BMS 2Q15
gw Sampling

June 2-5, 2015

June 2 - Measured all wells. Got sample cooler & multimeter from PBNL. Took it to TOU building. Organized eq/mat

June 3, 2015 Sampled wells S-32 & S-33

June 4 2015 Sampled wells
Sampled GW-1R (3) Water generates bubbles as it enters vial. High turbidity. Erratic
Sampled A-1R (7) - Water generates bubbles as it enters vial.
Sampled A-2R (2) - Same

June 5, 2015
Sampled well S-31R (2). Water level below top of pump. Had problems for calibration of Spec. Conductivity
UP-1 - OK

Packed samples. Made COC's.
Delivered coolers to Fed Ex

Name: Nestor M. Rivera SQUIBB Quarterly Measurements Date: June 2, 2015

2 Q 2015

Building 5 Area							
Well #	Stick up, feet	Time	PID	Water level, feet, btc	Well depth, feet, btc	Screen range, btc	Notes/Comments
UP-1 *	-0.19	1410	1.9	3.93		4.0-14.0	
UP-2 *	-0.28	1414	0.0	6.96		4.0-14.0	
A-1R (4) *	-0.28	1348	22.1	5.84		4.1-14.1	
A-2R (2) *	-0.61	1346	0.0	5.53		2.7-12.7	grout broken
A-3	-0.15	—	—	—		8.4-18.4	
D-1R *	-0.29	1300	0.0	8.54		6.1-16.1	
E-1R *	-0.30	1302	0.0	8.89		5.7-20.7	air under pressure when opening of well
G-1R (3) *	-0.35	1314	158.0	6.64		5.7-15.7	VOC odor
S-28 *	-0.12	1247	0.0	10.30		9.8-19.8	
S-29R *	-0.12	1237	0.0	9.28		11.4-21.4	
S-30 *	2.32	1224	0.0	9.43		12.6-22.6	
S-31R (2) *	-0.39	1229	0.0	8.77		5.6-15.6	8.85 ft. Top of well
S-32 *	2.66	1209	367.0	14.48		11.6-21.6	VOC odor
S-33 *	2.73	1158	0.0	16.04		10.1-20.1	
S-34 *	1.82	1153	7.5	18.23		11.2-21.2	20.15 - Top of pump
S-35 *	2.39	1200	0.0	14.23		8.0-18.0	
S-36 *	2.04	1144	0.0	16.35		9.5-19.5	
S-37 *	2.70	1150	2.6	21.54		21.7-31.7	
S-38 *	-0.25	1525	1.0	6.50		4.0-14.0	
4/3/15 Bridge		1538	9.62		NA		
Former Tank Farm							
Well #	Stick up, feet	Time	PID	Water level, feet	Well depth, feet	Screen range, btc	Notes/Comments
MW-3 *	2.45	1619	0.0	10.05		6.8-16.8	
MW-5 *	2.42	1602	0.0	11.09		5.3-15.3	
MW-7 *	1.90	1639	1.1	6.03		6.7-16.7	
MW-9	3.00	1334	0.0	10.79		10.6-20.6	
MW-11	3.47	1534	0.0	12.06		10.5-20.5	
MW-12	2.62	1624	0.8	10.76		20.9-25.9	
MW-13 *	-0.17	1636	28.1	5.82		5.0-15.0	
MW-14 *	-0.27	1607	1.0	5.58		5.8-15.8	
MW-15 *	-0.26	1548	9.1	6.51		7.5-17.5	
MW-16 *	-0.21	1645	0.1	8.57		6.4-16.4	
MW-17 *	-0.49	1556	29.6	5.90		3.67-13.7	
MW-18 *	-0.04	1610	4.9	5.64		4.0-14.0	
RW-1	1.55	1617	0.4			4.3-17.3	
Brule Area							
Well #	Stick up, feet	Time	PID	Water level, feet	Well depth, feet	Screen range, btc	Notes/Comments
BR-1	-0.37	1511	0.0	6.47		2.8-12.8	
BR-2	-0.19	1503	0.0	7.28		2.7-12.7	
BR-3	-0.72	1508	0.0	6.36		1.6-12.6	

AMAI Well Purging and Low Flow Sampling Form

Well Number: S-33

Site Name, Location: BMS- Humacao

Equipment Used: dedicated pump & tubing

Personnel: N Rivera / D Lindstrand

Date: June 3, 2015

Monitoring Well Information:

Diameter/Material: 2 / PVC

Depth to Bottom (ft from TOC): 20.1

Top of Screen (ft from TOC): 10.

Bottom of Screen (ft from TOC): 20.1

Pump Intake Level (ft from TOC): ~18

Desired Pumping Rate (Lpm): 0.1-0.4

Well Purging Information:

Measured DTW (ft from TOC)/Time: 16.04 / 1227

Measured DTB (ft from TOC)/Time: (20.1) /

Headspace Reading (ppm): 0.0

Time @ Start Purging: 1300

Time @ Stop Purging: 1338

Time @ Stop Sampling: 1358

Purge Volume (gallons): 1

Time	DTW (ft TOC)	Temp (C)	S.Cond (µS/cm)	DO (mg/l)	pH	ORP (mV)	Turbidity (NTU)	Flow (mL/min)
1300	start							~~1227~~
1308	16.06	29.70	815	1.88	6.48	-108.1	11.9	75 ↑
1313	16.18	29.32	811	1.54	6.44	-100.2	20.8	500 ↓
1318	16.12	28.86	804	1.48	6.36	-87.6	2.8	150
1323	16.10	29.00	803	1.37	6.38	-85.1	2.12	125
1338	16.11	29.05	804	1.59	6.41	-87.7	2.40	150
			Ready to sample					

Comments:

Sample Time: 1342 DUP / MS 1351 MSD 1358 Water Quality/Appearance: clear

Sample Analysis: VOC/EPA/Metals DUP / MS VOC/EPA/Metals MSD VOC/EPA/Metals

Additional Comments:

Well Stabilization : is considered to be achieved when three consecutive readings, taken at 5 minute intervals are within the following limits: **DO +/- 0.3 mg/L; Spec. Cond. +/-3%; Temp. +/-3%; pH +/- 0.1 unit; ORP +/-10 mV; Addn'l Guidelines: Drawdown <= 0.33 feet; Pumping rates = 100 to 400 ml/min; Turbidity +/-10% or < 10 NTU.**

AMAI Well Purging and Low Flow Sampling Form

Well Number: S-32

Site Name, Location: BMS - Humacao

Personnel: N. Rivera / D. Lindstrand

Equipment Used: dedicated Bladder pump & tubing

Date: June 3, 2015

Monitoring Well Information:

Diameter/Material: 2 / PVC

Depth to Bottom (ft from TOC): 21.6

Top of Screen (ft from TOC): 11.6

Bottom of Screen (ft from TOC): 21.6

Pump Intake Level (ft from TOC): ~16

Desired Pumping Rate (Lpm): 0.1 - 0.4

Well Purging Information:

Measured DTW (ft from TOC)/Time: ~~15.43m~~ 14.42 / 1435

Measured DTB (ft from TOC)/Time: (21.6) / ____

Headspace Reading (ppm): 367.0

Time @ Start Purging: 1438

Time @ Stop Purging: 1501

Time @ Stop Sampling: 1512

Purge Volume (gallons): 2

Time	DTW (ft TOC)	Temp (C)	S.Cond (µS/cm)	DO (mg/l)	pH	ORP (mV)	Turbidity (NTU)	Flow (mL/min)
1438	START							
1441	14.63	32.59	835	42.0	6.44	87.1	11.7	100 4
1446	14.70	32.41	835	0.37	6.40	-99.3	7.62	150
1451	14.78	31.93	815	0.26	6.37	-104.3	5.82	150
1456	14.83	31.79	816	0.27	6.38	-106.0	5.14	200
1501	14.92	31.60	819	0.27	6.38	-106.5	4.49	300
			Ready to sample					

Comments:

Sample Time: 1512 DUP — / MS — / MSD — / Water Quality/Appearance: Clear

Sample Analysis: VOC / TPH / Metals DUP — / MS — / MSD —

Additional Comments: ____

Well Stabilization : is considered to be achieved when three consecutive readings, taken at 5 minute intervals are within the following limits: **DO +/- 0.3 mg/L; Spec. Cond. +/-3%; Temp. +/-3%; pH +/- 0.1 unit; ORP +/-10 mV; Addn'l Guidelines: Drawdown <= 0.33 feet; Pumping rates = 100 to 400 ml/min; Turbidity +/-10% or < 10 NTU.**

AMAI Well Purging and Low Flow Sampling Form

Well Number: G-1R(3)

Site Name, Location: BMS-Humacao

Personnel: N. Rivera / D. Lindstrand

Equipment Used: dedicated bladder pump / tubing

Date: June 3, 2015

Monitoring Well Information:

Diameter/Material: 2 / PVC

Depth to Bottom (ft from TOC): 15.7

Top of Screen (ft from TOC): 5.7

Bottom of Screen (ft from TOC): 15.7

Pump Intake Level (ft from TOC): ~ 10

Desired Pumping Rate (Lpm): 0.1-0.6

Well Purging Information:

Measured DTW (ft from TOC)/Time: 6.14 / 1615

Measured DTB (ft from TOC)/Time: (15.7) /

Headspace Reading (ppm): 158.0

Time @ Start Purging: 1625

Time @ Stop Purging: 1704

Time @ Stop Sampling: 1711

Purge Volume (gallons): 2.8

Time	DTW (ft TOC)	Temp (C)	S.Cond (µS/cm)	DO (mg/l)	pH	ORP (mV)	Turbidity (NTU)	Flow (mL/min)
1625 6.05	6.03	START						
1625	START							
1629	6.69	30.81	492	0.62	6.59	-42.3	55.4	100
1634	6.90	30.59	454	0.48	6.50	-36.3	607	100
1639	7.21	30.35	436	0.66	6.47	-31.2	-42	100
1644	7.48	30.18	434	1.37	6.52	-26.7	-53	100
1649	7.79	30.08	449	2.17	6.58	-22.9	-52	200
1654	8.17	29.99	454	2.54	6.59	-21.1	-30	200
1659	8.28	29.90	453	2.27	6.59	-20.5	772	200
1704	8.48	29.85	453	2.35	6.58	-18.3	702	200
			READY TO Sample					
							~~2.11~~	

Comments:

Sample Time: 1711 DUP ✓ MS ✓ MSD ✓

Sample Analysis: VOC/IPA/MeOH DUP ✓ MS ✓ MSD ✓

Water Quality/Appearance: Gray/light brown flakes

Additional Comments:

Well Stabilization : is considered to be achieved when three consecutive readings, taken at 5 minute intervals are within the following limits: **DO +/- 0.3 mg/L; Spec. Cond. +/-3%; Temp. +/-3%; pH +/- 0.1 unit; ORP +/-10 mV; Addn'l Guidelines: Drawdown <= 0.33 feet; Pumping rates = 100 to 400 ml/min; Turbidity +/-10% or < 10 NTU.**

AMAI Well Purging and Low Flow Sampling Form

Well Number: A-1R (4)

Site Name, Location: BMS- Hunmanto

Personnel: N. Rivera / D. Lindstrand

Equipment Used: dedicated bladder pump / hosing

Date: June 4, 2015

Monitoring Well Information:

Diameter/Material: 2 / PVC

Depth to Bottom (ft from TOC): 14.1

Top of Screen (ft from TOC): 4.1

Bottom of Screen (ft from TOC): 14.1

Pump Intake Level (ft from TOC): ~7

Desired Pumping Rate (Lpm): 0.1-0.4

Well Purging Information:

Measured DTW (ft from TOC)/Time: 5.94 / 1309

Measured DTB (ft from TOC)/Time: (14.1) /

Headspace Reading (ppm): 22.1

Time @ Start Purging: 1318

Time @ Stop Purging: 1355

Time @ Stop Sampling: 1400

Purge Volume (gallons): 2.75

Time	DTW (ft TOC)	Temp (C)	S.Cond (µS/cm)	DO (mg/l)	pH	ORP (mV)	Turbidity (NTU)	Flow (mL/min)
1313	5.95	after	lifting	pump				
1318	START							
1325	6.15	30.06	1649	0.30	6.76	-114.2	7.72	200
1330	6.19	29.77	1799	~~2.30~~ 0.17	6.71	-110.1	8.52	100
1335	6.30	29.64	1883	0.16	6.67	-109.2	5.66	300 ↓
1340	6.34	29.54	1915	0.20	6.64	-100.3	5.14	200
1345	6.35	29.55	1980	0.15	6.57	-89.8	4.63	200
1350	6.37	29.52	2014	0.16	6.54	-88.3	5.42	200
1355	6.40	29.48	2031	0.17	6.51	-85.4	4.08	200
			Ready to sample					

Comments:

Sample Time: 1400 DUP ✓ MS ✓ MSD ✓

Sample Analysis: VOC/EPA 1312 DUP ✓ MS ✓ MSD ✓

Water Quality/Appearance: clear w/ light brown

Additional Comments:

Well Stabilization : is considered to be achieved when three consecutive readings, taken at 5 minute intervals are within the following limits: **DO +/- 0.3 mg/L; Spec. Cond. +/-3%; Temp. +/-3%; pH +/- 0.1 unit; ORP +/-10 mV; Addn'l Guidelines: Drawdown <= 0.33 feet; Pumping rates = 100 to 400 ml/min; Turbidity +/-10% or < 10 NTU.**

AMAI Well Purging and Low Flow Sampling Form

Well Number: A-2R(2)

Site Name, Location: BMS- Humacao

Personnel: N. Rivera / D. Lindstrand

Equipment Used: dedicated bladder pump & hose

Date: June 4, 2015

Monitoring Well Information:

Diameter/Material: 2, PVC

Depth to Bottom (ft from TOC): 12.7

Top of Screen (ft from TOC): 2.7

Bottom of Screen (ft from TOC): 12.7

Pump Intake Level (ft from TOC): -9

Desired Pumping Rate (Lpm): 0.1-0.4

Well Purging Information:

Measured DTW (ft from TOC)/Time: 5.61, 1443

Measured DTB (ft from TOC)/Time: (12.7), ____

Headspace Reading (ppm): 0.0

Time @ Start Purging: ~~1450~~ 1547

Time @ Stop Purging: 1626

Time @ Stop Sampling: 1640

Purge Volume (gallons): 3.5

Time	DTW (ft TOC)	Temp (C)	S.Cond (µS/cm)	DO (mg/l)	pH	ORP (mV)	Turbidity (NTU)	Flow (mL/min)
1446	5.78	After lifting hose						
1450	START							
1455	STOP.	Flow is slow.						
Checked pump.		Top ball valve was not too loose.						
1505	5.71	- After reinstalling pump						
1511	5.90	32.20	703	2.14	6.72	-33.6	6.56	300 ↓
1516	5.96	31.17	731	0.73	6.67	-3.8	5.30	250
1521	5.98	30.74	750	0.27	6.64	7.1	3.35	250 ↓
1526		30.70	764	0.20	6.64	-6.9		
1531			STOP. cylinder ran out of air. Fill up a cylinder					
~~1536~~ 1547	5.77	START						
1551	5.	31.75	772	0.31	6.71	-5.7	2.11	200
1556	5.86	30.96	768	0.23	6.68	-5.3	2.03	200
1601	5.91	30.77	777	0.21	6.65	-5.2	1.97	200
1606	5.99	30.59	795	0.18	6.64	-22.7	1.61	200 ↓
1611	6.02	30.56	809	0.17	6.64	-35.2	1.46	150
1616	6.05	30.46	831	0.18	6.64	-47.3	1.53	150
1621	6.07	30.47	834	0.19	6.63	-52.1	1.50	350
1626	6.09	30.46	836	0.18	6.64	-55.5	1.40	350

Comments:

Sample Time: 1640 DUP ____ MS / MSD / Water Quality/Appearance: clear w/ white flakes

Sample Analysis: VOC/~~IDA~~/METALS DUP / MS ____ MSD /

Additional Comments: ____

Well Stabilization : is considered to be achieved when three consecutive readings, taken at 5 minute intervals are within the following limits: **DO +/- 0.3 mg/L; Spec. Cond. +/-3%; Temp. +/-3%; pH +/- 0.1 unit; ORP +/-10 mV; Addn'l Guidelines: Drawdown <= 0.33 feet; Pumping rates = 100 to 400 ml/min; Turbidity +/-10% or < 10 NTU.**

AMAI Well Purging and Low Flow Sampling Form

Well Number: 5-31R(2)

Site Name, Location: BMS-Hamsaco

Personnel: N. Rivera

Equipment Used: dedicated bladder pump in casing

Date: July 5, 2006

Monitoring Well Information:

