	ft		SU	mS/cm	mg/L	NTUs	mV	C°
Acceptable Range	-	-	6.00 - 8.00	0.300-1.300 mS/cm	See Note[4]	-	-190.0 - 240.0 mV	4.00 - 20.00 C°
Tolerance Levels	0.4		+/- 0.1	+/- 3%	+/- 10%	<20	+/- 10 mV	+/- 0.2
First Water	19.31	1410	6.90	1.727	3.44	18.7	+52.4	10.91
1	19.37	1415	6.94	1.767	2.73	16.7	+24.3	10.90
2	19.37	1420	6.96	1.775	1.66	13.9	+29.1	11.01
3	19.37	1425	6.96	1.776	0.98	12.3	+29.9	11.06
4	19.37	1430	6.97	1.779	0.85	11.1	+30.1	11.14
5								
6								

SECTION 4: Equipment and Method Information

Purging Equipment: Peristalic Pump	
Purge/Flow Rate: ~200ml/min	Total Volume Purged: ~2.25gal
Field Parameter Instruments: YSI, HACH LDO meter	

SECTION 5: Sample Information

Samples	ID	Time	VOCs	Other	Other
Parent	MW22GW2535-103112	1430	X	—	—
Duplicate					
MS/MSD					
Equipment Blank					

REMARKS:

NOTES:
1 - DENOTES STABILIZATION PARAMETERS.
2 - One purge volume (gallons) for a 1.25" dia. well: (Height of Water in Well) x 0.06 gal/ft
3 - One purge volume (gallons) for a 2" dia. well: (Height of Water in Well) x 0.16 gal/ft
4 - Varies from 0.0 to 9.5 at water temperature 15-25C°; 0.0 to 14.5 at water temperature 1-14C°
- milliliters per minute = gallons per minute/0.0002641

PROJECT: Former General Latex and Chemical Corporation		**WELL ID:** MW-12	
		DATE/TIME: 10/31/12/1435	
Sampler(s): R.Flowers R.Delancy	Well Diameter: 2	Weather Conditions: wind/Light Rain 40°	
	PID Reading: 0.0	Purge Method: (Circle One)	Low Flow → Volumetric

SECTION 1: Purge Volume Information

(1) TD = Total Depth of Well (ft):	(2) DTW = Depth to Water (ft): 13.64

SECTION 2: For Volumetric Sampling Only

(3) Height of Water in Well = TD - DTW = [(1)-(2)]:	(4) One Purge Volume[2,3]:

SECTION 3: Field Parameter Data

Parameter	DTW	Time	pH[1]	Sp Cond.[1]	DO[1]	Turbidity	ORP	Temperature
Parameter Units	ft		SU	mS/cm	mg/L	NTUs	mV	C°
Acceptable Range	–	–	6.00 - 8.00	0.300-1.300 mS/cm	See Note [4]	–	-100.0 - 240.0 mV	4.00 - 20.00 C°
Tolerance Levels	0.4		+/- 0.1	+/- 3%	+/- 10%	<20	+/- 10 mV	+/- 0.2
First Water	13.64	1440	7.57	0.686	2.95	28.8	+31.7	12.44
1	15.16	1445	7.54	0.645	1.89	26.3	+32.1	12.59
2	—Switched to volumetric due to Drawdown						~~+~~ EF	>0.5ft —
3	16.42	1450	7.36	0.552	1.19	47.2	+63.4	12.70
4	17.22	1500	7.28	0.478	1.01	86.4	+38.0	12.77
5	19.41	1505	7.23	0.460	0.89	93.0	+46.4	12.73
6	Dry	1510	7.20	0.469	0.87	78.4	+50.7	12.75

SECTION 4: Equipment and Method Information

Purging Equipment: Peristalic Pump	
Purge/Flow Rate: ~150 ml/min → 300 ml/min	Total Volume Purged: ~3.0 gal
Field Parameter Instruments: YSI / HACH LDO meter	

SECTION 5: Sample Information

Samples	ID	Time	VOCs	Other	Other
Parent	MW12GW1424-103112	1510	X	—	
Duplicate					
MS/MSD					
Equipment Blank					

REMARKS:

NOTES:
1 - DENOTES STABILIZATION PARAMETERS.
2 - One purge volume (gallons) for a 1.25" dia. well: (Height of Water in Well) x 0.06 gal/ft
3 - One purge volume (gallons) for a 2" dia. well: (Height of Water in Well) x 0.16 gal/ft
4 - Varies from 0.0 to 9.5 at water temperature 15-25C°; 0.0 to 14.5 at water temperature 1-14C°
- milliliters per minute = gallons per minute/0.0002641

PROJECT: Former General Latex and Chemical Corporation		**WELL ID:** MW-19	
		DATE/TIME: 11/1/12/0950	
Sampler(s): R. Flowers R. Delancy	**Well Diameter:** 2"	**Weather Conditions:** overcast 40°	
	PID Reading: 0.0	**Purge Method:** (Circle One)	(Low Flow) Volumetric

SECTION 1: Purge Volume Information

(1) TD = Total Depth of Well (ft):	(2) DTW = Depth to Water (ft): 23.73

SECTION 2: For Volumetric Sampling Only

(3) Height of Water in Well = TD - DTW = [(1)-(2)]:	(4) One Purge Volume[2,3]:

SECTION 3: Field Parameter Data

Parameter *Parameter Units* *Acceptable Range* *Tolerance Levels*	DTW ft – 0.4	Time – –	pH[1] SU 6.00 - 8.00 +/- 0.1	Sp Cond.[1] mS/cm 0.300-1.300 mS/cm +/- 3%	DO[1] mg/L See Note [4] +/- 10%	Turbidity NTUs – <20	ORP mV 190.0 - 240.0 mV +/- 10 mV	Temperature C° 4.00 - 20.00 C° +/- 0.2
First Water	23.73	1000	7.46	1.788	2.37	15.5	+97.3	11.76
1	23.75	1005	7.38	1.786	1.99	12.6	+97.5	11.76
2	23.75	1010	7.32	1.778	1.45	10.7	+99.3	11.88
3	23.75	1015	7.31	1.776	1.23	9.3	+100.5	11.85
4	23.75	1020	7.29	1.772	1.19	8.6	+101.6	11.82
5								
6								

SECTION 4: Equipment and Method Information

Purging Equipment: Peristalic Pump	
Purge/Flow Rate: 150ml/min	Total Volume Purged: ~1.5 gal
Field Parameter Instruments: YSI, HACH LDO Meter	

SECTION 5: Sample Information

Samples	ID	Time	VOCs	Other	Other
Parent	MW19GW1828-110112	1020	X		
Duplicate					
MS/MSD					
Equipment Blank					

REMARKS:

NOTES:

1 - DENOTES STABILIZATION PARAMETERS.

2 - One purge volume (gallons) for a 1.25" dia. well: (Height of Water in Well) x 0.06 gal/ft

3 - One purge volume (gallons) for a 2" dia. well: (Height of Water in Well) x 0.16 gal/ft

4 - Varies from 0.0 to 9.5 at water temperature 15-25C°; 0.0 to 14.5 at water temperature 1-14C°

- milliliters per minute = gallons per minute/0.0002641

PROJECT: Former General Latex and Chemical Corporation		**WELL ID:** MW-3	
		DATE/TIME: 11/1/12/1030	
Sampler(s) R. Flowers R. Delancy	**Well Diameter:** 2"	**Weather Conditions:** overcast 40°	
	PID Reading: 0.0	**Purge Method:** (Circle One)	Low Flow / Volumetric

SECTION 1: Purge Volume Information

(1) TD = Total Depth of Well (ft):	(2) DTW = Depth to Water (ft): 23.03

SECTION 2: For Volumetric Sampling Only

(3) Height of Water in Well = TD - DTW = [(1)-(2)]:	(4) One Purge Volume[2,3]:

SECTION 3: Field Parameter Data

Parameter *Parameter Units* *Acceptable Range* *Tolerance Levels*	DTW ft – 0.4	Time –	pH[1] SU 6.00 - 8.00 +/- 0.1	Sp Cond.[1] mS/cm 0.300-1.300 mS/cm +/- 3%	DO[1] mg/L See Note 4 +/- 10%	Turbidity NTUs – <20	ORP mV -190.0 - 240.0 mV +/- 10 mV	Temperature C° 4.00 - 20.00 C° +/- 0.2
First Water	RE 23.03	1040	7.07	2.350	2.83	13.7	+23.2	11.19
1	23.04	1045	7.02	2.343	2.27	12.2	+21.9	11.33
2	23.04	1050	6.93	2.341	1.45	9.0	+18.5	11.31
3	23.04	1055	6.87	2.326	1.12	7.2	+17.4	11.40
4	23.03	1100	6.84	2.319	1.00	6.3	+17.0	11.39
5	23.02	1105	6.84	2.317	0.99	6.2	+16.8	11.40
6	23.02	1110	6.82	2.314	0.94	5.4	+16.2	11.42

SECTION 4: Equipment and Method Information

Purging Equipment: Peristaltic Pump	
Purge/Flow Rate: ~200 ml/min	Total Volume Purged: ~2.25 gal
Field Parameter Instruments: YSI, HACH LDO meter	

SECTION 5: Sample Information

Samples	ID	Time	VOCs	Other	Other
Parent	MW036W1626-110112	1110	X	—	—
Duplicate					
MS/MSD					
Equipment Blank					

REMARKS:

NOTES:
1 - DENOTES STABILIZATION PARAMETERS.
2 - One purge volume (gallons) for a 1.25" dia. well: (Height of Water in Well) x 0.06 gal/ft
3 - One purge volume (gallons) for a 2" dia. well: (Height of Water in Well) x 0.16 gal/ft
4 - Varies from 0.0 to 9.5 at water temperature 15-25C°; 0.0 to 14.5 at water temperature 1-14C°
- milliliters per minute = gallons per minute/0.0002641

PROJECT: Former General Latex and Chemical Corporation		**WELL ID:** MW-09	
		DATE/TIME: 11/11/12/1120	
Sampler(s): R. Flowers R. Delancy	**Well Diameter:** 2"	**Weather Conditions:** Overcast 40°	
	PID Reading: 0.0	**Purge Method:** (Circle One)	Low Flow / Volumetric

SECTION 1: Purge Volume Information

(1) TD = Total Depth of Well (ft):	(2) DTW = Depth to Water (ft): 22.17

SECTION 2: For Volumetric Sampling Only

(3) Height of Water in Well = TD - DTW = [(1)-(2)]:	(4) One Purge Volume[2,3]:

SECTION 3: Field Parameter Data

Parameter	DTW	Time	pH[1]	Sp Cond.[1]	DO[1]	Turbidity	ORP	Temperature
Parameter Units	ft		SU	mS/cm	mg/L	NTUs	mV	C°
Acceptable Range	–	–	6.00 - 8.00	0.300-1.300 mS/cm	See Note [4]	–	-190.0 - 240.0 mV	4.00 - 20.00 C°
Tolerance Levels	0.4		+/- 0.1	+/- 3%	+/- 10%	<20	+/- 10 mV	+/- 0.2
First Water	22.17	1130	6.86	1.020	4.22	35.8	+84.0	11.76
1	22.27	1135	6.72	1.018	3.58	28.7	+97.5	11.86
2	22.27	1140	6.62	1.025	2.93	19.7	+100.3	11.93
3	22.27	1145	6.60	1.028	2.55	20.4	+102.3	11.96
4	22.27	1150	6.59	1.031	2.41	20.6	+103.4	12.01
5	22.27	1155	6.58	1.034	2.14	RF 19.6	+104.6	11.94
6								

SECTION 4: Equipment and Method Information

Purging Equipment: Peristaltic Pump	
Purge/Flow Rate: ~200 ml/min	Total Volume Purged: ~2.0 gal
Field Parameter Instruments: YSI, HACH LDO meter	

SECTION 5: Sample Information

Samples	ID	Time	VOCs	Other	Other
Parent	MW09GW1424-0110112	1155	X	—	—
Duplicate	FD01-110112	1155	X	—	—
MS/MSD	—	—		—	—
Equipment Blank	—				—

REMARKS:

NOTES:
1 - DENOTES STABILIZATION PARAMETERS.
2 - One purge volume (gallons) for a 1.25" dia. well: (Height of Water in Well) x 0.06 gal/ft
3 - One purge volume (gallons) for a 2" dia. well: (Height of Water in Well) x 0.16 gal/ft
4 - Varies from 0.0 to 9.5 at water temperature 15-25C°; 0.0 to 14.5 at water temperature 1-14C°
- milliliters per minute = gallons per minute/0.0002641

Water Levels 10/31/12

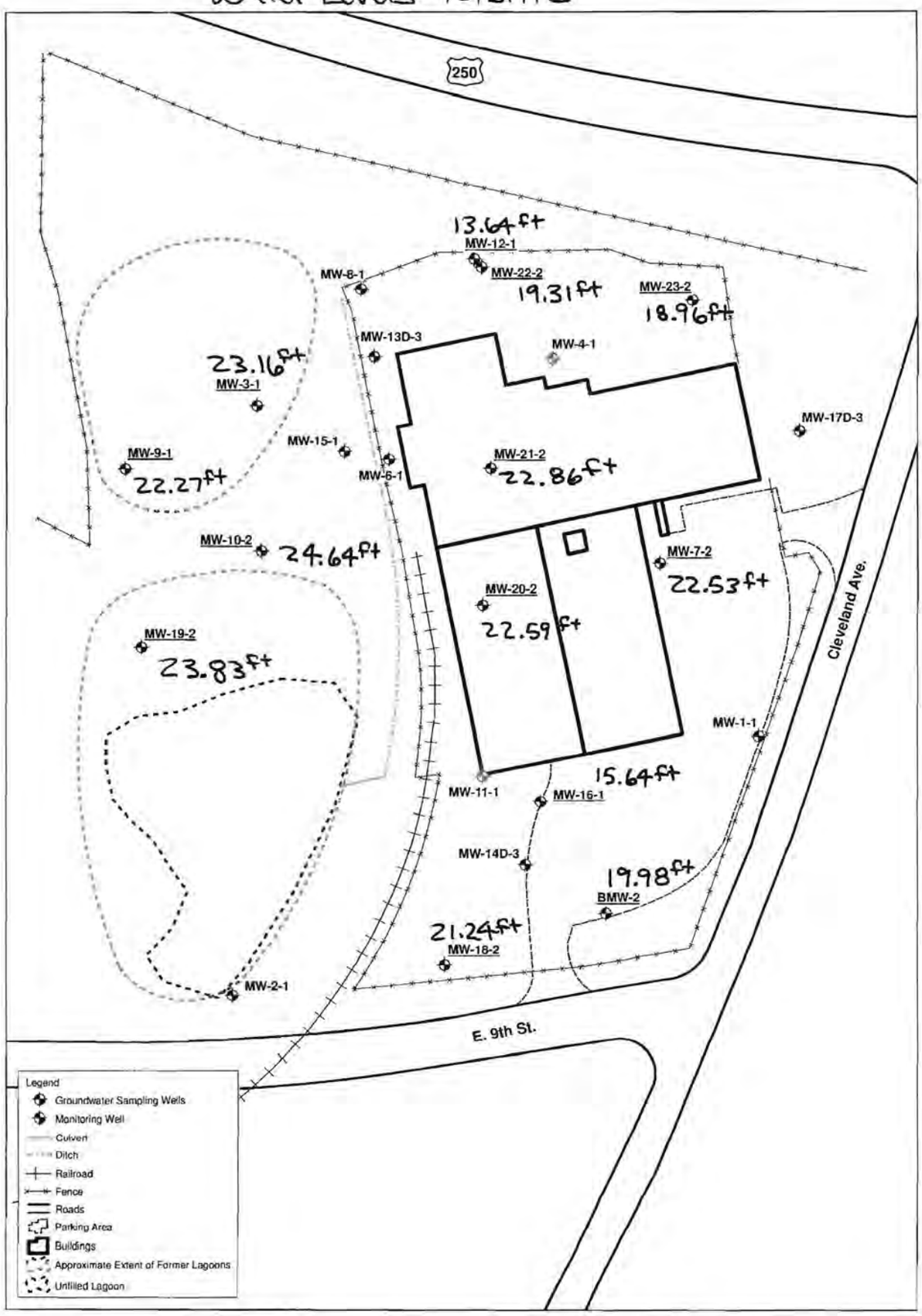

Figure 1
2011 GW Monitoring Locations
Former General Latex and Chemical Corporation Facility
Ashland, Ohio

CH2MHILL

water level

04/18/12

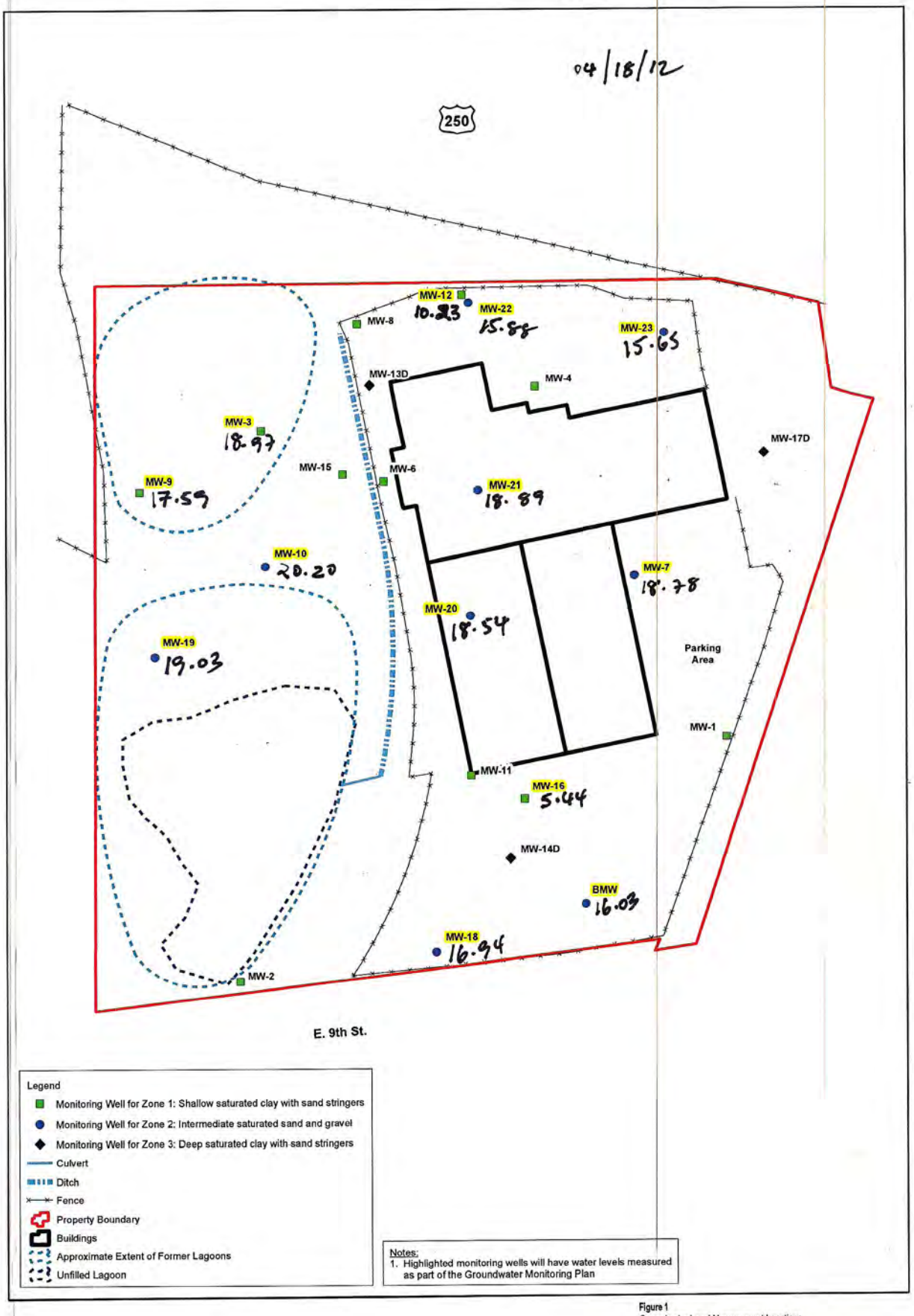

Figure 1
Groundwater Level Measurement Locations
Groundwater Monitoring Plan
Former General Latex and Chemical Corporation Facility
Ashland, Ohio

CH2MHILL

Appendix B
Laboratory Analytical Data

Microbac

Laboratory Report Number: L12040675

Shane Lowe
CH2MHILL, Inc
CH2MHill
St. Louis, MO 63102

Please find enclosed the analytical results for the samples you submitted to Microbac Laboratories. Review and compilation of your report was completed by Microbac's Ohio Valley Division (OVD). If you have any questions, comments, or require further assistance regarding this report, please contact your service representative listed below.

Laboratory Contact:
Kathy Albertson – Team Chemist/Data Specialist
(740) 373-4071
Kathy.Albertson@microbac.com

I certify that all test results meet all of the requirements of the accrediting authority listed below. All results for soil samples are reported on a 'dry-weight' basis unless specified otherwise. Analytical results for water and wastes are reported on a 'as received' basis unless specified otherwise. A statement of uncertainty for each analysis is available upon request. This laboratory report shall not be reproduced, except in full, without the written approval of Microbac Laboratories. The reported results are related only to the samples analyzed as received.

This report was certified on May 01 2012

David E. Vandenberg

David Vandenberg – Managing Director

State of Origin: OH
Accrediting Authority: N/A ID:N/A
QAPP: ASHLAND

Microbac

Lab Report #: L12040675
Lab Project #: 2736.059
Project Name: Dow Ashland Soil & Groundwater
Lab Contact: Kathy Albertson

Record of Sample Receipt and Inspection

Comments/Discrepancies

This is the record of the shipment conditions and the inspection records for the samples received and reported as a sample delivery group (SDG). All of the samples were inspected and observed to conform to our receipt policies, except as noted below.

There were no discrepancies.

Discrepancy	Resolution

Coolers

Cooler #	Temperature Gun	Temperature	COC #	Airbill #
0016105	G	4.0		

Inspection Checklist

#	Question	Result
1	Were shipping coolers sealed?	NA
2	Were custody seals intact?	NA
3	Were cooler temperatures in range of 0-6?	Yes
4	Was ice present?	Yes
5	Were COC's received/information complete/signed and dated?	Yes
6	Were sample containers intact and match COC?	Yes
7	Were sample labels intact and match COC?	Yes
8	Were the correct containers and volumes received?	Yes
9	Were samples received within EPA hold times?	Yes
10	Were correct perservatives used? (water only)	Yes
11	Were pH ranges acceptable? (voa's excluded)	NA
12	Were VOA samples free of headspace (less than 6mm)?	Yes

Samples Received

Client ID	Laboratory ID	Date Collected	Date Received
MW18GW3035-041812	L12040675-01	04/18/2012 13:20	04/19/2012 15:46
MW16GW1020-041812	L12040675-02	04/18/2012 14:30	04/19/2012 15:46
MW16GW1020-041812-MS	L12040675-03	04/18/2012 14:30	04/19/2012 15:46
MW16GW1020-041812-MSD	L12040675-04	04/18/2012 14:30	04/19/2012 15:46
MW22GW2535-041812	L12040675-05	04/18/2012 15:30	04/19/2012 15:46
MW12GW1424-041812	L12040675-06	04/18/2012 16:30	04/19/2012 15:46
MW19GW1828-041912	L12040675-07	04/19/2012 10:30	04/19/2012 15:46
MW03GW1626-041912	L12040675-08	04/19/2012 11:30	04/19/2012 15:46
MW09GW1424-041912	L12040675-09	04/19/2012 12:15	04/19/2012 15:46
FD01-041912	L12040675-10	04/19/2012 00:01	04/19/2012 15:46
TRIPBLANK-041912	L12040675-11	04/19/2012 00:01	04/19/2012 15:46

Login Number: L12040675
Department: Volatiles
Analyst: Tiffany Bailey

METHOD

Preparation SW-846 5030C/5035A

Analysis SW-846 8260B

HOLDING TIMES

Sample Preparation: All holding times were met.

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

CALIBRATION

Initial Calibration: For all compounds that yielded a %RSD greater than 15%, linear or higher order equations were applied. All acceptance criteria were met.

Alternate Source Standards: All acceptance criteria were met.

Continuing Calibration and Tune: All acceptance criteria were met.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Matrix Spikes: Recoveries out of range were observed for the following analytes: Trichlorofluoromethane. Please see the applicable QC report for a detailed presentation of the failures.

SAMPLES

Internal Standards: All acceptance criteria were met.

Surrogates: All acceptance criteria were met.

Other: Samples 02, 03, 04, were run at a dilution.

Manual Integration Reason Codes

Reason #1: Data System Fails to Select Correct Peak. In some cases the chromatography system selects and integrates the 'wrong peak'. In this case the analyst must correct the selection and force the system to integrate the proper peak. Other times the system may miss the peak completely.

Reason #2: Data System Splits the Peak Incorrectly or Integrates a False Peak as a Rider Peak. This phenomena is common at low concentrations where the signal:noise ratio is low. A single compound (peak) is incorrectly split into multiple peaks or integrated as a main peak with one or more rider peaks resulting in low area counts for the target compound.

Reason #3: Improperly Integrated Isomers and/or coeluting compounds. This system often fails to distinguish coeluting compounds and or isomers. The integration areas and concentrations are wrong, and they must be corrected by manual integration. Prime examples are benzo(k)fluoranthene and benzo(b)fluoranthene which are often unresolved and integrated improperly when both are present at low concentrations in standards or samples.

Reason #4: System Establishes Incorrect Baseline. There are numerous situations in chromatography where the system establishes the baseline incorrectly. Some baseline errors will be obvious to the analyst and should be corrected via manual procedures.

Reason #5: Miscellaneous. Other situations involving integration errors may require in-depth review and technical

judgment. These cases should be brought to the attention of the laboratory management. If the form of manual integration is not clearly covered by these four cases, then review and approval by the Managing Director or the QAO will be required.

I certify that this data package is in compliance with the terms and conditions agreed to by the client and Microbac Laboratories Inc., both technically and for completeness, except for the conditions noted above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or designated person, as verified by the following signature.

Narrative ID: 45743
Approved By: Michael Albertson

Certificate of Analysis

Sample #: L12040675-01 **PrePrep Method:** N/A **Instrument:** HPMS10
Client ID: MW18GW3035-041812 **Prep Method:** 5030B/5030C/5035A **Prep Date:** N/A
Matrix: Water **Analytical Method:** 8260B **Cal Date:** 04/17/2012 20:46
Workgroup #: WG396374 **Analyst:** TMB **Run Date:** 04/27/2012 16:51
Collect Date: 04/18/2012 13:20 **Dilution:** 1 **File ID:** 10M94981
Sample Tag: 01 **Units:** ug/L

Analyte	CAS #	Result	Qual	RL	MDL
Bromomethane	74-83-9		U	10.0	0.500
Chloromethane	74-87-3		U	10.0	0.500
Methylene chloride	75-09-2		U	5.00	0.250
Trichloroethene	79-01-6		U	5.00	0.250
Trichlorofluoromethane	75-69-4		U	10.0	0.250

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	90.2	86	118	
1,2-Dichloroethane-d4	80.5	80	120	
Toluene-d8	101	88	110	
4-Bromofluorobenzene	96.5	86	115	

U	Not detected at or above the reporting limit (RL).

Sample #: L12040675-02 **PrePrep Method:** N/A **Instrument:** HPMS10
Client ID: MW16GW1020-041812 **Prep Method:** 5030B/5030C/5035A **Prep Date:** N/A
Matrix: Water **Analytical Method:** 8260B **Cal Date:** 04/17/2012 20:46
Workgroup #: WG396374 **Analyst:** TMB **Run Date:** 04/27/2012 20:26
Collect Date: 04/18/2012 14:30 **Dilution:** 1000 **File ID:** 10M94988
Sample Tag: DL01 **Units:** ug/L

Analyte	CAS #	Result	Qual	RL	MDL
Bromomethane	74-83-9		U	10000	500
Chloromethane	74-87-3		U	10000	500
Methylene chloride	75-09-2		U	5000	250
Trichloroethene	79-01-6		U	5000	250
Trichlorofluoromethane	75-69-4	164000		10000	250

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	90.7	86	118	
1,2-Dichloroethane-d4	82.9	80	120	
Toluene-d8	103	88	110	
4-Bromofluorobenzene	101	86	115	

U	Not detected at or above the reporting limit (RL).

