

CETAC Hg Analysis Report

Analyst: grisdalec

Worksheet file: C:\Program Files\QuickTrace\Worksheets\081218AB.wsz

Date Started: 12/18/2008 7:54:43 PM

Comment:

Results

Sample Name	Type	Date/Time	Conc (ppb)	μAbs	%RSD	Flags	Wt.	Vol. ODF
Cal Blank	STD	12/18/08 08:29:44 pm	0.000	8	63.65		1.00	1.00
Std1	STD	12/18/08 08:32:01 pm	0.200	1723	2.59		1.00	1.00
Std2	STD	12/18/08 08:34:18 pm	0.500	4372	1.94		1.00	1.00
Std3	STD	12/18/08 08:36:37 pm	1.000	8676	2.06		1.00	1.00
Std4	STD	12/18/08 08:38:56 pm	2.000	16226	1.65		1.00	1.00
Std5	STD	12/18/08 08:41:15 pm	5.000	43563	2.11		1.00	1.00
Std6	STD	12/18/08 08:43:35 pm	10.000	84200	3.33		1.00	1.00

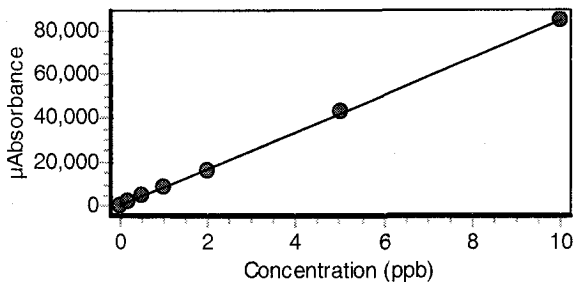
Calibration

Equation: $A = 90.569 + 8456.344C$

R2: 0.99961

SEE: 672.1287

Flags:



ICB	ICB	12/18/08 08:46:01 pm	-0.030	-164	1.63		1.00	1.00
ICV	ICV	12/18/08 08:48:22 pm	6.732	57020	2.83		1.00	1.00
% Recovery		96.17						
RL	CRDL	12/18/08 08:50:39 pm	0.168	1512	3.66		1.00	1.00
% Recovery		84.06						

Sample Name	Type	Date/Time	Conc (ppb)	μAbs	%RSD	Flags	Wt.	Vol.
							ODF	
CCV	CCV	12/18/08 08:52:59 pm	5.033 ✓	42649	2.95		1.00	1.00
% Recovery							1.00	
							100.66 ✓	
CCB	CCB	12/18/08 08:55:15 pm	-0.019 ✓	-68	5.20		1.00	1.00
							1.00	
K40M2B	UNK	12/18/08 08:57:31 pm	-0.017 ✓	-54	5.20		1.00	1.00
							1.00	
K40M2C	UNK	12/18/08 08:59:47 pm	4.901 ✓	41534	2.98		1.00	1.00
							1.00	
K4R90	UNK	12/18/08 09:02:04 pm	-0.018	-60	9.30		1.00	1.00
							1.00	
K4R90S	UNK	12/18/08 09:04:21 pm	4.666 ✓	39549	2.68		1.00	1.00
							1.00	
K4R90D	UNK	12/18/08 09:06:38 pm	4.658 ✓	39477	0.67		1.00	1.00
							1.00	
K4W0V	UNK	12/18/08 09:08:56 pm	0.172	1542	0.86		1.00	1.00
							1.00	
K4VR8	UNK	12/18/08 09:11:14 pm	0.010	173	7.16 s		1.00	1.00
							1.00	
K40NQB	UNK	12/18/08 09:13:33 pm	-0.016 ✓	-46	14.93		1.00	1.00
							1.00	
K40NQC	UNK	12/18/08 09:15:51 pm	4.587 ✓	38884	5.56 s		1.00	1.00
							1.00	
K4VTJ	UNK	12/18/08 09:18:11 pm	-0.011	1	450.10		1.00	1.00
							1.00	
CCV	CCV	12/18/08 09:20:30 pm	4.765 ✓	40385	5.27 s		1.00	1.00
% Recovery							1.00	
							95.30 ✓	
CCB	CCB	12/18/08 09:22:46 pm	-0.016 ✓	-47	17.27		1.00	1.00
							1.00	
K4VTJS	UNK	12/18/08 09:25:06 pm	4.243 ✓	35969	2.61		1.00	1.00
							1.00	
K4VTJD	UNK	12/18/08 09:27:26 pm	4.643 ✓	39352	1.35		1.00	1.00
							1.00	

MA confirms above

12/19/08

K4VTJS	UNK	12/18/08 09:29:45 pm	4.364	36996	1.96	102	1.00	1.00
							1.00	

Sample Name	Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags	Wt.	Vol.
							ODF	
K4VTJD	UNK	12/18/08 09:32:05 pm	3.595	99488	14.41	s	1.00	1.00
<i>NA Confirms above. as 12/19/08</i>								
K4VW3	UNK	12/18/08 09:34:22 pm	0.073	710	3.14		1.00	1.00
K4VXA	UNK	12/18/08 09:36:39 pm	0.002	111	17.73	s	1.00	1.00
K4V1A	UNK	12/18/08 09:38:56 pm	-0.009	18	33.09		1.00	1.00
K4V63	UNK	12/18/08 09:41:14 pm	0.015	218	3.37		1.00	1.00
K4V7T	UNK	12/18/08 09:43:32 pm	0.011	183	12.20	s	1.00	1.00
K40QJB	UNK	12/18/08 09:45:50 pm	-0.018	-63	14.62		1.00	1.00
CCV	CCV	12/18/08 09:48:10 pm	5.070	42966	2.03		1.00	1.00
% Recovery	101.40						1.00	
CCB	CCB	12/18/08 09:50:26 pm	-0.015	-40	4.12		1.00	1.00
K40QJC	UNK	12/18/08 09:52:44 pm	4.630	39242	1.34		1.00	1.00
K4VTJ	UNK	12/18/08 09:55:03 pm	-0.017	-51	4.35		1.00	1.00
K4VTJS	UNK	12/18/08 09:57:23 pm	4.796	40644	0.91		1.00	1.00
K4VTJD	UNK	12/18/08 09:59:42 pm	4.370	37045	2.41		1.00	1.00
K4VTJS	UNK	12/18/08 10:02:02 pm	5.009	42447	3.10		1.00	1.00
<i>NA Confirms above. as 12/19/08</i>								
K4VTJB	UNK	12/18/08 10:04:21 pm	3.788	32123	7.95	s	1.00	1.00
K4VW3	UNK	12/18/08 10:06:41 pm	-0.012	-7	19.13		103 1.00	1.00
TestAmerica							1.00	3

Sample Name	Type	Date/Time	Conc (ppb)	μ Abs	%RSD	Flags	Wt.	Vol.	ODF
K4V1A	UNK	12/18/08 10:11:19 pm	-0.012	-9	114.47		1.00	1.00	1.00
K4V63	UNK	12/18/08 10:13:36 pm	-0.012	-7	28.51		1.00	1.00	1.00
CCV % Recovery 102.89 ✓	CCV	12/18/08 10:15:55 pm	5.145 ✓	43596	2.55		1.00	1.00	1.00
CCB	CCB	12/18/08 10:18:11 pm	-0.014 ✓	-31	11.97		1.00	1.00	1.00
K4V7T	UNK	12/18/08 10:20:29 pm	-0.013	-20	13.51		1.00	1.00	1.00
K40QWB	UNK	12/18/08 10:22:47 pm	-0.019 ✓	-70	4.68		1.00	1.00	1.00
K40QWC	UNK	12/18/08 10:25:05 pm	4.913 ✓	41641	2.59		1.00	1.00	1.00
K35NQ	UNK	12/18/08 10:27:24 pm	0.105	978	3.48		1.00	1.00	1.00
K35NQS	UNK	12/18/08 10:29:43 pm	4.891 ✓	41454	1.48		1.00	1.00	1.00
K35NQD	UNK	12/18/08 10:32:02 pm	4.916 ✓	41661	4.31		1.00	1.00	1.00
K4P1JB	UNK	12/18/08 10:34:21 pm	-0.018 ✓	-65	32.35		1.00	1.00	1.00
K4P1JC	UNK	12/18/08 10:36:41 pm	4.836 ✓	40985	3.45		1.00	1.00	1.00
K38MG	UNK	12/18/08 10:39:02 pm	-0.023 ✓	-101	1.70		1.00	1.00	1.00
K38MGP5	UNK	12/18/08 10:41:22 pm	-0.018 ✓	-59	4.45		1.00	1.00	1.00
CCV % Recovery 99.14 ✓	CCV	12/18/08 10:43:42 pm	4.957 ✓	42008	3.44		1.00	1.00	1.00
CCB	CCB	12/18/08 10:45:58 pm	-0.015	-37	7.79		1.00	1.00	1.00
K38MGS	UNK	12/18/08 10:48:15 pm	4.600 ✓	38991	2.51		1.00	1.00	1.00
TestAmerica							104		1.004

Sample Name

Type Date/Time Conc μ Abs %RSD Flags Wt. Vol.
(ppb) ODF

K38MGD	UNK	12/18/08 10:50:33 pm	4.830 /	40932	2.68	1.00	1.00
						1.00	
K38M1	UNK	12/18/08 10:52:51 pm	-0.023	-102	4.51	1.00	1.00
						1.00	
K38M8	UNK	12/18/08 10:55:09 pm	-0.018	-64	8.57	1.00	1.00
						1.00	
K38NH	UNK	12/18/08 10:57:28 pm	-0.017	-55	10.40	1.00	1.00
						1.00	
K4FPN	UNK	12/18/08 10:59:47 pm	-0.018	-60	10.96	1.00	1.00
						1.00	
K4FPNS	UNK	12/18/08 11:02:06 pm	3.830 /	32476	1.75	1.00	1.00
						1.00	
K4FPND	UNK	12/18/08 11:04:26 pm	3.989 /	33826	2.75	1.00	1.00
						1.00	
K4FPR	UNK	12/18/08 11:06:46 pm	-0.019	-71	10.86	1.00	1.00
						1.00	
K4FPV	UNK	12/18/08 11:09:06 pm	-0.014	-25	18.51	1.00	1.00
						1.00	
CCV	CCV	12/18/08 11:11:26 pm	5.041 /	42720	2.28	1.00	1.00
% Recovery	100.82 /					1.00	
CCB	CCB	12/18/08 11:13:42 pm	-0.014 /	-28	18.59	1.00	1.00
						1.00	
K4FPX	UNK	12/18/08 11:16:03 pm	-0.014	-30	15.77	1.00	1.00
						1.00	
K4FP1	UNK	12/18/08 11:18:24 pm	-0.016	-49	10.18	1.00	1.00
						1.00	
K4FP2	UNK	12/18/08 11:20:41 pm	-0.017	-52	6.30	1.00	1.00
						1.00	
K4FP4	UNK	12/18/08 11:22:59 pm	-0.018	-61	3.10	1.00	1.00
						1.00	
K4FP6	UNK	12/18/08 11:25:17 pm	-0.018	-62	4.50	1.00	1.00
						105	1.00

