



Pall Corporation

# Sample Analysis Report

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December, 2011

Analyst Initials: SEOP  
Date: 01-12-12

Sample Name - Date/Time Sampled	1,4-Dioxane Results (ppb)	R.L. (ppb)	Bromate Results (ppb)	R.L. (ppb)	Bromide Results (ppb)	R.L. (ppb)	Comments
<b>Extraction Wells</b>							
<b>C3</b>							
DOLPH-12-05-11-09:17-1	58	1.0					
TW-10-12-05-11-10:32-1	551	1.0					
TW-14-12-06-11-09:39-1	23	1.0					
TW-20-12-05-11-10:26-1	1029	1.0					
<b>D2</b>							
LB-1-12-05-11-10:08-1	528	1.0					
LB-3-12-05-11-10:09-1	448	1.0					
TW-21-12-05-11-09:40-1	134	1.0					
TW-5-12-05-11-09:50-1	737	1.0					
TW-9-12-05-11-10:22-1	794	1.0					
<b>E</b>							
TW-11-12-05-11-09:52-1	181	1.0					
TW-17-12-06-11-09:35-1	222	1.0					
TW-18-12-05-11-09:15-1	322	1.0					
TW-19-12-05-11-10:05-1	779	1.0					
<b>Marshy</b>							
PW-1-12-05-11-09:11-1	904	1.0					
<b>Not Applicable</b>							

Sample Name - Date/Time Sampled	1,4-Dioxane Results (ppb)	R.L. (ppb)	Bromate Results (ppb)	R.L. (ppb)	Bromide Results (ppb)	R.L. (ppb)	Comments
SW-COMB-12-05-11-09:20-1	453	1.0					
<b>SW</b>							
TW-22-12-05-11-11:09-1	691	1.0					
TW-8-12-05-11-11:07-1	444	1.0					
<b>Monitoring Wells</b>							
<b>D0</b>							
A2 Cleaning Supply-12-01-11-13:10-1	101	1.0					
<b>D2</b>							
HZ-S-12-12-11-10:00-1	508	1.0					
<b>E</b>							
MW-100-12-07-11-11:05-1	775	1.0					
MW-115-12-06-11-11:35-1	581	1.0					
MW-79s-12-06-11-12:30-1	383	1.0					
MW-85-12-06-11-13:55-1	1840	1.0					
MW-87d-12-07-11-11:45-1	1188	1.0					
MW-87s-12-07-11-12:00-1	1306	1.0					
MW-88-12-06-11-13:05-1	314	1.0					
TW-15-12-07-11-14:20-1	195	1.0					
<b>Surface Water</b>							
<b>Not Applicable</b>							
HC/HR-12-01-11-09:00-1			nd	2.0			
HC/HR-12-01-11-09:00-02			nd	2.0			
HC/HR-12-02-11-08:20-05			nd	2.0			
HC/HR-12-05-11-08:25-02			nd	2.0			
HC/HR-12-06-11-08:10-1			nd	2.0			

Sample Name - Date/Time Sampled	1,4-Dioxane Results (ppb)	R.L. (ppb)	Bromate Results (ppb)	R.L. (ppb)	Bromide Results (ppb)	R.L. (ppb)	Comments
HC/HR-12-07-11-08:15-1			nd	2.0			
HC/HR-12-08-11-08:50-09			nd	2.0			
HC/HR-12-09-11-08:45-05			nd	2.0			
HC/HR-12-12-11-08:10-09			nd	2.0			
HC/HR-12-13-11-08:50-05			nd	2.0			
HC/HR-12-14-11-09:15-09			nd	2.0			
HC/HR-12-15-11-08:00-09			nd	2.0			
HC/HR-12-16-11-08:45-02			nd	2.0			
HC/HR-12-19-11-08:15-02			nd	2.0			
HC/HR-12-20-11-08:10-02			nd	2.0			
HC/HR-12-21-11-08:40-02			nd	2.0			
HC/HR-12-22-11-08:15-1			nd	2.0			
HC/HR-12-23-11-09:00-02			nd	2.0			
HC/HR-12-27-11-10:00-05			nd	2.0			
HC/HR-12-30-11-09:30-02			nd	2.0			
<b>Treatment System</b>							
OUTFALL-12-01-11-1	5	1.0					
OUTFALL-12-01-11-07			nd	5.0			
OUTFALL-12-04-11-1	5	1.0					
OUTFALL-12-04-11-4			nd	5.0			
OUTFALL-12-05-11-1	6	1.0					
OUTFALL-12-05-11-02			nd	5.0			
OUTFALL-12-06-11-1	5	1.0					
OUTFALL-12-06-11-4			nd	5.0			
OUTFALL-12-07-11-1	5	1.0					
OUTFALL-12-07-11-09			nd	5.0			
OUTFALL-12-08-11-1	5	1.0					

