



Performance Evaluation Report
RTC Laboratory Proficiency Testing Program
Study Number WPCHEM 2004

2931 Soldier Springs Rd. - Laramie WY 82070 - (307) 742-5452

Analyte	Method/ Method Code	Rep. Value	Units	Assigned Value	Acceptance Limit	Evaluation
Sample: PEO-120-3 Volatile Organic Compounds 3		Program: WPCHEM				
4680 - cis-1,3-Dichloropropene*	EPA 624 10107207	69.6	µg/L	69.1	44.4 to 87.6	Acceptable
4685 - trans-1,3-Dichloropropylene*	EPA 624 10107207	<2	µg/L	0	0 to 0	Acceptable
4700 - trans-1,2-Dichloroethylene*	EPA 624 10107207	<2	µg/L	0	0 to 0	Acceptable
4860 - 2-Hexanone*	EPA 624 10107207	<10	µg/L	0	0 to 0	Acceptable
4950 - Methyl bromide (Bromomethane)*	EPA 624 10107207	<2	µg/L	0	0 to 0	Acceptable
4960 - Methyl chloride (Chloromethane)*	EPA 624 10107207	37	µg/L	41.2	12.2 to 71.2	Acceptable
4995 - 4-Methyl-2-pentanone (MIBK)*	EPA 624 10107207	40.7	µg/L	51.1	22.0 to 72.2	Acceptable
5110 - 1,1,2,2-Tetrachloroethane*	EPA 624 10107207	30.9	µg/L	33.2	19.0 to 46.6	Acceptable
5165 - 1,1,2-Trichloroethane*	EPA 624 10107207	65.5	µg/L	63.0	43.1 to 81.8	Acceptable
5175 - Trichlorofluoromethane*	EPA 624 10107207	56	µg/L	68.3	14.3 to 119	Acceptable
5225 - Vinyl acetate*	EPA 624 10107207	<5	µg/L	0	0 to 0	Acceptable
5235 - Vinyl chloride*	EPA 624 10107207	<5	µg/L	0	0 to 0	Acceptable



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Analyte	Method/ Method Code	Rep. Value	Units	Assigned Value	Acceptance Limit	Evaluation
Sample: PEO-121-1 Base/Neutrals		Program: WPCHEM				
Compounds 1						
5005 - Naphthalene*	EPA 625 10107401	69.7	µg/L	77.2	20.7 to 101	Acceptable
5500 - Acenaphthene*	EPA 625 10107401	106	µg/L	115	42.8 to 147	Acceptable
5505 - Acenaphthylene*	EPA 625 10107401	85.4	µg/L	105	41.8 to 127	Acceptable
5555 - Anthracene*	EPA 625 10107401	<10	µg/L	<10	0 to 10	Acceptable
5575 - Benzo(a)anthracene*	EPA 625 10107401	86.1	µg/L	99.5	50.6 to 123	Acceptable
5580 - Benzo(a)pyrene*	EPA 625 10107401	44.6	µg/L	55.7	12.4 to 73.0	Acceptable
5585 - Benzo(b)fluoranthene*	EPA 625 10107401	35.6	µg/L	44.6	14.6 to 61.6	Acceptable
5590 - Benzo(g,h,i)perylene*	EPA 625 10107401	<10	µg/L	<5	0 to 5.00	Acceptable
5600 - Benzo(k)fluoranthene*	EPA 625 10107401	13.9	µg/L	18.4	3.47 to 30.8	Acceptable
5601 - Benzo(b+k)fluoranthene*	EPA 625 10107401	49.5	µg/L	62.9	33.1 to 73.9	Acceptable
5855 - Chrysene*	EPA 625 10107401	29	µg/L	32.3	15.2 to 41.4	Acceptable
5895 - Dibenz(a,h) anthracene*	EPA 625 10107401	36.7	µg/L	47.6	11.5 to 69.1	Acceptable
6265 - Fluoranthene*	EPA 625 10107401	110	µg/L	143	60.4 to 185	Acceptable
6270 - Fluorene*	EPA 625 10107401	125	µg/L	170	71.0 to 217	Acceptable
6315 - Indeno(1,2,3-cd) pyrene*	EPA 625 10107401	<10	µg/L	0	0 to 0	Acceptable
6615 - Phenanthrene*	EPA 625 10107401	143	µg/L	191	60.5 to 254	Acceptable
6665 - Pyrene*	EPA 625 10107401	50.8	µg/L	60.4	19.8 to 84.5	Acceptable



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Analyte	Method/ Method Code	Rep. Value	Units	Assigned Value	Acceptance Limit	Evaluation
Sample: PEO-121-2 Base/Neutrals		Program: WPCHEM				
Compounds 2						
4610 - 1,2-Dichlorobenzene*	EPA 625 10107401	<10	µg/L	0	0 to 0	Acceptable
4615 - 1,3-Dichlorobenzene*	EPA 625 10107401	<10	µg/L	0	0 to 0	Acceptable
4620 - 1,4-Dichlorobenzene*	EPA 625 10107401	<10	µg/L	0	0 to 0	Acceptable
4835 - Hexachlorobutadiene*	EPA 625 10107401	124	µg/L	152	26.8 to 182	Acceptable
4840 - Hexachloroethane*	EPA 625 10107401	128	µg/L	183	13.8 to 234	Acceptable
5015 - Nitrobenzene*	EPA 625 10107401	154	µg/L	199	62.8 to 260	Acceptable
5095 - Pyridine*	EPA 625 10107401	<25	µg/L	0	0 to 0	Acceptable
5155 - 1,2,4-Trichlorobenzene*	EPA 625 10107401	100	µg/L	112	32.8 to 133	Acceptable
5545 - Aniline*	EPA 625 10107401	139	µg/L	197	0.000 to 221	Acceptable
5595 - Benzidine*	EPA 625 10107401	<25	µg/L	0	0 to 0	Acceptable
5630 - Benzyl alcohol*	EPA 625 10107401	16	µg/L	0	0.00 to 16.7	Acceptable
5660 - 4-Bromophenyl phenyl ether*	EPA 625 10107401	65.9	µg/L	70.6	31.3 to 90.4	Acceptable
5670 - Butyl benzyl phthalate*	EPA 625 10107401	13.1	µg/L	82.9	0.000 to 132	Acceptable
5680 - Carbazole*	EPA 625 10107401	<10	µg/L	0	0 to 0	Acceptable
5745 - 4-Chloroaniline*	EPA 625 10107401	<25	µg/L	0	0 to 0	Acceptable
5760 - bis(2-Chloroethoxy)methane*	EPA 625 10107401	<10	µg/L	0	0 to 0	Acceptable
5765 - bis(2-Chloroethyl) ether*	EPA 625 10107401	123	µg/L	132	35.3 to 160	Acceptable
5780 - bis(2-Chloroisopropyl) ether*	EPA 625 10107401	<10	µg/L	0	0 to 0	Acceptable
5790 - 1-Chloronaphthalene*	EPA 625 10107401	<10	µg/L	0	0 to 0	Acceptable
5795 - 2-Chloronaphthalene*	EPA 625 10107401	172	µg/L	195	78.9 to 217	Acceptable
5825 - 4-Chlorophenyl phenylether*	EPA 625 10107401	144	µg/L	155	54.2 to 197	Acceptable
5905 - Dibenzofuran*	EPA 625 10107401	42.5	µg/L	55.9	19.5 to 60.7	Acceptable
5925 - Di-n-butyl phthalate*	EPA 625 10107401	25.4	µg/L	61.9	14.5 to 88.0	Acceptable
5945 - 3,3'-Dichlorobenzidine*	EPA 625 10107401	<25	µg/L	0	0 to 0	Acceptable
6070 - Diethyl phthalate*	EPA 625 10107401	32.2	µg/L	121	0.000 to 185	Acceptable
6135 - Dimethyl phthalate*	EPA 625 10107401	<10	µg/L	0	0 to 0	Acceptable
6185 - 2,4-Dinitrotoluene (2,4-DNT)*	EPA 625 10107401	65.7	µg/L	81.0	31.9 to 107	Acceptable
6190 - 2,6-Dinitrotoluene (2,6-DNT)*	EPA 625 10107401	75.7	µg/L	85.8	32.8 to 112	Acceptable
6200 - Di-n-octyl phthalate*	EPA 625 10107401	60.7	µg/L	110	16.2 to 160	Acceptable
6255 - bis(2-Ethylhexyl) phthalate (DEHP)*	EPA 625 10107401	68.6	µg/L	127	19.9 to 186	Acceptable
6275 - Hexachlorobenzene*	EPA 625 10107401	<10	µg/L	0	0 to 0	Acceptable



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Analyte	Method/ Method Code	Rep. Value	Units	Assigned Value	Acceptance Limit	Evaluation
Sample: PEO-121-2 Base/Neutrals		Program: WPCHEM				
Compounds 2						
6285 - Hexachlorocyclopentadiene*	EPA 625 10107401	97.6	µg/L	150	0.000 to 190	Acceptable
6320 - Isophorone*	EPA 625 10107401	<10	µg/L	0	0 to 0	Acceptable
6380 - 1-Methylnaphthalene*	EPA 625 10107401	137	µg/L	153	51.9 to 200	Acceptable
6385 - 2-Methylnaphthalene*	EPA 625 10107401	<10	µg/L	0	0 to 0	Acceptable
6460 - 2-Nitroaniline*	EPA 625 10107401	<10	µg/L	0	0 to 0	Acceptable
6465 - 3-Nitroaniline*	EPA 625 10107401	<10	µg/L	0	0 to 0	Acceptable
6470 - 4-Nitroaniline*	EPA 625 10107401	<25	µg/L	0	0 to 0	Acceptable
6525 - n-Nitrosodiethylamine*	EPA 625 10107401	<25	µg/L	0	0 to 0	Acceptable
6530 - n-Nitrosodimethylamine*	EPA 625 10107401	<25	µg/L	0	0 to 0	Acceptable
6535 - n-Nitrosodiphenylamine*	EPA 625 10107401	<10	µg/L	0	0 to 0	Acceptable
6545 - n-Nitrosodi-n-propylamine*	EPA 625 10107401	<10	µg/L	0	0 to 0	Acceptable
Analyte	Method/ Method Code	Rep. Value	Units	Assigned Value	Acceptance Limit	Evaluation

Analyte	Method/ Method Code	Rep. Value	Units	Assigned Value	Acceptance Limit	Evaluation
Sample: PEO-122-1 Pesticides 1		Program: WPCHEM				
7025 - Aldrin	EPA 608 10103603	0.46	µg/L	0.400	0.0990 to 0.543	Acceptable
7355 - 4,4'-DDD	EPA 608 10103603	1.03	µg/L	0.880	0.419 to 1.24	Acceptable
7360 - 4,4'-DDE	EPA 608 10103603	3.01	µg/L	2.61	1.23 to 3.56	Acceptable
7365 - 4,4'-DDT	EPA 608 10103603	5.37	µg/L	5.23	2.39 to 7.07	Acceptable
7470 - Dieldrin	EPA 608 10103603	1.8	µg/L	1.85	0.953 to 2.56	Acceptable
7685 - Heptachlor	EPA 608 10103603	1.21	µg/L	1.15	0.308 to 1.60	Acceptable
7690 - Heptachlor epoxide	EPA 608 10103603	1.56	µg/L	1.50	0.762 to 1.93	Acceptable



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Analyte	Method/ Method Code	Rep. Value	Units	Assigned Value	Acceptance Limit	Evaluation
Sample: PEO-122-2 Pesticides 2		Program: WPCHEM				
7105 - delta-BHC*	EPA 608 10103603	9.32	µg/L	8.04	2.60 to 10.0	Acceptable
7105 - delta-BHC*	EPA 608 10103603	24.4	µg/L	25.0	5.79 to 35.6	Acceptable
7110 - alpha-BHC (alpha-Hexachlorocyclohexane)*	EPA 608 10103603	2.52	µg/L	2.77	1.20 to 3.74	Acceptable
7110 - alpha-BHC (alpha-Hexachlorocyclohexane)*	EPA 608 10103603	6.11	µg/L	5.14	1.97 to 7.08	Acceptable
7115 - beta-BHC (beta-Hexachlorocyclohexane)*	EPA 608 10103603	24.7	µg/L	22.1	8.49 to 31.5	Acceptable
7115 - beta-BHC (beta-Hexachlorocyclohexane)*	EPA 608 10103603	35.8	µg/L	33.0	12.8 to 46.9	Acceptable
7120 - gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)*	EPA 608 10103603	25.9	µg/L	21.8	6.82 to 31.7	Acceptable
7120 - gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)*	EPA 608 10103603	4.09	µg/L	3.52	1.30 to 5.01	Acceptable
7510 - Endosulfan I*	EPA 608 10103603	16.8	µg/L	14.8	6.12 to 21.6	Acceptable
7510 - Endosulfan I*	EPA 608 10103603	7.05	µg/L	8.10	3.34 to 11.7	Acceptable
7515 - Endosulfan II*	EPA 608 10103603	35.9	µg/L	35.2	6.54 to 56.9	Acceptable
7515 - Endosulfan II*	EPA 608 10103603	37.8	µg/L	33.3	6.25 to 53.7	Acceptable
7520 - Endosulfan sulfate*	EPA 608 10103603	13.1	µg/L	11.8	2.45 to 19.1	Acceptable
7520 - Endosulfan sulfate*	EPA 608 10103603	19.6	µg/L	20.6	3.39 to 33.9	Acceptable
7530 - Endrin aldehyde*	EPA 608 10103603	3.27	µg/L	3.61	1.55 to 5.21	Acceptable
7535 - Endrin ketone*	EPA 608 10103603	<0.1	µg/L	0	0.000 to 0.000	Acceptable
7540 - Endrin*	EPA 608 10103603	<0.1	µg/L	0	0 to 0	Acceptable
7540 - Endrin*	EPA 608 10103603	68.5	µg/L	59.4	19.9 to 91.3	Acceptable
7810 - Methoxychlor*	EPA 608 10103603	20.5	µg/L	17.2	7.24 to 24.2	Acceptable
7810 - Methoxychlor*	EPA 608 10103603	16.9	µg/L	17.4	7.33 to 24.5	Acceptable
Analyte	Method/ Method Code	Rep. Value	Units	Assigned Value	Acceptance Limit	Evaluation

Sample: PEO-250 Acrolein/Acrylonitrile Program: WPCHEM

4325 - Acrolein (Propenal)*	EPA 624 0	25.3	µg/L	26.8	21.4 to 32.2	Acceptable
4340 - Acrylonitrile*	EPA 624 0	13.7	µg/L	15.1	12.1 to 18.1	Acceptable

Authorized for Release by



 Certifying Officer - QA/QC Manager

Date: 2/7/2005



2931 Soldier Springs Road
Laramie, WY 82070
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www.rt-corp.com

Performance Evaluation Report

WSICHEM **WS05-2**

Commenced 13-Apr-2005 | Concluded 27-May-2005

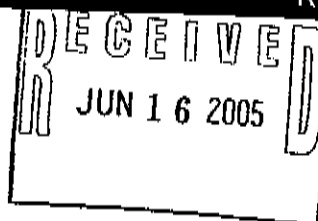
RT Labcode **RT1142**



This report may contain data that are not covered by the NVLAP accreditation.

Truesdall Laboratories, Inc.