Sample Name	Type	Date/Time	Conc (ppb)	μAbs	%RSD	Flags	Wt.	Vol. ODF
K40PLC	UNK	12/18/08 11:29:55 pm	4.901 /	41532	3.10		1.00	1.00 1.00
K4VLJ	UNK	12/18/08 11:32:14 pm	-0.021	-88	2.30		1.00	1.00 1.00
K4VLJS	UNK	12/18/08 11:34:34 pm	4.841 /	41028	3.22		1.00	1.00 1.00
K4VLJD	UNK	12/18/08 11:36:54 pm	4.778 /	40497	3.03		1.00	1.00 1.00
CCV % Recovery 101.12 /	CCV	12/18/08 11:39:14 pm	5.056 /	42844	2.97		1.00	1.00 1.00
CCB	CCB	12/18/08 11:41:30 pm	-0.016 /	-47	16.89		1.00	1.00 1.00
K4VL1	UNK	12/18/08 11:43:50 pm	-0.017	-53	5.84		1.00	1.00 1.00
K4VL2	UNK	12/18/08 11:46:11 pm	-0.014	-27	10.01		1.00	1.00 1.00
K4VL4	UNK	12/18/08 11:48:32 pm	-0.016	-43	10.32		1.00	1.00 1.00
K4VL8	UNK	12/18/08 11:50:53 pm	-0.018	-61	6.84		1.00	1.00 1.00
K4VMA	UNK	12/18/08 11:53:12 pm	-0.020	-79	1.33		1.00	1.00 1.00
K4VMC	UNK	12/18/08 11:55:30 pm	-0.004	61	7.84		1.00	1.00 1.00
K4VMD	UNK	12/18/08 11:57:49 pm	-0.018	-63	4.14		1.00	1.00 1.00
K4VMF	UNK	12/19/08 12:00:08 am	-0.018	-59	7.93		1.00	1.00 1.00
K4VMG	UNK	12/19/08 12:02:28 am	-0.009	12	105.85		1.00	1.00 1.00
K4VMH	UNK	12/19/08 12:04:48 am	-0.016	-43	8.04		1.00	1.00 1.00
CCV % Recovery 101.63 /	CCV	12/19/08 12:07:07 am	5.081 /	43061	2.84		106 1.00	1.00 1.00

Sample Name	Type	Date/Time	Conc (ppb)	μAbs	%RSD	Flags	Wt.	Vol. ODF
CCB	CCB	12/19/08 12:09:23 am	-0.014 ✓	-31	13.74		1.00	1.00 1.00
K4VMJ	UNK	12/19/08 12:11:44 am	-0.007	33	16.74		1.00	1.00 1.00
K4VMK	UNK	12/19/08 12:14:04 am	-0.017	-50	5.71		1.00	1.00 1.00
K4XW7	UNK	12/19/08 12:16:25 am	-0.014	-29	20.12		1.00	1.00 1.00
K40P1B	UNK	12/19/08 12:18:46 am	-0.013 ✓	-23	16.51		1.00	1.00 1.00
K40P1C	UNK	12/19/08 12:21:08 am	4.831 ✓	40946	6.36 s		1.00	1.00 1.00
K4XMQ	UNK	12/19/08 12:23:30 am	-0.015	-36	9.06		1.00	1.00 1.00
K4XNH	UNK	12/19/08 12:25:48 am	-0.012	-8	65.28		1.00	1.00 1.00
K4XNK	UNK	12/19/08 12:28:07 am	-0.015	-40	8.52		1.00	1.00 1.00
K4XNL	UNK	12/19/08 12:30:26 am	-0.011	1	200.45		1.00	1.00 1.00
K4XPD	UNK	12/19/08 12:32:46 am	-0.011	-2	310.05		1.00	1.00 1.00
CCV	CCV	12/19/08 12:35:05 am	4.923 ✓	41721	2.85		1.00	1.00 1.00
% Recovery		98.46 ✓						
CCB	CCB	12/19/08 12:37:22 am	-0.015 ✓	-34	13.71		1.00	1.00 1.00
K4XQG	UNK	12/19/08 12:39:41 am	-0.014	-24	9.55		1.00	1.00 1.00
K4XQJ	UNK	12/19/08 12:42:02 am	-0.014	-24	8.39		1.00	1.00 1.00
K4XQM	UNK	12/19/08 12:44:22 am	-0.015	-36	6.17		1.00	1.00 1.00
K4XQP	UNK	12/19/08 12:46:43 am	0.645	5543	3.10		1.00	1.00 1.00

107 1.00

Sample Name	Type	Date/Time	Conc (ppb)	μAbs	%RSD	Flags	Wt.	Vol. ODF
K39JG	UNK	12/19/08 01:28:54 am	-0.005	48	16.70		1.00	1.00
							1.00	
CCV	CCV	12/19/08 01:31:13 am	4.932 ✓	41795	3.38		1.00	1.00
% Recovery		98.64 ✓					1.00	
CCB	CCB	12/19/08 01:33:30 am	-0.016 ✓	-49	2.71		1.00	1.00
							1.00	
K4C8Q	UNK	12/19/08 01:35:49 am	-0.008	21	21.34		1.00	1.00
							1.00	
K4C8QS	UNK	12/19/08 01:38:08 am	5.008 ✓	42442	2.67		1.00	1.00
							1.00	
K4C8QD	UNK	12/19/08 01:40:28 am	4.942 ✓	41885	2.84		1.00	1.00
							1.00	
K4C8W	UNK	12/19/08 01:42:48 am	-0.006	40	14.99		1.00	1.00
							1.00	
K4C8X	UNK	12/19/08 01:45:09 am	-0.010	9	57.51		1.00	1.00
							1.00	
K4C8XS	UNK	12/19/08 01:47:30 am	3.945 ✓	33452	3.10		1.00	1.00
							1.00	
K4C8XD	UNK	12/19/08 01:49:51 am	4.542 ✓	38503	3.72		1.00	1.00
							1.00	
K4JJW	UNK	12/19/08 01:52:12 am	-0.012	-11	33.88		1.00	1.00
							1.00	
K4JJWS	UNK	12/19/08 01:54:34 am	4.795 ✓	40643	4.39		1.00	1.00
							1.00	
K4JJWD	UNK	12/19/08 01:56:57 am	4.934 ✓	41816	3.16		1.00	1.00
							1.00	
CCV	CCV	12/19/08 01:59:15 am	4.608 ✓	39057	2.60		1.00	1.00
% Recovery		92.16 ✓					1.00	
CCB	CCB	12/19/08 02:01:32 am	-0.016 ✓	-45	6.86		1.00	1.00
							1.00	
K4JK2	UNK	12/19/08 02:03:55 am	-0.008	24	8.01		1.00	1.00
							1.00	
K4JLD	UNK	12/19/08 02:06:18 am	0.011	187	6.84 s		1.00	1.00
TestAmerica							1.00	1.00

Sample Name	Type	Date/Time	Conc (ppb)	μAbs	%RSD	Flags	Wt.	Vol.
							ODF	
K4JLJ	UNK	12/19/08 02:08:37 am	-0.011	-1	195.39		1.00	1.00
							1.00	
K4P1AB	UNK	12/19/08 02:10:57 am	-0.018 ✓	-58	8.06		1.00	1.00
							1.00	
K4P1AC	UNK	12/19/08 02:13:17 am	4.633 ✓	39265	3.14		1.00	1.00
							1.00	
K39KC	UNK	12/19/08 02:15:38 am	-0.021	-84	4.79		1.00	1.00
							1.00	
K39KCP5	UNK	12/19/08 02:17:59 am	-0.016 ✓	-45	13.87		1.00	1.00
							1.00	
K39KCS	UNK	12/19/08 02:20:20 am	4.890 ✓	41442	3.16		1.00	1.00
							1.00	
K39KCD	UNK	12/19/08 02:22:41 am	4.391 ✓	37224	3.42		1.00	1.00
							1.00	
K39K8	UNK	12/19/08 02:25:03 am	0.010	179	4.70		1.00	1.00
							1.00	
CCV	CCV	12/19/08 02:27:22 am	4.857 ✓	41165	3.40		1.00	1.00
% Recovery		97.14 ✓					1.00	
CCB	CCB	12/19/08 02:29:39 am	-0.016 ✓	-48	3.87		1.00	1.00
							1.00	
K39LA	UNK	12/19/08 02:32:01 am	0.956	8178	5.46 s		1.00	1.00
							1.00	
K40N8B	UNK	12/19/08 02:34:24 am	-0.018 ✓	-59	7.04		1.00	1.00
							1.00	
K40N8C	UNK	12/19/08 02:36:47 am	4.555 ✓	38610	3.38		1.00	1.00
							1.00	
K4HAV	UNK	12/19/08 02:39:10 am	0.001	95	9.97		1.00	1.00
							1.00	
K4HA8	UNK	12/19/08 02:41:30 am	-0.018	-63	5.50		1.00	1.00
							1.00	
K4P1K	UNK	12/19/08 02:43:50 am	124.000	1048705	0.00	S	1.00	1.00
							1.00	
K4P1K8	UNK	12/19/08 02:55:23 am	123.180	1041756	0.00	S	1.00	1.00
							1.00	

MA ↑ samples > LR see 100x at end.

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TestAmerica CS 12/19/08

1.00⁷⁰

Sample Name	Type	Date/Time	Conc	μAbs	%RSD	Flags	Wt.	Vol.
			(ppb)				ODF	
K4P1KD	UNK	12/19/08 03:04:33 am	122.450	1035585	0.00	S	1.00	1.00
<i>NA see 100x at end. 12/19/08</i>								
K4P1L	UNK	12/19/08 03:11:17 am	57.258	484286	2.60	O	1.00	1.00
<i>Sample > LR see 10x at end. 12/19/08</i>								
K4P1M	UNK	12/19/08 03:16:36 am	3.899	33064	2.83		1.00	1.00
CCV	CCV	12/19/08 03:18:55 am	4.506 ✓	38198	2.61		1.00	1.00
% Recovery		90.13 ✓					1.00	
CCB	CCB	12/19/08 03:21:12 am	-0.066 ✓	-471	4.10		1.00	1.00
K4P1N	UNK	12/19/08 03:23:34 am	6.530	55315	6.92	s	1.00	1.00
K4P1P	UNK	12/19/08 03:25:56 am	3.129	26548	3.00		1.00	1.00
K4P1Q	UNK	12/19/08 03:28:19 am	4.092	34694	4.28		1.00	1.00
K4P1R	UNK	12/19/08 03:30:42 am	0.389	3381	2.73		1.00	1.00
K4P1T	UNK	12/19/08 03:33:06 am	0.985	8420	3.83		1.00	1.00
CCV	CCV	12/19/08 03:35:24 am	4.866 ✓	41238	2.32		1.00	1.00
% Recovery		97.32 ✓					1.00	
CCB	CCB	12/19/08 03:37:41 am	-0.121 ✓	-934	2.63		1.00	1.00
K4RED	UNK	12/19/08 03:40:05 am	0.087	827	20.02	s	1.00	1.00
K4VQV	UNK	12/19/08 03:42:26 am	-0.076	-550	18.01		1.00	1.00
K4VQW	UNK	12/19/08 03:44:46 am	0.346	3018	5.99	s	1.00	1.00
K4VQ0	UNK	12/19/08 03:47:07 am	-0.048	-318	7.17		1.00	1.00
K4VQ1	UNK	12/19/08 03:49:29 am	-0.069	-490	6.65		1.00	1.00

Sample Name	Type	Date/Time	Conc (ppb)	μ Abs	%RSD	Flags	Wt.	Vol.	ODF
K4VQ2	UNK	12/19/08 03:51:50 am	-0.064	-448	32.17		1.00	1.00	1.00
CCV % Recovery 94.68 ✓	CCV	12/19/08 03:54:09 am	4.734 ✓	40124	2.38		1.00	1.00	1.00
CCB	CCB	12/19/08 03:56:26 am	-0.100 ✓	-754	2.70		1.00	1.00	1.00
CCV % Recovery 101.31 ✓	CCV	12/19/08 08:46:34 am	5.065 ✓	42924	2.57		1.00	1.00	1.00
CCB	CCB	12/19/08 08:48:51 am	-0.129 ✓	-999	0.69		1.00	1.00	1.00
K4P1K 100X	UNK	12/19/08 08:51:12 am	6.811 ✓	57690	4.36		1.00	1.00	1.00
K4P1KS 100X	UNK	12/19/08 08:55:03 am	6.457 ✓	54692	4.55		1.00	1.00	1.00
K4P1KD 100X	UNK	12/19/08 08:57:24 am	8.368 ✓	70857	1.92		1.00	1.00	1.00
K4P1L 10X	UNK	12/19/08 08:59:46 am	4.851 ✓	41113	2.84		1.00	1.00	1.00
CCV % Recovery 98.88 ✓	CCV	12/19/08 09:02:05 am	4.944 ✓	41897	3.63		1.00	1.00	1.00
CCB	CCB	12/19/08 09:04:22 am	-0.114 ✓	-875	1.61		1.00	1.00	1.00

Analysis Parameters

Instrument

Conditions

Gas flow (mL/min)	Sample Uptake (s)	Rinse (s)	Read delay (s)	Replicates (#)	Replicate time (s)	Pump speed (%)	Wavelength (nm)
100	40.00	90.00	53.00	4	1.50	50	253.65

Instrumental Zero

Zero before first sample: No

Zero periodically: Yes

Before each calibration.

