

Anions Data

PACE ANALYTICAL SERVICES, INC.
Instrument Log Sheet

Run sequence#: R028654		Date/Time Started: 06/05/08 15:52			Analyst: Lea Beard		
Instrument ID: Ion Chromatograph (2)							
Sample Number	Type	DF	Method No.	Bottle #	Prep ID	Date Analyzed	Comments
ICV	ICV	1.00	300.0		P029915	06/05/08 15:52	25 ul IC-7-25-5
ICB	ICB	1.00	300.0		P029915	06/05/08 16:09	
S060508AIW02	S	1.00	300.0		P029915	06/05/08 16:25	25 ul IC-7-25-5
B060508AIW02	B	1.00	300.0		P029915	06/05/08 16:41	
CCV1	CCV	1.00	300.0			06/05/08 19:06	250 ul IC-7-30-8
CCB1	CCB	1.00	300.0			06/05/08 19:22	
JPL115-001 10X	SAMP	10.00	300.0		P029915	06/05/08 20:59	
JPL115-002 10X	SAMP	10.00	300.0		P029915	06/05/08 21:15	
JPL115-003 10X	SAMP	10.00	300.0		P029915	06/05/08 21:31	
JPL115-004 10X	SAMP	10.00	300.0		P029915	06/05/08 21:47	
JPL115-004MS 10X	MS	10.00	300.0		P029915	06/05/08 22:03	100 ul IC-7-30-8
CCV2	CCV	1.00	300.0			06/05/08 22:19	250 ul IC-7-30-8
CCB2	CCB	1.00	300.0			06/05/08 22:35	
JPL115-004MSD 10X	MSD	10.00	300.0		P029915	06/05/08 22:52	100 ul IC-7-30-8
CCV3	CCV	1.00	300.0			06/06/08 01:33	250 ul IC-7-30-8
CCB3	CCB	1.00	300.0			06/06/08 01:49	

Sequence: 060508AA
Operator: leab

Title:
Datasource: D33TPG41_local
Location:
Timebase: PERC
#Samples: 58

Created: 6/5/2008 1:59:12 PM by leab
Last Update: 6/5/2008 5:41:50 PM by leab

















No.	Name	Type	Inj. Vol.	Program	Method	Status
1	RINSE	Unknown	0.5	ANIONS on DIONEX2	AS14	Finished
2	CAL 1	Standard	0.5	ANIONS on DIONEX2	AS14	Finished
3	CAL 2	Standard	0.5	ANIONS on DIONEX2	AS14	Finished
4	CAL 3	Standard	0.5	ANIONS on DIONEX2	AS14	Finished
5	CAL 4	Standard	0.5	ANIONS on DIONEX2	AS14	Finished
6	CAL 5	Standard	0.5	ANIONS on DIONEX2	AS14	Finished
7	RINSE	Unknown	0.5	ANIONS on DIONEX2	AS14	Finished
8	ICV	Unknown	0.5	ANIONS on DIONEX2	AS14	Finished
9	ICB	Unknown	0.5	ANIONS on DIONEX2	AS14	Finished
10	SPK	Unknown	0.5	ANIONS on DIONEX2	AS14	Finished
11	BLANK	Unknown	0.5	ANIONS on DIONEX2	AS14	Finished
12	PGGW080601-001	Unknown	0.5	ANIONS on DIONEX2	AS14	Finished
13	PGGW080601-002	Unknown	0.5	ANIONS on DIONEX2	AS14	Finished
14	PGGW080601-003	Unknown	0.5	ANIONS on DIONEX2	AS14	Finished
15	PGGW080601-004	Unknown	0.5	ANIONS on DIONEX2	AS14	Finished
16	RIVE060801-001	Unknown	0.5	ANIONS on DIONEX2	AS14	Finished
17	RIVE060801-001 5X	Unknown	0.5	ANIONS on DIONEX2	AS14	Finished
18	RIVE060801-001MS 5X	Unknown	0.5	ANIONS on DIONEX2	AS14	Finished
19	RIVE060801-001MSD 5X	Unknown	0.5	ANIONS on DIONEX2	AS14	Finished
20	CCV1	Unknown	0.5	ANIONS on DIONEX2	AS14	Finished
21	CCB1	Unknown	0.5	ANIONS on DIONEX2	AS14	Finished
22	ROAN080601-001	Unknown	0.5	ANIONS on DIONEX2	AS14	Finished
23	OSCI080501-001	Unknown	0.5	ANIONS on DIONEX2	AS14	Finished
24	KC230813-002	Unknown	0.5	ANIONS on DIONEX2	AS14	Finished
25	RINSE	Unknown	0.5	ANIONS on DIONEX2	AS14	Finished
26	RINSE	Unknown	0.5	ANIONS on DIONEX2	AS14	Finished
27	JPL115-001 10X	Unknown	0.5	ANIONS on DIONEX2	AS14	Finished
28	JPL115-002 10X	Unknown	0.5	ANIONS on DIONEX2	AS14	Finished
29	JPL115-003 10X	Unknown	0.5	ANIONS on DIONEX2	AS14	Finished
30	JPL115-004 10X	Unknown	0.5	ANIONS on DIONEX2	AS14	Finished
31	JPL115-004MS 10X	Unknown	0.5	ANIONS on DIONEX2	AS14	Finished
32	CCV2	Unknown	0.5	ANIONS on DIONEX2	AS14	Finished
33	CCB2	Unknown	0.5	ANIONS on DIONEX2	AS14	Finished
34	JPL115-004MSD 10X	Unknown	0.5	ANIONS on DIONEX2	AS14	Finished
35	JPL116-001 10X	Unknown	0.5	ANIONS on DIONEX2	AS14	Finished
36	JPL116-001MS 10X	Unknown	0.5	ANIONS on DIONEX2	AS14	Finished
37	JPL116-001MSD 10X	Unknown	0.5	ANIONS on DIONEX2	AS14	Finished
38	JPL116-002 10X	Unknown	0.5	ANIONS on DIONEX2	AS14	Finished
39	JPL116-003 10X	Unknown	0.5	ANIONS on DIONEX2	AS14	Finished
40	KC050813-001	Unknown	0.5	ANIONS on DIONEX2	AS14	Finished
41	KC050813-002	Unknown	0.5	ANIONS on DIONEX2	AS14	Finished
42	KC050814-001	Unknown	0.5	ANIONS on DIONEX2	AS14	Finished

Sequence: 060508AA
Operator: leab

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Printed: 6/9/2008 12:52:47 PM

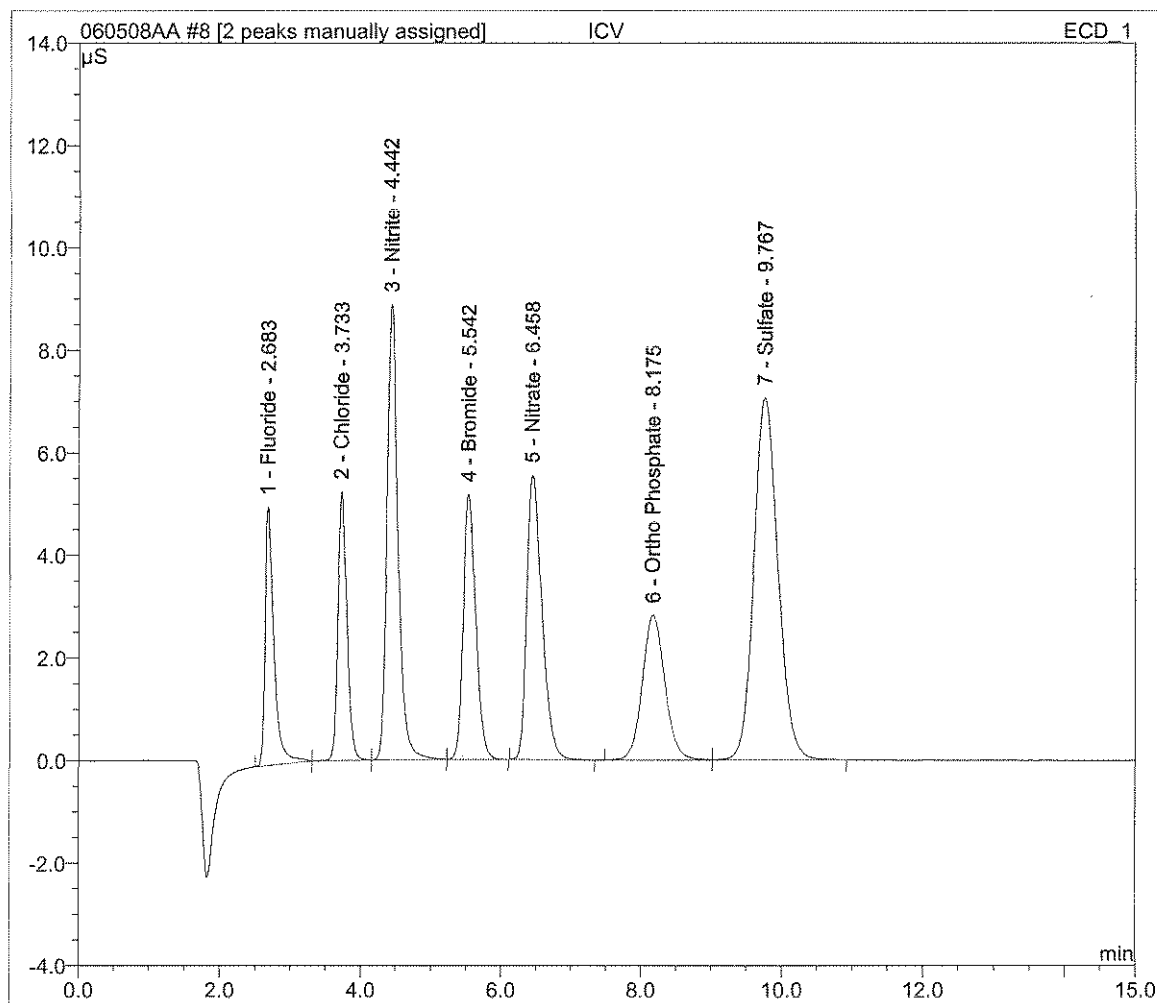
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Datasource: D33TPG41_local
Location:
Timebase: PERC
#Samples: 58

Created: 6/5/2008 1:59:12 PM by leab
Last Update: 6/5/2008 5:41:50 PM by leab

No.	Name	Type	Inj. Vol.	Program	Method	Status
43	 KC070806-001	Unknown	0.5	ANIONS on DIONEX2	AS14	Finished
44	 CCV3	Unknown	0.5	ANIONS on DIONEX2	AS14	Finished
45	 CCB3	Unknown	0.5	ANIONS on DIONEX2	AS14	Finished
46	 KC070806-001MS	Unknown	0.5	ANIONS on DIONEX2	AS14	Finished
47	 KC070806-001MSD	Unknown	0.5	ANIONS on DIONEX2	AS14	Finished
48	 KC050815-001	Unknown	0.5	ANIONS on DIONEX2	AS14	Finished
49	 KC050815-002	Unknown	0.5	ANIONS on DIONEX2	AS14	Finished
50	 KC070807-001	Unknown	0.5	ANIONS on DIONEX2	AS14	Finished
51	 KC070807-001 5X	Unknown	0.5	ANIONS on DIONEX2	AS14	Finished
52	 KC070807-002	Unknown	0.5	ANIONS on DIONEX2	AS14	Finished
53	 KC070807-002 5X	Unknown	0.5	ANIONS on DIONEX2	AS14	Finished
54	 KC070807-002MS 5X	Unknown	0.5	ANIONS on DIONEX2	AS14	Finished
55	 KC070807-002MSD 5X	Unknown	0.5	ANIONS on DIONEX2	AS14	Finished
56	 CCV4	Unknown	0.5	ANIONS on DIONEX2	AS14	Finished
57	 CCB4	Unknown	0.5	ANIONS on DIONEX2	AS14	Finished
58	 SHUTDOWN	Unknown	0.5	shutdown	AS14	Finished

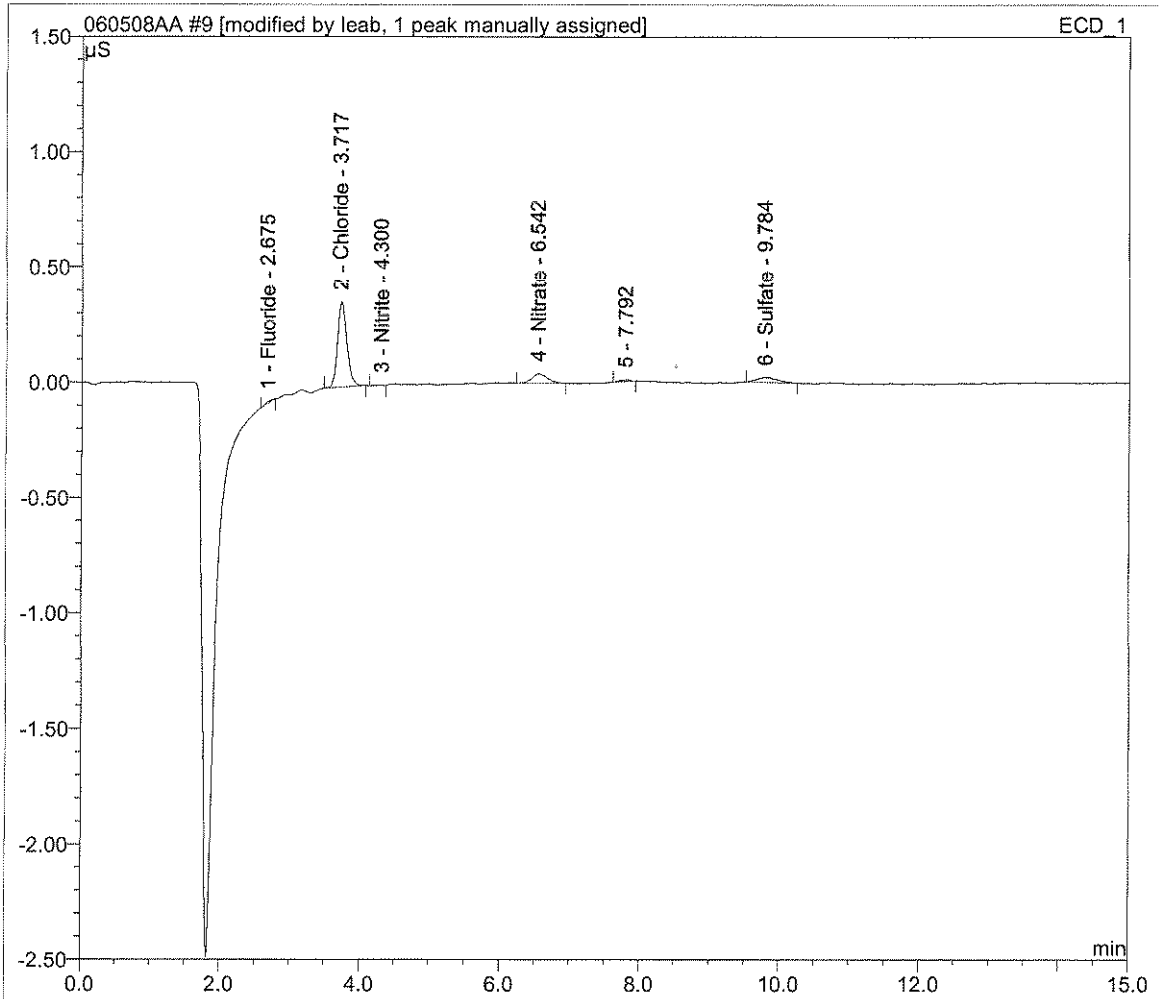
Sample Name:	ICV / 5060508AIW01	Inj. Vol.:	0.5
Sample Type:	unknown	Dilution Factor:	1.0000
Program:	ANIONS on DIONEX2	Operator:	n.a.
Inj. Date/Time:	05.06.08 15:52	Run Time:	15.00

No.	Time min	Peak Name	Type	Area $\mu\text{S}^*\text{min}$	Height μS	Amount mg/L
1	2.68	Fluoride	BMb	0.724	5.034	0.9089
2	3.73	Chloride	bMb	0.776	5.247	1.5143
3	4.44	Nitrite	bMb	1.629	8.884	1.5201
4	5.54	Bromide	bMB	1.076	5.171	4.4771
5	6.46	Nitrate	BMB	1.412	5.552	1.0693
6	8.18	Ortho Phosphate	BM ^	1.054	2.821	2.1963
7	9.77	Sulfate	MB^	2.787	7.064	7.5210
TOTAL:				9.46	39.77	19.21



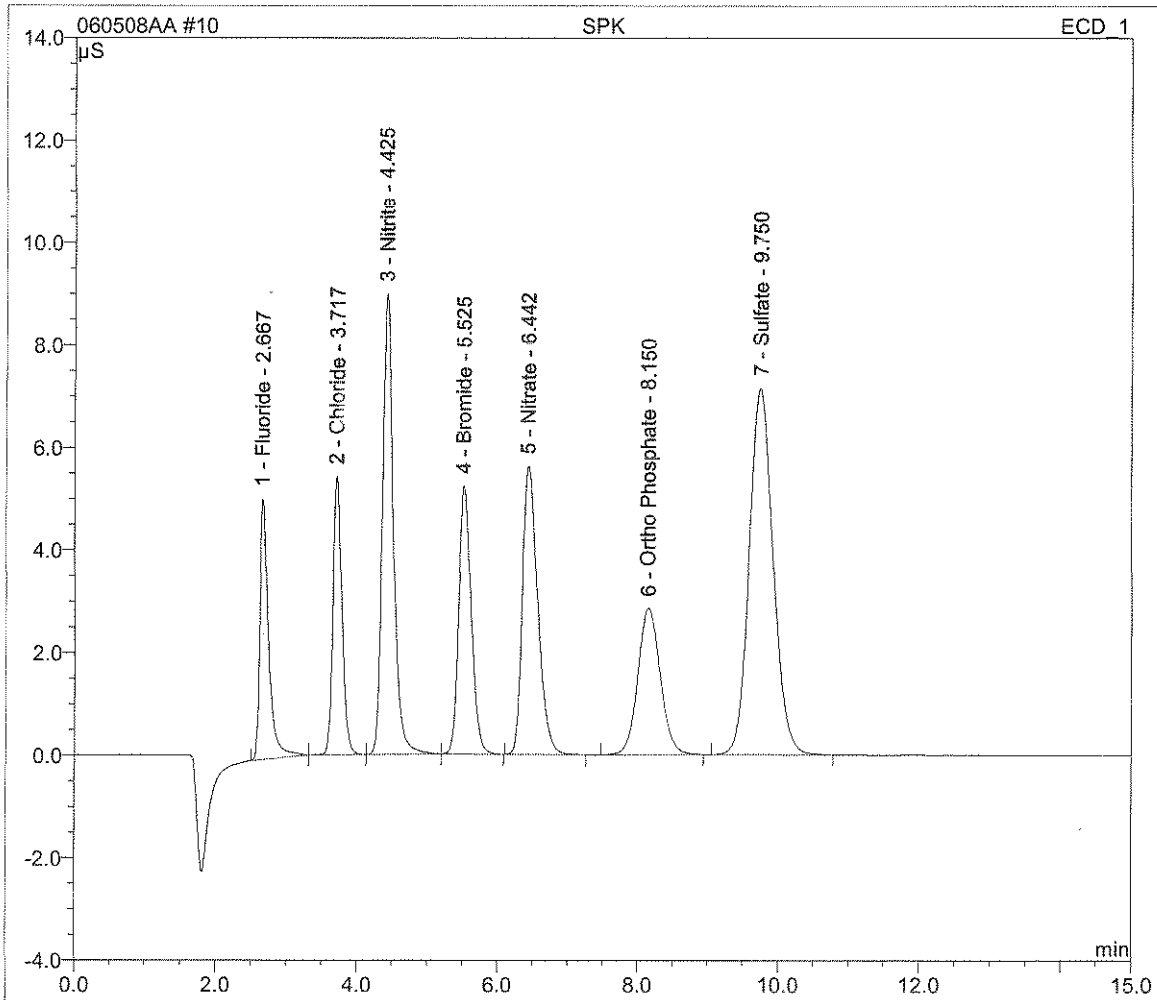
Sample Name:	ICB / B060508A1W01	Inj. Vol.:	0.5
Sample Type:	unknown	Dilution Factor:	1.0000
Program:	ANIONS on DIONEX2	Operator:	n.a.
Inj. Date/Time:	05.06.08 16:09	Run Time:	15.00

No.	Time min	Peak Name	Type	Area $\mu\text{S} \cdot \text{min}$	Height μS	Amount mg/L
1	2.68	Fluoride	BMB*	0.001	0.007	0.0011
2	3.72	Chloride	BMB*	0.057	0.369	0.1113
3	4.30	Nitrite	BMB*	0.000	0.002	0.0002
4	6.54	Nitrate	BMB	0.011	0.040	0.0081
6	9.78	Sulfate	BMB^	0.007	0.021	0.0198
TOTAL:				0.08	0.44	0.14



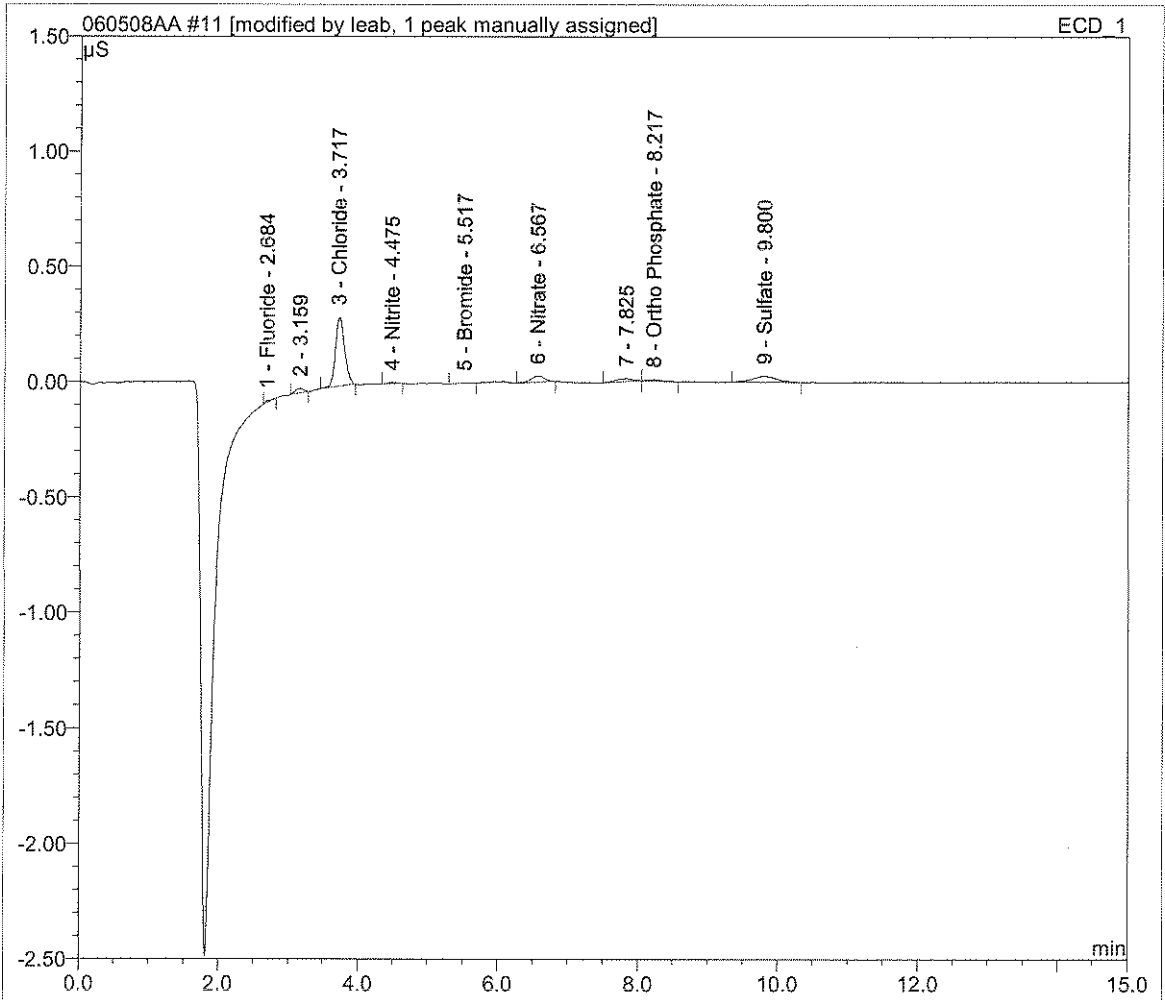
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Sample Type:	unknown	Dilution Factor:	1.0000
Program:	ANIONS on DIONEX2	Operator:	n.a.
Inj. Date/Time:	05.06.08 16:25	Run Time:	15.00

No.	Time min	Peak Name	Type	Area $\mu\text{S} \cdot \text{min}$	Height μS	Amount mg/L
1	2.67	Fluoride	BMB	0.733	5.089	0.9205
2	3.72	Chloride	bMb	0.800	5.430	1.5618
3	4.43	Nitrite	bMb	1.647	8.980	1.5373
4	5.53	Bromide	bMB	1.089	5.230	4.5325
5	6.44	Nitrate	BMB	1.427	5.621	1.0813
6	8.15	Ortho Phosphate	BMB	1.059	2.853	2.2072
7	9.75	Sulfate	BMB	2.806	7.147	7.5724
TOTAL:				9.56	40.35	19.41



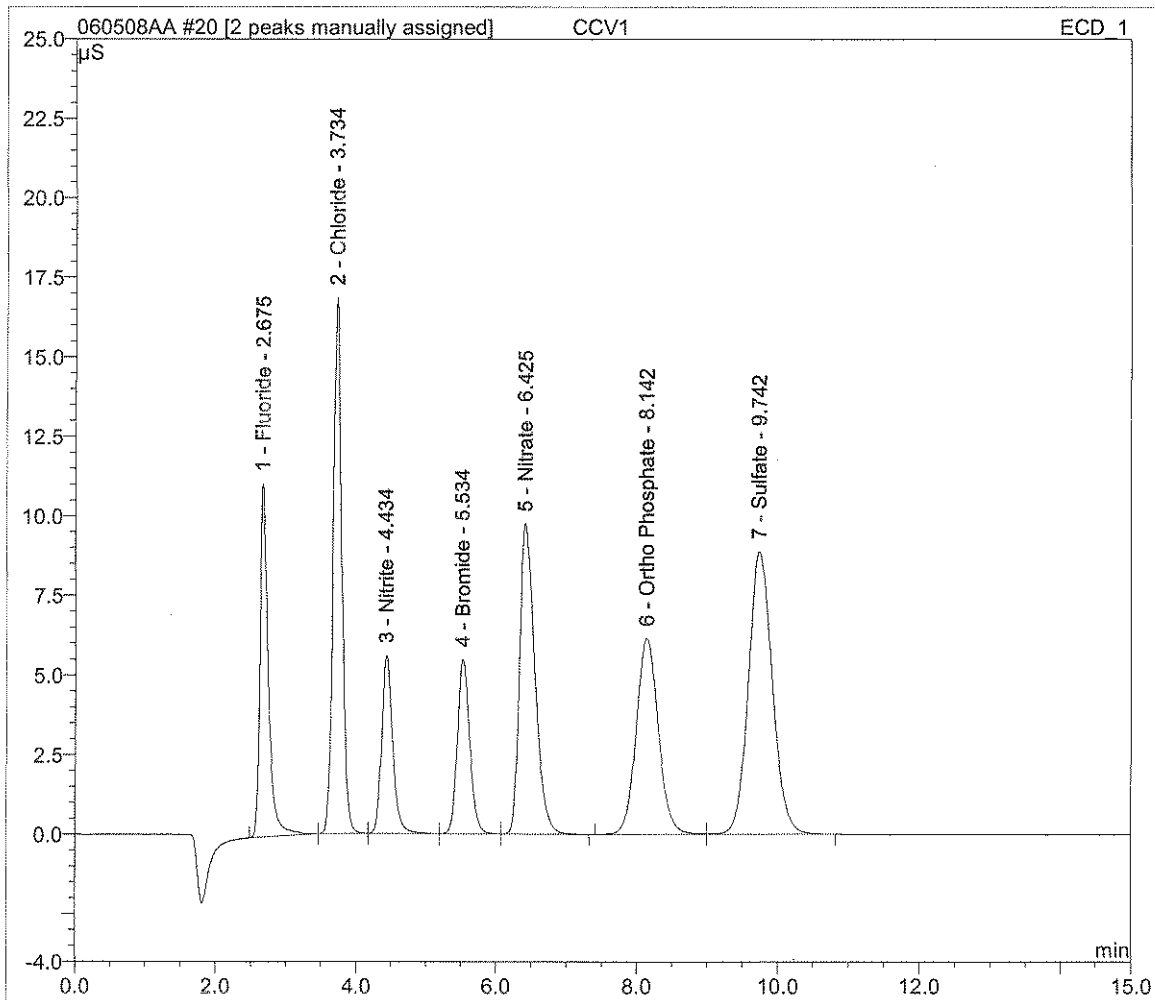
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Sample Type:	unknown	Dilution Factor:	1.0000
Program:	ANIONS on DIONEX2	Operator:	n.a.
Inj. Date/Time:	05.06.08 16:41	Run Time:	15.00

No.	Time min	Peak Name	Type	Area $\mu\text{S} \cdot \text{min}$	Height μS	Amount mg/L
1	2.68	Fluoride	BMB*	0.001	0.006	0.0007
3	3.72	Chloride	BMB*	0.045	0.298	0.0884
4	4.48	Nitrite	BMB*	0.001	0.005	0.0008
5	5.52	Bromide	BMB*	0.000	0.002	0.0009
6	6.57	Nitrate	BMB	0.006	0.026	0.0046
8	8.22	Ortho Phosphate	bMB*	0.002	0.006	0.0033
9	9.80	Sulfate	BMB^	0.011	0.026	0.0288
TOTAL:				0.07	0.37	0.13



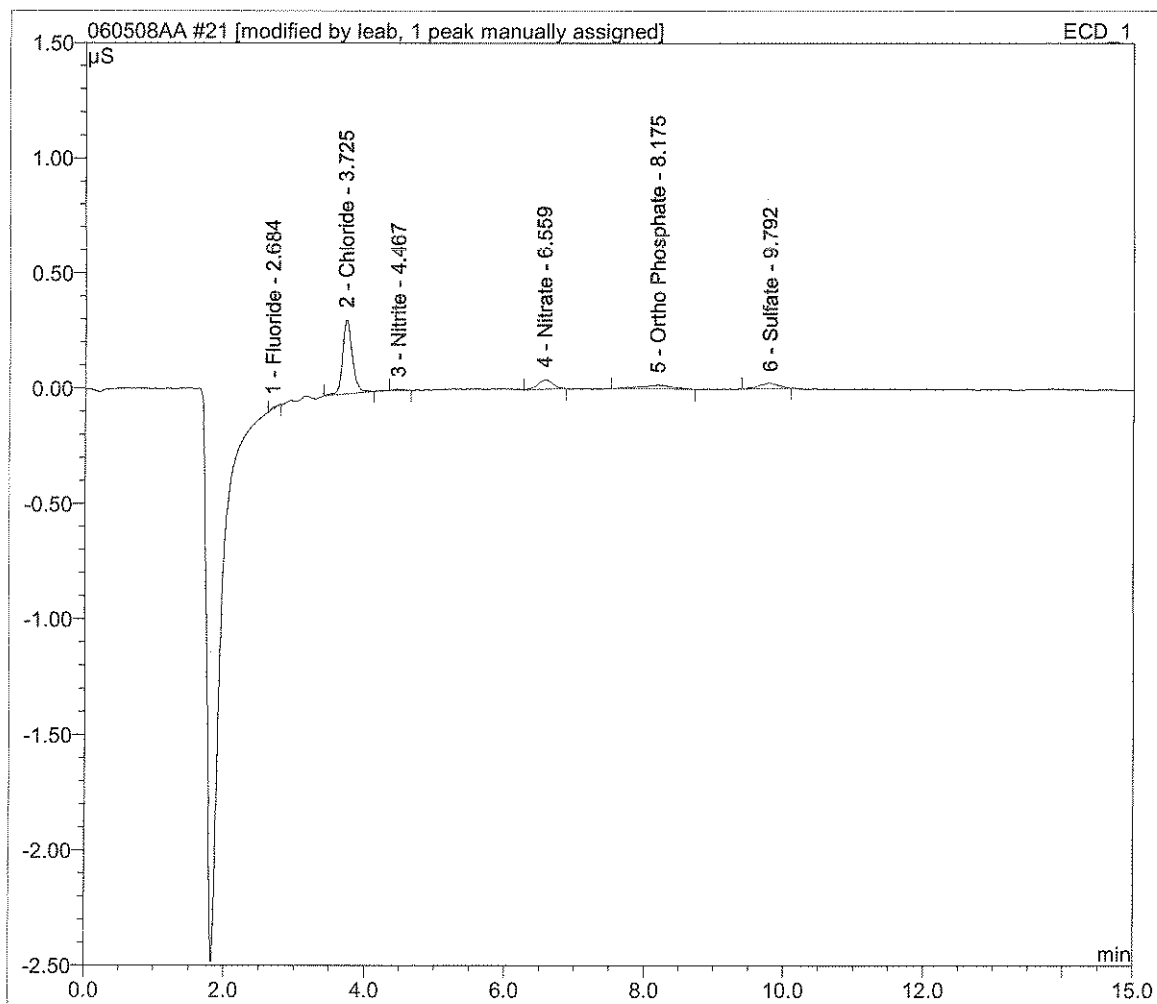
Sample Name:	CCV1	Inj. Vol.:	0.5
Sample Type:	unknown	Dilution Factor:	1.0000
Program:	ANIONS on DIONEX2	Operator:	n.a.
Inj. Date/Time:	05.06.08 19:06	Run Time:	15.00

No.	Time min	Peak Name	Type	Area $\mu\text{S}^*\text{min}$	Height μS	Amount mg/L
1	2.68	Fluoride	BMb	1.524	11.104	1.9137
2	3.73	Chloride	bMb	2.390	16.841	4.6645
3	4.43	Nitrite	bMb	1.036	5.591	0.9669
4	5.53	Bromide	bMb	1.143	5.487	4.7558
5	6.43	Nitrate	bMB	2.469	9.746	1.8703
6	8.14	Ortho Phosphate	BM ^	2.243	6.157	4.6753
7	9.74	Sulfate	MB^	3.486	8.871	9.4068
TOTAL:				14.29	63.80	28.25



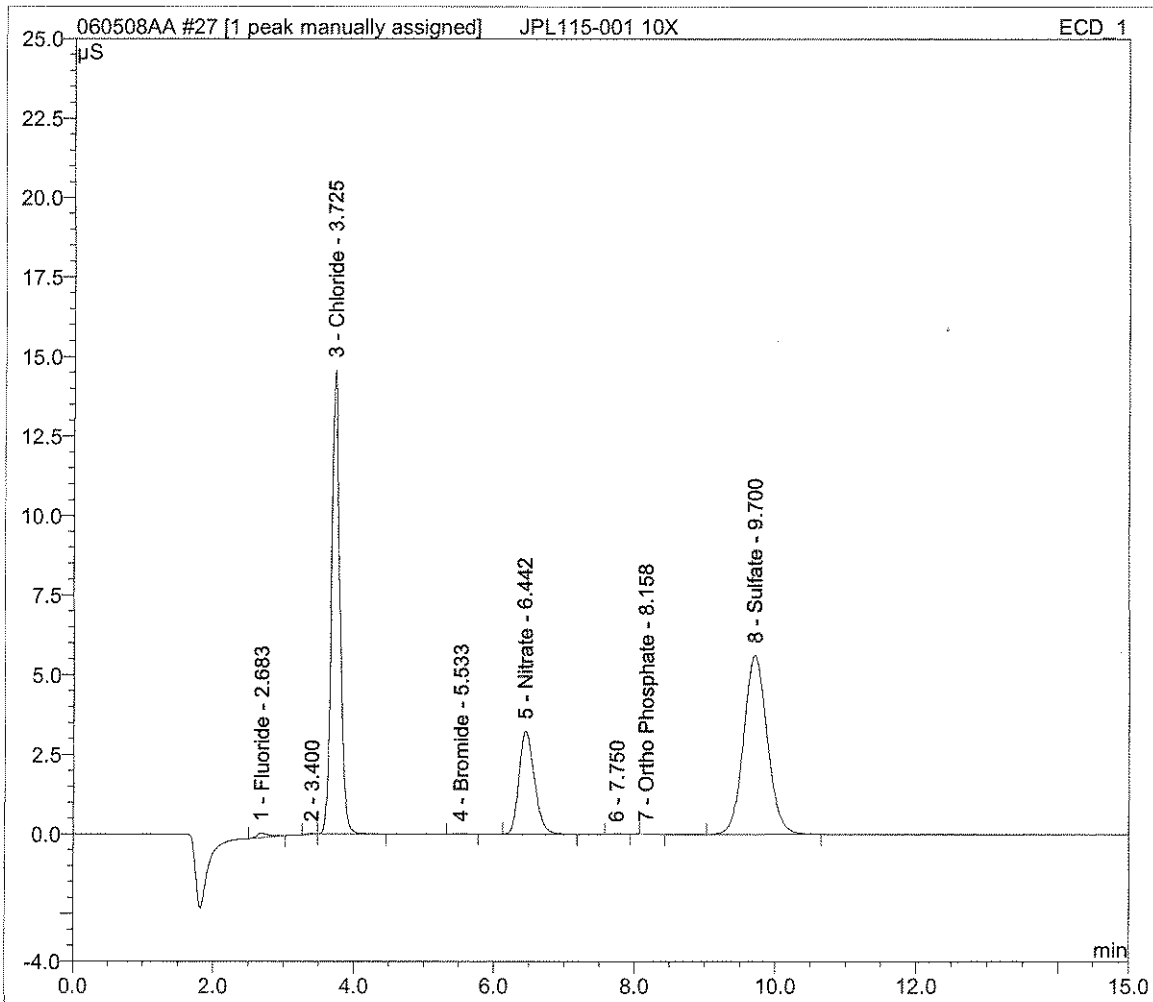
Sample Name:	CCB1	Inj. Vol.:	0.5
Sample Type:	unknown	Dilution Factor:	1.0000
Program:	ANIONS on DIONEX2	Operator:	n.a.
Inj. Date/Time:	05.06.08 19:22	Run Time:	15.00

No.	Time min	Peak Name	Type	Area $\mu\text{S}\cdot\text{min}$	Height μS	Amount mg/L
1	2.68	Fluoride	BMB*	0.001	0.008	0.0009
2	3.73	Chloride	BMB*	0.051	0.321	0.1003
3	4.47	Nitrite	BMB*	0.001	0.005	0.0007
4	6.56	Nitrate	BMB	0.010	0.041	0.0076
5	8.18	Ortho Phosphate	BMB*	0.009	0.017	0.0188
6	9.79	Sulfate	BMB^	0.008	0.021	0.0205
TOTAL:				0.08	0.41	0.15



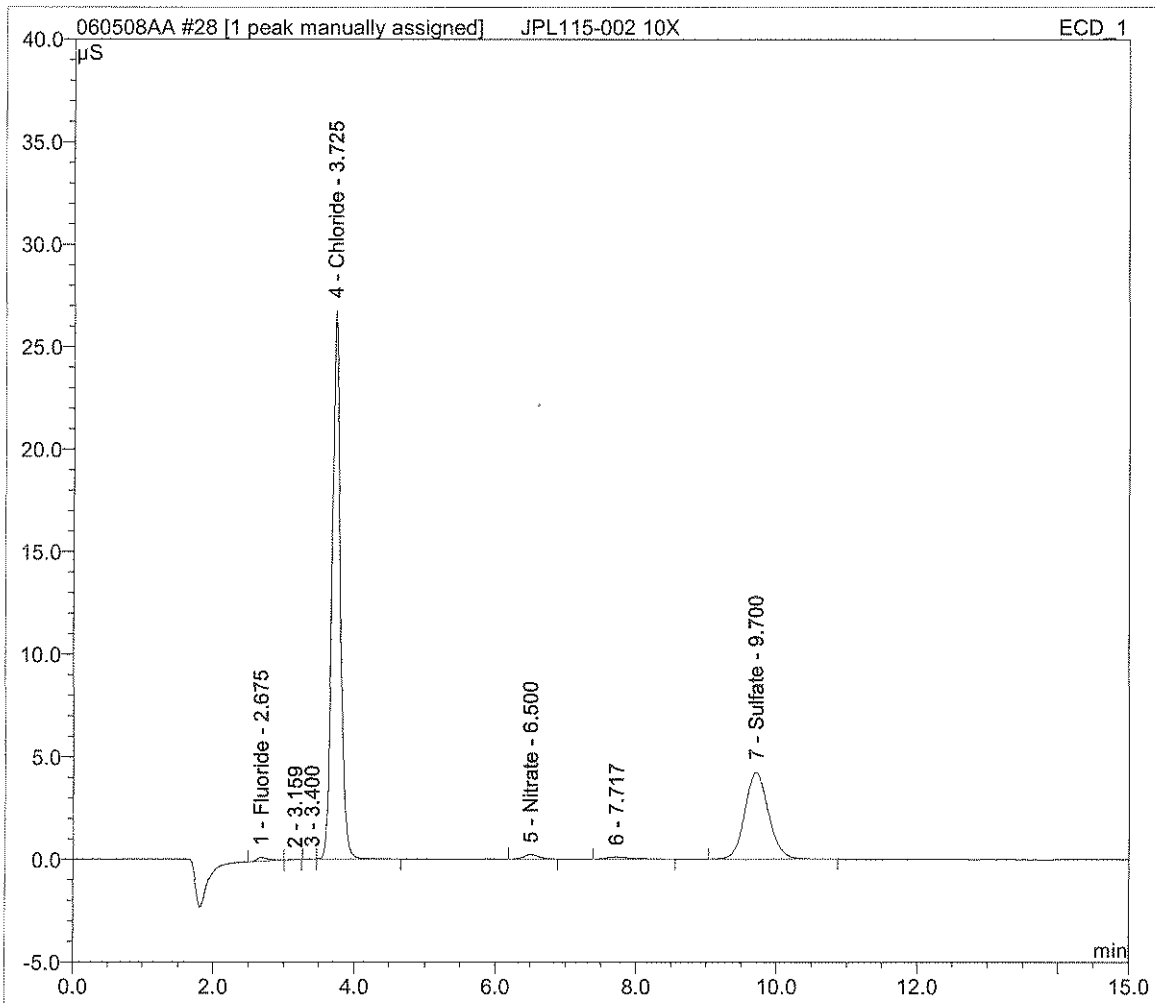
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Sample Type:	unknown	Dilution Factor:	1.0000
Program:	ANIONS on DIONEX2	Operator:	n.a.
Inj. Date/Time:	05.06.08 20:59	Run Time:	15.00

No.	Time min	Peak Name	Type	Area $\mu\text{S}^*\text{min}$	Height μS	Amount mg/L
1	2.68	Fluoride	BMB	0.026	0.142	0.0331
3	3.73	Chloride	bMB	2.035	14.576	3.9708
4	5.53	Bromide	BMB	0.003	0.013	0.0107
5	6.44	Nitrate	BMB	0.826	3.237	0.6253
7	8.16	Ortho Phosphate	BMB	0.001	0.006	0.0030
8	9.70	Sulfate	BMB [^]	2.206	5.621	5.9530
TOTAL:				5.10	23.59	10.60



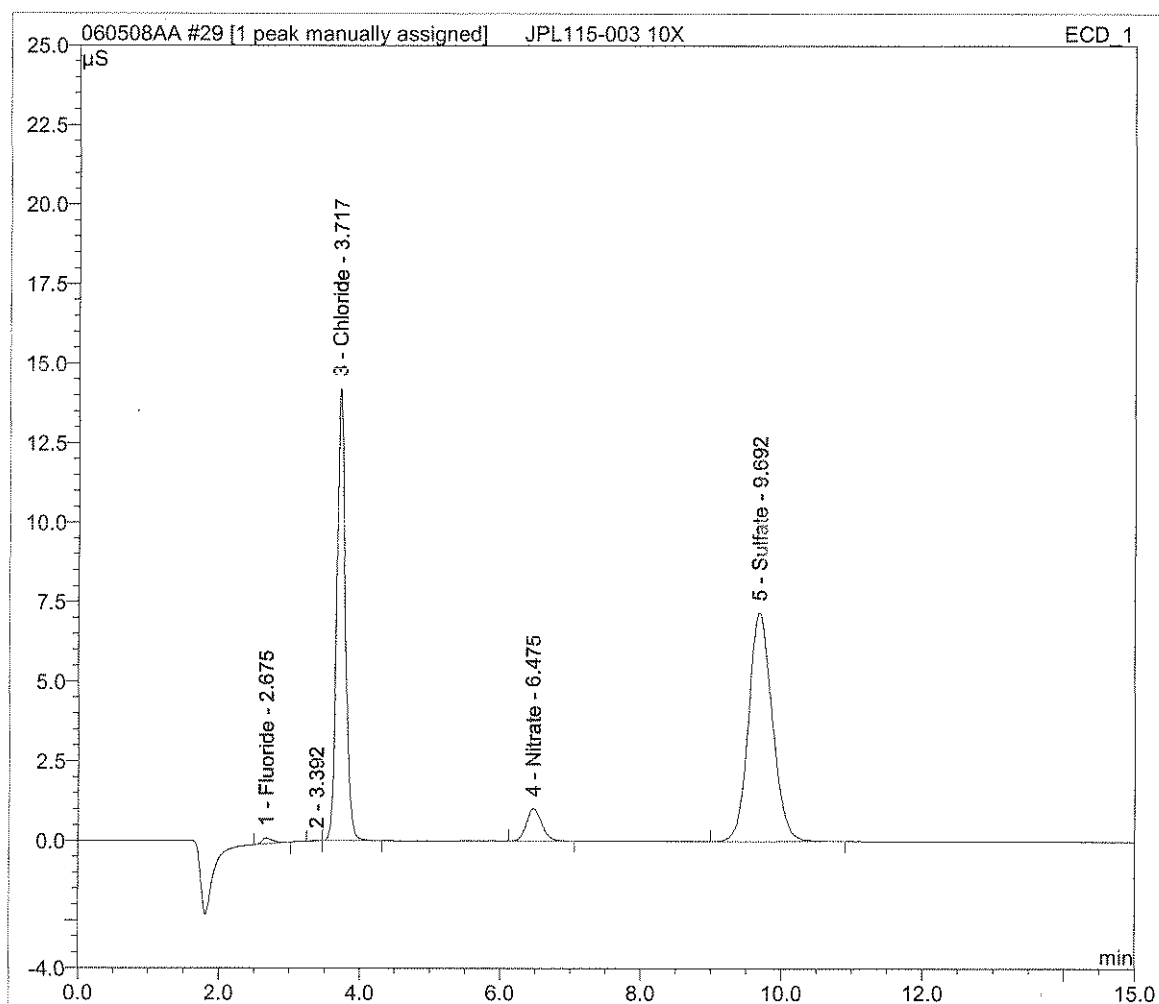
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Sample Type:	unknown	Dilution Factor:	1.0000
Program:	ANIONS on DIONEX2	Operator:	n.a.
Inj. Date/Time:	05.06.08 21:15	Run Time:	15.00

No.	Time min	Peak Name	Type	Area $\mu\text{S}^*\text{min}$	Height μS	Amount mg/L
1	2.68	Fluoride	BMB	0.035	0.196	0.0444
4	3.73	Chloride	bMB	3.676	26.758	7.1746
5	6.50	Nitrate	BMB	0.057	0.225	0.0429
7	9.70	Sulfate	BMB^	1.686	4.247	4.5484
TOTAL:				5.45	31.43	11.81



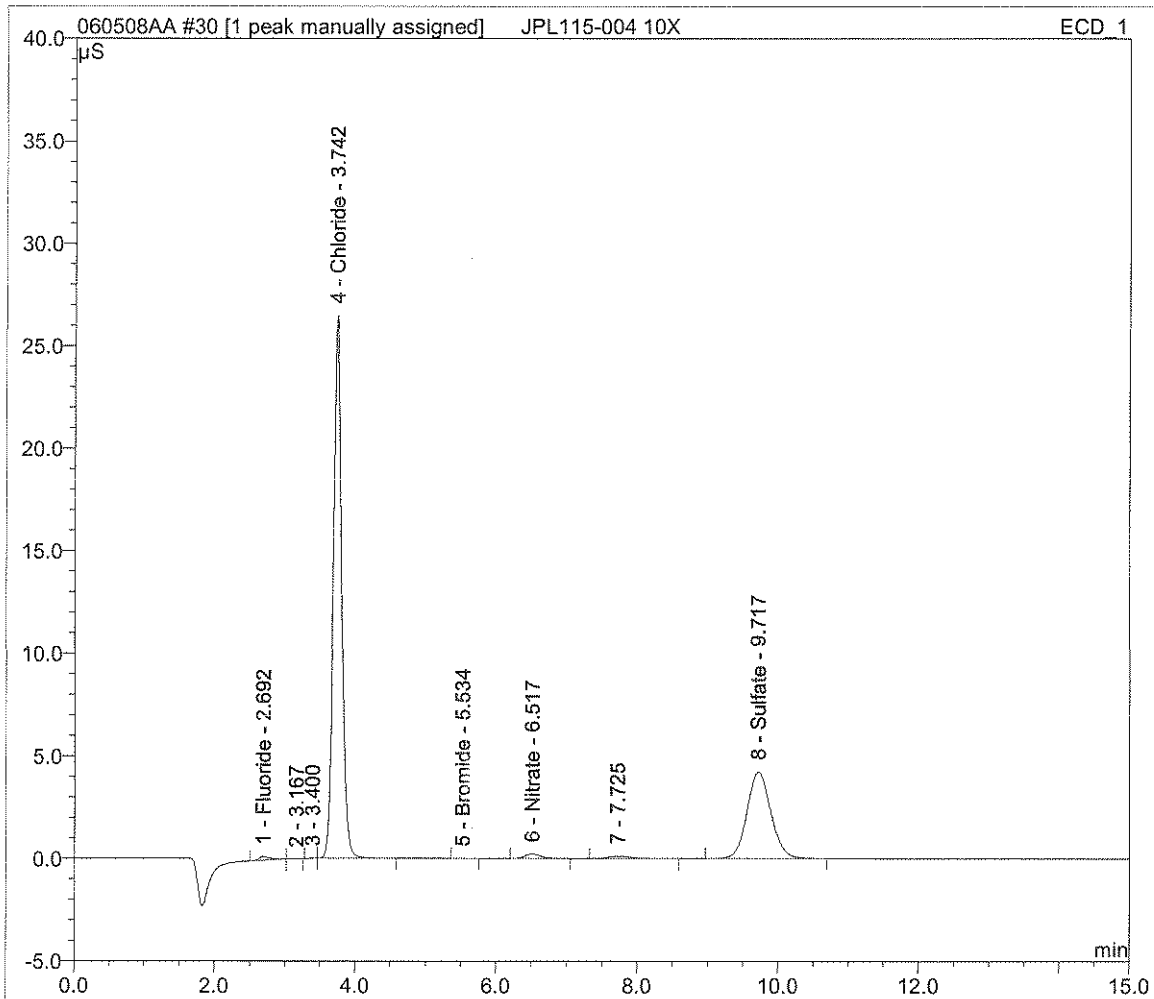
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Sample Type:	unknown	Dilution Factor:	1.0000
Program:	ANIONS on DIONEX2	Operator:	n.a.
Inj. Date/Time:	05.06.08 21:31	Run Time:	15.00

No.	Time min	Peak Name	Type	Area $\mu\text{S}^*\text{min}$	Height μS	Amount mg/L
1	2.68	Fluoride	BMB	0.033	0.183	0.0412
3	3.72	Chloride	bMB	1.997	14.201	3.8971
4	6.48	Nitrate	BMB	0.261	1.013	0.1976
5	9.69	Sulfate	BMB^	2.811	7.174	7.5852
TOTAL:				5.10	22.57	11.72



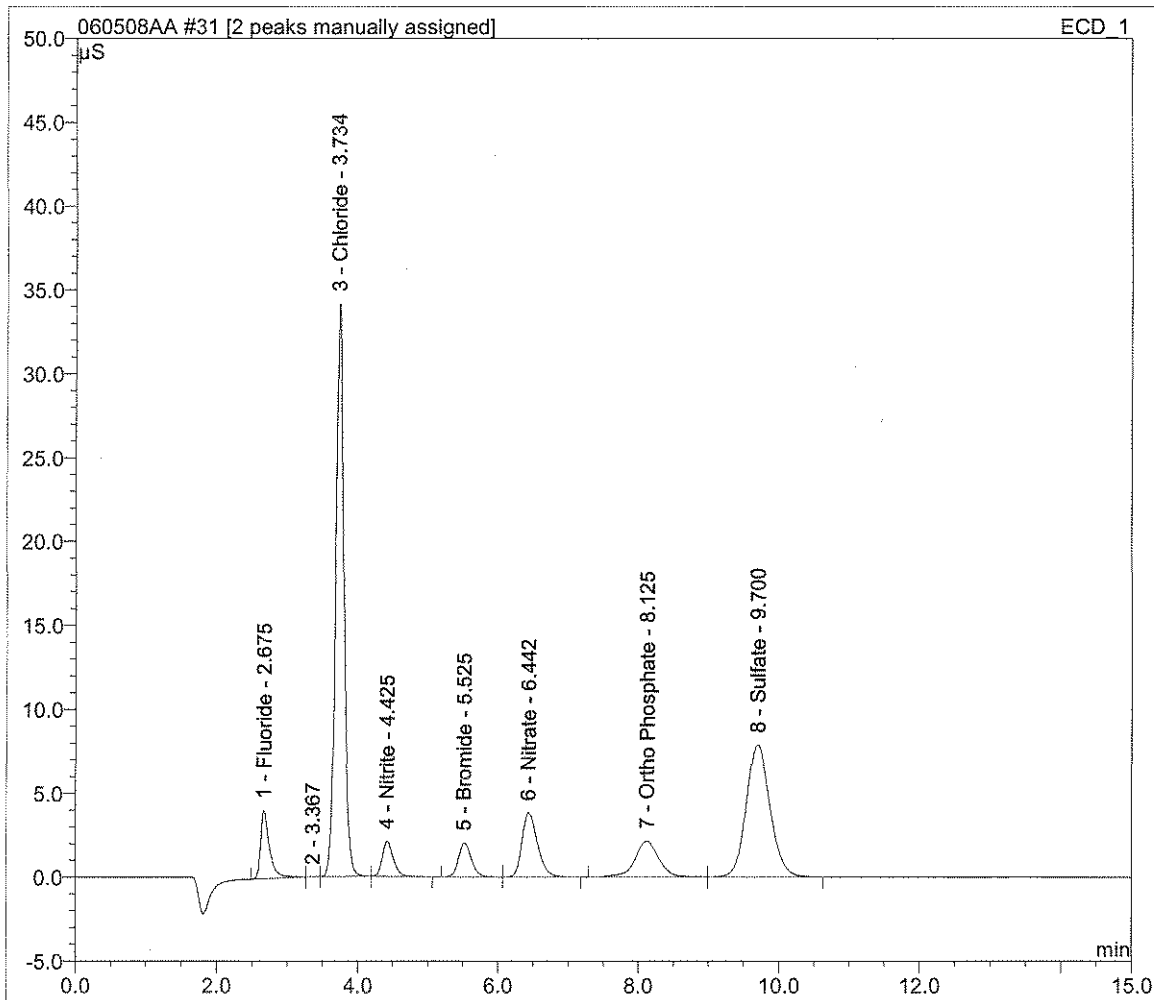
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Sample Type:	unknown	Dilution Factor:	1.0000
Program:	ANIONS on DIONEX2	Operator:	n.a.
Inj. Date/Time:	05.06.08 21:47	Run Time:	15.00

No.	Time min	Peak Name	Type	Area $\mu\text{S}^*\text{min}$	Height μS	Amount mg/L
1	2.69	Fluoride	BMB	0.035	0.194	0.0438
4	3.74	Chloride	bMB	3.644	26.462	7.1119
5	5.53	Bromide	BMB	0.001	0.007	0.0054
6	6.52	Nitrate	BMB	0.060	0.227	0.0454
8	9.72	Sulfate	BMB^	1.678	4.234	4.5290
TOTAL:				5.42	31.12	11.74



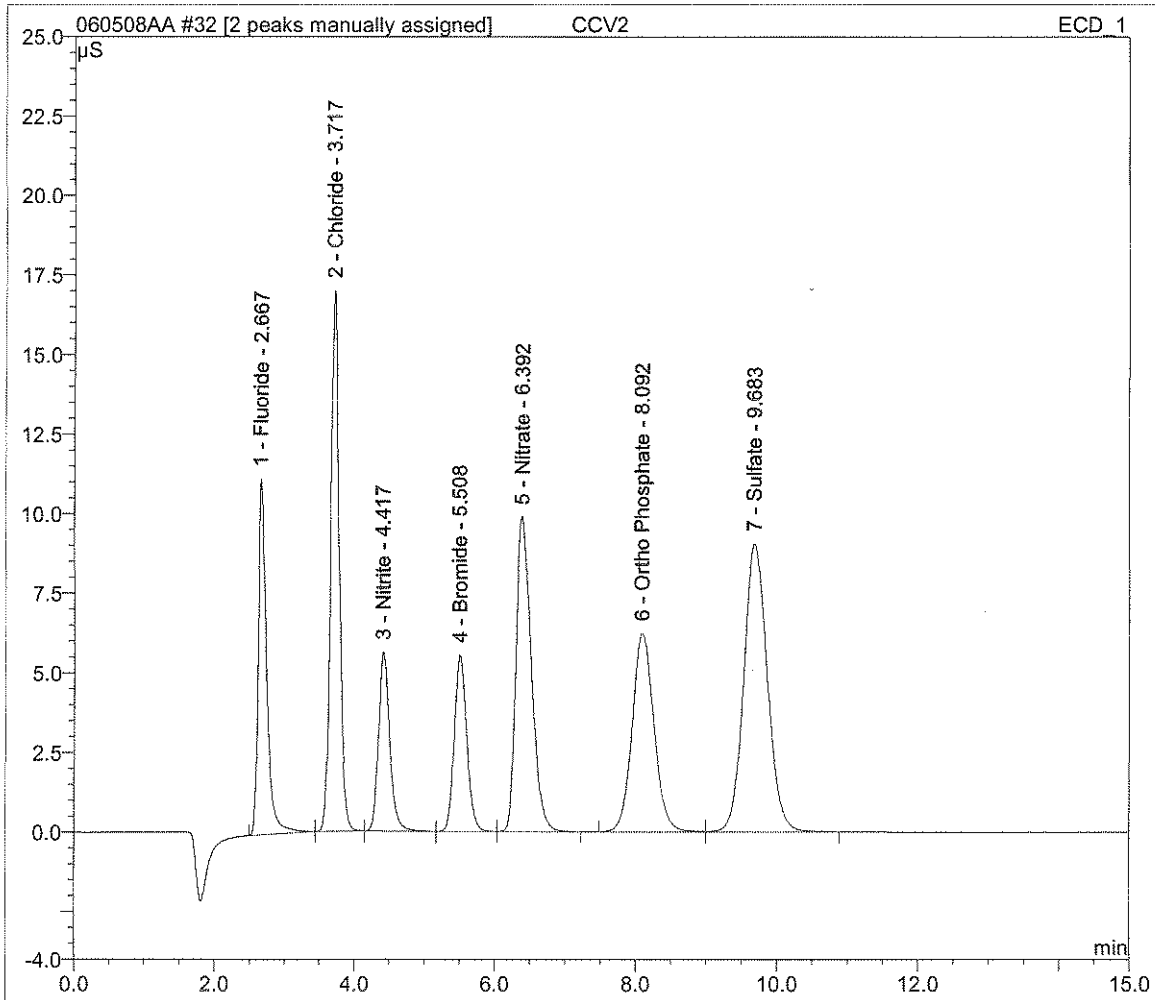
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Sample Type:	unknown	Dilution Factor:	1.0000
Program:	ANIONS on DIONEX2	Operator:	n.a.
Inj. Date/Time:	05.06.08 22:03	Run Time:	15.00

No.	Time min	Peak Name	Type	Area $\mu\text{S} \cdot \text{min}$	Height μS	Amount mg/L
1	2.68	Fluoride	BMB	0.602	4.075	0.7556
3	3.73	Chloride	bMb	4.701	34.162	9.1750
4	4.43	Nitrite	bMB	0.389	2.110	0.3630
5	5.53	Bromide	BMB	0.437	2.051	1.8169
6	6.44	Nitrate	bMB	0.977	3.841	0.7402
7	8.13	Ortho Phosphate	BM ^	0.846	2.156	1.7641
8	9.70	Sulfate	MB^	3.070	7.879	8.2850
TOTAL:				11.02	56.27	22.90



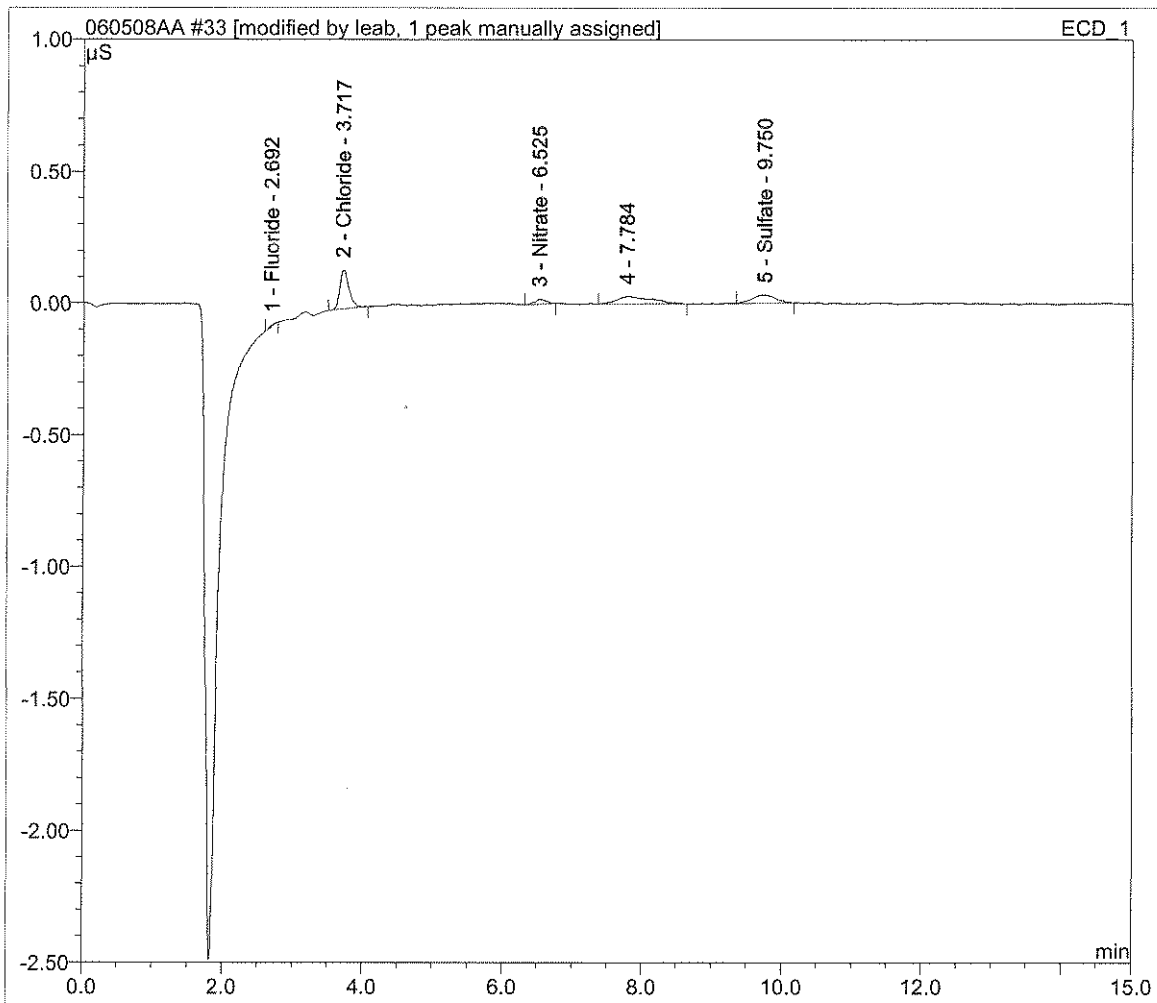
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Sample Type:	unknown	Dilution Factor:	1.0000
Program:	ANIONS on DIONEX2	Operator:	n.a.
Inj. Date/Time:	05.06.08 22:19	Run Time:	15.00

No.	Time min	Peak Name	Type	Area $\mu\text{S} \cdot \text{min}$	Height μS	Amount mg/L
1	2.67	Fluoride	BMB	1.535	11.180	1.9276
2	3.72	Chloride	bMb	2.411	16.993	4.7046
3	4.42	Nitrite	bMb	1.044	5.626	0.9746
4	5.51	Bromide	bMb	1.153	5.541	4.7977
5	6.39	Nitrate	bMB	2.489	9.886	1.8857
6	8.09	Ortho Phosphate	BM ^	2.256	6.248	4.7026
7	9.68	Sulfate	MB^	3.526	9.045	9.5149
TOTAL:				14.41	64.52	28.51



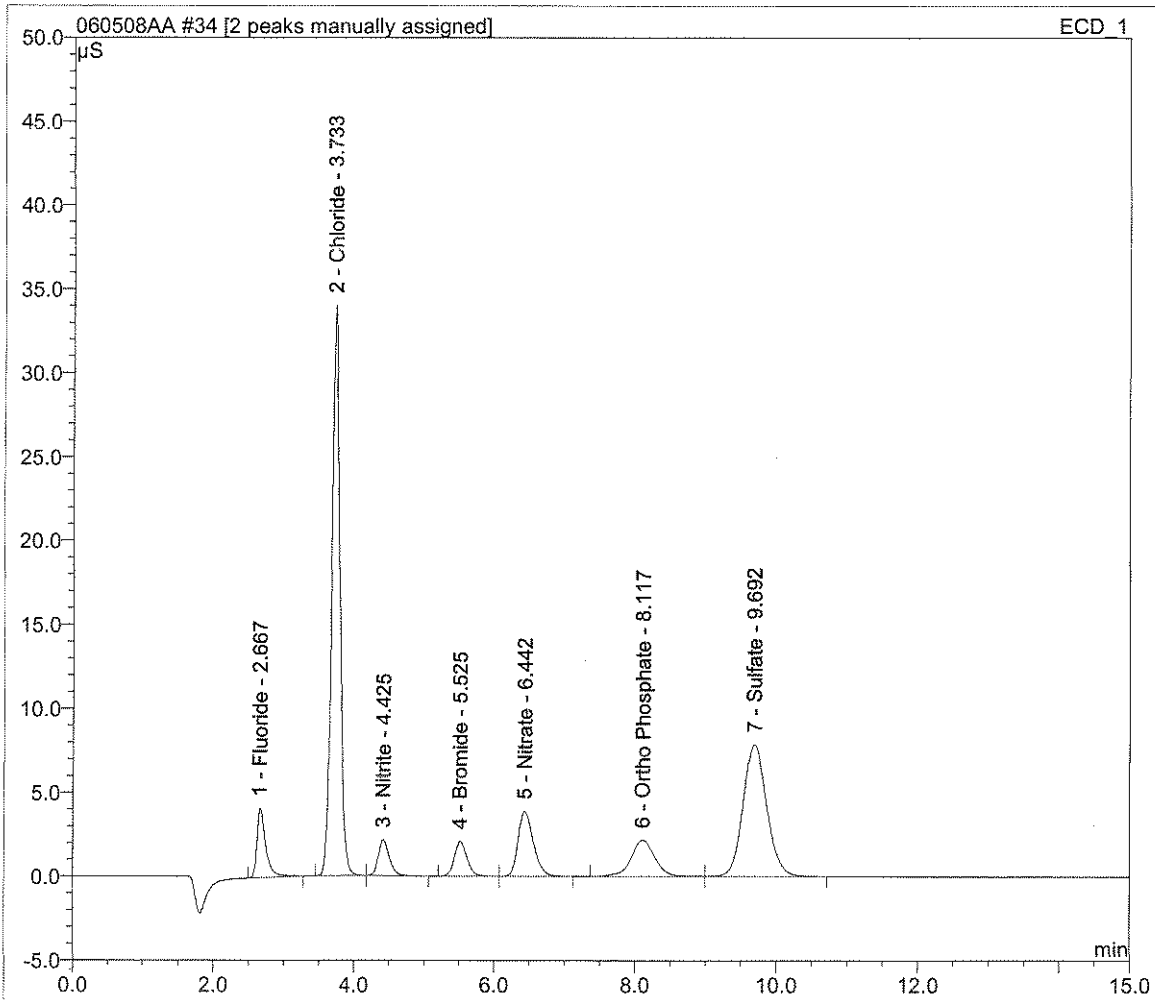
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Program:	ANIONS on DIONEX2	Operator:	n.a.
Inj. Date/Time:	05.06.08 22:35	Run Time:	15.00

No.	Time min	Peak Name	Type	Area $\mu\text{S} \cdot \text{min}$	Height μS	Amount mg/L
1	2.69	Fluoride	BMB*	0.001	0.006	0.0008
2	3.72	Chloride	BMB*	0.023	0.148	0.0449
3	6.53	Nitrate	BMB	0.004	0.018	0.0027
5	9.75	Sulfate	BMB^	0.012	0.031	0.0330
TOTAL:				0.04	0.20	0.08



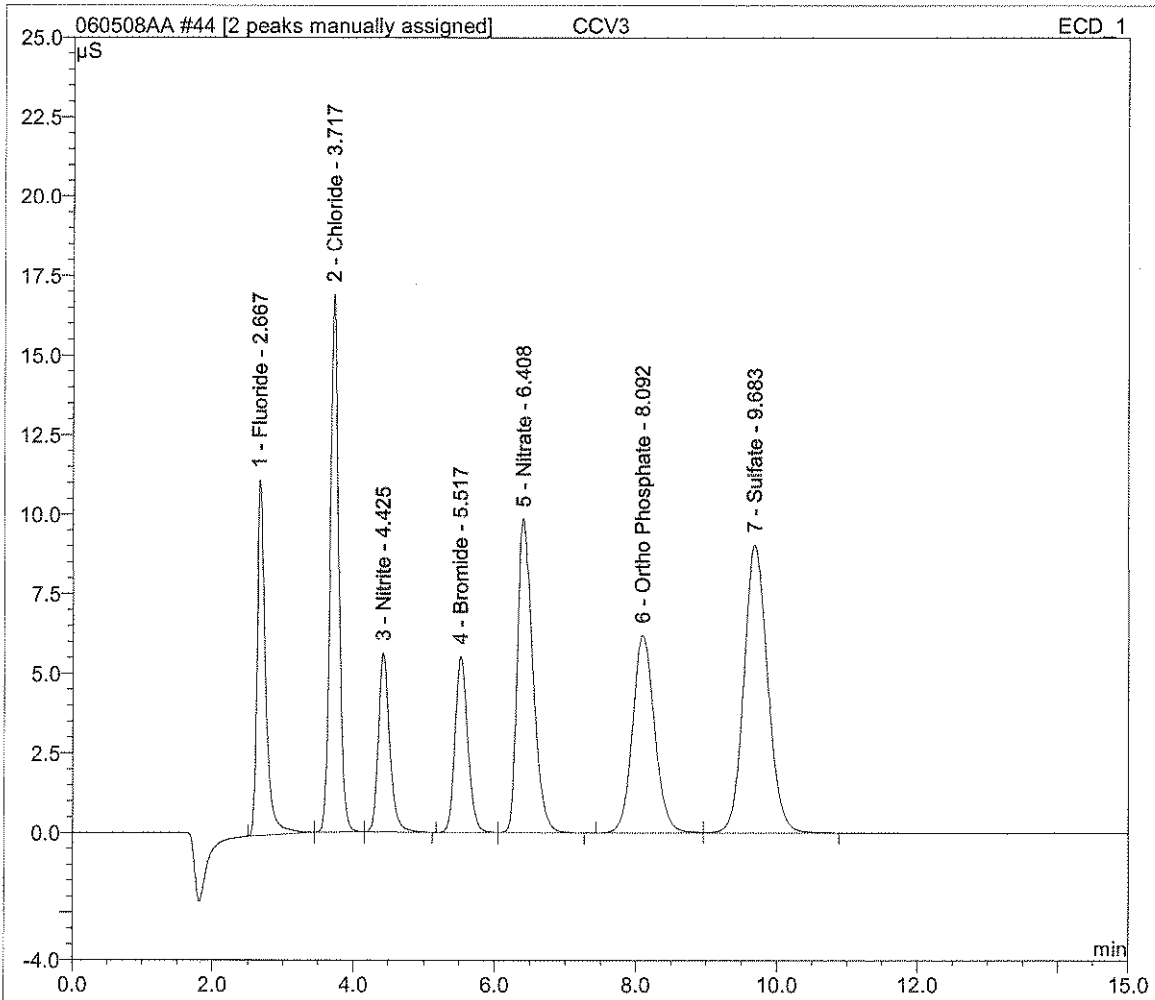
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Sample Type:	unknown	Dilution Factor:	1.0000
Program:	ANIONS on DIONEX2	Operator:	n.a.
Inj. Date/Time:	05.06.08 22:52	Run Time:	15.00

No.	Time min	Peak Name	Type	Area $\mu\text{S} \cdot \text{min}$	Height μS	Amount mg/L
1	2.67	Fluoride	BMB	0.609	4.143	0.7649
2	3.73	Chloride	BMB	4.667	34.024	9.1087
3	4.43	Nitrite	bMB	0.397	2.147	0.3704
4	5.53	Bromide	BMB	0.445	2.091	1.8505
5	6.44	Nitrate	bMB	0.992	3.893	0.7513
6	8.12	Ortho Phosphate	BM ^	0.865	2.199	1.8030
7	9.69	Sulfate	MB^	3.079	7.878	8.3075
TOTAL:				11.05	56.37	22.96



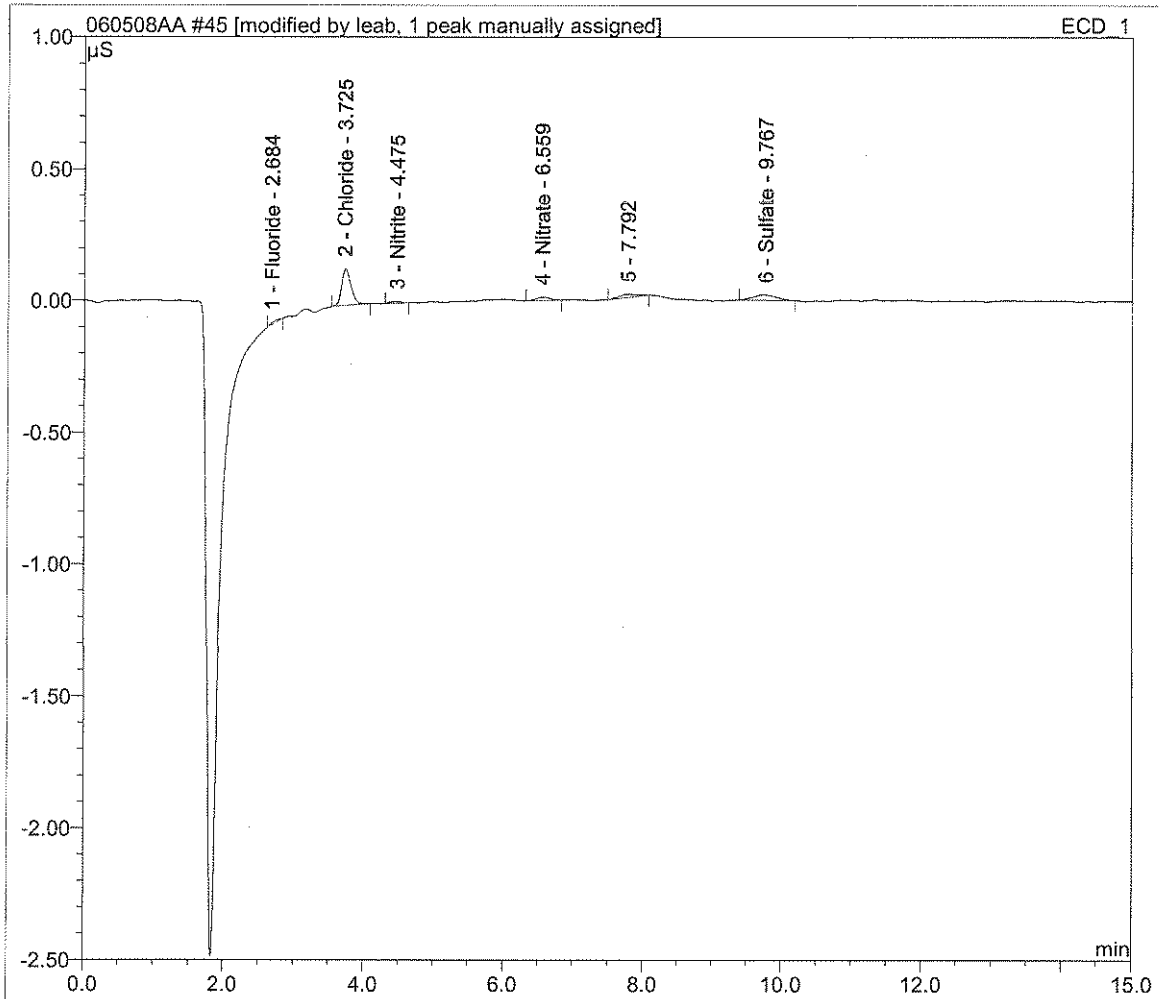
Sample Name:	CCV3	Inj. Vol.:	0.5
Sample Type:	unknown	Dilution Factor:	1.0000
Program:	ANIONS on DIONEX2	Operator:	n.a.
Inj. Date/Time:	06.06.08 01:33	Run Time:	15.00

No.	Time min	Peak Name	Type	Area $\mu\text{S} \cdot \text{min}$	Height μS	Amount mg/L
1	2.67	Fluoride	BMB	1.541	11.167	1.9354
2	3.72	Chloride	bMb	2.412	16.895	4.7068
3	4.43	Nitrite	bMB	1.046	5.618	0.9767
4	5.52	Bromide	BMB	1.157	5.528	4.8138
5	6.41	Nitrate	bMB	2.497	9.843	1.8918
6	8.09	Ortho Phosphate	BM ^	2.261	6.211	4.7125
7	9.68	Sulfate	MB^	3.547	9.040	9.5708
TOTAL:				14.46	64.30	28.61



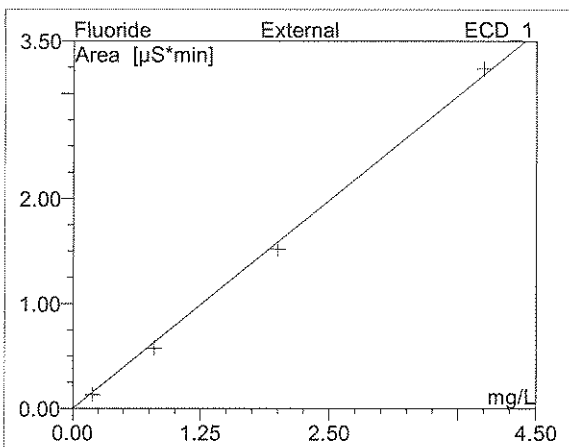
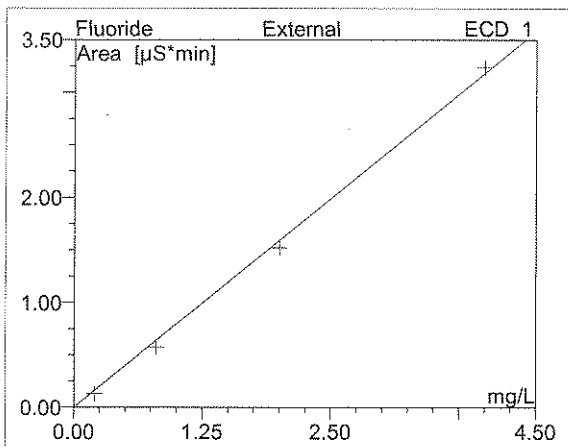
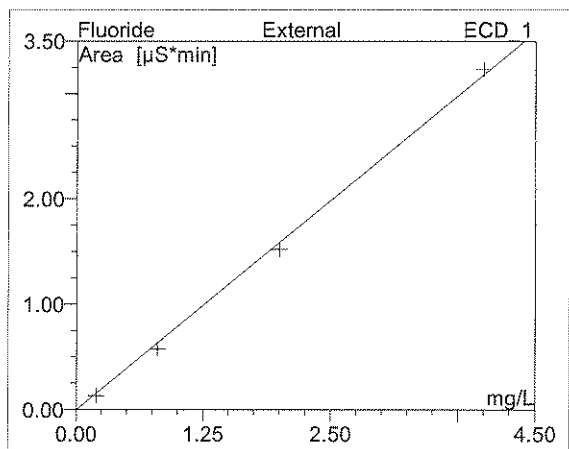
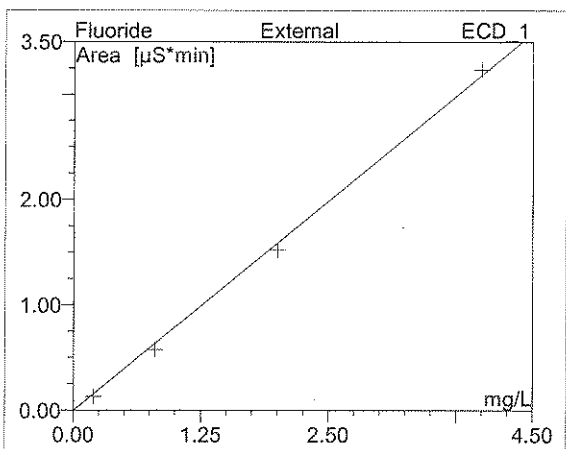
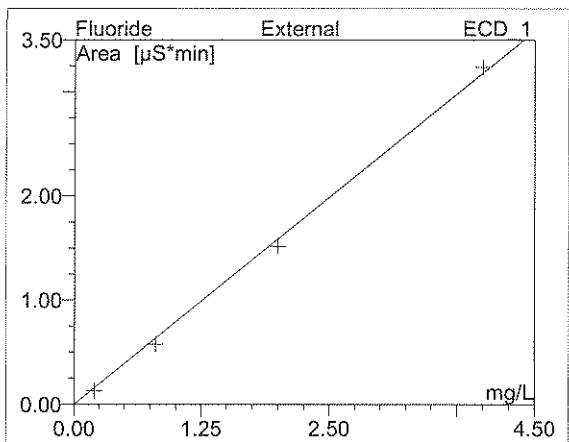
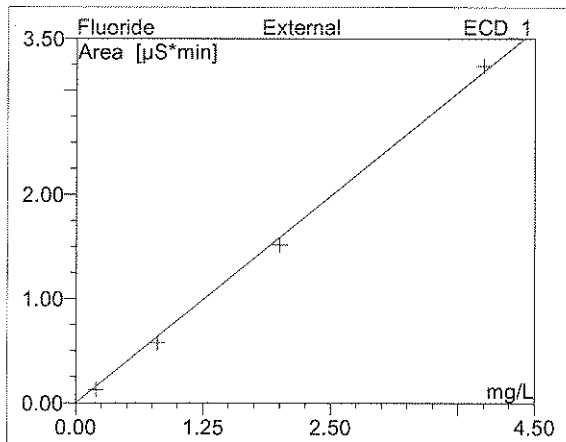
Sample Name:	CCB3	Inj. Vol.:	0.5
Sample Type:	unknown	Dilution Factor:	1.0000
Program:	ANIONS on DIONEX2	Operator:	n.a.
Inj. Date/Time:	06.06.08 01:49	Run Time:	15.00

No.	Time min	Peak Name	Type	Area $\mu\text{S} \cdot \text{min}$	Height μS	Amount mg/L
1	2.68	Fluoride	BMB*	0.001	0.008	0.0013
2	3.73	Chloride	BMB*	0.022	0.139	0.0428
3	4.48	Nitrite	BMB*	0.001	0.007	0.0013
4	6.56	Nitrate	BMB	0.003	0.013	0.0023
6	9.77	Sulfate	BMB^	0.008	0.021	0.0215
TOTAL:				0.04	0.19	0.07

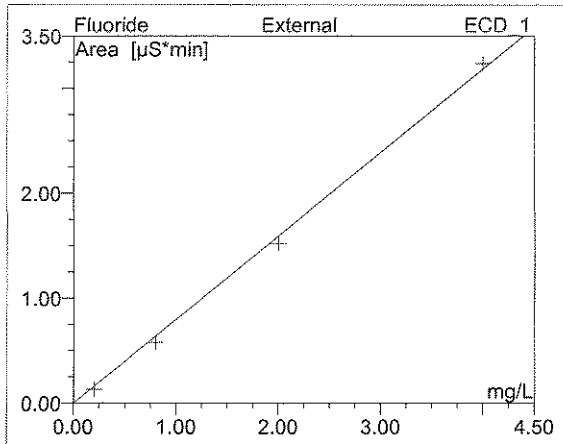


Calibration Batch Report

Sequence: 060508AA	Inj. Vol.: 0.5
Program: ANIONS on DIONEX2	Operator: P4-2600-01
Inj. Date/Time: 06/05/08 15:20	Run Time: 15.00



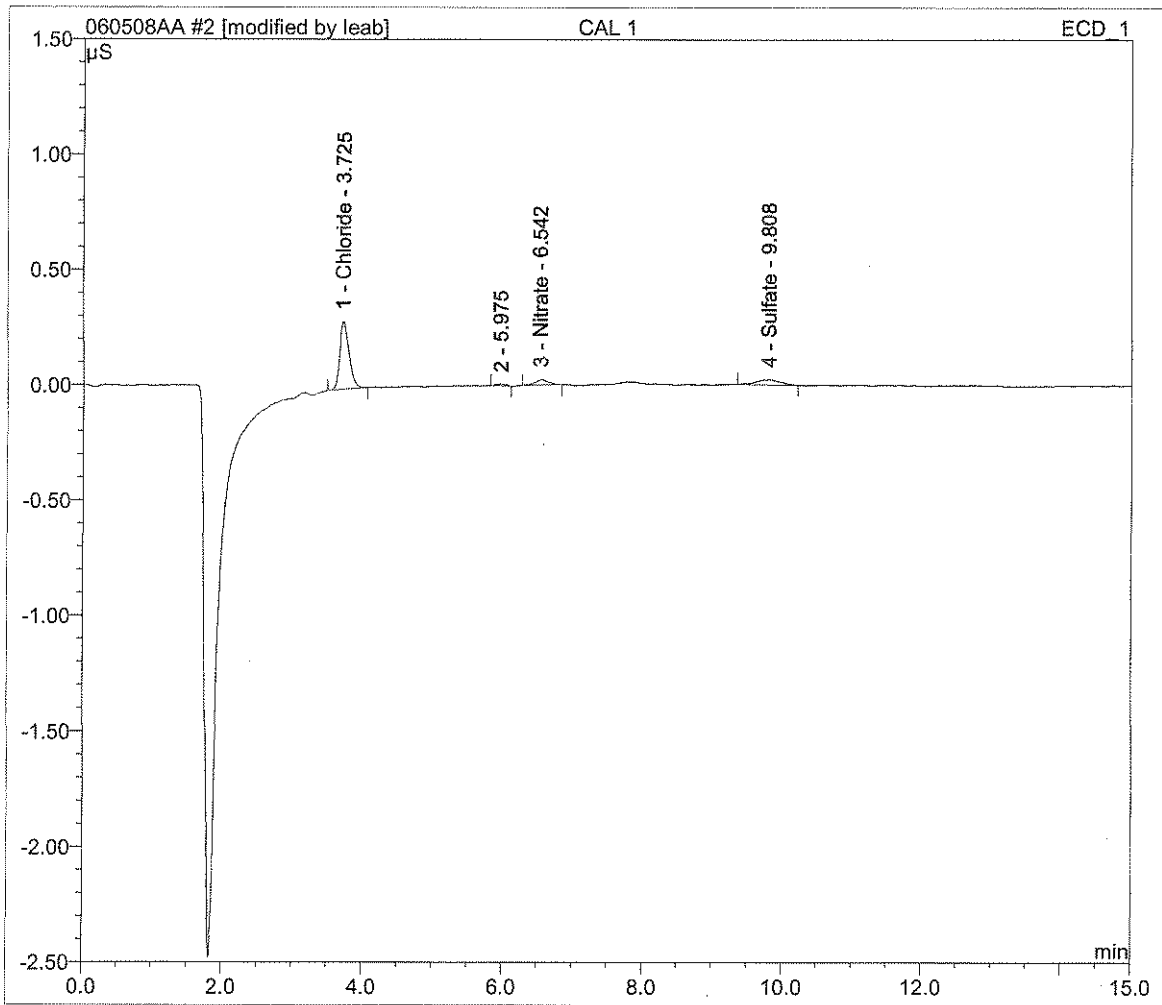
Sequence:	060508AA	Inj. Vol.:	0.5
Program:	ANIONS on DIONEX2	Operator:	n.a.
Inj. Date/Time:	06/05/08 15:20	Run Time:	15.00



No.	Ret. Time min	Peak Name	Cal. Type	Points	Offset (C0)	Slope (C1)	Curve (C2)	Corr. Coeff. %
1	2.68	Fluoride	Lin	4	0.000	0.796	0.000	99.961
2	3.74	Chloride	Lin	5	0.000	0.512	0.000	99.867
3	4.43	Nitrite	Lin	4	0.000	1.071	0.000	99.972
4	5.51	Bromide	Lin	4	0.000	0.240	0.000	99.950
5	6.37	Nitrate	Lin	5	0.000	1.320	0.000	99.891
6	8.12	Ortho Phosphate	Lin	4	0.000	0.480	0.000	99.891
7	9.73	Sulfate	Lin	5	0.000	0.371	0.000	99.903
AVERAGE:					0.0000	0.6844	0.0000	99.9192

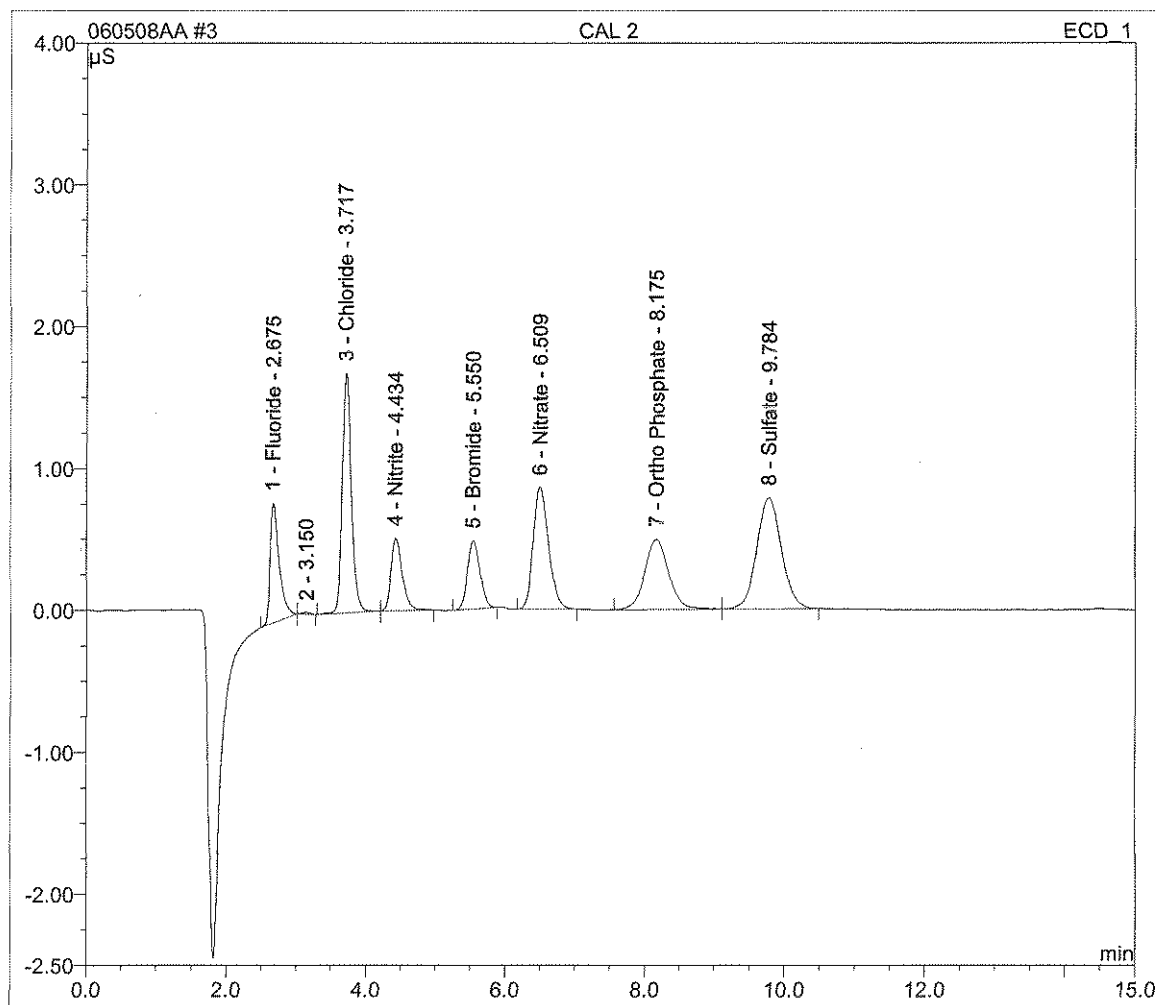
Sample Name:	CAL 1	Inj. Vol.:	0.5
Sample Type:	standard	Dilution Factor:	1.0000
Program:	ANIONS on DIONEX2	Operator:	n.a.
Inj. Date/Time:	05.06.08 14:16	Run Time:	15.00

No.	Time min	Peak Name	Type	Area $\mu\text{S}\cdot\text{min}$	Height μS	Amount mg/L
1	3.73	Chloride	BMB*	0.045	0.293	0.0881
3	6.54	Nitrate	BMB	0.005	0.024	0.0040
4	9.81	Sulfate	BMB	0.009	0.023	0.0249
TOTAL:				0.06	0.34	0.12



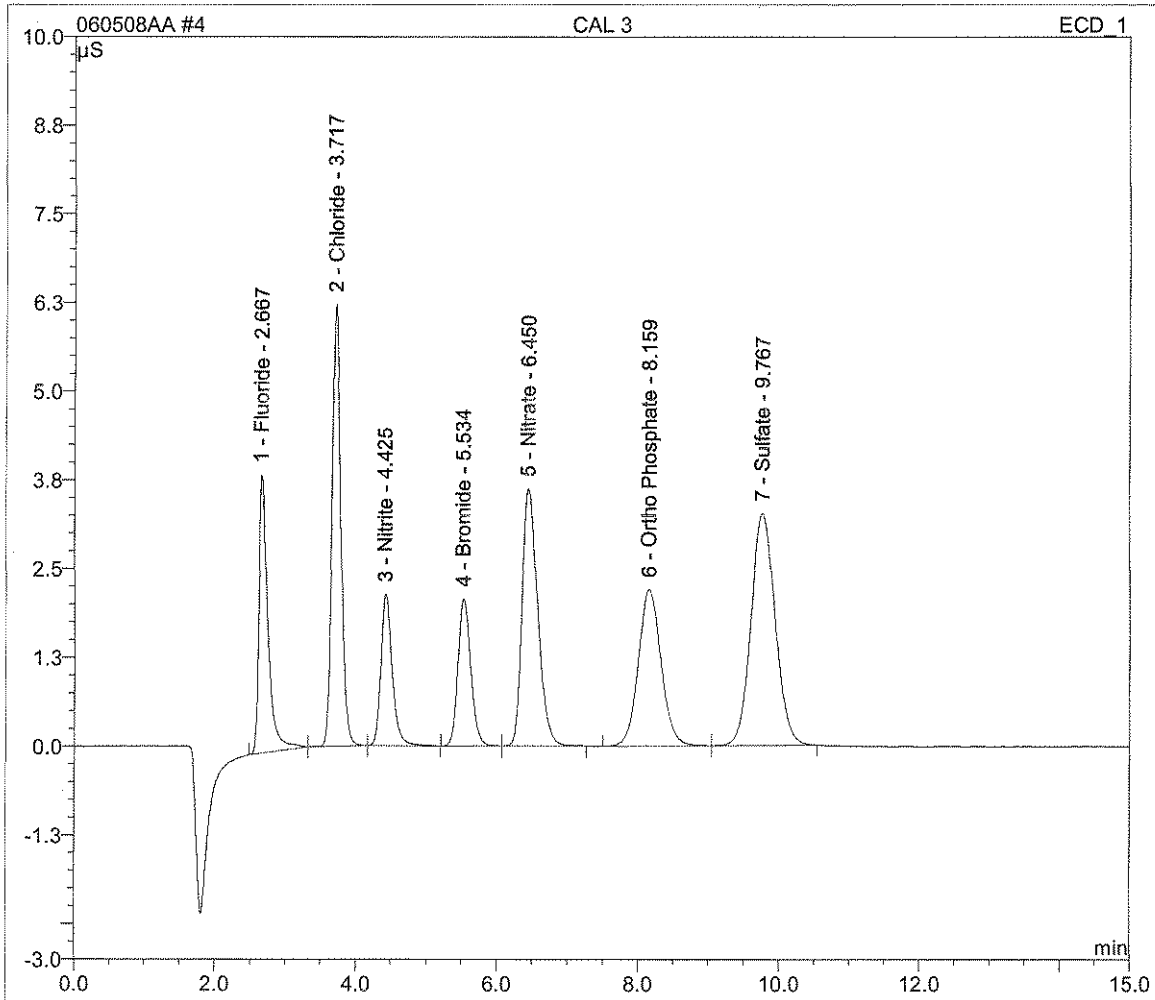
Sample Name:	CAL 2	Inj. Vol.:	0.5
Sample Type:	standard	Dilution Factor:	1.0000
Program:	ANIONS on DIONEX2	Operator:	n.a.
Inj. Date/Time:	05.06.08 14:32	Run Time:	15.00

No.	Time min	Peak Name	Type	Area $\mu\text{S} \cdot \text{min}$	Height μS	Amount mg/L
1	2.68	Fluoride	BMb	0.129	0.845	0.1615
3	3.72	Chloride	BMb	0.257	1.689	0.5020
4	4.43	Nitrite	bMB	0.097	0.510	0.0901
5	5.55	Bromide	BMB	0.100	0.481	0.4171
6	6.51	Nitrate	BMB	0.221	0.860	0.1674
7	8.18	Ortho Phosphate	BM	0.195	0.493	0.4072
8	9.78	Sulfate	MB	0.321	0.784	0.8672
TOTAL:				1.32	5.66	2.61



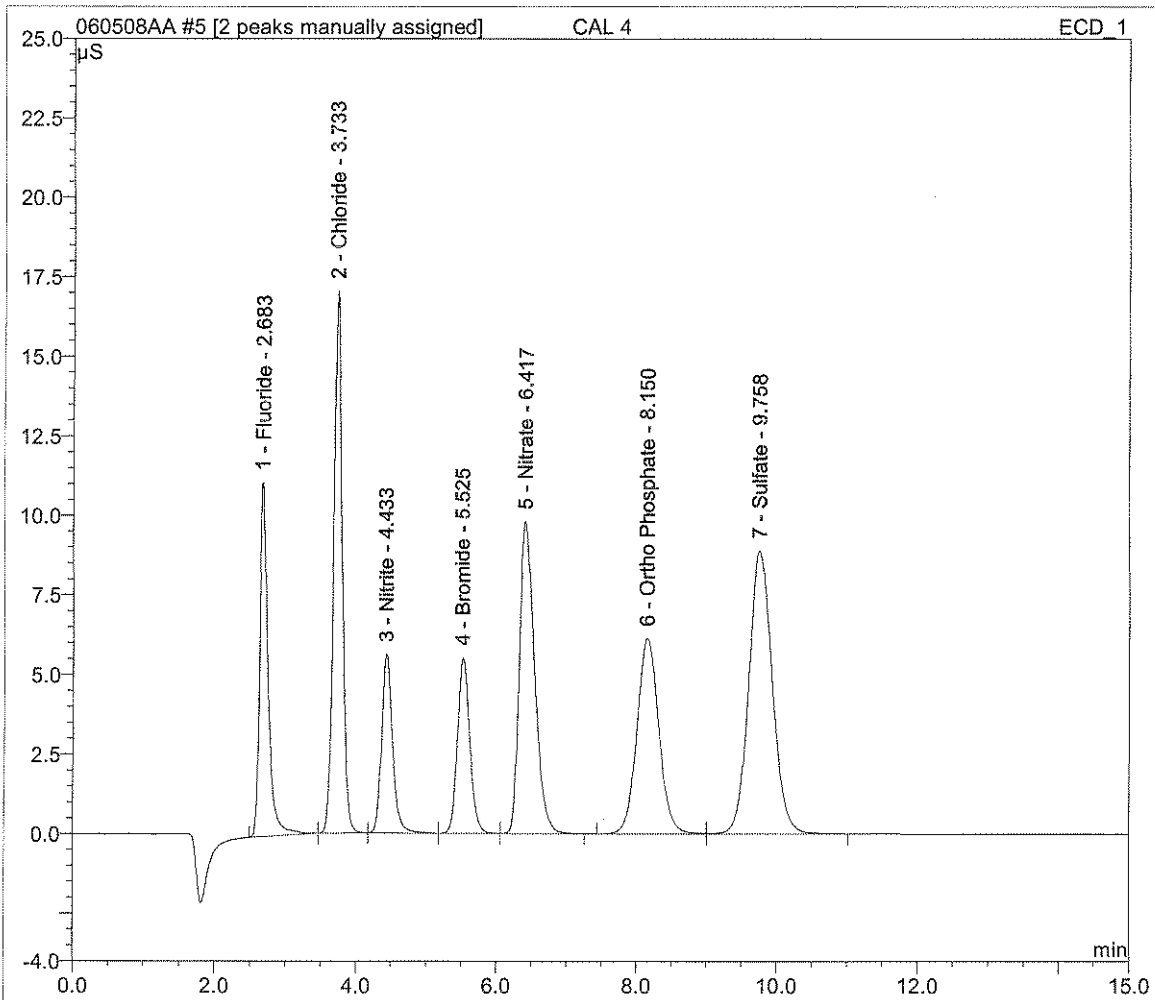
Sample Name:	CAL 3	Inj. Vol.:	0.5
Sample Type:	standard	Dilution Factor:	1.0000
Program:	ANIONS on DIONEX2	Operator:	n.a.
Inj. Date/Time:	05.06.08 14:48	Run Time:	15.00

No.	Time min	Peak Name	Type	Area $\mu\text{S} \cdot \text{min}$	Height μS	Amount mg/L
1	2.67	Fluoride	BMB	0.575	3.921	0.7216
2	3.72	Chloride	bMb	0.905	6.224	1.7665
3	4.43	Nitrite	bMB	0.401	2.133	0.3746
4	5.53	Bromide	BMB	0.438	2.067	1.8219
5	6.45	Nitrate	bMB	0.927	3.625	0.7020
6	8.16	Ortho Phosphate	BM	0.829	2.205	1.7284
7	9.77	Sulfate	MB	1.302	3.266	3.5135
TOTAL:				5.38	23.44	10.63



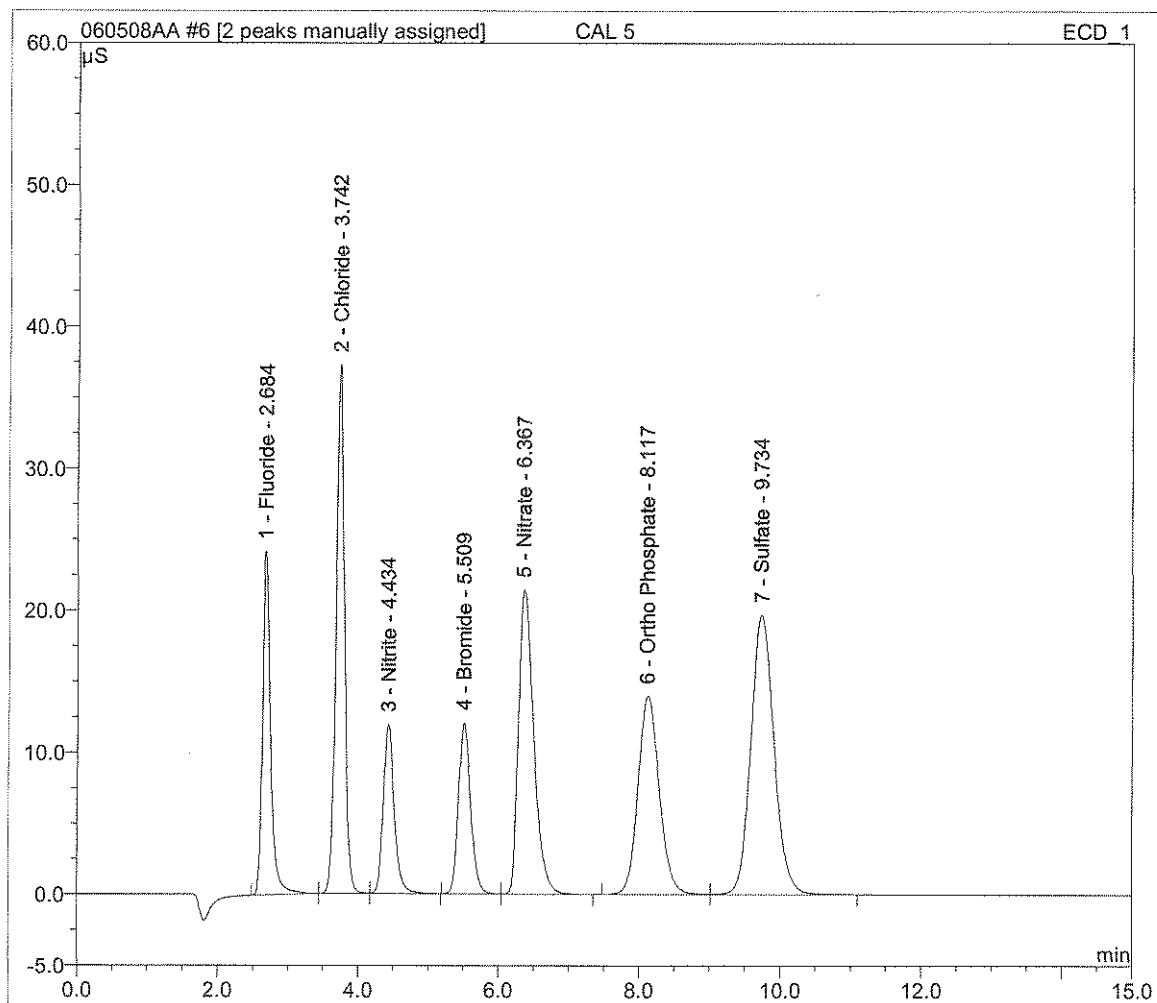
Sample Name:	CAL 4	Inj. Vol.:	0.5
Sample Type:	standard	Dilution Factor:	1.0000
Program:	ANIONS on DIONEX2	Operator:	n.a.
Inj. Date/Time:	05.06.08 15:04	Run Time:	15.00

No.	Time min	Peak Name	Type	Area $\mu\text{S}^*\text{min}$	Height μS	Amount mg/L
1	2.68	Fluoride	BMB	1.520	11.124	1.9090
2	3.73	Chloride	bMb	2.395	17.040	4.6743
3	4.43	Nitrite	bMb	1.032	5.616	0.9635
4	5.53	Bromide	bM	1.141	5.513	4.7482
5	6.42	Nitrate	MB	2.465	9.803	1.8668
6	8.15	Ortho Phosphate	BM ^	2.227	6.146	4.6408
7	9.76	Sulfate	MB^	3.480	8.882	9.3912
TOTAL:				14.26	64.12	28.19



Sample Name:	CAL 5	Inj. Vol.:	0.5
Sample Type:	standard	Dilution Factor:	1.0000
Program:	ANIONS on DIONEX2	Operator:	n.a.
Inj. Date/Time:	05.06.08 15:20	Run Time:	15.00

No.	Time min	Peak Name	Type	Area $\mu\text{S}^*\text{min}$	Height μS	Amount mg/L
1	2.68	Fluoride	BMb	3.235	24.183	4.0631
2	3.74	Chloride	bMb	5.231	37.276	10.2095
3	4.43	Nitrite	bMB	2.168	11.926	2.0238
4	5.51	Bromide	BM	2.443	12.077	10.1657
5	6.37	Nitrate	MB	5.397	21.450	4.0878
6	8.12	Ortho Phosphate	BM ^	4.912	14.001	10.2386
7	9.73	Sulfate	MB^	7.563	19.695	20.4083
TOTAL:				30.95	140.61	61.20



Sequence: 060508AA
Operator: leab

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Printed: 6/9/2008 12:52:47 PM

Title:
Datasource: D33TPG41_local
Location:
Timebase: PERC
#Samples: 58

Created: 6/5/2008 1:59:12 PM by leab
Last Update: 6/5/2008 5:41:50 PM by leab

No.	Name	Inj. Date/Time	Comment
1	RINSE	6/5/2008 2:00:06 PM	ICS-2500 DIONEX 2
2	CAL 1	6/5/2008 2:16:13 PM	ICS-2500 DIONEX 2 (0 uL IC-7-30-5)
3	CAL 2	6/5/2008 2:32:20 PM	ICS-2500 DIONEX 2 (25 uL IC-7-30-5)
4	CAL 3	6/5/2008 2:48:27 PM	ICS-2500 DIONEX 2 (100 uL IC-7-30-5)
5	CAL 4	6/5/2008 3:04:34 PM	ICS-2500 DIONEX 2 (250 uL IC-7-30-5)
6	CAL 5	6/5/2008 3:20:41 PM	ICS-2500 DIONEX 2 (500 uL IC-7-30-5)
7	RINSE	6/5/2008 3:36:49 PM	ICS-2500 DIONEX 2
8	ICV	6/5/2008 3:52:56 PM	ICS-2500 DIONEX 2 (25 uL IC-7-25-5)
9	ICB	6/5/2008 4:09:03 PM	ICS-2500 DIONEX 2
10	SPK	6/5/2008 4:25:10 PM	ICS-2500 DIONEX 2 (25 uL IC-7-25-5)
11	BLANK	6/5/2008 4:41:18 PM	ICS-2500 DIONEX 2
12	PGGW080601-001	6/5/2008 4:57:25 PM	ICS-2500 DIONEX 2
13	PGGW080601-002	6/5/2008 5:13:32 PM	ICS-2500 DIONEX 2
14	PGGW080601-003	6/5/2008 5:29:39 PM	ICS-2500 DIONEX 2
15	PGGW080601-004	6/5/2008 5:45:46 PM	ICS-2500 DIONEX 2
16	RIVE060801-001	6/5/2008 6:01:54 PM	ICS-2500 DIONEX 2
17	RIVE060801-001 5X	6/5/2008 6:18:01 PM	ICS-2500 DIONEX 2
18	RIVE060801-001MS 5X	6/5/2008 6:34:08 PM	ICS-2500 DIONEX 2 100 uL IC-7-30-5
19	RIVE060801-001MSD 5X	6/5/2008 6:50:16 PM	ICS-2500 DIONEX 2 (100 uL IC-7-30-5) -8
20	CCV1	6/5/2008 7:06:23 PM	ICS-2500 DIONEX 2 (250 uL IC-7-30-5) -8
21	CCB1	6/5/2008 7:22:30 PM	ICS-2500 DIONEX 2
22	ROAN080601-001	6/5/2008 7:38:37 PM	ICS-2500 DIONEX 2
23	OSCI080501-001	6/5/2008 7:54:44 PM	ICS-2500 DIONEX 2
24	KC230813-002	6/5/2008 8:10:52 PM	ICS-2500 DIONEX 2
25	RINSE	6/5/2008 8:26:59 PM	ICS-2500 DIONEX 2
26	RINSE	6/5/2008 8:43:06 PM	ICS-2500 DIONEX 2
27	JPL115-001 10X	6/5/2008 8:59:14 PM	ICS-2500 DIONEX 2
28	JPL115-002 10X	6/5/2008 9:15:21 PM	ICS-2500 DIONEX 2
29	JPL115-003 10X	6/5/2008 9:31:29 PM	ICS-2500 DIONEX 2
30	JPL115-004 10X	6/5/2008 9:47:36 PM	ICS-2500 DIONEX 2
31	JPL115-004MS 10X	6/5/2008 10:03:43 PM	ICS-2500 DIONEX 2 (100 uL IC-7-30-5)
32	CCV2	6/5/2008 10:19:50 PM	ICS-2500 DIONEX 2 (250 uL IC-7-30-5)
33	CCB2	6/5/2008 10:35:57 PM	ICS-2500 DIONEX 2
34	JPL115-004MSD 10X	6/5/2008 10:52:05 PM	ICS-2500 DIONEX 2 (100 uL IC-7-30-5)
35	JPL116-001 10X	6/5/2008 11:08:12 PM	ICS-2500 DIONEX 2
36	JPL116-001MS 10X	6/5/2008 11:24:19 PM	ICS-2500 DIONEX 2 100 uL IC-7-30-5
37	JPL116-001MSD 10X	6/5/2008 11:40:26 PM	ICS-2500 DIONEX 2
38	JPL116-002 10X	6/5/2008 11:56:33 PM	ICS-2500 DIONEX 2
39	JPL116-003 10X	6/6/2008 12:12:41 AM	ICS-2500 DIONEX 2
40	KC050813-001	6/6/2008 12:28:48 AM	ICS-2500 DIONEX 2 (400 uL IC-7-30-5)
41	KC050813-002	6/6/2008 12:44:55 AM	ICS-2500 DIONEX 2 (100 uL IC-7-30-5)
42	KC050814-001	6/6/2008 1:01:02 AM	ICS-2500 DIONEX 2

LB
6/9/08

100 uL IC-7-30-5

100

100

100 uL IC-7-30-5

Sequence: 060508AA
Operator: leab

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Printed: 6/9/2008 12:52:47 PM

Title:
Datasource: D33TPG41_local
Location:
Timebase: PERC
#Samples: 58

Created: 6/5/2008 1:59:12 PM by leab
Last Update: 6/5/2008 5:41:50 PM by leab

No.	Name	Inj. Date/Time	Comment
43	KC070806-001	6/6/2008 1:17:10 AM	ICS-2500 DIONEX 2
44	CCV3	6/6/2008 1:33:17 AM	ICS-2500 DIONEX 2 (250 uL IC-7-30-5) ⁸
45	CCB3	6/6/2008 1:49:24 AM	ICS-2500 DIONEX 2
46	KC070806-001MS	6/6/2008 2:05:31 AM	ICS-2500 DIONEX 2 100 uL IC-7-30-8
47	KC070806-001MSD	6/6/2008 2:21:38 AM	ICS-2500 DIONEX 2
48	KC050815-001	6/6/2008 2:37:46 AM	ICS-2500 DIONEX 2
49	KC050815-002	6/6/2008 2:53:53 AM	ICS-2500 DIONEX 2
50	KC070807-001	6/6/2008 3:10:00 AM	ICS-2500 DIONEX 2
51	KC070807-001 5X	6/6/2008 3:26:07 AM	ICS-2500 DIONEX 2
52	KC070807-002	6/6/2008 3:42:14 AM	ICS-2500 DIONEX 2
53	KC070807-002 5X	6/6/2008 3:58:21 AM	ICS-2500 DIONEX 2
54	KC070807-002MS 5X	6/6/2008 4:14:28 AM	ICS-2500 DIONEX 2 100 uL IC-7-30-8
55	KC070807-002MSD 5X	6/6/2008 4:30:35 AM	ICS-2500 DIONEX 2 (100 uL IC-7-30-5) ⁸
56	CCV4	6/6/2008 4:46:42 AM	ICS-2500 DIONEX 2 (250 uL IC-7-30-5) ⁸
57	CCB4	6/6/2008 5:02:50 AM	ICS-2500 DIONEX 2
58	SHUTDOWN	6/6/2008 5:18:57 AM	ICS-2500 DIONEX 2