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PEI-010-12

Corrosivity/Sodium

Program: WSICHEM

Evaluation

Analyte	Result Units	Method	Method ID	Evaluation	Z
1610 Conductivity*	510 µmhos/cm	EPA 120.1	10006209	Acceptable	-1.61
1550 Calcium hardness as CaCO ₃	191 mg/L	EPA 130.2	10007008	Acceptable	0.297
1625 Corrosivity (pH)*	9.03	EPA 150.1	10008205	Acceptable	0.714
1955 Residue filterable (TDS)	357 mg/L	EPA 160.1	10009004	Acceptable	-0.576
1035 Calcium*	78.1 mg/L	EPA 200.7	10013408	Acceptable	0.568
1155 Sodium	17.0 mg/L	EPA 200.7	10013408	Acceptable	1.23
1575 Chloride*	132 mg/L	EPA 300.0	10053006	Acceptable	-1.34
1505 Alkalinity as CaCO ₃ ³/₅>	35.5 mg/L	EPA 310.1	10054601	Acceptable	-0.325

PEI-010-12

Study Summary

Analyte	Units	Certified Value	Assigned Value	Study Mean	Study Std. Dev.	Acceptance Limits	Warning Limits
1035 Calcium*	mg/L	75.8	76.0	75.9	5.98	67.7 - 84.0	
1155 Sodium	mg/L	15.9	16.0	15.8	0.975	14.0 - 17.7	
1505 Alkalinity as CaCO ₃	mg/L	36.0	36.0	35.9	1.54	32.0 - 39.6	
1550 Calcium hardness as CaCO ₃	mg/L	188	189	189	16.9	168 - 209	
1575 Chloride*	mg/L	140	140	138	7.70	128 - 152	
1810 Conductivity*	µmhos/cm	537	537	537	16.9	483 - 591	
1625 Corrosivity (pH)*		8.90	8.86	8.86	0.182	7.97 - 9.75	
1955 Residue filterable (TDS)	mg/L	398	398	398	76.5	256 - 540	

PEI-010-12

PEI-010-3

pH (20 mL)

Program: WSICHEM

Evaluation

Analyte	Result Units	Method	Method ID	Evaluation	Z
1900 pH	5.47 UNITS	EPA 150.1	10008205	Acceptable	5.05

PEI-010-3

Study Summary

Analyte	Units	Certified Value	Assigned Value	Study Mean	Study Std. Dev.	Acceptance Limits	Warning Limits
1900 pH	UNITS	5.25	5.28	5.25	0.0436	5.08 - 5.48	

PEI-010-3

PEI-011

Anions

Program: WSICHEM

Evaluation

Analyte	Result Units	Method	Method ID	Evaluation	Z
1125 Potassium*	23.9 mg/L	EPA 200.7	10013408	Acceptable	-1.22
1730 Fluoride	3.68 mg/L	EPA 300.0	10053006	Acceptable	1.08
1810 Nitrate as N	7.73 mg/L	EPA 300.0	10053006	Acceptable	-0.931
1840 Nitrite as N	1.12 mg/L	EPA 354.1	10068403	Acceptable	2.07
1870 Orthophosphate as P	0.765 mg/L	EPA 365.2	10070209	Acceptable	-0.671

PEI-011

Study Summary

Analyte	Units	Certified Value	Assigned Value	Study Mean	Study Std. Dev.	Acceptance Limits	Warning Limits
1125 Potassium*	mg/L	26.1	26.0	25.7	1.69	22.0 - 29.7	
1730 Fluoride	mg/L	3.45	3.85	3.46	0.213	3.11 - 3.90	
1810 Nitrate as N	mg/L	8.12	8.12	8.12	0.419	7.31 - 8.93	
1840 Nitrite as N	mg/L	0.992	0.992	0.997	0.0618	0.843 - 1.14	
1870 Orthophosphate as P	mg/L	0.812	0.804	0.785	0.0404	0.672 - 0.952	

PEI-011



WSCHEM WS05-2
Concluded 27-May-2005

PEI-012

Residual Free Chlorine (RFC)

Program: WSCHEM

Evaluation

Analyte	Result Units	Method	Method ID	Evaluation	Z
1945 Residual free chlorine	0.890 mg/L	EPA 330.1	10057804	Acceptable	-0.0107

Study Summary

Analyte	Units	Certified Value	Assigned Value	Study Mean	Study Std. Dev.	Acceptance Limits	Warning Limits
1945 Residual free chlorine	mg/L	0.891	0.891	0.891	0.0704	0.704 - 1.08	

PEI-013

Sulfate/TOC

Program: WSCHEM

Evaluation

Analyte	Result Units	Method	Method ID	Evaluation	Z
2000 Sulfate	193 mg/L	EPA 300.0	10053008	Acceptable	-0.442
2040 Total organic carbon (TOC)	4.74 mg/L	EPA 415.2	10078601	Acceptable	-0.628

Study Summary

Analyte	Units	Certified Value	Assigned Value	Study Mean	Study Std. Dev.	Acceptance Limits	Warning Limits
2000 Sulfate	mg/L	198	198	198	14.0	173 - 220	
2040 Total organic carbon (TOC)	mg/L	4.99	5.00	4.96	0.152	4.20 - 5.79	

PEI-014

Turbidity

Program: WSCHEM

Evaluation

Analyte	Result Units	Method	Method ID	Evaluation	Z
2055 Turbidity	2.19 NTU	EPA 180.1	10011402	Acceptable	0.0980

Study Summary

Analyte	Units	Certified Value	Assigned Value	Study Mean	Study Std. Dev.	Acceptance Limits	Warning Limits
2055 Turbidity	NTU	2.17	2.06	2.16	0.183	1.75 - 2.58	

PEI-015

Total Cyanide

Program: WSCHEM

Evaluation

Analyte	Result Units	Method	Method ID	Evaluation	Z
1635 Cyanide	0.379 mg/L	EPA 335.2	10060205	Acceptable	1.49

Study Summary

Analyte	Units	Certified Value	Assigned Value	Study Mean	Study Std. Dev.	Acceptance Limits	Warning Limits
1635 Cyanide	mg/L	0.315	0.320	0.299	0.0430	0.230 - 0.400	

PEI-016-1
Trace Metals 1

Program: WSICHEM
PEI-016-1

Evaluation

Analyte	Result Units	Method	Method ID	Evaluation	Z
1000 Aluminum*	3570 µg/L	EPA 200.7	10013408	Acceptable	0.583
1010 Arsenic	72.0 µg/L	EPA 200.7	10013408	Acceptable	1.07
1020 Beryllium	9.11 µg/L	EPA 200.7	10013408	Acceptable	-0.0345
1030 Cadmium	51.4 µg/L	EPA 200.7	10013408	Acceptable	0.864
1040 Chromium	129 µg/L	EPA 200.7	10013408	Acceptable	-0.395
1055 Copper	16.7 µg/L	EPA 200.7	10013408	Acceptable	0.100
1070 Iron*	1089 µg/L	EPA 200.7	10013408	Acceptable	0.181
1075 Lead	54.5 µg/L	EPA 200.7	10013408	Acceptable	-0.648
1090 Manganese	625 µg/L	EPA 200.7	10013408	Acceptable	-1.20
1105 Nickel	247 µg/L	EPA 200.7	10013408	Acceptable	-0.263
1140 Selenium	26.3 µg/L	EPA 200.7	10013408	Acceptable	0.504
1000 Aluminum*	2398 µg/L	EPA 200.7	10013408	Acceptable	0.199
1010 Arsenic	3655 µg/L	EPA 200.8	10014401	Acceptable	1.02
1020 Beryllium	71.6 µg/L	EPA 200.8	10014401	Acceptable	0.060
1030 Cadmium	9.22 µg/L	EPA 200.8	10014401	Acceptable	0.155
1040 Chromium	52.2 µg/L	EPA 200.8	10014401	Acceptable	1.19
1055 Copper	130 µg/L	EPA 200.8	10014401	Acceptable	-0.264
1070 Iron*	16.2 µg/L	EPA 200.8	10014401	Acceptable	-0.0669
1075 Lead	1119 µg/L	EPA 200.8	10014401	Acceptable	0.725
1090 Manganese	57.1 µg/L	EPA 200.8	10014401	Acceptable	0.239
1105 Nickel	675 µg/L	EPA 200.8	10014401	Acceptable	0.515
1140 Selenium	252 µg/L	EPA 200.8	10014401	Acceptable	0.0658
1190 Zinc	26.5 µg/L	EPA 200.8	10014401	Acceptable	0.581
1095 Mercury	2426 µg/L	EPA 200.8	10014401	Acceptable	0.397
	2.64 µg/L	EPA 245.1	10036201	Acceptable	0.000

Study Summary

Analyte	Units	Certified Value	Assigned Value	Study Mean	Study Std. Dev.	Acceptance Limits	Warning Limits
1000 Aluminum*	µg/L	3450	3520	3510	138	3040 - 3870	
1010 Arsenic	µg/L	67.3	67.3	68.8	4.38	47.1 - 87.5	
1020 Beryllium	µg/L	9.13	9.13	9.24	0.580	7.76 - 10.5	
1030 Cadmium	µg/L	49.3	49.3	49.3	2.43	39.4 - 59.2	
1040 Chromium	µg/L	132	132	132	7.59	112 - 152	
1055 Copper	µg/L	16.4	16.4	16.4	1.99	10.8 - 22.0	
1070 Iron*	µg/L	1080	1090	1090	48.1	971 - 1190	
1075 Lead	µg/L	56.4	56.4	56.4	2.93	39.5 - 73.3	
1090 Manganese	µg/L	660	668	671	22.5	602 - 718	
1095 Mercury	µg/L	2.64	2.64	2.62	0.271	1.85 - 3.43	
1105 Nickel	µg/L	251	251	251	15.2	213 - 289	
1140 Selenium	µg/L	25.0	25.0	24.9	2.58	19.9 - 30.1	
1190 Zinc	µg/L	2370	2370	2360	151	2130 - 2610	



PEI-016-2
Trace Metals 2

Evaluation					Program: WSCHEM
Analyte	Result Units	Method	Method ID	Evaluation	PEI-016-2
1005 Antimony	17.2 µg/L	EPA 200.7	10013408	Acceptable	z
1015 Barium	776 µg/L	EPA 200.7	10013408	Acceptable	-2.07
1025 Boron	533 µg/L	EPA 200.7	10013408	Acceptable	-1.57
1085 Magnesium*	2.95 mg/L	EPA 200.7	10013408	Acceptable	-1.09
1100 Molybdenum	117 µg/L	EPA 200.7	10014003	Acceptable	-0.343
1150 Silver*	162 µg/L	EPA 200.7	10013408	Acceptable	0.000
1165 Thallium	<0.010 µg/L	EPA 200.7	10013408	Acceptable	0.669
1185 Vanadium*	1968 µg/L	EPA 200.7	10013408	Not acceptable	
1005 Antimony	17.6 µg/L	EPA 200.8	10013408	Acceptable	0.442
1015 Barium	799 µg/L	EPA 200.8	10014401	Acceptable	-1.90
1100 Molybdenum	114 µg/L	EPA 200.8	10014401	Acceptable	-0.620
1150 Silver*	164 µg/L	EPA 200.8	10014401	Acceptable	-0.436
1165 Thallium	9.35 µg/L	EPA 200.8	10014401	Acceptable	0.892
1185 Vanadium*	2008 µg/L	EPA 200.8	10014401	Acceptable	0.676
			10014401	Acceptable	0.796

Study Summary

Analyte	Units	Certified Value	Assigned Value	Study Mean	Study Std. Dev.	Acceptance Limits	Warning Limits
1005 Antimony	µg/L	22.1	22.1	22.0	2.37	15.5 - 28.7	
1015 Barium	µg/L	814	814	819	24.2	692 - 936	
1025 Boron	µg/L	566	562	573	30.2	505 - 626	
1085 Magnesium*	mg/L	3.02	2.98	2.99	0.176	2.62 - 3.43	
1100 Molybdenum	µg/L	117	119	119	10.9	104 - 131	
1150 Silver*	µg/L	156	157	156	9.60	136 - 176	
1165 Thallium	µg/L	8.60	8.60	8.57	1.11	6.02 - 11.2	
1185 Vanadium*	µg/L	1920	1920	1920	113	1730 - 2110	

PEI-017-1

Inorganic Disinfection By-Products (Sample 1)

Evaluation					Program: WSCHEM
Analyte	Result Units	Method	Method ID	Evaluation	PEI-017-1
1540 Bromide	280 µg/L	EPA 300.0	10053006	Acceptable	z -0.778

Study Summary

Analyte	Units	Certified Value	Assigned Value	Study Mean	Study Std. Dev.	Acceptance Limits	Warning Limits
1540 Bromide	µg/L	308	307	271	22.0	236 - 380	

PEI-203

Anionic Surfactant

Evaluation					Program: WSCHEM
Analyte	Result Units	Method	Method ID	Evaluation	PEI-203
2025 Surfactants - MBAS*	0.411 mg/L	EPA 425.1	10090407	Acceptable	z -0.748

Study Summary

Analyte	Units	Certified Value	Assigned Value	Study Mean	Study Std. Dev.	Acceptance Limits	Warning Limits
2025 Surfactants - MBAS*	mg/L	0.446	0.450	0.413	0.0747	0.352 - 0.540	

PEI-224

Chlorine (combined & total)

Evaluation					Program: WSCHEM
Analyte	Result Units	Method	Method ID	Evaluation	PEI-224
1585 Total chlorine*	0.890 mg/L	EPA 330.1	10057804	Acceptable	z -0.0107

Study Summary

Analyte	Units	Certified Value	Assigned Value	Study Mean	Study Std. Dev.	Acceptance Limits	Warning Limits
1585 Total chlorine*	mg/L	0.891	0.891			0.704 - 1.08	

PEI-227
Silica

Program: WSCHEM
PEI-227

Evaluation

Analyte	Result Units	Method	Method ID	Evaluation	Z
1990 Silica as SiO ₂	10.4 mg/L	EPA 370.1	10071804	Acceptable	0.000

Study Summary

Analyte	Units	Certified Value	Assigned Value	Study Mean	Study Std. Dev.	Acceptance Limits	Warning Limits
1990 Silica as SiO ₂	mg/L	10.4	10.4	10.4	0.338	8.84 - 12.0	

PEI-229

Chromium VI

Program: WSCHEM
PEI-229

Evaluation

Analyte	Result Units	Method	Method ID	Evaluation	Z
1045 Chromium VI*	67.0 µg/L	EPA 7196A	10162400	Acceptable	-0.119

Study Summary

Analyte	Units	Certified Value	Assigned Value	Study Mean	Study Std. Dev.	Acceptance Limits	Warning Limits
1045 Chromium VI*	µg/L	67.4	67.5			60.7 - 74.1	

PEO-002

Trihalomethanes

Program: WSCHEM
PEO-002

Evaluation

Analyte	Result Units	Method	Method ID	Evaluation	Z
4395 Bromodichloromethane	14.3 µg/L	EPA 502.2	10082005	Acceptable	-1.21
4400 Bromoform	41.5 µg/L	EPA 502.2	10082005	Acceptable	-0.753
4505 Chloroform	31.9 µg/L	EPA 502.2	10082005	Acceptable	-0.649
4575 Dibromochloromethane	37.1 µg/L	EPA 502.2	10082005	Acceptable	-0.613
5205 Total trihalomethanes	125 µg/L	EPA 502.2	10082005	Acceptable	-0.800

Study Summary

Analyte	Units	Certified Value	Assigned Value	Study Mean	Study Std. Dev.	Acceptance Limits	Warning Limits
4395 Bromodichloromethane	µg/L	16.4	16.0	16.4	1.74	12.9 - 19.9	
4400 Bromoform	µg/L	45.1	46.1	45.1	4.78	23.0 - 69.2	
4505 Chloroform	µg/L	33.6	34.1	33.6	2.62	17.0 - 51.2	
4575 Dibromochloromethane	µg/L	39.9	41.1	39.9	4.57	20.5 - 61.7	
5205 Total trihalomethanes	µg/L	135	137	135	12.5	68.5 - 206	

PEO-003

PCBs

Program: WSCHEM
PEO-003

Evaluation

Analyte	Result Units	Method	Method ID	Evaluation	Z
8870 PCBs, total*	0.85 µg/L	EPA 508	10085004	Acceptable	1.91

Study Summary

Analyte	Units	Certified Value	Assigned Value	Study Mean	Study Std. Dev.	Acceptance Limits	Warning Limits
8870 PCBs, total*	µg/L	0.670	0.70			0.00 - 1.40	

PEO-005-1

Organochlorine Pesticides (Sample 1)

Program: WSCHEM
PEO-005-1

Evaluation

Analyte	Result Units	Method	Method ID	Evaluation	Z
7025 Aldrin	0.42 µg/L	EPA 508	10085004	Acceptable	-0.617
7126 gamma-DHC (1,1,1-trichloro-2,2,4-trifluoro-4-(4-chlorophenyl)-5-(4-chlorophenyl)-5-(4-chlorophenyl)cyclohexane)	1.29 µg/L	EPA 508	10085004	Acceptable	-1.27
7470 Dieldrin	2.20 µg/L	EPA 508	10085004	Acceptable	-0.879
7540 Endrin	0.61 µg/L	EPA 508	10085004	Acceptable	-1.56
7685 Heptachlor	0.45 µg/L	EPA 508	10085004	Acceptable	-1.11



WSCHEM WS05-2
Concluded 27-May-2005

Study Summary

Analyte	Units	Certified Value	Assigned Value	Study Mean	Study Std. Dev.	Acceptance Limits	Warning Limits	PEO-005-1
7075 Aldrin	µg/L	0.499	0.60	0.581	0.147	0.243 - 0.756		
7120 gamma-BHC (Lindane gamma-Hexachlorocyclohexane)	µg/L	1.72	1.72	1.54	0.339	0.946 - 2.49		
7470 Dieldrin	µg/L	2.60	2.71	2.36	0.302	1.69 - 3.51		
7540 Endrin	µg/L	0.820	0.82	0.757	0.135	0.574 - 1.07		
7685 Heptachlor	µg/L	0.620	0.62	0.574	0.153	0.341 - 0.899		