Baseline Correction

#1 Start time (s)	#1 End time (s)	#2 Start time (s)	#2 End time (s)
25.00	29.00		

Standby Mode

Enabled: Yes

Standby Options: pump slow

Autodilution

Enabled: No

Condition:

Tube # range:

If no autodilution tubes remaining

Calibration

Settings

Algorithm	Through blank	Weighted fit	Cal. Type	Racalibration rate	Reslope rate	Reslope standard
Linear	No	No	Normal	0	0	N/A

Limits

Calibration slope		Reslope		Coeff. of Determination
Lower (%)	Upper (%)	Lower (%)	Upper (%)	
20	150	75	125	0.99500

Error action: Flag and continue

QC

GLP Override: Yes

QC Tests

CCB

Concentration
(ppb)
0.2000

Failure flag: Q

Error action for manually inserted QC: Stop analysis

ICB

Concentration
(ppb)
0.2000

Failure flag: Z

Error action for manually inserted QC: Stop analysis

CCV

Concentration (ppb)	Low Limit %	High Limit %
5.0000	80.0000	120.0000

Failure flag: Q

Error action for manually inserted QC: Stop analysis

ICV

Concentration (ppb)	Low Limit %	High Limit %
7.0000	90.0000	110.0000

Failure flag: Q

Error action for manually inserted QC: Stop analysis

CRDL

Concentration (ppb)	Low Limit %	High Limit %
0.2000	70.0000	130.0000

Failure flag: Y

Error action for manually inserted QC: Stop analysis

LABORATORY REPORT



**Aquatic
Testing
Laboratories**

"dedicated to providing quality aquatic toxicity testing"

4350 Transport Street, Unit 107
Ventura, CA 93003
(805) 650-0546 FAX (805) 650-0756
CA DOHS ELAP Cert. No.: 1775

Date: December 24, 2008

Client: TestAmerica, Irvine
17461 Derian Ave., Suite 100
Irvine, CA 92614
Attn: Joseph Doak

Laboratory No.: A-08121611
Sample I.D.: IRL1714-01 (Outfall 004)

Sample Control: The sample was received by ATL within the recommended hold time, chilled and with the chain of custody record attached. Testing conducted on only one sample per client instruction (rain runoff sample).

Date Sampled: 12/15/08
Date Received: 12/16/08
Temp. Received: 0.5°C
Chlorine (TRC): 0.0 mg/l
Date Tested: 12/16/08 to 12/23/08

Sample Analysis: The following analyses were performed on your sample:

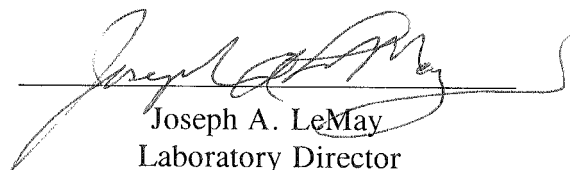
Ceriodaphnia dubia Survival and Reproduction Test (EPA Method 1002).

Attached are the test data generated from the analysis of your sample.

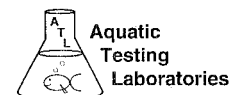
Result Summary:

	<u>NOEC</u>	<u>TUc</u>
<i>Ceriodaphnia</i> Survival:	100%	1.0
<i>Ceriodaphnia</i> Reproduction:	< 100%	> 1.0

Quality Control: Reviewed and approved by:


Joseph A. LeMay
Laboratory Director

**CERIODAPHNIA CHRONIC BIOASSAY
EPA METHOD 1002.0**



Lab No.: A-08121611-001
Client/ID: Test America – Outfall 004

Date Tested: 12/16/08 to 12/23/08

TEST SUMMARY

Test type: Daily static-renewal.
Species: *Ceriodaphnia dubia*.
Age: < 24 hrs; all released within 8 hrs.
Test vessel size: 30 ml.
Number of test organisms per vessel: 1.
Temperature: 25 +/- 1°C.
Dilution water: Mod. hard reconstituted (MHRW).
QA/QC Batch No.: RT-081204.

Endpoints: Survival and Reproduction.
Source: In-laboratory culture.
Food: .1 ml YTC, algae per day.
Test solution volume: 15 ml.
Number of replicates: 10.
Photoperiod: 16/8 hrs. light/dark cycle.
Test duration: 7 days.
Statistics: ToxCalc computer program.

RESULTS SUMMARY

Sample Concentration	Percent Survival	Mean Number of Young Per Female
Control	100%	23.1
100% Sample	90%	8.7 *

* Statistically significantly less than Control.

CHRONIC TOXICITY

Survival NOEC	100%
Survival TUc	1.0
Reproduction NOEC	< 100%
Reproduction TUc	> 1.0

QA/QC TEST ACCEPTABILITY

Parameter	Result
Control survival ≥80%	Pass (100% survival)
≥15 young per surviving control female	Pass (23.1 young)
≥60% surviving controls had 3 broods	Pass (100% with 3 broods)
PMSD <47% for reproduction; if >47% and no toxicity at IWC, the test must be repeated	Pass (PMSD = 8.1%)
Statistically significantly different concentrations relative difference > 13%	Pass (significantly different relative difference = 62.3%)
Concentration response relationship acceptable	Pass (significant response at highest concentration tested)

Ceriodaphnia Survival and Reproduction Test-7 Day Survival

Start Date: 12/16/2008 14:00 Test ID: 8121611c Sample ID: IRL1714-01 Outfall 004
 End Date: 12/23/2008 15:00 Lab ID: CAATL-Aquatic Testing Labs Sample Type: EFF2-Industrial
 Sample Date: 12/15/2008 11:30 Protocol: FWCH 4TH-EPA-821-R-02-0 Test Species: CD-Ceriodaphnia dubia
 Comments:

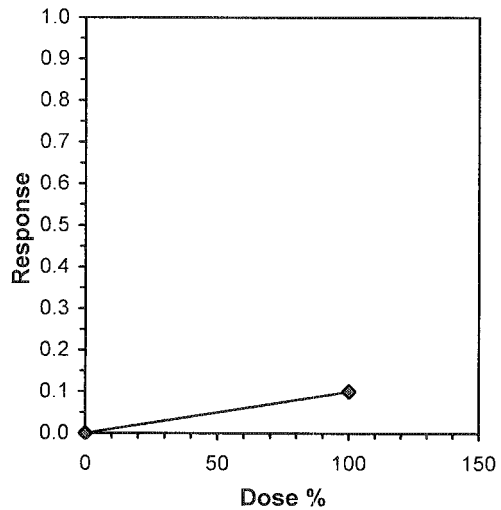
Conc-%	1	2	3	4	5	6	7	8	9	10
D-Control	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	1.0000	1.0000	1.0000	1.0000

Conc-%	Mean	N-Mean	Resp	Not Resp	Total	N	Fisher's Exact P	1-Tailed Critical	Isotonic	
									Mean	N-Mean
D-Control	1.0000	1.0000	0	10	10	10			1.0000	1.0000
100	0.9000	0.9000	1	9	10	10	0.5000	0.0500	0.9000	0.9000

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU
Fisher's Exact Test	100	>100		1
Treatments vs D-Control				

Linear Interpolation (200 Resamples)				
Point	%	SD	95% CL	Skew
IC05*	50.000			
IC10	>100			
IC15	>100			
IC20	>100			
IC25	>100			
IC40	>100			
IC50	>100			

* indicates IC estimate less than the lowest concentration



Ceriodaphnia Survival and Reproduction Test-Reproduction

Start Date: 12/16/2008 14:00 Test ID: 8121611c Sample ID: IRL1714-01 Outfall 004
 End Date: 12/23/2008 15:00 Lab ID: CAATL-Aquatic Testing Labs Sample Type: EFF2-Industrial
 Sample Date: 12/15/2008 11:30 Protocol: FWCH 4TH-EPA-821-R-02-0 Test Species: CD-Ceriodaphnia dubia
 Comments:

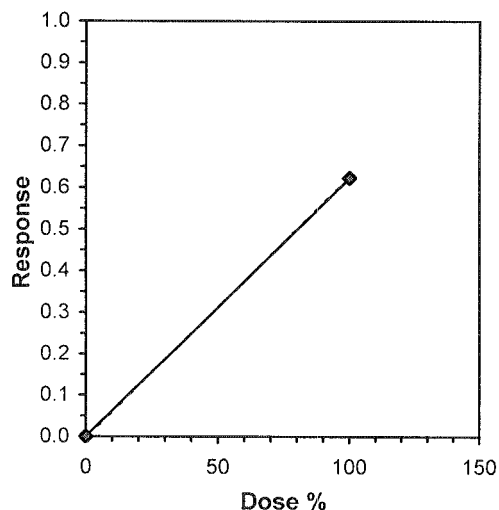
Conc-%	1	2	3	4	5	6	7	8	9	10
D-Control	23.000	24.000	21.000	22.000	25.000	24.000	21.000	22.000	23.000	26.000
100	10.000	6.000	8.000	9.000	9.000	4.000	8.000	7.000	11.000	15.000

Conc-%	Transform: Untransformed							t-Stat	1-Tailed Critical	MSD	Isotonic	
	Mean	N-Mean	Mean	Min	Max	CV%	N				Mean	N-Mean
D-Control	23.100	1.0000	23.100	21.000	26.000	7.201	10				23.100	1.0000
*100	8.700	0.3766	8.700	4.000	15.000	34.291	10	13.332	1.734	1.873	8.700	0.3766

Auxiliary Tests	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution (p > 0.05)	0.9632	0.905	0.66117	1.86096		
F-Test indicates equal variances (p = 0.10)	3.21687	6.54109				
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates significant differences Treatments vs D-Control	1.873	0.08108	1036.8	5.83333	9.1E-11	1, 18

Linear Interpolation (200 Resamples)					
Point	%	SD	95% CL	Skew	
IC05*	8.021	0.525	7.229 9.213	0.7183	
IC10*	16.042	1.050	14.457 18.425	0.7183	
IC15*	24.063	1.575	21.686 27.638	0.7183	
IC20*	32.083	2.100	28.915 36.851	0.7183	
IC25*	40.104	2.625	36.143 46.063	0.7183	
IC40*	64.167	4.200	57.830 73.701	0.7183	
IC50*	80.208				

* indicates IC estimate less than the lowest concentration



CERIODAPHNIA DUBIA CHRONIC BIOASSAY
EPA METHOD 1002.0 Raw Data Sheet



Lab No.: A-08121611-001

Client ID: TestAmerica - IRL1714-01 Outfall 004

Start Date: 12/16/2008

		DAY 1		DAY 2		DAY 3		DAY 4		DAY 5		DAY 6		DAY 7	
		0 hr	24hr	0 hr	24hr	0 hr	24hr	0 hr	24hr	0 hr	24hr	0 hr	24hr	0 hr	24hr
Analyst Initials:		Rm	Rm	Rm	Rm	Rm	Rm	Rm	Rm	Rm	Rm	Rm	Rm	Rm	Rm
Time of Readings:		1400	1400	1400	1400	1400	1400	1400	1300	1300	1400	1400	1400	1400	1500
Control	DO	10.2	9.5	8.7	9.0	8.6	8.9	9.0	9.2	9.6	8.8	7.9	8.0	8.8	8.4
	pH	7.7	8.0	7.7	7.7	7.7	7.9	7.8	7.8	7.7	7.7	7.7	7.7	7.4	7.7
	Temp	25.9	24.2	25.2	24.6	25.5	24.2	25.0	24.0	24.8	24.2	24.4	24.1	25.2	24.7
100%	DO	11.3	9.2	11.4	9.6	11.7	9.0	9.4	9.5	10.0	8.9	8.2	8.0	8.4	8.2
	pH	8.2	7.5	8.3	7.6	8.2	7.5	7.3	7.5	7.8	7.5	7.4	7.5	7.2	7.5
	Temp	25.8	24.4	24.5	24.7	25.1	24.0	24.3	24.1	24.6	24.2	25.1	24.2	25.3	24.3