Sample Name - Date/Time Sampled	1,4-Dioxane Results (ppb)	R.L. (ppb)	Bromate Results (ppb)	R.L. (ppb)	Bromide Results (ppb)	R.L. (ppb)	Comments
OUTFALL-12-08-11-09			nd	5.0			
OUTFALL-12-11-11-1	5	1.0					
OUTFALL-12-11-11-09			nd	5.0			
OUTFALL-12-12-11-1	6	1.0					
OUTFALL-12-12-11-05			nd	5.0			
OUTFALL-12-13-11-1	6	1.0					
OUTFALL-12-13-11-09			6	5.0			
OUTFALL-12-14-11-1	7	1.0					
OUTFALL-12-14-11-09			nd	5.0			
OUTFALL-12-15-11-1	7	1.0					
OUTFALL-12-15-11-09			6	5.0			
OUTFALL-12-18-11-1	6	1.0					
OUTFALL-12-18-11-01			6	5.0			
OUTFALL-12-19-11-1	7	1.0					
OUTFALL-12-19-11-05			7	5.0			
OUTFALL-12-20-11-1	6	1.0					
OUTFALL-12-20-11-06			5	5.0			
OUTFALL-12-21-11-9	6	1.0					
OUTFALL-12-21-11-06			6	5.0			
OUTFALL-12-22-11-2	5	1.0					
OUTFALL-12-22-11-05			nd	5.0			
OUTFALL-12-25-11-1	6	1.0					
OUTFALL-12-25-11-05			nd	5.0			
OUTFALL-12-26-11-2	6	1.0					
OUTFALL-12-26-11-05			nd	5.0			
OUTFALL-12-27-11-1	6	1.0					
OUTFALL-12-27-11-05			nd	5.0			

Sample Name - Date/Time Sampled	1,4-Dioxane Results (ppb)	R.L. (ppb)	Bromate Results (ppb)	R.L. (ppb)	Bromide Results (ppb)	R.L. (ppb)	Comments
OUTFALL-12-28-11-1	6	1.0					
OUTFALL-12-28-11-05			nd	5.0			
OUTFALL-12-29-11-1	6	1.0					
OUTFALL-12-29-11-05			nd	5.0			
Red Pond-12-05-11-09:35-1	562	1.0					
Red Pond-12-12-11-09:43-1	547	1.0					
Red Pond-12-19-11-08:50-1	515	1.0					
Red Pond-12-27-11-11:10-1	535	1.0					

# Control Chart for 12/2011 CVS

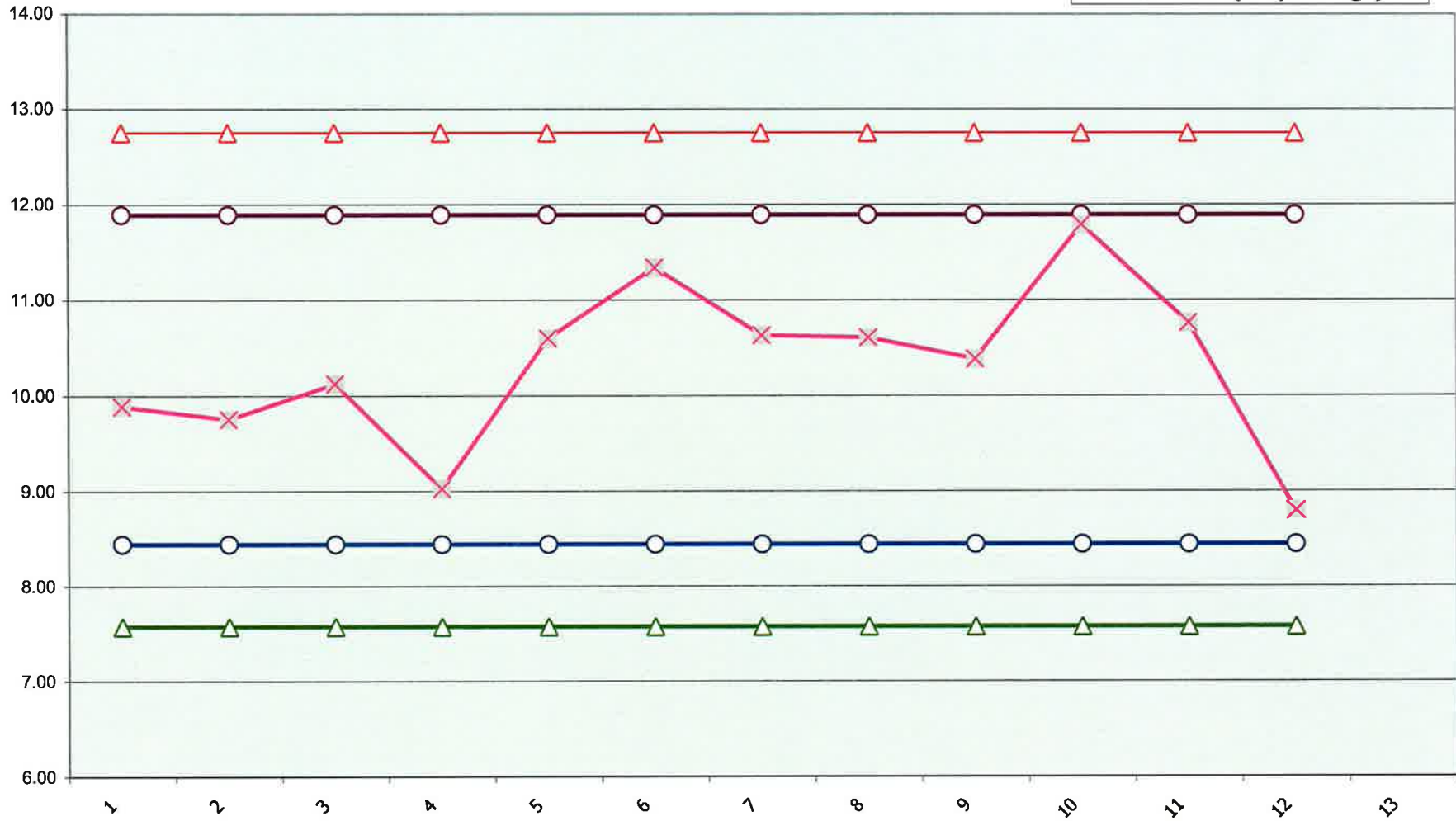
**GC/MS Data:** #1 and #2  
**Report Date:** 1/13/2012  
**Chemist:** Susan E.O. Peters  
**Dept:** Environmental  
**Analyte:** 1,4-dioxane  
**Start date:** 12/1/2011  
**End date:** 12/30/2011  
**Desired level:** 100%