Diameter/Material: 2, PVC

Depth to Bottom (ft from TOC): 15.6

Top of Screen (ft from TOC): 5.6

Bottom of Screen (ft from TOC): 15.6

Pump Intake Level (ft from TOC): ~12

Desired Pumping Rate (Lpm): 0.1-0.4

Well Purging Information:

Measured DTW (ft from TOC)/Time: 8.78 / 1120

Measured DTB (ft from TOC)/Time: (15.6) /

Headspace Reading (ppm): 0.0

Time @ Start Purging: 1147

Time @ Stop Purging: 1255

Time @ Stop Sampling: 1313

Purge Volume (gallons): 4

Time	DTW (ft TOC)	Temp (C)	S.Cond (µS/cm)	DO (mg/l)	pH	ORP (mV)	Turbidity (NTU)	Flow (mL/min)
1147	START			0.65				
1150	8.85+	34.07	763	~~8.95~~	6.37	-64.9	62.6	100
1155	8.85+	34.18	736	0.60	6.35	-85.0	65.8	100
1200	8.85+	34.12	722	0.30	6.34	-95.5	~~94.0~~ 61.2	100
1205	8.85+	34.05	750	0.25	6.31	-93.8	52.7	100
1210	8.85+	34.05	765	0.27	6.30	-92.4	43.8	100
1215	8.85+	33.97	769	0.21	6.29	-91.4	35.8	150 ↓
1220	8.85+	34.02	773	0.21	6.28	-89.4	30.7	100
1225	8.85+	34.06	779	0.20	6.27	-87.5	23.7	100
1230	8.85+	34.16	787	0.20	6.27	-86.4	20.3	100
1235	8.85+	34.13	791	0.20	6.27	-85.1	~~18~~ 16.5	100
1240	8.85+	34.06	798	0.18	6.26	-83.2	13.3	100
1245	8.85+	33.99	813	0.20	6.26	-82.7	11.6	100
1250	8.85+	33.95	825	0.18	6.26	-82.0	6.45	400 ↓
1255	8.85+	33.79	831	0.16	6.26	-81.8	6.0	100
1255	8.85+	33.74	848	0.16	6.26	-81.5	5.57	100

Comments:

Sample Time: 1301 DUP 1313 MS ✓ MSD ✓ Water Quality/Appearance: clear

Sample Analysis: VOC/EPA\Metals DUP VOC/EPA\Metals MS ✓ MSD ✓

Additional Comments: +- below the top of the pump

Well Stabilization : is considered to be achieved when three consecutive readings, taken at 5 minute intervals are within the following limits: **DO +/- 0.3 mg/L; Spec. Cond. +/-3%; Temp. +/-3%; pH +/- 0.1 unit; ORP +/-10 mV; Addn'l Guidelines: Drawdown <= 0.33 feet; Pumping rates = 100 to 400 ml/min; Turbidity +/-10% or < 10 NTU.**

AMAI Well Purging and Low Flow Sampling Form

Well Number: VP-1

Site Name, Location: BMS - Hermosa

Personnel: N. Rivera / D. Lindstrand

Equipment Used: dedicated bladder pump / tubing

Date: June 5, 2015

Monitoring Well Information:

Diameter/Material: 2, PVC
Depth to Bottom (ft from TOC): 14
Top of Screen (ft from TOC): 4
Bottom of Screen (ft from TOC): 14
Pump Intake Level (ft from TOC): 9
Desired Pumping Rate (Lpm): 0.1-0.4

Well Purging Information:

Measured DTW (ft from TOC)/Time: 4.05 / 1435
Measured DTB (ft from TOC)/Time: (14) /
Headspace Reading (ppm): 1.9
Time @ Start Purging: 1440
Time @ Stop Purging: 1505
Time @ Stop Sampling: 1511
Purge Volume (gallons): 1.5

Time	DTW (ft TOC)	Temp (C)	S.Cond (µS/cm)	DO (mg/l)	pH	ORP (mV)	Turbidity (NTU)	Flow (mL/min)
1440	START							
1445	4.08	33.51	520	1.12	6.77	-115.3	18.40	150
1450	4.09	33.15	501	0.30	6.75	-117.4	5.00	150
1455	4.10	33.01	489	0.15	6.71	-115.4	3.51	150
1500	4.09	32.90	486	0.13	6.70	-118.1	2.70	150
1505	4.09	32.86	487	0.13	6.69	-117.2	2.39	150
			Ready to sample					

Comments:

Sample Time: 1511 DUP — MS — MSD —
Water Quality/Appearance: clear
Sample Analysis: VOC / TPA / MCID DUP — MS — MSD —

Additional Comments: TB060115 @ 1500 - Lab
TB060415 @ 1511.

Well Stabilization : is considered to be achieved when three consecutive readings, taken at 5 minute intervals are within the following limits: **DO +/- 0.3 mg/L; Spec. Cond. +/-3%; Temp. +/-3%; pH +/- 0.1 unit; ORP +/-10 mV; Addn'l Guidelines: Drawdown <= 0.33 feet; Pumping rates = 100 to 400 ml/min; Turbidity +/-10% or < 10 NTU.**

CHAIN OF CUSTODY

Fresh Ponds Corporate Village, Building B
2235 Route 130, Dayton, NJ 08810
732-329-0200 FAX: 732-329-3499/3480

Accutest Job #:

Accutest Quote #:

Client Information	Facility Information
Anderson Mulholland & Associates	Anderson Mulholland and Associates Inc.
Name: 2700 Westchester Avenue	Project Name:
Address: Purchase NY 10577	Location:
City State Zip: Terry Taylor	Project/PO #: BMS: Building 5 Area
Send Report to: Phone #: 914-251-0400	FAX #: 914-251-1286