Additional Parameters	Control	100% Sample
Conductivity (umohms)	305	192
Alkalinity (mg/l CaCO ₃)	63	29
Hardness (mg/l CaCO ₃)	93	20
Ammonia (mg/l NH ₃ -N)	<0.1	0.4

Source of Neonates											
Replicate:	A	B	C	D	E	F	G	H	I	J	
Brood ID:	A2	B3	C1	D3	E2	F3	G1	H3	I2	J1	

Sample	Day	Number of Young Produced										Total Live Young	No. Live Adults	Analyst Initials
		A	B	C	D	E	F	G	H	I	J			
Control	1	0	0	0	0	0	0	0	0	0	0	0	10	Rm
	2	0	0	0	0	0	0	0	0	0	0	0	10	Rm
	3	0	4	4	4	4	0	0	4	0	0	20	10	Rm
	4	3	0	0	0	0	4	3	0	4	3	17	10	Rm
	5	0	8	7	6	7	0	0	8	7	0	43	10	Rm
	6	6	0	0	12	14	6	8	0	0	7	53	10	Rm
	7	14	12	10	0	15	14	10	10	12	10	98	10	Rm
	Total	23	24	21	22	25	24	21	22	23	26	231	10	Rm
100%	1	0	0	0	0	0	0	0	0	0	0	0	10	Rm
	2	0	0	0	0	0	0	0	0	0	0	0	10	Rm
	3	4	0	0	2	0	0	2	0	5	5	18	10	Rm
	4	0	3	4	0	3	4	0	4	0	0	18	10	Rm
	5	6	0	0	7	0	0	6	0	6	6	35	10	Rm
	6	0	0	4	0	6	X	0	0	0	0	10	9	Rm
	7	0	3	0	0	0	-	0	3	0	4	10	9	Rm
	Total	10	6	8	9	9	4	8	7	11	15	87	9	Rm

Circled fourth brood not used in statistical analysis.

7th day only used if <60% of the surviving control females have produced their third brood.

SUBCONTRACT ORDER

TestAmerica Irvine

IRL1714

SENDING LABORATORY:

TestAmerica Irvine
17461 Derian Avenue, Suite 100
Irvine, CA 92614
Phone: (949) 261-1022
Fax: (949) 260-3297
Project Manager: Joseph Doak

RECEIVING LABORATORY:

Aquatic Testing Laboratories-SUB
4350 Transport Street, Unit 107
Ventura, CA 93003
Phone : (805) 650-0546
Fax: (805) 650-0756
Project Location: CA - CALIFORNIA
Receipt Temperature: 5 °C Ice: Y / N

Analysis	Units	Due	Expires	Comments
Sample ID: IRL1714-01	Water		Sampled: 12/15/08 11:30	
Bioassay-7 dy Chnric	N/A	12/22/08	12/16/08 23:30	Cerio, EPA/821-R02-013, Sub to AqTox Labs
<i>Containers Supplied:</i> 1 gal Poly (L)				

Released By [Signature]
Date/Time 12/16/08 11:40
Released By [Signature]
Date/Time 12/16/08 11:40

Received By [Signature] 12/16/08 7:06
Date/Time 12/16/08 11:40
Received By [Signature] 12/16/08 11:40
Date/Time 12/16/08 11:40

***REFERENCE
TOXICANT
DATA***

CERIODAPHNIA CHRONIC BIOASSAY
EPA METHOD 1002.0
REFERENCE TOXICANT - NaCl



QA/QC Batch No.: RT-081204

Date Tested: 12/04/08 to 12/11/08

TEST SUMMARY

Test type: Daily static-renewal.
 Species: *Ceriodaphnia dubia*.
 Age: < 24 hrs; all released within 8 hrs.
 Test vessel size: 30 ml.
 Number of test organisms per vessel: 1.
 Temperature: 25 +/- 1°C.
 Dilution water: Mod. hard reconstituted (MHRW).
 Reference Toxicant: Sodium chloride (NaCl).

Endpoints: Survival and Reproduction.
 Source: In-laboratory culture.
 Food: .1 ml YTC, algae per day.
 Test solution volume: 20 ml.
 Number of replicates: 10.
 Photoperiod: 16/8 hrs. light/dark cycle.
 Test duration: 7 days.
 Statistics: ToxCalc computer program.

RESULTS SUMMARY

Sample Concentration	Percent Survival		Mean Number of Young Per Female	
Control	100%		24.3	
0.25 g/l	100%		23.5	
0.5 g/l	100%		24.5	
1.0 g/l	100%		14.5	*
2.0 g/l	80%		4.3	*
4.0 g/l	0%	*	0	**

* Statistically significantly less than control at P = 0.05 level
 ** Reproduction data from concentrations greater than survival NOEC are excluded from statistical analysis.

CHRONIC TOXICITY

Survival LC50	2.5 g/l
Reproduction IC25	0.80 g/l

QA/QC TEST ACCEPTABILITY

Parameter	Result
Control survival ≥80%	Pass (100% Survival)
≥15 young per surviving control female	Pass (24.3 young)
≥60% surviving controls had 3 broods	Pass (100% with 3 broods)
PMSD <47% for reproduction	Pass (PMSD = 11.7%)
Stat. sig. diff. conc. relative difference >13%	Pass (Stat. sig. diff. conc. relative difference= 40.3%)
Concentration response relationship acceptable	Pass (Response curve normal)

Ceriodaphnia Survival and Reproduction Test-7 Day Survival

Start Date: 12/4/2008 13:30 Test ID: RT-081204c Sample ID: REF-Ref Toxicant
 End Date: 12/11/2008 14:00 Lab ID: CAATL-Aquatic Testing Labs Sample Type: NACL-Sodium chloride
 Sample Date: 12/4/2008 Protocol: FWCH 4TH-EPA-821-R-02-0 Test Species: CD-Ceriodaphnia dubia
 Comments:

Conc-gm/L	1	2	3	4	5	6	7	8	9	10
D-Control	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
0.25	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
0.5	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
2	1.0000	1.0000	0.0000	1.0000	1.0000	1.0000	1.0000	0.0000	1.0000	1.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Conc-gm/L	Mean	N-Mean	Resp	Not Resp	Total	N	Fisher's Exact P	1-Tailed Critical	Number Resp	Total Number
D-Control	1.0000	1.0000	0	10	10	10			0	10
0.25	1.0000	1.0000	0	10	10	10	1.0000	0.0500	0	10
0.5	1.0000	1.0000	0	10	10	10	1.0000	0.0500	0	10
1	1.0000	1.0000	0	10	10	10	1.0000	0.0500	0	10
2	0.8000	0.8000	2	8	10	10	0.2368	0.0500	2	10
4	0.0000	0.0000	10	0	10	10			10	10

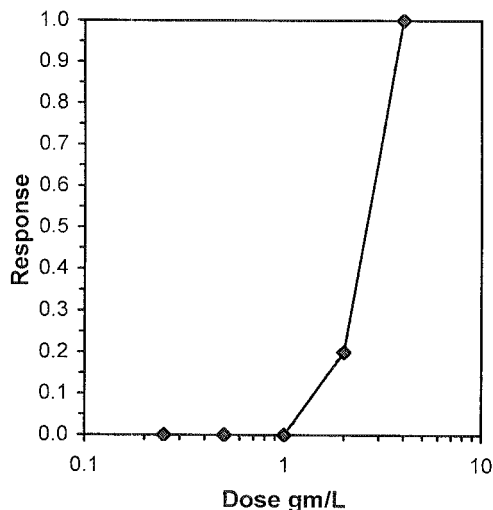
Hypothesis Test (1-tail, 0.05) NOEC LOEC ChV TU

Fisher's Exact Test 2 4 2.82843

Treatments vs D-Control

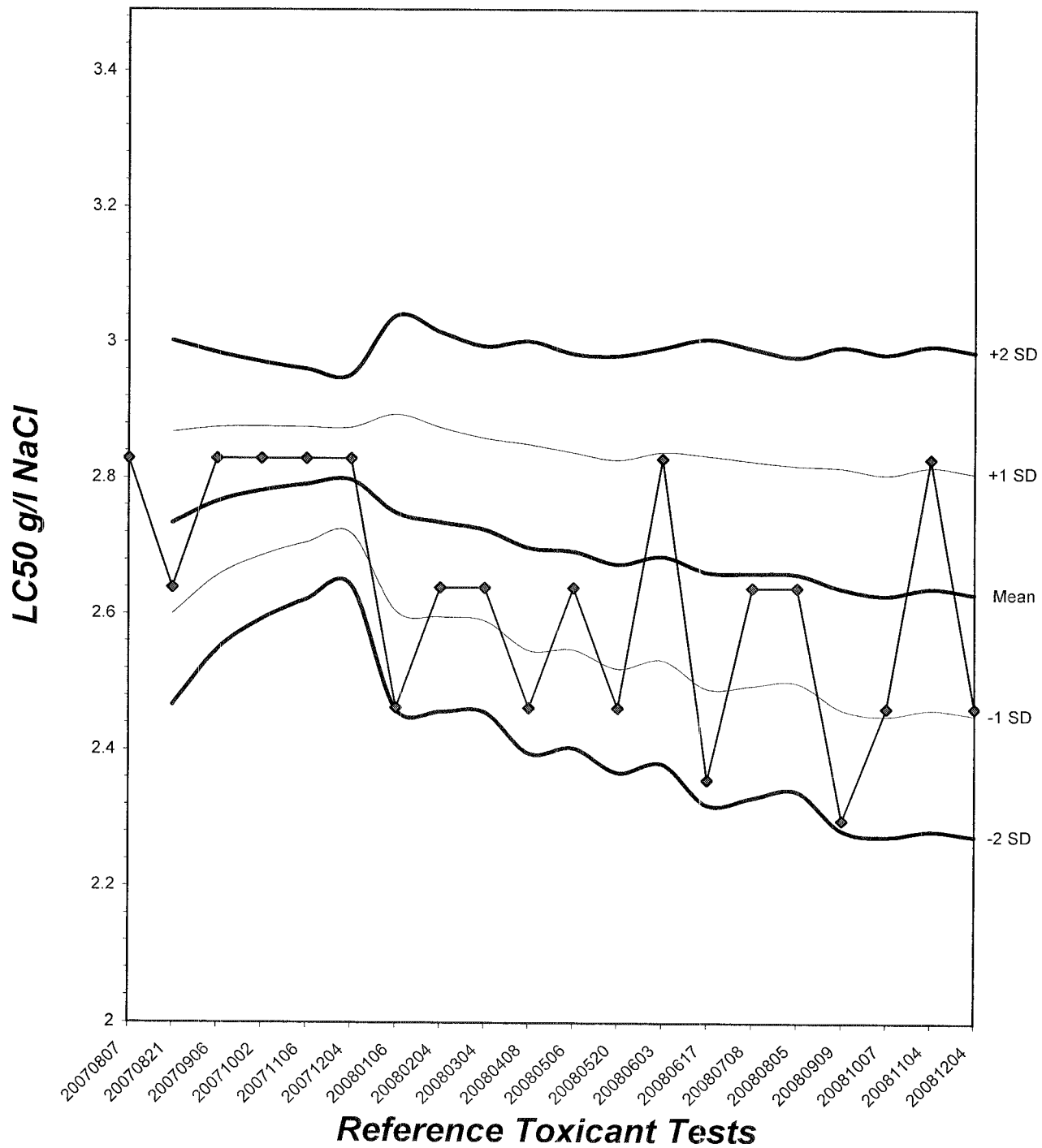
Trimmed Spearman-Kärber

Trim Level	EC50	95% CL	
0.0%	2.4623	2.0663	2.9342
5.0%	2.5108	2.0545	3.0683
10.0%	2.5519	1.9976	3.2599
20.0%	2.5937	2.2616	2.9745
Auto-0.0%	2.4623	2.0663	2.9342