VB 6/9/08

DAILY MICROPIPETTE CALIBRATION REPORT

Pace Analytical

Lauks Testing Laboratories, INC. - Seattle, WA

Micropipette passes if between 98-102% of True Value

Pipette #	Date	Analyst	Grams H ₂ O	% of T.V.	Temp H ₂ O	Comment
010-12	5/13/08	UB	.0101	101.0%	20°	
025-9	↓		.0252	100.8%	↓	
050-12			.0508	101.6%		
100-12			.0101	101.0%		
250-10			.249	99.6%		
500-15			.496	99.2%		
1000-24			1.017	101.7%		
Macro			5.07	101.4%		
010-12	5/14/08	UB	.0102	102.0%	20°	
025-9	↓		.0252	100.8%	↓	
050-12			.0507	101.4%		
100-12			.1016	101.6%		
250-10			.250	100.0%		
500-15			.500	100.0%		
1000-24			1.007	100.7%		
Macro			5.05	101.0%		
010-12	5/23	UB	.0101	101.0%	21°	
025-9	↓		.0252	100.8%	↓	
050-12			.0506	101.2%		
100-12			.1016	101.6%		
250-10			.248	99.2%		
500-15			.499	99.8%		
1000-24			1.010	101.7%		
Macro			5.06	101.2%		
010-12	6/4/08	UB	.0101	101.0%	21°	
025-9	↓		.0253	101.2%	↓	
050-12			.0505	101.0%		
100-12			.1015	101.5%		
250-10			.250	100.0%		
500-15			.504	100.8%		
1000-24			1.009	100.9%		
Macro			5.08	101.6%		



STANDARD SOLUTION DATA SHEET

1. STANDARD INFORMATION

Name: Seven Anion Standard

Log Entry: IC-7-25-5

Received/Prepared Date: 08/06/2007

Expiration Date: 06/15/2008

Location:

Manufacturer's Exp. Date: 06/15/2008

Vendor: Dionex

Catalog Number: 056933

Lot Number: 35-92AS

Solvent: Deionized H2O

Certificate Number: 031679-01

Notes:

2. COMPOSITION - ANALYTES

CHEMICAL	CAS #	STOCK CONC.	FINAL CONC.
<i>Bromide</i>	24959-67-9	101 mg/L	-
<i>Chloride</i>	16887-00-6	30.2 mg/L	-
<i>Fluoride</i>	16984-48-8	20.1 mg/L	-
<i>Nitrate as N</i>	14797-55-8	23.0 mg/L	-
<i>Nitrite as N</i>	14797-65-0	30.3 mg/L	-
<i>Phosphorus, Orthophosphate (as P)</i>	7723-14-0	49.2 mg/L	-
<i>Phosphorus, Soluble reactive (as P)</i>	P(SOL)	49.2 mg/L	-
<i>Sulfate as SO4</i>	14808-79-8	150 mg/L	-

FORM LTL-SS-3.0

Program File: ANIONS on DIONEX2
Operator: leab

Commands, Page 1 of 1
Printed: 6/9/2008 12:52:48 PM

Title: anions
Datasource: D33TPG41_local
Location: 060508AA.SEQ
Timebase: PERC

Created: 10/1/2007 12:12:47 PM by colleenc
Changed: 3/11/2008 2:37:02 PM by leab

```
; ECD.Recommended Current =      87
   Pressure.LowerLimit =      50
   Pressure.UpperLimit =     3000
   %A.Equate = "A"
   LoadPosition
   Data_Collection_Rate =      2.0
   Temperature_Compensation =   1.7
   DS3_Temperature =          30
   Suppressor_Type = ASRS_4mm
; ECD.Carbonate = 1.7
; ECD.Bicarbonate = 1.8
; ECD.Hydroxide = 0.0
; ECD.Tetraborate = 0.0
; ECD.Other eluent = 0.0
   Suppressor_Current =      87
   Flow = 1.3

-1.000 Pump_TTL_1.0v          Duration=5.00

0.000 Autozero
   Pump_InjectValve.InjectPosition          Duration=150.00
   ECD_1.AcqOn

15.000 ECD_1.AcqOff

End
```

Program File: shutdown

Commands, Page 1 of 1

Operator: leab

Printed: 6/9/2008 12:52:49 PM

Title:

Datasource: D33TPG41_local

Location: 060508AA.SEQ

Created: 5/12/2004 11:42:28 AM by Administrator

Timebase: PERC

Changed: 5/12/2004 11:57:48 AM by Administrator

Pressure.LowerLimit = 50
Pressure.UpperLimit = 3000
%A.Equate = "%A"
LoadPosition
Data_Collection_Rate = 2.0
Temperature_Compensation = 1.7
DS3_Temperature = 30
Suppressor_Type = None
Flow = 0.00

0.000

End

Method File: AS14
Operator: leab

Title:
Datasource: D33TPG41_local Created: 10/1/2007 1:12:18 PM by colleenc
Location: 060508AA.SEQ Last Update: 6/6/2008 3:57:53 PM by leab

Blank Run Subtraction: No Blank Run Subtraction

Detection Table:

No.	Ret. Time [min]	Param. Name	Param. Value	Channel
1	0.000	Inhibit Integration	On	All Channels
2	0.000	Minimum Area	0.001 "[Signal]*min"	All Channels
3	2.500	Inhibit Integration	Off	All Channels

Method File: AS14
Operator: leab

Page 2 of 7
Printed: 6/9/2008 12:52:50 PM

Title:
Datasource: D33TPG41_local Created: 10/1/2007 1:12:18 PM by colleenc
Location: 060508AA.SEQ Last Update: 6/6/2008 3:57:53 PM by leab

Peak Table:

Use Recently Detected Retention Times: Off
Peak Retention Time Determination: Absolute
Dead time:
Delay Time of 2'nd Detector: <None>
Delay Time of 3'rd Detector: <None>

No.	Peak Name	Ret.Time	Window	Standard	Int.Type	Cal.Type	Peak Type	Group	Comment
1	Fluoride	2.700 min	0.100 AG	External	Area	Lin	B-M-B		Autogenerate
2	Chloride	3.700 min	0.100 AG	External	Area	Lin	B-M-B		Autogenerate
3	Nitrite	4.400 min	0.100 AG	External	Area	Lin	B-M-B		Autogenerate
4	Bromide	5.600 min	0.100 AG	External	Area	Lin	B-M-B		Autogenerate
5	Nitrate	6.500 min	0.150 AG	External	Area	Lin	B-M-B		Autogenerate
6	Ortho Phosphate	8.200 min	0.100 AG	External	Area	Lin	B-M-B		Autogenerate
7	Sulfate	9.800 min	0.100 AG	External	Area	Lin	B-M-B		Autogenerate

Method File: AS14
Operator: leab

Page 3 of 7
Printed: 6/9/2008 12:52:50 PM

Title:
Datasource: D33TPG41_local Created: 10/1/2007 1:12:18 PM by colleenc
Location: 060508AA.SEQ Last Update: 6/6/2008 3:57:53 PM by leab

Amount Table:

Dimension of Amounts: mg/L

Reference volume for amounts: Use inject volume of first standard

Number of Amount Columns: 5

Sample column used for amount column assignment: Sample Name

No.	Peak Name	Ret.Time	Resp.Fact.	Comment	Amount CAL 1	Amount CAL 2	Amount CAL 3	Amount CAL 4	Amount CAL 5
1	Fluoride	2.700 min	1.000000	Autogenerate	0.000000	0.200000	0.800000	2.000000	4.000000
2	<i>Chloride</i>	<i>3.700 min</i>	<i>1.000000</i>	<i>Autogenerate</i>	<i>0.000000</i>	<i>0.500000</i>	<i>2.000000</i>	<i>5.000000</i>	<i>10.000000</i>
3	Nitrite	4.400 min	1.000000	Autogenerate	0.000000	0.100000	0.400000	1.000000	2.000000
4	Bromide	5.600 min	1.000000	Autogenerate	0.000000	0.500000	2.000000	5.000000	10.000000
5	Nitrate	6.500 min	1.000000	Autogenerate	0.000000	0.200000	0.800000	2.000000	4.000000
6	Ortho Phosphate	8.200 min	1.000000	Autogenerate	0.000000	0.500000	2.000000	5.000000	10.000000
7	Sulfate	9.800 min	1.000000	Autogenerate	0.000000	1.000000	4.000000	10.000000	20.000000






Method File: AS14
Operator: leab

Page 4 of 7
Printed: 6/9/2008 12:52:50 PM

Title:
Datasource: D33TPG41_local Created: 10/1/2007 1:12:18 PM by colleenc
Location: 060508AA.SEQ Last Update: 6/6/2008 3:57:53 PM by leab

Calibration:

Calibration Mode: Total
Auto Recalibrate: On
Curve Fitting Model: Normal

No.	Enabled	Name	Smp.No.	Pos.	Inj. Vol.	Weight	ISTD Amount	Dil. Factor	Inj. Date/Time
1	<input checked="" type="checkbox"/>	 CAL 1	2	2	0.5	1.0000	1.0000	1.0000	6/5/2008 2:16:13
2	<input checked="" type="checkbox"/>	 CAL 2	3	3	0.5	1.0000	1.0000	1.0000	6/5/2008 2:32:20
3	<input checked="" type="checkbox"/>	 CAL 3	4	4	0.5	1.0000	1.0000	1.0000	6/5/2008 2:48:27
4	<input checked="" type="checkbox"/>	 CAL 4	5	5	0.5	1.0000	1.0000	1.0000	6/5/2008 3:04:34
5	<input checked="" type="checkbox"/>	 CAL 5	6	6	0.5	1.0000	1.0000	1.0000	6/5/2008 3:20:41






Method File: AS14
Operator: leab

Page 5 of 7
Printed: 6/9/2008 12:52:50 PM

Title:
Datasource: D33TPG41_local Created: 10/1/2007 1:12:18 PM by colleenc
Location: 060508AA.SEQ Last Update: 6/6/2008 3:57:53 PM by leab

Calibration:

Calibration Mode: Total
Auto Recalibrate: On
Curve Fitting Model: Normal

No.	Enabled	Name	Sample Comment	Calib. Comment
1	<input checked="" type="checkbox"/>	 CAL 1	ICS-2500 DIONEX 2	Ok
2	<input checked="" type="checkbox"/>	 CAL 2	ICS-2500 DIONEX 2	Ok
3	<input checked="" type="checkbox"/>	 CAL 3	ICS-2500 DIONEX 2	Ok
4	<input checked="" type="checkbox"/>	 CAL 4	ICS-2500 DIONEX 2	Ok
5	<input checked="" type="checkbox"/>	 CAL 5	ICS-2500 DIONEX 2	Ok

Nitrate / Nitrite as Nitrogen Data

PACE ANALYTICAL SERVICES, INC.
Instrument Log Sheet

Run sequence#: R028459		Date/Time Started: 05/29/08 12:45			Analyst: Kristin Klein		
Instrument ID: Autoanalyzer (5)							
Sample Number	Type	DF	Method No.	Bottle #	Prep ID	Date Analyzed	Comments
ICV-0508-159	ICV	1.00	353.2		P029711	05/29/08 12:45	1 mL AP-49-2
S052908NNW02	S	1.00	353.2		P029711	05/29/08 12:45	1 mL AP-49-2
ICB-0508-159	ICB	1.00	353.2		P029711	05/29/08 12:47	
B052908NNW02	B	1.00	353.2		P029711	05/29/08 12:47	
MDLCHK052908003	MDLCH	1.00	353.2		P029711	05/29/08 12:48	50 ul AP-59-20
EN3-0508-7	EN3	1.00	353.2			05/29/08 12:50	200 ul AP-58-10
EN2-0508-7	EN2	1.00	353.2			05/29/08 12:51	2 mL AP-60-2
JPL115-001	SAMP	10.00	353.2		P029711	05/29/08 12:57	
JPL115-002	SAMP	1.00	353.2		P029711	05/29/08 12:59	
JPL115-003	SAMP	1.00	353.2		P029711	05/29/08 13:00	
JPL115-004	SAMP	1.00	353.2		P029711	05/29/08 13:02	
CCV1	CCV	1.00	353.2			05/29/08 13:03	2 mL AP-59-20
CCB1	CCB	1.00	353.2			05/29/08 13:05	
JPL115-004MS	MS	1.00	353.2		P029711	05/29/08 13:06	100 ul AP-58-10
JPL115-004MSD	MSD	1.00	353.2		P029711	05/29/08 13:08	100 ul AP-58-10
CCV2	CCV	1.00	353.2			05/29/08 13:20	2 mL AP-59-20
CCB2	CCB	1.00	353.2			05/29/08 13:21	

2028459

Run Name: 052908NNW02
 Configuration: NO3NO2
 Run date: 5/29/2008

ICV/SRM = 1mL AP-49-2 Int Std = AP-59-20 Astoria 2
 NO3 Spike = AP-58-10 CCV = 2 mL INT Autoanalyzer
 EN3 = 200 uL NO3 Spike
 EN2 = 2 mL AP-60-2 Kristin Klein

NO3NO2

Position	Identifier	Type	Comment	Time	Total	Raw Ht	mg/L
1	SR:9	SYNC	SYNC		12:30:15 PM	1	0.3221 2.3164
2	SR:2	W	Wash		12:30:40 PM	1	0.0004 0.0136
3	SR:3	w	Unknown		12:32:10 PM	1	0.0003 0.0130
4	SR:4	C1	Calibrant		12:33:40 PM	1	0.0004 0.0137
5	SR:5	C2	Calibrant		12:35:10 PM	1	0.0064 0.0569
6	SR:6	C3	Calibrant		12:36:40 PM	1	0.0129 0.1030
7	SR:7	C4	Calibrant		12:38:11 PM	1	0.0648 0.4749
8	SR:8	C5	Calibrant		12:39:41 PM	1	0.1374 0.9945
9	SR:9	C6	Calibrant		12:41:10 PM	1	0.3486 2.5070
		Curve #:					1
		Curve Type:					Linear
		Correlation:					0.99990
		Intercept:					-0.0019023
		Linear coef:					0.13969
10	SR:10	W	Wash		12:42:40 PM	1	0.0003 0.0136
11	SR:11	w	Unknown		12:44:10 PM	1	0.0003 0.0134
12	1:1	ICV/S052908NNW02	Unknown		12:45:40 PM	1	0.2110 1.5218
13	1:2	ICB/B052908NNW02	Unknown		12:47:10 PM	1	0.0008 0.0170
14	1:3	MDL	Unknown		12:48:41 PM	1	0.0032 0.0344
15	1:4	EN3	Unknown		12:50:11 PM	1	0.2804 2.0184
16	1:5	EN2	Unknown		12:51:41 PM	1	0.2284 1.6461
17	1:16	EPTM34-005	Unknown		12:53:10 PM	1	0.0016 0.0229
18	1:17	EPTM34-005MS	Unknown		12:54:40 PM	1	0.1200 0.8705
19	1:18	EPTM34-005MSD	Unknown		12:56:10 PM	1	0.1226 0.8890
20	1:19	JPL115-001(10x)	Unknown		12:57:40 PM	1	0.0976 0.7100
21	1:20	JPL115-002	Unknown		12:59:10 PM	1	0.0665 0.4873
22	1:21	JPL115-003	Unknown		1:00:41 PM	1	0.3158 2.2720
23	1:22	JPL115-004	Unknown		1:02:11 PM	1	0.0671 0.4917
24	SR:8	CCV2 <i>W. 5/29/08</i>	Unknown		1:03:41 PM	1	0.1369 0.9914
25	SR:4	CCB2	Unknown		1:05:10 PM	1	0.0007 0.0163
26	1:23	JPL115-004MS	Unknown		1:06:40 PM	1	0.2147 1.5482
27	1:24	JPL115-004MSD	Unknown		1:08:10 PM	1	0.2091 1.5079
28	1:25	JPL116-001(20x)	Unknown		1:09:40 PM	1	0.0857 0.6252
29	1:26	JPL116-002	Unknown		1:11:10 PM	1	0.1744 1.2600
30	1:27	JPL116-003	Unknown		1:12:41 PM	1	0.1651 1.1933
31	1:28	JPL116-003MS	Unknown		1:14:11 PM	1	0.3100 2.2308

W. 5/29/08

NO3NO2

Position	Identifier	Type	Comment	Time	Total	Raw Ht	mg/L
32	1:29 JPL116-003MSD	Unknown		1:15:40 PM	1	0.3200	2.3018
33	1:30 JPL117-001	Unknown		1:17:10 PM	1	0.2840	2.0444
34	1:31 JPL117-002(20x)	Unknown		1:18:40 PM	1	0.0811	0.5916
35	SR:8 CCV\$ 2 <i>11/5/29.08</i>	Unknown		1:20:10 PM	1	0.1394	1.0094
36	SR:4 CCB\$ 2	Unknown		1:21:40 PM	1	0.0008	0.0170
37	1:34 JPL117-003(2x)	Unknown		1:23:11 PM	1	0.1395	1.0098
38	1:35 JPL117-003(2x)MS	Unknown		1:24:41 PM	1	0.2906	2.0917
39	1:36 JPL117-003(2x)MSD	Unknown		1:26:11 PM	1	0.2925	2.1051
40	1:37 KC050815-001	Unknown		1:27:40 PM	1	0.3466	2.4924
41	1:38 KC050815-002	Unknown		1:29:10 PM	1	0.1941	1.4009
42	1:39 KC070806-001	Unknown		1:30:40 PM	1	0.0355	0.2655
43	1:40 KC070807-001	Unknown		1:32:10 PM	1	0.0083	0.0705
44	1:41 KC070807-002	Unknown		1:33:40 PM	1	0.2547	1.8347
45	1:42 KC070808-001	Unknown		1:35:11 PM	1	0.1103	0.8009
46	SR:8 CCV4 3 <i>11/5/29.08</i>	Unknown		1:36:41 PM	1	0.1394	1.0092
47	SR:4 CCB4 3	Unknown		1:38:11 PM	1	0.0006	0.0160
48	1:43 KC070808-002	Unknown		1:39:40 PM	1	0.0138	0.1099
49	1:44 KC150805-001	Unknown		1:41:10 PM	1	0.0029	0.0323
50	1:45 KC150805-002	Unknown		1:42:40 PM	1	0.0145	0.1151
51	1:46 S052908NNW03	Unknown		1:44:10 PM	1	0.2212	1.5945
52	1:47 B052908NNW03	Unknown		1:45:41 PM	1	0.0021	0.0263
53	1:48 KC150805-003	Unknown		1:47:11 PM	1	0.0066	0.0585
54	1:49 KC150805-004	Unknown		1:48:41 PM	1	0.0216	0.1658
55	1:50 KC150805-005	Unknown		1:50:10 PM	1	0.0104	0.0861
56	1:51 KC150805-006	Unknown		1:51:40 PM	1	0.0174	0.1357
57	1:52 ACOU080501-001(2X)	Unknown		1:53:10 PM	1	0.2493	1.7961
58	SR:8 CCV5 4 <i>11/5/29.08</i>	Unknown		1:54:40 PM	1	0.1439	1.0417
59	SR:4 CCB5 4	Unknown		1:56:10 PM	1	0.0024	0.0288
60	1:53 ACOU080501-002(5X)	Unknown		1:57:41 PM	1	0.1173	0.8513
61	1:54 ACOU080501-003(10X)	Unknown		1:59:11 PM	1	0.0966	0.7025
62	1:55 ACOU080501-004(20X)	Unknown		2:00:41 PM	1	0.0565	0.4161
63	1:56 ACOU080501-005(50X)	Unknown		2:02:10 PM	1	0.0683	0.5001
64	1:57 ACOU080501-006(5X)	Unknown		2:03:40 PM	1	0.1402	1.0150
65	SR:8 CCV6 <i>11/5/29.08</i>	Unknown		2:05:10 PM	1	0.1466	1.0607
66	SR:4 CCB6 5	Unknown		2:06:40 PM	1	0.0031	0.0339

11/5/29/08

LAUCKS TESTING LABORATORIES, INC.	ITEM	DATE	METHOD	ANALYST	CHECKER	ANALYSIS
JOB#:	Prep #1	/ /				
MATRIX:	Prep #2	/ /				
	Analysis	5/29/08	353.2	KK		

Sample ID.	✓ if PH is ≤ 2	✓ if neg. for chlorine
ACOU080501-001	✓	✓
┆ -002	✓	✓
┆ -003	✓	✓
┆ -004	✓	✓
┆ -005	✓	✓
┆ -006	✓	✓
EPTM34-001	✓	✓
┆ -003	✓	✓
┆ -004	✓	✓
┆ -005	✓	✓
JPL115-001	✓	✓
┆ -002	✓	✓
┆ -003	✓	✓
┆ -004	✓	✓
JPL116-001	✓	✓
┆ -002	✓	✓
┆ -003	✓	✓
JPL117-001	✓	✓
┆ -002	✓	✓
┆ -003	✓	✓
KC050815-001	✓	✓
┆ -002	✓	✓
KC070806-001	✓	✓
KC070807-001	✓	✓
┆ -002	✓	✓
KC070808-001	✓	✓
┆ -002	✓	✓
KC150805-001	✓	✓
┆ -002	✓	✓
┆ -003	✓	✓

LAUCKS TESTING LABORATORIES, INC.	ITEM	DATE	METHOD	ANALYST	CHECKER	ANALYSIS
JOB#:	Prep #1	/ /				
MATRIX:	Prep #2	/ /				
	Analysis	5/29/08	353.2	ML		

Sample ID	vis PH IS < 2	vis neg. for chlorine
KC150805-004	✓	✓
↓ -005	✓	✓
‡ -004	✓	✓
LUBW080501-001	✓	✓

ML 5/29/08



STANDARD SOLUTION DATA SHEET

1. STANDARD INFORMATION

Name: **NO₃NO₂ intermediate**

Log Entry: AP-59-20

Received/Prepared Date: 05/22/2008

Expiration Date: 05/29/2008

Location:

Manufacturer's Exp. Date:

Prepared By: Kristin Klein

Final Volume: 100 mL

Solvent: Deionized Water (LTL DIWater with 0.2% H₂SO₄)

Notes: 5 ML EN3 STOCK + 95 ML CARRIER

2. COMPOSITION - STANDARDS

<u>SOLUTION</u>	<u>LOG ENTRY</u>	<u>CREATED/RECV'D.</u>	<u>EXP.</u>	<u>MANU EXP.</u>
NO₃NO₂ intermediate AP-59-20 (ORIGINAL)				
NO ₃ Spike - 100 ppm 5 mL	AP-58-10	04/17/2008	08/25/2008	
Nitrate Standard as nitrogen 1000mg/L 10 mL	IC-7-28-17	02/25/2008	08/25/2008	

3. COMPOSITION - ANALYTES

CHEMICAL	CAS #	STOCK CONC.	FINAL CONC.
Nitrate + Nitrite, as N	N+N	-	5.01 mg/L
Nitrate as N	14797-55-8	-	5.01 mg/L
Nitrocellulose	9004-70-0	-	39.8 mg/L

FORM LTL-SS-3.0



STANDARD SOLUTION DATA SHEET

1. STANDARD INFORMATION

Name: NH3-NO3NO2 ICV/BS

Log Entry: AP-49-2

Received/Prepared Date: 10/30/2007

Expiration Date: 12/31/2008

Location:

Manufacturer's Exp. Date:

Vendor: RTC

Catalog Number: WP07-3B

Lot Number: PEI-028-1

Solvent: Dilute sulfuric acid

Certificate Number:

Notes: NH3 Conc. = 12.8 NO3NO2 Conc. = 15.19

2. COMPOSITION - ANALYTES

CHEMICAL	CAS #	STOCK CONC.	FINAL CONC.
<i>Ammonia, as N</i>	7664-41-7	12.8 mg/L	-
<i>Nitrate + Nitrite, as N</i>	N+N	15.2 mg/L	-
<i>Nitrocellulose</i>	9004-70-0	121 mg/L	-

FORM LTL-SS-3.0



**STANDARD SOLUTION
DATA SHEET**

1. STANDARD INFORMATION

Name: **NO3 Spike - 100 ppm**

Log Entry: AP-58-10

Received/Prepared Date: 04/17/2008

Expiration Date: 08/25/2008

Location:

Manufacturer's Exp. Date:

Prepared By: Rachel Frank

Final Volume: 100 mL

Solvent: Deionized Water (LTL DIWater with 0.2% H2SO4)

Notes: preserved with 200 microliters H2SO4

2. COMPOSITION - STANDARDS

<u>SOLUTION</u>	<u>LOG ENTRY</u>	<u>CREATED/RECV'D.</u>	<u>EXP.</u>	<u>MANU EXP.</u>
NO3 Spike - 100 ppm AP-58-10 (ORIGINAL)				
Nitrate Standard as nitrogen 1000mg/L 10 mL	IC-7-28-17	02/25/2008	08/25/2008	
Crystal, Potassium Nitrate 0.7208 gm	IC-7-22-4	07/15/2001	07/15/2011	
Potassium Nitrate as NITROCELLULOSE 5.7672 gm	IC-7-16-13	06/05/2006	06/05/2016	
Potassium Nitrate as NO3+NO2-n 0.7208 gm	IC-7-7-6	02/27/2004	02/27/2014	

3. COMPOSITION - ANALYTES

CHEMICAL	CAS #	STOCK CONC.	FINAL CONC.
Nitrate + Nitrite, as N	N+N	-	100 mg/L
Nitrate as N	14797-55-8	-	100 mg/L
Nitrocellulose	9004-70-0	-	796 mg/L

FORM LTL-SS-3.0

**STANDARD SOLUTION
DATA SHEET****1. STANDARD INFORMATION**Name: **Nitrite Calibration Standard, 10mg/L**

Log Entry: AP-60-2

Received/Prepared Date: 05/29/2008

Expiration Date: 08/03/2008

Location:

Manufacturer's Exp. Date:

Prepared By: Kristin Klein

Final Volume: 100 mL

Solvent: Deionized Water (LTL DIWater)

Notes:

2. COMPOSITION - STANDARDS

<u>SOLUTION</u>	<u>LOG ENTRY</u>	<u>CREATED/RECV'D.</u>	<u>EXP.</u>	<u>MANU EXP.</u>
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Nitrite Calibration Standard, 10mg/L AP-60-2 (ORIGINAL)				
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3. COMPOSITION - ANALYTES

CHEMICAL	CAS #	STOCK CONC.	FINAL CONC.
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FORM LTL-SS-3.0

Nitrate by Calculation Data

PACE ANALYTICAL SERVICES, INC.
Instrument Log Sheet

Run sequence#: R028479		Date/Time Started: 05/29/08 14:06			Analyst: Kristin Klein		
Instrument ID: None							
Sample Number	Type	DF	Method No.	Bottle #	Prep ID	Date Analyzed	Comments
JPL115-001	SAMP	1.00	353.2		P029736	05/29/08 14:06	
JPL115-002	SAMP	1.00	353.2		P029736	05/29/08 14:06	
JPL115-003	SAMP	1.00	353.2		P029736	05/29/08 14:06	
JPL115-004	SAMP	1.00	353.2		P029736	05/29/08 14:06	

Final Results For Run Sequence

Run Sequence: R028479
 Analyst: Kristin Klein
 Instrument: None

Started On: 05/29/2008 10:41AM
 Prepared On: 05/29/2008 10:41AM
 Completed On: 05/29/2008 2:06PM

Sample Name	Analyte	DF	Actual Result	Final Result	PQL	Recovery	CL	RPD	CL
EPTM34-001	Nitrate - N	1.00	1.8382 mg/L	1.8 mg/L	0.050	0.0		0.0	
EPTM34-003	Nitrate - N	1.00	1.6416 mg/L	1.6 mg/L	0.050	0.0		0.0	
EPTM34-004	Nitrate - N	1.00	1.6315 mg/L	1.6 mg/L	0.050	0.0		0.0	
EPTM34-005	Nitrate - N	1.00	0.0183 mg/L	0.050 U mg/L	0.050	0.0		0.0	
JPL115-001	Nitrate - N	1.00	7.0984 mg/L	7.1 mg/L	0.50	0.0		0.0	
JPL115-002	Nitrate - N	1.00	0.4839 mg/L	0.50 U mg/L	0.50	0.0		0.0	
JPL115-003	Nitrate - N	1.00	2.2708 mg/L	2.3 mg/L	0.50	0.0		0.0	
JPL115-004	Nitrate - N	1.00	0.4886 mg/L	0.50 U mg/L	0.50	0.0		0.0	
JPL116-001	Nitrate - N	1.00	12.5026 mg/L	13 mg/L	0.50	0.0		0.0	
JPL116-002	Nitrate - N	1.00	1.3349 mg/L	1.3 mg/L	0.50	0.0		0.0	
JPL116-003	Nitrate - N	1.00	1.2979 mg/L	1.3 mg/L	0.50	0.0		0.0	
JPL117-001	Nitrate - N	1.00	2.1527 mg/L	2.2 mg/L	0.50	0.0		0.0	
JPL117-002	Nitrate - N	1.00	11.8276 mg/L	12 mg/L	0.50	0.0		0.0	
JPL117-003	Nitrate - N	1.00	2.0169 mg/L	2.0 mg/L	0.50	0.0		0.0	
KC050815-001	Nitrate - N	1.00	2.4905 mg/L	2.5 mg/L	0.050	0.0		0.0	
KC050815-002	Nitrate - N	1.00	1.339 mg/L	1.3 mg/L	0.050	0.0		0.0	
KC070806-001	Nitrate - N	1.00	0.2644 mg/L	0.26 mg/L	0.050	0.0		0.0	
KC070807-001	Nitrate - N	1.00	0.0665 mg/L	0.067 mg/L	0.050	0.0		0.0	
KC070807-002	Nitrate - N	1.00	1.8315 mg/L	1.8 mg/L	0.050	0.0		0.0	
KC070808-001	Nitrate - N	1.00	0.7985 mg/L	0.80 mg/L	0.050	0.0		0.0	
KC070808-002	Nitrate - N	1.00	0.1066 mg/L	0.11 mg/L	0.050	0.0		0.0	
KC150805-001	Nitrate - N	1.00	0.0272 mg/L	0.050 U mg/L	0.050	0.0		0.0	
KC150805-002	Nitrate - N	1.00	0.1118 mg/L	0.11 mg/L	0.050	0.0		0.0	
KC150805-003	Nitrate - N	1.00	0.0537 mg/L	0.054 mg/L	0.050	0.0		0.0	
KC150805-004	Nitrate - N	1.00	0.1495 mg/L	0.15 mg/L	0.050	0.0		0.0	
KC150805-005	Nitrate - N	1.00	0.0809 mg/L	0.081 mg/L	0.050	0.0		0.0	
KC150805-006	Nitrate - N	1.00	0.1292 mg/L	0.13 mg/L	0.050	0.0		0.0	
LUBW080501-001	Nitrate - N	1.00	2.1027 mg/L	2.1 mg/L	0.050	0.0		0.0	

Nitrite Data

PACE ANALYTICAL SERVICES, INC.
Instrument Log Sheet

Run sequence#: R028308		Date/Time Started: 05/22/08 18:40			Analyst: Liam Cover		
Instrument ID: UVVis (Cary)							
Sample Number	Type	DF	Method No.	Bottle #	Prep ID	Date Analyzed	Comments
ICV	ICV	1.00	354.1		P029561	05/22/08 18:40	50 ul IC-7-27-12
S052208NO2W01	S	1.00	354.1		P029561	05/22/08 18:40	50 ul IC-7-27-12
ICB	ICB	1.00	354.1		P029561	05/22/08 18:40	
B052208NO2W01	B	1.00	354.1		P029561	05/22/08 18:40	
MDL	MDLST	1.00				05/22/08 18:40	50 ul IOM-3-57-11
JPL115-001	SAMP	1.00	354.1		P029561	05/22/08 18:40	
JPL115-001MS	MS	1.00	354.1		P029561	05/22/08 18:40	250 ul IOM-3-57-11
JPL115-001MSD	MSD	1.00	354.1		P029561	05/22/08 18:40	250 ul IOM-3-57-11
JPL115-002	SAMP	1.00	354.1		P029561	05/22/08 18:40	
JPL115-003	SAMP	1.00	354.1		P029561	05/22/08 18:40	
JPL115-004	SAMP	1.00	354.1		P029561	05/22/08 18:40	
CCV1	CCV	1.00	354.1			05/22/08 18:40	250 ul IOM-3-57-11
CCB1	CCB	1.00	354.1			05/22/08 18:40	

Pace Analytical Services, Inc

Prep:	Method:	Analyst:	Checker:
5/27/2008	354.1	LC	

Nitrite
28308

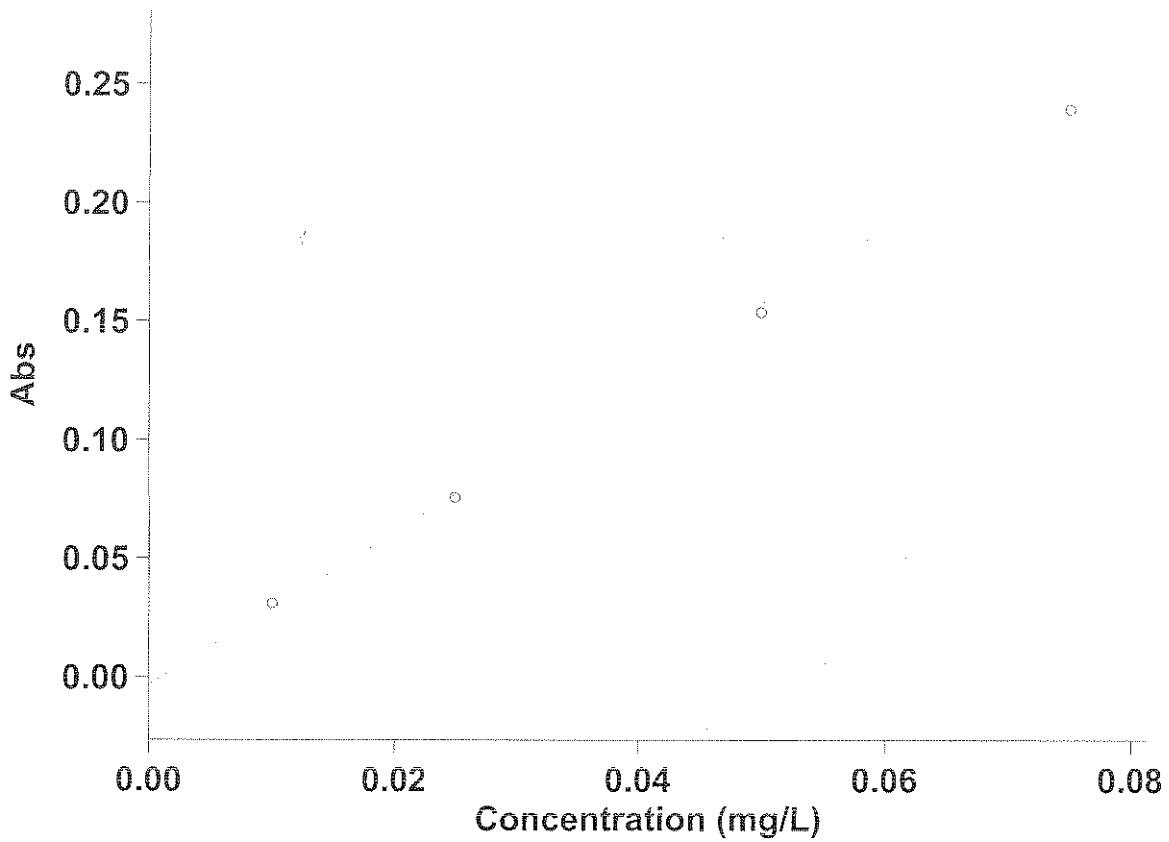
Bottle #	Sample ID	Sample Vol (mL)	Final Vol (mL)	Dilution Factor	Conc. @ Spec.	Final Conc (mg/L)	
----	0.0100	50	50	1	----	0.0100	100 ul of 5 ppm
----	0.0250	50	50	1	----	0.0250	250 ul of 5 ppm
----	0.0500	50	50	1	----	0.0500	500 ul of 5 ppm
----	0.0750	50	50	1	----	0.0750	750 ul of 5 ppm
-----	ICV/S052708NO2W01	50	50	1	0.0305	0.0305	50 ul of 30 ppm:
----	ICB/B052708NO2W01	50	50	1	0.0011	0.0011	
----	MDL	50	50	1	0.0054	0.0054	Lot #36-171AS
2	JPL115-001	50	50	1	0.0016	0.0016	50 ul of 5 ppm
2	JPL115-001 MS	50	50	1	0.0266	0.0266	BS: IC7-27-12
2	JPL115-001 MSD	50	50	1	0.0256	0.0256	5 ppm std: IOM-3-57-11
2	JPL115-002	50	50	1	0.0034	0.0034	BS TV =0.03045
1	JPL115-003	50	50	1	0.0012	0.0012	Range=0.0274-0.0334
2	JPL115-004	50	50	1	0.0031	0.0031	MS/MSD=
1	KC070806-001	50	50	1	0.0011	0.0011	250 ul of 5 ppm
----	CCV1 tv =0.0250	50	50	1	0.0256	0.0256	
----	CCB1	50	50	1	0.0011	0.0011	

Pace Analytical Services, Inc

Prep:	Method:	Analyst:	Checker:
5/22/2008	354.1	LC	

Nitrite
28308

Bottle #	Sample ID	Sample Vol (mL)	Final Vol (mL)	Dilution Factor	Conc. @ Spec.	Final Conc (mg/L)	
---	0.0100	50	50	1	---	0.0100	100 ul of 5 ppm
---	0.0250	50	50	1	---	0.0250	250 ul of 5 ppm
---	0.0500	50	50	1	---	0.0500	500 ul of 5 ppm
---	0.0750	50	50	1	---	0.0750	750 ul of 5 ppm
---	ICV/S052208NO2W01	50	50	1		0	50 ul of 30 ppm:
---	ICB/B052208NO2W01	0	50	1		0	
---	MDL	0.05	50	1		0	Lot #36-171AS
2	JPL115-001	50	50	1		0	50 ul of 5 ppm
2	JPL115-001 MS	50	50	1		0	BS: IC7-27-12
2	JPL115-001 MSD	50	50	1		0	5 ppm std: IOM-3-57-11
2	JPL115-002	50	50	1		0	BS TV =0.03045
1	JPL115-003	50	50	1		0	Range=0.0274-0.0334
2	JPL115-0054	50	50	1		0	MS/MSD=
1	KC070806-001	50	50	1		0	250 ul of 5 ppm
---	CCV1 tv =0.0250	50	50	1		0	
---	CCB1	50	50	1		0	5/22/08



Concentration Analysis Report

Report time 5/22/08 6:28:03 PM
 Batch name D:\Varian\Cary WinUV\UV-Vis\2008
 no2\052208NO2W1.BCN
 Application Concentration 02.00 (25)
 Operator

Instrument Settings

Instrument Cary 50
 Instrument version no. 1.00
 Wavelength (nm) 540.0
 Ordinate Mode Abs
 Ave Time (sec) 0.1000
 Replicates 1
 Standard/Sample averaging OFF
 Weight and volume corrections OFF
 Fit type Linear
 Min R² 0.99000
 Concentration units mg/L

Comments:
 [EPA 354.1--NO2]

Calibration

Collection time 5/22/08 6:28:32 PM

Standard	Concentration mg/L	F Readings
Std 1	0.0100	0.0310
Std 2	0.0250	0.0756

Std 3 0.0500 0.1536
 Std 4 0.0750 0.2393

Calibration eqn Abs = 3.20352*Conc -0.00327
 Correlation Coefficient 0.99909
 Calibration time 5/22/08 6:30:54 PM

Analysis

Collection time 5/22/08 6:30:54 PM

Sample	Concentration mg/L	F Readings
ICV/S052208NO2W01	0.0305	0.0945
ICB/B052208NO2W01	0.0011	0.0004
MDL	0.0054	0.0140
JPL115-001	0.0016	0.0017
JPL115-001 MS	0.0266	0.0818
JPL115-001 MSD	0.0256	0.0788
JPL115-002	0.0034	0.0075
JPL115-003	0.0012	0.0006
JPL115-004	0.0031	0.0068
KC070806-001	0.0011	0.0004
CCV1	0.0256	0.0787
CCB1	0.0011	0.0003

Results Flags Legend

U = Uncalibrated O = Overrange
 N = Not used in calibration R = Repeat reading


Pace Analytical[®]
**STANDARD SOLUTION
DATA SHEET**
1. STANDARD INFORMATION
Name: Nitrite Calibration Standard, 5mg/L
Log Entry: IOM-3-57-11
Received/Prepared Date: 05/07/2008
Expiration Date: 05/26/2008
Location:
Manufacturer's Exp. Date:
Prepared By: Liam Cover
Final Volume: 100 mL
Solvent: Deionized Water (LTL DIWater)
Notes:
2. COMPOSITION - STANDARDS

SOLUTION	LOG ENTRY	CREATED/RECV'D.	EXP.	MANU EXP.
Nitrite Calibration Standard, 5mg/L IOM-3-57-11 (ORIGINAL)				
Nitrite stock standard 1000 mg/L 0.5 mL	IC-7-27-13	11/26/2007	05/26/2008	
Sodium Nitrite 0.4928 gm	IC-7-22-5	02/12/2004	02/12/2014	

3. COMPOSITION - ANALYTES

CHEMICAL	CAS #	STOCK CONC.	FINAL CONC.
Nitrite as N	14797-65-0	-	5.00 mg/L

FORM LTL-SS-3.0



STANDARD SOLUTION DATA SHEET

1. STANDARD INFORMATION

Name: Seven Anion Standard

Log Entry: IC-7-27-12

Received/Prepared Date: 08/06/2007

Expiration Date: 09/15/2008

Location:

Manufacturer's Exp. Date: 09/15/2008

Vendor: Dionex

Catalog Number: 56933

Lot Number: 36-171AS

Solvent: DIW

Certificate Number:

Notes:

2. COMPOSITION - ANALYTES

CHEMICAL	CAS #	STOCK CONC.	FINAL CONC.
<i>Bromide</i>	24959-67-9	101 mg/L	-
<i>Chloride</i>	16887-00-6	30.0 mg/L	-
<i>Fluoride</i>	16984-48-8	20.1 mg/L	-
<i>Nitrate as N</i>	14797-55-8	22.5 mg/L	-
<i>Nitrite as N</i>	14797-65-0	30.4 mg/L	-
<i>Phosphorus, Orthophosphate (as P)</i>	7723-14-0	48.3 mg/L	-
<i>Phosphorus, Soluble reactive (as P)</i>	P(SOL)	48.3 mg/L	-
<i>Sulfate as SO4</i>	14808-79-8	149 mg/L	-

FORM LTL-SS-3.0

Ortho Phosphorus Data

PACE ANALYTICAL SERVICES, INC.
Instrument Log Sheet

Run sequence#: R028307		Date/Time Started: 05/22/08 18:23			Analyst: Liam Cover		
Instrument ID: UVVis (Cary)							
Sample Number	Type	DF	Method No.	Bottle #	Prep ID	Date Analyzed	Comments
ICV	ICV	1.00	365.2		P029560	05/22/08 18:23	250 ul IC-7-27-12
S052208OPW01	S	1.00	365.2		P029560	05/22/08 18:23	250 ul IC-7-27-12
ICB	ICB	1.00	365.2		P029560	05/22/08 18:23	
B052208OPW01	B	1.00	365.2		P029560	05/22/08 18:23	
MDL	MDLCH	1.00	365.2		P029560	05/22/08 18:23	10 ul IOM-3-48-2
JPL115-001	SAMP	1.00	365.2		P029560	05/22/08 18:23	
JPL115-001MS	MS	1.00	365.2		P029560	05/22/08 18:23	100 ul IOM-3-48-2
JPL115-001MSD	MSD	1.00	365.2		P029560	05/22/08 18:23	100 ul IOM-3-48-2
JPL115-002	SAMP	1.00	365.2		P029560	05/22/08 18:23	
JPL115-003	SAMP	1.00	365.2		P029560	05/22/08 18:23	
JPL115-004	SAMP	1.00	365.2		P029560	05/22/08 18:23	
CCV1	CCV	1.00	365.2			05/22/08 18:23	250 ul IOM-3-48-2
CCB1	CCB	1.00	365.2			05/22/08 18:23	

Pace Analytical Services, Inc

Prep:	Method:	Analyst:	Checker:
5/22/2008	365.2	LC	<i>JM</i>

Ortho-phosphate
28307

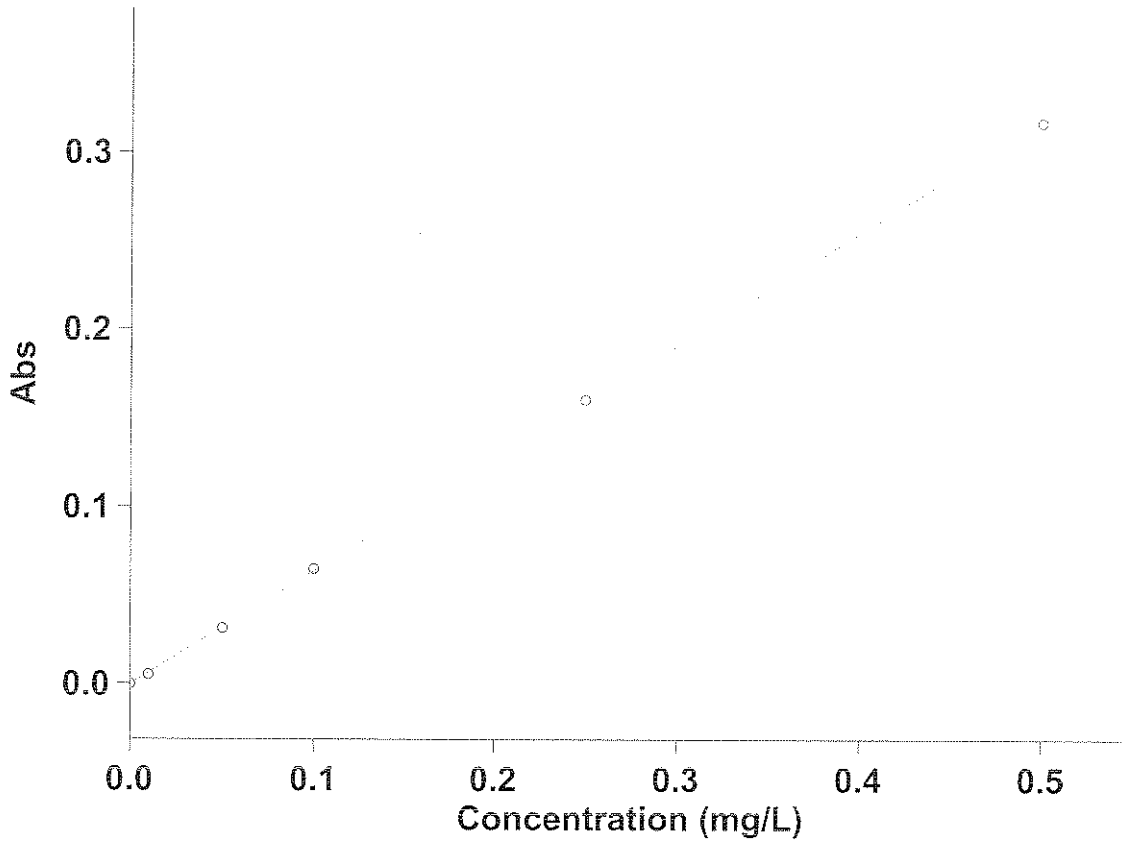
Bottle #	Sample ID	Sample Vol (mL)	Final Vol (mL)	Dilution Factor	Conc. @ Spec.	Final Conc (mg/L)	
----	0.0000	50	50	1	----	0.0000	0 ul of 50 ppm
----	0.0100	50	50	1	----	0.0100	10 ul of 50 ppm
----	0.0500	50	50	1	----	0.0500	50 ul of 50 ppm
----	0.1000	50	50	1	----	0.1000	100 ul of 50 ppm
----	0.2500	50	50	1	----	0.2500	250 ul of 50 ppm
----	0.5000	50	50	1	----	0.5000	500 ul of 50 ppm
----	ICV/BS052208OPW01	50	50	1	0.2418	0.2418	250 ul of Lot:
----	ICB/B052208OPW01	50	50	1	0.0012	0.0012	LOT #:
----	MDL	50	50	1	0.0125	0.0125	10 ul of 50 ppm
2	JPL115-001	50	50	1	0.0682	0.0682	BS: IC7-27-12
2	JPL115-001 MS	50	50	1	0.1667	0.1667	50 ppm std:IOM-3-48-2
2	JPL115-001 MSD	50	50	1	0.1649	0.1649	BS TV =0.241
2	JPL115-002	50	50	1	0.0641	0.0641	Range = 0.2169-0.2651
1	JPL115-003	50	50	1	0.012	0.012	MS/MSD=
2	JPL115-004	50	50	1	0.0639	0.0639	100 ul 50 ppm
7	KC210802-001	50	50	1	0.0429	0.0429	
7	KC210802-002	50	50	1	0.0199	0.0199	
6	KC210802-003	50	50	1	0.0422	0.0422	
----	CCV1 tv =0.2500	50	50	1	0.2537	0.2537	
----	CCB1	50	50	1	0.0024	0.0024	

Pace Analytical Services, Inc

Prep:	Method:	Analyst:	Checker:
5/22/2008	365.2	LC	

Ortho-phosphate
28307

Bottle #	Sample ID	Sample Vol (mL)	Final Vol (mL)	Dilution Factor	Conc. @ Spec.	Final Conc (mg/L)	
----	0.0000	50	50	1	----	0.0000	0 ul of 50 ppm
----	0.0100	50	50	1	----	0.0100	10 ul of 50 ppm
----	0.0500	50	50	1	----	0.0500	50 ul of 50 ppm
----	0.1000	50	50	1	----	0.1000	100 ul of 50 ppm
----	0.2500	50	50	1	----	0.2500	250 ul of 50 ppm
----	0.5000	50	50	1	----	0.5000	500 ul of 50 ppm
----	ICV/BS	0.025	50	1		0	250 ul of Lot:
----	ICB/B	50	50	1		0	LOT #:
----	MDL	0.01	50	1		0	10 ul of 50 ppm
2	JPL115-001	50	50	1		0	BS: IC7-27-12
2	JPL115-001 MS	50	50	1		0	50 ppm std: IOM-3-48-2
2	JPL115-001 MSD	50	50	1		0	BS TV =
2	JPL115-002	50	50	1		0	Range =
1	JPL115-003	50	50	1		0	MS/MSD=
2	JPL115-004	50	50	1		0	100 ul 50 ppm
7	KC210802-001	50	50	1		0	
7	KC210802-002	50	50	1		0	
6	KC210802-003	50	50	1		0	
----	CCV1 tv =0.2500	50	50	1		0	
----	CCB1	50	50	1		0	



Concentration Analysis Report

Report time 5/22/08 6:10:44 PM
 Batch name D:\Varian\Cary WinUV\UV-Vis\2008
 OP\052208OPW2.BCN
 Application Concentration 02.00 (25)
 Operator

Instrument Settings

Instrument Cary 50
 Instrument version no. 1.00
 Wavelength (nm) 880.0
 Ordinate Mode Abs
 Ave Time (sec) 0.1000
 Replicates 1
 Standard/Sample averaging OFF
 Weight and volume corrections OFF
 Fit type Linear
 Min R² 0.99000
 Concentration units mg/L

Comments:
 op
 365.2

Calibration

Collection time 5/22/08 6:10:47 PM

Standard	Concentration mg/L	F	Readings
Std 1	0.0000	-0.0002	

Std 2	0.0100	0.0049
Std 3	0.0500	0.0309
Std 4	0.1000	0.0644
Std 5	0.2500	0.1600
Std 6	0.5000	0.3168

Calibration eqn Abs = 0.63595*Conc -0.00031
 Correlation Coefficient 0.99993
 Calibration time 5/22/08 6:14:03 PM

Analysis

Collection time 5/22/08 6:14:03 PM

Sample	Concentration mg/L	F	Readings
ICV/S0522080PW01	0.2418		0.1535
ICB/B0522080PW01	0.0012		0.0004
MDL	0.0125		0.0076
JPL115-001	0.0682		0.0431
JPL115-001 MS	0.1667		0.1057
JPL115-001 MSD	0.1649		0.1046
JPL115-002	0.0641		0.0404
JPL115-003	0.0120		0.0073
JPL115-004	0.0639		0.0403
KC210802-001	0.0429		0.0270
KC210802-002	0.0199		0.0123
KC210802-003	0.0422		0.0265
CCV1	0.2537		0.1610
CCB1	0.0024		0.0012

Results Flags Legend

U = Uncalibrated O = Overrange
 N = Not used in calibration R = Repeat reading



STANDARD SOLUTION DATA SHEET

1. STANDARD INFORMATION

Name: **Phosphate as P Standard 50 mg/L**

Log Entry: IOM-3-48-2

Received/Prepared Date: 09/05/2007

Expiration Date: 09/04/2008

Location:

Manufacturer's Exp. Date:

Prepared By: Jason Kinnard

Final Volume: 1000 mL

Solvent: Deionized Water (LTL DIWater)

Notes:

2. COMPOSITION - STANDARDS

<u>SOLUTION</u>	<u>LOG ENTRY</u>	<u>CREATED/RECV'D.</u>	<u>EXP.</u>	<u>MANU EXP.</u>
Phosphate as P Standard 50 mg/L IOM-3-48-2 (ORIGINAL)				
Phosphorus, Dissolved (as P) from KH ₂ PO ₄ 0.2196 gm	IOM-3-22-15	09/21/2005	09/21/2015	
Phosphorus, Dissolved Orthophosphate (as P) from KH ₂ PO ₄ 0.2196 gm	IOM-3-22-16	09/21/2005	09/21/2015	
Phosphorus, Hydrolyzable (as P) from KH ₂ PO ₄ 0.2196 gm	IOM-3-22-17	09/21/2005	09/21/2015	
Phosphorus, Orthophosphate (as P) from KH ₂ PO ₄ 0.2196 gm	IOM-3-22-18	09/21/2005	09/21/2015	
Phosphorus, Soluble Reactive (as P) from KH ₂ PO ₄ 0.2196 gm	IOM-3-10-3	03/22/2004	03/22/2014	
Phosphorus, Total (as P) from KH ₂ PO ₄ 0.2196 gm	IOM-3-22-19	09/21/2005	09/21/2015	
Phosphorus, Total Orthophosphate (as P) from KH ₂ PO ₄ 0.2196 gm	IOM-3-22-20	09/21/2005	09/21/2015	

3. COMPOSITION - ANALYTES

CHEMICAL	CAS #	STOCK CONC.	FINAL CONC.
Phosphorus, Dissolved (As P)	7723-14-0	-	50.1 mg/L
Phosphorus, Dissolved Orthophosphate (As P)	7723-14-0	-	50.1 mg/L
Phosphorus, Hydrolyzable (as P)	7723-14-0	-	50.1 mg/L
Phosphorus, Orthophosphate (as P)	7723-14-0	-	50.1 mg/L
Phosphorus, Soluble reactive (as P)	P(SOL)	-	50.1 mg/L
Phosphorus, Total (As P)	7723-14-0	-	50.1 mg/L
Phosphorus, Total Orthophosphate (As P)	7723-14-0	-	50.1 mg/L

FORM LTL-SS-3.0

INO - 115



STANDARD SOLUTION DATA SHEET

1. STANDARD INFORMATION

Name: **Seven Anion Standard**

Log Entry: IC-7-27-12

Received/Prepared Date: 08/06/2007

Expiration Date: 09/15/2008

Location:

Manufacturer's Exp. Date: 09/15/2008

Vendor: Dionex

Catalog Number: 56933

Lot Number: 36-171AS

Solvent: DIW

Certificate Number:

Notes:

2. COMPOSITION - ANALYTES

CHEMICAL	CAS #	STOCK CONC.	FINAL CONC.
Bromide	24959-67-9	101 mg/L	-
Chloride	16887-00-6	30.0 mg/L	-
Fluoride	16984-48-8	20.1 mg/L	-
Nitrate as N	14797-55-8	22.5 mg/L	-
Nitrite as N	14797-65-0	30.4 mg/L	-
Phosphorus, Orthophosphate (as P)	7723-14-0	48.3 mg/L	-
Phosphorus, Soluble reactive (as P)	P(SOL)	48.3 mg/L	-
Sulfate as SO4	14808-79-8	149 mg/L	-

FORM LTL-SS-3.0

Perchlorate Data

PACE ANALYTICAL SERVICES, INC.

Instrument Log Sheet

Run sequence#: R028939		Date/Time Started: 06/17/08 14:06			Analyst: Lea Beard		
Instrument ID: Ion Chromatograph (2)							
Sample Number	Type	DF	Method No.	Bottle #	Prep ID	Date Analyzed	Comments
MCT-IPC	IPCK	1.00	314.0			06/17/08 14:06	5 mL IC-7-30-11
ICV	ICV	1.00	314.0		P030240	06/17/08 14:37	2.5 mL IC-7-30-12
ICB	ICB	1.00	314.0		P030240	06/17/08 15:08	
S061708PERCW01	S	1.00	314.0		P030240	06/17/08 15:40	250 ul IC-7-30-13
S061708PERCW01D	SD	1.00	314.0		P030240	06/17/08 16:11	250 ul IC-7-30-13
B061708PERCW01	B	1.00	314.0		P030240	06/17/08 17:01	
1 PPB CHK	MDLCH	1.00	314.0		P030240	06/17/08 17:33	200 ul IC-7-30-14
JPL115-001 20X	SAMP	20.00	314.0		P030240	06/17/08 18:04	
JPL115-002 2X	SAMP	2.00	314.0		P030240	06/17/08 18:36	
JPL115-003 2X	SAMP	2.00	314.0		P030240	06/17/08 19:07	
JPL115-004 2X	SAMP	2.00	314.0		P030240	06/17/08 19:38	
JPL115-004MS 2X	MS	2.00	314.0		P030240	06/17/08 20:10	250 ul IC-7-30-13
JPL115-004MSD 2X	MSD	2.00	314.0		P030240	06/17/08 20:41	250 ul IC-7-30-13
CCV1	CCV	1.00	314.0			06/17/08 21:13	2 mL IC-7-30-14
CCB1	CCB	1.00	314.0			06/17/08 21:44	

Sequence: 061708P
Operator: leab

Page 2 of 2
Printed: 6/18/2008 4:17:35 PM

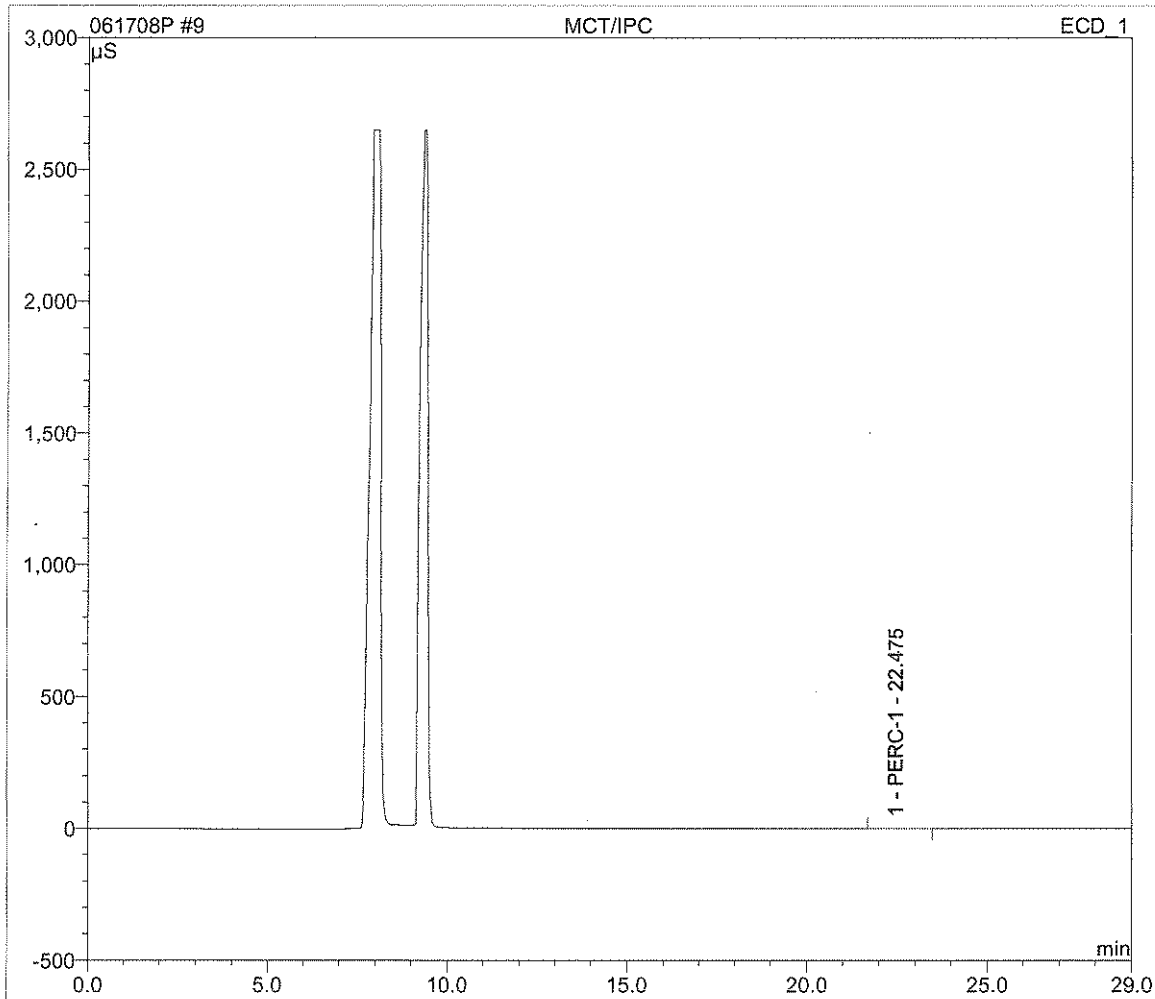
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Location:
Timebase: PERC
#Samples: 36

Created: 6/17/2008 9:38:33 AM by leab
Last Update: 6/18/2008 4:17:26 PM by leab

No.	Name	Inj. Date/Time	Comment
1	R	6/17/2008 9:54:38 AM	ICS-2500 DIONEX 2
2	std1 1ppb	6/17/2008 10:26:03 AM	ICS-2500 DIONEX 2 (200 uL IC-7-30-14)
3	std2 2ppb	6/17/2008 10:57:29 AM	ICS-2500 DIONEX 2 (400 uL IC-7-30-14)
4	std3 5ppb	6/17/2008 11:28:54 AM	ICS-2500 DIONEX 2 (1000 uL IC-7-30-14)
5	std4 10ppb	6/17/2008 12:00:20 PM	ICS-2500 DIONEX 2 (2000 uL IC-7-30-14)
6	std5 25ppb	6/17/2008 12:31:45 PM	ICS-2500 DIONEX 2 (5 mL IC-7-30-14)
7	std6 80ppb	6/17/2008 1:03:10 PM	ICS-2500 DIONEX 2 (1000 uL IC-7-30-13)
8	RINSE	6/17/2008 1:34:36 PM	ICS-2500 DIONEX 2
9	MCT/IPC	6/17/2008 2:06:01 PM	ICS-2500 DIONEX B (5 mL IC-7-30-11)
10	ICV	6/17/2008 2:37:26 PM	ICS-2500 DIONEX 2 (2500 uL IC-7-30-12)
11	ICB	6/17/2008 3:08:51 PM	ICS-2500 DIONEX 2
12	BLK SPK	6/17/2008 3:40:17 PM	ICS-2500 DIONEX 2 (250 uL IC-7-30-13)
13	BLK SPK DUP	6/17/2008 4:11:42 PM	ICS-2500 DIONEX 2 (250 uL IC-7-30-13)
14	B051208PERW01	6/17/2008 5:01:45 PM	ICS-2500 DIONEX 2
15	1 ppb CHECK STD	6/17/2008 5:33:10 PM	ICS-2500 DIONEX 2 (200 uL IC-7-30-14)
16	JPL115-001 2X	6/17/2008 6:04:36 PM	ICS-2500 DIONEX 2
17	JPL115-002 2X	6/17/2008 6:36:01 PM	ICS-2500 DIONEX 2
18	JPL115-003 2X	6/17/2008 7:07:26 PM	ICS-2500 DIONEX 2
19	JPL115-004 2X	6/17/2008 7:38:51 PM	ICS-2500 DIONEX 2
20	JPL115-004MS 2X	6/17/2008 8:10:17 PM	ICS-2500 DIONEX 2 (250 uL IC-7-30-13)
21	JPL115-004MSD 2X	6/17/2008 8:41:42 PM	ICS-2500 DIONEX 2 (250 uL IC-7-30-13)
22	CCV1	6/17/2008 9:13:08 PM	ICS-2500 DIONEX 2 (2000 uL IC-7-30-14)
23	CCB1	6/17/2008 9:44:33 PM	ICS-2500 DIONEX 2
24	JPL116-001 2X	6/17/2008 10:15:58 PM	ICS-2500 DIONEX 2
25	JPL116-002 2X	6/17/2008 10:47:23 PM	ICS-2500 DIONEX 2
26	JPL116-003 2X	6/17/2008 11:18:48 PM	ICS-2500 DIONEX 2
27	JPL116-003MS 2X	6/17/2008 11:50:14 PM	ICS-2500 DIONEX 2 (250 uL IC-7-30-13)
28	JPL116-003MSD 2X	6/18/2008 12:21:39 AM	ICS-2500 DIONEX 2 (250 uL IC-7-30-13)
29	JPL117-001 2X	6/18/2008 12:53:04 AM	ICS-2500 DIONEX 2
30	JPL117-002 2X	6/18/2008 1:24:29 AM	ICS-2500 DIONEX 2
31	JPL117-003 2X	6/18/2008 1:55:55 AM	ICS-2500 DIONEX 2
32	JPL117-003MS 2X	6/18/2008 2:27:20 AM	ICS-2500 DIONEX 2 (250 uL IC-7-30-3)
33	JPL117-003MSD 2X	6/18/2008 2:58:46 AM	ICS-2500 DIONEX 2 (250 uL IC-7-30-3)
34	CCV2	6/18/2008 3:30:11 AM	ICS-2500 DIONEX 2 (2000 uL IC-7-30-4)
35	CCB2	6/18/2008 4:01:37 AM	ICS-2500 DIONEX 2
36	SHUTDOWN	6/18/2008 4:33:02 AM	ICS-2500 DIONEX 2

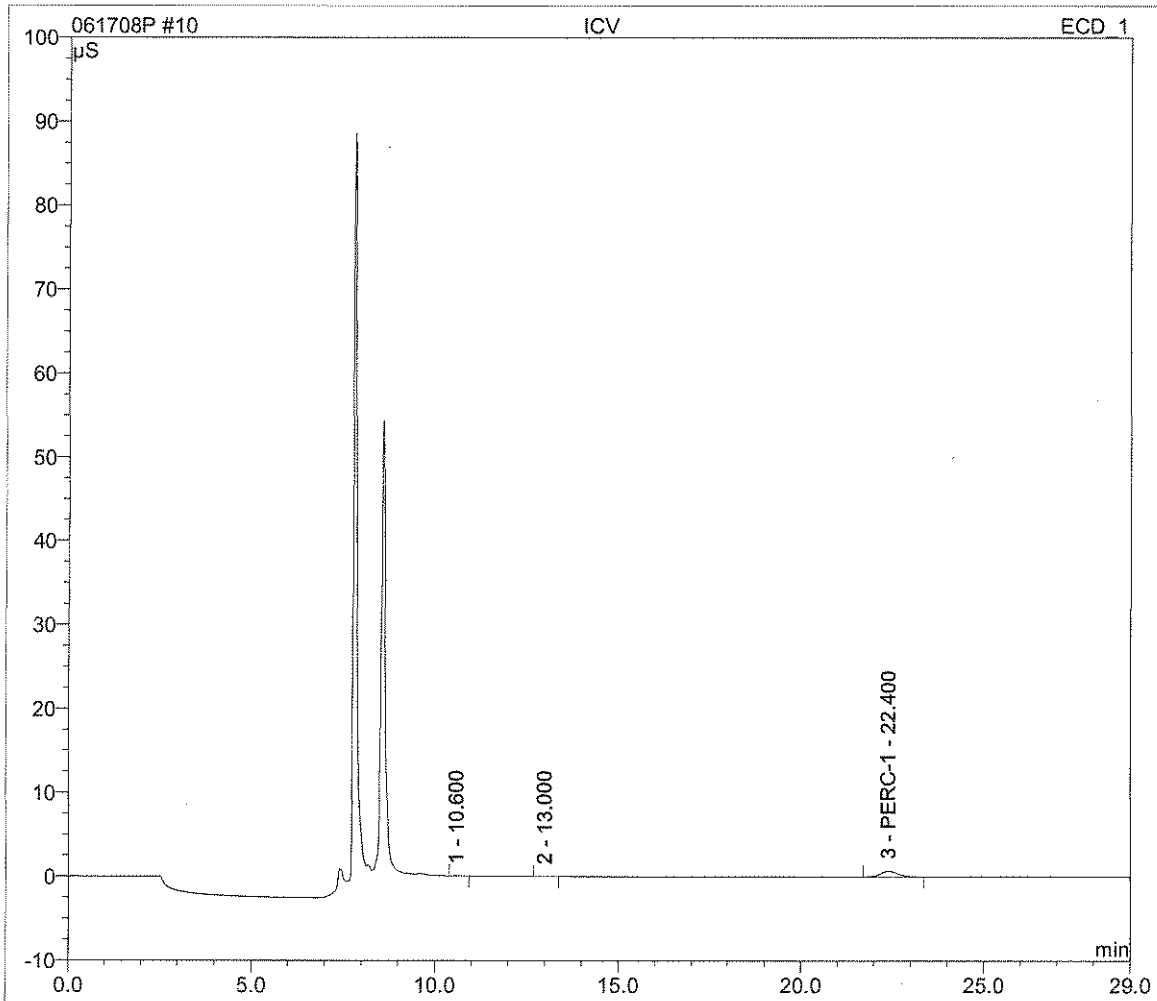
Sample Name:	MCT/IPC	Inj. Vol.:	5.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:	perchlorate 5ml on Dionex2	Operator:	n.a.
Inj. Date/Time:	17.06.08 14:06	Run Time:	29.00

No.	Time min	Peak Name	Type	Area $\mu\text{S}\cdot\text{min}$	Height μS	Amount ppb
1	22.48	PERC-1	BMB	0.220	0.356	23.6443
TOTAL:				0.22	0.36	23.64



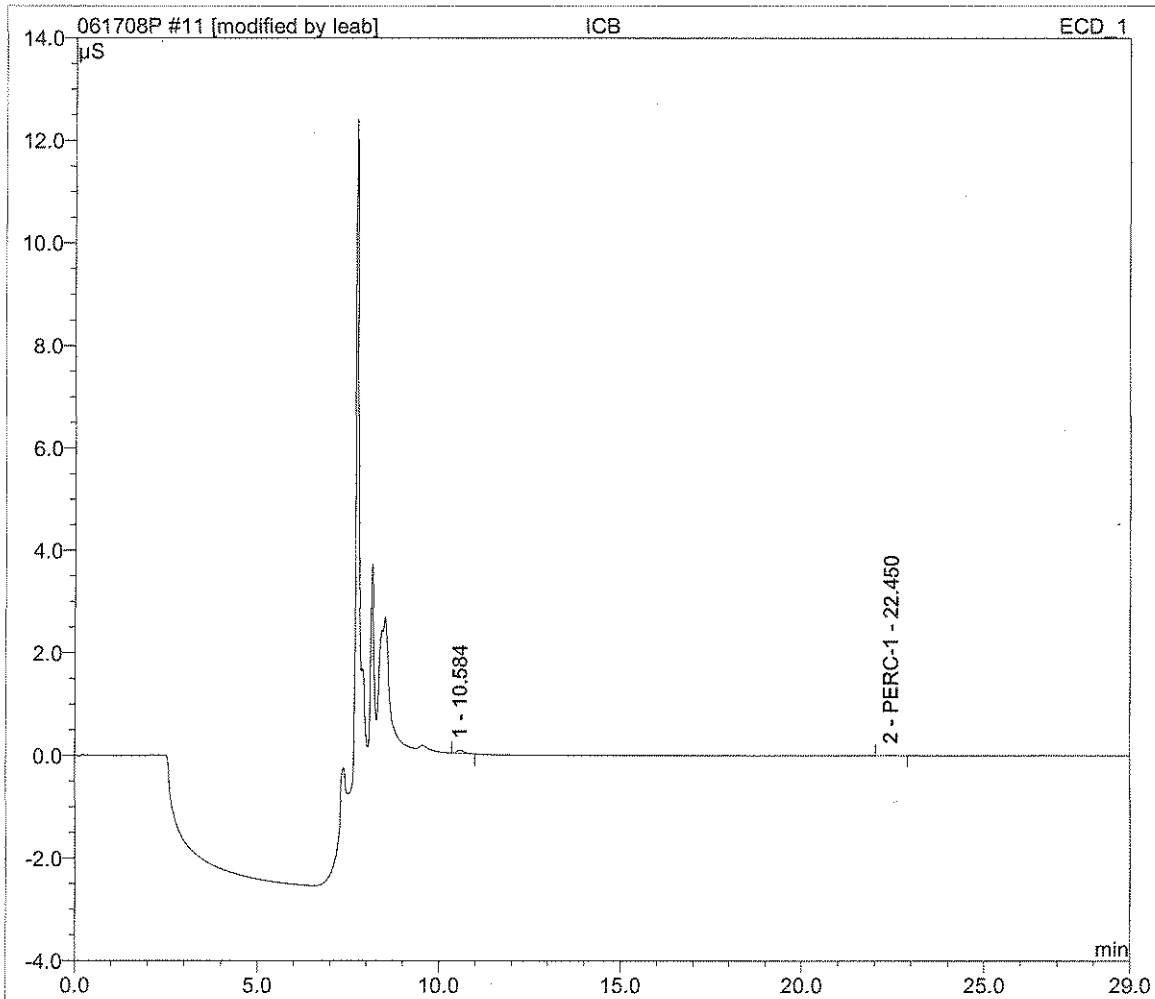
Sample Name:	ICV	Inj. Vol.:	5.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:	perchlorate 5ml on Dionex2	Operator:	n.a.
Inj. Date/Time:	17.06.08 14:37	Run Time:	29.00

No.	Time min	Peak Name	Type	Area $\mu\text{S} \cdot \text{min}$	Height μS	Amount ppb
3	22.40	PERC-1	BMB	0.376	0.679	40.3617
TOTAL:				0.38	0.68	40.36



Sample Name:	ICB	Inj. Vol.:	5.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:	perchlorate 5ml on Dionex2	Operator:	n.a.
Inj. Date/Time:	17.06.08 15:08	Run Time:	29.00

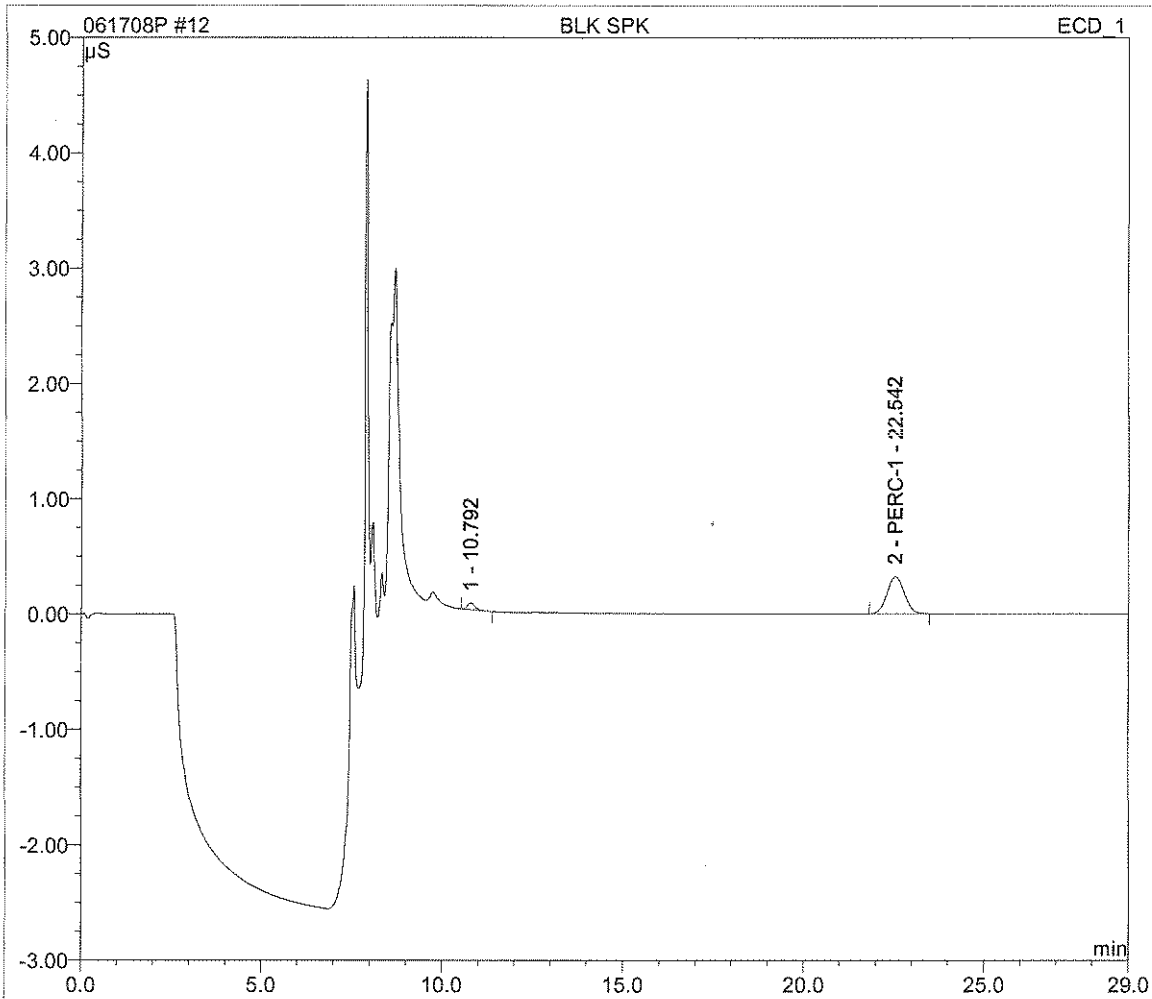
No.	Time min	Peak Name	Type	Area $\mu\text{S} \cdot \text{min}$	Height μS	Amount ppb
2	22.45	PERC-1	BMB*	0.002	0.005	0.2658
TOTAL:				0.00	0.01	0.27



JM 6/20/08

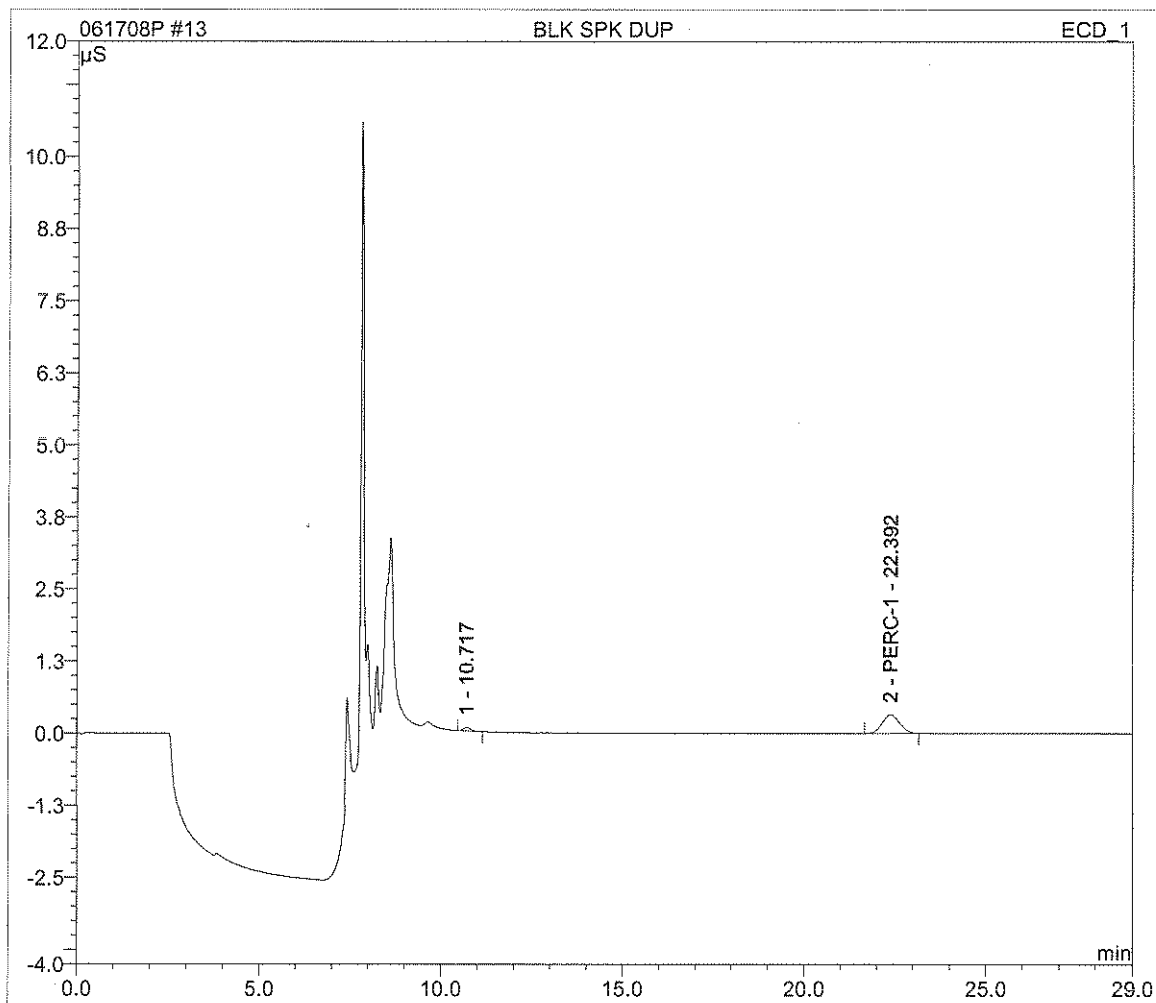
Sample Name:	BLK SPK 5061708 PERCWO1	Inj. Vol.:	5.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:	perchlorate 5ml on Dionex2	Operator:	n.a.
Inj. Date/Time:	17.06.08 15:40	Run Time:	29.00

No.	Time min	Peak Name	Type	Area $\mu\text{S} \cdot \text{min}$	Height μS	Amount ppb
2	22.54	PERC-1	BMB	0.179	0.322	19.2237
TOTAL:				0.18	0.32	19.22



Sample Name:	BLK SPK DUP <i>SM 6/20/08</i> 5061708 PERC W/D	Inj. Vol.:	5.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:	perchlorate 5ml on Dionex2	Operator:	n.a.
Inj. Date/Time:	17.06.08 16:11	Run Time:	29.00

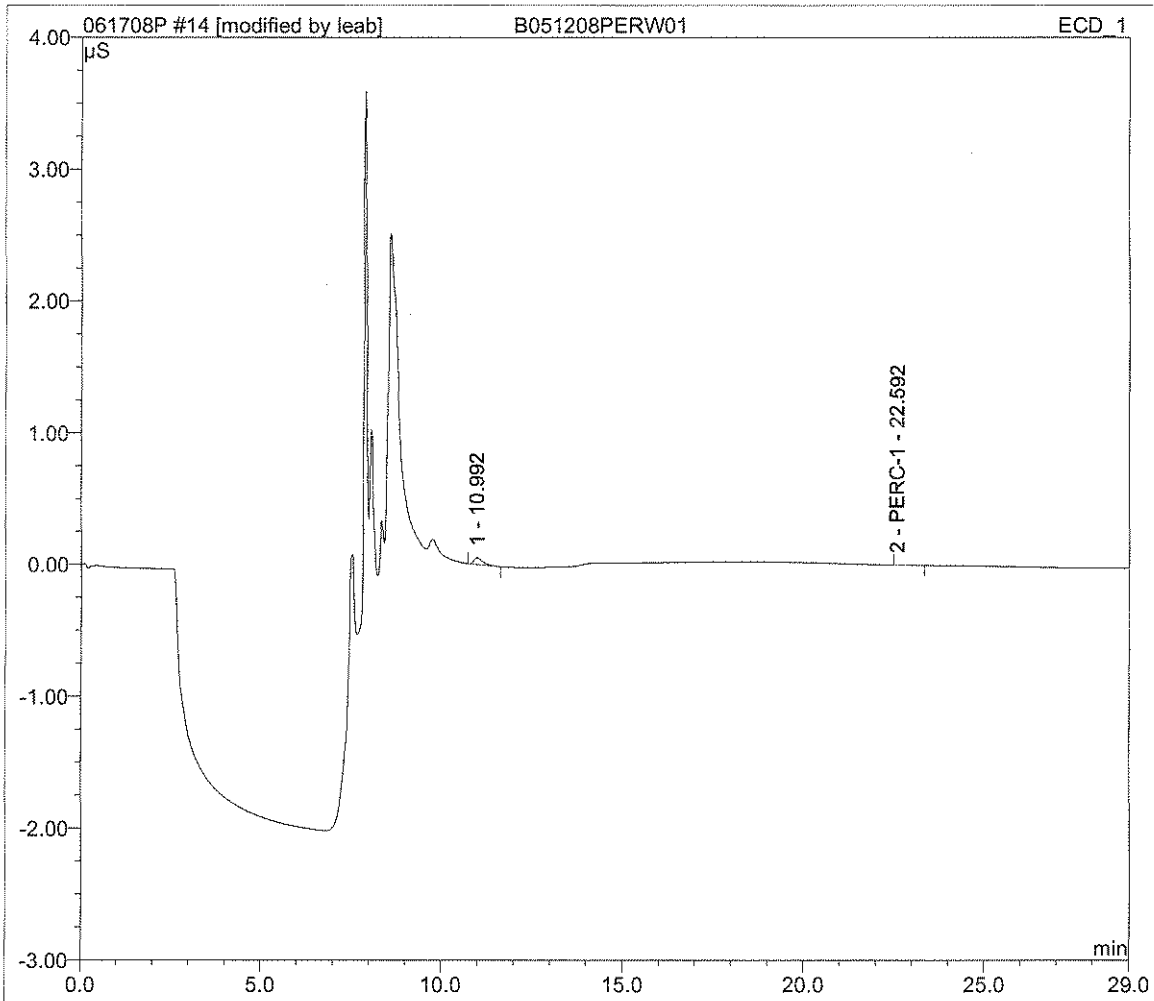
No.	Time min	Peak Name	Type	Area $\mu\text{S}\cdot\text{min}$	Height μS	Amount ppb
2	22.39	PERC-1	BMB	0.178	0.323	19.1016
TOTAL:				0.18	0.32	19.10



Jun 6/20/08

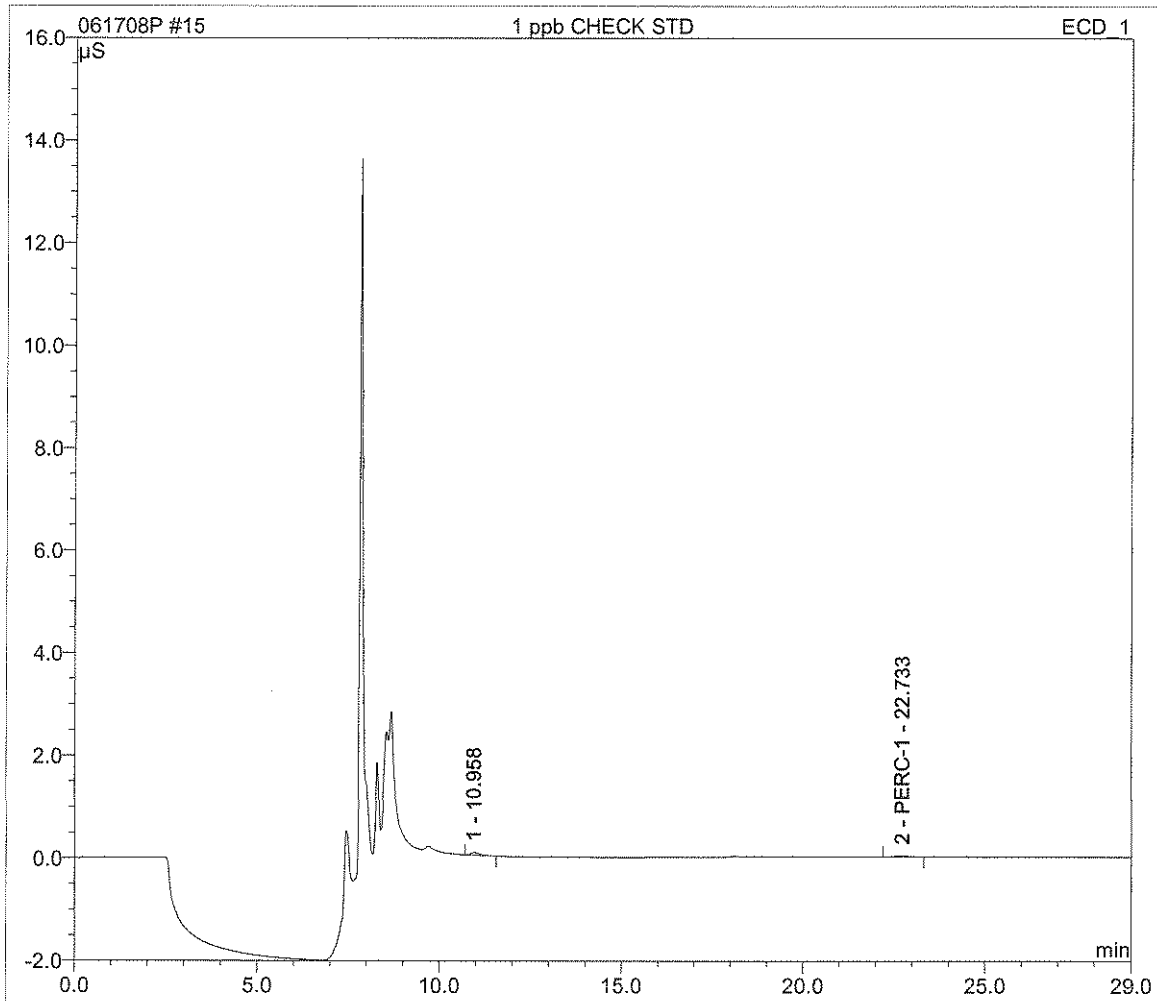
Sample Name:	B051208PERW01 <i>B061708PERW01</i>	Inj. Vol.:	5.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:	perchlorate 5ml on Dionex2	Operator:	n.a.
Inj. Date/Time:	17.06.08 17:01	Run Time:	29.00

No.	Time min	Peak Name	Type	Area $\mu\text{S} \cdot \text{min}$	Height μS	Amount ppb
2	22.59	PERC-1	BMB*	0.000	0.001	0.0478
TOTAL:				0.00	0.00	0.05



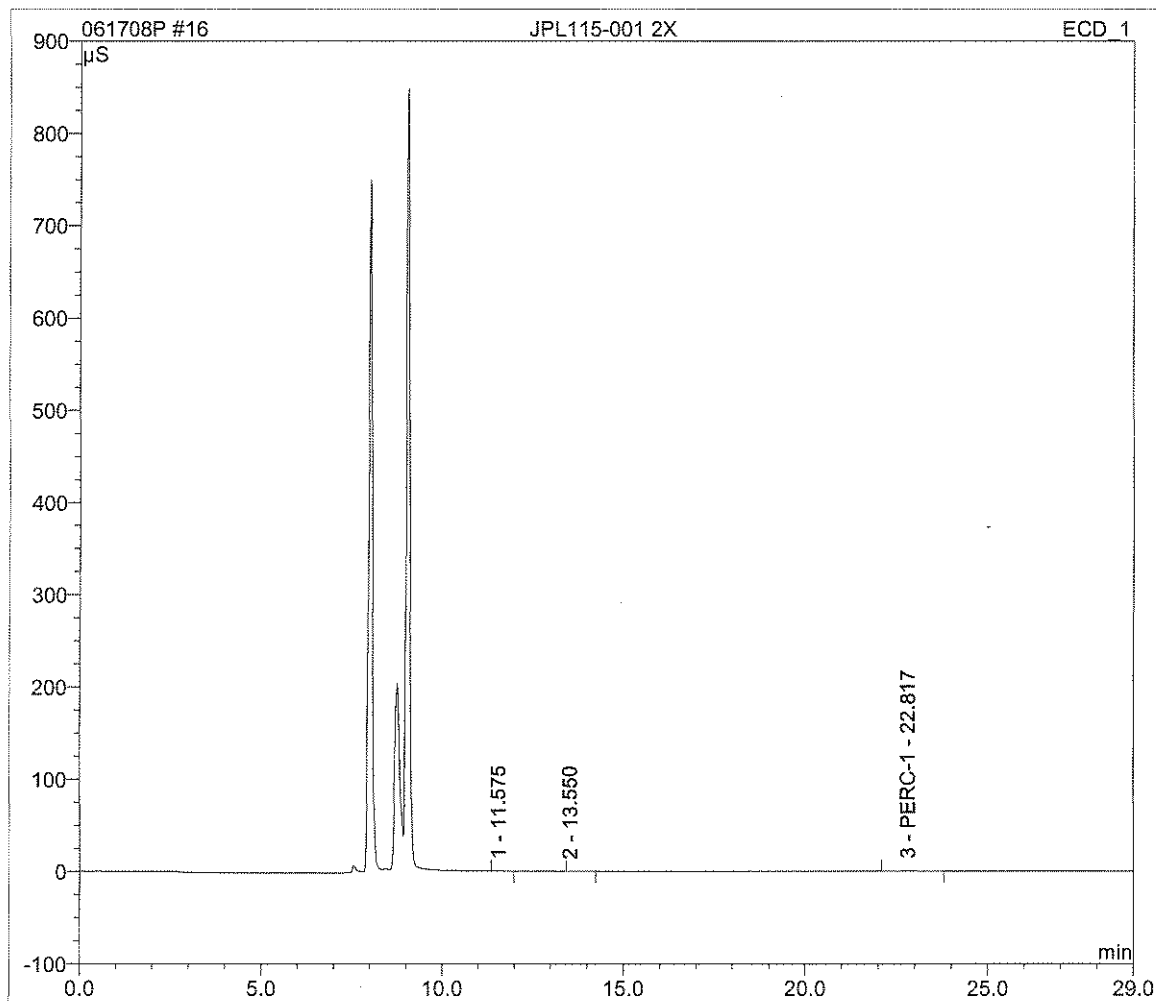
Sample Name:	1 ppb CHECK STD	Inj. Vol.:	5.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:	perchlorate 5ml on Dionex2	Operator:	n.a.
Inj. Date/Time:	17.06.08 17:33	Run Time:	29.00

No.	Time min	Peak Name	Type	Area $\mu\text{S}\cdot\text{min}$	Height μS	Amount ppb
2	22.73	PERC-1	BMB	0.008	0.015	0.8778
TOTAL:				0.01	0.02	0.88



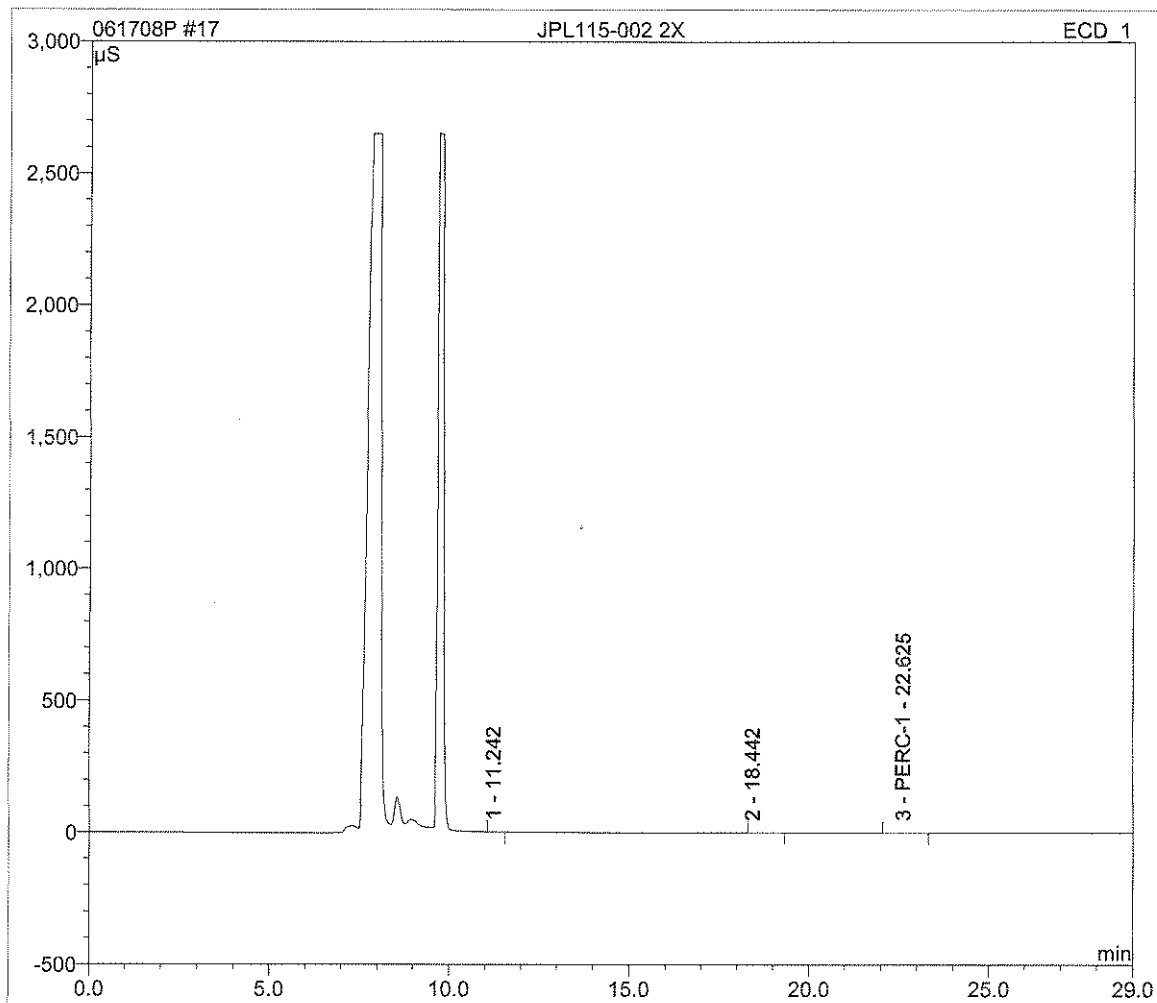
Sample Name:	JPL115-001 2X	Inj. Vol.:	5.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:	perchlorate 5ml on Dionex2	Operator:	n.a.
Inj. Date/Time:	17.06.08 18:04	Run Time:	29.00

No.	Time min	Peak Name	Type	Area $\mu\text{S}\cdot\text{min}$	Height μS	Amount ppb
3	22.82	PERC-1	BMB	0.324	0.579	34.8122
TOTAL:				0.32	0.58	34.81



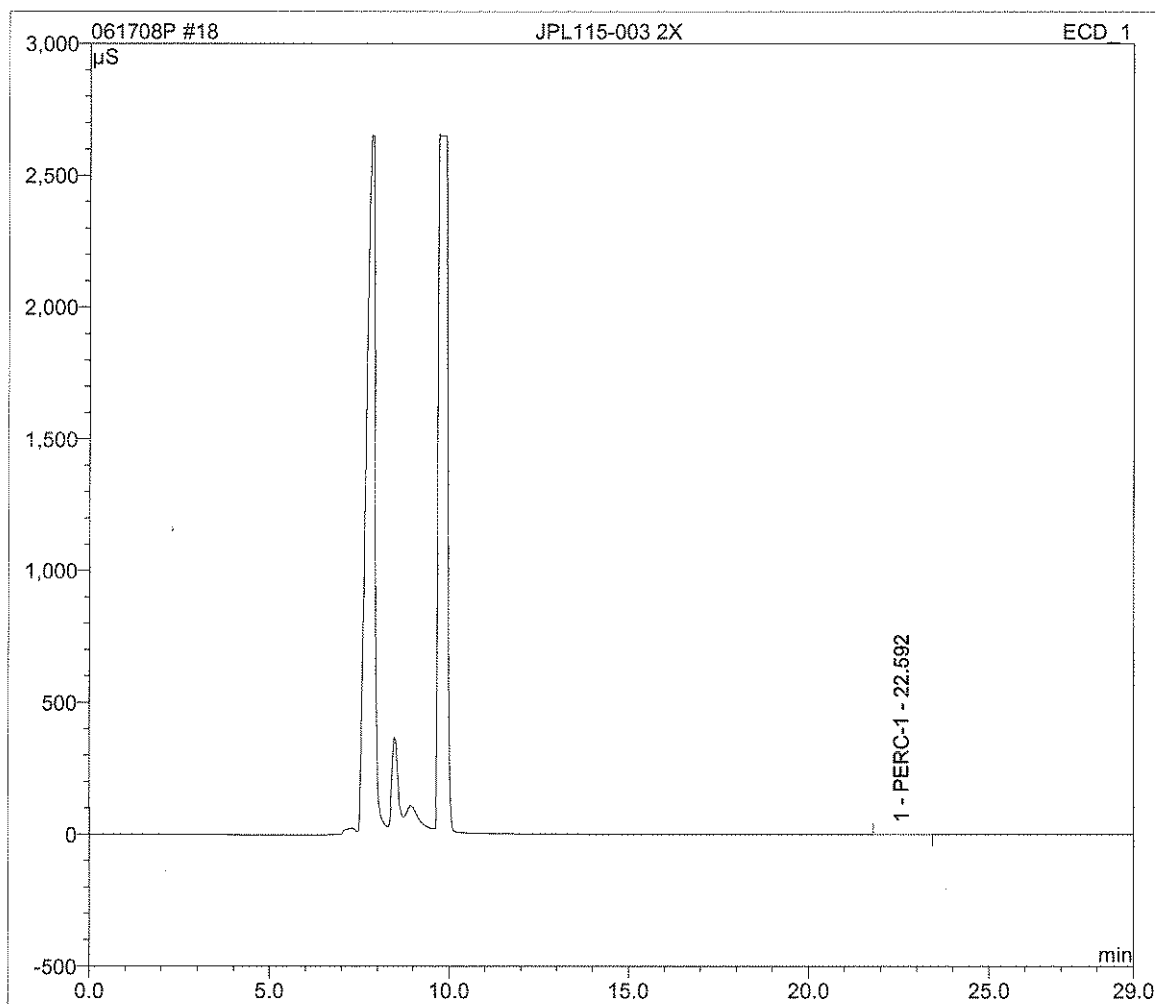
Sample Name:	JPL115-002 2X	Inj. Vol.:	5.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:	perchlorate 5ml on Dionex2	Operator:	n.a.
Inj. Date/Time:	17.06.08 18:36	Run Time:	29.00

No.	Time min	Peak Name	Type	Area $\mu\text{S} \cdot \text{min}$	Height μS	Amount ppb
3	22.63	PERC-1	BMB	0.022	0.038	2.4041
TOTAL:				0.02	0.04	2.40



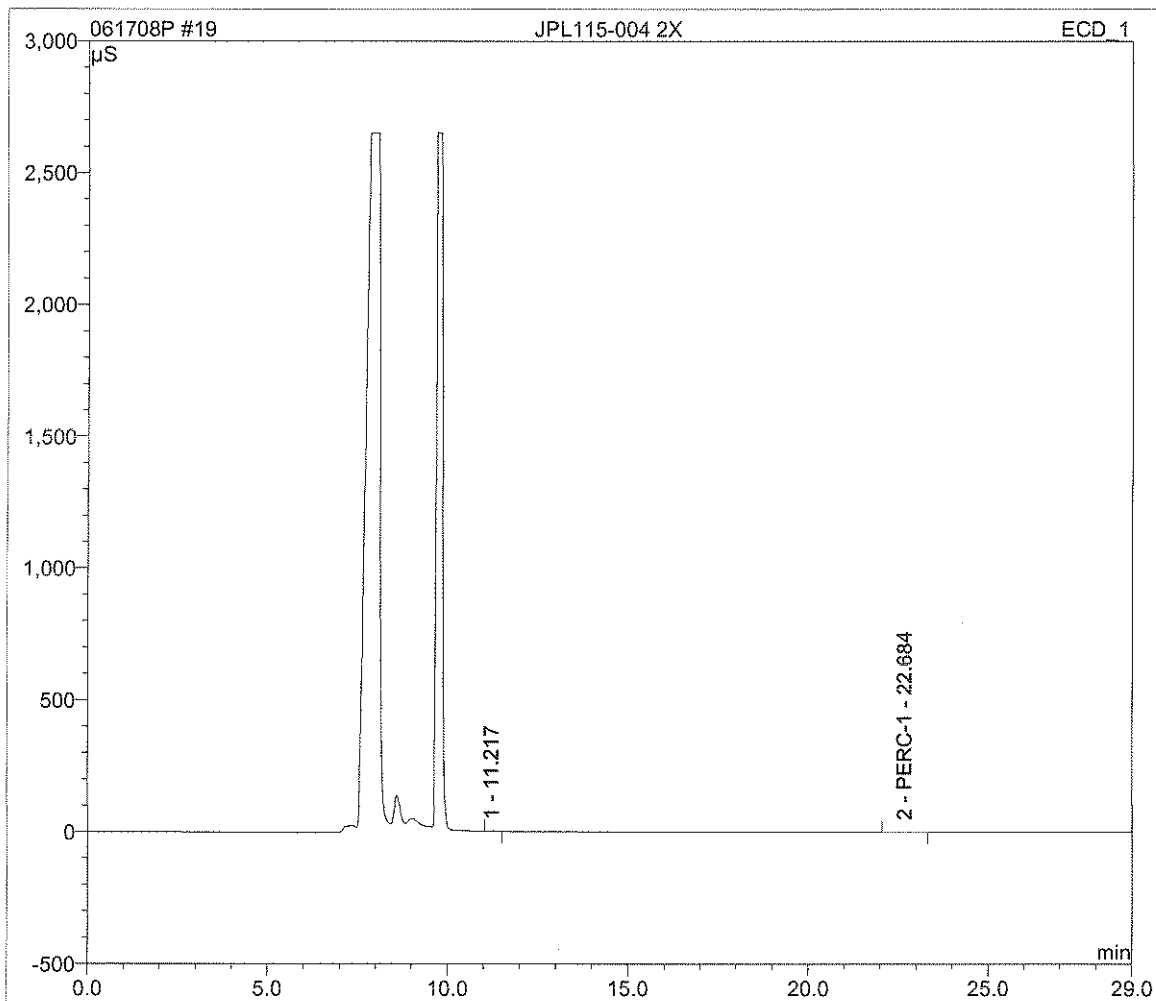
Sample Name:	JPL115-003 2X	Inj. Vol.:	5.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:	perchlorate 5ml on Dionex2	Operator:	n.a.
Inj. Date/Time:	17.06.08 19:07	Run Time:	29.00

No.	Time min	Peak Name	Type	Area $\mu\text{S} \cdot \text{min}$	Height μS	Amount ppb
1	22.59	PERC-1	BMB	0.139	0.221	14.9444
TOTAL:				0.14	0.22	14.94



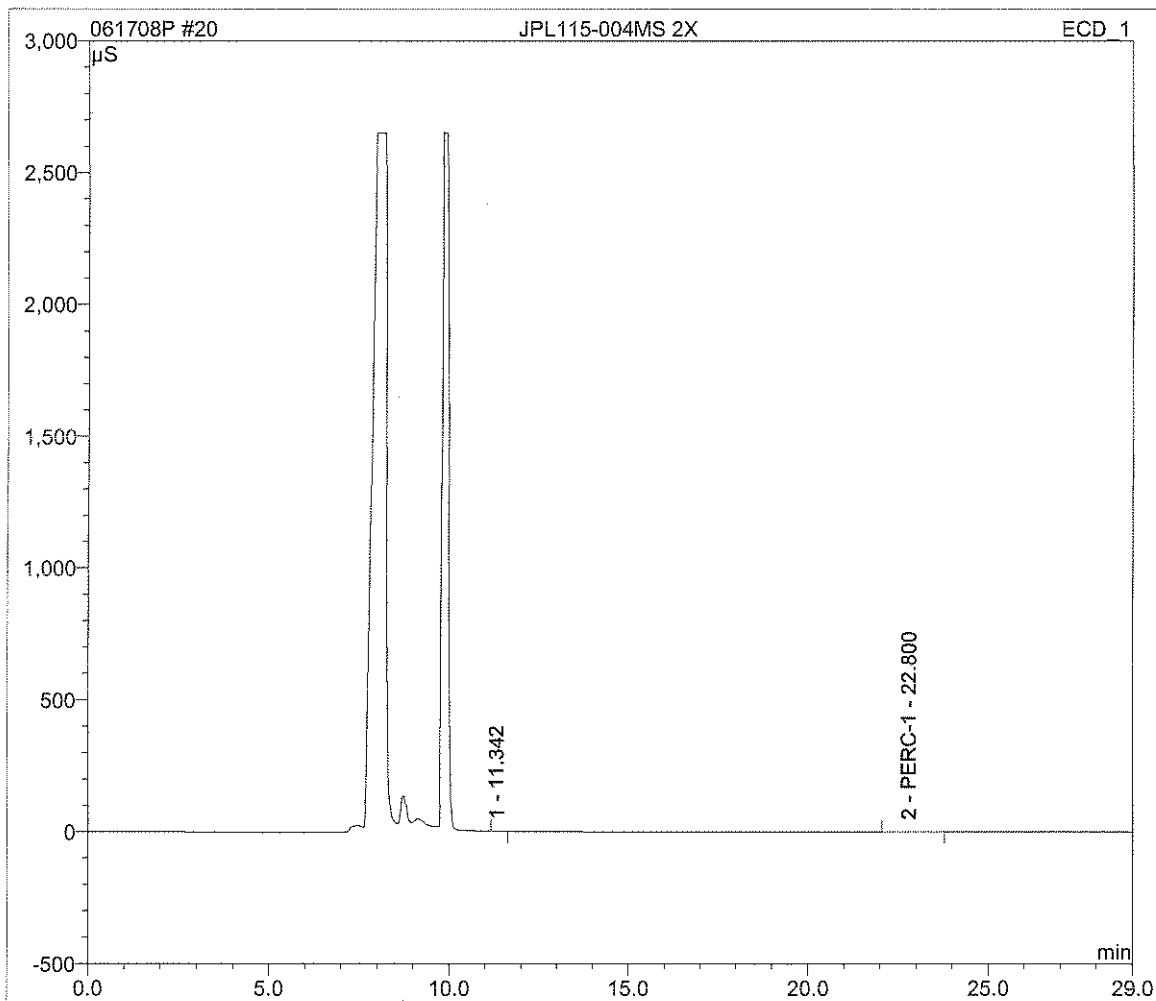
Sample Name:	JPL115-004 2X	Inj. Vol.:	5.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:	perchlorate 5ml on Dionex2	Operator:	n.a.
Inj. Date/Time:	17.06.08 19:38	Run Time:	29.00

No.	Time min	Peak Name	Type	Area $\mu\text{S}\cdot\text{min}$	Height μS	Amount ppb
2	22.68	PERC-1	BMB	0.022	0.038	2.3884
TOTAL:				0.02	0.04	2.39



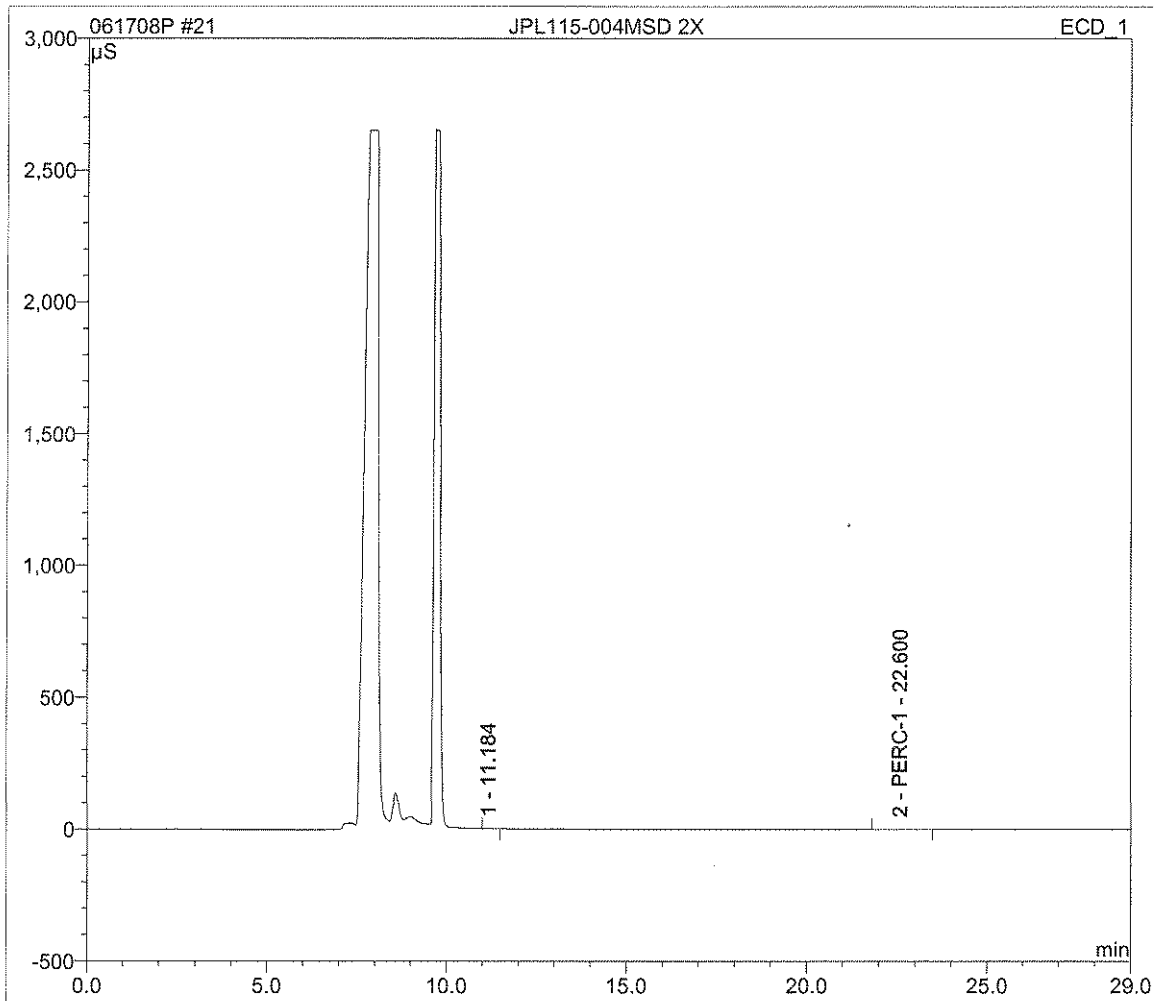
Sample Name:	JPL115-004MS 2X	Inj. Vol.:	5.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:	perchlorate 5ml on Dionex2	Operator:	n.a.
Inj. Date/Time:	17.06.08 20:10	Run Time:	29.00

No.	Time min	Peak Name	Type	Area $\mu\text{S} \cdot \text{min}$	Height μS	Amount ppb
2	22.80	PERC-1	BMB	0.216	0.361	23.2327
TOTAL:				0.22	0.36	23.23