Analytical Information

Field ID / Point of Collection	Collection Date	Collection Time	Sampled By	Matrix	# of bottles	Preservation HCL	NaOH	HNO3	H2So4	None	VOCs (Special List 3)
S-33	6/3/15	1342	NMR	GW	6	X					X
S-33 MS		1351	NMR	GW	6	X					X
S-33 MSD		1358	NMR	GW	6	X					X
S-32		1512	NMR	GW	6	X					X
G-1 R(3)	6/3/15	1711	NMR	GW	6	X					X
A-1R(4)	6/4/15	1400	NMR	GW	6	X					X
A-2 R(2)	6/4/15	1640	NMR	GW	6	X					X
S-31R(2)	6/5/15	1301	NMR	GW	6	X					X
S-31R(2)D		1313	NMR	GW	6	X					X
UP-1		1511	NMR	GW	6	X					X
TB060515	6/5/15	1511	NMR	QC	2	X					X

Turnaround Information

- [X] 21 Day Standard — Approved By:
- [ ] 14 Day
- [ ] 7 Days *EMERGENCY*
- [ ] Other _____ (Days)

RUSH TAT is for FAX data unless previously approved.

Data Deliverable Information

- [ ] NJ Reduced
- [X] NJ Full
- [ ] FULL CLP
- [ ] Disk Deliverable
- [ ] Other (Specify) _____
- [ ] Commercial "A"
- [ ] Commercial "B"
- [ ] ASP Category B
- [ ] State Forms

Comments / Remarks

Federal Express ID # 801219534541
Lab Trip Blank Date 6/1/15 Time 1500
VOC's samples collected in 40 ml. glass vials, provided by the lab. Analyze for Special List 3 compounds (acetone, benzene, ethylbencene, toluene, MIBK, xylene, IPA and methanol). Also, please provide report on CD ROM.

Sample Custody must be documented below each time samples change possesion, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1 Hector M Rivera	6/5/15 1622	1	2		2
3		3	4		4
5		5	Seal # 786	Preserved where applical: yes	On Ice: yes

Photoionization Detector Calibration Log

Site Name, Location: BMS- Humacao
Personnel: N. Rivera
PID Model: Mini RAE 2000
PID Serial #: 110-012901

Calibration Gas: Isobutylene (100ppm)
Calibration Gas Mfgr: Porta Cyl / Pine
Lot #: 0409FA13
Expiration Date: 5/2017

Day #: 1 Date: June 2, 2015 Time: 1119

Describe location at which calibration is performed: Area near S-32
Zero Gas: ambient air at calibration location: 0.0 ppm
Span Gas: 100 ppm isobutylene
Reading from calibration gas after calibration: 100.0 ppm
(Reading should be within 10% of calibration gas, otherwise recalibrate)

Day #: _____ Date: _____ Time: _____

Describe location at which calibration is performed: _____
Zero Gas: ambient air at calibration location: _____ ppm
Span Gas: 100 ppm isobutylene
Reading from calibration gas after calibration: _____ ppm
(Reading should be within 10% of calibration gas, otherwise recalibrate)

Day #: _____ Date: _____ Time: _____

Describe location at which calibration is performed: _____
Zero Gas: ambient air at calibration location: _____ ppm
Span Gas: 100 ppm isobutylene
Reading from calibration gas after calibration: _____ ppm
(Reading should be within 10% of calibration gas, otherwise recalibrate)

Day #: _____ Date: _____ Time: _____

Describe location at which calibration is performed: _____
Zero Gas: ambient air at calibration location: _____ ppm
Span Gas: 100 ppm isobutylene
Reading from calibration gas after calibration: _____ ppm
(Reading should be within 10% of calibration gas, otherwise recalibrate)

Instrument Calibration Log

Site Name, Location: BMS - HUMACAO
Personnel: N Rivera
Instrument Model: YSI 556 MPS
Instrument Serial #: 13D 102081 23239 (PINE

Day #: 1 Date: June 3, 2015 Time: 1047

DO

DO Reading (mg/L) / Temp (°C)	Stabilization Range (+/- 0.02) mg/l)	Comments
7.69 / 33	7.69	99.9% 597.7 mmHg

pH

Calibration Solutions	Lot # / Expiration Date	Stabilization Range (+/- 0.2 units)	Comments
4.0 Standard	4503/3\31\2017	4.00	
7.0 Standard	2503C03\3/31/2017	7.00	

Specific Conductivity

Calibration Standard (µS/cm)	Lot # / Expiration Date	Stabilization Range (+/- 0.02 µS/cm)	Comments
1413	11591/4\4\2016	1413	

Turbidity La Motte we S/N 3460-2313

Calibration Solution	Lot # / Expiration Date	Stabilization Range (1 NTU)	Comments
0 Standard	DI water	0.00	
100 Standard	A4174/6\2016	100.2	

ORP

Calibration Standard (mV)	Lot # / Expiration Date	Stabilization Range (+/- 20 mV)	Comments
240	8039/9\30\2019	240	

Day #: 2 Date: June 4, 2015 Time: 1130

DO

DO Reading (mg/L) / Temp (°C)	Stabilization Range (+/- 0.02) mg/l)	Comments
7.40 / 32	7.40	100.3 759.7 mm Hg

pH

Calibration Solutions	Lot # / Expiration Date	Stabilization Range (+/- 0.2 units)	Comments
4.0 Standard	4503/3\31\2017	4.00	
7.0 Standard	2503C03/3\31\2017	7.00	

Specific Conductivity

Calibration Standard (µS/cm)	Lot # / Expiration Date	Stabilization Range (+/- 0.02 µS/cm)	Comments
1413	11591/4\4\2016	1413	

Turbidity La Motte we S/N. 3460-2311

Calibration Solution	Lot # / Expiration Date	Stabilization Range (1 NTU)	Comments
0 Standard	DI water	-0.03	
100 Standard	A4174/6\2016	100.7	