Certificate of Analysis

Sample #: L12040675-03 **PrePrep Method:** N/A **Instrument:** HPMS10
Client ID: MW16GW1020-041812-MS **Prep Method:** 5030B/5030C/5035A **Prep Date:** N/A
Matrix: Water **Analytical Method:** 8260B **Cal Date:** 04/17/2012 20:46
Workgroup #: WG396374 **Analyst:** TMB **Run Date:** 04/27/2012 11:44
Collect Date: 04/18/2012 14:30 **Dilution:** 1000 **File ID:** 10M94971
Sample Tag: DL01 **Units:** ug/L

Analyte	CAS #	Result	Qual	RL	MDL
Bromomethane	74-83-9	16500		10000	500
Chloromethane	74-87-3	23200		10000	500
Methylene chloride	75-09-2	18800		5000	250
Trichloroethene	79-01-6	18900		5000	250
Trichlorofluoromethane	75-69-4	173000		10000	250

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	92.7	86	118	
1,2-Dichloroethane-d4	83.7	80	120	
Toluene-d8	102	88	110	
4-Bromofluorobenzene	98.8	86	115	

Sample #: L12040675-04 **PrePrep Method:** N/A **Instrument:** HPMS10
Client ID: MW16GW1020-041812-MSD **Prep Method:** 5030B/5030C/5035A **Prep Date:** N/A
Matrix: Water **Analytical Method:** 8260B **Cal Date:** 04/17/2012 20:46
Workgroup #: WG396374 **Analyst:** TMB **Run Date:** 04/27/2012 12:14
Collect Date: 04/18/2012 14:30 **Dilution:** 1000 **File ID:** 10M94972
Sample Tag: DL01 **Units:** ug/L

Analyte	CAS #	Result	Qual	RL	MDL
Bromomethane	74-83-9	16600		10000	500
Chloromethane	74-87-3	23300		10000	500
Methylene chloride	75-09-2	18900		5000	250
Trichloroethene	79-01-6	18900		5000	250
Trichlorofluoromethane	75-69-4	174000		10000	250

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	92.7	86	118	
1,2-Dichloroethane-d4	82.7	80	120	
Toluene-d8	102	88	110	
4-Bromofluorobenzene	98.2	86	115	

Certificate of Analysis

Sample #: L12040675-05 **PrePrep Method:** N/A **Instrument:** HPMS10
Client ID: MW22GW2535-041812 **Prep Method:** 5030B/5030C/5035A **Prep Date:** N/A
Matrix: Water **Analytical Method:** 8260B **Cal Date:** 04/17/2012 20:46
Workgroup #: WG396374 **Analyst:** TMB **Run Date:** 04/27/2012 17:22
Collect Date: 04/18/2012 15:30 **Dilution:** 1 **File ID:** 10M94982
Sample Tag: 01 **Units:** ug/L

Analyte	CAS #	Result	Qual	RL	MDL
Bromomethane	74-83-9		U	10.0	0.500
Chloromethane	74-87-3		U	10.0	0.500
Methylene chloride	75-09-2		U	5.00	0.250
Trichloroethene	79-01-6		U	5.00	0.250
Trichlorofluoromethane	75-69-4		U	10.0	0.250

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	90.6	86	118	
1,2-Dichloroethane-d4	81.7	80	120	
Toluene-d8	102	88	110	
4-Bromofluorobenzene	98.6	86	115	

U	Not detected at or above the reporting limit (RL).

Sample #: L12040675-06 **PrePrep Method:** N/A **Instrument:** HPMS10
Client ID: MW12GW1424-041812 **Prep Method:** 5030B/5030C/5035A **Prep Date:** N/A
Matrix: Water **Analytical Method:** 8260B **Cal Date:** 04/17/2012 20:46
Workgroup #: WG396374 **Analyst:** TMB **Run Date:** 04/27/2012 17:52
Collect Date: 04/18/2012 16:30 **Dilution:** 1 **File ID:** 10M94983
Sample Tag: 01 **Units:** ug/L

Analyte	CAS #	Result	Qual	RL	MDL
Bromomethane	74-83-9		U	10.0	0.500
Chloromethane	74-87-3		U	10.0	0.500
Methylene chloride	75-09-2		U	5.00	0.250
Trichloroethene	79-01-6	10.6		5.00	0.250
Trichlorofluoromethane	75-69-4		U	10.0	0.250

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	90.4	86	118	
1,2-Dichloroethane-d4	80.9	80	120	
Toluene-d8	102	88	110	
4-Bromofluorobenzene	100	86	115	

U	Not detected at or above the reporting limit (RL).

Certificate of Analysis

Sample #:	L12040675-07	**PrePrep Method:**	N/A	**Instrument:**	HPMS10
Client ID:	MW19GW1828-041912	**Prep Method:**	5030B/5030C/5035A	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	8260B	**Cal Date:**	04/17/2012 20:46
Workgroup #:	WG396374	**Analyst:**	TMB	**Run Date:**	04/27/2012 18:23
Collect Date:	04/19/2012 10:30	**Dilution:**	1	**File ID:**	10M94984
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	RL	MDL
Bromomethane	74-83-9		U	10.0	0.500
Chloromethane	74-87-3		U	10.0	0.500
Methylene chloride	75-09-2		U	5.00	0.250
Trichloroethene	79-01-6	13.1		5.00	0.250
Trichlorofluoromethane	75-69-4	0.332	J	10.0	0.250

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	91.8	86	118	
1,2-Dichloroethane-d4	82.2	80	120	
Toluene-d8	103	88	110	
4-Bromofluorobenzene	102	86	115	

J	The analyte was positively identified, but the quantitation was below the RL.
U	Not detected at or above the reporting limit (RL).

Certificate of Analysis

Sample #:	L12040675-08	**PrePrep Method:**	N/A	**Instrument:**	HPMS10
Client ID:	MW03GW1626-041912	**Prep Method:**	5030B/5030C/5035A	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	8260B	**Cal Date:**	04/17/2012 20:46
Workgroup #:	WG396374	**Analyst:**	TMB	**Run Date:**	04/27/2012 18:53
Collect Date:	04/19/2012 11:30	**Dilution:**	1	**File ID:**	10M94985
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	RL	MDL
Bromomethane	74-83-9		U	10.0	0.500
Chloromethane	74-87-3		U	10.0	0.500
Methylene chloride	75-09-2		U	5.00	0.250
Trichloroethene	79-01-6	1.97	J	5.00	0.250
Trichlorofluoromethane	75-69-4		U	10.0	0.250

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	91.2	86	118	
1,2-Dichloroethane-d4	82.9	80	120	
Toluene-d8	102	88	110	
4-Bromofluorobenzene	102	86	115	

J	The analyte was positively identified, but the quantitation was below the RL.
U	Not detected at or above the reporting limit (RL).

Certificate of Analysis

Sample #:	L12040675-09	**PrePrep Method:**	N/A	**Instrument:**	HPMS10
Client ID:	MW09GW1424-041912	**Prep Method:**	5030B/5030C/5035A	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	8260B	**Cal Date:**	04/17/2012 20:46
Workgroup #:	WG396374	**Analyst:**	TMB	**Run Date:**	04/27/2012 19:23
Collect Date:	04/19/2012 12:15	**Dilution:**	1	**File ID:**	10M94986
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	RL	MDL
Bromomethane	74-83-9		U	10.0	0.500
Chloromethane	74-87-3		U	10.0	0.500
Methylene chloride	75-09-2		U	5.00	0.250
Trichloroethene	79-01-6	23.4		5.00	0.250
Trichlorofluoromethane	75-69-4	2.25	J	10.0	0.250

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	90.3	86	118	
1,2-Dichloroethane-d4	81.6	80	120	
Toluene-d8	102	88	110	
4-Bromofluorobenzene	101	86	115	

J	The analyte was positively identified, but the quantitation was below the RL.
U	Not detected at or above the reporting limit (RL).

Certificate of Analysis

Sample #: L12040675-10 | **PrePrep Method:** N/A | **Instrument:** HPMS10
Client ID: FD01-041912 | **Prep Method:** 5030B/5030C/5035A | **Prep Date:** N/A
Matrix: Water | **Analytical Method:** 8260B | **Cal Date:** 04/17/2012 20:46
Workgroup #: WG396374 | **Analyst:** TMB | **Run Date:** 04/27/2012 19:54
Collect Date: 04/19/2012 00:01 | **Dilution:** 1 | **File ID:** 10M94987
Sample Tag: 01 | **Units:** ug/L

Analyte	CAS #	Result	Qual	RL	MDL
Bromomethane	74-83-9		U	10.0	0.500
Chloromethane	74-87-3		U	10.0	0.500
Methylene chloride	75-09-2		U	5.00	0.250
Trichloroethene	79-01-6	23.2		5.00	0.250
Trichlorofluoromethane	75-69-4	2.28	J	10.0	0.250

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	90.1	86	118	
1,2-Dichloroethane-d4	80.4	80	120	
Toluene-d8	102	88	110	
4-Bromofluorobenzene	101	86	115	

J	The analyte was positively identified, but the quantitation was below the RL.
U	Not detected at or above the reporting limit (RL).

Sample #: L12040675-11 | **PrePrep Method:** N/A | **Instrument:** HPMS10
Client ID: TRIPBLANK-041912 | **Prep Method:** 5030B/5030C/5035A | **Prep Date:** N/A
Matrix: Water | **Analytical Method:** 8260B | **Cal Date:** 04/17/2012 20:46
Workgroup #: WG396374 | **Analyst:** TMB | **Run Date:** 04/27/2012 13:16
Collect Date: 04/19/2012 00:01 | **Dilution:** 1 | **File ID:** 10M94974
Sample Tag: 01 | **Units:** ug/L

Analyte	CAS #	Result	Qual	RL	MDL
Bromomethane	74-83-9		U	10.0	0.500
Chloromethane	74-87-3		U	10.0	0.500
Methylene chloride	75-09-2		U	5.00	0.250
Trichloroethene	79-01-6		U	5.00	0.250
Trichlorofluoromethane	75-69-4		U	10.0	0.250

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	90.0	86	118	
1,2-Dichloroethane-d4	81.2	80	120	
Toluene-d8	103	88	110	
4-Bromofluorobenzene	103	86	115	

U	Not detected at or above the reporting limit (RL).

2.1 Volatiles Data

2.1.1 Volatiles GCMS Data (8260)

2.1.1.1 Summary Data

Login Number: L12040675
Department: Volatiles
Analyst: Tiffany Bailey

METHOD

Preparation SW-846 5030C/5035A

Analysis SW-846 8260B

HOLDING TIMES

Sample Preparation: All holding times were met.

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

CALIBRATION

Initial Calibration: For all compounds that yielded a %RSD greater than 15%, linear or higher order equations were applied. All acceptance criteria were met.

Alternate Source Standards: All acceptance criteria were met.

Continuing Calibration and Tune: All acceptance criteria were met.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Matrix Spikes: Recoveries out of range were observed for the following analytes: Trichlorofluoromethane. Please see the applicable QC report for a detailed presentation of the failures.

SAMPLES

Internal Standards: All acceptance criteria were met.

Surrogates: All acceptance criteria were met.

Other: Samples 02, 03, 04, were run at a dilution.

Manual Integration Reason Codes

Reason #1: Data System Fails to Select Correct Peak. In some cases the chromatography system selects and integrates the 'wrong peak'. In this case the analyst must correct the selection and force the system to integrate the proper peak. Other times the system may miss the peak completely.

Reason #2: Data System Splits the Peak Incorrectly or Integrates a False Peak as a Rider Peak. This phenomena is common at low concentrations where the signal:noise ratio is low. A single compound (peak) is incorrectly split into multiple peaks or integrated as a main peak with one or more rider peaks resulting in low area counts for the target compound.

Reason #3: Improperly Integrated Isomers and/or coeluting compounds. This system often fails to distinguish coeluting compounds and or isomers. The integration areas and concentrations are wrong, and they must be corrected by manual integration. Prime examples are benzo(k)fluoranthene and benzo(b)fluoranthene which are often unresolved and integrated improperly when both are present at low concentrations in standards or samples.

Reason #4: System Establishes Incorrect Baseline. There are numerous situations in chromatography where the system establishes the baseline incorrectly. Some baseline errors will be obvious to the analyst and should be corrected via manual procedures.

Reason #5: Miscellaneous. Other situations involving integration errors may require in-depth review and technical

judgment. These cases should be brought to the attention of the laboratory management. If the form of manual integration is not clearly covered by these four cases, then review and approval by the Managing Director or the QAO will be required.

I certify that this data package is in compliance with the terms and conditions agreed to by the client and Microbac Laboratories Inc., both technically and for completeness, except for the conditions noted above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or designated person, as verified by the following signature.

Narrative ID: 45743
Approved By: Michael Albertson

Certificate of Analysis

Sample #: L12040675-01 **PrePrep Method:** N/A **Instrument:** HPMS10
Client ID: MW18GW3035-041812 **Prep Method:** 5030B/5030C/5035A **Prep Date:** N/A
Matrix: Water **Analytical Method:** 8260B **Cal Date:** 04/17/2012 20:46
Workgroup #: WG396374 **Analyst:** TMB **Run Date:** 04/27/2012 16:51
Collect Date: 04/18/2012 13:20 **Dilution:** 1 **File ID:** 10M94981
Sample Tag: 01 **Units:** ug/L

Analyte	CAS #	Result	Qual	RL	MDL
Bromomethane	74-83-9		U	10.0	0.500
Chloromethane	74-87-3		U	10.0	0.500
Methylene chloride	75-09-2		U	5.00	0.250
Trichloroethene	79-01-6		U	5.00	0.250
Trichlorofluoromethane	75-69-4		U	10.0	0.250

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	90.2	86	118	
1,2-Dichloroethane-d4	80.5	80	120	
Toluene-d8	101	88	110	
4-Bromofluorobenzene	96.5	86	115	

U	Not detected at or above the reporting limit (RL).

Sample #: L12040675-02 **PrePrep Method:** N/A **Instrument:** HPMS10
Client ID: MW16GW1020-041812 **Prep Method:** 5030B/5030C/5035A **Prep Date:** N/A
Matrix: Water **Analytical Method:** 8260B **Cal Date:** 04/17/2012 20:46
Workgroup #: WG396374 **Analyst:** TMB **Run Date:** 04/27/2012 20:26
Collect Date: 04/18/2012 14:30 **Dilution:** 1000 **File ID:** 10M94988
Sample Tag: DL01 **Units:** ug/L

Analyte	CAS #	Result	Qual	RL	MDL
Bromomethane	74-83-9		U	10000	500
Chloromethane	74-87-3		U	10000	500
Methylene chloride	75-09-2		U	5000	250
Trichloroethene	79-01-6		U	5000	250
Trichlorofluoromethane	75-69-4	164000		10000	250

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	90.7	86	118	
1,2-Dichloroethane-d4	82.9	80	120	
Toluene-d8	103	88	110	
4-Bromofluorobenzene	101	86	115	

U	Not detected at or above the reporting limit (RL).

Certificate of Analysis

Sample #: L12040675-03 **PrePrep Method:** N/A **Instrument:** HPMS10
Client ID: MW16GW1020-041812-MS **Prep Method:** 5030B/5030C/5035A **Prep Date:** N/A
Matrix: Water **Analytical Method:** 8260B **Cal Date:** 04/17/2012 20:46
Workgroup #: WG396374 **Analyst:** TMB **Run Date:** 04/27/2012 11:44
Collect Date: 04/18/2012 14:30 **Dilution:** 1000 **File ID:** 10M94971
Sample Tag: DL01 **Units:** ug/L

Analyte	CAS #	Result	Qual	RL	MDL
Bromomethane	74-83-9	16500		10000	500
Chloromethane	74-87-3	23200		10000	500
Methylene chloride	75-09-2	18800		5000	250
Trichloroethene	79-01-6	18900		5000	250
Trichlorofluoromethane	75-69-4	173000		10000	250

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	92.7	86	118	
1,2-Dichloroethane-d4	83.7	80	120	
Toluene-d8	102	88	110	
4-Bromofluorobenzene	98.8	86	115	

Sample #: L12040675-04 **PrePrep Method:** N/A **Instrument:** HPMS10
Client ID: MW16GW1020-041812-MSD **Prep Method:** 5030B/5030C/5035A **Prep Date:** N/A
Matrix: Water **Analytical Method:** 8260B **Cal Date:** 04/17/2012 20:46
Workgroup #: WG396374 **Analyst:** TMB **Run Date:** 04/27/2012 12:14
Collect Date: 04/18/2012 14:30 **Dilution:** 1000 **File ID:** 10M94972
Sample Tag: DL01 **Units:** ug/L

Analyte	CAS #	Result	Qual	RL	MDL
Bromomethane	74-83-9	16600		10000	500
Chloromethane	74-87-3	23300		10000	500
Methylene chloride	75-09-2	18900		5000	250
Trichloroethene	79-01-6	18900		5000	250
Trichlorofluoromethane	75-69-4	174000		10000	250

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	92.7	86	118	
1,2-Dichloroethane-d4	82.7	80	120	
Toluene-d8	102	88	110	
4-Bromofluorobenzene	98.2	86	115	

Certificate of Analysis

Sample #: L12040675-05 **PrePrep Method:** N/A **Instrument:** HPMS10
Client ID: MW22GW2535-041812 **Prep Method:** 5030B/5030C/5035A **Prep Date:** N/A
Matrix: Water **Analytical Method:** 8260B **Cal Date:** 04/17/2012 20:46
Workgroup #: WG396374 **Analyst:** TMB **Run Date:** 04/27/2012 17:22
Collect Date: 04/18/2012 15:30 **Dilution:** 1 **File ID:** 10M94982
Sample Tag: 01 **Units:** ug/L

Analyte	CAS #	Result	Qual	RL	MDL
Bromomethane	74-83-9		U	10.0	0.500
Chloromethane	74-87-3		U	10.0	0.500
Methylene chloride	75-09-2		U	5.00	0.250
Trichloroethene	79-01-6		U	5.00	0.250
Trichlorofluoromethane	75-69-4		U	10.0	0.250

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	90.6	86	118	
1,2-Dichloroethane-d4	81.7	80	120	
Toluene-d8	102	88	110	
4-Bromofluorobenzene	98.6	86	115	

U	Not detected at or above the reporting limit (RL).

Sample #: L12040675-06 **PrePrep Method:** N/A **Instrument:** HPMS10
Client ID: MW12GW1424-041812 **Prep Method:** 5030B/5030C/5035A **Prep Date:** N/A
Matrix: Water **Analytical Method:** 8260B **Cal Date:** 04/17/2012 20:46
Workgroup #: WG396374 **Analyst:** TMB **Run Date:** 04/27/2012 17:52
Collect Date: 04/18/2012 16:30 **Dilution:** 1 **File ID:** 10M94983
Sample Tag: 01 **Units:** ug/L

Analyte	CAS #	Result	Qual	RL	MDL
Bromomethane	74-83-9		U	10.0	0.500
Chloromethane	74-87-3		U	10.0	0.500
Methylene chloride	75-09-2		U	5.00	0.250
Trichloroethene	79-01-6	10.6		5.00	0.250
Trichlorofluoromethane	75-69-4		U	10.0	0.250

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	90.4	86	118	
1,2-Dichloroethane-d4	80.9	80	120	
Toluene-d8	102	88	110	
4-Bromofluorobenzene	100	86	115	

U	Not detected at or above the reporting limit (RL).

Certificate of Analysis

Sample #:	L12040675-07	**PrePrep Method:**	N/A	**Instrument:**	HPMS10
Client ID:	MW19GW1828-041912	**Prep Method:**	5030B/5030C/5035A	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	8260B	**Cal Date:**	04/17/2012 20:46
Workgroup #:	WG396374	**Analyst:**	TMB	**Run Date:**	04/27/2012 18:23
Collect Date:	04/19/2012 10:30	**Dilution:**	1	**File ID:**	10M94984
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	RL	MDL
Bromomethane	74-83-9		U	10.0	0.500
Chloromethane	74-87-3		U	10.0	0.500
Methylene chloride	75-09-2		U	5.00	0.250
Trichloroethene	79-01-6	13.1		5.00	0.250
Trichlorofluoromethane	75-69-4	0.332	J	10.0	0.250

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	91.8	86	118	
1,2-Dichloroethane-d4	82.2	80	120	
Toluene-d8	103	88	110	
4-Bromofluorobenzene	102	86	115	

J	The analyte was positively identified, but the quantitation was below the RL.
U	Not detected at or above the reporting limit (RL).

Certificate of Analysis

Sample #:	L12040675-08	**PrePrep Method:**	N/A	**Instrument:**	HPMS10
Client ID:	MW03GW1626-041912	**Prep Method:**	5030B/5030C/5035A	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	8260B	**Cal Date:**	04/17/2012 20:46
Workgroup #:	WG396374	**Analyst:**	TMB	**Run Date:**	04/27/2012 18:53
Collect Date:	04/19/2012 11:30	**Dilution:**	1	**File ID:**	10M94985
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	RL	MDL
Bromomethane	74-83-9		U	10.0	0.500
Chloromethane	74-87-3		U	10.0	0.500
Methylene chloride	75-09-2		U	5.00	0.250
Trichloroethene	79-01-6	1.97	J	5.00	0.250
Trichlorofluoromethane	75-69-4		U	10.0	0.250

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	91.2	86	118	
1,2-Dichloroethane-d4	82.9	80	120	
Toluene-d8	102	88	110	
4-Bromofluorobenzene	102	86	115	

J	The analyte was positively identified, but the quantitation was below the RL.
U	Not detected at or above the reporting limit (RL).

Certificate of Analysis

Sample #:	L12040675-09	**PrePrep Method:**	N/A	**Instrument:**	HPMS10
Client ID:	MW09GW1424-041912	**Prep Method:**	5030B/5030C/5035A	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	8260B	**Cal Date:**	04/17/2012 20:46
Workgroup #:	WG396374	**Analyst:**	TMB	**Run Date:**	04/27/2012 19:23
Collect Date:	04/19/2012 12:15	**Dilution:**	1	**File ID:**	10M94986
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	RL	MDL
Bromomethane	74-83-9		U	10.0	0.500
Chloromethane	74-87-3		U	10.0	0.500
Methylene chloride	75-09-2		U	5.00	0.250
Trichloroethene	79-01-6	23.4		5.00	0.250
Trichlorofluoromethane	75-69-4	2.25	J	10.0	0.250

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	90.3	86	118	
1,2-Dichloroethane-d4	81.6	80	120	
Toluene-d8	102	88	110	
4-Bromofluorobenzene	101	86	115	

J	The analyte was positively identified, but the quantitation was below the RL.
U	Not detected at or above the reporting limit (RL).

Certificate of Analysis

Sample #: L12040675-10 **PrePrep Method:** N/A **Instrument:** HPMS10
Client ID: FD01-041912 **Prep Method:** 5030B/5030C/5035A **Prep Date:** N/A
Matrix: Water **Analytical Method:** 8260B **Cal Date:** 04/17/2012 20:46
Workgroup #: WG396374 **Analyst:** TMB **Run Date:** 04/27/2012 19:54
Collect Date: 04/19/2012 00:01 **Dilution:** 1 **File ID:** 10M94987
Sample Tag: 01 **Units:** ug/L

Analyte	CAS #	Result	Qual	RL	MDL
Bromomethane	74-83-9		U	10.0	0.500
Chloromethane	74-87-3		U	10.0	0.500
Methylene chloride	75-09-2		U	5.00	0.250
Trichloroethene	79-01-6	23.2		5.00	0.250
Trichlorofluoromethane	75-69-4	2.28	J	10.0	0.250

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	90.1	86	118	
1,2-Dichloroethane-d4	80.4	80	120	
Toluene-d8	102	88	110	
4-Bromofluorobenzene	101	86	115	

J	The analyte was positively identified, but the quantitation was below the RL.
U	Not detected at or above the reporting limit (RL).

Sample #: L12040675-11 **PrePrep Method:** N/A **Instrument:** HPMS10
Client ID: TRIPBLANK-041912 **Prep Method:** 5030B/5030C/5035A **Prep Date:** N/A
Matrix: Water **Analytical Method:** 8260B **Cal Date:** 04/17/2012 20:46
Workgroup #: WG396374 **Analyst:** TMB **Run Date:** 04/27/2012 13:16
Collect Date: 04/19/2012 00:01 **Dilution:** 1 **File ID:** 10M94974
Sample Tag: 01 **Units:** ug/L

Analyte	CAS #	Result	Qual	RL	MDL
Bromomethane	74-83-9		U	10.0	0.500
Chloromethane	74-87-3		U	10.0	0.500
Methylene chloride	75-09-2		U	5.00	0.250
Trichloroethene	79-01-6		U	5.00	0.250
Trichlorofluoromethane	75-69-4		U	10.0	0.250

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	90.0	86	118	
1,2-Dichloroethane-d4	81.2	80	120	
Toluene-d8	103	88	110	
4-Bromofluorobenzene	103	86	115	

U	Not detected at or above the reporting limit (RL).

2.1.1.2 QC Summary Data

Example 8260 Calculations

1.0 Calculating the Response Factor (RF) from the initial calibration (ICAL) data:

RF = [(Ax) (Cis)] / [(Ais) (Cx)]

where:	Example
Ax = Area of the characteristic ion for the compound being measured:	3399156
Cis = Concentration of the specific internal standard (ug/mL)	25
Ais = Area of the characteristic ion of the specific internal standard	846471
Cx = Concentration of the compound in the standard being measured (ug/mL)	100
RF = Calculated Response Factor	**1.0039**

2.0 Calculating the concentration (C) of a compound in water using the average RF: *

Cx = [(Ax) (Cis) (Vn)(D)] / [(Ais) (RF) (Vs)]

where:	**Example**
Ax = Area of the characteristic ion for the compound being measured	**3122498**
Cis = Concentration of the specific internal standard (ug/L)	**25**
D = Dilution factor for sample as a multiplier (10x = 10)	**1**
Ais = Area of the characteristic ion of the specific internal standard	**611048**
RF = Average RF from the ICAL	**1.004**
Vs = Purge volume of sample (mL)	**10**
Vn = Nominal purge volume of sample (mL) (10.0 mL)	**10**
Cx = Concentration of the compound in the sample being measured (ug/L)	**127.2428**

3.0 Calculating the concentration (C) of a compound in soil using the average RF: *

Cx = [(Ax) (Cis) (Wn)(D)] / [(Ais) (RF) (Ws)]

where:	**Example**
Ax = Area of the characteristic ion for the compound being measured	**3122498**
Cis = Concentration of the specific internal standard (ug/L)	**25**
D = Dilution factor for sample as a multiplier (10x = 10)	**1**
Ais = Area of the characteristic ion of the specific internal standard	**611048**
RF = Average RF from the ICAL	**1.004**
Ws = Weight of sample purged (g)	**5**
Wn = Nominal purge weight (g) (5.0 g)	**5**
Cx = Concentration of the compound in the sample being measured (ug/L)	**127.2428**

Dry weight correction:

Percent solids (PCT_S)	**50**
Cd = (Cx) (100)/PCT_S	**254.4856**

* Concentrations appearing on the instrument quantitation reports are on-column results and do not take into account initial volume, final volume, and the dilution factor.

4.0 Concentration from Linear Regression

Step 1: Retrieve Curve Data From Plot, y = mx + b

y = response ratio = response of analyte / response of IS = Ax/Ais

x = amount ratio = concentration analyte/concentration internal standard = Cx / Cis

m = slope from curve = 0.213

b = intercept from curve = - 0.00642

Step 2: Calculate y from Quantitation Report

y = 86550/593147 = 0.1459

Step 3: Solve for x

x = (y - b)/m = [(0.1459 -(- 0.00642)]/ 0.213 = 0.7152

Step 4: Solve for analyte concentration Cx

Cx = Cis (x) = (25.0)(0.7152) = 17.88

Example Spreadsheet Calculation:

Slope from curve, m:	**0.213**
Intercept from curve, b:	**-0.00642**
Area of analyte, Ax:	**86550**
Area of Internal Standard , Ais:	**593147**
Concentration of IS, Cis	**25.00**
Response Ratio:	**0.145917**
Amount Ratio:	**0.715195**
Concentration:	**17.87988**
Units of Internal Standard:	**ug/L**

5.0 Concentration from Quadratic Regression

Step 1 - Retrieve Curve Data from Plot, y = Ax^2 + Bx + C
Where:
Ax^2 + Bx + (C - y) = 0
A, B, C = constants from the ICAL quadratic regression
y = Response ratio = Area of analyte/Area of internal standard (IS)
x = Amount ratio = Concentration of analyte/concentration of IS

Step 2: Calculate y from Quantitation Report

y = Ax/Ais

Step 3: Solve for x using the quadratic formula
Ax^2 + Bx + C - y = 0

$$x = \frac{b \pm \sqrt{\left(b^2 - 4a(c - y)\right)}}{2a}$$ (Two possible solutions)

Step 4: Solve for analyte concentration Cx

Cx = (Cis)(Amount ratio)

Example Spreadsheet Calculation:

Value of A from plot:	**-0.00629**	
Value of B from plot:	**0.511**	
Value of C from plot:	**-0.0276**	
Area of unknown from quantitation report:	**293821**	
Area of IS from quantiation report:	**784848**	
Response ratio, y:	**0.374367**	
C - y:	**-0.40197**	
Root 1 - Computed amount ratio , X1:	**80.44567**	
Root 2 - Computed amount ratio , X2:	**0.794396**	use this solution
Concentration of IS, Cis:	**25.00**	
Concentration of analyte, Cx:	**19.86**	ug/L

Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPMS10 Dataset: 011012
Analyst1: TMB Analyst2: NA
Method: 8260B/OVAP SOP: MSV01 Rev: 14/0
Method: 624 SOP: MSV10 Rev: 8
Method: 5030B/5030C/5035A SOP: PAT01 Rev: 13
Maintenance Log ID: 40298

Internal Standard: STD49130 Surrogate Standard: STD49250
CCV: STD49290 LCS: STD49518 MS/MSD: NA

Column 1 ID: RTX502.2 Column 2 ID: NA
Workgroups: WG386582

Comments:

File ID	Sample Information	pH	Mat	Dil	Reference	Date/Time
10M92447	RINSE	NA	1	1		01/10/12 08:55
10M92448	RINSE	NA	1	1		01/10/12 09:29
10M92449	RINSE	NA	1	1		01/10/12 10:02
10M92450	WG386582-01 50ng BFB STD 8260	NA	1	1	STD49071	01/10/12 12:09
10M92451	WG386582-02 5ug/L A9 STD 8260	NA	1	1	STD49290	01/10/12 12:37
10M92452	WG386582-03 20ug/L A9 STD 8260	NA	1	1	STD49290	01/10/12 13:10
10M92453	WG386582-04 50ug/L A9 STD 8260	NA	1	1	STD49290	01/10/12 13:44
10M92454	WG386582-05 100ug/L A9 STD 8260	NA	1	1	STD49290	01/10/12 14:19
10M92455	WG386582-06 200ug/L A9 STD 8260	NA	1	1	STD49290	01/10/12 14:54
10M92456	WG386582-07 300ug/L A9 STD 8260	NA	1	1	STD49290	01/10/12 15:29
10M92457	WG386582-08 400ug/L A9 STD 8260	NA	1	1	STD49290	01/10/12 16:05
10M92458	WG386582-09 500ug/L A9 STD 8260	NA	1	1	STD49290	01/10/12 16:42
10M92459	RINSE	NA	1	1		01/10/12 17:18
10M92460	RINSE	NA	1	1		01/10/12 17:55
10M92461	WG386582-10 100ug/L A9 ALT SRC STD	NA	1	1	STD49484	01/10/12 18:30
10M92462	RINSE	NA	1	1		01/10/12 19:06
10M92463	WG386635-01 VBLK0110 BLANK A9/FOO	NA	1	1		01/10/12 19:40
10M92464	WG386635-02 100ug/L P\&A A9/FOO	NA	1	1	STD49484	01/10/12 20:15
10M92465	WG386635-03 100ug/L P\&A A9/FOO	NA	1	1	STD49484	01/10/12 20:49
10M92466	WG386635-04 100ug/L P\&A A9/FOO	NA	1	1	STD49484	01/10/12 21:22
10M92467	WG386635-05 100ug/L P\&A A9/FOO	NA	1	1	STD49484	01/10/12 21:55
10M92468	RINSE	NA	1	1		01/10/12 22:27

Comments

Seq.	Rerun	Dil.	Reason	Analytes
15	X			
File ID: 10M92461				
			Cyclohexanone was low. DNR.	
18	X			
File ID: 10M92464				
			Rerunning all P\&A's. Cyclohexanone was low. DNR.	