Ceriodaphnia Chronic Survival Laboratory Control Chart

CV% = 6.77



Ceriodaphnia Survival and Reproduction Test-Reproduction

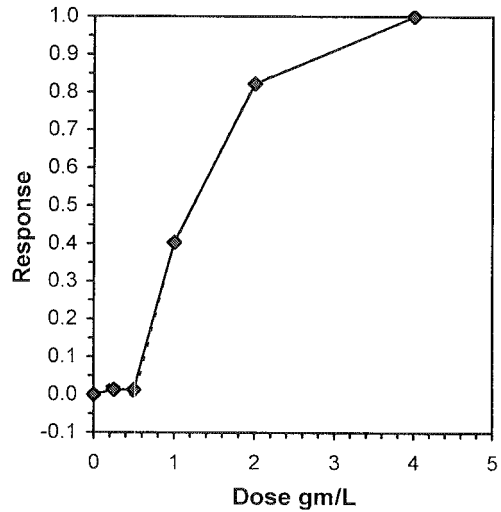
Start Date: 12/4/2008 13:30 Test ID: RT-081204c Sample ID: REF-Ref Toxicant
 End Date: 12/11/2008 14:00 Lab ID: CAATL-Aquatic Testing Labs Sample Type: NACL-Sodium chloride
 Sample Date: 12/4/2008 Protocol: FWCH 4TH-EPA-821-R-02-0 Test Species: CD-Ceriodaphnia dubia
 Comments:

Conc-gm/L	1	2	3	4	5	6	7	8	9	10
D-Control	22.000	26.000	24.000	25.000	21.000	29.000	24.000	26.000	25.000	21.000
0.25	16.000	25.000	26.000	21.000	25.000	24.000	26.000	22.000	26.000	24.000
0.5	22.000	27.000	25.000	27.000	22.000	24.000	25.000	24.000	25.000	24.000
1	18.000	17.000	9.000	18.000	11.000	16.000	16.000	12.000	19.000	9.000
2	5.000	5.000	0.000	2.000	6.000	6.000	7.000	0.000	6.000	6.000
4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Conc-gm/L	Transform: Untransformed							Rank Sum	1-Tailed Critical	Isotonic	
	Mean	N-Mean	Mean	Min	Max	CV%	N			Mean	N-Mean
D-Control	24.300	1.0000	24.300	21.000	29.000	10.274	10			24.300	1.0000
0.25	23.500	0.9671	23.500	16.000	26.000	13.344	10	102.50	76.00	24.000	0.9877
0.5	24.500	1.0082	24.500	22.000	27.000	7.004	10	108.00	76.00	24.000	0.9877
*1	14.500	0.5967	14.500	9.000	19.000	26.661	10	55.00	76.00	14.500	0.5967
*2	4.300	0.1770	4.300	0.000	7.000	61.088	10	55.00	76.00	4.300	0.1770
4	0.000	0.0000	0.000	0.000	0.000	0.000	10			0.000	0.0000

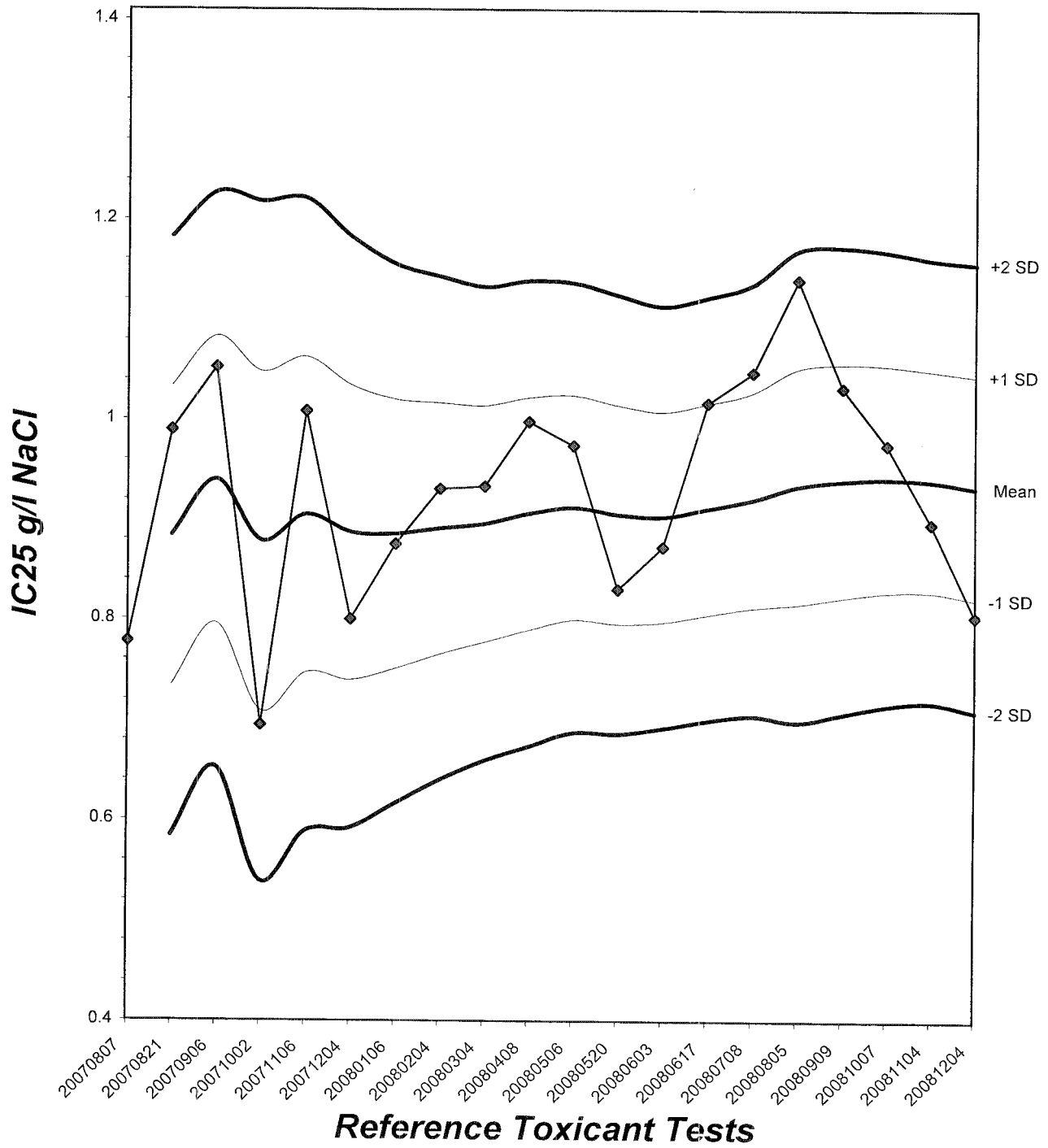
Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.05)	0.94067	0.947	-0.7031	0.01881
Bartlett's Test indicates equal variances (p = 0.22)	5.7868	13.2767		
Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU
Steel's Many-One Rank Test	0.5	1	0.70711	
Treatments vs D-Control				

Point	Linear Interpolation (200 Resamples)				
	gm/L	SD	95% CL		Skew
IC05	0.5482	0.1404	0.1438	0.5754	-1.6078
IC10	0.6121	0.0484	0.5162	0.6509	-4.0272
IC15	0.6761	0.0355	0.5782	0.7263	-0.3203
IC20	0.7400	0.0382	0.6442	0.8017	-0.0538
IC25	0.8039	0.0422	0.7039	0.8772	0.1260
IC40	0.9958	0.0696	0.8810	1.1397	0.5233
IC50	1.2304	0.0941	0.9932	1.3494	-0.3779



Ceriodaphnia Chronic Reproduction Laboratory Control Chart

CV% = 12



CERIODAPHNIA DUBIA CHRONIC BIOASSAY

Reference Toxicant - NaCl

Reproduction and Survival Raw Data Sheet



QA/QC No.: RT-081204

Start Date: 12/04/2008

Sample	Day	Number of Young Produced										Total Live Young	No. Live Adults	Analyst Initials
		A	B	C	D	E	F	G	H	I	J			
Control	1	0	0	0	0	0	0	0	0	0	0	0	10	R
	2	0	0	0	0	0	0	0	0	0	0	0	10	R
	3	0	3	4	0	0	0	4	4	0	0	15	10	R
	4	4	0	0	3	3	4	0	0	4	3	21	10	R
	5	0	7	6	0	0	10	7	9	7	6	52	10	R
	6	8	0	14	12	8	15	0	0	0	12	69	10	R
	7	10	16	12	10	10	0	13	13	14	0	86	10	R
	Total	22	26	24	25	21	29	24	26	25	21	243	10	R
0.25 g/l	1	0	0	0	0	0	0	0	0	0	0	10	R	
	2	0	0	0	0	0	0	0	0	0	0	10	R	
	3	0	0	4	4	0	0	0	3	0	4	15	10	R
	4	4	3	0	0	3	4	4	0	3	0	21	10	R
	5	0	0	6	7	8	0	0	7	0	6	34	10	R
	6	12	7	0	0	14	8	7	12	10	14	84	10	R
	7	0	15	16	10	0	12	15	0	13	0	81	10	R
	Total	14	25	26	21	25	24	26	22	26	24	235	10	R
0.5 g/l	1	0	0	0	0	0	0	0	0	0	0	10	R	
	2	0	0	0	0	0	0	0	0	0	0	10	R	
	3	4	0	3	4	0	0	0	4	0	0	15	10	R
	4	0	4	0	0	4	3	3	0	4	4	22	10	R
	5	6	0	10	8	6	7	0	7	0	0	44	10	R
	6	12	8	0	0	0	14	7	0	7	8	56	10	R
	7	0	15	12	15	12	0	15	13	14	12	108	10	R
	Total	22	27	25	27	22	24	25	24	25	24	245	10	R

Circled fourth brood not used in statistical analysis.

7th day only used if <60% of the surviving control females have produced their third brood.

CERIODAPHNIA DUBIA CHRONIC BIOASSAY

Reference Toxicant - NaCl

Reproduction and Survival Raw Data Sheet



QA/QC No.: RT-081204

Start Date: 12/04/2008

Sample	Day	Number of Young Produced										Total Live Young	No. Live Adults	Analyst Initials
		A	B	C	D	E	F	G	H	I	J			
1.0 g/l	1	0	0	0	0	0	0	0	0	0	0	0	10	RL
	2	0	0	0	0	0	0	0	0	0	0	0	10	RL
	3	0	2	0	0	0	3	0	0	3	0	8	10	RL
	4	4	0	3	4	4	0	3	2	0	3	23	10	RL
	5	0	5	0	6	0	7	6	0	8	0	32	10	RL
	6	6	0	6	8	0	0	0	10	0	6	36	10	RL
	7	8	10	0	0	7	6	7	0	8	0	46	10	RL
	Total	18	17	9	18	11	16	16	12	19	9	145	10	RL
2.0 g/l	1	0	0	0	0	0	0	0	0	0	0	10	RL	
	2	0	0	0	0	0	0	0	0	0	0	10	RL	
	3	0	0	X	0	0	0	0	0	0	0	9	RL	
	4	0	2	-	0	0	2	0	X	2	0	6	8	RL
	5	3	0	-	2	3	0	3	-	2	3	16	8	RL
	6	0	3	-	0	0	4	0	-	0	0	7	8	RL
	7	2	0	-	0	3	0	4	-	2	3	14	8	RL
	Total	5	5	0	2	6	6	7	0	6	6	43	8	RL
4.0 g/l	1	X	X	X	X	X	X	X	X	X	0	0	RL	
	2	-	-	-	-	-	-	-	-	-	0	0	RL	
	3	-	-	-	-	-	-	-	-	-	0	0	RL	
	4	-	-	-	-	-	-	-	-	-	0	0	RL	
	5	-	-	-	-	-	-	-	-	-	0	0	RL	
	6	-	-	-	-	-	-	-	-	-	0	0	RL	
	7	-	-	-	-	-	-	-	-	-	0	0	RL	
	Total	0	0	0	0	0	0	0	0	0	0	0	0	RL

Circled fourth brood not used in statistical analysis.
 7th day only used if <60% of the surviving control females have produced their third brood.