ORP

Calibration Standard (mV)	Lot # / Expiration Date	Stabilization Range (+/- 20 mV)	Comments
240	8039/9\30\2019	240	

Day #: 3 Date: June 5, 2015 Time: 10.15

DO

DO Reading (mg/L) / Temp (°C)	Stabilization Range (+/- 0.02) mg/l)	Comments
7.53 / 33	7.53	100% 759.7 mmHg

pH

Calibration Solutions	Lot # / Expiration Date	Stabilization Range (+/- 0.2 units)	Comments
4.0 Standard	4503/3\31\2017	4.00	
7.0 Standard	2503C03/3\31\2017	7.00	

Specific Conductivity

Calibration Standard (µS/cm)	Lot # / Expiration Date	Stabilization Range (+/- 0.02 µS/cm)	Comments
1413	11591/4\4\2016	1413	

Turbidity La Motte we S/N 3460-2311

Calibration Solution	Lot # / Expiration Date	Stabilization Range (1 NTU)	Comments
0 Standard	DI water	-0.03	
100 Standard	A4174/6\2016	100.5	

ORP

Calibration Standard (mV)	Lot # / Expiration Date	Stabilization Range (+/- 20 mV)	Comments
240	8039/9\30\2019	240	

Office: 337-237-7123
P.O. Box 2003
Lafayette, LA 70502

C&G Containers Scientific
"The Total Package!"

Fax: 337-237-8712
152 Easy Street
Lafayette, LA 70506

CERTIFICATE OF ANALYSIS

This "Certificate of Analysis" represents a precleaned product that has been prepared in accordance with Performance-Based specifications. This product meets or exceeds analyte specifications established in the U. S. EPA OSWER Directive 9240.0-05A "Specification and Guidance for Contaminant-free Sample Containers" for use in Superfund and other Hazardous waste programs.

Group 3 Volatile Organic Compounds (VOCs) and Tentatively Identified Compounds (TICs)

Analyte	RL ug/L	Analyte	RL ug/L	Analyte	RL ug/L
1,1,1,2-Tetrachloroethane	0.5 U	4-Isopropyltoluene	0.5 U	Methyl tert-butyl ether	0.5 U
1,1,1-Trichloroethane	0.5 U	4-Methyl-2-pentanone	1.0 U	Methylene chloride	0.5 U
1,1,2,2-Tetrachloroethane	0.5 U	Acetone	1.0 U	Naphthalene	0.5 U
1,1,2-Trichloroethane	0.5 U	Benzene	0.5 U	n-Butylbenzene	0.5 U
1,1-Dichloroethane	0.5 U	Bromochloromethane	0.5 U	n-Propylbenzene	0.5 U
1,1-Dichloroethene	0.5 U	Bromodichloromethane	0.5 U	o-Xylene	0.5 U
1,1-Dichloropropene	0.5 U	Bromoform	0.5 U	sec-Butylbenzene	0.5 U
1,2,3-Trichlorobenzene	0.5 U	Bromomethane	0.5 U	Styrene	0.5 U
1,2,3-Trichloropropane	0.5 U	Carbon disulfide	1.0 U	tert-Amyl Alcohol	20 U
1,2,4-Trichlorobenzene	0.5 U	Carbon tetrachloride	0.5 U	tert-Amyl methyl ether	1.0 U
1,2,4-Trimethylbenzene	0.5 U	Chlorobenzene	0.5 U	Tert-butyl alcohol	10 U
1,2-Dibromo-3-chloropropane	0.5 U	Chloroethane	0.5 U	tert-Butyl ethyl ether	1.0 U
1,2-Dibromoethane	0.5 U	Chloroform	0.5 U	tert-Butyl formate	2.0 U
1,2-Dichlorobenzene	0.5 U	Chloromethane	0.5 U	tert-Butylbenzene	0.5 U
1,2-Dichloroethane	0.5 U	cis-1,2-Dichloroethene	0.5 U	Tetrachloroethene	0.5 U
1,2-Dichloropropane	0.5 U	cis-1,3-Dichloropropene	0.5 U	Toluene	0.5 U
1,3,5-Trimethylbenzene	0.5 U	Dibromochloromethane	0.5 U	trans-1,2-Dichloroethene	0.5 U
1,3-Dichlorobenzene	0.5 U	Dibromomethane	0.5 U	trans-1,3-Dichloropropene	0.5 U
1,3-Dichloropropane	0.5 U	Dichlorodifluoromethane	0.5 U	Trichloroethene	0.5 U
1,4-Dichlorobenzene	0.5 U	Diisopropyl ether	0.5 U	Trichlorofluoromethane	0.5 U
2,2-Dichloropropane	0.5 U	Ethanol	20 U	Vinyl acetate	1.0 U
2-Butanone	1.0 U	Ethylbenzene	0.5 U	Vinyl chloride	0.5 U
2-Chlorotoluene	0.5 U	Hexachlorobutadiene	0.5 U	Xylenes, Total	1.5 U
2-Hexanone	1.0 U	Isopropyl alcohol	10 U	TICs	U*
3,3-Dimethyl-1-butanol	10 U	Isopropylbenzene	0.5 U	TOC	1.0 U mg/L
4-Chlorotoluene	0.5 U	m,p-Xylene	0.5 U		

NOTES:
a. Reporting Limit (RL) = The lowest concentration standard analyzed which can be verified.
b. U = The analyte was analyzed for but not detected above the Reporting Limit.
c. U* = No analytes were detected; No Reporting Limits for these analytes.
d. Bottles are Type III Soda Lime and vials are Type I Borosilicate.

This "Certificate of Analysis" is provided for your records and is used to facilitate any required correspondences as needed.