Approved: January 13, 2012

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Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPMS10 Dataset: 011112
Analyst1: TMB Analyst2: NA
Method: 8260B/OVAP SOP: MSV01 Rev: 14/0
Method: 624 SOP: MSV10 Rev: 8
Method: 5030B/5030C/5035A SOP: PAT01 Rev: 13
Maintenance Log ID: 40299

Internal Standard: STD49130 Surrogate Standard: STD49250
CCV: STD49482; STD49290 LCS: STD49518; STD49347 MS/MSD: STD49347

Column 1 ID: RTX502.2 Column 2 ID: NA
Workgroups: WG386652

Comments:

File ID	Sample Information	pH	Mat	Dil	Reference	Date/Time
10M92470	WG386650-01 50ng BFB STD 8260	NA	1	1	STD49071	01/11/12 08:36
10M92471	WG386650-02 50ug/L CCV STD 8260	NA	1	1	STD49482	01/11/12 09:01
10M92472	WG386650-02 50ug/L CCV STD 8260	NA	1	1	STD49482	01/11/12 09:33
10M92473	WG386651-01 100ug/L A9 CCV STD 8260	NA	1	1	STD49290	01/11/12 10:06
10M92474	WG386652-01 VBLK0111 BLANK STD 826	NA	1	1		01/11/12 10:39
10M92475	WG386582-10 A9/FOO ALT SRC STD 826	NA	1	1	STD49518	01/11/12 11:11
10M92476	WG386652-02 20ug/L LCS STD 8260	NA	1	1	STD49519	01/11/12 11:44
10M92477	WG386652-03 20ug/L P\&A STD 8260	NA	1	1	STD49519	01/11/12 12:17
10M92478	WG386652-04 20ug/L P\&A STD 8260	NA	1	1	STD49519	01/11/12 12:50
10M92479	WG386652-05 20ug/L P\&A STD 8260	NA	1	1	STD49519	01/11/12 13:23
10M92480	L12010216-02 MS A 826-A9	<2	1	1	STD49347	01/11/12 13:56
10M92481	L12010216-03 MSD A 826-A9	<2	1	1	STD49347	01/11/12 14:29
10M92482	L12010216-05 MS A 826-A9	<2	1	1	STD49347	01/11/12 15:02
10M92483	L12010216-06 MSD A 826-A9	<2	1	1	STD49347	01/11/12 15:36
10M92484	WG386131-01 FBLK 10X 826-TC	NA	17	10		01/11/12 16:09
10M92485	L12010216-12 A 826-A9	<2	1	1		01/11/12 16:43
10M92486	L12010216-01 A 826-A9	<2	1	1		01/11/12 17:18
10M92487	L12010216-04 A 826-A9	<2	1	1		01/11/12 17:53
10M92488	L12010216-07 A 826-A9	<2	1	1		01/11/12 18:28
10M92489	L12010216-08 A 826-A9	<2	1	1		01/11/12 19:03
10M92490	L12010216-09 A 826-A9	<2	1	1		01/11/12 19:39
10M92491	L12010216-10 A 826-A9	<2	1	1		01/11/12 20:15
10M92492	L12010216-11 A 826-A9	<2	1	1		01/11/12 20:50
10M92493	RINSE	NA	1	1		01/11/12 21:25
10M92494	WG386652-12 624 BLANK	NA	1	1		01/11/12 22:01
10M92495	L12010220-04 A 624	7	2	1		01/12/12 08:20
10M92496	RINSE	NA	1	1		01/12/12 08:54

Comments

Seq.	Rerun	Dil.	Reason	Analytes
2	X			
File ID: 10M92471				
Vc was high, DNR.				

Approved: January 13, 2012

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Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPMS10 Dataset: 011112
Analyst1: TMB Analyst2: NA
Method: 8260B/OVAP SOP: MSV01 Rev: 14/0
Method: 624 SOP: MSV10 Rev: 8
Method: 5030B/5030C/5035A SOP: PAT01 Rev: 13
Maintenance Log ID: 40299

Internal Standard: STD49130 Surrogate Standard: STD49250
CCV: STD49482; STD49290 LCS: STD49518; STD49347 MS/MSD: STD49347

Column 1 ID: RTX502.2 Column 2 ID: NA
Workgroups: WG386652

Comments:

Comments

Seq.	Rerun	Dil.	Reason	Analytes
8	X			
File ID: 10M92477				
	Can't run 8260 and A9 together. DNR.			
9	X			
File ID: 10M92478				
	Can't run 8260 and A9 together. DNR.			
10	X			
File ID: 10M92479				
	Can't run 8260 and A9 together. DNR.			
23	X	1	Missed Tune	
File ID: 10M92492				
	DNR.			

Approved: January 13, 2012

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Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPMS10 Dataset: 041712
Analyst1: FJB Analyst2: NA
Method: 8260B/OVAP SOP: MSV01 Rev: 14/0
Method: 624 SOP: MSV10 Rev: 8
Method: 5030B/5030C/5035A SOP: PAT01 Rev: 13
Maintenance Log ID: 41523

Internal Standard: STD50696 Surrogate Standard: STD50852
CCV: STD51137 LCS: STD51098 MS/MSD: NA

Column 1 ID: RTX502.2 Column 2 ID: NA
Workgroups: WG395304

Comments:

File ID	Sample Information	pH	Mat	Dil	Reference	Date/Time
10M94701	WG395304-01 BFB 50ng 8260	NA	1	1	STD50660	04/17/12 15:02
10M94702	WG395304-02 0.3ug/L STD 8260	NA	1	1	STD51137	04/17/12 15:29
10M94703	WG395304-03 0.4ug/L STD 8260	NA	1	1	STD51137	04/17/12 15:59
10M94704	WG395304-04 1ug/L STD 8260	NA	1	1	STD51137	04/17/12 16:29
10M94705	WG395304-02 0.3ug/L STD 8260	NA	1	1	STD51137	04/17/12 17:09
10M94706	WG395304-05 2ug/L STD 8260	NA	1	1	STD51137	04/17/12 17:39
10M94707	WG395304-06 5ug/L STD 8260	NA	1	1	STD51137	04/17/12 18:13
10M94708	WG395304-07 20ug/L STD 8260	NA	1	1	STD51137	04/17/12 18:44
10M94709	WG395304-08 50ug/L STD 8260	NA	1	1	STD51137	04/17/12 19:14
10M94710	WG395304-09 100ug/L STD 8260	NA	1	1	STD51137	04/17/12 19:44
10M94711	WG395304-10 200ug/L STD 8260	NA	1	1	STD51137	04/17/12 20:14
10M94712	WG395304-11 300ug/L STD 8260	NA	1	1	STD51137	04/17/12 20:46
10M94713	RINSE	NA	1	1	STD51137	04/17/12 21:17
10M94714	WG395304-12 50ug/L ALT SRC 8260	NA	1	1	STD51098	04/17/12 21:48
10M94715	RINSE	NA	1	1		04/17/12 22:19

Comments

Seq.	Rerun	Dil.	Reason	Analytes
2	X			
File ID: 10M94702				
	DNR.			

Approved: April 30, 2012

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Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPMS10 Dataset: 042712
Analyst1: TMB Analyst2: NA
Method: 8260B SOP: MSV01 Rev: 14
Method: OVAP SOP: MSV01 Rev: 0
Method: 5030B/5030C/5035A SOP: PAT01 Rev: 13
Maintenance Log ID: 41520

Internal Standard: STD51248 Surrogate Standard: STD50852
CCV: STD51329 LCS: STD51372 MS/MSD: STD51372

Column 1 ID: RTX502.2 Column 2 ID: NA
Workgroups:

Comments:

File ID	Sample Information	pH	Mat	Dil	Reference	Date/Time
10M94966	WG396372-01 50ng BFB STD 8260	NA	1	1	STD51241	04/27/12 09:11
10M94967	WG396372-02 50ug/L CCV STD 8260	NA	1	1	STD51329	04/27/12 09:36
10M94968	WG396000-01 100ug/L A9 CCV STD 8260	NA	1	1	STD51240	04/27/12 10:08
10M94969	WG396374-01 VBLK0427 BLANK STD 826	NA	1	1		04/27/12 10:40
10M94970	L12040788-06 WG396374-02 20ug/L LCS S	NA	12	1	STD51372	04/27/12 11:12
10M94971	L12040675-03 A MS 1000X 826-SPE1	<2	1	1000	STD51372	04/27/12 11:44
10M94972	L12040675-04 A MSD 1000X 826-SPE1	<2	1	1000	STD51372	04/27/12 12:14
10M94973	L12040883-02 A 826-SPE 00	7	1	1		04/27/12 12:46
10M94974	L12040675-11 A 826-SPE1	<2	1	1		04/27/12 13:16
10M94975	L12040874-01 B 826-LOW	7	1	1		04/27/12 13:46
10M94976	L12040788-01 B 2X 826-SPE 00	7	12	2		04/27/12 14:17
10M94977	L12040788-02 B 2X 826-SPE	7	12	2		04/27/12 14:47
10M94978	L12040788-03 B 2.5X 826-SPE	7	12	2.5		04/27/12 15:17
10M94979	L12040852-01 A 10X 826-TC	NA	17	10		04/27/12 15:48
10M94980	L12040853-01 A 10X 826-TC	NA	17	10		04/27/12 16:19
10M94981	L12040675-01 A 826-SPE1	<2	1	1		04/27/12 16:51
10M94982	L12040675-05 A 826-SPE1	<2	1	1		04/27/12 17:22
10M94983	L12040675-06 A 826-SPE1	<2	1	1		04/27/12 17:52
10M94984	L12040675-07 A 826-SPE1	<2	1	1		04/27/12 18:23
10M94985	L12040675-08 A 826-SPE1	<2	1	1		04/27/12 18:53
10M94986	L12040675-09 A 826-SPE1	<2	1	1		04/27/12 19:23
10M94987	L12040675-10 A 826-SPE1	<2	1	1		04/27/12 19:54
10M94988	L12040675-02 A 1000X 826-SPE1	<2	1	1000		04/27/12 20:26
10M94989	L12040722-25 A 826-SPE1	<2	1	1		04/27/12 20:57
10M94990	RINSE W/ MEOH	NA	1	1		04/27/12 21:29
10M94991	RINSE	NA	1	1		04/27/12 22:00
10M94992	L12040468-01 A 826-REF-BLK	<2	1	1		04/27/12 22:32
10M94993	L12040468-02 A 826-REF-BLK	<2	1	1		04/27/12 23:03
10M94994	L12040468-03 A 826-REF-BLK	<2	1	1		04/27/12 23:35
10M94995	L12040468-04 A 826-REF-BLK	<2	1	1		04/28/12 00:06
10M94996	L12040468-05 A 826-REF-BLK	<2	1	1		04/28/12 00:37
10M94997	WG396353-01 FBLK 10X 826-TC	NA	17	10		04/28/12 01:08
10M94998	CCV	NA	1	1		04/28/12 01:40
10M94999	RINSE	NA	1	1		04/28/12 02:11

Approved: April 30, 2012

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Microbac Laboratories Inc.

Instrument Run Log

Instrument:	HPMS10	Dataset:	042712		
Analyst1:	TMB	Analyst2:	NA		
Method:	8260B	SOP:	MSV01	Rev:	14
Method:	OVAP	SOP:	MSV01	Rev:	0
Method:	5030B/5030C/5035A	SOP:	PAT01	Rev:	13
Maintenance Log ID:	41520				

Internal Standard: STD51248 Surrogate Standard: STD50852

CCV: STD51329 LCS: STD51372 MS/MSD: STD51372

Column 1 ID: RTX502.2 Column 2 ID: NA

Workgroups:

Comments:

Comments

Seq.	Rerun	Dil.	Reason	Analytes
3				
File ID: 10M94968				
			Not needed, DNR.	
34	X	1		
File ID: 10M94996				
			M/P was over the RL.	

Approved: April 30, 2012

Microbac Laboratories Inc.

Data Checklist

Date: 11-JAN-2012
Analyst: TMB
Analyst: NA
Method: 8260B/624
Instrument: HPMS10
Curve Workgroup: NA
Runlog ID: 44657
Analytical Workgroups: WG386652

System Performance Check	NA
BFB	X
Initial Calibration	X
Average RF	X
Linear Reg or Higher Order Curve	X
Second Source standard % Difference	X
Continuing Calibration /Check Standards	X
Project/Client Specific Requirements	X
Special Standards	X
Blanks	X
TCL's	X
Surrogates	X
LCS (Laboratory Control Sample)	X
Recoveries	X
Surrogates	X
MS/MSD/Duplicates	X
Samples	X
TCL Hits	X
Spectra of TCL Hits	TMB
Surrogates	X
Internal Standards Criteria	X
Library Searches	NA
Calculations & Correct Factors	X
Dilutions Run	NA
Reruns	X
Manual Integrations	NA
Case Narrative	X
Results Reporting/Data Qualifiers	X
KOBRA Workgroup Data	X
Check for Completeness	X
Primary Reviewer	TMB
Secondary Reviewer	MDA
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Check the reasonableness of the results	X

Primary Reviewer:
12-JAN-2012

Secondary Reviewer:
13-JAN-2012

CHECKLIST1 - Modified 03/05/2008
Generated: JAN-13-2012 09:54:15

Microbac Laboratories Inc.

Data Checklist

Date: 17-APR-2012
Analyst: FJB
Analyst: NA
Method: 8260B/624/OVAP
Instrument: HPMS10
Curve Workgroup: NA
Runlog ID: 46303
Analytical Workgroups: WG395304

System Performance Check	NA
BFB	X
Initial Calibration	X
Average RF	X
Linear Reg or Higher Order Curve	X
Second Source standard % Difference	X
Continuing Calibration /Check Standards	X
Project/Client Specific Requirements	X
Special Standards	X
Blanks	X
TCL's	X
Surrogates	X
LCS (Laboratory Control Sample)	X
Recoveries	X
Surrogates	X
MS/MSD/Duplicates	NA
Samples	X
TCL Hits	X
Spectra of TCL Hits	X
Surrogates	X
Internal Standards Criteria	X
Library Searches	NA
Calculations & Correct Factors	X
Dilutions Run	NA
Reruns	X
Manual Integrations	NA
Case Narrative	X
Results Reporting/Data Qualifiers	X
KOBRA Workgroup Data	X
Check for Completeness	X
Primary Reviewer	TMB
Secondary Reviewer	MDA
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Check the reasonableness of the results	X

Primary Reviewer:
27-APR-2012

Tiffany Bailey

Secondary Reviewer:
30-APR-2012

CHECKLIST1 - Modified 03/05/2008
Generated: APR-30-2012 08:39:55

Microbac Laboratories Inc.

Data Checklist

Date: 27-APR-2012
Analyst: TMB
Analyst: NA
Method: 8260B/OVAP/624
Instrument: HPMS10
Curve Workgroup: NA
Runlog ID: 46439
Analytical Workgroups: WG396374

System Performance Check	NA
BFB	X
Initial Calibration	X
Average RF	X
Linear Reg or Higher Order Curve	X
Second Source standard % Difference	X
Continuing Calibration /Check Standards	X
Project/Client Specific Requirements	X
Special Standards	NA
Blanks	X
TCL's	X
Surrogates	X
LCS (Laboratory Control Sample)	X
Recoveries	X
Surrogates	X
MS/MSD/Duplicates	X
Samples	X
TCL Hits	X
Spectra of TCL Hits	TMB
Surrogates	X
Internal Standards Criteria	X
Library Searches	NA
Calculations & Correct Factors	X
Dilutions Run	X
Reruns	X
Manual Integrations	NA
Case Narrative	X
Results Reporting/Data Qualifiers	X
KOBRA Workgroup Data	X
Check for Completeness	X
Primary Reviewer	TMB
Secondary Reviewer	MDA
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Check the reasonableness of the results	X

Primary Reviewer:
27-APR-2012

Tiffany Bailey

Secondary Reviewer:
30-APR-2012

CHECKLIST1 - Modified 03/05/2008
Generated: APR-30-2012 10:19:54

Microbac Laboratories Inc.

HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: 8260B AAB#: WG396374

Login Number: L12040675

Client ID	ID	Date Collected	TCLP Date	Time Held	Max Hold	Q	Extract Date	Time Held	Max Hold	Q	Run Date	Time Held	Max Hold	Q
MW18GW3035-041812	01	04/18/12							14		04/27/12	9.1	14	
MW16GW1020-041812	02	04/18/12							14		04/27/12	9.2	14	
MW16GW1020-041812-MS	03	04/18/12							14		04/27/12	8.9	14	
MW16GW1020-041812-MSD	04	04/18/12							14		04/27/12	8.9	14	
MW22GW2535-041812	05	04/18/12							14		04/27/12	9.1	14	
MW12GW1424-041812	06	04/18/12							14		04/27/12	9.1	14	
MW19GW1828-041912	07	04/19/12							14		04/27/12	8.3	14	
MW03GW1626-041912	08	04/19/12							14		04/27/12	8.3	14	
MW09GW1424-041912	09	04/19/12							14		04/27/12	8.3	14	
FD01-041912	10	04/19/12							14		04/27/12	8.8	14	
TRIPBLANK-041912	11	04/19/12							14		04/27/12	8.6	14	

* = SEE PROJECT QAPP REQUIREMENTS

HOLD_TIMES - Modified 03/06/2008
PDF File ID: 2398469
Report generated 05/01/2012 13:10

Login Number: L12040675
Instrument Id: HPMS10
Workgroup (AAB#): WG396374

Method: 8260
CAL ID: HPMS10-17-APR-12
Matrix: Water

Sample Number	Dilution	Tag	1	2	3	4
L12040675-01	1.00	01	80.5	90.2	96.5	101
L12040675-02	1000	DL01	82.9	90.7	101	103
L12040675-03	1000	DL01	83.7	92.7	98.8	102
L12040675-04	1000	DL01	82.7	92.7	98.2	102
L12040675-05	1.00	01	81.7	90.6	98.6	102
L12040675-06	1.00	01	80.9	90.4	100	102
L12040675-07	1.00	01	82.2	91.8	102	103
L12040675-08	1.00	01	82.9	91.2	102	102
L12040675-09	1.00	01	81.6	90.3	101	102
L12040675-10	1.00	01	80.4	90.1	101	102
L12040675-11	1.00	01	81.2	90.0	103	103
WG396374-01	1.00	01	83.4	91.6	101	103
WG396374-02	1.00	01	83.9	92.9	99.4	102

Surrogates	Surrogate Limits		
1 - 1,2-Dichloroethane-d4	80	-	120
2 - Dibromofluoromethane	86	-	118
3 - 4-Bromofluorobenzene	86	-	115
4 - Toluene-d8	88	-	110

Underline = Result out of surrogate limits

DL = surrogate diluted out
ND = surrogate not detected

SURROGATES - Modified 03/06/2008
PDF File ID: 2396052
Report generated: 05/01/2012 13:10

Microbac Laboratories Inc.

METHOD BLANK SUMMARY

Login Number: L12040675
Work Group: WG396374
Blank File ID: 10M94969
Blank Sample ID: WG396374-01
Prep Date: 04/27/12 10:40
Instrument ID: HPMS10
Analyzed Date: 04/27/12 10:40
Method: 8260B
Analyst: TMB

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG396374-02	10M94970	04/27/12 11:12	01
MW16GW1020-041812-MS	L12040675-03	10M94971	04/27/12 11:44	DL01
MW16GW1020-041812-MSD	L12040675-04	10M94972	04/27/12 12:14	DL01
TRIPBLANK-041912	L12040675-11	10M94974	04/27/12 13:16	01
MW18GW3035-041812	L12040675-01	10M94981	04/27/12 16:51	01
MW22GW2535-041812	L12040675-05	10M94982	04/27/12 17:22	01
MW12GW1424-041812	L12040675-06	10M94983	04/27/12 17:52	01
MW19GW1828-041912	L12040675-07	10M94984	04/27/12 18:23	01
MW03GW1626-041912	L12040675-08	10M94985	04/27/12 18:53	01
MW09GW1424-041912	L12040675-09	10M94986	04/27/12 19:23	01
FD01-041912	L12040675-10	10M94987	04/27/12 19:54	01
MW16GW1020-041812	L12040675-02	10M94988	04/27/12 20:26	DL01

Report Name: BLANK_SUMMARY
PDF File ID: 2398470
Report generated 05/01/2012 13:10

Microbac Laboratories Inc.

METHOD BLANK REPORT

Login Number: L12040675 Prep Date: 04/27/12 10:40 Sample ID: WG396374-01
Instrument ID: HPMS10 Run Date: 04/27/12 10:40 Prep Method: 5030B/5030C/503
File ID: 10M94969 Analyst: TMB Method: 8260B
Workgroup (AAB#): WG396374 Matrix: Water Units: ug/L
Contract #: Cal ID: HPMS10-17-APR-12

Analytes	MDL	RL	Concentration	Dilution	Qualifier
Bromomethane	0.500	10.0	0.500	1	U
Chloromethane	0.500	10.0	0.500	1	U
Methylene chloride	0.250	5.00	0.250	1	U
Trichloroethene	0.250	5.00	0.250	1	U
Trichlorofluoromethane	0.250	10.0	0.250	1	U

Surrogates	% Recovery	Surrogate Limits	Qualifier
Dibromofluoromethane	91.6	86 - 118	PASS
1,2-Dichloroethane-d4	83.4	80 - 120	PASS
Toluene-d8	103	88 - 110	PASS
4-Bromofluorobenzene	101	86 - 115	PASS

MDL Method Detection Limit
RL Reporting/Practical Quantitation Limit
ND Analyte Not detected at or above reporting limit
* |Analyte concentration| > RL

Report Name:BLANK
PDF ID: 2398471
01-MAY-2012 13:10

Microbac Laboratories Inc.
LABORATORY CONTROL SAMPLE (LCS)

Login Number: L12040675 Run Date: 04/27/2012 Sample ID: WG396374-02
Instrument ID: HPMS10 Run Time: 11:12 Prep Method: 5030B/5030C/503
File ID: 10M94970 Analyst: TMB Method: 8260B
Workgroup (AAB#): WG396374 Matrix: Water Units: ug/L
QC Key: ASHLAND Lot#: STD51372 Cal ID: HPMS10 - 17-APR-12

Analytes	Expected	Found	% Rec	LCS Limits	Q
Bromomethane	20.0	16.2	80.8	30 - 145	
Chloromethane	20.0	22.0	110	40 - 125	
Methylene chloride	20.0	18.5	92.3	80 - 123	
Trichloroethene	20.0	19.2	96.1	80 - 122	
Trichlorofluoromethane	20.0	17.0	85.1	62 - 151	

Surrogates	% Recovery	Surrogate Limits	Qualifier
Dibromofluoromethane	92.9	86 - 118	PASS
1,2-Dichloroethane-d4	83.9	80 - 120	PASS
Toluene-d8	102	88 - 110	PASS
4-Bromofluorobenzene	99.4	86 - 115	PASS

* EXCEEDS %REC LIMIT

LCS - Modified 03/06/2008
PDF File ID: 2396047
Report generated: 05/01/2012 13:10

Microbac Laboratories Inc.

MS/MSD REPORT

Loginnum: L12040675 Cal ID: HPMS10- 17-APR-12 Worknum: WG396374

Instrument ID: HPMS10 Contract #: Prep Method: 5030B/5030C/

Parent ID: L12040675-02 File ID: 10M94988 Dil: 1000 Method: 5035A

Sample ID: L12040675-03 MS File ID: 10M94971 Dil: 1000 Matrix: 8260B

Sample ID: L12040675-04 MSD File ID: 10M94972 Dil: 1000 Units: Water

ug/L

Analyte	Parent	MS Spiked	MS Found	MS %Rec	MSD Spiked	MSD Found	MSD %Rec	%RPD	%Rec Limits	RPD Limit	Q
Bromomethane	U	20000	16500	82.5	20000	16600	83.2	0.867	30 - 145	20	
Chloromethane	U	20000	23200	116	20000	23300	116	0.317	40 - 125	20	
Methylene chloride	U	20000	18800	94	20000	18900	94.5	0.507	80 - 123	20	
Trichloroethene	U	20000	18900	94.5	20000	18900	94.4	0.0258	80 - 122	20	
Trichlorofluoromethane	164000	20000	173000	41	20000	174000	50.8	1.13	62 - 151	20	*

* FAILS %REC LIMIT

FAILS RPD LIMIT

MS_MSD - Modified 03/06/2008

PDF File ID: 2396049

Report generated 05/01/2012 13:10

BFB

Login Number: L12040675
Instrument: HPMS10
Analyst: FJB
Workgroup: WG395304

Tune ID: WG395304-01
Run Date: 04/17/2012
Run Time: 15:02
File ID: 10M94701
Cal ID: HPMS10 - 17-APR-12

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50.0	95.0	15.0	40.0	18.9	3258	PASS
75.0	95.0	30.0	60.0	51.3	8865	PASS
95.0	95.0	100	100	100	17276	PASS
96.0	95.0	5.00	9.00	7.17	1238	PASS
173	174	0	2.00	0	0	PASS
174	95.0	50.0	100	95.7	16527	PASS
175	174	5.00	9.00	7.82	1293	PASS
176	174	95.0	101	97.5	16112	PASS
177	176	5.00	9.00	6.70	1080	PASS

This check relates to the following samples:

Lab ID	Client ID	Tag	Date Analyzed	Q
WG395304-03	STD	01	04/17/2012 15:59	
WG395304-04	STD	01	04/17/2012 16:29	
WG395304-02	STD	01	04/17/2012 17:09	
WG395304-05	STD	01	04/17/2012 17:39	
WG395304-06	STD	01	04/17/2012 18:13	
WG395304-07	STD	01	04/17/2012 18:44	
WG395304-08	STD-CCV	01	04/17/2012 19:14	
WG395304-09	STD	01	04/17/2012 19:44	
WG395304-10	STD	01	04/17/2012 20:14	
WG395304-11	STD	01	04/17/2012 20:46	
WG395304-12	SSCV	01	04/17/2012 21:48	

* Sample past 12 hour tune limit

TUNE - Modified 03/06/2008
PDF File ID: 2398472
Report generated 05/01/2012 13:10

BFB

Login Number: L12040675
Instrument: HPMS10
Analyst: TMB
Workgroup: WG396372

Tune ID: WG396372-01
Run Date: 04/27/2012
Run Time: 09:11
File ID: 10M94966
Cal ID: HPMS10-17-APR-12

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50.0	95.0	15.0	40.0	19.0	4023	PASS
75.0	95.0	30.0	60.0	49.0	10384	PASS
95.0	95.0	100	100	100	21184	PASS
96.0	95.0	5.00	9.00	6.92	1465	PASS
173	174	0	2.00	0	0	PASS
174	95.0	50.0	100	96.2	20386	PASS
175	174	5.00	9.00	8.38	1708	PASS
176	174	95.0	101	96.8	19736	PASS
177	176	5.00	9.00	6.47	1276	PASS

This check relates to the following samples:

Lab ID	Client ID	Tag	Date Analyzed	Q
WG396372-02	CCV	01	04/27/2012 09:36	
WG396374-01	BLANK	01	04/27/2012 10:40	
WG396374-02	LCS	01	04/27/2012 11:12	
L12040675-03	MW16GW1020-041812-MS	DL01	04/27/2012 11:44	
L12040675-04	MW16GW1020-041812-MSD	DL01	04/27/2012 12:14	
L12040675-11	TRIPBLANK-041912	01	04/27/2012 13:16	
L12040675-01	MW18GW3035-041812	01	04/27/2012 16:51	
L12040675-05	MW22GW2535-041812	01	04/27/2012 17:22	
L12040675-06	MW12GW1424-041812	01	04/27/2012 17:52	
L12040675-07	MW19GW1828-041912	01	04/27/2012 18:23	
L12040675-08	MW03GW1626-041912	01	04/27/2012 18:53	
L12040675-09	MW09GW1424-041912	01	04/27/2012 19:23	
L12040675-10	FD01-041912	01	04/27/2012 19:54	
L12040675-02	MW16GW1020-041812	DL01	04/27/2012 20:26	

* Sample past 12 hour tune limit

TUNE - Modified 03/06/2008
PDF File ID: 2398472
Report generated 05/01/2012 13:10

Calibration Table Report
Method: A9FOOWT.M
Title: FOO/APPIX/BUTADIENE WT SOP: OVL MSV01 01/10/12
Last Calibration: Wed Jan 11 08:27:34 2012
Curve: WG386582
Calibration Files