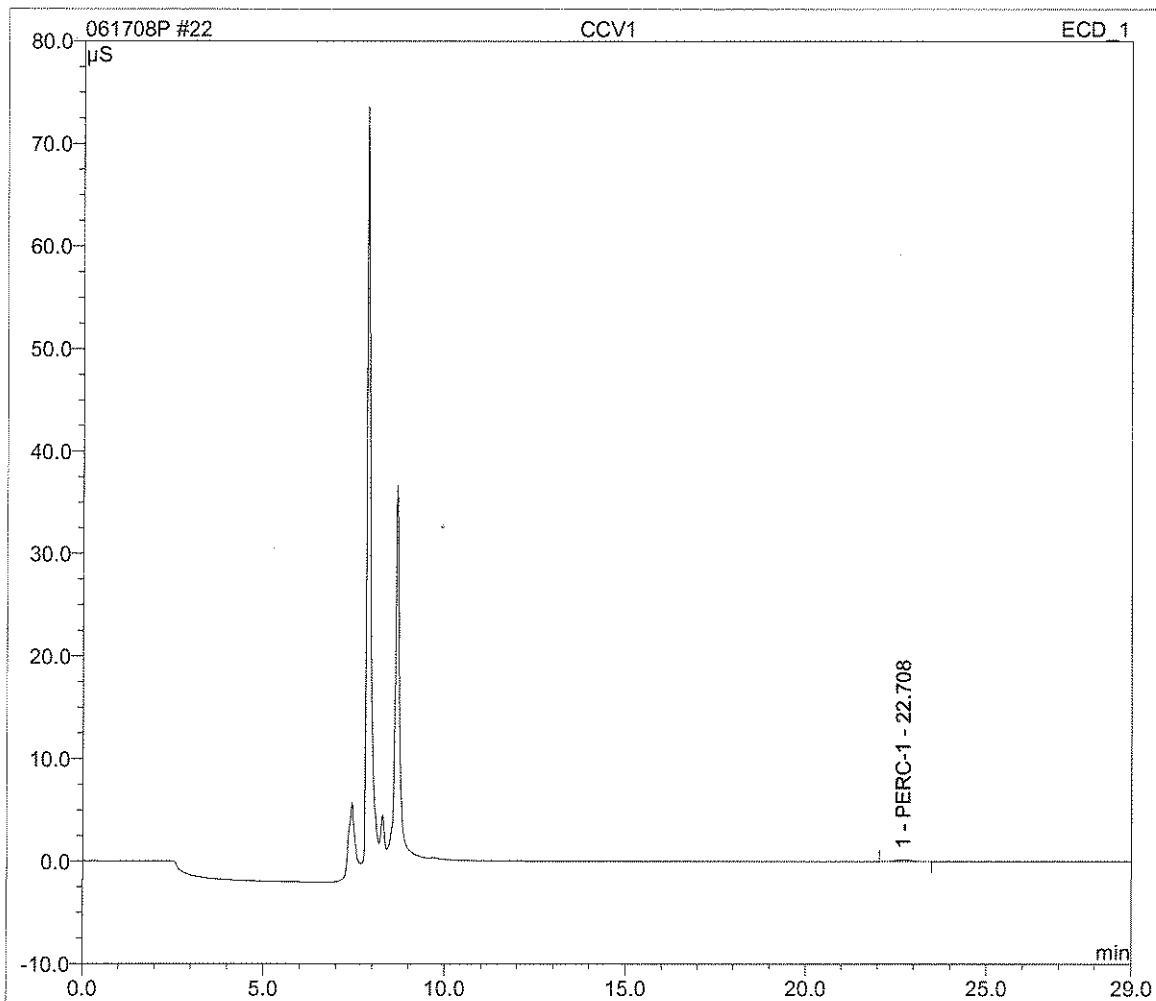
Sample Name:	JPL115-004MSD 2X	Inj. Vol.:	5.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:	perchlorate 5ml on Dionex2	Operator:	n.a.
Inj. Date/Time:	17.06.08 20:41	Run Time:	29.00

No.	Time min	Peak Name	Type	Area $\mu\text{S} \cdot \text{min}$	Height μS	Amount ppb
2	22.60	PERC-1	BMB	0.217	0.362	23.2565
TOTAL:				0.22	0.36	23.26



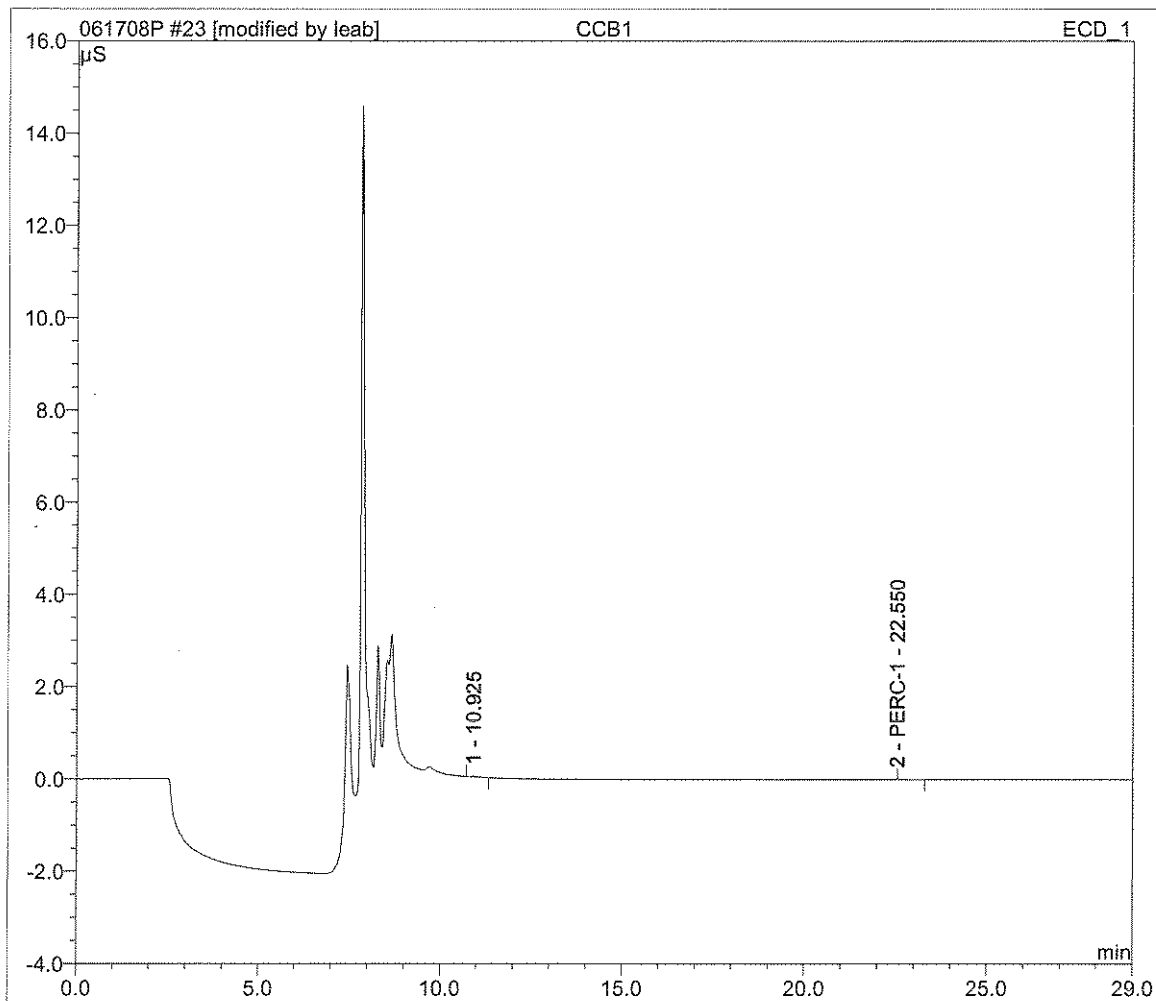
Sample Name:	CCV1	Inj. Vol.:	5.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:	perchlorate 5ml on Dionex2	Operator:	n.a.
Inj. Date/Time:	17.06.08 21:13	Run Time:	29.00

No.	Time min	Peak Name	Type	Area $\mu\text{S}\cdot\text{min}$	Height μS	Amount ppb
1	22.71	PERC-1	BMB	0.094	0.169	10.1006
TOTAL:				0.09	0.17	10.10



Sample Name:	CCB1	Inj. Vol.:	5.0
Sample Type:	unknown	Dilution Factor:	1.0000
Program:	perchlorate 5ml on Dionex2	Operator:	n.a.
Inj. Date/Time:	17.06.08 21:44	Run Time:	29.00

No.	Time min	Peak Name	Type	Area $\mu\text{S}\cdot\text{min}$	Height μS	Amount ppb
2	22.55	PERC-1	BMB*	0.000	0.000	0.0427
TOTAL:				0.00	0.00	0.04



Sequence: 061708P
Operator: leab

Title:
Datasource: D33TPG41_local
Location:
Timebase: PERC
#Samples: 36

Created: 6/17/2008 9:38:33 AM by leab
Last Update: 6/18/2008 4:17:26 PM by leab

No.	Name	Type	Pos.	Inj. Vol.	Program	Method	Status
1	R	Unknown	1	5.0	perchlorate 5ml on Dionex2	perc	Finished
2	std1 1ppb	Standard	2	5.0	perchlorate 5ml on Dionex2	perc	Finished
3	std2 2ppb	Standard	3	5.0	perchlorate 5ml on Dionex2	perc	Finished
4	std3 5ppb	Standard	4	5.0	perchlorate 5ml on Dionex2	perc	Finished
5	std4 10ppb	Standard	5	5.0	perchlorate 5ml on Dionex2	perc	Finished
6	std5 25ppb	Standard	6	5.0	perchlorate 5ml on Dionex2	perc	Finished
7	std6 80ppb	Standard	7	5.0	perchlorate 5ml on Dionex2	perc	Finished
8	RINSE	Unknown	8	5.0	perchlorate 5ml on Dionex2	perc	Finished
9	MCT/IPC	Unknown	9	5.0	perchlorate 5ml on Dionex2	perc	Finished
10	ICV	Unknown	10	5.0	perchlorate 5ml on Dionex2	perc	Finished
11	ICB	Unknown	11	5.0	perchlorate 5ml on Dionex2	perc	Finished
12	BLK SPK	Unknown	12	5.0	perchlorate 5ml on Dionex2	perc	Finished
13	BLK SPK DUP	Unknown	13	5.0	perchlorate 5ml on Dionex2	perc	Finished
14	B051208PERW01	Unknown	14	5.0	perchlorate 5ml on Dionex2	perc	Finished
15	1 ppb CHECK STD	Unknown	15	5.0	perchlorate 5ml on Dionex2	perc	Finished
16	JPL115-001 2X	Unknown	16	5.0	perchlorate 5ml on Dionex2	perc	Finished
17	JPL115-002 2X	Unknown	17	5.0	perchlorate 5ml on Dionex2	perc	Finished
18	JPL115-003 2X	Unknown	18	5.0	perchlorate 5ml on Dionex2	perc	Finished
19	JPL115-004 2X	Unknown	19	5.0	perchlorate 5ml on Dionex2	perc	Finished
20	JPL115-004MS 2X	Unknown	20	5.0	perchlorate 5ml on Dionex2	perc	Finished
21	JPL115-004MSD 2X	Unknown	21	5.0	perchlorate 5ml on Dionex2	perc	Finished
22	CCV1	Unknown	22	5.0	perchlorate 5ml on Dionex2	perc	Finished
23	CCB1	Unknown	23	5.0	perchlorate 5ml on Dionex2	perc	Finished
24	JPL116-001 2X	Unknown	24	5.0	perchlorate 5ml on Dionex2	perc	Finished
25	JPL116-002 2X	Unknown	25	5.0	perchlorate 5ml on Dionex2	perc	Finished
26	JPL116-003 2X	Unknown	26	5.0	perchlorate 5ml on Dionex2	perc	Finished
27	JPL116-003MS 2X	Unknown	27	5.0	perchlorate 5ml on Dionex2	perc	Finished
28	JPL116-003MSD 2X	Unknown	28	5.0	perchlorate 5ml on Dionex2	perc	Finished
29	JPL117-001 2X	Unknown	29	5.0	perchlorate 5ml on Dionex2	perc	Finished
30	JPL117-002 2X	Unknown	30	5.0	perchlorate 5ml on Dionex2	perc	Finished
31	JPL117-003 2X	Unknown	31	5.0	perchlorate 5ml on Dionex2	perc	Finished
32	JPL117-003MS 2X	Unknown	32	5.0	perchlorate 5ml on Dionex2	perc	Finished
33	JPL117-003MSD 2X	Unknown	33	5.0	perchlorate 5ml on Dionex2	perc	Finished
34	CCV2	Unknown	34	5.0	perchlorate 5ml on Dionex2	perc	Finished
35	CCB2	Unknown	35	5.0	perchlorate 5ml on Dionex2	perc	Finished
36	SHUTDOWN	Unknown	52	5.0	shutdown	perc	Finished

Program File: perchlorate 5ml on Dionex2
Operator: leab

Commands, Page 1 of 1
Printed: 6/18/2008 4:17:35 PM

Title:

Datasource: D33TPG41_local

Location: 061708P.SEQ

Timebase: PERC

Created: 5/12/2004 11:34:21 AM by Administrator

Changed: 9/21/2006 4:46:15 PM by michelap

```
Pressure.LowerLimit = 50
Pressure.UpperLimit = 3000
%A.Equate = "%A"
LoadPosition
Data_Collection_Rate = 2.0
Temperature_Compensation = 1.7
DS3_Temperature = 30
Suppressor_Type = ASRS_4mm
; ECD.Carbonate = 0.0
; ECD.Bicarbonate = 0.0
; ECD.Hydroxide = 35.0
; ECD.Tetraborate = 0.0
; ECD.Other eluent = 0.0
; ECD.Recommended Current = 87
  Suppressor_Current = 87
  Flow = 1.00

-2.300 Pump_TTL_1.0v Duration=5.00

0.000 Autozero
  ECD_1.AcqOn
  Pump_InjectValve.InjectPosition Duration=600.0

29.00 ECD_1.AcqOff

End
```

Program File: perchlorate 5ml on Dionex2
Operator: leab

Post-acquisition steps, Page 1 of 1
Printed: 6/18/2008 4:17:35 PM

Title:
Datasource: D33TPG41_local
Location: 061708P.SEQ
Timebase: PERC

Created: 5/12/2004 11:34:21 AM by Administrator
Changed: 9/21/2006 4:46:15 PM by michelap

No. Channel Operation Parameters

Program File: shutdown
Operator: leab

Commands, Page 1 of 1
Printed: 6/18/2008 4:17:35 PM

Title:

Datasource: D33TPG41_local

Location: 061708P.SEQ

Timebase: PERC

Created: 5/12/2004 11:42:28 AM by Administrator

Changed: 5/12/2004 11:57:48 AM by Administrator

Pressure.LowerLimit = 50
Pressure.UpperLimit = 3000
%A.Equate = "%A"
LoadPosition
Data_Collection_Rate = 2.0
Temperature_Compensation = 1.7
DS3_Temperature = 30
Suppressor_Type = None
Flow = 0.00

0.000

End

Program File: shutdown
Operator: leab

Post-acquisition steps, Page 1 of 1
Printed: 6/18/2008 4:17:36 PM

Title:
Datasource: D33TPG41_local
Location: 061708P.SEQ
Timebase: PERC

Created: 5/12/2004 11:42:28 AM by Administrator
Changed: 5/12/2004 11:57:48 AM by Administrator

No. Channel Operation Parameters

Method File: perc
Operator: leab

Title:
Datasource: D33TPG41_local Created: 5/12/2004 11:37:58 AM by Administrator
Location: 061708P.SEQ Last Update: 6/17/2008 12:05:13 PM by leab

Blank Run Subtraction: No Blank Run Subtraction

Detection Table:

No.	Ret. Time [min]	Param. Name	Param. Value	Channel
1	0.000	Minimum Area	0.0025 "[Signal]*min"	All Channels
2	0.000	Inhibit Integration	On	All Channels
3	10.000	Inhibit Integration	Off	All Channels

Method File: perc
Operator: leab

Title:
Datasource: D33TPG41_local Created: 5/12/2004 11:37:58 AM by Administrator
Location: 061708P.SEQ Last Update: 6/17/2008 12:05:13 PM by leab

Peak Table:

Use Recently Detected Retention Times: Last standard

Peak Retention Time Determination: Absolute

Dead time:

Delay Time of 2'nd Detector: <None>

Delay Time of 3'rd Detector: <None>

No.	Peak Name	Ret.Time	Window	Standard	Int.Type	Cal.Type	Peak Type	Group	Comment
1	PERC-1	22.700 min	1.000 AG	External	Area	Lin	Auto		Autogenerated

Method File: perc
Operator: leab

Title:
Datasource: D33TPG41_local Created: 5/12/2004 11:37:58 AM by Administrator
Location: 061708P.SEQ Last Update: 6/17/2008 12:05:13 PM by leab

Amount Table:

Dimension of Amounts: ppb
Reference volume for amounts: Use inject volume of first standard
Number of Amount Columns: 6
Sample column used for amount column assignment: Sample Name

No.	Peak Name	Ret.Time	Resp.Fact.	Amount std1 1ppb	Amount std2 2ppb	Amount std3 5ppb	Amount std4 10ppb	Amount std5 25ppb	Amount std6 80ppb
1	PERC-1	22.700 min	1.000000	1.000000	2.000000	5.000000	10.000000	25.000000	80.000000

Method File: perc
Operator: leab

Title:
Datasource: D33TPG41_local Created: 5/12/2004 11:37:58 AM by Administrator
Location: 061708P.SEQ Last Update: 6/17/2008 12:05:13 PM by leab

Amount Table:

Dimension of Amounts: ppb
Reference volume for amounts: Use inject volume of first standard
Number of Amount Columns: 6
Sample column used for amount column assignment: Sample Name







No.	Peak Name	Ret.Time	Comment
1	PERC-1	22.700 min	Autogenerated

Method File: perc
Operator: leab

Title:
Datasource: D33TPG41_local Created: 5/12/2004 11:37:58 AM by Administrator
Location: 061708P.SEQ Last Update: 6/17/2008 12:05:13 PM by leab

Calibration:

Calibration Mode: Total
Auto Recalibrate: On
Curve Fitting Model: Normal







No.	Enabled	Name	Smp.No.	Pos.	Inj. Vol.	Weight	ISTD Amount	Dil. Factor	Inj. Date/Time
1	<input checked="" type="checkbox"/>	 std1 1ppb	2	2	5.0	1.0000	1.0000	1.0000	6/17/2008 10:26:03
2	<input checked="" type="checkbox"/>	 std2 2ppb	3	3	5.0	1.0000	1.0000	1.0000	6/17/2008 10:57:29
3	<input checked="" type="checkbox"/>	 std3 5ppb	4	4	5.0	1.0000	1.0000	1.0000	6/17/2008 11:28:54
4	<input checked="" type="checkbox"/>	 std4 10ppb	5	5	5.0	1.0000	1.0000	1.0000	6/17/2008 12:00:20
5	<input checked="" type="checkbox"/>	 std5 25ppb	6	6	5.0	1.0000	1.0000	1.0000	6/17/2008 12:31:45
6	<input checked="" type="checkbox"/>	 std6 80ppb	7	7	5.0	1.0000	1.0000	1.0000	6/17/2008 1:03:10

Method File: perc
Operator: leab

Title:
Datasource: D33TPG41_local Created: 5/12/2004 11:37:58 AM by Administrator
Location: 061708P.SEQ Last Update: 6/17/2008 12:05:13 PM by leab

Calibration:

Calibration Mode: Total
Auto Recalibrate: On
Curve Fitting Model: Normal

No.	Enabled	Name	Sample Calib.	Comment
1	<input checked="" type="checkbox"/>	 std1 1ppb	ICS-250	Ok
2	<input checked="" type="checkbox"/>	 std2 2ppb	ICS-250	Ok
3	<input checked="" type="checkbox"/>	 std3 5ppb	ICS-250	Ok
4	<input checked="" type="checkbox"/>	 std4 10ppb	ICS-250	Ok
5	<input checked="" type="checkbox"/>	 std5 25ppb	ICS-250	Ok
6	<input checked="" type="checkbox"/>	 std6 80ppb	ICS-250	Ok

Method File: perc
Operator: leab

Title:
Datasource: D33TPG41_local Created: 5/12/2004 11:37:58 AM by Administrator
Location: 061708P.SEQ Last Update: 6/17/2008 12:05:13 PM by leab

System Suitability Test:

No.	Name	Sample Condition	Test Condition	Aggregate	Operator	Value	Channel	Peak	N.A.
1									

Method File: perc
Operator: leab

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Printed: 6/18/2008 4:17:36 PM

Title:
Datasource: D33TPG41_local Created: 5/12/2004 11:37:58 AM by Administrator
Location: 061708P.SEQ Last Update: 6/17/2008 12:05:13 PM by leab

System Suitability Test:

No.	Name	Fail-Action	Result	SST Message
1				

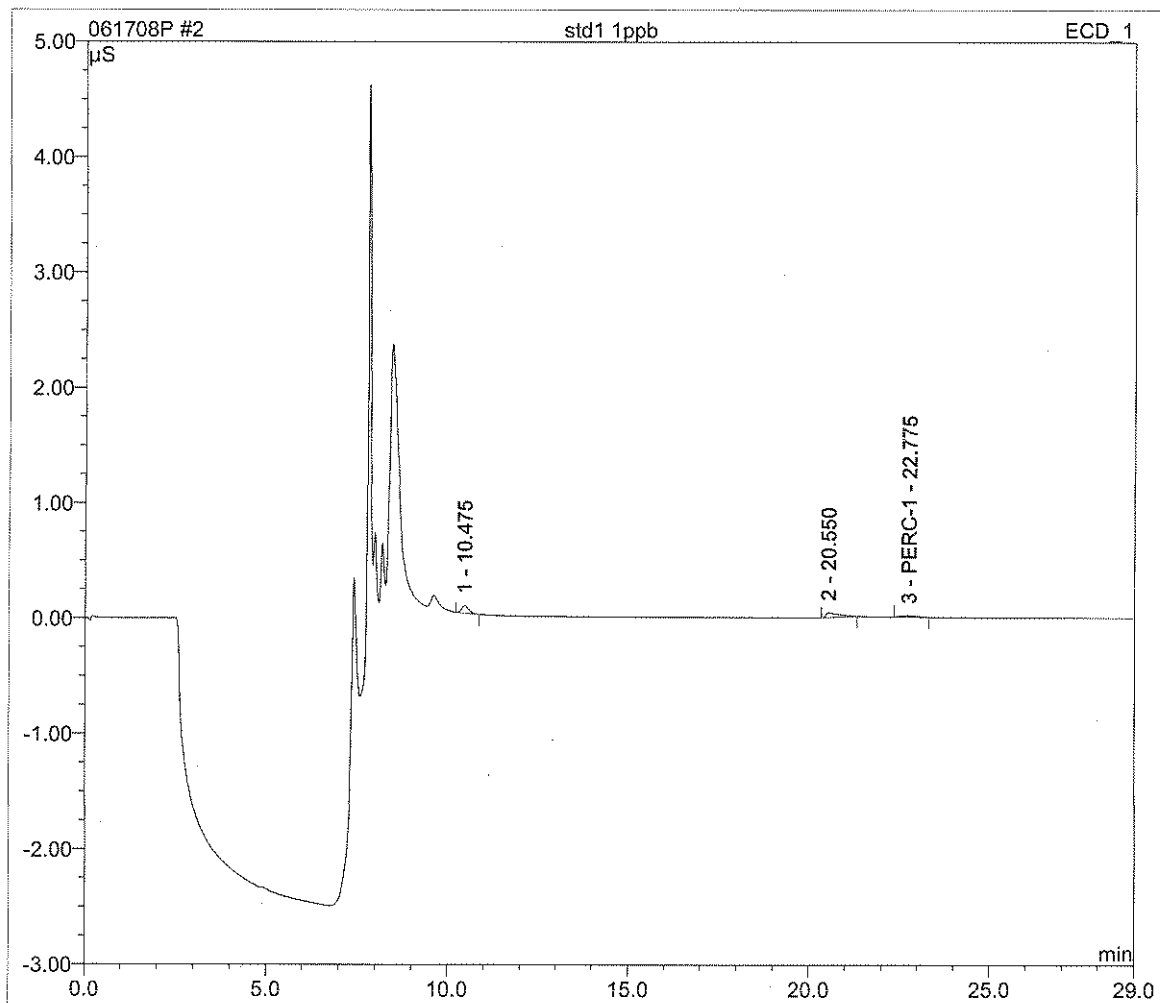
Ro 28939

Calibration Plot

No.	Name	Amount
		ppb
		PERC-1
		ECD 1
1	R	n.a.
2	std1 1ppb	0.6751
3	std2 2ppb	1.5718
4	std3 5ppb	4.3330
5	std4 10ppb	8.8422
6	std5 25ppb	23.2663
7	std6 80ppb	80.7430
8	RINSE	0.2797
9	MCT/IPC	23.6443
10	ICV	40.3617
11	ICB	0.2658
12	BLK SPK	19.2237
13	BLK SPK DUP	19.1016
14	B051208PERW01	0.0478
15	1 ppb CHECK STD	0.8778
16	JPL115-001 2X	34.8122
17	JPL115-002 2X	2.4041
18	JPL115-003 2X	14.9444
19	JPL115-004 2X	2.3884
20	JPL115-004MS 2X	23.2327
21	JPL115-004MSD 2X	23.2565
22	CCV1	10.1006
23	CCB1	0.0427
24	JPL116-001 2X	3.0587
25	JPL116-002 2X	0.4823
26	JPL116-003 2X	0.3050
27	JPL116-003MS 2X	21.8971
28	JPL116-003MSD 2X	21.9679
29	JPL117-001 2X	0.7242
30	JPL117-002 2X	1.2348
31	JPL117-003 2X	0.6292
32	JPL117-003MS 2X	22.0734
33	JPL117-003MSD 2X	22.2747
34	CCV2	10.4202
35	CCB2	0.0497
36	SHUTDOWN	n.a.

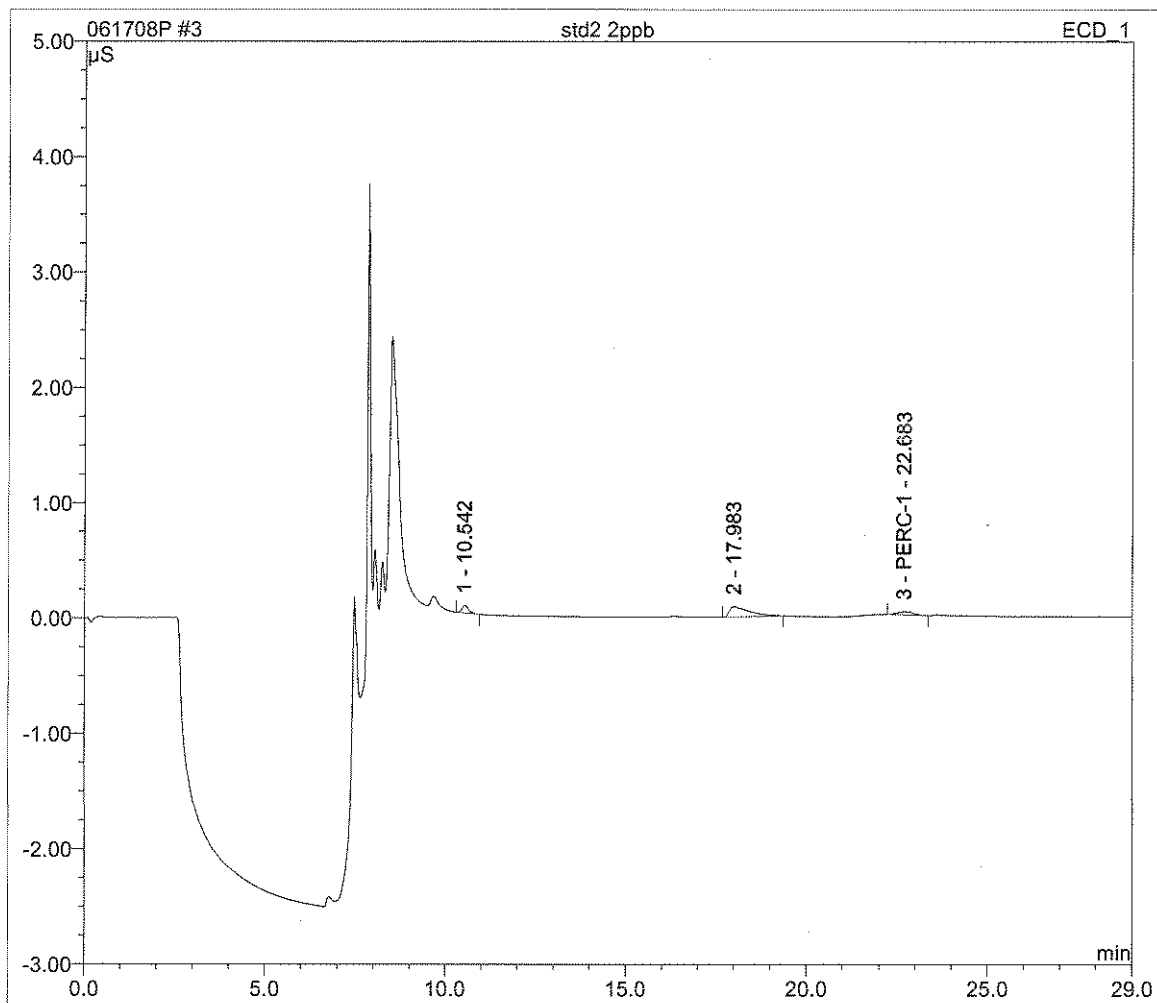
Sample Name:	std1 1ppb	Inj. Vol.:	5.0
Sample Type:	standard	Dilution Factor:	1.0000
Program:	perchlorate 5ml on Dionex2	Operator:	n.a.
Inj. Date/Time:	17.06.08 10:26	Run Time:	29.00

No.	Time min	Peak Name	Type	Area $\mu\text{S} \cdot \text{min}$	Height μS	Amount ppb
3	22.78	PERC-1	BMB	0.006	0.013	0.6751
TOTAL:				0.01	0.01	0.68



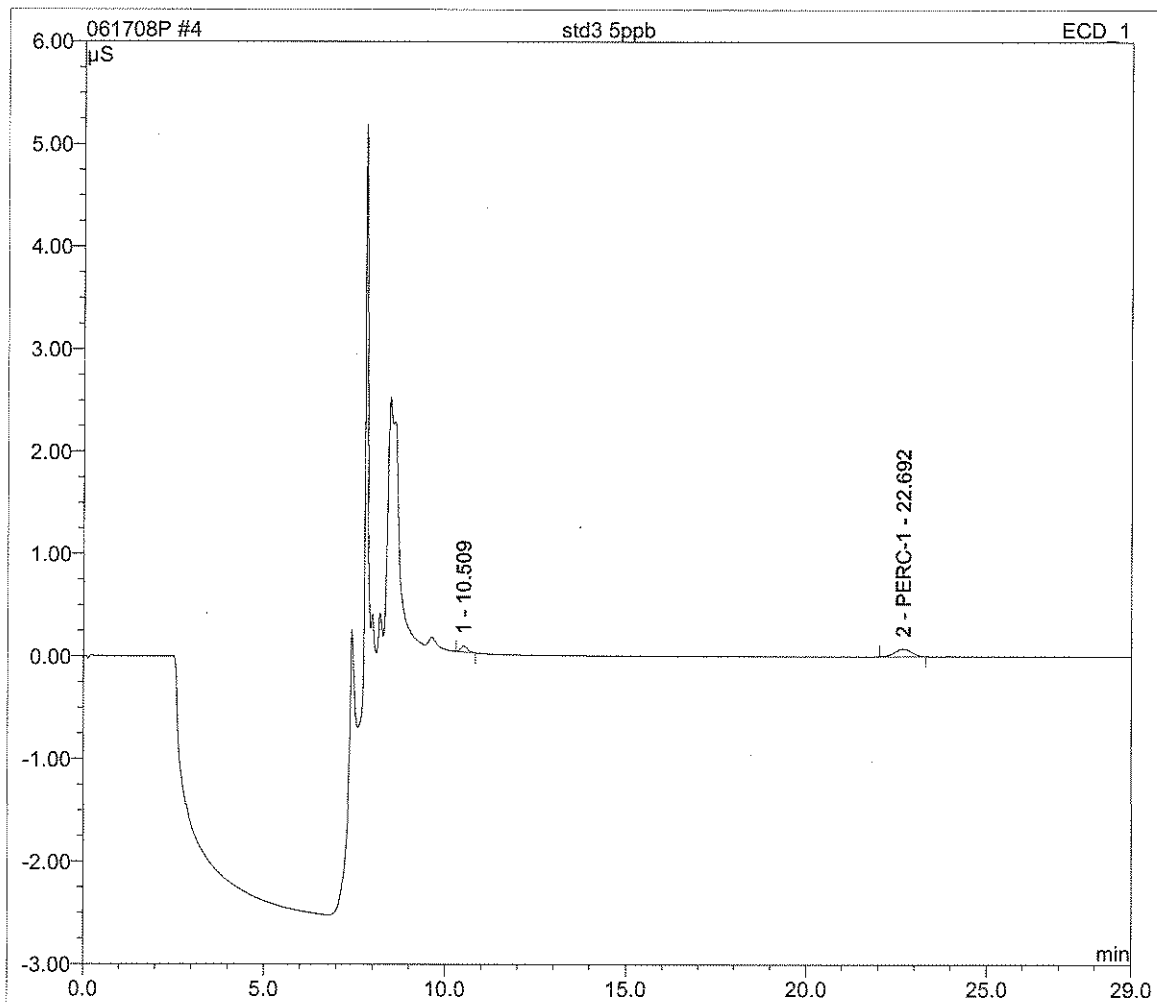
Sample Name:	std2 2ppb	Inj. Vol.:	5.0
Sample Type:	standard	Dilution Factor:	1.0000
Program:	perchlorate 5ml on Dionex2	Operator:	n.a.
Inj. Date/Time:	17.06.08 10:57	Run Time:	29.00

No.	Time min	Peak Name	Type	Area $\mu\text{S} \cdot \text{min}$	Height μS	Amount ppb
3	22.68	PERC-1	BMB	0.015	0.028	1.5718
TOTAL:				0.01	0.03	1.57



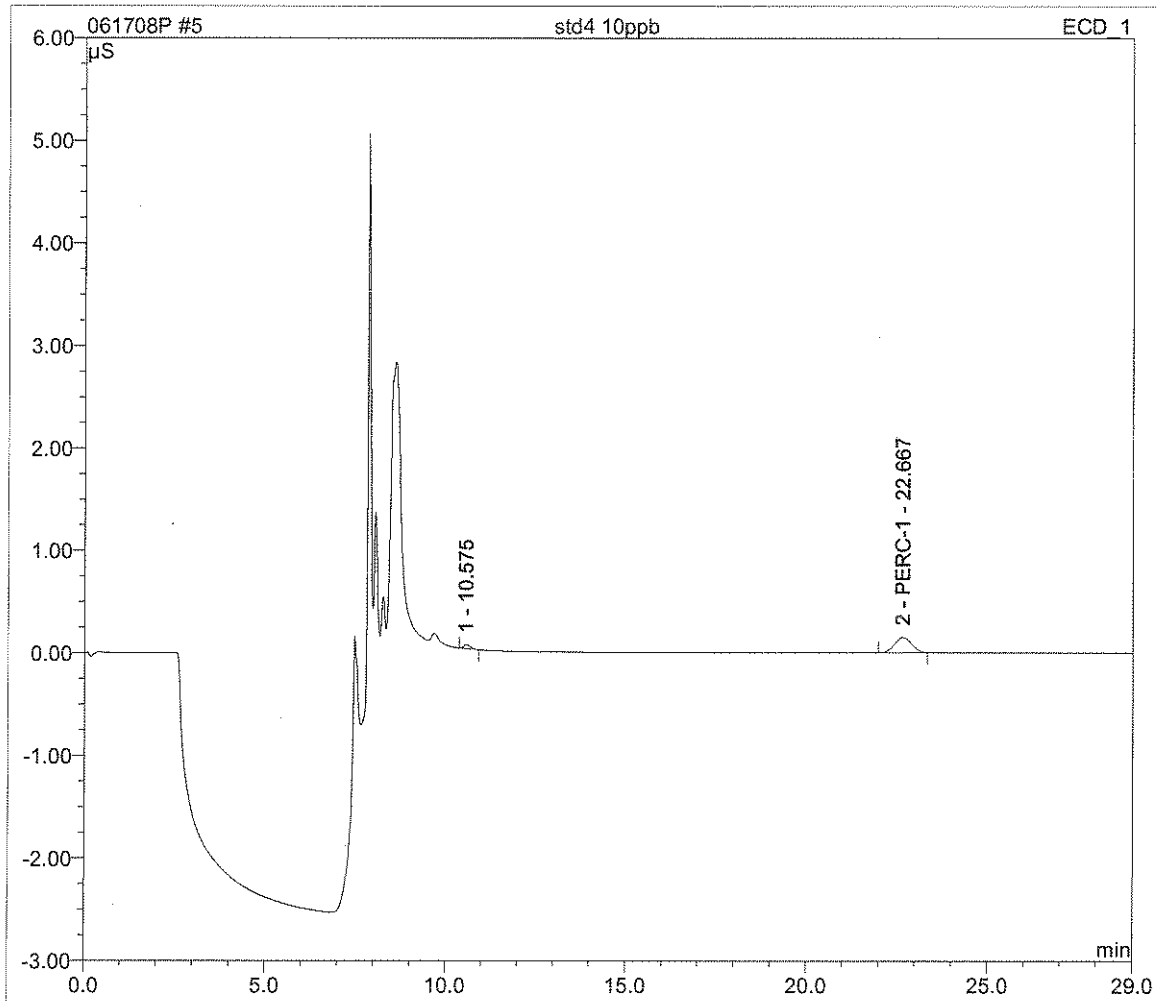
Sample Name:	std3 5ppb	Inj. Vol.:	5.0
Sample Type:	standard	Dilution Factor:	1.0000
Program:	perchlorate 5ml on Dionex2	Operator:	n.a.
Inj. Date/Time:	17.06.08 11:28	Run Time:	29.00

No.	Time min	Peak Name	Type	Area $\mu\text{S} \cdot \text{min}$	Height μS	Amount ppb
2	22.69	PERC-1	BMB	0.040	0.074	4.3330
TOTAL:				0.04	0.07	4.33



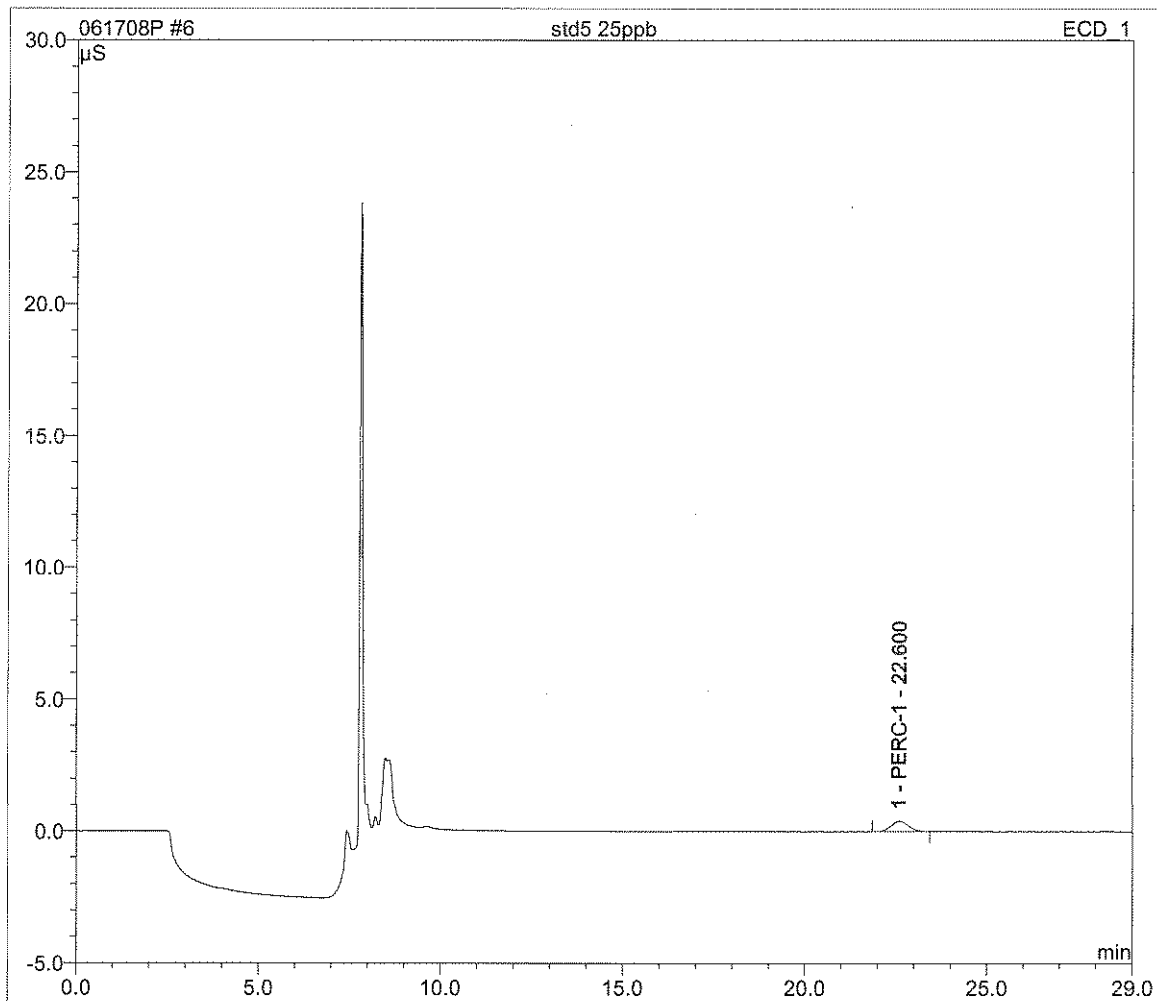
Sample Name:	std4 10ppb	Inj. Vol.:	5.0
Sample Type:	standard	Dilution Factor:	1.0000
Program:	perchlorate 5ml on Dionex2	Operator:	n.a.
Inj. Date/Time:	17.06.08 12:00	Run Time:	29.00

No.	Time min	Peak Name	Type	Area $\mu\text{S} \cdot \text{min}$	Height μS	Amount ppb
2	22.67	PERC-1	BMB	0.082	0.150	8.8422
TOTAL:				0.08	0.15	8.84



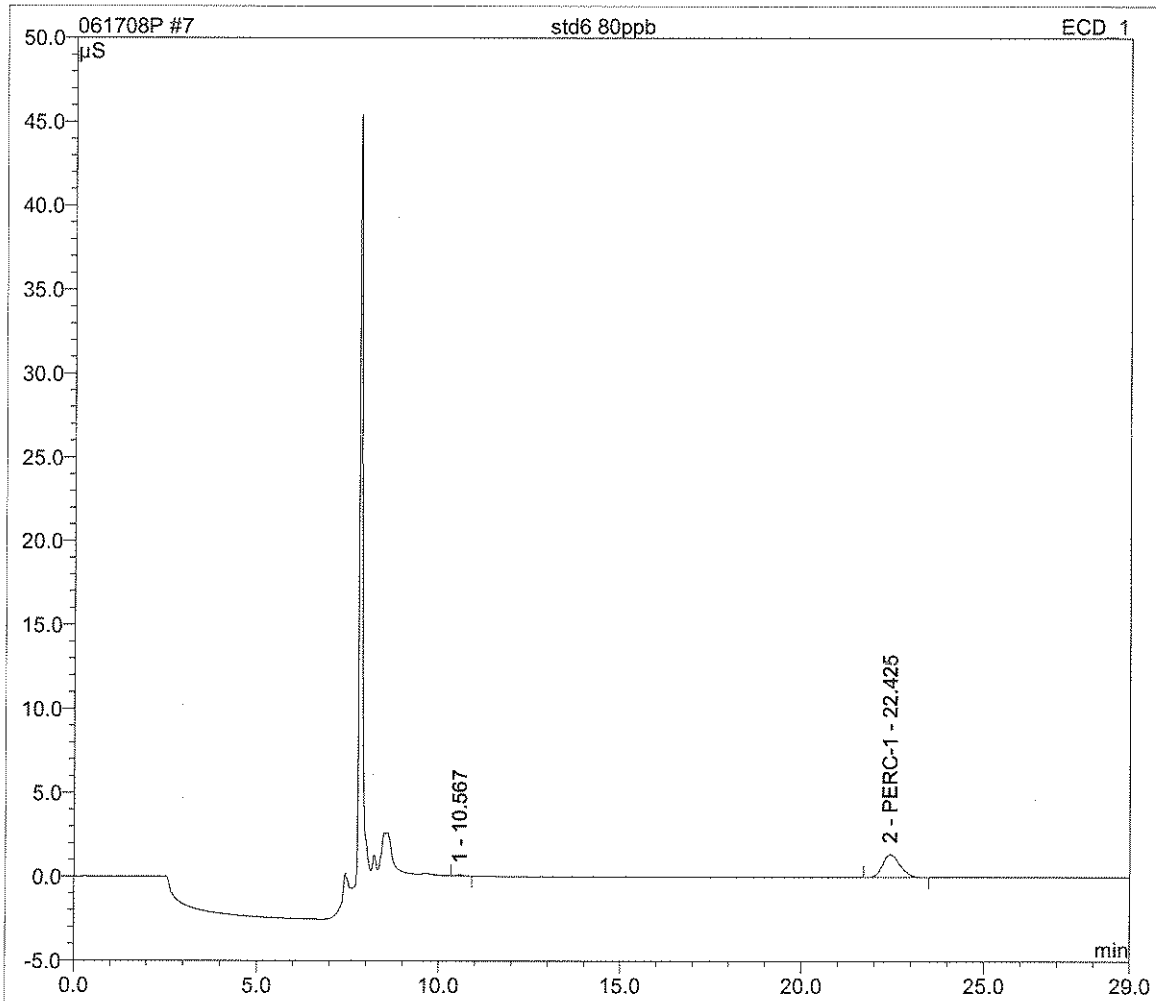
Sample Name:	std5 25ppb	Inj. Vol.:	5.0
Sample Type:	standard	Dilution Factor:	1.0000
Program:	perchlorate 5ml on Dionex2	Operator:	n.a.
Inj. Date/Time:	17.06.08 12:31	Run Time:	29.00

No.	Time min	Peak Name	Type	Area $\mu\text{S}\cdot\text{min}$	Height μS	Amount ppb
1	22.60	PERC-1	BMB	0.217	0.389	23.2663
TOTAL:				0.22	0.39	23.27



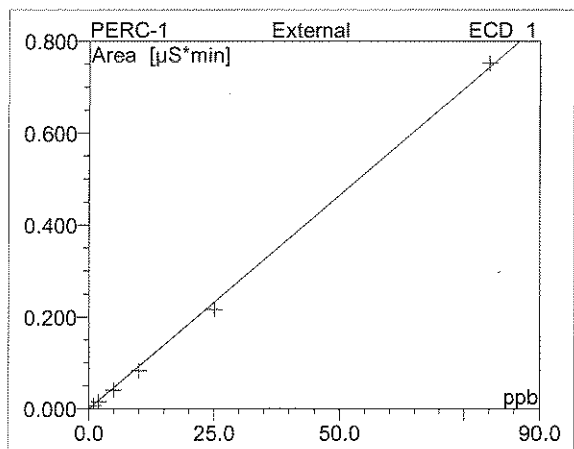
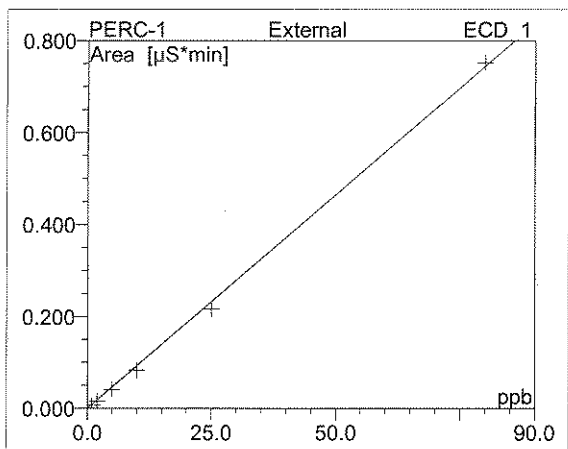
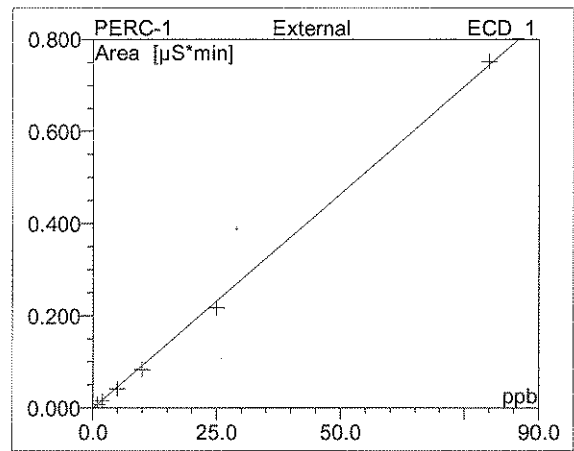
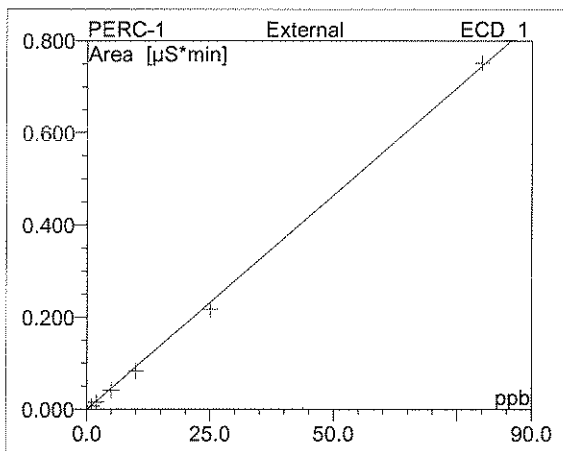
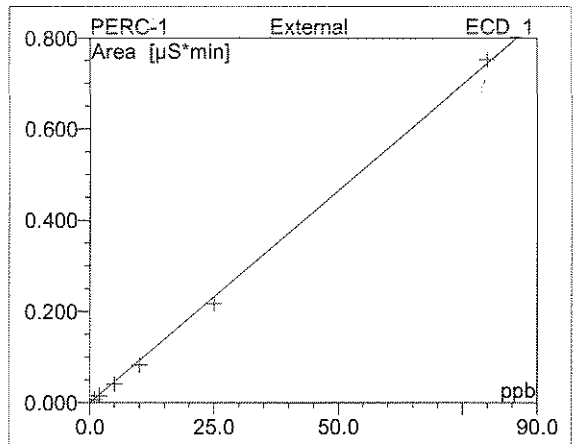
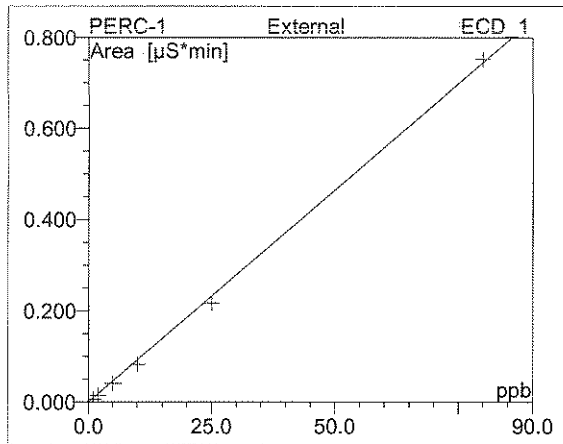
Sample Name:	std6 80ppb	Inj. Vol.:	5.0
Sample Type:	standard	Dilution Factor:	1.0000
Program:	perchlorate 5ml on Dionex2	Operator:	n.a.
Inj. Date/Time:	17.06.08 13:03	Run Time:	29.00

No.	Time min	Peak Name	Type	Area $\mu\text{S}\cdot\text{min}$	Height μS	Amount ppb
2	22.43	PERC-1	BMB	0.752	1.356	80.7430
TOTAL:				0.75	1.36	80.74

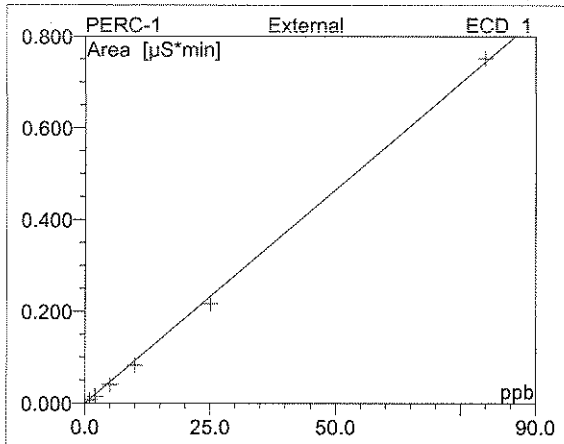


Calibration Batch Report

Sequence: 061708P	Inj. Vol.: 5.0
Program: perchlorate 5ml on Dionex2	Operator: P4-2600-01
Ini. Date/Time: 06/17/08 13:03	Run Time: 29.00



Sequence: 061708P	Inj. Vol.: 5.0
Program: perchlorate 5ml on Dionex2	Operator: n.a.
Ini. Date/Time: 06/17/08 13:03	Run Time: 29.00



No.	Ret. Time min	Peak Name	Cal. Type	Points	Offset (C0)	Slope (C1)	Curve (C2)	Corr. Coeff. %
2	22.43	PERC-1	Lin	6	0.000	0.009	0.000	99.975
AVERAGE:					0.0000	0.0093	0.0000	99.9754



**STANDARD SOLUTION
DATA SHEET**

1. STANDARD INFORMATION

Name: **Perchlorate Calibration Std #2 (25ppb NaClO4)**

Log Entry: IC-7-30-14

Received/Prepared Date: 06/13/2008

Expiration Date: 07/13/2008

Location:

Manufacturer's Exp. Date:

Prepared By: Lea Beard

Final Volume: 200 mL

Solvent: Deionized Water (LTL DIWater)

Notes:

2. COMPOSITION - STANDARDS

<u>SOLUTION</u>	<u>LOG ENTRY</u>	<u>CREATED/RECV'D.</u>	<u>EXP.</u>	<u>MANU EXP.</u>
Perchlorate Calibration Std #2 (25ppb NaClO4) IC-7-30-14 (ORIGINAL)				
Secondary NaClO4 Stock Solution, 1000 ppb 5 mL	IC-7-30-10	06/13/2008	07/13/2008	
Primary NaClO4 Calibration Stock Solution, 1000ppm 500 ul	IC-7-26-7	09/24/2007	09/24/2008	

3. COMPOSITION - ANALYTES

CHEMICAL	CAS #	STOCK CONC.	FINAL CONC.
Perchlorate	14797-73-0	-	25.0 ug/L

FORM LTL-SS-3.0



STANDARD SOLUTION DATA SHEET

1. STANDARD INFORMATION

Name: **Perchlorate Calibration Std #1 (400ppb NaClO₄)**

Log Entry: IC-7-30-13

Received/Prepared Date: 06/13/2008

Expiration Date: 07/13/2008

Location:

Manufacturer's Exp. Date:

Prepared By: Lea Beard

Final Volume: 200 mL

Solvent: Deionized Water (LTL DIWater)

Notes:

2. COMPOSITION - STANDARDS

<u>SOLUTION</u>	<u>LOG ENTRY</u>	<u>CREATED/RECV'D.</u>	<u>EXP.</u>	<u>MANU EXP.</u>
Perchlorate Calibration Std #1 (400ppb NaClO₄) IC-7-30-13 (ORIGINAL)				
Secondary NaClO ₄ Stock Solution, 1000 ppb 80 mL	IC-7-30-10	06/13/2008	07/13/2008	
Primary NaClO ₄ Calibration Stock Solution, 1000ppm 500 ul	IC-7-26-7	09/24/2007	09/24/2008	

3. COMPOSITION - ANALYTES

CHEMICAL	CAS #	STOCK CONC.	FINAL CONC.
Perchlorate	14797-73-0	-	400 ug/L

FORM LTL-SS-3.0



**STANDARD SOLUTION
DATA SHEET**

1. STANDARD INFORMATION

Name: Perchlorate ICV Standard (80ppb KClO4)

Log Entry: IC-7-30-12

Received/Prepared Date: 06/13/2008

Expiration Date: 07/13/2008

Location:

Manufacturer's Exp. Date:

Prepared By: Lea Beard

Final Volume: 1 L

Solvent: Deionized Water (LTL DIWater)

Notes:

2. COMPOSITION - STANDARDS

<u>SOLUTION</u>	<u>LOG ENTRY</u>	<u>CREATED/RECV'D.</u>	<u>EXP.</u>	<u>MANU EXP.</u>
Perchlorate ICV Standard (80ppb KClO4) IC-7-30-12 (ORIGINAL)				
Primary KClO4 ICV Stock Solution 80 ul	IC-7-26-8	09/24/2007	09/24/2008	
Potassium Perchlorate 0.1398 gm	REA2-4-9	09/07/2001	09/07/2011	

3. COMPOSITION - ANALYTES

CHEMICAL	CAS #	STOCK CONC.	FINAL CONC.
Perchlorate	14797-73-0	-	80.3 ug/L

FORM LTL-SS-3.0



STANDARD SOLUTION DATA SHEET

1. STANDARD INFORMATION

Name: **MCT/IPC Standard**

Log Entry: IC-7-30-11

Received/Prepared Date: 06/13/2008

Expiration Date: 07/13/2008

Location:

Manufacturer's Exp. Date:

Prepared By: Lea Beard

Final Volume: 50 mL

Solvent: Deionized Water (LTL DI Water)

Notes: 0.05 mL Mixed Anion Standard Conductivity = 260 umhos/cm

2. COMPOSITION - STANDARDS

<u>SOLUTION</u>	<u>LOG ENTRY</u>	<u>CREATED/RECV'D.</u>	<u>EXP.</u>	<u>MANU EXP.</u>
MCT/IPC Standard IC-7-30-11 (ORIGINAL)				
Secondary NaClO ₄ Stock Solution, 1000 ppb 1.25 mL	IC-7-30-10	06/13/2008	07/13/2008	
Primary NaClO ₄ Calibration Stock Solution, 1000ppm 500 ul	IC-7-26-7	09/24/2007	09/24/2008	

3. COMPOSITION - ANALYTES

CHEMICAL	CAS #	STOCK CONC.	FINAL CONC.
Perchlorate	14797-73-0	-	25.0 ug/L

FORM LTL-SS-3.0

pH Data

PACE ANALYTICAL SERVICES, INC.
Instrument Log Sheet

Run sequence#: R028346		Date/Time Started: 05/22/08 16:30			Analyst: Ruby Lopez		
Instrument ID: pH meter (1)							
Sample Number	Type	DF	Method No.	Bottle #	Prep ID	Date Analyzed	Comments
pH reference	PH	1.00	150.1			05/22/08 16:30	
JPL115-002	SAMP	1.00	150.1		P029596	05/22/08 16:30	
JPL115-003	SAMP	1.00	150.1		P029596	05/22/08 16:30	
JPL115-004	SAMP	1.00	150.1		P029596	05/22/08 16:30	
pH reference	PH	1.00	150.1			05/22/08 16:30	
pH reference	PH	1.00	150.1			05/22/08 16:30	
JPL115-001	SAMP	1.00	150.1		P029596	05/22/08 16:30	
pH reference	PH	1.00	150.1			05/22/08 16:30	

Matrix: Soil or Water 5/22/08 4:30 RL JML

1 Seq. #: 28346

4 Buffer IOM - 3 - 52-11 pH 7 Buffer IOM - 3 - 56-10 pH 10 Buffer IOM - 3 - 52-10

Calibration Range pH 4 to pH 7

Calibration Range pH 7 to pH 10

Sample #	gl elec @ 25°C	Btl. #	SDG	S/W
pH 7 =	7.045	--	--	--
JPLIIS-001	6.855			
1070806-001	6.314			
RL 05/22/08				
pH 7 =	7.043	--	--	--
RL 05/22/08				
pH 7 =		--	--	--
pH 7 =		--	--	--

Sample #	gl elec @ 25°C	Btl. #	SDG	S/W
pH 7 =	6.994	--	--	--
JPLIIS-002	7.152			
-003	7.106			
-004	7.254			
STRAD80801-001	7.550			
*001D	7.401			
RL 05/22/08				
pH 7 =	7.049	--	--	--
pH 7 =		--	--	--
pH 7 =		--	--	--



STANDARD SOLUTION DATA SHEET

1. STANDARD INFORMATION

Name: **pH 4 Buffer**

Log Entry: IOM-3-52-11

Received/Prepared Date: 01/04/2008

Expiration Date: 09/30/2009

Location:

Manufacturer's Exp. Date: 09/30/2009

Vendor: VWR Scientific Products

Catalog Number: 34170-127

Lot Number: 6125

Solvent:

Certificate Number:

Notes: Case of 12.

2. COMPOSITION - ANALYTES

CHEMICAL	CAS #	STOCK CONC.	FINAL CONC.
<i>pH</i>	pH	4.00 pH Units	-

FORM LTL-SS-3.0

**STANDARD SOLUTION
DATA SHEET****1. STANDARD INFORMATION**

Name: pH 7 Buffer
Log Entry: IOM-3-53-2 **Received/Prepared Date:** 01/24/2008 **Expiration Date:** 12/31/2009
Location: **Manufacturer's Exp. Date:** 12/31/2009
Vendor: VWR Scientific Products **Catalog Number:** 34170-130 **Lot Number:** 7020
Solvent: **Certificate Number:**
Notes: Received three bottles.

2. COMPOSITION - ANALYTES

CHEMICAL	CAS #	STOCK CONC.	FINAL CONC.
pH	pH	7.00 pH Units	-

FORM LTL-SS-3.0

**STANDARD SOLUTION
DATA SHEET**

1. STANDARD INFORMATION

Name: pH 10 buffer
Log Entry: IOM-3-52-10 **Received/Prepared Date:** 01/04/2008 **Expiration Date:** 02/28/2009
Location: **Manufacturer's Exp. Date:** 02/28/2009
Vendor: VWR Scientific Products **Catalog Number:** 34170-133 **Lot Number:** 6059
Solvent: **Certificate Number:**
Notes: case of 12.

2. COMPOSITION - ANALYTES

CHEMICAL	CAS #	STOCK CONC.	FINAL CONC.
pH	pH	10.0 pH Units	-

FORM LTL-SS-3.0

Total Dissolved Solids Data

PACE ANALYTICAL SERVICES, INC.
Instrument Log Sheet

Run sequence#: R028305		Date/Time Started: 05/22/08 11:00			Analyst: Ruby Lopez		
Instrument ID: Balance (01)							
Sample Number	Type	DF	Method No.	Bottle #	Prep ID	Date Analyzed	Comments
B052208TDSW01	B	1.00	160.1		P029558	05/22/08 11:00	
S052208TDSW01	S	1.00	160.1		P029558	05/22/08 11:00	100 mL IOM-3-56-19
JPL115-001	SAMP	1.00	160.1		P029558	05/22/08 11:00	
JPL115-002	SAMP	1.00	160.1		P029558	05/22/08 11:00	
JPL115-003	SAMP	1.00	160.1		P029558	05/22/08 11:00	
JPL115-004	SAMP	1.00	160.1		P029558	05/22/08 11:00	
JPL115-004D	D	1.00	160.1		P029558	05/22/08 11:00	

Dissolved Solids Analysis			Date		Method		Analyst		Reviewer		
Run Sequence:	28305		Prep1:	05/22/08		160.1		RL			
Analysis:	TDS_W KC_TDS		Prep2:	05/23/08		Notes:					
Matrix:	H ₂ O		Analysis:	05/27/08		BS: IOM-3-56-19					
Beaker	Sample Number	Bottle #	Sample Volume (ml)	Tare Wt. (g)	Dry Residue + Tare (g) A	Dry Residue (mg)	Dry Residue + Tare (g) B	Dry Residue (mg)	is (A-B) ±0.0005 g	TDS mg/L	
	B052208TDSW01	-	100	70.2290	70.2290	0.0	70.2290	0.0	Y	0.	
	S052208TDSW01	-	100	96.9576	96.9850	27.4	96.9850	27.4	Y	274.	
	COFO080501-001		100	66.4314	66.4320	0.6	66.4320	0.6	Y	6.	
	-002		100	116.0006	116.0107	10.1	116.0106	10.0	Y	101.	
	-003		100	97.8365	97.8444	7.9	97.8444	7.9	Y	79.	
	-004		100	82.7471	82.7700	22.9	82.7700	22.9	Y	229.	
	DEJA080501-001		100	110.5866	110.6133	26.7	110.6133	26.7	Y	267.	
	JPL113-001		100	113.7403	113.7588	18.5	113.7588	18.5	Y	185.	
	*001d		100	110.7914	110.8109	19.5	110.8108	19.4	Y	195.	
	JPL113-002		100	111.2494	111.2764	27.0	111.2764	27.0	Y	270.	
	JPL114-001		100	112.5452	112.5796	34.4	112.5796	34.4	Y	344.	
	-002		100	110.1564	110.1879	31.5	110.1878	31.4	Y	315.	
	JPL115-001		100	96.1729	96.2056	32.7	96.2056	32.7	Y	327.	
	-002		100	66.0100	66.0454	35.4	66.0454	35.4	Y	354.	
	-003		100	65.7345	65.7750	40.5	65.7750	40.5	Y	405.	
	-004		100	79.9784	80.0162	37.8	80.0162	37.8	Y	378.	
	*004d		100	119.5500	119.5869	36.9	119.5869	36.9	Y	369.	

Balance: Mettler H34 (serial # 620191)

2 mg Range: 1.8-2.2 mg 2 g Range: 1.9995-2.0005g

Date:	5/23/2008	5/27/2008
2 mg:	2.0000	2.0000
2 g:	2.0000	2.0000
cal beaker:	66.8384	66.8384

In Oven-	In Oven-
Date: 05/22/08	05/23/08
Time: 20:00	14:00
Temp: 180°C	180°C
Out of Oven-	Out of Oven-
Date: 05/23/08	05/27/08
Time: 10:00	18:00
Temp: 180°C	180°C



STANDARD SOLUTION DATA SHEET

1. STANDARD INFORMATION

Name: **TDS SRM**

Log Entry: IOM-3-56-19

Received/Prepared Date: 04/29/2008

Expiration Date: 04/29/2009

Location:

Manufacturer's Exp. Date:

Prepared By: Taryn Namba

Final Volume: 1000 mL

Solvent: Deionized Water (LTL DIWater)

Notes:

2. COMPOSITION - STANDARDS

<u>SOLUTION</u>	<u>LOG ENTRY</u>	<u>CREATED/RECV'D.</u>	<u>EXP.</u>	<u>MANU EXP.</u>
TDS SRM IOM-3-56-19 (ORIGINAL)				
NaCl Stock for TDS SRM 0.3 gm	REA2-1-2	10/22/1999	10/22/2009	

3. COMPOSITION - ANALYTES

CHEMICAL	CAS #	STOCK CONC.	FINAL CONC.
Solids, Total Dissolved	TDS	-	300 mg/L

FORM LTL-SS-3.0

FORMS SUMMARY

SDG JPL115

VOLATILES ANALYSIS

2
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: Pace Analytical Services

Contract: JPL Groundwater Monitorin

SDG No.: JPL115

Run Sequence: R028383

Level: (LOW/MED) NONE

CLIENT SAMPLE NUMBER	SMC1 (DCA) #	SMC2 (BFB) #	SMC3 (TOL) #	SMC4 () #	TOT OUT
(JPL115-004) DUPE-6-2Q08	121	95	93		0
(JPL115-003) MW-8	118	95	93		0
(JPL115-002) MW-16	117	97	94		0
(JPL115-001) MW-13	122	90	91		0
(JPL115-005) TB-18-5/21/08	116	91	93		0
(B052708MVOWB2) B052708MVOWB2	119	91	91		0
(S052708MVOWB1) S052708MVOWB1	111	89	96		0

	QC LIMITS
SMC1 (DCA) = 1,2-Dichloroethane-d4	60-140
SMC2 (BFB) = 4-Bromofluorobenzene	60-140
SMC3 (TOL) = Toluene-d8	60-140
SMC4 () =	

Column to be used to flag recovery values
* Values outside of contract required QC limits

3B
WATER VOLATILE BLANK SPIKE RECOVERY

Lab Name: Pace Analytical Services Contract: JPL Groundwater Monitorin
 BS Run Sequence: R028383 SDG No.: JPL115
 BS Lab Sample ID: S052708MVOWB1
 Level: N/A Units: ug/L

Analyte	Spike Added	Found	% Rec	#	Rec Limit
Dichlorodifluoromethane	50.0	42.63	85		60-140
Chloromethane	50.0	38.81	78		60-140
Vinyl chloride	50.0	46.32	93		60-140
Bromomethane	50.0	55.99	112		60-140
Chloroethane	50.0	46.91	94		60-140
Trichlorofluoromethane	50.0	62.87	126		60-140
1,1-Dichloroethene	50.0	60.57	121		60-140
1,1,2-Trichloro-1,2,2-trifluoroethane	50.0	46.46	93		60-140
Methylene chloride	50.0	55.31	111		60-140
Methyl tert-butyl ether	50.0	52.96	106		60-140
trans-1,2-Dichloroethene	50.0	55.04	110		60-140
1,1-Dichloroethane	50.0	51.92	104		60-140
2,2-Dichloropropane	50.0	51.5	103		60-140
cis-1,2-Dichloroethene	50.0	50.87	102		60-140
2-Butanone	50.0	40.65	81		60-140
Bromochloromethane	50.0	54.31	109		60-140
Chloroform	50.0	54.32	109		60-140
1,1,1-Trichloroethane	50.0	56.81	114		60-140
Carbon tetrachloride	50.0	58.7	117		60-140
1,1-Dichloropropene	50.0	57.98	116		60-140
Benzene	50.0	48.87	98		60-140
1,2-Dichloroethane	50.0	57.78	116		60-140
Trichloroethene	50.0	52.59	105		60-140
1,2-Dichloropropane	50.0	44.91	90		60-140
Dibromomethane	50.0	51.98	104		60-140
Bromodichloromethane	50.0	53.58	107		60-140
cis-1,3-Dichloropropene	50.0	59.3	119		60-140
4-Methyl-2-pentanone	50.0	42.76	86		60-140
Toluene	50.0	49.72	99		60-140
trans-1,3-Dichloropropene	50.0	47.31	95		60-140
1,1,2-Trichloroethane	50.0	47.63	95		60-140
Tetrachloroethene	50.0	54.19	108		60-140
1,3-Dichloropropane	50.0	47.64	95		60-140
Dibromochloromethane	50.0	54.8	110		60-140

Column to be used to flag recovery and RPD values with an asterisk
 * Values outside of QC limits

Spike Recovery: 0 out of 63 outside limits

COMMENTS:

Date Printed: 6/3/2008 12:09

3B
WATER VOLATILE BLANK SPIKE RECOVERY

Lab Name: Pace Analytical Services Contract: JPL Groundwater Monitorin
 BS Run Sequence: R028383 SDG No.: JPL115
 BS Lab Sample ID: S052708MVOWB1
 Level: N/A Units: ug/L

Analyte	Spike Added	Found	% Rec	#	Rec Limit
1,2-Dibromoethane	50.0	50.62	101		60-140
Chlorobenzene	50.0	50	100		60-140
Ethylbenzene	50.0	50.38	101		60-140
1,1,1,2-Tetrachloroethane	50.0	54.28	109		60-140
m,p-Xylene	100	100.98	101		60-140
o-Xylene	50.0	49.06	98		60-140
Styrene	50.0	49.38	99		60-140
Bromoform	50.0	52.07	104		60-140
Isopropylbenzene	50.0	52.9	106		60-140
1,1,2,2-Tetrachloroethane	50.0	44.03	88		60-140
n-Propylbenzene	50.0	47.83	96		60-140
Bromobenzene	50.0	48.25	97		60-140
1,2,3-Trichloropropane	50.0	45.12	90		60-140
2-Chlorotoluene	50.0	46.49	93		60-140
1,3,5-Trimethylbenzene	50.0	49.77	100		60-140
4-Chlorotoluene	50.0	48.36	97		60-140
tert-Butylbenzene	50.0	51.68	103		60-140
1,2,4-Trimethylbenzene	50.0	50.12	100		60-140
sec-Butylbenzene	50.0	51.39	103		60-140
4-Isopropyltoluene	50.0	53.73	107		60-140
1,3-Dichlorobenzene	50.0	50.03	100		60-140
1,4-Dichlorobenzene	50.0	49.55	99		60-140
n-Butylbenzene	50.0	50.01	100		60-140
1,2-Dichlorobenzene	50.0	49.43	99		60-140
1,2-Dibromo-3-chloropropane	50.0	46.59	93		60-140
1,2,4-Trichlorobenzene	50.0	52.71	105		60-140
Hexachlorobutadiene	50.0	54.02	108		60-140
Naphthalene	50.0	49.55	99		60-140
1,2,3-Trichlorobenzene	50.0	49.3	99		60-140

Column to be used to flag recovery and RPD values with an asterisk
 * Values outside of QC limits

Spike Recovery: 0 out of 63 outside limits

COMMENTS:

Date Printed: 6/3/2008 12:09

4
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

B052708MVOWB2

Lab Name Pace Analytical Services

Contract: JPL Groundwater Monitorin

SDG No.: JPL115

Lab File ID: B0527015.D

Lab Sample ID: B052708MVOWB2

Date Analyzed: 05/27/2008

Time Analyzed: 15:02

GC Column: ZB-624 20m ID: 0.18 (mm)

Heated Purge: (Y/N) N

Instrument ID: 5973B

Matrix: Water

	CLIENT SAMPLE NO.	LAB SAMPLE ID.	LAB FILE ID.	DATE ANALYZED	TIME ANALYZED	RUN SEQUENCE
01	S052708MVOWB1	S052708MVOWB1	B0527011.D	05/27/2008	13:17	R028383
02	TB-18-5/21/08	JPL115-005	B0527018.D	05/27/2008	16:25	R028383
03	MW-13	JPL115-001	B0527025.D	05/27/2008	19:35	R028383
04	MW-16	JPL115-002	B0527026.D	05/27/2008	20:04	R028383
05	MW-8	JPL115-003	B0527027.D	05/27/2008	20:31	R028383
06	DUPE-6-2Q08	JPL115-004	B0527028.D	05/27/2008	21:01	R028383
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COMMENTS: _____

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

BFBB1

Lab Name: Pace Analytical Services Contract: JPL Groundwater Monitorin
 Run Sequence: CAL1323 SDG No.: JPL115
 Lab File ID: B0512011.D BFB Injection Date: 05/12/2008
 Instrument ID: 5973B BFB Injection Time: 13:50
 GC Column ZB-624 20m ID: 0.18 (mm)

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15% to 40% of mass 95	16
75	30% to 60% of mass 95	43.5
95	base peak, 100% relative abundance	100
96	5% to 9% of mass 95	6.4
173	less than 2% of mass 174	0 () 1
174	greater than 50% of mass 95	107.4
175	5% to 9% of mass 17	7.3 () 1
176	greater than 95%, but less than 101% of mass 174	95.4 () 1
177	5% to 9% of mass 176	6.5 () 2

1 - Value is %mass 174

2 - Value is %mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD0.3	VSTD0.3	B0512012.D	05/12/2008	14:16
02	VSTD0.5	VSTD0.5	B0512013.D	05/12/2008	14:43
03	VSTD001	VSTD001	B0512014.D	05/12/2008	15:10
04	VSTD005	VSTD005	B0512015.D	05/12/2008	15:37
05	VSTD010	VSTD010	B0512016.D	05/12/2008	16:04
06	VSTD050	VSTD050	B0512017.D	05/12/2008	16:31
07	VSTD100	VSTD100	B0512018.D	05/12/2008	16:57
08	VSTD200	VSTD200	B0512019.D	05/12/2008	17:24
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22					

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

BFBB1

Lab Name: Pace Analytical Services Contract: JPL Groundwater Monitorin
 Run Sequence: R028383 SDG No.: JPL115
 Lab File ID: B0527009.D BFB Injection Date: 05/27/2008
 Instrument ID: 5973B BFB Injection Time: 12:23
 GC Column ZB-624 20m ID: 0.18 (mm)

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15% to 40% of mass 95	16.9
75	30% to 60% of mass 95	47.7
95	base peak, 100% relative abundance	100
96	5% to 9% of mass 95	6
173	less than 2% of mass 174	0()1
174	greater than 50% of mass 95	112.9
175	5% to 9% of mass 17	7.2()1
176	greater than 95%, but less than 101% of mass 174	98.1()1
177	5% to 9% of mass 176	6.3()2

1 - Value is %mass 174

2 - Value is %mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD050B1	VSTD050B1	B0527010.D	05/27/2008	12:47
02	S052708MVOWB1	S052708MVOWB1	B0527011.D	05/27/2008	13:17
03	B052708MVOWB2	B052708MVOWB2	B0527015.D	05/27/2008	15:02
04	TB-18-5/21/08	JPL115-005	B0527018.D	05/27/2008	16:25
05	MW-13	JPL115-001	B0527025.D	05/27/2008	19:35
06	MW-16	JPL115-002	B0527026.D	05/27/2008	20:04
07	MW-8	JPL115-003	B0527027.D	05/27/2008	20:31
08	DUPE-6-2Q08	JPL115-004	B0527028.D	05/27/2008	21:01
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VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Pace Analytical Services Contract: JPL Groundwater Monitoring
 Run Sequence: R028383 SDG No.: JPL115
 Client Sample No. (VSTD050##): VSTD050B1 Date Analyzed: 05/27/2008
 Lab File ID (Standard): B0527010.D Time Analyzed: 12:47
 Instrument ID: 5973B Heated Purge: (Y/N) N
 GC Column: ZB-624 20m ID: 0.18 (mm)

	IS1 (FBZ) AREA #	RT #	IS2 (CBZ) AREA #	RT #	IS3 (DCB) AREA #	RT #
12 HOUR STD	688115	7.52	619743	11.30	394191	13.25
UPPER LIMIT	1376230	7.57	1239486	11.35	788382	13.3
LOWER LIMIT	344057.5	7.47	309871.5	11.25	197095.5	13.2
CLIENT SAMPLE NO.						
01 S052708MVOWB1	721281	7.52	580877	11.30	381150	13.25
02 B052708MVOWB2	617764	7.52	496272	11.30	318714	13.25
03 TB-18-5/21/08	654673	7.53	527045	11.30	326315	13.25
04 MW-13	579029	7.52	464701	11.30	299813	13.25
05 MW-16	650559	7.53	546307	11.30	313593	13.25
06 MW-8	619864	7.52	514014	11.30	302760	13.25
07 DUPE-6-2Q08	618492	7.52	521700	11.30	307394	13.25
08						
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22						

IS1 (FBZ) = Fluorobenzene
 IS2 (CBZ) = Chlorobenzene-d5
 IS3 (DCB) = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = + 100% of internal standard area
 AREA LOWER LIMIT = - 50% of internal standard area
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
 * Values outside of QC limits

Date Printed: 6/3/2008 12:13

1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW-13

Lab Name: Pace Analytical Services
 SDG No.: JPL115
 Matrix: (SOIL/SED/WATER) Water
 Sample wt/vol: 10.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: not dec. _____
 GC Column: ZB-624 20m ID: 0.18 (mm)
 Soil Extract Volume: _____ (uL)
 Heated Purge: (Y/N) N

Contract: JPL Groundwater Monitorin
 Run Sequence: R028383
 Lab Sample ID: JPL115-001
 Lab File ID: B0527025.D
 Date Collected: 05/21/2008
 Date/Time Analyzed: 05/27/2008 19:35
 Dilution Factor: 1.0
 Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
75-09-2	Methylene chloride	1.0	U
1634-04-4	Methyl tert-butyl ether	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
594-20-7	2,2-Dichloropropane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	1.2	
71-55-6	1,1,1-Trichloroethane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
563-58-6	1,1-Dichloropropene	0.50	U
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U
79-01-6	Trichloroethene	1.4	
78-87-5	1,2-Dichloropropane	0.50	U
74-95-3	Dibromomethane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-pentanone	5.0	U

1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW-13

Lab Name: Pace Analytical Services
 SDG No.: JPL115
 Matrix: (SOIL/SED/WATER) Water
 Sample wt/vol: 10.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: not dec. _____
 GC Column: ZB-624 20m ID: 0.18 (mm)
 Soil Extract Volume: _____ (uL)
 Heated Purge: (Y/N) N

Contract: JPL Groundwater Monitorin
 Run Sequence: R028383
 Lab Sample ID: JPL115-001
 Lab File ID: B0527025.D
 Date Collected: 05/21/2008
 Date/Time Analyzed: 05/27/2008 19:35
 Dilution Factor: 1.0
 Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L	Q
108-88-3	Toluene	1.5	
10061-02-	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.47	J
142-28-9	1,3-Dichloropropane	0.50	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
630-20-6	1,1,1,2-Tetrachloroethane	0.50	U
179601-23	m,p-Xylene	1.0	U
95-47-6	o-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
103-65-1	n-Propylbenzene	0.50	U
108-86-1	Bromobenzene	0.50	U
96-18-4	1,2,3-Trichloropropane	0.50	U
95-49-8	2-Chlorotoluene	0.50	U
108-67-8	1,3,5-Trimethylbenzene	0.50	U
106-43-4	4-Chlorotoluene	0.50	U
98-06-6	tert-Butylbenzene	0.50	U
95-63-6	1,2,4-Trimethylbenzene	0.50	U
135-98-8	sec-Butylbenzene	0.50	U
99-87-6	4-Isopropyltoluene	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U

1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW-13

Lab Name: Pace Analytical Services
 SDG No.: JPL115
 Matrix: (SOIL/SED/WATER) Water
 Sample wt/vol: 10.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: not dec. _____
 GC Column: ZB-624 20m ID: 0.18 (mm)
 Soil Extract Volume: _____ (uL)
 Heated Purge: (Y/N) N

Contract: JPL Groundwater Monitorin
 Run Sequence: R028383
 Lab Sample ID: JPL115-001
 Lab File ID: B0527025.D
 Date Collected: 05/21/2008
 Date/Time Analyzed: 05/27/2008 19:35
 Dilution Factor: 1.0
 Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L	Q
104-51-8	n-Butylbenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-68-3	Hexachlorobutadiene	0.50	U
91-20-3	Naphthalene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

Comments:

1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW-16

Lab Name: Pace Analytical Services
 SDG No.: JPL115
 Matrix: (SOIL/SED/WATER) Water
 Sample wt/vol: 10.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: not dec. _____
 GC Column: ZB-624 20m ID: 0.18 (mm)
 Soil Extract Volume: _____ (uL)
 Heated Purge: (Y/N) N

Contract: JPL Groundwater Monitorin
 Run Sequence: R028383
 Lab Sample ID: JPL115-002
 Lab File ID: B0527026.D
 Date Collected: 05/21/2008
 Date/Time Analyzed: 05/27/2008 20:04
 Dilution Factor: 1.0
 Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
75-09-2	Methylene chloride	1.0	U
1634-04-4	Methyl tert-butyl ether	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
594-20-7	2,2-Dichloropropane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	23	
71-55-6	1,1,1-Trichloroethane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
563-58-6	1,1-Dichloropropene	0.50	U
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U
79-01-6	Trichloroethene	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
74-95-3	Dibromomethane	0.50	U
75-27-4	Bromodichloromethane	27	
10061-01-	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-pentanone	5.0	U

1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW-16

Lab Name: Pace Analytical Services
 SDG No.: JPL115
 Matrix: (SOIL/SED/WATER) Water
 Sample wt/vol: 10.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: not dec. _____
 GC Column: ZB-624 20m ID: 0.18 (mm)
 Soil Extract Volume: _____ (uL)
 Heated Purge: (Y/N) N

Contract: JPL Groundwater Monitorin
 Run Sequence: R028383
 Lab Sample ID: JPL115-002
 Lab File ID: B0527026.D
 Date Collected: 05/21/2008
 Date/Time Analyzed: 05/27/2008 20:04
 Dilution Factor: 1.0
 Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L	Q
108-88-3	Toluene	1.5	
10061-02-	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
142-28-9	1,3-Dichloropropane	0.50	U
124-48-1	Dibromochloromethane	21	
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
630-20-6	1,1,1,2-Tetrachloroethane	0.50	U
179601-23	m,p-Xylene	1.0	U
95-47-6	o-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	5.9	
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
103-65-1	n-Propylbenzene	0.50	U
108-86-1	Bromobenzene	0.50	U
96-18-4	1,2,3-Trichloropropane	0.50	U
95-49-8	2-Chlorotoluene	0.50	U
108-67-8	1,3,5-Trimethylbenzene	0.50	U
106-43-4	4-Chlorotoluene	0.50	U
98-06-6	tert-Butylbenzene	0.50	U
95-63-6	1,2,4-Trimethylbenzene	0.50	U
135-98-8	sec-Butylbenzene	0.50	U
99-87-6	4-Isopropyltoluene	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U

1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW-16

Lab Name: Pace Analytical Services
 SDG No.: JPL115
 Matrix: (SOIL/SED/WATER) Water
 Sample wt/vol: 10.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: not dec. _____
 GC Column: ZB-624 20m ID: 0.18 (mm)
 Soil Extract Volume: _____ (uL)
 Heated Purge: (Y/N) N

Contract: JPL Groundwater Monitorin
 Run Sequence: R028383
 Lab Sample ID: JPL115-002
 Lab File ID: B0527026.D
 Date Collected: 05/21/2008
 Date/Time Analyzed: 05/27/2008 20:04
 Dilution Factor: 1.0
 Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS:	
		<u>ug/L</u>	Q
104-51-8	n-Butylbenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-68-3	Hexachlorobutadiene	0.50	U
91-20-3	Naphthalene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

Comments:

1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW-8

Lab Name: Pace Analytical Services
 SDG No.: JPL115
 Matrix: (SOIL/SED/WATER) Water
 Sample wt/vol: 10.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: not dec. _____
 GC Column: ZB-624 20m ID: 0.18 (mm)
 Soil Extract Volume: _____ (uL)
 Heated Purge: (Y/N) N

Contract: JPL Groundwater Monitorin
 Run Sequence: R028383
 Lab Sample ID: JPL115-003
 Lab File ID: B0527027.D
 Date Collected: 05/21/2008
 Date/Time Analyzed: 05/27/2008 20:31
 Dilution Factor: 1.0
 Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
75-09-2	Methylene chloride	1.0	U
1634-04-4	Methyl tert-butyl ether	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
594-20-7	2,2-Dichloropropane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
563-58-6	1,1-Dichloropropene	0.50	U
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U
79-01-6	Trichloroethene	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
74-95-3	Dibromomethane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-pentanone	5.0	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW-8

Lab Name: Pace Analytical Services
 SDG No.: JPL115
 Matrix: (SOIL/SED/WATER) Water
 Sample wt/vol: 10.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: not dec. _____
 GC Column: ZB-624 20m ID: 0.18 (mm)
 Soil Extract Volume: _____ (uL)
 Heated Purge: (Y/N) N

Contract: JPL Groundwater Monitorin
 Run Sequence: R028383
 Lab Sample ID: JPL115-003
 Lab File ID: B0527027.D
 Date Collected: 05/21/2008
 Date/Time Analyzed: 05/27/2008 20:31
 Dilution Factor: 1.0
 Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L	Q
108-88-3	Toluene	0.45	J
10061-02-	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
142-28-9	1,3-Dichloropropane	0.50	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
630-20-6	1,1,1,2-Tetrachloroethane	0.50	U
179601-23	m,p-Xylene	1.0	U
95-47-6	o-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
103-65-1	n-Propylbenzene	0.50	U
108-86-1	Bromobenzene	0.50	U
96-18-4	1,2,3-Trichloropropane	0.50	U
95-49-8	2-Chlorotoluene	0.50	U
108-67-8	1,3,5-Trimethylbenzene	0.50	U
106-43-4	4-Chlorotoluene	0.50	U
98-06-6	tert-Butylbenzene	0.50	U
95-63-6	1,2,4-Trimethylbenzene	0.50	U
135-98-8	sec-Butylbenzene	0.50	U
99-87-6	4-Isopropyltoluene	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW-8

Lab Name: Pace Analytical Services
 SDG No.: JPL115
 Matrix: (SOIL/SED/WATER) Water
 Sample wt/vol: 10.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: not dec. _____
 GC Column: ZB-624 20m ID: 0.18 (mm)
 Soil Extract Volume: _____ (uL)
 Heated Purge: (Y/N) N

Contract: JPL Groundwater Monitorin
 Run Sequence: R028383
 Lab Sample ID: JPL115-003
 Lab File ID: B0527027.D
 Date Collected: 05/21/2008
 Date/Time Analyzed: 05/27/2008 20:31
 Dilution Factor: 1.0
 Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS:	
		<u>ug/L</u>	Q
104-51-8	n-Butylbenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-68-3	Hexachlorobutadiene	0.50	U
91-20-3	Naphthalene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

Comments:

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VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

DUPE-6-2Q08

Lab Name: Pace Analytical Services
 SDG No.: JPL115
 Matrix: (SOIL/SED/WATER) Water
 Sample wt/vol: 10.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: not dec. _____
 GC Column: ZB-624 20m ID: 0.18 (mm)
 Soil Extract Volume: _____ (uL)
 Heated Purge: (Y/N) N

Contract: JPL Groundwater Monitorin
 Run Sequence: R028383
 Lab Sample ID: JPL115-004
 Lab File ID: B0527028.D
 Date Collected: 05/21/2008
 Date/Time Analyzed: 05/27/2008 21:01
 Dilution Factor: 1.0
 Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS:	
		<u>ug/L</u>	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.38	J
75-01-4	Vinyl chloride	0.50	U
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
75-09-2	Methylene chloride	1.0	U
1634-04-4	Methyl tert-butyl ether	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
594-20-7	2,2-Dichloropropane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	24	
71-55-6	1,1,1-Trichloroethane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
563-58-6	1,1-Dichloropropene	0.50	U
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U
79-01-6	Trichloroethene	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
74-95-3	Dibromomethane	0.50	U
75-27-4	Bromodichloromethane	27	
10061-01-	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-pentanone	5.0	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

DUPE-6-2Q08

Lab Name: Pace Analytical Services
 SDG No.: JPL115
 Matrix: (SOIL/SED/WATER) Water
 Sample wt/vol: 10.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: not dec. _____
 GC Column: ZB-624 20m ID: 0.18 (mm)
 Soil Extract Volume: _____ (uL)
 Heated Purge: (Y/N) N

Contract: JPL Groundwater Monitorin
 Run Sequence: R028383
 Lab Sample ID: JPL115-004
 Lab File ID: B0527028.D
 Date Collected: 05/21/2008
 Date/Time Analyzed: 05/27/2008 21:01
 Dilution Factor: 1.0
 Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L	Q
108-88-3	Toluene	1.5	
10061-02-	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
142-28-9	1,3-Dichloropropane	0.50	U
124-48-1	Dibromochloromethane	22	
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
630-20-6	1,1,1,2-Tetrachloroethane	0.50	U
179601-23	m,p-Xylene	1.0	U
95-47-6	o-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	6.4	
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
103-65-1	n-Propylbenzene	0.50	U
108-86-1	Bromobenzene	0.50	U
96-18-4	1,2,3-Trichloropropane	0.50	U
95-49-8	2-Chlorotoluene	0.50	U
108-67-8	1,3,5-Trimethylbenzene	0.50	U
106-43-4	4-Chlorotoluene	0.50	U
98-06-6	tert-Butylbenzene	0.50	U
95-63-6	1,2,4-Trimethylbenzene	0.50	U
135-98-8	sec-Butylbenzene	0.50	U
99-87-6	4-Isopropyltoluene	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

DUPE-6-2Q08

Lab Name: Pace Analytical Services
 SDG No.: JPL115
 Matrix: (SOIL/SED/WATER) Water
 Sample wt/vol: 10.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: not dec. _____
 GC Column: ZB-624 20m ID: 0.18 (mm)
 Soil Extract Volume: _____ (uL)
 Heated Purge: (Y/N) N

Contract: JPL Groundwater Monitorin
 Run Sequence: R028383
 Lab Sample ID: JPL115-004
 Lab File ID: B0527028.D
 Date Collected: 05/21/2008
 Date/Time Analyzed: 05/27/2008 21:01
 Dilution Factor: 1.0
 Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L	Q
104-51-8	n-Butylbenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-68-3	Hexachlorobutadiene	0.50	U
91-20-3	Naphthalene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

Comments:

1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

TB-18-5/21/08

Lab Name: Pace Analytical Services
 SDG No.: JPL115
 Matrix: (SOIL/SED/WATER) Water
 Sample wt/vol: 10.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: not dec. _____
 GC Column: ZB-624 20m ID: 0.18 (mm)
 Soil Extract Volume: _____ (uL)
 Heated Purge: (Y/N) N

Contract: JPL Groundwater Monitorin
 Run Sequence: R028383
 Lab Sample ID: JPL115-005
 Lab File ID: B0527018.D
 Date Collected: 05/21/2008
 Date/Time Analyzed: 05/27/2008 16:25
 Dilution Factor: 1.0
 Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: <u>ug/L</u>	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
75-09-2	Methylene chloride	1.0	U
1634-04-4	Methyl tert-butyl ether	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
594-20-7	2,2-Dichloropropane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
563-58-6	1,1-Dichloropropene	0.50	U
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U
79-01-6	Trichloroethene	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
74-95-3	Dibromomethane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-pentanone	5.0	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

TB-18-5/21/08

Lab Name: Pace Analytical Services
 SDG No.: JPL115
 Matrix: (SOIL/SED/WATER) Water
 Sample wt/vol: 10.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: not dec. _____
 GC Column: ZB-624 20m ID: 0.18 (mm)
 Soil Extract Volume: _____ (uL)
 Heated Purge: (Y/N) N

Contract: JPL Groundwater Monitorin
 Run Sequence: R028383
 Lab Sample ID: JPL115-005
 Lab File ID: B0527018.D
 Date Collected: 05/21/2008
 Date/Time Analyzed: 05/27/2008 16:25
 Dilution Factor: 1.0
 Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: <u>ug/L</u>	Q
108-88-3	Toluene	0.50	U
10061-02-	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
142-28-9	1,3-Dichloropropane	0.50	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
630-20-6	1,1,1,2-Tetrachloroethane	0.50	U
179601-23	m,p-Xylene	1.0	U
95-47-6	o-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
103-65-1	n-Propylbenzene	0.50	U
108-86-1	Bromobenzene	0.50	U
96-18-4	1,2,3-Trichloropropane	0.50	U
95-49-8	2-Chlorotoluene	0.50	U
108-67-8	1,3,5-Trimethylbenzene	0.50	U
106-43-4	4-Chlorotoluene	0.50	U
98-06-6	tert-Butylbenzene	0.50	U
95-63-6	1,2,4-Trimethylbenzene	0.50	U
135-98-8	sec-Butylbenzene	0.50	U
99-87-6	4-Isopropyltoluene	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

TB-18-5/21/08

Lab Name: Pace Analytical Services Contract: JPL Groundwater Monitorin
 SDG No.: JPL115 Run Sequence: R028383
 Matrix: (SOIL/SED/WATER) Water Lab Sample ID: JPL115-005
 Sample wt/vol: 10.0 (g/mL) mL Lab File ID: B0527018.D
 Level: (LOW/MED) _____ Date Collected: 05/21/2008
 % Moisture: not dec. _____ Date/Time Analyzed: 05/27/2008 16:25
 GC Column: ZB-624 20m ID: 0.18 (mm) Dilution Factor: 1.0
 Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)
 Heated Purge: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS:	
		<u>ug/L</u>	Q
104-51-8	n-Butylbenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-68-3	Hexachlorobutadiene	0.50	U
91-20-3	Naphthalene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

Comments:

1 TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

MW-13

Lab Name: Pace Analytical Services

Contract: JPL Groundwater Monitorin

SDG No.: JPL115

Run Sequence: R028383

Matrix: (SOIL/WATER) Water

Lab Sample ID: JPL115-001

Sample wt/vol: 10.0 (g/mL) mL

Lab File ID: B0527025.D

Level: (LOW/MED) _____

Date Collected: 05/21/2008

% Moisture: not dec. _____

Date Analyzed: 05/27/2008

GC Column: ZB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs Found: 0

CONCENTRATION UNITS:
ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01				
02				
03				
04				
05				
06				
07				
08				
09				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				

Comments:

1 TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

MW-16

Lab Name: Pace Analytical Services
 SDG No.: JPL115
 Matrix: (SOIL/WATER) Water
 Sample wt/vol: 10.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: not dec. _____
 GC Column: ZB-624 20m ID: 0.18 (mm)
 Soil Extract Volume: _____ (uL)
 Number TICs Found: 0

Contract: JPL Groundwater Monitorin
 Run Sequence: R028383
 Lab Sample ID: JPL115-002
 Lab File ID: B0527026.D
 Date Collected: 05/21/2008
 Date Analyzed: 05/27/2008
 Dilution Factor: 1.0
 Soil Aliquot Volume: _____ (uL)
 CONCENTRATION UNITS:
ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01				
02				
03				
04				
05				
06				
07				
08				
09				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				

Comments:

1 TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

MW-8

Lab Name: Pace Analytical Services
 SDG No.: JPL115
 Matrix: (SOIL/WATER) Water
 Sample wt/vol: 10.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: not dec. _____
 GC Column: ZB-624 20m ID: 0.18 (mm)
 Soil Extract Volume: _____ (uL)
 Number TICs Found: 0

Contract: JPL Groundwater Monitorin
 Run Sequence: R028383
 Lab Sample ID: JPL115-003
 Lab File ID: B0527027.D
 Date Collected: 05/21/2008
 Date Analyzed: 05/27/2008
 Dilution Factor: 1.0
 Soil Aliquot Volume: _____ (uL)
 CONCENTRATION UNITS:
ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01				
02				
03				
04				
05				
06				
07				
08				
09				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				

Comments:

1 TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

DUPE-6-2Q08

Lab Name: Pace Analytical Services
 SDG No.: JPL115
 Matrix: (SOIL/WATER) Water
 Sample wt/vol: 10.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: not dec. _____
 GC Column: ZB-624 20m ID: 0.18 (mm)
 Soil Extract Volume: _____ (uL)
 Number TICs Found: 0

Contract: JPL Groundwater Monitorin
 Run Sequence: R028383
 Lab Sample ID: JPL115-004
 Lab File ID: B0527028.D
 Date Collected: 05/21/2008
 Date Analyzed: 05/27/2008
 Dilution Factor: 1.0
 Soil Aliquot Volume: _____ (uL)
 CONCENTRATION UNITS:
ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01					
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					

Comments:

1 TIC
 VOLATILE ORGANICS ANALYSIS DATA SHEET
 TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

TB-18-5/21/08

Lab Name: Pace Analytical Services

Contract: JPL Groundwater Monitorin

SDG No.: JPL115

Run Sequence: R028383

Matrix: (SOIL/WATER) Water

Lab Sample ID: JPL115-005

Sample wt/vol: 10.0 (g/mL) mL

Lab File ID: B0527018.D

Level: (LOW/MED) _____

Date Collected: 05/21/2008

% Moisture: not dec. _____

Date Analyzed: 05/27/2008

GC Column: ZB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs Found: 0

CONCENTRATION UNITS:
ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01					
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					

Comments:

1 TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B052708MVOWB2

Lab Name: Pace Analytical Services
 SDG No.: JPL115
 Matrix: (SOIL/WATER) Water
 Sample wt/vol: 10.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: not dec. _____
 GC Column: ZB-624 20m ID: 0.18 (mm)
 Soil Extract Volume: _____ (uL)
 Number TICs Found: 0

Contract: JPL Groundwater Monitorin
 Run Sequence: R028383
 Lab Sample ID: B052708MVOWB2
 Lab File ID: B0527015.D
 Date Collected: _____
 Date Analyzed: 05/27/2008
 Dilution Factor: 1.0
 Soil Aliquot Volume: _____ (uL)
 CONCENTRATION UNITS:
ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01					
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					

Comments:

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Pace Analytical Services Contract: JPL Groundwater Monitorin
 Run Sequence: R028383 SDG No.: JPL115
 Instrument ID: 5973B Calibration Dates: 05/12/2008
 Heated Purge: (Y/N) N Calibration Times: 05/12/2008 14:16 17:24
 GC Column: ZB-624 20m ID: 0.18 (mm) Mean % RSD: 5.42

Handwritten notes:
 3724
 05/12/08
 05/12/08

Analyte	Std 1	RF 1	Std 2	RF 2	Std 3	RF 3	Std 4	RF 4	Std 5	RF 5	Std 6	RF 6	Std 7	RF 7	Std 8	RF 8	RF	%RSD	I ² COD	Eq Ty
Dichlorodifluoromethane	0.3		0.5	2.700E-01	1	2.249E-01	5	2.550E-01	10	2.579E-01	50	3.010E-01	100	2.700E-01	200	2.710E-01	0.264	8.64		A
Chloromethane	0.3		0.5	4.420E-01	1	3.770E-01	5	3.700E-01	10	3.560E-01	50	3.610E-01	100	3.210E-01	200	3.190E-01	0.364	11.40		A
Vinyl chloride	0.3		0.5	3.560E-01	1	3.059E-01	5	3.179E-01	10	3.080E-01	50	3.619E-01	100	3.230E-01	200	3.269E-01	0.329	6.74		A
Bromomethane	0.3		0.5	3.580E-01	1	2.920E-01	5	2.210E-01	10	2.120E-01	50	2.050E-01	100	1.980E-01			0.248		1.000	Q
Chloroethane	0.3		0.5	2.529E-01	1	2.029E-01	5	1.949E-01	10	1.940E-01	50	1.970E-01	100	1.720E-01			0.202	13.30		A
Trichlorofluoromethane	0.3		0.5	4.440E-01	1	3.820E-01	5	4.289E-01	10	4.359E-01	50	5.180E-01	100	4.530E-01	200	4.700E-01	0.448	9.27		A
1,1-Dichloroethene	0.3		0.5	3.409E-01	1	3.210E-01	5	3.019E-01	10	2.969E-01	50	3.199E-01	100	2.890E-01	200	2.920E-01	0.309	6.22		A
1,1,2-Trichloro-1,2,2-trifluoro	0.3		0.5	3.220E-01	1	3.170E-01	5	3.230E-01	10	3.019E-01	50	3.380E-01	100	3.010E-01	200	3.019E-01	0.315	4.47		A
Methylene chloride	0.3		0.5	1.035E+00	1	6.060E-01	5	4.009E-01	10	3.740E-01	50	3.750E-01	100	3.409E-01	200	3.380E-01	0.496		1.000	Q
Methyl tert-butyl ether	0.3		0.5	1.122E+00	1	1.075E+00	5	1.066E+00	10	1.046E+00	50	1.065E+00	100	1.008E+00	200	9.689E-01	1.050	4.72		A
trans-1,2-Dichloroethene	0.3		0.5	3.939E-01	1	3.650E-01	5	3.510E-01	10	3.540E-01	50	3.580E-01	100	3.310E-01	200	3.220E-01	0.354	6.62		A
1,1-Dichloroethane	0.3		0.5	5.730E-01	1	5.780E-01	5	5.799E-01	10	5.770E-01	50	5.790E-01	100	5.440E-01	200	5.460E-01	0.568	2.84		A
2,2-Dichloropropane	0.3		0.5	4.160E-01	1	3.750E-01	5	3.440E-01	10	3.160E-01	50	3.260E-01	100	3.030E-01	200	2.619E-01	0.334	14.96		A
cis-1,2-Dichloroethene	0.3		0.5	3.540E-01	1	3.459E-01	5	3.400E-01	10	3.400E-01	50	3.310E-01	100	3.160E-01	200	3.080E-01	0.334	4.96		A
2-Butanone	0.3		1		5	1.500E-01	10	1.220E-01	50	1.110E-01	100	1.060E-01	200	1.140E-01			0.120	14.47		A
Bromochloromethane	0.3		0.5	1.600E-01	1	1.870E-01	5	1.830E-01	10	1.800E-01	50	1.800E-01	100	1.739E-01	200	1.720E-01	0.177	5.08		A
Chloroform	0.3	5.740E-01	0.5	5.299E-01	1	5.469E-01	5	5.320E-01	10	5.310E-01	50	5.320E-01	100	5.030E-01	200	5.000E-01	0.531	4.41		A
1,1,1-Trichloroethane	0.3		0.5	4.819E-01	1	4.569E-01	5	4.569E-01	10	4.600E-01	50	4.840E-01	100	4.510E-01	200	4.429E-01	0.462	3.32		A
Carbon tetrachloride	0.3		0.5	4.170E-01	1	4.239E-01	5	4.160E-01	10	4.090E-01	50	4.420E-01	100	4.160E-01	200	4.239E-01	0.421	2.49		A
1,1-Dichloropropene	0.3		0.5	3.490E-01	1	3.380E-01	5	3.619E-01	10	3.549E-01	50	3.720E-01	100	3.619E-01	200	3.580E-01	0.356	3.04		A
Benzene	0.3	1.340E+00	0.5	1.230E+00	1	1.184E+00	5	1.160E+00	10	1.166E+00	50	1.184E+00	100	1.149E+00	200	1.146E+00	1.195	5.38		A
1,2-Dichloroethane	0.3		0.5	3.100E-01	1	3.290E-01	5	3.310E-01	10	3.400E-01	50	3.389E-01	100	3.319E-01	200	3.310E-01	0.330	2.97		A
Trichloroethene	0.3		0.5	3.630E-01	1	3.619E-01	5	3.529E-01	10	3.569E-01	50	3.630E-01	100	3.560E-01	200	3.580E-01	0.359	1.06		A
1,2-Dichloropropane	0.3		0.5	2.780E-01	1	2.720E-01	5	2.700E-01	10	2.790E-01	50	2.860E-01	100	2.739E-01	200	2.759E-01	0.277	1.94		A

Eq Ty = Equation Type
 Q=Quadratic, L=Linear, A=Average
 * SPCCS #

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Pace Analytical Services Contract: JPL Groundwater Monitorin
 Run Sequence: R028383 SDG No.: JPL115
 Instrument ID: 5973B Calibration Dates: 05/12/2008
 Heated Purge: (Y/N) N Calibration Times: 05/12/2008
 GC Column: ZB-624 20m ID: 0.18 (mm) Mean % RSD: 5.42
 17:24 *AS/2/08*

Analyte	Std 1	RF 1	Std 2	RF 2	Std 3	RF 3	Std 4	RF 4	Std 5	RF 5	Std 6	RF 6	Std 7	RF 7	Std 8	RF 8	RF	%RSD	χ^2 COD	Eq Ty
Dibromomethane	0.3		0.5	1.680E-01	1	1.640E-01	5	1.659E-01	10	1.710E-01	50	1.729E-01	100	1.670E-01	200	1.659E-01	0.168	1.81		A
Bromodichloromethane	0.3		0.5	3.980E-01	1	3.529E-01	5	3.660E-01	10	3.840E-01	50	3.919E-01	100	3.829E-01	200	3.880E-01	0.381	4.17		A
cis-1,3-Dichloropropene	0.3		0.5	3.269E-01	1	3.459E-01	5	3.560E-01	10	3.829E-01	50	4.149E-01	100	3.910E-01	200	3.930E-01	0.373	8.33		A
4-Methyl-2-pentanone	0.3		1		5	2.590E-01	10	2.480E-01	50	2.500E-01	100	2.420E-01	200	2.389E-01			0.248	3.15		A
Toluene	0.3		0.5	9.639E-01	1	8.870E-01	5	9.120E-01	10	9.549E-01	50	9.660E-01	100	9.549E-01	200	9.649E-01	0.943	3.33		A
trans-1,3-Dichloropropene	0.3		0.5	4.970E-01	1	4.900E-01	5	5.339E-01	10	5.580E-01	50	5.730E-01	100	5.640E-01	200	5.479E-01	0.538	6.08		A
1,1,2-Trichloroethane	0.3		0.5	3.160E-01	1	3.050E-01	5	3.120E-01	10	3.160E-01	50	3.210E-01	100	3.210E-01	200	3.140E-01	0.315	1.78		A
Tetrachloroethene	0.3		0.5	5.000E-01	1	4.920E-01	5	5.030E-01	10	5.050E-01	50	5.350E-01	100	5.289E-01	200	5.600E-01	0.518	4.73		A
1,3-Dichloropropane	0.3	5.320E-01	0.5	4.819E-01	1	4.880E-01	5	4.900E-01	10	5.000E-01	50	5.070E-01	100	5.050E-01	200	4.930E-01	0.500	3.14		A
Dibromochloromethane	0.3		0.5	3.849E-01	1	3.720E-01	5	3.730E-01	10	3.910E-01	50	4.020E-01	100	4.070E-01	200	4.090E-01	0.391	3.97		A
1,2-Dibromoethane	0.3		0.5	3.160E-01	1	2.879E-01	5	3.190E-01	10	3.330E-01	50	3.310E-01	100	3.290E-01	200	3.199E-01	0.319	4.76		A
Chlorobenzene	0.3		0.5	1.091E+00	1	1.094E+00	5	1.103E+00	10	1.125E+00	50	1.132E+00	100	1.087E+00	200	1.081E+00	1.102	1.77		A
Ethylbenzene	0.3		0.5	1.825E+00	1	1.829E+00	5	1.779E+00	10	1.796E+00	50	1.819E+00	100	1.768E+00	200	1.755E+00	1.796	1.64		A
1,1,1,2-Tetrachloroethane	0.3		0.5	4.129E-01	1	4.460E-01	5	4.499E-01	10	4.480E-01	50	4.339E-01	100	4.410E-01	200	4.379E-01	0.439	2.92		A
m,p-Xylene	0.3		1	7.440E-01	2	7.319E-01	10	7.250E-01	20	7.369E-01	100	7.450E-01	200	7.200E-01	400	7.070E-01	0.730	1.88		A
o-Xylene	0.3		0.5	7.530E-01	1	7.839E-01	5	7.630E-01	10	7.649E-01	50	7.590E-01	100	7.480E-01	200	7.570E-01	0.761	1.53		A
Styrene	0.3		0.5	1.270E+00	1	1.215E+00	5	1.221E+00	10	1.264E+00	50	1.260E+00	100	1.235E+00	200	1.253E+00	1.246	1.77		A
Bromoforn	0.3		0.5	2.940E-01	1	2.770E-01	5	2.800E-01	10	2.980E-01	50	3.019E-01	100	3.150E-01	200	3.290E-01	0.299	6.15		A
Isopropylbenzene	0.3		0.5	1.921E+00	1	1.957E+00	5	1.924E+00	10	1.969E+00	50	1.988E+00	100	1.922E+00	200	2.023E+00	1.958	1.98		A
1,1,2,2-Tetrachloroethane	0.3		0.5	7.329E-01	1	7.030E-01	5	7.040E-01	10	6.909E-01	50	6.740E-01	100	6.800E-01	200	6.110E-01	0.685	5.53		A
n-Propylbenzene	0.3		0.5	9.120E-01	1	9.160E-01	5	8.769E-01	10	9.060E-01	50	9.359E-01	100	8.759E-01	200	8.220E-01	0.892	4.23		A
Bromobenzene	0.3		0.5	9.049E-01	1	9.700E-01	5	9.330E-01	10	9.300E-01	50	9.490E-01	100	9.229E-01	200	8.690E-01	0.926	3.46		A
1,2,3-Trichloropropane	0.3		0.5	7.770E-01	1	8.130E-01	5	7.580E-01	10	7.889E-01	50	7.580E-01	100	7.770E-01	200	6.949E-01	0.767	4.81		A
2-Chlorotoluene	0.3		0.5	2.180E+00	1	2.191E+00	5	2.161E+00	10	2.161E+00	50	2.244E+00	100	2.138E+00	200	2.043E+00	2.160	2.85		A

Eq Ty = Equation Type
 Q=Quadratic, L=Linear, A=Average

* SPCCS #

Date Printed: 6/3/2008 12:14

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Pace Analytical Services Contract: JPL Groundwater Monitorin
 Run Sequence: R028383 SDG No.: JPL115
 Instrument ID: 5973B Calibration Dates: 05/12/2008
 Heated Purge: (Y/N) N Calibration Times: 05/12/2008 17:24
 GC Column: ZB-624 20m ID: 0.18 (mm) Mean % RSD: 5.42

Analyte	Std	RF 1	Std	RF 2	Std	RF 3	Std	RF 4	Std	RF 5	Std	RF 6	Std	RF 7	Std	RF 8	RF	%RSD	r ² COD	Bq Ty
1,3,5-Trimethylbenzene	0.3		0.5	2.563E+00	1	2.709E+00	5	2.668E+00	10	2.690E+00	50	2.865E+00	100	2.640E+00	200	2.645E+00	2.683	3.46		A
4-Chlorotoluene	0.3		0.5	2.444E+00	1	2.476E+00	5	2.362E+00	10	2.387E+00	50	2.483E+00	100	2.369E+00	200	2.283E+00	2.401	2.98		A
tert-Butylbenzene	0.3		0.5	2.134E+00	1	2.286E+00	5	2.361E+00	10	2.411E+00	50	2.589E+00	100	2.427E+00	200	2.464E+00	2.382	6.04		A
1,2,4-Trimethylbenzene	0.3		0.5	2.683E+00	1	2.796E+00	5	2.658E+00	10	2.697E+00	50	2.806E+00	100	2.579E+00	200	2.581E+00	2.686	3.40		A
sec-Butylbenzene	0.3		0.5	3.084E+00	1	3.329E+00	5	3.323E+00	10	3.293E+00	50	3.611E+00	100	3.232E+00	200	3.355E+00	3.318	4.77		A
4-Isopropyltoluene	0.3		0.5	2.859E+00	1	2.869E+00	5	2.938E+00	10	3.039E+00	50	3.227E+00	100	2.862E+00	200	2.951E+00	2.964	4.48		A
1,3-Dichlorobenzene	0.3		0.5	1.723E+00	1	1.761E+00	5	1.746E+00	10	1.790E+00	50	1.804E+00	100	1.720E+00	200	1.679E+00	1.746	2.46		A
1,4-Dichlorobenzene	0.3		0.5	1.767E+00	1	1.888E+00	5	1.764E+00	10	1.801E+00	50	1.848E+00	100	1.786E+00	200	1.794E+00	1.807	2.52		A
n-Butylbenzene	0.3		0.5	2.384E+00	1	2.388E+00	5	2.431E+00	10	2.517E+00	50	2.630E+00	100	2.342E+00	200	2.523E+00	2.460	4.12		A
1,2-Dichlorobenzene	0.3		0.5	1.693E+00	1	1.686E+00	5	1.761E+00	10	1.769E+00	50	1.784E+00	100	1.702E+00	200	1.739E+00	1.733	2.28		A
1,2-Dibromo-3-chloropropane	0.3		0.5	1.210E-01	1	1.420E-01	5	1.260E-01	10	1.320E-01	50	1.320E-01	100	1.360E-01	200	1.380E-01	0.132	5.44		A
1,2,4-Trichlorobenzene	0.3		0.5	1.342E+00	1	1.375E+00	5	1.331E+00	10	1.426E+00	50	1.454E+00	100	1.258E+00	200	1.437E+00	1.375	5.08		A
Hexachlorobutadiene	0.3		0.5	6.600E-01	1	6.160E-01	5	6.340E-01	10	6.390E-01	50	6.710E-01	100	5.529E-01	200	6.520E-01	0.632	6.22		A
Naphthalene	0.3		0.5	2.329E+00	1	2.713E+00	5	2.596E+00	10	2.730E+00	50	2.789E+00	100	2.714E+00	200	2.846E+00	2.674	6.36		A
1,2,3-Trichlorobenzene	0.3		0.5	1.243E+00	1	1.345E+00	5	1.275E+00	10	1.309E+00	50	1.294E+00	100	1.152E+00	200	1.292E+00	1.273	4.86		A
1,2-Dichloroethane-d4	25	2.340E-01	25	2.389E-01	25	2.399E-01	29	2.490E-01	33	2.540E-01	37	2.599E-01	41	2.579E-01	45	2.669E-01	0.250	4.61		A
4-Bromofluorobenzene	25	7.609E-01	25	7.659E-01	25	7.749E-01	29	7.739E-01	33	7.770E-01	37	7.900E-01	41	7.950E-01	45	7.609E-01	0.775	1.65		A
Toluene-d8	25	1.207E+00	25	1.216E+00	25	1.245E+00	29	1.253E+00	33	1.288E+00	37	1.295E+00	41	1.357E+00	45	1.393E+00	1.282	5.14		A

Eq Ty = Equation Type
 Q=Quadratic, L=Linear, A=Average
 * SPCCs #

**INITIAL
SECOND SOURCE CALIBRATION VERIFICATION**

Lab Name: Pace Analytical Services, Inc.