CERIODAPHNIA DUBIA CHRONIC BIOASSAY

Reference Toxicant - NaCl Water Chemistries Raw Data Sheet



QA/QC No.: RT-081204

Start Date: 12/04/2008

		DAY 1		DAY 2		DAY 3		DAY 4		DAY 5		DAY 6		DAY 7	
		Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final
Analyst Initials:		RM RM		RM RM		RM RM		RM RM		RM RM		RM RM		RM RM	
Time of Readings:		1330	1400	1400	1500	1500	1340	1300	1400	1400	1600	1600	1430	1430	1400
Control	DO	8.0	9.3	8.3	8.9	8.1	8.3	9.1	8.6	8.8	8.7	8.4	8.4	8.1	8.2
	pH	8.2	8.1	7.8	8.1	7.8	7.8	7.6	7.7	7.8	7.9	7.8	7.9	8.0	8.3
	Temp	24.7	24.2	26.0	24.9	24.1	25.4	25.3	25.1	24.3	24.3	24.4	24.5	24.7	24.2
0.25 g/l	DO	8.1	9.4	8.3	9.0	8.1	8.4	8.8	8.7	8.7	8.8	8.4	8.4	8.1	8.3
	pH	8.2	8.1	7.8	8.1	7.8	7.7	7.6	7.7	7.9	7.9	7.9	7.9	8.1	8.3
	Temp	24.7	24.4	26.0	25.0	24.1	25.3	25.4	25.2	24.4	24.3	24.4	24.5	24.7	24.3
0.5 g/l	DO	8.1	9.5	8.3	9.2	8.1	8.2	8.8	8.6	8.4	8.8	8.5	8.3	8.1	8.2
	pH	8.2	8.1	7.8	8.1	7.8	7.7	7.7	7.7	7.9	8.0	7.9	7.9	8.1	8.4
	Temp	24.6	24.5	26.0	25.2	24.1	25.2	25.6	25.0	24.3	24.2	24.3	24.4	24.6	24.1
1.0 g/l	DO	8.1	9.4	8.3	8.9	8.1	8.8	8.8	8.7	8.7	8.9	8.5	8.2	8.1	8.3
	pH	8.2	8.1	7.8	8.1	7.8	7.7	7.7	7.7	7.9	8.0	8.0	7.9	8.1	8.2
	Temp	24.5	24.7	26.0	24.9	24.1	24.4	25.4	24.8	24.3	24.2	24.3	24.3	24.5	24.2
2.0 g/l	DO	8.2	9.3	8.3	9.0	8.1	8.7	8.8	8.8	8.7	9.0	8.5	8.4	8.1	8.1
	pH	8.2	8.2	7.9	8.1	7.9	7.8	7.9	7.8	7.9	8.1	8.0	7.9	8.2	8.3
	Temp	24.9	24.6	25.9	24.7	24.2	24.2	25.4	25.5	24.2	24.1	24.2	24.3	24.3	24.3
4.0 g/l	DO	8.3	9.6	8.2	-	-	-	-	-	-	-	-	-	-	-
	pH	8.1	8.2	7.9	-	-	-	-	-	-	-	-	-	-	-
	Temp	24.2	24.7	25.8	-	-	-	-	-	-	-	-	-	-	-

Dissolved Oxygen (DO) readings are in mg/l O₂; Temperature (Temp) readings are in °C.

Additional Parameters	Control			High Concentration		
	Day 1	Day 3	Day 5	Day 1	Day 3	Day 5
	Conductivity (µS)	320	310	305	6240	3440
Alkalinity (mg/l CaCO ₃)	67	65	63	66	66	64
Hardness (mg/l CaCO ₃)	97	96	96	95	96	96

Source of Neonates

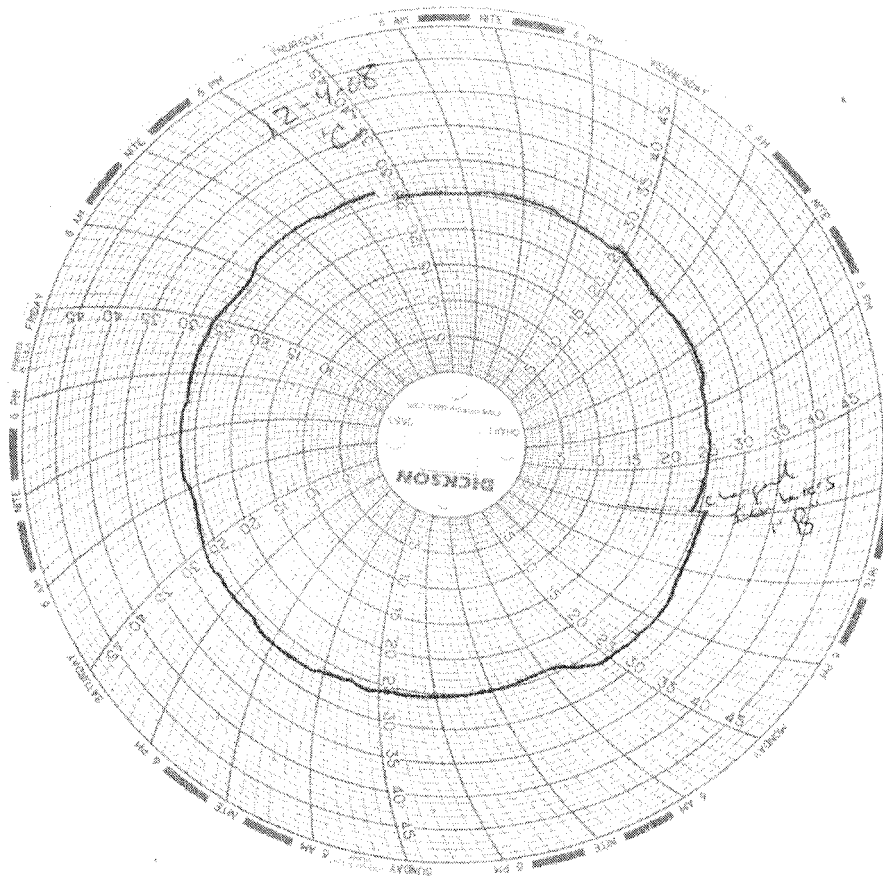
Replicate:	A	B	C	D	E	F	G	H	I	J
Brood ID:	A2	B2	C3	D1	F2	F3	G2	H3	I3	J3

Test Temperature Chart

Test No: RT-081204

Date Tested: 12/04/08 to 12/11/08

Acceptable Range: 25 \pm 1 $^{\circ}$ C





TestAmerica Laboratories, Inc.

ANALYTICAL REPORT

REVISED

PROJECT NO. BOEING NPDES

SSFL MWH-Pasadena/Boeing

Lot #: F8L170177

Joseph Doak

TestAmerica Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817

TESTAMERICA LABORATORIES, INC.

A handwritten signature in black ink, appearing to read "Sherryl Adam", is written in a cursive style.

Sherryl Adam
Project Manager

January 28, 2009

Case Narrative
LOT NUMBER: F8L170177
REVISED

This report has been revised to include Uranium results to be reported in pCi/L per client request.

This report contains the analytical results for the sample received under chain of custody by TestAmerica St. Louis on December 17, 2008. This sample is associated with your SSFL MWH-Pasadena/Boeing project.

The analytical results included in this report meet all applicable quality control procedure requirements except as noted on the following page.

The test results in this report meet all NELAP requirements for parameters in which accreditations are held by TestAmerica St. Louis. Any exceptions to NELAP requirements are noted in the case narrative. The case narrative is an integral part of this report.

All chemical analysis results are based upon sample as received, wet weight, unless noted otherwise. All radiochemistry results are based upon sample as dried and ground with the exception of tritium, unless requested wet weight by the client.

Observations/Nonconformances

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt.

Radium 228 by GFPC

Radium 228 was observed in the method blank above the reporting limit. Associated samples are either non-detect for the contaminant or exhibit concentrations greater than five (5) times the concentrations observed in the method blank and therefore do not require re-analysis. Original results are reported.

Affected Samples:

F8L170177 (1): 1714-01

Radium 226 by GFPC

Radium 226 was observed in the method blank above the reporting limit. Associated samples are either non-detect for the contaminant or exhibit concentrations greater than five (5) times the concentrations observed in the method blank and therefore do not require re-analysis. Original results are reported.

The LCS/LCSD RPD is not within method acceptance criteria. LCS/LCSD recoveries are within QC limits demonstrating good extraction performance in the sample matrix.

Affected Samples:

F8L170177 (1): 1714-01

Total Uranium by Laser Phosphorimetry

The sample results were converted from ug/L to pCi/L per client request. The conversion assumes that all of the uranium is naturally occurring.

Affected Samples:

F8L170177 (1): 1714-01

METHODS SUMMARY

F8L170177

<u>PARAMETER</u>	<u>ANALYTICAL METHOD</u>	<u>PREPARATION METHOD</u>
Gamma Spectroscopy - Cesium-137 & Hits	EPA 901.1 MOD	
Gross Alpha/Beta EPA 900	EPA 900.0 MOD	EPA 900.0
H-3 by Distillation & LSC	EPA 906.0 MOD	
Radium-226 by GFPC	EPA 903.0 MOD	EPA 903.0
Radium-228 by GFPC	EPA 904 MOD	EPA 904
Strontium 90 by GFPC	EPA 905 MOD	
Total Uranium By Laser Ph osphorimetry	ASTM 5174-91	

References:

ASTM Annual Book Of ASTM Standards.

EPA "EASTERN ENVIRONMENTAL RADIATION FACILITY RADIOCHEMISTRY
PROCEDURES MANUAL" US EPA EPA 520/5-84-006 AUGUST 1984

SAMPLE SUMMARY

F8L170177

<u>WO #</u>	<u>SAMPLE#</u>	<u>CLIENT SAMPLE ID</u>	<u>SAMPLED DATE</u>	<u>SAMP TIME</u>
K4VK8	001	IRL1714-01	12/15/08	11:30

NOTE(S) :

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

TestAmerica Irvine

Client Sample ID: IRL1714-01

Radiochemistry

Lab Sample ID: F8L170177-001
 Work Order: K4VK8
 Matrix: WATER

Date Collected: 12/15/08 1130
 Date Received: 12/17/08 0930

Parameter	Result	Qual	Total Uncert. (2 σ +/-)	RL	mdc	Prep Date	Analysis Date
Gamma Cs-137 & Hits by EPA 901.1 MOD				pCi/L		Batch # 8359107	Yld %
Cesium 137	0.0	U	7.3	20.0	14	12/24/08	01/11/09
Potassium 40	-40	U	230		210	12/24/08	01/11/09
Gross Alpha/Beta EPA 900				pCi/L		Batch # 8353165	Yld %
Gross Alpha	1.6	J	1.1	3.0	1.5	12/18/08	12/21/08
Gross Beta	8.9		1.3	4.0	0.9	12/18/08	12/21/08
Radium 226 by EPA 903.0 MOD				pCi/L		Batch # 8352386	Yld % 75
Radium (226)	0.07	U	0.12	1.00	0.20	12/17/08	01/09/09
Radium 228 by GFPC EPA 904 MOD				pCi/L		Batch # 8352387	Yld % 55
Radium 228	-0.33	U	0.30	1.00	0.59	12/17/08	01/09/09
TRITIUM (Distill) by EPA 906.0 MOD				pCi/L		Batch # 9012073	Yld %
Tritium	60	U	200	500	330	01/12/09	01/13/09
SR-90 BY GFPC EPA-905 MOD				pCi/L		Batch # 8352461	Yld % 61
Strontium 90	-0.12	U	0.39	3.00	0.68	12/17/08	01/10/09
Total Uranium by KPA ASTM 5174-91				pCi/L		Batch # 8354127	Yld %
Total Uranium	0.124	U	0.013	0.693	0.21	12/19/08	12/21/08

NOTE (S)

Data are incomplete without the case narrative.