		5	20	50	100	200	300	400	500				
		10M924	10M924	10M924	10M924	10M924	10M924	10M924	10M92458.D				
	Compound									Avg	%RSD	Linear	Quad
I	Fluorobenzene	ISTD											
T	Acetonitrile	0.019	0.021	0.022	0.024	0.025	0.025	0.026	0.026	0.023	10.986		
T	3-Chloro-1-propene	0.369	0.390	0.396	0.412	0.435	0.441	0.454	0.458	0.419	7.756		
T	2-Chloro-1,3-butadiene	0.412	0.410	0.427	0.454	0.477	0.488	0.509	0.511	0.461	8.996		
T	Ethyl Acetate	0.134	0.151	0.164	0.170	0.179	0.184	0.191	0.192	0.171	12.015		
T	Methacrylonitrile	0.063	0.077	0.085	0.089	0.094	0.100	0.105	0.108	0.090	16.558	0.996	
T	Isobutyl Alcohol				0.016	0.017	0.019	0.021	0.022	0.019	12.625		
I	Chlorobenzene-d5	ISTD											
T	1-Butanol		0.004	0.004	0.005	0.006	0.006	0.007	0.007	0.006	24.877	0.991	
T	Methyl methacrylate	0.177	0.216	0.229	0.246	0.265	0.276	0.297	0.304	0.251	17.139	0.995	
T	2-Nitropropane		0.073	0.078	0.084	0.092	0.096	0.103	0.103	0.090	13.001		
I	1,4-Dichlorobenzene-d4	ISTD											
T	Cyclohexanone	0.020	0.027	0.028	0.030	0.029	0.028	0.027	0.026	0.027	11.439		

Thu Jan 12 11:34:55 2012

Calibration Table Report
Method: 8260WTR.M
Title: 8260B/624 WT (SOP: OVL MSV01) 04/17/12 HPMS10
Last Calibration: Wed Apr 18 11:56:56 2012
Curve: WG395304
Calibration Files

		0.3	0.4	1	2	5	20	50	100	200	300				
		10M94705.D	10M94703.D	10M94704.D	10M94706.D	10M94707.D	10M94708.D	10M94709.D	10M94710.D	10M94711.D	10M94712.D				
	Compound											Avg	%RSD	Linear	Quadratic
I	Fluorobenzene	ISTD													
T	Dichlorodifluoromethane			0.208	0.230	0.226	0.309	0.308	0.298	0.307	0.301	0.274	15.957	1.000	
P	Chloromethane		0.415	0.390	0.370	0.410	0.416	0.403	0.381	0.384	0.323	0.388	7.514		
C	Vinyl Chloride		0.362	0.360	0.346	0.326	0.358	0.338	0.307	0.298	0.275	0.330	9.402		
T	1,3-Butadiene					0.327	0.245	0.143	0.123	0.118	0.113	0.178	49.634		0.998
T	Bromomethane			0.236	0.229	0.216	0.173	0.178	0.187	0.207	0.198	0.203	11.371		
T	Chloroethane			0.135	0.160	0.169	0.178	0.179	0.177	0.185	0.188	0.171	9.962		
T	Trichlorofluoromethane		0.336	0.482	0.500	0.508	0.523	0.526	0.528	0.549	0.542	0.499	12.985		
T	Diethyl ether			0.172	0.177	0.179	0.175	0.180	0.186		0.190	0.180	3.475		
T	Isoprene		0.312	0.334	0.355	0.367	0.358	0.364	0.387	0.407		0.360	8.147		
T	Acrolein			0.021	0.019	0.020	0.018	0.019	0.020		0.021	0.020	4.109		
T	1,1,2-Trichloro-1,2,2-Trifluoroethane			0.250	0.255	0.274	0.276	0.280	0.286	0.298	0.289	0.276	5.962		
T	Acetone				0.068	0.056	0.052	0.053	0.054	0.052	0.057	0.056	10.039		
C	1,1-Dichloroethene		0.128	0.215	0.239	0.240	0.244	0.246	0.252	0.267	0.263	0.233	18.077	0.999	
T	Tert-Butyl Alcohol			0.022	0.020	0.019	0.017	0.019	0.019		0.021	0.020	8.531		
T	Dimethyl Sulfide		0.242	0.233	0.265	0.269	0.262	0.270	0.275	0.293		0.264	7.171		
T	Iodomethane				0.096	0.188	0.380	0.430	0.428	0.453		0.329	45.469	0.999	
T	Methyl acetate			0.157	0.134	0.141	0.128	0.134	0.137	0.140		0.139	6.633		
T	Methylene Chloride		0.303	0.271	0.268	0.272	0.268	0.275	0.281	0.295	0.283	0.279	4.417		
T	Carbon Disulfide		0.826	0.719	0.717	0.735	0.714	0.724	0.746	0.800		0.748	5.645		
T	Acrylonitrile			0.048	0.050	0.063	0.062	0.069	0.068	0.070	0.065	0.062	13.521		
T	Methyl Tert Butyl Ether		0.588	0.630	0.650	0.638	0.624	0.652	0.664	0.684		0.641	4.506		
T	trans-1,2-Dichloroethene		0.225	0.270	0.256	0.269	0.273	0.277	0.286	0.302	0.297	0.273	8.410		
T	n-Hexane			0.274	0.292	0.305	0.279	0.280	0.290	0.302		0.289	4.169		
T	Diisopropyl ether			0.785	0.811	0.819	0.813	0.822	0.842		0.839	0.819	2.340		
T	Vinyl Acetate				0.291	0.330	0.334	0.349	0.348	0.333	0.356	0.335	6.427		
P	1,1-Dichloroethane		0.417	0.470	0.483	0.482	0.494	0.501	0.514	0.533	0.531	0.492	7.225		
T	Ethyl-Tert-Butyl ether			0.761	0.789	0.787	0.782	0.810	0.827		0.838	0.799	3.394		
T	2-Butanone				0.072	0.073	0.070	0.076	0.075	0.072	0.080	0.074	4.691		
T	Propionitrile			0.020	0.023	0.022	0.022	0.024	0.023		0.025	0.023	6.674		
T	2,2-Dichloropropane		0.337	0.438	0.438	0.455	0.456	0.461	0.471	0.475	0.470	0.445	9.536		
T	cis-1,2-Dichloroethene		0.253	0.287	0.281	0.295	0.299	0.302	0.312	0.323	0.330	0.298	7.777		
C	Chloroform	0.497	0.457	0.498	0.488	0.508	0.515	0.516	0.523	0.534	0.533	0.507	4.609		
T	1-Bromopropane			0.033	0.054	0.056	0.059	0.058	0.060	0.062	0.063	0.056	17.547	1.000	
T	Bromochloromethane		0.116	0.128	0.141	0.144	0.140	0.145	0.150	0.153	0.165	0.142	9.834		
T	Tetrahydrofuran			0.048	0.048	0.046	0.045	0.048	0.049		0.054	0.048	5.962		
T	Dibromofluoromethane			0.266	0.257	0.292	0.304	0.305	0.309	0.313	0.240	0.286	9.702		
T	1,1,1-Trichloroethane		0.360	0.419	0.442	0.449	0.464	0.479	0.495	0.521	0.500	0.459	10.639		
T	Cyclohexane		0.366	0.356	0.381	0.396	0.377	0.383	0.397	0.423		0.385	5.400		
T	1,1-Dichloropropene		0.290	0.386	0.356	0.376	0.386	0.394	0.401	0.416	0.416	0.380	10.228		
T	Carbon Tetrachloride		0.249	0.386	0.386	0.406	0.423	0.451	0.478	0.476	0.502	0.417	18.106	0.998	
T	Tert-Amyl-Methyl ether			0.674	0.708	0.702	0.704	0.733	0.758		0.799	0.725	5.781		
S	1,2-Dichloroethane-d4			0.289	0.307	0.322	0.320	0.322	0.316	0.313	0.242	0.304	9.006		
T	Heptane											0.000	0.000		
T	1,2-Dichloroethane		0.306	0.372	0.374	0.385	0.387	0.388	0.394	0.397	0.408	0.379	7.799		
T	Benzene		0.989	1.020	1.060	1.072	1.063	1.075	1.092	1.119	1.101	1.066	3.782		
T	Trichloroethene		0.256	0.278	0.295	0.294	0.303	0.311	0.321	0.339	0.348	0.305	9.492		
T	Methylcyclohexane		0.364	0.349	0.366	0.385	0.363	0.369	0.379	0.401		0.372	4.282		
C	1,2-Dichloropropane		0.217	0.248	0.255	0.261	0.265	0.269	0.271	0.279	0.282	0.261	7.504		
T	Bromodichloromethane		0.298	0.337	0.360	0.359	0.381	0.395	0.406	0.421	0.427	0.376	11.163		
T	1,4-Dioxane				0.002	0.002	0.002	0.002	0.002		0.002	0.002	14.104		
T	Dibromomethane		0.112	0.150	0.165	0.166	0.166	0.171	0.174	0.176	0.185	0.163	13.112		
T	2-Chloroethyl Vinyl Ether				0.101	0.112	0.122	0.133	0.136	0.140	0.152	0.128	13.692		
T	4-Methyl-2-Pentanone				0.061	0.061	0.062	0.070	0.069	0.068	0.077	0.067	9.115		
T	cis-1,3-Dichloropropene		0.352	0.360	0.378	0.395	0.413	0.429	0.438	0.456	0.464	0.409	9.957		

T	Dimethyl Disulfide					0.176	0.211	0.235	0.254	0.279		0.231	17.181	0.996	
I	Chlorobenzene-d5	ISTD													
S	Toluene-d8			1.080	1.092	1.144	1.176	1.139	1.134	1.173	0.887	1.103	8.503		
C	Toluene		1.189	1.344	1.270	1.328	1.344	1.359	1.380	1.409	1.365	1.332	4.927		
T	Ethyl Methacrylate			0.238	0.274	0.298	0.317	0.341	0.347	0.355		0.310	13.818		
T	Paraldehyde				0.003	0.004	0.005	0.005	0.006		0.006	0.005	23.366	0.996	
T	trans-1,3-Dichloropropene		0.365	0.399	0.419	0.432	0.454	0.472	0.481	0.495	0.507	0.447	10.523		
T	1,1,2-Trichloroethane		0.190	0.237	0.237	0.238	0.247	0.249	0.252	0.257	0.270	0.242	9.141		
T	2-Hexanone			0.103	0.120	0.122	0.126	0.139	0.132	0.128	0.143	0.127	9.750		
T	1,3-Dichloropropane		0.382	0.442	0.419	0.435	0.428	0.428	0.427	0.433	0.451	0.427	4.550		
T	Tetrachloroethene		0.208	0.294	0.262	0.294	0.295	0.293	0.303	0.327	0.334	0.290	12.826		
T	Dibromochloromethane		0.214	0.258	0.268	0.277	0.303	0.323	0.339	0.354	0.372	0.301	16.974		1.000
T	1,2-Dibromoethane		0.228	0.239	0.242	0.257	0.263	0.268	0.269	0.273	0.287	0.258	7.225		
T	1-Chlorohexane		0.435	0.403	0.400	0.442	0.431	0.434	0.448	0.487		0.435	6.206		
P	Chlorobenzene		0.842	0.875	0.872	0.906	0.917	0.947	1.001	1.082	1.076	0.946	9.299		
T	1,1,1,2-Tetrachloroethane		0.297	0.316	0.306	0.328	0.351	0.379	0.410			0.341	12.126		
C	Ethylbenzene		0.393	0.462	0.432	0.473	0.490	0.521	0.562	0.627		0.495	14.993		
T	m-,p-Xylene		0.509	0.525	0.532	0.562	0.593	0.630	0.667	0.712	0.679	0.601	12.369		
T	o-Xylene		0.459	0.520	0.521	0.557	0.579	0.599	0.626	0.691	0.701	0.584	13.728		
T	Styrene		0.712	0.786	0.802	0.888	0.969	1.043	1.109	1.172	1.150	0.959	17.760		1.000
P	Bromoform			0.144	0.152	0.163	0.193	0.220	0.231	0.235	0.251	0.199	20.895	0.997	
T	Isopropylbenzene		1.178	1.311	1.275	1.398	1.428	1.490	1.535	1.599	1.507	1.414	9.665		
I	1,4-Dichlorobenzene-d4	ISTD													
P	1,1,2,2-Tetrachloroethane		0.417	0.466	0.498	0.531	0.507	0.514	0.535	0.485	0.534	0.499	7.719		
S	p-Bromofluorobenzene			0.773	0.768	0.825	0.807	0.786	0.823	0.815	0.630	0.778	8.203		
T	1,2,3-Trichloropropane			0.127	0.164	0.163	0.158	0.163	0.168	0.156	0.172	0.159	8.610		
T	trans-1,4-Dichloro-2-Butene			0.105	0.121	0.136	0.157	0.165	0.174	0.171		0.147	18.169	0.999	
T	n-Propylbenzene		2.622	2.922	2.747	3.015	2.983	3.026	3.230	3.117	2.892	2.950	6.238		
T	Bromobenzene	0.732	0.792	0.734	0.733	0.754	0.748	0.758	0.824	0.830	0.864	0.777	6.119		
T	1,3,5-Trimethylbenzene		1.832	2.051	2.002	2.143	2.169	2.226	2.387	2.383	2.322	2.168	8.574		
T	2-Chlorotoluene		1.722	1.929	1.830	1.871	1.836	1.859	1.960	1.938	2.212	1.906	7.083		
T	4-Chlorotoluene		1.884	1.740	1.754	1.914	1.939	1.939	2.112	2.059	1.706	1.894	7.411		
T	a-Methylstyrene				0.999	1.113	1.221	1.289	1.396	1.479		1.249	14.216		
T	tert-Butylbenzene		0.374	0.437	0.435	0.479	0.473	0.495	0.541	0.562	0.566	0.485	13.284		
T	1,2,4-Trimethylbenzene		1.971	2.086	2.080	2.210	2.270	2.362	2.518	2.481	2.394	2.263	8.444		
T	sec-Butylbenzene		2.060	2.504	2.347	2.555	2.587	2.638	2.772	2.744	2.600	2.534	8.608		
T	p-Isopropyltoluene		1.864	2.029	1.940	2.144	2.192	2.272	2.410	2.425	2.331	2.179	9.263		
T	1,3-Dichlorobenzene		1.307	1.394	1.275	1.335	1.356	1.383	1.462	1.468	1.485	1.385	5.373		
T	1,4-Dichlorobenzene	1.630	1.358	1.387	1.266	1.366	1.361	1.389	1.466	1.466	1.496	1.419	7.062		
T	n-Butylbenzene		1.631	1.788	1.667	1.858	1.895	1.953	2.018	2.007	1.938	1.862	7.534		
T	1,2-Dichlorobenzene	1.197	1.261	1.231	1.251	1.263	1.259	1.280	1.334	1.327	1.388	1.279	4.359		
T	1,2-Dibromo-3-Chloropropane				0.078	0.090	0.100	0.110	0.118	0.113		0.102	15.007	0.999	
T	1,2,4-Trichlorobenzene		0.924	0.807	0.771	0.825	0.825	0.859	0.913	0.964	1.043	0.881	9.860		
T	Hexachlorobutadiene		0.333	0.354	0.300	0.337	0.329	0.325	0.337	0.350	0.353	0.335	5.013		
T	Naphthalene		1.545	1.349	1.367	1.444	1.504	1.609	1.694	1.658	1.806	1.553	9.894		
T	1,2,3-Trichlorobenzene	0.857	0.784	0.746	0.658	0.684	0.707	0.740	0.777	0.808	0.875	0.764	9.263		

Wed Apr 18 12:11:13 2012

Microbac Laboratories Inc.
ALTERNATE SOURCE CALIBRATION REPORT

Login Number: L12040675 Run Date: 04/17/2012 Sample ID: WG395304-12
Instrument ID: HPMS10 Run Time: 21:48 Method: 8260B
File ID: 10M94714 Analyst: FJB QC Key: ASHLAND
ICal Workgroup: WG395304 Cal ID: HPMS10 - 17-APR-12

Analyte		Expected	Found	Units	RF	%D	UCL	Q
Chloromethane	SPCC	50.0	57.8	ug/L	0.448	15.6	25	
Chlorobenzene	SPCC	50.0	52.1	ug/L	0.985	4.10	25	
1,1,2,2-Tetrachloroethane	SPCC	50.0	52.1	ug/L	0.520	4.20	25	
1,1-Dichloroethane	SPCC	50.0	53.2	ug/L	0.523	6.40	25	
Bromoform	SPCC	50.0	48.8	ug/L	0.231	2.50	25	
Bromomethane		50.0	51.0	ug/L	0.207	2.10	25	
Methylene Chloride		50.0	52.1	ug/L	0.292	4.30	25	
Trichloroethene		50.0	55.9	ug/L	0.341	11.7	25	
Trichlorofluoromethane		50.0	57.0	ug/L	0.570	14.1	25	

* Exceeds %D Limit

CCC Calibration Check Compounds
SPCC System Performance Check Compounds

ALT - Modified 09/06/2007
Version 1.5 PDF File ID: 2396050
Report generated 05/01/2012 13:10

Microbac Laboratories Inc.

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L12040675 Run Date: 04/27/2012 Sample ID: WG396372-02

Instrument ID: HPMS10 Run Time: 09:36 Method: 8260B

File ID: 10M94967 Analyst: TMB QC Key: ASHLAND

Workgroup (AAB#): WG396374 Cal ID: HPMS10 - 17-APR-12

Matrix: WATER

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
1,1-Dichloroethene	CCC	50.0	45.5	ug/L	0.236	9.04	20	
1,2-Dichloropropane	CCC	50.0	46.5	ug/L	0.243	7.03	20	
Chloroform	CCC	50.0	45.5	ug/L	0.461	9.04	20	
Ethylbenzene	CCC	50.0	51.7	ug/L	0.512	3.38	20	
Toluene	CCC	50.0	51.3	ug/L	1.37	2.64	20	
Vinyl Chloride	CCC	50.0	51.4	ug/L	0.339	2.75	20	
Chloromethane	SPCC	50.0	50.3	ug/L	0.390	0.520	20	
1,1,2,2-Tetrachloroethane	SPCC	50.0	54.2	ug/L	0.541	8.50	20	
1,1-Dichloroethane	SPCC	50.0	46.1	ug/L	0.453	7.79	20	
Bromoform	SPCC	50.0	48.3	ug/L	0.228	3.46	20	
Chlorobenzene	SPCC	50.0	50.4	ug/L	0.954	0.783	20	
Bromomethane		50.0	42.7	ug/L	0.173	14.7	20	
Methylene Chloride		50.0	46.8	ug/L	0.262	6.40	20	
Trichloroethene		50.0	47.9	ug/L	0.292	4.21	20	
Trichlorofluoromethane		50.0	45.6	ug/L	0.456	8.78	20	

* Exceeds %D Criteria

CCC Calibration Check Compounds
SPCC System Performance Check Compounds

CCV - Modified 03/05/2008
PDF File ID: 2396051
Report generated 05/01/2012 13:10

Microbac Laboratories Inc.

INTERNAL STANDARD AREA SUMMARY
(COMPARED TO MIDPOINT OF ICAL)

Login Number:L12040675
Instrument ID:HPMS10
Workgroup (AAB#):WG396374

ICAL CCV Number:WG395304-08
CAL ID: HPMS10 - 17-APR-12
Matrix:WATER

Sample Number	Dilution	Tag	IS-1	IS-2	IS-3
WG395304-08	NA	NA	277004	492469	573337
Upper Limit	NA	NA	554008	984938	1146674
Lower Limit	NA	NA	138502	246235	286669
L12040675-01	1.00	01	256781	479708	629733
L12040675-02	1000	DL01	227323	441097	572979
L12040675-03	1000	DL01	270844	490889	623598
L12040675-04	1000	DL01	272164	493948	627803
L12040675-05	1.00	01	249934	481682	625307
L12040675-06	1.00	01	244104	472863	617935
L12040675-07	1.00	01	236610	461741	601589
L12040675-08	1.00	01	232549	458547	588922
L12040675-09	1.00	01	233941	457608	592466
L12040675-10	1.00	01	229366	451662	583293
L12040675-11	1.00	01	241690	472768	610760
WG396374-01	1.00	01	250853	485649	627487
WG396374-02	1.00	01	283739	520681	661630

IS-1 - 1,4-Dichlorobenzene-d4
IS-2 - Chlorobenzene-d5
IS-3 - Fluorobenzene

Underline = Response outside limits

INTERNAL_STD_ICAL - Modified 03/06/2008
PDF File ID: 2398473
Report generated 05/01/2012 13:10

Microbac Laboratories Inc.

INTERNAL STANDARD RETENTION TIME SUMMARY
(COMPARED TO MIDPOINT OF ICAL)

Login Number: L12040675
Instrument ID: HPMS10
Workgroup (AAB#): WG396374

ICAL CCV Number: WG395304-08
CAL ID: HPMS10-17-APR-12
Matrix: WATER

Sample Number	Dilution	Tag	IS-1	IS-2	IS-3
WG395304-08	NA	NA	16.58	13.78	10.16
Upper Limit	NA	NA	17.08	14.28	10.66
Lower Limit	NA	NA	16.08	13.28	9.66
L12040675-01	1.00	01	16.58	13.78	10.16
L12040675-02	1000	DL01	16.58	13.78	10.16
L12040675-03	1000	DL01	16.58	13.78	10.16
L12040675-04	1000	DL01	16.58	13.78	10.16
L12040675-05	1.00	01	16.58	13.78	10.16
L12040675-06	1.00	01	16.58	13.78	10.16
L12040675-07	1.00	01	16.58	13.78	10.15
L12040675-08	1.00	01	16.58	13.78	10.15
L12040675-09	1.00	01	16.58	13.78	10.16
L12040675-10	1.00	01	16.58	13.78	10.16
L12040675-11	1.00	01	16.58	13.78	10.16
WG396374-01	1.00	01	16.58	13.78	10.16
WG396374-02	1.00	01	16.58	13.78	10.16

IS-1 - 1,4-Dichlorobenzene-d4
IS-2 - Chlorobenzene-d5
IS-3 - Fluorobenzene

Underline = Response outside limits

INTERNAL_STD_RT_ICAL - Modified 03/06/2008
PDF File ID: 2398474
Report generated: 05/01/2012 13:10

3.0 Attachments

Microbac Laboratories Inc.
Ohio Valley Division Analyst List
May 1, 2012

ADC – ANTHONY D. CANTER	AJF – AMANDA J. FICKIESEN	ALB – ANNIE L. BROWN
ALV – AMY L. VALENTINE	AML – TONY M. LONG	AZH – AFTER HOURS
BLG – BRENDA L. GREENWALT	BRG – BRENDA R. GREGORY	CAA – CASSIE A. AUGENSTEIN
CAF – CHERYL A. FLOWERS	CEB – CHAD E. BARNES	CLC – CHRYS L. CRAWFORD
CLS – CARA L. STRICKLER	CLW – CHARISSA L. WINTERS	CPD – CHAD P. DAVIS
CS – CODY M. STRAHLER	CSH – CHRIS S. HILL	DDE – DEBRA D. ELLIOTT
DEV – DAVID E. VANDENBERG	DGB – DOUGLAS G. BUTCHER	DIH – DEANNA I. HESSON
DLB – DAVID L. BUMGARNER	DLP – DOROTHY L. PAYNE	DLR – DIANNA L. RAUCH
DSM – DAVID S. MOSSOR	ECL – ERIC C. LAWSON	EDL – ERIN D. LONG
ERP – ERIN R. PORTER	FJB – FRANCES J. BOLDEN	HAV – HEMA VILASAGAR
HJR – HOLLY J. REED	JAL – JOHN A. LENT	JBK – JEREMY B. KINNEY
JDH – JUSTIN D. HESSON	JKS – JANE K. SCHAAD	JLL – JOHN L. LENT
JWR – JOHN W. RICHARDS	JWS – JACK W. SHEAVES	JYH – JI Y. HU
KEB – KATIE E. BARNES	KHR – KIM H. RHODES	KRA – KATHY R. ALBERTSON
LKN – LINDA K. NEDEFF	LSB – LESLIE S. BUCINA	MDA – MIKE D. ALBERTSON
MDC – MIKE D. COCHRAN	MES – MARY E. SCHILLING	MMB – MAREN M. BEERY
MRT – MICHELLE R. TAYLOR	MSW – MATT S. WILSON	PDM – PIERCE D. MORRIS
PWD – PAUL W. DENT	QX – QIN XU	RAH – ROY A. HALSTEAD
REK – BOB E. KYER	RLB – BOB BUCHANAN	RLK – ROBIN L. KLINGER
RS – ROSEMARY SCOTT	RWC – RODNEY W. CAMPBELL	SJP – SUZANNE J. PAUGH
SLM – STEPHANIE L. MOSSBURG	SLP – SHERI L. PFALZGRAF	TIP – TAE I. PARRISH
TMB – TIFFANY M. BAILEY	TMM – TAMMY M. MORRIS	VC – VICKI COLLIER
WJB – WILL J. BEASLEY	WTD – WADE T. DELONG	XXX – UNAVAILABLE OR SUBCONTRACT

Microbac Laboratories Inc.
List of Valid Qualifiers
May 01, 2012

Qualkey: CLP

Qualifier	Description
*	Surrogate or spike compound out of range
+	Correlation coefficient for the MSA is less than 0.995
<	Result is less than the associated numerical value.
>	Result is greater than the associated numerical value.
A	See the report narrative
B	Analyte present in method blank
B1	Target analyte detected in method blank at or above the method reporting limit
B3	Target analyte detected in calibration blank at or above the method reporting limit
B4	The BOD unseeded dilution water blank exceeded 0.2 mg/L
C	Confirmed by GC/MS
CG	Confluent growth
DL	Surrogate or spike compound was diluted out
E	Semiquantitative result (out of instrument calibration range)
EDL	Elevated sample reporting limits, presence of non-target analytes
EMPC	Estimated Maximum Possible Concentration
F, S	Estimated result below quantitation limit; method of standard additions(MSA)
FL	Free Liquid
H1	Sample analysis performed past holding time.
I	Semiquantitative result (out of instrument calibration range)
J	Estimated concentration.
J	The analyte was positively identified, but the quantitation was below the RL.
J,B	Analyte detected in both the method blank and sample above the MDL.
J,P	Estimate; columns don't agree to within 40%
J,S	Estimated concentration; analyzed by method of standard addition (MSA)
L	Sample reporting limits elevated due to matrix interference
L1	The associated blank spike (LCS) recovery was above the laboratory acceptance limits.
L2	The associated blank spike (LCS) recovery was below the laboratory acceptance limits.
M	Matrix effect; the concentration is an estimate due to matrix effect.
N	Tentatively identified compound(TIC)
NA	Not applicable
ND	Not detected at or above the reporting limit (RL).
ND, L	Not detected; sample reporting limit (RL) elevated due to interference
ND, S	Not detected; analyzed by method of standard addition (MSA)
NF	Not found by library search
NFL	No free liquid
NI	Non-ignitable
NR	Analyte is not required to be analyzed
NS	Not spiked
P	Concentrations >40% difference between the two GC columns
Q	One or more quality control criteria failed. See narrative.
QNS	Quantity of sample not sufficient to perform analysis
RA	Reanalysis confirms reported results
RE	Reanalysis confirms sample matrix interference
S	Analyzed by method of standard addition (MSA)
SMI	Sample matrix interference on surrogate
SP	Reported results are for spike compounds only
TIC	Library Search Compound
TNTC	Too numerous to count
U	Not detected at or above the reporting limit (RL).
UJ	Undetected; the MDL and RL are estimated due to quality control discrepancies.
UJ	Undetected; the analyte was analyzed for, but not detected.
UQ	Undetected; the analyte was analyzed for, but not detected.
W	Post-digestion spike for furnace AA out of control limits
X	Exceeds regulatory limit
X, S	Exceeds regulatory limit; method of standard additions (MSA)
Z	Cannot be resolved from isomer - see below

COC No. A 29794

B19705

158 Starlite Drive
Marietta, OH 45750

Microbac

CHAIN-OF-CUSTODY RECORD

Phone: 740-373-4071
Fax: 740-373-4835

Company Name: CH2MHILL

Project Contact: Bernice Kidd | Contact Phone #: 530-229-3203

Turn Around Requirements: STL | Location: Ashland, OH

Project ID: Dow Ashland PN# 436912

Sampler (print): P. Tecle | Signature: [signature]

Program: ☐ CWA ☐ RCRA ☐ DOD ☐ AFCEE ☐ Other

Sample I.D. No.	Comp	Grab	Date	Time	Matrix*	NUMBER OF CONTAINERS	Hold	VOCs (SW 8260B)	Per plan/Contract	Bromomethane, Chloromethane	Methylene Chloride,	TCE, Freon-11	TOTAL # (LAB USE)	ADDITIONAL REQUIREMENTS
MW18GW3035-041812		X	04/18/12	1320	W	3		X						
MW16GW1020-041812		X	04/18/12	1430	W	3		X						
MW16GW1020-041812-MS		X	04/18/12	1430	W	3		X						
MW16GW1020-041812-MSD		X	04/18/12	1430	W	3		X						
MW22GW2535-041812		X	04/18/12	1530	W	3		X						
MW12GW1424-041812		X	04/18/12	1630	W	3		X						
MW19GW1828-041912		X	04/19/12	1030	W	3		X						
MW03GW1626-041912		X	04/19/12	1130	W	3		X						
MW09GW1424-041912		X	04/19/12	1215	W	3		X						
FD01-041912		X	04/19/12	—	W	3		X						
TRIPBLANK-041912		X	04/19/12	—	W	2		X						

Microbac OVD
Received: 04/19/2012 15:46
By: ROSEMARY SCOTT
221000024300

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Relinquished by: (Signature)	Date	Time	Received by: (Signature)
[signature]	04/19/11	1300	[signature]	[signature]	4/19/12	1542	
Relinquished by: (Signature)	Date	Time	Received for Laboratory by: (Signature)	Date	Time	Remarks:	
			Jane K. Schaad	04/19/11	1542		

*Water (W), Soil (S), Solid Waste (SD), Unknown (X)

Page _____ of _____

Microbac Laboratories Inc.