Initial Calibration ID: B8260W-051208

Instrument ID: 5973B

Concentration Units: ug/L

2nd Source ID: ICV051208MVOWB2

Analyte	Equation Type	Expected	Found	%D
1,1,1,2-Tetrachloroethane	A	40.00	39.30	1.75
1,1,1-Trichloroethane	A	40.00	40.45	1.13
1,1,2,2-Tetrachloroethane	A	40.00	41.02	2.55
1,1,2-Trichloro-1,2,2-trifluoroetha	A	40.00	45.26	13.15
1,1,2-Trichloroethane	A	40.00	40.41	1.03
1,1-Dichloroethane	A	40.00	40.84	2.10
1,1-Dichloroethene	A	40.00	45.00	12.50
1,1-Dichloropropene	A	40.00	44.34	10.85
1,2,3-Trichlorobenzene	A	40.00	34.85	12.88
1,2,3-Trichloropropane	A	40.00	41.21	3.03
1,2,4-Trichlorobenzene	A	40.00	37.51	6.23
1,2,4-Trimethylbenzene	A	40.00	40.12	0.30
1,2-Dibromo-3-chloropropane	A	40.00	38.08	4.80
1,2-Dibromoethane	A	40.00	42.14	5.35
1,2-Dichlorobenzene	A	40.00	38.93	2.68
1,2-Dichloroethane	A	40.00	41.07	2.68
1,2-Dichloropropane	A	40.00	40.83	2.08
1,3,5-Trimethylbenzene	A	40.00	40.59	1.48
1,3-Dichlorobenzene	A	40.00	39.70	0.75
1,3-Dichloropropane	A	40.00	41.36	3.40
1,4-Dichlorobenzene	A	40.00	39.62	0.95
1-Chlorohexane	A	40.00	37.62	5.95
2,2-Dichloropropane	A	40.00	36.27	9.33
2-Butanone	A	40.00	31.34	21.65
2-Chloroethylvinylether	A	40.00	45.95	14.88
2-Chlorotoluene	A	40.00	39.64	0.90
2-Hexanone	A	40.00	39.88	0.30
4-Chlorotoluene	A	40.00	40.55	1.38
4-Isopropyltoluene	A	40.00	41.86	4.65
4-Methyl-2-pentanone	A	40.00	41.78	4.45
Acetone	A	40.00	35.79	10.53
Acrylonitrile	A	40.00	43.79	9.48
Allyl chloride	A	40.00	42.51	6.28
Benzene	A	40.00	40.40	1.00
Bromobenzene	A	40.00	40.78	1.95
Bromochloromethane	A	40.00	40.60	1.50
Bromodichloromethane	A	40.00	40.51	1.28
Bromoethane	A	40.00	40.92	2.30
Bromoform	A	40.00	39.41	1.48
Bromomethane	Q	40.00	38.66	3.35
Carbon disulfide	A	40.00	35.67	10.83
Carbon tetrachloride	A	40.00	41.42	3.55
Chlorobenzene	A	40.00	39.90	0.25

**INITIAL
SECOND SOURCE CALIBRATION VERIFICATION**

Lab Name: Pace Analytical Services, Inc.

Initial Calibration ID: B8260W-051208

Instrument ID: 5973B

Concentration Units: ug/L

2nd Source ID: ICV051208MVOWB2

Analyte	Equation Type	Expected	Found	%D
Chloroethane	A	40.00	34.43	13.93
Chloroform	A	40.00	39.01	2.48
Chloromethane	A	40.00	34.10	14.75
Chloreprene	A	39.97	43.08	7.79
cis-1,2-Dichloroethene	A	40.00	40.05	0.13
cis-1,3-Dichloropropene	A	40.00	50.33	25.83
Cyclohexane	A	40.00	38.36	4.10
Dibromochloromethane	A	40.00	42.44	6.10
Dibromofluoromethane	A	28.00	27.46	1.93
Dibromomethane	A	40.00	40.74	1.85
Dichlorodifluoromethane	A	40.00	35.91	10.23
Ethyl methacrylate	A	40.00	39.61	0.98
Ethyl-t-Butyl Ether(ETBE)	A	40.00	38.47	3.83
Ethylbenzene	A	40.00	40.04	0.10
Hexachlorobutadiene	A	40.00	35.77	10.58
Iodomethane	A	40.00	36.38	9.05
Isopropyl ether	A	40.00	37.07	7.33
Isopropylbenzene	A	40.00	39.39	1.53
m,p-Xylene	A	80.00	80.14	0.18
Methyl acetate	A	40.00	36.77	8.08
Methyl methacrylate	A	40.00	43.63	9.08
Methyl tert-butyl ether	A	40.00	38.10	4.75
Methylcyclohexane	A	40.00	40.21	0.53
Methylene chloride	Q	40.00	41.76	4.40
n-Butylbenzene	A	40.00	39.81	0.48
n-Propylbenzene	A	40.00	41.16	2.90
Naphthalene	A	40.00	38.18	4.55
o-Xylene	A	40.00	38.65	3.38
sec-Butylbenzene	A	40.00	41.63	4.08
Styrene	A	40.00	39.61	0.98
t-Amyl Methyl Ether(TAME)	A	40.00	38.60	3.50
t-Butyl Alcohol	A	400.00	355.28	11.18
tert-Butylbenzene	A	40.00	41.81	4.53
Tetrachloroethene	A	40.00	41.31	3.28
Toluene	A	40.00	42.48	6.20
trans-1,2-Dichloroethene	A	40.00	41.50	3.75
trans-1,3-Dichloropropene	A	40.00	39.97	0.08
trans-1,4-Dichloro-2-butene	A	40.00	39.40	1.50
Trichloroethene	A	40.00	39.87	0.33
Trichlorofluoromethane	A	40.00	40.04	0.10
Vinyl acetate	A	40.00	32.70	18.25
Vinyl chloride	A	40.00	36.79	8.03
1,2-Dichloroethane-d4	A	33.00	32.32	2.06

INITIAL
SECOND SOURCE CALIBRATION VERIFICATION

Lab Name: Pace Analytical Services, Inc.

Initial Calibration ID: B8260W-051208

Instrument ID: 5973B

Concentration Units: ug/L

2nd Source ID: ICV051208MVOWB2

Analyte	Equation Type	Expected	Found	%D
4-Bromofluorobenzene	A	33.00	33.09	0.27
Toluene-d8	A	33.00	32.85	0.45

Q=Quadratic, L=Linear, A=Average

7
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Pace Analytical Services
 Run Sequence: R028383
 Instrument ID: 5973B
 Lab File ID: B0527010.D
 Client Sample No.: VSTD050B1
 Heated Purge: (Y/N) N

Contract: JPL Groundwater Monitorin
 SDG No.: JPL115
 Calibration Date: 05/27/2008 Time: 12:47
 Init. Calib. Date(s): 05/12/2008 *05/12/2008*
 Init. Calib. Time(s): 13:50 *14:16* 17:24
 GC Column: ZB-624 20m *14/2/08* ID: 0.18 (mm)

Compound	Equation Type	RF 50.0	%D	%Drift
Dichlorodifluoromethane	A	0.258	2.38	
Chloromethane	A	0.286	21.55	
Vinyl chloride	A	0.298	9.35	
Bromomethane	Q	0.221		8.20
Chloroethane	A	0.179	11.27	
Trichlorofluoromethane	A	0.597	-33.16*	
1,1-Dichloroethene	A	0.357	-15.45	
1,1,2-Trichloro-1,2,2-trifluoroethane	A	0.337	-6.97	
Methylene chloride	Q	0.391		10.06
Methyl tert-butyl ether	A	1.092	-4.04	
trans-1,2-Dichloroethene	A	0.382	-7.97	
1,1-Dichloroethane	A	0.580	-2.08	
2,2-Dichloropropane	A	0.356	-6.52	
cis-1,2-Dichloroethene	A	0.328	1.74	
2-Butanone	A	0.097	19.34	
Bromochloromethane	A	0.189	-6.69	
Chloroform	A	0.584	-10.06	
1,1,1-Trichloroethane	A	0.553	-19.80	
Carbon tetrachloride	A	0.523	-24.27	
1,1-Dichloropropene	A	0.379	-6.56	
Benzene	A	1.123	6.03	
1,2-Dichloroethane	A	0.393	-19.20	
Trichloroethene	A	0.376	-4.72	
1,2-Dichloropropane	A	0.258	7.03	
Dibromomethane	A	0.181	-7.91	
Bromodichloromethane	A	0.424	-11.23	
cis-1,3-Dichloropropene	A	0.401	-7.50	
4-Methyl-2-pentanone	A	0.222	10.60	
Toluene	A	0.881	6.58	
trans-1,3-Dichloropropene	A	0.554	-2.93	
1,1,2-Trichloroethane	A	0.303	3.85	
Tetrachloroethene	A	0.540	-4.15	

* = %D or %Drift above limit

= %D or %Drift limits are not configured

7
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Pace Analytical Services
 Run Sequence: R028383
 Instrument ID: 5973B
 Lab File ID: B0527010.D
 Client Sample No.: VSTD050B1
 Heated Purge: (Y/N) N

Contract: JPL Groundwater Monitorin
 SDG No.: JPL115
 Calibration Date: 05/27/2008 Time: 12:47
 Init. Calib. Date(s): 05/12/2008 *05/12/2008*
 Init. Calib. Time(s): 13:50 *14:16* 17:24 *17:24*
 GC Column: ZB-624 20m ID: 0.18 (mm)

Compound	Equation Type	RF 50.0	%D	%Drift
1,3-Dichloropropane	A	0.478	4.45	
Dibromochloromethane	A	0.414	-5.82	
1,2-Dibromoethane	A	0.322	-0.93	
Chlorobenzene	A	1.106	-0.32	
Ethylbenzene	A	1.764	1.81	
1,1,1,2-Tetrachloroethane	A	0.446	-1.54	
m,p-Xylene	A	0.720	1.38	
o-Xylene	A	0.725	4.79	
Styrene	A	1.213	2.62	
Bromoform	A	0.312	-4.21	
Isopropylbenzene	A	1.960	-0.10	
1,1,2,2-Tetrachloroethane	A	0.601	12.29	
n-Propylbenzene	A	0.854	4.27	
Bromobenzene	A	0.901	2.68	
1,2,3-Trichloropropane	A	0.686	10.60	
2-Chlorotoluene	A	2.069	4.23	
1,3,5-Trimethylbenzene	A	2.684	-0.04	
4-Chlorotoluene	A	2.337	2.66	
tert-Butylbenzene	A	2.395	-0.56	
1,2,4-Trimethylbenzene	A	2.656	1.12	
sec-Butylbenzene	A	3.302	0.48	
4-Isopropyltoluene	A	3.090	-4.24	
1,3-Dichlorobenzene	A	1.741	0.30	
1,4-Dichlorobenzene	A	1.784	1.27	
n-Butylbenzene	A	2.410	2.03	
1,2-Dichlorobenzene	A	1.700	1.89	
1,2-Dibromo-3-chloropropane	A	0.122	7.78	
1,2,4-Trichlorobenzene	A	1.361	0.99	
Hexachlorobutadiene	A	0.680	-7.56	
Naphthalene	A	2.469	7.65	
1,2,3-Trichlorobenzene	A	1.190	6.52	
1,2-Dichloroethane-d4	A	0.304	-21.43	

* = %D or %Drift above limit

= %D or %Drift limits are not configured

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Pace Analytical ServicesContract: JPL Groundwater MonitorinRun Sequence: R028383SDG No.: JPL115Instrument ID: 5973BCalibration Date: 05/27/2008 Time: 12:47Lab File ID: B0527010.DInit. Calib. Date(s): 05/12/2008 *05/12/2008*Client Sample No.: VSTD050B1Init. Calib. Time(s): 12:50 *17:24*Heated Purge: (Y/N) NGC Column: ZB-624 20m *JPL* ID: 0.18 (mm)

Compound	Equation Type	RF 50.0	%D	%Drift
4-Bromofluorobenzene	A	0.739	4.60	
Toluene-d8	A	1.227	4.26	

* = %D or %Drift above limit

= %D or %Drift limits are not configured

1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

B052708MVOWB2

Lab Name: Pace Analytical Services Contract: JPL Groundwater Monitorin
 SDG No.: JPL115 Run Sequence: R028383
 Matrix: (SOIL/SED/WATER) Water Lab Sample ID: B052708MVOWB2
 Sample wt/vol: 10.0 (g/mL) mL Lab File ID: B0527015.D
 Level: (LOW/MED) _____ Date Collected: _____
 % Moisture: not dec. _____ Date/Time Analyzed: 05/27/2008 15:02
 GC Column: ZB-624 20m ID: 0.18 (mm) Dilution Factor: 1.0
 Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)
 Heated Purge: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS:	
		<u>ug/L</u>	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
75-09-2	Methylene chloride	1.0	U
1634-04-4	Methyl tert-butyl ether	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
594-20-7	2,2-Dichloropropane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
563-58-6	1,1-Dichloropropene	0.50	U
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U
79-01-6	Trichloroethene	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
74-95-3	Dibromomethane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-pentanone	5.0	U

1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

B052708MVOWB2

Lab Name: Pace Analytical Services
 SDG No.: JPL115
 Matrix: (SOIL/SED/WATER) Water
 Sample wt/vol: 10.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: not dec. _____
 GC Column: ZB-624 20m ID: 0.18 (mm)
 Soil Extract Volume: _____ (uL)
 Heated Purge: (Y/N) N

Contract: JPL Groundwater Monitorin
 Run Sequence: R028383
 Lab Sample ID: B052708MVOWB2
 Lab File ID: B0527015.D
 Date Collected: _____
 Date/Time Analyzed: 05/27/2008 15:02
 Dilution Factor: 1.0
 Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L	Q
108-88-3	Toluene	0.50	U
10061-02-	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
142-28-9	1,3-Dichloropropane	0.50	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
630-20-6	1,1,1,2-Tetrachloroethane	0.50	U
179601-23	m,p-Xylene	1.0	U
95-47-6	o-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
103-65-1	n-Propylbenzene	0.50	U
108-86-1	Bromobenzene	0.50	U
96-18-4	1,2,3-Trichloropropane	0.50	U
95-49-8	2-Chlorotoluene	0.50	U
108-67-8	1,3,5-Trimethylbenzene	0.50	U
106-43-4	4-Chlorotoluene	0.50	U
98-06-6	tert-Butylbenzene	0.50	U
95-63-6	1,2,4-Trimethylbenzene	0.50	U
135-98-8	sec-Butylbenzene	0.50	U
99-87-6	4-Isopropyltoluene	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U

1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

B052708MVOWB2

Lab Name: Pace Analytical Services
 SDG No.: JPL115
 Matrix: (SOIL/SED/WATER) Water
 Sample wt/vol: 10.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: not dec. _____
 GC Column: ZB-624 20m ID: 0.18 (mm)
 Soil Extract Volume: _____ (uL)
 Heated Purge: (Y/N) N

Contract: JPL Groundwater Monitorin
 Run Sequence: R028383
 Lab Sample ID: B052708MVOWB2
 Lab File ID: B0527015.D
 Date Collected: _____
 Date/Time Analyzed: 05/27/2008 15:02
 Dilution Factor: 1.0
 Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS:	
		<u>ug/L</u>	Q
104-51-8	n-Butylbenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-68-3	Hexachlorobutadiene	0.50	U
91-20-3	Naphthalene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

Comments:

1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

S052708MVOWB1

Lab Name: Pace Analytical Services
 SDG No.: JPL115
 Matrix: (SOIL/SED/WATER) Water
 Sample wt/vol: 10.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: not dec. _____
 GC Column: ZB-624 20m ID: 0.18 (mm)
 Soil Extract Volume: _____ (uL)
 Heated Purge: (Y/N) N

Contract: JPL Groundwater Monitorin
 Run Sequence: R028383
 Lab Sample ID: S052708MVOWB1
 Lab File ID: B0527011.D
 Date Collected: _____
 Date/Time Analyzed: 05/27/2008 13:17
 Dilution Factor: 1.0
 Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: <u>ug/L</u>	Q
75-71-8	Dichlorodifluoromethane	43	
74-87-3	Chloromethane	39	
75-01-4	Vinyl chloride	46	
74-83-9	Bromomethane	56	
75-00-3	Chloroethane	47	
75-69-4	Trichlorofluoromethane	63	
75-35-4	1,1-Dichloroethene	61	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	46	
75-09-2	Methylene chloride	55	
1634-04-4	Methyl tert-butyl ether	53	
156-60-5	trans-1,2-Dichloroethene	55	
75-34-3	1,1-Dichloroethane	52	
594-20-7	2,2-Dichloropropane	52	
156-59-2	cis-1,2-Dichloroethene	51	
78-93-3	2-Butanone	41	
74-97-5	Bromochloromethane	54	
67-66-3	Chloroform	54	
71-55-6	1,1,1-Trichloroethane	57	
56-23-5	Carbon tetrachloride	59	
563-58-6	1,1-Dichloropropene	58	
71-43-2	Benzene	49	
107-06-2	1,2-Dichloroethane	58	
79-01-6	Trichloroethene	53	
78-87-5	1,2-Dichloropropane	45	
74-95-3	Dibromomethane	52	
75-27-4	Bromodichloromethane	54	
10061-01-	cis-1,3-Dichloropropene	59	
108-10-1	4-Methyl-2-pentanone	43	

1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

S052708MVOWB1

Lab Name: Pace Analytical Services
 SDG No.: JPL115
 Matrix: (SOIL/SED/WATER) Water
 Sample wt/vol: 10.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: not dec. _____
 GC Column: ZB-624 20m ID: 0.18 (mm)
 Soil Extract Volume: _____ (uL)
 Heated Purge: (Y/N) N

Contract: JPL Groundwater Monitorin
 Run Sequence: R028383
 Lab Sample ID: S052708MVOWB1
 Lab File ID: B0527011.D
 Date Collected: _____
 Date/Time Analyzed: 05/27/2008 13:17
 Dilution Factor: 1.0
 Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: <u>ug/L</u>	Q
108-88-3	Toluene	50	
10061-02-	trans-1,3-Dichloropropene	47	
79-00-5	1,1,2-Trichloroethane	48	
127-18-4	Tetrachloroethene	54	
142-28-9	1,3-Dichloropropane	48	
124-48-1	Dibromochloromethane	55	
106-93-4	1,2-Dibromoethane	51	
108-90-7	Chlorobenzene	50	
100-41-4	Ethylbenzene	50	
630-20-6	1,1,1,2-Tetrachloroethane	54	
179601-23	m,p-Xylene	100	
95-47-6	o-Xylene	49	
100-42-5	Styrene	49	
75-25-2	Bromoform	52	
98-82-8	Isopropylbenzene	53	
79-34-5	1,1,2,2-Tetrachloroethane	44	
103-65-1	n-Propylbenzene	48	
108-86-1	Bromobenzene	48	
96-18-4	1,2,3-Trichloropropane	45	
95-49-8	2-Chlorotoluene	46	
108-67-8	1,3,5-Trimethylbenzene	50	
106-43-4	4-Chlorotoluene	48	
98-06-6	tert-Butylbenzene	52	
95-63-6	1,2,4-Trimethylbenzene	50	
135-98-8	sec-Butylbenzene	51	
99-87-6	4-Isopropyltoluene	54	
541-73-1	1,3-Dichlorobenzene	50	
106-46-7	1,4-Dichlorobenzene	50	

1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

S052708MVOWB1

Lab Name: Pace Analytical Services
 SDG No.: JPL115
 Matrix: (SOIL/SED/WATER) Water
 Sample wt/vol: 10.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: not dec. _____
 GC Column: ZB-624 20m ID: 0.18 (mm)
 Soil Extract Volume: _____ (uL)
 Heated Purge: (Y/N) N

Contract: JPL Groundwater Monitorin
 Run Sequence: R028383
 Lab Sample ID: S052708MVOWB1
 Lab File ID: B0527011.D
 Date Collected: _____
 Date/Time Analyzed: 05/27/2008 13:17
 Dilution Factor: 1.0
 Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: <u>ug/L</u>	Q
104-51-8	n-Butylbenzene	50	
95-50-1	1,2-Dichlorobenzene	49	
96-12-8	1,2-Dibromo-3-chloropropane	47	
120-82-1	1,2,4-Trichlorobenzene	53	
87-68-3	Hexachlorobutadiene	54	
91-20-3	Naphthalene	50	
87-61-6	1,2,3-Trichlorobenzene	49	

Comments:

FORMS SUMMARY

SDG# JPL115

Semivolatiles

2
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: Pace Analytical Services

Contract: JPL Groundwater Monitorin

SDG No.: JPL115

Run Sequence: R028500

Level: (LOW/MED) NONE

CLIENT SAMPLE NUMBER	S1 (2FP) #	S2 (PHL) #	S3 (NBZ) #	S4 (2FB) #	TOT OUT
(JPL115-004) DUPE-6-2Q08	22	52	85	80	
(JPL115-002) MW-16	29	63	85	73	
(JPL115-001) MW-13	4 *	23	73	62	
(S052708MSVWLS) S052708MSVWLS	8 *	50	94	88	
(B052708MSVWLS) B052708MSVWLS	77	86	98	80	

QC LIMITS

S1 (2FP) =	2-Fluorophenol	20-110
S2 (PHL) =	Phenol-d5	10-115
S3 (NBZ) =	Nitrobenzene-d5	40-110
S4 (2FB) =	2-Fluorobiphenyl	50-100

Column to be used to flag recovery values
 * Values outside of contract required QC limits
 D Surrogate diluted out

2
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: Pace Analytical Services

Contract: JPL Groundwater Monitorin

SDG No.: JPL115

Run Sequence: R028500

Level: (LOW/MED) NONE

CLIENT SAMPLE NUMBER	S5 (TBP) #	S6 (DTR) #	S7 () #	S8 () #	TOT OUT
(JPL115-004) DUPE-6-2Q08	64	92			0
(JPL115-002) MW-16	44	89			0
(JPL115-001) MW-13	4 *	80			2
(S052708MSVWLS) S052708MSVWLS	11 *	85			2
(B052708MSVWLS) B052708MSVWLS	67	96			0

QC LIMITS

S5 (TBP) = 2,4,6-Tribromophenol
 S6 (DTR) = Terphenyl-d14
 S7 () =
 S8 () =

40-125
 50-135

Column to be used to flag recovery values
 * Values outside of contract required QC limits
 D Surrogate diluted out

3B
WATER SEMIVOLATILE BLANK SPIKE RECOVERY

Lab Name: Pace Analytical Services Contract: JPL Groundwater Monitorin
BS Run Sequence: R028500 SDG No.: JPL115
BS Lab Sample ID: S052708MSVWLS
Level: N/A Units: ug/L

Analyte	Spike Added	Found	% Rec	#	Rec Limit
I,4-Dioxane	20.0	19.39	97		20-160

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

Spike Recovery: 0 out of 1 outside limits

COMMENTS:

Date Printed: 6/2/2008 9:50

4
SEMIVOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

B052708MSVWLS

Lab Name Pace Analytical Services

Contract: JPL Groundwater Monitorin

SDG No.: JPL115

Lab File ID: T0530003.D

Lab Sample ID: B052708MSVWLS

Date Analyzed: 05/30/2008

Time Analyzed: 13:13

GC Column: Rxi-5ms ID: 0.25 (mm)

Heated Purge: (Y/N) N

Instrument ID: HP 5972 (Donald)

Matrix: Water

	CLIENT SAMPLE NO.	LAB SAMPLE ID.	LAB FILE ID.	DATE ANALYZED	TIME ANALYZED	RUN SEQUENCE
01	S052708MSVWLS	S052708MSVWLS	T0530004.D	05/30/2008	13:44	R028500
02	MW-13	JPL115-001	T0530006.D	05/30/2008	14:47	R028500
03	MW-16	JPL115-002	T0530007.D	05/30/2008	15:18	R028500
04	DUPE-6-2Q08	JPL115-004	T0530008.D	05/30/2008	15:49	R028500
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COMMENTS: _____

SEMIVOLATILE ORGANIC INSTRUMENT
PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

DFTPP051308-6

Lab Name: Pace Analytical Services Contract: JPL Groundwater Monitorin
 Run Sequence: CAL1320 SDG No.: JPL115
 Lab File ID: T0513010.D DFTPP Injection Date: 05/13/2008
 Instrument ID: HP 5972 (Donald) DFTPP Injection Time: 13:17

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30% to 60% of mass 198	48
68	less than 2% of mass 69	0 ()1
69	base peak, 100% relative abundance	100
70	less than 2% of mass 69	0 ()1
127	40% to 60% of mass 198	50.5
197	less than 1% of mass 198	0
198	base peak, 100% relative abundance	100
199	5% to 9% of mass 198	6.5
275	10% to 30% of mass 198	19
365	greater than 1% of mass 198	2.1
441	present but less than mass 443	77.5
442	greater than 40% of mass 198	73.5
443	17% to 23% of mass 442	19.2 ()2

1 - Value is %mass 69

2 - Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSDT001	SSDT001	T0513011.D	05/13/2008	13:38
02	SSDT005	SSDT005	T0513012.D	05/13/2008	14:10
03	SSDT010	SSDT010	T0513013.D	05/13/2008	14:41
04	SSDT025	SSDT025	T0513014.D	05/13/2008	15:13
05	SSDT040	SSDT040	T0513015.D	05/13/2008	15:44
06	SSDT060	SSDT060	T0513016.D	05/13/2008	16:15
07	SSDT080	SSDT080	T0513017.D	05/13/2008	16:47
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SEMIVOLATILE ORGANIC INSTRUMENT
PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

DFTPP053008-1

Lab Name: Pace Analytical Services Contract: JPL Groundwater Monitorin
 Run Sequence: R028500 SDG No.: JPL115
 Lab File ID: T0530001.D DFTPP Injection Date: 05/30/2008
 Instrument ID: HP 5972 (Donald) DFTPP Injection Time: 07:30

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30% to 60% of mass 198	47.2
68	less than 2% of mass 69	0 (1)
69	base peak, 100% relative abundance	100
70	less than 2% of mass 69	0 (1)
127	40% to 60% of mass 198	50.5
197	less than 1% of mass 198	0
198	base peak, 100% relative abundance	100
199	5% to 9% of mass 198	6.5
275	10% to 30% of mass 198	19.9
365	greater than 1% of mass 198	2.1
441	present but less than mass 443	78
442	greater than 40% of mass 198	76.2
443	17% to 23% of mass 442	19 (2)

1 - Value is %mass 69

2 - Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CCV053008-1	CCV053008-1	T0530002.D	05/30/2008	07:51
02	B052708MSVWLS	B052708MSVWLS	T0530003.D	05/30/2008	13:13
03	S052708MSVWLS	S052708MSVWLS	T0530004.D	05/30/2008	13:44
04	MW-13	JPL115-001	T0530006.D	05/30/2008	14:47
05	MW-16	JPL115-002	T0530007.D	05/30/2008	15:18
06	DUPE-6-2Q08	JPL115-004	T0530008.D	05/30/2008	15:49
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SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Pace Analytical ServicesContract: JPL Groundwater MonitorinRun Sequence: R028500SDG No.: JPL115Client Sample No.: CCV053008-1Date Analyzed: 05/30/2008Lab File ID (Standard): T0530002.DTime Analyzed: 07:51Instrument ID: HP 5972 (Donald)GC Column: Rxi-5msID: 0.25 (mm)

	IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
12 HOUR STD	110282	5.52	452171	6.97	218848	9.09
UPPER LIMIT	220564	6.02	904342	7.47	437696	9.59
LOWER LIMIT	55141	5.02	226085.5	6.47	109424	8.59
CLIENT SAMPLE NO.						
01 B052708MSVWLS	80948	5.51	338384	6.96	189249	9.08
02 S052708MSVWLS	71851	5.52	334141	6.96	190972	9.08
03 MW-13	73638	5.52	301537	6.96	170338	9.08
04 MW-16	75150	5.52	314913	6.96	182259	9.08
05 DUPE-6-2Q08	80910	5.52	328178	6.97	181820	9.08
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22						

IS1 (DCB) = 1,4-Dichlorobenzene-d4

IS2 (NPT) = Naphthalene-d8

IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = + 100% of internal standard area

AREA LOWER LIMIT = - 50% of internal standard area

RT UPPER LIMIT = + 0.50 minutes of internal standard RT

RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.

* Values outside of QC limits

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Pace Analytical ServicesContract: JPL Groundwater MonitorinRun Sequence: R028500SDG No.: JPL115Client Sample No.: CCV053008-1Date Analyzed: 05/30/2008Lab File ID (Standard): T0530092.DTime Analyzed: 07:51Instrument ID: HP 5972 (Donald)GC Column: Rxi-5msID: 0.25 (mm)

	IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
12 HOUR STD	313384	10.87	254971	14.60	137391	17.67
UPPER LIMIT	626768	11.37	509942	15.1	274782	18.17
LOWER LIMIT	156692	10.37	127485.5	14.1	68695.5	17.17
CLIENT SAMPLE NO.						
01 B052708MSVWLS	306761	10.86	254844	14.59	146152	17.66
02 S052708MSVWLS	276422	10.86	229747	14.59	131084	17.66
03 MW-13	275256	10.86	229057	14.59	130751	17.66
04 MW-16	292937	10.86	227009	14.58	127834	17.66
05 DUPE-6-2Q08	290033	10.87	223829	14.59	126342	17.66
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IS4 (PHN) = Phenanthrene-d10

IS5 (CRY) = Chrysene-d12

IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = + 100% of internal standard area

AREA LOWER LIMIT = - 50% of internal standard area

RT UPPER LIMIT = + 0.50 minutes of internal standard RT

RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.

* Values outside of QC limits

1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW-13

Lab Name: Pace Analytical Services
 SDG No.: JPL115
 Matrix: (SOIL/WATER) Water
 Sample wt/vol: 1040.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: _____ Decanted: (Y/N) N
 Concentrated Extract Volume: 1000 (uL)
 Injection Volume: 2.0 (uL)
 GPC Cleanup: (Y/N) N pH: <2 & >11

Contract: JPL Groundwater Monitorin
 Run Sequence: R028500
 Lab Sample ID: JPL115-001
 Lab File ID: T0530006.D
 Date Collected: 05/21/2008
 Date Extracted: 05/27/2008
 Date Analyzed: 05/30/2008
 Dilution Factor: 1.0
 Extraction: (Type) CONT

CAS NO.	COMPOUND	CONCENTRATION UNITS: <u>ug/L</u>	Q
123-91-1	1,4-Dioxane	2.3	

Comments:

1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW-16

Lab Name: Pace Analytical Services
 SDG No.: JPL115
 Matrix: (SOIL/WATER) Water
 Sample wt/vol: 990.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: _____ Decanted: (Y/N) N
 Concentrated Extract Volume: 1000 (uL)
 Injection Volume: 2.0 (uL)
 GPC Cleanup: (Y/N) N pH: <2 & >11

Contract: JPL Groundwater Monitorin
 Run Sequence: R028500
 Lab Sample ID: JPL115-002
 Lab File ID: T0530007.D
 Date Collected: 05/21/2008
 Date Extracted: 05/27/2008
 Date Analyzed: 05/30/2008
 Dilution Factor: 1.0
 Extraction: (Type) CONT

CAS NO.	COMPOUND	CONCENTRATION UNITS: <u>ug/L</u>	Q
123-91-1	1,4-Dioxane	1.7	

Comments:

1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

DUPE-6-2Q08

Lab Name: Pace Analytical Services
 SDG No.: JPL115
 Matrix: (SOIL/WATER) Water
 Sample wt/vol: 980.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: _____ Decanted: (Y/N) N
 Concentrated Extract Volume: 1000 (uL)
 Injection Volume: 2.0 (uL)
 GPC Cleanup: (Y/N) N pH: <2 & >11

Contract: JPL Groundwater Monitorin
 Run Sequence: R028500
 Lab Sample ID: JPL115-004
 Lab File ID: T0530008.D
 Date Collected: 05/21/2008
 Date Extracted: 05/27/2008
 Date Analyzed: 05/30/2008
 Dilution Factor: 1.0
 Extraction: (Type) CONT

CAS NO.	COMPOUND	CONCENTRATION UNITS: <u>ug/L</u>	Q
123-91-1	1,4-Dioxane	1.5	

Comments:

6
SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Pace Analytical Services Contract: JPL Groundwater Monitorin
 Run Sequence: R028500 SDG No.: JPL115
 Instrument ID: HP 5972 (Donald) Calibration Dates: 05/13/2008 16:47
 Heated Purge: (Y/N) N Calibration Times: 05/13/2008 16:47
 GC Column: Rxi-Sms ID: 0.25 (mm) Mean % RSD: 10.73

Analyte	Std	RF 1	Std	RF 2	Std	RF 3	Std	RF 4	Std	RF 5	Std	RF 6	Std	RF 7	Std	RF 8	RF	%RSD	F ² COD	Eg Ty
1,4-Dioxane	1	8.690E-01	5	7.950E-01	10	8.619E-01	25	9.419E-01	40	8.080E-01	60	8.309E-01	80	9.120E-01			0.860	6.24		A
2-Fluorophenol	1		5	1.715E+00	10	1.781E+00	25	2.069E+00	40	1.922E+00	60	1.994E+00	80	2.243E+0			1.954	9.88		A
Phenol-d5	1		5	2.168E+00	10	2.425E+00	25	2.937E+00	40	2.665E+00	60	2.769E+00	80	3.065E+0			2.672	12.40		A
Nitrobenzene-d5	1		5	4.840E-01	10	4.920E-01	25	5.299E-01	40	4.990E-01	60	5.809E-01	80	5.849E-01			0.529	8.49		A
2-Fluorobiphenyl	1		5	1.410E+00	10	1.360E+00	25	1.564E+00	40	1.546E+00	60	1.735E+00	80	1.428E+0			1.507	9.08		A
2,4,6-Tribromophenol	1		5	1.630E-01	10	1.850E-01	25	2.160E-01	40	2.360E-01	60	2.380E-01	80	2.450E-01			0.214	15.34		A
Terphenyl-d14	1		5	9.079E-01	10	9.380E-01	25	1.249E+00	40	1.376E+00	60	1.325E+00	80	1.383E+0			1.197		0.999	Q

Eg Ty = Equation Type
 Q=Quadratic, L=Linear, A=Average
 * SFCCs #

Date Printed: 6/2/2008 9:53

FORM VI SV

Page 1 of 1

Initial Second Source Calibration Verification

Lab Name: Pace Analytical Services, Inc.
 Instrument ID: 5972T Donald
 2nd Source ID: ICV051308-1

Initial Calibration ID: T8270.M-051308
 Concentration Unit: ng/ul

*** PROJECTED ***			*** ANALYSES ***			
Analyte(s)	Equation Type	Expected Conc. ng/uL	Reference Solution	Amount Quanted ng/uL	Percent of Target	%D
1-Methylnaphthalene	A	30	MS9-79-3	28.79	96	4

Initial: VM
 Date analyzed: 5/13/08

**INITIAL
SECOND SOURCE CALIBRATION VERIFICATION**

Lab Name: Pace Analytical Services, Inc.

Initial Calibration ID: T.8270.m-051308

Instrument ID: HP 5972 (Donald)

Concentration Units: ng/ul

2nd Source ID: ICV051308-2

Analyte	Equation Type	Expected	Found	%D
1,1'-Biphenyl	A	5.00	5.11	2.20
1,2,4,5-Tetrachlorobenzene	A	37.00	44.08	19.14
1,2,4-Trichlorobenzene	A	32.00	32.99	3.09
1,2-Dichlorobenzene	A	32.00	29.79	6.91
1,2-Diphenylhydrazine	A	32.00	30.20	5.63
1,3-Dichlorobenzene	A	32.00	30.44	4.88
1,3-Dinitrobenzene	A	32.00	29.72	7.13
1,4-Dichlorobenzene	A	32.00	30.50	4.69
1,4-Dioxane	A	5.00	4.15	17.00
2,3,4,6-Tetrachlorophenol	A	32.00	34.63	8.22
2,4,5-Trichlorophenol	A	32.00	32.01	0.03
2,4,6-Tribromophenol	A	64.00	66.34	3.66
2,4,6-Trichlorophenol	A	32.00	31.52	1.50
2,4-Dichlorophenol	A	32.00	34.19	6.84
2,4-Dimethylphenol	A	32.00	32.86	2.69
2,4-Dinitrophenol	Q	32.00	30.10	5.94
2,4-Dinitrotoluene	A	32.00	32.12	0.38
2,6-Dinitrotoluene	A	32.00	32.15	0.47
2-Chloronaphthalene	A	32.00	35.21	10.03
2-Chlorophenol	A	32.00	29.57	7.59
2-Fluorobiphenyl	A	32.00	31.43	1.78
2-Fluorophenol	A	64.00	65.72	2.69
2-Methylnaphthalene	A	32.00	32.10	0.31
2-Methylphenol	A	32.00	30.53	4.59
2-Nitroaniline	A	32.00	32.33	1.03
2-Nitrophenol	A	32.00	31.53	1.47
3 & 4-Methylphenol	A	64.00	61.59	3.77
3,3'-Dichlorobenzidine	Q	32.00	25.17	21.34
3-Nitroaniline	A	32.00	31.09	2.84
4,6-Dinitro-2-methylphenol	Q	32.00	33.57	4.91
4-Bromophenyl-phenyl ether	A	32.00	35.88	12.13
4-Chloro-3-methylphenol	A	32.00	32.50	1.56
4-Chloroaniline	A	32.00	28.06	12.31
4-Chlorophenyl-phenylether	A	32.00	33.05	3.28
4-Nitroaniline	A	32.00	31.43	1.78
4-Nitrophenol	A	32.00	25.21	21.22
Acenaphthene	A	32.00	31.97	0.09
Acenaphthylene	A	32.00	33.53	4.78
Acetophenone	A	37.00	33.74	8.81
Aniline	A	32.00	32.97	3.03
Anthracene	A	32.00	35.34	10.44
Atrazine	A	5.00	4.01	19.80
Benzaldehyde	A	5.00	4.16	16.80

**INITIAL
SECOND SOURCE CALIBRATION VERIFICATION**

Lab Name: Pace Analytical Services, Inc.

Initial Calibration ID: T.8270.m-051308

Instrument ID: HP 5972 (Donald)

Concentration Units: ng/ul

2nd Source ID: ICV051308-2

Analyte	Equation Type	Expected	Found	%D
Benzidine	Q	32.00	21.96	31.38
Benzo(a)anthracene	A	32.00	33.13	3.53
Benzo(a)pyrene	A	32.00	31.65	1.09
Benzo(b)fluoranthene	Q	32.00	36.95	15.47
Benzo(g,h,i)perylene	A	32.00	26.20	18.13
Benzo(k)fluoranthene	L	32.00	33.83	5.72
Benzoic acid	Q	40.00	40.36	0.90
Benzyl alcohol	A	32.00	29.96	6.38
Bis(2-chloroethoxy)methane	A	32.00	32.33	1.03
Bis(2-Chloroethyl)ether	A	32.00	29.74	7.06
Bis(2-chloroisopropyl)ether	A	32.00	27.97	12.59
Bis(2-ethylhexyl)phthalate	Q	32.00	30.87	3.53
Butylbenzylphthalate	Q	32.00	30.82	3.69
Caprolactam	A	5.00	6.32	26.40
Carbazole	A	32.00	32.16	0.50
Chrysene	A	32.00	31.08	2.88
Di-n-butylphthalate	A	32.00	29.29	8.47
Di-n-octylphthalate	Q	32.00	36.55	14.22
Dibenzo(a,h)anthracene	A	32.00	27.87	12.91
Dibenzofuran	A	32.00	31.65	1.09
Diethylphthalate	A	32.00	30.67	4.16
Dimethylphthalate	A	32.00	30.43	4.91
Fluoranthene	A	32.00	32.57	1.78
Fluorene	A	32.00	31.95	0.16
Hexachlorobenzene	A	32.00	32.17	0.53
Hexachlorobutadiene	A	32.00	32.90	2.81
Hexachlorocyclopentadiene	Q	32.00	29.36	8.25
Hexachloroethane	A	32.00	29.94	6.44
Indeno(1,2,3-cd)pyrene	A	32.00	27.44	14.25
Isophorone	A	32.00	34.17	6.78
N-Nitroso-di-n-propylamine	A	32.00	28.19	11.91
N-Nitrosodimethylamine	A	32.00	25.30	20.94
N-Nitrosodiphenylamine	A	32.00	33.72	5.38
Naphthalene	A	32.00	33.07	3.34
Nitrobenzene	A	32.00	30.08	6.00
Nitrobenzene-d5	A	32.00	28.77	10.09
Pentachlorophenol	Q	32.00	33.19	3.72
Phenanthrene	A	32.00	29.56	7.63
Phenol	A	32.00	33.69	5.28
Phenol-d5	A	64.00	65.08	1.69
Pyrene	A	32.00	32.97	3.03
Pyridine	A	32.00	24.12	24.63

NOL

Wm 06.02.08

NOL

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Pace Analytical ServicesContract: JPL Groundwater MonitorinRun Sequence: R028500SDG No.: JPL115Instrument ID: HP 5972 (Donald)Calibration Date: 05/30/2008 Time: 07:51Lab File ID: T0530002.DInit. Calib. Date(s): 05/13/2008Client Sample No.: CCV053008-1Init. Calib. Time(s): 13:17Heated Purge: (Y/N) NGC Column: Rxi-5ms ID: 0.25 (mm)

Compound	Equation Type	RF 530.0	%D	%Drift
1,4-Dioxane	A	0.790	8.12	
2-Fluorophenol	A	1.844	5.62	
Phenol-d5	A	2.590	3.08	
Nitrobenzene-d5	A	0.493	6.86	
2-Fluorobiphenyl	A	1.575	-4.52	
2,4,6-Tribromophenol	A	0.226	-5.43	
Terphenyl-d14	Q	1.362		6.67

* = %D or %Drift above limit

= %D or %Drift limits are not configured

1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

B052708MSVWLS

Lab Name: Pace Analytical Services
 SDG No.: JPL115
 Matrix: (SOIL/WATER) Water
 Sample wt/vol: 1000.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: _____ Decanted: (Y/N) N
 Concentrated Extract Volume: 1000 (uL)
 Injection Volume: 2.0 (uL)
 GPC Cleanup: (Y/N) N pH: <2 & >11

Contract: JPL Groundwater Monitorin
 Run Sequence: R028500
 Lab Sample ID: B052708MSVWLS
 Lab File ID: T0530003.D
 Date Collected: _____
 Date Extracted: 05/27/2008
 Date Analyzed: 05/30/2008
 Dilution Factor: 1.0
 Extraction: (Type) CONT

CAS NO.	COMPOUND	CONCENTRATION UNITS: <u>ug/L</u>	Q
123-91-1	1,4-Dioxane	1.0	U

Comments:

1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

S052708MSVWLS

Lab Name: Pace Analytical Services

Contract: JPL Groundwater Monitorin

SDG No.: JPL115

Run Sequence: R028500

Matrix: (SOIL/WATER) Water

Lab Sample ID: S052708MSVWLS

Sample wt/vol: 1000.0 (g/mL) mL

Lab File ID: T0530004.D

Level: (LOW/MED) _____

Date Collected: _____

% Moisture: _____ Decanted: (Y/N) N

Date Extracted: 05/27/2008

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 05/30/2008

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: <2 & >11

Extraction: (Type) CONT

CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L	Q
123-91-1	1,4-Dioxane	19	

Comments:

FORMS SUMMARY

JPL115

Metals Data

INORGANIC ANALYSES DATA SHEET

SAMPLE NO.

MW-13

Lab Name: Pace Analytical Services

Contract: JPL Groundwater Monitorin

Lab Code: PACE

SDG No.: JPL115

Matrix (soil/water): Water

Lab Sample ID: JPL115-001

Level (low/med): LOW

Date Received: 05/22/2008

% Solids: _____

Concentration Units : ug/L

CAS No.	Analyte	Concentration	C	Q	M	Run Seq.
7440-38-2	Arsenic	1.00	U		M	R028436
7440-70-2	Calcium	68300			P	R028884
7440-47-3	Chromium	51.6		E	M	R028436
7439-89-6	Iron	100	U		P	R028884
7439-92-1	Lead	1.00	U		M	R028436
7439-95-4	Magnesium	24600			P	R028884
7440-09-7	Potassium	5000	U		P	R029004
7440-23-5	Sodium	30000			P	R028884

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: No

Comment _____

Date Printed: 6/24/2008 12:12

INORGANIC ANALYSES DATA SHEET

SAMPLE NO.

MW-16

Lab Name: Pace Analytical Services

Contract: JPL Groundwater Monitorin

Lab Code: PACE

SDG No.: JPL115

Matrix (soil/water): Water

Lab Sample ID: JPL115-002

Level (low/med): LOW

Date Received: 05/22/2008

% Solids: _____

Concentration Units : ug/L

CAS No.	Analyte	Concentration	C	Q	M	Run Seq.
7440-38-2	Arsenic	2.47			M	R028436
7440-70-2	Calcium	57300			P	R028884
7440-47-3	Chromium	18.1		E	M	R028436
7439-89-6	Iron	100	U		P	R028884
7439-92-1	Lead	1.00	U		M	R028436
7439-95-4	Magnesium	23800			P	R028884
7440-09-7	Potassium	5000	U		P	R029004
7440-23-5	Sodium	34700			P	R028884

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: No

Comment _____

Date Printed: 6/24/2008 12:12

INORGANIC ANALYSES DATA SHEET

SAMPLE NO.

MW-8

Lab Name: Pace Analytical ServicesContract: JPL Groundwater MonitorinLab Code: PACESDG No.: JPL115Matrix (soil/water): WaterLab Sample ID: JPL115-003Level (low/med): LOWDate Received: 05/22/2008

% Solids: _____

Concentration Units : ug/L

CAS No.	Analyte	Concentration	C	Q	M	Run Seq.
7440-38-2	Arsenic	1.02			M	R028436
7440-70-2	Calcium	67700			P	R028884
7440-47-3	Chromium	8.77		E	M	R028436
7439-89-6	Iron	100	U		P	R028884
7439-92-1	Lead	1.80			M	R028436
7439-95-4	Magnesium	24100			P	R028884
7440-09-7	Potassium	5000	U		P	R029004
7440-23-5	Sodium	21600			P	R028884

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: NoComment _____

Date Printed: 6/24/2008 12:12

INORGANIC ANALYSES DATA SHEET

SAMPLE NO.

DUPE-6-2Q08

Lab Name: Pace Analytical Services

Contract: JPL Groundwater Monitorin

Lab Code: PACE

SDG No.: JPL115

Matrix (soil/water): Water

Lab Sample ID: JPL115-004

Level (low/med): LOW

Date Received: 05/22/2008

% Solids:

Concentration Units : ug/L

CAS No.	Analyte	Concentration	C	Q	M	Run Seq.
7440-38-2	Arsenic	2.35			M	R028436
7440-70-2	Calcium	56100			P	R028884
7440-47-3	Chromium	17.4		E	M	R028436
7439-89-6	Iron	100	U		P	R028884
7439-92-1	Lead	1.00	U		M	R028436
7439-95-4	Magnesium	24100			P	R028884
7440-09-7	Potassium	5000	U		P	R029004
7440-23-5	Sodium	33800			P	R028884

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts: No

Comment

Date Printed: 6/24/2008 12:12

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2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Pace Analytical Services, Inc. Contract: JPL Groundwater Monitorin

Lab Code: PACE SDG No.: JPL115 Run Sequence ID: R028884

Initial Calibration Source: ME-15-179-8

Continuing Calbration Source: ME-15-179-7

Concentration Units: mg/L

Analyte	Initial Calibration ICV				Continuing Calibrations						M
	Limits	True	Found	%R(1)	CCV1		CCV2				
					Limits	True	Found	%R(1)	Found	%R(1)	
Calcium	90-110	51	52.740	103.4	90-110	125.000	118.000	94.4	125.600	100.5	P
Iron	90-110	21	21.850	104.0	90-110	62.500	61.170	97.9	62.920	100.7	P
Magnesium	90-110	51	53.690	105.3	90-110	125.000	122.300	97.8	126.900	101.5	P
Potassium	90-110	35	43.520	124.3	90-110	125.000	125.400	100.3	125.900	100.7	P
Sodium	90-110	51	58.720	115.1	90-110	125.000	125.800	100.6	128.000	102.4	P

Date Printed: 6/21/2008 12:36

Form II (part 1) - IN

SW-846

SW-846

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Pace Analytical Services, Inc.

Contract: JPL Groundwater Monitorin

Lab Code: PACE SDG No.: JPL115

Run Sequence ID: R028884

Initial Calibration Source: _____

Continuing Calbration Source: ME-15-179-7

Concentration Units: mg/L

Analyte	Initial Calibration				Continuing Calibrations						M
	Limits	True	Found	%R(1)	CCV3			CCV4			
Calcium					90 - 110	125.000	117.200	93.8	119.500	95.6	P
Iron					90 - 110	62.500	59.500	95.2	60.560	96.9	P
Magnesium					90 - 110	125.000	120.500	96.4	123.700	99.0	P
Potassium					90 - 110	125.000	116.200	93.0	118.700	95.0	P
Sodium					90 - 110	125.000	119.300	95.4	121.100	96.9	P

SW-846

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Pace Analytical Services, Inc.

Contract: JPL Groundwater Monitorin

Lab Code: PACE SDG No.: JPL115

Run Sequence ID: R028884

Initial Calibration Source: _____

Continuing Calibration Source: ME-15-179-7

Concentration Units: mg/L

Analyte	Initial Calibration				Continuing Calibrations						M
	Limits	True	Found	%R(1)	CCV5			CCV6			
					Limits	True	Found	%R(1)	Found	%R(1)	
Calcium					90 - 110	125.000	119.800	95.8	117.700	94.2	P
Iron					90 - 110	62.500	60.770	97.2	57.970	92.8	P
Magnesium					90 - 110	125.000	123.100	98.5	118.100	94.5	P
Potassium					90 - 110	125.000	121.000	96.8	116.900	93.5	P
Sodium					90 - 110	125.000	120.500	96.4	121.600	97.3	P

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2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Pace Analytical Services, Inc. Contract: JPL Groundwater Monitorin

Lab Code: PACE SDG No.: JPL115 Run Sequence ID: R028884

Initial Calibration Source: _____

Continuing Calbration Source: ME-15-179-7

Concentration Units: mg/L

Analyte	Initial Calibration				Continuing Calibrations						M
	Limits	True	Found	%R(1)	CCV7			CCV8			
Calcium					90 - 110	125.000	119.300	95.4	118.500	94.8	P
Iron					90 - 110	62.500	58.600	93.8	59.310	94.9	P
Magnesium					90 - 110	125.000	123.400	98.7	125.500	100.4	P
Potassium					90 - 110	125.000	121.000	96.8	122.100	97.7	P
Sodium					90 - 110	125.000	121.500	97.2	120.400	96.3	P

SW-846

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Pace Analytical Services, Inc. Contract: JPL Groundwater Monitorin

Lab Code: PACE SDG No.: JPL115 Run Sequence ID: R029004

Initial Calibration Source: ME-15-179-8

Continuing Calbration Source: ME-15-179-7

Concentration Units: ~~etc/s~~ mg/L JAN 6/23/08

Analyte	Initial Calibration ICV				Continuing Calibrations					M	
	Limits	True	Found	%R(1)	Limits	True	Found	%R(1)	Found		%R(1)
Potassium	90-110	35	39.330	112.4	90 - 110	125.000	130.600	104.5	122.800	98.2	P

SW-846

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Pace Analytical Services, Inc.

Contract: JPL Groundwater Monitorin

Lab Code: PACE SDG No.: JPL115

Run Sequence ID: R029004

Initial Calibration Source: _____

Continuing Calbration Source: ME-15-179-7

Concentration Units: Gts/S mg/L JRA 6/23/08

Analyte	Initial Calibration				Continuing Calibrations						M
	Limits	True	Found	%R(1)	CCV3			CCV4			
					Limits	True	Found	%R(1)	Found	%R(1)	
Potassium					90 - 110	125.000	124.700	99.8	117.100	93.7	P

SW-846

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Pace Analytical Services, Inc.

Contract: JPL Groundwater Monitorin

Lab Code: PACE SDG No.: JPL115

Run Sequence ID: R029004

Initial Calibration Source: _____

Continuing Calbration Source: ME-15-179-7

Concentration Units: ~~cts/s~~ mg/L JRA 6/23/08

Analyte	Initial Calibration				Continuing Calibrations						M
	Limits	True	Found	%R(1)	CCV5		CCV6				
Potassium					90 - 110	125.000	124.700	99.8	124.800	99.8	P

SW-846

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Pace Analytical Services, Inc.

Contract: JPL Groundwater Monitorin

Lab Code: PACE SDG No.: JPL115

Run Sequence ID: R029004

Initial Calibration Source: _____

Continuing Calibration Source: ME-15-179-7

Concentration Units: *ets/s mg/L JRA 6/23/08*

Analyte	Initial Calibration				Continuing Calibrations CCV7					M	
	Limits	True	Found	%R(1)	Limits	True	Found	%R(1)	Found		%R(1)
Potassium					90 - 110	125.000	126.300	101.0			P

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2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Pace Analytical Services, Inc. Contract: JPL Groundwater Monitorin

Lab Code: PACE SDG No.: JPL115 Run Sequence ID: R028436

Initial Calibration Source: ME-15-170-8

Continuing Calbration Source: ME-15-173-17, ME-15-178-14

Concentration Units: ug/L

Analyte	Initial Calibration ICV				Continuing Calibrations						M
	Limits	True	Found	%R(1)	CCV1		CCV2				
	Limits	True	Found	%R(1)	Limits	True	Found	%R(1)	Found	%R(1)	
Arsenic	90-110	60	56.776	94.6	85 - 115	50.000	49.093	98.2	50.979	102.0	M
Chromium	90-110	60	60.311	100.5	85 - 115	50.000	48.849	97.7	52.575	105.2	M
Lead	90-110	60	62.448	104.1	85 - 115	50.000	51.352	102.7	52.224	104.4	M

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2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Pace Analytical Services, Inc.

Contract: JPL Groundwater Monitorin

Lab Code: PACE SDG No.: JPL115

Run Sequence ID: R028436

Initial Calibration Source: _____

Continuing Calbration Source: ME-15-173-17, ME-15-178-14

Concentration Units: ug/L

Analyte	Initial Calibration				Continuing Calibrations						M
	Limits	True	Found	%R(1)	CCV3			CCV4			
Arsenic					85 - 115	50.000	51.111	102.2	51.202	102.4	M
Chromium					85 - 115	50.000	50.635	101.3	49.160	98.3	M
Lead					85 - 115	50.000	51.453	102.9	53.178	106.4	M

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2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Pace Analytical Services, Inc.

Contract: JPL Groundwater Monitorin

Lab Code: PACE SDG No.: JPL115

Run Sequence ID: R028436

Initial Calibration Source: _____

Continuing Calbration Source: ME-15-173-17, ME-15-178-14

Concentration Units: ug/L

Analyte	Initial Calibration				Continuing Calibrations						M
	Limits	True	Found	%R(1)	CCV5		CCV6				
Arsenic					85 - 115	50.000	50.386	100.8	50.936	101.9	M
Chromium					85 - 115	50.000	49.359	98.7	51.619	103.2	M
Lead					85 - 115	50.000	54.354	108.7	51.175	102.4	M

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2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Pace Analytical Services, Inc.

Contract: JPL Groundwater Monitorin

Lab Code: PACE SDG No.: JPL115

Run Sequence ID: R028436

Initial Calibration Source: _____

Continuing Calbration Source: ME-15-173-17, ME-15-178-14

Concentration Units: ug/L

Analyte	Initial Calibration				Continuing Calibrations						M
	Limits	True	Found	%R(1)	CCV7			CCV8			
					Limits	True	Found	%R(1)	Found	%R(1)	
Arsenic					85 - 115	50.000	50.195	100.4	51.415	102.8	M
Chromium					85 - 115	50.000	48.604	97.2	51.781	103.6	M
Lead					85 - 115	50.000	52.553	105.1	51.855	103.7	M

Date Printed: 5/30/2008 7:58

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2B-IN

CRDL STANDARD FOR METALS

Lab Name: Pace Analytical Services Contract: JPL Groundwater Monitorin

Lab Code: PACE SDG No.: JPL115 Run Sequence ID: R028884

ICP CRDL Standard Source: ME-15-179-4

Concentration Units: mg/L

Analyte	CRDL Standard for ICP					
	Initial CRDL			Final		
	True	Found	%R	Found	%R	Limits
Calcium	0.5	0.54	107.6			
Iron	0.2	0.18	91.8			
Magnesium	0.5	0.52	104			
Potassium	0.5	-0.78	0			
Sodium	0.5	0.18	35.1			

Control Limits: no limits have been established by EPA at this time

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2B-IN

CRDL STANDARD FOR METALS

Lab Name: Pace Analytical Services Contract: JPL Groundwater Monitorin

Lab Code: PACE SDG No.: JPL115 Run Sequence ID: R029004

ICP CRDL Standard Source: ME-15-179-4

Concentration Units: ~~Cts/S~~ *mg/L JRA 6/23/08*

Analyte	CRDL Standard for ICP					
	Initial CRDL			Final		
	True	Found	%R	Found	%R	Limits
Potassium	0.5	2.38	476.4			

Control Limits: no limits have been established by EPA at this time

SW-846

2B-IN

CRDL STANDARD FOR METALS

Lab Name: Pace Analytical Services Contract: JPL Groundwater Monitorin

Lab Code: PACE SDG No.: JPL115 Run Sequence ID: R028436

ICP CRDL Standard Source: ME-15-173-18

Concentration Units: ug/L

Analyte	CRDL Standard for ICP					
	Initial CRI			Final		
	True	Found	%R	Found	%R	Limits
Arsenic	1	1.11	110.8			
Chromium	1	1.05	105			
Lead	1	1.04	103.8			

Control Limits: no limits have been established by EPA at this time

SW-846

3A

INITIAL AND CONTINUING CALIBRATION BLANKS

Lab Name: Pace Analytical Services, Inc.

Contract: JPL Groundwater Monitorin

Lab Code: PACE SDG No.: JPL115

Run Sequence ID: R028884

Concentration Units: mg/L

Analyte	Inital Calib. Blank		Continuing Calibration Blank					
	ICB		CCB1		CCB2		CCB3	
		C	1	C	2	C	3	C
Calcium	5.00	U	5.00	U	5.00	U	5.00	U
Iron	0.100	U	0.100	U	0.100	U	0.100	U
Magnesium	5.00	U	5.00	U	5.00	U	5.00	U
Potassium	5.00	U	5.00	U	5.00	U	5.00	U
Sodium	5.00	U	5.00	U	6.73		5.00	U

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3A

INITIAL AND CONTINUING CALIBRATION BLANKS

Lab Name: Pace Analytical Services, Inc.

Contract: JPL Groundwater Monitorin

Lab Code: PACE SDG No.: JPL115

Run Sequence ID: R028884

Concentration Units: mg/L

Analyte	Initial Calib. Blank		Continuing Calibration					
			CCB4		CCB5		CCB6	
			1	C	2	C	3	C
Calcium			5.00	U	5.00	U	5.00	U
Iron			0.100	U	0.100	U	0.100	U
Magnesium			5.00	U	5.00	U	5.00	U
Potassium			5.00	U	5.00	U	5.00	U
Sodium			5.00	U	5.00	U	5.00	U

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3A

INITIAL AND CONTINUING CALIBRATION BLANKS

Lab Name: Pace Analytical Services, Inc.

Contract: JPL Groundwater Monitorin

Lab Code: PACE SDG No.: JPL115

Run Sequence ID: R028884

Concentration Units: mg/L

Analyte	Inital Calib. Blank		Continuing Calibration Blank					
			CCB7		CCB8			
		C	1	C	2	C	3	C
Calcium			5.00	U	5.00	U		
Iron			0.100	U	0.100	U		
Magnesium			5.00	U	5.00	U		
Potassium			5.00	U	5.00	U		
Sodium			5.00	U	5.00	U		

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3A

INITIAL AND CONTINUING CALIBRATION BLANKS

Lab Name: Pace Analytical Services, Inc.

Contract: JPL Groundwater Monitorin

Lab Code: PACE SDG No.: JPL115

Run Sequence ID: R029004

Concentration Units: ~~cts/s~~ mg/L JEA 6/23/08

Analyte	Initial Calib.		Continuing Calibration					
	Blank		Blank					
	ICB		CCB1		CCB2		CCB3	
		C	1	C	2	C	3	C
Potassium	5.00	U	5.00	U	5.00	U	5.00	U

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3A

INITIAL AND CONTINUING CALIBRATION BLANKS

Lab Name: Pace Analytical Services, Inc.

Contract: JPL Groundwater Monitorin

Lab Code: PACE SDG No.: JPL115

Run Sequence ID: R029004

Concentration Units: ~~cts/s~~ mg/l JRA 6/2-3/08

Analyte	Inital Calib. Blank	Continuing Calibration					
		CCB4		CCB5		CCB6	
		1	C	2	C	3	C
Potassium		5.00	U	5.00	U	5.00	U

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3A

INITIAL AND CONTINUING CALIBRATION BLANKS

Lab Name: Pace Analytical Services, Inc.

Contract: JPL Groundwater Monitorin

Lab Code: PACE SDG No.: JPL115

Run Sequence ID: R029004

Concentration Units: cts/s mg/L JRA 6/23/08

Analyte	Initial Calib. Blank	Continuing Calibration Blank					
		CCB7					
		1	C	2	C	3	C
Potassium		5.00	U				

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3A

INITIAL AND CONTINUING CALIBRATION BLANKS

Lab Name: Pace Analytical Services, Inc.

Contract: JPL Groundwater Monitorin

Lab Code: PACE SDG No.: JPL115

Run Sequence ID: R028436

Concentration Units: ug/L

Analyte	Initial Calib. Blank		Continuing Calibration Blank					
	ICB		CCB1		CCB2		CCB3	
		C	1	C	2	C	3	C
Arsenic	1.00	U	1.00	U	1.00	U	1.00	U
Chromium	1.00	U	1.00	U	1.00	U	1.00	U
Lead	1.00	U	1.00	U	1.00	U	1.00	U

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3A

INITIAL AND CONTINUING CALIBRATION BLANKS

Lab Name: Pace Analytical Services, Inc.

Contract: JPL Groundwater Monitorin

Lab Code: PACE SDG No.: JPL115

Run Sequence ID: R028436

Concentration Units: ug/L

Analyte	Initial Calib. Blank		Continuing Calibration Blank					
			CCB4		CCB5		CCB6	
		C	1	C	2	C	3	C
Arsenic			1.00	U	1.00	U	1.00	U
Chromium			1.00	U	1.00	U	1.00	U
Lead			1.00	U	1.00	U	1.00	U

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3A

INITIAL AND CONTINUING CALIBRATION BLANKS

Lab Name: Pace Analytical Services, Inc.

Contract: JPL Groundwater Monitorin

Lab Code: PACE SDG No.: JPL115

Run Sequence ID: R028436

Concentration Units: ug/L

Analyte	Initial Calib. Blank		Continuing Calibration Blank					
			CCB7		CCB8		3	
			1	C	2	C		C
Arsenic			1.00	U	1.00	U		
Chromium			1.00	U	1.00	U		
Lead			1.00	U	1.00	U		

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3B
BLANKS

Lab Name: Pace Analytical Services, Inc.

Contract: JPL Groundwater Monitoring

Lab Code: PACE SDG No.: JPL115

Run Sequence ID: R028436

Lab Sample ID: B052808ICPMSW11

Prep Batch ID: P029659

Matrix (soil/water): Water

Date Prepared: 05/28/2008

Concentration Units: ug/L

Analyte	Preparation Blank			M
	Limits		C	
Arsenic	0.5	1.00	U	M
Chromium	0.5	1.00	U	M
Lead	0.5	1.00	U	M

ICP INTERFERENCE CHECK SAMPLE

Lab Name: Pace Analytical Services, Inc. Contract: JPL Groundwater MonitorinLab Code: PACE SDG No.: JPLi15 Run Sequence ID: R028884ICS Source: ME-15-179-5ICP ID Number: ICP (TJA ICAP 6500) Concentration Units: mg/L

Analyte	True		Initial Found			Final Found			Limits
	Sol. A	Sol. AB	Sol. A	Sol. AB	%R	Sol. A	Sol. AB	%R	
Calcium	500	500	498	478	95.7				
Iron	200	200	196	190	95				
Magnesium	500	500	490	475	95				
Potassium	0	200	-1.03	198	99				
Sodium	0		-0.550	-0.684					

Interference Check Sample Recover Limits: 80 - 120

Date Printed: 6/21/2008 12:36

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ICP INTERFERENCE CHECK SAMPLE

Lab Name: Pace Analytical Services, Inc. Contract: JPL Groundwater Monitorin

Lab Code: PACE SDG No.: JPL115 Run Sequence ID: R029004

ICS Source: ME-15-179-5

ICP ID Number: ICP (TJA ICAP 6500) Concentration Units: ~~cts/s~~ mg/L
JRA6/23/08

Analyte	True		Initial Found			Final Found			Limits
	Sol. A	Sol. AB	Sol. A	Sol. AB	%R	Sol. A	Sol. AB	%R	
Potassium	0	200	1.42	207	103.5				

Interference Check Sample Recover Limits: 80 - 120

ICP INTERFERENCE CHECK SAMPLE

Lab Name: Pace Analytical Services, Inc. Contract: JPL Groundwater MonitorinLab Code: PACE SDG No.: JPL115 Run Sequence ID: R028436ICS Source: ME-15-153-19, ME-15-173-17, ME-15-178-14ICP ID Number: ICPMS (PE ELAN 6100) Concentration Units: ug/L

Analyte	True		Initial Found			Final Found			Limits
	Sol. A	Sol. AB	Sol. A	Sol. AB	%R	Sol. A	Sol. AB	%R	
Arsenic	0	20.0	0.268	20.7	103.7				
Chromium	0	20.0	0.352	21.0	104.8				
Lead	0	20.0	0.0275	21.8	109.1				

Interference Check Sample Recover Limits: 80 - 120

Date Printed: 6/10/2008 11:42

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5C

SAMPLE NO.

DUPLICATE SPIKE SAMPLE RECOVERY

MW-13MSD

Lab Name: Pace Analytical Services, Inc.

Contract: JPL Groundwater Monitorin

Lab Code: PACE SDG No.: JPL115

Run Sequence ID: R028884

Spike Lab Sample ID: JPL115-001MS

Prep Batch ID: P029935

Spike Duplicate ID: JPL115-001MSD Level (low/med): LOW

Matrix (soil/water): Water % Solids for Spike Duplicate Sample: _____

% Solids for Spike Sample: _____ Concentration Units: ug/L

Analyte	Limits		Parent Result	C	Spiked Sample					Duplicate Spiked Sample					RPD	Q		
	REC	RPD			Results	C	Added	%R	Q	M	Results	C	Added	%R			Q	M
Calcium	70 - 130	20	68320.0000		110600.0000		50000.0	84.6		P	112800.0000		50000.0	89.0		P	2.0	
Iron	70 - 130	20	100.0000	U	966.1000		1000.0	94.1		P	1006.0000		1000.0	98.1		P	4.0	
Magnesium	70 - 130	20	24560.0000		70780.0000		50000.0	92.4		P	71930.0000		50000.0	94.7		P	1.6	
Sodium	70 - 130	20	29990.0000		77150.0000		50000.0	94.3		P	79950.0000		50000.0	99.9		P	3.6	

Comments: _____

SW-846

5C

SAMPLE NO.

DUPLICATE SPIKE SAMPLE RECOVERY

MW-13MSD

Lab Name: Pace Analytical Services, Inc.

Contract: JPL Groundwater Monitorin

Lab Code: PACE SDG No.: JPL115

Run Sequence ID: R029004

Spike Lab Sample ID: JPL115-001MS

Prep Batch ID: P029935

Spike Duplicate ID: JPL115-001MSD Level (low/med): LOW

Matrix (soil/water): Water % Solids for Spike Duplicate Sample: _____

% Solids for Spike Sample: _____ Concentration Units: ug/L

Analyte	Limits		Parent Result	C	Spiked Sample					Duplicate Spiked Sample					RPD	Q				
	REC	RPD			Results	C	Added	%R	Q	M	Results	C	Added	%R			Q	M		
Potassium	70 - 130	20	5000.0000	U	55280.0000		50000.0	106.0			P	51890.0000		50000.0	99.2			P	6.3	

Comments: _____

SW-846

5C

SAMPLE NO.

DUPLICATE SPIKE SAMPLE RECOVERY

MW-8MSD

Lab Name: Pace Analytical Services, Inc.

Contract: JPL Groundwater Monitorin

Lab Code: PACE SDG No.: JPL115

Run Sequence ID: R028436

Spike Lab Sample ID: JPL115-003MS

Prep Batch ID: P029659

Spike Duplicate ID: JPL115-003MSD Level (low/med): LOW

Matrix (soil/water): Water % Solids for Spike Duplicate Sample: _____

% Solids for Spike Sample: _____ Concentration Units: ug/L

Analyte	Limits		Parent Result	C	Spiked Sample					Duplicate Spiked Sample					RPD	Q			
	REC	RPD			Results	C	Added	%R	Q	M	Results	C	Added	%R			Q	M	
Arsenic	70 - 130	20	1.0224		62.3278		50.0	122.6			M	60.6268		50.0	119.2		M	2.8	
Chromium	70 - 130	20	8.7673		57.2291		50.0	96.9			M	57.8761		50.0	98.2		M	1.1	
Lead	70 - 130	20	1.7977		54.7159		50.0	105.8			M	56.2512		50.0	108.9		M	2.8	

Comments: _____

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7C

SAMPLE NO.

DUPLICATE LABORATORY CONTROL SAMPLE

S060608ICPW11D

Lab Name: Pace Analytical Services, Inc.

Contract: JPL Groundwater Monitorin

Lab Code: PACE SDG No.: JPL115

Run Sequence(s): R028884

LCS Lab Sample ID: S060608ICPW11

Prep Batch ID: P029935

Duplicate LCS ID: S060608ICPW11D

Level (low/med): LOW

% Solids for LCS: 100 % Solids for Duplicate LCS: 100

Matrix (soil/water): Water

Concentration Units: ug/L

Analyte	Control Limits		LCS						Duplicate LCS						
	%R	RPD	Results	C	Added	%R	Q	M	Results	C	Added	%R	Q	M	RPD
Calcium	85 - 115	20	46750		50000	94		P	49470		5000	99		P	6%
Iron	85 - 115	20	937.8		1000	94		P	980.7		1000	98		P	5%
Magnesium	85 - 115	20	49040		50000	98		P	50930		5000	102		P	4%
Potassium	85 - 115	20	44240		50000	88		P	46620		5000	93		P	5%
Sodium	85 - 115	20	48740		50000	97		P	50650		5000	101		P	4%

Comments: _____

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7C

SAMPLE NO.

DUPLICATE LABORATORY CONTROL SAMPLE

S052808ICPMSW11D

Lab Name: Pace Analytical Services, Inc.

Contract: JPL Groundwater Monitorin

Lab Code: PACE SDG No.: JPL115

Run Sequence(s): R028436

LCS Lab Sample ID: S052808ICPMSW11

Prep Batch ID: P029659

Duplicate LCS ID: S052808ICPMSW11D

Level (low/med): LOW

% Solids for LCS: 100

% Solids for Duplicate LCS: 100

Matrix (soil/water): Water

Concentration Units: ug/L

Analyte	Control Limits		LCS						Duplicate LCS						
	%R	RPD	Results	C	Added	%R	Q	M	Results	C	Added	%R	Q	M	RPD
Arsenic	85 - 115	20	51.4198		50.0	103		M	48.8505		50.0	98		M	5%
Chromium	85 - 115	20	51.421		50.0	103		M	48.649		50.0	97		M	6%
Lead	85 - 115	20	53.4003		50.0	107		M	50.7806		50.0	102		M	5%

Comments: _____

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9

SAMPLE NO.

ICP SERIAL DILUTIONS

MW-13L

Lab Name: Pace Analytical Services, Inc.Contract: JPL Groundwater MonitoringLab Code: PACE SDG No.: JPL115Run Sequence ID: R028884Matrix (soil/water): WaterLevel (low/med): LOWLab Sample ID: JPL115-001L

Analyte	Actual Results (mg/L)			Final Results (ug/L)				%D	Q	M
	Initial Sample(i)	Dilution Sample(S)	IDL	Initial Sample(i) C	Dilution Sample(S) C					
Calcium	68.3200	65.4500	0.0443	68300		65500		4.2		P
Iron	0.0249	0.0005	0.0420	100	U	500	U	98.0		P
Magnesium	24.5600	23.4700	0.0327	24600		25000	U	4.4		P
Sodium	29.9900	26.8300	0.0527	30000		26800		10.5		P

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9

SAMPLE NO.

ICP SERIAL DILUTIONS

MW-13L

Lab Name: Pace Analytical Services, Inc. Contract: JPL Groundwater Monitoring

Lab Code: PACE SDG No.: JPL115 Run Sequence ID: R029004

Matrix (soil/water): Water Level (low/med): LOW

Lab Sample ID: JPL115-001L

mg/L JRA 6/23/08

Analyte	Actual Results (Ccs/S)			Final Results (ug/L)				%D	Q	M
	Initial Sample (i)	Dilution Sample (S)	IDL	Initial Sample (i) C	Dilution Sample (S) C					
Potassium	2.2740	4.0550	0.0920	5000 U	25000 U		78.3		P	

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9

SAMPLE NO.

ICP SERIAL DILUTIONS

MW-8L

Lab Name: Pace Analytical Services, Inc.

Contract: JPL Groundwater Monitoring

Lab Code: PACE SDG No.: JPL115

Run Sequence ID: R028436

Matrix (soil/water): Water

Level (low/med): LOW

Lab Sample ID: JPL115-003L

Analyte	Actual Results (ug/L)			Final Results (ug/L)			%D	Q	M
	Initial Sample(i)	Dilution Sample(S)	IDL	Initial Sample(i) C	Dilution Sample(S) C				
Arsenic	1.0224	1.0362	0.0594	1.02	5.00	U	1.4		M
Chromium	8.7673	11.2359	0.0665	8.77	11.2		28.2	E	M
Lead	1.7977	1.9354	0.0111	1.80	5.00	U	7.7		M

INSTRUMENT DETECTION LIMITS (QUARTERLY)

Lab Name: Pace Analytical Services, Inc.Contract: JPL Groundwater MonitoringLab Code: PACESDG No.: JPL115Instrument ID: ICP (TJA ICAP 6500)Date: 07/24/2007

Analyte	Wavelength	A	B	C	D	M
		PQL (ug/L)	PQL (mg/L)	PQL (ug/L)	PQL (mg/L)	
Calcium	422.6	5000	5	5000	5	P
Iron	218.7	100	0.1	100	0.1	P
Magnesium	279	5000	5	5000	5	P
Potassium	766.4	5000	5	5000	5	P
Sodium	818.3	5000	5	5000	5	P

A = Upper Estimated (J Flag) Range in Determination Units

B = Upper Estimated (J Flag) Range in Actual Units

C = Lower Estimated (J Flag) Range in Determination Units

D = Lower Estimated (J Flag) Range in Actual Units

INSTRUMENT DETECTION LIMITS (QUARTERLY)

Lab Name: Pace Analytical Services, Inc.Contract: JPL Groundwater MonitoringLab Code: PACESDG No.: JPL115Instrument ID: ICPMS (PE ELAN 6100)Date: 10/01/2007

Analyte	Isotope	A	B	C	D	M
		PQL (ug/L)	PQL (ug/L)	PQL (ug/L)	PQL (ug/L)	
Arsenic	75	1	1	1	1	M
Chromium	52	1	1	1	1	M
Lead	208	1	1	1	1	M

A = Upper Estimated (J Flag) Range in Determination Units

B = Upper Estimated (J Flag) Range in Actual Units

C = Lower Estimated (J Flag) Range in Determination Units

D = Lower Estimated (J Flag) Range in Actual Units

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Element, Wavelength and Order	Use?	# IECs	IEC	k1	k2	Calc-in-fit?
Ag 328.068 (103)	<input checked="" type="checkbox"/>	9	Fe	-0.000010	0.000000	No
			Be	-0.000590	0.000000	No
			Co	0.000454	0.000000	No
			V	-0.000827	0.000000	No
			Na	0.000005	0.000000	No
			As	-0.001118	0.000000	No
			Ba	-0.001053	0.000000	No
			Sn	-0.000896	0.000000	No
			Sr	-0.001123	0.000000	No
Al 220.462 (453)	<input checked="" type="checkbox"/>	2	Co	-0.213348	0.000000	No
Al 226.910 (449)	<input checked="" type="checkbox"/>	4	Mo	-0.266777	0.000000	No
			Fe	-0.004370	0.000000	No
Al 308.215 (109)	<input checked="" type="checkbox"/>	1	Mo	-0.034094	0.000000	No
			Sn	-0.061914	0.000000	No
			Ti	1.652597	0.000000	No
As 189.042 (478)	<input checked="" type="checkbox"/>	1	Mg	0.025821	0.000000	No
As 200.334 (468)	<input checked="" type="checkbox"/>	3	Fe	-0.000103	0.000000	No
			Mn	0.004170	0.000000	No
			Mo	-0.002586	0.000000	No
B 208.959 (461)	<input checked="" type="checkbox"/>	24	Fe	-0.000028	0.000000	No
			Al	-0.000035	0.000000	No
			K	-0.000008	0.000000	No
			Mg	-0.000009	0.000000	No
			Na	-0.000011	0.000000	No
			Ag	-0.021029	0.000000	No
			As	-0.001467	0.000000	No
			Be	-0.000529	0.000000	No
			Cd	-0.001056	0.000000	No
			Co	-0.001354	0.000000	No
			Cr	-0.001279	0.000000	No
			Cu	-0.001362	0.000000	No
			Lj	-0.001421	0.000000	No
			Mn	-0.001295	0.000000	No
			Mo	0.030798	0.000000	No
			Ni	-0.001628	0.000000	No
			Pb	-0.001506	0.000000	No
			Sb	-0.001444	0.000000	No
			Se	-0.001404	0.000000	No
			Sr	-0.001481	0.000000	No
			Ti	-0.001592	0.000000	No
			Tl	-0.001524	0.000000	No
			V	-0.001578	0.000000	No
			Zn	-0.001466	0.000000	No
B 249.678 (135)	<input checked="" type="checkbox"/>	23	Fe	-0.000124	0.000000	No
			Al	-0.000028	0.000000	No
			K	-0.000011	0.000000	No
			Mg	-0.000008	0.000000	No
			Na	-0.000011	0.000000	No
			Ag	-0.029388	0.000000	No
			As	-0.001607	0.000000	No
			Ba	0.000824	0.000000	No
			Cd	-0.001014	0.000000	No
			Cr	-0.001281	0.000000	No
			Cu	-0.001089	0.000000	No
			Li	-0.001632	0.000000	No
			Mn	-0.001764	0.000000	No
			Mo	-0.000000	0.000000	No
			Ni	-0.001064	0.000000	No
Pb	-0.001610	0.000000	No			

Element, Wavelength and Order	Use?	# IECs	IEC	k1	k2	Calc-in-fit?
			Sb	-0.001742	0.000000	No
			Se	-0.001525	0.000000	No
			Sr	-0.000909	0.000000	No
			Ti	-0.001470	0.000000	No
			Ti	-0.001138	0.000000	No
			V	-0.002027	0.000000	No
			Zn	-0.001667	0.000000	No
Ba 233.527 {445}	<input checked="" type="checkbox"/>	None				
Ba 455.403 {74}	<input checked="" type="checkbox"/>	None				
Be 234.861 {144}	<input checked="" type="checkbox"/>	1	Fe	-0.000047	0.000000	No
Be 313.042 {108}	<input checked="" type="checkbox"/>	1	Ti	-0.000576	0.000000	No
Be 313.107 {108}	<input checked="" type="checkbox"/>	1	Ti	-0.000568	0.000000	No
Ca 317.933 {106}	<input checked="" type="checkbox"/>	None				
Ca 370.603 {91}	<input checked="" type="checkbox"/>	2	Fe	-0.000986	0.000000	No
			Ti	0.163317	0.000000	No
Ca 422.673 {80}	<input checked="" type="checkbox"/>	None				
Cd 214.438 {457}	<input checked="" type="checkbox"/>	1	Fe	0.000002	0.000000	No
Cd 226.502 {449}	<input checked="" type="checkbox"/>	1	Fe	0.000055	0.000000	No
Co 195.742 {472}	<input checked="" type="checkbox"/>	1	Fe	-0.000149	0.000000	No
Co 228.616 {447}	<input checked="" type="checkbox"/>	None				
Co 238.892 {141}	<input checked="" type="checkbox"/>	1	Fe	0.000304	0.000000	No
Cr 205.552 {464}	<input type="checkbox"/>	1	Be	-0.001129	0.000000	No
Cr 206.149 {463}	<input checked="" type="checkbox"/>	1	Zn	-0.004279	0.000000	No
Cr 206.542 {463}	<input checked="" type="checkbox"/>	4	Co	0.171228	0.000000	No
			Mo	-0.001380	0.000000	No
			V	-0.018948	0.000000	No
			Zn	-0.002307	0.000000	No
Cr 266.602 {126}	<input checked="" type="checkbox"/>	8	Ca	-0.000014	0.000000	No
			K	-0.000023	0.000000	No
			B	-0.001828	0.000000	No
			Ba	-0.001130	0.000000	No
			Sb	-0.001172	0.000000	No
			Se	-0.001035	0.000000	No
			Sn	-0.001238	0.000000	No
			Zn	-0.002017	0.000000	No
Cr 267.716 {126}	<input checked="" type="checkbox"/>	None				
Cr 276.654 {122}	<input checked="" type="checkbox"/>	2	Co	-0.001110	0.000000	No
			V	0.018209	0.000000	No
Cr 283.563 {119}	<input checked="" type="checkbox"/>	3	Fe	0.000440	0.000000	No
			Mg	-0.000013	0.000000	No
			Mo	-0.002981	0.000000	No
Cr 298.919 {113}	<input checked="" type="checkbox"/>	25	Al	0.000268	0.000000	No
			Ca	-0.000019	0.000000	No
			Fe	0.000112	0.000000	No
			Mg	-0.000088	0.000000	No
			Na	-0.000160	0.000000	No
			Ag	0.020789	0.000000	No
			As	-0.010989	0.000000	No
			B	-0.001912	0.000000	No
			Ba	0.004772	0.000000	No
			Be	-0.008924	0.000000	No
			Cd	-0.002093	0.000000	No
			Co	-0.008063	0.000000	No
			Cu	0.006317	0.000000	No
			Li	0.011705	0.000000	No
			Mn	-0.011156	0.000000	No
			Mo	0.009340	0.000000	No
			Ni	0.029588	0.000000	No
			Sb	0.008289	0.000000	No
			Se	0.015593	0.000000	No

Element, Wavelength and Order	Use?	# IECs	IEC	k1	k2	Calc-in-fit?
			Sn	-0.008557	0.000000	No
			Sr	0.003906	0.000000	No
			Ti	0.013261	0.000000	No
			Tl	0.023524	0.000000	No
			V	-0.041314	0.000000	No
			Zn	0.004920	0.000000	No
Cr 318.070 {106}	<input checked="" type="checkbox"/>	27	Fe	-0.000259	0.000000	No
			Ca	-0.000325	0.000000	No
			K	-0.000051	0.000000	No
			Mg	0.000059	0.000000	No
			Na	-0.000037	0.000000	No
			Ag	-0.012264	0.000000	No
			As	-0.004510	0.000000	No
			B	0.006334	0.000000	No
			Ba	0.001384	0.000000	No
			Be	-0.000677	0.000000	No
			Cd	-0.001531	0.000000	No
			Co	-0.002693	0.000000	No
			Cu	-0.004708	0.000000	No
			Li	0.003715	0.000000	No
			Mn	-0.002274	0.000000	No
			Mo	-0.001739	0.000000	No
			Ni	-0.002675	0.000000	No
			Sb	-0.007758	0.000000	No
			Se	-0.002450	0.000000	No
			Sn	-0.002943	0.000000	No
			Sr	-0.007620	0.000000	No
			Tl	-0.003110	0.000000	No
			Tl	-0.004954	0.000000	No
			V	0.000418	0.000000	No
			Zn	-0.001495	0.000000	No
			Al	-0.000153	0.000000	No
			Pb	-0.003918	0.000000	No
Cr 359.349 {94}	<input checked="" type="checkbox"/>	21	Al	0.000064	0.000000	No
			Ca	0.000011	0.000000	No
			Fe	0.000245	0.000000	No
			K	0.000016	0.000000	No
			Mg	0.000054	0.000000	No
			As	0.001474	0.000000	No
			Ba	0.002019	0.000000	No
			Cd	0.003115	0.000000	No
			Cu	0.001628	0.000000	No
			Li	0.003671	0.000000	No
			Mo	0.002250	0.000000	No
			Ni	0.004412	0.000000	No
			Pb	0.002036	0.000000	No
			Se	-0.001629	0.000000	No
			Sn	0.004236	0.000000	No
			Sr	0.004304	0.000000	No
			Ti	-0.004447	0.000000	No
			Tl	0.002355	0.000000	No
			V	0.122603	0.000000	No
			Zn	-0.001589	0.000000	No
			Na	0.000035	0.000000	No
Cr 360.533 {93}	<input checked="" type="checkbox"/>	23	Ca	0.000064	0.000000	No
			Fe	0.005877	0.000000	No
			K	-0.000037	0.000000	No
			Mg	-0.000080	0.000000	No
			Na	-0.000035	0.000000	No
			Ag	-0.074309	0.000000	No

Element, Wavelength and Order	Use?	# IECs	IEC	k1	k2	Calc-in-fit?
			As	-0.008299	0.000000	No
			B	-0.006369	0.000000	No
			Ba	-0.002837	0.000000	No
			Be	-0.002399	0.000000	No
			Cd	-0.002073	0.000000	No
			Co	0.002375	0.000000	No
			Cu	-0.004612	0.000000	No
			Mn	-0.007417	0.000000	No
			Mo	-0.008851	0.000000	No
			Pb	0.003820	0.000000	No
			Sb	-0.002658	0.000000	No
			Se	-0.005873	0.000000	No
			Sn	-0.001630	0.000000	No
			Sr	-0.007360	0.000000	No
			Ti	-0.006010	0.000000	No
			Tl	-0.008093	0.000000	No
			V	-0.010941	0.000000	No
Cu 217.894 (455)	<input checked="" type="checkbox"/>	2	Fe	0.000037	0.000000	No
			Sb	-0.004156	0.000000	No
Cu 324.754 (104)	<input checked="" type="checkbox"/>	3	Fe	-0.000300	0.000000	No
			Co	-0.001869	0.000000	No
			Ti	-0.001747	0.000000	No
Fe 218.719 (454)	<input checked="" type="checkbox"/>	17	Na	-0.000163	0.000000	No
			Cd	-0.005241	0.000000	No
			Co	-0.160097	0.000000	No
			Mo	-0.005104	0.000000	No
			Ni	0.080842	0.000000	No
			Zn	-0.008783	0.000000	No
			Al	-0.000260	0.000000	No
			Ca	-0.000155	0.000000	No
			Ag	-0.017498	0.000000	No
			B	-0.007057	0.000000	No
			Cr	-0.006075	0.000000	No
			Sb	-0.018661	0.000000	No
			Se	-0.008695	0.000000	No
			Sn	-0.006692	0.000000	No
			Tl	-0.014486	0.000000	No
			Ti	-0.009596	0.000000	No
			V	-0.033041	0.000000	No
Fe 233.280 (445)	<input checked="" type="checkbox"/>	1	Be	-0.027643	0.000000	No
Fe 234.349 (144)	<input checked="" type="checkbox"/>	1	Ni	0.008402	0.000000	No
in 230.606 (446)	<input checked="" type="checkbox"/>	None				
K 766.490 (44)	<input checked="" type="checkbox"/>	3	Al	0.001734	0.000000	No
			Fe	-0.001696	0.000000	No
			Mg	0.001178	0.000000	No
K 769.896 (44)	<input checked="" type="checkbox"/>	3	Na	0.000922	0.000000	No
			Mn	-0.050381	0.000000	No
			Zn	-0.057859	0.000000	No
Li 670.784 (50)	<input checked="" type="checkbox"/>	1	Ca	0.000032	0.000000	No
Mg 202.582 (466)	<input checked="" type="checkbox"/>	5	Co	0.060692	0.000000	No
			Cr	-0.108843	0.000000	No
			Mo	0.022925	0.000000	No
			Zn	-0.053630	0.000000	No
			Na	-0.000418	0.000000	No
Mg 279.079 (121)	<input checked="" type="checkbox"/>	1	Fe	-0.000703	0.000000	No
Mg 279.806 (120)	<input checked="" type="checkbox"/>	3	Mn	-0.258807	0.000000	No
			Fe	0.000520	0.000000	No
			V	-0.010467	0.000000	No
Mn 257.610 (131)	<input checked="" type="checkbox"/>	1	Mg	0.000013	0.000000	No
Mn 293.930 (115)	<input checked="" type="checkbox"/>	5	Mg	0.000017	0.000000	No

Element, Wavelength and Order	Use?	# IECs	IEC	k1	k2	Calc-in-fit?
			Na	-0.000005	0.000000	No
			Ag	0.000795	0.000000	No
			Mo	0.000000	0.000000	No
			Pb	-0.000542	0.000000	No
Mo 202.030 (467)	<input checked="" type="checkbox"/>	1	Ni	0.000689	0.000000	No
Na 588.995 (57)	<input checked="" type="checkbox"/>	None				
Na 589.592 (57)	<input checked="" type="checkbox"/>	None				
Na 818.326 (41)	<input checked="" type="checkbox"/>	15	Fe	0.002271	0.000000	No
			Ca	0.001097	0.000000	No
			K	0.001087	0.000000	No
			Ag	0.383400	0.000000	No
			As	0.135407	0.000000	No
			B	0.119930	0.000000	No
			Ba	0.154638	0.000000	No
			Be	0.123403	0.000000	No
			Cd	0.119983	0.000000	No
			Co	0.103825	0.000000	No
			Cr	0.146188	0.000000	No
			Cu	0.148349	0.000000	No
			Mo	0.109734	0.000000	No
			Ni	0.193037	0.000000	No
			Pb	0.110809	0.000000	No
Ni 231.604 (446)	<input checked="" type="checkbox"/>	1	Fe	0.000021	0.000000	No
Pb 168.215 (500)	<input checked="" type="checkbox"/>	2	Fe	0.000032	0.000000	No
			Zn	0.001129	0.000000	No
Pb 182.205 (485)	<input checked="" type="checkbox"/>	2	Fe	-0.000554	0.000000	No
			Mn	-0.001300	0.000000	No
Pb 220.353 (453)	<input checked="" type="checkbox"/>	4	Fe	-0.000003	0.000000	No
			Al	-0.000073	0.000000	No
			Cu	0.001448	0.000000	No
			Mo	-0.001398	0.000000	No
Sb 206.833 (463)	<input checked="" type="checkbox"/>	6	Fe	0.000022	0.000000	No
			Cr	0.012829	0.000000	No
			Sn	-0.010473	0.000000	No
			V	-0.002666	0.000000	No
			Zn	0.000504	0.000000	No
			Ca	-0.000004	0.000000	No
Sb 217.581 (455)	<input checked="" type="checkbox"/>	6	Fe	-0.000132	0.000000	No
			Al	-0.000027	0.000000	No
			Be	-0.000769	0.000000	No
			Ni	-0.000562	0.000000	No
			Pb	-0.000705	0.000000	No
			V	0.002054	0.000000	No
Sc 361.384 (93)	<input checked="" type="checkbox"/>	None				
Sc 424.683 (79)	<input checked="" type="checkbox"/>	None				
Se 196.090 (472)	<input checked="" type="checkbox"/>	1	Fe	-0.000106	0.000000	No
Sn 189.989 (477)	<input checked="" type="checkbox"/>	None				
Sr 216.596 (456)	<input checked="" type="checkbox"/>	4	Fe	0.000021	0.000000	No
			Ca	0.000022	0.000000	No
			Ni	-0.001737	0.000000	No
			Mo	-0.001284	0.000000	No
Sr 407.771 (83)	<input checked="" type="checkbox"/>	1	Ca	0.000021	0.000000	No
Sr 421.552 (80)	<input checked="" type="checkbox"/>	1	Ca	0.000022	0.000000	No
Ti 334.941 (101)	<input checked="" type="checkbox"/>	1	Ca	0.000015	0.000000	No
Ti 190.856 (476)	<input checked="" type="checkbox"/>	2	Fe	0.000007	0.000000	No
			Co	0.003071	0.000000	No
Ti 190.856 (477)	<input checked="" type="checkbox"/>	9	Fe	0.000129	0.000000	No
			Al	0.000411	0.000000	No
			Ca	0.000049	0.000000	No
			Mg	0.000041	0.000000	No

Element, Wavelength and Order	Use?	# IECs	IEC	k1	k2	Calc-in-fit?
			Ag	-0.010882	0.000000	No
			As	-0.002903	0.000000	No
			Cr	-0.002992	0.000000	No
			Pb	-0.001807	0.000000	No
			Ti	0.002210	0.000000	No
V 290.882 {116}	<input type="checkbox"/>	2	Fe	0.000286	0.000000	No
			Mo	-0.002794	0.000000	No
V 292.402 {115}	<input checked="" type="checkbox"/>	3	Cr	-0.003275	0.000000	No
			Mo	-0.000000	0.000000	No
			Fe	0.000002	0.000000	No
Y 224.306 {450}*	<input checked="" type="checkbox"/>	None				
Y 242.220 {139}	<input checked="" type="checkbox"/>	None				
Y 360.073 { 94}*	<input checked="" type="checkbox"/>	None				
Zn 206.200 {463}	<input checked="" type="checkbox"/>	None				
Zn 213.856 {458}	<input checked="" type="checkbox"/>	2	Fe	0.000103	0.000000	No
			Ni	0.007384	0.000000	No

ICP LINEAR RANGES (QUARTERLY)

Lab Name: Pace Analytical Services, Inc.Contract: JPL Groundwater MonitoringLab Code: PACESDG No.: JPL115ICP ID Number: ICP (TJA ICAP 6500)Date: 12/07/2007

Analyte	Integ. Time (Sec.)	Concentration (mg/L)	M
Calcium		500.0	P
Iron		250.0	P
Magnesium		500.0	P
Potassium		500.0	P
Sodium		500.0	P

SW-846

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ICP LINEAR RANGES (QUARTERLY)

Lab Name: Pace Analytical Services, Inc.

Contract: JPL Groundwater Monitoring

Lab Code: PACE

SDG No.: JPL115

ICP ID Number: ICPMS (PE ELAN 6100)

Date: 01/11/2008

Analyte	Integ. Time (Sec.)	Concentration	
		(ug/L)	M
Arsenic	0.001	2000.0	M
Chromium	0.001	2000.0	M
Lead	0.001	2000.0	M

PREPARATION LOG

Lab Name: Pace Analytical Services, Inc.Contract: JPL Groundwater MonitorinLab Code: PACE SDG No.: JPL115Prep Batch ID: P029935Method: 200.7

Client Sample No.	Lab Sample ID	Preparation Date	Initial Volume	Volume (mL)
S060608ICPW11	S060608ICPW11	06/06/2008	10.00 mL	10
S060608ICPW11D	S060608ICPW11D	06/06/2008	10.00 mL	10
MW-13	JPL115-001	06/06/2008	10.00 mL	10
MW-13MS	JPL115-001MS	06/06/2008	10.00 mL	10
MW-13MSD	JPL115-001MSD	06/06/2008	10.00 mL	10
MW-16	JPL115-002	06/06/2008	10.00 mL	10
MW-8	JPL115-003	06/06/2008	10.00 mL	10
DUPE-6-2Q08	JPL115-004	06/06/2008	10.00 mL	10

PREPARATION LOG

Lab Name: Pace Analytical Services, Inc.Contract: JPL Groundwater MonitorinLab Code: PACE SDG No.: JPL115Prep Batch ID: P029659Method: 200.8

Client Sample No.	Lab Sample ID	Preparation Date	Initial Volume	Volume (mL)
B052808ICPMSW11	B052808ICPMSW11	05/28/2008	10.00mL	10
S052808ICPMSW11	S052808ICPMSW11	05/28/2008	10.00mL	10
S052808ICPMSW11D	S052808ICPMSW11D	05/28/2008	10.00mL	10
MW-13	JPL115-001	05/28/2008	10.00mL	10
MW-16	JPL115-002	05/28/2008	10.00mL	10
MW-8	JPL115-003	05/28/2008	10.00mL	10
MW-8MS	JPL115-003MS	05/28/2008	10.00mL	10
MW-8MSD	JPL115-003MSD	05/28/2008	10.00mL	10
DUPE-6-2Q08	JPL115-004	05/28/2008	10.00mL	10

ANALYSIS RUN LOG

Lab Name: Pace Analytical Services, Inc. Contract: JPL Groundwater Monitoring
 Lab Code: PACE SDG No.: JPL115 Run Sequence ID: R028884
 Instrument ID Number: ICP (TJA ICAP 6500) Method: 200.7
 Start Date: 06/06/2008 End Date: 06/06/2008

Client Sample No.	D/F	Time	Analytes																																			
			A	A	A	B	C	C	C	C	C	F	H	K	L	M	M	M	N	N	N	P	S	S	S	S	S	T	T	T	U	V	Z	C	B	S		
ZZZZZ	1	14:37																																				
ZZZZZ	1	14:40																																				
CCV3	1	14:44							X					X																								
CCB3	1	14:48						X					X																									
ZZZZZ	1	14:52																																				
ZZZZZ	1	14:55																																				
ZZZZZ	5	14:59																																				
ZZZZZ	1	15:03																																				
ZZZZZ	1	15:07																																				
ZZZZZ	1	15:10																																				
ZZZZZ	1	15:14																																				
ZZZZZ	1	15:18																																				
ZZZZZ	1	15:21																																				
ZZZZZ	1	15:25																																				
CCV4	1	15:29												X																								
CCB4	1	15:33											X																									
ZZZZZ	1	15:36																																				
ZZZZZ	1	15:40																																				
ZZZZZ	1	15:44																																				
ZZZZZ	1	15:47																																				
ZZZZZ	1	15:51																																				
ZZZZZ	1	15:55																																				
ZZZZZ	1	15:59																																				
ZZZZZ	5	16:03																																				
ZZZZZ	1	16:06																																				
ZZZZZ	1	16:10																																				

FORMS SUMMARY

JPL115

Miscellaneous Inorganics

Pace Analytical Services, Inc.

Final Results

Client: Battelle Project: JPL Groundwater Monitoring
 SDG Number: JPL115
 Sample Number: MW-13 Date/Time Collected: 05/21/2008 08:55
 Lab Sample ID: JPL115-001 Date/Time Received: 05/22/2008 08:30

Method/Qbatch*: E150.1/29596 Unit: pH Units
 Instrument: pH meter (1) File: N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
pH	pH	1	6.9		0.10	0.10	05/22/2008	05/22/2008	R028346

Method/Qbatch*: E160.1/29558 Unit: mg/L
 Instrument: Balance (01) File: N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Total Dissolved Solids (TDS)	TDS	1	330		2.0	2.0	05/22/2008	05/27/2008	R028305

Method/Qbatch*: E300.0/29915 Unit: mg/L
 Instrument: Ion Chromatograph (2) File: R028654\results.1.txt

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Sulfate	14808-79-8	10	60		10	1.7	06/05/2008	06/05/2008	R028654
Chloride	16887-00-6	10	40		10	0.76	06/05/2008	06/05/2008	R028654

Method/Qbatch*: E310.1/29694 Unit: mg/L
 Instrument: None File: N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Alkalinity, Carbonate (As CaCO3)	3812-32-6	2	4.0	U	4.0	4.0	05/29/2008	05/29/2008	R028444
Alkalinity, Bicarbonate (As CaCO3)	71-52-3	2	180		4.0	4.0	05/29/2008	05/29/2008	R028444

Method/Qbatch*: E314.0/30240 Unit: ug/L
 Instrument: Ion Chromatograph (2) File: N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Perchlorate	14797-73-0	20	700		20	2.8	06/17/2008	06/17/2008	R028939

*QBatch=QC/Preparation Batch

Pace Analytical Services, Inc.

Final Results

Client: Battelle **Project:** JPL Groundwater Monitoring
SDG Number: JPL115
Sample Number: MW-13 **Date/Time Collected:** 05/21/2008 08:55
Lab Sample ID: JPL115-001 **Date/Time Received:** 05/22/2008 08:30
Method/Qbatch*: E353.2/29711 **Unit:** mg/L
Instrument: ASE (01) **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Total Nitrate / Nitrite	N+N	10	7.1		0.50	0.16	05/29/2008	05/29/2008	R028459

Method/Qbatch*: E353.2/29736 **Unit:** mg/L
Instrument: None **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Nitrate - N	14797-55-8	1	7.1		0.50	0.010	05/29/2008	05/29/2008	R028479

Method/Qbatch*: E354.1/29561 **Unit:** mg/L
Instrument: UVVis (Cary) **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Nitrite - N	14797-65-0	1	0.0050	U	0.0050	0.0012	05/22/2008	05/22/2008	R028308

Method/Qbatch*: E365.2/29560 **Unit:** mg/L
Instrument: UVVis (Cary) **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Phosphorus, Orthophosphate (as P)	7723-14-0	1	0.10	U	0.10	0.0025	05/22/2008	05/22/2008	R028307

*QBatch=QC/Preparation Batch

Pace Analytical Services, Inc.

Final Results

Client: Battelle Project: JPL Groundwater Monitoring
 SDG Number: JPL115
 Sample Number: MW-16 Date/Time Collected: 05/21/2008 11:26
 Lab Sample ID: JPL115-002 Date/Time Received: 05/22/2008 08:30
 Method/Qbatch*: E150.1/29596 Unit: pH Units
 Instrument: pH meter (1) File: N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
pH	pH	1	7.2		0.10	0.10	05/22/2008	05/22/2008	R028346

Method/Qbatch*: E160.1/29558 Unit: mg/L
 Instrument: Balance (01) File: N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Total Dissolved Solids (TDS)	TDS	1	350		2.0	2.0	05/22/2008	05/27/2008	R028305

Method/Qbatch*: E300.0/29915 Unit: mg/L
 Instrument: Ion Chromatograph (2) File: R028654\results.1.txt

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Sulfate	14808-79-8	10	45		10	1.7	06/05/2008	06/05/2008	R028654
Chloride	16887-00-6	10	72		10	0.76	06/05/2008	06/05/2008	R028654

Method/Qbatch*: E310.1/29694 Unit: mg/L
 Instrument: None File: N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Alkalinity, Carbonate (As CaCO3)	3812-32-6	2	4.0	U	4.0	4.0	05/29/2008	05/29/2008	R028444
Alkalinity, Bicarbonate (As CaCO3)	71-52-3	2	160		4.0	4.0	05/29/2008	05/29/2008	R028444

Method/Qbatch*: E314.0/30240 Unit: ug/L
 Instrument: Ion Chromatograph (2) File: N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Perchlorate	14797-73-0	2	4.8		2.0	0.28	06/17/2008	06/17/2008	R028939

*QBatch=QC/Preparation Batch

Pace Analytical Services, Inc.

Final Results

Client: Battelle Project: JPL Groundwater Monitoring
 SDG Number: JPL115
 Sample Number: MW-16 Date/Time Collected: 05/21/2008 11:26
 Lab Sample ID: JPL115-002 Date/Time Received: 05/22/2008 08:30
 Method/Qbatch*: E353.2/29711 Unit: mg/L
 Instrument: ASE (01) File: N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Total Nitrate / Nitrite	N+N	1	0.49		0.050	0.016	05/29/2008	05/29/2008	R028459

Method/Qbatch*: E353.2/29736 Unit: mg/L
 Instrument: None File: N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Nitrate - N	14797-55-8	1	0.50	U	0.50	0.010	05/29/2008	05/29/2008	R028479

Method/Qbatch*: E354.1/29561 Unit: mg/L
 Instrument: UVVis (Cary) File: N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Nitrite - N	14797-65-0	1	0.0050	U	0.0050	0.0012	05/22/2008	05/22/2008	R028308

Method/Qbatch*: E365.2/29560 Unit: mg/L
 Instrument: UVVis (Cary) File: N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Phosphorus, Orthophosphate (as P)	7723-14-0	1	0.10	U	0.10	0.0025	05/22/2008	05/22/2008	R028307

*QBatch=QC/Preparation Batch

Pace Analytical Services, Inc.

Final Results

Client: Battelle **Project:** JPL Groundwater Monitoring
SDG Number: JPL115
Sample Number: MW-8 **Date/Time Collected:** 05/21/2008 13:43
Lab Sample ID: JPL115-003 **Date/Time Received:** 05/22/2008 08:30
Method/Qbatch*: E150.1/29596 **Unit:** pH Units
Instrument: pH meter (1) **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
pH	pH	1	7.1		0.10	0.10	05/22/2008	05/22/2008	R028346

Method/Qbatch*: E160.1/29558 **Unit:** mg/L
Instrument: Balance (01) **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Total Dissolved Solids (TDS)	TDS	1	410		2.0	2.0	05/22/2008	05/27/2008	R028305

Method/Qbatch*: E300.0/29915 **Unit:** mg/L
Instrument: Ion Chromatograph (2) **File:** R028654\results.1.txt

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Sulfate	14808-79-8	10	76		10	1.7	06/05/2008	06/05/2008	R028654
Chloride	16887-00-6	10	39		10	0.76	06/05/2008	06/05/2008	R028654

Method/Qbatch*: E310.1/29694 **Unit:** mg/L
Instrument: None **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Alkalinity, Carbonate (As CaCO ₃)	3812-32-6	2	4.0	U	4.0	4.0	05/29/2008	05/29/2008	R028444
Alkalinity, Bicarbonate (As CaCO ₃)	71-52-3	2	170		4.0	4.0	05/29/2008	05/29/2008	R028444

Method/Qbatch*: E314.0/30240 **Unit:** ug/L
Instrument: Ion Chromatograph (2) **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Perchlorate	14797-73-0	2	30		2.0	0.28	06/17/2008	06/17/2008	R028939

*QBatch=QC/Preparation Batch

Pace Analytical Services, Inc.

Final Results

Client: Battelle Project: JPL Groundwater Monitoring
 SDG Number: JPL115
 Sample Number: MW-8 Date/Time Collected: 05/21/2008 13:43
 Lab Sample ID: JPL115-003 Date/Time Received: 05/22/2008 08:30
 Method/Qbatch*: E353.2/29711 Unit: mg/L
 Instrument: ASE (01) File: N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Total Nitrate / Nitrite	N+N	1	2.3		0.050	0.016	05/29/2008	05/29/2008	R028459

Method/Qbatch*: E353.2/29736 Unit: mg/L
 Instrument: None File: N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Nitrate - N	14797-55-8	1	2.3		0.50	0.010	05/29/2008	05/29/2008	R028479

Method/Qbatch*: E354.1/29561 Unit: mg/L
 Instrument: UVVis (Cary) File: N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Nitrite - N	14797-65-0	1	0.0050	U	0.0050	0.0012	05/22/2008	05/22/2008	R028308

Method/Qbatch*: E365.2/29560 Unit: mg/L
 Instrument: UVVis (Cary) File: N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Phosphorus, Orthophosphate (as P)	7723-14-0	1	0.10	U	0.10	0.0025	05/22/2008	05/22/2008	R028307

*QBatch=QC/Preparation Batch

Pace Analytical Services, Inc.

Final Results

Client: Battelle **Project:** JPL Groundwater Monitoring
SDG Number: JPL115
Sample Number: DUPE-6-2Q08 **Date/Time Collected:** 05/21/2008 00:00
Lab Sample ID: JPL115-004 **Date/Time Received:** 05/22/2008 08:30
Method/Qbatch*: E150.1/29596 **Unit:** pH Units
Instrument: pH meter (1) **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
pH	pH	1	7.3		0.10	0.10	05/22/2008	05/22/2008	R028346

Method/Qbatch*: E160.1/29558 **Unit:** mg/L
Instrument: Balance (01) **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Total Dissolved Solids (TDS)	TDS	1	380		2.0	2.0	05/22/2008	05/27/2008	R028305

Method/Qbatch*: E300.0/29915 **Unit:** mg/L
Instrument: Ion Chromatograph (2) **File:** R028654\results.1.txt

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Sulfate	14808-79-8	10	45		10	1.7	06/05/2008	06/05/2008	R028654
Chloride	16887-00-6	10	71		10	0.76	06/05/2008	06/05/2008	R028654

Method/Qbatch*: E310.1/29694 **Unit:** mg/L
Instrument: None **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Alkalinity, Carbonate (As CaCO3)	3812-32-6	2	4.0	U	4.0	4.0	05/29/2008	05/29/2008	R028444
Alkalinity, Bicarbonate (As CaCO3)	71-52-3	2	160		4.0	4.0	05/29/2008	05/29/2008	R028444

Method/Qbatch*: E314.0/30240 **Unit:** ug/L
Instrument: Ion Chromatograph (2) **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Perchlorate	14797-73-0	2	4.8		2.0	0.28	06/17/2008	06/17/2008	R028939

*QBatch=QC/Preparation Batch

Pace Analytical Services, Inc.

Final Results

Client: Battelle **Project:** JPL Groundwater Monitoring
SDG Number: JPL115
Sample Number: DUPE-6-2Q08 **Date/Time Collected:** 05/21/2008 00:00
Lab Sample ID: JPL115-004 **Date/Time Received:** 05/22/2008 08:30
Method/Qbatch*: E353.2/29711 **Unit:** mg/L
Instrument: ASE (01) **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Total Nitrate / Nitrite	N+N	1	0.49		0.050	0.016	05/29/2008	05/29/2008	R028459

Method/Qbatch*: E353.2/29736 **Unit:** mg/L
Instrument: None **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Nitrate - N	14797-55-8	1	0.50	U	0.50	0.010	05/29/2008	05/29/2008	R028479

Method/Qbatch*: E354.1/29561 **Unit:** mg/L
Instrument: UVVis (Cary) **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Nitrite - N	14797-65-0	1	0.0050	U	0.0050	0.0012	05/22/2008	05/22/2008	R028308

Method/Qbatch*: E365.2/29560 **Unit:** mg/L
Instrument: UVVis (Cary) **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Phosphorus, Orthophosphate (as P)	7723-14-0	1	0.10	U	0.10	0.0025	05/22/2008	05/22/2008	R028307

*QBatch=QC/Preparation Batch

Pace Analytical Services, Inc.

INITIAL AND CONTINUING CALIBRATION VERIFICATION

SDG No: JPL115 Contract: JPL Groundwater Monitoring
 Run Sequence No. R028654 Concentration Units: mg/L
 Determination Name: 300 Anions Cl and SO4
 Initial Calibration Source: IC-7-25-5
 Continuing Calibration Source: IC-7-30-8

Analyte	ICV 06/05/2008 15:52				CCV1 06/05/08 19:06			CCV2 06/05/08 22:19			CCV Limits
	True	Found	Recovery	Limits	True	Found	Recovery	True	Found	Recovery	
Chloride	1.510	1.514	100.3	90-110	5.023	4.665	92.9	5.023	4.705	93.7	90-110
Sulfate	7.500	7.521	100.3	90-110	10.018	9.407	93.9	10.018	9.515	95	90-110

* = Percent recovery not within control limits

Pace Analytical Services, Inc.

INITIAL AND CONTINUING CALIBRATION VERIFICATION

SDG No: JPL115 Contract: JPL Groundwater Monitoring
 Run Sequence No. R028654 Concentration Units: mg/L
 Determination Name: 300 Anions Cl and SO4
 Initial Calibration Source: IC-7-25-5
 Continuing Calibration Source: IC-7-30-8

Analyte					CCV3 06/06/08 01:33						CCV
	True	Found	Recovery	Limits	True	Found	Recovery	True	Found	Recovery	Limits
Chloride					5.023	4.707	93.7				90-110
Sulfate					10.018	9.571	95.5				90-110

* = Percent recovery not within control limits

Pace Analytical Services, Inc.

INITIAL AND CONTINUING CALIBRATION VERIFICATION

SDG No: JPL115 Contract: JPL Groundwater Monitoring
 Run Sequence No. R028459 Concentration Units: mg/L
 Determination Name: 353.2 Nitrate + Nitrite (as N), Water
 Initial Calibration Source: AP-49-2
 Continuing Calibration Source: AP-59-20

Analyte	ICV-0508-159 05/29/2008 12:45				CCV1 05/29/08 13:03			CCV2 05/29/08 13:20			CCV
	True	Found	Recovery	Limits	True	Found	Recovery	True	Found	Recovery	Limits
Total Nitrate / Nitrite	1.519	1.522	100.2	90-110	1.002	0.991	99	1.002	1.009	100.7	90-110

* = Percent recovery not within control limits

Pace Analytical Services, Inc.

INITIAL AND CONTINUING CALIBRATION VERIFICATION

SDG No: JPL115 Contract: JPL Groundwater Monitoring
 Run Sequence No. R028308 Concentration Units: mg/L
 Determination Name: 354.1 Nitrite (as N), Water
 Initial Calibration Source: IC-7-27-12
 Continuing Calibration Source: IOM-3-57-11

Analyte	ICV 05/22/2008 18:40				CCV1 05/22/08 18:40						CCV Limits
	True	Found	Recovery	Limits	True	Found	Recovery	True	Found	Recovery	
Nitrite - N	0.030	0.031	100.2	90-110	0.025	0.026	102.4				90-110

* = Percent recovery not within control limits

Pace Analytical Services, Inc.

INITIAL AND CONTINUING CALIBRATION VERIFICATION

SDG No: JPL115 Contract: JPL Groundwater Monitoring
 Run Sequence No. R028307 Concentration Units: mg/L
 Determination Name: 365.2 Ortho-Phosphorus as P, Water
 Initial Calibration Source: IC-7-27-12
 Continuing Calibration Source: IOM-3-48-2

Analyte	ICV 05/22/2008 18:23				CCV1 05/22/08 18:23						CCV
	True	Found	Recovery	Limits	True	Found	Recovery	True	Found	Recovery	Limits
Phosphorus, Orthophosphat	0.241	0.242	100.2	90-110	0.250	0.254	101.3				90-110

* = Percent recovery not within control limits

Pace Analytical Services, Inc.

INITIAL AND CONTINUING CALIBRATION VERIFICATION

SDG No: JPL115 Contract: JPL Groundwater Monitoring
 Run Sequence No. R028939 Concentration Units: ug/L
 Determination Name: 314.0 Perchlorate
 Initial Calibration Source: IC-7-30-12
 Continuing Calibration Source: IC-7-30-14

Analyte	ICV 06/17/2008 14:37				CCV1 06/17/08 21:13						CCV
	True	Found	Recovery	Limits	True	Found	Recovery	True	Found	Recovery	Limits
Perchlorate	40.151	40.362	100.5	75-125	9.988	10.101	101.1				85-115

* = Percent recovery not within control limits

Pace Analytical Services, Inc.