MDC is determined by instrument performance only.

Bold results are greater than the MDC.

J Result is greater than sample detection limit but less than stated reporting limit.

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METHOD BLANK REPORT

Radiochemistry

Client Lot ID: F8L170177
 Matrix: WATER

Parameter	Result	Qual	Total Uncert. (2 σ +/-)	RL	MDC	Prep Date	Lab Sample ID Analysis Date
Total Uranium by KPA ASTM 5174-91							
Total Uranium	0.0364	U	0.0047	0.693	0.21	12/19/08	F8L190000-127B 12/21/08
Gamma Cs-137 & Hits by EPA 901.1 MOD							
Cesium 137	-0.2	U	7.7	20.0	14	12/24/08	F8L240000-107B 01/11/09
Potassium 40	-90	U	3400		200	12/24/08	01/11/09
Radium 226 by EPA 903.0 MOD							
Radium (226)	4.72		0.47	1.00	0.06	12/17/08	F8L170000-386B 01/12/09
Radium 228 by GFPC EPA 904 MOD							
Radium 228	2.87		0.53	1.00	0.53	12/17/08	F8L170000-387B 01/09/09
SR-90 BY GFPC EPA-905 MOD							
Strontium 90	0.18	U	0.37	3.00	0.62	12/17/08	F8L170000-461B 01/10/09
Gross Alpha/Beta EPA 900							
Gross Alpha	-0.28	U	0.37	3.00	0.93	12/18/08	F8L180000-165B 12/21/08
Gross Beta	0.62	U	0.65	4.00	1.0	12/18/08	12/21/08
TRITIUM (Distill) by EPA 906.0 MOD							
Tritium	-30	U	190	500	340	01/12/09	F9A120000-073B 01/13/09

NOTE (S)

Data are incomplete without the case narrative.

MDC is determined using instrument performance only

Bold results are greater than the MDC.

U Result is less than the sample detection limit.

Laboratory Control Sample Report

Radiochemistry

Client Lot ID: F8L170177
 Matrix: WATER

Parameter	Spike Amount	Result	Total Uncert. (2 σ +/-)	MDC	% Yld	% Rec	Lab Sample ID QC Control Limits
Gross Alpha/Beta EPA 900							
			pCi/L	900.0 MOD			F8L180000-165C
Gross Beta	67.8	72.6	6.2	1.2		107	(73 - 122)
	Batch #:	8353165		Analysis Date:	12/21/08		
Gross Alpha/Beta EPA 900							
			pCi/L	900.0 MOD			F8L180000-165C
Gross Alpha	49.4	56.9	6.3	1.1		115	(73 - 136)
	Batch #:	8353165		Analysis Date:	12/21/08		
Total Uranium by KPA ASTM 5174-91							
			pCi/L	5174-91			F8L190000-127C
Total Uranium	27.7	29.2	3.5	0.2		105	(90 - 118)
	Batch #:	8354127		Analysis Date:	12/21/08		
Total Uranium by KPA ASTM 5174-91							
			pCi/L	5174-91			F8L190000-127C
Total Uranium	5.54	5.80	0.60	0.21		105	(90 - 118)
	Batch #:	8354127		Analysis Date:	12/21/08		
Gamma Cs-137 & Hits by EPA 901.1 MOD							
			pCi/L	901.1 MOD			F8L240000-107C
Americium 241	141000	138000	11000	600		98	(90 - 110)
Cesium 137	53100	51500	3000	200		97	(90 - 110)
Cobalt 60	87900	84300	4700	200		96	(90 - 110)
	Batch #:	8359107		Analysis Date:	01/11/09		
TRITIUM (Distill) by EPA 906.0 MOD							
			pCi/L	906.0 MOD			F9A120000-073C
Tritium	4820	3960	470	340		82	(77 - 110)
	Batch #:	9012073		Analysis Date:	01/13/09		

NOTE(S)

MDC is determined by instrument performance only

137

Laboratory Control Sample/LCS Duplicate Report

Radiochemistry

Client Lot ID: F8L170177
 Matrix: WATER

Parameter	Spike Amount	Result	Total Uncert. (2 σ+/-)	% Yld	% Rec	Lab Sample ID	
						QC Control Limits	Precision
Radium 226 by EPA	903.0 MOD	pCi/L	903.0 MOD			F8L170000-386C	
Radium (226)	11.3	5.86	0.57	86	52	(52 - 150)	
Spk 2	11.3	10.1	0.90	97	90	(52 - 150) 53 %RPD	
	Batch #:	8352386		Analysis Date: 01/12/09			
Radium 228 by GFPC EPA	904 MOD	pCi/L	904 MOD			F8L170000-387C	
Radium 228	7.35	5.52	0.82	56	75	(64 - 140)	
Spk 2	7.35	8.11	0.95	72	110	(64 - 140) 38 %RPD	
	Batch #:	8352387		Analysis Date: 01/09/09			
SR-90 BY GFPC EPA-905	MOD	pCi/L	905 MOD			F8L170000-461C	
Strontium 90	6.99	7.81	0.93	64	112	(78 - 146)	
Spk 2	6.99	8.38	0.97	66	120	(78 - 146) 7 %RPD	
	Batch #:	8352461		Analysis Date: 01/10/09			

NOTE(S)

DUPLICATE EVALUATION REPORT

Radiochemistry

Client Lot ID: F8L170177
 Matrix: WATER

Date Sampled: 12/15/08
 Date Received: 12/17/08

Parameter	SAMPLE Result	Total Uncert. (2σ +/-)	% Yld	DUPLICATE Result	Total Uncert. (2σ +/-)	% Yld	QC Sample ID Precision
Gross Alpha/Beta EPA 900							
			pCi/L	900.0 MOD			F8L170169-001
Gross Alpha	2.3 J	1.1		2.4 J	1.2		5 %RPD
Gross Beta	4.10	0.95		3.64 J	0.94		12 %RPD
	Batch #:	8353165 (Sample)		8353165 (Duplicate)			
Gamma Cs-137 & Hits by EPA 901.1 MOD							
			pCi/L	901.1 MOD			F8L170169-001
Cesium 137	2.1 U	8.2		0.3 U	7.0		154 %RPD
Potassium 40	-50 U	480		-100 U	4800		74 %RPD
	Batch #:	8359107 (Sample)		8359107 (Duplicate)			
TRITIUM (Distill) by EPA 906.0 MOD							
			pCi/L	906.0 MOD			F8L170169-001
Tritium	80 U	200		120 U	200		38 %RPD
	Batch #:	9012073 (Sample)		9012073 (Duplicate)			

NOTE(S)

Data are incomplete without the case narrative.
 Calculations are performed before rounding to avoid round-off error in calculated results

J Result is greater than sample detection limit but less than stated reporting limit.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE REPORT

Radiochemistry

Client Lot ID: F8L120277
 Matrix: WATER

Date Sampled: 12/07/08 1315
 Date Received: 12/12/08 0830

Parameter	Spike Amount	SPIKE Result	Total Uncert. (2 σ+/-)	Spike Yld	SAMPLE Result	Total Uncert. (2σ +/-)	QC Sample ID		QC Control Limits
							% Yld	%Rec	
Total Uranium by KPA ASTM 5			ug/L	5174-91		F8L120277-001			
Total Uranium	40.0	43.3	5.1		1.45	0.15	105		(90 - 121)
Spk2	40.0	43.5	5.2		1.45	0.15	105		(90 - 121)
							Precision:	0.3	%RPD
Batch #:		8354127	Analysis date:		12/21/08				

NOTE (S)

Data are incomplete without the case narrative.

Calculations are performed before rounding to avoid round-off error in calculated results

MATRIX SPIKE REPORT

Radiochemistry

Client Lot Id: F8L170169
 Matrix: WATER

Date Sampled: 12/15/08
 Date Received: 12/17/08

Parameter	Spike Amount	Spike Result	Total Uncert. (2σ +/-)	Spike Yld.	Sample Result	Total Uncert. (2σ +/-)	QC Sample ID		QC Control Limits
							%YLD	%REC	
Gross Alpha/Beta EPA 900			pCi/L	900.0 MOD			F8L170169-001		
Gross Beta	67.8	73.4	6.2		4.10	0.95		102	(66 - 147)
	Batch #:	8353165		Analysis Date:	12/21/08				
Gross Alpha/Beta EPA 900			pCi/L	900.0 MOD			F8L170169-001		
Gross Alpha	49.4	50.2	5.9		2.3	1.1		97	(44 - 150)
	Batch #:	8353165		Analysis Date:	12/21/08				
TRITIUM (Distill) by EPA 906.0 MOD			pCi/L	906.0 MOD			F8L170170-001		
Tritium	4820	4220	480		10	190		87	(47 - 150)
	Batch #:	9012073		Analysis Date:	01/13/09				

NOTE(S)

Data are incomplete without the case narrative.
 Calculations are performed before rounding to avoid round-off errors in calculated results.

TestAmerica Irvine
IRL1714

W 341

SENDING LABORATORY:

TestAmerica Irvine
17461 Derian Avenue, Suite 100
Irvine, CA 92614
Phone: (949) 261-1022
Fax: (949) 260-3297
Project Manager: Joseph Doak
Client: MWH-Pasadena/Boeing

RECEIVING LABORATORY:

TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Phone : (314) 298-8566
Fax: (314) 298-8757
Project Location: CA - CALIFORNIA
Receipt Temperature: _____ °C Ice: Y / N

Analysis	Units	Due	Expires	Interlab Price	Surch	Comments
Sample ID: IRL1714-01		Water		Sampled: 12/15/08 11:30		
Gamma Spec-O	mg/kg	12/22/08	12/15/09 11:30	\$250.00	25%	Out St Louis, K-40 and CS-137 only, DO NOT FILTER!
Gross Alpha-O	pCi/L	12/22/08	06/13/09 11:30	\$100.00	100%	Out St Louis, Boeing permit, DO NOT FILTER!
Gross Beta-O	pCi/L	12/22/08	06/13/09 11:30	\$100.00	100%	Out St Louis, Boeing permit, DO NOT FILTER!
Level 4 Data Package	N/A	12/22/08	01/12/09 11:30	\$0.00	25%	
Radium, Combined-O	pCi/L	12/22/08	12/15/09 11:30	\$238.00	100%	Out St Louis, Boeing permit, DO NOT FILTER!
Strontium 90-O	pCi/L	12/22/08	12/15/09 11:30	\$155.00	100%	Out St Louis, Boeing permit, DO NOT FILTER!
Tritium-O	pCi/L	12/22/08	12/15/09 11:30	\$80.00	100%	Out St Louis, Boeing permit, DO NOT FILTER!
Uranium, Combined-O	pCi/L	12/22/08	12/15/09 11:30	\$120.00	25%	Out St Louis, Boeing permit, DO NOT FILTER!
Containers Supplied:						
2.5 gal Poly (J)	500 mL Amber (K)					

[Signature]
Released By _____ Date/Time 12/14/08 17:00
Released By _____ Date/Time _____

FedEx
Received By _____ Date/Time 12/16/08 17:00
[Signature]
Received By _____ Date/Time 12-17-08 0930



170
177
178

CONDITION UPON RECEIPT FORM

Client: TA Inmate

Quote No: 81594

COC/RFA No: below

341

Initiated By: TA

Date: 12-17-08

Time: 09:30

Shipping Information

Shipper: FedEx UPS DHL Courier Client Other: _____ Multiple Packages: Y N

Shipping # (s):*

Sample Temperature (s):**

- | | | | |
|--------------------------|-----------|-------------|-----------|
| 1. <u>7971 8250 4267</u> | 6. _____ | 1. <u>2</u> | 6. _____ |
| 2. _____ | 7. _____ | 2. <u>2</u> | 7. _____ |
| 3. _____ | 8. _____ | 3. _____ | 8. _____ |
| 4. _____ | 9. _____ | 4. _____ | 9. _____ |
| 5. _____ | 10. _____ | 5. _____ | 10. _____ |

*Numbered shipping lines correspond to Numbered Sample Temp lines

**Sample must be received at 4°C ± 2°C- If not, note contents below. Temperature variance does NOT affect the following: Metals-Liquid or Rad tests- Liquid or Solids

Condition (Circle "Y" for yes, "N" for no and "N/A" for not applicable):

1. <input checked="" type="radio"/> Y <input type="radio"/> N	Are there custody seals present on the cooler?	8. <input type="radio"/> Y <input checked="" type="radio"/> N	Are there custody seals present on bottles?
2. <input type="radio"/> Y <input checked="" type="radio"/> N <input type="radio"/> N/A	Do custody seals on cooler appear to be tampered with?	9. <input type="radio"/> Y <input checked="" type="radio"/> N <input type="radio"/> N/A	Do custody seals on bottles appear to be tampered with?
3. <input checked="" type="radio"/> Y <input type="radio"/> N	Were contents of cooler frisked after opening, but before unpacking?	10. <input type="radio"/> Y <input type="radio"/> N <input checked="" type="radio"/> N/A	Was sample received with proper pH? (If not, make note below)
4. <input checked="" type="radio"/> Y <input type="radio"/> N	Sample received with Chain of Custody?	11. <input checked="" type="radio"/> Y <input type="radio"/> N	Sample received in proper containers?
5. <input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> N/A	Does the Chain of Custody match sample ID's on the container(s)?	12. <input type="radio"/> Y <input type="radio"/> N <input checked="" type="radio"/> N/A	Headspace in VOA or TOX liquid samples? (If Yes, note sample ID's below)
6. <input type="radio"/> Y <input checked="" type="radio"/> N	Was sample received broken?	13. <input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> N/A	Was Internal <u>COC</u> /Workshare received?
7. <input checked="" type="radio"/> Y <input type="radio"/> N	Is sample volume sufficient for analysis?	14. <input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> N/A	Was pH taken by original TestAmerica lab?