Notes: Data from Instrument #2 for December

Date	CVS Values							Mean (Daily Average)	Sample Mean (All Individual Data)	Daily Standard Deviation	Daily Average Sample Standard Deviation	Lower Control Limit	Upper Control Limit	Lower Warning Limit	Upper Warning Limit
	CVS 1	CVS 2	CVS 3	CVS 4	CVS 5	CVS 6	CVS 7								
CVS #2: 12/01/2011	9.63	10.65	9.39					9.89	10.17	0.67	0.86	7.58	12.75	8.44	11.89
12/8/2011	10.33	9.18						9.76	10.17	0.81	0.86	7.58	12.75	8.44	11.89
12/9/2011	10.87	9.38						10.13	10.17	1.05	0.86	7.58	12.75	8.44	11.89
12/10/2011	8.89	9.16						9.03	10.17	0.19	0.86	7.58	12.75	8.44	11.89
12/13/2011	10.60							10.60	10.17	na	0.86	7.58	12.75	8.44	11.89
12/16/2011	11.34							11.34	10.17	na	0.86	7.58	12.75	8.44	11.89
12/14/2011	10.63							10.63	10.17	na	0.86	7.58	12.75	8.44	11.89
12/20/2011	10.67	10.54						10.61	10.17	0.09	0.86	7.58	12.75	8.44	11.89
12/21/2011	10.38							10.38	10.17	na	0.86	7.58	12.75	8.44	11.89
12/22/2011	11.79							11.79	10.17	na	0.86	7.58	12.75	8.44	11.89
12/27/2011	10.76							10.76	10.17	na	0.86	7.58	12.75	8.44	11.89
12/27/2011	8.80							8.80	10.17	na	0.86	7.58	12.75	8.44	11.89

Susan E.O. Peters 01-16-12

# 12/2011 CVS with Control Limits



Susan E Peters  
01-16-12

## Control Chart for 12/2011 LFB

**GC/MS Data:** #2  
**Report Date:** 1/13/2012  
**Chemist:** Susan E.O. Peters  
**Dept:** Environmental  
**Analyte:** 1,4-dioxane  
**Start date:** 12/1/2011  
**End date:** 12/30/2011  
**Desired level:** 100%