INITIAL AND CONTINUING CALIBRATION BLANKS

SDG No: JPL115

Contract: JPL Groundwater Monitoring

Run	Determination	Sample	Analyzed	Analyte	Result	Unit	Limit
R028307	365.2 Ortho-Phosphorus as P, Water	ICB	05/22/2008	Phosphorus, Orthophosphat	0.10 U	mg/L	0.050000
	365.2 Ortho-Phosphorus as P, Water	CCB1	05/22/2008	Phosphorus, Orthophosphat	0.10 U	mg/L	0.050000
R028308	354.1 Nitrite (as N), Water	ICB	05/22/2008	Nitrite - N	0.0050 U	mg/L	
	354.1 Nitrite (as N), Water	CCB1	05/22/2008	Nitrite - N	0.0050 U	mg/L	
R028459	353.2 Nitrate + Nitrite (as N), Water	ICB-0508-159	05/29/2008	Total Nitrate / Nitrite	0.050 U	mg/L	0.025000
	353.2 Nitrate + Nitrite (as N), Water	CCB1	05/29/2008	Total Nitrate / Nitrite	0.050 U	mg/L	0.025000
	353.2 Nitrate + Nitrite (as N), Water	CCB2	05/29/2008	Total Nitrate / Nitrite	0.050 U	mg/L	0.025000
R028654	300 Anions Cl and SO4	ICB	06/05/2008	Chloride	1.0 U	mg/L	0.500000
	300 Anions Cl and SO4	CCB1	06/05/2008	Chloride	1.0 U	mg/L	0.500000
	300 Anions Cl and SO4	CCB2	06/05/2008	Chloride	1.0 U	mg/L	0.500000
	300 Anions Cl and SO4	CCB3	06/06/2008	Chloride	1.0 U	mg/L	0.500000
	300 Anions Cl and SO4	ICB	06/05/2008	Sulfate	1.0 U	mg/L	0.500000
	300 Anions Cl and SO4	CCB1	06/05/2008	Sulfate	1.0 U	mg/L	0.500000
	300 Anions Cl and SO4	CCB2	06/05/2008	Sulfate	1.0 U	mg/L	0.500000
	300 Anions Cl and SO4	CCB3	06/06/2008	Sulfate	1.0 U	mg/L	0.500000
R028939	314.0 Perchlorate	ICB	06/17/2008	Perchlorate	1.0 U	ug/L	0.500000
	314.0 Perchlorate	CCB1	06/17/2008	Perchlorate	1.0 U	ug/L	0.500000

* = Control limit exceeded

Pace Analytical Services, Inc.

Blank Report

Test: 310.1M Carb./Bicarb. Alkalinity

SDG ID: JPL115

Lab Sample ID: B052908ALKW01

Preparation Date: 5/29/2008

Run Sequence ID: R028444

Analysis Date: 05/29/2008 18:00

Units: mg/L

Matrix: Water

Analyte	Reported	Flag	Limit
Alkalinity, Bicarbonate (As CaCO3)	2.0	U	2
Alkalinity, Carbonate (As CaCO3)	2.0	U	2

Associated Samples	
<u>Lab Sample ID</u>	<u>Client Sample ID</u>
JPL115-001	MW-13
JPL115-002	MW-16
JPL115-003	MW-8
JPL115-004	DUPE-6-2Q08

* Measured blank concentration exceeded the established control limit

Pace Analytical Services, Inc.

Blank Report

Test: 300 Anions Cl and SO4

SDG ID: JPL115

Lab Sample ID: B060508AIW02

Preparation Date: 6/5/2008

Run Sequence ID: R028654

Analysis Date: 06/05/2008 16:41

Units: mg/L

Matrix: Water

Analyte	Reported	Flag	Limit
Chloride	1.0	U	0.5
Sulfate	1.0	U	0.5

Associated Samples	
<u>Lab Sample ID</u>	<u>Client Sample ID</u>
JPL115-001 10X	MW-13
JPL115-002 10X	MW-16
JPL115-003 10X	MW-8
JPL115-004 10X	DUPE-6-2Q08

* Measured blank concentration exceeded the established control limit

Pace Analytical Services, Inc.

Blank Report

Test: 353.2 Nitrate + Nitrite (as N), Water

SDG ID: JPL115

Lab Sample ID: B052908NNW02

Preparation Date: 5/29/2008

Run Sequence ID: R028459

Analysis Date: 05/29/2008 12:47

Units: mg/L

Matrix: Water

Analyte	Reported	Flag	Limit
Total Nitrate / Nitrite	0.050	U	0.025

Associated Samples	
<u>Lab Sample ID</u>	<u>Client Sample ID</u>
JPL115-001	MW-13
JPL115-002	MW-16
JPL115-003	MW-8
JPL115-004	DUPE-6-2Q08

* Measured blank concentration exceeded the established control limit

Pace Analytical Services, Inc.
Blank Report

Test: 354.1 Nitrite (as N), Water

SDG ID: JPL115

Lab Sample ID: B052208NO2W01

Preparation Date: 5/22/2008

Run Sequence ID: R028308

Analysis Date: 05/22/2008 18:40

Units: mg/L

Matrix: Water

Analyte	Reported	Flag	Limit
Nitrite - N	0.0050	U	0.005

Associated Samples	
<u>Lab Sample ID</u>	<u>Client Sample ID</u>
JPL115-001	MW-13
JPL115-002	MW-16
JPL115-003	MW-8
JPL115-004	DUPE-6-2Q08

* Measured blank concentration exceeded the established control limit

Pace Analytical Services, Inc.

Blank Report

Test: 365.2 Ortho-Phosphorus as P, Water

SDG ID: JPL115

Lab Sample ID: B052208OPW01

Preparation Date: 5/22/2008

Run Sequence ID: R028307

Analysis Date: 05/22/2008 18:23

Units: mg/L

Matrix: Water

Analyte	Reported	Flag	Limit
Phosphorus, Orthophosphate (as P)	0.10	U	0.05

Associated Samples	
<u>Lab Sample ID</u>	<u>Client Sample ID</u>
JPL115-001	MW-13
JPL115-002	MW-16
JPL115-003	MW-8
JPL115-004	DUPE-6-2Q08

* Measured blank concentration exceeded the established control limit

Pace Analytical Services, Inc.

Blank Report

Test: 314.0 Perchlorate

SDG ID: JPL115

Lab Sample ID: B061708PERCW01

Preparation Date: 6/17/2008

Run Sequence ID: R028939

Analysis Date: 06/17/2008 17:01

Units: ug/L

Matrix: Water

Analyte	Reported	Flag	Limit
Perchlorate	1.0	U	0.5

Associated Samples	
<u>Lab Sample ID</u>	<u>Client Sample ID</u>
JPL115-001 20X	MW-13
JPL115-002 2X	MW-16
JPL115-003 2X	MW-8
JPL115-004 2X	DUPE-6-2Q08

* Measured blank concentration exceeded the established control limit

Pace Analytical Services, Inc.

Blank Report

Test: 160.1 Total Dissolved Solids

SDG ID: JPL115

Lab Sample ID: B052208TDSW01

Preparation Date: 5/22/2008

Run Sequence ID: R028305

Analysis Date: 05/22/2008 11:00

Units: mg/L

Matrix: Water

Analyte	Reported	Flag	Limit
Total Dissolved Solids (TDS)	2.0	U	2

Associated Samples	
<u>Lab Sample ID</u>	<u>Client Sample ID</u>
JPL115-001	MW-13
JPL115-002	MW-16
JPL115-003	MW-8
JPL115-004	DUPE-6-2Q08

* Measured blank concentration exceeded the established control limit

Pace Analytical Services, Inc.
Matrix Spike/Matrix Spike Duplicate Report

Test:	300 Anions Cl and SO4	SDG ID:	JPL115
		Preparation Date:	06/05/2008
MS Lab Sample ID:	JPL115-004MS 10X	Run Sequence ID:	R028654
MSD Lab Sample ID:	JPL115-004MSD 10X	Analysis Date:	06/05/2008
Client Sample ID:	DUPE-6-2Q08	Units:	mg/L
		Matrix:	Water

Analyte	Sample Found	MS Spike	MS Found	MS Recovery	MSD Spike	MSD Found	MSD Recovery	RPD	Limits	
									Recovery	RPD
Chloride	71.119	20.1	91.75	103%	20.1	91.087	99%	1%	90-110	11
Sulfate	45.2897	40.1	82.8497	94%	40.1	83.075	94%	0%	90-110	10

Associated Samples	
<u>Lab Sample ID</u>	<u>Client Sample ID</u>
JPL115-001 10X	MW-13
JPL115-002 10X	MW-16
JPL115-003 10X	MW-8
JPL115-004 10X	DUPE-6-2Q08

* = RPD or percent recovery is outside established control limits

= This RPD or percent recovery is not flagged as an exceedence because the Sample Found amount is five times or more than the Spike Added amount.

The concentration values on this report may have non-significant digits tabulated. These are the same values used to compute the recovery and/or RPD values listed and are available during data review to verify our calculations.

Pace Analytical Services, Inc.

Matrix Spike/Matrix Spike Duplicate Report

Test:	353.2 Nitrate + Nitrite (as N), Water	SDG ID:	JPL115
MS Lab Sample ID:	JPL115-004MS	Preparation Date:	05/29/2008
MSD Lab Sample ID:	JPL115-004MSD	Run Sequence ID:	R028459
Client Sample ID:	DUPE-6-2Q08	Analysis Date:	05/29/2008
		Units:	mg/L
		Matrix:	Water

Analyte	Sample Found	MS Spike	MS Found	MS Recovery	MSD Spike	MSD Found	MSD Recovery	RPD	Limits	
									Recovery	RPD
Total Nitrate / Nitrite	0.4917	1.00	1.5482	105%	1.00	1.5079	101%	3%	90-110	10

Associated Samples	
<u>Lab Sample ID</u>	<u>Client Sample ID</u>
JPL115-001	MW-13
JPL115-002	MW-16
JPL115-003	MW-8
JPL115-004	DUPE-6-2Q08

* = RPD or percent recovery is outside established control limits

= This RPD or percent recovery is not flagged as an exceedence because the Sample Found amount is five times or more than the Spike Added amount.

The concentration values on this report may have non-significant digits tabulated. These are the same values used to compute the recovery and/or RPD values listed and are available during data review to verify our calculations.

Pace Analytical Services, Inc.
Matrix Spike/Matrix Spike Duplicate Report

Test:	354.1 Nitrite (as N), Water	SDG ID:	JPL115
		Preparation Date:	05/22/2008
MS Lab Sample ID:	JPL115-001MS	Run Sequence ID:	R028308
MSD Lab Sample ID:	JPL115-001MSD	Analysis Date:	05/22/2008
Client Sample ID:	MW-13	Units:	mg/L
		Matrix:	Water

Analyte	Sample Found	MS Spike	MS Found	MS Recovery	MSD Spike	MSD Found	MSD Recovery	RPD	Limits	
									Recovery	RPD
Nitrite - N	0.0016	0.0250	0.0266	100%	0.0250	0.0256	96%	4%	71-109	10

Associated Samples	
<u>Lab Sample ID</u>	<u>Client Sample ID</u>
JPL115-001	MW-13
JPL115-002	MW-16
JPL115-003	MW-8
JPL115-004	DUPE-6-2Q08

* = RPD or percent recovery is outside established control limits

= This RPD or percent recovery is not flagged as an exceedence because the Sample Found amount is five times or more than the Spike Added amount.

The concentration values on this report may have non-significant digits tabulated. These are the same values used to compute the recovery and/or RPD values listed and are available during data review to verify our calculations.

Pace Analytical Services, Inc.

Matrix Spike/Matrix Spike Duplicate Report

Test:	365.2 Ortho-Phosphorus as P, Water	SDG ID:	JPL115
MS Lab Sample ID:	JPL115-001MS	Preparation Date:	05/22/2008
MSD Lab Sample ID:	JPL115-001MSD	Run Sequence ID:	R028307
Client Sample ID:	MW-13	Analysis Date:	05/22/2008
		Units:	mg/L
		Matrix:	Water

Analyte	Sample Found	MS Spike	MS Found	MS Recovery	MSD Spike	MSD Found	MSD Recovery	RPD	Limits	
									Recovery	RPD
Phosphorus, Orthophosphate (a	0.0682	0.100	0.1667	98%	0.100	0.1649	97%	1%	80-112	10

Associated Samples	
<u>Lab Sample ID</u>	<u>Client Sample ID</u>
JPL115-001	MW-13
JPL115-002	MW-16
JPL115-003	MW-8
JPL115-004	DUPE-6-2Q08

* = RPD or percent recovery is outside established control limits

= This RPD or percent recovery is not flagged as an exceedence because the Sample Found amount is five times or more than the Spike Added amount.

The concentration values on this report may have non-significant digits tabulated. These are the same values used to compute the recovery and/or RPD values listed and are available during data review to verify our calculations.

Pace Analytical Services, Inc.
Matrix Spike/Matrix Spike Duplicate Report

Test:	314.0 Perchlorate	SDG ID:	JPL115
		Preparation Date:	06/17/2008
MS Lab Sample ID:	JPL115-004MS 2X	Run Sequence ID:	R028939
MSD Lab Sample ID:	JPL115-004MSD 2X	Analysis Date:	06/17/2008
Client Sample ID:	DUPE-6-2Q08	Units:	ug/L
		Matrix:	Water

Analyte	Sample Found	MS Spike	MS Found	MS Recovery	MSD Spike	MSD Found	MSD Recovery	RPD	Limits	
									Recovery	RPD
Perchlorate	4.7768	40.0	46.4654	104%	40.0	46.513	104%	0%	80-120	15

Associated Samples	
<u>Lab Sample ID</u>	<u>Client Sample ID</u>
JPL115-001 20X	MW-13
JPL115-002 2X	MW-16
JPL115-003 2X	MW-8
JPL115-004 2X	DUPE-6-2Q08

* = RPD or percent recovery is outside established control limits

= This RPD or percent recovery is not flagged as an exceedence because the Sample Found amount is five times or more than the Spike Added amount.

The concentration values on this report may have non-significant digits tabulated. These are the same values used to compute the recovery and/or RPD values listed and are available during data review to verify our calculations.

Pace Analytical Services, Inc.

Duplicate Report

Test:	310.1M Carb./Bicarb. Alkalinity	SDG ID:	JPL115
Lab Sample ID:	JPL115-004D	Preparation Date:	5/29/2008
Client Sample ID:	DUPE-6-2Q08	Run Sequence ID:	R028444
		Analysis Date:	05/29/2008 18:00
		Units:	mg/L
		Matrix:	Water

Analyte	Parent Found	Duplicate Found	RPD	Limit
Alkalinity, Bicarbonate (As CaCO3)	164	162	1%	10
Alkalinity, Carbonate (As CaCO3)	0	0	0%	10

Associated Samples	
<u>Lab Sample ID</u>	<u>Client Sample ID</u>
JPL115-001	MW-13
JPL115-002	MW-16
JPL115-003	MW-8
JPL115-004	DUPE-6-2Q08

= RPD Value is not flagged as an outlier because either the parent found amount or duplicate found amount or both are less than five times the reporting limit
 * = Value exceeded established control limits

The concentration values on this report may have non-significant digits tabulated. These are the same values used to compute the recovery and/or RPD values listed and are available during data review to verify our calculations.

Pace Analytical Services, Inc.

Duplicate Report

Test:	160.1 Total Dissolved Solids	SDG ID:	JPL115
Lab Sample ID:	JPL115-004D	Preparation Date:	5/22/2008
Client Sample ID:	DUPE-6-2Q08	Run Sequence ID:	R028305
		Analysis Date:	05/22/2008 11:00
		Units:	mg/L
		Matrix:	Water

Analyte	Parent Found	Duplicate Found	RPD	Limit
Total Dissolved Solids (TDS)	378	369	2%	30

Associated Samples	
<u>Lab Sample ID</u>	<u>Client Sample ID</u>
JPL115-001	MW-13
JPL115-002	MW-16
JPL115-003	MW-8
JPL115-004	DUPE-6-2Q08

= RPD Value is not flagged as an outlier because either the parent found amount or duplicate found amount or both are less than five times the reporting limit
 * = Value exceeded established control limits

The concentration values on this report may have non-significant digits tabulated. These are the same values used to compute the recovery and/or RPD values listed and are available during data review to verify our calculations.

Pace Analytical Services, Inc.

BS/BSD Report

Test: 314.0 Perchlorate

SDG ID: JPL115

BS Sample ID: S061708PERCW01

Preparation Date: 06/17/2008

BSD Sample ID: S061708PERCW01D

Run Sequence ID: R028939

Analysis Date: 06/17/2008 15:40

Units: ug/L

Matrix: Water

Analyte	Blank Spike			Blank Spike Duplicate			RPD	Limits	
	Added	Found	Recovery	Added	Found	Recovery		Recovery	RPD
Perchlorate	20.0	19.2237	96%	20.0	19.1016	96%	1%	85-115	15

Associated Samples	
<u>Lab Sample ID</u>	<u>Client Sample ID</u>
JPL115-001 20X	MW-13
JPL115-002 2X	MW-16
JPL115-003 2X	MW-8
JPL115-004 2X	DUPE-6-2Q08

* = RPD or recovery is outside the established control limits

The concentration values on this report may have non-significant digits tabulated. These are the same values used to compute the recovery and/or RPD values listed and are available during data review to verify our calculations.

Pace Analytical Services, Inc.

Blank Spike Report

Test: 310.1M Carb./Bicarb. Alkalinity

SDG ID: JPL115

Lab Sample ID: S052908ALKW01

Preparation Date: 05/29/2008

Run Sequence ID: R028444

Analysis Date: 05/29/2008 18:00

Matrix: Water

Units: mg/L

Analyte	Spike Added	Found	% Recovery	Limit
Alkalinity, Bicarbonate (As CaCO3)	57.0	60	105%	90-110

Associated Samples	
<u>Lab Sample ID</u>	<u>Client Sample ID</u>
JPL115-001	MW-13
JPL115-002	MW-16
JPL115-003	MW-8
JPL115-004	DUPE-6-2Q08

* = Recovery exceeded the established control limit

The concentration values on this report may have non-significant digits tabulated. These are the same values used to compute the recovery and/or RPD values listed and are available during data review to verify our calculations.

Pace Analytical Services, Inc.

Blank Spike Report

Test: 300 Anions Cl and SO4

SDG ID: JPL115

Lab Sample ID: S060508AIW02

Preparation Date: 06/05/2008

Run Sequence ID: R028654

Analysis Date: 06/05/2008 16:25

Matrix: Water

Units: mg/L

Analyte	Spike Added	Found	% Recovery	Limit
Chloride	1.51	1.5618	103%	90-110
Sulfate	7.50	7.5724	101%	90-110

Associated Samples	
<u>Lab Sample ID</u>	<u>Client Sample ID</u>
JPL115-001 10X	MW-13
JPL115-002 10X	MW-16
JPL115-003 10X	MW-8
JPL115-004 10X	DUPE-6-2Q08

* = Recovery exceeded the established control limit

The concentration values on this report may have non-significant digits tabulated. These are the same values used to compute the recovery and/or RPD values listed and are available during data review to verify our calculations.

Pace Analytical Services, Inc.

Blank Spike Report

Test: 353.2 Nitrate + Nitrite (as N), Water

SDG ID: JPL115

Lab Sample ID: S052908NNW02

Preparation Date: 05/29/2008

Run Sequence ID: R028459

Analysis Date: 05/29/2008 12:45

Matrix: Water

Units: mg/L

Analyte	Spike Added	Found	% Recovery	Limit
Total Nitrate / Nitrite	1.52	1.5218	100%	90-110

Associated Samples	
<u>Lab Sample ID</u>	<u>Client Sample ID</u>
JPL115-001	MW-13
JPL115-002	MW-16
JPL115-003	MW-8
JPL115-004	DUPE-6-2Q08

* = Recovery exceeded the established control limit

The concentration values on this report may have non-significant digits tabulated. These are the same values used to compute the recovery and/or RPD values listed and are available during data review to verify our calculations.

Pace Analytical Services, Inc.

Blank Spike Report

Test: 354.1 Nitrite (as N), Water

SDG ID: JPL115

Lab Sample ID: S052208NO2W01

Preparation Date: 05/22/2008

Run Sequence ID: R028308

Analysis Date: 05/22/2008 18:40

Matrix: Water

Units: mg/L

Analyte	Spike Added	Found	% Recovery	Limit
Nitrite - N	0.0304	0.0305	100%	90-110

Associated Samples	
<u>Lab Sample ID</u>	<u>Client Sample ID</u>
JPL115-001	MW-13
JPL115-002	MW-16
JPL115-003	MW-8
JPL115-004	DUPE-6-2Q08

* = Recovery exceeded the established control limit

The concentration values on this report may have non-significant digits tabulated. These are the same values used to compute the recovery and/or RPD values listed and are available during data review to verify our calculations.

Pace Analytical Services, Inc.

Blank Spike Report

Test: 365.2 Ortho-Phosphorus as P, Water

SDG ID: JPL115

Lab Sample ID: S052208OPW01

Preparation Date: 05/22/2008

Run Sequence ID: R028307

Analysis Date: 05/22/2008 18:23

Matrix: Water

Units: mg/L

Analyte	Spike Added	Found	% Recovery	Limit
Phosphorus, Orthophosphate (as P)	0.241	0.2418	100%	90-110

Associated Samples	
<u>Lab Sample ID</u>	<u>Client Sample ID</u>
JPL115-001	MW-13
JPL115-002	MW-16
JPL115-003	MW-8
JPL115-004	DUPE-6-2Q08

* = Recovery exceeded the established control limit

The concentration values on this report may have non-significant digits tabulated. These are the same values used to compute the recovery and/or RPD values listed and are available during data review to verify our calculations.

Pace Analytical Services, Inc.

Blank Spike Report

Test: 314.0 Perchlorate

SDG ID: JPL115

Lab Sample ID: S061708PERCW01

Preparation Date: 06/17/2008

Run Sequence ID: R028939

Analysis Date: 06/17/2008 15:40

Matrix: Water

Units: ug/L

Analyte	Spike Added	Found	% Recovery	Limit
Perchlorate	20.0	19.2237	96%	85-115

Associated Samples	
<u>Lab Sample ID</u>	<u>Client Sample ID</u>
JPL115-001 20X	MW-13
JPL115-002 2X	MW-16
JPL115-003 2X	MW-8
JPL115-004 2X	DUPE-6-2Q08

* = Recovery exceeded the established control limit

The concentration values on this report may have non-significant digits tabulated. These are the same values used to compute the recovery and/or RPD values listed and are available during data review to verify our calculations.

Pace Analytical Services, Inc.

Blank Spike Report

Test:	160.1 Total Dissolved Solids	SDG ID:	JPL115
Lab Sample ID:	S052208TDSW01	Preparation Date:	05/22/2008
		Run Sequence ID:	R028305
		Analysis Date:	05/22/2008 11:00
		Matrix:	Water
		Units:	mg/L

Analyte	Spike Added	Found	% Recovery	Limit
Total Dissolved Solids (TDS)	300	274	91%	85-115

Associated Samples	
<u>Lab Sample ID</u>	<u>Client Sample ID</u>
JPL115-001	MW-13
JPL115-002	MW-16
JPL115-003	MW-8
JPL115-004	DUPE-6-2Q08

* = Recovery exceeded the established control limit

The concentration values on this report may have non-significant digits tabulated. These are the same values used to compute the recovery and/or RPD values listed and are available during data review to verify our calculations.

PACE ANALYTICAL SERVICES, INC.

SAMPLE DATA PACKAGE

BATTELLE

SDG NO.: JPL116

July 8, 2008

Pace Analytical Services, Inc.

940 S. Harney
Seattle, WA 98108

To: Battelle
Project Name: JPL Groundwater
SDG No.: JPL116
Date of Report: July 8, 2008

SAMPLE RECEIPT, IDENTIFICATION, AND GENERAL COMMENTS:

Sample Receipt and Identification:

The samples submitted under the laboratory number(s) indicated above were identified and analyzed as tabulated below. The samples were collected and received on the dates noted on the enclosed chain-of-custody copies, Attachment A.

<u>Client Sample Identification</u>	<u>Pace Sample Identification</u>	<u>Testing Analytical Request</u>
MW-10	JPL116-001	VOA/MET/INO
MW-15	JPL116-002	VOA/MET/INO
DUPE-7-2Q08	JPL116-003	VOA/MET/INO
TB-19-5/22/08	JPL116-004	VOA

Analytical Request Key:

VOA = Volatiles (524.2)
MET = Metals (200.7/200.8)
INO = Chloride, Sulfate, Ortho phosphorus (300.0)
Nitrate + Nitrite (353.2)
Nitrate (353.2)
Nitrite (354.1)
Alkalinity (310.1)
Perchlorate (314.0)
Total Dissolved Solids (160.1)
pH (150.1)

Summary of NELAC test accreditation

Determination	NELAC approved
150.1 pH	YES
160.1 Total Dissolved Solids	YES
200.7 K, Na, Mg, Ca, Fe	YES
200.8 As, Cr, Pb	YES
300 Anions OP, Cl and SO4	YES
310.1M Carb./Bicarb. Alkalinity	YES
314.0 Perchlorate	YES
353.2 Nitrate (as N) by Calc., water	YES
353.2 Nitrate + Nitrite (as N), Water	YES
354.1 Nitrite (as N), Water	YES
365.2 Ortho-Phosphorus as P, Water	YES

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940 S. Harney
Seattle, WA 98108

524.2 Volatile Organics + TICs (JPL Special list)	YES
TurMet for 200.7/200.8 TurMet	NO

We assert that the results reported here relate only to the samples listed in this report.

The results contained within this test report meet all requirements of the NELAC standard unless qualified or otherwise explained in this case narrative.

Sample Receipt Comments:

The following discrepancies were noted in association with the receipt of these samples.

Several samples received for volatiles analysis contained bubbles of less than 1/4 inch in size. See the sample receipt logs for documentation.

All samples submitted for pH analysis were received after the analytical holding time had expired.

GENERAL REMARKS ON ORGANIC ANALYSES:

The following comments describe general analysis conditions. For remarks specific to the samples reported in this case, see "SPECIFIC REMARKS ON ORGANIC ANALYSIS."

Manual Integrations:

One or more analytes may have been manually integrated on the data system quantitation reports. All manual integrations have been flagged, initialed, and dated by the analyst. A list of the manual integration flags is detailed below.

M	Manual integration due to irregular peak shape
MS	Manual integration due to split peak
MR	Manual integration due to retention time shift
MI	Manual integration of correct isomer
MT	Manual integration due to peak tailing
MB	Manual integration due to irregular baseline

Holding Time Compliance:

Volatile Organic Compounds:

The holding time is 14 days calculated from date of collection in both soil and water samples. All samples were analyzed within holding time.

Volatiles Fraction:

Sample Analysis:

Chloromethane contamination was found in vials provided by our bottle supplier. We have now changed to a different lot that has passed our quality control. However, sample MW-7 was received in bottles from the contaminated lot (#031708-3) and had a low level detection of chloromethane.

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Seattle, WA 98108

Tentatively Identified Compounds (TICs):

A library search was performed for non-target analytes that are not identified on the quantitation report. The results for these have been submitted on a separate form.

Quality Control Analyses:

MS/MSD analyses were not performed due to insufficient sample volume.

Analysis of the blank spike S053008MVOWM1 yielded a high recovery for cis-1,3-dichloropropene. Because the recovery was high and the analyte was not detected in the associated samples, no further action was taken.

GENERAL REMARKS ON INORGANIC ANALYSES:

The following comments describe general analysis conditions. For remarks specific to the samples reported in this case, see "SPECIFIC REMARKS ON INORGANIC ANALYSES."

ICP and ICP-MS Metals:

On the first timed and dated page of each ICP and ICP-MS run, the data to be reported or rejected will be tabulated for that run.

SPECIFIC REMARKS ON INORGANIC ANALYSES:

Holding Time Compliance:

Pace calculates holding time compliance for inorganic determinations using the date on which reportable data were acquired.

Metals:

The holding time for metals is six months from the date of collection, excepting mercury, which is 28 days. All analyses were performed within holding time.

Miscellaneous:

The following analytes do not have a Contract Laboratory Program holding time. The holding times tabulated below derive from the relevant EPA methods and are applicable when the sample was appropriately preserved and/or cooled. All samples submitted followed the preservation guidelines unless explicitly noted otherwise.

<u>Analyte</u>	<u>Holding Time</u>	<u>Violations</u>
Perchlorate	28 days	None
Chloride	28 days	None
Sulfate	28 days	None
Nitrate + Nitrite	28 days	None
Nitrate	48 hours	None

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Seattle, WA 98108

Nitrite	48 hours	None
Ortho phosphorus	48 hours	None
Alkalinity	14 days	None
Total Dissolved Solids	7 days	see notes below
pH	15 minutes	All samples

Total Dissolved Solids:

The holding time for this analysis is 7 days, calculated from time of collection. Samples MW-10, MW-15, and DUP-7-2Q08 were analyzed 22 days out of their holding times, due to a miscommunication between Paces' project manager and the client.

Total Dissolved Solids:

The holding time for this analysis is 7 days, calculated from time of collection. Sample MW-10 was re-analyzed 32 days out of its holding time, due to a gross difference between the total dissolved solids and the calculated total dissolved solids.

ICP Metals:

For the run sequences R028884, the ICV exceeded the upper control limit for potassium. All samples were not reported from this run sequence and were reanalyzed and reported from run sequence R029004. QC were reported and were within control limits. No further corrective action was required. Data have not been flagged for this event.

For the run sequence R028884, the ICV exceeded the upper control limit for sodium. Also, the second CCB result for sodium was greater than the CRDL. Therefore, all sodium results associated with this run sequence may be biased high. Data have not been flagged for these events.

For the run sequence R029004, the ICV exceeded the upper control limit for potassium. All sample results for potassium were less than the CRDL. No corrective action was required. Data have not been flagged for this event.

For the run sequence R029004, the ICV exceeded the upper control limit for sodium. Therefore, all sodium results associated with this run sequence may be biased high. Data have not been flagged for these events.

For the run sequence R028884, the sixth, seventh, and eighth CCBs contained a level of potassium that was less than $-\frac{1}{2}$ the CRDL. All samples were not reported from this run sequence and were reanalyzed and reported from run sequence R029004. No further corrective action was required. Data have not been flagged for this event.

For the run sequence R029004, the third CCB contained levels of potassium and sodium that were greater than $\frac{1}{2}$ the CRDL. No sample results for potassium and sodium were associated with this CCB. Therefore, no corrective action was required. Data have not been flagged for this event.

Due to software limitations, which limit that amount of data that can be processed, all injections are not present on Form 14 for run sequence R029004. All calibration checks are listed and all injections surrounding the samples are listed.

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ICP-MS Metals:

The serial dilution for the element chromium did not agree within 10% of the original determination after correction for dilution for sample DUPE-7-2Q08. No further corrective action was required. All relevant data have been flagged with an "E" on the applicable Forms I and 9.

Miscellaneous Inorganics:

In the run sequence R028354 for "365.2 Ortho-Phosphorus as P", the initial calibration verification standard and the blank spike had exceeded the established upper control limits. The samples being reported were below the reporting limits, no further action was taken.

For run sequence R028434 for "353.2 Nitrate+Nitrite", the matrix spike duplicate had exceeded the upper established control limit. Since all other quality control samples were in control, no further action was taken.

In the run sequence R028654 for "300.0 Anions", the matrix spike had exceeded the established lower control limits for chloride. Since all of the other quality control samples were in control, no further action was taken.

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Seattle, WA 98108

ABBREVIATIONS

Several abbreviations can appear in our reports. The most commonly employed abbreviations are as follows:

- U The analyte of interest was not detected to the limit of detection indicated.
- SDL Sample Detection Limit. The SDL can vary from sample to sample, depending on sample size, matrix interferences, moisture content and other sample-specific conditions.
- PQL Practical Quantitation Limit. The limit is drawn from the test method and usually represents the SDL multiplied by a matrix-specific factor.
- DB Dry Basis. The value reported has been back-calculated to normalize for the moisture content of the sample.
- AR As-Received. The value has not been normalized for moisture.

ORGANIC ANALYSES:

- B When used in relation to organics fractions, the "B" flag indicates that the analyte of interest was detected in the method blank associated with the sample, as well as in the sample itself. The "B" flag is applied without regard to the relative concentrations detected in the blank and sample.
 - J The analyte of interest was detected below the routine reporting limit. This value should be regarded as an estimate.
 - T The flagged values represent the SUM of two co-eluting compounds. The SUM of these two values is shown as though it were a result for each of them. The two figures should not be added together.
 - E The flagged value was reported from an analysis that exceeded the linear range of the instrument. See additional comments for further discussion of the circumstances. Values so flagged should be considered estimates.
 - P When a dual column GC technique is employed, this flag indicates that test results from the two columns differ by more than 25%. Generally, we report the higher value.
 - C The flagged analyte has been confirmed by GC/MS analysis. The value reported may be derived from either the initial or confirmatory (GC/MS) analysis. See specific report comments for details.
 - ~ This result has been identified as non-primary based on the analyst's professional judgment.
- CRQL Client requested Quantitation Limit, usually the limit of detection specified at your request. Might also be referred to as Contract Required Quantitation Limit.

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INORGANIC ANALYSES:

- J The reported value was obtained from a reading that was less than the Contract Required Detection Limit (CRDL) but greater than or equal to the Instrument Detection Limit (IDL). If the analyte was analyzed for but not detected, a "U" shall be entered.
 - E The reported value is estimated because of the presence of interference. The serial dilution was not within control limits.
 - N Spiked sample recovery not within control limits.
 - * Duplicate analysis not within control limits.
 - Z Denotes data deemed unusable by the analyst.
- CRDL Client Requested Detection Limit, usually the limit of detection specified at your request. Might also be referred to as Contract Required Detection Limit.

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Seattle, WA 98108

RELEASE OF DATA

Pace Analytical Services, Inc. certifies that these results meet all requirements of the NELAC standards, except where otherwise noted.

"I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature."

Respectfully submitted,


for
Kara Godineaux
Project Manager

7/8/08
(DATE)


Harry Romberg
Quality Assurance Officer

7/8/08
(DATE)

HOW TO CONTACT US:

All Pace Analytical Services, Inc. staff members can be reached at the same telephone and facsimile numbers: (206) 767-5060 by phone, (206) 767-5063 by FAX.

REQUESTS FOR DUPLICATE COPIES:

This packet has been checked for accuracy. All pages are present and in sequential order. Please see Attachment B for a detailed record.

In the event that duplicate data copies are needed, Pace will accommodate your request at a fee of twenty-five cents (\$0.25) per copy, plus shipping. If the data are in storage, there will also be a fee for retrieval.

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Seattle, WA 98108

ATTACHMENT A

Chain-of-Custody Copies

PACE ANALYTICAL SERVICES, INC. - SAMPLE CONFIRMATION LOG														
Sample #	VTSR	Collected On	Client ID	200.7 K, Na, Mg, Ca, Fe	200.8 As, Cr, Pb	300 Antions Cl and SO4	310.1M Carb./Bicarb. Alkalinity	314.0 Perchlorate	353.2 Nitrate (as N) by Calc. water	353.2 Nitrate + Nitrite (as N), Water	354.1 Nitrite (as N), Water	365.2 Ortho-Phosphorus as P, Water	524.2 Volatile Organics + TICs (OPL Special list)	TurnNet for 200.7/200.8 TurMet
WD JPL116-001	05/23/2008 08:25 AM	05/22/2008 08:09 AM	MW-10	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN
WD JPL116-002	05/23/2008 08:25 AM	05/22/2008 09:41 AM	MW-15	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN
WD JPL116-003	05/23/2008 08:25 AM	05/22/2008 12:00 AM	DUPE-7-2008	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN
WD JPL116-004	05/23/2008 08:25 AM	05/22/2008 12:00 AM	TB-19-5/22/08										IN	

Approved By: _____ On: _____

Notes: _____

Samples identified with a '*' client has requested QC for _____

LEGEND: -:Started, +:Completed, IN:logged in, P:Preparation, A:Analysis, X:Cancelled, PL:Pre-logged

Matrices: Water=WD
FORM LIL-PM-8.0

COMPANY: BOTTLE
 ADDRESS: 3900 OLD TOWN AVE. C-205
SPAIN BLDG, CA 92110
 ATTENTION: SPUD COVER
 PROJECT NAME: SPL CIV APRIL 2008
 PROJECT CONTACT: DAVID COVER
 TELEPHONE: 619-736-7311 FAX: _____
 JOB/P.O. NO.: 6486090/214319

CHAIN OF CUSTODY RECORD
 46078

PAGE 1 OF 1

SDG #

WORK ORDER ID#

SPL116

SUBMITTED AT:

940 South Hamer St, Seattle, WA 98108
 1106 Ledwith Ave, Yelm, WA 98992

(206) 767-5060 FAX 767-5063
 (509) 248-4095 FAX 525-1265



MATRIX: WATER, SOIL OR SPECIFY

NO. OF CONTAINERS	TESTS TO PERFORM
<u>100 (524.2)</u>	
<u>TOTAL Cr (200.8)</u>	
<u>LEAD (200.8)</u>	
<u>ARSENIC (200.8)</u>	
<u>GEN CHEM (200.8)</u>	
<u>GEN CHEM (314.0)</u>	
<u>GEN CHEM (300.0, 310.1, 160.1, 151.1)</u>	

LAB SAM	SAMPLE ID / LOCATION	DATE	TIME	MATRIX	NO. OF CONTAINERS	TESTS TO PERFORM	OBSERVATIONS, COMMENTS, SPECIAL INSTRUCTIONS
1	MW-10	5/21/08	809	W	5 X X X X X X X		
2	MW-15		941		5 X X X X X X X		
3	DUP-7-2008				5 X X X X X X X		Duplicate
4	TR-19-5/21/08				2 X		TRIP BLANK

A. A standard turnaround time is assumed unless otherwise marked.

B. The laboratory may not be responsible for missed holding time for samples received with less than 50% of the analytical hold time remaining. Please contact the laboratory for further information.

INSTRUCTIONS

1. USE ONE LINE PER SAMPLE.
2. BE SPECIFIC IN TEST REQUESTS.
3. CHECK OFF TESTS TO BE PERFORMED FOR EACH SAMPLE.

BILLING INFORMATION (DIFFERENT THAN ABOVE)

NAME: BOTTLE
 ATTN: CERRAD TAPPAUS
 ADDRESS: 505 WIND AVE.
 CITY, STATE, ZIP: COVINGTON, OH 43201

* RUSH TURNAROUND IS SUBJECT TO PRIOR LABORATORY APPROVAL

TURNAROUND REQUEST

STD. 10-14 WORKING DAYS

24-48 HRS. (100% SUR)

72 HRS. (75% SUR)

5 DAYS (50% SUR)

OTHER: _____

TEMP:

CUSTODY SEAL: W N N/A

RELINQUISHED BY (SIGN AND PRINT): MARCO MENDOZA DATE/TIME: 5/21/08 1330

RECEIVED BY (SIGN AND PRINT): RACHEL FRANK DATE/TIME: 5/23/08 835

Supplemental Sample Receipt Log
Pace Analytical Services, Inc.

SDG: JPL116
Cooler: AAD781
Temperatures: 2.0
COC #: 46078

Sample	Bottle #	Bottle Description	pH	Bubbles
JPL116-001	0001	1000 mL cylinder, poly	7	N/A
	0002	40 ml OTWS, clear glass, HCl	N/C	< 1/4
	0003	40 ml OTWS, clear glass, HCl	N/C	< 1/4
	0004	40 ml OTWS, clear glass, HCl	N/C	< 1/4
	0005	500 ml cylinder, poly, HNO3	<2	N/A
JPL116-002	0001	1000 mL cylinder, poly	7	N/A
	0002	40 ml OTWS, clear glass, HCl	N/C	None
	0003	40 ml OTWS, clear glass, HCl	N/C	None
	0004	40 ml OTWS, clear glass, HCl	N/C	None
	0005	500 ml cylinder, poly, HNO3	<2	N/A
JPL116-003	0001	1000 mL cylinder, poly	7	N/A
	0002	40 ml OTWS, clear glass, HCl	N/C	< 1/4
	0003	40 ml OTWS, clear glass, HCl	N/C	< 1/4
	0004	40 ml OTWS, clear glass, HCl	N/C	None
	0005	500 ml cylinder, poly, HNO3	<2	N/A
JPL116-004	0001	40 ml OTWS, clear glass, HCl	N/C	< 1/4
	0002	40 ml OTWS, clear glass, HCl	N/C	< 1/4

Allowable temperature and pH ranges (neutral pH defined as a value between 5 and 9)

Temperature Allowable temperature range is 4+/- 2 degrees Celsius

Acid Preserved pH pH must be less than 2
Base Preserved pH pH must be greater than 12
NC Not Checked for pH

Pace Analytical Services, Inc.
940 S. Harney
Seattle, WA 98108

ATTACHMENT B

Index

Pace Analytical Services, Inc.
940 S. Harney
Seattle, WA 98108

Battelle

SDG No.: JPL116

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Completed and checked by:

Judy Eschlund

Date:

7/8/08

QC SUMMARY

SDG JPL116

VOLATILES ANALYSIS

2
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: Pace Analytical Services

Contract: JPL Groundwater Monitorin

SDG No.: JPL116

Run Sequence: R028412

Level: (LOW/MED) NONE

CLIENT SAMPLE NUMBER	SMC1 (DCA) #	SMC2 (BFB) #	SMC3 (TOL) #	SMC4 () #	TOT OUT
(JPL116-003) DUPE-7-2Q08	105	105	106		0
(JPL116-002) MW-15	103	105	106		0
(JPL116-001) MW-10	105	104	105		0
(JPL116-004) TB-19-5/22/08	101	104	107		0
(B053008MVOWM2) B053008MVOWM2	104	106	104		0
(S053008MVOWM1) S053008MVOWM1	109	95	102		0

	QC LIMITS
SMC1 (DCA) = 1,2-Dichloroethane-d4	60-140
SMC2 (BFB) = 4-Bromofluorobenzene	60-140
SMC3 (TOL) = Toluene-d8	60-140
SMC4 () =	

Column to be used to flag recovery values
* Values outside of contract required QC limits

3B
WATER VOLATILE BLANK SPIKE RECOVERY

Lab Name: Pace Analytical Services Contract: JPL Groundwater Monitorin
 BS Run Sequence: R028412 SDG No.: JPL116
 BS Lab Sample ID: S053008MVOWM1
 Level: N/A Units: ug/L

Analyte	Spike Added	Found	% Rec	#	Rec Limit
Dichlorodifluoromethane	50.0	46.78	94		60-140
Chloromethane	50.0	53.81	108		60-140
Vinyl chloride	50.0	58.49	117		60-140
Bromomethane	50.0	59.29	119		60-140
Chloroethane	50.0	62.23	124		60-140
Trichlorofluoromethane	50.0	58.68	117		60-140
1,1-Dichloroethene	50.0	64.2	128		60-140
1,1,2-Trichloro-1,2,2-trifluoroethane	50.0	59.71	119		60-140
Methylene chloride	50.0	55.4	111		60-140
Methyl tert-butyl ether	50.0	60.93	122		60-140
trans-1,2-Dichloroethene	50.0	59.72	119		60-140
1,1-Dichloroethane	50.0	55.79	112		60-140
2,2-Dichloropropane	50.0	54.51	109		60-140
cis-1,2-Dichloroethene	50.0	56.3	113		60-140
2-Butanone	50.0	61.34	123		60-140
Bromochloromethane	50.0	60.8	122		60-140
Chloroform	50.0	57.9	116		60-140
1,1,1-Trichloroethane	50.0	57.09	114		60-140
Carbon tetrachloride	50.0	53.81	108		60-140
1,1-Dichloropropene	50.0	55.85	112		60-140
Benzene	50.0	56.79	114		60-140
1,2-Dichloroethane	50.0	58.56	117		60-140
Trichloroethene	50.0	56.42	113		60-140
1,2-Dichloropropane	50.0	57.47	115		60-140
Dibromomethane	50.0	60.16	120		60-140
Bromodichloromethane	50.0	58.35	117		60-140
cis-1,3-Dichloropropene	50.0	70.59	141	*	60-140
4-Methyl-2-pentanone	50.0	61.75	124		60-140
Toluene	50.0	56.25	113		60-140
trans-1,3-Dichloropropene	50.0	56.07	112		60-140
1,1,2-Trichloroethane	50.0	57.38	115		60-140
Tetrachloroethene	50.0	56.71	113		60-140
1,3-Dichloropropane	50.0	58.63	117		60-140
Dibromochloromethane	50.0	59.48	119		60-140

Column to be used to flag recovery and RPD values with an asterisk
 * Values outside of QC limits

Spike Recovery: 1 out of 63 outside limits

COMMENTS:

Date Printed: 6/2/2008 8:38

3B
WATER VOLATILE BLANK SPIKE RECOVERY

Lab Name: Pace Analytical Services Contract: JPL Groundwater Monitorin
 BS Run Sequence: R028412 SDG No.: JPL116
 BS Lab Sample ID: S053008MVOWM1
 Level: N/A Units: ug/L

Analyte	Spike Added	Found	% Rec	#	Rec Limit
1,2-Dibromoethane	50.0	56.81	114		60-140
Chlorobenzene	50.0	56.05	112		60-140
Ethylbenzene	50.0	58.04	116		60-140
1,1,1,2-Tetrachloroethane	50.0	56	112		60-140
m,p-Xylene	100	117.14	117		60-140
o-Xylene	50.0	55.64	111		60-140
Styrene	50.0	56.82	114		60-140
Bromoform	50.0	57.22	114		60-140
Isopropylbenzene	50.0	56.92	114		60-140
1,1,2,2-Tetrachloroethane	50.0	58.23	116		60-140
n-Propylbenzene	50.0	56.64	113		60-140
Bromobenzene	50.0	52.07	104		60-140
1,2,3-Trichloropropane	50.0	57.58	115		60-140
2-Chlorotoluene	50.0	51.43	103		60-140
1,3,5-Trimethylbenzene	50.0	56.07	112		60-140
4-Chlorotoluene	50.0	54.14	108		60-140
tert-Butylbenzene	50.0	55.03	110		60-140
1,2,4-Trimethylbenzene	50.0	59.49	119		60-140
sec-Butylbenzene	50.0	58.62	117		60-140
4-Isopropyltoluene	50.0	63.43	127		60-140
1,3-Dichlorobenzene	50.0	58.47	117		60-140
1,4-Dichlorobenzene	50.0	56.77	114		60-140
n-Butylbenzene	50.0	62.32	125		60-140
1,2-Dichlorobenzene	50.0	57.8	116		60-140
1,2-Dibromo-3-chloropropane	50.0	58.85	118		60-140
1,2,4-Trichlorobenzene	50.0	64.33	129		60-140
Hexachlorobutadiene	50.0	57.4	115		60-140
Naphthalene	50.0	69.91	140		60-140
1,2,3-Trichlorobenzene	50.0	68.39	137		60-140

Column to be used to flag recovery and RPD values with an asterisk
 * Values outside of QC limits

Spike Recovery: 1 out of 63 outside limits

COMMENTS:

Date Printed: 6/2/2008 8:38

4
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

B053008MVOWM2

Lab Name Pace Analytical Services Contract: JPL Groundwater Monitorin
 SDG No.: JPL116
 Lab File ID: M0530012.D Lab Sample ID: B053008MVOWM2
 Date Analyzed: 05/30/2008 Time Analyzed: 12:11
 GC Column: ZB-624 20m ID: 0.18 (mm) Heated Purge: (Y/N) N
 Instrument ID: 5973M Moby Matrix: Water

	CLIENT SAMPLE NO.	LAB SAMPLE ID.	LAB FILE ID.	DATE ANALYZED	TIME ANALYZED	RUN SEQUENCE
01	S053008MVOWM1	S053008MVOWM1	M0530009.D	05/30/2008	10:50	R028412
02	TB-19-5/22/08	JPL116-004	M0530013.D	05/30/2008	12:44	R028412
03	MW-10	JPL116-001	M0530015.D	05/30/2008	13:38	R028412
04	MW-15	JPL116-002	M0530016.D	05/30/2008	14:06	R028412
05	DUPE-7-2Q08	JPL116-003	M0530017.D	05/30/2008	14:32	R028412
06						
07						
08						
09						
10						
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30						

COMMENTS: _____

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

CLIENT SAMPLE NO.

BFBM2

Lab Name: Pace Analytical Services Contract: JPL Groundwater Monitorin
 Run Sequence: CAL1330 SDG No.: JPL116
 Lab File ID: M0521017.D BFB Injection Date: 05/21/2008
 Instrument ID: 5973M Moby BFB Injection Time: 15:01
 GC Column ZB-624 20m ID: 0.18 (mm)

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15% to 40% of mass 95	16.6
75	30% to 60% of mass 95	44.2
95	base peak, 100% relative abundance	100
96	5% to 9% of mass 95	6.9
173	less than 2% of mass 174	0.3()1
174	greater than 50% of mass 95	94.2
175	5% to 9% of mass 17	7.1()1
176	greater than 95%, but less than 101% of mass 174	97.6()1
177	5% to 9% of mass 176	7()2

1 - Value is %mass 174

2 - Value is %mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD0.3	VSTD0.3	M0521018.D	05/21/2008	15:37
02	VSTD0.5	VSTD0.5	M0521019.D	05/21/2008	16:04
03	VSTD001	VSTD001	M0521020.D	05/21/2008	16:32
04	VSTD005	VSTD005	M0521021.D	05/21/2008	16:59
05	VSTD010	VSTD010	M0521022.D	05/21/2008	17:26
06	VSTD050	VSTD050	M0521023.D	05/21/2008	17:54
07	VSTD100	VSTD100	M0521024.D	05/21/2008	18:21
08	VSTD200	VSTD200	M0521025.D	05/21/2008	18:48
09					
10					
11					
12					
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15					
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17					
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19					
20					
21					
22					

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

BFBM2

Lab Name: Pace Analytical Services Contract: JPL Groundwater Monitorin
 Run Sequence: R028412 SDG No.: JPL116
 Lab File ID: M0530004.D BFB Injection Date: 05/30/2008
 Instrument ID: 5973M Moby BFB Injection Time: 08:05
 GC Column ZB-624 20m ID: 0.18 (mm)

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15% to 40% of mass 95	16.6
75	30% to 60% of mass 95	44.7
95	base peak, 100% relative abundance	100
96	5% to 9% of mass 95	7
173	less than 2% of mass 174	0()1
174	greater than 50% of mass 95	93.2
175	5% to 9% of mass 17	7.3()1
176	greater than 95%, but less than 101% of mass 174	95.9()1
177	5% to 9% of mass 176	6.5()2

1 - Value is %mass 174

2 - Value is %mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD050M3	VSTD050M3	M0530008.D	05/30/2008	10:01
02	S053008MVOWM1	S053008MVOWM1	M0530009.D	05/30/2008	10:50
03	B053008MVOWM2	B053008MVOWM2	M0530012.D	05/30/2008	12:11
04	TB-19-5/22/08	JPL116-004	M0530013.D	05/30/2008	12:44
05	MW-10	JPL116-001	M0530015.D	05/30/2008	13:38
06	MW-15	JPL116-002	M0530016.D	05/30/2008	14:06
07	DUPE-7-2Q08	JPL116-003	M0530017.D	05/30/2008	14:32
08					
09					
10					
11					
12					
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19					
20					
21					
22					

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Pace Analytical Services Contract: JPL Groundwater Monitoring
 Run Sequence: R028412 SDG No.: JPL116
 Client Sample No. (VSTD050##): VSTD050M3 Date Analyzed: 05/30/2008
 Lab File ID (Standard): M0530008.D Time Analyzed: 10:01
 Instrument ID: 5973M Moby Heated Purge: (Y/N) N
 GC Column: ZB-624 20m ID: 0.18 (mm)

	IS1 (FBZ) AREA #	RT #	IS2 (CBZ) AREA #	RT #	IS3 (DCB) AREA #	RT #
12 HOUR STD	474727	7.97	290977	11.51	169055	13.45
UPPER LIMIT	949454	8.02	581954	11.56	338110	13.5
LOWER LIMIT	237363.5	7.92	145488.5	11.46	84527.5	13.4
CLIENT SAMPLE NO.						
01 S053008MVOWM1	478731	7.97	302777	11.51	177033	13.44
02 B053008MVOWM2	442821	7.97	268113	11.52	128951	13.44
03 TB-19-5/22/08	441246	7.97	261476	11.52	125022	13.44
04 MW-10	427885	7.97	261276	11.52	126181	13.44
05 MW-15	425348	7.97	255976	11.51	124208	13.44
06 DUPE-7-2Q08	425030	7.97	254742	11.51	124165	13.44
07						
08						
09						
10						
11						
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16						
17						
18						
19						
20						
21						
22						

IS1 (FBZ) = Fluorobenzene
 IS2 (CBZ) = Chlorobenzene-d5
 IS3 (DCB) = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = + 100% of internal standard area
 AREA LOWER LIMIT = - 50% of internal standard area
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
 * Values outside of QC limits

Date Printed: 6/4/2008 13:24

SAMPLE DATA

SDG JPL116

VOLATILES ANALYSIS

1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW-10

Lab Name: Pace Analytical Services
 SDG No.: JPL116
 Matrix: (SOIL/SED/WATER) Water
 Sample wt/vol: 10.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: not dec. _____
 GC Column: ZB-624 20m ID: 0.18 (mm)
 Soil Extract Volume: _____ (uL)
 Heated Purge: (Y/N) N

Contract: JPL Groundwater Monitorin
 Run Sequence: R028412
 Lab Sample ID: JPL116-001
 Lab File ID: M0530015.D
 Date Collected: 05/22/2008
 Date/Time Analyzed: 05/30/2008 13:38
 Dilution Factor: 1.0
 Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.26	J
75-01-4	Vinyl chloride	0.50	U
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
75-09-2	Methylene chloride	1.0	U
1634-04-4	Methyl tert-butyl ether	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
75-34-3	1,1-Dichloroethane	0.47	J
594-20-7	2,2-Dichloropropane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.79	
71-55-6	1,1,1-Trichloroethane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
563-58-6	1,1-Dichloropropene	0.50	U
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U
79-01-6	Trichloroethene	4.6	
78-87-5	1,2-Dichloropropane	0.50	U
74-95-3	Dibromomethane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-pentanone	5.0	U

1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW-10

Lab Name: Pace Analytical Services
 SDG No.: JPL116
 Matrix: (SOIL/SED/WATER) Water
 Sample wt/vol: 10.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: not dec. _____
 GC Column: ZB-624 20m ID: 0.18 (mm)
 Soil Extract Volume: _____(uL)
 Heated Purge: (Y/N) N

Contract: JPL Groundwater Monitorin
 Run Sequence: R028412
 Lab Sample ID: JPL116-001
 Lab File ID: M0530015.D
 Date Collected: 05/22/2008
 Date/Time Analyzed: 05/30/2008 13:38
 Dilution Factor: 1.0
 Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L	Q
108-88-3	Toluene	0.45	J
10061-02-	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.99	
142-28-9	1,3-Dichloropropane	0.50	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
630-20-6	1,1,1,2-Tetrachloroethane	0.50	U
179601-23	m,p-Xylene	1.0	U
95-47-6	o-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
103-65-1	n-Propylbenzene	0.50	U
108-86-1	Bromobenzene	0.50	U
96-18-4	1,2,3-Trichloropropane	0.50	U
95-49-8	2-Chlorotoluene	0.50	U
108-67-8	1,3,5-Trimethylbenzene	0.50	U
106-43-4	4-Chlorotoluene	0.50	U
98-06-6	tert-Butylbenzene	0.50	U
95-63-6	1,2,4-Trimethylbenzene	0.50	U
135-98-8	sec-Butylbenzene	0.50	U
99-87-6	4-Isopropyltoluene	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U

1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW-10

Lab Name: Pace Analytical Services
 SDG No.: JPL116
 Matrix: (SOIL/SED/WATER) Water
 Sample wt/vol: 10.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: not dec. _____
 GC Column: ZB-624 20m ID: 0.18 (mm)
 Soil Extract Volume: _____(uL)
 Heated Purge: (Y/N) N

Contract: JPL Groundwater Monitorin
 Run Sequence: R028412
 Lab Sample ID: JPL116-001
 Lab File ID: M0530015.D
 Date Collected: 05/22/2008
 Date/Time Analyzed: 05/30/2008 13:38
 Dilution Factor: 1.0
 Soil Aliquot Volume: _____(uL)

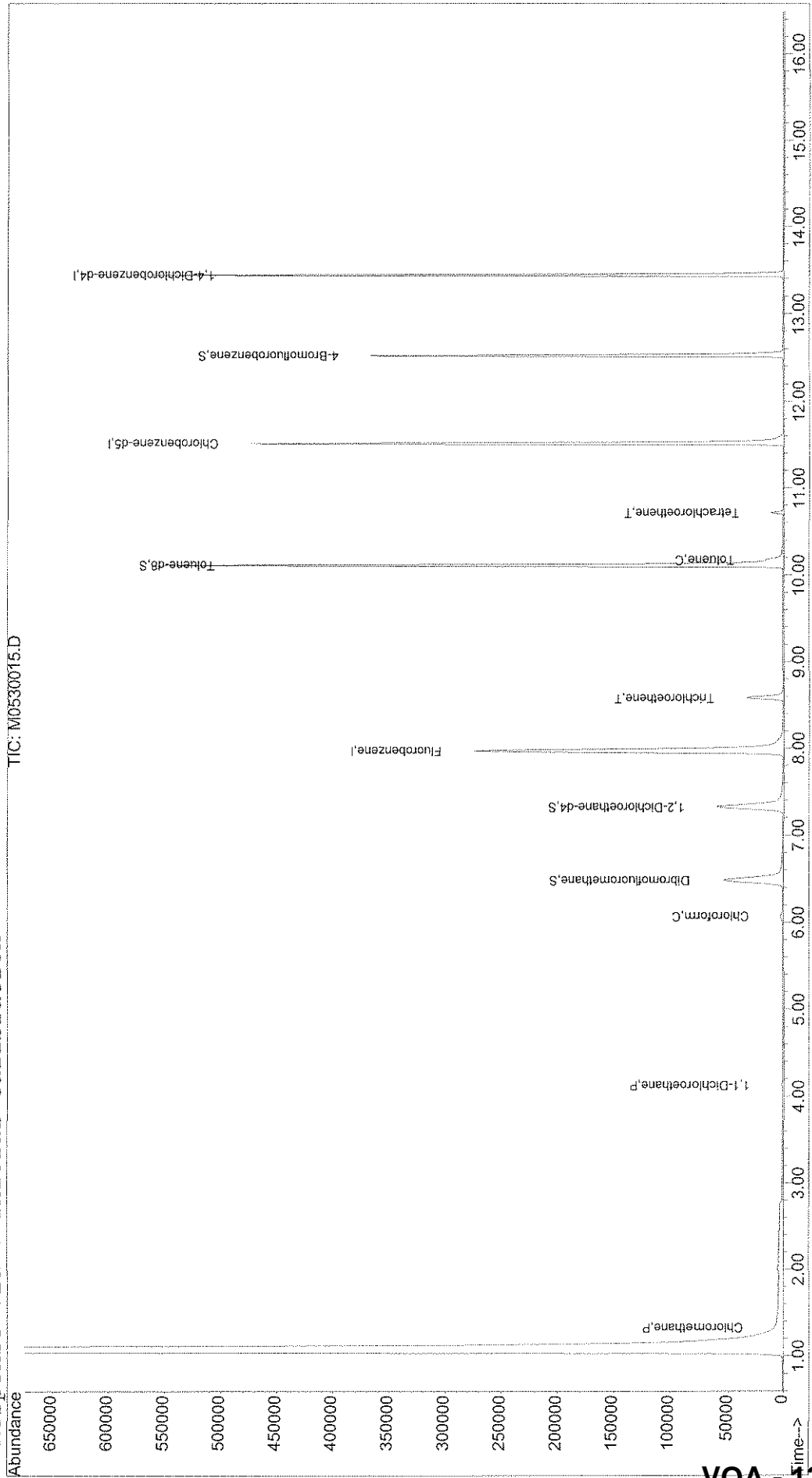
CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L	Q
104-51-8	n-Butylbenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-68-3	Hexachlorobutadiene	0.50	U
91-20-3	Naphthalene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

Comments:

Quantitation Report

Data File : X:\MSVOA\MOBY\053008\M0530015.D Vial: 8
Acq On : 30 May 2008 13:38 Operator: DGA
Sample : JPL116-001 Inst : MOBY
Misc : #4 10ml +IS/SS(524.2.) Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Jun 2 7:39 2008 Quant Results File: M8260W.RES

Method : X:\MSVOA\MOBY\QUANT\M8260W.M (RTE Integrator)
Title : VOA 8260/524.2/624 - 10ML Water Calibration 5973M
Last Update : Mon Jun 02 07:34:43 2008
Response via : Initial Calibration



Quantitation Report

Data File : X:\MSVOA\MOBY\053008\M0530015.D
 Acq On : 30 May 2008 13:38
 Sample : JPL116-001
 Misc : #4 10ml +IS/SS(524.2.)
 MS Integration Params: rteint.p
 Quant Time: Jun 2 7:39 2008

Vial: 8
 Operator: DGA
 Inst : MOBY
 Multiplr: 1.00

Quant Results File: M8260W.RES

Quant Method : X:\MSVOA\MOBY\QUANT\M8260W.M (RTE Integrator)
 Title : VOA 8260/524.2/624 - 10ML Water Calibration 5973M
 Last Update : Mon Jun 02 07:34:43 2008
 Response via : Initial Calibration
 DataAcq Meth : 8260B
 IS QA File : X:\MSVOA\MOBY\052108\M0521023.D (21 May 2008 17:54)

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min) Rcv(Ar)
1) Fluorobenzene	7.97	96	427885	25.00	ug/l	0.00 76.90%
54) Chlorobenzene-d5	11.52	117	261276	25.00	ug/l	0.00 76.80%
74) 1,4-Dichlorobenzene-d4	13.44	152	126181	25.00	ug/l	0.00 61.91%

System Monitoring Compounds

37) Dibromofluoromethane	6.48	111	77000	20.62	ug/l	0.00
Spiked Amount	20.000	Range	85 - 115	Recovery	=	103.10%
40) 1,2-Dichloroethane-d4	7.32	65	85138	26.17	ug/l	0.00
Spiked Amount	25.000	Range	70 - 120	Recovery	=	104.68%
55) Toluene-d8	10.11	98	383841	26.16	ug/l	0.00
Spiked Amount	25.000	Range	85 - 120	Recovery	=	104.64%
76) 4-Bromofluorobenzene	12.52	95	110941	26.11	ug/l	0.00
Spiked Amount	25.000	Range	75 - 120	Recovery	=	104.44%

Target Compounds

					Qvalue
2) Dichlorodifluoromethane	0.00	85	0	N.D.	
3) Chloromethane	1.33	50	744	0.26 ug/l	93
4) Vinyl Chloride	0.00	62	0	N.D.	
5) Bromomethane	0.00	96	0	N.D.	
6) Chloroethane	0.00	64	0	N.D.	
7) Trichlorofluoromethane	0.00	101	0	N.D.	d
8) Acrolein	0.00	56	0	N.D.	d
9) 1,1-Dichloroethene	0.00	96	0	N.D.	
10) 1,1,2-Trichloro-1,2,2-trif	0.00	101	0	N.D.	d
11) Acetone	0.00	43	0	N.D.	d
12) Iodomethane	0.00	142	0	N.D.	
13) Bromoethane	0.00	108	0	N.D.	
14) Carbon Disulfide	0.00	76	0	N.D.	
15) Allyl chloride	0.00	76	0	N.D.	
16) Acetonitrile	0.00	40	0	N.D.	d
17) Methyl Acetate	0.00	43	0	N.D.	
18) Methylene Chloride	0.00	84	0	N.D.	
19) trans-1,2-Dichloroethene	0.00	96	0	N.D.	
20) t-Butyl alcohol	0.00	59	0	N.D.	
21) Methyl tert-butyl ether	0.00	73	0	N.D.	
22) Acrylonitrile	0.00	53	0	N.D.	

(#) = qualifier out of range (m) = manual integration
 M0530015.D M8260W.M Mon Jun 02 07:39:42 2008

[Handwritten Signature]
 Page 1
VOA - 14

Quantitation Report

Data File : X:\MSVOA\MOBY\053008\M0530015.D
 Acq On : 30 May 2008 13:38
 Sample : JPL116-001
 Misc : #4 10ml +IS/SS(524.2.)
 MS Integration Params: rteint.p
 Quant Time: Jun 2 7:39 2008

Vial: 8
 Operator: DGA
 Inst : MOBY
 Multiplr: 1.00

Quant Results File: M8260W.RES

Quant Method : X:\MSVOA\MOBY\QUANT\M8260W.M (RTE Integrator)
 Title : VOA 8260/524.2/624 - 10ML Water Calibration 5973M
 Last Update : Mon Jun 02 07:34:43 2008
 Response via : Initial Calibration
 DataAcq Meth : 8260B

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
23) 1,1-Dichloroethane	4.13	63	2667	0.47	ug/l	88
24) Chloroprene	0.00	53	0	N.D.		
25) Isopropyl ether	0.00	59	0	N.D.		
26) Vinyl acetate	0.00	43	0	N.D.		
27) Ethyl-t-butyl ether	0.00	59	0	N.D.		
28) 2,2-Dichloropropane	0.00	77	0	N.D.		
29) cis-1,2-Dichloroethene	0.00	96	0	N.D.		
30) 2-Butanone	0.00	43	0	N.D.		
31) Propionitrile	0.00	54	0	N.D.		
32) Bromochloromethane	0.00	128	0	N.D.		
33) Methacrylonitrile	0.00	41	0	N.D.		
34) Chloroform	6.07	83	4027	0.79	ug/l	96
35) 1,1,1-Trichloroethane	0.00	97	0	N.D.		
36) Cyclohexane	0.00	56	0	N.D.		
38) Carbon Tetrachloride	0.00	117	0	N.D.	d	
39) 1,1-Dichloropropene	0.00	75	0	N.D.		
41) Benzene	0.00	78	0	N.D.		
42) 1,2-Dichloroethane	0.00	62	0	N.D.		
43) t-Amyl methyl ether	0.00	73	0	N.D.		
44) Isobutanol	0.00	43	0	N.D.		
45) Trichloroethene	8.58	130	16936	4.62	ug/l	99
46) Methylcyclohexane	0.00	83	0	N.D.		
47) 1,2-Dichloropropane	0.00	63	0	N.D.		
48) Dibromomethane	0.00	93	0	N.D.		
49) Methyl methacrylate	0.00	69	0	N.D.		
50) Bromodichloromethane	9.37	83	183	N.D.		
51) 2-Chloroethyl vinyl ether	0.00	63	0	N.D.		
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	0.00	43	0	N.D.	d	
56) Toluene	10.18	92	3405	0.45	ug/l	92
57) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
58) Ethyl methacrylate	0.00	69	0	N.D.		
59) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
60) Tetrachloroethene	10.71	166	3406	0.99	ug/l	93
61) 1,3-Dichloropropane	0.00	76	0	N.D.		
62) 2-Hexanone	0.00	43	0	N.D.		
63) Dibromochloromethane	0.00	129	0	N.D.		
64) 1,2-Dibromoethane	0.00	107	0	N.D.		
65) 1-Chlorohexane	11.52	91	508	N.D.		
66) Chlorobenzene	11.55	112	55	N.D.		
67) 1,1,1,2-Tetrachloroethane	0.00	131	0	N.D.		

(#) = qualifier out of range (m) = manual integration
 M0530015.D M8260W.M Mon Jun 02 07:39:42 2008

J. G. [Signature]
 VOA-15 Page 2

Quantitation Report

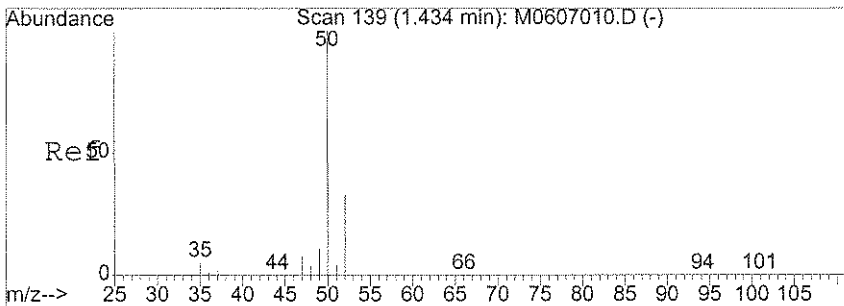
Data File : X:\MSVOA\MOBY\053008\M0530015.D
 Acq On : 30 May 2008 13:38
 Sample : JPL116-001
 Misc : #4 10ml +IS/SS(524.2.)
 MS Integration Params: rteint.p
 Quant Time: Jun 2 7:39 2008

Vial: 8
 Operator: DGA
 Inst : MOBY
 Multiplr: 1.00

Quant Results File: M8260W.RES

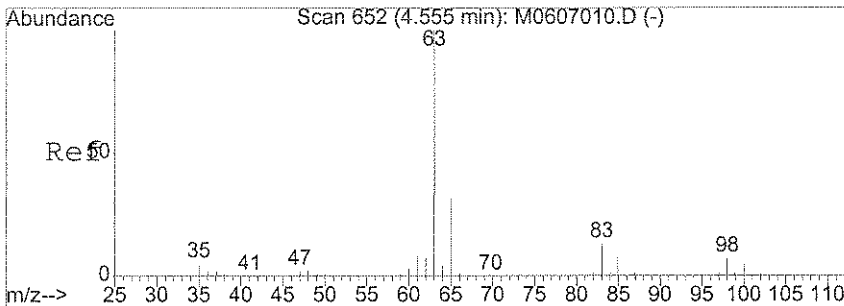
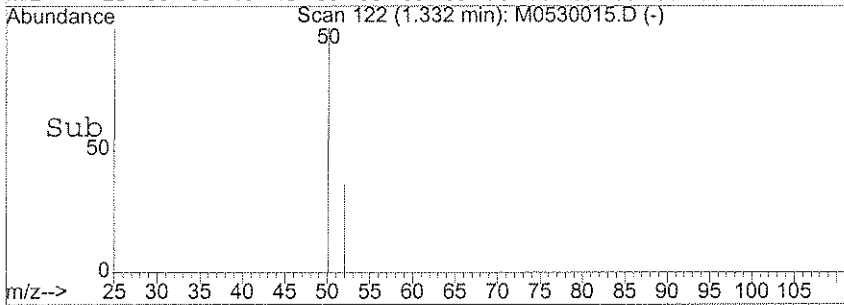
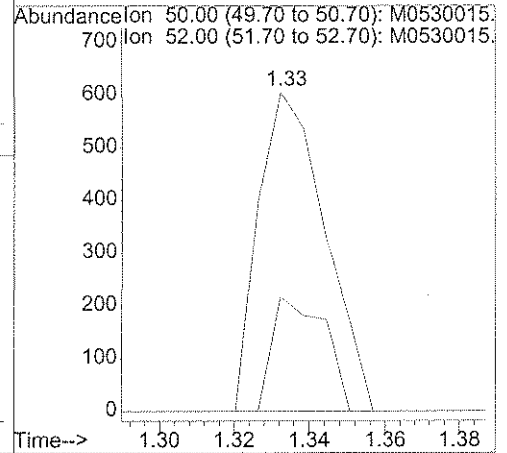
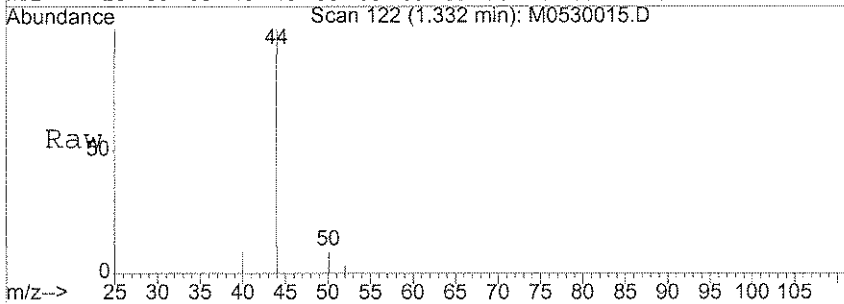
Quant Method : X:\MSVOA\MOBY\QUANT\M8260W.M (RTE Integrator)
 Title : VOA 8260/524.2/624 - 10ML Water Calibration 5973M
 Last Update : Mon Jun 02 07:34:43 2008
 Response via : Initial Calibration
 DataAcq Meth : 8260B

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
68) Ethylbenzene	11.73	91	68		N.D.	
69) m,p-Xylene	0.00	106	0		N.D.	
70) o-xylene	0.00	106	0		N.D.	
71) Styrene	0.00	104	0		N.D.	
72) Bromoform	0.00	173	0		N.D.	d
73) Isopropylbenzene	0.00	105	0		N.D.	
75) trans-1,4-Dichloro-2-buten	0.00	53	0		N.D.	
77) Bromobenzene	0.00	156	0		N.D.	
78) 1,1,2,2-Tetrachloroethane	0.00	83	0		N.D.	
79) 1,2,3-Trichloropropane	0.00	110	0		N.D.	
80) n-Propylbenzene	0.00	120	0		N.D.	
81) 2-Chlorotoluene	12.53	91	209		N.D.	
82) 4-Chlorotoluene	0.00	91	0		N.D.	
83) 1,3,5-Trimethylbenzene	0.00	105	0		N.D.	
84) tert-Butylbenzene	13.39	119	76		N.D.	
85) 1,2,4-Trimethylbenzene	0.00	105	0		N.D.	
86) sec-butylbenzene	0.00	105	0		N.D.	
87) 1,3-Dichlorobenzene	0.00	146	0		N.D.	
88) 4-Isopropyltoluene	13.39	119	76		N.D.	
89) 1,4-Dichlorobenzene	0.00	146	0		N.D.	
90) 1,2-Dichlorobenzene	0.00	146	0		N.D.	
91) n-Butylbenzene	13.71	91	69		N.D.	
92) 1,2-Dibromo-3-chloropropan	0.00	75	0		N.D.	
93) 1,2,4-Trichlorobenzene	0.00	180	0		N.D.	
94) Hexachlorobutadiene	0.00	225	0		N.D.	
95) Naphthalene	15.18	128	145		N.D.	
96) 1,2,3-Trichlorobenzene	0.00	180	0		N.D.	



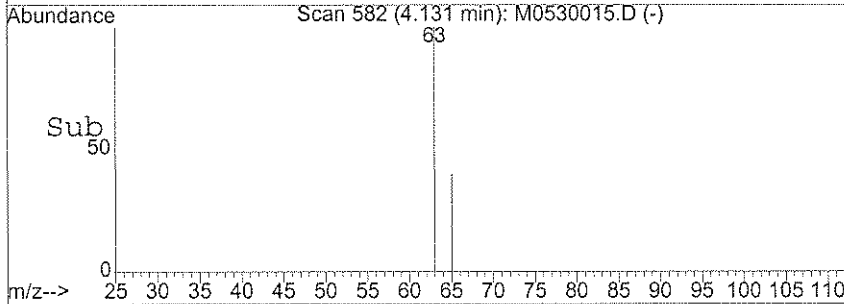
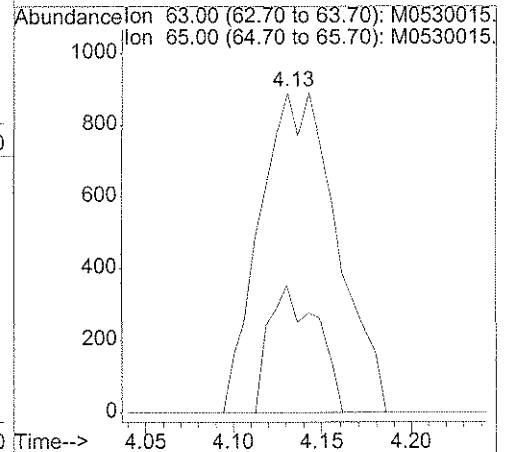
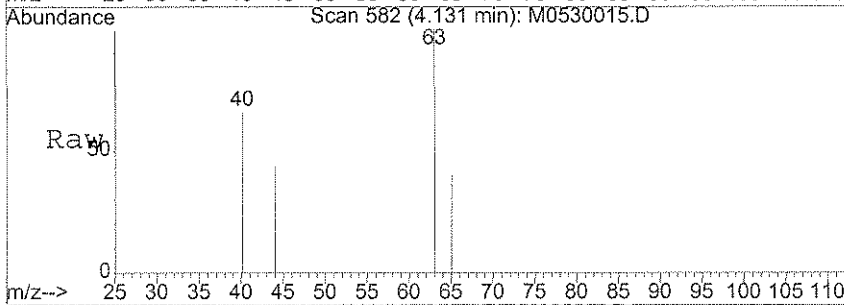
#3
 Chloromethane
 Concen: 0.26 ug/l
 RT: 1.33 min Scan# 122
 Delta R.T. -0.00 min
 Lab File: M0530015.D
 Acq: 30 May 2008 13:38

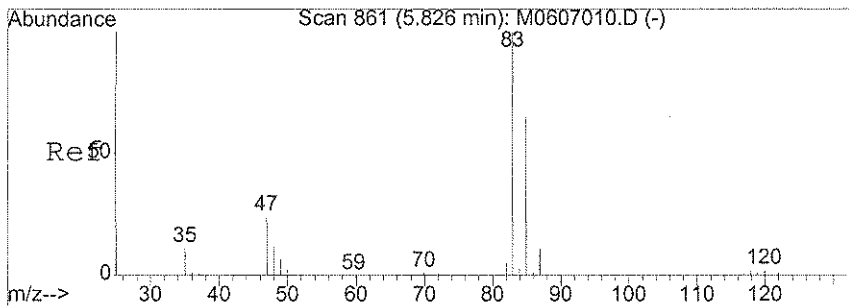
Tgt Ion	Resp	Lower	Upper
50	744		
52	28.1	11.8	51.8



#23
 1,1-Dichloroethane
 Concen: 0.47 ug/l
 RT: 4.13 min Scan# 582
 Delta R.T. -0.00 min
 Lab File: M0530015.D
 Acq: 30 May 2008 13:38

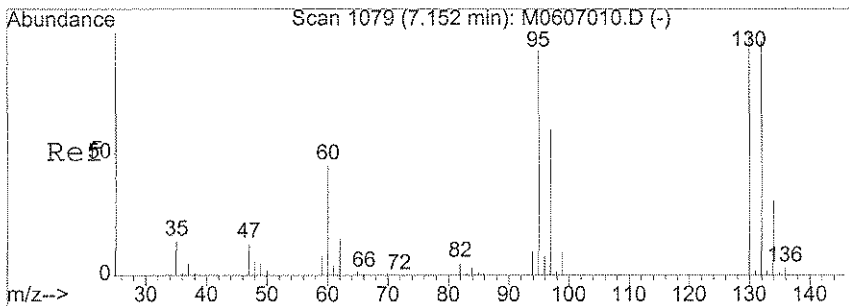
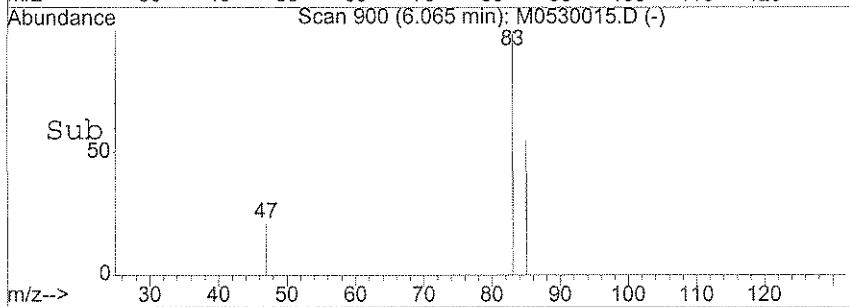
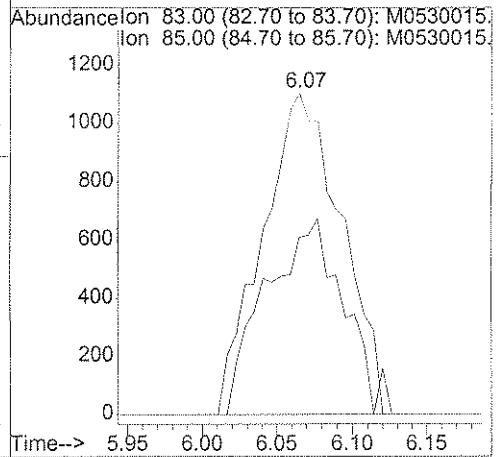
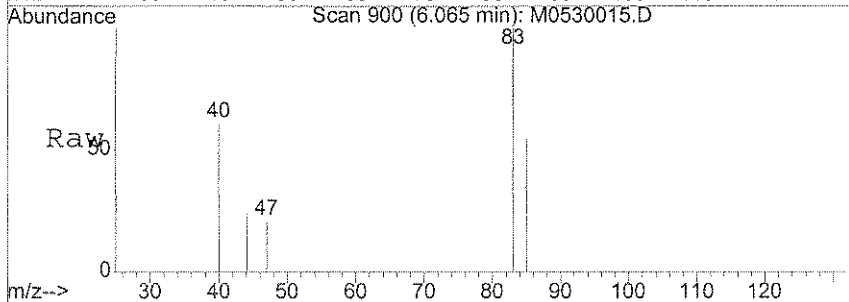
Tgt Ion	Resp	Lower	Upper
63	2667		
65	24.9	11.8	51.8





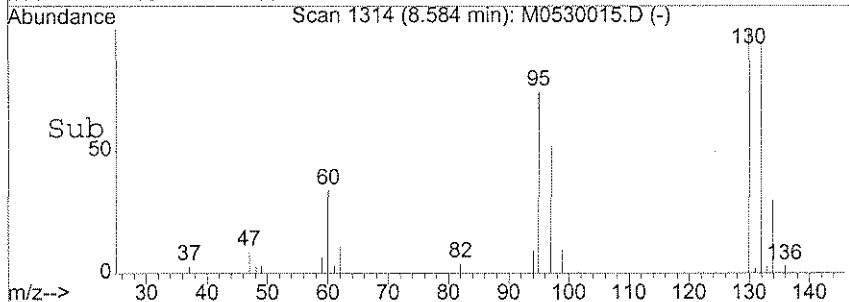
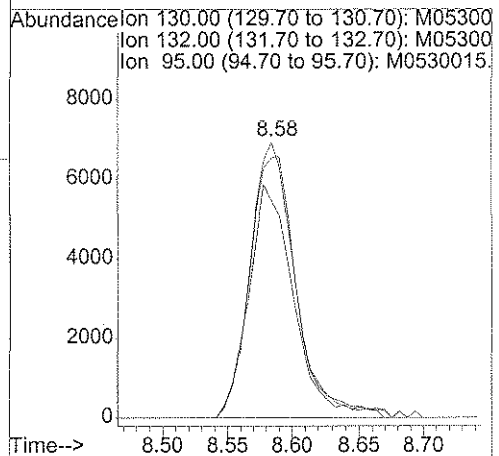
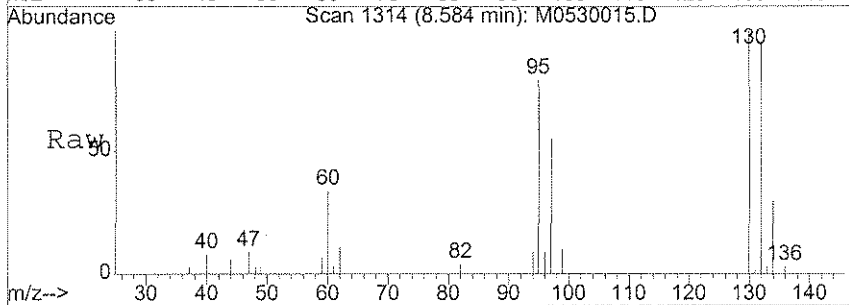
#34
 Chloroform
 Concen: 0.79 ug/l
 RT: 6.07 min Scan# 900
 Delta R.T. -0.00 min
 Lab File: M0530015.D
 Acq: 30 May 2008 13:38

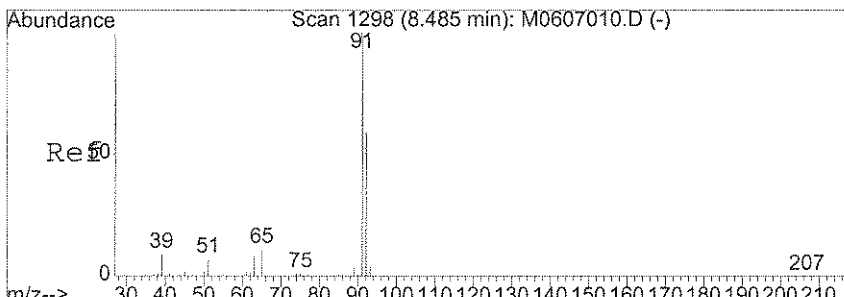
Tgt Ion	Resp	Lower	Upper
83	4027		
83	100		
85	60.2	43.7	83.7



#45
 Trichloroethene
 Concen: 4.62 ug/l
 RT: 8.58 min Scan# 1314
 Delta R.T. 0.01 min
 Lab File: M0530015.D
 Acq: 30 May 2008 13:38

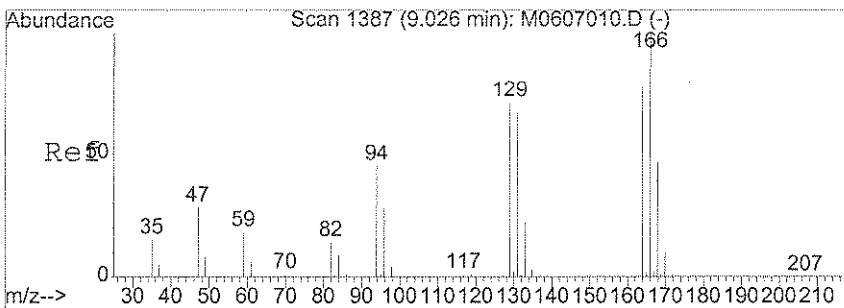
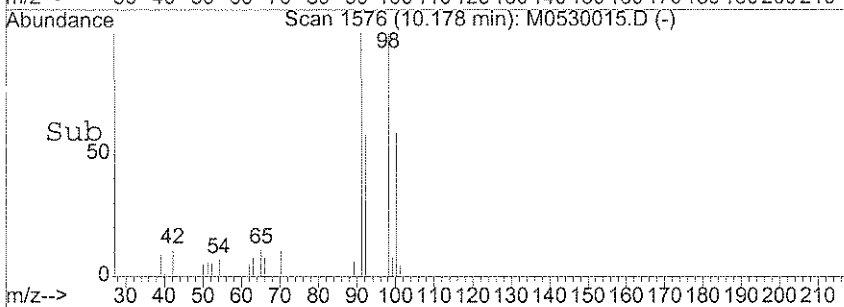
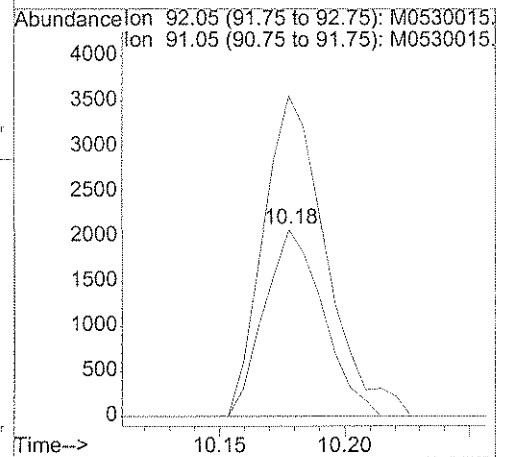
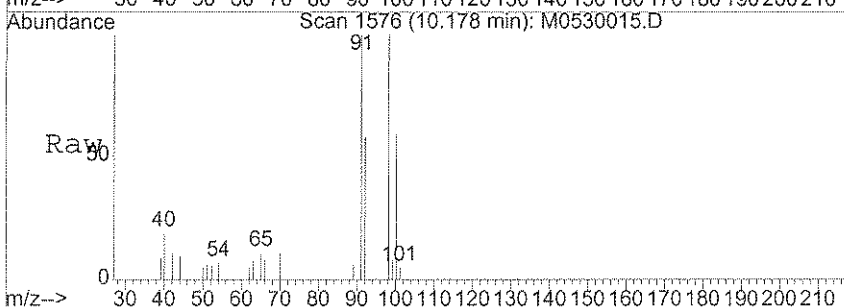
Tgt Ion	Resp	Lower	Upper
130	16936		
130	100		
132	98.8	77.8	117.8
95	84.0	64.9	104.9





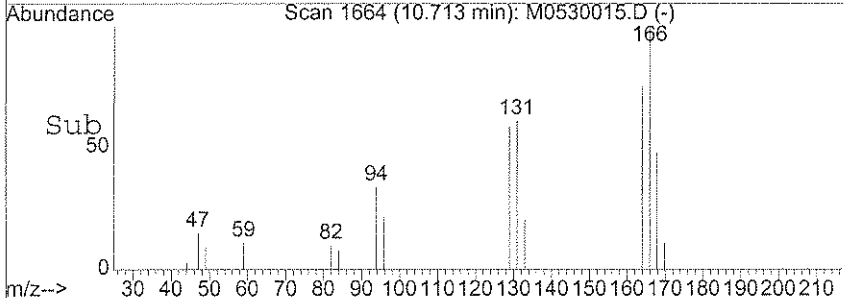
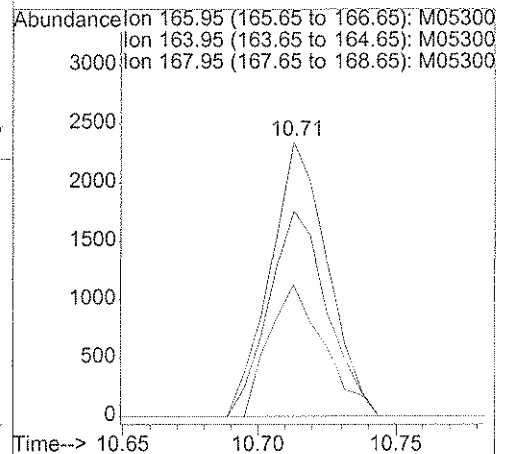
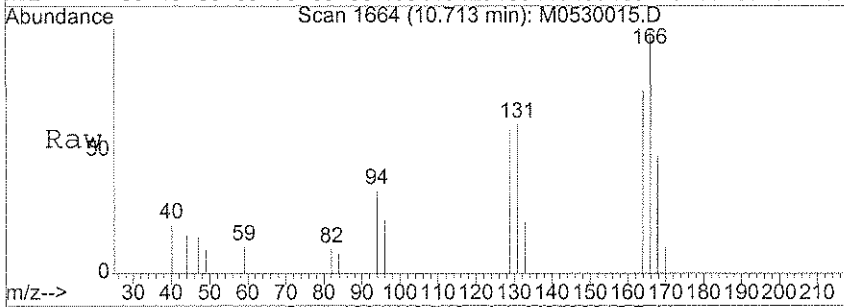
#56
 Toluene
 Concen: 0.45 ug/l
 RT: 10.18 min Scan# 1576
 Delta R.T. -0.00 min
 Lab File: M0530015.D
 Acq: 30 May 2008 13:38

Tgt Ion	Resp	Lower	Upper
92	3405		
91	182.6	137.6	206.4



#60
 Tetrachloroethene
 Concen: 0.99 ug/l
 RT: 10.71 min Scan# 1664
 Delta R.T. -0.00 min
 Lab File: M0530015.D
 Acq: 30 May 2008 13:38

Tgt Ion	Resp	Lower	Upper
166	3406		
166	100		
164	76.2	65.6	98.4
168	46.2	41.1	61.7



1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW-15

Lab Name: Pace Analytical Services
 SDG No.: JPL116
 Matrix: (SOIL/SED/WATER) Water
 Sample wt/vol: 10.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: not dec. _____
 GC Column: ZB-624 20m ID: 0.18 (mm)
 Soil Extract Volume: _____ (uL)
 Heated Purge: (Y/N) N

Contract: JPL Groundwater Monitorin
 Run Sequence: R028412
 Lab Sample ID: JPL116-002
 Lab File ID: M0530016.D
 Date Collected: 05/22/2008
 Date/Time Analyzed: 05/30/2008 14:06
 Dilution Factor: 1.0
 Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS:	
		<u>ug/L</u>	<u>Q</u>
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
75-09-2	Methylene chloride	1.0	U
1634-04-4	Methyl tert-butyl ether	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
594-20-7	2,2-Dichloropropane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
563-58-6	1,1-Dichloropropene	0.50	U
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U
79-01-6	Trichloroethene	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
74-95-3	Dibromomethane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-pentanone	5.0	U

1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW-15

Lab Name: Pace Analytical Services
 SDG No.: JPL116
 Matrix: (SOIL/SED/WATER) Water
 Sample wt/vol: 10.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: not dec. _____
 GC Column: ZB-624 20m ID: 0.18 (mm)
 Soil Extract Volume: _____ (uL)
 Heated Purge: (Y/N) N

Contract: JPL Groundwater Monitorin
 Run Sequence: R028412
 Lab Sample ID: JPL116-002
 Lab File ID: M0530016.D
 Date Collected: 05/22/2008
 Date/Time Analyzed: 05/30/2008 14:06
 Dilution Factor: 1.0
 Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L	Q
108-88-3	Toluene	0.37	J
10061-02-	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
142-28-9	1,3-Dichloropropane	0.50	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
630-20-6	1,1,1,2-Tetrachloroethane	0.50	U
179601-23	m,p-Xylene	1.0	U
95-47-6	o-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
103-65-1	n-Propylbenzene	0.50	U
108-86-1	Bromobenzene	0.50	U
96-18-4	1,2,3-Trichloropropane	0.50	U
95-49-8	2-Chlorotoluene	0.50	U
108-67-8	1,3,5-Trimethylbenzene	0.50	U
106-43-4	4-Chlorotoluene	0.50	U
98-06-6	tert-Butylbenzene	0.50	U
95-63-6	1,2,4-Trimethylbenzene	0.50	U
135-98-8	sec-Butylbenzene	0.50	U
99-87-6	4-Isopropyltoluene	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U

1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW-15

Lab Name: Pace Analytical Services
 SDG No.: JPL116
 Matrix: (SOIL/SED/WATER) Water
 Sample wt/vol: 10.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: not dec. _____
 GC Column: ZB-624 20m ID: 0.18 (mm)
 Soil Extract Volume: _____(uL)
 Heated Purge: (Y/N) N

Contract: JPL Groundwater Monitorin
 Run Sequence: R028412
 Lab Sample ID: JPL116-002
 Lab File ID: M0530016.D
 Date Collected: 05/22/2008
 Date/Time Analyzed: 05/30/2008 14:06
 Dilution Factor: 1.0
 Soil Aliquot Volume: _____(uL)

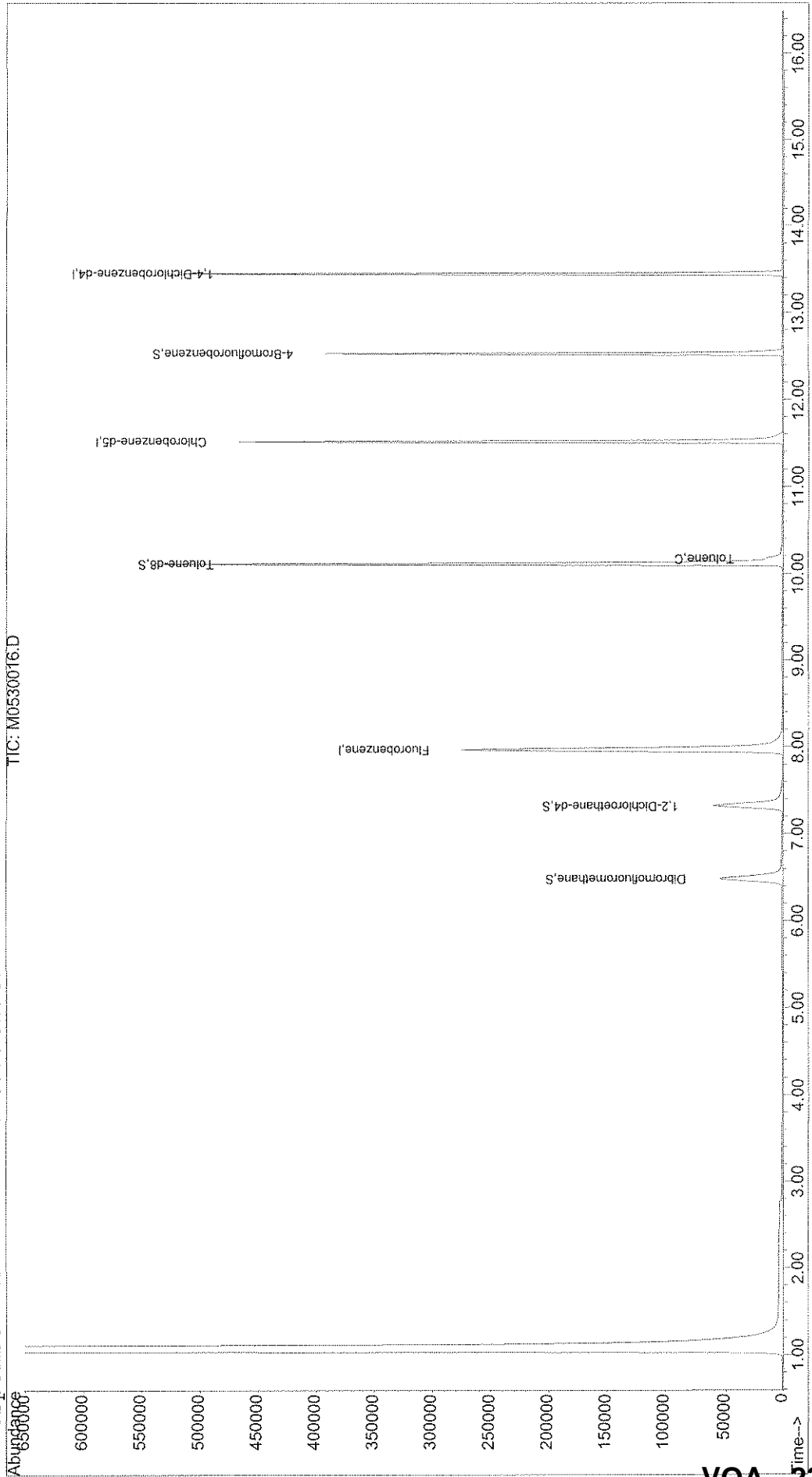
CAS NO.	COMPOUND	CONCENTRATION UNITS:	
		<u>ug/L</u>	Q
104-51-8	n-Butylbenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-68-3	Hexachlorobutadiene	0.50	U
91-20-3	Naphthalene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

Comments:

Quantitation Report

Data File : X:\MSVOA\MOBY\053008\M0530016.D Vial: 9
Acq On : 30 May 2008 14:06 Operator: DGA
Sample : JPL116-002 Inst : MOBY
Misc : #4 10ml +IS/SS(524.2.) Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Jun 2 7:40 2008 Quant Results File: M8260W.RES

Method : X:\MSVOA\MOBY\QUANT\M8260W.M (RTE Integrator)
Title : VOA 8260/524.2/624 - 10ML Water Calibration 5973M
Last Update : Mon Jun 02 07:34:43 2008
Response via : Initial Calibration



Quantitation Report

Data File : X:\MSVOA\MOBY\053008\M0530016.D
 Acq On : 30 May 2008 14:06
 Sample : JPL116-002
 Misc : #4 10ml +IS/SS(524.2.)
 MS Integration Params: rteint.p
 Quant Time: Jun 2 7:40 2008

Vial: 9
 Operator: DGA
 Inst : MOBY
 Multiplr: 1.00

Quant Results File: M8260W.RES

Quant Method : X:\MSVOA\MOBY\QUANT\M8260W.M (RTE Integrator)
 Title : VOA 8260/524.2/624 - 10ML Water Calibration 5973M
 Last Update : Mon Jun 02 07:34:43 2008
 Response via : Initial Calibration
 DataAcq Meth : 8260B
 IS QA File : X:\MSVOA\MOBY\052108\M0521023.D (21 May 2008 17:54)

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)	Rcv(Ar)
1) Fluorobenzene	7.97	96	425348	25.00	ug/l	0.00	76.44%
54) Chlorobenzene-d5	11.51	117	255976	25.00	ug/l	0.00	75.25%
74) 1,4-Dichlorobenzene-d4	13.44	152	124208	25.00	ug/l	0.00	60.95%

System Monitoring Compounds

37) Dibromofluoromethane	6.49	111	77311	20.83	ug/l	0.00	
Spiked Amount	20.000	Range	85 - 115	Recovery	=	104.15%	
40) 1,2-Dichloroethane-d4	7.32	65	83166	25.72	ug/l	0.00	
Spiked Amount	25.000	Range	70 - 120	Recovery	=	102.88%	
55) Toluene-d8	10.11	98	381389	26.53	ug/l	0.00	
Spiked Amount	25.000	Range	85 - 120	Recovery	=	106.12%	
76) 4-Bromofluorobenzene	12.52	95	109549	26.19	ug/l	0.00	
Spiked Amount	25.000	Range	75 - 120	Recovery	=	104.76%	

Target Compounds

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Dichlorodifluoromethane	0.00	85	0	N.D.		
3) Chloromethane	1.34	50	403	N.D.		
4) Vinyl Chloride	0.00	62	0	N.D.		
5) Bromomethane	0.00	96	0	N.D.		
6) Chloroethane	0.00	64	0	N.D.		
7) Trichlorofluoromethane	0.00	101	0	N.D.		
8) Acrolein	0.00	56	0	N.D.		
9) 1,1-Dichloroethene	0.00	96	0	N.D.		
10) 1,1,2-Trichloro-1,2,2-trif	0.00	101	0	N.D.		
11) Acetone	0.00	43	0	N.D.	d	
12) Iodomethane	0.00	142	0	N.D.		
13) Bromoethane	0.00	108	0	N.D.		
14) Carbon Disulfide	0.00	76	0	N.D.		
15) Allyl chloride	0.00	76	0	N.D.		
16) Acetonitrile	0.00	40	0	N.D.	d	
17) Methyl Acetate	3.04	43	60	N.D.		
18) Methylene Chloride	0.00	84	0	N.D.		
19) trans-1,2-Dichloroethene	0.00	96	0	N.D.		
20) t-Butyl alcohol	0.00	59	0	N.D.		
21) Methyl tert-butyl ether	0.00	73	0	N.D.		
22) Acrylonitrile	0.00	53	0	N.D.		

(#) = qualifier out of range (m) = manual integration
 M0530016.D M8260W.M Mon Jun 02 07:40:39 2008

J. Johnson
 Page 1
VOA - 24

Quantitation Report

Data File : X:\MSVOA\MOBY\053008\M0530016.D
 Acq On : 30 May 2008 14:06
 Sample : JPL116-002
 Misc : #4 10ml +IS/SS(524.2.)
 MS Integration Params: rteint.p
 Quant Time: Jun 2 7:40 2008

Vial: 9
 Operator: DGA
 Inst : MOBY
 Multiplr: 1.00

Quant Results File: M8260W.RES

Quant Method : X:\MSVOA\MOBY\QUANT\M8260W.M (RTE Integrator)
 Title : VOA 8260/524.2/624 - 10ML Water Calibration 5973M
 Last Update : Mon Jun 02 07:34:43 2008
 Response via : Initial Calibration
 DataAcq Meth : 8260B

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
23) 1,1-Dichloroethane	0.00	63	0		N.D.	
24) Chloroprene	0.00	53	0		N.D.	
25) Isopropyl ether	0.00	59	0		N.D.	
26) Vinyl acetate	0.00	43	0		N.D.	
27) Ethyl-t-butyl ether	0.00	59	0		N.D.	
28) 2,2-Dichloropropane	0.00	77	0		N.D.	
29) cis-1,2-Dichloroethene	0.00	96	0		N.D.	
30) 2-Butanone	0.00	43	0		N.D.	
31) Propionitrile	0.00	54	0		N.D.	
32) Bromochloromethane	0.00	128	0		N.D.	
33) Methacrylonitrile	0.00	41	0		N.D.	
34) Chloroform	0.00	83	0		N.D.	
35) 1,1,1-Trichloroethane	0.00	97	0		N.D.	
36) Cyclohexane	0.00	56	0		N.D.	
38) Carbon Tetrachloride	0.00	117	0		N.D.	
39) 1,1-Dichloropropene	0.00	75	0		N.D.	
41) Benzene	0.00	78	0		N.D.	
42) 1,2-Dichloroethane	0.00	62	0		N.D.	
43) t-Amyl methyl ether	0.00	73	0		N.D.	
44) Isobutanol	0.00	43	0		N.D.	
45) Trichloroethene	8.58	130	56		N.D.	
46) Methylcyclohexane	0.00	83	0		N.D.	
47) 1,2-Dichloropropane	0.00	63	0		N.D.	
48) Dibromomethane	0.00	93	0		N.D.	
49) Methyl methacrylate	0.00	69	0		N.D.	
50) Bromodichloromethane	0.00	83	0		N.D.	
51) 2-Chloroethyl vinyl ether	0.00	63	0		N.D.	
52) cis-1,3-Dichloropropene	0.00	75	0		N.D.	
53) 4-Methyl-2-pentanone	0.00	43	0		N.D.	
56) Toluene	10.18	92	2751	0.37	ug/l	98
57) trans-1,3-Dichloropropene	0.00	75	0		N.D.	
58) Ethyl methacrylate	0.00	69	0		N.D.	
59) 1,1,2-Trichloroethane	0.00	97	0		N.D.	
60) Tetrachloroethene	0.00	166	0		N.D.	
61) 1,3-Dichloropropane	0.00	76	0		N.D.	
62) 2-Hexanone	0.00	43	0		N.D.	
63) Dibromochloromethane	0.00	129	0		N.D.	
64) 1,2-Dibromoethane	0.00	107	0		N.D.	
65) 1-Chlorohexane	11.51	91	484		N.D.	
66) Chlorobenzene	0.00	112	0		N.D.	
67) 1,1,1,2-Tetrachloroethane	0.00	131	0		N.D.	

(#) = qualifier out of range (m) = manual integration
 M0530016.D M8260W.M Mon Jun 02 07:40:39 2008

Page 2
 VOA-25

Quantitation Report

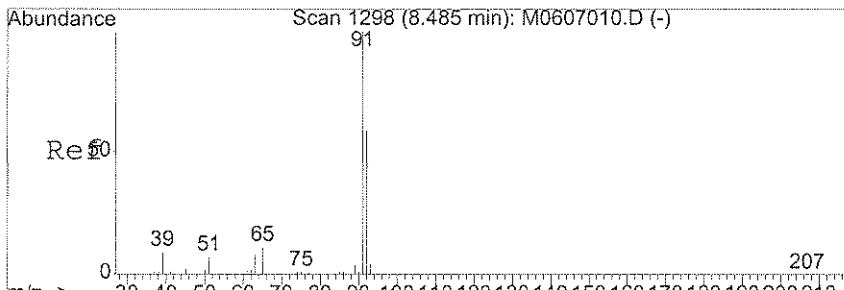
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 Acq On : 30 May 2008 14:06
 Sample : JPL116-002
 Misc : #4 10ml +IS/SS(524.2.)
 MS Integration Params: rteint.p
 Quant Time: Jun 2 7:40 2008

Vial: 9
 Operator: DGA
 Inst : MOBY
 Multiplr: 1.00

Quant Results File: M8260W.RES

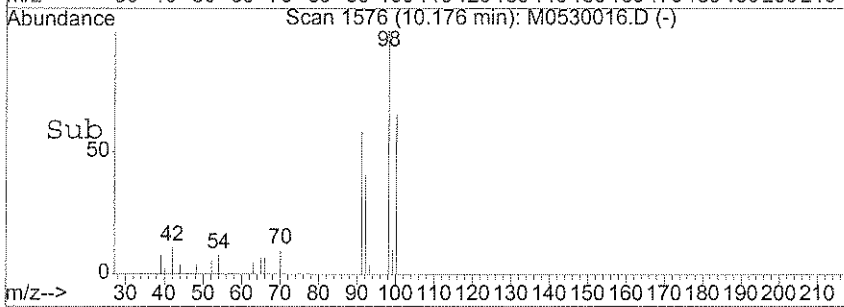
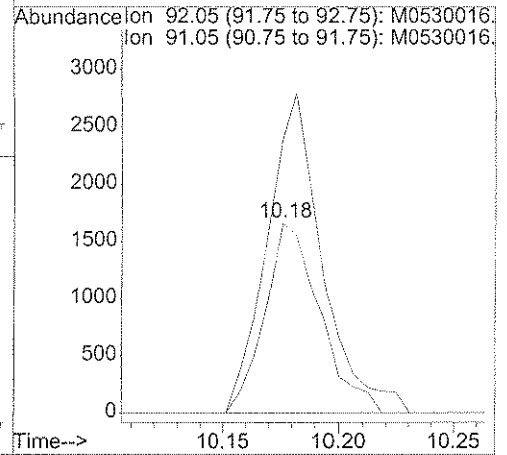
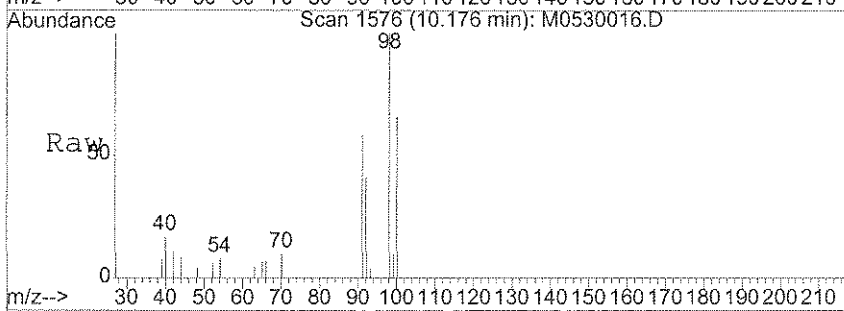
Quant Method : X:\MSVOA\MOBY\QUANT\M8260W.M (RTE Integrator)
 Title : VOA 8260/524.2/624 - 10ML Water Calibration 5973M
 Last Update : Mon Jun 02 07:34:43 2008
 Response via : Initial Calibration
 DataAcq Meth : 8260B

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
68) Ethylbenzene	11.51	91	484		N.D.	
69) m,p-Xylene	0.00	106	0		N.D.	
70) o-xylene	0.00	106	0		N.D.	
71) Styrene	0.00	104	0		N.D.	
72) Bromoform	0.00	173	0		N.D.	d
73) Isopropylbenzene	12.51	105	56		N.D.	
75) trans-1,4-Dichloro-2-buten	0.00	53	0		N.D.	
77) Bromobenzene	0.00	156	0		N.D.	
78) 1,1,2,2-Tetrachloroethane	0.00	83	0		N.D.	
79) 1,2,3-Trichloropropane	0.00	110	0		N.D.	
80) n-Propylbenzene	0.00	120	0		N.D.	
81) 2-Chlorotoluene	12.52	91	258		N.D.	
82) 4-Chlorotoluene	0.00	91	0		N.D.	
83) 1,3,5-Trimethylbenzene	0.00	105	0		N.D.	
84) tert-Butylbenzene	13.39	119	124		N.D.	
85) 1,2,4-Trimethylbenzene	0.00	105	0		N.D.	
86) sec-butylbenzene	0.00	105	0		N.D.	
87) 1,3-Dichlorobenzene	0.00	146	0		N.D.	
88) 4-Isopropyltoluene	13.39	119	124		N.D.	
89) 1,4-Dichlorobenzene	0.00	146	0		N.D.	
90) 1,2-Dichlorobenzene	0.00	146	0		N.D.	
91) n-Butylbenzene	13.45	91	131		N.D.	
92) 1,2-Dibromo-3-chloropropan	0.00	75	0		N.D.	
93) 1,2,4-Trichlorobenzene	0.00	180	0		N.D.	
94) Hexachlorobutadiene	0.00	225	0		N.D.	
95) Naphthalene	0.00	128	0		N.D.	
96) 1,2,3-Trichlorobenzene	0.00	180	0		N.D.	