PEO-005-2

Organochlorine Pesticides (Sample 2)

Program: WSCHEM

Evaluation

Analyte	Result Units	Method	Method ID	Evaluation	Z	PEO-005-2
6275 Hexachlorobenzene	3.01 µg/L	EPA 508	10085004	Acceptable	0.780	
6285 Hexachlorocyclopentadiene	9.85 µg/L	EPA 508	10085004	Acceptable	-0.997	
7690 Heptachlor epoxide	4.37 µg/L	EPA 508	10085004	Acceptable	0.720	
7810 Methoxychlor	75.6 µg/L	EPA 508	10085004	Acceptable	-0.246	
8045 Propachlor (Ramrod)	2.46 µg/L	EPA 508	10085004	Acceptable	-0.771	
8295 Trifluralin (Treflan)	2.88 µg/L	EPA 508	10085004	Acceptable	0.441	

Study Summary

Analyte	Units	Certified Value	Assigned Value	Study Mean	Study Std. Dev.	Acceptance Limits	Warning Limits	PEO-005-2
6275 Hexachlorobenzene	µg/L	2.56	2.85	2.65	0.780	1.41 - 3.72		
6285 Hexachlorocyclopentadiene	µg/L	15.9	19.9	15.9	6.85	3.75 - 28.0		
7690 Heptachlor epoxide	µg/L	3.70	3.70	3.76	0.930	2.04 - 5.37		
7810 Methoxychlor	µg/L	79.1	79.1	72.3	14.2	43.5 - 115		
8045 Propachlor (Ramrod)	µg/L	2.91	2.96	2.54	0.224	1.74 - 4.07		
8295 Trifluralin (Treflan)	µg/L	2.63	2.96	2.49	0.807	1.50 - 3.77		

PEO-005-3

Organonitrogen Pesticides

Program: WSCHEM

Evaluation

Analyte	Result Units	Method	Method ID	Evaluation	Z	PEO-005-3
7005 Alachlor	19.6 µg/L	EPA 525.2	10089608	Acceptable	1.20	
7065 Atrazine	28.1 µg/L	EPA 525.2	10089608	Acceptable	0.246	
7130 Bromacil	<1.0 µg/L	EPA 525.2	10089608	Acceptable		
7160 Butachlor	86.9 µg/L	EPA 525.2	10089608	Acceptable	1.21	
7835 Metolachlor	<1.0 µg/L	EPA 525.2	10089608	Acceptable		
7845 Metribuzin	23.2 µg/L	EPA 525.2	10089608	Acceptable	-0.931	
7875 Molinate	<1.0 µg/L	EPA 525.2	10089608	Acceptable		
8125 Simazine	28.2 µg/L	EPA 525.2	10089608	Acceptable	0.873	

Study Summary

Analyte	Units	Certified Value	Assigned Value	Study Mean	Study Std. Dev.	Acceptance Limits	Warning Limits	PEO-005-3
7005 Alachlor	µg/L	16.6	16.6	16.4	3.63	9.13 - 24.1		
7065 Atrazine	µg/L	27.1	27.1	27.5	5.14	14.9 - 39.3		
7130 Bromacil	µg/L	0	0	0	0	0 - 0		
7160 Butachlor	µg/L	69.6	78.2	75.7	15.1	40.9 - 98.2		
7835 Metolachlor	µg/L	0	0	0	0	0 - 0		
7845 Metribuzin	µg/L	35.3	43.8	34.9	10.5	9.32 - 61.3		
7875 Molinate	µg/L	0	0	0	0	0 - 0		
8125 Simazine	µg/L	21.4	26.2	23.9	5.49	5.83 - 37.0		

PEO-005-4
Herbicides

Program: WSCHFM

Evaluation

PEO-005-4

Analyte	Result Units	Method	Method ID	Evaluation	Z
▼ Summary for Method EPA 515.4					
6500 4-Nitrophenol*	<2.0 µg/L	EPA 515.4	10088503	Acceptable	Acceptable
6605 Pentachlorophenol	38.8 µg/L	EPA 515.4	10088503	Acceptable	0.241
8505 Acifluorfen	24.0 µg/L	EPA 515.4	10088503	Acceptable	-1.17
8530 Bentazon*	<2.0 µg/L	EPA 515.4	10088503	Acceptable	
8540 Chloramben*	<1.0 µg/L	EPA 515.4	10088503	Acceptable	
8545 2,4-D	26.4 µg/L	EPA 515.4	10088503	Acceptable	-0.590
8550 Dacthal (DCPA)*	<1.0 µg/L	EPA 515.4	10088503	Acceptable	
8555 Dalapon	<1.0 µg/L	EPA 515.4	10088503	Acceptable	
8560 2,4-DB*	<2.0 µg/L	EPA 515.4	10088503	Acceptable	
8565 DCPA mono-acid*	<1.0 µg/L	EPA 515.4	10088503	Acceptable	
8595 Dicamba	49.8 µg/L	EPA 515.4	10088503	Acceptable	0.840
8600 3,5-Dichlorobenzoic acid*	<1.0 µg/L	EPA 515.4	10088503	Acceptable	
8605 Dichloroprop*	<2.0 µg/L	EPA 515.4	10088503	Acceptable	
8620 Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	22.7 µg/L	EPA 515.4	10088503	Acceptable	0.866
8645 Pictoram	25.0 µg/L	EPA 515.4	10088503	Acceptable	-0.225
8650 Silvex (2,4,5-TP)	10.9 µg/L	EPA 515.4	10088503	Acceptable	
8655 2,4,5-T*	32.8 µg/L	EPA 515.4	10088503	Acceptable	-0.667
▲ Summary for Method EPA 515.4					
		Analytes Evaluated 17	Acceptable 17	Acceptance Percentage 100.0%	

Study Summary

Analyte	Units	Certified Value	Assigned Value	Study Mean	Study Std. Dev.	Acceptance Limits	Warning Limits
6500 4-Nitrophenol*	µg/L		0			0 - 0	
6605 Pentachlorophenol	µg/L	36.2	36.2	35.0	10.8	18.1 - 54.3	
8505 Acifluorfen	µg/L	34.4	38.6	36.1	9.38	16.6 - 52.2	
8530 Bentazon*	µg/L		0			0 - 0	
8540 Chloramben*	µg/L		0			0 - 0	
8545 2,4-D	µg/L	31.5	31.5	24.9	8.64	15.8 - 47.3	
8550 Dacthal (DCPA)*	µg/L		0			0 - 0	
8555 Dalapon	µg/L	47.1	74.6	34.1	17.7	0.000 - 103	
8560 2,4-DB*	µg/L		0			0 - 0	
8565 DCPA mono-acid*	µg/L		0			0 - 0	
8595 Dicamba	µg/L	38.8	46.7	47.8	2.08	12.5 - 65.0	
8600 3,5-Dichlorobenzoic acid*	µg/L		0			0 - 0	
8605 Dichloroprop*	µg/L		0			0 - 0	
8620 Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	µg/L	17.0	21.6	20.7	2.92	3.88 - 30.2	
8645 Pictoram	µg/L	27.2	33.1	29.8	4.55	7.61 - 46.7	
8650 Silvex (2,4,5-TP)	µg/L	12.7	12.7	11.5	1.63	6.35 - 19.1	
8655 2,4,5-T*	µg/L	40.0	46.8	37.4	12.4	18.4 - 61.6	

PEO-005-5

Chlordane (Total)

Program: WSCHFM

Evaluation

PEO-005-5

Analyte	Result Units	Method	Method ID	Evaluation	Z
7250 Chlordane, total	12.6 µg/L	EPA 508	10085004	Acceptable	-2.44

Analyte	Units	Certified Value	Assigned Value	Study Mean	Study Std. Dev.	Acceptance Limits	Warning Limits
7250 Chlordane, total	µg/L	17.6	17.6	16.1	2.05	9.68 - 25.5	

PEO-005-6

Toxaphene (Total)

Program: WSCHFM

Evaluation

PEO-005-6

Analyte	Result Units	Method	Method ID	Evaluation	Z
8250 Toxaphene (Chlorinated camphene)	5.92 µg/L	EPA 508	10085004	Acceptable	-0.734



WSCHEM WS05-2
Concluded 27-May-2005

Study Summary

Analyte	Units	Certified Value	Assigned Value	Study Mean	Study Std. Dev.	Acceptance Limits	Warning Limits
8250 Toxaphene (Chlorinated camphene)	µg/L	6.86	6.86	6.59	1.28	3.77 - 9.95	PEQ-005-6

PEO-006-1

Adipate/Phthalate

Program: WSCHEM

Evaluation

PEO-006-1

Analyte	Result Units	Method	Method ID	Evaluation	Z
5580 Benzo(a)pyrene	0.70 µg/L	EPA 525.2	10089608	Acceptable	-0.933
6062 bis(2-ethylhexyl)adipate	21.7 µg/L	EPA 525.2	10089608	Acceptable	0.130
6065 bis(2-ethylhexyl)phthalate	11.8 µg/L	EPA 525.2	10089608	Acceptable	0.374

Study Summary

Analyte	Units	Certified Value	Assigned Value	Study Mean	Study Std. Dev.	Acceptance Limits	Warning Limits
5580 Benzo(a)pyrene	µg/L	0.908	1.05	0.922	0.238	0.462 - 1.35	PEO-006-1
6062 bis(2-ethylhexyl)adipate	µg/L	20.9	22.8	20.0	4.96	8.56 - 33.2	
6065 bis(2-ethylhexyl)phthalate	µg/L	10.6	11.1	11.1	1.89	4.15 - 17.0	

PEO-006-2

PNA's

Program: WSCHEM

Evaluation

PEO-006-2

Analyte	Result Units	Method	Method ID	Evaluation	Z
▼ Summary for Method EPA 525.2					
				Overall method evaluation	Acceptable
5005 Naphthalene*	19.7 µg/L	EPA 525.2	10089608	Acceptable	-2.84
5500 Acenaphthene*	22.9 µg/L	EPA 525.2	10089608	Acceptable	-0.602
5505 Acenaphthylene*	<0.5 µg/L	EPA 525.2	10089608	Acceptable	
5555 Anthracene*	7.25 µg/L	EPA 525.2	10089608	Acceptable	-1.75
5575 Benzo(a)anthracene*	<0.5 µg/L	EPA 525.2	10089608	Acceptable	
5585 Benzo(b)fluoranthene*	7.68 µg/L	EPA 525.2	10089608	Acceptable	-0.490
5590 Benzo(g,h,i)perylene*	9.22 µg/L	EPA 525.2	10089608	Acceptable	0.0570
5600 Benzo(k)fluoranthene*	<0.5 µg/L	EPA 525.2	10089608	Acceptable	
5670 Butyl benzyl phthalate*	<0.5 µg/L	EPA 525.2	10089608	Acceptable	
5655 Chrysene*	<0.5 µg/L	EPA 525.2	10089608	Acceptable	
5695 Dibenz(a,h)anthracene*	4.51 µg/L	EPA 525.2	10089608	Acceptable	-1.85
5925 Di-n-butyl phthalate*	17.8 µg/L	EPA 525.2	10089608	Acceptable	0.997
6070 Diethyl phthalate*	22.6 µg/L	EPA 525.2	10089608	Acceptable	0.622
6135 Dimethyl phthalate*	31.2 µg/L	EPA 525.2	10089608	Acceptable	-0.0144
6200 Di-n-octyl phthalate*	28.6 µg/L	EPA 525.2	10089608	Acceptable	0.152
6265 Fluoranthene*	<0.5 µg/L	EPA 525.2	10089608	Acceptable	
6270 Fluorene*	<0.5 µg/L	EPA 525.2	10089608	Acceptable	
6315 Indeno(1,2,3-cd)pyrene*	<0.5 µg/L	EPA 525.2	10089608	Acceptable	
6380 1-Methylnaphthalene*	15.3 µg/L	EPA 525.2	10089608	Acceptable	
6385 2-Methylnaphthalene*	33.6 µg/L	EPA 525.2	10089608	Acceptable	
6615 Phenanthrene*	9.12 µg/L	EPA 525.2	10089608	Acceptable	
6865 Pyrene*	<0.5 µg/L	EPA 525.2	10089608	Acceptable	

▲ Summary for Method EPA 525.2

Analytes Evaluated 22 Acceptable 22 Acceptance Percentage 100.0%

Study Summary

Analyte	Units	Certified Value	Assigned Value	Study Mean	Study Std. Dev.	Acceptance Limits	Warning Limits
5005 Naphthalene*	µg/L	28.5	28.5	21.9	3.10	17.1 - 39.9	PEO-006-2
5500 Acenaphthene*	µg/L	25.8	25.8	21.4	4.82	12.9 - 38.7	
5505 Acenaphthylene*	µg/L	0.000	0			0.000 - 0.000	
5555 Anthracene*	µg/L	8.98	8.98	7.64	0.991	4.49 - 13.5	
5575 Benzo(a)anthracene*	µg/L	0.000	0			0.000 - 0.000	
5585 Benzo(b)fluoranthene*	µg/L	8.41	8.41	7.09	1.49	4.21 - 12.6	
5590 Benzo(g,h,i)perylene*	µg/L	9.09	9.09	7.54	2.28	4.50 - 13.6	
5600 Benzo(k)fluoranthene*	µg/L	0.000	0			0.000 - 0.000	
5670 Butyl benzyl phthalate*	µg/L	0.000	0			0.000 - 0.000	



Study Summary

Analyte	Units	Certified Value	Assigned Value	Study Mean	Study Std. Dev.	Acceptance Limits	Warning Limits
5855 Chrysene*	µg/L	0.000	0			0.000 - 0.000	
5895 Dibenz(a,h) anthracene*	µg/L	5.52	5.52	4.63	0.546	2.76 - 8.28	
5925 Di-n-butyl phthalate*	µg/L	14.0	14.0	13.5	3.81	5.60 - 27.4	
6070 Diethyl phthalate*	µg/L	20.0	20.0	20.0	4.18	8.00 - 32.0	
6135 Dimethyl phthalate*	µg/L	31.3	31.3	29.9	6.96	12.5 - 50.1	
6200 Di-n-octyl phthalate*	µg/L	27.6	27.6	23.6	6.59	11.0 - 44.2	
6265 Fluoranthene*	µg/L	0.000	0			0.000 - 0.000	
6270 Fluorene*	µg/L	0.000	0			0.000 - 0.000	
6315 Indeno(1,2,3-cd) pyrene*	µg/L	0.000	0			0.000 - 0.000	
6380 1-Methylnaphthalene*	µg/L	22.1	22.1			11.1 - 33.2	
6385 2-Methylnaphthalene*	µg/L	43.8	43.8			21.9 - 65.7	
6615 Phenanthrene*	µg/L	8.93	8.93	8.80	0.523	4.47 - 13.4	
6665 Pyrene*	µg/L	0.000	0			0.000 - 0.000	

PEO-007-1

Regulated VOCs (Sample 1)

Program: WSCHEM

Evaluation

Analyte	Result Units	Method	Method ID	Evaluation	Z
Summary for Method EPA 524.2					
Overall method evaluation Acceptable					
4455 Carbon tetrachloride	10.7 µg/L	EPA 524.2	10088605	Acceptable	-1.08
4475 Chlorobenzene	4.04 µg/L	EPA 524.2	10088605	Acceptable	0.309
4635 1,2-Dichloroethane	16.2 µg/L	EPA 524.2	10088605	Acceptable	-0.986
4640 1,1-Dichloroethylene	3.21 µg/L	EPA 524.2	10088605	Acceptable	-0.953
4645 cis-1,2-Dichloroethylene	22.1 µg/L	EPA 524.2	10088605	Acceptable	-0.808
4655 1,2-Dichloropropane	4.85 µg/L	EPA 524.2	10088605	Acceptable	-0.681
4700 trans-1,2-Dichloroethylene	3.44 µg/L	EPA 524.2	10088605	Acceptable	-0.773
4975 Methylene chloride (Dichloromethane)	6.81 µg/L	EPA 524.2	10088605	Acceptable	0.238
5100 Styrene	6.71 µg/L	EPA 524.2	10088605	Acceptable	-0.105
5115 Tetrachloroethylene (Perchloroethylene)	14.9 µg/L	EPA 524.2	10088605	Acceptable	1.44
5155 1,2,4-Trichlorobenzene	14.3 µg/L	EPA 524.2	10088605	Acceptable	0.203
5160 1,1,1-Trichloroethane	10.6 µg/L	EPA 524.2	10088605	Acceptable	1.45
5165 1,1,2-Trichloroethane	17.9 µg/L	EPA 524.2	10088605	Acceptable	-0.345
5170 Trichloroethene (Trichloroethylene)	9.15 µg/L	EPA 524.2	10088605	Acceptable	-0.943
5235 Vinyl chloride	20.4 µg/L	EPA 524.2	10088605	Acceptable	-0.346
Summary for Method EPA 524.2					
		Analyses Evaluated 15	Acceptable 15	Acceptance Percentage 100.0%	