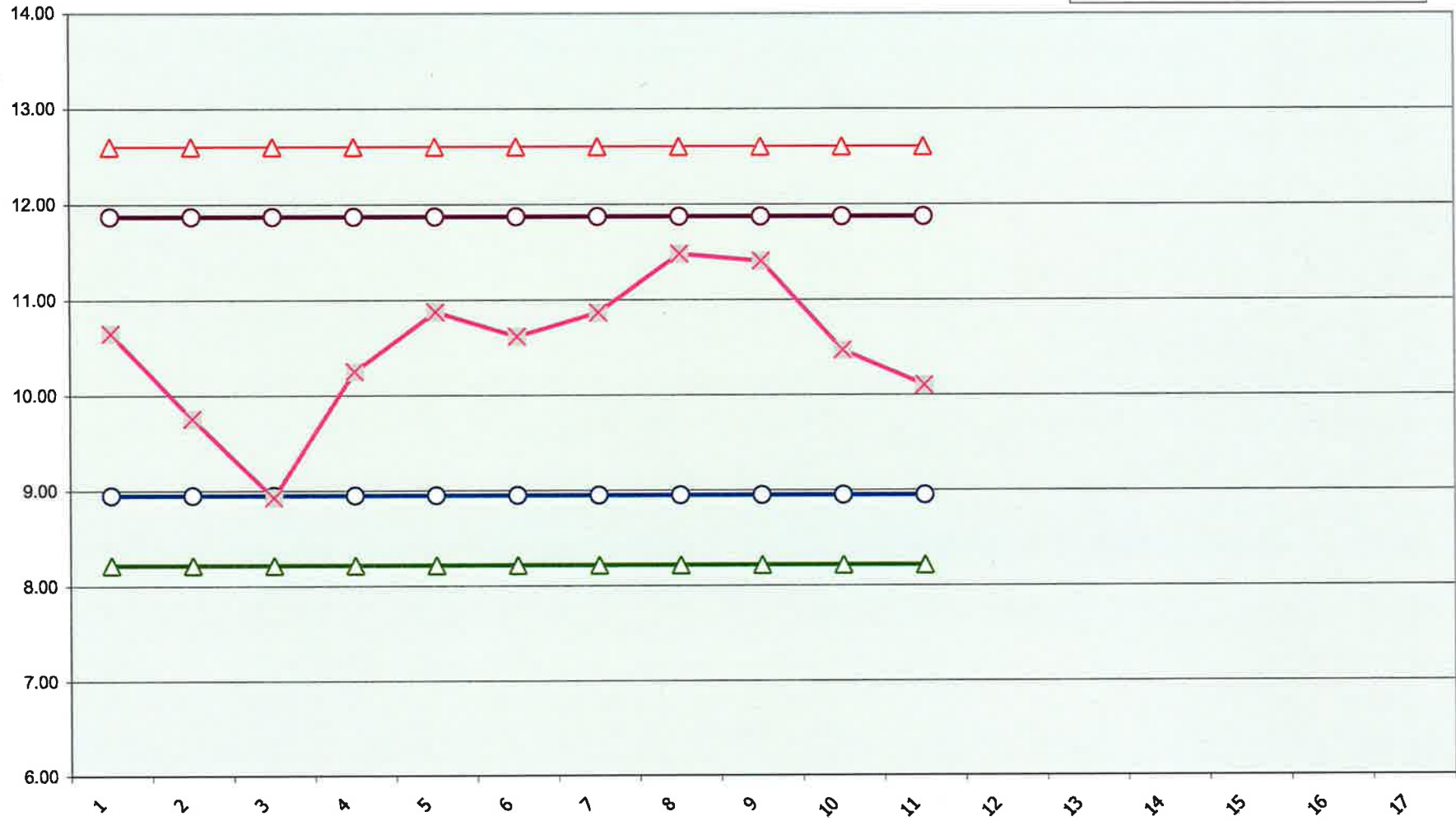
Notes:

Date	LFB Values							Mean (Daily Average)	Sample Mean (All Individual Data)	Daily Standard Deviation	Daily Average Sample Standard Deviation	Lower Control Limit	Upper Control Limit	Lower Warning Limit	Upper Warning Limit
	LFB 1	LFB 2	LFB 3	LFB 4	LFB 5	LFB 6	LFB 7								
12/1/2011	9.85	8.98	11.92	9.87	9.96	11.99	11.99	10.65	10.41	1.27	0.73	8.22	12.60	8.95	11.87
12/8/2011	10.33	9.18						9.76	10.41	0.81	0.73	8.22	12.60	8.95	11.87
12/9/2011	9.10	8.68	8.73	9.03	9.10			8.93	10.41	0.21	0.73	8.22	12.60	8.95	11.87
12/10/2011	10.62	10.28	10.55	9.55				10.25	10.41	0.49	0.73	8.22	12.60	8.95	11.87
12/13/2011	11.33	10.42						10.88	10.41	0.64	0.73	8.22	12.60	8.95	11.87
12/14/2011	10.37	10.87	10.61					10.62	10.41	0.25	0.73	8.22	12.60	8.95	11.87
12/20/2011	11.09	10.88	10.63					10.87	10.41	0.23	0.73	8.22	12.60	8.95	11.87
12/21/2011	11.65	11.76	11.03					11.48	10.41	0.39	0.73	8.22	12.60	8.95	11.87
12/22/2011	11.38	11.43						11.41	10.41	0.04	0.73	8.22	12.60	8.95	11.87
12/27/2011	10.28	10.33	10.80					10.47	10.41	0.29	0.73	8.22	12.60	8.95	11.87
12/30/2011	10.07	10.13						10.10	10.41	0.04	0.73	8.22	12.60	8.95	11.87