Each container contains: 0.4 mL of Hydrochloric Acid (1:1)

Barcoded: Yes *Stirbars:* No *Tared Weight:* No

Part Number: LV54-H130-B44B

Date Product Prepared: 01/19/15

Item Description: 40 ml Clear Borosilicate Vial w/ Black 24-414 PTFE Septa Cap

Lot Number: 011915-3AXW

Chemical Lot No.: 4113083

Protocol: B **Level:** 1

Chemical Expiry Date: 11/22/16

Group: 3 (applies)

Corporate Technical Director

Product processed at:
206 Easy Street
Lafayette, LA 70506 USA

Revision 2015-01 br

C&G Containers Scientific
"The Total Package!"

Office: 337-237-7123
P.O. Box 2003
Lafayette, LA 70502

Toll Free: 800-396-7123

Fax: 337-237-8712
152 Easy Street
Lafayette, LA 70506

CERTIFICATE OF ANALYSIS

1:1 Hydrochloric Acid

This "Certificate of Analysis" represents a chemical preservative that has been prepared in accordance with Performance-Based specifications. This product meets or exceeds analyte specifications established in the U. S. EPA OSWER Directive 9240.0-05A "Specification and Guidance for Contaminant-free Sample Containers" for use in Superfund and other Hazardous waste programs.

The Hydrochloric Acid used in preservation procedures is tested by a 3rd Party NELAC Laboratory prior to use for determination of potential contaminants based on the list below.

Group 3 Volatile Organic Compounds (VOCs) and Tentatively Identified Compounds (TICs)

Analyte	RL ug/L	Analyte	RL ug/L	Analyte	RL ug/L
1,1,1,2-Tetrachloroethane	0.5 U	4-Isopropyltoluene	0.5 U	Methyl tert-butyl ether	0.5 U
1,1,1-Trichloroethane	0.5 U	4-Methyl-2-pentanone	1.0 U	Methylene chloride	0.5 U
1,1,2,2-Tetrachloroethane	0.5 U	Acetone	1.0 U	Naphthalene	0.5 U
1,1,2-Trichloroethane	0.5 U	Benzene	0.5 U	n-Butylbenzene	0.5 U
1,1-Dichloroethane	0.5 U	Bromochloromethane	0.5 U	n-Propylbenzene	0.5 U
1,1-Dichloroethene	0.5 U	Bromodichloromethane	0.5 U	o-Xylene	0.5 U
1,1-Dichloropropene	0.5 U	Bromoform	0.5 U	sec-Butylbenzene	0.5 U
1,2,3-Trichlorobenzene	0.5 U	Bromomethane	0.5 U	Styrene	0.5 U
1,2,3-Trichloropropane	0.5 U	Carbon disulfide	1.0 U	tert-Amyl Alcohol	20 U
1,2,4-Trichlorobenzene	0.5 U	Carbon tetrachloride	0.5 U	tert-Amyl methyl ether	1.0 U
1,2,4-Trimethylbenzene	0.5 U	Chlorobenzene	0.5 U	Tert-butyl alcohol	10 U
1,2-Dibromo-3-chloropropane	0.5 U	Chloroethane	0.5 U	tert-Butyl ethyl ether	1.0 U
1,2-Dibromoethane	0.5 U	Chloroform	0.5 U	tert-Butyl formate	2.0 U
1,2-Dichlorobenzene	0.5 U	Chloromethane	0.5 U	tert-Butylbenzene	0.5 U
1,2-Dichloroethane	0.5 U	cis-1,2-Dichloroethene	0.5 U	Tetrachloroethene	0.5 U
1,2-Dichloropropane	0.5 U	cis-1,3-Dichloropropene	0.5 U	Toluene	0.5 U
1,3,5-Trimethylbenzene	0.5 U	Dibromochloromethane	0.5 U	trans-1,2-Dichloroethene	0.5 U
1,3-Dichlorobenzene	0.5 U	Dibromomethane	0.5 U	trans-1,3-Dichloropropene	0.5 U
1,3-Dichloropropane	0.5 U	Dichlorodifluoromethane	0.5 U	Trichloroethene	0.5 U
1,4-Dichlorobenzene	0.5 U	Diisopropyl ether	0.5 U	Trichlorofluoromethane	0.5 U
2,2-Dichloropropane	0.5 U	Ethanol	20 U	Vinyl acetate	1.0 U
2-Butanone	1.0 U	Ethylbenzene	0.5 U	Vinyl chloride	0.5 U
2-Chlorotoluene	0.5 U	Hexachlorobutadiene	0.5 U	Xylenes, Total	1.5 U
2-Hexanone	1.0 U	Isopropyl alcohol	10 U	TICs	U*
3,3-Dimethyl-1-butanol	10 U	Isopropylbenzene	0.5 U	Oil & Grease	5.0 U mg/L
4-Chlorotoluene	0.5 U	m,p-Xylene	0.5 U	Total Organic Carbon	0.5 U mg/L

NOTES:
a. Reporting Limit = The lowest concentration standard analyzed which can be verified.
b. U = The analyte was analyzed for but not detected above the Reporting Limit.
c. U* = No analytes were detected; No Reporting Limits for these analytes.

The chemical added to this product may become altered depending upon storage conditions and elapsed time from the prepared date.

This "Certificate of Analysis" is provided for your records and is used to facilitate any required correspondences as needed. Please contact Bo Blankfield at (800) 396-7123 for Quality Assurance/Quality Control questions.