¹ For DOE-AL (Pantex, LANL, Sandia) sites, pH of ALL containers received must be verified, EXCEPT VOA, TOX and soils.

Notes:

IRL1709
1710
1711
1714

Corrective Action:

- Client Contact Name: _____
- Sample(s) processed "as is"
- Sample(s) on hold until: _____
- Project Management Review: K. Oles

Informed by: _____

If released, notify: _____

Date: 12-18-08

THIS FORM MUST BE COMPLETED AT THE TIME THE ITEMS ARE BEING CHECKED IN. IF ANY ITEM IS COMPLETED BY SOMEONE OTHER THAN THE INITIATOR, THEN THAT PERSON IS REQUIRED TO APPLY THEIR INITIAL AND THE DATE NEXT TO THAT ITEM.

December 19, 2008

Vista Project I.D.: 31268

Mr. Joseph Doak
Test America-Irvine, CA
17461 Derian Avenue
Suite 100
Irvine, CA 92614

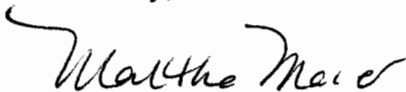
Dear Mr. Doak,

Enclosed are the results for the one aqueous sample received at Vista Analytical Laboratory on December 17, 2008 under your Project Name "IRL1714". This sample was extracted and analyzed using EPA Method 1613 for tetra-through-octa chlorinated dioxins and furans. A rush turnaround time was provided for this work.

The following report consists of a Sample Inventory (Section I), Analytical Results (Section II) and the Appendix, which contains the chain-of-custody, a list of data qualifiers and abbreviations, Vista's current certifications, and copies of the raw data (if requested).

Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at mmaier@vista-analytical.com. Thank you for choosing Vista as part of your analytical support team.

Sincerely,



Martha M. Maier
Laboratory Director



Vista Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAC for those applicable test methods. Results relate only to the samples as received by the laboratory. This report should not be reproduced except in full without the written approval of Vista Analytical Laboratory.



Section I: Sample Inventory Report

Date Received: 12/17/2008

Vista Lab. ID

Client Sample ID

31268-001

IRL1714-01

SECTION II

Method Blank		EPA Method 1613			
Matrix:	Aqueous	QC Batch No.:	1770	Lab Sample:	0-MB001
Sample Size:	1.00 L	Date Extracted:	17-Dec-08	Date Analyzed DB-5:	18-Dec-08
				Date Analyzed DB-225:	NA
Analyte	Conc. (ug/L)	DL ^a	EMPC ^b	%R	LCL-UCL ^d Qualifiers
2,3,7,8-TCDD	ND	0.00000958		94.0	25 - 164
1,2,3,7,8-PeCDD	ND	0.00000250		101	25 - 181
1,2,3,4,7,8-HxCDD	ND	0.00000182		84.4	32 - 141
1,2,3,6,7,8-HxCDD	ND	0.00000171		95.7	28 - 130
1,2,3,7,8,9-HxCDD	ND	0.00000164		89.5	23 - 140
1,2,3,4,6,7,8-HpCDD	ND	0.00000279		74.1	17 - 157
OCDD	ND	0.00000430		92.8	24 - 169
2,3,7,8-TCDF	ND	0.000000887		90.1	24 - 185
1,2,3,7,8-PeCDF	ND	0.00000118		97.0	21 - 178
2,3,4,7,8-PeCDF	ND	0.00000107		91.1	26 - 152
1,2,3,4,7,8-HxCDF	ND	0.000000512		85.9	26 - 123
1,2,3,6,7,8-HxCDF	ND	0.000000592		86.9	28 - 136
2,3,4,6,7,8-HxCDF	ND	0.000000696		89.9	29 - 147
1,2,3,7,8,9-HxCDF	ND	0.00000105		80.2	28 - 143
1,2,3,4,6,7,8-HpCDF	ND	0.00000153		83.2	26 - 138
1,2,3,4,7,8,9-HpCDF	ND	0.00000182		78.0	17 - 157
OCDF	ND	0.00000159		95.0	35 - 197
Totals					
Total TCDD	ND	0.00000958			
Total PeCDD	ND	0.00000250			
Total HxCDD	ND	0.00000172			
Total HpCDD	ND	0.00000279			
Total TCDF	ND	0.000000887			
Total PeCDF	ND	0.00000218			
Total HxCDF	ND	0.000000692			
Total HpCDF	ND	0.00000166			
Footnotes					
a. Sample specific estimated detection limit.					
b. Estimated maximum possible concentration.					
c. Method detection limit.					
d. Lower control limit - upper control limit.					

EPA Method 1613							
OPR Results							
Matrix:	Aqueous	QC Batch No.:	1770	Lab Sample:	0-OPR001		
Sample Size:	1.00 L	Date Extracted:	17-Dec-08	Date Analyzed DB-5:	18-Dec-08	Date Analyzed DB-225:	NA
Analyte	Spike Conc.	Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL	Qualifier
2,3,7,8-TCDD	10.0	8.63	6.7 - 15.8	IS 13C-2,3,7,8-TCDD	89.2	25 - 164	
1,2,3,7,8-PeCDD	50.0	47.8	35 - 71	13C-1,2,3,7,8-PeCDD	96.7	25 - 181	
1,2,3,4,7,8-HxCDD	50.0	46.8	35 - 82	13C-1,2,3,4,7,8-HxCDD	77.1	32 - 141	
1,2,3,6,7,8-HxCDD	50.0	46.3	38 - 67	13C-1,2,3,6,7,8-HxCDD	91.1	28 - 130	
1,2,3,7,8,9-HxCDD	50.0	45.7	32 - 81	13C-1,2,3,4,6,7,8-HpCDD	84.0	23 - 140	
1,2,3,4,6,7,8-HpCDD	50.0	46.3	35 - 70	13C-OCDD	67.9	17 - 157	
OCDD	100	95.6	78 - 144	13C-2,3,7,8-TCDF	88.6	24 - 169	
2,3,7,8-TCDF	10.0	8.58	7.5 - 15.8	13C-1,2,3,7,8-PeCDF	88.4	24 - 185	
1,2,3,7,8-PeCDF	50.0	46.7	40 - 67	13C-2,3,4,7,8-PeCDF	91.1	21 - 178	
2,3,4,7,8-PeCDF	50.0	48.7	34 - 80	13C-1,2,3,4,7,8-HxCDF	88.6	26 - 152	
1,2,3,4,7,8-HxCDF	50.0	45.2	36 - 67	13C-1,2,3,6,7,8-HxCDF	81.1	26 - 123	
1,2,3,6,7,8-HxCDF	50.0	47.5	42 - 65	13C-2,3,4,6,7,8-HxCDF	81.0	28 - 136	
2,3,4,6,7,8-HxCDF	50.0	45.7	35 - 78	13C-1,2,3,7,8,9-HxCDF	83.5	29 - 147	
1,2,3,7,8,9-HxCDF	50.0	46.6	39 - 65	13C-1,2,3,4,6,7,8-HpCDF	74.7	28 - 143	
1,2,3,4,6,7,8-HpCDF	50.0	45.0	41 - 61	13C-1,2,3,4,7,8,9-HpCDF	79.5	26 - 138	
1,2,3,4,7,8,9-HpCDF	50.0	44.9	39 - 69	13C-OCDF	73.1	17 - 157	
OCDF	100	89.5	63 - 170	CRS 37Cl-2,3,7,8-TCDD	84.0	35 - 197	

Analyst: MAS

Approved By:

William J. Luksemburg 19-Dec-2008 11:13

Sample ID: IRL1714-01		EPA Method 1613						
Client Data		Sample Data		Laboratory Data				
Name:	Test, America-Irvine, CA	Matrix:	Aqueous	Lab Sample:	31268-001			
Project:	IRL1714	Sample Size:	1.02 L	QC Batch No.:	1770			
Date Collected:	15-Dec-08			Date Analyzed DB-5:	18-Dec-08			
Time Collected:	1130			Date Analyzed DB-225:	NA			
Date Received:	17-Dec-08			Date Extracted:	17-Dec-08			
Analyte	Conc. (ug/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.000000693			IS 13C-2,3,7,8-TCDD	108	25 - 164	
1,2,3,7,8-PeCDD	ND	0.00000208			13C-1,2,3,7,8-PeCDD	114	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.00000409			13C-1,2,3,4,7,8-HxCDD	98.2	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.00000399			13C-1,2,3,6,7,8-HxCDD	105	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.00000375			13C-1,2,3,4,6,7,8-HpCDD	99.9	23 - 140	
1,2,3,4,6,7,8-HpCDD	0.0000114			J	13C-OCDD	82.3	17 - 157	
OCDD	0.000171				13C-2,3,7,8-TCDF	106	24 - 169	
2,3,7,8-TCDF	ND	0.00000577			13C-1,2,3,7,8-PeCDF	110	24 - 185	
1,2,3,7,8-PeCDF	ND	0.0000132			13C-2,3,4,7,8-PeCDF	106	21 - 178	
2,3,4,7,8-PeCDF	ND	0.0000150			13C-1,2,3,4,7,8-HxCDF	108	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.00000883			13C-1,2,3,6,7,8-HxCDF	95.1	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.0000110			13C-2,3,4,6,7,8-HxCDF	95.6	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.0000134			13C-1,2,3,7,8,9-HxCDF	101	29 - 147	
1,2,3,7,8,9-HxCDF	ND	0.00000198			13C-1,2,3,4,6,7,8-HpCDF	94.3	28 - 143	
1,2,3,4,6,7,8-HpCDF	ND	0.00000260			13C-1,2,3,4,7,8,9-HpCDF	92.4	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	0.00000183			13C-OCDF	84.5	17 - 157	
OCDF	0.00000516			J	CRS 37Cl-2,3,7,8-TCDD	89.7	35 - 197	
Totals					Footnotes			
Total TCDD	ND	0.000000693			a. Sample specific estimated detection limit.			
Total PeCDD	ND	0.00000208			b. Estimated maximum possible concentration.			
Total HxCDD	ND	0.00000394			c. Method detection limit.			
Total HpCDD	0.0000270				d. Lower control limit - upper control limit.			
Total TCDF	ND	0.00000577						
Total PeCDF	ND	0.00000202						
Total HxCDF	ND	0.00000263						
Total HpCDF	ND	0.00000543						

APPENDIX