Internal Chain of Custody Report

Login: L12040675
Account: 2736
Project: 2736.059
Samples: 11
Due Date: 03-MAY-2012

Samplenum	Container ID	Products
L12040675-01	961870	826-SPE1

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	20-APR-2012 08:51	RLK		<2
2	ANALYZ	V1	ORG4	20-APR-2012 14:03	FJB	JKS	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	20-APR-2012 08:51	RLK		<2
2	ANALYZ	V1	ORG4	20-APR-2012 14:03	FJB	JKS	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	20-APR-2012 08:51	RLK		<2
2	ANALYZ	V1	ORG4	20-APR-2012 14:03	FJB	JKS	

Samplenum	Container ID	Products
L12040675-02	961871	826-SPE1

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	20-APR-2012 08:51	RLK		<2
2	ANALYZ	V1	ORG4	20-APR-2012 14:03	FJB	JKS	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER		20-APR-2012 08:51	RLK		<2

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	20-APR-2012 08:51	RLK		<2
2	ANALYZ	V1	ORG4	20-APR-2012 14:03	FJB	JKS	

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

Internal Chain of Custody Report

Login: L12040675
Account: 2736
Project: 2736.059
Samples: 11
Due Date: 03-MAY-2012

Samplenum	Container ID	Products
L12040675-03	961872	826-SPE1

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	20-APR-2012 08:51	RLK		<2
2	ANALYZ	V1	ORG4	20-APR-2012 14:03	FJB	JKS	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	20-APR-2012 08:51	RLK		<2
2	ANALYZ	V1	ORG4	20-APR-2012 14:03	FJB	JKS	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	20-APR-2012 08:51	RLK		<2
2	ANALYZ	V1	ORG4	20-APR-2012 14:03	FJB	JKS	

Samplenum	Container ID	Products
L12040675-04	961873	826-SPE1

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	20-APR-2012 08:51	RLK		<2
2	ANALYZ	V1	ORG4	20-APR-2012 14:03	FJB	JKS	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	20-APR-2012 08:51	RLK		<2
2	ANALYZ	V1	ORG4	20-APR-2012 14:03	FJB	JKS	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	20-APR-2012 08:51	RLK		<2
2	ANALYZ	V1	ORG4	20-APR-2012 14:03	FJB	JKS	

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

Internal Chain of Custody Report

Login: L12040675
Account: 2736
Project: 2736.059
Samples: 11
Due Date: 03-MAY-2012

Samplenum	Container ID	Products
L12040675-05	961874	826-SPE1

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	20-APR-2012 08:51	RLK		<2
2	ANALYZ	V1	ORG4	20-APR-2012 14:03	FJB	JKS	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	20-APR-2012 08:51	RLK		<2
2	ANALYZ	V1	ORG4	20-APR-2012 14:03	FJB	JKS	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	20-APR-2012 08:51	RLK		<2
2	ANALYZ	V1	ORG4	20-APR-2012 14:03	FJB	JKS	

Samplenum	Container ID	Products
L12040675-06	961875	826-SPE1

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	20-APR-2012 08:51	RLK		<2
2	ANALYZ	V1	ORG4	20-APR-2012 14:03	FJB	JKS	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	20-APR-2012 08:51	RLK		<2
2	ANALYZ	V1	ORG4	20-APR-2012 14:03	FJB	JKS	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	20-APR-2012 08:51	RLK		<2
2	ANALYZ	V1	ORG4	20-APR-2012 14:03	FJB	JKS	

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

Internal Chain of Custody Report

Login: L12040675
Account: 2736
Project: 2736.059
Samples: 11
Due Date: 03-MAY-2012

Samplenum	Container ID	Products
L12040675-07	961876	826-SPE1

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	20-APR-2012 08:51	RLK		<2
2	ANALYZ	V1	ORG4	20-APR-2012 14:03	FJB	JKS	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	20-APR-2012 08:51	RLK		<2
2	ANALYZ	V1	ORG4	20-APR-2012 14:03	FJB	JKS	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	20-APR-2012 08:51	RLK		<2
2	ANALYZ	V1	ORG4	20-APR-2012 14:03	FJB	JKS	

Samplenum	Container ID	Products
L12040675-08	961877	826-SPE1

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	20-APR-2012 08:51	RLK		<2
2	ANALYZ	V1	ORG4	20-APR-2012 14:04	FJB	JKS	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	20-APR-2012 08:51	RLK		<2
2	ANALYZ	V1	ORG4	20-APR-2012 14:04	FJB	JKS	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	20-APR-2012 08:51	RLK		<2
2	ANALYZ	V1	ORG4	20-APR-2012 14:04	FJB	JKS	

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

Internal Chain of Custody Report

Login: L12040675
Account: 2736
Project: 2736.059
Samples: 11
Due Date: 03-MAY-2012

Samplenum	Container ID	Products
L12040675-09	961878	826-SPE1

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	20-APR-2012 08:51	RLK		<2
2	ANALYZ	V1	ORG4	20-APR-2012 14:04	FJB	JKS	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	20-APR-2012 08:51	RLK		<2
2	ANALYZ	V1	ORG4	20-APR-2012 14:04	FJB	JKS	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	20-APR-2012 08:51	RLK		<2
2	ANALYZ	V1	ORG4	20-APR-2012 14:04	FJB	JKS	

Samplenum	Container ID	Products
L12040675-10	961879	826-SPE1

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	20-APR-2012 08:51	RLK		<2
2	ANALYZ	V1	ORG4	20-APR-2012 14:04	FJB	JKS	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	20-APR-2012 08:51	RLK		<2
2	ANALYZ	V1	ORG4	20-APR-2012 14:04	FJB	JKS	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	20-APR-2012 08:51	RLK		<2
2	ANALYZ	V1	ORG4	20-APR-2012 14:04	FJB	JKS	

Samplenum	Container ID	Products
L12040675-11	961880	826-SPE1

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	20-APR-2012 08:51	RLK		<2
2	ANALYZ	V1	ORG4	20-APR-2012 14:04	FJB	JKS	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER		20-APR-2012 08:51	RLK		<2

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

Microbac

Laboratory Report Number: L12110037

Shane Lowe
CH2MHILL, Inc
CH2MHill
St. Louis, MO 63102

Please find enclosed the analytical results for the samples you submitted to Microbac Laboratories. Review and compilation of your report was completed by Microbac's Ohio Valley Division (OVD). If you have any questions, comments, or require further assistance regarding this report, please contact your service representative listed below.

Laboratory Contact:
Kathy Albertson – Team Chemist/Data Specialist
(740) 373-4071
Kathy.Albertson@microbac.com

I certify that all test results meet all of the requirements of the accrediting authority listed below. All results for soil samples are reported on a 'dry-weight' basis unless specified otherwise. Analytical results for water and wastes are reported on a 'as received' basis unless specified otherwise. A statement of uncertainty for each analysis is available upon request. This laboratory report shall not be reproduced, except in full, without the written approval of Microbac Laboratories. The reported results are related only to the samples analyzed as received.

This report was certified on November 09 2012

David E. Vandenberg

David Vandenberg – Managing Director

State of Origin: OH
Accrediting Authority: N/A ID:N/A
QAPP: ASHLAND

Record of Sample Receipt and Inspection

Comments/Discrepancies

This is the record of the shipment conditions and the inspection records for the samples received and reported as a sample delivery group (SDG). All of the samples were inspected and observed to conform to our receipt policies, except as noted below.

There were no discrepancies.

Discrepancy	Resolution

Coolers

Cooler #	Temperature Gun	Temperature	COC #	Airbill #
0015214	H	0.0		

Inspection Checklist

#	Question	Result
1	Were shipping coolers sealed?	NA
2	Were custody seals intact?	NA
3	Were cooler temperatures in range of 0-6?	Yes
4	Was ice present?	Yes
5	Were COC's received/information complete/signed and dated?	Yes
6	Were sample containers intact and match COC?	Yes
7	Were sample labels intact and match COC?	Yes
8	Were the correct containers and volumes received?	Yes
9	Were samples received within EPA hold times?	Yes
10	Were correct preservatives used? (water only)	Yes
11	Were pH ranges acceptable? (voa's excluded)	NA
12	Were VOA samples free of headspace (less than 6mm)?	Yes

Samples Received

Client ID	Laboratory ID	Date Collected	Date Received
MW18GW3035-103112	L12110037-01	10/31/2012 13:05	11/02/2012 08:23
MW16GW1020-103112	L12110037-02	10/31/2012 13:45	11/02/2012 08:23
MW16GW1020-103112MS	L12110037-03	10/31/2012 13:45	11/02/2012 08:23
MW16GW1020-103112MSD	L12110037-04	10/31/2012 13:45	11/02/2012 08:23
MW22GW2535-103112	L12110037-05	10/31/2012 14:30	11/02/2012 08:23
MW12GW1424-103112	L12110037-06	10/31/2012 15:10	11/02/2012 08:23
TRIP BLK-103112	L12110037-07	10/31/2012 00:01	11/02/2012 08:23
MW19GW1828-110112	L12110037-08	11/01/2012 10:20	11/02/2012 08:23
MW03GW1626-110112	L12110037-09	11/01/2012 11:10	11/02/2012 08:23
MW09GW1424-110112	L12110037-10	11/01/2012 11:55	11/02/2012 08:23
FD01-110112	L12110037-11	11/01/2012 00:01	11/02/2012 08:23

Login Number: L12110037
Department: Volatiles
Analyst: Anthony Canter

METHOD

Preparation SW-846 5030C/5035A

Analysis SW-846 8260B

HOLDING TIMES

Sample Preparation: All holding times were met.

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

CALIBRATION

Initial Calibration: For all compounds that yielded a %RSD greater than 15%, linear or higher order equations were applied. All acceptance criteria were met.

Alternate Source Standards: All acceptance criteria were met.

Continuing Calibration and Tune: Recoveries out of range were observed for the following analytes: Bromoform, Chloromethane. Please see the applicable QC report for a detailed presentation of the failures.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Matrix Spikes: Recoveries out of range were observed for the following analytes: Trichlorofluoromethane. Please see the applicable QC report for a detailed presentation of the failures.

SAMPLES

Internal Standards: All acceptance criteria were met.

Surrogates: All acceptance criteria were met.

Other: Samples 02, 03, 04, were run at a dilution.

Manual Integration Reason Codes

Reason #1: Data System Fails to Select Correct Peak. In some cases the chromatography system selects and integrates the 'wrong peak'. In this case the analyst must correct the selection and force the system to integrate the proper peak. Other times the system may miss the peak completely.

Reason #2: Data System Splits the Peak Incorrectly or Integrates a False Peak as a Rider Peak. This phenomena is common at low concentrations where the signal:noise ratio is low. A single compound (peak) is incorrectly split into multiple peaks or integrated as a main peak with one or more rider peaks resulting in low area counts for the target compound.

Reason #3: Improperly Integrated Isomers and/or coeluting compounds. This system often fails to distinguish coeluting compounds and or isomers. The integration areas and concentrations are wrong, and they must be corrected by manual integration. Prime examples are benzo(k)fluoranthene and benzo(b)fluoranthene which are often unresolved and integrated improperly when both are present at low concentrations in standards or samples.

Reason #4: System Establishes Incorrect Baseline. There are numerous situations in chromatography where the system establishes the baseline incorrectly. Some baseline errors will be obvious to the analyst and should be corrected via manual procedures.

Reason #5: Miscellaneous. Other situations involving integration errors may require in-depth review and technical judgment. These cases should be brought to the attention of the laboratory management. If the form of manual integration is not clearly covered by these four cases, then review and approval by the Managing Director or the QAO will be required.

I certify that this data package is in compliance with the terms and conditions agreed to by the client and Microbac Laboratories Inc., both technically and for completeness, except for the conditions noted above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or designated person, as verified by the following signature.

Narrative ID: 55758
Approved By: Michael Albertson

Certificate of Analysis

Sample #: L12110037-01 | **PrePrep Method:** N/A | **Instrument:** HPMS6
Client ID: MW18GW3035-103112 | **Prep Method:** 5030B/5030C/5035A | **Prep Date:** N/A
Matrix: Water | **Analytical Method:** 8260B | **Cal Date:** 10/01/2012 20:54
Workgroup #: WG413811 | **Analyst:** ADC | **Run Date:** 11/08/2012 20:39
Collect Date: 10/31/2012 13:05 | **Dilution:** 1 | **File ID:** 6M112590
Sample Tag: 01 | **Units:** ug/L

Analyte	CAS #	Result	Qual	RL	MDL
Bromomethane	74-83-9		U	10.0	0.500
Chloromethane	74-87-3		U	10.0	0.500
Methylene chloride	75-09-2		U	5.00	0.250
Trichloroethene	79-01-6		U	5.00	0.250
Trichlorofluoromethane	75-69-4		U	10.0	0.250

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	113	86	118	
1,2-Dichloroethane-d4	113	80	120	
Toluene-d8	95.9	88	110	
4-Bromofluorobenzene	95.7	86	115	

U	Not detected at or above the reporting limit (RL).

Sample #: L12110037-02 | **PrePrep Method:** N/A | **Instrument:** HPMS6
Client ID: MW16GW1020-103112 | **Prep Method:** 5030B/5030C/5035A | **Prep Date:** N/A
Matrix: Water | **Analytical Method:** 8260B | **Cal Date:** 10/01/2012 20:54
Workgroup #: WG413811 | **Analyst:** ADC | **Run Date:** 11/08/2012 20:08
Collect Date: 10/31/2012 13:45 | **Dilution:** 1000 | **File ID:** 6M112589
Sample Tag: DL01 | **Units:** ug/L

Analyte	CAS #	Result	Qual	RL	MDL
Bromomethane	74-83-9		U	10000	500
Chloromethane	74-87-3		U	10000	500
Methylene chloride	75-09-2		U	5000	250
Trichloroethene	79-01-6		U	5000	250
Trichlorofluoromethane	75-69-4	225000		10000	250

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	113	86	118	
1,2-Dichloroethane-d4	112	80	120	
Toluene-d8	96.2	88	110	
4-Bromofluorobenzene	96.2	86	115	

U	Not detected at or above the reporting limit (RL).

Certificate of Analysis

Sample #: L12110037-03 | **PrePrep Method:** N/A | **Instrument:** HPMS6
Client ID: MW16GW1020-103112MS | **Prep Method:** 5030B/5030C/5035A | **Prep Date:** N/A
Matrix: Water | **Analytical Method:** 8260B | **Cal Date:** 10/01/2012 20:54
Workgroup #: WG413811 | **Analyst:** ADC | **Run Date:** 11/08/2012 18:05
Collect Date: 10/31/2012 13:45 | **Dilution:** 1000 | **File ID:** 6M112585
Sample Tag: DL01 | **Units:** ug/L

Analyte	CAS #	Result	Qual	RL	MDL
Bromomethane	74-83-9	18400		10000	500
Chloromethane	74-87-3	17500		10000	500
Methylene chloride	75-09-2	18500		5000	250
Trichloroethene	79-01-6	21400		5000	250
Trichlorofluoromethane	75-69-4	200000		10000	250

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	114	86	118	
1,2-Dichloroethane-d4	118	80	120	
Toluene-d8	96.4	88	110	
4-Bromofluorobenzene	93.2	86	115	

Sample #: L12110037-04 | **PrePrep Method:** N/A | **Instrument:** HPMS6
Client ID: MW16GW1020-103112MSD | **Prep Method:** 5030B/5030C/5035A | **Prep Date:** N/A
Matrix: Water | **Analytical Method:** 8260B | **Cal Date:** 10/01/2012 20:54
Workgroup #: WG413811 | **Analyst:** ADC | **Run Date:** 11/08/2012 18:36
Collect Date: 10/31/2012 13:45 | **Dilution:** 1000 | **File ID:** 6M112586
Sample Tag: DL01 | **Units:** ug/L

Analyte	CAS #	Result	Qual	RL	MDL
Bromomethane	74-83-9	18800		10000	500
Chloromethane	74-87-3	16800		10000	500
Methylene chloride	75-09-2	18900		5000	250
Trichloroethene	79-01-6	21300		5000	250
Trichlorofluoromethane	75-69-4	233000		10000	250

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	115	86	118	
1,2-Dichloroethane-d4	116	80	120	
Toluene-d8	96.8	88	110	
4-Bromofluorobenzene	95.5	86	115	

Certificate of Analysis

Sample #: L12110037-05 | **PrePrep Method:** N/A | **Instrument:** HPMS6
Client ID: MW22GW2535-103112 | **Prep Method:** 5030B/5030C/5035A | **Prep Date:** N/A
Matrix: Water | **Analytical Method:** 8260B | **Cal Date:** 10/01/2012 20:54
Workgroup #: WG413811 | **Analyst:** ADC | **Run Date:** 11/08/2012 21:09
Collect Date: 10/31/2012 14:30 | **Dilution:** 1 | **File ID:** 6M112591
Sample Tag: 01 | **Units:** ug/L

Analyte	CAS #	Result	Qual	RL	MDL
Bromomethane	74-83-9		U	10.0	0.500
Chloromethane	74-87-3		U	10.0	0.500
Methylene chloride	75-09-2		U	5.00	0.250
Trichloroethene	79-01-6		U	5.00	0.250
Trichlorofluoromethane	75-69-4	103		10.0	0.250

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	113	86	118	
1,2-Dichloroethane-d4	112	80	120	
Toluene-d8	96.1	88	110	
4-Bromofluorobenzene	95.0	86	115	

U	Not detected at or above the reporting limit (RL).

Sample #: L12110037-06 | **PrePrep Method:** N/A | **Instrument:** HPMS6
Client ID: MW12GW1424-103112 | **Prep Method:** 5030B/5030C/5035A | **Prep Date:** N/A
Matrix: Water | **Analytical Method:** 8260B | **Cal Date:** 10/01/2012 20:54
Workgroup #: WG413811 | **Analyst:** ADC | **Run Date:** 11/08/2012 21:40
Collect Date: 10/31/2012 15:10 | **Dilution:** 1 | **File ID:** 6M112592
Sample Tag: 01 | **Units:** ug/L

Analyte	CAS #	Result	Qual	RL	MDL
Bromomethane	74-83-9		U	10.0	0.500
Chloromethane	74-87-3		U	10.0	0.500
Methylene chloride	75-09-2		U	5.00	0.250
Trichloroethene	79-01-6	9.87		5.00	0.250
Trichlorofluoromethane	75-69-4	31.0		10.0	0.250

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	113	86	118	
1,2-Dichloroethane-d4	113	80	120	
Toluene-d8	96.7	88	110	
4-Bromofluorobenzene	95.9	86	115	

U	Not detected at or above the reporting limit (RL).

Certificate of Analysis

Sample #: L12110037-07 | **PrePrep Method:** N/A | **Instrument:** HPMS6
Client ID: TRIP BLK-103112 | **Prep Method:** 5030B/5030C/5035A | **Prep Date:** N/A
Matrix: Water | **Analytical Method:** 8260B | **Cal Date:** 10/01/2012 20:54
Workgroup #: WG413811 | **Analyst:** ADC | **Run Date:** 11/08/2012 19:38
Collect Date: 10/31/2012 00:01 | **Dilution:** 1 | **File ID:** 6M112588
Sample Tag: 01 | **Units:** ug/L

Analyte	CAS #	Result	Qual	RL	MDL
Bromomethane	74-83-9		U	10.0	0.500
Chloromethane	74-87-3		U	10.0	0.500
Methylene chloride	75-09-2		U	5.00	0.250
Trichloroethene	79-01-6		U	5.00	0.250
Trichlorofluoromethane	75-69-4		U	10.0	0.250

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	113	86	118	
1,2-Dichloroethane-d4	112	80	120	
Toluene-d8	96.6	88	110	
4-Bromofluorobenzene	96.1	86	115	

U	Not detected at or above the reporting limit (RL).

Sample #: L12110037-08 | **PrePrep Method:** N/A | **Instrument:** HPMS6
Client ID: MW19GW1828-110112 | **Prep Method:** 5030B/5030C/5035A | **Prep Date:** N/A
Matrix: Water | **Analytical Method:** 8260B | **Cal Date:** 10/01/2012 20:54
Workgroup #: WG413811 | **Analyst:** ADC | **Run Date:** 11/08/2012 22:10
Collect Date: 11/01/2012 10:20 | **Dilution:** 1 | **File ID:** 6M112593
Sample Tag: 01 | **Units:** ug/L

Analyte	CAS #	Result	Qual	RL	MDL
Bromomethane	74-83-9		U	10.0	0.500
Chloromethane	74-87-3		U	10.0	0.500
Methylene chloride	75-09-2		U	5.00	0.250
Trichloroethene	79-01-6	23.2		5.00	0.250
Trichlorofluoromethane	75-69-4		U	10.0	0.250

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	114	86	118	
1,2-Dichloroethane-d4	114	80	120	
Toluene-d8	95.9	88	110	
4-Bromofluorobenzene	94.9	86	115	

U	Not detected at or above the reporting limit (RL).

Certificate of Analysis

Sample #: L12110037-09 | **PrePrep Method:** N/A | **Instrument:** HPMS6
Client ID: MW03GW1626-110112 | **Prep Method:** 5030B/5030C/5035A | **Prep Date:** N/A
Matrix: Water | **Analytical Method:** 8260B | **Cal Date:** 10/01/2012 20:54
Workgroup #: WG413811 | **Analyst:** ADC | **Run Date:** 11/08/2012 22:41
Collect Date: 11/01/2012 11:10 | **Dilution:** 1 | **File ID:** 6M112594
Sample Tag: 01 | **Units:** ug/L

Analyte	CAS #	Result	Qual	RL	MDL
Bromomethane	74-83-9		U	10.0	0.500
Chloromethane	74-87-3		U	10.0	0.500
Methylene chloride	75-09-2		U	5.00	0.250
Trichloroethene	79-01-6	2.30	J	5.00	0.250
Trichlorofluoromethane	75-69-4		U	10.0	0.250

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	115	86	118	
1,2-Dichloroethane-d4	116	80	120	
Toluene-d8	96.1	88	110	
4-Bromofluorobenzene	93.8	86	115	

J	The analyte was positively identified, but the quantitation was below the RL.
U	Not detected at or above the reporting limit (RL).

Sample #: L12110037-10 | **PrePrep Method:** N/A | **Instrument:** HPMS6
Client ID: MW09GW1424-110112 | **Prep Method:** 5030B/5030C/5035A | **Prep Date:** N/A
Matrix: Water | **Analytical Method:** 8260B | **Cal Date:** 10/01/2012 20:54
Workgroup #: WG413811 | **Analyst:** ADC | **Run Date:** 11/08/2012 23:11
Collect Date: 11/01/2012 11:55 | **Dilution:** 1 | **File ID:** 6M112595
Sample Tag: 01 | **Units:** ug/L

Analyte	CAS #	Result	Qual	RL	MDL
Bromomethane	74-83-9		U	10.0	0.500
Chloromethane	74-87-3		U	10.0	0.500
Methylene chloride	75-09-2		U	5.00	0.250
Trichloroethene	79-01-6	42.6		5.00	0.250
Trichlorofluoromethane	75-69-4	1.14	J	10.0	0.250

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	115	86	118	
1,2-Dichloroethane-d4	115	80	120	
Toluene-d8	96.6	88	110	
4-Bromofluorobenzene	96.8	86	115	

J	The analyte was positively identified, but the quantitation was below the RL.
U	Not detected at or above the reporting limit (RL).

Certificate of Analysis

Sample #:	L12110037-11	**PrePrep Method:**	N/A	**Instrument:**	HPMS6
Client ID:	FD01-110112	**Prep Method:**	5030B/5030C/5035A	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	8260B	**Cal Date:**	10/01/2012 20:54
Workgroup #:	WG413811	**Analyst:**	ADC	**Run Date:**	11/08/2012 23:42
Collect Date:	11/01/2012 00:01	**Dilution:**	1	**File ID:**	6M112596
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	RL	MDL
Bromomethane	74-83-9		U	10.0	0.500
Chloromethane	74-87-3		U	10.0	0.500
Methylene chloride	75-09-2		U	5.00	0.250
Trichloroethene	79-01-6	44.0		5.00	0.250
Trichlorofluoromethane	75-69-4	1.12	J	10.0	0.250

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	113	86	118	
1,2-Dichloroethane-d4	113	80	120	
Toluene-d8	95.0	88	110	
4-Bromofluorobenzene	95.5	86	115	

J	The analyte was positively identified, but the quantitation was below the RL.
U	Not detected at or above the reporting limit (RL).

2.1 Volatiles Data

2.1.1 Volatiles GCMS Data (8260)

2.1.1.1 Summary Data

Login Number: L12110037
Department: Volatiles
Analyst: Anthony Canter

METHOD

Preparation SW-846 5030C/5035A

Analysis SW-846 8260B

HOLDING TIMES

Sample Preparation: All holding times were met.

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

CALIBRATION

Initial Calibration: For all compounds that yielded a %RSD greater than 15%, linear or higher order equations were applied. All acceptance criteria were met.

Alternate Source Standards: All acceptance criteria were met.

Continuing Calibration and Tune: Recoveries out of range were observed for the following analytes: Bromoform, Chloromethane. Please see the applicable QC report for a detailed presentation of the failures.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Matrix Spikes: Recoveries out of range were observed for the following analytes: Trichlorofluoromethane. Please see the applicable QC report for a detailed presentation of the failures.

SAMPLES

Internal Standards: All acceptance criteria were met.

Surrogates: All acceptance criteria were met.

Other: Samples 02, 03, 04, were run at a dilution.

Manual Integration Reason Codes

Reason #1: Data System Fails to Select Correct Peak. In some cases the chromatography system selects and integrates the 'wrong peak'. In this case the analyst must correct the selection and force the system to integrate the proper peak. Other times the system may miss the peak completely.

Reason #2: Data System Splits the Peak Incorrectly or Integrates a False Peak as a Rider Peak. This phenomena is common at low concentrations where the signal:noise ratio is low. A single compound (peak) is incorrectly split into multiple peaks or integrated as a main peak with one or more rider peaks resulting in low area counts for the target compound.

Reason #3: Improperly Integrated Isomers and/or coeluting compounds. This system often fails to distinguish coeluting compounds and or isomers. The integration areas and concentrations are wrong, and they must be corrected by manual integration. Prime examples are benzo(k)fluoranthene and benzo(b)fluoranthene which are often unresolved and integrated improperly when both are present at low concentrations in standards or samples.

Reason #4: System Establishes Incorrect Baseline. There are numerous situations in chromatography where the system establishes the baseline incorrectly. Some baseline errors will be obvious to the analyst and should be corrected via manual procedures.

Reason #5: Miscellaneous. Other situations involving integration errors may require in-depth review and technical judgment. These cases should be brought to the attention of the laboratory management. If the form of manual integration is not clearly covered by these four cases, then review and approval by the Managing Director or the QAO will be required.

I certify that this data package is in compliance with the terms and conditions agreed to by the client and Microbac Laboratories Inc., both technically and for completeness, except for the conditions noted above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or designated person, as verified by the following signature.

Narrative ID: 55758
Approved By: Michael Albertson

Certificate of Analysis

Sample #: L12110037-01 **PrePrep Method:** N/A **Instrument:** HPMS6
Client ID: MW18GW3035-103112 **Prep Method:** 5030B/5030C/5035A **Prep Date:** N/A
Matrix: Water **Analytical Method:** 8260B **Cal Date:** 10/01/2012 20:54
Workgroup #: WG413811 **Analyst:** ADC **Run Date:** 11/08/2012 20:39
Collect Date: 10/31/2012 13:05 **Dilution:** 1 **File ID:** 6M112590
Sample Tag: 01 **Units:** ug/L

Analyte	CAS #	Result	Qual	RL	MDL
Bromomethane	74-83-9		U	10.0	0.500
Chloromethane	74-87-3		U	10.0	0.500
Methylene chloride	75-09-2		U	5.00	0.250
Trichloroethene	79-01-6		U	5.00	0.250
Trichlorofluoromethane	75-69-4		U	10.0	0.250

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	113	86	118	
1,2-Dichloroethane-d4	113	80	120	
Toluene-d8	95.9	88	110	
4-Bromofluorobenzene	95.7	86	115	

U	Not detected at or above the reporting limit (RL).

Sample #: L12110037-02 **PrePrep Method:** N/A **Instrument:** HPMS6
Client ID: MW16GW1020-103112 **Prep Method:** 5030B/5030C/5035A **Prep Date:** N/A
Matrix: Water **Analytical Method:** 8260B **Cal Date:** 10/01/2012 20:54
Workgroup #: WG413811 **Analyst:** ADC **Run Date:** 11/08/2012 20:08
Collect Date: 10/31/2012 13:45 **Dilution:** 1000 **File ID:** 6M112589
Sample Tag: DL01 **Units:** ug/L

Analyte	CAS #	Result	Qual	RL	MDL
Bromomethane	74-83-9		U	10000	500
Chloromethane	74-87-3		U	10000	500
Methylene chloride	75-09-2		U	5000	250
Trichloroethene	79-01-6		U	5000	250
Trichlorofluoromethane	75-69-4	225000		10000	250

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	113	86	118	
1,2-Dichloroethane-d4	112	80	120	
Toluene-d8	96.2	88	110	
4-Bromofluorobenzene	96.2	86	115	

U	Not detected at or above the reporting limit (RL).