Susan E.O. Peters 01-16-12



# 12/2011 LFB with Control Limits



Susan Peters  
01-16-12

# Control Chart for 12/2011 MS/MSD %Recoveries

**GC/MS Data:** #2  
**Report Date:** 1/13/2012  
**Chemist:** Susan E.O. Peters  
**Dept:** Environmental  
**Analyte:** 1,4-dioxane  
**Start date:** 12/1/2011  
**End date:** 12/30/2011  
**Desired level:** 100%

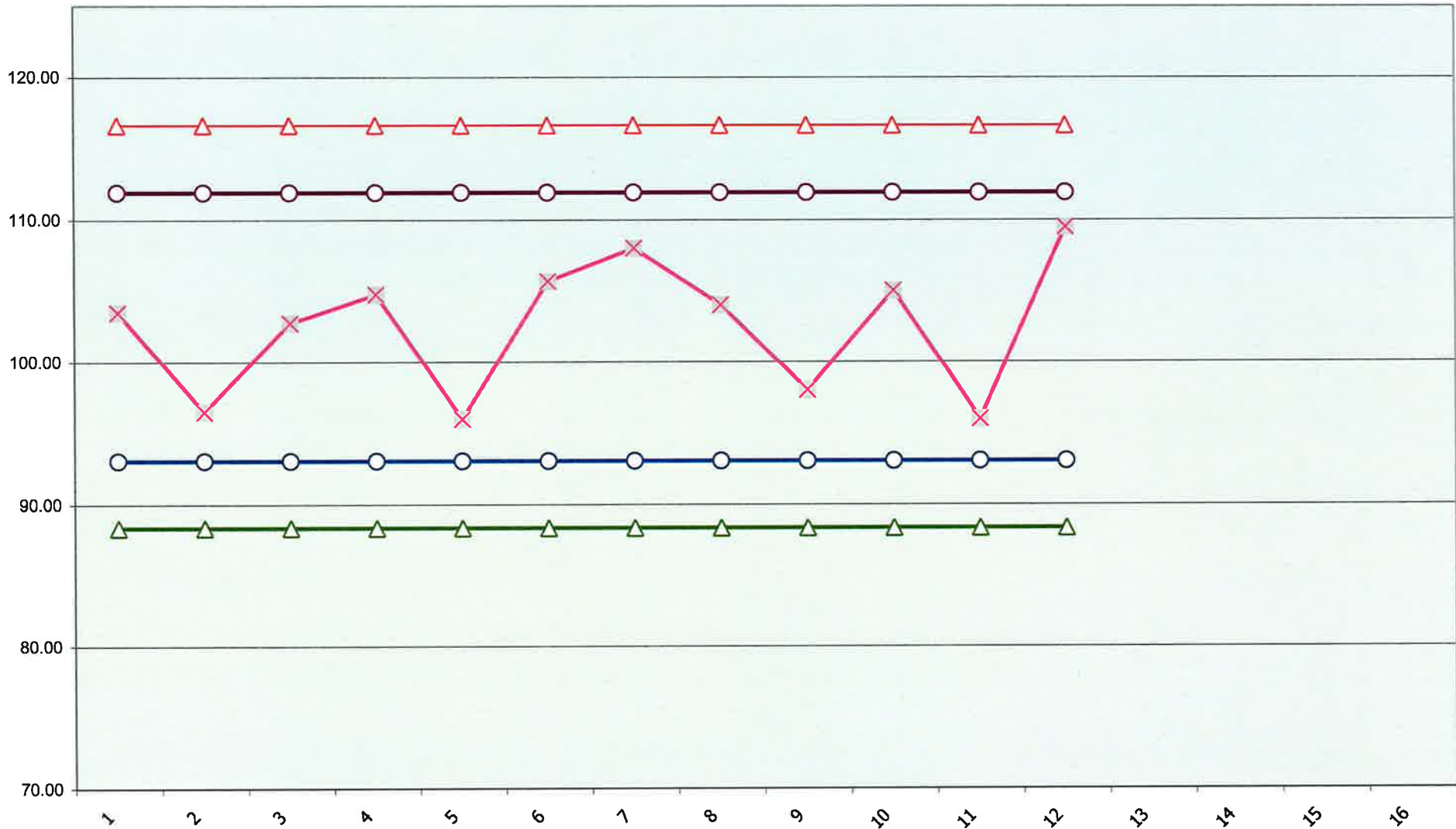
Notes: Data from Instrument #2 for December