#56
 Toluene
 Concen: 0.37 ug/l
 RT: 10.18 min Scan# 1576
 Delta R.T. -0.00 min
 Lab File: M0530016.D
 Acq: 30 May 2008 14:06

Tgt Ion	Resp	Lower	Upper
92	2751		
91	168.9	137.6	206.4



1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

DUPE-7-2Q08

Lab Name: Pace Analytical Services
 SDG No.: JPL116
 Matrix: (SOIL/SED/WATER) Water
 Sample wt/vol: 10.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: not dec. _____
 GC Column: ZB-624 20m ID: 0.18 (mm)
 Soil Extract Volume: _____ (uL)
 Heated Purge: (Y/N) N

Contract: JPL Groundwater Monitorin
 Run Sequence: R028412
 Lab Sample ID: JPL116-003
 Lab File ID: M0530017.D
 Date Collected: 05/22/2008
 Date/Time Analyzed: 05/30/2008 14:32
 Dilution Factor: 1.0
 Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
75-09-2	Methylene chloride	1.0	U
1634-04-4	Methyl tert-butyl ether	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
594-20-7	2,2-Dichloropropane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
563-58-6	1,1-Dichloropropene	0.50	U
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U
79-01-6	Trichloroethene	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
74-95-3	Dibromomethane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-pentanone	5.0	U

1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

DUPE-7-2Q08

Lab Name: Pace Analytical Services
 SDG No.: JPL116
 Matrix: (SOIL/SED/WATER) Water
 Sample wt/vol: 10.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: not dec. _____
 GC Column: ZB-624 20m ID: 0.18 (mm)
 Soil Extract Volume: _____ (uL)
 Heated Purge: (Y/N) N

Contract: JPL Groundwater Monitorin
 Run Sequence: R028412
 Lab Sample ID: JPL116-003
 Lab File ID: M0530017.D
 Date Collected: 05/22/2008
 Date/Time Analyzed: 05/30/2008 14:32
 Dilution Factor: 1.0
 Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L	Q
108-88-3	Toluene	0.35	J
10061-02-	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
142-28-9	1,3-Dichloropropane	0.50	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
630-20-6	1,1,1,2-Tetrachloroethane	0.50	U
179601-23	m,p-Xylene	1.0	U
95-47-6	o-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
103-65-1	n-Propylbenzene	0.50	U
108-86-1	Bromobenzene	0.50	U
96-18-4	1,2,3-Trichloropropane	0.50	U
95-49-8	2-Chlorotoluene	0.50	U
108-67-8	1,3,5-Trimethylbenzene	0.50	U
106-43-4	4-Chlorotoluene	0.50	U
98-06-6	tert-Butylbenzene	0.50	U
95-63-6	1,2,4-Trimethylbenzene	0.50	U
135-98-8	sec-Butylbenzene	0.50	U
99-87-6	4-Isopropyltoluene	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U

1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

DUPE-7-2Q08

Lab Name: Pace Analytical Services
 SDG No.: JPL116
 Matrix: (SOIL/SED/WATER) Water
 Sample wt/vol: 10.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: not dec. _____
 GC Column: ZB-624 20m ID: 0.18 (mm)
 Soil Extract Volume: _____ (uL)
 Heated Purge: (Y/N) N

Contract: JPL Groundwater Monitorin
 Run Sequence: R028412
 Lab Sample ID: JPL116-003
 Lab File ID: M0530017.D
 Date Collected: 05/22/2008
 Date/Time Analyzed: 05/30/2008 14:32
 Dilution Factor: 1.0
 Soil Aliquot Volume: _____ (uL)

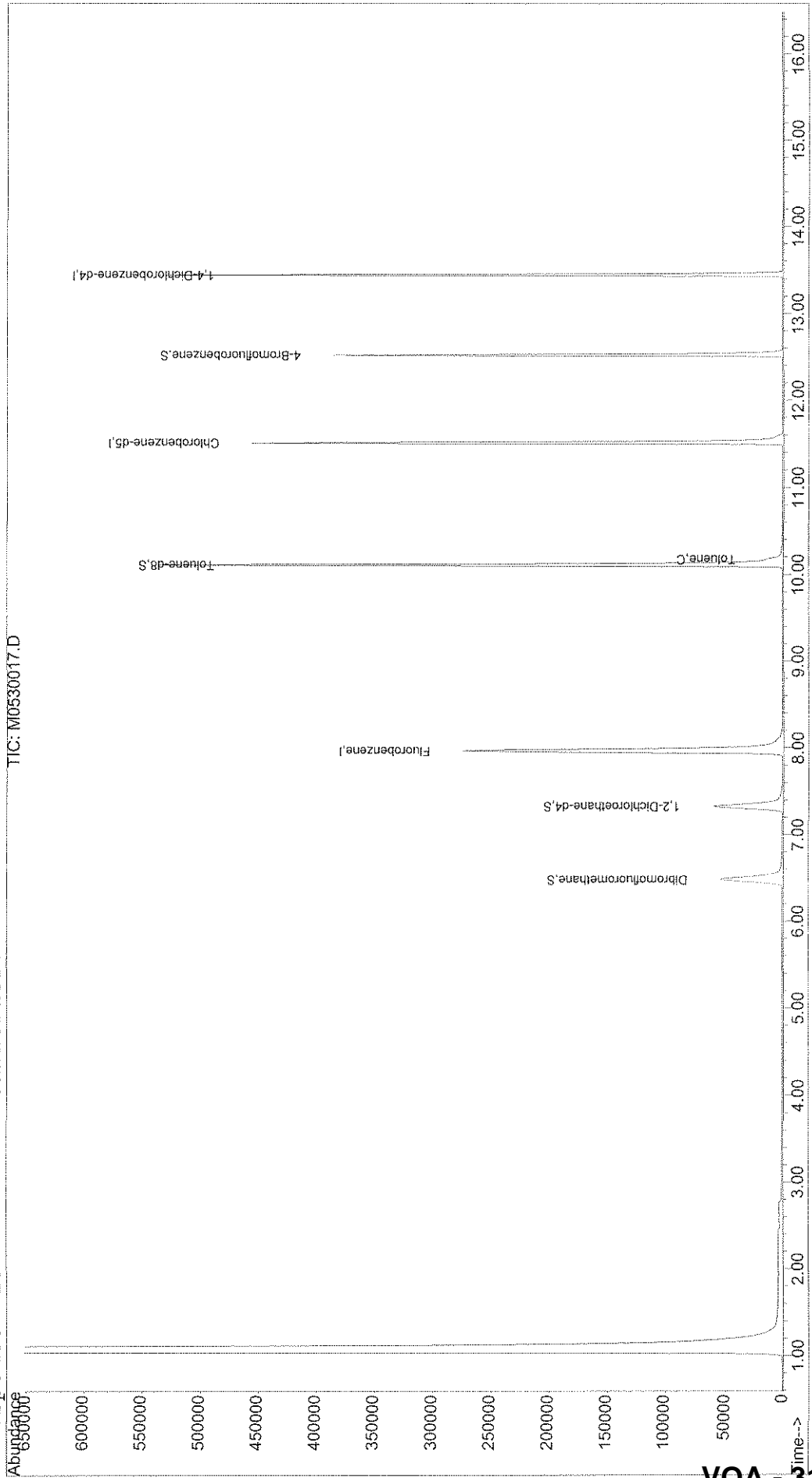
CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L	Q
104-51-8	n-Butylbenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-68-3	Hexachlorobutadiene	0.50	U
91-20-3	Naphthalene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

Comments:

Quantitation Report

Data File : X:\MSVOA\MOBY\053008\M0530017.D Vial: 10
Acq On : 30 May 2008 14:32 Operator: DGA
Sample : JPL116-003 Inst : MOBY
Misc : #3 10ml +IS/SS(524.2.) Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Jun 2 7:41 2008 Quant Results File: M8260W.RES

Method : X:\MSVOA\MOBY\QUANT\M8260W.M (RTE Integrator)
Title : VOA 8260/524.2/624 - 10ML Water Calibration 5973M
Last Update : Mon Jun 02 07:34:43 2008
Response via : Initial Calibration



Quantitation Report

Data File : X:\MSVOA\MOBY\053008\M0530017.D
 Acq On : 30 May 2008 14:32
 Sample : JPL116-003
 Misc : #3 10ml +IS/SS(524.2.)
 MS Integration Params: rteint.p
 Quant Time: Jun 2 7:41 2008

Vial: 10
 Operator: DGA
 Inst : MOBY
 Multiplr: 1.00

Quant Results File: M8260W.RES

Quant Method : X:\MSVOA\MOBY\QUANT\M8260W.M (RTE Integrator)
 Title : VOA 8260/524.2/624 - 10ML Water Calibration 5973M
 Last Update : Mon Jun 02 07:34:43 2008
 Response via : Initial Calibration
 DataAcq Meth : 8260B
 IS QA File : X:\MSVOA\MOBY\052108\M0521023.D (21 May 2008 17:54)

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min) Rcv(Ar)
1) Fluorobenzene	7.97	96	425030	25.00	ug/l	0.00 76.39%
54) Chlorobenzene-d5	11.51	117	254742	25.00	ug/l	0.00 74.88%
74) 1,4-Dichlorobenzene-d4	13.44	152	124165	25.00	ug/l	0.00 60.92%

System Monitoring Compounds

37) Dibromofluoromethane	6.48	111	77159	20.80	ug/l	0.00
Spiked Amount	20.000	Range	85 - 115	Recovery	=	104.00%
40) 1,2-Dichloroethane-d4	7.33	65	84775	26.23	ug/l	0.00
Spiked Amount	25.000	Range	70 - 120	Recovery	=	104.92%
55) Toluene-d8	10.11	98	379675	26.54	ug/l	0.00
Spiked Amount	25.000	Range	85 - 120	Recovery	=	106.16%
76) 4-Bromofluorobenzene	12.52	95	109750	26.25	ug/l	0.00
Spiked Amount	25.000	Range	75 - 120	Recovery	=	105.00%

Target Compounds

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Dichlorodifluoromethane	0.00	85	0	N.D.		
3) Chloromethane	1.34	50	56	N.D.		
4) Vinyl Chloride	0.00	62	0	N.D.		
5) Bromomethane	0.00	96	0	N.D.		
6) Chloroethane	0.00	64	0	N.D.		
7) Trichlorofluoromethane	0.00	101	0	N.D.		
8) Acrolein	0.00	56	0	N.D.		
9) 1,1-Dichloroethene	0.00	96	0	N.D.		
10) 1,1,2-Trichloro-1,2,2-trif	0.00	101	0	N.D.		
11) Acetone	0.00	43	0	N.D.	d	
12) Iodomethane	0.00	142	0	N.D.		
13) Bromoethane	0.00	108	0	N.D.		
14) Carbon Disulfide	0.00	76	0	N.D.		
15) Allyl chloride	0.00	76	0	N.D.		
16) Acetonitrile	0.00	40	0	N.D.	d	
17) Methyl Acetate	0.00	43	0	N.D.		
18) Methylene Chloride	0.00	84	0	N.D.		
19) trans-1,2-Dichloroethene	0.00	96	0	N.D.		
20) t-Butyl alcohol	0.00	59	0	N.D.		
21) Methyl tert-butyl ether	0.00	73	0	N.D.		
22) Acrylonitrile	0.00	53	0	N.D.		

(#) = qualifier out of range (m) = manual integration
 M0530017.D M8260W.M Mon Jun 02 07:41:43 2008

J 6/2/08
 Page 1
 VOA-32

Quantitation Report

Data File : X:\MSVOA\MOBY\053008\M0530017.D
 Acq On : 30 May 2008 14:32
 Sample : JPL116-003
 Misc : #3 10ml +IS/SS(524.2.)
 MS Integration Params: rteint.p
 Quant Time: Jun 2 7:41 2008

Vial: 10
 Operator: DGA
 Inst : MOBY
 Multiplr: 1.00

Quant Results File: M8260W.RES

Quant Method : X:\MSVOA\MOBY\QUANT\M8260W.M (RTE Integrator)
 Title : VOA 8260/524.2/624 - 10ML Water Calibration 5973M
 Last Update : Mon Jun 02 07:34:43 2008
 Response via : Initial Calibration
 DataAcq Meth : 8260B

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
23) 1,1-Dichloroethane	0.00	63	0		N.D.	
24) Chloroprene	0.00	53	0		N.D.	
25) Isopropyl ether	0.00	59	0		N.D.	
26) Vinyl acetate	0.00	43	0		N.D.	
27) Ethyl-t-butyl ether	0.00	59	0		N.D.	
28) 2,2-Dichloropropane	0.00	77	0		N.D.	
29) cis-1,2-Dichloroethene	0.00	96	0		N.D.	
30) 2-Butanone	0.00	43	0		N.D.	
31) Propionitrile	0.00	54	0		N.D.	
32) Bromochloromethane	0.00	128	0		N.D.	
33) Methacrylonitrile	0.00	41	0		N.D.	
34) Chloroform	0.00	83	0		N.D.	
35) 1,1,1-Trichloroethane	0.00	97	0		N.D.	
36) Cyclohexane	0.00	56	0		N.D.	
38) Carbon Tetrachloride	0.00	117	0		N.D.	
39) 1,1-Dichloropropene	0.00	75	0		N.D.	
41) Benzene	0.00	78	0		N.D.	
42) 1,2-Dichloroethane	0.00	62	0		N.D.	
43) t-Amyl methyl ether	0.00	73	0		N.D.	
44) Isobutanol	0.00	43	0		N.D.	d
45) Trichloroethene	0.00	130	0		N.D.	
46) Methylcyclohexane	0.00	83	0		N.D.	
47) 1,2-Dichloropropane	0.00	63	0		N.D.	
48) Dibromomethane	0.00	93	0		N.D.	
49) Methyl methacrylate	0.00	69	0		N.D.	
50) Bromodichloromethane	0.00	83	0		N.D.	
51) 2-Chloroethyl vinyl ether	0.00	63	0		N.D.	
52) cis-1,3-Dichloropropene	0.00	75	0		N.D.	
53) 4-Methyl-2-pentanone	0.00	43	0		N.D.	d
56) Toluene	10.18	92	2576	0.35	ug/l	99
57) trans-1,3-Dichloropropene	0.00	75	0		N.D.	
58) Ethyl methacrylate	0.00	69	0		N.D.	
59) 1,1,2-Trichloroethane	0.00	97	0		N.D.	
60) Tetrachloroethene	0.00	166	0		N.D.	
61) 1,3-Dichloropropane	0.00	76	0		N.D.	
62) 2-Hexanone	0.00	43	0		N.D.	
63) Dibromochloromethane	0.00	129	0		N.D.	
64) 1,2-Dibromoethane	0.00	107	0		N.D.	
65) 1-Chlorohexane	11.51	91	438		N.D.	
66) Chlorobenzene	0.00	112	0		N.D.	
67) 1,1,1,2-Tetrachloroethane	0.00	131	0		N.D.	

Quantitation Report

Data File : X:\MSVOA\MOBY\053008\M0530017.D
 Acq On : 30 May 2008 14:32
 Sample : JPL116-003
 Misc : #3 10ml +IS/SS(524.2.)
 MS Integration Params: rteint.p
 Quant Time: Jun 2 7:41 2008

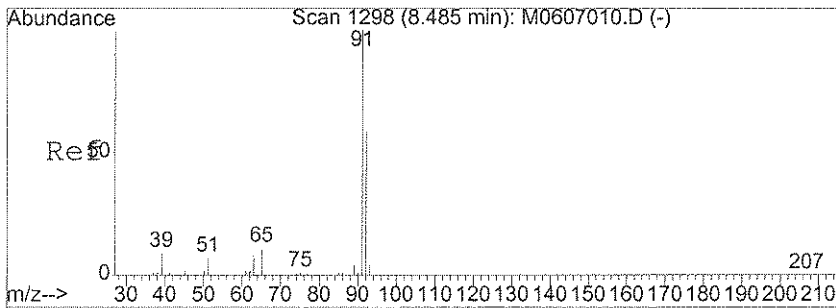
Vial: 10
 Operator: DGA
 Inst : MOBY
 Multiplr: 1.00

Quant Results File: M8260W.RES

Quant Method : X:\MSVOA\MOBY\QUANT\M8260W.M (RTE Integrator)
 Title : VOA 8260/524.2/624 - 10ML Water Calibration 5973M
 Last Update : Mon Jun 02 07:34:43 2008
 Response via : Initial Calibration
 DataAcq Meth : 8260B

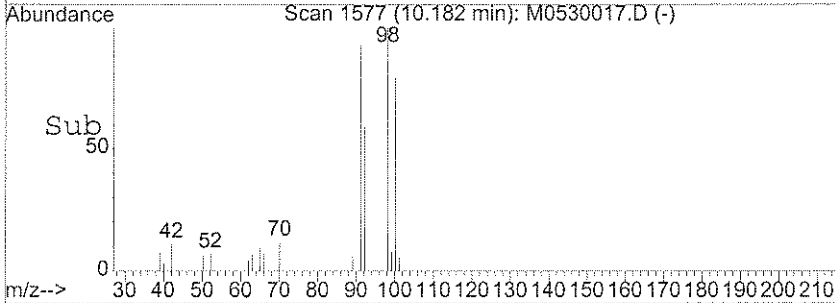
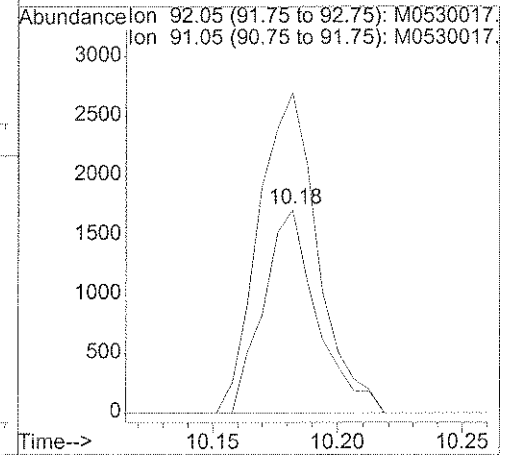
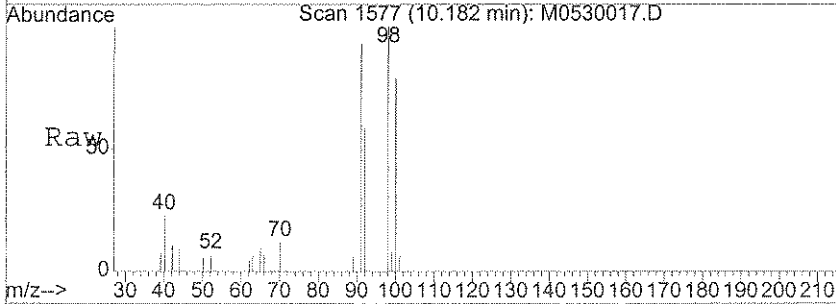
Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
68) Ethylbenzene	11.51	91	438		N.D.	
69) m,p-Xylene	0.00	106	0		N.D.	
70) o-xylene	0.00	106	0		N.D.	
71) Styrene	0.00	104	0		N.D.	
72) Bromoform	12.52	173	150		N.D.	
73) Isopropylbenzene	0.00	105	0		N.D.	
75) trans-1,4-Dichloro-2-buten	0.00	53	0		N.D.	
77) Bromobenzene	0.00	156	0		N.D.	
78) 1,1,2,2-Tetrachloroethane	0.00	83	0		N.D.	
79) 1,2,3-Trichloropropane	0.00	110	0		N.D.	
80) n-Propylbenzene	0.00	120	0		N.D.	
81) 2-Chlorotoluene	12.52	91	186		N.D.	
82) 4-Chlorotoluene	0.00	91	0		N.D.	
83) 1,3,5-Trimethylbenzene	0.00	105	0		N.D.	
84) tert-Butylbenzene	13.39	119	63		N.D.	
85) 1,2,4-Trimethylbenzene	0.00	105	0		N.D.	
86) sec-butylbenzene	0.00	105	0		N.D.	
87) 1,3-Dichlorobenzene	0.00	146	0		N.D.	
88) 4-Isopropyltoluene	13.39	119	63		N.D.	
89) 1,4-Dichlorobenzene	0.00	146	0		N.D.	
90) 1,2-Dichlorobenzene	0.00	146	0		N.D.	
91) n-Butylbenzene	13.44	91	167		N.D.	
92) 1,2-Dibromo-3-chloropropan	0.00	75	0		N.D.	
93) 1,2,4-Trichlorobenzene	0.00	180	0		N.D.	
94) Hexachlorobutadiene	0.00	225	0		N.D.	
95) Naphthalene	0.00	128	0		N.D.	
96) 1,2,3-Trichlorobenzene	0.00	180	0		N.D.	

(#) = qualifier out of range (m) = manual integration
 M0530017.D M8260W.M Mon Jun 02 07:41:44 2008



#56
 Toluene
 Concen: 0.35 ug/l
 RT: 10.18 min Scan# 1577
 Delta R.T. 0.00 min
 Lab File: M0530017.D
 Acq: 30 May 2008 14:32

Tgt Ion	Resp	Lower	Upper
92	2576		
91	174.0	137.6	206.4



1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

TB-19-5/22/08

Lab Name: Pace Analytical Services
 SDG No.: JPL116
 Matrix: (SOIL/SED/WATER) Water
 Sample wt/vol: 10.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: not dec. _____
 GC Column: ZB-624 20m ID: 0.18 (mm)
 Soil Extract Volume: _____(uL)
 Heated Purge: (Y/N) N

Contract: JPL Groundwater Monitorin
 Run Sequence: R028412
 Lab Sample ID: JPL116-004
 Lab File ID: M0530013.D
 Date Collected: 05/22/2008
 Date/Time Analyzed: 05/30/2008 12:44
 Dilution Factor: 1.0
 Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: <u>ug/L</u>	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
75-09-2	Methylene chloride	1.0	U
1634-04-4	Methyl tert-butyl ether	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
594-20-7	2,2-Dichloropropane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
563-58-6	1,1-Dichloropropene	0.50	U
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U
79-01-6	Trichloroethene	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
74-95-3	Dibromomethane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-pentanone	5.0	U

1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

TB-19-5/22/08

Lab Name: Pace Analytical Services
 SDG No.: JPL116
 Matrix: (SOIL/SED/WATER) Water
 Sample wt/vol: 10.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: not dec. _____
 GC Column: ZB-624 20m ID: 0.18 (mm)
 Soil Extract Volume: _____(uL)
 Heated Purge: (Y/N) N

Contract: JPL Groundwater Monitorin
 Run Sequence: R028412
 Lab Sample ID: JPL116-004
 Lab File ID: M0530013.D
 Date Collected: 05/22/2008
 Date/Time Analyzed: 05/30/2008 12:44
 Dilution Factor: 1.0
 Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L	Q
108-88-3	Toluene	0.50	U
10061-02-	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
142-28-9	1,3-Dichloropropane	0.50	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
630-20-6	1,1,1,2-Tetrachloroethane	0.50	U
179601-23	m,p-Xylene	1.0	U
95-47-6	o-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
103-65-1	n-Propylbenzene	0.50	U
108-86-1	Bromobenzene	0.50	U
96-18-4	1,2,3-Trichloropropane	0.50	U
95-49-8	2-Chlorotoluene	0.50	U
108-67-8	1,3,5-Trimethylbenzene	0.50	U
106-43-4	4-Chlorotoluene	0.50	U
98-06-6	tert-Butylbenzene	0.50	U
95-63-6	1,2,4-Trimethylbenzene	0.50	U
135-98-8	sec-Butylbenzene	0.50	U
99-87-6	4-Isopropyltoluene	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U

1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

TB-19-5/22/08

Lab Name: Pace Analytical Services
 SDG No.: JPL116
 Matrix: (SOIL/SED/WATER) Water
 Sample wt/vol: 10.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: not dec. _____
 GC Column: ZB-624 20m ID: 0.18 (mm)
 Soil Extract Volume: _____ (uL)
 Heated Purge: (Y/N) N

Contract: JPL Groundwater Monitorin
 Run Sequence: R028412
 Lab Sample ID: JPL116-004
 Lab File ID: M0530013.D
 Date Collected: 05/22/2008
 Date/Time Analyzed: 05/30/2008 12:44
 Dilution Factor: 1.0
 Soil Aliquot Volume: _____ (uL)

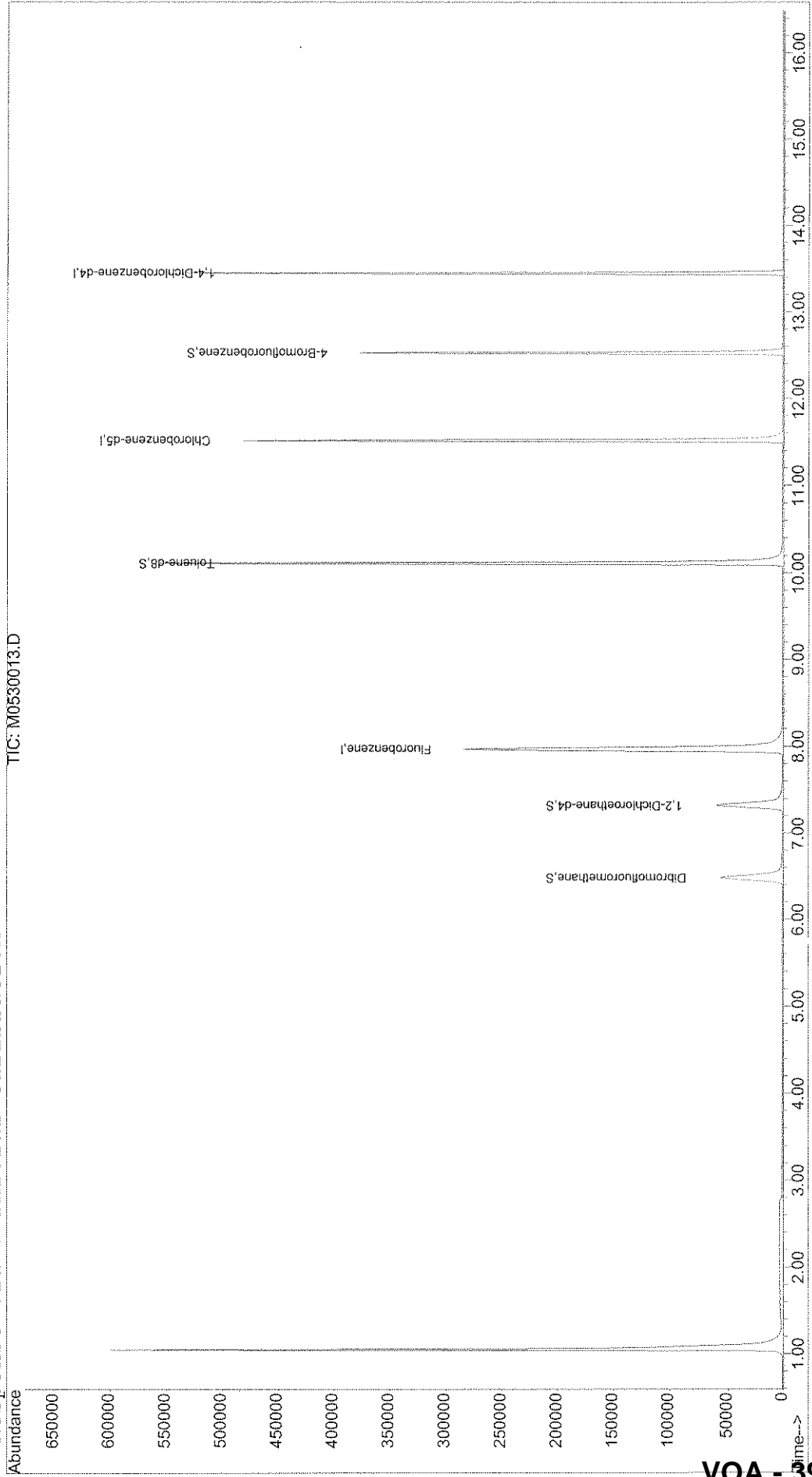
CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L	Q
104-51-8	n-Butylbenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-68-3	Hexachlorobutadiene	0.50	U
91-20-3	Naphthalene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

Comments:

Quantitation Report

Data File : X:\MSVOA\MOBY\053008\M0530013.D
Acq On : 30 May 2008 12:44
Sample : JPL116-004
Misc : #1 10ml +IS/SS(524.2.)
MS Integration Params: rteint.p
Quant Time: Jun 2 7:36 2008
Quant Results File: M8260W.RES

Method : X:\MSVOA\MOBY\QUANT\M8260W.M (RTE Integrator)
Title : VOA 8260/524.2/624 - 10ML Water Calibration 5973M
Last Update : Mon Jun 02 07:34:43 2008
Response via : Initial Calibration



Quantitation Report

Data File : X:\MSVOA\MOBY\053008\M0530013.D
 Acq On : 30 May 2008 12:44
 Sample : JPL116-004
 Misc : #1 10ml +IS/SS(524.2.)
 MS Integration Params: rteint.p
 Quant Time: Jun 2 7:36 2008

Vial: 6
 Operator: DGA
 Inst : MOBY
 Multiplr: 1.00

Quant Results File: M8260W.RES

Quant Method : X:\MSVOA\MOBY\QUANT\M8260W.M (RTE Integrator)
 Title : VOA 8260/524.2/624 - 10ML Water Calibration 5973M
 Last Update : Mon Jun 02 07:34:43 2008
 Response via : Initial Calibration
 DataAcq Meth : 8260B
 IS QA File : X:\MSVOA\MOBY\052108\M0521023.D (21 May 2008 17:54)

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min) Rcv(Ar)
1) Fluorobenzene	7.97	96	441246	25.00	ug/l	0.00 79.30%
54) Chlorobenzene-d5	11.52	117	261476	25.00	ug/l	0.00 76.86%
74) 1,4-Dichlorobenzene-d4	13.44	152	125022	25.00	ug/l	0.00 61.35%

System Monitoring Compounds

37) Dibromofluoromethane	6.48	111	81371	21.13	ug/l	0.00
Spiked Amount	20.000	Range 85 - 115	Recovery	=	105.65%	
40) 1,2-Dichloroethane-d4	7.32	65	84574	25.21	ug/l	0.00
Spiked Amount	25.000	Range 70 - 120	Recovery	=	100.84%	
55) Toluene-d8	10.11	98	392290	26.71	ug/l	0.00
Spiked Amount	25.000	Range 85 - 120	Recovery	=	106.84%	
76) 4-Bromofluorobenzene	12.53	95	109611	26.04	ug/l	0.00
Spiked Amount	25.000	Range 75 - 120	Recovery	=	104.16%	

Target Compounds

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Dichlorodifluoromethane	0.00	85	0	N.D.		
3) Chloromethane	0.00	50	0	N.D.		
4) Vinyl Chloride	0.00	62	0	N.D.		
5) Bromomethane	0.00	96	0	N.D.		
6) Chloroethane	0.00	64	0	N.D.		
7) Trichlorofluoromethane	0.00	101	0	N.D.		
8) Acrolein	0.00	56	0	N.D.		
9) 1,1-Dichloroethene	0.00	96	0	N.D.		
10) 1,1,2-Trichloro-1,2,2-trif	0.00	101	0	N.D.		
11) Acetone	0.00	43	0	N.D.	d	
12) Iodomethane	0.00	142	0	N.D.		
13) Bromoethane	0.00	108	0	N.D.		
14) Carbon Disulfide	0.00	76	0	N.D.		
15) Allyl chloride	0.00	76	0	N.D.		
16) Acetonitrile	0.00	40	0	N.D.	d	
17) Methyl Acetate	0.00	43	0	N.D.		
18) Methylene Chloride	3.15	84	538	Below Cal	#	67
19) trans-1,2-Dichloroethene	0.00	96	0	N.D.		
20) t-Butyl alcohol	0.00	59	0	N.D.		
21) Methyl tert-butyl ether	0.00	73	0	N.D.		
22) Acrylonitrile	0.00	53	0	N.D.		

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : X:\MSVOA\MOBY\053008\M0530013.D
 Acq On : 30 May 2008 12:44
 Sample : JPL116-004
 Misc : #1 10ml +IS/SS(524.2.)
 MS Integration Params: rteint.p
 Quant Time: Jun 2 7:36 2008

Vial: 6
 Operator: DGA
 Inst : MOBY
 Multiplr: 1.00

Quant Results File: M8260W.RES

Quant Method : X:\MSVOA\MOBY\QUANT\M8260W.M (RTE Integrator)
 Title : VOA 8260/524.2/624 - 10ML Water Calibration 5973M
 Last Update : Mon Jun 02 07:34:43 2008
 Response via : Initial Calibration
 DataAcq Meth : 8260B

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
23) 1,1-Dichloroethane	0.00	63	0		N.D.	
24) Chloroprene	0.00	53	0		N.D.	
25) Isopropyl ether	0.00	59	0		N.D.	
26) Vinyl acetate	0.00	43	0		N.D.	
27) Ethyl-t-butyl ether	0.00	59	0		N.D.	
28) 2,2-Dichloropropane	0.00	77	0		N.D.	
29) cis-1,2-Dichloroethene	0.00	96	0		N.D.	
30) 2-Butanone	0.00	43	0		N.D.	
31) Propionitrile	0.00	54	0		N.D.	
32) Bromochloromethane	0.00	128	0		N.D.	
33) Methacrylonitrile	0.00	41	0		N.D.	
34) Chloroform	0.00	83	0		N.D.	
35) 1,1,1-Trichloroethane	0.00	97	0		N.D.	
36) Cyclohexane	0.00	56	0		N.D.	
38) Carbon Tetrachloride	0.00	117	0		N.D.	
39) 1,1-Dichloropropene	0.00	75	0		N.D.	
41) Benzene	0.00	78	0		N.D.	
42) 1,2-Dichloroethane	0.00	62	0		N.D.	
43) t-Amyl methyl ether	0.00	73	0		N.D.	
44) Isobutanol	0.00	43	0		N.D.	
45) Trichloroethene	8.58	130	110		N.D.	
46) Methylcyclohexane	0.00	83	0		N.D.	
47) 1,2-Dichloropropane	0.00	63	0		N.D.	
48) Dibromomethane	0.00	93	0		N.D.	
49) Methyl methacrylate	0.00	69	0		N.D.	
50) Bromodichloromethane	0.00	83	0		N.D.	
51) 2-Chloroethyl vinyl ether	0.00	63	0		N.D.	
52) cis-1,3-Dichloropropene	0.00	75	0		N.D.	
53) 4-Methyl-2-pentanone	0.00	43	0		N.D.	d
56) Toluene	10.18	92	90		N.D.	
57) trans-1,3-Dichloropropene	0.00	75	0		N.D.	
58) Ethyl methacrylate	0.00	69	0		N.D.	
59) 1,1,2-Trichloroethane	0.00	97	0		N.D.	
60) Tetrachloroethene	0.00	166	0		N.D.	
61) 1,3-Dichloropropane	0.00	76	0		N.D.	
62) 2-Hexanone	0.00	43	0		N.D.	
63) Dibromochloromethane	0.00	129	0		N.D.	
64) 1,2-Dibromoethane	0.00	107	0		N.D.	
65) 1-Chlorohexane	11.52	91	461		N.D.	
66) Chlorobenzene	0.00	112	0		N.D.	
67) 1,1,1,2-Tetrachloroethane	0.00	131	0		N.D.	

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : X:\MSVOA\MOBY\053008\M0530013.D
 Acq On : 30 May 2008 12:44
 Sample : JPL116-004
 Misc : #1 10ml +IS/SS(524.2.)
 MS Integration Params: rteint.p
 Quant Time: Jun 2 7:36 2008

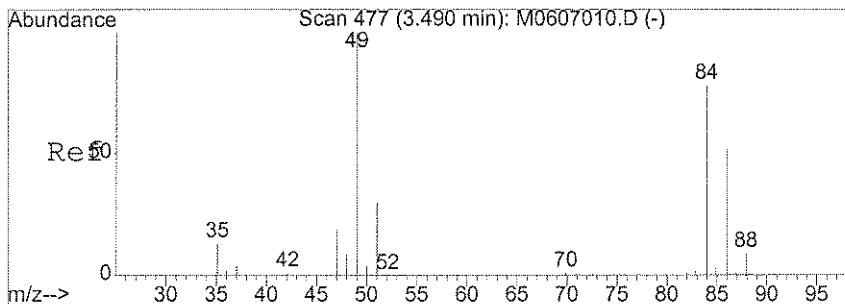
Vial: 6
 Operator: DGA
 Inst : MOBY
 Multiplr: 1.00

Quant Results File: M8260W.RES

Quant Method : X:\MSVOA\MOBY\QUANT\M8260W.M (RTE Integrator)
 Title : VOA 8260/524.2/624 - 10ML Water Calibration 5973M
 Last Update : Mon Jun 02 07:34:43 2008
 Response via : Initial Calibration
 DataAcq Meth : 8260B

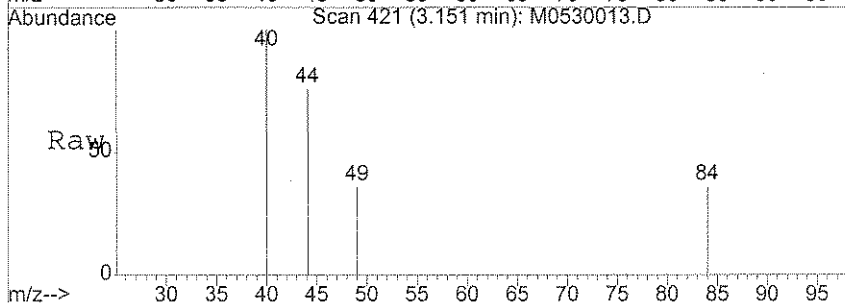
Compound	R.T.	Qion	Response	Conc	Unit	Qvalue
68) Ethylbenzene	11.63	91	143		N.D.	
69) m,p-Xylene	11.73	106	114		N.D.	
70) o-xylene	0.00	106	0		N.D.	
71) Styrene	0.00	104	0		N.D.	
72) Bromoform	0.00	173	0		N.D.	d
73) Isopropylbenzene	12.37	105	55		N.D.	
75) trans-1,4-Dichloro-2-buten	0.00	53	0		N.D.	
77) Bromobenzene	0.00	156	0		N.D.	
78) 1,1,2,2-Tetrachloroethane	0.00	83	0		N.D.	
79) 1,2,3-Trichloropropane	0.00	110	0		N.D.	
80) n-Propylbenzene	0.00	120	0		N.D.	
81) 2-Chlorotoluene	12.70	91	259		N.D.	
82) 4-Chlorotoluene	12.88	91	58		N.D.	
83) 1,3,5-Trimethylbenzene	12.85	105	72		N.D.	
84) tert-Butylbenzene	13.11	119	65		N.D.	
85) 1,2,4-Trimethylbenzene	13.15	105	66		N.D.	
86) sec-butylbenzene	13.27	105	344		N.D.	
87) 1,3-Dichlorobenzene	13.39	146	55		N.D.	
88) 4-Isopropyltoluene	13.39	119	462		N.D.	
89) 1,4-Dichlorobenzene	13.39	146	55		N.D.	
90) 1,2-Dichlorobenzene	0.00	146	0		N.D.	
91) n-Butylbenzene	13.72	91	341		N.D.	
92) 1,2-Dibromo-3-chloropropan	0.00	75	0		N.D.	
93) 1,2,4-Trichlorobenzene	14.98	180	135		N.D.	
94) Hexachlorobutadiene	0.00	225	0		N.D.	
95) Naphthalene	15.18	128	482		N.D.	
96) 1,2,3-Trichlorobenzene	15.37	180	66		N.D.	

(#) = qualifier out of range (m) = manual integration
 M0530013.D M8260W.M Mon Jun 02 07:36:25 2008

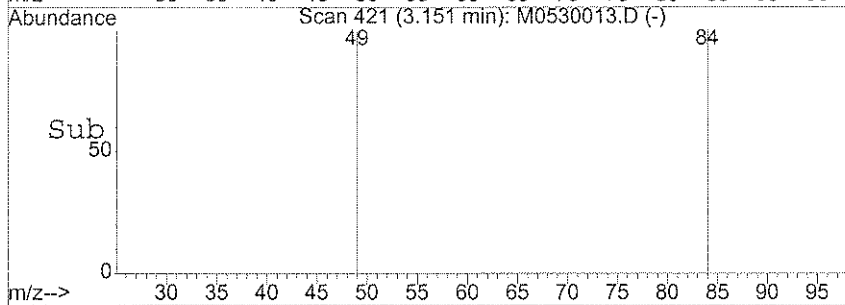
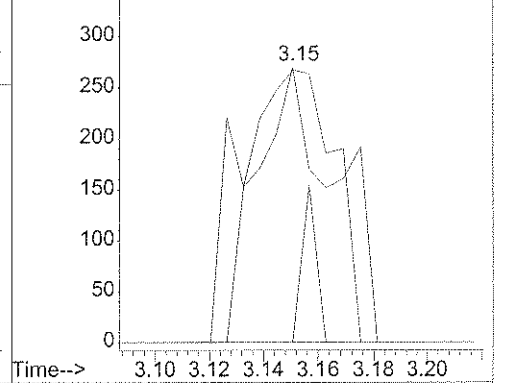


#18
 Methylene Chloride
 Concen: Below Cal
 RT: 3.15 min Scan# 421
 Delta R.T. 0.01 min
 Lab File: M0530013.D
 Acq: 30 May 2008 12:44

Tgt Ion	Ratio	Lower	Upper
84	100		
49	118.6	119.4	159.4#
86	10.6	43.9	83.9#



Abundance Ion 84.00 (83.70 to 84.70): M0530013.
 Ion 49.00 (48.70 to 49.70): M0530013.
 Ion 86.00 (85.70 to 86.70): M0530013.



TIC FORMS

SDG GDSU10

VOLATILES ANALYSIS

1 TIC
 VOLATILE ORGANICS ANALYSIS DATA SHEET
 TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

MW-10

Lab Name: Pace Analytical Services
 SDG No.: JPL116
 Matrix: (SOIL/WATER) Water
 Sample wt/vol: 10.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: not dec. _____
 GC Column: ZB-624 20m ID: 0.18 (mm)
 Soil Extract Volume: _____ (uL)
 Number TICs Found: 0

Contract: JPL Groundwater Monitorin
 Run Sequence: R028412
 Lab Sample ID: JPL116-001
 Lab File ID: M0530015.D
 Date Collected: 05/22/2008
 Date Analyzed: 05/30/2008
 Dilution Factor: 1.0
 Soil Aliquot Volume: _____ (uL)
 CONCENTRATION UNITS:
ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01				
02				
03				
04				
05				
06				
07				
08				
09				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				

Comments:

Library Search Compound Report

Data File : X:\MSVOA\MOBY\053008\M0530015.D Vial: 8
Acq On : 30 May 2008 13:38 Operator: DGA
Sample : JPL116-001 Inst : MOBY
Misc : #4 10ml +IS/SS(524.2.) Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Method : X:\MSVOA\MOBY\QUANT\M8260W.M (RTE Integrator)
Title : VOA 8260/524.2/624 - 10ML Water Calibration 5973M
Library : D:\DATABASE\NIST129K.L

No Library Search Compounds Detected

M0530015.D M8260W.M Mon Jun 02 07:39:47 2008

1 TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

MW-15

Lab Name: Pace Analytical Services
 SDG No.: JPL116
 Matrix: (SOIL/WATER) Water
 Sample wt/vol: 10.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: not dec. _____
 GC Column: ZB-624 20m ID: 0.18 (mm)
 Soil Extract Volume: _____ (uL)
 Number TICs Found: 0

Contract: JPL Groundwater Monitorin
 Run Sequence: R028412
 Lab Sample ID: JPL116-002
 Lab File ID: M0530016.D
 Date Collected: 05/22/2008
 Date Analyzed: 05/30/2008
 Dilution Factor: 1.0
 Soil Aliquot Volume: _____ (uL)
 CONCENTRATION UNITS:
ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01					
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					

Comments:

Library Search Compound Report

Data File : X:\MSVOA\MOBY\053008\M0530016.D Vial: 9
Acq On : 30 May 2008 14:06 Operator: DGA
Sample : JPL116-002 Inst : MOBY
Misc : #4 10ml +IS/SS(524.2.) Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Method : X:\MSVOA\MOBY\QUANT\M8260W.M (RTE Integrator)
Title : VOA 8260/524.2/624 - 10ML Water Calibration 5973M
Library : D:\DATABASE\NIST129K.L

No Library Search Compounds Detected

M0530016.D M8260W.M Mon Jun 02 07:40:46 2008

1 TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

DUPE-7-2Q08

Lab Name: Pace Analytical Services
 SDG No.: JPL116
 Matrix: (SOIL/WATER) Water
 Sample wt/vol: 10.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: not dec. _____
 GC Column: ZB-624 20m ID: 0.18 (mm)
 Soil Extract Volume: _____ (uL)
 Number TICs Found: 0

Contract: JPL Groundwater Monitorin
 Run Sequence: R028412
 Lab Sample ID: JPL116-003
 Lab File ID: M0530017.D
 Date Collected: 05/22/2008
 Date Analyzed: 05/30/2008
 Dilution Factor: 1.0
 Soil Aliquot Volume: _____ (uL)
 CONCENTRATION UNITS:
ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01					
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					

Comments:

Library Search Compound Report

Data File : X:\MSVOA\MOBY\053008\M0530017.D Vial: 10
Acq On : 30 May 2008 14:32 Operator: DGA
Sample : JPL116-003 Inst : MOBY
Misc : #3 10ml +IS/SS(524.2.) Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Method : X:\MSVOA\MOBY\QUANT\M8260W.M (RTE Integrator)
Title : VOA 8260/524.2/624 - 10ML Water Calibration 5973M
Library : D:\DATABASE\NIST129K.L

No Library Search Compounds Detected

M0530017.D M8260W.M Wed Jun 04 12:57:27 2008

1 TIC
 VOLATILE ORGANICS ANALYSIS DATA SHEET
 TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

TB-19-5/22/08

Lab Name: Pace Analytical Services
 SDG No.: JPL116
 Matrix: (SOIL/WATER) Water
 Sample wt/vol: 10.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: not dec. _____
 GC Column: ZB-624 20m ID: 0.18 (mm)
 Soil Extract Volume: _____ (uL)
 Number TICs Found: 0

Contract: JPL Groundwater Monitorin
 Run Sequence: R028412
 Lab Sample ID: JPL116-004
 Lab File ID: M0530013.D
 Date Collected: 05/22/2008
 Date Analyzed: 05/30/2008
 Dilution Factor: 1.0
 Soil Aliquot Volume: _____ (uL)
 CONCENTRATION UNITS:
ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01					
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					

Comments:

Library Search Compound Report

Data File : X:\MSVOA\MOBY\053008\M0530013.D Vial: 6
Acq On : 30 May 2008 12:44 Operator: DGA
Sample : JPL116-004 Inst : MOBY
Misc : #1 10ml +IS/SS(524.2.) Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Method : X:\MSVOA\MOBY\QUANT\M8260W.M (RTE Integrator)
Title : VOA 8260/524.2/624 - 10ML Water Calibration 5973M
Library : D:\DATABASE\NIST129K.L

No Library Search Compounds Detected

M0530013.D M8260W.M Mon Jun 02 07:36:29 2008

1 TIC
 VOLATILE ORGANICS ANALYSIS DATA SHEET
 TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B053008MVOWM2

Lab Name: Pace Analytical Services

Contract: JPL Groundwater Monitorin

SDG No.: JPL116

Run Sequence: R028412

Matrix: (SOIL/WATER) Water

Lab Sample ID: B053008MVOWM2

Sample wt/vol: 10.0 (g/mL) mL

Lab File ID: M0530012.D

Level: (LOW/MED) _____

Date Collected: _____

% Moisture: not dec. _____

Date Analyzed: 05/30/2008

GC Column: ZB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs Found: 0

CONCENTRATION UNITS:
ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01					
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					

Comments:

Library Search Compound Report

Data File : X:\MSVOA\MOBY\053008\M0530012.D Vial: 5
Acq On : 30 May 2008 12:11 Operator: DGA
Sample : B053008MVOWM2 Inst : MOBY
Misc : 10ml PFW+IS/SS(MV8-47-19) Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Method : X:\MSVOA\MOBY\QUANT\M8260W.M (RTE Integrator)
Title : VOA 8260/524.2/624 - 10ML Water Calibration 5973M
Library : D:\DATABASE\NIST129K.L

No Library Search Compounds Detected

M0530012.D M8260W.M Mon Jun 02 07:35:18 2008

Metals Data

JPL116

COVER PAGE-INORGANIC ANALYSES DATA PACKAGE

Lab Name: Page Analytical Services, Inc. Contract: JPL Groundwater Monitorin
 Lab Code: PAGE SDG No.: JPL116
 SOW No.: _____

Sample No.	Lab Sample ID
MW-10	JPL116-001
MW-10MS	JPL116-001MS
MW-10MSD	JPL116-001MSD
MW-15	JPL116-002
DUPE-7-2Q08	JPL116-003
DUPE-7-2Q08MS	JPL116-003MS
DUPE-7-2Q08MSD	JPL116-003MSD

Were ICP interelement corrections applied? Yes/No YES
 Were ICP background corrections applied? Yes/No NO
 If yes-was raw data generated before application of background corrections? Yes/No NO

Comments:

I certify that this data package is technically complete, for other than the conditions detailed in the case narrative. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature:  Name: Joan M. Phillips
 Date: 06/24/2008 Title: Chemist

Metals Analysis Data Sheets

INORGANIC ANALYSES DATA SHEET

SAMPLE NO.

MW-10

Lab Name: Pace Analytical ServicesContract: JPL Groundwater MonitorinLab Code: PACESDG No.: JPL116Matrix (soil/water): WaterLab Sample ID: JPL116-001Level (low/med): LOWDate Received: 05/23/2008

% Solids: _____

Concentration Units : ug/L

CAS No.	Analyte	Concentration	C	Q	M	Run Seq.
7440-38-2	Arsenic	1.00	U		M	R028637
7440-70-2	Calcium	98600			P	R029004
7440-47-3	Chromium	8.49		E	M	R028637
7439-89-6	Iron	100	U		P	R029004
7439-92-1	Lead	4.47			M	R028637
7439-95-4	Magnesium	33800			P	R029004
7440-09-7	Potassium	5000	U		P	R029004
7440-23-5	Sodium	31300			P	R029004

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: No

Comment _____

Date Printed: 6/23/2008 16:34

INORGANIC ANALYSES DATA SHEET

SAMPLE NO.

MW-15

Lab Name: Pace Analytical Services

Contract: JPL Groundwater Monitorin

Lab Code: PACE

SDG No.: JPL116

Matrix (soil/water): Water

Lab Sample ID: JPL116-002

Level (low/med): LOW

Date Received: 05/23/2008

% Solids: _____

Concentration Units : ug/L

CAS No.	Analyte	Concentration	C	Q	M	Run Seq.
7440-38-2	Arsenic	1.82			M	R028637
7440-70-2	Calcium	51000			P	R028884
7440-47-3	Chromium	16.2		E	M	R028637
7439-89-6	Iron	160			P	R028884
7439-92-1	Lead	1.00	U		M	R028637
7439-95-4	Magnesium	17800			P	R028884
7440-09-7	Potassium	5000	U		P	R029004
7440-23-5	Sodium	29300			P	R028884

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: No

Comment _____

Date Printed: 6/23/2008 16:34

INORGANIC ANALYSES DATA SHEET

SAMPLE NO.

DUPE-7-2Q08

Lab Name: Pace Analytical ServicesContract: JPL Groundwater MonitorinLab Code: PACESDG No.: JPL116Matrix (soil/water): WaterLab Sample ID: JPL116-003Level (low/med): LOWDate Received: 05/23/2008

% Solids: _____

Concentration Units : ug/L

CAS No.	Analyte	Concentration	C	Q	M	Run Seq.
7440-38-2	Arsenic	1.67			M	R028637
7440-70-2	Calcium	50000			P	R029004
7440-47-3	Chromium	9.94		E	M	R028637
7439-89-6	Iron	115			P	R029004
7439-92-1	Lead	1.34			M	R028637
7439-95-4	Magnesium	16800			P	R029004
7440-09-7	Potassium	5000	U		P	R029004
7440-23-5	Sodium	30700			P	R029004

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: No

Comment _____

Date Printed: 6/23/2008 16:34

Miscellaneous Inorganic Data

JPL116

COVER PAGE-INORGANIC ANALYSES DATA PACKAGE

Lab Name: Pace Analytical Services, Inc.

Contract: JPL Groundwater Monitorin

Lab Code: PACE

SDG No.: JPL116

SOW No.: _____

Sample No.
MW-10
MW-15
DUPE-7-2Q08

Lab Sample ID
JPL116-001
JPL116-002
JPL116-003

Comments:

I certify that this data package is technically complete, for other than the conditions detailed in the case narrative. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: 

Name: Raul J. Nino

Date: June 26, 2008

Title: Inorganic Supervisor

Inorganic Analysis Data Sheets

Pace Analytical Services, Inc.

Final Results

Client: Battelle **Project:** JPL Groundwater Monitoring
SDG Number: JPL116
Sample Number: MW-10 **Date/Time Collected:** 05/22/2008 08:09
Lab Sample ID: JPL116-001 **Date/Time Received:** 05/23/2008 08:25

Method/Qbatch*: E150.1/29606 **Unit:** pH Units
Instrument: pH meter (1) **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
pH	pH	1	6.8		0.10	0.10	05/23/2008	05/23/2008	R028353

Method/Qbatch*: E160.1/30623 **Unit:** mg/L
Instrument: Balance (01) **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Total Dissolved Solids (TDS)	TDS	1	240		2.0	2.0	06/30/2008	07/02/2008	R029315

Method/Qbatch*: E300.0/29915 **Unit:** mg/L
Instrument: Ion Chromatograph (2) **File:** R028654\results.1.txt

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Sulfate	14808-79-8	10	110		10	1.7	06/05/2008	06/05/2008	R028654
Chloride	16887-00-6	10	92		10	0.76	06/05/2008	06/05/2008	R028654

Method/Qbatch*: E310.1/29768 **Unit:** mg/L
Instrument: None **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Alkalinity, Carbonate (As CaCO3)	3812-32-6	1	4.0	U	4.0	4.0	06/02/2008	06/02/2008	R028510
Alkalinity, Bicarbonate (As CaCO3)	71-52-3	1	180		4.0	4.0	06/02/2008	06/02/2008	R028510

Method/Qbatch*: E314.0/30240 **Unit:** ug/L
Instrument: Ion Chromatograph (2) **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Perchlorate	14797-73-0	2	6.1		2.0	0.28	06/17/2008	06/17/2008	R028939

*QBatch=QC/Preparation Batch

Pace Analytical Services, Inc.

Final Results

Client: Battelle **Project:** JPL Groundwater Monitoring
SDG Number: JPL116
Sample Number: MW-10 **Date/Time Collected:** 05/22/2008 08:09
Lab Sample ID: JPL116-001 **Date/Time Received:** 05/23/2008 08:25
Method/Qbatch*: E353.2/29711 **Unit:** mg/L
Instrument: ASE (01) **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Total Nitrate / Nitrite	N+N	20	13		1.0	0.32	05/29/2008	05/29/2008	R028459

Method/Qbatch*: E353.2/29736 **Unit:** mg/L
Instrument: None **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Nitrate - N	14797-55-8	1	13		0.50	0.010	05/29/2008	05/29/2008	R028479

Method/Qbatch*: E354.1/29605 **Unit:** mg/L
Instrument: UVVis (Cary) **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Nitrite - N	14797-65-0	1	0.0050	U	0.0050	0.0012	05/23/2008	05/23/2008	R028352

Method/Qbatch*: E365.2/29607 **Unit:** mg/L
Instrument: UVVis (Cary) **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Phosphorus, Orthophosphate (as P)	7723-14-0	1	0.10	U	0.10	0.0025	05/23/2008	05/23/2008	R028354

*QBatch=QC/Preparation Batch

Pace Analytical Services, Inc.

Final Results

Client: Battelle **Project:** JPL Groundwater Monitoring
SDG Number: JPL116
Sample Number: MW-15 **Date/Time Collected:** 05/22/2008 09:41
Lab Sample ID: JPL116-002 **Date/Time Received:** 05/23/2008 08:25
Method/Qbatch*: E150.1/29606 **Unit:** pH Units
Instrument: pH meter (1) **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
pH	pH	1	7.3		0.10	0.10	05/23/2008	05/23/2008	R028353

Method/Qbatch*: E160.1/30307 **Unit:** mg/L
Instrument: Balance (01) **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Total Dissolved Solids (TDS)	TDS	1	240		2.0	2.0	06/20/2008	06/24/2008	R029005

Method/Qbatch*: E300.0/29915 **Unit:** mg/L
Instrument: Ion Chromatograph (2) **File:** R028654\results.1.txt

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Sulfate	14808-79-8	10	47		10	1.7	06/05/2008	06/05/2008	R028654
Chloride	16887-00-6	10	25		10	0.76	06/05/2008	06/05/2008	R028654

Method/Qbatch*: E310.1/29768 **Unit:** mg/L
Instrument: None **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Alkalinity, Carbonate (As CaCO3)	3812-32-6	1	4.0	U	4.0	4.0	06/02/2008	06/02/2008	R028510
Alkalinity, Bicarbonate (As CaCO3)	71-52-3	1	170		4.0	4.0	06/02/2008	06/02/2008	R028510

Method/Qbatch*: E314.0/30240 **Unit:** ug/L
Instrument: Ion Chromatograph (2) **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Perchlorate	14797-73-0	2	2.0	U	2.0	0.28	06/17/2008	06/17/2008	R028939

*QBatch=QC/Preparation Batch

Pace Analytical Services, Inc.

Final Results

Client: Battelle **Project:** JPL Groundwater Monitoring
SDG Number: JPL116
Sample Number: MW-15 **Date/Time Collected:** 05/22/2008 09:41
Lab Sample ID: JPL116-002 **Date/Time Received:** 05/23/2008 08:25
Method/Qbatch*: E353.2/29688 **Unit:** mg/L
Instrument: ASE (01) **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Total Nitrate / Nitrite	N+N	1	1.3		0.050	0.016	05/29/2008	05/29/2008	R028434

Method/Qbatch*: E353.2/29736 **Unit:** mg/L
Instrument: None **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Nitrate - N	14797-55-8	1	1.3		0.50	0.010	05/29/2008	05/29/2008	R028479

Method/Qbatch*: E354.1/29605 **Unit:** mg/L
Instrument: UVVis (Cary) **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Nitrite - N	14797-65-0	1	0.0050	U	0.0050	0.0012	05/23/2008	05/23/2008	R028352

Method/Qbatch*: E365.2/29607 **Unit:** mg/L
Instrument: UVVis (Cary) **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Phosphorus, Orthophosphate (as P)	7723-14-0	1	0.10	U	0.10	0.0025	05/23/2008	05/23/2008	R028354

*QBatch=QC/Preparation Batch

Pace Analytical Services, Inc.

Final Results

Client: Battelle **Project:** JPL Groundwater Monitoring
SDG Number: JPL116
Sample Number: DUPE-7-2Q08 **Date/Time Collected:** 05/22/2008 00:00
Lab Sample ID: JPL116-003 **Date/Time Received:** 05/23/2008 08:25
Method/Qbatch*: E150.1/29606 **Unit:** pH Units
Instrument: pH meter (1) **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
pH	pH	1	7.2		0.10	0.10	05/23/2008	05/23/2008	R028353

Method/Qbatch*: E160.1/30307 **Unit:** mg/L
Instrument: Balance (01) **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Total Dissolved Solids (TDS)	TDS	1	260		2.0	2.0	06/20/2008	06/24/2008	R029005

Method/Qbatch*: E300.0/29915 **Unit:** mg/L
Instrument: Ion Chromatograph (2) **File:** R028654\results.1.txt

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Sulfate	14808-79-8	10	45		10	1.7	06/05/2008	06/06/2008	R028654
Chloride	16887-00-6	10	24		10	0.76	06/05/2008	06/06/2008	R028654

Method/Qbatch*: E310.1/29768 **Unit:** mg/L
Instrument: None **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Alkalinity, Carbonate (As CaCO3)	3812-32-6	1	4.0	U	4.0	4.0	06/02/2008	06/02/2008	R028510
Alkalinity, Bicarbonate (As CaCO3)	71-52-3	1	170		4.0	4.0	06/02/2008	06/02/2008	R028510

Method/Qbatch*: E314.0/30240 **Unit:** ug/L
Instrument: Ion Chromatograph (2) **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Perchlorate	14797-73-0	2	2.0	U	2.0	0.28	06/17/2008	06/17/2008	R028939

*QBatch=QC/Preparation Batch

Pace Analytical Services, Inc.

Final Results

Client: Battelle **Project:** JPL Groundwater Monitoring
SDG Number: JPL116
Sample Number: DUPE-7-2Q08 **Date/Time Collected:** 05/22/2008 00:00
Lab Sample ID: JPL116-003 **Date/Time Received:** 05/23/2008 08:25
Method/Qbatch*: E353.2/29688 **Unit:** mg/L
Instrument: ASE (01) **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Total Nitrate / Nitrite	N+N	1	1.3		0.050	0.016	05/29/2008	05/29/2008	R028434

Method/Qbatch*: E353.2/29736 **Unit:** mg/L
Instrument: None **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Nitrate - N	14797-55-8	1	1.3		0.50	0.010	05/29/2008	05/29/2008	R028479

Method/Qbatch*: E354.1/29605 **Unit:** mg/L
Instrument: UVVis (Cary) **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Nitrite - N	14797-65-0	1	0.0050	U	0.0050	0.0012	05/23/2008	05/23/2008	R028352

Method/Qbatch*: E365.2/29607 **Unit:** mg/L
Instrument: UVVis (Cary) **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Phosphorus, Orthophosphate (as P)	7723-14-0	1	0.10	U	0.10	0.0025	05/23/2008	05/23/2008	R028354

*QBatch=QC/Preparation Batch

PACE ANALYTICAL SERVICES, INC.

SAMPLE DATA PACKAGE

BATTELLE

SDG NO.: JPL117

June 25, 2008

Pace Analytical Services, Inc.

940 S. Harney
Seattle, WA 98108

To: Battelle
Project Name: JPL Groundwater
SDG No.: JPL117
Date of Report: June 25, 2008

SAMPLE RECEIPT, IDENTIFICATION, AND GENERAL COMMENTS:

Sample Receipt and Identification:

The samples submitted under the laboratory number(s) indicated above were identified and analyzed as tabulated below. The samples were collected and received on the dates noted on the enclosed chain-of-custody copies, Attachment A.

<u>Client Sample Identification</u>	<u>Pace Sample Identification</u>	<u>Testing Analytical Request</u>
MW-5	JPL117-001	VOA/MET/INO
MW-6	JPL117-002	VOA/MET/INO
DUPE-8-2Q08	JPL117-003	VOA/MET/INO
TB-20-05/27/08	JPL117-004	VOA

Analytical Request Key:

VOA = Volatiles (524.2)
MET = Metals (200.7/200.8)
INO = Chloride, Sulfate, Ortho phosphorus (300.0)
Nitrate + Nitrite (353.2)
Nitrate (353.2)
Nitrite (354.1)
Alkalinity (310.1)
Perchlorate (314.0)
Total Dissolved Solids (160.1)
pH (150.1)

Summary of NELAC test accreditation

Determination	NELAC approved
150.1 pH	YES
160.1 Total Dissolved Solids	YES
200.7 K, Na, Mg, Ca, Fe	YES
200.8 As, Cr, Pb	YES
300 Anions OP, Cl and SO4	YES
310.1M Carb./Bicarb. Alkalinity	YES
314.0 Perchlorate	YES
353.2 Nitrate (as N) by Calc., water	YES
353.2 Nitrate + Nitrite (as N), Water	YES
354.1 Nitrite (as N), Water	YES
365.2 Ortho-Phosphorus as P, Water	YES

Pace Analytical Services, Inc.

940 S. Harney
Seattle, WA 98108

524.2 Volatile Organics + TICs (JPL Special list)	YES
TurMet for 200.7/200.8 TurMet	NO

We assert that the results reported here relate only to the samples listed in this report.

Sample Receipt Comments:

The following discrepancies were noted in association with the receipt of these samples.

Two of three volatiles bottles submitted for MW-5 contained bubbles of less than 1/4 inch in size. Both volatiles bottles submitted for TB-20-05/27-08 contained bubbles of less than 1/4 inch in size.

All samples submitted for pH analysis were received after the analytical holding time had expired.

GENERAL REMARKS ON ORGANIC ANALYSES:

The following comments describe general analysis conditions. For remarks specific to the samples reported in this case, see "SPECIFIC REMARKS ON ORGANIC ANALYSIS."

Manual Integrations:

One or more analytes may have been manually integrated on the data system quantitation reports. All manual integrations have been flagged, initialed, and dated by the analyst. A list of the manual integration flags is detailed below.

M	Manual integration due to irregular peak shape
MS	Manual integration due to split peak
MR	Manual integration due to retention time shift
MI	Manual integration of correct isomer
MT	Manual integration due to peak tailing
MB	Manual integration due to irregular baseline

Holding Time Compliance:

Volatile Organic Compounds:

The holding time is 14 days calculated from the date of collection in both soil and water samples. All samples were analyzed within holding times.

Volatiles Fraction:

Sample Analysis:

Chloromethane contamination was found in vials provided by our bottle supplier. We have now changed to a different lot that has passed our quality control. However, sample MW-7 was received in bottles from the contaminated lot (#031708-3) and had a low level detection of chloromethane.

Pace Analytical Services, Inc.

940 S. Harney
Seattle, WA 98108

Tentatively Identified Compounds (TICs):

A library search was performed for non-target analytes that are not identified on the quantitation report. The results for these have been submitted on a separate form.

Quality Control Analyses:

MS/MSD analyses were not performed due to insufficient sample volume.

Analysis of the blank spike S053008MVOWM1 yielded a high recovery for cis-1,3-dichloropropene. Because the recovery was high and the analyte was not detected in the associated samples no action was taken.

All other quality control parameters were met.

GENERAL REMARKS ON INORGANIC ANALYSES:

The following comments describe general analysis conditions. For remarks specific to the samples reported in this case, see "SPECIFIC REMARKS ON INORGANIC ANALYSES."

ICP and ICP-MS Metals:

On the first timed and dated page of each ICP and ICP-MS run, the data to be reported or rejected will be tabulated for that run.

SPECIFIC REMARKS ON INORGANIC ANALYSES:

Holding Time Compliance:

Pace calculates holding time compliance for inorganic determinations using the date on which reportable data were acquired.

Metals:

The holding time for metals is six months from the date of collection, excepting mercury, which is 28 days. All analyses were performed within holding time.

Miscellaneous:

The following analytes do not have a Contract Laboratory Program holding time. The holding times tabulated below derive from the relevant EPA methods and are applicable when the sample was appropriately preserved and/or cooled. All samples submitted followed the preservation guidelines unless explicitly noted otherwise.

<u>Analyte</u>	<u>Holding Time</u>	<u>Violations</u>
Perchlorate	28 days	None
Chloride	28 days	None
Sulfate	28 days	None

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Nitrate + Nitrite	28 days	None
Nitrate	48 hours	None
Nitrite	48 hours	None
Ortho phosphorus	48 hours	None
Alkalinity	14 days	None
Total Dissolved Solids	7 days	None
pH	15 minutes	All samples

ICP Metals:

For the run sequences R028884, the ICV exceeded the upper control limit for potassium. All samples were not reported from this run sequence and were reanalyzed and reported from run sequence R029004. QC were reported and were within control limits. No further corrective action was required. Data have not been flagged for this event.

For the run sequence R028884, the ICV exceeded the upper control limit for sodium. Also, the second CCB result for sodium was greater than the CRDL. Therefore, all sodium results associated with this run sequence may be biased high. Data have not been flagged for these events.

For the run sequence R029004, the ICV exceeded the upper control limit for potassium. All sample results for potassium were less than the CRDL. No corrective action was required. Data have not been flagged for this event.

For the run sequence R028884, the sixth, seventh, and eighth CCBs contained levels of potassium that were less than $-\frac{1}{2}$ the CRDL. No samples were reported from this run sequence but were reanalyzed and reported from run sequence R029004. No further corrective action was required. Data have not been flagged for these events.

For the run sequence R029004, the third CCB contained levels of potassium that were greater than $\frac{1}{2}$ the CRDL. No sample results for potassium were associated with this CCB. Therefore, no corrective action was required. Data have not been flagged for this event.

Due to software limitations, which limit the amount of data that can be processed, all injections are not present on Form 14 for run sequence R029004. All calibration checks are listed and all injections surrounding the samples are listed.

The serial dilution for the element sodium did not agree within 10% of the original determination after correction for dilution for sample MW-5. No further corrective action was required. All relevant data have been flagged with an "E" on the applicable Forms I and 9.

ICP-MS Metals:

For the run sequence R028870, there were greater than 10 injections between CCV1 and CCV2. No sample results were bracketed by these two CCVs. No corrective action was required. Data have not been flagged for this event.

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Miscellaneous Inorganics:

For run sequence R028409 for "354.1 Nitrite", the matrix spike duplicate had exceeded the upper established control limit. Due to the wide variance between the matrix spike and the matrix spike duplicate the relative percent difference had exceeded the established control limit. Since all other quality control samples were in control, no further action was taken.

In the run sequence R028691 for "300.0 Anions", the matrix spike and matrix spike duplicate exceeded the established lower control limits for chloride. Since all of the other quality control samples were in control, no further action was taken.

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ABBREVIATIONS

Several abbreviations can appear in our reports. The most commonly employed abbreviations are as follows:

- U The analyte of interest was not detected to the limit of detection indicated.
- SDL Sample Detection Limit. The SDL can vary from sample to sample, depending on sample size, matrix interferences, moisture content and other sample-specific conditions.
- PQL Practical Quantitation Limit. The limit is drawn from the test method and usually represents the SDL multiplied by a matrix-specific factor.
- DB Dry Basis. The value reported has been back-calculated to normalize for the moisture content of the sample.
- AR As-Received. The value has not been normalized for moisture.

ORGANIC ANALYSES:

- B When used in relation to organics fractions, the "B" flag indicates that the analyte of interest was detected in the method blank associated with the sample, as well as in the sample itself. The "B" flag is applied without regard to the relative concentrations detected in the blank and sample.
 - J The analyte of interest was detected below the routine reporting limit. This value should be regarded as an estimate.
 - T The flagged values represent the SUM of two co-eluting compounds. The SUM of these two values is shown as though it were a result for each of them. The two figures should not be added together.
 - E The flagged value was reported from an analysis that exceeded the linear range of the instrument. See additional comments for further discussion of the circumstances. Values so flagged should be considered estimates.
 - P When a dual column GC technique is employed, this flag indicates that test results from the two columns differ by more than 25%. Generally, we report the higher value.
 - C The flagged analyte has been confirmed by GC/MS analysis. The value reported may be derived from either the initial or confirmatory (GC/MS) analysis. See specific report comments for details.
 - ~ This result has been identified as non-primary based on the analyst's professional judgment.
- CRQL Client requested Quantitation Limit, usually the limit of detection specified at your request. Might also be referred to as Contract Required Quantitation Limit.

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INORGANIC ANALYSES:

- J The reported value was obtained from a reading that was less than the Contract Required Detection Limit (CRDL) but greater than or equal to the Instrument Detection Limit (IDL). If the analyte was analyzed for but not detected, a "U" shall be entered.
- E The reported value is estimated because of the presence of interference. The serial dilution was not within control limits.
- N Spiked sample recovery not within control limits.
- * Duplicate analysis not within control limits.
- Z Denotes data deemed unusable by the analyst.

CRDL Client Requested Detection Limit, usually the limit of detection specified at your request. Might also be referred to as Contract Required Detection Limit.

Pace Analytical Services, Inc.

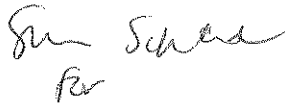
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Seattle, WA 98108

RELEASE OF DATA

Pace Analytical Services, Inc. certifies that these results meet all requirements of the NELAC standards, except where otherwise noted.

"I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature."

Respectfully submitted,



Kara Godineaux
Project Manager

6/25/08

(DATE)



Harry Romberg
Quality Assurance Officer

6/25/08

(DATE)

HOW TO CONTACT US:

All Pace Analytical Services, Inc. staff members can be reached at the same telephone and facsimile numbers: (206) 767-5060 by phone, (206) 767-5063 by FAX.

REQUESTS FOR DUPLICATE COPIES:

This packet has been checked for accuracy. All pages are present and in sequential order. Please see Attachment B for a detailed record.

In the event that duplicate data copies are needed, Pace will accommodate your request at a fee of twenty-five cents (\$0.25) per copy, plus shipping. If the data are in storage, there will also be a fee for retrieval.

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ATTACHMENT A

Chain-of-Custody Copies

PACE ANALYTICAL SERVICES, INC. - SAMPLE CONFIRMATION LOG																	
Sample #	SDG	VTSR	Collected On	Client ID	150.1 pH	150.1 Total Dissolved Solids	200.7 K, Na, Mg, Ca, Fe	200.8 As, Cr, Pb	300 Anions Cl and SO4	310.1M Carb./Bicarb. Alkalinity	314.0 Perchlorate	353.2 Nitrate (as N) by Calc., water	353.2 Nitrate + Nitrite (as N), Water	354.1 Nitrite (as N), Water	365.2 Ortho-Phosphorus as P, Water	524.2 Volatile Organics + TICs (JPL Special list)	TurnMet for 200.7/200.8 TurnMet
WD	PA117-001	05/28/2008 08:30 AM	05/27/2008 08:43 AM	MW-5	A+	A-	IN	IN	IN	IN	IN	IN	A-	A-	A-	A-	A-
WD	PA117-002	05/28/2008 08:30 AM	05/27/2008 10:40 AM	MW-6	A+	A-	IN	IN	IN	IN	IN	IN	A-	A-	A-	A-	A-
WD	PA117-003	05/28/2008 08:30 AM	05/27/2008 12:00 AM	DUPE-8-2008	A+	A-	IN	IN	IN	IN	IN	IN	A-	A-	A-	A-	A-
WD	PA117-004	05/28/2008 08:30 AM	05/27/2008 12:00 AM	TB-20-05/27/08													

Approved By:

On:

LEGEND: - Started, + Completed, IN: Logged In, P: Preparation, A: Analysis, X: Cancelled, PL: Pre-logged
 Matrices: Water=WD
 FORM LTL-PM-8.0

THIS INFORMATION WILL BE USED FOR REPORTING BILLING (SEE BELOW)

9351

COMPANY: BATTLE
 ADDRESS: 3900 OLD TOWN AVE., C-205
SAN DIEGO, CA 92110
 ATTENTION: DAVID CARVER
 PROJECT NAME: TEL GW MON 2008
 PROJECT CONTACT: DAVID CARVER
 TELEPHONE: 619-721-7311 FAX: _____
 JOB/PO. NO.: 6485090/214319

CHAIN OF CUSTODY RECORD SDG # JDPL117
 46077
 WORK ORDER ID# _____
 PAGE 1 OF 1
 SUBMITTED AT: _____

Laucks
 Testing Laboratories, Inc.
 340 South Henry St, Seattle, WA 98104 (206) 767-5000 FAX 767-5063
 1116 Lehigh Ave., Yuba, WA 98902 (509) 281-4005 FAX 521-1265

MATRIX: WATER, SOIL OR SPECIFY

NO. OF CONTAINERS	TESTS TO PERFORM
VOC (524.2)	<input checked="" type="checkbox"/> VOC (524.2)
TOTAL CR (200.8)	<input checked="" type="checkbox"/> TOTAL CR (200.8)
LEAD (200.8)	<input checked="" type="checkbox"/> LEAD (200.8)
ARSENIC (200.8)	<input checked="" type="checkbox"/> ARSENIC (200.8)
GEN TOX (200.8)	<input checked="" type="checkbox"/> GEN TOX (200.8)
CHLOR (314.0)	<input checked="" type="checkbox"/> CHLOR (314.0)
GEN TOX (200.8)	<input checked="" type="checkbox"/> GEN TOX (200.8)
GEN TOX (310.1, 160.1, 171.1)	<input checked="" type="checkbox"/> GEN TOX (310.1, 160.1, 171.1)

LAB/SAM	SAMPLE ID / LOCATION	DATE	TIME	MATRIX	NO. OF CONTAINERS	TESTS TO PERFORM	OBSERVATIONS, COMMENTS, SPECIAL INSTRUCTIONS
1	MW-5	5/27/08	0843	W	5	X X X X X X X X X X	
2	MW-6	5/27/08	1040	W	5	X X X X X X X X X X	
3	DUP-8-2008	5/27/08	-	W	5	X X X X X X X X X X	Duplicate
4	TR-20-05/27/08	5/27/08	-	W	2	X X	TRIP BLANK

A. A standard turnaround time is assumed unless otherwise marked.
 B. The laboratory may not be responsible for missed holding time for samples received with less than 50% of the analytical hold time remaining. Please contact the laboratory for further information.

INSTRUCTIONS:
 1. USE ONE LINE PER SAMPLE
 2. BE SPECIFIC IN TEST REQUESTS
 3. CHECK OFF TESTS TO BE PERFORMED FOR EACH SAMPLE

BILLING INFORMATION (DIFFERENT THAN ABOVE)
 NAME: BATTLE
 ATTN: DAVID CARVER
 ADDRESS: 505 KINLA AVE.
 CITY, STATE, ZIP: COLUMBUS, OH 43201

REINVOICED BY (SIGN AND PRINT): CHASE BOWMAN
 DATE: 05/27/08
 TIME: 1300

RECEIVED BY (SIGN AND PRINT): K. Klein
 DATE: 5/28/08
 TIME: 0830

* RUSH TURNAROUND IS SUBJECT TO PRIOR LABORATORY APPROVAL

TURNAROUND REQUEST:
 STD. 10-14 WORKING DAYS
 24-48 HRS. (100% SUR)
 72 HRS. (75% SUR)
 5 DAYS (50% SUR)
 OTHER _____
 TEMP. _____
 CUSTODY SEAL: Y N N/A

Supplemental Sample Receipt Log
Pace Analytical Services, Inc.

SDG: JPL117
Cooler: AAD869
Temperatures: 4.7
COC #: 46077

Sample	Bottle #	Bottle Description	pH	Bubbles
JPL117-001	0001	1000 mL cylinder, poly	7	N/A
	0002	250 ml cylinder, poly, H2SO4	<2	N/A
	0003	40 ml OTWS, clear glass, HCl	N/C	< 1/4
	0004	40 ml OTWS, clear glass, HCl	N/C	< 1/4
	0005	40 ml OTWS, clear glass, HCl	N/C	None
	0006	500 ml cylinder, poly, HNO3	<2	N/A
JPL117-002	0001	1000 mL cylinder, poly	7	N/A
	0002	250 ml cylinder, poly, H2SO4	<2	N/A
	0003	40 ml OTWS, clear glass, HCl	N/C	None
	0004	40 ml OTWS, clear glass, HCl	N/C	None
	0005	40 ml OTWS, clear glass, HCl	N/C	None
	0006	500 ml cylinder, poly, HNO3	<2	N/A
JPL117-003	0001	1000 mL cylinder, poly	7	N/A
	0002	250 ml cylinder, poly, H2SO4	<2	N/A
	0003	40 ml OTWS, clear glass, HCl	N/C	None
	0004	40 ml OTWS, clear glass, HCl	N/C	None
	0005	40 ml OTWS, clear glass, HCl	N/C	None
	0006	500 ml cylinder, poly, HNO3	<2	N/A
JPL117-004	0001	40 ml OTWS, clear glass, HCl	N/C	< 1/4
	0002	40 ml OTWS, clear glass, HCl	N/C	< 1/4

Allowable temperature and pH ranges (neutral pH defined as a value between 5 and 9)

Temperature Allowable temperature range is 4+/- 2 degrees Celsius

Acid Preserved pH pH must be less than 2

Base Preserved pH pH must be greater than 12

NC Not Checked for pH

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Seattle, WA 98108

ATTACHMENT B

Index

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Seattle, WA 98108

Battelle

SDG No.: JPL117

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- III. Index: 15-16
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Completed and checked by: Judy Ecklund Date: 6/25/08

QC SUMMARY

SDG JPL117

VOLATILES ANALYSIS

2
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: Pace Analytical Services

Contract: JPL Groundwater Monitorin

SDG No.: JPL117

Run Sequence: R028412

Level: (LOW/MED) NONE

CLIENT SAMPLE NUMBER	SMC1 (DCA) #	SMC2 (BFB) #	SMC3 (TOL) #	SMC4 () #	TOT OUT
(JPL117-003) DUPE-8-2Q08	100	105	105		0
(JPL117-002) MW-6	103	106	105		0
(JPL117-001) MW-5	102	106	106		0
(JPL117-004) TB-20-05/27/08	104	104	104		0
(B053008MVOWM2) B053008MVOWM2	104	106	104		0
(S053008MVOWM1) S053008MVOWM1	109	95	102		0

	QC LIMITS
SMC1 (DCA) = 1,2-Dichloroethane-d4	60-140
SMC2 (BFB) = 4-Bromofluorobenzene	60-140
SMC3 (TOL) = Toluene-d8	60-140
SMC4 () =	

Column to be used to flag recovery values
* Values outside of contract required QC limits

3B
WATER VOLATILE BLANK SPIKE RECOVERY

Lab Name: Pace Analytical Services Contract: JPL Groundwater Monitorin

BS Run Sequence: R028412 SDG No.: JPL117

BS Lab Sample ID: S053008MVOWM1

Level: N/A Units: ug/L

Analyte	Spike Added	Found	% Rec	#	Rec Limit
Dichlorodifluoromethane	50.0	46.78	94		60-140
Chloromethane	50.0	53.81	108		60-140
Vinyl chloride	50.0	58.49	117		60-140
Bromomethane	50.0	59.29	119		60-140
Chloroethane	50.0	62.23	124		60-140
Trichlorofluoromethane	50.0	58.68	117		60-140
1,1-Dichloroethene	50.0	64.2	128		60-140
1,1,2-Trichloro-1,2,2-trifluoroethane	50.0	59.71	119		60-140
Methylene chloride	50.0	55.4	111		60-140
Methyl tert-butyl ether	50.0	60.93	122		60-140
trans-1,2-Dichloroethene	50.0	59.72	119		60-140
1,1-Dichloroethane	50.0	55.79	112		60-140
2,2-Dichloropropane	50.0	54.51	109		60-140
cis-1,2-Dichloroethene	50.0	56.3	113		60-140
2-Butanone	50.0	61.34	123		60-140
Bromochloromethane	50.0	60.8	122		60-140
Chloroform	50.0	57.9	116		60-140
1,1,1-Trichloroethane	50.0	57.09	114		60-140
Carbon tetrachloride	50.0	53.81	108		60-140
1,1-Dichloropropene	50.0	55.85	112		60-140
Benzene	50.0	56.79	114		60-140
1,2-Dichloroethane	50.0	58.56	117		60-140
Trichloroethene	50.0	56.42	113		60-140
1,2-Dichloropropane	50.0	57.47	115		60-140
Dibromomethane	50.0	60.16	120		60-140
Bromodichloromethane	50.0	58.35	117		60-140
cis-1,3-Dichloropropene	50.0	70.59	141	*	60-140
4-Methyl-2-pentanone	50.0	61.75	124		60-140
Toluene	50.0	56.25	113		60-140
trans-1,3-Dichloropropene	50.0	56.07	112		60-140
1,1,2-Trichloroethane	50.0	57.38	115		60-140
Tetrachloroethene	50.0	56.71	113		60-140
1,3-Dichloropropane	50.0	58.63	117		60-140
Dibromochloromethane	50.0	59.48	119		60-140

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

Spike Recovery: 1 out of 63 outside limits

COMMENTS:

Date Printed: 6/2/2008 9:57

3B
WATER VOLATILE BLANK SPIKE RECOVERY

Lab Name: Pace Analytical Services Contract: JPL Groundwater Monitorin
 BS Run Sequence: R028412 SDG No.: JPL117
 BS Lab Sample ID: S053008MVOWM1
 Level: N/A Units: ug/L

Analyte	Spike Added	Found	% Rec	#	Rec Limit
1,2-Dibromoethane	50.0	56.81	114		60-140
Chlorobenzene	50.0	56.05	112		60-140
Ethylbenzene	50.0	58.04	116		60-140
1,1,1,2-Tetrachloroethane	50.0	56	112		60-140
m,p-Xylene	100	117.14	117		60-140
o-Xylene	50.0	55.64	111		60-140
Styrene	50.0	56.82	114		60-140
Bromoform	50.0	57.22	114		60-140
Isopropylbenzene	50.0	56.92	114		60-140
1,1,2,2-Tetrachloroethane	50.0	58.23	116		60-140
n-Propylbenzene	50.0	56.64	113		60-140
Bromobenzene	50.0	52.07	104		60-140
1,2,3-Trichloropropane	50.0	57.58	115		60-140
2-Chlorotoluene	50.0	51.43	103		60-140
1,3,5-Trimethylbenzene	50.0	56.07	112		60-140
4-Chlorotoluene	50.0	54.14	108		60-140
tert-Butylbenzene	50.0	55.03	110		60-140
1,2,4-Trimethylbenzene	50.0	59.49	119		60-140
sec-Butylbenzene	50.0	58.62	117		60-140
4-Isopropyltoluene	50.0	63.43	127		60-140
1,3-Dichlorobenzene	50.0	58.47	117		60-140
1,4-Dichlorobenzene	50.0	56.77	114		60-140
n-Butylbenzene	50.0	62.32	125		60-140
1,2-Dichlorobenzene	50.0	57.8	116		60-140
1,2-Dibromo-3-chloropropane	50.0	58.85	118		60-140
1,2,4-Trichlorobenzene	50.0	64.33	129		60-140
Hexachlorobutadiene	50.0	57.4	115		60-140
Naphthalene	50.0	69.91	140		60-140
1,2,3-Trichlorobenzene	50.0	68.39	137		60-140

Column to be used to flag recovery and RPD values with an asterisk
 * Values outside of QC limits

Spike Recovery: 1 out of 63 outside limits

COMMENTS:

Date Printed: 6/2/2008 9:57

4
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

B053008MVOWM2

Lab Name Pace Analytical Services

Contract: JPL Groundwater Monitorin

SDG No.: JPL117

Lab File ID: M0530012.D

Lab Sample ID: B053008MVOWM2

Date Analyzed: 05/30/2008

Time Analyzed: 12:11

GC Column: ZB-624 20m ID: 0.18 (mm)

Heated Purge: (Y/N) N

Instrument ID: 5973M Moby

Matrix: Water

	CLIENT SAMPLE NO.	LAB SAMPLE ID.	LAB FILE ID.	DATE ANALYZED	TIME ANALYZED	RUN SEQUENCE
01	S053008MVOWM1	S053008MVOWM1	M0530009.D	05/30/2008	10:50	R028412
02	TB-20-05/27/08	JPL117-004	M0530014.D	05/30/2008	13:11	R028412
03	MW-5	JPL117-001	M0530018.D	05/30/2008	15:00	R028412
04	MW-6	JPL117-002	M0530019.D	05/30/2008	15:30	R028412
05	DUPE-8-2Q08	JPL117-003	M0530020.D	05/30/2008	15:57	R028412
06						
07						
08						
09						
10						
11						
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30						

COMMENTS: _____

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

BFBM2

Lab Name: Pace Analytical Services Contract: JPL Groundwater Monitorin
 Run Sequence: CAL1330 SDG No.: JPL117
 Lab File ID: M0521017.D BFB Injection Date: 05/21/2008
 Instrument ID: 5973M Moby BFB Injection Time: 15:01
 GC Column ZB-624 20m ID: 0.18 (mm)

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15% to 40% of mass 95	16.6
75	30% to 60% of mass 95	44.2
95	base peak, 100% relative abundance	100
96	5% to 9% of mass 95	6.9
173	less than 2% of mass 174	0.3()1
174	greater than 50% of mass 95	94.2
175	5% to 9% of mass 17	7.1()1
176	greater than 95%, but less than 101% of mass 174	97.6()1
177	5% to 9% of mass 176	7()2

1 - Value is %mass 174

2 - Value is %mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD0.3	VSTD0.3	M0521018.D	05/21/2008	15:37
02	VSTD0.5	VSTD0.5	M0521019.D	05/21/2008	16:04
03	VSTD001	VSTD001	M0521020.D	05/21/2008	16:32
04	VSTD005	VSTD005	M0521021.D	05/21/2008	16:59
05	VSTD010	VSTD010	M0521022.D	05/21/2008	17:26
06	VSTD050	VSTD050	M0521023.D	05/21/2008	17:54
07	VSTD100	VSTD100	M0521024.D	05/21/2008	18:21
08	VSTD200	VSTD200	M0521025.D	05/21/2008	18:48
09					
10					
11					
12					
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14					
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16					
17					
18					
19					
20					
21					
22					

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

BFBM2

Lab Name: Pace Analytical Services Contract: JPL Groundwater Monitorin
 Run Sequence: R028412 SDG No.: JPL117
 Lab File ID: M0530004.D BFB Injection Date: 05/30/2008
 Instrument ID: 5973M Moby BFB Injection Time: 08:05
 GC Column ZB-624 20m ID: 0.18 (mm)

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15% to 40% of mass 95	16.6
75	30% to 60% of mass 95	44.7
95	base peak, 100% relative abundance	100
96	5% to 9% of mass 95	7
173	less than 2% of mass 174	0()1
174	greater than 50% of mass 95	93.2
175	5% to 9% of mass 17	7.3()1
176	greater than 95%, but less than 101% of mass 174	95.9()1
177	5% to 9% of mass 176	6.5()2

1 - Value is %mass 174

2 - Value is %mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD050M3	VSTD050M3	M0530008.D	05/30/2008	10:01
02	S053008MVOWM1	S053008MVOWM1	M0530009.D	05/30/2008	10:50
03	B053008MVOWM2	B053008MVOWM2	M0530012.D	05/30/2008	12:11
04	TB-20-05/27/08	JPL117-004	M0530014.D	05/30/2008	13:11
05	MW-5	JPL117-001	M0530018.D	05/30/2008	15:00
06	MW-6	JPL117-002	M0530019.D	05/30/2008	15:30
07	DUPE-8-2Q08	JPL117-003	M0530020.D	05/30/2008	15:57
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Pace Analytical Services Contract: JPL Groundwater Monitoring
 Run Sequence: R028412 SDG No.: JPL117
 Client Sample No. (VSTD050##): VSTD050M3 Date Analyzed: 05/30/2008
 Lab File ID (Standard): M0530008.D Time Analyzed: 10:01
 Instrument ID: 5973M Moby Heated Purge: (Y/N) N
 GC Column: ZB-624 20m ID: 0.18 (mm)

	IS1 (FBZ) AREA #	RT #	IS2 (CBZ) AREA #	RT #	IS3 (DCB) AREA #	RT #
12 HOUR STD	474727	7.97	290977	11.51	169055	13.45
UPPER LIMIT	949454	8.02	581954	11.56	338110	13.5
LOWER LIMIT	237363.5	7.92	145488.5	11.46	84527.5	13.4
CLIENT SAMPLE NO.						
01 S053008MVOWM1	478731	7.97	302777	11.51	177033	13.44
02 B053008MVOWM2	442821	7.97	268113	11.52	128951	13.44
03 TB-20-05/27/08	427289	7.97	261400	11.51	126234	13.45
04 MW-5	416778	7.97	252321	11.51	122045	13.44
05 MW-6	417818	7.97	253773	11.51	121180	13.45
06 DUPE-8-2Q08	412840	7.97	250603	11.52	121054	13.44
07						
08						
09						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						

IS1 (FBZ) = Fluorobenzene
 IS2 (CBZ) = Chlorobenzene-d5
 IS3 (DCB) = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = + 100% of internal standard area
 AREA LOWER LIMIT = - 50% of internal standard area
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
 * Values outside of QC limits

Date Printed: 6/9/2008 11:00

SAMPLE DATA

SDG JPL117

VOLATILES ANALYSIS

1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW-5

Lab Name: Pace Analytical Services
 SDG No.: JPL117
 Matrix: (SOIL/SED/WATER) Water
 Sample wt/vol: 10.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: not dec. _____
 GC Column: ZB-624 20m ID: 0.18 (mm)
 Soil Extract Volume: _____ (uL)
 Heated Purge: (Y/N) N

Contract: JPL Groundwater Monitorin
 Run Sequence: R028412
 Lab Sample ID: JPL117-001
 Lab File ID: M0530018.D
 Date Collected: 05/27/2008
 Date/Time Analyzed: 05/30/2008 15:00
 Dilution Factor: 1.0
 Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS:	
		<u>ug/L</u>	<u>Q</u>
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
75-09-2	Methylene chloride	1.0	U
1634-04-4	Methyl tert-butyl ether	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
594-20-7	2,2-Dichloropropane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
563-58-6	1,1-Dichloropropene	0.50	U
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U
79-01-6	Trichloroethene	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
74-95-3	Dibromomethane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-pentanone	5.0	U

1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW-5

Lab Name: Pace Analytical Services
 SDG No.: JPL117
 Matrix: (SOIL/SED/WATER) Water
 Sample wt/vol: 10.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: not dec. _____
 GC Column: ZB-624 20m ID: 0.18 (mm)
 Soil Extract Volume: _____ (uL)
 Heated Purge: (Y/N) N

Contract: JPL Groundwater Monitorin
 Run Sequence: R028412
 Lab Sample ID: JPL117-001
 Lab File ID: M0530018.D
 Date Collected: 05/27/2008
 Date/Time Analyzed: 05/30/2008 15:00
 Dilution Factor: 1.0
 Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: <u>ug/L</u>	Q
108-88-3	Toluene	0.50	U
10061-02-	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
142-28-9	1,3-Dichloropropane	0.50	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
630-20-6	1,1,1,2-Tetrachloroethane	0.50	U
179601-23	m,p-Xylene	1.0	U
95-47-6	o-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
103-65-1	n-Propylbenzene	0.50	U
108-86-1	Bromobenzene	0.50	U
96-18-4	1,2,3-Trichloropropane	0.50	U
95-49-8	2-Chlorotoluene	0.50	U
108-67-8	1,3,5-Trimethylbenzene	0.50	U
106-43-4	4-Chlorotoluene	0.50	U
98-06-6	tert-Butylbenzene	0.50	U
95-63-6	1,2,4-Trimethylbenzene	0.50	U
135-98-8	sec-Butylbenzene	0.50	U
99-87-6	4-Isopropyltoluene	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U

1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW-5

Lab Name: Pace Analytical Services
 SDG No.: JPL117
 Matrix: (SOIL/SED/WATER) Water
 Sample wt/vol: 10.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: not dec. _____
 GC Column: ZB-624 20m ID: 0.18 (mm)
 Soil Extract Volume: _____ (uL)
 Heated Purge: (Y/N) N

Contract: JPL Groundwater Monitorin
 Run Sequence: R028412
 Lab Sample ID: JPL117-001
 Lab File ID: M0530018.D
 Date Collected: 05/27/2008
 Date/Time Analyzed: 05/30/2008 15:00
 Dilution Factor: 1.0
 Soil Aliquot Volume: _____ (uL)

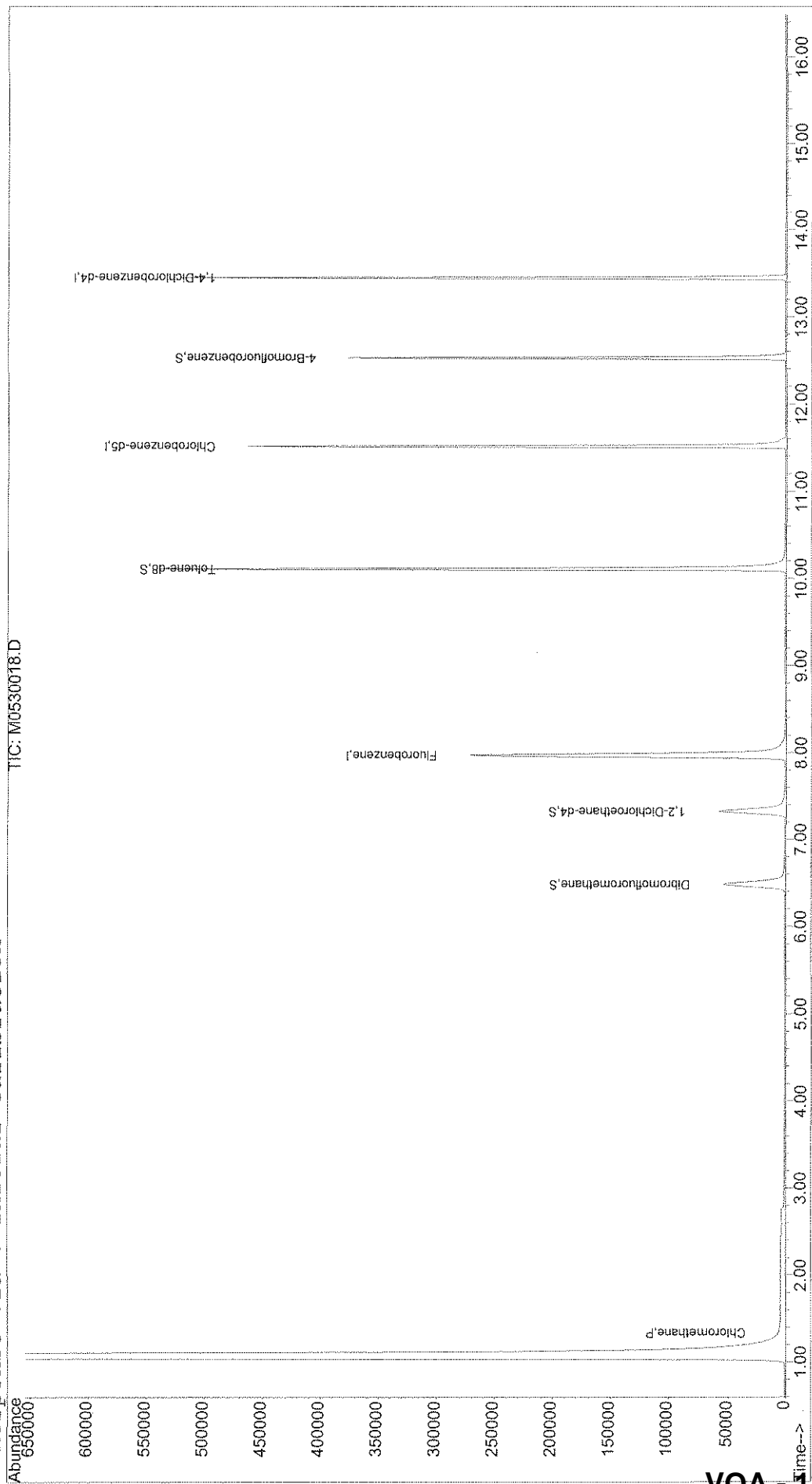
CAS NO.	COMPOUND	CONCENTRATION UNITS:	
		<u>ug/L</u>	Q
104-51-8	n-Butylbenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-68-3	Hexachlorobutadiene	0.50	U
91-20-3	Naphthalene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

Comments:

Quantitation Report

Data File : X:\MSVOA\MOBY\0530008\M0530018.D
Acq On : 30 May 2008 15:00 Vial: 11
Sample : JPL117-001 Operator: DGA
Misc : #4 10ml +IS/SS(524.2.) Inst : MOBY
MS Integration Params: rteint.p Multiplr: 1.00
Quant Time: Jun 2 7:42 2008 Quant Results File: M8260W.RES

Method : X:\MSVOA\MOBY\QUANT\M8260W.M (RTE Integrator)
Title : VOA 8260/524.2/624 - 10ML Water Calibration 5973M
Last Update : Mon Jun 02 07:34:43 2008
Response via : Initial Calibration



Quantitation Report

Data File : X:\MSVOA\MOBY\053008\M0530018.D
 Acq On : 30 May 2008 15:00
 Sample : JPL117-001
 Misc : #4 10ml +IS/SS(524.2.)
 MS Integration Params: rteint.p
 Quant Time: Jun 2 7:42 2008

Vial: 11
 Operator: DGA
 Inst : MOBY
 Multiplr: 1.00

Quant Results File: M8260W.RES

Quant Method : X:\MSVOA\MOBY\QUANT\M8260W.M (RTE Integrator)
 Title : VOA 8260/524.2/624 - 10ML Water Calibration 5973M
 Last Update : Mon Jun 02 07:34:43 2008
 Response via : Initial Calibration
 DataAcq Meth : 8260B
 IS QA File : X:\MSVOA\MOBY\052108\M0521023.D (21 May 2008 17:54)

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)	Rcv(Ar)
1) Fluorobenzene	7.97	96	416778	25.00	ug/l	0.00	74.90%
54) Chlorobenzene-d5	11.51	117	252321	25.00	ug/l	0.00	74.17%
74) 1,4-Dichlorobenzene-d4	13.44	152	122045	25.00	ug/l	0.00	59.88%

System Monitoring Compounds

37) Dibromofluoromethane	6.48	111	77141	21.21	ug/l	0.00	
Spiked Amount	20.000	Range	85 - 115	Recovery	=	106.05%	
40) 1,2-Dichloroethane-d4	7.32	65	80585	25.43	ug/l	0.00	
Spiked Amount	25.000	Range	70 - 120	Recovery	=	101.72%	
55) Toluene-d8	10.11	98	376497	26.57	ug/l	0.00	
Spiked Amount	25.000	Range	85 - 120	Recovery	=	106.28%	
76) 4-Bromofluorobenzene	12.52	95	108724	26.45	ug/l	0.00	
Spiked Amount	25.000	Range	75 - 120	Recovery	=	105.80%	

Target Compounds

	R.T.	QIon	Response	Conc	Units	Qvalue
2) Dichlorodifluoromethane	0.00	85	0	N.D.		
3) Chloromethane	1.34	50	462	0.17	ug/l	97
4) Vinyl Chloride	0.00	62	0	N.D.		
5) Bromomethane	0.00	96	0	N.D.		
6) Chloroethane	0.00	64	0	N.D.		
7) Trichlorofluoromethane	0.00	101	0	N.D.		
8) Acrolein	0.00	56	0	N.D.		
9) 1,1-Dichloroethene	0.00	96	0	N.D.		
10) 1,1,2-Trichloro-1,2,2-trif	0.00	101	0	N.D.		
11) Acetone	0.00	43	0	N.D.	d	
12) Iodomethane	0.00	142	0	N.D.		
13) Bromoethane	0.00	108	0	N.D.		
14) Carbon Disulfide	0.00	76	0	N.D.		
15) Allyl chloride	0.00	76	0	N.D.		
16) Acetonitrile	0.00	40	0	N.D.	d	
17) Methyl Acetate	0.00	43	0	N.D.		
18) Methylene Chloride	0.00	84	0	N.D.		
19) trans-1,2-Dichloroethene	0.00	96	0	N.D.		
20) t-Butyl alcohol	0.00	59	0	N.D.		
21) Methyl tert-butyl ether	0.00	73	0	N.D.		
22) Acrylonitrile	0.00	53	0	N.D.		

(#) = qualifier out of range (m) = manual integration
 M0530018.D M8260W.M Mon Jun 02 07:42:47 2008

J. G. P. H.

Quantitation Report

Data File : X:\MSVOA\MOBY\053008\M0530018.D
 Acq On : 30 May 2008 15:00
 Sample : JPL117-001
 Misc : #4 10ml +IS/SS(524.2.)
 MS Integration Params: rteint.p
 Quant Time: Jun 2 7:42 2008

Vial: 11
 Operator: DGA
 Inst : MOBY
 Multiplr: 1.00

Quant Results File: M8260W.RES

Quant Method : X:\MSVOA\MOBY\QUANT\M8260W.M (RTE Integrator)
 Title : VOA 8260/524.2/624 - 10ML Water Calibration 5973M
 Last Update : Mon Jun 02 07:34:43 2008
 Response via : Initial Calibration
 DataAcq Meth : 8260B

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
23) 1,1-Dichloroethane	0.00	63	0	N.D.		
24) Chloroprene	0.00	53	0	N.D.		
25) Isopropyl ether	0.00	59	0	N.D.		
26) Vinyl acetate	0.00	43	0	N.D.		
27) Ethyl-t-butyl ether	0.00	59	0	N.D.		
28) 2,2-Dichloropropane	0.00	77	0	N.D.		
29) cis-1,2-Dichloroethene	0.00	96	0	N.D.		
30) 2-Butanone	0.00	43	0	N.D.		
31) Propionitrile	0.00	54	0	N.D.		
32) Bromochloromethane	0.00	128	0	N.D.		
33) Methacrylonitrile	0.00	41	0	N.D.		
34) Chloroform	0.00	83	0	N.D.		
35) 1,1,1-Trichloroethane	0.00	97	0	N.D.		
36) Cyclohexane	0.00	56	0	N.D.		
38) Carbon Tetrachloride	0.00	117	0	N.D.		
39) 1,1-Dichloropropene	0.00	75	0	N.D.		
41) Benzene	0.00	78	0	N.D.		
42) 1,2-Dichloroethane	0.00	62	0	N.D.		
43) t-Amyl methyl ether	0.00	73	0	N.D.		
44) Isobutanol	0.00	43	0	N.D.	d	
45) Trichloroethene	0.00	130	0	N.D.		
46) Methylcyclohexane	0.00	83	0	N.D.		
47) 1,2-Dichloropropane	0.00	63	0	N.D.		
48) Dibromomethane	0.00	93	0	N.D.		
49) Methyl methacrylate	0.00	69	0	N.D.		
50) Bromodichloromethane	0.00	83	0	N.D.		
51) 2-Chloroethyl vinyl ether	0.00	63	0	N.D.		
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	0.00	43	0	N.D.	d	
56) Toluene	0.00	92	0	N.D.		
57) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
58) Ethyl methacrylate	0.00	69	0	N.D.		
59) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
60) Tetrachloroethene	0.00	166	0	N.D.		
61) 1,3-Dichloropropane	0.00	76	0	N.D.		
62) 2-Hexanone	0.00	43	0	N.D.		
63) Dibromochloromethane	0.00	129	0	N.D.		
64) 1,2-Dibromoethane	0.00	107	0	N.D.		
65) 1-Chlorohexane	11.51	91	439	N.D.		
66) Chlorobenzene	0.00	112	0	N.D.		
67) 1,1,1,2-Tetrachloroethane	0.00	131	0	N.D.		

(#) = qualifier out of range (m) = manual integration
 M0530018.D M8260W.M Mon Jun 02 07:42:47 2008

J. G. [Signature]
 Page 2
 VOA - 15

Quantitation Report

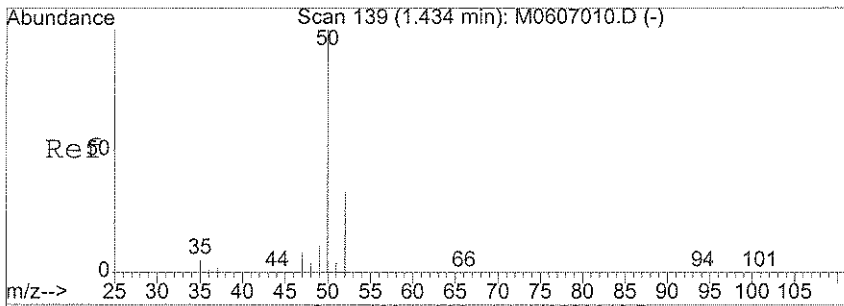
Data File : X:\MSVOA\MOBY\053008\M0530018.D
 Acq On : 30 May 2008 15:00
 Sample : JPL117-001
 Misc : #4 10ml +IS/SS(524.2.)
 MS Integration Params: rteint.p
 Quant Time: Jun 2 7:42 2008

Vial: 11
 Operator: DGA
 Inst : MOBY
 Multiplr: 1.00

Quant Results File: M8260W.RES

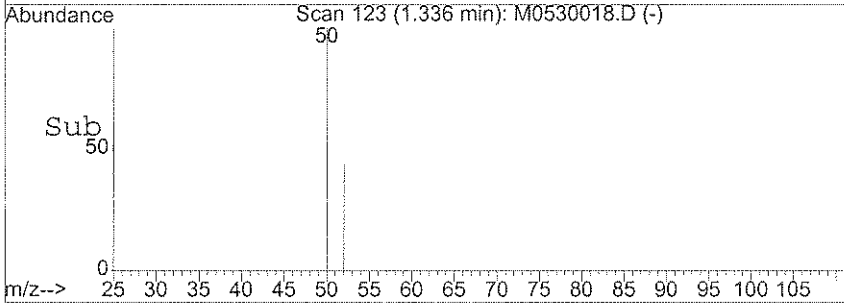
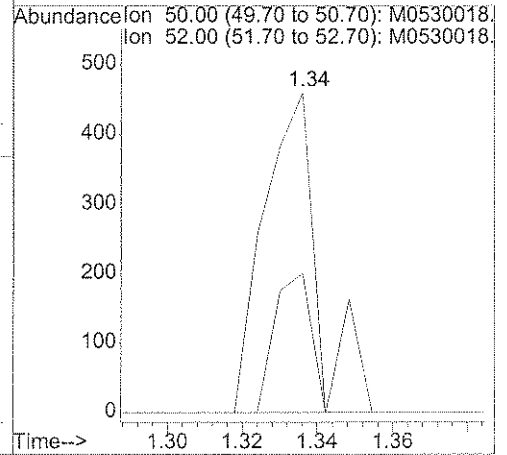
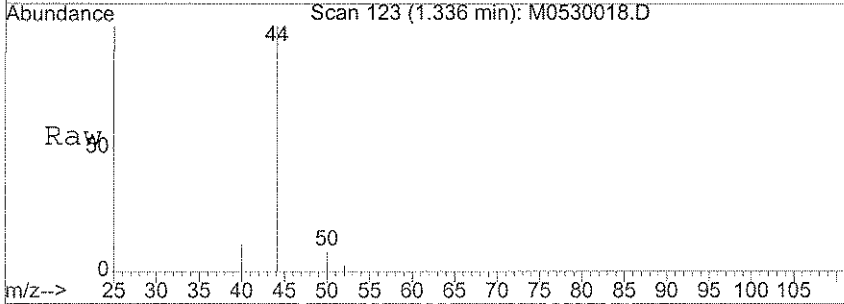
Quant Method : X:\MSVOA\MOBY\QUANT\M8260W.M (RTE Integrator)
 Title : VOA 8260/524.2/624 - 10ML Water Calibration 5973M
 Last Update : Mon Jun 02 07:34:43 2008
 Response via : Initial Calibration
 DataAcq Meth : 8260B

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
68) Ethylbenzene	11.51	91	439		N.D.	
69) m,p-Xylene	0.00	106	0		N.D.	
70) o-xylene	0.00	106	0		N.D.	
71) Styrene	0.00	104	0		N.D.	
72) Bromoform	0.00	173	0		N.D.	d
73) Isopropylbenzene	0.00	105	0		N.D.	
75) trans-1,4-Dichloro-2-buten	0.00	53	0		N.D.	
77) Bromobenzene	0.00	156	0		N.D.	
78) 1,1,2,2-Tetrachloroethane	0.00	83	0		N.D.	
79) 1,2,3-Trichloropropane	0.00	110	0		N.D.	
80) n-Propylbenzene	0.00	120	0		N.D.	
81) 2-Chlorotoluene	12.52	91	150		N.D.	
82) 4-Chlorotoluene	0.00	91	0		N.D.	
83) 1,3,5-Trimethylbenzene	0.00	105	0		N.D.	
84) tert-Butylbenzene	13.39	119	56		N.D.	
85) 1,2,4-Trimethylbenzene	0.00	105	0		N.D.	
86) sec-butylbenzene	0.00	105	0		N.D.	
87) 1,3-Dichlorobenzene	0.00	146	0		N.D.	
88) 4-Isopropyltoluene	13.39	119	56		N.D.	
89) 1,4-Dichlorobenzene	0.00	146	0		N.D.	
90) 1,2-Dichlorobenzene	0.00	146	0		N.D.	
91) n-Butylbenzene	13.44	91	220		N.D.	
92) 1,2-Dibromo-3-chloropropan	0.00	75	0		N.D.	
93) 1,2,4-Trichlorobenzene	0.00	180	0		N.D.	
94) Hexachlorobutadiene	0.00	225	0		N.D.	
95) Naphthalene	0.00	128	0		N.D.	
96) 1,2,3-Trichlorobenzene	0.00	180	0		N.D.	



#3
 Chloromethane
 Concen: 0.17 ug/l
 RT: 1.34 min Scan# 123
 Delta R.T. 0.00 min
 Lab File: M0530018.D
 Acq: 30 May 2008 15:00

Tgt Ion: 50 Resp: 462
 Ion Ratio Lower Upper
 50 100
 52 29.9 11.8 51.8



1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW-6

Lab Name: Pace Analytical Services
 SDG No.: JPL117
 Matrix: (SOIL/SED/WATER) Water
 Sample wt/vol: 10.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: not dec. _____
 GC Column: ZB-624 20m ID: 0.18 (mm)
 Soil Extract Volume: _____ (uL)
 Heated Purge: (Y/N) N

Contract: JPL Groundwater Monitorin
 Run Sequence: R028412
 Lab Sample ID: JPL117-002
 Lab File ID: M0530019.D
 Date Collected: 05/27/2008
 Date/Time Analyzed: 05/30/2008 15:30
 Dilution Factor: 1.0
 Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS:	
		<u>ug/L</u>	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.37	J
75-01-4	Vinyl chloride	0.50	U
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.94	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
75-09-2	Methylene chloride	1.0	U
1634-04-4	Methyl tert-butyl ether	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
75-34-3	1,1-Dichloroethane	0.59	
594-20-7	2,2-Dichloropropane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.65	
71-55-6	1,1,1-Trichloroethane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
563-58-6	1,1-Dichloropropene	0.50	U
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U
79-01-6	Trichloroethene	2.5	
78-87-5	1,2-Dichloropropane	0.50	U
74-95-3	Dibromomethane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-pentanone	5.0	U

1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW-6

Lab Name: Pace Analytical Services
 SDG No.: JPL117
 Matrix: (SOIL/SED/WATER) Water
 Sample wt/vol: 10.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: not dec. _____
 GC Column: ZB-624 20m ID: 0.18 (mm)
 Soil Extract Volume: _____ (uL)
 Heated Purge: (Y/N) N

Contract: JPL Groundwater Monitorin
 Run Sequence: R028412
 Lab Sample ID: JPL117-002
 Lab File ID: M0530019.D
 Date Collected: 05/27/2008
 Date/Time Analyzed: 05/30/2008 15:30
 Dilution Factor: 1.0
 Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L	Q
108-88-3	Toluene	0.50	U
10061-02-	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	1.8	
142-28-9	1,3-Dichloropropane	0.50	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
630-20-6	1,1,1,2-Tetrachloroethane	0.50	U
179601-23	m,p-Xylene	1.0	U
95-47-6	o-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
103-65-1	n-Propylbenzene	0.50	U
108-86-1	Bromobenzene	0.50	U
96-18-4	1,2,3-Trichloropropane	0.50	U
95-49-8	2-Chlorotoluene	0.50	U
108-67-8	1,3,5-Trimethylbenzene	0.50	U
106-43-4	4-Chlorotoluene	0.50	U
98-06-6	tert-Butylbenzene	0.50	U
95-63-6	1,2,4-Trimethylbenzene	0.50	U
135-98-8	sec-Butylbenzene	0.50	U
99-87-6	4-Isopropyltoluene	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U

1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW-6

Lab Name: Pace Analytical Services
 SDG No.: JPL117
 Matrix: (SOIL/SED/WATER) Water
 Sample wt/vol: 10.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: not dec. _____
 GC Column: ZB-624 20m ID: 0.18 (mm)
 Soil Extract Volume: _____ (uL)
 Heated Purge: (Y/N) N

Contract: JPL Groundwater Monitorin
 Run Sequence: R028412
 Lab Sample ID: JPL117-002
 Lab File ID: M0530019.D
 Date Collected: 05/27/2008
 Date/Time Analyzed: 05/30/2008 15:30
 Dilution Factor: 1.0
 Soil Aliquot Volume: _____ (uL)

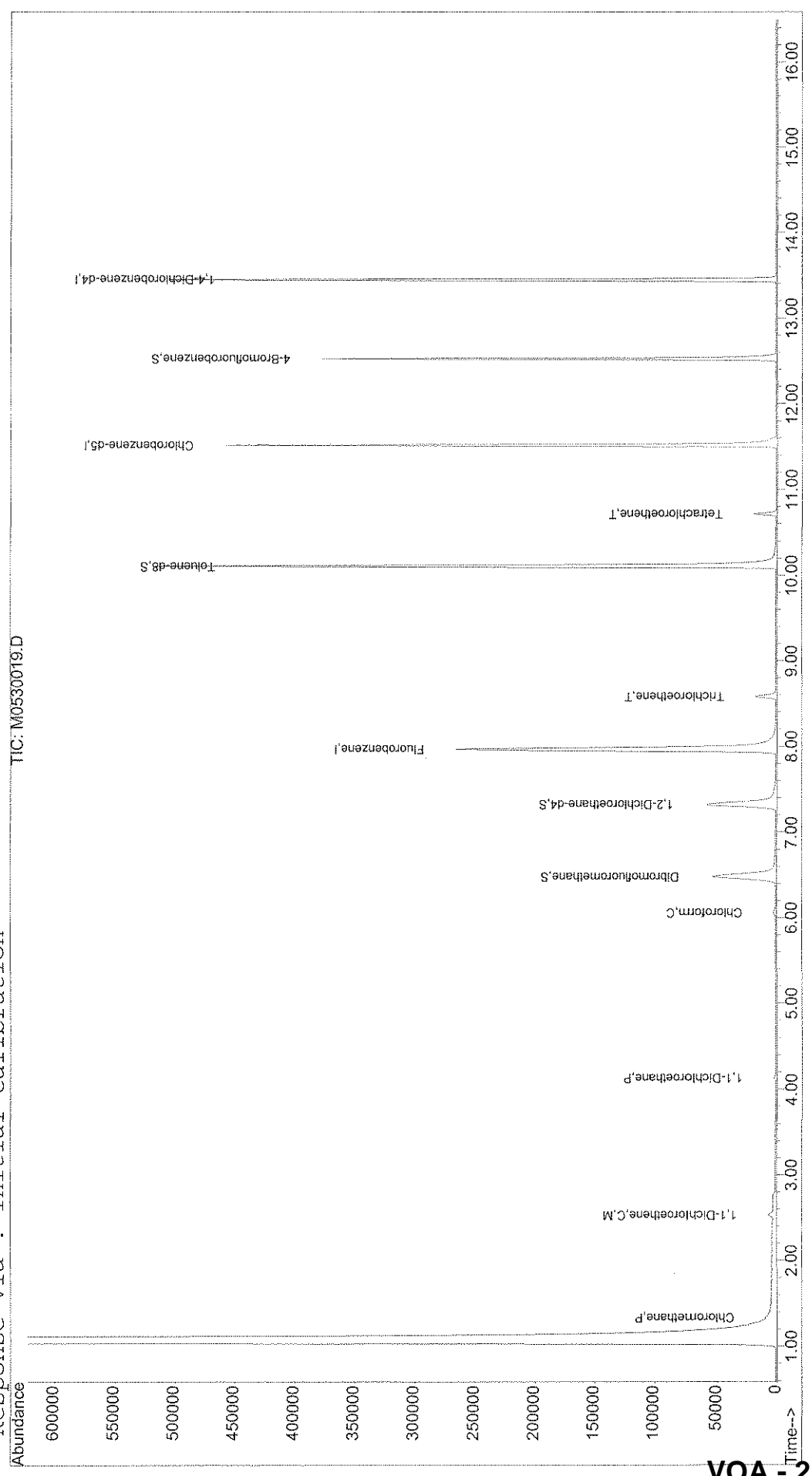
CAS NO.	COMPOUND	CONCENTRATION UNITS:	
		<u>ug/L</u>	Q
104-51-8	n-Butylbenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-68-3	Hexachlorobutadiene	0.50	U
91-20-3	Naphthalene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

Comments:

Quantitation Report

Data File : X:\MSVOA\MOBY\053008\M0530019.D Vial: 12
Acq On : 30 May 2008 15:30 Operator: DGA
Sample : JPL117-002 Inst : MOBY
Misc : #3 10ml +IS/SS(524.2.) Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Jun 2 7:43 2008 Quant Results File: M8260W.RES

Method : X:\MSVOA\MOBY\QUANT\M8260W.M (RTE Integrator)
Title : VOA 8260/524.2/624 - 10ML Water Calibration 5973M
Last Update : Mon Jun 02 07:34:43 2008
Response via : Initial Calibration



Quantitation Report

Data File : X:\MSVOA\MOBY\053008\M0530019.D
 Acq On : 30 May 2008 15:30
 Sample : JPL117-002
 Misc : #3 10ml +IS/SS(524.2.)
 MS Integration Params: rteint.p
 Quant Time: Jun 2 7:43 2008

Vial: 12
 Operator: DGA
 Inst : MOBY
 Multiplr: 1.00

Quant Results File: M8260W.RES

Quant Method : X:\MSVOA\MOBY\QUANT\M8260W.M (RTE Integrator)
 Title : VOA 8260/524.2/624 - 10ML Water Calibration 5973M
 Last Update : Mon Jun 02 07:34:43 2008
 Response via : Initial Calibration
 DataAcq Meth : 8260B
 IS QA File : X:\MSVOA\MOBY\052108\M0521023.D (21 May 2008 17:54)

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)	Rcv(Ar)
1) Fluorobenzene	7.97	96	417818	25.00	ug/l	0.00	75.09%
54) Chlorobenzene-d5	11.51	117	253773	25.00	ug/l	0.00	74.60%
74) 1,4-Dichlorobenzene-d4	13.45	152	121180	25.00	ug/l	0.00	59.46%

System Monitoring Compounds

37) Dibromofluoromethane	6.49	111	77494	21.25	ug/l	0.00	
Spiked Amount	20.000	Range	85 - 115	Recovery	=	106.25%	
40) 1,2-Dichloroethane-d4	7.33	65	81849	25.76	ug/l	0.00	
Spiked Amount	25.000	Range	70 - 120	Recovery	=	103.04%	
55) Toluene-d8	10.11	98	373404	26.20	ug/l	0.00	
Spiked Amount	25.000	Range	85 - 120	Recovery	=	104.80%	
76) 4-Bromofluorobenzene	12.52	95	107929	26.45	ug/l	0.00	
Spiked Amount	25.000	Range	75 - 120	Recovery	=	105.80%	

Target Compounds

						Qvalue
2) Dichlorodifluoromethane	0.00	85	0	N.D.		
3) Chloromethane	1.34	50	1017	0.37 ug/l		96
4) Vinyl Chloride	0.00	62	0	N.D.		
5) Bromomethane	0.00	96	0	N.D.		
6) Chloroethane	0.00	64	0	N.D.		
7) Trichlorofluoromethane	0.00	101	0	N.D.		
8) Acrolein	0.00	56	0	N.D.		
9) 1,1-Dichloroethene	2.53	96	2409	0.94 ug/l		89
10) 1,1,2-Trichloro-1,2,2-trif	0.00	101	0	N.D.		
11) Acetone	0.00	43	0	N.D.	d	
12) Iodomethane	0.00	142	0	N.D.		
13) Bromoethane	0.00	108	0	N.D.		
14) Carbon Disulfide	0.00	76	0	N.D.		
15) Allyl chloride	0.00	76	0	N.D.		
16) Acetonitrile	0.00	40	0	N.D.	d	
17) Methyl Acetate	0.00	43	0	N.D.		
18) Methylene Chloride	0.00	84	0	N.D.		
19) trans-1,2-Dichloroethene	3.47	96	199	N.D.		
20) t-Butyl alcohol	0.00	59	0	N.D.		
21) Methyl tert-butyl ether	3.49	73	390	N.D.		
22) Acrylonitrile	0.00	53	0	N.D.		