Certificate of Analysis

Sample #: L12110037-03 **PrePrep Method:** N/A **Instrument:** HPMS6
Client ID: MW16GW1020-103112MS **Prep Method:** 5030B/5030C/5035A **Prep Date:** N/A
Matrix: Water **Analytical Method:** 8260B **Cal Date:** 10/01/2012 20:54
Workgroup #: WG413811 **Analyst:** ADC **Run Date:** 11/08/2012 18:05
Collect Date: 10/31/2012 13:45 **Dilution:** 1000 **File ID:** 6M112585
Sample Tag: DL01 **Units:** ug/L

Analyte	CAS #	Result	Qual	RL	MDL
Bromomethane	74-83-9	18400		10000	500
Chloromethane	74-87-3	17500		10000	500
Methylene chloride	75-09-2	18500		5000	250
Trichloroethene	79-01-6	21400		5000	250
Trichlorofluoromethane	75-69-4	200000		10000	250

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	114	86	118	
1,2-Dichloroethane-d4	118	80	120	
Toluene-d8	96.4	88	110	
4-Bromofluorobenzene	93.2	86	115	

Sample #: L12110037-04 **PrePrep Method:** N/A **Instrument:** HPMS6
Client ID: MW16GW1020-103112MSD **Prep Method:** 5030B/5030C/5035A **Prep Date:** N/A
Matrix: Water **Analytical Method:** 8260B **Cal Date:** 10/01/2012 20:54
Workgroup #: WG413811 **Analyst:** ADC **Run Date:** 11/08/2012 18:36
Collect Date: 10/31/2012 13:45 **Dilution:** 1000 **File ID:** 6M112586
Sample Tag: DL01 **Units:** ug/L

Analyte	CAS #	Result	Qual	RL	MDL
Bromomethane	74-83-9	18800		10000	500
Chloromethane	74-87-3	16800		10000	500
Methylene chloride	75-09-2	18900		5000	250
Trichloroethene	79-01-6	21300		5000	250
Trichlorofluoromethane	75-69-4	233000		10000	250

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	115	86	118	
1,2-Dichloroethane-d4	116	80	120	
Toluene-d8	96.8	88	110	
4-Bromofluorobenzene	95.5	86	115	

Certificate of Analysis

Sample #: L12110037-05 **PrePrep Method:** N/A **Instrument:** HPMS6
Client ID: MW22GW2535-103112 **Prep Method:** 5030B/5030C/5035A **Prep Date:** N/A
Matrix: Water **Analytical Method:** 8260B **Cal Date:** 10/01/2012 20:54
Workgroup #: WG413811 **Analyst:** ADC **Run Date:** 11/08/2012 21:09
Collect Date: 10/31/2012 14:30 **Dilution:** 1 **File ID:** 6M112591
Sample Tag: 01 **Units:** ug/L

Analyte	CAS #	Result	Qual	RL	MDL
Bromomethane	74-83-9		U	10.0	0.500
Chloromethane	74-87-3		U	10.0	0.500
Methylene chloride	75-09-2		U	5.00	0.250
Trichloroethene	79-01-6		U	5.00	0.250
Trichlorofluoromethane	75-69-4	103		10.0	0.250

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	113	86	118	
1,2-Dichloroethane-d4	112	80	120	
Toluene-d8	96.1	88	110	
4-Bromofluorobenzene	95.0	86	115	

U	Not detected at or above the reporting limit (RL).

Sample #: L12110037-06 **PrePrep Method:** N/A **Instrument:** HPMS6
Client ID: MW12GW1424-103112 **Prep Method:** 5030B/5030C/5035A **Prep Date:** N/A
Matrix: Water **Analytical Method:** 8260B **Cal Date:** 10/01/2012 20:54
Workgroup #: WG413811 **Analyst:** ADC **Run Date:** 11/08/2012 21:40
Collect Date: 10/31/2012 15:10 **Dilution:** 1 **File ID:** 6M112592
Sample Tag: 01 **Units:** ug/L

Analyte	CAS #	Result	Qual	RL	MDL
Bromomethane	74-83-9		U	10.0	0.500
Chloromethane	74-87-3		U	10.0	0.500
Methylene chloride	75-09-2		U	5.00	0.250
Trichloroethene	79-01-6	9.87		5.00	0.250
Trichlorofluoromethane	75-69-4	31.0		10.0	0.250

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	113	86	118	
1,2-Dichloroethane-d4	113	80	120	
Toluene-d8	96.7	88	110	
4-Bromofluorobenzene	95.9	86	115	

U	Not detected at or above the reporting limit (RL).

Certificate of Analysis

Sample #: L12110037-07 **PrePrep Method:** N/A **Instrument:** HPMS6
Client ID: TRIP BLK-103112 **Prep Method:** 5030B/5030C/5035A **Prep Date:** N/A
Matrix: Water **Analytical Method:** 8260B **Cal Date:** 10/01/2012 20:54
Workgroup #: WG413811 **Analyst:** ADC **Run Date:** 11/08/2012 19:38
Collect Date: 10/31/2012 00:01 **Dilution:** 1 **File ID:** 6M112588
Sample Tag: 01 **Units:** ug/L

Analyte	CAS #	Result	Qual	RL	MDL
Bromomethane	74-83-9		U	10.0	0.500
Chloromethane	74-87-3		U	10.0	0.500
Methylene chloride	75-09-2		U	5.00	0.250
Trichloroethene	79-01-6		U	5.00	0.250
Trichlorofluoromethane	75-69-4		U	10.0	0.250

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	113	86	118	
1,2-Dichloroethane-d4	112	80	120	
Toluene-d8	96.6	88	110	
4-Bromofluorobenzene	96.1	86	115	

U	Not detected at or above the reporting limit (RL).

Sample #: L12110037-08 **PrePrep Method:** N/A **Instrument:** HPMS6
Client ID: MW19GW1828-110112 **Prep Method:** 5030B/5030C/5035A **Prep Date:** N/A
Matrix: Water **Analytical Method:** 8260B **Cal Date:** 10/01/2012 20:54
Workgroup #: WG413811 **Analyst:** ADC **Run Date:** 11/08/2012 22:10
Collect Date: 11/01/2012 10:20 **Dilution:** 1 **File ID:** 6M112593
Sample Tag: 01 **Units:** ug/L

Analyte	CAS #	Result	Qual	RL	MDL
Bromomethane	74-83-9		U	10.0	0.500
Chloromethane	74-87-3		U	10.0	0.500
Methylene chloride	75-09-2		U	5.00	0.250
Trichloroethene	79-01-6	23.2		5.00	0.250
Trichlorofluoromethane	75-69-4		U	10.0	0.250

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	114	86	118	
1,2-Dichloroethane-d4	114	80	120	
Toluene-d8	95.9	88	110	
4-Bromofluorobenzene	94.9	86	115	

U	Not detected at or above the reporting limit (RL).

Certificate of Analysis

Sample #:	L12110037-09	**PrePrep Method:**	N/A	**Instrument:**	HPMS6
Client ID:	MW03GW1626-110112	**Prep Method:**	5030B/5030C/5035A	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	8260B	**Cal Date:**	10/01/2012 20:54
Workgroup #:	WG413811	**Analyst:**	ADC	**Run Date:**	11/08/2012 22:41
Collect Date:	11/01/2012 11:10	**Dilution:**	1	**File ID:**	6M112594
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	RL	MDL
Bromomethane	74-83-9		U	10.0	0.500
Chloromethane	74-87-3		U	10.0	0.500
Methylene chloride	75-09-2		U	5.00	0.250
Trichloroethene	79-01-6	2.30	J	5.00	0.250
Trichlorofluoromethane	75-69-4		U	10.0	0.250

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	115	86	118	
1,2-Dichloroethane-d4	116	80	120	
Toluene-d8	96.1	88	110	
4-Bromofluorobenzene	93.8	86	115	

J	The analyte was positively identified, but the quantitation was below the RL.
U	Not detected at or above the reporting limit (RL).

Sample #:	L12110037-10	**PrePrep Method:**	N/A	**Instrument:**	HPMS6
Client ID:	MW09GW1424-110112	**Prep Method:**	5030B/5030C/5035A	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	8260B	**Cal Date:**	10/01/2012 20:54
Workgroup #:	WG413811	**Analyst:**	ADC	**Run Date:**	11/08/2012 23:11
Collect Date:	11/01/2012 11:55	**Dilution:**	1	**File ID:**	6M112595
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	RL	MDL
Bromomethane	74-83-9		U	10.0	0.500
Chloromethane	74-87-3		U	10.0	0.500
Methylene chloride	75-09-2		U	5.00	0.250
Trichloroethene	79-01-6	42.6		5.00	0.250
Trichlorofluoromethane	75-69-4	1.14	J	10.0	0.250

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	115	86	118	
1,2-Dichloroethane-d4	115	80	120	
Toluene-d8	96.6	88	110	
4-Bromofluorobenzene	96.8	86	115	

J	The analyte was positively identified, but the quantitation was below the RL.
U	Not detected at or above the reporting limit (RL).

Certificate of Analysis

Sample #:	L12110037-11	**PrePrep Method:**	N/A	**Instrument:**	HPMS6
Client ID:	FD01-110112	**Prep Method:**	5030B/5030C/5035A	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	8260B	**Cal Date:**	10/01/2012 20:54
Workgroup #:	WG413811	**Analyst:**	ADC	**Run Date:**	11/08/2012 23:42
Collect Date:	11/01/2012 00:01	**Dilution:**	1	**File ID:**	6M112596
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	RL	MDL
Bromomethane	74-83-9		U	10.0	0.500
Chloromethane	74-87-3		U	10.0	0.500
Methylene chloride	75-09-2		U	5.00	0.250
Trichloroethene	79-01-6	44.0		5.00	0.250
Trichlorofluoromethane	75-69-4	1.12	J	10.0	0.250

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Dibromofluoromethane	113	86	118	
1,2-Dichloroethane-d4	113	80	120	
Toluene-d8	95.0	88	110	
4-Bromofluorobenzene	95.5	86	115	

J	The analyte was positively identified, but the quantitation was below the RL.
U	Not detected at or above the reporting limit (RL).

2.1.1.2 QC Summary Data

Example 8260 Calculations

1.0 Calculating the Response Factor (RF) from the initial calibration (ICAL) data:

RF = [(Ax) (Cis)] / [(Ais) (Cx)]

where:	Example
Ax = Area of the characteristic ion for the compound being measured:	3399156
Cis = Concentration of the specific internal standard (ug/mL)	25
Ais = Area of the characteristic ion of the specific internal standard	846471
Cx = Concentration of the compound in the standard being measured (ug/mL)	100
RF = Calculated Response Factor	**1.0039**

2.0 Calculating the concentration (C) of a compound in water using the average RF: *

Cx = [(Ax) (Cis) (Vn)(D)] / [(Ais) (RF) (Vs)]

where:	**Example**
Ax = Area of the characteristic ion for the compound being measured	**3122498**
Cis = Concentration of the specific internal standard (ug/L)	**25**
D = Dilution factor for sample as a multiplier (10x = 10)	**1**
Ais = Area of the characteristic ion of the specific internal standard	**611048**
RF = Average RF from the ICAL	**1.004**
Vs = Purge volume of sample (mL)	**10**
Vn = Nominal purge volume of sample (mL) (10.0 mL)	**10**
Cx = Concentration of the compound in the sample being measured (ug/L)	**127.2428**

3.0 Calculating the concentration (C) of a compound in soil using the average RF: *

Cx = [(Ax) (Cis) (Wn)(D)] / [(Ais) (RF) (Ws)]

where:	**Example**
Ax = Area of the characteristic ion for the compound being measured	**3122498**
Cis = Concentration of the specific internal standard (ug/L)	**25**
D = Dilution factor for sample as a multiplier (10x = 10)	**1**
Ais = Area of the characteristic ion of the specific internal standard	**611048**
RF = Average RF from the ICAL	**1.004**
Ws = Weight of sample purged (g)	**5**
Wn = Nominal purge weight (g) (5.0 g)	**5**
Cx = Concentration of the compound in the sample being measured (ug/L)	**127.2428**

Dry weight correction:

Percent solids (PCT_S)	**50**
Cd = (Cx) (100)/PCT_S	**254.4856**

* Concentrations appearing on the instrument quantitation reports are on-column results and do not take into account initial volume, final volume, and the dilution factor.

4.0 Concentration from Linear Regression

Step 1: Retrieve Curve Data From Plot, y = mx + b

y = response ratio = response of analyte / response of IS = Ax/Ais

x = amount ratio = concentration analyte/concentration internal standard = Cx / Cis

m = slope from curve = 0.213

b = intercept from curve = - 0.00642

Step 2: Calculate y from Quantitation Report

y = 86550/593147 = 0.1459

Step 3: Solve for x

x = (y - b)/m = [(0.1459 -(- 0.00642)]/ 0.213 = 0.7152

Step 4: Solve for analyte concentration Cx

Cx = Cis (x) = (25.0)(0.7152) = 17.88

Example Spreadsheet Calculation:

Slope from curve, m:	**0.213**
Intercept from curve, b:	**-0.00642**
Area of analyte, Ax:	**86550**
Area of Internal Standard , Ais:	**593147**
Concentration of IS, Cis	**25.00**
Response Ratio:	**0.145917**
Amount Ratio:	**0.715195**
Concentration:	**17.87988**
Units of Internal Standard:	**ug/L**

5.0 Concentration from Quadratic Regression

Step 1 - Retrieve Curve Data from Plot, y = Ax^2 + Bx + C
Where:
Ax^2 + Bx + (C - y) = 0
A, B, C = constants from the ICAL quadratic regression
y = Response ratio = Area of analyte/Area of internal standard (IS)
x = Amount ratio = Concentration of analyte/concentration of IS

Step 2: Calculate y from Quantitation Report

y = Ax/Ais

Step 3: Solve for x using the quadratic formula
Ax^2 + Bx + C - y = 0

$$x = \frac{b \pm \sqrt{\left(b^2 - 4a(c - y)\right)}}{2a}$$ (Two possible solutions)

Step 4: Solve for analyte concentration Cx

Cx = (Cis)(Amount ratio)

Example Spreadsheet Calculation:

Value of A from plot:	**-0.00629**	
Value of B from plot:	**0.511**	
Value of C from plot:	**-0.0276**	
Area of unknown from quantitation report:	**293821**	
Area of IS from quantiation report:	**784848**	
Response ratio, y:	**0.374367**	
C - y:	**-0.40197**	
Root 1 - Computed amount ratio , X1:	**80.44567**	
Root 2 - Computed amount ratio , X2:	**0.794396**	use this solution
Concentration of IS, Cis:	**25.00**	
Concentration of analyte, Cx:	**19.86**	ug/L

Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPMS6 Dataset: 012512
Analyst1: ADC Analyst2: NA
Method: 8260B/OVAP SOP: MSV01 Rev: 14/0
Method: 624 SOP: MSV10 Rev: 8
Method: 5030B/5030C/5035A SOP: PAT01 Rev: 13
Maintenance Log ID: 40412

Internal Standard: STD49576 Surrogate Standard: STD49251
CCV: STD49665; STD49721 LCS: STD49523; STD49518 MS/MSD: NA

Column 1 ID: RTX502.2 Column 2 ID: NA
Workgroups: WG387849; WG387881

Comments:

File ID	Sample Information	pH	Mat	Dil	Reference	Date/Time
6M105367	WG387846-01 50ng BFB STD 8260	NA	1	1	STD49582	01/25/12 08:08
6M105368	WG387846-02 50ug/L CCV STD 8260	NA	1	1	STD49665	01/25/12 08:34
6M105369	WG387XXX-01 100ug/L A9 CCV STD 8260	NA	1	1	STD49484	01/25/12 09:07
6M105370	WG387849-01 VBLK0125 BLANK STD 826	NA	1	1		01/25/12 09:40
6M105371	WG388587-01 5ug/L 826A9FOO QC	NA	1	1	STD49721	01/25/12 10:12
6M105372	WG388587-02 20ug/L 826A9FOO QC	NA	1	1	STD49721	01/25/12 10:45
6M105373	WG388587-03 50ug/L 826A9FOO QC	NA	1	1	STD49721	01/25/12 11:17
6M105374	WG388587-04 100ug/L 826A9FOO QC	NA	1	1	STD49721	01/25/12 11:49
6M105375	WG388587-05 200ug/L 826A9FOO QC	NA	1	1	STD49721	01/25/12 12:22
6M105376	WG388587-06 300ug/L 826A9FOO QC	NA	1	1	STD49721	01/25/12 12:55
6M105377	WG388587-07 400ug/L 826A9FOO QC	NA	1	1	STD49721	01/25/12 13:27
6M105378	WG388587-08 100ug/L ALT 826A9FOO Q	NA	1	1	STD49721	01/25/12 14:00
6M105379	WG387849-02 20ug/L LCS STD 8260	NA	1	1	STD49523	01/25/12 14:32
6M105380	WG387849-03 20ug/L LCSDUP STD 8260	NA	1	1	STD49523	01/25/12 15:05
6M105381	L12010470-02 B 100X 826-SPE D1	<2	1	100		01/25/12 15:37
6M105382	L12010470-03 B 100X 826-SPE D1	<2	1	100		01/25/12 16:09
6M105383	L12010470-04 B 100X 826-SPE D1	<2	1	100		01/25/12 16:42
6M105384	L12010470-05 B 100X 826-SPE D1	<2	1	100		01/25/12 17:14
6M105385	L12010470-01 B 500X 826-SPE D1	<2	1	500		01/25/12 17:47
6M105386	L12010534-01 B 200X 826-SPE D1	<2	1	200		01/25/12 18:19
6M105387	L12010534-02 B 2X 826-SPE D1	<2	1	2		01/25/12 18:51
6M105388	L12010534-03 B 2X 826-SPE D1	<2	1	2		01/25/12 19:24
6M105389	L12010481-15 B 25X 826-SPE D1	<2	1	25		01/25/12 19:56
6M105390	RINSE	NA	1	1		01/25/12 20:29
6M105391	RINSE	NA	1	1		01/25/12 21:01
6M105392	RINSE	NA	1	1		01/25/12 21:33

Comments

Seq.	Rerun	Dil.	Reason	Analytes
3				
File ID: 6M105369				
	Not needed, DNR.			
19	X	2000	Over Calibration Range	CIS12-DCE

Approved: January 26, 2012

Page: 1

Microbac Laboratories Inc.

Instrument Run Log

Instrument:	HPMS6	Dataset:	012512		
Analyst1:	ADC	Analyst2:	NA		
Method:	8260B/OVAP	SOP:	MSV01	Rev:	14/0
Method:	624	SOP:	MSV10	Rev:	8
Method:	5030B/5030C/5035A	SOP:	PAT01	Rev:	13
Maintenance Log ID:	40412				

Internal Standard: STD49576 Surrogate Standard: STD49251

CCV: STD49665; STD49721 LCS: STD49523; STD49518 MS/MSD: NA

Column 1 ID: RTX502.2 Column 2 ID: NA

Workgroups: WG387849; WG387881

Comments:

Comments

Seq.	Rerun	Dil.	Reason	Analytes
File ID: 6M105385				
20	X	500	Over Calibration Range	TCE
File ID: 6M105386				

Approved: January 26, 2012

Page: 2

Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPMS6 Dataset: 100112
Analyst1: ADC Analyst2: NA
Method: 8260B SOP: MSV01 Rev: 15
Method: 624 SOP: MSV10 Rev: 8
Method: 5030C/5035A SOP: PAT01 Rev: 13
Maintenance Log ID: 43441

Internal Standard: STD53662 Surrogate Standard: STD53662
CCV: STD53764 LCS: STD53790 MS/MSD: NA

Column 1 ID: RTX502.2 Column 2 ID: NA
Workgroups: WG409982 (ICAL)

Comments:

File ID	Sample Information	pH	Mat	Dil	Reference	Date/Time
6M111451	WG410211-01 50ng BFB STD 8260	NA	1	1	STD54051	10/01/12 13:37
6M111452	RINSE	NA	1	1	STD54038	10/01/12 14:06
6M111453	WG410211-02 0.3ug/L STD 8260	NA	1	1	STD54038	10/01/12 14:50
6M111454	WG410211-03 0.4ug/L STD 8260	NA	1	1	STD54038	10/01/12 15:20
6M111455	WG410211-04 1.0ug/L STD 8260	NA	1	1	STD54038	10/01/12 15:51
6M111456	WG410211-05 2.0ug/L STD 8260	NA	1	1	STD54038	10/01/12 16:22
6M111457	WG410211-06 5.0ug/L STD 8260	NA	1	1	STD54038	10/01/12 16:53
6M111458	WG410211-07 20.0ug/L STD 8260	NA	1	1	STD54038	10/01/12 17:24
6M111459	WG410211-08 50.0ug/L STD 8260	NA	1	1	STD54038	10/01/12 17:55
6M111460	WG410211-09 100.0ug/L STD 8260	NA	1	1	STD54038	10/01/12 18:26
6M111461	WG410211-10 200.0ug/L STD 8260	NA	1	1	STD54038	10/01/12 20:23
6M111462	WG410211-11 300.0ug/L STD 8260	NA	1	1	STD54038	10/01/12 20:54
6M111463	RINSE	NA	1	1	STD54038	10/01/12 21:25
6M111464	WG410211-12 50.0ug/L ALT SRC 8260	NA	1	1	STD54135	10/01/12 21:56

Approved: October 04, 2012

Page: 1

Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPMS6 Dataset: 110812
Analyst1: ADC Analyst2: NA
Method: 8260B SOP: MSV01 Rev: 15
Method: 5030C SOP: PAT01 Rev: 13
Method: 624 SOP: MSV10 Rev: 8
Maintenance Log ID: 43927

Internal Standard: STD54653 Surrogate Standard: STD54653
CCV: STD54685 LCS: STD54557 MS/MSD: STD54557

Column 1 ID: RTX502.2 Column 2 ID: NA
Workgroups: WG413811

Comments:

File ID	Sample Information	pH	Mat	Dil	Reference	Date/Time
6M112578	WG413810-01 BFB 50ng 8260	NA	1	1	STD54051	11/08/12 14:20
6M112579	WG413810-02 50ug/L CCV 8260	NA	1	1	STD54685	11/08/12 14:51
6M112580	WG413XXX-01 100ug/L A9FOO CCV	NA	1	1	STDXXXXX	11/08/12 15:24
6M112581	WG413811-01 VBLK 1108 8260	NA	1	1		11/08/12 15:56
6M112582	L12100001-01 LOD 2.5	NA	1	1	STD54654	11/08/12 16:29
6M112583	L12100001-01 LOD 5.0	NA	1	1	STD54557	11/08/12 17:02
6M112584	WG413811-02 20ug/L LCS 8260	NA	1	1	STD54557	11/08/12 17:34
6M112585	L12110037-03 A 1000X MS 826-SPE1	<2	1	1000	STD54557	11/08/12 18:05
6M112586	L12110037-04 A 1000X MSD 826-SPE1	<2	1	1000	STD54557	11/08/12 18:36
6M112587	L12110094-11 B 5X 826-LOW	<2	1	5		11/08/12 19:07
6M112588	L12110037-07 A 826-LOW	<2	1	1		11/08/12 19:38
6M112589	L12110037-02 A 1000X 826-LOW	<2	1	1000		11/08/12 20:08
6M112590	L12110037-01 A 826-LOW	<2	1	1		11/08/12 20:39
6M112591	L12110037-05 A 826-LOW	<2	1	1		11/08/12 21:09
6M112592	L12110037-06 A 826-LOW	<2	1	1		11/08/12 21:40
6M112593	L12110037-08 A 826-LOW	<2	1	1		11/08/12 22:10
6M112594	L12110037-09 A 826-LOW	<2	1	1		11/08/12 22:41
6M112595	L12110037-10 A 826-LOW	<2	1	1		11/08/12 23:11
6M112596	L12110037-11 A 826-LOW	<2	1	1		11/08/12 23:42
6M112597	L12110214-01 A 826-SPE	<2	1	1		11/09/12 00:12
6M112598	L12110214-02 A 826-SPE	<2	1	1		11/09/12 00:42
6M112599	L12110213-01 A 826-SPE	<2	1	1		11/09/12 01:13
6M112600	L12110213-02 A 826-SPE	<2	1	1		11/09/12 01:43
6M112601	RINSE	NA	1	1		11/09/12 02:13
6M112602	WG413811-06 624-BLK	NA	1	1		11/09/12 02:44
6M112603	L12110166-01 A 624-SPE	<2	2	1		11/09/12 03:14
6M112604	L12110219-02 A 624-SPE	<2	2	1		11/09/12 03:44
6M112605	L12110215-01 A 624-SPE	7	2	1		11/09/12 04:15
6M112606	RINSE	NA	2	1		11/09/12 04:45
6M112607	RINSE	NA	2	1		11/09/12 05:15
6M112608	RINSE	NA	2	1		11/09/12 05:46

Comments

Approved: November 09, 2012

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Microbac Laboratories Inc.

Instrument Run Log

Instrument:	HPMS6	Dataset:	110812		
Analyst1:	ADC	Analyst2:	NA		
Method:	8260B	SOP:	MSV01	Rev:	15
Method:	5030C	SOP:	PAT01	Rev:	13
Method:	624	SOP:	MSV10	Rev:	8
Maintenance Log ID:	43927				

Internal Standard: STD54653 Surrogate Standard: STD54653

CCV: STD54685 LCS: STD54557 MS/MSD: STD54557

Column 1 ID: RTX502.2 Column 2 ID: NA

Workgroups: WG413811

Comments:

Comments

Seq.	Rerun	Dil.	Reason	Analytes
5				
File ID: 6M112582				
	L12100001-01 dnr 2.5 non detect			
20	X	10	Over Calibration Range	
File ID: 6M112597				
	L12110214-01			
21	X	10	Over Calibration Range	
File ID: 6M112598				
	L12110214-02			
22	X	10	Over Calibration Range	
File ID: 6M112599				
	L12110213-01			
23	X	10	Over Calibration Range	
File ID: 6M112600				
	L12110213-02			

Approved: November 09, 2012

Microbac Laboratories Inc.

Data Checklist

Date: 25-JAN-2012
Analyst: ADC
Analyst: NA
Method: 8260B/624/OVAP
Instrument: HPMS6
Curve Workgroup: NA
Runlog ID: 44829
Analytical Workgroups: WG387849; WG387881

System Performance Check	NA
BFB	X
Initial Calibration	X
Average RF	X
Linear Reg or Higher Order Curve	X
Second Source standard % Difference	X
Continuing Calibration /Check Standards	X
Project/Client Specific Requirements	X
Special Standards	X
Blanks	X
TCL's	X
Surrogates	X
LCS (Laboratory Control Sample)	X
Recoveries	X
Surrogates	X
MS/MSD/Duplicates	NA
Samples	X
TCL Hits	X
Spectra of TCL Hits	TMB
Surrogates	X
Internal Standards Criteria	X
Library Searches	NA
Calculations & Correct Factors	X
Dilutions Run	X
Reruns	X
Manual Integrations	NA
Case Narrative	X
Results Reporting/Data Qualifiers	X
KOBRA Workgroup Data	X
Check for Completeness	X
Primary Reviewer	TMB
Secondary Reviewer	MDA
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Check the reasonableness of the results	X

Primary Reviewer:
26-JAN-2012

Tiffany Bailey

Secondary Reviewer:
26-JAN-2012

CHECKLIST1 - Modified 03/05/2008
Generated: FEB-02-2012 14:41:12

Microbac Laboratories Inc.

Data Checklist

Date: 01-OCT-2012
Analyst: ADC
Analyst: NA
Method: 8260
Instrument: HPMS8
Curve Workgroup: WG409982
Runlog ID: 49257
Analytical Workgroups:

System Performance Check	NA
BFB	X
Initial Calibration	X
Average RF	X
Linear Reg or Higher Order Curve	X
Second Source standard % Difference	X
Continuing Calibration /Check Standards	X
Project/Client Specific Requirements	X
Special Standards	NA
Blanks	X
TCL's	X
Surrogates	X
LCS (Laboratory Control Sample)	X
Recoveries	X
Surrogates	X
MS/MSD/Duplicates	NA
Samples	X
TCL Hits	X
Spectra of TCL Hits	X
Surrogates	X
Internal Standards Criteria	X
Library Searches	NA
Calculations & Correct Factors	X
Dilutions Run	NA
Reruns	NA
Manual Integrations	NA
Case Narrative	X
Results Reporting/Data Qualifiers	X
KOBRA Workgroup Data	X
Check for Completeness	X
Primary Reviewer	ADC
Secondary Reviewer	MDA
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Check the reasonableness of the results	X

Primary Reviewer:
03-OCT-2012

Secondary Reviewer:
04-OCT-2012

CHECKLIST1 - Modified 03/05/2008
Generated: OCT-04-2012 09:54:49

Microbac Laboratories Inc.

Data Checklist

Date: 08-NOV-2012
Analyst: ADC
Analyst: NA
Method: 8260
Instrument: HPMS6
Curve Workgroup: NA
Runlog ID: 49943
Analytical Workgroups: WG413811

System Performance Check	NA
BFB	X
Initial Calibration	X
Average RF	X
Linear Reg or Higher Order Curve	X
Second Source standard % Difference	X
Continuing Calibration /Check Standards	X
Project/Client Specific Requirements	X
Special Standards	NA
Blanks	X
TCL's	X
Surrogates	X
LCS (Laboratory Control Sample)	X
Recoveries	X
Surrogates	X
MS/MSD/Duplicates	X
Samples	X
TCL Hits	X
Spectra of TCL Hits	ADC
Surrogates	X
Internal Standards Criteria	X
Library Searches	NA
Calculations & Correct Factors	X
Dilutions Run	X
Reruns	X
Manual Integrations	NA
Case Narrative	X
Results Reporting/Data Qualifiers	X
KOBRA Workgroup Data	X
Check for Completeness	X
Primary Reviewer	ADC
Secondary Reviewer	MDA
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Check the reasonableness of the results	X

Primary Reviewer:
09-NOV-2012

Secondary Reviewer:
09-NOV-2012

CHECKLIST1 - Modified 03/05/2008
Generated: NOV-09-2012 11:25:17

Microbac Laboratories Inc.

HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: 8260B AAB#: WG413811

Login Number: L12110037

Client ID	ID	Date Collected	TCLP Date	Time Held	Max Hold	Q	Extract Date	Time Held	Max Hold	Q	Run Date	Time Held	Max Hold	Q
MW18GW3035-103112	01	10/31/12					11/08/2012	8.3	14		11/08/12	8.3	14	
MW16GW1020-103112	02	10/31/12					11/08/2012	8.3	14		11/08/12	8.3	14	
MW16GW1020-103112MS	03	10/31/12					11/08/2012	8.2	14		11/08/12	8.2	14	
MW16GW1020-103112MSD	04	10/31/12					11/08/2012	8.2	14		11/08/12	8.2	14	
MW22GW2535-103112	05	10/31/12					11/08/2012	8.3	14		11/08/12	8.3	14	
MW12GW1424-103112	06	10/31/12					11/08/2012	8.3	14		11/08/12	8.3	14	
TRIP BLK-103112	07	10/31/12					11/08/2012	8.8	14		11/08/12	8.8	14	
MW19GW1828-110112	08	11/01/12					11/08/2012	7.5	14		11/08/12	7.5	14	
MW03GW1626-110112	09	11/01/12					11/08/2012	7.5	14		11/08/12	7.5	14	
MW09GW1424-110112	10	11/01/12					11/08/2012	7.5	14		11/08/12	7.5	14	
FD01-110112	11	11/01/12					11/08/2012	8	14		11/08/12	8	14	

* = SEE PROJECT QAPP REQUIREMENTS

HOLD_TIMES - Modified 03/06/2008
PDF File ID: 2658856
Report generated 11/09/2012 13:08

Microbac Laboratories Inc.
SURROGATE STANDARDS

Login Number: L12110037
Instrument Id: HPMS6
Workgroup (AAB#): WG413811
Method: 8260
CAL ID: HPMS6-01-OCT-12
Matrix: Water

Sample Number	Dilution	Tag	1	2	3	4
L12110037-01	1.00	01	113	113	95.7	95.9
L12110037-02	1000	DL01	112	113	96.2	96.2
L12110037-03	1000	DL01	118	114	93.2	96.4
L12110037-04	1000	DL01	116	115	95.5	96.8
L12110037-05	1.00	01	112	113	95.0	96.1
L12110037-06	1.00	01	113	113	95.9	96.7
L12110037-07	1.00	01	112	113	96.1	96.6
L12110037-08	1.00	01	114	114	94.9	95.9
L12110037-09	1.00	01	116	115	93.8	96.1
L12110037-10	1.00	01	115	115	96.8	96.6
L12110037-11	1.00	01	113	113	95.5	95.0
WG413811-01	1.00	01	117	115	95.8	95.8
WG413811-02	1.00	01	119	115	95.0	95.3
WG413811-06	1.00	01	100	108	93.9	97.2

Surrogates	Surrogate Limits		
1 - 1,2-Dichloroethane-d4	80	-	120
2 - Dibromofluoromethane	86	-	118
3 - 4-Bromofluorobenzene	86	-	115
4 - Toluene-d8	88	-	110

Underline = Result out of surrogate limits

DL = surrogate diluted out
ND = surrogate not detected

SURROGATES - Modified 03/06/2008
PDF File ID: 2658504
Report generated: 11/09/2012 13:08

Microbac Laboratories Inc.

METHOD BLANK SUMMARY

Login Number: L12110037
Work Group: WG413811
Blank File ID: 6M112581
Blank Sample ID: WG413811-01
Prep Date: 11/08/12 15:56
Instrument ID: HPMS6
Analyzed Date: 11/08/12 15:56
Method: 8260B
Analyst: ADC

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG413811-02	6M112584	11/08/12 17:34	01
MW16GW1020-103112MS	L12110037-03	6M112585	11/08/12 18:05	DL01
MW16GW1020-103112MSD	L12110037-04	6M112586	11/08/12 18:36	DL01
TRIP BLK-103112	L12110037-07	6M112588	11/08/12 19:38	01
MW16GW1020-103112	L12110037-02	6M112589	11/08/12 20:08	DL01
MW18GW3035-103112	L12110037-01	6M112590	11/08/12 20:39	01
MW22GW2535-103112	L12110037-05	6M112591	11/08/12 21:09	01
MW12GW1424-103112	L12110037-06	6M112592	11/08/12 21:40	01
MW19GW1828-110112	L12110037-08	6M112593	11/08/12 22:10	01
MW03GW1626-110112	L12110037-09	6M112594	11/08/12 22:41	01
MW09GW1424-110112	L12110037-10	6M112595	11/08/12 23:11	01
FD01-110112	L12110037-11	6M112596	11/08/12 23:42	01

Report Name: BLANK_SUMMARY
PDF File ID: 2658857
Report generated 11/09/2012 13:08

Microbac Laboratories Inc.

METHOD BLANK REPORT

Login Number: L12110037 Prep Date: 11/08/12 15:56 Sample ID: WG413811-01
Instrument ID: HPMS6 Run Date: 11/08/12 15:56 Prep Method: 5030B/5030C/503
File ID: 6M112581 Analyst: ADC Method: 8260B
Workgroup (AAB#): WG413811 Matrix: Water Units: ug/L
Contract #: Cal ID: HPMS6-01-OCT-12

Analytes	MDL	RL	Concentration	Dilution	Qualifier
Bromomethane	0.500	10.0	0.500	1	U
Chloromethane	0.500	10.0	0.500	1	U
Methylene chloride	0.250	5.00	0.250	1	U
Trichloroethene	0.250	5.00	0.250	1	U
Trichlorofluoromethane	0.250	10.0	0.250	1	U

Surrogates	% Recovery	Surrogate Limits	Qualifier
Dibromofluoromethane	115	86 - 118	PASS
1,2-Dichloroethane-d4	117	80 - 120	PASS
Toluene-d8	95.8	88 - 110	PASS
4-Bromofluorobenzene	95.8	86 - 115	PASS

MDL Method Detection Limit
RL Reporting/Practical Quantitation Limit
ND Analyte Not detected at or above reporting limit
* |Analyte concentration| > RL

Report Name:BLANK
PDF ID: 2658858
09-NOV-2012 13:08

Microbac Laboratories Inc.
LABORATORY CONTROL SAMPLE (LCS)

Login Number: L12110037 Run Date: 11/08/2012 Sample ID: WG413811-02
Instrument ID: HPMS6 Run Time: 17:34 Prep Method: 5030B/5030C/503
File ID: 6M112584 Analyst: ADC Method: 8260B
Workgroup (AAB#): WG413811 Matrix: Water Units: ug/L
QC Key: ASHLAND Lot#: STD54557 Cal ID: HPMS6-01-OCT-12

Analytes	Expected	Found	% Rec	LCS Limits	Q
Bromomethane	20.0	20.2	101	30 - 145	
Chloromethane	20.0	19.0	94.8	40 - 125	
Methylene chloride	20.0	18.9	94.7	80 - 123	
Trichloroethene	20.0	22.3	112	80 - 122	
Trichlorofluoromethane	20.0	24.4	122	62 - 151	

Surrogates	% Recovery	Surrogate Limits	Qualifier
Dibromofluoromethane	115	86 - 118	PASS
1,2-Dichloroethane-d4	119	80 - 120	PASS
Toluene-d8	95.3	88 - 110	PASS
4-Bromofluorobenzene	95.0	86 - 115	PASS

* EXCEEDS %REC LIMIT

LCS - Modified 03/06/2008
PDF File ID: 2658500
Report generated: 11/09/2012 13:08

Microbac Laboratories Inc.

MS/MSD REPORT

Loginnum: L12110037 Cal ID: HPMS6- 01-OCT-12 Worknum: WG413811

Instrument ID: HPMS6 Contract #: Prep Method: 5030B/5030C/

Parent ID: L12110037-02 File ID: 6M112589 Dil: 1000 Method: 5035A

Sample ID: L12110037-03 MS File ID: 6M112585 Dil: 1000 Matrix: 8260B

Sample ID: L12110037-04 MSD File ID: 6M112586 Dil: 1000 Units: Water

ug/L

Analyte	Parent	MS Spiked	MS Found	MS %Rec	MSD Spiked	MSD Found	MSD %Rec	%RPD	%Rec Limits	RPD Limit	Q
Bromomethane	U	20000	18400	92	20000	18800	93.9	2.02	30 - 145	20	
Chloromethane	U	20000	17500	87.3	20000	16800	83.8	4.07	40 - 125	20	
Methylene chloride	U	20000	18500	92.7	20000	18900	94.6	2.03	80 - 123	20	
Trichloroethene	U	20000	21400	107	20000	21300	106	0.414	80 - 122	20	
Trichlorofluoromethane	225000	20000	200000	-127	20000	233000	40.7	15.5	62 - 151	20	*

* FAILS %REC LIMIT

FAILS RPD LIMIT

MS_MSD - Modified 03/06/2008

PDF File ID: 2658501

Report generated 11/09/2012 13:08

Microbac Laboratories Inc.
ORGANIC INSTRUMENT CHECK

BFB

Login Number: L12110037
Instrument: HPMS6
Analyst: ADC
Workgroup: WG410211

Tune ID: WG410211-01
Run Date: 10/01/2012
Run Time: 13:37
File ID: 6M111451
Cal ID: HPMS6-01-OCT-12

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50.0	95.0	15.0	40.0	15.5	4274	PASS
75.0	95.0	30.0	60.0	45.3	12486	PASS
95.0	95.0	100	100	100	27572	PASS
96.0	95.0	5.00	9.00	6.56	1810	PASS
173	174	0	2.00	0	0	PASS
174	95.0	50.0	100	92.1	25397	PASS
175	174	5.00	9.00	7.10	1803	PASS
176	174	95.0	101	97.3	24720	PASS
177	176	5.00	9.00	6.89	1702	PASS

This check relates to the following samples:

Lab ID	Client ID	Tag	Date Analyzed	Q
WG410211-02	STD	01	10/01/2012 14:50	
WG410211-03	STD	01	10/01/2012 15:20	
WG410211-04	STD	01	10/01/2012 15:51	
WG410211-05	STD	01	10/01/2012 16:22	
WG410211-06	STD	01	10/01/2012 16:53	
WG410211-07	STD	01	10/01/2012 17:24	
WG410211-08	STD-CCV	01	10/01/2012 17:55	
WG410211-09	STD	01	10/01/2012 18:26	
WG410211-10	STD	01	10/01/2012 20:23	
WG410211-11	STD	01	10/01/2012 20:54	
WG410211-12	SSCV	01	10/01/2012 21:56	

* Sample past 12 hour tune limit

TUNE - Modified 03/06/2008
PDF File ID: 2658859
Report generated 11/09/2012 13:08

Microbac Laboratories Inc.
ORGANIC INSTRUMENT CHECK

BFB

Login Number: L12110037
Instrument: HPMS6
Analyst: ADC
Workgroup: WG413810

Tune ID: WG413810-01
Run Date: 11/08/2012
Run Time: 14:20
File ID: 6M112578
Cal ID: HPMS6-01-OCT-12

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50.0	95.0	15.0	40.0	15.0	2795	PASS
75.0	95.0	30.0	60.0	44.8	8323	PASS
95.0	95.0	100	100	100	18578	PASS
96.0	95.0	5.00	9.00	7.08	1315	PASS
173	174	0	2.00	0	0	PASS
174	95.0	50.0	100	97.0	18029	PASS
175	174	5.00	9.00	7.69	1387	PASS
176	174	95.0	101	98.5	17752	PASS
177	176	5.00	9.00	6.81	1209	PASS

This check relates to the following samples:

Lab ID	Client ID	Tag	Date Analyzed	Q
WG413810-02	CCV	01	11/08/2012 14:51	
WG413811-01	BLANK	01	11/08/2012 15:56	
WG413811-02	LCS	01	11/08/2012 17:34	
L12110037-03	MW16GW1020-103112MS	DL01	11/08/2012 18:05	
L12110037-04	MW16GW1020-103112MSD	DL01	11/08/2012 18:36	
L12110037-07	TRIP BLK-103112	01	11/08/2012 19:38	
L12110037-02	MW16GW1020-103112	DL01	11/08/2012 20:08	
L12110037-01	MW18GW3035-103112	01	11/08/2012 20:39	
L12110037-05	MW22GW2535-103112	01	11/08/2012 21:09	
L12110037-06	MW12GW1424-103112	01	11/08/2012 21:40	
L12110037-08	MW19GW1828-110112	01	11/08/2012 22:10	
L12110037-09	MW03GW1626-110112	01	11/08/2012 22:41	
L12110037-10	MW09GW1424-110112	01	11/08/2012 23:11	
L12110037-11	FD01-110112	01	11/08/2012 23:42	
WG413811-06	BLANK2	01	11/09/2012 02:44	*

* Sample past 12 hour tune limit

TUNE - Modified 03/06/2008
PDF File ID: 2658859
Report generated 11/09/2012 13:08

Calibration Table Report
Method: A9FOOWTR.M
Title: A9-FOO Water - IC: 01/25/12 - HPMS6
Last Calibration: Thu Feb 02 09:44:46 2012
Curve: WG388587
Calibration Files

Compound	5 6M105371.D	20 6M105372.D	50 6M105373.D	100 6M105374.D	200 6M105375.D	300 6M105376.D	400 6M105377.D	Avg	%RSD	R^2 LINEAR
Fluorobenzene	ISTD									
Acetonitrile	0.018	0.021	0.024	0.024	0.024	0.025	0.025	0.023	11.902	
3-Chloro-1-propene	0.472	0.497	0.558	0.566	0.573	0.567	0.568	0.543	7.526	
2-Chloro-1,3-butadiene	0.409	0.461	0.530	0.541	0.554	0.549	0.549	0.513	10.953	
Ethyl Acetate	0.123	0.135	0.147	0.153	0.159	0.163	0.167	0.150	10.598	
Methacrylonitrile	0.050	0.054	0.064	0.065	0.068	0.070	0.070	0.063	12.553	
Isobutyl Alcohol		0.006	0.006	0.007	0.007	0.007	0.007	0.007	7.775	
1-Butanol			0.002	0.001	0.002	0.002	0.002	0.002	30.823	FAIL
Methyl methacrylate	0.107	0.132	0.158	0.168	0.176	0.183	0.184	0.158	18.144	1.000
2-Nitropropane	0.030	0.037	0.043	0.047	0.050	0.053	0.055	0.045	19.886	0.999
Chlorobenzene-d5	ISTD									
1,4-Dichlorobenzene-d4	ISTD									
Cyclohexanone		0.017	0.023	0.025	0.029	0.032	0.032	0.026	22.204	0.998

Thu Feb 02 09:47:01 2012

Calibration Table Report
Method: 8260WT.M
Title: 8260B/624_WATER SOP:OVLMSV01 10/01/12 - HPMS6
Last Calibration: Tue Oct 02 12:34:38 2012
Curve: ~~WG409887~~ WG410211
Calibration Files

10/4/12

Compound		0.3 6M11453.D	0.4 6M11454.D	1 6M11455.D	2 6M11456.D	5 6M11457.D	20 6M11458.D	50 6M11459.D	100 6M11460.D	200 6M11461.D	300 6M11462.D	Avg	%RSD	R^2 Linear	R^2 Quadratic
Fluorobenzene	ISTD														
Dichlorodifluoromethane				0.187	0.182	0.193	0.243	0.238	0.233	0.217	0.225	0.215	11.186		
Chloromethane			0.208	0.145	0.140	0.154	0.161	0.160	0.162	0.161	0.173	0.163	12.082		
Vinyl Chloride			0.150	0.156	0.165	0.166	0.179	0.176	0.174	0.166	0.158	0.165	5.861		
1,3-Butadiene					0.136	0.122	0.124	0.114	0.111	0.105	0.096	0.116	11.447		
Bromomethane			0.094	0.124	0.111	0.115	0.135	0.149	0.158	0.161	0.165	0.135	18.702		1.000
Chloroethane			0.101	0.145	0.156	0.170	0.178	0.173	0.170	0.159	0.158	0.157	14.780		
Trichlorofluoromethane			0.305	0.356	0.370	0.381	0.414	0.392	0.402	0.388	0.397	0.378	8.620		
Diethyl ether				0.149	0.147	0.150	0.144	0.142	0.142		0.134	0.144	3.850		
Isoprene			0.264	0.295	0.312	0.330	0.338	0.349	0.349	0.341	0.334	0.323	8.815		
Acrolein					0.008	0.009	0.009	0.009	0.009		0.009	0.009	4.658		
1,1,2-Trichloro-1,2,2-Trifluoroe			0.111	0.197	0.207	0.226	0.234	0.229	0.231	0.217	0.224	0.208	18.489	0.999	
Acetone						0.024	0.023	0.023	0.024	0.026	0.025	0.024	4.780		
1,1-Dichloroethene			0.323	0.349	0.348	0.357	0.382	0.362	0.366	0.361	0.364	0.357	4.547		
Tert-Butyl Alcohol					0.008	0.008	0.007	0.007	0.007		0.008	0.007	3.942		
Dimethyl Sulfide			0.136	0.199	0.213	0.212	0.213	0.217	0.215	0.208	0.211	0.203	12.635		
Iodomethane				0.051	0.090	0.136	0.213	0.244	0.259	0.248	0.232	0.184	43.582	0.997	
Methyl acetate				0.065	0.067	0.079	0.072	0.070	0.070	0.073	0.075	0.071	6.037		
Methylene Chloride			0.193	0.222	0.228	0.239	0.240	0.233	0.227	0.215	0.215	0.223	6.551		
Carbon Disulfide			0.642	0.674	0.697	0.710	0.714	0.740	0.746	0.709	0.706	0.704	4.493		
Acrylonitrile						0.045	0.049	0.049	0.049	0.049	0.048	0.048	3.331		
Methyl Tert Butyl Ether			0.359	0.406	0.393	0.405	0.410	0.416	0.418	0.411	0.412	0.403	4.499		
trans-1,2-Dichloroethene			0.196	0.228	0.223	0.235	0.249	0.238	0.246	0.240	0.239	0.233	6.931		
n-Hexane			0.214	0.246	0.274	0.280	0.280	0.288	0.276	0.253	0.260	0.263	8.835		
Diisopropyl ether				0.713	0.704	0.731	0.697	0.699	0.672		0.634	0.693	4.553		
Vinyl Acetate						0.255	0.266	0.262	0.259	0.225	0.215	0.247	8.737		
1,1-Dichloroethane			0.376	0.436	0.445	0.444	0.462	0.440	0.446	0.431	0.424	0.434	5.551		
Ethyl-Tert-Butyl ether				0.646	0.639	0.657	0.630	0.645	0.629		0.614	0.637	2.227		
2-Butanone						0.039	0.040	0.040	0.040	0.042	0.041	0.040	2.454		
Propionitrile				0.012	0.015	0.014	0.014	0.015	0.015		0.016	0.014	8.309		
2,2-Dichloropropane			0.340	0.341	0.343	0.358	0.385	0.380	0.380	0.352	0.349	0.359	5.041		
cis-1,2-Dichloroethene			0.196	0.243	0.242	0.248	0.264	0.253	0.260	0.255	0.252	0.246	8.129		
Chloroform		0.362	0.357	0.408	0.413	0.420	0.435	0.419	0.430	0.418	0.417	0.408	6.553		
1-Bromopropane				0.017	0.035	0.040	0.044	0.045	0.045	0.045	0.045	0.040	24.888	1.000	
Bromochloromethane			0.068	0.136	0.132	0.141	0.146	0.141	0.143	0.137	0.134	0.131	18.225	0.999	
Tetrahydrofuran				0.028	0.027	0.027	0.026	0.026	0.026		0.026	0.027	3.547		
Dibromofluoromethane				0.254	0.237	0.231	0.222	0.231	0.239	0.234	0.234	0.235	3.839		
1,1,1-Trichloroethane			0.336	0.367	0.377	0.391	0.410	0.402	0.407	0.389	0.390	0.385	6.035		
Cyclohexane			0.384	0.390	0.395	0.402	0.388	0.404	0.395	0.368	0.366	0.388	3.451		
1,1-Dichloropropene			0.300	0.318	0.317	0.331	0.347	0.350	0.350	0.333	0.332	0.331	5.158		
Tert-Amyl-Methyl ether				0.463	0.458	0.473	0.460	0.478	0.474		0.469	0.468	1.599		
Carbon Tetrachloride			0.296	0.328	0.334	0.358	0.379	0.376	0.377	0.367	0.361	0.3529	7.9808		
1,2-Dichloroethane-d4				0.23	0.22	0.213	0.196	0.203	0.208	0.202	0.203	0.2093	5.3614		
Heptane												0	0		
1,2-Dichloroethane			0.204	0.242	0.258	0.262	0.271	0.266	0.269	0.258	0.259	0.254	8.1815		
Benzene			0.947	0.959	0.933	0.957	0.987	0.97	0.959	0.894	0.868	0.9416	4.0357		
Trichloroethene			0.244	0.241	0.252	0.261	0.275	0.278	0.279	0.268	0.267	0.2629	5.4036		
Methylcyclohexane			0.242	0.268	0.28	0.303	0.294	0.307	0.301	0.289	0.298	0.2868	7.2279		
1,2-Dichloropropane			0.188	0.231	0.236	0.249	0.257	0.258	0.255	0.243	0.243	0.2398	9.0285		
1,4-Dioxane						0.001	0.001	0.001	0.001		0.001	0.0008	10.548		
Bromodichloromethane			0.257	0.27	0.28	0.294	0.316	0.319	0.321	0.312	0.315	0.2982	8.0432		
Dibromomethane			0.06	0.1	0.103	0.107	0.112	0.114	0.115	0.112	0.114	0.1042	16.831	1	
2-Chloroethyl Vinyl Ether						0.084	0.088	0.095	0.097	0.095	0.097	0.0927	5.7635		
4-Methyl-2-Pentanone						0.039	0.043	0.045	0.044	0.044	0.044	0.0432	4.9059		
cis-1,3-Dichloropropene			0.259	0.307	0.308	0.337	0.369	0.373	0.371	0.354	0.356	0.337	11.474		
Dimethyl Disulfide					0.134	0.155	0.175	0.197	0.2	0.198	0.203	0.1804	14.895		
Chlorobenzene-d5	ISTD														
Toluene-d8				1.372	1.265	1.168	1.116	1.17	1.18	1.146	1.124	1.1927	7.1872		
Toluene			1.326	1.39	1.305	1.397	1.43	1.4	1.386	1.304	1.248	1.354	4.4367		
Ethyl Methacrylate				0.198	0.196	0.216	0.224	0.241	0.241	0.239	0.237	0.2239	8.4228		
Paraldehyde					0.002	0.002	0.003	0.003	0.003		0.003	0.0026	16.372	0.997	
trans-1,3-Dichloropropene			0.217	0.297	0.316	0.358	0.401	0.411	0.413	0.395	0.394	0.3556	18.823	1	
1,1,2-Trichloroethane			0.164	0.185	0.197	0.205	0.212	0.214	0.212	0.204	0.204	0.1998	8.0412		
2-Hexanone						0.073	0.079	0.085	0.084	0.083	0.079	0.0804	5.4801		
1,3-Dichloropropane			0.247	0.318	0.335	0.351	0.372	0.374	0.373	0.357	0.357	0.3426	11.818		
Tetrachloroethene			0.394	0.364	0.367	0.394	0.402	0.404	0.4	0.385	0.377	0.3875	3.9156		
Dibromochloromethane			0.197	0.266	0.264	0.282	0.307	0.315	0.316	0.308	0.31	0.2851	13.6		
1,2-Dibromoethane			0.132	0.183	0.184	0.204	0.218	0.227	0.224	0.218	0.22	0.2011	15.236	1	
1-Chlorohexane				0.379	0.38	0.43	0.409	0.429	0.42	0.407	0.403	0.4073	4.8991		
Chlorobenzene		0.851	0.866	0.899	0.916	0.93	0.95	0.94	0.929	0.875	0.85	0.9004	4.1834		
1,1,1,2-Tetrachloroethane			0.279	0.323	0.323	0.335	0.353	0.353	0.347	0.328	0.321	0.3291	6.923		
Ethylbenzene			0.438	0.47	0.46	0.489	0.501	0.498	0.489	0.463	0.449	0.4731	4.7258		
m-,p-Xylene			0.521	0.553	0.571	0.589	0.603	0.596	0.583	0.534	0.514	0.5627	5.9494		
o-Xylene			0.475	0.555	0.549	0.575	0.595	0.588	0.574	0.54	0.535	0.5541	6.5643		
Styrene			0.745	0.802	0.845	0.929	0.977	0.971	0.96	0.898	0.881	0.8897	9.0275		
Bromoform				0.133	0.158	0.172	0.182	0.192	0.191	0.186	0.186	0.1751	11.542		
Isopropylbenzene			1.314	1.311	1.361	1.43	1.476	1.457	1.418	1.318	1.271	1.373	5.3874		
1,4-Dichlorobenzene-d4	ISTD														
1,1,2,2-Tetrachloroethane			0.286	0.392	0.369	0.398	0.409	0.415	0.409	0.398	0.403	0.3866	10.361		
p-Bromofluorobenzene				0.977	0.843	0.803	0.766	0.805	0.812	0.792	0.801	0.8249	7.8693		

1,2,3-Trichloropropane			0.074	0.099	0.114	0.12	0.12	0.117	0.116	0.117	0.1095	14.509
trans-1,4-Dichloro-2-Butene				0.071	0.099	0.112	0.121	0.119	0.12	0.118	0.1086	16.818
n-Propylbenzene		2.576	2.728	2.726	2.895	3.055	2.999	2.933	2.727	2.617	2.8061	6.0487
Bromobenzene	0.593	0.564	0.627	0.683	0.73	0.764	0.757	0.749	0.725	0.725	0.6918	10.418
1,3,5-Trimethylbenzene		1.894	1.931	1.974	2.085	2.199	2.171	2.15	2.035	1.996	2.0484	5.335
2-Chlorotoluene		1.917	2.033	2.069	2.19	2.247	1.946	2.162	2.044	2.016	2.0691	5.348
4-Chlorotoluene		1.641	1.778	1.813	1.888	1.984	1.949	1.937	1.834	1.786	1.8457	5.7865
a-Methylstyrene		0.828	0.999	0.997	1.152	1.195	1.252	1.239	1.195	1.188	1.1161	12.804
tert-Butylbenzene		0.287	0.377	0.404	0.434	0.437	0.437	0.422	0.408	0.402	0.4009	11.708
1,2,4-Trimethylbenzene		1.858	2.036	2.081	2.178	2.243	2.204	2.167	2.038	1.994	2.0887	5.823
sec-Butylbenzene		2.196	2.222	2.226	2.311	2.402	2.363	2.301	2.173	2.109	2.2558	4.1991
p-Isopropyltoluene		1.747	1.835	1.824	1.96	2.043	2.025	1.99	1.881	1.831	1.9038	5.4526
1,3-Dichlorobenzene		1.204	1.286	1.288	1.337	1.403	1.382	1.358	1.282	1.27	1.3122	4.7777
1,4-Dichlorobenzene	1.168	1.224	1.318	1.311	1.364	1.395	1.399	1.376	1.296	1.279	1.3131	5.7458
n-Butylbenzene		1.494	1.615	1.608	1.645	1.75	1.733	1.681	1.585	1.552	1.6293	5.0873
1,2-Dichlorobenzene	1.055	1.078	1.145	1.154	1.205	1.229	1.236	1.204	1.144	1.138	1.1587	5.2472
1,2-Dibromo-3-Chloropropane				0.048	0.058	0.063	0.064	0.064	0.065	0.065	0.0611	10.058
1,2,4-Trichlorobenzene		0.685	0.757	0.739	0.77	0.802	0.803	0.778	0.741	0.727	0.7559	5.0215
Hexachlorobutadiene		0.331	0.289	0.332	0.345	0.358	0.357	0.351	0.336	0.32	0.3354	6.4982
Naphthalene		1.149	1.192	1.211	1.279	1.316	1.349	1.293	1.259	1.239	1.2542	5.0369
1,2,3-Trichlorobenzene	0.555	0.61	0.632	0.636	0.645	0.667	0.674	0.65	0.626	0.612	0.6307	5.3938

Wed Oct 03 14:54:01 2012

Microbac Laboratories Inc.
ALTERNATE SOURCE CALIBRATION REPORT

Login Number: L12110037 Run Date: 10/01/2012 Sample ID: WG410211-12
Instrument ID: HPMS6 Run Time: 21:56 Method: 8260B
File ID: 6M111464 Analyst: ADC QC Key: ASHLAND
ICal Workgroup: WG410211 Cal ID: HPMS6 - 01-OCT-12

Analyte		Expected	Found	Units	RF	%D	UCL	Q
Chlorobenzene	SPCC	50.0	52.9	ug/L	0.952	5.70	25	
1,1,2,2-Tetrachloroethane	SPCC	50.0	52.3	ug/L	0.404	4.50	25	
1,1-Dichloroethane	SPCC	50.0	52.0	ug/L	0.451	4.00	25	
Bromoform	SPCC	50.0	53.6	ug/L	0.188	7.30	25	
Chloromethane	SPCC	50.0	48.1	ug/L	0.157	3.80	25	
Bromomethane		50.0	41.5	ug/L	0.124	16.9	25	
Methylene Chloride		50.0	53.1	ug/L	0.238	6.30	25	
Trichloroethene		50.0	54.6	ug/L	0.287	9.20	25	
Trichlorofluoromethane		50.0	52.0	ug/L	0.393	4.00	25	

* Exceeds %D Limit

CCC Calibration Check Compounds
SPCC System Performance Check Compounds

ALT - Modified 09/06/2007
Version 1.5 PDF File ID: 2658502
Report generated 11/09/2012 13:08

Microbac Laboratories Inc.

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L12110037 Run Date: 11/08/2012 Sample ID: WG413810-02

Instrument ID: HPMS6 Run Time: 14:51 Method: 8260B

File ID: 6M112579 Analyst: ADC QC Key: ASHLAND

Workgroup (AAB#): WG413811 Cal ID: HPMS6 - 01-OCT-12

Matrix: WATER

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
1,1-Dichloroethene	CCC	50.0	44.9	ug/L	0.320	10.3	20	
1,2-Dichloropropane	CCC	50.0	44.6	ug/L	0.214	10.7	20	
Chloroform	CCC	50.0	54.8	ug/L	0.447	9.63	20	
Ethylbenzene	CCC	50.0	50.3	ug/L	0.475	0.501	20	
Toluene	CCC	50.0	46.6	ug/L	1.26	6.78	20	
Vinyl Chloride	CCC	50.0	46.7	ug/L	0.154	6.69	20	
1,1,2,2-Tetrachloroethane	SPCC	50.0	50.0	ug/L	0.386	0.0598	20	
1,1-Dichloroethane	SPCC	50.0	47.4	ug/L	0.411	5.22	20	
Bromoform	SPCC	50.0	65.3	ug/L	0.229	30.5	20	*
Chlorobenzene	SPCC	50.0	50.2	ug/L	0.904	0.401	20	
Chloromethane	SPCC	50.0	31.9	ug/L	0.104	36.1	20	*
Bromomethane		50.0	44.4	ug/L	0.133	11.2	20	
Methylene Chloride		50.0	47.2	ug/L	0.211	5.52	20	
Trichloroethene		50.0	53.8	ug/L	0.283	7.55	20	
Trichlorofluoromethane		50.0	51.9	ug/L	0.393	3.89	20	

* Exceeds %D Criteria

CCC Calibration Check Compounds
SPCC System Performance Check Compounds

CCV - Modified 03/05/2008
PDF File ID: 2658503
Report generated 11/09/2012 13:08

Microbac Laboratories Inc.