Study Summary

Analyte	Units	Certified Value	Assigned Value	Study Mean	Study Std. Dev.	Acceptance Limits	Warning Limits
4455 Carbon tetrachloride	µg/L	12.2	12.6	12.2	1.39	10.1 - 15.1	
4475 Chlorobenzene	µg/L	3.96	4.05	3.96	0.259	2.43 - 5.67	
4635 1,2-Dichloroethane	µg/L	17.6	17.6	17.6	1.42	14.1 - 21.1	
4640 1,1-Dichloroethylene	µg/L	3.82	3.73	3.82	0.640	2.24 - 5.22	
4645 cis-1,2-Dichloroethylene	µg/L	24.8	25.1	24.8	3.34	20.1 - 30.1	
4655 1,2-Dichloropropane	µg/L	5.23	5.20	5.23	0.558	3.12 - 7.28	
4700 trans-1,2-Dichloroethylene	µg/L	3.73	3.34	3.73	0.375	2.00 - 4.68	
4975 Methylene chloride (Dichloromethane)	µg/L	6.52	6.75	6.52	1.22	4.05 - 9.45	
5100 Styrene	µg/L	6.79	7.22	6.79	0.763	4.33 - 10.1	
5115 Tetrachloroethylene (Perchloroethylene)	µg/L	12.2	13.2	12.2	1.88	10.4 - 16.0	
5155 1,2,4-Trichlorobenzene	µg/L	14.0	14.9	14.0	1.48	10.4 - 19.4	
5160 1,1,1-Trichloroethane	µg/L	12.5	12.6	12.5	1.31	10.1 - 15.1	
5165 1,1,2-Trichloroethane	µg/L	18.6	18.9	18.6	2.03	15.1 - 22.7	
5170 Trichloroethene (Trichloroethylene)	µg/L	9.97	10.4	9.97	0.870	8.32 - 12.5	
5235 Vinyl chloride	µg/L	22.0	22.0	22.0	4.62	13.2 - 30.8	



WSCHEM WS05-2
Concluded 27-May-2005

PEO-007-2

Regulated VOCs (Sample 2)

Program: WSCHEM

PEO-007-2

Evaluation

Analyte	Result Units	Method	Method ID	Evaluation	Z
▼ Summary for Method EPA 524.2			Overall method evaluation Acceptable		
4375 Benzene	11.9 µg/L	EPA 524.2	10088605	Acceptable	-0.546
4610 1,2-Dichlorobenzene	7.40 µg/L	EPA 524.2	10088605	Acceptable	0.686
4615 1,3-Dichlorobenzene	30.4 µg/L	EPA 524.2	10088605	Acceptable	-0.339
4620 1,4-Dichlorobenzene	8.05 µg/L	EPA 524.2	10088605	Acceptable	-0.472
4765 Ethylbenzene	5.25 µg/L	EPA 524.2	10088605	Acceptable	0.0212
5000 Methyl tert-butyl ether (MTBE)	25.6 µg/L	EPA 524.2	10088605	Acceptable	-0.597
5005 Naphthalene*	20.8 µg/L	EPA 524.2	10088605	Acceptable	0.231
5140 Toluene	13.3 µg/L	EPA 524.2	10088605	Acceptable	0.355
5210 1,2,4-Trimethylbenzene*	17.6 µg/L	EPA 524.2	10088605	Acceptable	0.000
5215 1,3,5-Trimethylbenzene*	14.7 µg/L	EPA 524.2	10088605	Acceptable	-0.119
5240 m+p-Xylene*	15.1 µg/L	EPA 524.2	10088605	Acceptable	0.475
5250 o-Xylene*	7.41 µg/L	EPA 524.2	10088605	Acceptable	0.805
5260 Xylene, total	22.5 µg/L	EPA 524.2	10088605	Acceptable	0.796
▲ Summary for Method EPA 524.2		Analytes Evaluated 13	Acceptable 13	Acceptance Percentage 100.0%	

Study Summary

Analyte	Units	Certified Value	Assigned Value	Study Mean	Study Std. Dev.	Acceptance Limits	Warning Limits
4375 Benzene	µg/L	12.4	12.8	12.4	0.915	10.2 - 15.4	
4610 1,2-Dichlorobenzene	µg/L	7.02	7.10	7.02	0.554	4.26 - 9.94	
4615 1,3-Dichlorobenzene	µg/L	31.4	31.6	31.4	2.95	25.3 - 37.9	
4620 1,4-Dichlorobenzene	µg/L	8.50	8.52	8.50	0.953	5.11 - 11.9	
4765 Ethylbenzene	µg/L	5.24	5.38	5.24	0.471	3.23 - 7.53	
5000 Methyl tert-butyl ether (MTBE)	µg/L	27.6	27.6	26.9	3.35	16.6 - 38.6	
5005 Naphthalene*	µg/L	20.0	20.2	20.0	3.47	12.1 - 28.3	
5140 Toluene	µg/L	13.0	13.6	13.0	0.846	10.9 - 16.3	
5210 1,2,4-Trimethylbenzene*	µg/L	17.6	17.2	17.6	1.82	13.8 - 20.8	
5215 1,3,5-Trimethylbenzene*	µg/L	14.9	15.0	14.9	1.68	11.9 - 18.1	
5240 m+p-Xylene*	µg/L	14.8	15.4	14.8	0.631	12.3 - 18.5	
5250 o-Xylene*	µg/L	6.94	7.17	6.94	0.584	4.30 - 10.0	
5260 Xylene, total	µg/L	21.6	22.6	21.6	1.13	18.1 - 27.1	

PEO-007-3A

Unregulated VOCs (Sample 1)

Program: WSCHEM

PEO-007-3A

Evaluation

Analyte	Result Units	Method	Method ID	Evaluation	Z
▼ Summary for Method EPA 524.2			Overall method evaluation Acceptable		
4395 Bromodichloromethane	<0.5 µg/L	EPA 524.2	10088605	Acceptable	
4400 Bromoform	<0.5 µg/L	EPA 524.2	10088605	Acceptable	
4485 Chloroethane	12.5 µg/L	EPA 524.2	10088605	Acceptable	
4505 Chloroform	<0.5 µg/L	EPA 524.2	10088605	Acceptable	
4575 Dibromochloromethane	<0.5 µg/L	EPA 524.2	10088605	Acceptable	
4615 1,3-Dichlorobenzene	31.6 µg/L	EPA 524.2	10088605	Acceptable	
4625 Dichlorodifluoromethane	2.50 µg/L	EPA 524.2	10088605	Acceptable	0.162
4630 1,1-Dichloroethane	47.9 µg/L	EPA 524.2	10088605	Acceptable	0.165
4680 cis-1,3-Dichloropropene	7.57 µg/L	EPA 524.2	10088605	Acceptable	-0.246
4685 trans-1,3-Dichloropropene	13.4 µg/L	EPA 524.2	10088605	Acceptable	-0.0455
4950 Methyl bromide (Bromomethane)	16.3 µg/L	EPA 524.2	10088605	Acceptable	0.256
4960 Methyl chloride (Chloromethane)	18.3 µg/L	EPA 524.2	10088605	Acceptable	0.0678
5000 Methyl tert-butyl ether (MTBE)	28.9 µg/L	EPA 524.2	10088605	Acceptable	-0.245
5110 1,1,2,2-Tetrachloroethane	42.5 µg/L	EPA 524.2	10088605	Acceptable	-0.323
5175 Trichlorofluoromethane	8.18 µg/L	EPA 524.2	10088605	Acceptable	
▲ Summary for Method EPA 524.2		Analytes Evaluated 15	Acceptable 15	Acceptance Percentage 100.0%	



WSCHEM WS05-2
Concluded 27-May-2005

Study Summary

Analyte	Units	Certified Value	Assigned Value	Study Mean	Study Std. Dev.	Acceptance Limits	Warning Limits	PEO-007-3A
4395 Bromodichloromethane	µg/L	0.000	0			0.000 - 0.000		
4400 Bromoform	µg/L	0.000	0			0.000 - 0.000		
4485 Chloroethane	µg/L	12.0	12.0	11.7	2.60	7.20 - 16.8		
4505 Chloroform	µg/L	0.000	0			0.000 - 0.000		
4575 Dibromochloromethane	µg/L	0.000	0			0.000 - 0.000		
4615 1,3-Dichlorobenzene	µg/L	NaN	35.1	35.0	3.68	28.1 - 42.1		
4625 Dichlorodifluoromethane	µg/L	2.40	2.40	2.35	0.617	1.44 - 3.36		
4630 1,1-Dichloroethane	µg/L	47.2	48.6	47.2	4.23	36.4 - 58.0		
4680 cis-1,3-Dichloropropene	µg/L	7.78	9.43	7.78	0.852	5.66 - 13.2		
4685 trans-1,3-Dichloropropylene	µg/L	13.5	14.5	13.5	2.20	8.70 - 20.3		
4950 Methyl bromide (Bromomethane)	µg/L	15.1		14.9	4.69	7.55 - 22.7		
4960 Methyl chloride (Chloromethane)	µg/L	18.1	17.7	18.1	2.95	10.6 - 25.4		
5000 Methyl tert-butyl ether (MTBE)	µg/L	29.8	29.8	29.1	3.67	17.9 - 41.7		
5110 1,1,2,2-Tetrachloroethane	µg/L	44.4	47.0	44.4	5.89	35.5 - 56.4		
5175 Trichlorofluoromethane	µg/L	9.54	9.54	9.19	1.52	5.72 - 13.4		

PEO-007-3B

Unregulated VOCs (Sample 2)

Program: WSCHEM

Evaluation

Analyte	Result Units	Method	Method ID	Evaluation	Z	PEO-007-3B
▼ Summary for Method EPA 524.2						
4385 Bromobenzene	20.6 µg/L	EPA 524.2	10088605	Acceptable	1.10	
4390 Bromochloromethane	34.1 µg/L	EPA 524.2	10088605	Acceptable	-0.464	
4435 n-Butylbenzene	26.1 µg/L	EPA 524.2	10088605	Not acceptable	-2.12	
4440 sec-Butylbenzene	22.4 µg/L	EPA 524.2	10088605	Acceptable	-0.403	
4445 tert-Butylbenzene	14.3 µg/L	EPA 524.2	10088605	Acceptable		
4535 2-Chlorotoluene	12.1 µg/L	EPA 524.2	10088605	Acceptable	0.282	
4540 4-Chlorotoluene	56.7 µg/L	EPA 524.2	10088605	Acceptable	1.18	
4595 Dibromomethane	9.99 µg/L	EPA 524.2	10088605	Acceptable	-1.59	
4660 1,3-Dichloropropane	22.9 µg/L	EPA 524.2	10088605	Acceptable	-1.81	
4665 2,2-Dichloropropane	23.2 µg/L	EPA 524.2	10088605	Acceptable	-0.277	
4670 1,1-Dichloropropene	<0.5 µg/L	EPA 524.2	10088605	Acceptable		
4835 Hexachlorobutadiene	12.9 µg/L	EPA 524.2	10088605	Acceptable	-0.714	
4900 Isopropylbenzene	46.4 µg/L	EPA 524.2	10088605	Acceptable	-0.106	
4910 4-Isopropyltoluene	22.9 µg/L	EPA 524.2	10088605	Acceptable	0.0651	
5090 n-Propylbenzene	37.1 µg/L	EPA 524.2	10088605	Acceptable	0.257	
5105 1,1,1,2-Tetrachloroethane	24.2 µg/L	EPA 524.2	10088605	Acceptable	0.0660	
5150 1,2,3-Trichlorobenzene	39.5 µg/L	EPA 524.2	10088605	Acceptable	1.03	
5180 1,2,3-Trichloropropane	15.7 µg/L	EPA 524.2	10088605	Acceptable	0.284	
5210 1,2,4-Trimethylbenzene	52.6 µg/L	EPA 524.2	10088605	Acceptable	1.19	
5215 1,3,5-Trimethylbenzene	46.9 µg/L	EPA 524.2	10088605	Acceptable	0.760	
▲ Summary for Method EPA 524.2						
		Analytes Evaluated 20	Acceptable 19	Acceptance Percentage 95.0%		

Study Summary

Analyte	Units	Certified Value	Assigned Value	Study Mean	Study Std. Dev.	Acceptance Limits	Warning Limits	PEO-007-3B
4385 Bromobenzene	µg/L	18.7	18.5	18.7	1.72	14.8 - 22.2		
4390 Bromochloromethane	µg/L	35.6	38.2	35.6	3.23	30.8 - 45.8		
4435 n-Butylbenzene	µg/L	36.7	37.8	36.7	5.00	30.2 - 45.4		
4440 sec-Butylbenzene	µg/L	23.9	23.9	23.9	3.72	19.1 - 28.7		
4445 tert-Butylbenzene	µg/L	NaN	15.1	15.6	2.88	12.1 - 18.1		
4535 2-Chlorotoluene	µg/L	11.7	11.6	11.7	1.42	6.96 - 16.2		
4540 4-Chlorotoluene	µg/L	51.5	49.9	51.5	4.39	39.9 - 59.9		
4595 Dibromomethane	µg/L	11.8	12.4	11.8	1.14	7.44 - 17.4		
4660 1,3-Dichloropropane	µg/L	27.8	29.2	27.8	2.71	22.2 - 33.4		
4665 2,2-Dichloropropane	µg/L	24.5	27.6	24.5	4.70	13.8 - 41.4		
4670 1,1-Dichloropropene	µg/L		0			0 - 0		
4835 Hexachlorobutadiene	µg/L	14.6	15.7	14.6	2.38	12.6 - 18.8		



Study Summary

Analyte	Units	Certified Value	Assigned Value	Study Mean	Study Std. Dev.	Acceptance Limits	Warning Limits
4900 Isopropylbenzene	µg/L	47.0	47.4	47.0	5.64	37.9 - 56.9	
4910 4-Isopropyltoluene	µg/L	22.6	24.4	22.6	4.61	13.4 - 31.8	
5090 n-Propylbenzene	µg/L	36.2	37.4	36.2	3.50	29.9 - 44.9	
5105 1,1,1,2-Tetrachloroethane	µg/L	24.0	24.0	24.0	3.03	19.2 - 28.8	
5150 1,2,3-Trichlorobenzene	µg/L	35.3	35.4	35.3	4.09	28.3 - 42.5	
5180 1,2,3-Trichloropropane	µg/L	15.1	15.8	15.1	2.11	12.5 - 19.0	
5210 1,2,4-Trimethylbenzene	µg/L	47.3	48.4	47.3	4.45	37.8 - 56.8	
5215 1,3,5-Trimethylbenzene	µg/L	43.7	45.3	43.7	4.21	36.2 - 54.4	

PEO-007-4
EDB/DBCP

Program: WSCHEM

Evaluation

Analyte	Result Units	Method	Method ID	Evaluation	Z
4570 1,2-Dibromo-3-chloropropane (DBCP)	1.54 µg/L	EPA 504.1	10082607	Acceptable	-0.833
4585 1,2-Dibromoethane (EDB, Ethylene dibromide)	1.47 µg/L	EPA 504.1	10082607	Acceptable	0.485
5180 1,2,3-Trichloropropane	25.9 µg/L	EPA 504.1	10082607	Acceptable	-2.47
4570 1,2-Dibromo-3-chloropropane (DBCP)	1.50 µg/L	EPA 524.2 SIM	0	Acceptable	-0.972
4585 1,2-Dibromoethane (EDB, Ethylene dibromide)	1.38 µg/L	EPA 524.2 SIM	0	Acceptable	0.0485
5180 1,2,3-Trichloropropane	26.9 µg/L	EPA 524.2 SIM	0	Acceptable	-1.78

Study Summary

Analyte	Units	Certified Value	Assigned Value	Study Mean	Study Std. Dev.	Acceptance Limits	Warning Limits
4570 1,2-Dibromo-3-chloropropane (DBCP)	µg/L	1.78	1.78	1.72	0.288	1.07 - 2.49	
4585 1,2-Dibromoethane (EDB, Ethylene dibromide)	µg/L	1.37	1.37	1.36	0.206	0.822 - 1.92	
5180 1,2,3-Trichloropropane	µg/L	29.5	29.5	26.1	1.46	17.7 - 41.3	