(#) = qualifier out of range (m) = manual integration
 M0530019.D M8260W.M Mon Jun 02 07:43:48 2008

J. G. [Signature]
 Page 1
VOA-22

Quantitation Report

Data File : X:\MSVOA\MOBY\053008\M0530019.D
 Acq On : 30 May 2008 15:30
 Sample : JPL117-002
 Misc : #3 10ml +IS/SS(524.2.)
 MS Integration Params: rteint.p
 Quant Time: Jun 2 7:43 2008

Vial: 12
 Operator: DGA
 Inst : MOBY
 Multiplr: 1.00

Quant Results File: M8260W.RES

Quant Method : X:\MSVOA\MOBY\QUANT\M8260W.M (RTE Integrator)
 Title : VOA 8260/524.2/624 - 10ML Water Calibration 5973M
 Last Update : Mon Jun 02 07:34:43 2008
 Response via : Initial Calibration
 DataAcq Meth : 8260B

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
23) 1,1-Dichloroethane	4.13	63	3255	0.59	ug/l	90
24) Chloroprene	0.00	53	0	N.D.		
25) Isopropyl ether	0.00	59	0	N.D.		
26) Vinyl acetate	0.00	43	0	N.D.		
27) Ethyl-t-butyl ether	0.00	59	0	N.D.		
28) 2,2-Dichloropropane	0.00	77	0	N.D.		
29) cis-1,2-Dichloroethene	0.00	96	0	N.D.		
30) 2-Butanone	0.00	43	0	N.D.		
31) Propionitrile	0.00	54	0	N.D.		
32) Bromochloromethane	0.00	128	0	N.D.		
33) Methacrylonitrile	0.00	41	0	N.D.		
34) Chloroform	6.06	83	3220	0.65	ug/l	98
35) 1,1,1-Trichloroethane	0.00	97	0	N.D.		
36) Cyclohexane	0.00	56	0	N.D.		
38) Carbon Tetrachloride	0.00	117	0	N.D.		
39) 1,1-Dichloropropene	0.00	75	0	N.D.		
41) Benzene	0.00	78	0	N.D.		
42) 1,2-Dichloroethane	0.00	62	0	N.D.		
43) t-Amyl methyl ether	0.00	73	0	N.D.		
44) Isobutanol	0.00	43	0	N.D.		
45) Trichloroethene	8.59	130	8930	2.50	ug/l	98
46) Methylcyclohexane	0.00	83	0	N.D.		
47) 1,2-Dichloropropane	0.00	63	0	N.D.		
48) Dibromomethane	0.00	93	0	N.D.		
49) Methyl methacrylate	0.00	69	0	N.D.		
50) Bromodichloromethane	9.37	83	55	N.D.		
51) 2-Chloroethyl vinyl ether	0.00	63	0	N.D.		
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	0.00	43	0	N.D.	d	
56) Toluene	0.00	92	0	N.D.		
57) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
58) Ethyl methacrylate	0.00	69	0	N.D.		
59) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
60) Tetrachloroethene	10.72	166	5916	1.77	ug/l	93
61) 1,3-Dichloropropane	0.00	76	0	N.D.		
62) 2-Hexanone	0.00	43	0	N.D.		
63) Dibromochloromethane	0.00	129	0	N.D.		
64) 1,2-Dibromoethane	0.00	107	0	N.D.		
65) 1-Chlorohexane	11.52	91	296	N.D.		
66) Chlorobenzene	0.00	112	0	N.D.		
67) 1,1,1,2-Tetrachloroethane	0.00	131	0	N.D.		

(#) = qualifier out of range (m) = manual integration
 M0530019.D M8260W.M Mon Jun 02 07:43:48 2008

f 6/2/08
 Page 2
VOA-23

Quantitation Report

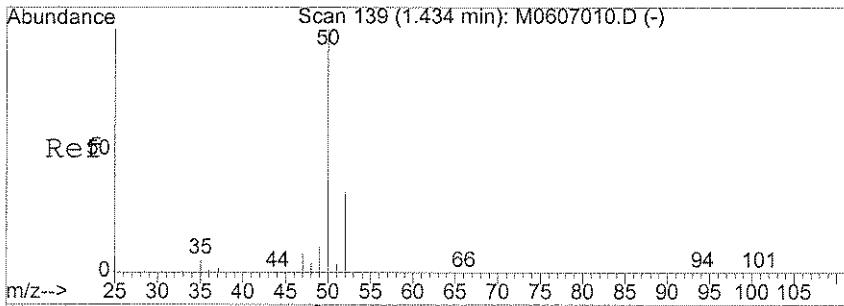
Data File : X:\MSVOA\MOBY\053008\M0530019.D
 Acq On : 30 May 2008 15:30
 Sample : JPL117-002
 Misc : #3 10ml +IS/SS(524.2.)
 MS Integration Params: rteint.p
 Quant Time: Jun 2 7:43 2008

Vial: 12
 Operator: DGA
 Inst : MOBY
 Multiplr: 1.00

Quant Results File: M8260W.RES

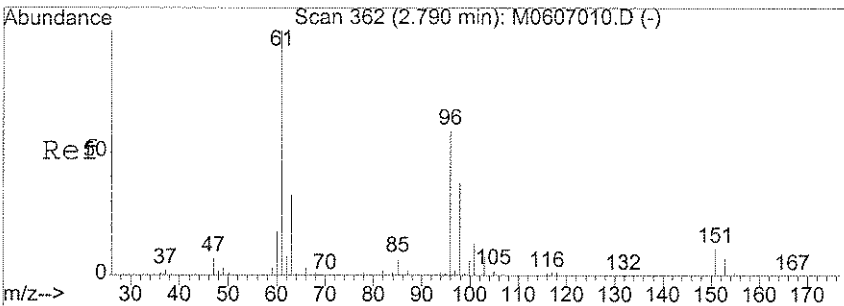
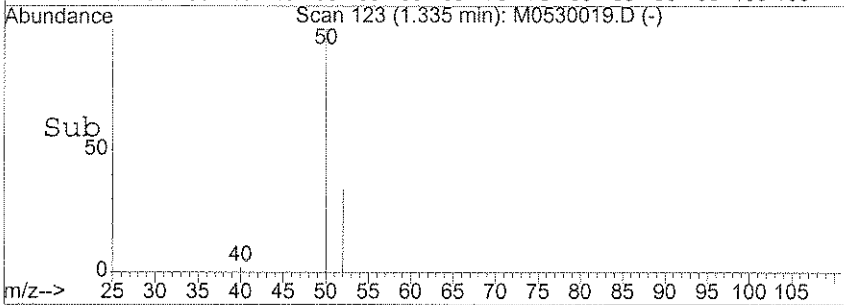
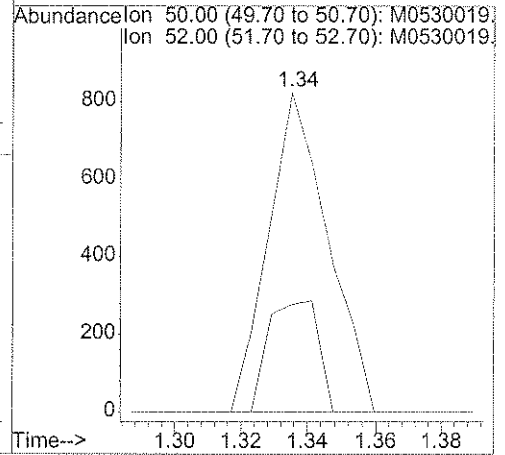
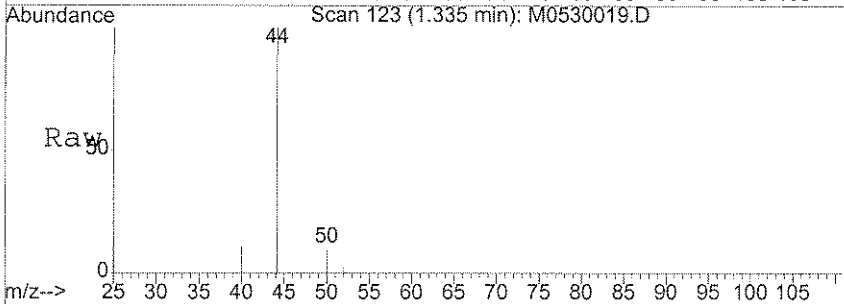
Quant Method : X:\MSVOA\MOBY\QUANT\M8260W.M (RTE Integrator)
 Title : VOA 8260/524.2/624 - 10ML Water Calibration 5973M
 Last Update : Mon Jun 02 07:34:43 2008
 Response via : Initial Calibration
 DataAcq Meth : 8260B

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
68) Ethylbenzene	11.52	91	296		N.D.	
69) m,p-Xylene	0.00	106	0		N.D.	
70) o-xylene	0.00	106	0		N.D.	
71) Styrene	0.00	104	0		N.D.	
72) Bromoform	0.00	173	0		N.D.	d
73) Isopropylbenzene	0.00	105	0		N.D.	
75) trans-1,4-Dichloro-2-buten	0.00	53	0		N.D.	
77) Bromobenzene	0.00	156	0		N.D.	
78) 1,1,2,2-Tetrachloroethane	0.00	83	0		N.D.	
79) 1,2,3-Trichloropropane	0.00	110	0		N.D.	
80) n-Propylbenzene	0.00	120	0		N.D.	
81) 2-Chlorotoluene	12.53	91	218		N.D.	
82) 4-Chlorotoluene	0.00	91	0		N.D.	
83) 1,3,5-Trimethylbenzene	0.00	105	0		N.D.	
84) tert-Butylbenzene	0.00	119	0		N.D.	
85) 1,2,4-Trimethylbenzene	0.00	105	0		N.D.	
86) sec-butylbenzene	0.00	105	0		N.D.	
87) 1,3-Dichlorobenzene	0.00	146	0		N.D.	
88) 4-Isopropyltoluene	0.00	119	0		N.D.	
89) 1,4-Dichlorobenzene	0.00	146	0		N.D.	
90) 1,2-Dichlorobenzene	0.00	146	0		N.D.	
91) n-Butylbenzene	13.44	91	183		N.D.	
92) 1,2-Dibromo-3-chloropropan	0.00	75	0		N.D.	
93) 1,2,4-Trichlorobenzene	0.00	180	0		N.D.	
94) Hexachlorobutadiene	0.00	225	0		N.D.	
95) Naphthalene	0.00	128	0		N.D.	
96) 1,2,3-Trichlorobenzene	0.00	180	0		N.D.	



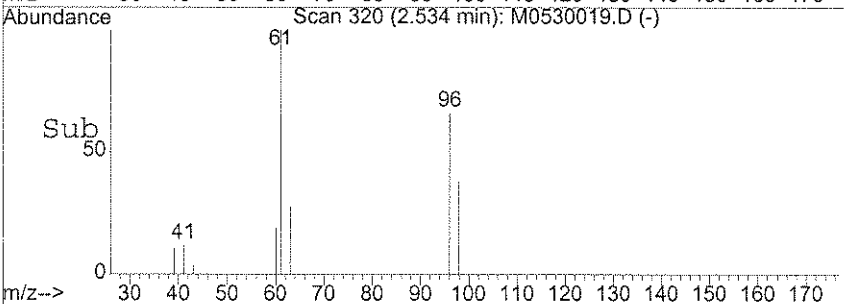
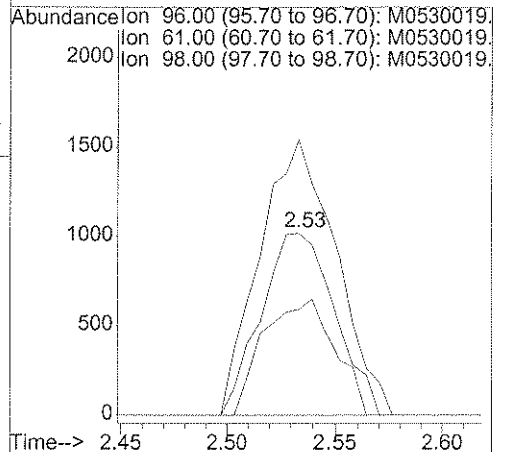
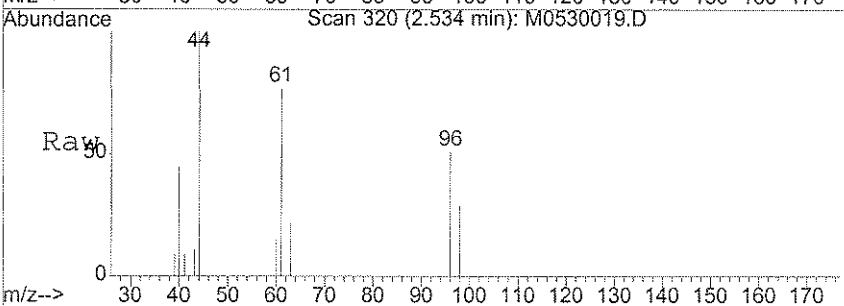
#3
 Chloromethane
 Concen: 0.37 ug/l
 RT: 1.34 min Scan# 123
 Delta R.T. 0.00 min
 Lab File: M0530019.D
 Acq: 30 May 2008 15:30

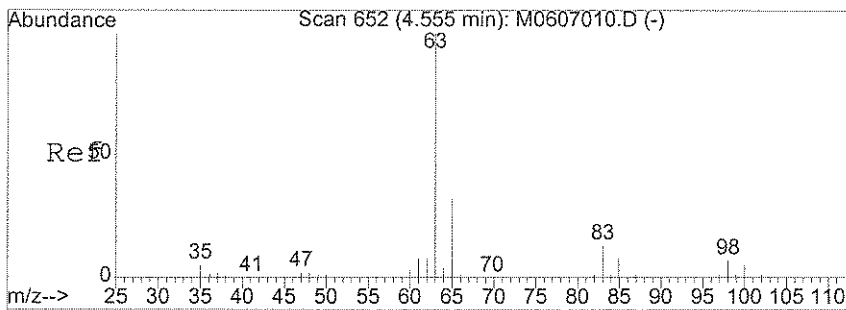
Tgt Ion: 50 Resp: 1017
 Ion Ratio Lower Upper
 50 100
 52 29.3 11.8 51.8



#9
 1,1-Dichloroethene
 Concen: 0.94 ug/l
 RT: 2.53 min Scan# 320
 Delta R.T. 0.01 min
 Lab File: M0530019.D
 Acq: 30 May 2008 15:30

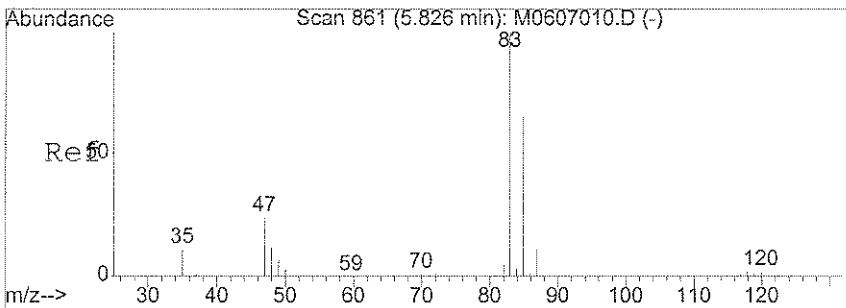
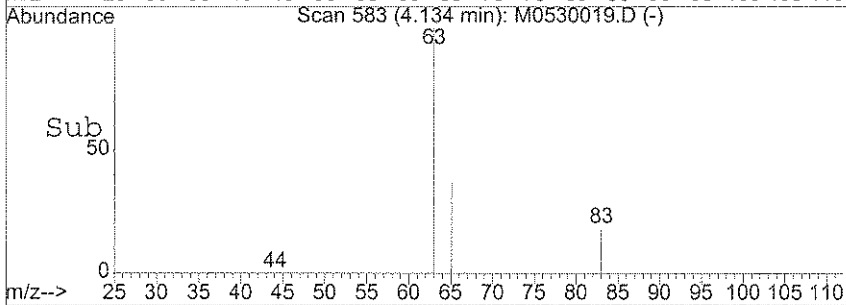
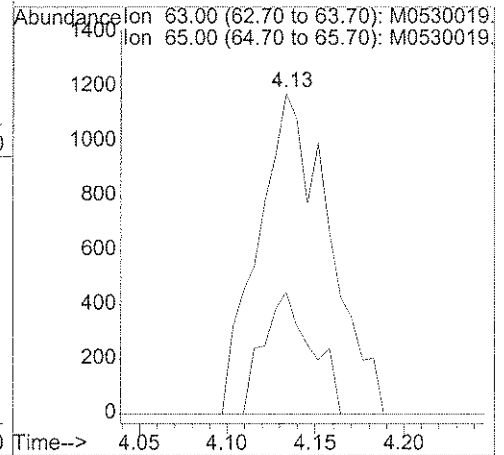
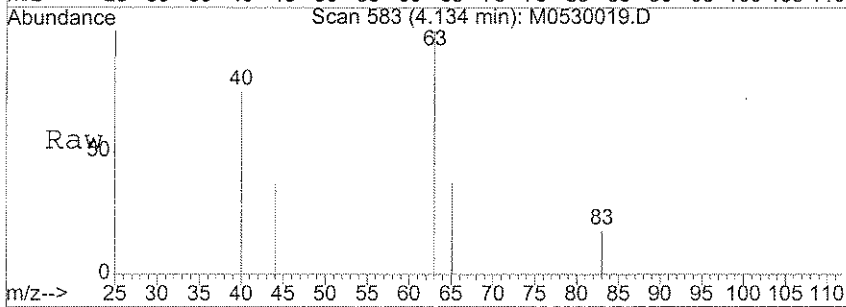
Tgt Ion: 96 Resp: 2409
 Ion Ratio Lower Upper
 96 100
 61 156.6 155.8 195.8
 98 61.2 43.2 83.2





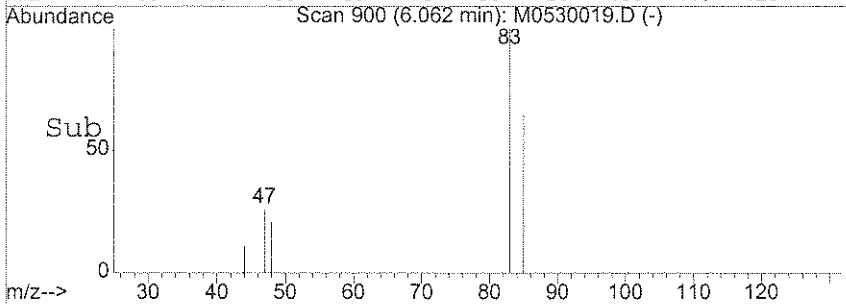
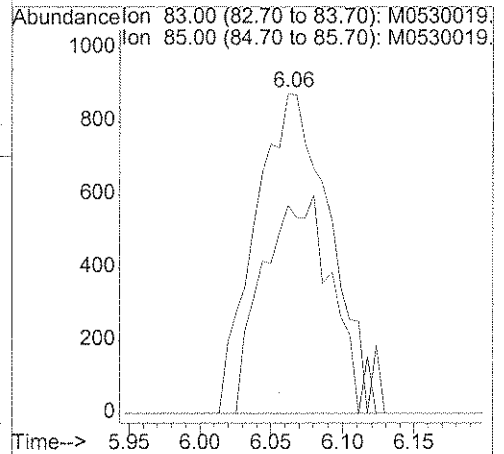
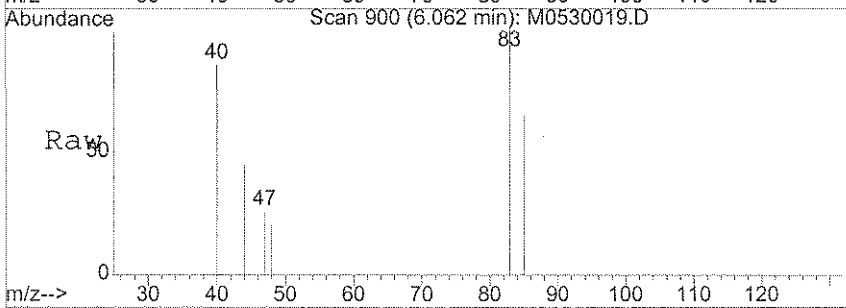
#23
 1,1-Dichloroethane
 Concen: 0.59 ug/l
 RT: 4.13 min Scan# 583
 Delta R.T. 0.00 min
 Lab File: M0530019.D
 Acq: 30 May 2008 15:30

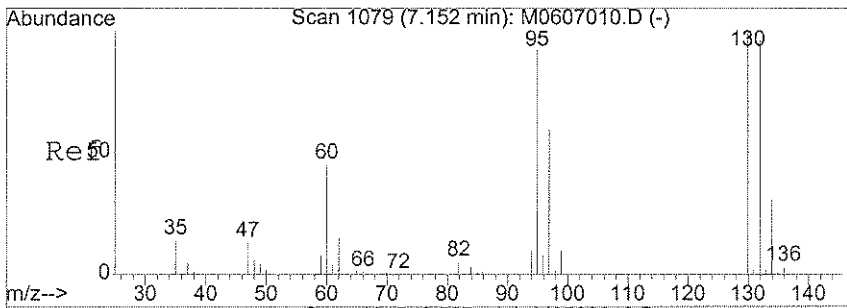
Tgt Ion	Resp	Lower	Upper
63	3255		
65	26.3	11.8	51.8



#34
 Chloroform
 Concen: 0.65 ug/l
 RT: 6.06 min Scan# 900
 Delta R.T. -0.00 min
 Lab File: M0530019.D
 Acq: 30 May 2008 15:30

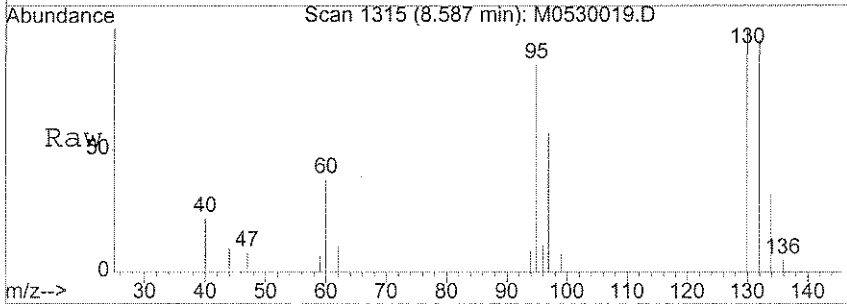
Tgt Ion	Resp	Lower	Upper
83	3220		
85	62.3	43.7	83.7



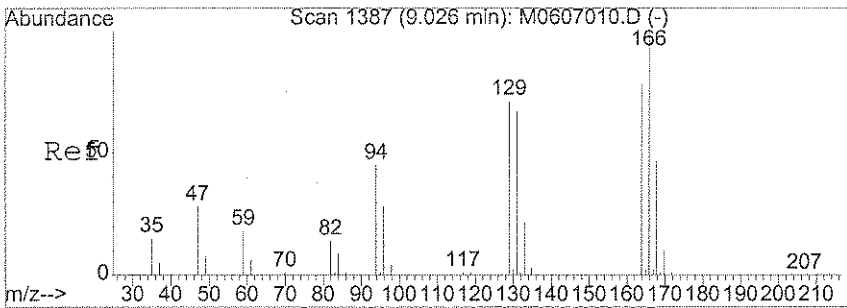
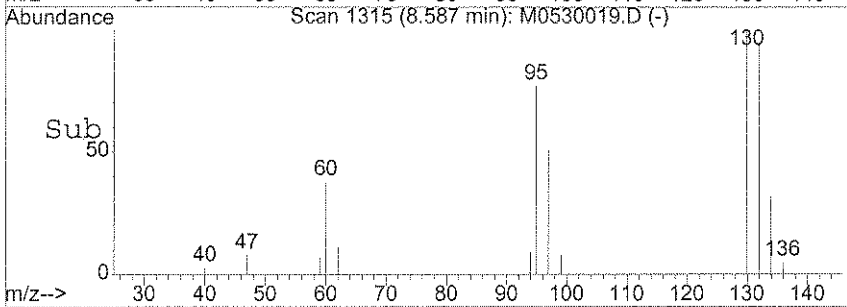
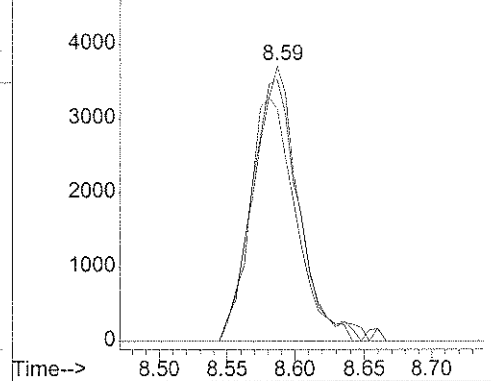


#45
 Trichloroethene
 Concen: 2.50 ug/l
 RT: 8.59 min Scan# 1315
 Delta R.T. 0.01 min
 Lab File: M0530019.D
 Acq: 30 May 2008 15:30

Tgt Ion	Resp	Lower	Upper
130	100		
132	94.7	77.8	117.8
95	85.5	64.9	104.9

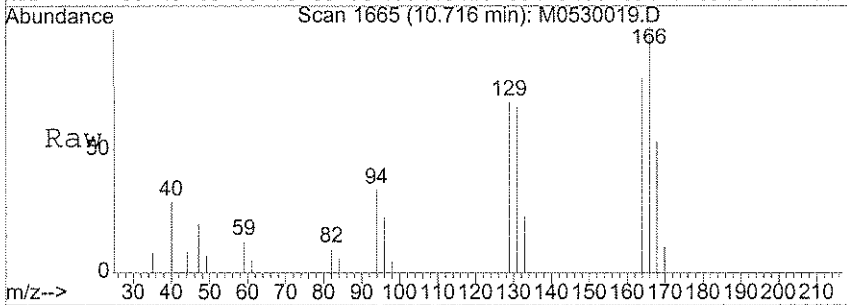


Abundance Ion 130.00 (129.70 to 130.70): M05300
 Ion 132.00 (131.70 to 132.70): M05300
 Ion 95.00 (94.70 to 95.70): M0530019

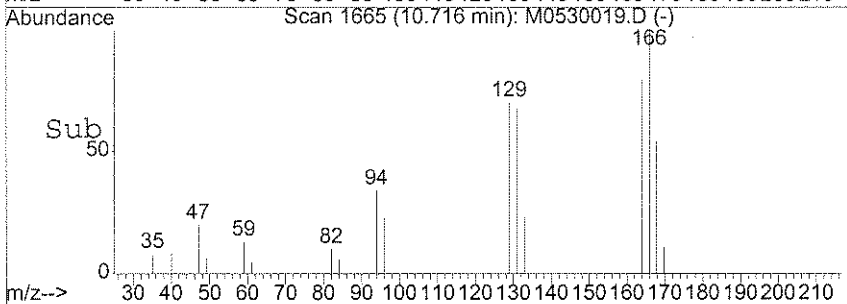
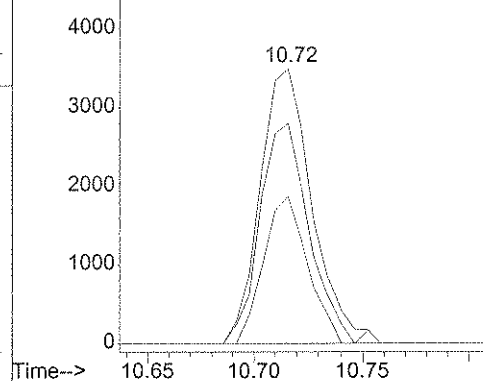


#60
 Tetrachloroethene
 Concen: 1.77 ug/l
 RT: 10.72 min Scan# 1665
 Delta R.T. 0.00 min
 Lab File: M0530019.D
 Acq: 30 May 2008 15:30

Tgt Ion	Resp	Lower	Upper
166	100		
164	76.5	65.6	98.4
168	45.3	41.1	61.7



Abundance Ion 165.95 (165.65 to 166.65): M05300
 Ion 163.95 (163.65 to 164.65): M05300
 Ion 167.95 (167.65 to 168.65): M05300



1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

DUPE-8-2Q08

Lab Name: Pace Analytical Services
 SDG No.: JPL117
 Matrix: (SOIL/SED/WATER) Water
 Sample wt/vol: 10.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: not dec. _____
 GC Column: ZB-624 20m ID: 0.18 (mm)
 Soil Extract Volume: _____ (uL)
 Heated Purge: (Y/N) N

Contract: JPL Groundwater Monitorin
 Run Sequence: R028412
 Lab Sample ID: JPL117-003
 Lab File ID: M0530020.D
 Date Collected: 05/27/2008
 Date/Time Analyzed: 05/30/2008 15:57
 Dilution Factor: 1.0
 Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS:	
		<u>ug/L</u>	<u>Q</u>
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.27	J
75-01-4	Vinyl chloride	0.50	U
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
75-09-2	Methylene chloride	1.0	U
1634-04-4	Methyl tert-butyl ether	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
594-20-7	2,2-Dichloropropane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
563-58-6	1,1-Dichloropropene	0.50	U
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U
79-01-6	Trichloroethene	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
74-95-3	Dibromomethane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-pentanone	5.0	U

1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

DUPE-8-2Q08

Lab Name: Pace Analytical Services
 SDG No.: JPL117
 Matrix: (SOIL/SED/WATER) Water
 Sample wt/vol: 10.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: not dec. _____
 GC Column: ZB-624 20m ID: 0.18 (mm)
 Soil Extract Volume: _____ (uL)
 Heated Purge: (Y/N) N

Contract: JPL Groundwater Monitorin
 Run Sequence: R028412
 Lab Sample ID: JPL117-003
 Lab File ID: M0530020.D
 Date Collected: 05/27/2008
 Date/Time Analyzed: 05/30/2008 15:57
 Dilution Factor: 1.0
 Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L	Q
108-88-3	Toluene	0.50	U
10061-02-	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
142-28-9	1,3-Dichloropropane	0.50	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
630-20-6	1,1,1,2-Tetrachloroethane	0.50	U
179601-23	m,p-Xylene	1.0	U
95-47-6	o-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
103-65-1	n-Propylbenzene	0.50	U
108-86-1	Bromobenzene	0.50	U
96-18-4	1,2,3-Trichloropropane	0.50	U
95-49-8	2-Chlorotoluene	0.50	U
108-67-8	1,3,5-Trimethylbenzene	0.50	U
106-43-4	4-Chlorotoluene	0.50	U
98-06-6	tert-Butylbenzene	0.50	U
95-63-6	1,2,4-Trimethylbenzene	0.50	U
135-98-8	sec-Butylbenzene	0.50	U
99-87-6	4-Isopropyltoluene	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U

1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

DUPE-8-2Q08

Lab Name: Pace Analytical Services
 SDG No.: JPL117
 Matrix: (SOIL/SED/WATER) Water
 Sample wt/vol: 10.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: not dec. _____
 GC Column: ZB-624 20m ID: 0.18 (mm)
 Soil Extract Volume: _____ (uL)
 Heated Purge: (Y/N) N

Contract: JPL Groundwater Monitorin
 Run Sequence: R028412
 Lab Sample ID: JPL117-003
 Lab File ID: M0530020.D
 Date Collected: 05/27/2008
 Date/Time Analyzed: 05/30/2008 15:57
 Dilution Factor: 1.0
 Soil Aliquot Volume: _____ (uL)

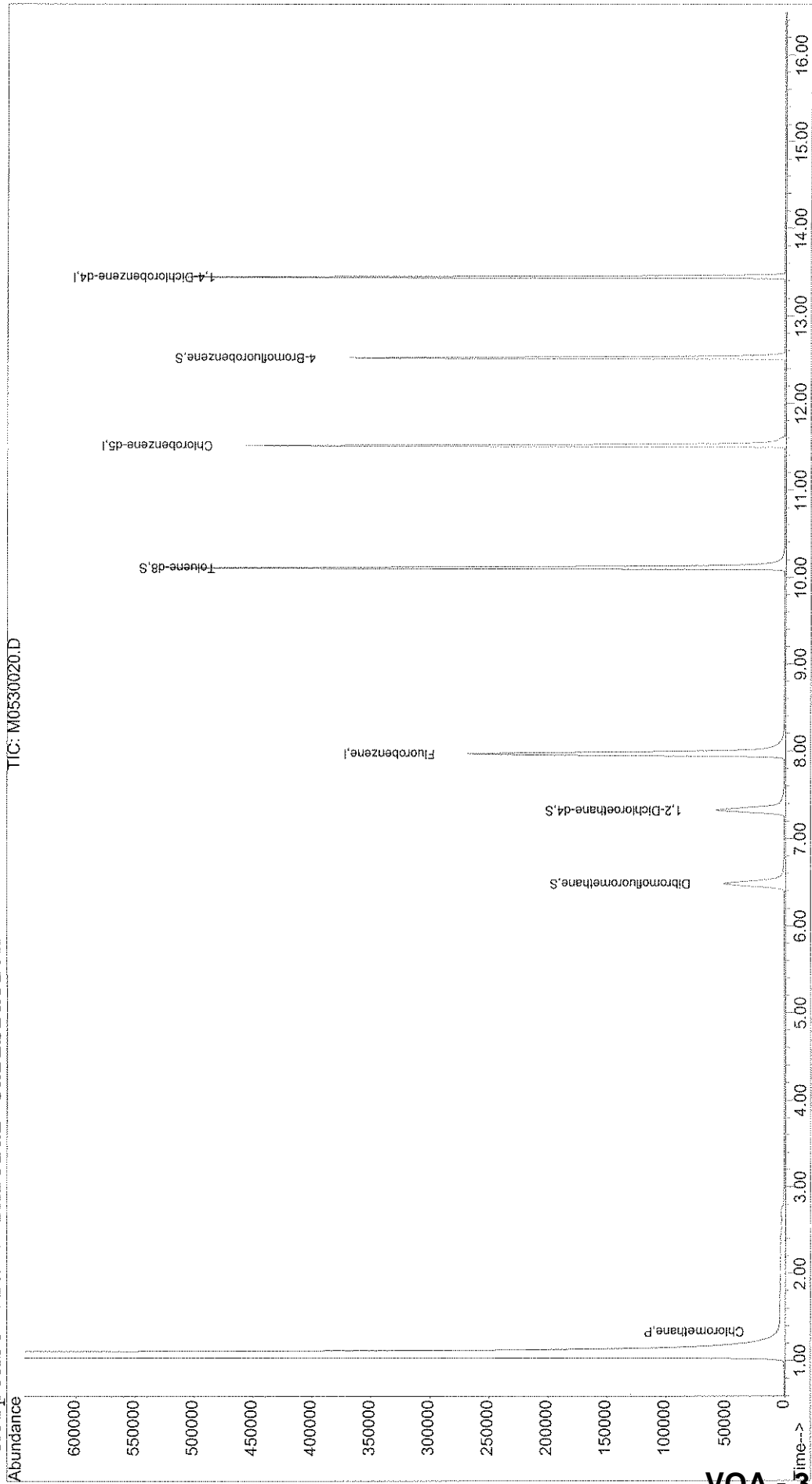
CAS NO.	COMPOUND	CONCENTRATION UNITS:	
		<u>ug/L</u>	Q
104-51-8	n-Butylbenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-68-3	Hexachlorobutadiene	0.50	U
91-20-3	Naphthalene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

Comments:

Quantitation Report

Data File : X:\MSVOA\MOBY\053008\M0530020.D Vial: 13
Acq On : 30 May 2008 15:57 Operator: DGA
Sample : JPL117-003 Inst : MOBY
Misc : #5 10ml +IS/SS(524.2.) Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Jun 2 7:44 2008 Quant Results File: M8260W.RES

Method : X:\MSVOA\MOBY\QUANT\M8260W.M (RTE Integrator)
Title : VOA 8260/524.2/624 - 10ML Water Calibration 5973M
Last Update : Mon Jun 02 07:34:43 2008
Response via : Initial Calibration



Quantitation Report

Data File : X:\MSVOA\MOBY\053008\M0530020.D
 Acq On : 30 May 2008 15:57
 Sample : JPL117-003
 Misc : #5 10ml +IS/SS(524.2.)
 MS Integration Params: rteint.p
 Quant Time: Jun 2 7:44 2008

Vial: 13
 Operator: DGA
 Inst : MOBY
 Multiplr: 1.00

Quant Results File: M8260W.RES

Quant Method : X:\MSVOA\MOBY\QUANT\M8260W.M (RTE Integrator)
 Title : VOA 8260/524.2/624 - 10ML Water Calibration 5973M
 Last Update : Mon Jun 02 07:34:43 2008
 Response via : Initial Calibration
 DataAcq Meth : 8260B
 IS QA File : X:\MSVOA\MOBY\052108\M0521023.D (21 May 2008 17:54)

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min) Rcv(Ar)
1) Fluorobenzene	7.97	96	412840	25.00	ug/l	0.00 74.20%
54) Chlorobenzene-d5	11.52	117	250603	25.00	ug/l	0.00 73.67%
74) 1,4-Dichlorobenzene-d4	13.44	152	121054	25.00	ug/l	0.00 59.40%

System Monitoring Compounds

37) Dibromofluoromethane	6.49	111	77118	21.41	ug/l	0.00
Spiked Amount	20.000	Range 85 - 115	Recovery	=	107.05%	
40) 1,2-Dichloroethane-d4	7.32	65	78563	25.03	ug/l	0.00
Spiked Amount	25.000	Range 70 - 120	Recovery	=	100.12%	
55) Toluene-d8	10.11	98	368942	26.21	ug/l	0.00
Spiked Amount	25.000	Range 85 - 120	Recovery	=	104.84%	
76) 4-Bromofluorobenzene	12.53	95	107442	26.36	ug/l	0.00
Spiked Amount	25.000	Range 75 - 120	Recovery	=	105.44%	

Target Compounds

					Qvalue
2) Dichlorodifluoromethane	0.00	85	0	N.D.	
3) Chloromethane	1.33	50	742	0.27 ug/l	86
4) Vinyl Chloride	0.00	62	0	N.D.	
5) Bromomethane	0.00	96	0	N.D.	
6) Chloroethane	0.00	64	0	N.D.	
7) Trichlorofluoromethane	0.00	101	0	N.D.	
8) Acrolein	0.00	56	0	N.D.	
9) 1,1-Dichloroethene	0.00	96	0	N.D.	
10) 1,1,2-Trichloro-1,2,2-trif	0.00	101	0	N.D.	
11) Acetone	0.00	43	0	N.D.	d
12) Iodomethane	0.00	142	0	N.D.	
13) Bromoethane	0.00	108	0	N.D.	
14) Carbon Disulfide	0.00	76	0	N.D.	
15) Allyl chloride	0.00	76	0	N.D.	
16) Acetonitrile	0.00	40	0	N.D.	d
17) Methyl Acetate	0.00	43	0	N.D.	
18) Methylene Chloride	0.00	84	0	N.D.	
19) trans-1,2-Dichloroethene	0.00	96	0	N.D.	
20) t-Butyl alcohol	0.00	59	0	N.D.	
21) Methyl tert-butyl ether	0.00	73	0	N.D.	
22) Acrylonitrile	0.00	53	0	N.D.	

(#) = qualifier out of range (m) = manual integration
 M0530020.D M8260W.M Mon Jun 02 07:44:39 2008

J. G. A. for
 Page 1
 VOA-32

Quantitation Report

Data File : X:\MSVOA\MOBY\053008\M0530020.D
 Acq On : 30 May 2008 15:57
 Sample : JPL117-003
 Misc : #5 10ml +IS/SS(524.2.)
 MS Integration Params: rteint.p
 Quant Time: Jun 2 7:44 2008

Vial: 13
 Operator: DGA
 Inst : MOBY
 Multiplr: 1.00

Quant Results File: M8260W.RES

Quant Method : X:\MSVOA\MOBY\QUANT\M8260W.M (RTE Integrator)
 Title : VOA 8260/524.2/624 - 10ML Water Calibration 5973M
 Last Update : Mon Jun 02 07:34:43 2008
 Response via : Initial Calibration
 DataAcq Meth : 8260B

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
23) 1,1-Dichloroethane	0.00	63	0		N.D.	
24) Chloroprene	0.00	53	0		N.D.	
25) Isopropyl ether	0.00	59	0		N.D.	
26) Vinyl acetate	0.00	43	0		N.D.	
27) Ethyl-t-butyl ether	0.00	59	0		N.D.	
28) 2,2-Dichloropropane	0.00	77	0		N.D.	
29) cis-1,2-Dichloroethene	0.00	96	0		N.D.	
30) 2-Butanone	0.00	43	0		N.D.	
31) Propionitrile	0.00	54	0		N.D.	
32) Bromochloromethane	0.00	128	0		N.D.	
33) Methacrylonitrile	0.00	41	0		N.D.	
34) Chloroform	0.00	83	0		N.D.	
35) 1,1,1-Trichloroethane	0.00	97	0		N.D.	
36) Cyclohexane	0.00	56	0		N.D.	
38) Carbon Tetrachloride	0.00	117	0		N.D.	
39) 1,1-Dichloropropene	0.00	75	0		N.D.	
41) Benzene	0.00	78	0		N.D.	
42) 1,2-Dichloroethane	0.00	62	0		N.D.	
43) t-Amyl methyl ether	0.00	73	0		N.D.	
44) Isobutanol	0.00	43	0		N.D.	
45) Trichloroethene	0.00	130	0		N.D.	
46) Methylcyclohexane	0.00	83	0		N.D.	
47) 1,2-Dichloropropane	0.00	63	0		N.D.	
48) Dibromomethane	0.00	93	0		N.D.	
49) Methyl methacrylate	0.00	69	0		N.D.	
50) Bromodichloromethane	0.00	83	0		N.D.	
51) 2-Chloroethyl vinyl ether	0.00	63	0		N.D.	
52) cis-1,3-Dichloropropene	0.00	75	0		N.D.	
53) 4-Methyl-2-pentanone	0.00	43	0		N.D.	d
56) Toluene	0.00	92	0		N.D.	
57) trans-1,3-Dichloropropene	0.00	75	0		N.D.	
58) Ethyl methacrylate	0.00	69	0		N.D.	
59) 1,1,2-Trichloroethane	0.00	97	0		N.D.	
60) Tetrachloroethene	0.00	166	0		N.D.	
61) 1,3-Dichloropropane	0.00	76	0		N.D.	
62) 2-Hexanone	0.00	43	0		N.D.	
63) Dibromochloromethane	0.00	129	0		N.D.	
64) 1,2-Dibromoethane	0.00	107	0		N.D.	
65) 1-Chlorohexane	11.51	91	480		N.D.	
66) Chlorobenzene	0.00	112	0		N.D.	
67) 1,1,1,2-Tetrachloroethane	0.00	131	0		N.D.	

(#) = qualifier out of range (m) = manual integration
 M0530020.D M8260W.M Mon Jun 02 07:44:40 2008

J. J. J.
 Page 2
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Quantitation Report

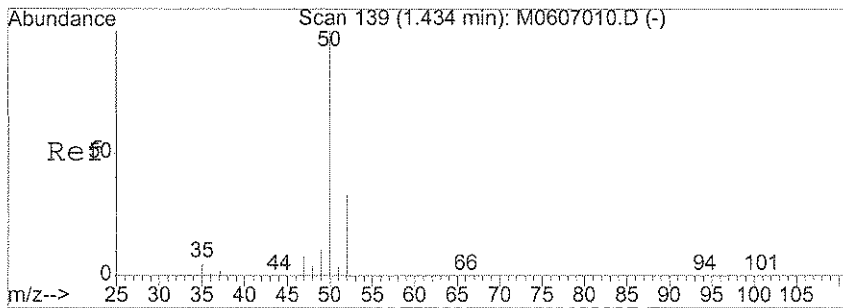
Data File : X:\MSVOA\MOBY\053008\M0530020.D
 Acq On : 30 May 2008 15:57
 Sample : JPL117-003
 Misc : #5 10ml +IS/SS(524.2.)
 MS Integration Params: rteint.p
 Quant Time: Jun 2 7:44 2008

Vial: 13
 Operator: DGA
 Inst : MOBY
 Multiplr: 1.00

Quant Results File: M8260W.RES

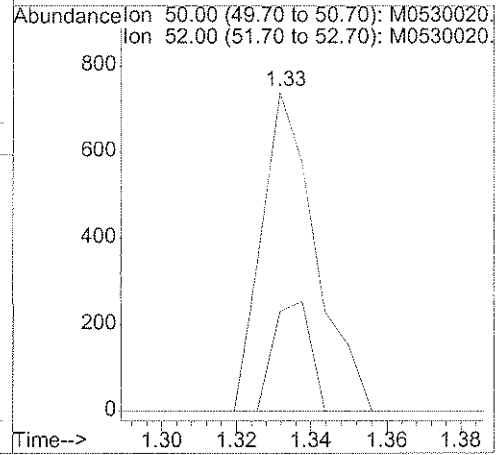
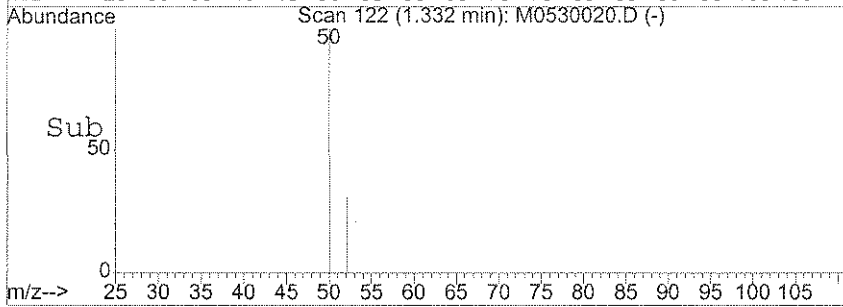
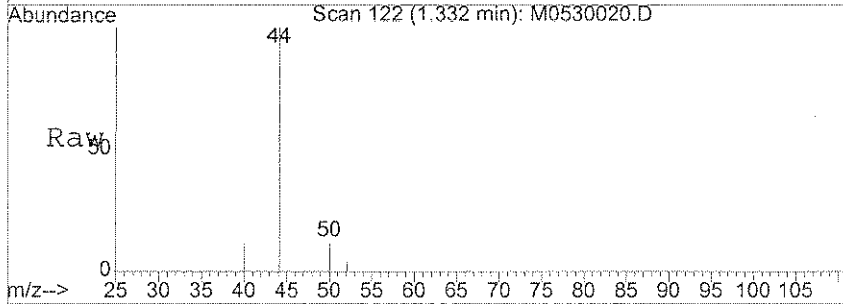
Quant Method : X:\MSVOA\MOBY\QUANT\M8260W.M (RTE Integrator)
 Title : VOA 8260/524.2/624 - 10ML Water Calibration 5973M
 Last Update : Mon Jun 02 07:34:43 2008
 Response via : Initial Calibration
 DataAcq Meth : 8260B

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
68) Ethylbenzene	11.51	91	480		N.D.	
69) m,p-Xylene	0.00	106	0		N.D.	
70) o-xylene	0.00	106	0		N.D.	
71) Styrene	0.00	104	0		N.D.	
72) Bromoform	0.00	173	0		N.D.	d
73) Isopropylbenzene	0.00	105	0		N.D.	
75) trans-1,4-Dichloro-2-buten	0.00	53	0		N.D.	
77) Bromobenzene	0.00	156	0		N.D.	
78) 1,1,2,2-Tetrachloroethane	0.00	83	0		N.D.	
79) 1,2,3-Trichloropropane	0.00	110	0		N.D.	
80) n-Propylbenzene	0.00	120	0		N.D.	
81) 2-Chlorotoluene	12.52	91	136		N.D.	
82) 4-Chlorotoluene	0.00	91	0		N.D.	
83) 1,3,5-Trimethylbenzene	0.00	105	0		N.D.	
84) tert-Butylbenzene	0.00	119	0		N.D.	
85) 1,2,4-Trimethylbenzene	0.00	105	0		N.D.	
86) sec-butylbenzene	0.00	105	0		N.D.	
87) 1,3-Dichlorobenzene	0.00	146	0		N.D.	
88) 4-Isopropyltoluene	0.00	119	0		N.D.	
89) 1,4-Dichlorobenzene	0.00	146	0		N.D.	
90) 1,2-Dichlorobenzene	0.00	146	0		N.D.	
91) n-Butylbenzene	13.44	91	88		N.D.	
92) 1,2-Dibromo-3-chloropropan	0.00	75	0		N.D.	
93) 1,2,4-Trichlorobenzene	0.00	180	0		N.D.	
94) Hexachlorobutadiene	0.00	225	0		N.D.	
95) Naphthalene	0.00	128	0		N.D.	
96) 1,2,3-Trichlorobenzene	0.00	180	0		N.D.	



#3
 Chloromethane
 Concen: 0.27 ug/l
 RT: 1.33 min Scan# 122
 Delta R.T. -0.00 min
 Lab File: M0530020.D
 Acq: 30 May 2008 15:57

Tgt Ion: 50 Resp: 742
 Ion Ratio Lower Upper
 50 100
 52 23.9 11.8 51.8



1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

TB-20-05/27/08

Lab Name: Pace Analytical Services
 SDG No.: JPL117
 Matrix: (SOIL/SED/WATER) Water
 Sample wt/vol: 10.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: not dec. _____
 GC Column: ZB-624 20m ID: 0.18 (mm)
 Soil Extract Volume: _____ (uL)
 Heated Purge: (Y/N) N

Contract: JPL Groundwater Monitorin
 Run Sequence: R028412
 Lab Sample ID: JPL117-004
 Lab File ID: M0530014.D
 Date Collected: 05/27/2008
 Date/Time Analyzed: 05/30/2008 13:11
 Dilution Factor: 1.0
 Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: <u>ug/L</u>	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
75-09-2	Methylene chloride	1.0	U
1634-04-4	Methyl tert-butyl ether	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
594-20-7	2,2-Dichloropropane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
563-58-6	1,1-Dichloropropene	0.50	U
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U
79-01-6	Trichloroethene	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
74-95-3	Dibromomethane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-pentanone	5.0	U

1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

TB-20-05/27/08

Lab Name: Pace Analytical Services
 SDG No.: JPL117
 Matrix: (SOIL/SED/WATER) Water
 Sample wt/vol: 10.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: not dec. _____
 GC Column: ZB-624 20m ID: 0.18 (mm)
 Soil Extract Volume: _____ (uL)
 Heated Purge: (Y/N) N

Contract: JPL Groundwater Monitorin
 Run Sequence: R028412
 Lab Sample ID: JPL117-004
 Lab File ID: M0530014.D
 Date Collected: 05/27/2008
 Date/Time Analyzed: 05/30/2008 13:11
 Dilution Factor: 1.0
 Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS:	
		<u>ug/L</u>	Q
108-88-3	Toluene	0.50	U
10061-02-	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
142-28-9	1,3-Dichloropropane	0.50	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
630-20-6	1,1,1,2-Tetrachloroethane	0.50	U
179601-23	m,p-Xylene	1.0	U
95-47-6	o-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
103-65-1	n-Propylbenzene	0.50	U
108-86-1	Bromobenzene	0.50	U
96-18-4	1,2,3-Trichloropropane	0.50	U
95-49-8	2-Chlorotoluene	0.50	U
108-67-8	1,3,5-Trimethylbenzene	0.50	U
106-43-4	4-Chlorotoluene	0.50	U
98-06-6	tert-Butylbenzene	0.50	U
95-63-6	1,2,4-Trimethylbenzene	0.50	U
135-98-8	sec-Butylbenzene	0.50	U
99-87-6	4-Isopropyltoluene	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U

1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

TB-20-05/27/08

Lab Name: Pace Analytical Services
 SDG No.: JPL117
 Matrix: (SOIL/SED/WATER) Water
 Sample wt/vol: 10.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: not dec. _____
 GC Column: ZB-624 20m ID: 0.18 (mm)
 Soil Extract Volume: _____ (uL)
 Heated Purge: (Y/N) N

Contract: JPL Groundwater Monitorin
 Run Sequence: R028412
 Lab Sample ID: JPL117-004
 Lab File ID: M0530014.D
 Date Collected: 05/27/2008
 Date/Time Analyzed: 05/30/2008 13:11
 Dilution Factor: 1.0
 Soil Aliquot Volume: _____ (uL)

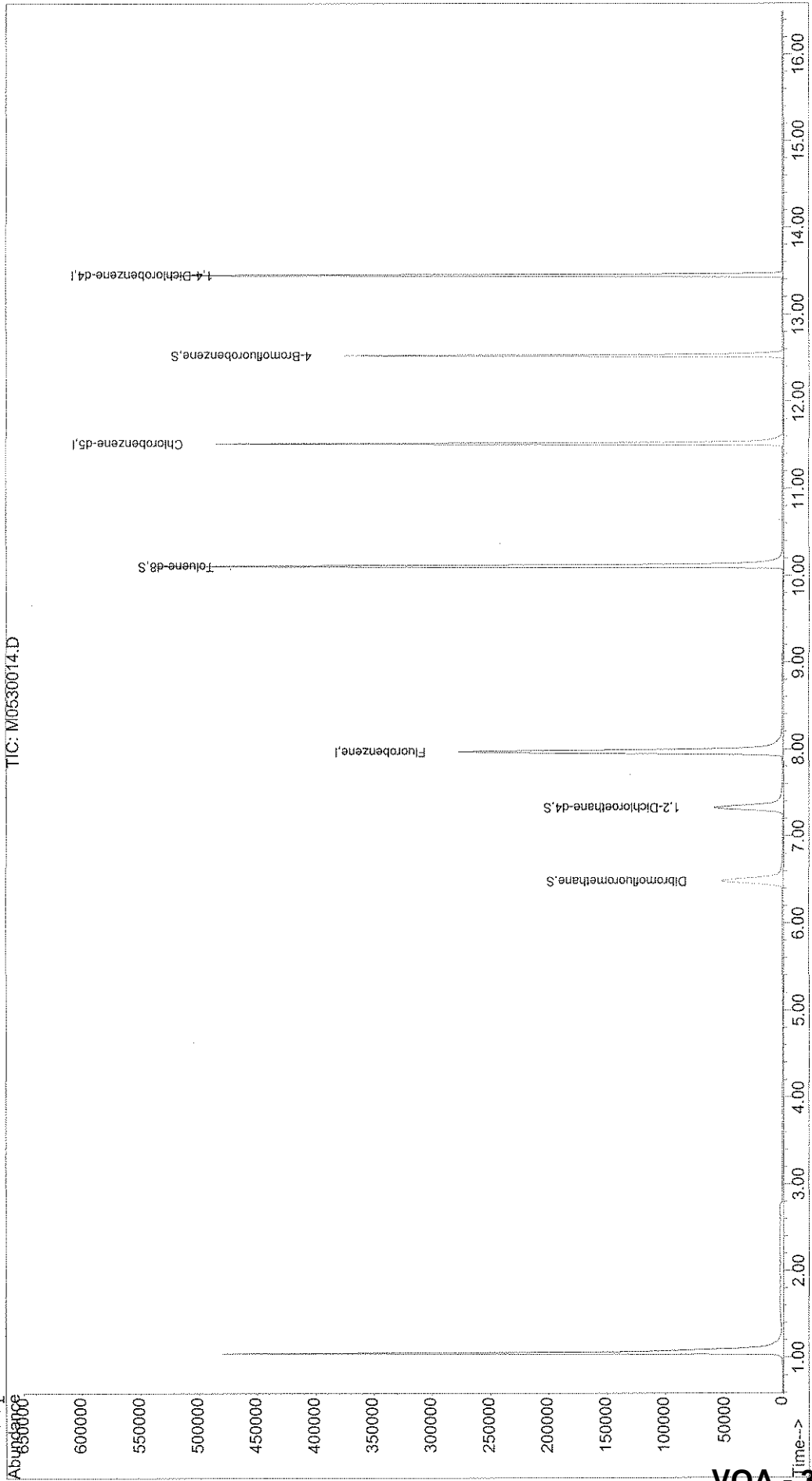
CAS NO.	COMPOUND	CONCENTRATION UNITS:	
		<u>ug/L</u>	Q
104-51-8	n-Butylbenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-68-3	Hexachlorobutadiene	0.50	U
91-20-3	Naphthalene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

Comments:

Quantitation Report

Data File : X:\MSVOA\MOBY\053008\M0530014.D Vial: 7
Acq On : 30 May 2008 13:11 Operator: DGA
Sample : JPL117-004 Inst : MOBY
Misc : #2 10ml +IS/SS(524.2.) Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Jun 2 7:37 2008 Quant Results File: M8260W.RES

Method : X:\MSVOA\MOBY\QUANT\M8260W.M (RTE Integrator)
Title : VOA 8260/524.2/624 - 10ML Water Calibration 5973M
Last Update : Mon Jun 02 07:34:43 2008
Response via : Initial Calibration



Quantitation Report

Data File : X:\MSVOA\MOBY\053008\M0530014.D
 Acq On : 30 May 2008 13:11
 Sample : JPL117-004
 Misc : #2 10ml +IS/SS(524.2.)
 MS Integration Params: rteint.p
 Quant Time: Jun 2 7:37 2008

Vial: 7
 Operator: DGA
 Inst : MOBY
 Multiplr: 1.00

Quant Results File: M8260W.RES

Quant Method : X:\MSVOA\MOBY\QUANT\M8260W.M (RTE Integrator)
 Title : VOA 8260/524.2/624 - 10ML Water Calibration 5973M
 Last Update : Mon Jun 02 07:34:43 2008
 Response via : Initial Calibration
 DataAcq Meth : 8260B
 IS QA File : X:\MSVOA\MOBY\052108\M0521023.D (21 May 2008 17:54)

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min) Rcv(Ar)
1) Fluorobenzene	7.97	96	427289	25.00	ug/l	0.00 76.79%
54) Chlorobenzene-d5	11.51	117	261400	25.00	ug/l	0.00 76.84%
74) 1,4-Dichlorobenzene-d4	13.45	152	126234	25.00	ug/l	0.00 61.94%

System Monitoring Compounds

37) Dibromofluoromethane	6.48	111	77596	20.81	ug/l	0.00
Spiked Amount	20.000	Range 85 - 115	Recovery	=	104.05%	
40) 1,2-Dichloroethane-d4	7.33	65	84066	25.88	ug/l	0.00
Spiked Amount	25.000	Range 70 - 120	Recovery	=	103.52%	
55) Toluene-d8	10.11	98	382146	26.03	ug/l	0.00
Spiked Amount	25.000	Range 85 - 120	Recovery	=	104.12%	
76) 4-Bromofluorobenzene	12.52	95	110814	26.07	ug/l	0.00
Spiked Amount	25.000	Range 75 - 120	Recovery	=	104.28%	

Target Compounds

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Dichlorodifluoromethane	0.00	85	0	N.D.		
3) Chloromethane	0.00	50	0	N.D.		
4) Vinyl Chloride	0.00	62	0	N.D.		
5) Bromomethane	0.00	96	0	N.D.		
6) Chloroethane	0.00	64	0	N.D.		
7) Trichlorofluoromethane	0.00	101	0	N.D.		
8) Acrolein	0.00	56	0	N.D.		
9) 1,1-Dichloroethene	0.00	96	0	N.D.		
10) 1,1,2-Trichloro-1,2,2-trif	0.00	101	0	N.D.		
11) Acetone	0.00	43	0	N.D.	d	
12) Iodomethane	0.00	142	0	N.D.		
13) Bromoethane	0.00	108	0	N.D.		
14) Carbon Disulfide	0.00	76	0	N.D.		
15) Allyl chloride	0.00	76	0	N.D.		
16) Acetonitrile	0.00	40	0	N.D.	d	
17) Methyl Acetate	0.00	43	0	N.D.		
18) Methylene Chloride	0.00	84	0	N.D.		
19) trans-1,2-Dichloroethene	0.00	96	0	N.D.		
20) t-Butyl alcohol	0.00	59	0	N.D.		
21) Methyl tert-butyl ether	0.00	73	0	N.D.		
22) Acrylonitrile	0.00	53	0	N.D.		

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : X:\MSVOA\MOBY\053008\M0530014.D
 Acq On : 30 May 2008 13:11
 Sample : JPL117-004
 Misc : #2 10ml +IS/SS(524.2.)
 MS Integration Params: rteint.p
 Quant Time: Jun 2 7:37 2008

Vial: 7
 Operator: DGA
 Inst : MOBY
 Multiplr: 1.00

Quant Results File: M8260W.RES

Quant Method : X:\MSVOA\MOBY\QUANT\M8260W.M (RTE Integrator)
 Title : VOA 8260/524.2/624 - 10ML Water Calibration 5973M
 Last Update : Mon Jun 02 07:34:43 2008
 Response via : Initial Calibration
 DataAcq Meth : 8260B

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
23) 1,1-Dichloroethane	0.00	63	0		N.D.	
24) Chloroprene	0.00	53	0		N.D.	
25) Isopropyl ether	0.00	59	0		N.D.	
26) Vinyl acetate	0.00	43	0		N.D.	
27) Ethyl-t-butyl ether	0.00	59	0		N.D.	
28) 2,2-Dichloropropane	0.00	77	0		N.D.	
29) cis-1,2-Dichloroethene	0.00	96	0		N.D.	
30) 2-Butanone	0.00	43	0		N.D.	
31) Propionitrile	0.00	54	0		N.D.	
32) Bromochloromethane	0.00	128	0		N.D.	
33) Methacrylonitrile	0.00	41	0		N.D.	
34) Chloroform	0.00	83	0		N.D.	
35) 1,1,1-Trichloroethane	0.00	97	0		N.D.	
36) Cyclohexane	0.00	56	0		N.D.	
38) Carbon Tetrachloride	0.00	117	0		N.D.	
39) 1,1-Dichloropropene	0.00	75	0		N.D.	
41) Benzene	0.00	78	0		N.D.	
42) 1,2-Dichloroethane	0.00	62	0		N.D.	
43) t-Amyl methyl ether	0.00	73	0		N.D.	
44) Isobutanol	0.00	43	0		N.D.	
45) Trichloroethene	8.57	130	55		N.D.	
46) Methylcyclohexane	0.00	83	0		N.D.	
47) 1,2-Dichloropropane	0.00	63	0		N.D.	
48) Dibromomethane	0.00	93	0		N.D.	
49) Methyl methacrylate	0.00	69	0		N.D.	
50) Bromodichloromethane	0.00	83	0		N.D.	
51) 2-Chloroethyl vinyl ether	0.00	63	0		N.D.	
52) cis-1,3-Dichloropropene	0.00	75	0		N.D.	
53) 4-Methyl-2-pentanone	0.00	43	0		N.D.	d
56) Toluene	0.00	92	0		N.D.	
57) trans-1,3-Dichloropropene	0.00	75	0		N.D.	
58) Ethyl methacrylate	0.00	69	0		N.D.	
59) 1,1,2-Trichloroethane	0.00	97	0		N.D.	
60) Tetrachloroethene	0.00	166	0		N.D.	
61) 1,3-Dichloropropane	0.00	76	0		N.D.	
62) 2-Hexanone	0.00	43	0		N.D.	
63) Dibromochloromethane	0.00	129	0		N.D.	
64) 1,2-Dibromoethane	0.00	107	0		N.D.	
65) 1-Chlorohexane	11.51	91	440		N.D.	
66) Chlorobenzene	0.00	112	0		N.D.	
67) 1,1,1,2-Tetrachloroethane	0.00	131	0		N.D.	

(#) = qualifier out of range (m) = manual integration
 M0530014.D M8260W.M Mon Jun 02 07:37:22 2008

Quantitation Report

Data File : X:\MSVOA\MOBY\053008\M0530014.D
 Acq On : 30 May 2008 13:11
 Sample : JPL117-004
 Misc : #2 10ml +IS/SS(524.2.)
 MS Integration Params: rteint.p
 Quant Time: Jun 2 7:37 2008

Vial: 7
 Operator: DGA
 Inst : MOBY
 Multiplr: 1.00

Quant Results File: M8260W.RES

Quant Method : X:\MSVOA\MOBY\QUANT\M8260W.M (RTE Integrator)
 Title : VOA 8260/524.2/624 - 10ML Water Calibration 5973M
 Last Update : Mon Jun 02 07:34:43 2008
 Response via : Initial Calibration
 DataAcq Meth : 8260B

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
68) Ethylbenzene	11.51	91	440		N.D.	
69) m,p-Xylene	0.00	106	0		N.D.	
70) o-xylene	0.00	106	0		N.D.	
71) Styrene	0.00	104	0		N.D.	
72) Bromoform	0.00	173	0		N.D.	d
73) Isopropylbenzene	0.00	105	0		N.D.	
75) trans-1,4-Dichloro-2-buten	0.00	53	0		N.D.	
77) Bromobenzene	0.00	156	0		N.D.	
78) 1,1,2,2-Tetrachloroethane	0.00	83	0		N.D.	
79) 1,2,3-Trichloropropane	0.00	110	0		N.D.	
80) n-Propylbenzene	0.00	120	0		N.D.	
81) 2-Chlorotoluene	12.53	91	128		N.D.	
82) 4-Chlorotoluene	0.00	91	0		N.D.	
83) 1,3,5-Trimethylbenzene	0.00	105	0		N.D.	
84) tert-Butylbenzene	13.39	119	345		N.D.	
85) 1,2,4-Trimethylbenzene	0.00	105	0		N.D.	
86) sec-butylbenzene	0.00	105	0		N.D.	
87) 1,3-Dichlorobenzene	0.00	146	0		N.D.	
88) 4-Isopropyltoluene	13.39	119	345		N.D.	
89) 1,4-Dichlorobenzene	0.00	146	0		N.D.	
90) 1,2-Dichlorobenzene	0.00	146	0		N.D.	
91) n-Butylbenzene	13.72	91	71		N.D.	
92) 1,2-Dibromo-3-chloropropan	0.00	75	0		N.D.	
93) 1,2,4-Trichlorobenzene	0.00	180	0		N.D.	
94) Hexachlorobutadiene	0.00	225	0		N.D.	
95) Naphthalene	15.18	128	252		N.D.	
96) 1,2,3-Trichlorobenzene	15.37	180	60		N.D.	

(#) = qualifier out of range (m) = manual integration
 M0530014.D M8260W.M Mon Jun 02 07:37:22 2008

TIC FORMS

SDG JPL117

VOLATILES ANALYSIS

1 TIC
 VOLATILE ORGANICS ANALYSIS DATA SHEET
 TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

MW-5

Lab Name: Pace Analytical Services
 SDG No.: JPL117
 Matrix: (SOIL/WATER) Water
 Sample wt/vol: 10.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: not dec. _____
 GC Column: ZB-624 20m ID: 0.18 (mm)
 Soil Extract Volume: _____ (uL)
 Number TICs Found: 0

Contract: JPL Groundwater Monitorin
 Run Sequence: R028412
 Lab Sample ID: JPL117-001
 Lab File ID: M0530018.D
 Date Collected: 05/27/2008
 Date Analyzed: 05/30/2008
 Dilution Factor: 1.0
 Soil Aliquot Volume: _____ (uL)
 CONCENTRATION UNITS:
ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01					
02					
03					
04					
05					
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29					
30					

Comments:

Library Search Compound Report

Data File : X:\MSVOA\MOBY\053008\M0530018.D Vial: 11
Acq On : 30 May 2008 15:00 Operator: DGA
Sample : JPL117-001 Inst : MOBY
Misc : #4 10ml +IS/SS(524.2.) Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Method : X:\MSVOA\MOBY\QUANT\M8260W.M (RTE Integrator)
Title : VOA 8260/524.2/624 - 10ML Water Calibration 5973M
Library : D:\DATABASE\NIST129K.L

No Library Search Compounds Detected

M0530018.D M8260W.M Mon Jun 02 07:42:52 2008

1 TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

MW-6

Lab Name: Pace Analytical Services
 SDG No.: JPL117
 Matrix: (SOIL/WATER) Water
 Sample wt/vol: 10.0 (g/mL) mL
 Level: (LOW/MED) _____
 % Moisture: not dec. _____
 GC Column: ZB-624 20m ID: 0.18 (mm)
 Soil Extract Volume: _____ (uL)
 Number TICs Found: 0

Contract: JPL Groundwater Monitorin
 Run Sequence: R028412
 Lab Sample ID: JPL117-002
 Lab File ID: M0530019.D
 Date Collected: 05/27/2008
 Date Analyzed: 05/30/2008
 Dilution Factor: 1.0
 Soil Aliquot Volume: _____ (uL)
 CONCENTRATION UNITS:
ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01				
02				
03				
04				
05				
06				
07				
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09				
10				
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12				
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29				
30				

Comments:

Library Search Compound Report

Data File : X:\MSVOA\MOBY\053008\M0530019.D Vial: 12
Acq On : 30 May 2008 15:30 Operator: DGA
Sample : JPL117-002 Inst : MOBY
Misc : #3 10ml +IS/SS(524.2.) Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Method : X:\MSVOA\MOBY\QUANT\M8260W.M (RTE Integrator)
Title : VOA 8260/524.2/624 - 10ML Water Calibration 5973M
Library : D:\DATABASE\NIST129K.L

No Library Search Compounds Detected

M0530019.D M8260W.M Mon Jun 02 07:43:53 2008

1 TIC
 VOLATILE ORGANICS ANALYSIS DATA SHEET
 TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

DUPE-8-2Q08

Lab Name: Pace Analytical Services

Contract: JPL Groundwater Monitorin

SDG No.: JPL117

Run Sequence: R028412

Matrix: (SOIL/WATER) Water

Lab Sample ID: JPL117-003

Sample wt/vol: 10.0 (g/mL) mL

Lab File ID: M0530020.D

Level: (LOW/MED) _____

Date Collected: 05/27/2008

% Moisture: not dec. _____

Date Analyzed: 05/30/2008

GC Column: ZB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs Found: 0

CONCENTRATION UNITS:
ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01					
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
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Comments:

Library Search Compound Report

Data File : X:\MSVOA\MOBY\053008\M0530020.D Vial: 13
Acq On : 30 May 2008 15:57 Operator: DGA
Sample : JPL117-003 Inst : MOBY
Misc : #5 10ml +IS/SS(524.2.) Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Method : X:\MSVOA\MOBY\QUANT\M8260W.M (RTE Integrator)
Title : VOA 8260/524.2/624 - 10ML Water Calibration 5973M
Library : D:\DATABASE\NIST129K.L

No Library Search Compounds Detected

M0530020.D M8260W.M Mon Jun 02 07:44:44 2008

1 TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

TB-20-05/27/08

Lab Name: Pace Analytical Services

Contract: JPL Groundwater Monitorin

SDG No.: JPL117

Run Sequence: R028412

Matrix: (SOIL/WATER) Water

Lab Sample ID: JPL117-004

Sample wt/vol: 10.0 (g/mL) mL

Lab File ID: M0530014.D

Level: (LOW/MED) _____

Date Collected: 05/27/2008

% Moisture: not dec. _____

Date Analyzed: 05/30/2008

GC Column: ZB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs Found: 0

CONCENTRATION UNITS:
ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01					
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
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24					
25					
26					
27					
28					
29					
30					

Comments:

Library Search Compound Report

Data File : X:\MSVOA\MOBY\053008\M0530014.D Vial: 7
Acq On : 30 May 2008 13:11 Operator: DGA
Sample : JPL117-004 Inst : MOBY
Misc : #2 10ml +IS/SS(524.2.) Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Method : X:\MSVOA\MOBY\QUANT\M8260W.M (RTE Integrator)
Title : VOA 8260/524.2/624 - 10ML Water Calibration 5973M
Library : D:\DATABASE\NIST129K.L

No Library Search Compounds Detected

M0530014.D M8260W.M Mon Jun 02 07:37:27 2008

1 TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B053008MVOWM2

Lab Name: Pace Analytical Services

Contract: JPL Groundwater Monitorin

SDG No.: JPL117

Run Sequence: R028412

Matrix: (SOIL/WATER) Water

Lab Sample ID: B053008MVOWM2

Sample wt/vol: 10.0 (g/mL) mL

Lab File ID: M0530012.D

Level: (LOW/MED) _____

Date Collected: _____

% Moisture: not dec. _____

Date Analyzed: 05/30/2008

GC Column: ZB-624 20m ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs Found: 0

CONCENTRATION UNITS:
ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01				
02				
03				
04				
05				
06				
07				
08				
09				
10				
11				
12				
13				
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28				
29				
30				

Comments:

Library Search Compound Report

Data File : X:\MSVOA\MOBY\053008\M0530012.D Vial: 5
Acq On : 30 May 2008 12:11 Operator: DGA
Sample : B053008MVOWM2 Inst : MOBY
Misc : 10ml PFW+IS/SS(MV8-47-19) Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Method : X:\MSVOA\MOBY\QUANT\M8260W.M (RTE Integrator)
Title : VOA 8260/524.2/624 - 10ML Water Calibration 5973M
Library : D:\DATABASE\NIST129K.L

No Library Search Compounds Detected

M0530012.D M8260W.M Mon Jun 02 07:35:18 2008

Metals Data

JPL117

COVER PAGE-INORGANIC ANALYSES DATA PACKAGE

Lab Name: Pace Analytical Services, Inc.

Contract: JPL Groundwater Monitorin

Lab Code: PACE

SDG No.: JPL117

SOW No.: _____

Sample No.	Lab Sample ID
MW-5	JPL117-001
MW-5MS	JPL117-001MS
MW-5MSD	JPL117-001MSD
MW-6	JPL117-002
DUPE-8-2008	JPL117-003
DUPE-8-2008MS	JPL117-003MS
DUPE-8-2008MSD	JPL117-003MSD

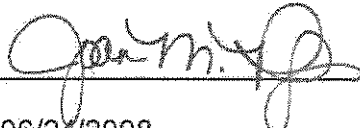
Were ICP interelement corrections applied? Yes/No YES

Were ICP background corrections applied? Yes/No NO

If yes-was raw data generated before application of background corrections? Yes/No NO

Comments:

I certify that this data package is technically complete, for other than the conditions detailed in the case narrative. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: 
 Date: 06/24/2008

Name: Joan M. Phillips
 Title: Chemist

Metals Analysis Data Sheets

INORGANIC ANALYSES DATA SHEET

SAMPLE NO.

MW-5

Lab Name: Pace Analytical Services

Contract: JPL Groundwater Monitorin

Lab Code: PACE

SDG No.: JPL117

Matrix (soil/water): Water

Lab Sample ID: JPL117-001

Level (low/med): LOW

Date Received: 05/28/2008

% Solids: _____

Concentration Units : ug/L

CAS No.	Analyte	Concentration	C	Q	M	Run Seq.
7440-38-2	Arsenic	1.00	U		M	R028637
7440-70-2	Calcium	33200			P	R028884
7440-47-3	Chromium	2.88			M	R028637
7439-89-6	Iron	100	U		P	R028884
7439-92-1	Lead	1.00	U		M	R028637
7439-95-4	Magnesium	10500			P	R028884
7440-09-7	Potassium	5000	U		P	R029004
7440-23-5	Sodium	19400		E	P	R028884

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: No

Comment _____

Date Printed: 6/23/2008 16:09

INORGANIC ANALYSES DATA SHEET

SAMPLE NO.

MW-6

Lab Name: Pace Analytical Services

Contract: JPL Groundwater Monitorin

Lab Code: PACE

SDG No.: JPL117

Matrix (soil/water): Water

Lab Sample ID: JPL117-002

Level (low/med): LOW

Date Received: 05/28/2008

% Solids: _____

Concentration Units : ug/L

CAS No.	Analyte	Concentration	C	Q	M	Run Seq.
7440-38-2	Arsenic	1.00	U		M	R028637
7440-70-2	Calcium	146000			P	R028884
7440-47-3	Chromium	6.38			M	R028637
7439-89-6	Iron	551			P	R028884
7439-92-1	Lead	1.00	U		M	R028637
7439-95-4	Magnesium	52800			P	R028884
7440-09-7	Potassium	5000	U		P	R029004
7440-23-5	Sodium	40900		E	P	R028884

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: No

Comment _____

Date Printed: 6/23/2008 16:09

INORGANIC ANALYSES DATA SHEET

SAMPLE NO.

DUPE-8-2Q08

Lab Name: Pace Analytical Services

Contract: JPL Groundwater Monitorin

Lab Code: PACE

SDG No.: JPL117

Matrix (soil/water): Water

Lab Sample ID: JPL117-003

Level (low/med): LOW

Date Received: 05/28/2008

% Solids: _____

Concentration Units : ug/L

CAS No.	Analyte	Concentration	C	Q	M	Run Seq.
7440-38-2	Arsenic	1.00	U		M	R028870
7440-70-2	Calcium	51300			P	R028884
7440-47-3	Chromium	3.55			M	R028870
7439-89-6	Iron	108			P	R028884
7439-92-1	Lead	1.00	U		M	R028870
7439-95-4	Magnesium	17200			P	R028884
7440-09-7	Potassium	5000	U		P	R029004
7440-23-5	Sodium	29800		E	P	R028884

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: No

Comment _____

Date Printed: 6/23/2008 16:09

Miscellaneous Inorganic Data

JPL117

COVER PAGE-INORGANIC ANALYSES DATA PACKAGE

Lab Name: Pace Analytical Services, Inc.

Contract: JPL Groundwater Monitorin

Lab Code: PACE

SDG No.: JPL117

SOW No.: _____

Sample No.
MW-5
MW-6
DUPE-8-2Q08

Lab Sample ID
JPL117-001
JPL117-002
JPL117-003

Comments:

I certify that this data package is technically complete, for other than the conditions detailed in the case narrative. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: 

Name: Paul J. Nino

Date: June 23, 2008

Title: Inorganic Supervisor

Inorganic Analysis Data Sheets

Pace Analytical Services, Inc.

Final Results

Client: Battelle **Project:** JPL Groundwater Monitoring
SDG Number: JPL117
Sample Number: MW-5 **Date/Time Collected:** 05/27/2008 08:43
Lab Sample ID: JPL117-001 **Date/Time Received:** 05/28/2008 08:30
Method/Qbatch*: E150.1/29684 **Unit:** pH Units
Instrument: pH meter (1) **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
pH	pH	1	6.8		0.10	0.10	05/28/2008	05/28/2008	R028429

Method/Qbatch*: E160.1/29712 **Unit:** mg/L
Instrument: Balance (01) **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Total Dissolved Solids (TDS)	TDS	1	220		2.0	2.0	05/29/2008	06/02/2008	R028460

Method/Qbatch*: E300.0/29976 **Unit:** mg/L
Instrument: Ion Chromatograph (2) **File:** R028691\results.1.txt

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Sulfate	14808-79-8	10	35		10	1.7	06/09/2008	06/10/2008	R028691
Chloride	16887-00-6	10	11		10	0.76	06/09/2008	06/10/2008	R028691

Method/Qbatch*: E310.1/29768 **Unit:** mg/L
Instrument: None **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Alkalinity, Carbonate (As CaCO3)	3812-32-6	1	4.0	U	4.0	4.0	06/02/2008	06/02/2008	R028510
Alkalinity, Bicarbonate (As CaCO3)	71-52-3	1	100		4.0	4.0	06/02/2008	06/02/2008	R028510

Method/Qbatch*: E314.0/30240 **Unit:** ug/L
Instrument: Ion Chromatograph (2) **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Perchlorate	14797-73-0	2	2.0	U	2.0	0.28	06/17/2008	06/18/2008	R028939

*QBatch=QC/Preparation Batch

Pace Analytical Services, Inc.

Final Results

Client: Battelle **Project:** JPL Groundwater Monitoring
SDG Number: JPL117
Sample Number: MW-5 **Date/Time Collected:** 05/27/2008 08:43
Lab Sample ID: JPL117-001 **Date/Time Received:** 05/28/2008 08:30
Method/Qbatch*: E353.2/29688 **Unit:** mg/L
Instrument: ASE (01) **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Total Nitrate / Nitrite	N+N	1	2.2		0.050	0.016	05/29/2008	05/29/2008	R028434

Method/Qbatch*: E353.2/29736 **Unit:** mg/L
Instrument: None **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Nitrate - N	14797-55-8	1	2.2		0.50	0.010	05/29/2008	05/29/2008	R028479

Method/Qbatch*: E354.1/29665 **Unit:** mg/L
Instrument: UVVis (Cary) **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Nitrite - N	14797-65-0	1	0.0050	U	0.0050	0.0012	05/28/2008	05/29/2008	R028409

Method/Qbatch*: E365.2/29678 **Unit:** mg/L
Instrument: UVVis (Cary) **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Phosphorus, Orthophosphate (as P)	7723-14-0	1	0.10	U	0.10	0.0025	05/28/2008	05/28/2008	R028423

*QBatch=QC/Preparation Batch

Pace Analytical Services, Inc.

Final Results

Client: Battelle **Project:** JPL Groundwater Monitoring
SDG Number: JPL117
Sample Number: MW-6 **Date/Time Collected:** 05/27/2008 10:40
Lab Sample ID: JPL117-002 **Date/Time Received:** 05/28/2008 08:30
Method/Qbatch*: E150.1/29684 **Unit:** pH Units
Instrument: pH meter (1) **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
pH	pH	1	6.8		0.10	0.10	05/28/2008	05/28/2008	R028429

Method/Qbatch*: E160.1/29712 **Unit:** mg/L
Instrument: Balance (01) **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Total Dissolved Solids (TDS)	TDS	1	660		2.0	2.0	05/29/2008	06/02/2008	R028460

Method/Qbatch*: E300.0/30017 **Unit:** mg/L
Instrument: Ion Chromatograph (2) **File:** R028730\results.1.txt

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Sulfate	14808-79-8	20	200		20	3.4	06/10/2008	06/10/2008	R028730
Chloride	16887-00-6	20	150		20	1.5	06/10/2008	06/10/2008	R028730

Method/Qbatch*: E310.1/29768 **Unit:** mg/L
Instrument: None **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Alkalinity, Carbonate (As CaCO3)	3812-32-6	1	4.0	U	4.0	4.0	06/02/2008	06/02/2008	R028510
Alkalinity, Bicarbonate (As CaCO3)	71-52-3	1	230		4.0	4.0	06/02/2008	06/02/2008	R028510

Method/Qbatch*: E314.0/30240 **Unit:** ug/L
Instrument: Ion Chromatograph (2) **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Perchlorate	14797-73-0	2	2.5		2.0	0.28	06/17/2008	06/18/2008	R028939

*QBatch=QC/Preparation Batch

Pace Analytical Services, Inc.

Final Results

Client: Battelle **Project:** JPL Groundwater Monitoring
SDG Number: JPL117
Sample Number: MW-6 **Date/Time Collected:** 05/27/2008 10:40
Lab Sample ID: JPL117-002 **Date/Time Received:** 05/28/2008 08:30
Method/Qbatch*: E353.2/29711 **Unit:** mg/L
Instrument: ASE (01) **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Total Nitrate / Nitrite	N+N	20	12		1.0	0.32	05/29/2008	05/29/2008	R028459

Method/Qbatch*: E353.2/29736 **Unit:** mg/L
Instrument: None **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Nitrate - N	14797-55-8	1	12		0.50	0.010	05/29/2008	05/29/2008	R028479

Method/Qbatch*: E354.1/29665 **Unit:** mg/L
Instrument: UVVis (Cary) **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Nitrite - N	14797-65-0	1	0.0050	U	0.0050	0.0012	05/28/2008	05/29/2008	R028409

Method/Qbatch*: E365.2/29678 **Unit:** mg/L
Instrument: UVVis (Cary) **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Phosphorus, Orthophosphate (as P)	7723-14-0	1	0.10	U	0.10	0.0025	05/28/2008	05/28/2008	R028423

*QBatch=QC/Preparation Batch

Pace Analytical Services, Inc.

Final Results

Client: Battelle **Project:** JPL Groundwater Monitoring
SDG Number: JPL117
Sample Number: DUPE-8-2Q08 **Date/Time Collected:** 05/27/2008 00:00
Lab Sample ID: JPL117-003 **Date/Time Received:** 05/28/2008 08:30
Method/Qbatch*: E150.1/29684 **Unit:** pH Units
Instrument: pH meter (1) **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
pH	pH	1	7.1		0.10	0.10	05/28/2008	05/28/2008	R028429

Method/Qbatch*: E160.1/29712 **Unit:** mg/L
Instrument: Balance (01) **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Total Dissolved Solids (TDS)	TDS	1	190		2.0	2.0	05/29/2008	06/02/2008	R028460

Method/Qbatch*: E300.0/29976 **Unit:** mg/L
Instrument: Ion Chromatograph (2) **File:** R028691\results.1.txt

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Sulfate	14808-79-8	10	34		10	1.7	06/09/2008	06/10/2008	R028691
Chloride	16887-00-6	10	13		10	0.76	06/09/2008	06/10/2008	R028691

Method/Qbatch*: E310.1/29768 **Unit:** mg/L
Instrument: None **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Alkalinity, Carbonate (As CaCO3)	3812-32-6	1	4.0	U	4.0	4.0	06/02/2008	06/02/2008	R028510
Alkalinity, Bicarbonate (As CaCO3)	71-52-3	1	100		4.0	4.0	06/02/2008	06/02/2008	R028510

Method/Qbatch*: E314.0/30240 **Unit:** ug/L
Instrument: Ion Chromatograph (2) **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Perchlorate	14797-73-0	2	2.0	U	2.0	0.28	06/17/2008	06/18/2008	R028939

*QBatch=QC/Preparation Batch

Pace Analytical Services, Inc.

Final Results

Client: Battelle **Project:** JPL Groundwater Monitoring
SDG Number: JPL117
Sample Number: DUPE-8-2Q08 **Date/Time Collected:** 05/27/2008 00:00
Lab Sample ID: JPL117-003 **Date/Time Received:** 05/28/2008 08:30
Method/Qbatch*: E353.2/29711 **Unit:** mg/L
Instrument: ASE (01) **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Total Nitrate / Nitrite	N+N	2	2.0		0.10	0.032	05/29/2008	05/29/2008	R028459

Method/Qbatch*: E353.2/29736 **Unit:** mg/L
Instrument: None **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Nitrate - N	14797-55-8	1	2.0		0.50	0.010	05/29/2008	05/29/2008	R028479

Method/Qbatch*: E354.1/29665 **Unit:** mg/L
Instrument: UVVis (Cary) **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Nitrite - N	14797-65-0	1	0.0050	U	0.0050	0.0012	05/28/2008	05/29/2008	R028409

Method/Qbatch*: E365.2/29678 **Unit:** mg/L
Instrument: UVVis (Cary) **File:** N/A

Analyte	CAS	DF	Result	Q	PQL	MDL	Prepared	Analyzed	Run Seq.
Phosphorus, Orthophosphate (as P)	7723-14-0	1	0.10	U	0.10	0.0025	05/28/2008	05/28/2008	R028423

*QBatch=QC/Preparation Batch

CAS SR #P0801134

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LABORATORY REPORT

May 5, 2008

David Conner
Battelle
3990 Old Town Ave., Suite C-205
San Diego, CA 92110

RE: JPL Groundwater Monitoring 2Q08 / G486090

Dear David:

Enclosed are the results of the samples submitted to our laboratory on April 22, 2008. For your reference, these analyses have been assigned our service request number P0801134.

All analyses were performed in accordance with our laboratory's quality assurance program. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein. Your report contains 25 pages.

Columbia Analytical Services, Inc. is certified by the California Department of Health Services, NELAP Laboratory Certificate No. 02115CA; Arizona Department of Health Services, Certificate No. AZ0694; Florida Department of Health, NELAP Certification E871020; New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID #CA009; New York State Department of Health, NELAP NY Lab ID No: 11221; Oregon Environmental Laboratory Accreditation Program, NELAP ID: CA20007; The American Industrial Hygiene Association, Laboratory #101661; Department of the Navy (NFESC); Pennsylvania Registration No. 68-03307. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact me for information corresponding to a particular certification.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

Columbia Analytical Services, Inc.



Sue Anderson
Project Manager

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08 / G486090

CAS Project No: P0801134

CASE NARRATIVE

The samples were received intact under chain of custody on April 22, 2008 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Hexavalent Chromium by EPA Method 7196A

The Laboratory Control Sample (LCS) was outside of the current laboratory acceptance limits of 92-113%, but within 90-110% recovery. All of the other associated method controls were acceptable which indicated the batch was in control; therefore, the data was approved.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08/G486090

Service Request: P0801134

SAMPLE CROSS-REFERENCE

<u>SAMPLE #</u>	<u>CLIENT SAMPLE ID</u>	<u>DATE</u>	<u>TIME</u>
P0801134-001	MW-14-5	04/22/08	08:41
P0801134-002	MW-14-4	04/22/08	09:25
P0801134-003	MW-14-3	04/22/08	10:08
P0801134-004	MW-14-2	04/22/08	10:52
P0801134-005	MW-14-1	04/22/08	12:16
P0801134-006	EB-01-04/22/08	04/22/08	11:20

Columbia Analytical Services, Inc.

Acronyms

CA LUFT	California DHS LUFT Method
ASTM	American Society for Testing and Materials
BTEX	Benzene/Toluene/Ethylbenzene/Xylenes
CAS Number	Chemical Abstract Service Registry Number
CFC	Chlorofluorocarbon
CRDL	Contract Required Detection Limit
DLCS	Duplicate Laboratory Control Sample
DMS	Duplicate Matrix Spike
DOH or DHS	Department of Health Services
EPA	U.S. Environmental Protection Agency
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
IC	Ion Chromatography
ICB	Initial Calibration Blank
ICV	Initial Calibration Verification
LCS	Laboratory Control Sample
LUFT	Leaking Underground Fuel Tank
M	Modified Method
MDL	Method Detection Limit
MRL	Method Reporting Limit
MS	Matrix Spike
MTBE	Methyl <i>tert</i> -Butyl Ether
NA	Not Applicable
NC	Not Calculated
ND	None Detected at or above the Method Reporting/Detection Limit (MRL/MDL)
NTU	Nephelometric Turbidity Units
ppb	Parts Per Billion
ppm	Parts Per Million
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SIM	Selected Ion Monitoring
SM	<i>Standard Methods for the Examination of Water and Wastewater</i> , 19th Ed., 1995.
SW	<i>Test Methods for Evaluating Solid Waste, Physical/Chemical Methods</i> SW-846, Third Edition, 1986 and as amended by Updates I, II, IIA, and IIB.
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
TSS	Total Suspended Solids
TTLC	Total Threshold Limit Concentration
VOA	Volatile Organic Analyte(s)
VOC	Volatile Organic Compound(s)

Qualifiers

U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
J	The result is an estimated concentration that is less than the MRL (PQL), but greater than or equal to the MDL.
B	Analyte detected in the method blank above MRL (PQL).
E	Estimated; result based on response which exceeded the instrument calibration range.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
D	The reported result is from a dilution.
X	See case narrative.



2655 Park Center Drive, Suite A
 Simi Valley, California 93065
 Phone (805) 526-7161
 Fax (805) 526-7270

Company Name & Address (Reporting Information) BATTELLE 3990 OLD TOWN AVE. C-205 SAN DIEGO, CA 92110		Project Name JPL GW MON 2008		Project Number 648 6090		Requested Turnaround Time in Business Days (Surcharges) please circle 1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day - Standard		CAS Project No. 1134	
Project Manager DAVID CONNER		P.O. # / Billing Information 24319/BATTELLE ATTN: GERALD TOMPKINS 505 KING AVE. COLUMBUS, OH 43201		Volatile Organics GC/MS 624 <input type="checkbox"/> 8260B <input type="checkbox"/> Oxygenates <input type="checkbox"/> TPH Gas <input type="checkbox"/>		TPH Gas 8015B <input type="checkbox"/> MTRB 8021B <input type="checkbox"/>		CAS Contact:	
Email Address for Result Reporting 619-726-7311		Sampler (Print & Sign)		Semi-Volatile Organics GC/MS TPH Diesel 8015B <input type="checkbox"/> (Subcontracted)		TPH Diesel Low Level 8015B <input type="checkbox"/> (Subcontracted)		Preservative Code	
Laboratory ID Number		Date Collected		Time Collected		Matrix		Number of Containers	
Client Sample ID		Date Collected		Time Collected		Matrix		Number of Containers	
MW-14-5	1	08/22/08	0841	W	1				
MW-14-4	2		0925						
MW-14-3	3		1008						
MW-14-2	4		1052		2				MS/MSD
MW-14-1	5		1216		1				
SB-01 - 04/27/08	6		1120						EQUIPMENT SHAW

Client Sample ID	Date Collected	Time Collected	Matrix	Number of Containers	MRL required Yes / No		MDL / PQL / J required Yes / No		EDD required Yes / No		Project Requirements (MRLs, QAPP)
					Yes	No	Yes	No	Yes	No	
MW-14-5	08/22/08	0841	W	1							
MW-14-4		0925									
MW-14-3		1008									
MW-14-2		1052		2							MS/MSD
MW-14-1		1216		1							
SB-01 - 04/27/08		1120									EQUIPMENT SHAW

Report Tier Levels - please select
 Tier I - (Results/Default if not specified) _____
 Tier II - (Results + QC) _____
 Tier III - (Data Validation Package) 10% Surcharge _____
 Tier V - (client specified) _____

Relinquished by: (Signature) _____ Date: 08/22/08 Time: 1230
 Relinquished by: (Signature) _____ Date: 08/22/08 Time: 1311
 Relinquished by: (Signature) _____ Date: _____ Time: _____

Columbia Analytical Services, Inc.

Chain of Custody Report

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08/G486090

Service Request: P0801134

Bottle ID	Date	Time	Sample Location / User	Disposed On
P0801134-001.01	04/22/2008	1323	SMO / LKUKITA	
	04/22/2008	1332	P-37 / LKUKITA	
	04/22/2008	1335	In Lab / DCASTILLO	
	04/22/2008	1514	P-37 / DCASTILLO	
P0801134-002.01	04/22/2008	1323	SMO / LKUKITA	
	04/22/2008	1332	P-37 / LKUKITA	
	04/22/2008	1335	In Lab / DCASTILLO	
	04/22/2008	1514	P-37 / DCASTILLO	
P0801134-003.01	04/22/2008	1323	SMO / LKUKITA	
	04/22/2008	1332	P-37 / LKUKITA	
	04/22/2008	1336	In Lab / DCASTILLO	
	04/22/2008	1514	P-37 / DCASTILLO	
P0801134-004.01	04/22/2008	1323	SMO / LKUKITA	
	04/22/2008	1332	P-37 / LKUKITA	
	04/22/2008	1336	In Lab / DCASTILLO	
	04/22/2008	1514	P-37 / DCASTILLO	
P0801134-004.02	04/22/2008	1323	SMO / LKUKITA	
	04/22/2008	1332	P-37 / LKUKITA	
	04/22/2008	1336	In Lab / DCASTILLO	
	04/22/2008	1514	P-37 / DCASTILLO	
P0801134-005.01	04/22/2008	1323	SMO / LKUKITA	
	04/22/2008	1332	P-37 / LKUKITA	
	04/22/2008	1336	In Lab / DCASTILLO	
	04/22/2008	1514	P-37 / DCASTILLO	
P0801134-006.01	04/22/2008	1328	SMO / LKUKITA	
	04/22/2008	1332	P-37 / LKUKITA	
	04/22/2008	1336	In Lab / DCASTILLO	
	04/22/2008	1514	P-37 / DCASTILLO	

Columbia Analytical Services, Inc.
Sample Acceptance Check Form

Client: Battelle Work order: P0801134
 Project: JPL Groundwater Monitoring 2Q08 / G486090
 Sample(s) received on: 4/22/08 Date opened: 4/22/08 by: LKUKITA

Note: This form is used for all samples received by CAS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

- | | Yes | No | N/A |
|--|-------------------------------------|-------------------------------------|-------------------------------------|
| 1 Were sample containers properly marked with client sample ID? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 Container(s) supplied by CAS ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 Did sample containers arrive in good condition? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 Were chain-of-custody papers used and filled out? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5 Did sample container labels and/or tags agree with custody papers? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6 Was sample volume received adequate for analysis? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7 Are samples within specified holding times? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8 Was proper temperature (thermal preservation) of cooler at receipt adhered to? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Cooler Temperature _____ °C Blank Temperature _____ 3 _____ °C | | | |
| 9 Was a trip blank received? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Trip blank supplied by CAS: Serial # _____ -TB _____ | | | |
| 10 Were custody seals on outside of cooler/Box? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Location of seal(s)? _____ Sealing Lid? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were custody seals on outside of sample container? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Location of seal(s)? _____ Sealing Lid? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 11 Do containers have appropriate preservation , according to method/SOP or Client specified information? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Is there a client indication that the submitted samples are pH preserved? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were VOA vials checked for presence/absence of air bubbles? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Does the client/method/SOP require that the analyst check the sample pH and <u>if necessary</u> alter it? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 12 Tubes: Are the tubes capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Do they contain moisture? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 13 Badges: Are the badges properly capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Are dual bed badges separated and individually capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Lab Sample ID	Container Description	Required pH*	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P0801134-001.01	125mL Plastic NP					
P0801134-002.01	125mL Plastic NP					
P0801134-003.01	125mL Plastic NP					
P0801134-004.01	125mL Plastic NP					
P0801134-004.02	125mL Plastic NP					
P0801134-005.01	125mL Plastic NP					
P0801134-006.01	125mL Plastic NP					

Explain any discrepancies: (include lab sample ID numbers): _____

DIVIDER SHEET

ANALYTICAL DATA

FOR

Hexavalent Chromium

ANALYSIS

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : Battelle
Project Name : JPL Groundwater Monitoring 2Q08
Project Number : G486090
Sample Matrix : WATER

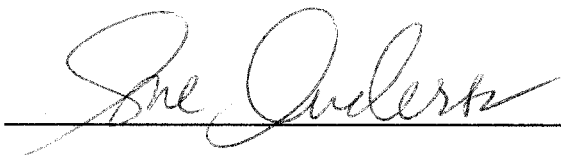
Service Request : P0801134
Date Collected : 04/22/08
Date Received : 04/22/08

Chromium, Hexavalent

Prep Method : None
Analysis Method : 7196A
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	PQL	MDL	Dilution Factor	Date Extracted	Date/Time Analyzed	Result	Result Notes
MW-14-5	P0801134-001	0.010	0.006	1	NA	04/22/08 14:10	ND	
MW-14-4	P0801134-002	0.010	0.006	1	NA	04/22/08 14:10	ND	
MW-14-3	P0801134-003	0.010	0.006	1	NA	04/22/08 14:10	ND	
MW-14-2	P0801134-004	0.010	0.006	1	NA	04/22/08 14:10	ND	
MW-14-1	P0801134-005	0.010	0.006	1	NA	04/22/08 14:10	ND	
EB-01-04/22/08	P0801134-006	0.010	0.006	1	NA	04/22/08 14:10	ND	
Method Blank	P0801134-MB	0.010	0.006	1	NA	04/22/08 14:10	ND	

Approved By 

Date : 5/5/08

CAS SR #P0801151

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LABORATORY REPORT

May 6, 2008

David Conner
Battelle
3990 Old Town Ave., Suite C-205
San Diego, CA 92110

RE: JPL Groundwater Monitoring 2Q08 / G486090

Dear David:

Enclosed are the results of the samples submitted to our laboratory on April 23, 2008. For your reference, these analyses have been assigned our service request number P0801151.

All analyses were performed in accordance with our laboratory's quality assurance program. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein. Your report contains 25 pages.

Columbia Analytical Services, Inc. is certified by the California Department of Health Services, NELAP Laboratory Certificate No. 02115CA; Arizona Department of Health Services, Certificate No. AZ0694; Florida Department of Health, NELAP Certification E871020; New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID #CA009; New York State Department of Health, NELAP NY Lab ID No: 11221; Oregon Environmental Laboratory Accreditation Program, NELAP ID: CA20007; The American Industrial Hygiene Association, Laboratory #101661; Department of the Navy (NFESC); Pennsylvania Registration No. 68-03307. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact me for information corresponding to a particular certification.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

Columbia Analytical Services, Inc.



Sue Anderson
Project Manager

Client: Battelle

CAS Project No: P0801151

Project: JPL Groundwater Monitoring 2Q08 / G486090

CASE NARRATIVE

The samples were received intact under chain of custody on April 23, 2008 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Hexavalent Chromium by EPA Method 7196A

No anomalies were encountered during this analysis.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08/G486090

Service Request: P0801151

SAMPLE CROSS-REFERENCE

<u>SAMPLE #</u>	<u>CLIENT SAMPLE ID</u>	<u>DATE</u>	<u>TIME</u>
P0801151-001	MW-22-5	04/23/08	08:45
P0801151-002	MW-22-4	04/23/08	09:27
P0801151-003	MW-22-3	04/23/08	10:06
P0801151-004	MW-22-2	04/23/08	10:45
P0801151-005	MW-22-1	04/23/08	11:30
P0801151-006	EB-02-04/23/08	04/23/08	11:10

Columbia Analytical Services, Inc.

Acronyms

CA LUFT	California DHS LUFT Method
ASTM	American Society for Testing and Materials
BTEX	Benzene/Toluene/Ethylbenzene/Xylenes
CAS Number	Chemical Abstract Service Registry Number
CFC	Chlorofluorocarbon
CRDL	Contract Required Detection Limit
DLCS	Duplicate Laboratory Control Sample
DMS	Duplicate Matrix Spike
DOH or DHS	Department of Health Services
EPA	U.S. Environmental Protection Agency
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
IC	Ion Chromatography
ICB	Initial Calibration Blank
ICV	Initial Calibration Verification
LCS	Laboratory Control Sample
LUFT	Leaking Underground Fuel Tank
M	Modified Method
MDL	Method Detection Limit
MRL	Method Reporting Limit
MS	Matrix Spike
MTBE	Methyl <i>tert</i> -Butyl Ether
NA	Not Applicable
NC	Not Calculated
ND	None Detected at or above the Method Reporting/Detection Limit (MRL/MDL)
NTU	Nephelometric Turbidity Units
ppb	Parts Per Billion
ppm	Parts Per Million
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SIM	Selected Ion Monitoring
SM	<i>Standard Methods for the Examination of Water and Wastewater</i> , 19th Ed., 1995.
SW	<i>Test Methods for Evaluating Solid Waste, Physical/Chemical Methods</i> SW-846, Third Edition, 1986 and as amended by Updates I, II, IIA, and IIB.
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
TSS	Total Suspended Solids
TTLC	Total Threshold Limit Concentration
VOA	Volatile Organic Analyte(s)
VOC	Volatile Organic Compound(s)

Qualifiers

U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
J	The result is an estimated concentration that is less than the MRL (PQL), but greater than or equal to the MDL.
B	Analyte detected in the method blank above MRL (PQL).
E	Estimated; result based on response which exceeded the instrument calibration range.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
D	The reported result is from a dilution.
X	See case narrative.

Water & Soil - Chain of Custody Record & Analytical Service Request



2655 Park Center Drive, Suite A
 Simi Valley, California 93065
 Phone (805) 526-7161
 Fax (805) 526-7270

Requested Turnaround Time in Business Days (Surcharges) please circle
 1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day - Standard

CAS Project No. 200801151
 CAS Contact:

Company Name & Address (Reporting Information)		Project Name	
<u>BATTELLE</u> <u>3990 OLD TOWN AVE, C-205</u> <u>SAN DIEGO, CA 92110</u>		<u>SPL GW MON 2008</u>	
Project Manager		Project Number	
<u>DAVID CONNER</u>		<u>6486090</u>	
Phone	Fax	P.O. # / Billing Information	
<u>619-726-7311</u>		<u>214319 / BATTELLE</u> <u>ATTN: GERRARD TOMPKINS</u> <u>505 KING AVE.</u> <u>COLUMBUS, OH 43201</u>	
Email Address for Result Reporting			
Sampler (Print & Sign)			

Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Matrix	Number of Containers	Analysis Method and/or Analytes							Preservative Key	Remarks		
						624 <input type="checkbox"/> 8260B <input type="checkbox"/> TPH Gas <input type="checkbox"/>	TPH Gas 8015B <input type="checkbox"/>	BTEX 8021B <input type="checkbox"/> MTBE 8021B <input type="checkbox"/>	TPH Diesel 8015B <input type="checkbox"/> (Subcontracted)	TPH Diesel Low Level 8015B <input type="checkbox"/> (Subcontracted)	TPH FC <input type="checkbox"/> 8015M <input type="checkbox"/> (Subcontracted)	Semi-Volatile Organics GC/MS <input type="checkbox"/> 8270C <input type="checkbox"/> (Subcontracted)			0	Preservative Code
MW-22-5	1	4/23/08	0845	W	1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
MW-22-4	2		0927			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
MW-22-3	3		1006			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
MW-22-2	4		1045			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
MW-22-1	5		1130			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
EB-02-04/23/08	6		1110			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			EQUIPMENT BLANK

Report Tier Levels - please select		Project Requirements (MRLs, QAPP)	
Tier I - (Results/Default if not specified)	Tier III - (Data Validation Package) 10% Surcharge	EDD required (Yes/No)	
Tier II - (Results + QC)	Tier V - (client specified)	Type:	
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

Columbia Analytical Services, Inc.

Chain of Custody Report

Client: Battelle
 Project: JPL Groundwater Monitoring 2Q08/G486090

Service Request: P0801151

Bottle ID	Date	Time	Sample Location / User	Disposed On
P0801151-001.01	04/23/2008	1353	SMO / LKUKITA	
	04/23/2008	1402	In Lab / DCASTILLO	
	04/23/2008	1548	P-37 / DCASTILLO	
P0801151-002.01	04/23/2008	1353	SMO / LKUKITA	
	04/23/2008	1402	In Lab / DCASTILLO	
	04/23/2008	1548	P-37 / DCASTILLO	
P0801151-003.01	04/23/2008	1353	SMO / LKUKITA	
	04/23/2008	1402	In Lab / DCASTILLO	
	04/23/2008	1548	P-37 / DCASTILLO	
P0801151-004.01	04/23/2008	1353	SMO / LKUKITA	
	04/23/2008	1402	In Lab / DCASTILLO	
	04/23/2008	1549	P-37 / DCASTILLO	
P0801151-005.01	04/23/2008	1353	SMO / LKUKITA	
	04/23/2008	1402	In Lab / DCASTILLO	
	04/23/2008	1549	P-37 / DCASTILLO	
P0801151-006.01	04/23/2008	1353	SMO / LKUKITA	
	04/23/2008	1402	In Lab / DCASTILLO	
	04/23/2008	1549	P-37 / DCASTILLO	

Columbia Analytical Services, Inc.
Sample Acceptance Check Form

Client: Battelle

Work order: P0801151

Project: JPL Groundwater Monitoring 2Q08 / G486090

Sample(s) received on: 4/23/08

Date opened: 4/23/08

by: LKUKITA

Note: This form is used for all samples received by CAS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

- | | | <u>Yes</u> | <u>No</u> | <u>N/A</u> |
|----|--|-------------------------------------|-------------------------------------|-------------------------------------|
| 1 | Were sample containers properly marked with client sample ID? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 | Container(s) supplied by CAS ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 | Did sample containers arrive in good condition? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 | Were chain-of-custody papers used and filled out? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5 | Did sample container labels and/or tags agree with custody papers? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6 | Was sample volume received adequate for analysis? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7 | Are samples within specified holding times? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8 | Was proper temperature (thermal preservation) of cooler at receipt adhered to?
Cooler Temperature _____ °C Blank Temperature <u>3</u> °C | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 9 | Was a trip blank received?
Trip blank supplied by CAS: Serial # _____ -TB _____ | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 10 | Were custody seals on outside of cooler/Box?
Location of seal(s)? _____ Sealing Lid?
Were signature and date included?
Were seals intact? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | Were custody seals on outside of sample container?
Location of seal(s)? _____ Sealing Lid?
Were signature and date included?
Were seals intact? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 11 | Do containers have appropriate preservation , according to method/SOP or Client specified information?
Is there a client indication that the submitted samples are pH preserved?
Were VOA vials checked for presence/absence of air bubbles?
Does the client/method/SOP require that the analyst check the sample pH and <u>if necessary</u> alter it? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 12 | Tubes: Are the tubes capped and intact?
Do they contain moisture? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 13 | Badges: Are the badges properly capped and intact?
Are dual bed badges separated and individually capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Lab Sample ID	Container Description	Required pH*	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P0801151-001.01	125mL Plastic NP					
P0801151-002.01	125mL Plastic NP					
P0801151-003.01	125mL Plastic NP					
P0801151-004.01	125mL Plastic NP					
P0801151-005.01	125mL Plastic NP					
P0801151-006.01	125mL Plastic NP					

Explain any discrepancies: (include lab sample ID numbers): _____

*Required pH: Phenols/COD/NH3/TOC/TOX/NO3+NO2/TKN/T.PHOS, H2SO4 (pH<2); Metals, HNO3 (pH<2); CN (NaOH or NaOH/Asc Acid) (pH>12);

DIVIDER SHEET

ANALYTICAL DATA
FOR

Hexavalent Chromium

ANALYSIS

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : Battelle
Project Name : JPL Groundwater Monitoring 2Q08
Project Number : G486090
Sample Matrix : WATER

Service Request : P0801151
Date Collected : 04/23/08
Date Received : 04/23/08

Chromium, Hexavalent

Prep Method : None
Analysis Method : 7196A
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	PQL	MDL	Dilution Factor	Date Extracted	Date/Time Analyzed	Result	Result Notes
MW-22-5	P0801151-001	0.010	0.006	1	NA	04/23/08 15:15	ND	
MW-22-4	P0801151-002	0.010	0.006	1	NA	04/23/08 15:15	ND	
MW-22-3	P0801151-003	0.010	0.006	1	NA	04/23/08 15:15	ND	
MW-22-2	P0801151-004	0.010	0.006	1	NA	04/23/08 15:15	ND	
MW-22-1	P0801151-005	0.010	0.006	1	NA	04/23/08 15:15	ND	
EB-02-04/23/08	P0801151-006	0.010	0.006	1	NA	04/23/08 15:15	ND	
Method Blank	P0801151-MB	0.010	0.006	1	NA	04/23/08 15:15	ND	

Approved By 

Date : 5/6/08

CAS SR #P0801172

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LABORATORY REPORT

May 27, 2008

David Conner
Battelle
3990 Old Town Ave., Suite C-205
San Diego, CA 92110

RE: JPL Groundwater Monitoring 2Q08 / G486090

Dear David:

Enclosed are the revised QA/QC pages for the samples submitted to our laboratory on April 24, 2008. The Initial and Continuing Calibration Blank Summary and the Initial and Continuing Calibration Verification Summary Report pages have been corrected to report the information for this service request and have been paginated accordingly. For your reference, these analyses have been assigned our service request number P0801172.

All analyses were performed in accordance with our laboratory's quality assurance program. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein. Your report contains 161 pages.

Columbia Analytical Services, Inc. is certified by the California Department of Health Services, NELAP Laboratory Certificate No. 02115CA; Arizona Department of Health Services, Certificate No. AZ0694; Florida Department of Health, NELAP Certification E871020; New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID #CA009; New York State Department of Health, NELAP NY Lab ID No: 11221; Oregon Environmental Laboratory Accreditation Program, NELAP ID: CA20007; The American Industrial Hygiene Association, Laboratory #101661; Department of the Navy (NFESC); Pennsylvania Registration No. 68-03307. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact me for information corresponding to a particular certification.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

Columbia Analytical Services, Inc.



Sue Anderson
Project Manager

Page
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Client: Battelle
Project: JPL Groundwater Monitoring 2Q08 / G486090

CAS Project No: P0801172

CASE NARRATIVE

The samples were received intact under chain of custody on April 24, 2008 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Hexavalent Chromium by EPA Method 7196A

No anomalies were encountered during this analysis.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08/G486090

Service Request: P0801172

SAMPLE CROSS-REFERENCE

<u>SAMPLE #</u>	<u>CLIENT SAMPLE ID</u>	<u>DATE</u>	<u>TIME</u>
P0801172-001	MW-4-5	04/24/08	08:05
P0801172-002	MW-4-4	04/24/08	08:39
P0801172-003	MW-4-3	04/24/08	09:15
P0801172-004	MW-4-2	04/24/08	10:10
P0801172-005	MW-4-1	04/24/08	10:48
P0801172-006	EB-03-4/24/08	04/24/08	10:29
P0801172-007	DUPE-1-2Q08	04/24/08	00:00

Columbia Analytical Services, Inc.

Acronyms

CA LUFT	California DHS LUFT Method
ASTM	American Society for Testing and Materials
BTEX	Benzene/Toluene/Ethylbenzene/Xylenes
CAS Number	Chemical Abstract Service Registry Number
CFC	Chlorofluorocarbon
CRDL	Contract Required Detection Limit
DLCS	Duplicate Laboratory Control Sample
DMS	Duplicate Matrix Spike
DOH or DHS	Department of Health Services
EPA	U.S. Environmental Protection Agency
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
IC	Ion Chromatography
ICB	Initial Calibration Blank
ICV	Initial Calibration Verification
LCS	Laboratory Control Sample
LUFT	Leaking Underground Fuel Tank
M	Modified Method
MDL	Method Detection Limit
MRL	Method Reporting Limit
MS	Matrix Spike
MTBE	Methyl <i>tert</i> -Butyl Ether
NA	Not Applicable
NC	Not Calculated
ND	None Detected at or above the Method Reporting/Detection Limit (MRL/MDL)
NTU	Nephelometric Turbidity Units
ppb	Parts Per Billion
ppm	Parts Per Million
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SIM	Selected Ion Monitoring
SM	<i>Standard Methods for the Examination of Water and Wastewater</i> , 19th Ed., 1995.
SW	<i>Test Methods for Evaluating Solid Waste, Physical/Chemical Methods</i> SW-846, Third Edition, 1986 and as amended by Updates I, II, IIA, and IIB.
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
TSS	Total Suspended Solids
TTLC	Total Threshold Limit Concentration
VOA	Volatile Organic Analyte(s)
VOC	Volatile Organic Compound(s)

Qualifiers

U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
J	The result is an estimated concentration that is less than the MRL (PQL), but greater than or equal to the MDL.
B	Analyte detected in the method blank above MRL (PQL).
E	Estimated; result based on response which exceeded the instrument calibration range.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
D	The reported result is from a dilution.
X	See case narrative.