Item Description: 1:1 Hydrochloric Acid (Trace Metals Grade)

Lot Number: 4113083

Date Product Prepared: 01/19/15

Chemical Expiry Date: 11/22/16

Bo Blankfield **Corporate Technical Director**

Revision 2014-00 sf

ACCUTEST LABORATORIES

Bottle Configuration Sheet
For Order #: TM-6/1/2015-3

Sample Set 1	11	AQ	VOC [Special List 3],

Test Code		# of containers to fill per sample
VOC [Special List 3]	-	(3) 40ml Vial w/HCL

Sample Set 2	11	AQ	D8015IPA, DGC+METH,

Test Code		# of containers to fill per sample
D8015IPA,DGC+METH,	-	(3) 40ml Vial w/HCL

Sample Set 3	2	TB	VOC[Special List 3],

Test Code		# of containers to fill per sample
VOC[Special List 3]	-	(2) 40ml Vial w/HCL

Sample Set 4	2	TB	D8015IPA, DGC+METH,

Test Code		# of containers to fill per sample
DGC+METH, D8015IPA	-	(2) 40ml Vial w/HCL

INSTRUMENT PACKING LIST

Description	YSI 556 sonde and display
Instrument ID	23239
Date Calibrated	6-1-15

Pine Environmental Services, Inc.

NJ Headquarters 800-301-9663

GA 800-842-1088
OH 877-326-PINE
ME 888-779-PINE
MA 800-519-PINE
NY 877-903-PINE
NC 866-646-PINE
TX 866-981-PINE
CO 866-960-PINE
VA 866-801-PINE
FL 877-259-PINE
PA 866-750-PINE
TN 877-355-7907
CA 888-620-PINE
IL 855-888-PINE
ON 866-688-0388
BC 877-678-8383

Standard Items	Prepared	QC check	Received by customer	Returned to Pine
YSI 556 sonde w/ 4m cable and case	✓			
YSI 556 Display	✓			
Manual	✓			
Quick reference card	✓			
Probe Guard	✓			
Calibration cup w/sponge	✓			
Flow cell	✓			
• Cell adapter for older style cell (if applicable)	N/A			
2 of each barb size (1/4, 3/8, 1/2)	✓			
DO_2 probe reconditioning kit	✓			
4 C batteries	✓			
556 Communications cable	✓			
YSI Ecowatch Software	✓			
Calibration kit, pH (4,7,10), conductivity, and ORP.	✓			
NIST traceable calibration sheet	✓			

Prepared by: BR

QC checked by: _____

Date: 6-1-15

This packing list is to ensure that every item needed to operate the unit was sent and received. Upon receiving a shipment, please fill out the "Received by customer" column. Call Pine within 24 hours of receiving the equipment if any pieces are missing, damaged, or malfunctioning. Thank you for choosing Pine Environmental Services, Inc.

INSTRUMENT CALIBRATION REPORT

Pine Environmental Services, LLC.
3902 Corporex Park Drive, Suite 450
Tampa, FL 33619
Toll-free: (877) 259-PINE (7463)

Pine Environmental Services, Inc.

Instrument ID 23239
Description YSI 556
Calibrated 6/1/2015 5:50:36PM

Manufacturer YSI
Model Number 556
Serial Number/ Lot Number 13D102081
Location Florida
Department

State Certified
Status Pass
Temp °C 28
Humidity % 42

Calibration Specifications

Group # 1
Group Name pH
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
7.00 / 7.00	PH	7.00	PH	7.00	7.00	0.00%	Pass
4.00 / 4.00	PH	4.00	PH	4.00	4.00	0.00%	Pass
10.00 / 10.00	PH	10.00	PH	9.99	9.99	-0.10%	Pass

Group # 2
Group Name Conductivity
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.000

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
1.413 / 1.413	ms/cm	1.413	ms/cm	1.413	1.413	0.00%	Pass

Group # 3
Group Name Redox (ORP)
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.0

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
240.0 / 240.0	mv	240.0	mv	240.0	240.0	0.00%	Pass

Group # 4
Group Name Dissolved Oxygen Span
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.0

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
100.0 / 100.0	%	100.0	%	99.9	99.9	-0.10%	Pass

INSTRUMENT CALIBRATION REPORT

Pine Environmental Services, LLC.

3902 Corporex Park Drive, Suite 450
Tampa, FL 33619
Toll-free: (877) 259-PINE (7463)

Pine Environmental Services, Inc.

Instrument ID 23239
Description YSI 556
Calibrated 6/1/2015 5:50:36PM

Test Instruments Used During the Calibration **(As Of Cal Entry Date)**

Test Standard ID	Description	Manufacturer	Model Number	Serial Number / Lot Number	Last Cal Date/ Opened Date	Next Cal Date / Expiration Date
FL 1413 11591	FL 1413 11591 CONDUCTIVITY BUFFER SOLUTION	Aurical		11591	4/23/2015	4/14/2016
FL ORP 240MV 8154	FL ORP 240MV 8154	Hanna	SL50005-500	8154	4/23/2015	10/31/2019
FL PH 10 2412384	FL PH 10 2412384 BUFFER SOLUTION	VWR		2412384	3/30/2015	5/31/2016
FL PH 4 4503589	FL PH 4 4503589 BUFFER SOLUTION	VWR		4503589	4/14/2015	3/31/2017
FL PH 7 2503C03	FL PH 7 2503C03 BUFFER SOLUTION	VWR		2503C03	4/23/2015	3/31/2017

Sensor Information

Sensor Type	Manufacturer	Serial Number	Date Installed

Notes about this calibration

Calibration Result Calibration Successful
Who Calibrated William H. Betties

All instruments are calibrated by Pine Environmental Services, LLC. according to the manufacturer's specifications, but it is the customer's responsibility to calibrate and maintain this unit in accordance with the manufacturer's specifications and/or the customer's own specific needs.

Notify Pine Environmental Services, LLC. of any defect within 24 hours of receipt of equipment
Please call 866-960-7463 for Technical Assistance