PEO-075
Gasoline Additives

Program: WSCHEM

Evaluation

Analyte	Result Units	Method	Method ID	Evaluation	Z
4370 T-arylmethylether (TAME)*	21.4 µg/L	EPA 524.2	10088605	Acceptable	
4450 Carbon disulfide*	<0.5 µg/L	EPA 524.2	10088605	Acceptable	
4770 Ethyl-t-butylether (ETBE)*	20.4 µg/L	EPA 524.2	10088605	Acceptable	
5000 Methyl tert-butyl ether (MTBE)*	<0.5 µg/L	EPA 524.2	10088605	Acceptable	
5090 n-Propylbenzene*	<0.5 µg/L	EPA 524.2	10088605	Acceptable	
5175 Trichlorofluoromethane*	<0.5 µg/L	EPA 524.2	10088605	Acceptable	
5185 Trichlorotrifluoroethane (Freon 113)*	23.9 µg/L	EPA 524.2	10088605	Acceptable	
9375 Diisopropylether (DIPE)*	44.7 µg/L	EPA 524.2	10088605	Acceptable	

Study Summary

Analyte	Units	Certified Value	Assigned Value	Study Mean	Study Std. Dev.	Acceptance Limits	Warning Limits
4370 T-arylmethylether (TAME)*	µg/L	19.1	19.1			11.5 - 26.7	
4450 Carbon disulfide*	µg/L		0			0 - 0	
4770 Ethyl-t-butylether (ETBE)*	µg/L	19.1	19.1			11.5 - 26.7	
5000 Methyl tert-butyl ether (MTBE)*	µg/L		0			0 - 0	
5090 n-Propylbenzene*	µg/L		0			0 - 0	
5175 Trichlorofluoromethane*	µg/L		0			0 - 0	
5185 Trichlorotrifluoroethane (Freon 113)*	µg/L	30.2	30.2			18.1 - 42.3	
9375 Diisopropylether (DIPE)*	µg/L	43.6	43.6			26.2 - 61.0	



WSCHEM WS05-2
Concluded 27-May-2006

PEO-098
Organic Disinfection By-Products

Program: WSCHEM
PEO-098

Evaluation

Analyte	Result Units	Method	Method ID	Evaluation	Z
9312 Bromoacetic acid	50.3 µg/L	EPA 552.2	10095600	Acceptable	0.219
9315 Bromochloroacetic acid	14.9 µg/L	EPA 552.2	10095600	Acceptable	-0.105
9336 Chloroacetic acid	29.0 µg/L	EPA 552.2	10095600	Acceptable	-0.805
9357 Dibromoacetic acid	45.7 µg/L	EPA 552.2	10095600	Acceptable	0.0367
9360 Dichloroacetic acid	41.8 µg/L	EPA 552.2	10095600	Acceptable	-0.334
9842 Trichloroacetic acid	31.8 µg/L	EPA 552.2	10095600	Acceptable	0.278

Study Summary

Analyte	Units	Certified Value	Assigned Value	Study Mean	Study Std. Dev.	Acceptance Limits	Warning Limits
9312 Bromoacetic acid	µg/L	48.2	48.2	49.6	9.61	24.1 - 72.3	
9315 Bromochloroacetic acid	µg/L	14.7	14.7	14.7	1.90	7.35 - 22.1	
9336 Chloroacetic acid	µg/L	33.0	33.0	29.6	4.97	16.5 - 49.5	
9357 Dibromoacetic acid	µg/L	45.3	45.3	45.3	10.9	22.7 - 68.0	
9360 Dichloroacetic acid	µg/L	44.1	44.1	42.3	6.89	22.1 - 66.2	
9842 Trichloroacetic acid	µg/L	30.4	30.4	33.7	5.03	15.2 - 45.6	

Authorized for release by

Date 6/16/2005

Certifying Officer - QA/QC Manager

Questions / Comments?

Christopher Rucinski

phone: (307) 742-5452

email: reports@rt-corp.com

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WSCHEM WS05-2
Concluded 27-May-2005

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Performance Evaluation Report
 RTC Laboratory Proficiency Testing Program
 Study WS04-2 (WSCHEM 0018)



2931 Soldier Springs Rd. - Laramie WY 82070 - (307) 742-5452

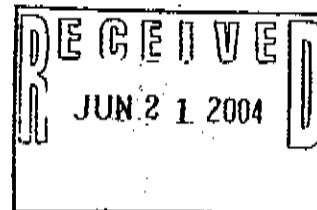
RTC Labcode: RT1142

EPA Labcode: CA00062

State Labcode: ELAP

May 28, 2004

Truesdail Laboratories, Inc.
 Attention: Pat Iyer
 14201 Franklin Ave.
 Tustin, CA 92780



Thank you for participating in Water Supply Study WS04-2. If you have any additional questions about your report, please contact Chris Rucinski at (307) 742-5452 or e-mail: reports@rt-corp.com. We have provided the assigned values for all the analytes in the samples you reported. You can use your second set of inorganic ampules for a QC set.

Analyte	Method Description	Reported Value	Assigned Value	Units	Acceptance Limits	Evaluate
Sample: PEI-010-12 Corrosivity/Sodium						Lo
Specific Conductance (at 25C)	USEPA 120.1	577	542	umhos/cm	484 to 599	Accept
Calcium Hardness (as CaCO3)	USEPA 130.2	215	206	mg/L	193 to 220	Accept
Corrosivity (pH)*	USEPA 150	9.05	9.03	units	8.13 to 9.93	Accept
Total Filterable Residue	USEPA 160.1	374	409	mg/L	262 to 556	Accept
Calcium (dissolved)*	USEPA 200.7	91.7	81.3	mg/L	68.9 to 93.7	Accept
Sodium	USEPA 200.7	15.8	14.2	mg/L	12.8 to 16.0	Accept
Chloride*	USEPA 300.0	154	145	mg/L	122 to 168	Accept
Alkalinity (as CaCO3)	USEPA 310.1	34.0	32.3	mg/L	30.6 to 36.8	Accept
Sample: PEI-010-3 pH						Lo
pH	USEPA 150	5.82	5.85	units	5.26 to 6.44	Accept
Sample: PEI-011 Nitrate/Nitrite/Fluoride/Orthophosphate						Lo
Potassium*	USEPA 200.7	23.5	24.8	mg/L	20.7 to 28.9	Accept
Fluoride - IC*	USEPA 300.0	2.17	2.12	mg/L	1.91 to 2.33	Accept
Nitrate as N	USEPA 300.0	7.00	6.907	mg/L	6.22 to 7.60	Accept
Nitrite as N	USEPA 354.1	1.78	1.789	mg/L	1.52 to 2.06	Accept
Orthophosphate as P	USEPA 365.2	0.71	0.733	mg/L	0.637 to 0.829	Accept
Sample: PEI-012 Residual Free Chlorine						Lo
Residual Free Chlorine	USEPA 330.1	0.73	0.745	mg/L	0.576 to 0.914	Accept
Sample: PEI-013 Sulfate/TOC						Lo
Sulfate	USEPA 300.0	382	403	mg/L	366 to 440	Accept
Total Organic Carbon (TOC)	USEPA 415.2	2.77	2.72	mg/L	2.39 to 3.21	Accept
Sample: PEI-014 Turbidity						Lo
Turbidity	USEPA 180.1	1.76	1.74	NTU	1.48 to 2.22	Accept
Sample: PEI-015 Total Cyanide						Lo
Cyanide	USEPA 335.2	0.46	0.4019	mg/L	0.302 to 0.502	Accept

*Not Part of NVLAP Scope

ND = Not Detected, NR = Not Reported, NP = Not Present, "Chk. for Err." = Check for Error



RTC Laboratory Proficiency Testing Program
Study WS04-2 (WSCHEM 0018)



2931 Soldier Springs Rd. - Laramie WY 82070 - (307) 742-5452

RTC Labcode: RT1142

EPA Labcode: CA00062

State Labcode: ELAP

Analyte	Method Description	Reported Value	Assigned Value	Units	Acceptance Limits	Evaluation
Sample: PEI-016-1 Trace Metals						
Iron*	USEPA 200.7	622	570.2	ug/L	519 to 623	Accept
Aluminum*	USEPA 200.8	2331	2390	ug/L	1990 to 2780	Accept
Arsenic	USEPA 200.8	143	142.2	ug/L	125 to 159	Accept
Beryllium	USEPA 200.8	6.4	6.471	ug/L	5.5 to 7.44	Accept
Cadmium	USEPA 200.8	30.1	30.41	ug/L	24.3 to 36.5	Accept
Chromium	USEPA 200.8	53.1	52.68	ug/L	44.8 to 60.6	Accept
Copper	USEPA 200.8	930	932.2	ug/L	839 to 1030	Accept
Lead	USEPA 200.8	21.8	22.61	ug/L	15.8 to 29.4	Accept
Manganese	USEPA 200.8	706	711	ug/L	653 to 768	Accept
Nickel	USEPA 200.8	142	141.9	ug/L	121 to 163	Accept
Selenium	USEPA 200.8	80.6	79.29	ug/L	63.4 to 95.2	Accept
Zinc	USEPA 200.8	674	720.9	ug/L	661 to 777	Accept
Mercury (total)	USEPA 245.1	3.01	2.836	ug/L	1.99 to 3.69	Accept
Sample: PEI-016-2 Trace Metals						
Boron	USEPA 200.7	862	840	ug/L	730 to 950	Accept
Magnesium*	USEPA 200.7	8200	7049	ug/L	6380 to 7680	Not Accept
Antimony	USEPA 200.8	18.1	17.04	ug/L	11.9 to 22.1	Accept
Barium	USEPA 200.8	2930	2885	ug/L	2450 to 3310	Accept
Molybdenum	USEPA 200.8	85.6	92.58	ug/L	77.9 to 107	Accept
Silver*	USEPA 200.8	386	407.4	ug/L	369 to 447	Accept
Thallium	USEPA 200.8	6.8	7.193	ug/L	5.03 to 9.35	Accept
Vanadium*	USEPA 200.8	2969	2920	ug/L	2690 to 3150	Accept
Sample: PEI-203 MBAS						
MBAS	USEPA 425.1	0.56	0.551	mg/L	0.386 to 0.716	Accept
Sample: PEI-224 CA Specific						
Combined Chlorine	USEPA 330.1	0.77	0.745	mg/L	0.576 to 0.914	Accept
Sample: PEI-225 UV-254						
UV-254 Absorbance	SM 19ED 5910 B	0.314	0.303	cm-1	0.282 to 0.524	Accept
Sample: PEI-226 Perchlorate in Water						
Perchlorate*	USEPA 314.0	49.8	52.7	ug/L	42.2 to 63.2	Accept
Sample: PEI-227 Silica						
Silica as SiO2	USEPA 370.1	8.23	8.16	mg/L	6.53 to 9.79	Accept
Sample: PEI-229 CA Metals						
Chromium VI	USEPA 7196A	293	285	ug/L	221 to 331	Accept
Sample: PEO-002 Trihalomethanes						
Bromodichloromethane	USEPA 502.1	13.5	14.54	ug/L	11.6 to 17.4	Accept
Bromoform	USEPA 502.1	6.73	6.02	ug/L	4.82 to 7.22	Accept
Chloroform	USEPA 502.1	7.82	7.98	ug/L	6.38 to 9.58	Accept
Dibromodibromomethane	USEPA 502.1	37.8	41.68	ug/L	33.4 to 50	Accept
Diethyltrihalomethanes	USEPA 502.1	65.8	70.22	ug/L	56.2 to 84.2	Accept
Dibromodichloromethane	USEPA 524.2	13.9	14.54	ug/L	11.6 to 17.4	Accept
Bromoform	USEPA 524.2	6.06	6.02	ug/L	4.82 to 7.22	Accept
Chloroform	USEPA 524.2	7.86	7.98	ug/L	6.38 to 9.58	Accept
Dibromodibromomethane	USEPA 524.2	40.6	41.68	ug/L	33.4 to 50	Accept
Diethyltrihalomethanes	USEPA 524.2	68.4	70.22	ug/L	56.2 to 84.2	Accept

Not of NVLAP Scope

Detected, NR = Not Reported, NP = Not Present, "Chk. for Err." = Check for Error



RTC Laboratory Proficiency Testing Program
Study WS04-2 (WSCHEM 0018)



2931 Soldier Springs Rd. - Laramie WY 82070 - (307) 742-5452

RTC Labcode: RT1142

EPA Labcode: CA00062

State Labcode: ELAP

Analyte	Method Description	Reported Value	Assigned Value	Units	Acceptance Limits	Evaluation
Sample: PEO-003 Polychlorinated Biphenyls						
PCBs (Aroclor 1221)	USEPA 508	1.44	1.64	ug/L	0.00 to 3.28	Accept
Aroclor 1232	USEPA 508	< 0.1	0	ug/L		Accept
Aroclor 1248	USEPA 508	< 0.1	0	ug/L		Accept
Aroclor 1254	USEPA 508	< 0.1	0	ug/L		Accept
Aroclor 1260	USEPA 508	< 0.1	0	ug/L		Accept
Sample: PEO-005-1 Pesticides						
Aldrin	USEPA 508	1.44	1.29	ug/L	0.54 to 1.62	Accept
gamma-BHC (Lindane)	USEPA 508	0.962	1.10	ug/L	0.605 to 1.6	Accept
Dieldrin	USEPA 508	1.08	1.12	ug/L	0.781 to 1.4	Accept
Endrin	USEPA 508	3.27	3.47	ug/L	2.43 to 4.51	Accept
Heptachlor	USEPA 508	3.06	3.23	ug/L	1.78 to 4.68	Accept
Sample: PEO-005-2 Pesticides						
Hexachlorobenzene	USEPA 508	0.215	0.220	ug/L	0.09 to 0.342	Accept
Hexachlorocyclopentadiene	USEPA 508	3.13	3.50	ug/L	0.106 to 7.01	Accept
Heptachlor Epoxide (beta)	USEPA 508	4.14	3.67	ug/L	2.02 to 5.32	Accept
Methoxychlor	USEPA 508	46.4	47.90	ug/L	26.3 to 69.5	Accept
Propachlor	USEPA 508	3.34	3.34	ug/L	2.08 to 4.58	Accept
Trifluralin	USEPA 508	2.23	2.05	ug/L	1.18 to 2.92	Accept
Sample: PEO-005-3 Pesticides						
Alachlor	USEPA 525.2	12.8	16.83	ug/L	9.23 to 24.4	Accept
Atrazine	USEPA 525.2	20.7	27.71	ug/L	15.2 to 40.2	Accept
Simazine	USEPA 525.2	1.32	4.00	ug/L	1.07 to 7.07	Accept
Sample: PEO-005-4 Herbicides						
4-Nitrophenol*	USEPA 515.4	< 2.0	0	ug/L		Accept
Pentachlorophenol	USEPA 515.4	63.7	51.5	ug/L	25.7 to 77.3	Accept
Acifluorfen	USEPA 515.4	17.0	16.0	ug/L	0.501 to 28.1	Accept
Bentazon*	USEPA 515.4	< 2.0	0	ug/L		Accept
Chloramben*	USEPA 515.4	< 1.0	0	ug/L		Accept
2,4-D & 2,4-D butyl ester	USEPA 515.4	10.5	10.4	ug/L	5.19 to 15.6	Accept
Dalapon	USEPA 515.4	60.4	89.1	ug/L	0.00 to 122	Accept
2,4-DB	USEPA 515.4	< 2.0	0	ug/L		Accept
DCPA*	USEPA 515.4	< 1.0	0	ug/L		Accept
Dicamba	USEPA 515.4	48.0	37.9	ug/L	10.3 to 52.9	Accept
3,5-Dichlorobenzoic Acid*	USEPA 515.4	30.7	25.2	ug/L	12.6 to 37.8	Accept
Dichloroprop*	USEPA 515.4	< 2.0	0	ug/L		Accept
Dinoseb	USEPA 515.4	36.9	32.0	ug/L	0.985 to 48.0	Accept
5-Hydroxydicamba*	USEPA 515.4	< 2.0	0	ug/L		Accept
Picloram	USEPA 515.4	15.1	36.4	ug/L	0.134 to 49.7	Accept
2,4,5-TP (Silvex)	USEPA 515.4	41.0	32.1	ug/L	16.1 to 48.1	Accept
2,4,5-T	USEPA 515.4	18.0	17.9	ug/L	8.95 to 26.9	Accept
Sample: PEO-005-5 Chlordane						
Chlordane (total)	USEPA 508	13.7	13.0	ug/L	7.17 to 18.8	Accept
Sample: PEO-005-6 Toxaphene						
Toxaphene (total)	USEPA 508	9.12	8.20	ug/L	4.51 to 11.9	Accept
Sample: PEO-006-1 Regulated SOCs						
Benzo(a)pyrene	USEPA 525.2	2.52	2.56	ug/L	0.588 to 3.27	Accept
bis(2-Ethylhexyl)adipate	USEPA 525.2	30.9	33.4	ug/L	13.6 to 48.2	Accept
bis(2-Ethylhexyl)phthalate	USEPA 525.2	14.1	15.0	ug/L	5.89 to 23.1	Accept