INTERNAL STANDARD AREA SUMMARY
(COMPARED TO MIDPOINT OF ICAL)

Login Number:L12110037
Instrument ID:HPMS6
Workgroup (AAB#):WG413811

ICAL CCV Number:WG410211-08
CAL ID: HPMS6-01-OCT-12
Matrix:WATER

Sample Number	Dilution	Tag	IS-1	IS-2	IS-3
WG410211-08	NA	NA	275844	504850	685709
Upper Limit	NA	NA	551688	1009700	1371418
Lower Limit	NA	NA	137922	252425	342855
L12110037-01	1.00	01	231366	416784	540455
L12110037-02	1000	DL01	228447	419268	541311
L12110037-03	1000	DL01	249050	431673	548951
L12110037-04	1000	DL01	250124	431025	552160
L12110037-05	1.00	01	229000	411728	529903
L12110037-06	1.00	01	225531	409329	531864
L12110037-07	1.00	01	230459	415179	543091
L12110037-08	1.00	01	226550	409620	529125
L12110037-09	1.00	01	229058	411841	526783
L12110037-10	1.00	01	223334	407982	528079
L12110037-11	1.00	01	221166	405543	525046
WG413811-01	1.00	01	243110	435159	562804
WG413811-02	1.00	01	247095	434040	557457

IS-1 - 1,4-Dichlorobenzene-d4
IS-2 - Chlorobenzene-d5
IS-3 - Fluorobenzene

Underline = Response outside limits

INTERNAL_STD_ICAL - Modified 03/06/2008
PDF File ID: 2658860
Report generated 11/09/2012 13:08

Microbac Laboratories Inc.

INTERNAL STANDARD RETENTION TIME SUMMARY
(COMPARED TO MIDPOINT OF ICAL)

Login Number: L12110037
Instrument ID: HPMS6
Workgroup (AAB#): WG413811

ICAL CCV Number: WG410211-08
CAL ID: HPMS6-01-OCT-12
Matrix: WATER

Sample Number	Dilution	Tag	IS-1	IS-2	IS-3
WG410211-08	NA	NA	18.4	14.85	10.37
Upper Limit	NA	NA	18.9	15.35	10.87
Lower Limit	NA	NA	17.9	14.35	9.87
L12110037-01	1.00	01	18.39	14.84	10.36
L12110037-02	1000	DL01	18.39	14.84	10.36
L12110037-03	1000	DL01	18.4	14.83	10.36
L12110037-04	1000	DL01	18.4	14.83	10.36
L12110037-05	1.00	01	18.39	14.84	10.36
L12110037-06	1.00	01	18.4	14.83	10.36
L12110037-07	1.00	01	18.4	14.84	10.36
L12110037-08	1.00	01	18.39	14.84	10.36
L12110037-09	1.00	01	18.39	14.84	10.36
L12110037-10	1.00	01	18.4	14.83	10.35
L12110037-11	1.00	01	18.39	14.84	10.36
WG413811-01	1.00	01	18.39	14.84	10.36
WG413811-02	1.00	01	18.4	14.84	10.36

IS-1 - 1,4-Dichlorobenzene-d4
IS-2 - Chlorobenzene-d5
IS-3 - Fluorobenzene

Underline = Response outside limits

INTERNAL_STD_RT_ICAL - Modified 03/06/2008
PDF File ID: 2658861
Report generated: 11/09/2012 13:08

3.0 Attachments

Microbac Laboratories Inc.
Ohio Valley Division Analyst List
November 9, 2012

ADC – ANTHONY D. CANTER	AJF – AMANDA J. FICKIESEN	AML – TONY M. LONG
AZH – AFTER HOURS	BAF – BRICE A. FENTON	BLG – BRENDA L. GREENWALT
BRG – BRENDA R. GREGORY	CAA – CASSIE A. AUGENSTEIN	CAF – CHERYL A. FLOWERS
CEB – CHAD E. BARNES	CLC – CHRYS L. CRAWFORD	CLS – CARA L. STRICKLER
CLW – CHARISSA L. WINTERS	CPD – CHAD P. DAVIS	CSH – CHRIS S. HILL
CTB – CHRIS T. BUCINA	DDE – DEBRA D. ELLIOTT	DEV – DAVID E. VANDENBERG
DGB – DOUGLAS G. BUTCHER	DIH – DEANNA I. HESSON	DLB – DAVID L. BUMGARNER
DLP – DOROTHY L. PAYNE	DLR – DIANNA L. RAUCH	DSM – DAVID S. MOSSOR
ECL – ERIC C. LAWSON	EDL – ERIN D. LONG	ERP – ERIN R. PORTER
FJB – FRANCES J. BOLDEN	HAV – HEMA VILASAGAR	HJR – HOLLY J. REED
JBK – JEREMY B. KINNEY	JDH – JUSTIN D. HESSON	JKS – JANE K. SCHAAD
JLL – JOHN L. LENT	JWR – JOHN W. RICHARDS	JWS – JACK W. SHEAVES
JYH – JI Y. HU	KEB – KATIE E. BARNES	KHR – KIM H. RHODES
KRA – KATHY R. ALBERTSON	LKN – LINDA K. NEDEFF	LSB – LESLIE S. BUCINA
MDA – MIKE D. ALBERTSON	MDC – MIKE D. COCHRAN	MES – MARY E. SCHILLING
MMB – MAREN M. BEERY	MRT – MICHELLE R. TAYLOR	MSW – MATT S. WILSON
PDM – PIERCE D. MORRIS	QX – QIN XU	RAH – ROY A. HALSTEAD
REK – BOB E. KYER	RLB – BOB BUCHANAN	RS – ROSEMARY SCOTT
RWC – RODNEY W. CAMPBELL	SEP – SUZANNE J. PAUGH	SLM – STEPHANIE L. MOSSBURG
SLP – SHERI L. PFALZGRAF	TIP – TAE I. PARRISH	TMB – TIFFANY M. BAILEY
TMM – TAMMY M. MORRIS	VC – VICKI COLLIER	WJB – WILL J. BEASLEY
WTD – WADE T. DELONG	XXX – UNAVAILABLE OR SUBCONTRACT	

Microbac Laboratories Inc.
List of Valid Qualifiers
November 09, 2012

Qualkey: CLP

Qualifier	Description
*	Surrogate or spike compound out of range
+	Correlation coefficient for the MSA is less than 0.995
<	Result is less than the associated numerical value.
>	Result is greater than the associated numerical value.
A	See the report narrative
B	Analyte present in method blank
B1	Target analyte detected in method blank at or above the method reporting limit
B3	Target analyte detected in calibration blank at or above the method reporting limit
B4	The BOD unseeded dilution water blank exceeded 0.2 mg/L
C	Confirmed by GC/MS
CG	Confluent growth
DL	Surrogate or spike compound was diluted out
E	Semiquantitative result (out of instrument calibration range)
EDL	Elevated sample reporting limits, presence of non-target analytes
EMPC	Estimated Maximum Possible Concentration
F, S	Estimated result below quantitation limit; method of standard additions(MSA)
FL	Free Liquid
H1	Sample analysis performed past holding time.
I	Semiquantitative result (out of instrument calibration range)
J	Estimated concentration.
J	The analyte was positively identified, but the quantitation was below the RL.
J,B	Analyte detected in both the method blank and sample above the MDL.
J,P	Estimate; columns don't agree to within 40%
J,S	Estimated concentration; analyzed by method of standard addition (MSA)
L	Sample reporting limits elevated due to matrix interference
L1	The associated blank spike (LCS) recovery was above the laboratory acceptance limits.
L2	The associated blank spike (LCS) recovery was below the laboratory acceptance limits.
M	Matrix effect; the concentration is an estimate due to matrix effect.
N	Tentatively identified compound(TIC)
NA	Not applicable
ND	Not detected at or above the reporting limit (RL).
ND, L	Not detected; sample reporting limit (RL) elevated due to interference
ND, S	Not detected; analyzed by method of standard addition (MSA)
NF	Not found by library search
NFL	No free liquid
NI	Non-ignitable
NR	Analyte is not required to be analyzed
NS	Not spiked
P	Concentrations >40% difference between the two GC columns
Q	One or more quality control criteria failed. See narrative.
QNS	Quantity of sample not sufficient to perform analysis
RA	Reanalysis confirms reported results
RE	Reanalysis confirms sample matrix interference
S	Analyzed by method of standard addition (MSA)
SMI	Sample matrix interference on surrogate
SP	Reported results are for spike compounds only
TIC	Library Search Compound
TNTC	Too numerous to count
U	Not detected at or above the reporting limit (RL).
UJ	Undetected; the MDL and RL are estimated due to quality control discrepancies.
UJ	Undetected; the analyte was analyzed for, but not detected.
UQ	Undetected; the analyte was analyzed for, but not detected.
W	Post-digestion spike for furnace AA out of control limits
X	Exceeds regulatory limit
X, S	Exceeds regulatory limit; method of standard additions (MSA)
Z	Cannot be resolved from isomer - see below

COC No. A 33883

158 Starlite Drive
Marietta, OH 45750

Microbac

CHAIN-OF-CUSTODY RECORD

Phone: 740-373-4071
Fax: 740-373-4835

Company Name: CH2M HILL

Project Contact: Bernice Kidd | Contact Phone #: 530-229-3203

Turn Around Requirements: Standard | Location: Ashland, OH

Project ID: Dow Ashland PN 436912

Sampler (print): Russ Flowers | Signature:

Program: ☐ CWA ☐ RCRA ☐ DOD ☐ AFCEE ☐ Other

Sample I.D. No.	Comp	Grab	Date	Time	Matrix*	NUMBER OF CONTAINERS	Hold	VOCs (SW 8260B) Per contract	Bromomethane, Chloromethane, methylene Chloride, TCE, Freon-11	TOTAL # (LAB USE)	ADDITIONAL REQUIREMENTS
MW18GW3035-103112		✓	10/31/12	1305	W	3		3			
MW16GW1020-103112		✓	10/31/12	1345	W	3		3			
MW16GW1020-103112	MS	✓	10/31/12	1345	W	3		3			
MW16GW1020-103112	MSD	✓	10/31/12	1345	W	3		3			
MW22GW2535-103112		✓	10/31/12	1430	W	3		3			
MW12GW1424-103112		✓	10/31/12	1510	W	3		3			
Trip Blk-103112		✓	10/31/12	—	W	2		2			
MW19GW1828-110112		✓	11/1/12	1020	W	3		3			
MW03GW1626-110112		✓	11/1/12	1110	W	3		3			
MW09GW1424-110112		✓	11/1/12	1155	W	3		3			
FD01-110112		✓	11/1/12	—	W	3		3			

Microbac OVD
Received: 11/02/2012 08:23
By: JANE SCHAAD
221000029886

Relinquished by: (Signature)	Date	Time	Received by: (Signature)
	11/2/12	0817	Jane K Schaad
Relinquished by: (Signature)	Date	Time	Received for Laboratory by: (Signature)
			Brenda Greenwalt

Date: 11-2-12 | Time: 0817

Remarks: All Samples in Cooler
001-5214

*Water (W), Soil (S), Solid Waste (SD), Unknown (X)

Internal Chain of Custody Report

Login: L12110037
Account: 2736
Project: 2736.059
Samples: 11
Due Date: 16-NOV-2012

Samplenum	Container ID	Products
L12110037-01	123494	826-SPE1

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2012 09:32	CLS		<2
2	ANALYZ	V1	ORG4	05-NOV-2012 08:21	JLL	JKS	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2012 09:32	CLS		<2
2	ANALYZ	V1	ORG4	05-NOV-2012 08:21	JLL	JKS	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2012 09:32	CLS		<2
2	ANALYZ	V1	ORG4	05-NOV-2012 08:21	JLL	JKS	

Samplenum	Container ID	Products
L12110037-02	123495	826-SPE1

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2012 09:32	CLS		<2
2	ANALYZ	V1	ORG4	05-NOV-2012 08:21	JLL	JKS	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2012 09:32	CLS		<2
2	ANALYZ	V1	ORG4	05-NOV-2012 08:21	JLL	JKS	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2012 09:32	CLS		<2
2	ANALYZ	V1	ORG4	05-NOV-2012 08:21	JLL	JKS	

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

Internal Chain of Custody Report

Login: L12110037
Account: 2736
Project: 2736.059
Samples: 11
Due Date: 16-NOV-2012

Samplenum	Container ID	Products
L12110037-03	123496	826-SPE1

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2012 09:32	CLS		<2
2	ANALYZ	V1	ORG4	05-NOV-2012 08:21	JLL	JKS	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2012 09:32	CLS		<2
2	ANALYZ	V1	ORG4	05-NOV-2012 08:21	JLL	JKS	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2012 09:32	CLS		<2
2	ANALYZ	V1	ORG4	05-NOV-2012 08:21	JLL	JKS	

Samplenum	Container ID	Products
L12110037-04	123497	826-SPE1

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2012 09:32	CLS		<2
2	ANALYZ	V1	ORG4	05-NOV-2012 08:21	JLL	JKS	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2012 09:32	CLS		<2
2	ANALYZ	V1	ORG4	05-NOV-2012 08:21	JLL	JKS	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2012 09:32	CLS		<2
2	ANALYZ	V1	ORG4	05-NOV-2012 08:21	JLL	JKS	

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

Internal Chain of Custody Report

Login: L12110037
Account: 2736
Project: 2736.059
Samples: 11
Due Date: 16-NOV-2012

Samplenum	Container ID	Products
L12110037-05	123498	826-SPE1

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2012 09:32	CLS		<2
2	ANALYZ	V1	ORG4	05-NOV-2012 08:21	JLL	JKS	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2012 09:32	CLS		<2
2	ANALYZ	V1	ORG4	05-NOV-2012 08:21	JLL	JKS	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2012 09:32	CLS		<2
2	ANALYZ	V1	ORG4	05-NOV-2012 08:21	JLL	JKS	

Samplenum	Container ID	Products
L12110037-06	123499	826-SPE1

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2012 09:32	CLS		<2
2	ANALYZ	V1	ORG4	05-NOV-2012 08:21	JLL	JKS	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2012 09:32	CLS		<2
2	ANALYZ	V1	ORG4	05-NOV-2012 08:21	JLL	JKS	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2012 09:32	CLS		<2
2	ANALYZ	V1	ORG4	05-NOV-2012 08:22	JLL	JKS	

Samplenum	Container ID	Products
L12110037-07	123500	826-SPE1

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2012 09:32	CLS		<2
2	ANALYZ	V1	ORG4	05-NOV-2012 08:22	JLL	JKS	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2012 09:32	CLS		<2
2	ANALYZ	V1	ORG4	05-NOV-2012 08:22	JLL	JKS	

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

Internal Chain of Custody Report

Login: L12110037
Account: 2736
Project: 2736.059
Samples: 11
Due Date: 16-NOV-2012

Samplenum	Container ID	Products
L12110037-08	123501	826-SPE1

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2012 09:32	CLS		<2
2	ANALYZ	V1	ORG4	05-NOV-2012 08:22	JLL	JKS	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2012 09:32	CLS		<2
2	ANALYZ	V1	ORG4	05-NOV-2012 08:22	JLL	JKS	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2012 09:32	CLS		<2
2	ANALYZ	V1	ORG4	05-NOV-2012 08:22	JLL	JKS	

Samplenum	Container ID	Products
L12110037-09	123502	826-SPE1

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2012 09:32	CLS		<2
2	ANALYZ	V1	ORG4	05-NOV-2012 08:22	JLL	JKS	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2012 09:32	CLS		<2
2	ANALYZ	V1	ORG4	05-NOV-2012 08:22	JLL	JKS	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2012 09:32	CLS		<2
2	ANALYZ	V1	ORG4	05-NOV-2012 08:22	JLL	JKS	

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

Internal Chain of Custody Report

Login: L12110037
Account: 2736
Project: 2736.059
Samples: 11
Due Date: 16-NOV-2012

Samplenum	Container ID	Products
L12110037-10	123503	826-SPE1

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2012 09:32	CLS		<2
2	ANALYZ	V1	ORG4	05-NOV-2012 08:22	JLL	JKS	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2012 09:32	CLS		<2
2	ANALYZ	V1	ORG4	05-NOV-2012 08:22	JLL	JKS	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2012 09:32	CLS		<2
2	ANALYZ	V1	ORG4	05-NOV-2012 08:22	JLL	JKS	

Samplenum	Container ID	Products
L12110037-11	123504	826-SPE1

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2012 09:32	CLS		<2
2	ANALYZ	V1	ORG4	05-NOV-2012 08:22	JLL	JKS	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2012 09:32	CLS		<2
2	ANALYZ	V1	ORG4	05-NOV-2012 08:22	JLL	JKS	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	02-NOV-2012 09:32	CLS		<2
2	ANALYZ	V1	ORG4	05-NOV-2012 08:22	JLL	JKS	

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

Appendix C
Data Quality Evaluation Reports

Dow Former General Latex and Chemical Corporation Site, Ashland, Ohio
Groundwater Investigation-April 2012
Data Quality Evaluation

Introduction

The objective of this data quality evaluation (DQE) report is to assess the data quality of analytical results for groundwater samples collected from the Dow Former General Latex and Chemical Corporation Site located in Ashland, Ohio. CH2M HILL collected samples April 18-19, 2012. Guidance for this DQE report came from the *Quality Assurance Project Plan (QAPP), Former General Latex and Chemical Corporation Site, Ashland, Ohio, RCRA Facility Investigation (August 2008);* the *U.S. Environmental Protection Agency (USEPA) Contract Laboratory National Functional Guidelines (NFG) for Organic Review, October 1999;* and, individual method requirements.

The analytical results were evaluated using the criteria of precision, accuracy, representativeness, comparability and completeness (PARCC) as presented in the QAPP. This report is intended as a general data quality assessment designed to summarize data issues.

Analytical Data

This DQE report covers seven groundwater samples, one field duplicate (FD) and one trip blank (TB). A list of samples included in this DQE is included as Attachment A. The samples were reported in one sample delivery group identified as L12040675. The analyses were performed by Microbac Laboratories, Inc. (MCBM) in Marietta, Ohio. Samples were collected and shipped by overnight carrier to the laboratory for analysis. The samples were analyzed by the method listed in Table 1.

TABLE 1
Analytical Parameters
Groundwater Investigation, Former General Latex and Chemical Corporation Site, Ashland, Ohio

Parameter	Method	Laboratory
Volatile Organic Compounds (VOC)	SW8260B	MCBM

The sample delivery group was assessed by reviewing the following: (1) the chain of custody documentation; (2) holding-time compliance; (3) initial and continuing calibration criteria; (4) method blanks/field blanks; (5) laboratory control sample/laboratory control sample duplicate (LCS/LCSD) recoveries; (6) matrix spike/matrix spike duplicate (MS/MSD) recoveries; (7) surrogate spike recoveries; (8) FD precision; (9) internal standard recoveries; and, (10) the required quality control (QC) samples at the specified frequencies.

Data flags were assigned according to the QAPP. Multiple flags are routinely applied to specific sample method/matrix/analyte combinations, but there will only be one final flag. A final flag is

applied to the data and is the most conservative of the applied validation flags. The final flag also includes matrix and blank sample impacts.

The data flags are those listed in the QAPP and are defined below:

- J = The identification of the analyte was acceptable, but the quality assurance criteria indicate that the quantitative values may be outside the normal expected range of precision (i.e. the quantitative value is considered estimated).
- R = The result was rejected. This flag denotes the failure of quality control criteria such that it cannot be determined if the analyte is present or absent in the sample.
- U = The analyte was analyzed for but not detected.
- UJ = The analyte was not detected. However, the reported detection limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

Findings

The overall summaries of the data validation are contained in the following sections.

No data were qualified.

Holding Time/Preservation

All acceptance criteria were met.

Calibration

Initial and continuing calibration analyses were performed as required and all acceptance criteria.

Method Blanks

Method blanks were analyzed at the required frequency and were free of contamination.

Field Blanks

A TB was collected, analyzed and was free of contamination.

Laboratory Control Samples

LCS/LCSDs were analyzed as required and all accuracy and precision criteria were met.

Matrix Spike

A MS/MSD sample was analyzed as required and all accuracy and precision criteria were met.

Internal Standards

All internal standard acceptance criteria were met.

Surrogates

All surrogate acceptance criteria were met.

Field Duplicates

One FD was collected, analyzed and all precision criteria were met.

Chain of Custody

Required procedures were followed and were free of errors.

Overall Assessment

The goal of this assessment is to demonstrate that a sufficient number of representative samples were collected and the resulting analytical data can be used to support the decision making process. The following summary highlights the PARCC findings for the above-defined events:

Precision of the data was verified through the review of the field and laboratory data quality indicators that include: FD, LCS/LCSD and MS/MSD relative percent differences. Precision was acceptable.

Accuracy of the data was verified through the review of the calibration data, LCS/LCSD, MS/MSD, internal standards and surrogate standard recoveries. Accuracy was acceptable.

Representativeness of the data was verified through the samples' collection, storage and preservation procedures, verification of holding-time compliance and the evaluation of method/field blank data. The laboratory did not note any issues related to sample preservation or storage of the samples. All samples were analyzed within the EPA-recommended holding time. The method blanks and field blank were free of contamination.

Comparability of the data was verified through the use of standard EPA analytical procedures and standard units for reporting. Results obtained are comparable to industry standards in that the collection and analytical techniques followed approved, documented procedures.

Completeness is a measure of the number of valid measurements obtained in relation to the total number of measurements planned. Completeness is expressed as the percentage of valid or usable measurements compared to planned measurements. Valid data are defined as all data that are not rejected for project use. All data were considered valid. The completeness goal was met for all compounds.

Attachment A

Samples Associated with DQE		
Field ID	**Sample Date**	**QAQC Type**
FD01-041912	19-Apr-12	FD
MW03GW1626-041912	19-Apr-12	N
MW09GW1424-041912	19-Apr-12	N
MW12GW1424-041812	18-Apr-12	N
MW16GW1020-041812	18-Apr-12	N
MW18GW3035-041812	18-Apr-12	N
MW19GW1828-041912	19-Apr-12	N
MW22GW2535-041812	18-Apr-12	N
TRIP BLANK-041912	19-Apr-12	TB

Notes:
FD = field duplicate
N = normal sample
TB = trip blank

Dow Former General Latex and Chemical Corporation Site, Ashland, Ohio
Groundwater Investigation – October 2012
Data Quality Evaluation

Introduction

The objective of this data quality evaluation (DQE) report is to assess the data quality of analytical results for groundwater samples collected from the Dow Former General Latex and Chemical Corporation Site located in Ashland, Ohio. CH2M HILL collected samples October 31 and November 1, 2012. Guidance for this DQE report came from the *Quality Assurance Project Plan (QAPP), Former General Latex and Chemical Corporation Site, Ashland, Ohio, RCRA Facility Investigation (August 2008);* the *U.S. Environmental Protection Agency (USEPA) Contract Laboratory National Functional Guidelines (NFG) for Organic Review, October 1999;* and, individual method requirements.

The analytical results were evaluated using the criteria of precision, accuracy, representativeness, comparability and completeness (PARCC) as presented in the QAPP. This report is intended as a general data quality assessment designed to summarize data issues.

Analytical Data

This DQE report covers seven groundwater samples, one field duplicate (FD) and one trip blank (TB). A list of samples included in this DQE is included as Attachment A. The samples were reported in one sample delivery group identified as L12110037. The analyses were performed by Microbac Laboratories, Inc. (MCBM) in Marietta, Ohio. Samples were collected and shipped by overnight carrier to the laboratory for analysis. The samples were analyzed by the method listed in Table 1.

TABLE 1
Analytical Parameters
Groundwater Investigation, Former General Latex and Chemical Corporation Site, Ashland, Ohio

Parameter	Method	Laboratory
Volatile Organic Compounds (VOC)	SW8260B	MCBM

The sample delivery group was assessed by reviewing the following: (1) the chain of custody documentation; (2) holding-time compliance; (3) initial and continuing calibration criteria; (4) method blanks/field blanks; (5) laboratory control sample/laboratory control sample duplicate (LCS/LCSD) recoveries; (6) matrix spike/matrix spike duplicate (MS/MSD) recoveries; (7) surrogate spike recoveries; (8) FD precision; (9) internal standard recoveries; and, (10) the required quality control (QC) samples at the specified frequencies.

Data flags were assigned according to the QAPP. Multiple flags are routinely applied to specific sample method/matrix/analyte combinations, but there will only be one final flag. A final flag is

applied to the data and is the most conservative of the applied validation flags. The final flag also includes matrix and blank sample impacts.

The data flags are those listed in the QAPP and are defined below:

- J = The identification of the analyte was acceptable, but the quality assurance criteria indicate that the quantitative values may be outside the normal expected range of precision (i.e. the quantitative value is considered estimated).
- R = The result was rejected. This flag denotes the failure of quality control criteria such that it cannot be determined if the analyte is present or absent in the sample.
- U = The analyte was analyzed for but not detected.
- UJ = The analyte was not detected. However, the reported detection limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

Findings

The overall summaries of the data validation are contained in the following sections. Qualified data are listed in Table 2.

Holding Time/Preservation

All acceptance criteria were met.

Calibration

Initial and continuing calibration analyses were performed as required and all acceptance criteria with the following exception:

The percent difference (%D) for chloromethane was less than criteria in the continuing calibration verification (CCV) standard, indicating a possible low bias. The data were qualified as estimated non-detects and flagged "UJ" in the samples.

Method Blanks

Method blanks were analyzed at the required frequency and were free of contamination.

Field Blanks

A TB was collected, analyzed and was free of contamination.

Laboratory Control Samples

LCS/LCSDs were analyzed as required and all accuracy and precision criteria were met.

Matrix Spike

A MS/MSD sample was analyzed as required and all accuracy and precision criteria were met.

Internal Standards

All internal standard acceptance criteria were met.

Surrogates

All surrogate acceptance criteria were met.

Field Duplicates

One FD was collected, analyzed and all precision criteria were met.

Chain of Custody

Required procedures were followed and were free of errors.

Overall Assessment

The goal of this assessment is to demonstrate that a sufficient number of representative samples were collected and the resulting analytical data can be used to support the decision making process. The following summary highlights the PARCC findings for the above-defined events:

Precision of the data was verified through the review of the field and laboratory data quality indicators that include: FD, LCS/LCSD and MS/MSD RPDs. Precision was acceptable.

Accuracy of the data was verified through the review of the calibration data, LCS/LCSD, MS/MSD, internal standards and surrogate standard recoveries. Accuracy was generally acceptable with the exception of chloromethane which was qualified as an estimated non-detect in the samples due to calibration issues. Data users should consider the impact to any result that is qualified as it may contain a bias which could affect the decision-making process.

Representativeness of the data was verified through the samples' collection, storage and preservation procedures, verification of holding-time compliance and the evaluation of method/field blank data. The laboratory did not note any issues related to sample preservation or storage of the samples. All samples were analyzed within the EPA-recommended holding time. The method blank/field blank data were free of contamination.

Comparability of the data was verified through the use of standard EPA analytical procedures and standard units for reporting. Results obtained are comparable to industry standards in that the collection and analytical techniques followed approved, documented procedures.

Completeness is a measure of the number of valid measurements obtained in relation to the total number of measurements planned. Completeness is expressed as the percentage of valid or usable measurements compared to planned measurements. Valid data are defined as all data that are not rejected for project use. All data were considered valid. The completeness goal was met for all compounds.

TABLE 2
Qualified Data
Groundwater Investigation, Former General Latex and Chemical Corporation Site, Ashland, Ohio

Sample ID	Method	Analyte	Units	Final Result	Validation Flag	Validation Reason
FD01-110112	SW8260B	Chloromethane	ug/L	10	UJ	CCV<LCL
MW03GW1626-110112	SW8260B	Chloromethane	ug/L	10	UJ	CCV<LCL
MW09GW1424-110112	SW8260B	Chloromethane	ug/L	10	UJ	CCV<LCL
MW12GW1424-103112	SW8260B	Chloromethane	ug/L	10	UJ	CCV<LCL
MW16GW1020-103112	SW8260B	Chloromethane	ug/L	10000	UJ	CCV<LCL
MW18GW3035-103112	SW8260B	Chloromethane	ug/L	10	UJ	CCV<LCL
MW19GW1828-110112	SW8260B	Chloromethane	ug/L	10	UJ	CCV<LCL
MW22GW2535-103112	SW8260B	Chloromethane	ug/L	10	UJ	CCV<LCL

Notes:
CCV<LCL = The continuing calibration verification was recovered less than criteria

Attachment A

Samples Associated with DQE		
Field ID	**Sample Date**	**QAQC Type**
FD01-110112	11/1/2012	FD
MW03GW1626-110112	11/1/2012	N
MW09GW1424-110112	11/1/2012	N
MW12GW1424-103112	10/31/2012	N
MW16GW1020-103112	10/31/2012	N
MW18GW3035-103112	10/31/2012	N
MW19GW1828-110112	11/1/2012	N
MW22GW2535-103112	10/31/2012	N
TRIP BLANK-103112	10/31/2012	TB

Notes:
FD = field duplicate
N = normal sample
TB = trip blank