Date	Matrix Spike % Recovery Values						Mean (Daily Average)	Sample Mean (All Individual Data)	Daily Standard Deviation	Daily Average Sample Standard Deviation	Lower Control Limit	Upper Control Limit	Lower Warning Limit	Upper Warning Limit	Mean RPD (Individual Data)
	MS 1	MSD 1	MS 2	MSD 2	RPD 1	RPD 2									
12/1/2011	107	104	104	99	1.90	3.10	103.50	102.51	3.32	4.72	88.37	116.66	93.08	111.95	6.15
12/8/2011	101	107	78	100	3.58	15.10	96.50	102.51	12.71	4.72	88.37	116.66	93.08	111.95	6.15
12/9/2011	99	112	98	102	8.12	2.84	102.75	102.51	6.40	4.72	88.37	116.66	93.08	111.95	6.15
12/10/2011	105	97	106	111			104.75	102.51	5.80	4.72	88.37	116.66	93.08	111.95	6.15
12/13/2011	98	94			2.30		96.00	102.51	2.83	4.72	88.37	116.66	93.08	111.95	6.15
12/16/2011	108	102	107		4.78		105.67	102.51	3.21	4.72	88.37	116.66	93.08	111.95	6.15
12/14/2011	111	105			5.56		108.00	102.51	4.24	4.72	88.37	116.66	93.08	111.95	6.15
12/20/2011	120	112	84	100	5.14	10.00	104.00	102.51	15.66	4.72	88.37	116.66	93.08	111.95	6.15
12/21/2011	90	106			10.60		98.00	102.51	11.31	4.72	88.37	116.66	93.08	111.95	6.15
12/22/2011	107	103			0.84		105.00	102.51	2.83	4.72	88.37	116.66	93.08	111.95	6.15
12/27/2011	108	84			9.60		96.00	102.51	16.97	4.72	88.37	116.66	93.08	111.95	6.15
12/30/2011	102	117			8.80		109.50	102.51	10.61	4.72	88.37	116.66	93.08	111.95	6.15

Susan E.O. Peters 01-16-12

# 12/2011 MS/MSD with Control Limits

- Lower Warning Limit
- △ Lower Control Limit
- △ Upper Control Limit
- Upper Warning Limit
- × Mean (Daily Average)

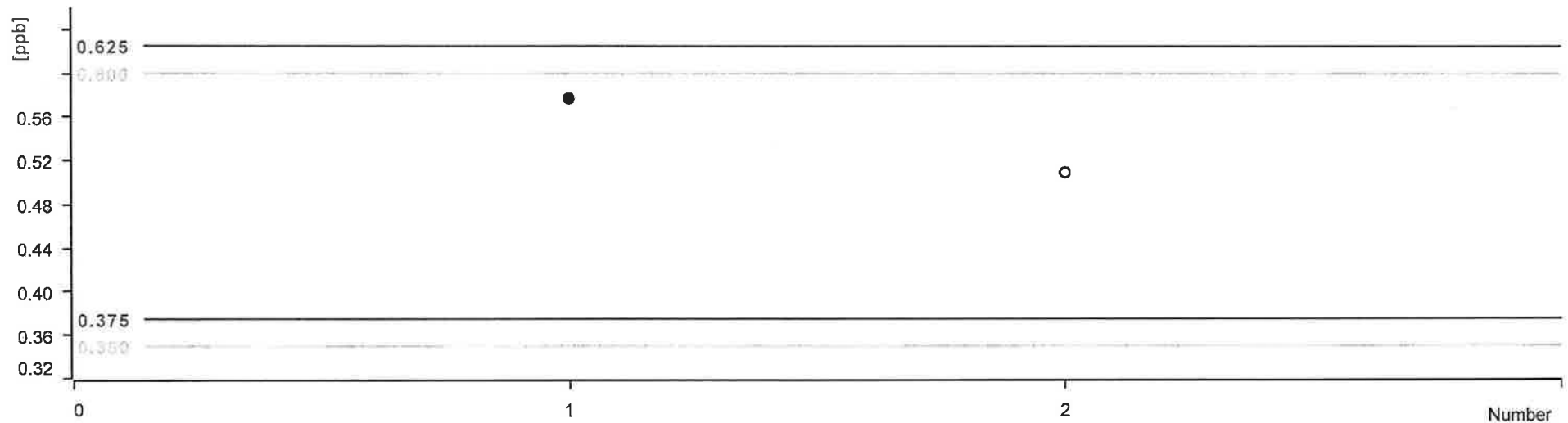


Susan E. Peters 01/16/12

## Control chart

### Comment

### ppb Bromate Concentration ICCS



### Statistics

Mean value:	0.544 ppb	Absolute standard deviation:	0.048 ppb
Minimum:	0.510 ppb	Relative standard deviation:	8.799 %
Maximum:	0.577 ppb	Number of determinations:	2