*Not Part of NVLAP Scope

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Performance Evaluation Report
 RTC Laboratory Proficiency Testing Program
 Study WS04-2 (WSCHEM 0018)



2931 Soldier Springs Rd. - Laramie WY 82070 - (307) 742-5452

RTC Labcode: RT1142

EPA Labcode: CA00062

State Labcode: ELA

Analyte	Method Description	Reported Value	Assigned Value	Units	Acceptance Limits	Evalu
Sample: PEO-006-2 Regulated SOCs						
Naphthalene*	USEPA 525.2	8.05	31.9	ug/L	15.9 to 47.9	Not Acc
Acenaphthene*	USEPA 525.2	23.2	21.6	ug/L	10.8 to 32.4	Accept
Acenaphthylene*	USEPA 525.2	10.7	24.3	ug/L	12.1 to 36.5	Not Acc
Anthracene*	USEPA 525.2	10.5	25.2	ug/L	12.6 to 37.8	Not Acc
Benzo(a)anthracene*	USEPA 525.2	22.2	25.4	ug/L	12.7 to 38.1	Accept
Benzo(b)fluoranthene*	USEPA 525.2	43.5	49.9	ug/L	24.9 to 74.9	Accept
Benzo(g,h,i)perylene*	USEPA 525.2	< 0.5	0	ug/L		Accept
Benzo(k)fluoranthene*	USEPA 525.2	< 0.5	0	ug/L		Accept
Butylbenzylphthalate*	USEPA 525.2	50.6	49.7	ug/L	24.9 to 74.5	Accept
Chrysene*	USEPA 525.2	27.8	31.2	ug/L	15.6 to 46.8	Accept
Dibenz(a,h)anthracene*	USEPA 525.2	< 0.5	0	ug/L		Accept
Di-n-butylphthalate*	USEPA 525.2	11.3	14.7	ug/L	7.37 to 22.0	Accept
Di-ethylphthalate*	USEPA 525.2	< 0.5	0	ug/L		Accept
Dimethylphthalate*	USEPA 525.2	26.5	32.1	ug/L	16.1 to 48.1	Accept
Di-n-octylphthalate*	USEPA 525.2	35.5	33.5	ug/L	16.7 to 50.3	Accept
Fluoranthene*	USEPA 525.2	26.1	27.5	ug/L	13.8 to 41.2	Accept
Fluorene*	USEPA 525.2	< 0.5	0	ug/L		Accept
Indeno(1,2,3-cd)pyrene*	USEPA 525.2	< 0.5	0	ug/L		Accept
1-Methylnaphthalene*	USEPA 525.2	27.2	29.6	ug/L	14.8 to 44.4	Accept
2-Methylnaphthalene*	USEPA 525.2	42.0	46.8	ug/L	23.4 to 70.2	Accept
Phenanthrene*	USEPA 525.2	29.9	38.99	ug/L	19.5 to 58.5	Accept
Pyrene*	USEPA 525.2	26.3	28.72	ug/L	14.3 to 43.1	Accept
Sample: PEO-007-1 Regulated VOCs						
Tetrachloroethene	USEPA 502.1	16.4	17.6	ug/L	14.1 to 21.1	Accept
Trichloroethene	USEPA 502.1	16.4	17.8	ug/L	14.2 to 21.4	Accept
Carbon Tetrachloride	USEPA 524.2	3.15	3.53	ug/L	2.12 to 4.94	Accept
Chlorobenzene	USEPA 524.2	30.3	31.3	ug/L	25.0 to 37.6	Accept
1,2-Dichloroethane	USEPA 524.2	7.35	7.90	ug/L	4.74 to 11.1	Accept
1,1-Dichloroethene	USEPA 524.2	11.4	12.9	ug/L	10.3 to 15.5	Accept
cis-1,2-Dichloroethene	USEPA 524.2	12.4	15.6	ug/L	12.4 to 18.7	Accept
Dichloromethane	USEPA 524.2	11.2	12.0	ug/L	9.60 to 14.4	Accept
1,2-Dichloropropane	USEPA 524.2	4.45	4.62	ug/L	2.77 to 6.47	Accept
trans-1,2-Dichloroethene	USEPA 524.2	2.77	2.93	ug/L	1.76 to 4.10	Accept
Styrene	USEPA 524.2	16.1	17.5	ug/L	14.0 to 21.0	Accept
Tetrachloroethene	USEPA 524.2	16.5	17.6	ug/L	14.1 to 21.1	Accept
1,2,4-Trichlorobenzene	USEPA 524.2	5.78	7.67	ug/L	4.60 to 10.7	Accept
1,1,1-Trichloroethane	USEPA 524.2	4.43	4.96	ug/L	2.98 to 6.94	Accept
1,1,2-Trichloroethane	USEPA 524.2	13.4	13.7	ug/L	11.0 to 16.4	Accept
Trichloroethene	USEPA 524.2	16.5	17.8	ug/L	14.2 to 21.4	Accept
Vinyl chloride	USEPA 524.2	11.6	17.7	ug/L	10.6 to 24.8	Accept

*Not Part of NVLAP Scope

ND = Not Detected, NR = Not Reported, NP = Not Present, "Chk. for Err." = Check for Error

2931 Soldier Springs Rd. - Laramie WY 82070 - (307) 742-5452

RTC Labcode: RT1142

EPA Labcode: CA00062

State Labcode: ELAP

Analyte	Method Description	Reported Value	Assigned Value	Units	Acceptance Limits	Evaluation
Sample: PEO-007-2 Regulated VOCs						
Methyl tert-butyl ether (MTBE)	USEPA 502.1	13.0	16.2	ug/L	9.72 to 22.7	Acceptable
Benzene	USEPA 524.2	15.1	15.1	ug/L	12.1 to 18.1	Acceptable
1,2-Dichlorobenzene	USEPA 524.2	13.6	12.2	ug/L	9.76 to 14.6	Acceptable
1,3-Dichlorobenzene	USEPA 524.2	29.6	29.0	ug/L	23.2 to 34.8	Acceptable
1,4-Dichlorobenzene	USEPA 524.2	9.59	9.27	ug/L	5.56 to 13.0	Acceptable
Ethylbenzene	USEPA 524.2	10.5	9.94	ug/L	5.96 to 13.9	Acceptable
Methyl tert-butyl ether (MTBE)	USEPA 524.2	14.7	16.2	ug/L	9.72 to 22.7	Acceptable
Toluene	USEPA 524.2	16.8	15.9	ug/L	12.7 to 19.1	Acceptable
m&p-Xylene*	USEPA 524.2	< 0.5	0	ug/L		Acceptable
o-Xylene*	USEPA 524.2	11.1	10.4	ug/L	8.32 to 12.5	Acceptable
Xylenes (Total)	USEPA 524.2	11.1	10.4	ug/L	8.32 to 12.5	Acceptable
Sample: PEO-007-3A Unregulated VOCs						
Bromodichloromethane	USEPA 524.2	41.2	46.6	ug/L	37.3 to 55.9	Acceptable
Bromoform	USEPA 524.2	28.0	31.8	ug/L	25.4 to 38.2	Acceptable
Chloroethane	USEPA 524.2	7.62	6.65	ug/L	3.99 to 9.31	Acceptable
Chloroform	USEPA 524.2	29.2	28.5	ug/L	22.8 to 34.2	Acceptable
Chlorodibromomethane	USEPA 524.2	46.1	46.6	ug/L	37.3 to 55.9	Acceptable
1,3-Dichlorobenzene	USEPA 524.2	23.6	23.9	ug/L	19.1 to 28.7	Acceptable
Dichlorodifluoromethane	USEPA 524.2	< 0.5	0	ug/L		Acceptable
1,1-Dichloroethane	USEPA 524.2	10.4	9.63	ug/L	5.78 to 13.5	Acceptable
cis-1,3-Dichloropropene	USEPA 524.2	9.46	9.76	ug/L	5.86 to 13.7	Acceptable
trans-1,3-Dichloropropene	USEPA 524.2	12.3	12.62	ug/L	10.1 to 15.1	Acceptable
Bromomethane	USEPA 524.2	9.45	8.78	ug/L	5.27 to 12.3	Acceptable
Chloromethane	USEPA 524.2	9.68	11.4	ug/L	6.84 to 16.0	Acceptable
1,1,2,2-Tetrachloroethane	USEPA 524.2	11.6	13.1	ug/L	10.4 to 15.8	Acceptable
Fluorotrichloromethane	USEPA 524.2	4.36	4.50	ug/L	2.70 to 6.30	Acceptable
Sample: PEO-007-3B Unregulated VOCs						
Bromobenzene	USEPA 524.2	11.7	10.9	ug/L	8.72 to 13.1	Acceptable
Bromochloromethane	USEPA 524.2	9.24	9.55	ug/L	5.73 to 13.4	Acceptable
n-Butylbenzene	USEPA 524.2	2.61	2.67	ug/L	1.60 to 3.74	Acceptable
sec-Butylbenzene	USEPA 524.2	12.1	12.2	ug/L	9.76 to 14.6	Acceptable
tert-Butylbenzene	USEPA 524.2	4.34	4.20	ug/L	2.52 to 5.88	Acceptable
2-Chlorotoluene	USEPA 524.2	14.3	14.0	ug/L	11.2 to 16.8	Acceptable
4-Chlorotoluene	USEPA 524.2	13.3	14.5	ug/L	11.6 to 17.5	Acceptable
Dibromomethane	USEPA 524.2	12.6	13.0	ug/L	10.4 to 15.6	Acceptable
1,3-Dichloropropane	USEPA 524.2	14.4	14.8	ug/L	11.8 to 17.8	Acceptable
2,2-Dichloropropane	USEPA 524.2	12.3	15.4	ug/L	12.3 to 18.5	Acceptable
1,1-Dichloropropene	USEPA 524.2	< 0.5	0	ug/L		Acceptable
Hexachlorobutadiene	USEPA 524.2	8.33	8.29	ug/L	4.97 to 11.6	Acceptable
Isopropylbenzene	USEPA 524.2	8.49	7.73	ug/L	4.64 to 10.8	Acceptable
4-Isopropyltoluene	USEPA 524.2	17.6	17.2	ug/L	13.8 to 20.7	Acceptable
n-Propylbenzene	USEPA 524.2	11.3	11.6	ug/L	9.28 to 13.9	Acceptable
1,1,1,2-Tetrachloroethane	USEPA 524.2	4.97	5.19	ug/L	3.11 to 7.27	Acceptable
1,2,3-Trichlorobenzene	USEPA 524.2	12.7	14.5	ug/L	11.6 to 17.4	Acceptable
1,2,3-Trichloropropane	USEPA 524.2	11.5	11.5	ug/L	6.90 to 16.1	Acceptable
1,2,4-Trimethylbenzene	USEPA 524.2	16.8	17.1	ug/L	13.7 to 20.5	Acceptable
1,3,5-Trimethylbenzene	USEPA 524.2	15.7	15.1	ug/L	12.1 to 18.1	Acceptable

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Performance Evaluation Report
 RTC Laboratory Proficiency Testing Program
 Study WS04-2 (WSCHEM 0018)



2931 Soldier Springs Rd. - Laramie WY 82070 - (307) 742-5452

RTC Labcode: RT1142

EPA Labcode: CA00062

State Labcode: ELAP

Analyte	Method Description	Reported Value	Assigned Value	Units	Acceptance Limits	Evaluation
Sample: PEO-007-4 EDB/DBCP						
1,2-Dibromo,3-Chloropropane (DBCP)	USEPA 504.1	1.34	1.70	ug/L	1.02 to 2.38	Accept
Ethylene Dibromide (EDB)	USEPA 504.1	1.12	1.15	ug/L	0.69 to 1.61	Accept
1,2,3-Trichloropropane	USEPA 504.1	9.53	10.08	ug/L	6.07 to 14.1	Accept
1,2-Dibromo,3-Chloropropane (DBCP)	USEPA 524.2 S/M	62.3	85	ng/L	51 to 119	Accept
Ethylene Dibromide (EDB)	USEPA 524.2 S/M	49.5	57.5	ng/L	34.5 to 80.5	Accept
1,2,3-Trichloropropane	USEPA 524.2 S/M	501	504	ng/L	303.5 to 705	Accept
Sample: PEO-075 Volatiles-California*						
T-amylmethylether (TAME)	USEPA 524.2	38.7	39.5	ug/L	31.6 to 47.4	Accept
Carbon disulfide	USEPA 524.2	< 0.5	0	ug/L		Accept
Ethyl-t-butylether (ETBE)	USEPA 524.2	18.3	18.2	ug/L	14.6 to 21.8	Accept
Methyl tert-butyl ether (MTBE)	USEPA 524.2	17.8	18.0	ug/L	10.8 to 25.2	Accept
n-Propylbenzene	USEPA 524.2	28.3	29.1	ug/L	23.3 to 34.9	Accept
Fluorotrichloromethane	USEPA 524.2	10.9	10.1	ug/L	8.08 to 12.1	Accept
Trichlorotrifluoroethane	USEPA 524.2	23.3	25.0	ug/L	20.0 to 30.0	Accept
Di-isopropylether (DIPE)	USEPA 524.2	11.1	11.3	ug/L	9.04 to 13.6	Accept
1-phenylpropane	USEPA 524.2	28.3	29.1	ug/L	23.3 to 34.9	Accept
Sample: PEO-077 Chloral Hydrate						
Chloral Hydrate	USEPA 551	5.69	5.13	ug/L	0.350 to 8.37	Accept
Sample: PEO-098 Haloacetic Acids						
Monobromoacetic Acid	USEPA 552.1	10.5	11.2	ug/L	4.59 to 16.4	Accept
Bromochloroacetic Acid	USEPA 552.1	23.5	20.7	ug/L	9.99 to 27.8	Accept
Monochloroacetic Acid	USEPA 552.1	7.08	7.49	ug/L	2.27 to 12.3	Accept
Dibromoacetic Acid	USEPA 552.1	18.1	17.8	ug/L	9.80 to 24.4	Accept
Dichloroacetic Acid	USEPA 552.1	29.4	35.0	ug/L	15.8 to 38.8	Accept
Trichloroacetic Acid	USEPA 552.1	20.2	19.4	ug/L	9.15 to 23.0	Accept
Sample: PEO-230 TBA in Water*						
tert-Butyl Alcohol	USEPA 524.2	2.20	2.49	ug/L	1.49 to 3.49	Accept

Authorized for Release by: _____

Date: 6/4/2004

*Not Part of NVLAP Scope
 ND = Not Detected, NR = Not Reported, NP = Not Present, "Chk. for Err." = Check for Error

RTC Laboratory Proficiency Testing Program
Study Offstudy 04-2

2931 Soldier Springs Rd. - Laramie WY 82070 - (307) 742-5452

RTC Labcode: RT1142

EPA Labcode: CA00062

State Labcode: ELAP

8/2/2004

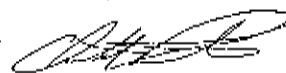
Truesdail Laboratories, Inc.
Attention: Pat Iyer
14201 Franklin Ave.
Tustin, CA 92780

Assigned values are listed for all analytes you reported. If you have any questions about your report, please contact Chris Rucinski at (307) 742-5452 or e-mail at reports@rt-corp.com.