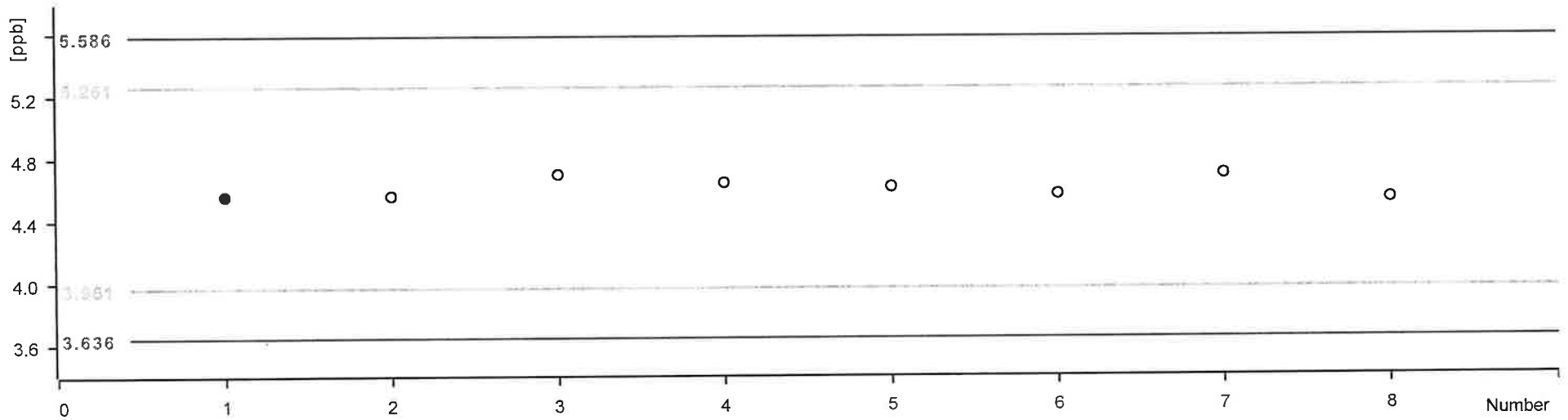
Date	Number	Ident	Sample type	Method	ppb Bromate Concentration ICCS	Statistics
2012-01-07 15:32:10 UTC-5	1	ICCS/LFB 0.5ppb standard	Sample	EPA 300 v2	0.577 ppb	on
2012-01-09 01:24:52 UTC-5	2	ICCS, 0.5ppb standard	Sample	EPA 300 v2	0.510 ppb	on

*Susan D Rettes 01-16-12*

## Control chart

### Comment

### ECCS. CCCS with Calculated LIMTS



### Statistics

Mean value: 4.611 ppb  
Minimum: 4.538 ppb  
Maximum: 4.700 ppb

Absolute standard deviation: 0.065 ppb  
Relative standard deviation: 1.409 %  
Number of determinations: 8

Date	Number	Ident	Sample type	Method	ECCS. CCCS with Calculated LIMTS	Statistics
2012-01-07 22:52:23 UTC-5	1	CCCS-1 4ppb std	Sample	EPA 300 v2	4.554 ppb	on
2012-01-08 07:20:31 UTC-5	2	CCCS	Sample	EPA 300 v2	4.563 ppb	on
2012-01-08 15:49:12 UTC-5	3	CCCS, 4ppb std	Sample	EPA 300 v2	4.700 ppb	on
2012-01-08 23:09:25 UTC-5	4	ECCS or CCCS, 4ppb std bromate	Sample	EPA 300 v2	4.646 ppb	on
2012-01-08 23:43:19 UTC-5	5	CCCS, 4ppb std	Sample	EPA 300 v2	4.618 ppb	on
2012-01-09 08:45:11 UTC-5	6	CCCS, 4ppb bromate	Sample	EPA 300 v2	4.569 ppb	on
2012-01-09 17:48:14 UTC-5	7	ECCS, std 4 4ppb bromate	Sample	EPA 300 v2	4.699 ppb	on