Analyte	Analyte No.	Method Description	Reported Value	Units	Assigned Value	Acceptance Limits	Evaluation
Sample: PEI-016-2 Trace Metals				WSCHEM			Lot #
Magnesium*	1085	USEPA 200.7	2860	ug/L	2960	2690 to 3250	Acceptabl

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Authorized for Release by: _____



Date: 8/3/2004

D = Not Detected, NP = Not Present, () = Informational Values Only, NR = Not Reported
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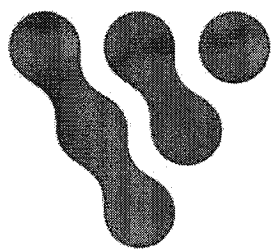
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RT1142

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Vista
Analytical Laboratory

QUALITY MANUAL

Revision 10

Effective Date: June 2008

William J. Luksemburg
President

Rose M. Harrelson
Quality Assurance Manager

Martha M. Maier
Laboratory Director

James M. Hedin
Director of Instrumentation Laboratory

Vista Analytical Laboratory
1104 Windfield Way, El Dorado Hills, CA 95762

TABLE OF CONTENTS

1. INTRODUCTION.....	1
1.1. POLICY	1
2. ORGANIZATION AND FACILITIES	3
2.1. MANAGEMENT RESPONSIBILITIES	3
2.2. APPROVED SIGNATORIES.....	4
2.3. FACILITIES	4
3. QUALITY SYSTEM.....	6
3.1. QUALITY DOCUMENTS	6
3.2. USE OF QUALITY DOCUMENTS.....	6
3.3. DOCUMENT CONTROL	7
3.4. QUALITY ASSURANCE OBJECTIVES AND QUALITY CONTROL PROCEDURES	11
4. PURCHASING	18
4.1. QUALITY MATERIALS AND SERVICES	18
4.2. CONTROL OF QUALITY MATERIALS AND SERVICES	18
4.3. PROCUREMENT DOCUMENTS.....	18
5. SAMPLE CONTROL	19
5.1. RECEIPT OF MATERIALS	19
5.2. STORAGE, HANDLING, AND DISPOSAL	19
5.3. NOTIFICATION OF PROBLEMS	20
5.4. RECORDS	20
6. TRACEABILITY OF MATERIALS.....	23
6.1. VERIFICATION OF ITEMS DEVELOPED IN-HOUSE	23
6.2. CONTROL OF LABORATORY SAMPLES	23
6.3. STANDARDS AND REAGENTS TRACEABILITY	23
6.4. QUALITY CONTROL RECORDS.....	23
6.5. CERTIFICATES OF ANALYSIS	24
6.6. INSTRUMENTS AND EQUIPMENT	24
7. PROCESS CONTROL.....	25
7.1. INSTRUMENTS AND FACILITIES	25
7.2. PERFORMANCE AUDITS	25
8. LABORATORY INSTRUMENTATION	26
8.1. CALIBRATION STANDARDS AND INSTRUMENTS.....	26
8.2. CALIBRATION RECORDS	26

9. QUALITY RECORDS	28
9.1. DOCUMENTATION OF QUALITY RECORDS	28
9.2. QUALITY AND TECHNICAL RECORDS	28
9.3. RECORDS MANAGEMENT AND STORAGE	28
10. CORRECTIVE ACTION	30
10.1. CAUSES OF NONCONFORMANCE	30
10.2. CORRECTIVE ACTION	30
10.3. DOCUMENTATION	30
11. REPORTS	31
11.1. HANDLING AND STORAGE OF REPORTS	31
11.2. PACKAGING AND DELIVERY OF REPORTS	31
11.3. LABORATORY REPORT FORMAT AND CONTENT	31
12. PERFORMANCE AND SYSTEM AUDITS	35
12.1. SYSTEM AUDITS	35
12.2. MANAGEMENT REVIEWS	35
12.3. PERFORMANCE AUDITS	36
12.4. EXTERNAL AUDITS	36
12.5. DATA AUDITS	36
13. TRAINING	38
13.1. INITIAL ON-SITE TRAINING	38
13.2. TRAINING PROGRAMS	38
13.3. TRAINING DOCUMENTATION	38
14. CLIENT SERVICES	39
14.1. ROUTINE SERVICES	39
14.2. CONTRACT REVIEW	39
14.3. RESPONSES TO CLIENT AUDITS, INQUIRIES, AND COMPLAINTS	39
15. STATISTICAL TECHNIQUES	41
15.1. STATISTICAL PROCESS CONTROL PROCEDURES	41
16. SUBCONTRACTING	42
17. DATA INTEGRITY AND ETHICS	43

APPENDIX

- Key Resumes
- List of Certifications
- NELAP Accredited Methods

FOREWORD

The Quality Manual (QM) describes the Quality System implemented at Vista Analytical Laboratory in El Dorado Hills, California. The policies and procedures outlined in this QM are designed and developed to comply with the established NELAC Standards. It is the intent of Vista to meet or exceed the Quality Assurance/Quality Control (QA/QC) requirements set by ISO 17025, NELAC, the USEPA or other appropriate governmental or private entities to assure that all analytical data generated are scientifically valid, defensible, comparable, and of known acceptable precision and accuracy.

The QM shall be amended to reflect any changes to Vista's capability, location or Quality System. The Quality Assurance Manager is responsible for the maintenance and annual review of the QM.

1. INTRODUCTION

Vista Analytical Laboratory in El Dorado Hills, CA was established in 1990 and is a privately owned California corporation. Vista provides state-of-the-art mass spectrometry services to chemical manufacturers, environmental engineering firms, and the pulp and paper industry as well other industrial and governmental clients. Vista operates with the intent of providing data of the highest quality with responsive service in a short turnaround time.

Vista has an expanding national and international client base attributable to its reliable reputation in performing difficult trace level analyses. Vista's expertise lies in the analysis of semivolatile organic compounds such as Dioxin/Furans (PCDD/PCDF), Polynuclear Aromatic Hydrocarbons (PAHs), Polychlorinated Biphenyls (PCBs), Polychlorinated Naphthalenes (PCNs), Hexachlorobenzene (HCB), Hexachlorocyclopentadiene (HCP), and Polybrominated Diphenyl Ethers (PBDEs).

1.1. Policy

It is the policy of Vista to meet the specific quality requirements and to satisfy the needs of the client, the regulatory authorities or organizations providing recognition throughout data generation and process operations. A Quality System has been established to achieve this policy. The system encompasses all of the applicable elements of the established NELAC Standards. It is Vista's intent to provide full compliance with this Quality System throughout all phases of client services and to ensure that only an acceptable final product is presented to the client.

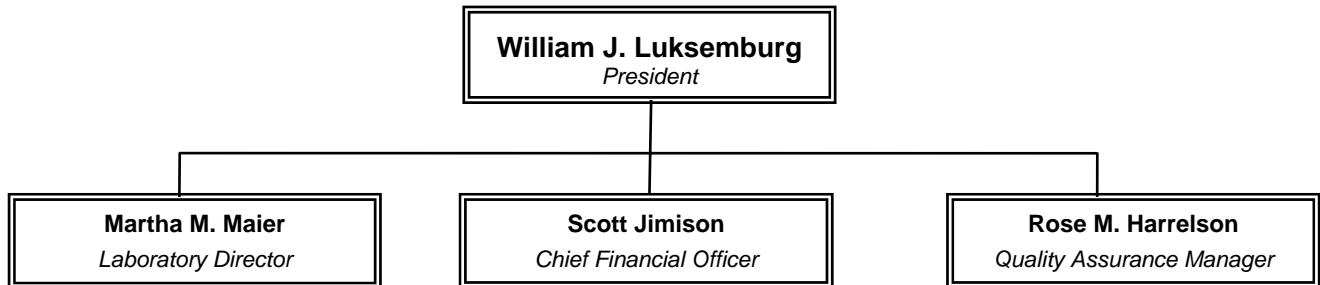
- 1.1.1. It is Management's responsibility to instill a commitment of the quality standards throughout the company, and to ensure each employee has a clear understanding of the Quality System.
- Quality is the responsibility of all Vista employees.
 - All Vista employees must comply with all QA/QC procedures as it pertains to their function.
 - All employees shall be accountable for the quality of their individual assignments and functional responsibilities.
 - Employees shall be responsible for reporting any non-conformance to Management or the QA Manager.
 - The laboratory shall have sufficient personnel with necessary education training, technical knowledge and experience for the assigned positions.
- 1.1.2. Management is responsible to ensure personnel are free from any commercial, financial, and other undue pressures, which might affect the quality of work.

- 1.1.3. All Vista employees shall be confident in their independence of judgment and maintain integrity at all times.

2. ORGANIZATION AND FACILITIES

The management staff of Vista consists of a Laboratory President, a Chief Financial Officer, the Laboratory Director, and QA Manager.

The organization and management structure of Vista Analytical Laboratory is shown in the following organizational chart.



2.1. Management Responsibilities

2.1.1. President

The President is responsible for the management of financial/technical operations, as well as implementation of corporate goals, objectives and policies and review of laboratory operations. This includes directing the routine analysis and method development work and overseeing marketing of laboratory services. In addition, the President is responsible for overseeing the Quality Assurance Department and ensuring that the Quality System is in compliance with applicable regulations.

2.1.2. Chief Financial Officer

The Chief Financial Officer is responsible for all financial and facility services. The management of the facility includes overseeing building maintenance. The Chief Financial Officer supervises all administrative personnel.

2.1.3. Laboratory Director

The Laboratory Director manages the production scheduling and client management for the laboratory, is responsible for final review and interpretation of analytical data and final reports, and also serves as technical director.

2.1.4. Quality Assurance Manager

The Quality Assurance Manager is responsible for managing the QA activities of the entire laboratory. The Quality Assurance Manager reports directly to the President of the laboratory. The Quality Assurance Manager serves as the focal point for QA/QC

and is responsible for the oversight and/or review of quality control data. When QA oversight is necessary, the QA Manager functions must be independent from the laboratory operations. The QA Manager works with management to ensure that the Vista QM and associated SOPs are followed as written. QA Manager maintains a position that is free from outside influence in order to evaluate the data and perform all other QA Manager responsibilities objectively.

2.2. Approved signatories

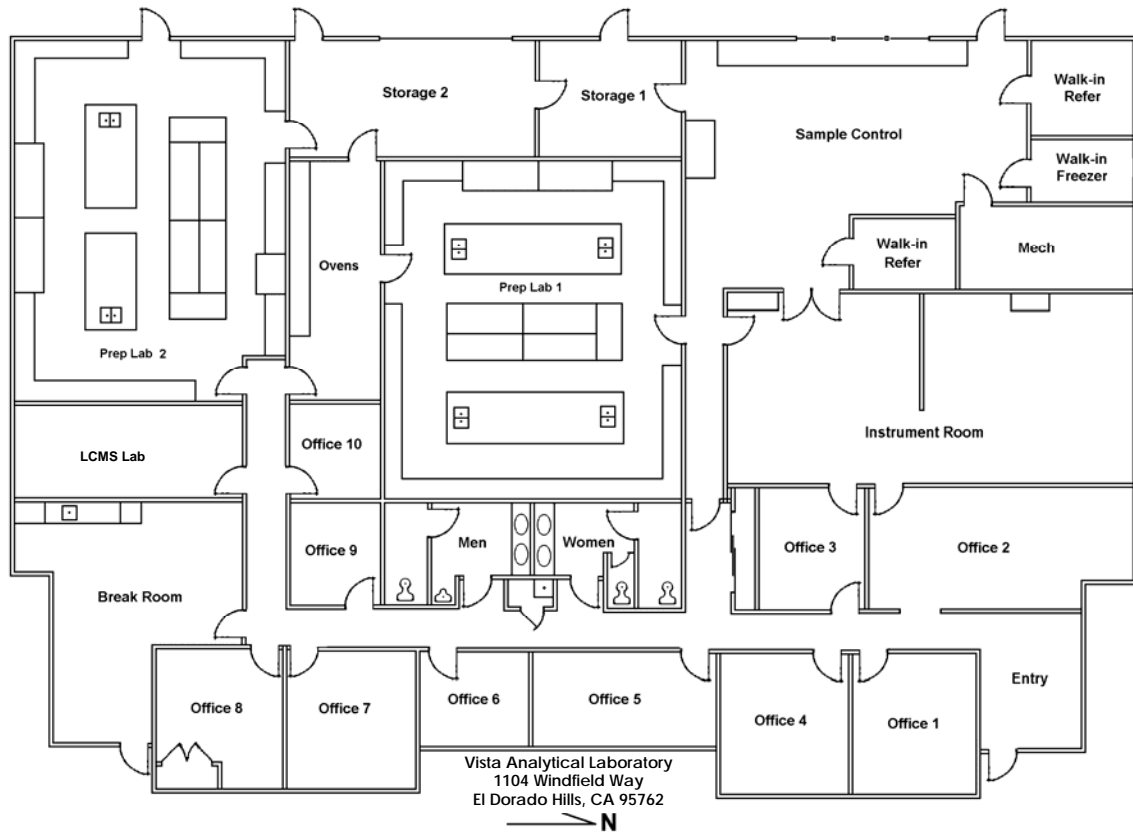
2.2.1. Approved signatories include the laboratory President, the Laboratory Director, the QA Manager and the Director of the Instrumentation Laboratory. These responsible parties are listed on the QM title page.

2.3. Facilities

2.3.1. Vista Analytical Laboratory operates from El Dorado Hills, CA. The facility consists of 9,000 square feet.

2.3.2. The facility has been constructed and maintained to ensure that results are not invalidated or do not adversely affect the required accuracy of measurement.

2.3.3. Layout – 1104 Windfield Way, El Dorado Hills, CA



3. QUALITY SYSTEM

The Quality System applies to Vista Analytical Laboratory.

The company's Quality System is designed to comply with the applicable requirements of NELAC Standards and to satisfy the needs of the client or organization providing recognition. All policies, systems, and procedures are documented to assure quality of the data. Personnel shall familiarize themselves with quality documentation and implement the policies and procedures in their work.

Senior Management will review the effectiveness and suitability of the Quality System at least annually. The reviews shall address issues that impact quality. The results of the reviews shall be used to design and implement improvements to the system. The reviews include reports from management and supervisory personnel, recent internal audits, external audits, proficiency testing, client feedback, and corrective action reports. The QA Manager will maintain records of the review meeting, findings, and corrective actions.

3.1. Quality Documents

- 3.1.1. The Quality System is outlined and documented in the Quality Manual and supporting quality documents. The documented quality system assures that services provided to clients comply with specified quality criteria.
- 3.1.2. The Quality Manual contains Quality Policies covering the applicable requirements of the NELAC quality standard.
- 3.1.3. Program specific quality criteria are specified in the Quality Assurance Program Plan (QAPP).
- 3.1.4. Procedural activities that affect quality are described in more detail in the Standard Operating Procedures (SOPs).

3.2. Use of Quality Documents

- 3.2.1. Management will review and approve all quality documents prior to issuance. All quality documentation shall be communicated to, understood by, available to, and implemented by the appropriate personnel.
- 3.2.2. A QAPP or other project-specific requirements submitted by the client will be reviewed to determine whether they are within the scope of the Analytical Procedures. Any discrepancies will be discussed with the client and documented prior to commencement of the project.
- 3.2.3. The Quality Manual will be understood and implemented throughout the company. The QAPP and SOPs will be understood and implemented throughout applicable operations.

- 3.2.4. Quality documents shall be periodically reviewed to ensure continuing suitability and compliance with applicable requirements. The Quality System will be reviewed on an ongoing basis and revised as needed to ensure that it effectively encompasses the company's quality criteria. The QA Manager will maintain the Quality Manual. Revisions to the Quality Manual may be made by replacing individual policies or the entire manual.
- 3.2.5. Any departures from policies or planned activities that affect quality will be approved by management prior to occurrence.
- 3.2.6. The QAPP will be maintained by the designated responsible manager, or the QA Manager. Revision may be made to individual sections of the entire plan.
- 3.2.7. Standard Operating Procedures will be maintained as designated in the specific SOP with revisions being made on an as needed basis.

3.3. Document Control

Standard Operating Procedures (SOPs) or any documents that specify quality requirements or otherwise affect quality are Controlled Documents. All controlled documents will be prepared, issued and revised in accordance with the applicable SOPs. The SOPs are presented in Table 3.1.

- 3.3.1. Procedures are established to control and maintain the issue, distribution, and revisions of all controlled documentation.
- 3.3.2. Appropriate documents shall be made available at all locations where operations essential to the effective functioning of the laboratory are performed.
- 3.3.3. Complete and current copies of the controlled documents shall be made available upon issuance, and obsolete copies will be removed from all points of issue or use. The controlled document copies will be stamped, in red, as an "Official QA Copy".
- 3.3.4. All original controlled documents are archived by QA Manager.
- 3.3.5. A master list will be used to ensure that the correct revision of each SOP is available for use, and that obsolete revisions are removed from service. Each controlled document has an associated revision number and effective date to enable tracking of current revisions.
- 3.3.6. Document changes are reviewed and approved by the appropriate personnel.
- 3.3.7. Documents are periodically reviewed and, where necessary, revised to ensure continuing suitability and compliance with

applicable requirements. The Quality Manual (QM) will be revised as needed and reviewed annually.

- 3.3.8. QA Manager will maintain records of revisions for Controlled Documents and the QAPP.