*Susan E Peters 01-16-12*

## Control chart

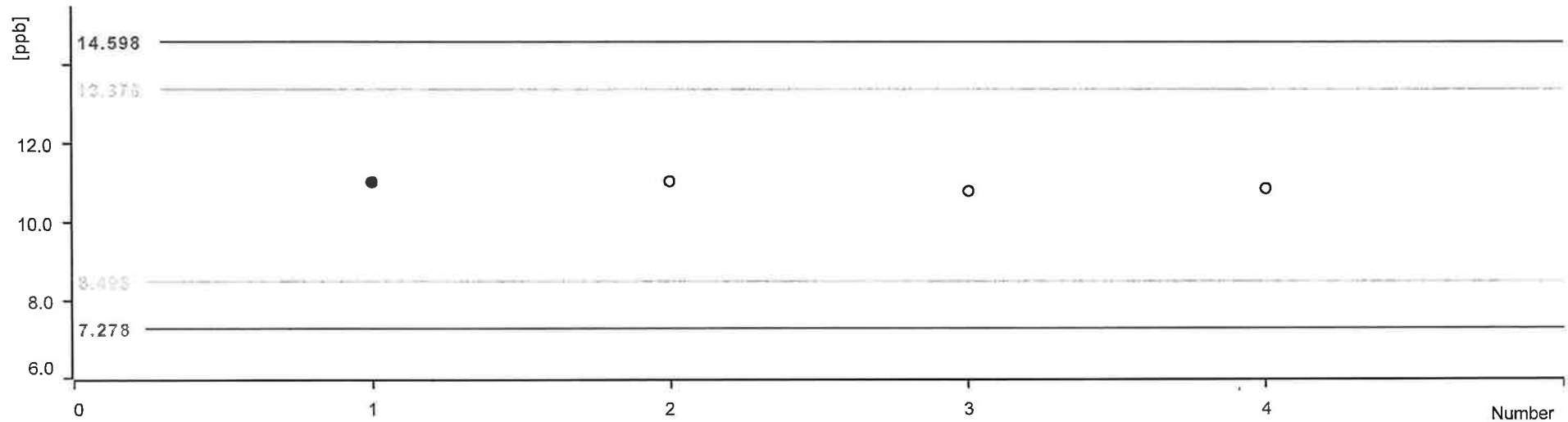
Date	Number	Ident	Sample type	Method	ECCS. CCCS with Calculated LIMITS	Statistics
8 2012-01-09 18:22:14 UTC-5	8	ECCS, std 4 4ppb bromate	Sample	EPA 300 v2	4.538 ppb	on

SEP 01-16-12

## Control chart

### Comment

### Bromate QCS with calculated LIMITS



### Statistics

Mean value: 10.938 ppb  
 Minimum: 10.804 ppb  
 Maximum: 11.051 ppb

Absolute standard deviation: 0.122 ppb  
 Relative standard deviation: 1.115 %  
 Number of determinations: 4

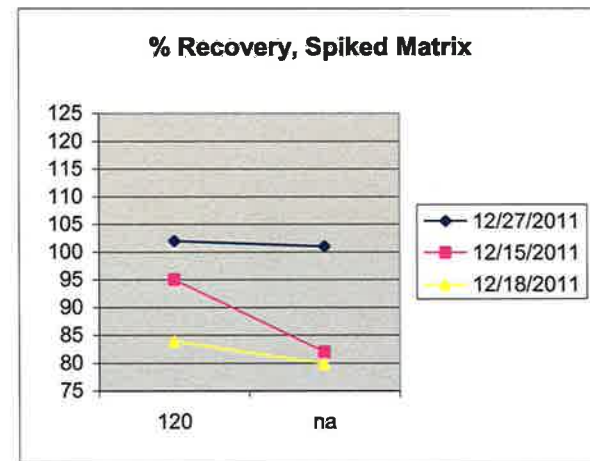
Date	Number	Ident	Sample type	Method	Bromate QCS with calculated LIMITS	Statistics
2012-01-08 22:01:36 UTC-5	1	QCS, 10ppb bromate	Sample	EPA 300 v2	11.031 ppb	on
2012-01-08 22:35:34 UTC-5	2	QCS, 10ppb std bromate	Sample	EPA 300 v2	11.051 ppb	on
2012-01-09 18:56:10 UTC-5	3	QCS, 10ppb bromate	Sample	EPA 300 v2	10.804 ppb	on
2012-01-09 19:30:03 UTC-5	4	QCS, 10ppb bromate	Sample	EPA 300 v2	10.867 ppb	on

*Susan E. Petrus 01-16-12*

# Control Chart for 12/2011 MS/MSD & Repeat %Recoveries

**IC:** Metrohm  
**Report Date:** 1/13/2012  
**Chemist:** Susan E.O. Peters  
**Dept:** Environmental  
**Analyte:** Bromate  
**Start date:** 12/1/2011  
**End date:** 12/30/2011  
**Desired level:** 100%

Sample Date	MS Recoveries and Replicate Recoveries					Ave. Sample Replicates		n=
	Spike 1 % Rec	Spike 2	Ave. Spike Recovery	RPD Spike Recovery	Std. Dev. Spikes	Ave. Sample Replicates	Std. Dev. Sample Replicates	
12/4/2011	120	na	na	na	na	1.39	0.156	3
12/27/2011	102	101	102	0.985	0.707	na	na	na
12/15/2011	95	82	89	14.68	9.19	5.98	0.0962	3
12/18/2011	84	80	82	1.43	2.83	5.65	0.208	3



NOTE: all monthly samples run as a single batch limiting the number of spike and replicate samples needed.

Susan E.O. Peters 01-16-12