Table 3.1 List of Standard Operating Procedures	
SOP #	Title
1	Laboratory Security
2	Laboratory Audits
3	Standard Operating Procedures
5	Data Collection, Reporting, and Archival
6	Corrective Actions
7	Control Charts
8	Method Detection Limits
9	Manual integrations
10	Instrument Maintenance Logbooks and Schedule
11	Laboratory Support instrument Calibration
12	Sample Receiving and Sample Control Procedures
13	Consignment Tracking
14	Bottle Order Preparation
15	Reagents and Standards – Preparation, Handling, and Documentation
16	Sample Preparation and Analysis of PUF Samples for PCDD/PCDFs by EPA Method TO-9A
17	Preparation and Shipping of Air Sampling Media for in Field Use
18	Sample Preparation pf MM5 Train for Analysis of PAHs by Method CARB 429
19	Sample Preparation of MM5 Train for Analysis of PCBs and PCDD/PCDFs by Methods CARB 428 and Method 23 or Method 0023A
20	Sample Preparation and Analysis of Sampling Trains and PUFs and PUF/XAD2 for Analysis of PCBs by Modified Method 1668
21	Sample Preparation and Analysis of Sampling Trains and PUFs and PUF/XAD for Analysis of PBDEs by Modified Method 1614 (Draft)
22	Preparation of Surface Wipes
23	Polychlorinated Dibenzo Dioxin/Furans by USEPA Method 8280A
24	Polychlorinated Dibenzo Dioxin/Furans by USEPA Method 8290
25	Tetrachlorodibenzodioxin in Aqueous Samples by Modified USEPA Method 613
26	Polychlorinated Dibenzo Dioxin/Furans by Method 1613B
27	Sample Extractions
28	Sample Analysis of HCB/B by Modified Method 1625B
29	Modified Method 8290 for the Analysis for PCDD/PCDFs, Coplanar, and mono-ortho PCBs in Human Serum or Blood
30	Polybrominated Dibenzo-Dioxin/Furans by Modified EPA Method 8290
31	Analysis of Polychlorinated Biphenyls (PCBs) by Method 1668
32	Analysis of Various Matrices for Polybrominated Diphenyl Ethers (PBDE) by EPA Method 1614
33	Analysis of Polychlorinated Naphthalenes (PCN) by Modified EPA Method 1668A
34	Preparation And Analysis Of Human Serum/Blood Using Modified Method 8290 For PCDD/PCDFs And Modified Method 1668A For Coplanar/Mono-Ortho PCBs
35	Glassware Preparation

SOP #	Title
36	Sample Preparation of MM5 Train for Analysis of PCDDs/PCDFs/PCBs/PAHs by EPA Method 0023A/CARB 428/CARB 429
37	NCASI 551
12A	System Security
12B	System Back-up Procedures
12C	System Maintenance
12D	System Validation Procedures
12E	Computer Operations
12F	Computer Media Archive
12G	Disaster Prevention and Recovery
12H	Change Control Procedures

3.4. Quality Assurance Objectives and Quality Control Procedures

Quality assurance objectives employed at Vista provide routine mechanisms of ongoing control and evaluation of measurement data quality. The quality control (QC) procedures routinely followed evaluate method performance in terms of accuracy and criteria specified by the method or protocol.

3.4.1. Accuracy and precision

Accuracy and precision objectives for HRMS analyses are listed in Table 3.2. Vista's internal quality control procedures include the analysis of method blanks, duplicate samples, laboratory control samples, and matrix spikes.

3.4.2. Definitions

3.4.2.1. **Accuracy:** Accuracy is the nearness of a measurement to the true or theoretical value. Accuracy is assessed by determining recoveries from laboratory control samples, matrix spikes or by comparing values obtained from reference samples.

3.4.2.2. **Analytical Batch:** An analytical batch is a set of samples of the same matrix that are analyzed together using the same method, reagents, and standards. QC results associated with individual analytical batches such as ongoing precision and recovery samples, laboratory control samples, method blanks, matrix spike samples, and duplicate samples are evaluated together to assess data quality. Each batch will be assigned a unique batch number, which will be used to associate sample results with quality control data. All samples associated with a particular batch must be extracted on the same day.

3.4.2.3. **Clean-up Recovery Standard:** A clean-up recovery standard is a reference substance that is an isotopically labeled analyte that is added to the sample extract prior to any clean-up procedures. This standard is used to quantitatively assess losses occurring throughout the clean-up process.

3.4.2.4. **Control/Warning Limits:** Warning and control limits are limits used in laboratory control charts tracking average recovery and relative percent difference. For a Means Chart, typical warning and control levels are ± 2 and ± 3 standard deviations (s) from the central line (i.e., average mean recovery), respectively. Similarly, the warning and control limits for a RPD Chart are usually set at + 2s and + 3s above the mean RPD, respectively.

3.4.2.5. **Detection Limit (DL):** The lowest concentration of an analyte within an environmental matrix that a method or equipment can detect.

- 3.4.2.6. **Duplicate Sample (DS):** Duplicate samples are two separate aliquots taken from the same source. Duplicate samples are analyzed independently to assess laboratory precision.
- 3.4.2.7. **Estimated Maximum Possible Concentration (EMPC):** The EMPC is calculated when the response has a S/N in excess of 2.5, but the ion abundance criteria are not met.
- 3.4.2.8. **Internal Standards (IS):** An internal standard is a reference substance that is an isotopically labeled analyte which is added to the sample prior to extraction and used in the quantitation and identification of native analytes.
- 3.4.2.9. **Laboratory Control Sample:** A laboratory control sample is prepared by adding a known quantity of native standards to an interferant free matrix.
- 3.4.2.10. **Method Blank (MB):** A method blank is a sand, XAD or deionized water preparation that is free of native analyte or interferants that has been prepared and analyzed using the same procedures followed for the rest of the analytical batch. The method blank is used to determine the level of background laboratory contamination, if present.
- 3.4.2.11. **Method Detection Limit:** The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero in the matrix tested. MDLs follow 40 CFR Part 136.
- 3.4.2.12. **Method Quantitation Limit (MQL):** The method quantitation limit is defined as the quantity of native analyte that corresponds to the lowest concentration of the calibration curve. The Method Quantitation Limit is also known as the Reporting Limit.
- 3.4.2.13. **Matrix Spike (MS/MSD):** A matrix spike sample is prepared by adding a known quantity of native standards to a sample matrix prior to extraction. Matrix spike concentration levels will vary according to the matrix encountered and study objectives.
- 3.4.2.14. **Native Standard:** A native standard is a reference substance that is a non-isotopically labeled analyte. Native standards are used in conjunction with internal standards to determine response factors and quantitatively assess accuracy.
- 3.4.2.15. **Ongoing Precision and Recovery (OPR):** A laboratory blank spiked with known quantities of analytes. The OPR is analyzed exactly like a sample. Its purpose is to assure that the results produced by the laboratory remain within the specified limits.

- 3.4.2.16. **Precision:** Precision is the agreement between a set of replicate measurements. RPD is used as the principal measure of precision and is based on the analysis of duplicate quality control samples.
- 3.4.2.17. **Pre-Spike Standards:** A pre-spike standard is an isotopically labeled analyte that is spiked into an MM5 resin cartridge or PUF prior to sampling. The recoveries of pre-spike standards provide a measure of the air sampling efficiency for native analytes.
- 3.4.2.18. **Quality Control Sample:** Quality control samples are analyzed to access the various aspects of the analytical process in order to monitor quality within the laboratory. The most frequently used QC samples are method blanks, duplicates, matrix spikes, matrix spike duplicates and LCS pairs.
- 3.4.2.19. **Recovery Standard:** A recovery standard is a reference substance that is an isotopically labeled analyte which is added to the sample extract after clean-up and prior to injection. This standard is used to quantitatively assess the absolute recoveries of the internal and clean-up recovery standards.
- 3.4.2.20. **Resin QC:** A resin QC is an XAD-2 preparation that is analyzed to assess possible background contamination originating from the resin.
- 3.4.2.21. **Reporting Limit:** See Method Quantitation Limit.
- 3.4.2.22. **Signal to Noise Ratio:** Dimensionless measure of the relative strength of an analytic signal to the average strength of background instrument noise.

3.4.3. Calculations

- 3.4.3.1. **Percent Recovery (%R):** Percent recovery is a measure of accuracy and is calculated according to the following expression:

$$\%R = \frac{(Amount\ Found)}{(Amount\ Spiked)} \times 100$$

- 3.4.3.2. **Relative Percent Difference (RPD):** Percent Recovery (%R) from duplicate LCS or matrix spike analyses are used to calculate RPD using the following expression:

$$RPD = \frac{|\% R_1 - \% R_2|}{\left(\frac{(\% R_1 + \% R_2)}{2}\right)} \times 100$$

- 3.4.3.3. Similarly, the RPD for duplicate sample analyses, is calculated using the sample concentration (C), as follows:

$$RPD_{DS} = \frac{|C_1 - C_2|}{\frac{(C_1 + C_2)}{2}} \times 100$$

- 3.4.3.4. Relative Standard Deviation (RSD): Also known as the coefficient of variation.

$$RSD = \frac{SD}{Mean} \times 100$$

3.4.4. Quality Control Procedures

3.4.4.1. Method Blanks:

A method blank is run with each analytical batch or 20 samples (whichever is less) per method and matrix type.

For any method involving the determination of native 2,3,7,8-substituted isomers except hepta- or octa-PCDD/PCDF, the levels measured in the method blank must be less than the MQL, or ten times lower than the concentration found in samples within the analytical batch, unless otherwise mandated by project or client requirements.

All samples within an analytical batch are re-extracted and analyzed if the method blank associated with that batch does not meet internal standard recovery criteria or contamination limits specified above. Otherwise, the data is qualified appropriately.

3.4.4.2. Ongoing Precision and Recovery/Laboratory Control Samples

A single OPR or a pair of LCS is analyzed with every batch of clients' samples.

All samples within an analytical batch are re-extracted and analyzed if the native or internal standard recoveries from the LCS do not fall within the acceptable control range for accuracy or if the RPD falls outside the specified precision limit established by the method. If the OPR/LCS is not within the acceptable control range and the analytes are not detected in the samples, then it is at the discretion of the Laboratory Director to re-extract the QC sample or qualify the data that is reported.

3.4.4.3. Matrix Spike and Duplicate Sample Analyses

An MS, MS/MSD, or duplicates are analyzed upon client request, method requirements, or at the discretion of the Laboratory Director.

If the RPD from duplicate samples exceeds 25% or the MS/MSD exceeds 20%, corrective action will be taken as directed in the method, unless there is demonstrated matrix effect.

3.4.5. Quality Control Charts

Quality control data are calculated as needed by the QA Manager and distributed to the Laboratory Director for review. A set of current QC control charts is maintained in QA Manager to monitor QC trends on a real time basis. Original copies of the QC charts and any associated tabular data are stored in QA Manager. QC control charts are available upon written request of clients or regulatory agencies or may be reviewed during facility audits.

Table 3.2 Accuracy and Precision Objectives

DATA ACCEPTANCE/REJECTION CRITERIA					
Precision/Accuracy and QC Requirements					
METHOD	Method Blank	Internal Standard Recovery Limits	OPR Recovery Limits (ng/mL)	Duplicate Sample Analysis	MS/MSD
EPA 8280/8280A	One/extraction batch ≤ML, report in ng/g or ng/L ≤5% regulatory limit or amount in sample	25-150%	70-130%	By client request RPD≤25%	By client request RPD≤20%
EPA 8290/0023A	One/extraction batch Run between calibration std and 1st sample	40-135%	70-130%	By client request RPD≤25%	By client request RPD≤20%
EPA 23	One/extraction batch Run between calibration std and 1st sample	Surrogate 70-130% IS Tetra-Hexa 40-130% Hepta-Octa 25-130%	70-130%	Not applicable	Not applicable
T0-9A	One/extraction batch Run between calibration std and 1st sample	Surrogate 70-130% IS Tetra-Hexa 50-120% Hepta-Octa 40-120%	70-130%	Not applicable	Not applicable
EPA 613	One/extraction batch	25-150%	70-130%	By client request RPD≤25%	10% of samples or 1/month RPD≤20%
EPA 1613A EPA 1613B	One/extraction batch after OPR Must be ≤ 1/3 of minimum level (10 pg/L or regulatory compliance level whichever is greater).	Tables 7 and Table 7A	See Tables 6 and 6A	By client request RPD≤25%	By client request RPD≤20%
EPA 1668	One/extraction batch ≤ 10X amount in sample	Samples = 25-150% OPR Recovery per SOP 31	OPR Recovery per SOP 31	By client request RPD≤25%	By client request RPD≤20%

Table 3.2 Accuracy and Precision Objectives

DATA ACCEPTANCE/REJECTION CRITERIA					
Precision/Accuracy and QC Requirements					
METHOD	Method Blank	Internal Standard Recovery Limits	OPR Recovery Limits (ng/mL)	Duplicate Sample Analysis	MS/MSD
NCASI 551	Method Blank IS & RS Recovery >40%	40-120% or S/N > 10:1 if %R is >20% "H" Qualifier	70-130%	By client request RPD≤25%	By client request RPD≤20%
CARB 428 PCB's	One/extraction batch ≤ 10X amount in sample	40-120% or S/N >10:1	60-140%	Not applicable	Not applicable
CARB 428 D/F	One/extraction batch Must be ≤ ML	Surrogates= 60-140% IS= 40-120% or S/N >10:1	60-140%	Not applicable	Not applicable
CARB 429	One/extraction batch ≤ 5% amount in sample	50-150% or S/N > 10:1 "H" Qualifier	Field Spikes 50-150%	By client request RPD≤25%	Not applicable
EPA 1614 (DRAFT)	Method Blank ≤ML; ≤1/3 regulatory limit or amount in sample	Tetra-Hepta: 30-140% Tetra-Hepta: 25-150% Samples Deca: 20-200%	Tetra-Hepta: 50-150% Deca: 40-200%	By client request RPD≤25%	By client request RPD≤20%
Mod 1668A (PCN)	One/extraction batch	30-140% 25-150% Samples	50-150%	By client request RPD≤25%	By client request RPD≤20%
Method 1625	One/extraction batch	Method Table 8	Method Table 8	By client request RPD≤25%	By client request RPD≤20%

4. PURCHASING

4.1. Quality Materials and Services

Materials and services that affect the quality of the company's services will be designated as quality material and services. Purchases shall be made only from approved suppliers (based on historical experience or quality certifications).

4.2. Control of Quality Materials and Services

Quality Materials and Services and, where appropriate, potential suppliers' Quality Systems, shall be evaluated to ensure that specified quality requirements are met. Any purchased equipment and consumable materials, whenever possible, shall be inspected, calibrated, or otherwise verified as complying with any standard specifications relevant to the calibrations or tests concerned prior to use. Records of actions taken to check compliance shall be maintained.

4.3. Procurement Documents

Procurement documents will clearly specify all information and requirements necessary to ensure that the correct materials and services are purchased and received. Any discrepancies between request and contracts shall be resolved before any work commences. Request and contracts shall be reviewed to determine the effect of financial, legal and time schedule aspects. Any amendments to the request or contract after work has commenced shall require another review process.

5. SAMPLE CONTROL

Samples and other material received from clients shall be handled and maintained in accordance with laboratory SOPs.

5.1. Receipt of Materials

5.1.1. Samples and materials received from clients, and any other materials received from an outside source in the regular course of business, will be inspected upon receipt to insure that they meet specified quality requirements. All conditions, including any abnormalities or departures from standard conditions, shall be recorded according to SOPs.

5.1.2. Immediately after inspection samples will be logged into the laboratory computer system. A unique laboratory identification number is assigned to each sample at the time of login. This unique laboratory identification allows the sample to be controlled and tracked during storage, handling, and disposal.

5.1.3. Other materials will be properly identified upon verification that they meet specified quality requirements.

5.2. Storage, Handling, and Disposal

5.2.1. Samples and materials received from clients will be stored and handled in a manner that ensures the integrity and quality characteristics are maintained.

5.2.1.1. All samples are stored away from all standards; reagents, food, or any other potentially contaminating sources in such a manner as to prevent cross contamination.

5.2.2. Samples, sample extracts, and any other sample preparation fractions are stored according to the conditions specified by preservation protocols or according to the appropriate test method.

5.2.3. Samples are stored for a minimum of 90 days. If the client provides any relevant instructions regarding sample storage, then the samples are stored according to the client's request.

5.2.4. Samples will be disposed of in a manner that:

- Protects the environment
- Complies with applicable regulatory requirements
- Complies with any project specific requirements