2655 Park Center Drive, Suite A
 Simi Valley, California 93065
 Phone (805) 526-7161
 Fax (805) 526-7270

Company Name & Address (Reporting Information) BATTELLE 3990 OLD TOWN AVE, C-205 SAN DIEGO, CA 92110		Project Name SWL GW MON 2008		Requested Turnaround Time in Business Days (Surcharges) please circle 1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day - Standard		CAS Project No. P0801172	
Project Manager DAVID CONNER		Project Number GW86090		Analysis Method and/or Analytes		CAS Contact:	
Phone 619-726-7311		Fax		Preservative Code		Preservative Key 0 None 1 HCL 2 HNO3 3 H2SO4 4 NaOH 5 Zn Acetate 6 Asc Acid 7 Other	
Email Address for Result Reporting		Sampler (Print & Sign)		Volatile Organics GC/MS 624 <input type="checkbox"/> 8260B <input type="checkbox"/> Oxygenates <input type="checkbox"/> TPH Gas <input type="checkbox"/>		Remarks	
Laboratory ID Number		Date Collected		TPH Diesel 8015B <input type="checkbox"/> (Subcontracted) BTEX 8021B <input type="checkbox"/> MTBE 8021B <input type="checkbox"/>		Semi-Volatile Organics GC/MS 625 <input type="checkbox"/> 8270C <input type="checkbox"/> (Subcontracted)	
Client Sample ID		Time Collected		TPH FC <input type="checkbox"/> 8015M (Subcontracted)		TPH Diesel Low Level 8015B <input type="checkbox"/> (Subcontracted)	
MW-4-5		4/24/08 805		TPH Gas 8015B <input type="checkbox"/>		X	
MW-4-4		839		TPH Gas 8015B <input type="checkbox"/>		X	
MW-4-3		915		TPH Gas 8015B <input type="checkbox"/>		X	
MW-4-2		1010		TPH Gas 8015B <input type="checkbox"/>		X	
MW-4-1		1048		TPH Gas 8015B <input type="checkbox"/>		X	
EB-03 - 4/24/08		1029		TPH Gas 8015B <input type="checkbox"/>		X	
DUPE - 1 - 2008		---		TPH Gas 8015B <input type="checkbox"/>		X	

Report Tier Levels - please select Tier I - (Results/Default if not specified) _____ Tier II - (Results + QC) _____ Tier III - (Data Validation Package) 10% Surcharge _____ Tier V - (client specified) _____		MRL required Yes/No MDL / PQL / J required Yes/ No		EDD required Yes/No Type: <u>catcher</u>		Project Requirements (MRLs, QAPP)	
Relinquished by (Signature) [Signature]		Date 4/24/08		Time 12:56		Received by (Signature) [Signature]	
Relinquished by (Signature) [Signature]		Date 4/24/08		Time 13:06		Received by (Signature) [Signature]	
Relinquished by (Signature) [Signature]		Date 4/24/08		Time 13:50		Received by (Signature) [Signature]	

Temperature 4 °C
 Cooler / Blank / Ice / No Ice

Columbia Analytical Services, Inc.

Chain of Custody Report

Client: Battelle
 Project: JPL Groundwater Monitoring 2Q08/G486090

Service Request: P0801172

Bottle ID	Date	Time	Sample Location / User	Disposed On
P0801172-001.01	04/24/2008	1401	SMO / LKUKITA	
	04/24/2008	1408	P-37 / LKUKITA	
	04/24/2008	1410	In Lab / SANDERSON	
	04/24/2008	1544	P-37 / SANDERSON	
P0801172-002.01	04/24/2008	1401	SMO / LKUKITA	
	04/24/2008	1408	P-37 / LKUKITA	
	04/24/2008	1410	In Lab / SANDERSON	
	04/24/2008	1544	P-37 / SANDERSON	
P0801172-003.01	04/24/2008	1401	SMO / LKUKITA	
	04/24/2008	1408	P-37 / LKUKITA	
	04/24/2008	1410	In Lab / SANDERSON	
	04/24/2008	1544	P-37 / SANDERSON	
P0801172-003.02	04/24/2008	1401	SMO / LKUKITA	
	04/24/2008	1408	P-37 / LKUKITA	
	04/24/2008	1410	In Lab / SANDERSON	
	04/24/2008	1544	P-37 / SANDERSON	
P0801172-004.01	04/24/2008	1401	SMO / LKUKITA	
	04/24/2008	1408	P-37 / LKUKITA	
	04/24/2008	1410	In Lab / SANDERSON	
	04/24/2008	1544	P-37 / SANDERSON	
P0801172-005.01	04/24/2008	1401	SMO / LKUKITA	
	04/24/2008	1408	SUBBED / LKUKITA	
	04/25/2008	1159	K-SAM-67 / AJUELL	
P0801172-005.02	04/24/2008	1401	SMO / LKUKITA	
	04/24/2008	1408	SUBBED / LKUKITA	
	04/25/2008	1159	K-SAM-67 / AJUELL	
	04/30/2008	1752	Custodian / TLEWIS	
	05/01/2008	0752	In Lab / MBLACK	
	05/01/2008	1515	K-SAM-67 / TLEWIS	
P0801172-005.03	04/24/2008	1401	SMO / LKUKITA	
	04/24/2008	1408	P-37 / LKUKITA	
	04/24/2008	1410	In Lab / SANDERSON	
	04/24/2008	1544	P-37 / SANDERSON	
P0801172-006.01	04/24/2008	1401	SMO / LKUKITA	
	04/24/2008	1408	P-37 / LKUKITA	
	04/24/2008	1410	In Lab / SANDERSON	

Columbia Analytical Services, Inc.

Chain of Custody Report

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08/G486090

Service Request: P0801172

Bottle ID	Date	Time	Sample Location / User	Disposed On
P0801172-006.01	04/24/2008	1544	P-37 / SANDERSON	
P0801172-007.01	04/24/2008	1401	SMO / LKUKITA	
	04/24/2008	1408	SUBBED / LKUKITA	
	04/25/2008	1159	K-SAM-67 / AJUELL	
P0801172-007.02	04/24/2008	1401	SMO / LKUKITA	
	04/24/2008	1408	SUBBED / LKUKITA	
	04/25/2008	1159	K-SAM-67 / AJUELL	
	04/30/2008	1752	Custodian / TLEWIS	
	05/01/2008	0752	In Lab / MBLACK	
	05/01/2008	1515	K-SAM-67 / TLEWIS	
P0801172-007.03	04/24/2008	1401	SMO / LKUKITA	
	04/24/2008	1408	P-37 / LKUKITA	
	04/24/2008	1410	In Lab / SANDERSON	
	04/24/2008	1544	P-37 / SANDERSON	

Columbia Analytical Services, Inc.
Sample Acceptance Check Form

Client: Battelle Work order: P0801172
 Project: JPL Groundwater Monitoring 2Q08 / G486090
 Sample(s) received on: 4/24/08 Date opened: 4/24/08 by: LKUKITA

Note: This form is used for all samples received by CAS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

- | | Yes | No | N/A |
|--|-------------------------------------|-------------------------------------|-------------------------------------|
| 1 Were sample containers properly marked with client sample ID? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 Container(s) supplied by CAS ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 Did sample containers arrive in good condition? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 Were chain-of-custody papers used and filled out? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5 Did sample container labels and/or tags agree with custody papers? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6 Was sample volume received adequate for analysis? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7 Are samples within specified holding times? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8 Was proper temperature (thermal preservation) of cooler at receipt adhered to? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Cooler Temperature _____ °C Blank Temperature <u>4</u> °C | | | |
| 9 Was a trip blank received? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Trip blank supplied by CAS: Serial # _____ -TB _____ | | | |
| 10 Were custody seals on outside of cooler/Box? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Location of seal(s)? _____ Sealing Lid? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were custody seals on outside of sample container? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Location of seal(s)? _____ Sealing Lid? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 11 Do containers have appropriate preservation , according to method/SOP or Client specified information? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Is there a client indication that the submitted samples are pH preserved? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were VOA vials checked for presence/absence of air bubbles? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Does the client/method/SOP require that the analyst check the sample pH and <u>if necessary</u> alter it? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 12 Tubes: Are the tubes capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Do they contain moisture? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 13 Badges: Are the badges properly capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Are dual bed badges separated and individually capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/ Absence)	Receipt / Preservation Comments
P0801172-001.01	125mL Plastic NP					
P0801172-002.01	125mL Plastic NP					
P0801172-003.01	125mL Plastic NP					
P0801172-003.02	125mL Plastic NP					
P0801172-004.01	125mL Plastic NP					
P0801172-005.01	1000ml AG NP					
P0801172-005.02	1000ml AG NP					

Explain any discrepancies: (include lab sample ID numbers): _____

*Required pH: Phenols/COD/NH3/TOC/TOX/NO3+NO2/TKN/T.PHOS, H2SO4 (pH<2); Metals, HNO3 (pH<2); CN (NaOH or NaOH/Asc Acid) (pH>12);

Diss. Sulfide, NaOH (pH>12); T. Sulfide, NaOH/ZnAc (pH>12)

RSK - MBEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

DIVIDER SHEET

ANALYTICAL DATA

FOR

Hexavalent Chromium

ANALYSIS

Analytical Report

Client : Battelle
 Project Name : JPL Groundwater Monitoring 2Q08
 Project Number : G486090
 Sample Matrix : WATER

Service Request : P0801172
 Date Collected : 04/24/08
 Date Received : 04/24/08

Chromium, Hexavalent

Prep Method : None
 Analysis Method : 7196A
 Test Notes :

Units : mg/L (ppm)
 Basis : NA

Sample Name	Lab Code	PQL	MDL	Dilution Factor	Date Extracted	Date/Time Analyzed	Result	Result Notes
MW-4-5	P0801172-001	0.010	0.006	1	NA	04/24/08 15:30	ND	
MW-4-4	P0801172-002	0.010	0.006	1	NA	04/24/08 15:30	ND	
MW-4-3	P0801172-003	0.010	0.006	1	NA	04/24/08 15:30	ND	
MW-4-2	P0801172-004	0.010	0.006	1	NA	04/24/08 15:30	ND	
MW-4-1	P0801172-005	0.010	0.006	1	NA	04/24/08 15:30	ND	
EB-03-4/24/08	P0801172-006	0.010	0.006	1	NA	04/24/08 15:30	ND	
DUPE-1-2Q08	P0801172-007	0.010	0.006	1	NA	04/24/08 15:30	ND	
Method Blank	P0801172-MB	0.010	0.006	1	NA	04/24/08 15:30	ND	

Approved By



Date :

5/6/08

DIVIDER SHEET

CAS-KELSO REPORT

ANALYSIS

May 20, 2008

Analytical Report for Service Request No: P0801172

Sue Anderson
Columbia Analytical Services
2655 Park Center Drive
Suite A
Simi Valley, CA 93065

RE: JPL Groundwater Monitoring 2Q08/G486090

Dear Sue:

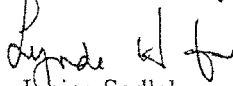
Enclosed are the results of the samples submitted to our laboratory on April 24, 2008. For your reference, these analyses have been assigned our service request number P0801172.

All analyses were performed according to our laboratory's quality assurance program. Where applicable, the methods cited conform to the Methods Update Rule (effective 4/11/2007), which relates to the use of analytical methods for the drinking water and waste water programs. The test results meet requirements of the NELAC standards. Exceptions are noted in the case narrative report where applicable. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3275. You may also contact me via Email at JSedlak@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.



Janice Sedlak
Project Chemist

JS/lb

Page 1 of 132

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- i The MRL/MDL has been elevated due to a matrix interference.
- X See case narrative.

Metals Data Qualifiers

- # The control limit criteria is not applicable. See case narrative.
- B The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- E The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
- M The duplicate injection precision was not met.
- N The Matrix Spike sample recovery is not within control limits. See case narrative.
- S The reported value was determined by the Method of Standard Additions (MSA).
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- W The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
- i The MRL/MDL has been elevated due to a matrix interference.
- X See case narrative.
- * The duplicate analysis not within control limits. See case narrative.
- + The correlation coefficient for the MSA is less than 0.995.

Organic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- A A tentatively identified compound, a suspected aldol-condensation product.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result.
- C The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
- D The reported result is from a dilution.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- N The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
- P The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results (25% for CLP Pesticides).
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- i The MRL/MDL has been elevated due to a chromatographic interference.
- X See case narrative.

Additional Petroleum Hydrocarbon Specific Qualifiers

- F The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
- L The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
- H The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
- O The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
- Y The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
- Z The chromatographic fingerprint does not resemble a petroleum product.

Columbia Analytical Services, Inc.
Kelso, WA
State Certifications, Accreditations, and Licenses

Program	Number
Alaska DEC UST	UST-040
Arizona DHS	AZ0339
Arkansas - DEQ	88-0637
California DHS	2286
Colorado DPHE	-
Florida DOH	E87412
Hawaii DOH	-
Idaho DHW	-
Indiana DOH	C-WA-01
Louisiana DEQ	3016
Louisiana DHH	LA050010
Maine DHS	WA0035
Michigan DEQ	9949
Minnesota DOH	053-999-368
Montana DPHHS	CERT0047
Nevada DEP	WA35
New Jersey DEP	WA005
New Mexico ED	-
North Carolina DWQ	605
Oklahoma DEQ	9801
Oregon - DHS	WA200001
South Carolina DHEC	61002
Utah DOH	COLU
Washington DOE	C1203
Wisconsin DNR	998386840
Wyoming (EPA Region 8)	-



Case Narrative

COLUMBIA ANALYTICAL SERVICES, INC.

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08
Sample Matrix: Water
Service Request No.: P0801172
Date Received: 4/24/2008

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Seven water samples were received for analysis at Columbia Analytical Services on 4/24/2008. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Nitrosamines by EPA Method 521

No anomalies associated with the analysis of these samples were observed.

Approved by LAH Date 5/2/08

**Chain of Custody
Documentation**

Intra-Network Chain of Custody
 2655 Park Center Drive, Suite A • Simi Valley, CA 93065 • 805-526-7161 • FAX 805-526-7270

CAS Contact: Sue Anderson

Project Name: JPL Groundwater Monitoring 2Q08
 Project Number: G486090
 Project Manager: David Conner
 Company: Battelle

Lab Code	Client Sample ID	# of Cont.	Matrix	Sample Date		Send To
				Date	Time	
P0801172-005	MW-4-1	2	Water	04/24/08	1048	KELSO
P0801172-007	DUPE-1-2Q08	2	Water	04/24/08	0000	KELSO

Nitrosamines
521

Test Comments: Nitrosamines - 521 P0801172-005,7 NDMA

Folder Comments:
 Note: EDF files for client's internal data base; LogCode is BAT, do not have Global ID. EDD & pdf of report sent to Betsy Cutie (cutiee@battelle.org) via file share site
<https://fx.battelle.org> For EDF unique spike ids (ex: P0701XXXX01MS or SD)

Special Instructions/Comments		
Turnaround Requirements <input type="checkbox"/> RUSH (Surcharges Apply) PLEASE CIRCLE WORK DAYS <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input checked="" type="checkbox"/> STANDARD Requested FAX Date: _____ Requested Report Date: 05/15/08	Report Requirements <input type="checkbox"/> I. Results Only <input type="checkbox"/> II. Results + QC Summaries <input checked="" type="checkbox"/> III. Results + QC and Calibration Summaries <input type="checkbox"/> IV. Data Validation Report with Raw Data POL/MDL/ EDD N Y Y Y	Invoice Information PO# P0801172 Bill to

Relinquished By: *[Signature]* Received By: *[Signature]* 4/24/08 15:40
 4/24/08 15:40
 Arbitr Number: _____

**Columbia Analytical Services, Inc.
Cooler Receipt and Preservation Form**

PC NA/NA

Client / Project: Cas/Sim Service Request K08 70801172
 Received: 4-25-18 Opened: 4-25-18 By: A.J.

1. Samples were received via? US Mail Fed Ex UPS DHL GH GS PDX Courier Hand Delivered
2. Samples were received in: (circle) Cooler Box Envelope Other _____ NA
3. Were custody seals on coolers? NA Y N If yes, how many and where? _____
 If present, were custody seals intact? Y N If present, were they signed and dated? Y N
4. Is shipper's air-bill filed? If not, record air-bill number: 12914534E11349948373 NA Y N
5. Temperature of cooler(s) upon receipt (°C): 44
 Temperature Blank (°C): -
6. If applicable, list Chain of Custody Numbers: _____
7. Were custody papers properly filled out (ink, signed, etc.)? NA Y N
8. Packing material used. Inserts Baggies Bubble Wrap Gel Packs Wet Ice Sleeves Other _____
9. Did all bottles arrive in good condition (unbroken)? Indicate in the table below. NA Y N
10. Were all sample labels complete (i.e analysis, preservation, etc.)? Y N
11. Did all sample labels and tags agree with custody papers? Indicate in the table below Y N
12. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N
13. Were the pH-preserved bottles tested* received at the appropriate pH? Indicate in the table below NA Y N
14. Were VOA vials and 1631 Mercury bottles received without headspace? Indicate in the table below NA Y N
15. Are CWA Microbiology samples received with >1/2 the 24hr. hold time remaining from collection? NA Y N
16. Was C12/Res negative? NA Y N

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Sample ID	Bottle Count	Bottle Type	Out of Temp	Head-space	Broken	pH	Reagent	Volume added	Reagent Lot Number	Initials

*Does not include all pH preserved sample aliquots received. See sample receiving SOP (SMO-GEN).

Additional Notes, Discrepancies, & Resolutions: _____

Nitrosamines by EPA 521

Organic Analysis:
Nitrosamines by EPA 521

Summary Package

Sample and QC Results

COLUMBIA ANALYTICAL SERVICES, INC.

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08/G486090

Service Request: P0801172

Cover Page - Organic Analysis Data Package
Nitrosamines by EPA 521

Sample Name	Lab Code	Date Collected	Date Received
MW-4-IMS	KWG0804035-1	04/24/2008	04/24/2008
MW-4-IDMS	KWG0804035-2	04/24/2008	04/24/2008
MW-4-1	P0801172-005	04/24/2008	04/24/2008
DUPE-1-2Q08	P0801172-007	04/24/2008	04/24/2008

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the case narrative. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Loren E. Portwood

Name: Loren Portwood

Date: 5/15/08

Title: Supervisor

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Battelle
 Project: JPL Groundwater Monitoring 2Q08/G486090
 Sample Matrix: Water

Service Request: P0801172
 Date Collected: 04/24/2008
 Date Received: 04/24/2008

Nitrosamines by EPA 521

Sample Name: MW-4-1
 Lab Code: P0801172-005
 Extraction Method: METHOD
 Analysis Method: 521

Units: ng/L
 Basis: NA
 Level: Low

Analyte Name	Result Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
N-Nitrosodimethylamine	ND U	2.0	0.75	1	05/01/08	05/05/08	KWG0804035	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
N-Nitrosodimethylamine-d6	108	70-130	05/05/08	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Battelle
 Project: JPL Groundwater Monitoring 2Q08/G486090
 Sample Matrix: Water

Service Request: P0801172
 Date Collected: 04/24/2008
 Date Received: 04/24/2008

Nitrosamines by EPA 521

Sample Name: DUPE-1-2Q08
 Lab Code: P0801172-007
 Extraction Method: METHOD
 Analysis Method: 521

Units: ng/L
 Basis: NA
 Level: Low

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
N-Nitrosodimethylamine	ND	U	2.0	0.75	1	05/01/08	05/05/08	KWG0804035	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
N-Nitrosodimethylamine-d6	96	70-130	05/05/08	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Battelle
 Project: JPL Groundwater Monitoring 2Q08/G486090
 Sample Matrix: Water

Service Request: P0801172
 Date Collected: NA
 Date Received: NA

Nitrosamines by EPA 521

Sample Name: Method Blank
 Lab Code: KWG0804035-4
 Extraction Method: METHOD
 Analysis Method: 521

Units: ng/L
 Basis: NA
 Level: Low

Analyte Name	Result Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
N-Nitrosodimethylamine	ND U	2.0	0.75	1	05/01/08	05/05/08	KWG0804035	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
N-Nitrosodimethylamine-d6	121	70-130	05/05/08	Acceptable

Comments:

CAS SR #P0801219

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LABORATORY REPORT

May 6, 2008

David Conner
Battelle
3990 Old Town Ave., Suite C-205
San Diego, CA 92110

RE: JPL Groundwater Monitoring 2Q08 / G486090

Dear David:

Enclosed are the results of the samples submitted to our laboratory on April 28, 2008. For your reference, these analyses have been assigned our service request number P0801219.

All analyses were performed in accordance with our laboratory's quality assurance program. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein. Your report contains 25 pages.

Columbia Analytical Services, Inc. is certified by the California Department of Health Services, NELAP Laboratory Certificate No. 02115CA; Arizona Department of Health Services, Certificate No. AZ0694; Florida Department of Health, NELAP Certification E871020; New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID #CA009; New York State Department of Health, NELAP NY Lab ID No: 11221; Oregon Environmental Laboratory Accreditation Program, NELAP ID: CA20007; The American Industrial Hygiene Association, Laboratory #101661; Department of the Navy (NFESC); Pennsylvania Registration No. 68-03307. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact me for information corresponding to a particular certification.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

Columbia Analytical Services, Inc.



Sue Anderson
Project Manager

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08 / G486090

CAS Project No: P0801219

CASE NARRATIVE

The samples were received intact under chain of custody on April 28, 2008 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Hexavalent Chromium by EPA Method 7196A

No anomalies were encountered during this analysis.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08/G486090

Service Request: P0801219

SAMPLE CROSS-REFERENCE

<u>SAMPLE #</u>	<u>CLIENT SAMPLE ID</u>	<u>DATE</u>	<u>TIME</u>
P0801219-001	MW-21-5	04/28/08	08:24
P0801219-002	MW-21-4	04/28/08	09:03
P0801219-003	MW-21-3	04/28/08	09:34
P0801219-004	MW-21-2	04/28/08	10:10
P0801219-005	MW-21-1	04/28/08	10:50
P0801219-006	EB-04-4/28/08	04/28/08	10:37

Columbia Analytical Services, Inc.

Acronyms

CA LUFT	California DHS LUFT Method
ASTM	American Society for Testing and Materials
BTEX	Benzene/Toluene/Ethylbenzene/Xylenes
CAS Number	Chemical Abstract Service Registry Number
CFC	Chlorofluorocarbon
CRDL	Contract Required Detection Limit
DLCS	Duplicate Laboratory Control Sample
DMS	Duplicate Matrix Spike
DOH or DHS	Department of Health Services
EPA	U.S. Environmental Protection Agency
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
IC	Ion Chromatography
ICB	Initial Calibration Blank
ICV	Initial Calibration Verification
LCS	Laboratory Control Sample
LUFT	Leaking Underground Fuel Tank
M	Modified Method
MDL	Method Detection Limit
MRL	Method Reporting Limit
MS	Matrix Spike
MTBE	Methyl <i>tert</i> -Butyl Ether
NA	Not Applicable
NC	Not Calculated
ND	None Detected at or above the Method Reporting/Detection Limit (MRL/MDL)
NTU	Nephelometric Turbidity Units
ppb	Parts Per Billion
ppm	Parts Per Million
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SIM	Selected Ion Monitoring
SM	<i>Standard Methods for the Examination of Water and Wastewater</i> , 19th Ed., 1995.
SW	<i>Test Methods for Evaluating Solid Waste, Physical/Chemical Methods</i> SW-846, Third Edition, 1986 and as amended by Updates I, II, IIA, and IIB.
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
TSS	Total Suspended Solids
TTLC	Total Threshold Limit Concentration
VOA	Volatile Organic Analyte(s)
VOC	Volatile Organic Compound(s)

Qualifiers

U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
J	The result is an estimated concentration that is less than the MRL (PQL), but greater than or equal to the MDL.
B	Analyte detected in the method blank above MRL (PQL).
E	Estimated; result based on response which exceeded the instrument calibration range.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
D	The reported result is from a dilution.
X	See case narrative.

Columbia Analytical Services, Inc.

Chain of Custody Report

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08/G486090

Service Request: P0801219

Bottle ID	Date	Time	Sample Location / User	Disposed On
P0801219-001.01	04/28/2008	1328	SMO / LKUKITA	
	04/28/2008	1411	In Lab / DCASTILLO	
	04/28/2008	1705	P-37 / DCASTILLO	
P0801219-002.01	04/28/2008	1328	SMO / LKUKITA	
	04/28/2008	1411	In Lab / DCASTILLO	
	04/28/2008	1705	P-37 / DCASTILLO	
P0801219-003.01	04/28/2008	1328	SMO / LKUKITA	
	04/28/2008	1411	In Lab / DCASTILLO	
	04/28/2008	1705	P-37 / DCASTILLO	
P0801219-004.01	04/28/2008	1328	SMO / LKUKITA	
	04/28/2008	1411	In Lab / DCASTILLO	
	04/28/2008	1705	P-37 / DCASTILLO	
P0801219-005.01	04/28/2008	1328	SMO / LKUKITA	
	04/28/2008	1411	In Lab / DCASTILLO	
	04/28/2008	1705	P-37 / DCASTILLO	
P0801219-006.01	04/28/2008	1328	SMO / LKUKITA	
	04/28/2008	1411	In Lab / DCASTILLO	
	04/28/2008	1705	P-37 / DCASTILLO	

Columbia Analytical Services, Inc.
Sample Acceptance Check Form

Client: Battelle

Work order: P0801219

Project: JPL Groundwater Monitoring 2Q08 / G486090

Sample(s) received on: 4/28/08

Date opened: 4/28/08

by: LKUKITA

Note: This form is used for all samples received by CAS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

- | | Yes | No | N/A |
|--|-------------------------------------|-------------------------------------|-------------------------------------|
| 1 Were sample containers properly marked with client sample ID? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 Container(s) supplied by CAS ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 Did sample containers arrive in good condition? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 Were chain-of-custody papers used and filled out? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5 Did sample container labels and/or tags agree with custody papers? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6 Was sample volume received adequate for analysis? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7 Are samples within specified holding times? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8 Was proper temperature (thermal preservation) of cooler at receipt adhered to? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Cooler Temperature _____ °C Blank Temperature _____ 2 _____ °C | | | |
| 9 Was a trip blank received? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Trip blank supplied by CAS: Serial # _____ -TB _____ | | | |
| 10 Were custody seals on outside of cooler/Box? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Location of seal(s)? _____ Sealing Lid? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were custody seals on outside of sample container? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Location of seal(s)? _____ Sealing Lid? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 11 Do containers have appropriate preservation , according to method/SOP or Client specified information? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Is there a client indication that the submitted samples are pH preserved? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were VOA vials checked for presence/absence of air bubbles? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Does the client/method/SOP require that the analyst check the sample pH and <u>if necessary</u> alter it? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 12 Tubes: Are the tubes capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Do they contain moisture? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 13 Badges: Are the badges properly capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Are dual bed badges separated and individually capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P0801219-001.01	125mL Plastic NP					
P0801219-002.01	125mL Plastic NP					
P0801219-003.01	125mL Plastic NP					
P0801219-004.01	125mL Plastic NP					
P0801219-005.01	125mL Plastic NP					
P0801219-006.01	125mL Plastic NP					

Explain any discrepancies: (include lab sample ID numbers): _____

*Required pH: Phenols/COD/NH3/TOC/TOX/NO3+NO2/TKN/T.PHOS, H2SO4 (pH<2); Metals, HNO3 (pH<2); CN (NaOH or NaOH/Asc Acid) (pH>12);

DIVIDER SHEET

ANALYTICAL DATA
FOR

Hexavalent Chromium

ANALYSIS

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : Battelle
Project Name : JPL Groundwater Monitoring 2Q08
Project Number : G486090
Sample Matrix : WATER

Service Request : P0801219
Date Collected : 04/28/08
Date Received : 04/28/08

Chromium, Hexavalent

Prep Method : None
Analysis Method : 7196A
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	PQL	MDL	Dilution Factor	Date Extracted	Date/Time Analyzed	Result	Result Notes
MW-21-5	P0801219-001	0.010	0.006	1	NA	04/28/08 14:43	ND	
MW-21-4	P0801219-002	0.010	0.006	1	NA	04/28/08 14:43	ND	
MW-21-3	P0801219-003	0.010	0.006	1	NA	04/28/08 14:43	ND	
MW-21-2	P0801219-004	0.010	0.006	1	NA	04/28/08 14:43	ND	
MW-21-1	P0801219-005	0.010	0.006	1	NA	04/28/08 14:43	ND	
EB-04-4/28/08	P0801219-006	0.010	0.006	1	NA	04/28/08 14:43	ND	
Method Blank	P0801219-MB	0.010	0.006	1	NA	04/28/08 14:43	ND	

Approved By



Date :

5/6/08

CAS SR #P0801235

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LABORATORY REPORT

May 7, 2008

David Conner
Battelle
3990 Old Town Ave., Suite C-205
San Diego, CA 92110

RE: JPL Groundwater Monitoring 2Q08 / G486090

Dear David:

Enclosed are the results of the samples submitted to our laboratory on April 29, 2008. For your reference, these analyses have been assigned our service request number P0801235.

All analyses were performed in accordance with our laboratory's quality assurance program. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein. Your report contains 25 pages.

Columbia Analytical Services, Inc. is certified by the California Department of Health Services, NELAP Laboratory Certificate No. 02115CA; Arizona Department of Health Services, Certificate No. AZ0694; Florida Department of Health, NELAP Certification E871020; New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID #CA009; New York State Department of Health, NELAP NY Lab ID No: 11221; Oregon Environmental Laboratory Accreditation Program, NELAP ID: CA20007; The American Industrial Hygiene Association, Laboratory #101661; Department of the Navy (NFESC); Pennsylvania Registration No. 68-03307. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact me for information corresponding to a particular certification.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

Columbia Analytical Services, Inc.



Sue Anderson
Project Manager

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08 / G486090

CAS Project No: P0801235

CASE NARRATIVE

The samples were received intact under chain of custody on April 29, 2008 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Hexavalent Chromium by EPA Method 7196A

No anomalies were encountered during this analysis.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08/G486090

Service Request: P0801235

SAMPLE CROSS-REFERENCE

<u>SAMPLE #</u>	<u>CLIENT SAMPLE ID</u>	<u>DATE</u>	<u>TIME</u>
P0801235-001	MW-19-5	04/29/08	07:43
P0801235-002	MW-19-4	04/29/08	08:18
P0801235-003	MW-19-3	04/29/08	08:53
P0801235-004	MW-19-2	04/29/08	09:25
P0801235-005	MW-19-1	04/29/08	10:07
P0801235-006	EB-05-04/29/08	04/29/08	09:48

Columbia Analytical Services, Inc.

Acronyms

CA LUFT	California DHS LUFT Method
ASTM	American Society for Testing and Materials
BTEX	Benzene/Toluene/Ethylbenzene/Xylenes
CAS Number	Chemical Abstract Service Registry Number
CFC	Chlorofluorocarbon
CRDL	Contract Required Detection Limit
DLCS	Duplicate Laboratory Control Sample
DMS	Duplicate Matrix Spike
DOH or DHS	Department of Health Services
EPA	U.S. Environmental Protection Agency
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
IC	Ion Chromatography
ICB	Initial Calibration Blank
ICV	Initial Calibration Verification
LCS	Laboratory Control Sample
LUFT	Leaking Underground Fuel Tank
M	Modified Method
MDL	Method Detection Limit
MRL	Method Reporting Limit
MS	Matrix Spike
MTBE	Methyl <i>tert</i> -Butyl Ether
NA	Not Applicable
NC	Not Calculated
ND	None Detected at or above the Method Reporting/Detection Limit (MRL/MDL)
NTU	Nephelometric Turbidity Units
ppb	Parts Per Billion
ppm	Parts Per Million
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SIM	Selected Ion Monitoring
SM	<i>Standard Methods for the Examination of Water and Wastewater</i> , 19th Ed., 1995.
SW	<i>Test Methods for Evaluating Solid Waste, Physical/Chemical Methods</i> SW-846, Third Edition, 1986 and as amended by Updates I, II, IIA, and IIB.
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
TSS	Total Suspended Solids
TTLC	Total Threshold Limit Concentration
VOA	Volatile Organic Analyte(s)
VOC	Volatile Organic Compound(s)

Qualifiers

U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
J	The result is an estimated concentration that is less than the MRL (PQL), but greater than or equal to the MDL.
B	Analyte detected in the method blank above MRL (PQL).
E	Estimated; result based on response which exceeded the instrument calibration range.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
D	The reported result is from a dilution.
X	See case narrative.

Columbia Analytical Services, Inc.
 An Employee - Owned Company
 2655 Park Center Drive, Suite A
 Simi Valley, California 93065
 Phone (805) 526-7161
 Fax (805) 526-7270

Requested Turnaround Time in Business Days (Surcharges) please circle
 1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day - Standard

CAS Project No. P0801235
 CAS Contact:

Company Name & Address (Reporting Information)		Project Name		Analysis Method and/or Analytes		Preservative Code		Preservative Key			
BATTLE 3990 OLD DAWN AVE. C-205 SAN DIEGO, CA 92110		JPL GLW MON 2008 Project Number 6486090		0 (796)		0 None		0 None 1 HCL 2 HNO3 3 H2SO4 4 NaOH 5 Zn Acetate 6 Asc Acid 7 Other			
Project Manager DAVID CONNER Phone 619-726-7311 Fax Email Address for Result Reporting		PO # / Billing Information 214319/BATTELLE ATTN: GEROUD TOMPKINS 505 KING AVE. COLUMBUS, OH 43201		Volatile Organics GC/MS 624 <input type="checkbox"/> 8260B <input type="checkbox"/> Oxygenates <input type="checkbox"/> TPH Gas <input type="checkbox"/>		TPH Gas 8015B <input type="checkbox"/> BTEX 8021B <input type="checkbox"/> MTBE 8021B <input type="checkbox"/>		TPH Diesel 8015B <input type="checkbox"/> (Subcontracted) TPH Diesel Low Level 8015B <input type="checkbox"/> (Subcontracted)		TPH FC <input type="checkbox"/> 8015M (Subcontracted)	
Sampler (Print & Sign)		Date Collected		Matrix		Number of Containers		Semi-Volatile Organics GC/MS 625 <input type="checkbox"/> 8270C <input type="checkbox"/> (Subcontracted)		Remarks	
MW-19-5	1	4/29/08	0743	W	1	X					
MW-19-4	2		0818			X					
MW-19-3	3		0853			X					
MW-19-2	4		0925			X					
MW-19-1	5		1007		2	X					MS/MSD
EB-05-04/29/08	6		0948		1	X					EQUIPMENT BLANK

Report Tier Levels - please select
 Tier I - (Results/Default if not specified) _____
 Tier II - (Results + QC) _____
 Tier III - (Data Validation Package) 10% Surcharge _____
 Tier V - (client specified) _____

MRL required Yes / No _____
 MDL / PQL / J required Yes / No _____
 EDD required Yes / No _____
 Type: gentle

Project Requirements (MRLs: GAPP)

Relinquished by: (Signature) _____ Date: 4/29/08 Time: 1700
 Relinquished by: (Signature) _____ Date: 4/29/08 Time: 1230
 Relinquished by: (Signature) _____ Date: 4/29/08 Time: _____

Cooler / Blank / Ice / No Ice _____
 Temperature _____ °C

Columbia Analytical Services, Inc.

Chain of Custody Report

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08/G486090

Service Request: P0801235

Bottle ID	Date	Time	Sample Location / User	Disposed On
P0801235-001.01	04/29/2008	1249	SMO / LKUKITA	
	04/29/2008	1423	In Lab / DCASTILLO	
	04/29/2008	1550	P-37 / DCASTILLO	
P0801235-002.01	04/29/2008	1249	SMO / LKUKITA	
	04/29/2008	1423	In Lab / DCASTILLO	
	04/29/2008	1550	P-37 / DCASTILLO	
P0801235-003.01	04/29/2008	1249	SMO / LKUKITA	
	04/29/2008	1423	In Lab / DCASTILLO	
	04/29/2008	1550	P-37 / DCASTILLO	
P0801235-004.01	04/29/2008	1249	SMO / LKUKITA	
	04/29/2008	1423	In Lab / DCASTILLO	
	04/29/2008	1550	P-37 / DCASTILLO	
P0801235-005.01	04/29/2008	1249	SMO / LKUKITA	
	04/29/2008	1423	In Lab / DCASTILLO	
	04/29/2008	1550	P-37 / DCASTILLO	
P0801235-005.02	04/29/2008	1249	SMO / LKUKITA	
	04/29/2008	1423	In Lab / DCASTILLO	
	04/29/2008	1550	P-37 / DCASTILLO	
P0801235-006.01	04/29/2008	1252	SMO / LKUKITA	
	04/29/2008	1423	In Lab / DCASTILLO	
	04/29/2008	1550	P-37 / DCASTILLO	

Columbia Analytical Services, Inc.
Sample Acceptance Check Form

Client: Battelle Work order: P0801235
 Project: JPL Groundwater Monitoring 2Q08 / G486090
 Sample(s) received on: 4/29/08 Date opened: 4/29/08 by: LKUKITA

Note: This form is used for all samples received by CAS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

- | | Yes | No | N/A |
|--|-------------------------------------|-------------------------------------|-------------------------------------|
| 1 Were sample containers properly marked with client sample ID? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 Container(s) supplied by CAS ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 Did sample containers arrive in good condition? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 Were chain-of-custody papers used and filled out? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5 Did sample container labels and/or tags agree with custody papers? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6 Was sample volume received adequate for analysis? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7 Are samples within specified holding times? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8 Was proper temperature (thermal preservation) of cooler at receipt adhered to? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Cooler Temperature _____ °C Blank Temperature _____ 3 _____ °C | | | |
| 9 Was a trip blank received? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Trip blank supplied by CAS: Serial # _____ -TB _____ | | | |
| 10 Were custody seals on outside of cooler/Box? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Location of seal(s)? _____ Sealing Lid? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were custody seals on outside of sample container? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Location of seal(s)? _____ Sealing Lid? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 11 Do containers have appropriate preservation , according to method/SOP or Client specified information? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Is there a client indication that the submitted samples are pH preserved? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were VOA vials checked for presence/absence of air bubbles? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Does the client/method/SOP require that the analyst check the sample pH and <u>if necessary</u> alter it? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 12 Tubes: Are the tubes capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Do they contain moisture? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 13 Badges: Are the badges properly capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Are dual bed badges separated and individually capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P0801235-001.01	125mL Plastic NP					
P0801235-002.01	125mL Plastic NP					
P0801235-003.01	125mL Plastic NP					
P0801235-004.01	125mL Plastic NP					
P0801235-005.01	125mL Plastic NP					
P0801235-005.02	125mL Plastic NP					
P0801235-006.01	125mL Plastic NP					

Explain any discrepancies: (include lab sample ID numbers): _____

*Required pH: Phenols/COD/NH3/TOC/TOX/NO3+NO2/TKN/T.PHOS, H2SO4 (pH<2); Metals, HNO3 (pH<2); CN (NaOH or NaOH/Asc Acid) (pH>12);

DIVIDER SHEET

RAW DATA FOR

Hexavalent Chromium

ANALYSIS

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : Battelle
Project Name : JPL Groundwater Monitoring 2Q08
Project Number : G486090
Sample Matrix : WATER

Service Request : P0801235
Date Collected : 04/29/08
Date Received : 04/29/08

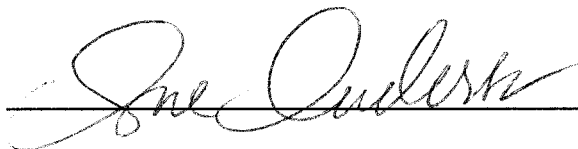
Chromium, Hexavalent

Prep Method : None
Analysis Method : 7196A
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	PQL	MDL	Dilution Factor	Date Extracted	Date/Time Analyzed	Result	Result Notes
MW-19-5	P0801235-001	0.010	0.006	1	NA	04/29/08 15:10	ND	
MW-19-4	P0801235-002	0.010	0.006	1	NA	04/29/08 15:10	ND	
MW-19-3	P0801235-003	0.010	0.006	1	NA	04/29/08 15:10	ND	
MW-19-2	P0801235-004	0.010	0.006	1	NA	04/29/08 15:10	ND	
MW-19-1	P0801235-005	0.010	0.006	1	NA	04/29/08 15:10	ND	
EB-05-04/29/08	P0801235-006	0.010	0.006	1	NA	04/29/08 15:10	ND	
Method Blank	P0801235-MB	0.010	0.006	1	NA	04/29/08 15:10	ND	

Approved By



Date :

5/7/08

CAS SR #P0801261

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LABORATORY REPORT

May 7, 2008

David Conner
Battelle
3990 Old Town Ave., Suite C-205
San Diego, CA 92110

RE: JPL Groundwater Monitoring 2Q08 / G486090

Dear David:

Enclosed are the results of the samples submitted to our laboratory on April 30, 2008. For your reference, these analyses have been assigned our service request number P0801261.

All analyses were performed in accordance with our laboratory's quality assurance program. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein. Your report contains 25 pages.

Columbia Analytical Services, Inc. is certified by the California Department of Health Services, NELAP Laboratory Certificate No. 02115CA; Arizona Department of Health Services, Certificate No. AZ0694; Florida Department of Health, NELAP Certification E871020; New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID #CA009; New York State Department of Health, NELAP NY Lab ID No: 11221; Oregon Environmental Laboratory Accreditation Program, NELAP ID: CA20007; The American Industrial Hygiene Association, Laboratory #101661; Department of the Navy (NFESC); Pennsylvania Registration No. 68-03307. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact me for information corresponding to a particular certification.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

Columbia Analytical Services, Inc.



Sue Anderson
Project Manager

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08 / G486090

CAS Project No: P0801261

CASE NARRATIVE

The samples were received intact under chain of custody on April 30, 2008 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Hexavalent Chromium by EPA Method 7196A

No anomalies were encountered during this analysis.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08/G486090

Service Request: P0801261

SAMPLE CROSS-REFERENCE

<u>SAMPLE #</u>	<u>CLIENT SAMPLE ID</u>	<u>DATE</u>	<u>TIME</u>
P0801261-001	MW-20-5	04/30/08	08:05
P0801261-002	MW-20-4	04/30/08	08:47
P0801261-003	MW-20-3	04/30/08	09:30
P0801261-004	MW-20-2	04/30/08	10:10
P0801261-005	MW-20-1	04/30/08	10:54
P0801261-006	EB-06-4/30/08	04/30/08	10:32

Columbia Analytical Services, Inc.

Acronyms

CA LUFT	California DHS LUFT Method
ASTM	American Society for Testing and Materials
BTEX	Benzene/Toluene/Ethylbenzene/Xylenes
CAS Number	Chemical Abstract Service Registry Number
CFC	Chlorofluorocarbon
CRDL	Contract Required Detection Limit
DLCS	Duplicate Laboratory Control Sample
DMS	Duplicate Matrix Spike
DOH or DHS	Department of Health Services
EPA	U.S. Environmental Protection Agency
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
IC	Ion Chromatography
ICB	Initial Calibration Blank
ICV	Initial Calibration Verification
LCS	Laboratory Control Sample
LUFT	Leaking Underground Fuel Tank
M	Modified Method
MDL	Method Detection Limit
MRL	Method Reporting Limit
MS	Matrix Spike
MTBE	Methyl <i>tert</i> -Butyl Ether
NA	Not Applicable
NC	Not Calculated
ND	None Detected at or above the Method Reporting/Detection Limit (MRL/MDL)
NTU	Nephelometric Turbidity Units
ppb	Parts Per Billion
ppm	Parts Per Million
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SIM	Selected Ion Monitoring
SM	<i>Standard Methods for the Examination of Water and Wastewater</i> , 19th Ed., 1995.
SW	<i>Test Methods for Evaluating Solid Waste, Physical/Chemical Methods</i> SW-846, Third Edition, 1986 and as amended by Updates I, II, IIA, and IIB.
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
TSS	Total Suspended Solids
TTLC	Total Threshold Limit Concentration
VOA	Volatile Organic Analyte(s)
VOC	Volatile Organic Compound(s)

Qualifiers

U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
J	The result is an estimated concentration that is less than the MRL (PQL), but greater than or equal to the MDL.
B	Analyte detected in the method blank above MRL (PQL).
E	Estimated; result based on response which exceeded the instrument calibration range.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
D	The reported result is from a dilution.
X	See case narrative.

Water & Soil - Chain of Custody Record & Analytical Service Request



2655 Park Center Drive, Suite A
Simi Valley, California 93065
Phone (805) 526-7161
Fax (805) 526-7270

Company Name & Address (Reporting Information) BATTELLE 3990 OLD TOWN AVE, C-205 SAN DIEGO, CA 92110		Project Name SPL GW MW 2008		Requested Turnaround Time in Business Days (Surcharges) please circle 1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day - Standard		CAS Project No. 20801261	
Project Manager DAVIDS CONNER		Project Number 648890		Analysis Method and/or Analytes Preservative Code 0		CAS Contact:	
P.O. # / Billing Information 214319 / BATTELLE ATTN: GERALD TOMPKINS 505 KING AVE. COLUMBUS, OH 43201		Sampler (Print & Sign)		Volatile Organics GC/MS 624 <input type="checkbox"/> 8260B <input type="checkbox"/> Oxygenates <input type="checkbox"/> TPH Gas <input type="checkbox"/>		Preservative Key 0 None 1 HCL 2 HNO3 3 H2SO4 4 NaOH 5 Zn Acetate 6 Asc Acid 7 Other	
Email Address for Result Reporting 619-726-7311		Laboratory ID Number		Date Collected		Time Collected	
Client Sample ID		Matrix		Number of Containers		Remarks	
MW-20-5		W		1		X Semi-Volatile Organics GC/MS TPH FC <input type="checkbox"/> 8015M (Subcontracted) TPH Diesel Low Level 8015B <input type="checkbox"/> (Subcontracted) TPH Diesel 8015B <input type="checkbox"/> (Subcontracted) BTEX 8021B <input type="checkbox"/> MTBE 8021B <input type="checkbox"/> TPH Gas 8015B <input type="checkbox"/>	
MW-20-4		W		1		X (7/96)	
MW-20-3		W		1		X (7/96)	
MW-20-2		W		1		X (7/96)	
MW-20-1		W		2		X (7/96)	
EB-06-4/30/08		W		1		X (7/96)	

Report Tier Levels - please select Tier I - (Results/Default if not specified) _____ Tier II - (Results + QC) _____ Tier III - (Data Validation Package) 10% Surcharge _____ Tier V - (client specified) _____		MRL required Yes (No) _____ MDL / PQL / J required Yes/ No _____		EDD required Yes/ No _____ Type: General	
Relinquished by: (Signature) 		Date: 4/30/08		Time: 1200	
Relinquished by: (Signature) 		Date: 4/30/08		Time: 1327	
Relinquished by: (Signature) 		Date: _____		Time: _____	

Project Requirements (MRLs, QAPP) _____
 Cooler/Blank (ice) / No ice _____
 Temperature **3** °C

Columbia Analytical Services, Inc.

Chain of Custody Report

Client: Battelle
 Project: JPL Groundwater Monitoring 2Q08/G486090

Service Request: P0801261

Bottle ID	Date	Time	Sample Location / User	Disposed On
P0801261-001.01	04/30/2008	1341	SMO / LKUKITA	
	04/30/2008	1430	In Lab / DCASTILLO	
	04/30/2008	1650	P-37 / DCASTILLO	
P0801261-002.01	04/30/2008	1341	SMO / LKUKITA	
	04/30/2008	1430	In Lab / DCASTILLO	
	04/30/2008	1650	P-37 / DCASTILLO	
P0801261-003.01	04/30/2008	1341	SMO / LKUKITA	
	04/30/2008	1430	In Lab / DCASTILLO	
	04/30/2008	1650	P-37 / DCASTILLO	
P0801261-004.01	04/30/2008	1341	SMO / LKUKITA	
	04/30/2008	1430	In Lab / DCASTILLO	
	04/30/2008	1650	P-37 / DCASTILLO	
P0801261-005.01	04/30/2008	1341	SMO / LKUKITA	
	04/30/2008	1430	In Lab / DCASTILLO	
	04/30/2008	1650	P-37 / DCASTILLO	
P0801261-005.02	04/30/2008	1341	SMO / LKUKITA	
	04/30/2008	1430	In Lab / DCASTILLO	
	04/30/2008	1649	P-37 / DCASTILLO	
P0801261-006.01	04/30/2008	1341	SMO / LKUKITA	
	04/30/2008	1430	In Lab / DCASTILLO	
	04/30/2008	1650	P-37 / DCASTILLO	

Columbia Analytical Services, Inc.
Sample Acceptance Check Form

Client: Battelle

Work order: P0801261

Project: JPL Groundwater Monitoring 2Q08 / G486090

Sample(s) received on: 4/30/08

Date opened: 4/30/08

by: LKUKITA

Note: This form is used for all samples received by CAS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

- | | | Yes | No | N/A |
|----|--|-------------------------------------|-------------------------------------|-------------------------------------|
| 1 | Were sample containers properly marked with client sample ID? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 | Container(s) supplied by CAS ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 | Did sample containers arrive in good condition? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 | Were chain-of-custody papers used and filled out? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5 | Did sample container labels and/or tags agree with custody papers? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6 | Was sample volume received adequate for analysis? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7 | Are samples within specified holding times? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8 | Was proper temperature (thermal preservation) of cooler at receipt adhered to?
Cooler Temperature _____ °C Blank Temperature <u>3</u> °C | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 9 | Was a trip blank received?
Trip blank supplied by CAS: Serial # _____ -TB _____ | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 10 | Were custody seals on outside of cooler/Box?
Location of seal(s)? _____ Sealing Lid? _____
Were signature and date included? _____
Were seals intact? _____ | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | Were custody seals on outside of sample container?
Location of seal(s)? _____ Sealing Lid? _____
Were signature and date included? _____
Were seals intact? _____ | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 11 | Do containers have appropriate preservation , according to method/SOP or Client specified information?
Is there a client indication that the submitted samples are pH preserved?
Were VOA vials checked for presence/absence of air bubbles?
Does the client/method/SOP require that the analyst check the sample pH and <u>if necessary</u> alter it? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 12 | Tubes: Are the tubes capped and intact?
Do they contain moisture? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 13 | Badges: Are the badges properly capped and intact?
Are dual bed badges separated and individually capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Lab Sample ID	Container Description	Required pH*	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P0801261-001.01	125mL Plastic NP					
P0801261-002.01	125mL Plastic NP					
P0801261-003.01	125mL Plastic NP					
P0801261-004.01	125mL Plastic NP					
P0801261-005.01	125mL Plastic NP					
P0801261-005.02	125mL Plastic NP					
P0801261-006.01	125mL Plastic NP					

Explain any discrepancies: (include lab sample ID numbers): _____

*Required pH: Phenols/COD/NH3/TOC/TOX/NO3+NO2/TKN/T.PHOS, H2SO4 (pH<2); Metals, HNO3 (pH<2); CN (NaOH or NaOH/Asc Acid) (pH>12);

Diss. Sulfide, NaOH (pH>12); T. Sulfide, NaOH/ZnAc (pH>12)

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

DIVIDER SHEET

ANALYTICAL DATA
FOR

Hexavalent Chromium

ANALYSIS

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : Battelle
Project Name : JPL Groundwater Monitoring 2Q08
Project Number : G486090
Sample Matrix : WATER

Service Request : P0801261
Date Collected : 04/30/08
Date Received : 04/30/08

Chromium, Hexavalent

Prep Method : None
Analysis Method : 7196A
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	PQL	MDL	Dilution Factor	Date Extracted	Date/Time Analyzed	Result	Result Notes
MW-20-5	P0801261-001	0.01	0.006	1	NA	04/30/08 15:57	ND	
MW-20-4	P0801261-002	0.01	0.006	1	NA	04/30/08 15:57	ND	
MW-20-3	P0801261-003	0.01	0.006	1	NA	04/30/08 15:57	ND	
MW-20-2	P0801261-004	0.01	0.006	1	NA	04/30/08 15:57	ND	
MW-20-1	P0801261-005	0.01	0.006	1	NA	04/30/08 15:57	ND	
EB-06-4/30/08	P0801261-006	0.01	0.006	1	NA	04/30/08 15:57	ND	
Method Blank	P0801261-MB	0.01	0.006	1	NA	04/30/08 15:57	ND	

Approved By



Date :

5/7/08



CAS SR #P0801271

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LABORATORY REPORT

June 2, 2008

David Conner
Battelle
3990 Old Town Ave., Suite C-205
San Diego, CA 92110

RE: JPL Groundwater Monitoring 2Q08 / G486090

Dear David:

Enclosed are the results of the samples submitted to our laboratory on May 1, 2008. One of the samples was sent out for partial analysis to our Kelso facility. Please find their report attached. For your reference, these analyses have been assigned our service request number P0801271.

All analyses were performed in accordance with our laboratory's quality assurance program. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein. Your report contains 137 pages.

Columbia Analytical Services, Inc. is certified by the California Department of Health Services, NELAP Laboratory Certificate No. 02115CA; Arizona Department of Health Services, Certificate No. AZ0694; Florida Department of Health, NELAP Certification E871020; New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID #CA009; New York State Department of Health, NELAP NY Lab ID No: 11221; Oregon Environmental Laboratory Accreditation Program, NELAP ID: CA20007; The American Industrial Hygiene Association, Laboratory #101661; Department of the Navy (NFESC); Pennsylvania Registration No. 68-03307. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact me for information corresponding to a particular certification.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

Columbia Analytical Services, Inc.



Sue Anderson
Project Manager

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08 / G486090

CAS Project No: P0801271

CASE NARRATIVE

The samples were received intact under chain of custody on May 1, 2008 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Hexavalent Chromium by EPA Method 7196A

No anomalies were encountered during this analysis.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08/G486090

Service Request: P0801271

SAMPLE CROSS-REFERENCE

<u>SAMPLE #</u>	<u>CLIENT SAMPLE ID</u>	<u>DATE</u>	<u>TIME</u>
P0801271-001	MW-17-5	05/01/08	08:00
P0801271-002	MW-17-4	05/01/08	08:36
P0801271-003	MW-17-3	05/01/08	09:54
P0801271-004	MW-17-2	05/01/08	10:30
P0801271-005	MW-17-1	05/01/08	11:05
P0801271-006	EB-07-5/1/08	05/01/08	10:52

Columbia Analytical Services, Inc.

Acronyms

CA LUFT	California DHS LUFT Method
ASTM	American Society for Testing and Materials
BTEX	Benzene/Toluene/Ethylbenzene/Xylenes
CAS Number	Chemical Abstract Service Registry Number
CFC	Chlorofluorocarbon
CRDL	Contract Required Detection Limit
DLCS	Duplicate Laboratory Control Sample
DMS	Duplicate Matrix Spike
DOH or DHS	Department of Health Services
EPA	U.S. Environmental Protection Agency
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
IC	Ion Chromatography
ICB	Initial Calibration Blank
ICV	Initial Calibration Verification
LCS	Laboratory Control Sample
LUFT	Leaking Underground Fuel Tank
M	Modified Method
MDL	Method Detection Limit
MRL	Method Reporting Limit
MS	Matrix Spike
MTBE	Methyl <i>tert</i> -Butyl Ether
NA	Not Applicable
NC	Not Calculated
ND	None Detected at or above the Method Reporting/Detection Limit (MRL/MDL)
NTU	Nephelometric Turbidity Units
ppb	Parts Per Billion
ppm	Parts Per Million
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SIM	Selected Ion Monitoring
SM	<i>Standard Methods for the Examination of Water and Wastewater</i> ; 19th Ed., 1995.
SW	<i>Test Methods for Evaluating Solid Waste, Physical/Chemical Methods</i> ; SW-846, Third Edition, 1986 and as amended by Updates I, II, IIA, and IIB.
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
TSS	Total Suspended Solids
TTLC	Total Threshold Limit Concentration
VOA	Volatile Organic Analyte(s)
VOC	Volatile Organic Compound(s)

Qualifiers

U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
J	The result is an estimated concentration that is less than the MRL (PQL), but greater than or equal to the MDL.
B	Analyte detected in the method blank above MRL (PQL).
E	Estimated; result based on response which exceeded the instrument calibration range.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
D	The reported result is from a dilution.
X	See case narrative.

2655 Park Center Drive, Suite A
 Simi Valley, California 93065
 Phone (805) 526-7161
 Fax (805) 526-7270

Columbia Analytical Services Inc.
 An Employee - Owned Company

Requested Turnaround Time in Business Days (Surcharges) please circle
 1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day - Standard

CAS Project No. RO801271
 CAS Contact:

Analysis Method and/or Analytes

Preservative Code

Preservative Key
 0 None
 1 HCL
 2 HNO3
 3 H2SO4
 4 NaOH
 5 Zn Acetate
 6 Asc Acid
 7 Other

Remarks

624 Volatile Organics GC/MS
 625 Semi-Volatile Organics GC/MS
 8270C (Subcontracted)
 TPH FC 8015M (Subcontracted)
 TPH Diesel 8015B (Subcontracted)
 TPH Diesel Low Level 8015B (Subcontracted)
 BTEX 8021B MTRB 8021B
 TPH Gas 8015B
 8260B Oxygenates TPH Gas

Project Name
 Project Number
 P.O. # / Billing Information
 Project Manager
 Phone
 Fax
 Email Address for Result Reporting
 Sampler (Print & Sign)

Client Sample ID
 Laboratory ID Number
 Date Collected
 Time Collected
 Matrix
 Number of Containers

Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Matrix	Number of Containers	624	625	8270C	TPH FC	TPH Diesel 8015B	TPH Diesel Low Level 8015B	BTEX 8021B	TPH Gas 8015B	MTRB 8021B	TPH Gas	8260B	Oxygenates	TPH Gas	Preservative Code	Preservative Key	Remarks	
MW-17-5	1	5/1/08	800	W	1															0		
MW-17-4	2		836		3															0		
MW-17-3	3		954		1															0		
MW-17-2	4		1030																	0		
MW-17-1	5		1105																	0		LEVEL IV QC
EB-07-5/1/08	6		1052																	0		EQUIPMENT BLANK
2908	410																			0		

Report Tier Levels - please select
 Tier I - (Results/Default if not specified)
 Tier II - (Results + QC)
 Tier III - (Data Validation Package) 10% Surcharge
 Tier V - (client specified)

MRL required Yes / No
 MDL / PQL / J required Yes / No

EDD required Yes / No
 Type: General

Relinquished by: (Signature) [Signature] Date: 5/1/08 Time: 12:00
 Relinquished by: (Signature) [Signature] Date: 5/1/08 Time: 12:55
 Relinquished by: (Signature) [Signature] Date: 5/1/08 Time: 12:55

Project Requirements (MRLs, QAPP)
 Cooler / Blank / Ice No Ice
 Temperature 3 °C

Columbia Analytical Services, Inc.

Chain of Custody Report

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08/G486090

Service Request: P0801271

Bottle ID	Date	Time	Sample Location / User	Disposed On
P0801271-001.01	05/01/2008	1325	SMO / LKUKITA	
	05/01/2008	1459	In Lab / DCASTILLO	
	05/01/2008	1816	P-37 / DCASTILLO	
P0801271-002.01	05/01/2008	1325	SMO / LKUKITA	
	05/01/2008	1358	SUBBED / LKUKITA	
	05/02/2008	1049	K-SAM-43 / AJUELL	
P0801271-002.02	05/01/2008	1325	SMO / LKUKITA	
	05/01/2008	1358	SUBBED / LKUKITA	
	05/02/2008	1049	K-SAM-43 / AJUELL	
	05/15/2008	0836	In Lab / MBLACK	
	05/15/2008	1543	K-SAM-43 / TLEWIS	
P0801271-002.03	05/01/2008	1325	SMO / LKUKITA	
	05/01/2008	1459	In Lab / DCASTILLO	
	05/01/2008	1816	P-37 / DCASTILLO	
P0801271-003.01	05/01/2008	1325	SMO / LKUKITA	
	05/01/2008	1459	In Lab / DCASTILLO	
	05/01/2008	1816	P-37 / DCASTILLO	
P0801271-004.01	05/01/2008	1325	SMO / LKUKITA	
	05/01/2008	1459	In Lab / DCASTILLO	
	05/01/2008	1816	P-37 / DCASTILLO	
P0801271-005.01	05/01/2008	1325	SMO / LKUKITA	
	05/01/2008	1459	In Lab / DCASTILLO	
	05/01/2008	1816	P-37 / DCASTILLO	
P0801271-006.01	05/01/2008	1325	SMO / LKUKITA	
	05/01/2008	1459	In Lab / DCASTILLO	
	05/01/2008	1816	P-37 / DCASTILLO	

Columbia Analytical Services, Inc.
Sample Acceptance Check Form

Client: Battelle

Work order: P0801271

Project: JPL Groundwater Monitoring 2Q08 / G486090

Sample(s) received on: 5/1/08

Date opened: 5/1/08

by: LKUKITA

Note: This form is used for all samples received by CAS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

- | | Yes | No | N/A |
|--|-------------------------------------|-------------------------------------|-------------------------------------|
| 1 Were sample containers properly marked with client sample ID? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 Container(s) supplied by CAS ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 Did sample containers arrive in good condition? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 Were chain-of-custody papers used and filled out? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5 Did sample container labels and/or tags agree with custody papers? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6 Was sample volume received adequate for analysis? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7 Are samples within specified holding times? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8 Was proper temperature (thermal preservation) of cooler at receipt adhered to? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Cooler Temperature _____ °C Blank Temperature _____ 3 _____ °C | | | |
| 9 Was a trip blank received? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Trip blank supplied by CAS: Serial # _____ -TB _____ | | | |
| 10 Were custody seals on outside of cooler/Box? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Location of seal(s)? _____ Sealing Lid? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were custody seals on outside of sample container? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Location of seal(s)? _____ Sealing Lid? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 11 Do containers have appropriate preservation , according to method/SOP or Client specified information? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Is there a client indication that the submitted samples are pH preserved? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were VOA vials checked for presence/absence of air bubbles? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Does the client/method/SOP require that the analyst check the sample pH and <u>if necessary</u> alter it? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 12 Tubes: Are the tubes capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Do they contain moisture? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 13 Badges: Are the badges properly capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Are dual bed badges separated and individually capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P0801271-001.01	125mL Plastic NP					
P0801271-002.01	1000ml AG NP					
P0801271-002.02	1000ml AG NP					
P0801271-002.03	125mL Plastic NP					
P0801271-003.01	125mL Plastic NP					
P0801271-004.01	125mL Plastic NP					
P0801271-005.01	125mL Plastic NP					

Explain any discrepancies: (include lab sample ID numbers): _____

*Required pH: Phenols/COD/NH3/TOC/TOX/NO3+NO2/TKN/T.PHOS, H2SO4 (pH<2); Metals, HNO3 (pH<2); CN (NaOH or NaOH/Asc Acid) (pH>12);

DIVIDER SHEET

ANALYTICAL DATA
FOR

Hexavalent Chromium

ANALYSIS

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : Battelle
Project Name : JPL Groundwater Monitoring 2Q08
Project Number : G486090
Sample Matrix : WATER

Service Request : P0801271
Date Collected : 05/01/08
Date Received : 05/01/08

Chromium, Hexavalent

Prep Method : None
Analysis Method : 7196A
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	PQL	MDL	Dilution Factor	Date Extracted	Date/Time Analyzed	Result	Result Notes
MW-17-5	P0801271-001	0.01	0.006	1	NA	05/01/08 16:08	ND	
MW-17-4	P0801271-002	0.01	0.006	1	NA	05/01/08 16:08	ND	
MW-17-3	P0801271-003	0.01	0.006	1	NA	05/01/08 16:08	ND	
MW-17-2	P0801271-004	0.01	0.006	1	NA	05/01/08 16:08	ND	
MW-17-1	P0801271-005	0.01	0.006	1	NA	05/01/08 16:08	ND	
EB-07-5/1/08	P0801271-006	0.01	0.006	1	NA	05/01/08 16:08	ND	
Method Blank	P0801271-MB	0.01	0.006	1	NA	05/01/08 16:08	ND	

Approved By



Date :

5/9/08

DIVIDER SHEET

CAS-KELSO REPORT

ANALYSIS

June 3, 2008

Analytical Report for Service Request No: P0801271

Sue Anderson
Columbia Analytical Services
2655 Park Center Drive
Suite A
Simi Valley, CA 93065-6209

RE: JPL Groundwater Monitoring 2Q08/G486090

Dear Sue:


Enclosed are the results of the samples submitted to our laboratory on May 01, 2008. For your reference, these analyses have been assigned our service request number P0801271.

All analyses were performed according to our laboratory's quality assurance program. Where applicable, the methods cited conform to the Methods Update Rule (effective 4/11/2007), which relates to the use of analytical methods for the drinking water and waste water programs. The test results meet requirements of the NELAC standards. Exceptions are noted in the case narrative report where applicable. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3280. You may also contact me via Email at LKennedy@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.



Les Kennedy
Project Chemist

LK/ds

Page 1 of _____

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- i The MRL/MDL has been elevated due to a matrix interference.
- X See case narrative.

Metals Data Qualifiers

- # The control limit criteria is not applicable. See case narrative.
- B The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- E The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
- M The duplicate injection precision was not met.
- N The Matrix Spike sample recovery is not within control limits. See case narrative.
- S The reported value was determined by the Method of Standard Additions (MSA).
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- W The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
- i The MRL/MDL has been elevated due to a matrix interference.
- X See case narrative.
- * The duplicate analysis not within control limits. See case narrative.
- + The correlation coefficient for the MSA is less than 0.995.

Organic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- A A tentatively identified compound, a suspected aldol-condensation product.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result.
- C The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
- D The reported result is from a dilution.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- N The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
- P The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results (25% for CLP Pesticides).
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- i The MRL/MDL has been elevated due to a chromatographic interference.
- X See case narrative.

Additional Petroleum Hydrocarbon Specific Qualifiers

- F The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
- L The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
- H The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
- O The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
- Y The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
- Z The chromatographic fingerprint does not resemble a petroleum product.

Columbia Analytical Services, Inc.
Kelso, WA
State Certifications, Accreditations, and Licenses

Program	Number
Alaska DEC UST	UST-040
Arizona DHS	AZ0339
Arkansas - DEQ	88-0637
California DHS	2286
Colorado DPHE	-
Florida DOH	E87412
Hawaii DOH	-
Idaho DHW	-
Indiana DOH	C-WA-01
Louisiana DEQ	3016
Louisiana DHH	LA050010
Maine DHS	WA0035
Michigan DEQ	9949
Minnesota DOH	053-999-368
Montana DPHHS	CERT0047
Nevada DEP	WA35
New Jersey DEP	WA005
New Mexico ED	-
North Carolina DWQ	605
Oklahoma DEQ	9801
Oregon - DHS	WA200001
South Carolina DHEC	61002
Utah DOH	COLU
Washington DOE	C1203
Wisconsin DNR	998386840
Wyoming (EPA Region 8)	-

COLUMBIA ANALYTICAL SERVICES, INC.

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08 / G486090
Sample Matrix: Water
Service Request No.: P0801271
Date Received: 5/1/08

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

One water sample received for analysis at Columbia Analytical Services, Simi Valley laboratory on 5/1/08 was forwarded and received in the Kelso laboratory on 5/2/08 in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Nitrosamines by EPA Method 521

Matrix Spike (MS) Recovery Exceptions:

The matrix spike recovery of N-Nitrosodimethylamine for sample Batch QCMS and Batch QCDMS was outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicates the analytical batch was in control. The matrix spike outlier suggests a potential low bias in this matrix. No further corrective action was appropriate.

Approved by W Date 6/3/08

Intra-Network Chain of Custody
 2655 Park Center Drive, Suite A • Simi Valley, CA 93065 • 805-526-7161 • FAX 805-526-7270

CAS Contact: Sue Anderson **33**

Project Name: JPL Groundwater Monitoring 2008
 Project Number: G486090
 Project Manager: David Conner
 Company: Battelle

Lab Code	Client Sample ID	# of Cont.	Matrix	Sample Date			Send To	Nitrosamines 521
				Date	Time	Received		
P0801271-002	MW-17-4	2	Water	05/01/08	0836	05/01/08	KELSO	III

Test Comments: Nitrosamines - 521 P0801271-002 NDMA

Special Instructions/Comments		
Turnaround Requirements <input type="checkbox"/> RUSH (Surcharges Apply) PLEASE CIRCLE WORK DAYS 1 2 3 4 5 <input type="checkbox"/> STANDARD Requested FAX Date: _____ Requested Report Date: 05/18/08	Report Requirements <input type="checkbox"/> I. Results Only <input type="checkbox"/> II. Results + QC Summaries <input checked="" type="checkbox"/> III. Results + QC and Calibration Summaries <i>Full Data Package</i> <input type="checkbox"/> IV. Data Validation Report with Raw Data POL/MDL/ EDD <input type="checkbox"/> N <input type="checkbox"/> Y	Invoice Information PO# P0801271 Bill to

Relinquished By: *[Signature]* Received By: *[Signature]* Airbill Number: _____
 5/1/08 10:30 AM

Columbia Analytical Services, Inc.
Cooler Receipt and Preservation Form

PCWS

Client / Project: Simi Valley Service Request K08 PO801271
 Received: 5/2/08 Opened: 5/2/08 By: [Signature]

1. Samples were received via? US Mail Fed Ex UPS DHL GH GS PDX Courier Hand Delivered
2. Samples were received in: (circle) Cooler Box Envelope Other _____ NA
3. Were custody seals on coolers? NA N If yes, how many and where? 1F
 If present, were custody seals intact? N If present, were they signed and dated? N
4. Is shipper's air-bill filed? If not, record air-bill number: 129653E11351392049 NA Y N
5. Temperature of cooler(s) upon receipt (°C): 3.2
 Temperature Blank (°C): N/A
6. If applicable, list Chain of Custody Numbers: _____
7. Were custody papers properly filled out (ink, signed, etc.)? NA N
8. Packing material used. Inserts Baggies Bubble Wrap Gel Packs Wet Ice Sleeves Other _____
9. Did all bottles arrive in good condition (unbroken)? Indicate in the table below. NA N
10. Were all sample labels complete (i.e analysis, preservation, etc.)? N
11. Did all sample labels and tags agree with custody papers? Indicate in the table below. N
12. Were appropriate bottles/containers and volumes received for the tests indicated? NA N
13. Were the pH-preserved bottles tested* received at the appropriate pH? Indicate in the table below. Y N
14. Were VOA vials and 1631 Mercury bottles received without headspace? Indicate in the table below. Y N
15. Are CWA Microbiology samples received with >1/2 the 24hr. hold time remaining from collection? Y N
16. Was C12/Res negative? Y N

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Sample ID	Bottle Count	Bottle Type	Out of Temp	Head-space	Broken	pH	Reagent	Volume added	Reagent Lot Number	Initials

*Does not include all pH preserved sample aliquots received. See sample receiving SOP (SMO-GEN).

Additional Notes, Discrepancies, & Resolutions: _____

Organic Analysis:
Nitrosamines by EPA 521

Summary Package

Sample and QC Results

COLUMBIA ANALYTICAL SERVICES, INC.

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08/G486090

Service Request: P0801271

Cover Page - Organic Analysis Data Package
Nitrosamines by EPA 521

Sample Name	Lab Code	Date Collected	Date Received
MW-17-4	P0801271-002	05/01/2008	05/01/2008

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the case narrative. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Tom A. Patwood

Name: Tom A. Patwood

Date: 5/28/08

Title: Supervisor

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08/G486090
Sample Matrix: Water

Service Request: P0801271
Date Collected: 05/01/2008
Date Received: 05/01/2008

Nitrosamines by EPA 521

Sample Name: MW-17-4
Lab Code: P0801271-002
Extraction Method: METHOD
Analysis Method: 521

Units: ng/L
Basis: NA
Level: Low

Analyte Name	Result Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
N-Nitrosodimethylamine	ND U	2.0	1.4	1	05/15/08	05/22/08	KWG0804492	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
N-Nitrosodimethylamine-d6	96	70-130	05/22/08	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08/G486090
Sample Matrix: Water

Service Request: P0801271
Date Collected: NA
Date Received: NA

Nitrosamines by EPA 521

Sample Name: Method Blank
Lab Code: KWG0804492-4
Extraction Method: METHOD
Analysis Method: 521

Units: ng/L
Basis: NA
Level: Low

Analyte Name	Result Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
N-Nitrosodimethylamine	ND U	2.0	1.4	1	05/15/08	05/22/08	KWG0804492	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
N-Nitrosodimethylamine-d6	82	70-130	05/22/08	Acceptable

Comments: _____

CAS SR #P0801299

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LABORATORY REPORT

May 9, 2008

David Conner
Battelle
3990 Old Town Ave., Suite C-205
San Diego, CA 92110

RE: JPL Groundwater Monitoring 2Q08 / G486090

Dear David:

Enclosed are the results of the samples submitted to our laboratory on May 5, 2008. For your reference, these analyses have been assigned our service request number P0801299.

All analyses were performed in accordance with our laboratory's quality assurance program. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein. Your report contains 24 pages.

Columbia Analytical Services, Inc. is certified by the California Department of Health Services, NELAP Laboratory Certificate No. 02115CA; Arizona Department of Health Services, Certificate No. AZ0694; Florida Department of Health, NELAP Certification E871020; New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID #CA009; New York State Department of Health, NELAP NY Lab ID No: 11221; Oregon Environmental Laboratory Accreditation Program, NELAP ID: CA20007; The American Industrial Hygiene Association, Laboratory #101661; Department of the Navy (NFESC); Pennsylvania Registration No. 68-03307. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact me for information corresponding to a particular certification.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

Columbia Analytical Services, Inc.



Sue Anderson
Project Manager

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08 / G486090

CAS Project No: P0801299

CASE NARRATIVE

The samples were received intact under chain of custody on May 5, 2008 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Hexavalent Chromium by EPA Method 7196A

No anomalies were encountered during this analysis.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08/G486090

Service Request: P0801299

SAMPLE CROSS-REFERENCE

<u>SAMPLE #</u>	<u>CLIENT SAMPLE ID</u>	<u>DATE</u>	<u>TIME</u>
P0801299-001	MW-18-5	05/05/08	08:15
P0801299-002	MW-18-4	05/05/08	08:55
P0801299-003	MW-18-3	05/05/08	09:33
P0801299-004	MW-18-2	05/05/08	10:13
P0801299-005	MW-18-1	05/05/08	10:59
P0801299-006	EB-08-05/05/08	05/05/08	10:39
P0801299-007	DUPE-2-2Q08	05/05/08	00:00

Columbia Analytical Services, Inc.

Acronyms

CA LUFT	California DHS LUFT Method
ASTM	American Society for Testing and Materials
BTEX	Benzene/Toluene/Ethylbenzene/Xylenes
CAS Number	Chemical Abstract Service Registry Number
CFC	Chlorofluorocarbon
CRDL	Contract Required Detection Limit
DLCS	Duplicate Laboratory Control Sample
DMS	Duplicate Matrix Spike
DOH or DHS	Department of Health Services
EPA	U.S. Environmental Protection Agency
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
IC	Ion Chromatography
ICB	Initial Calibration Blank
ICV	Initial Calibration Verification
LCS	Laboratory Control Sample
LUFT	Leaking Underground Fuel Tank
M	Modified Method
MDL	Method Detection Limit
MRL	Method Reporting Limit
MS	Matrix Spike
MTBE	Methyl <i>tert</i> -Butyl Ether
NA	Not Applicable
NC	Not Calculated
ND	None Detected at or above the Method Reporting/Detection Limit (MRL/MDL)
NTU	Nephelometric Turbidity Units
ppb	Parts Per Billion
ppm	Parts Per Million
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SIM	Selected Ion Monitoring
SM	<i>Standard Methods for the Examination of Water and Wastewater</i> , 19th Ed., 1995.
SW	<i>Test Methods for Evaluating Solid Waste, Physical/Chemical Methods</i> SW-846, Third Edition, 1986 and as amended by Updates I, II, IIA, and IIB.
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
TSS	Total Suspended Solids
TTLC	Total Threshold Limit Concentration
VOA	Volatile Organic Analyte(s)
VOC	Volatile Organic Compound(s)

Qualifiers

U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
J	The result is an estimated concentration that is less than the MRL (PQL), but greater than or equal to the MDL.
B	Analyte detected in the method blank above MRL (PQL).
E	Estimated; result based on response which exceeded the instrument calibration range.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
D	The reported result is from a dilution.
X	See case narrative.

Columbia Analytical Services, Inc.

Chain of Custody Report

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08/G486090

Service Request: P0801299

Bottle ID	Date	Time	Sample Location / User	Disposed On
P0801299-001.01	05/05/2008	1256	SMO / LKUKITA	
	05/05/2008	1307	In Lab / DCASTILLO	
	05/05/2008	1454	P-37 / DCASTILLO	
P0801299-002.01	05/05/2008	1256	SMO / LKUKITA	
	05/05/2008	1307	In Lab / DCASTILLO	
	05/05/2008	1454	P-37 / DCASTILLO	
P0801299-003.01	05/05/2008	1256	SMO / LKUKITA	
	05/05/2008	1307	In Lab / DCASTILLO	
	05/05/2008	1454	P-37 / DCASTILLO	
P0801299-004.01	05/05/2008	1256	SMO / LKUKITA	
	05/05/2008	1307	In Lab / DCASTILLO	
	05/05/2008	1454	P-37 / DCASTILLO	
P0801299-005.01	05/05/2008	1256	SMO / LKUKITA	
	05/05/2008	1307	In Lab / DCASTILLO	
	05/05/2008	1453	P-37 / DCASTILLO	
P0801299-006.01	05/05/2008	1257	SMO / LKUKITA	
	05/05/2008	1307	In Lab / DCASTILLO	
	05/05/2008	1453	P-37 / DCASTILLO	
P0801299-007.01	05/05/2008	1257	SMO / LKUKITA	
	05/05/2008	1307	In Lab / DCASTILLO	
	05/05/2008	1453	P-37 / DCASTILLO	

Columbia Analytical Services, Inc.
Sample Acceptance Check Form

Client: Battelle Work order: P0801299
 Project: JPL Groundwater Monitoring 2Q08 / G486090
 Sample(s) received on: 5/5/08 Date opened: 5/5/08 by: LKUKITA

Note: This form is used for all samples received by CAS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

- | | Yes | No | N/A |
|--|-------------------------------------|-------------------------------------|-------------------------------------|
| 1 Were sample containers properly marked with client sample ID? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 Container(s) supplied by CAS ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 Did sample containers arrive in good condition? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 Were chain-of-custody papers used and filled out? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5 Did sample container labels and/or tags agree with custody papers? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6 Was sample volume received adequate for analysis? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7 Are samples within specified holding times? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8 Was proper temperature (thermal preservation) of cooler at receipt adhered to? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Cooler Temperature _____ °C Blank Temperature <u>3</u> °C | | | |
| 9 Was a trip blank received? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Trip blank supplied by CAS: Serial # _____ -TB _____ | | | |
| 10 Were custody seals on outside of cooler/Box? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Location of seal(s) _____ Sealing Lid? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were custody seals on outside of sample container? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Location of seal(s) _____ Sealing Lid? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 11 Do containers have appropriate preservation , according to method/SOP or Client specified information? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Is there a client indication that the submitted samples are pH preserved? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were VOA vials checked for presence/absence of air bubbles? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Does the client/method/SOP require that the analyst check the sample pH and <u>if necessary</u> alter it? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 12 Tubes: Are the tubes capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Do they contain moisture? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 13 Badges: Are the badges properly capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Are dual bed badges separated and individually capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Lab Sample ID	Container Description	Required pH*	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P0801299-001.01	125mL Plastic NP					
P0801299-002.01	125mL Plastic NP					
P0801299-003.01	125mL Plastic NP					
P0801299-004.01	125mL Plastic NP					
P0801299-005.01	125mL Plastic NP					
P0801299-006.01	125mL Plastic NP					
P0801299-007.01	125mL Plastic NP					

Explain any discrepancies: (include lab sample ID numbers): _____

*Required pH: Phenols/COD/NH3/TOC/TOX/NO3+NO2/TKN/T.PHOS, H2SO4 (pH<2); Metals, HNO3 (pH<2); CN (NaOH or NaOH/Asc Acid) (pH>12);

DIVIDER SHEET

ANALYTICAL DATA
FOR

Hexavalent Chromium

ANALYSIS

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : Battelle
Project Name : JPL Groundwater Monitoring 2Q08
Project Number : G486090
Sample Matrix : WATER


Service Request : P0801299
Date Collected : 05/05/08
Date Received : 05/05/08

Chromium, Hexavalent

Prep Method : None
Analysis Method : 7196A
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	PQL	MDL	Dilution Factor	Date Extracted	Date/Time Analyzed	Result	Result Notes
MW-18-5	P0801299-001	0.010	0.006	1	NA	05/05/08 14:15	ND	
MW-18-4	P0801299-002	0.010	0.006	1	NA	05/05/08 14:15	ND	
MW-18-3	P0801299-003	0.010	0.006	1	NA	05/05/08 14:15	ND	
MW-18-2	P0801299-004	0.010	0.006	1	NA	05/05/08 14:15	ND	
MW-18-1	P0801299-005	0.010	0.006	1	NA	05/05/08 14:15	ND	
EB-08-05/05/08	P0801299-006	0.010	0.006	1	NA	05/05/08 14:15	ND	
DUPE-2-2Q08	P0801299-007	0.010	0.006	1	NA	05/05/08 14:15	ND	
Method Blank	P0801299-MB	0.010	0.006	1	NA	05/05/08 14:15	ND	

Approved By  Date : 5/9/08

CAS SR #P0801314

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LABORATORY REPORT

May 9, 2008

David Conner
Battelle
3990 Old Town Ave., Suite C-205
San Diego, CA 92110

RE: JPL Groundwater Monitoring 2Q08 / G486090

Dear David:

Enclosed are the results of the samples submitted to our laboratory on May 6, 2008. For your reference, these analyses have been assigned our service request number P0801314.

All analyses were performed in accordance with our laboratory's quality assurance program. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein. Your report contains 24 pages.

Columbia Analytical Services, Inc. is certified by the California Department of Health Services, NELAP Laboratory Certificate No. 02115CA; Arizona Department of Health Services, Certificate No. AZ0694; Florida Department of Health, NELAP Certification E871020; New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID #CA009; New York State Department of Health, NELAP NY Lab ID No: 11221; Oregon Environmental Laboratory Accreditation Program, NELAP ID: CA20007; The American Industrial Hygiene Association, Laboratory #101661; Department of the Navy (NFESC); Pennsylvania Registration No. 68-03307. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact me for information corresponding to a particular certification.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

Columbia Analytical Services, Inc.



Sue Anderson
Project Manager

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08 / G486090

CAS Project No: P0801314

CASE NARRATIVE

The samples were received intact under chain of custody on May 6, 2008 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Hexavalent Chromium by EPA Method 7196A

No anomalies were encountered during this analysis.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08/G486090

Service Request: P0801314

SAMPLE CROSS-REFERENCE

<u>SAMPLE #</u>	<u>CLIENT SAMPLE ID</u>	<u>DATE</u>	<u>TIME</u>
P0801314-001	MW-3-5	05/06/08	08:08
P0801314-002	MW-3-4	05/06/08	08:49
P0801314-003	MW-3-3	05/06/08	09:35
P0801314-004	MW-3-2	05/06/08	10:15
P0801314-005	MW-3-1	05/06/08	10:55
P0801314-006	EB-09-05/06/08	05/06/08	10:37

Columbia Analytical Services, Inc.

Acronyms

CA LUFT	California DHS LUFT Method
ASTM	American Society for Testing and Materials
BTEX	Benzene/Toluene/Ethylbenzene/Xylenes
CAS Number	Chemical Abstract Service Registry Number
CFC	Chlorofluorocarbon
CRDL	Contract Required Detection Limit
DLCS	Duplicate Laboratory Control Sample
DMS	Duplicate Matrix Spike
DOH or DHS	Department of Health Services
EPA	U.S. Environmental Protection Agency
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
IC	Ion Chromatography
ICB	Initial Calibration Blank
ICV	Initial Calibration Verification
LCS	Laboratory Control Sample
LUFT	Leaking Underground Fuel Tank
M	Modified Method
MDL	Method Detection Limit
MRL	Method Reporting Limit
MS	Matrix Spike
MTBE	Methyl <i>tert</i> -Butyl Ether
NA	Not Applicable
NC	Not Calculated
ND	None Detected at or above the Method Reporting/Detection Limit (MRL/MDL)
NTU	Nephelometric Turbidity Units
ppb	Parts Per Billion
ppm	Parts Per Million
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SIM	Selected Ion Monitoring
SM	<i>Standard Methods for the Examination of Water and Wastewater</i> , 19th Ed., 1995.
SW	<i>Test Methods for Evaluating Solid Waste, Physical/Chemical Methods</i> SW-846, Third Edition, 1986 and as amended by Updates I, II, IIA, and IIB.
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
TSS	Total Suspended Solids
TTLIC	Total Threshold Limit Concentration
VOA	Volatile Organic Analyte(s)
VOC	Volatile Organic Compound(s)

Qualifiers

U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
J	The result is an estimated concentration that is less than the MRL (PQL), but greater than or equal to the MDL.
B	Analyte detected in the method blank above MRL (PQL).
E	Estimated; result based on response which exceeded the instrument calibration range.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
D	The reported result is from a dilution.
X	See case narrative.

Columbia Analytical Services, Inc.

Chain of Custody Report

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08/G486090

Service Request: P0801314

Bottle ID	Date	Time	Sample Location / User	Disposed On
P0801314-001.01	05/06/2008	1339	SMO / LKUKITA	
	05/06/2008	1345	In Lab / DCASTILLO	
	05/06/2008	1518	P-37 / DCASTILLO	
P0801314-002.01	05/06/2008	1339	SMO / LKUKITA	
	05/06/2008	1345	In Lab / DCASTILLO	
	05/06/2008	1517	P-37 / DCASTILLO	
P0801314-003.01	05/06/2008	1339	SMO / LKUKITA	
	05/06/2008	1345	In Lab / DCASTILLO	
	05/06/2008	1517	P-37 / DCASTILLO	
P0801314-004.01	05/06/2008	1339	SMO / LKUKITA	
	05/06/2008	1345	In Lab / DCASTILLO	
	05/06/2008	1518	P-37 / DCASTILLO	
P0801314-005.01	05/06/2008	1339	SMO / LKUKITA	
	05/06/2008	1345	In Lab / DCASTILLO	
	05/06/2008	1518	P-37 / DCASTILLO	
P0801314-005.02	05/06/2008	1339	SMO / LKUKITA	
	05/06/2008	1345	In Lab / DCASTILLO	
	05/06/2008	1517	P-37 / DCASTILLO	
P0801314-006.01	05/06/2008	1339	SMO / LKUKITA	
	05/06/2008	1345	In Lab / DCASTILLO	
	05/06/2008	1518	P-37 / DCASTILLO	

Columbia Analytical Services, Inc.
Sample Acceptance Check Form

Client: Battelle

Work order: P0801314

Project: JPL Groundwater Monitoring 2Q08 / G486090

Sample(s) received on: 5/6/08

Date opened: 5/6/08

by: LKUKITA

Note: This form is used for all samples received by CAS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

- | | | Yes | No | N/A |
|----|--|-------------------------------------|-------------------------------------|-------------------------------------|
| 1 | Were sample containers properly marked with client sample ID? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 | Container(s) supplied by CAS ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 | Did sample containers arrive in good condition? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 | Were chain-of-custody papers used and filled out? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 5 | Did sample container labels and/or tags agree with custody papers? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6 | Was sample volume received adequate for analysis? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7 | Are samples within specified holding times? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8 | Was proper temperature (thermal preservation) of cooler at receipt adhered to?
Cooler Temperature _____ °C Blank Temperature <u>3</u> °C | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 9 | Was a trip blank received?
Trip blank supplied by CAS: Serial # _____ -TB _____ | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 10 | Were custody seals on outside of cooler/Box?
Location of seal(s) _____ Sealing Lid?
Were signature and date included?
Were seals intact? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | Were custody seals on outside of sample container?
Location of seal(s) _____ Sealing Lid?
Were signature and date included?
Were seals intact? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 11 | Do containers have appropriate preservation , according to method/SOP or Client specified information?
Is there a client indication that the submitted samples are pH preserved?
Were VOA vials checked for presence/absence of air bubbles?
Does the client/method/SOP require that the analyst check the sample pH and <u>if necessary</u> alter it? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 12 | Tubes: Are the tubes capped and intact?
Do they contain moisture? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 13 | Badges: Are the badges properly capped and intact?
Are dual bed badges separated and individually capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P0801314-001.01	125mL Plastic NP					
P0801314-002.01	125mL Plastic NP					
P0801314-003.01	125mL Plastic NP					
P0801314-004.01	125mL Plastic NP					
P0801314-005.01	125mL Plastic NP					
P0801314-005.02	125mL Plastic NP					
P0801314-006.01	125mL Plastic NP					

Explain any discrepancies: (include lab sample ID numbers): _____
 No sampling time noted on the COC for -005 & -006; time taken from sample labels and noted on the COC by the lab.

*Required pH: Phenols/COD/NH3/TOC/TOX/NO3+NO2/TKN/T.PHOS, H2SO4 (pH<2); Metals, HNO3 (pH<2); CN (NaOH or NaOH/Asc Acid) (pH>12);

Diss. Sulfide, NaOH (pH>12); T. Sulfide, NaOH/ZnAc (pH>12)

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

DIVIDER SHEET

ANALYTICAL DATA
FOR

Hexavalent Chromium

ANALYSIS

Analytical Report

Client : Battelle
 Project Name : JPL Groundwater Monitoring 2Q08
 Project Number : G486090
 Sample Matrix : WATER

Service Request : P0801314
 Date Collected : 05/06/08
 Date Received : 05/06/08

Chromium, Hexavalent

Prep Method : None
 Analysis Method : 7196A
 Test Notes :

Units : mg/L (ppm)
 Basis : NA

Sample Name	Lab Code	PQL	MDL	Dilution Factor	Date Extracted	Date/Time Analyzed	Result	Result Notes
MW-3-5	P0801314-001	0.010	0.006	1	NA	05/06/08 14:25	ND	
MW-3-4	P0801314-002	0.010	0.006	1	NA	05/06/08 14:25	ND	
MW-3-3	P0801314-003	0.010	0.006	1	NA	05/06/08 14:25	ND	
MW-3-2	P0801314-004	0.010	0.006	1	NA	05/06/08 14:25	ND	
MW-3-1	P0801314-005	0.010	0.006	1	NA	05/06/08 14:25	ND	
EB-09-05/06/08	P0801314-006	0.010	0.006	1	NA	05/06/08 14:25	ND	
Method Blank	P0801314-MB	0.010	0.006	1	NA	05/06/08 14:25	ND	

Approved By 

Date : 5/9/08

CAS SR #P0801329

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LABORATORY REPORT

May 9, 2008

David Conner
Battelle
3990 Old Town Ave., Suite C-205
San Diego, CA 92110

RE: JPL Groundwater Monitoring 2Q08 / G486090

Dear David:

Enclosed are the results of the samples submitted to our laboratory on May 7, 2008. For your reference, these analyses have been assigned our service request number P0801329.

All analyses were performed in accordance with our laboratory's quality assurance program. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein. Your report contains 24 pages.

Columbia Analytical Services, Inc. is certified by the California Department of Health Services, NELAP Laboratory Certificate No. 02115CA; Arizona Department of Health Services, Certificate No. AZ0694; Florida Department of Health, NELAP Certification E871020; New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID #CA009; New York State Department of Health, NELAP NY Lab ID No: 11221; Oregon Environmental Laboratory Accreditation Program, NELAP ID: CA20007; The American Industrial Hygiene Association, Laboratory #101661; Department of the Navy (NFESC); Pennsylvania Registration No. 68-03307. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact me for information corresponding to a particular certification.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

Columbia Analytical Services, Inc.



Sue Anderson
Project Manager

Client: Battelle

CAS Project No:

P0801329

Project: JPL Groundwater Monitoring 2Q08 / G486090

CASE NARRATIVE

The samples were received intact under chain of custody on May 7, 2008 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Hexavalent Chromium by EPA Method 7196A

No anomalies were encountered during this analysis.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08/G486090

Service Request: P0801329

SAMPLE CROSS-REFERENCE

<u>SAMPLE #</u>	<u>CLIENT SAMPLE ID</u>	<u>DATE</u>	<u>TIME</u>
P0801329-001	MW-12-5	05/07/08	07:51
P0801329-002	MW-12-4	05/07/08	08:32
P0801329-003	MW-12-3	05/07/08	09:12
P0801329-004	MW-12-2	05/07/08	09:57
P0801329-005	MW-12-1	05/07/08	10:38
P0801329-006	EB-10-05/07/08	05/07/08	10:21

Columbia Analytical Services, Inc.

Acronyms

CA LUFT	California DHS LUFT Method
ASTM	American Society for Testing and Materials
BTEX	Benzene/Toluene/Ethylbenzene/Xylenes
CAS Number	Chemical Abstract Service Registry Number
CFC	Chlorofluorocarbon
CRDL	Contract Required Detection Limit
DLCS	Duplicate Laboratory Control Sample
DMS	Duplicate Matrix Spike
DOH or DHS	Department of Health Services
EPA	U.S. Environmental Protection Agency
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
IC	Ion Chromatography
ICB	Initial Calibration Blank
ICV	Initial Calibration Verification
LCS	Laboratory Control Sample
LUFT	Leaking Underground Fuel Tank
M	Modified Method
MDL	Method Detection Limit
MRL	Method Reporting Limit
MS	Matrix Spike
MTBE	Methyl <i>tert</i> -Butyl Ether
NA	Not Applicable
NC	Not Calculated
ND	None Detected at or above the Method Reporting/Detection Limit (MRL/MDL)
NTU	Nephelometric Turbidity Units
ppb	Parts Per Billion
ppm	Parts Per Million
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SIM	Selected Ion Monitoring
SM	<i>Standard Methods for the Examination of Water and Wastewater</i> , 19th Ed., 1995.
SW	<i>Test Methods for Evaluating Solid Waste, Physical/Chemical Methods</i> SW-846, Third Edition, 1986 and as amended by Updates I, II, IIA, and IIB.
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
TSS	Total Suspended Solids
TTLC	Total Threshold Limit Concentration
VOA	Volatile Organic Analyte(s)
VOC	Volatile Organic Compound(s)

Qualifiers

U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
J	The result is an estimated concentration that is less than the MRL (PQL), but greater than or equal to the MDL.
B	Analyte detected in the method blank above MRL (PQL).
E	Estimated; result based on response which exceeded the instrument calibration range.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
D	The reported result is from a dilution.
X	See case narrative.

Columbia Analytical Services, Inc.

Chain of Custody Report

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08/G486090

Service Request: P0801329

Bottle ID	Date	Time	Sample Location / User	Disposed On
P0801329-001.01	05/07/2008	1259	SMO / LKUKITA	
	05/07/2008	1310	In Lab / DCASTILLO	
	05/07/2008	1438	P-37 / DCASTILLO	
P0801329-002.01	05/07/2008	1259	SMO / LKUKITA	
	05/07/2008	1310	In Lab / DCASTILLO	
	05/07/2008	1438	P-37 / DCASTILLO	
P0801329-003.01	05/07/2008	1259	SMO / LKUKITA	
	05/07/2008	1311	In Lab / DCASTILLO	
	05/07/2008	1438	P-37 / DCASTILLO	
P0801329-004.01	05/07/2008	1259	SMO / LKUKITA	
	05/07/2008	1311	In Lab / DCASTILLO	
	05/07/2008	1438	P-37 / DCASTILLO	
P0801329-005.01	05/07/2008	1259	SMO / LKUKITA	
	05/07/2008	1311	In Lab / DCASTILLO	
	05/07/2008	1438	P-37 / DCASTILLO	
P0801329-006.01	05/07/2008	1259	SMO / LKUKITA	
	05/07/2008	1311	In Lab / DCASTILLO	
	05/07/2008	1438	P-37 / DCASTILLO	

Columbia Analytical Services, Inc.
Sample Acceptance Check Form

Client: Battelle

Work order: P0801329

Project: JPL Groundwater Monitoring 2Q08 / G486090

Sample(s) received on: 5/7/08

Date opened: 5/7/08

by: LKUKITA

Note: This form is used for all samples received by CAS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

- | | | Yes | No | N/A |
|----|--|-------------------------------------|-------------------------------------|-------------------------------------|
| 1 | Were sample containers properly marked with client sample ID? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 | Container(s) supplied by CAS ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 | Did sample containers arrive in good condition? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 | Were chain-of-custody papers used and filled out? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5 | Did sample container labels and/or tags agree with custody papers? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6 | Was sample volume received adequate for analysis? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7 | Are samples within specified holding times? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8 | Was proper temperature (thermal preservation) of cooler at receipt adhered to?
Cooler Temperature _____ °C Blank Temperature <u>3</u> °C | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 9 | Was a trip blank received?
Trip blank supplied by CAS: Serial # _____ -TB _____ | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 10 | Were custody seals on outside of cooler/Box?
Location of seal(s)? _____ Sealing Lid?
Were signature and date included?
Were seals intact? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | Were custody seals on outside of sample container?
Location of seal(s)? _____ Sealing Lid?
Were signature and date included?
Were seals intact? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 11 | Do containers have appropriate preservation , according to method/SOP or Client specified information?
Is there a client indication that the submitted samples are pH preserved?
Were VOA vials checked for presence/absence of air bubbles?
Does the client/method/SOP require that the analyst check the sample pH and <u>if necessary</u> alter it? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 12 | Tubes: Are the tubes capped and intact?
Do they contain moisture? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 13 | Badges: Are the badges properly capped and intact?
Are dual bed badges separated and individually capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P0801329-001.01	125mL Plastic NP					
P0801329-002.01	125mL Plastic NP					
P0801329-003.01	125mL Plastic NP					
P0801329-004.01	125mL Plastic NP					
P0801329-005.01	125mL Plastic NP					
P0801329-006.01	125mL Plastic NP					

Explain any discrepancies: (include lab sample ID numbers): _____

*Required pH: Phenols/COD/NH3/TOC/TOX/NO3+NO2/TKN/T.PHOS, H2SO4 (pH<2); Metals, HNO3 (pH<2); CN (NaOH or NaOH/Asc Acid) (pH>12);

Diss. Sulfide, NaOH (pH>12); T. Sulfide, NaOH/ZnAc (pH>12)

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

DIVIDER SHEET

ANALYTICAL DATA
FOR

Hexavalent Chromium

ANALYSIS

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : Battelle
Project Name : JPL Groundwater Monitoring 2Q08
Project Number : G486090
Sample Matrix : WATER

Service Request : P0801329
Date Collected : 05/07/08
Date Received : 05/07/08

Chromium, Hexavalent

Prep Method : None
Analysis Method : 7196A
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	PQL	MDL	Dilution Factor	Date Extracted	Date/Time Analyzed	Result	Result Notes
MW-12-5	P0801329-001	0.01	0.006	1	NA	05/07/08 13:50	ND	
MW-12-4	P0801329-002	0.01	0.006	1	NA	05/07/08 13:50	ND	
MW-12-3	P0801329-003	0.01	0.006	1	NA	05/07/08 13:50	ND	
MW-12-2	P0801329-004	0.01	0.006	1	NA	05/07/08 13:50	ND	
MW-12-1	P0801329-005	0.01	0.006	1	NA	05/07/08 13:50	ND	
EB-10-05/07/08	P0801329-006	0.01	0.006	1	NA	05/07/08 13:50	ND	
Method Blank	P0801329-MB	0.01	0.006	1	NA	05/07/08 13:50	ND	

Approved By



Date :

5/9/08

CAS SR #P0801329

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LABORATORY REPORT

May 9, 2008

David Conner
Battelle
3990 Old Town Ave., Suite C-205
San Diego, CA 92110

RE: JPL Groundwater Monitoring 2Q08 / G486090

Dear David:

Enclosed are the results of the samples submitted to our laboratory on May 7, 2008. For your reference, these analyses have been assigned our service request number P0801329.

All analyses were performed in accordance with our laboratory's quality assurance program. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein. Your report contains 24 pages.

Columbia Analytical Services, Inc. is certified by the California Department of Health Services, NELAP Laboratory Certificate No. 02115CA; Arizona Department of Health Services, Certificate No. AZ0694; Florida Department of Health, NELAP Certification E871020; New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID #CA009; New York State Department of Health, NELAP NY Lab ID No: 11221; Oregon Environmental Laboratory Accreditation Program, NELAP ID: CA20007; The American Industrial Hygiene Association, Laboratory #101661; Department of the Navy (NFESC); Pennsylvania Registration No. 68-03307. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact me for information corresponding to a particular certification.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

Columbia Analytical Services, Inc.



Sue Anderson
Project Manager

Client: Battelle

CAS Project No:

P0801329

Project: JPL Groundwater Monitoring 2Q08 / G486090

CASE NARRATIVE

The samples were received intact under chain of custody on May 7, 2008 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Hexavalent Chromium by EPA Method 7196A

No anomalies were encountered during this analysis.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08/G486090

Service Request: P0801329

SAMPLE CROSS-REFERENCE

<u>SAMPLE #</u>	<u>CLIENT SAMPLE ID</u>	<u>DATE</u>	<u>TIME</u>
P0801329-001	MW-12-5	05/07/08	07:51
P0801329-002	MW-12-4	05/07/08	08:32
P0801329-003	MW-12-3	05/07/08	09:12
P0801329-004	MW-12-2	05/07/08	09:57
P0801329-005	MW-12-1	05/07/08	10:38
P0801329-006	EB-10-05/07/08	05/07/08	10:21

Columbia Analytical Services, Inc.

Acronyms

CA LUFT	California DHS LUFT Method
ASTM	American Society for Testing and Materials
BTEX	Benzene/Toluene/Ethylbenzene/Xylenes
CAS Number	Chemical Abstract Service Registry Number
CFC	Chlorofluorocarbon
CRDL	Contract Required Detection Limit
DLCS	Duplicate Laboratory Control Sample
DMS	Duplicate Matrix Spike
DOH or DHS	Department of Health Services
EPA	U.S. Environmental Protection Agency
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
IC	Ion Chromatography
ICB	Initial Calibration Blank
ICV	Initial Calibration Verification
LCS	Laboratory Control Sample
LUFT	Leaking Underground Fuel Tank
M	Modified Method
MDL	Method Detection Limit
MRL	Method Reporting Limit
MS	Matrix Spike
MTBE	Methyl <i>tert</i> -Butyl Ether
NA	Not Applicable
NC	Not Calculated
ND	None Detected at or above the Method Reporting/Detection Limit (MRL/MDL)
NTU	Nephelometric Turbidity Units
ppb	Parts Per Billion
ppm	Parts Per Million
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SIM	Selected Ion Monitoring
SM	<i>Standard Methods for the Examination of Water and Wastewater</i> , 19th Ed., 1995.
SW	<i>Test Methods for Evaluating Solid Waste, Physical/Chemical Methods</i> SW-846, Third Edition, 1986 and as amended by Updates I, II, IIA, and IIB.
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
TSS	Total Suspended Solids
TTLC	Total Threshold Limit Concentration
VOA	Volatile Organic Analyte(s)
VOC	Volatile Organic Compound(s)

Qualifiers

U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
J	The result is an estimated concentration that is less than the MRL (PQL), but greater than or equal to the MDL.
B	Analyte detected in the method blank above MRL (PQL).
E	Estimated; result based on response which exceeded the instrument calibration range.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
D	The reported result is from a dilution.
X	See case narrative.

Water & Soil - Chain of Custody Record & Analytical Service Request



2655 Park Center Drive, Suite A
Simi Valley, California 93065
Phone (805) 526-7161
Fax (805) 526-7270

Company Name & Address (Reporting Information) BATTELLE 3990 OLD TOWN AVE. C-205 SAN DIEGO, CA 92110		Project Name SPL GW MON 2008			
Project Manager DAVID CONNER		Project Number 6486090			
Phone 619-726-7311		P.O. # / Billing Information 214319/BATTELLE ATTN: GERALD TOMPKINS 505 KING AVE. COLUMBUS, OH 43201			
Email Address for Result Reporting		Sampler (Print & Sign)			
Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Matrix	Number of Containers
MW-12-5	1	5/07/08	0751	W	1
MW-12-4	2		0832		
MW-12-3	3		0912		
MW-12-2	4		0957		
MW-12-1	5		1038		
EB-10-05/07/08	6		1001		

Requested Turnaround Time in Business Days (Surcharges) please circle 1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day - Standard		CAS Project No. P0801329	
Analysis Method and/or Analytes		Preservative Code	
Volatile Organics GC/MS <input type="checkbox"/> 624 <input type="checkbox"/> 8260B <input type="checkbox"/> Oxygenates <input type="checkbox"/> TPH Gas <input type="checkbox"/> TPH Gas 8015B <input type="checkbox"/> BTEX 8021B <input type="checkbox"/> MTBE 8021B <input type="checkbox"/> TPH Diesel Low Level 8015B <input type="checkbox"/> (Subcontracted) TPH FC <input type="checkbox"/> 8015M (Subcontracted) Semi-Volatile Organics GC/MS <input type="checkbox"/> 625 <input type="checkbox"/> 8270C <input type="checkbox"/> (Subcontracted)		Preservative Key 0 None 1 HCL 2 HNO3 3 H2SO4 4 NaOH 5 Zn Acetate 6 Asc Acid 7 Other	
Remarks EQUIPMENT BLANK		Project Requirements (MRLs, QAPP)	
Report Tier Levels - please select Tier I - (Results/Default if not specified) _____ Tier II - (Results + QC) _____ Tier III - (Data Validation Package) 10% Surcharge _____ Tier V - (client specified) _____		MRL required Yes/No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No MDL / POL J required Yes/No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Relinquished by: (Signature) [Signature]		Relinquished by: (Signature) [Signature]	
Date: 5/7/08		Date: 5/7/08	
Time: 1200		Time: 12:00	
Received by: (Signature) [Signature]		Received by: (Signature) [Signature]	
Date: 5/7/08		Date: 5/7/08	
Time: 15		Time: 15	
Relinquished by: (Signature) [Signature]		Relinquished by: (Signature) [Signature]	
Date: 5/7/08		Date: 5/7/08	
Time: 3		Time: 3	

Columbia Analytical Services, Inc.
Chain of Custody Report

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08/G486090

Service Request: P0801329

Bottle ID	Date	Time	Sample Location / User	Disposed On
P0801329-001.01	05/07/2008	1259	SMO / LKUKITA	
	05/07/2008	1310	In Lab / DCASTILLO	
	05/07/2008	1438	P-37 / DCASTILLO	
P0801329-002.01	05/07/2008	1259	SMO / LKUKITA	
	05/07/2008	1310	In Lab / DCASTILLO	
	05/07/2008	1438	P-37 / DCASTILLO	
P0801329-003.01	05/07/2008	1259	SMO / LKUKITA	
	05/07/2008	1311	In Lab / DCASTILLO	
	05/07/2008	1438	P-37 / DCASTILLO	
P0801329-004.01	05/07/2008	1259	SMO / LKUKITA	
	05/07/2008	1311	In Lab / DCASTILLO	
	05/07/2008	1438	P-37 / DCASTILLO	
P0801329-005.01	05/07/2008	1259	SMO / LKUKITA	
	05/07/2008	1311	In Lab / DCASTILLO	
	05/07/2008	1438	P-37 / DCASTILLO	
P0801329-006.01	05/07/2008	1259	SMO / LKUKITA	
	05/07/2008	1311	In Lab / DCASTILLO	
	05/07/2008	1438	P-37 / DCASTILLO	

Columbia Analytical Services, Inc.
Sample Acceptance Check Form

Client: Battelle Work order: P0801329
 Project: JPL Groundwater Monitoring 2Q08 / G486090
 Sample(s) received on: 5/7/08 Date opened: 5/7/08 by: LKUKITA

Note: This form is used for all samples received by CAS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

- | | | Yes | No | N/A |
|----|--|-------------------------------------|-------------------------------------|-------------------------------------|
| 1 | Were sample containers properly marked with client sample ID? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 | Container(s) supplied by CAS ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 | Did sample containers arrive in good condition? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 | Were chain-of-custody papers used and filled out? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5 | Did sample container labels and/or tags agree with custody papers? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6 | Was sample volume received adequate for analysis? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7 | Are samples within specified holding times? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8 | Was proper temperature (thermal preservation) of cooler at receipt adhered to?
Cooler Temperature _____ °C Blank Temperature <u>3</u> °C | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 9 | Was a trip blank received?
Trip blank supplied by CAS: Serial # _____ -TB _____ | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 10 | Were custody seals on outside of cooler/Box?
Location of seal(s)? _____ Sealing Lid?
Were signature and date included?
Were seals intact?
Were custody seals on outside of sample container?
Location of seal(s)? _____ Sealing Lid?
Were signature and date included?
Were seals intact? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 11 | Do containers have appropriate preservation , according to method/SOP or Client specified information?
Is there a client indication that the submitted samples are pH preserved?
Were VOA vials checked for presence/absence of air bubbles?
Does the client/method/SOP require that the analyst check the sample pH and <u>if necessary</u> alter it? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 12 | Tubes: Are the tubes capped and intact?
Do they contain moisture? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 13 | Badges: Are the badges properly capped and intact?
Are dual bed badges separated and individually capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P0801329-001.01	125mL Plastic NP					
P0801329-002.01	125mL Plastic NP					
P0801329-003.01	125mL Plastic NP					
P0801329-004.01	125mL Plastic NP					
P0801329-005.01	125mL Plastic NP					
P0801329-006.01	125mL Plastic NP					

Explain any discrepancies: (include lab sample ID numbers): _____

*Required pH: Phenols/COD/NH3/TOC/TOX/NO3+NO2/TKN/T.PHOS, H2SO4 (pH<2); Metals, HNO3 (pH<2); CN (NaOH or NaOH/Asc Acid) (pH>12);

Diss. Sulfide, NaOH (pH>12); T. Sulfide, NaOH/ZnAc (pH>12)

DIVIDER SHEET

ANALYTICAL DATA
FOR

Hexavalent Chromium

ANALYSIS

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : Battelle
Project Name : JPL Groundwater Monitoring 2Q08
Project Number : G486090
Sample Matrix : WATER

Service Request : P0801329
Date Collected : 05/07/08
Date Received : 05/07/08

Chromium, Hexavalent

Prep Method : None
Analysis Method : 7196A
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	PQL	MDL	Dilution Factor	Date Extracted	Date/Time Analyzed	Result	Result Notes
MW-12-5	P0801329-001	0.01	0.006	1	NA	05/07/08 13:50	ND	
MW-12-4	P0801329-002	0.01	0.006	1	NA	05/07/08 13:50	ND	
MW-12-3	P0801329-003	0.01	0.006	1	NA	05/07/08 13:50	ND	
MW-12-2	P0801329-004	0.01	0.006	1	NA	05/07/08 13:50	ND	
MW-12-1	P0801329-005	0.01	0.006	1	NA	05/07/08 13:50	ND	
EB-10-05/07/08	P0801329-006	0.01	0.006	1	NA	05/07/08 13:50	ND	
Method Blank	P0801329-MB	0.01	0.006	1	NA	05/07/08 13:50	ND	

Approved By



Date :

5/9/08

CAS SR #P0801348

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LABORATORY REPORT

May 9, 2008

David Conner
Battelle
3990 Old Town Ave., Suite C-205
San Diego, CA 92110

RE: JPL Groundwater Monitoring 2Q08 / G486090

Dear David:

Enclosed are the results of the samples submitted to our laboratory on May 8, 2008. For your reference, these analyses have been assigned our service request number P0801348.

All analyses were performed in accordance with our laboratory's quality assurance program. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein. Your report contains 24 pages.

Columbia Analytical Services, Inc. is certified by the California Department of Health Services, NELAP Laboratory Certificate No. 02115CA; Arizona Department of Health Services, Certificate No. AZ0694; Florida Department of Health, NELAP Certification E871020; New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID #CA009; New York State Department of Health, NELAP NY Lab ID No: 11221; Oregon Environmental Laboratory Accreditation Program, NELAP ID: CA20007; The American Industrial Hygiene Association, Laboratory #101661; Department of the Navy (NFESC); Pennsylvania Registration No. 68-03307. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact me for information corresponding to a particular certification.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

Columbia Analytical Services, Inc.



Sue Anderson
Project Manager

Client: Battelle

CAS Project No: P0801348

Project: JPL Groundwater Monitoring 2Q08 / G486090

CASE NARRATIVE

The samples were received intact under chain of custody on May 8, 2008 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Hexavalent Chromium by EPA Method 7196A

No anomalies were encountered during this analysis.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08/G486090

Service Request: P0801348

SAMPLE CROSS-REFERENCE

<u>SAMPLE #</u>	<u>CLIENT SAMPLE ID</u>	<u>DATE</u>	<u>TIME</u>
P0801348-001	MW-11-5	05/08/08	08:05
P0801348-002	MW-11-4	05/08/08	09:02
P0801348-003	MW-11-3	05/08/08	09:45
P0801348-004	MW-11-2	05/08/08	10:20
P0801348-005	MW-11-1	05/08/08	10:57
P0801348-006	EB-11-5/8/08	05/08/08	10:39

Columbia Analytical Services, Inc.

Acronyms

CA LUFT	California DHS LUFT Method
ASTM	American Society for Testing and Materials
BTEX	Benzene/Toluene/Ethylbenzene/Xylenes
CAS Number	Chemical Abstract Service Registry Number
CFC	Chlorofluorocarbon
CRDL	Contract Required Detection Limit
DLCS	Duplicate Laboratory Control Sample
DMS	Duplicate Matrix Spike
DOH or DHS	Department of Health Services
EPA	U.S. Environmental Protection Agency
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
IC	Ion Chromatography
ICB	Initial Calibration Blank
ICV	Initial Calibration Verification
LCS	Laboratory Control Sample
LUFT	Leaking Underground Fuel Tank
M	Modified Method
MDL	Method Detection Limit
MRL	Method Reporting Limit
MS	Matrix Spike
MTBE	Methyl <i>tert</i> -Butyl Ether
NA	Not Applicable
NC	Not Calculated
ND	None Detected at or above the Method Reporting/Detection Limit (MRL/MDL)
NTU	Nephelometric Turbidity Units
ppb	Parts Per Billion
ppm	Parts Per Million
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SIM	Selected Ion Monitoring
SM	<i>Standard Methods for the Examination of Water and Wastewater</i> ; 19th Ed., 1995.
SW	<i>Test Methods for Evaluating Solid Waste, Physical/Chemical Methods</i> SW-846, Third Edition, 1986 and as amended by Updates I, II, IIA, and IIB.
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
TSS	Total Suspended Solids
TTLIC	Total Threshold Limit Concentration
VOA	Volatile Organic Analyte(s)
VOC	Volatile Organic Compound(s)

Qualifiers

U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
J	The result is an estimated concentration that is less than the MRL (PQL), but greater than or equal to the MDL.
B	Analyte detected in the method blank above MRL (PQL).
E	Estimated; result based on response which exceeded the instrument calibration range.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
D	The reported result is from a dilution.
X	See case narrative.

Columbia Analytical Services, Inc.

Chain of Custody Report

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08/G486090

Service Request: P0801348

Bottle ID	Date	Time	Sample Location / User	Disposed On
P0801348-001.01	05/08/2008	1252	SMO / LKUKITA	
	05/08/2008	1323	In Lab / DCASTILLO	
	05/08/2008	1500	P-37 / DCASTILLO	
P0801348-002.01	05/08/2008	1252	SMO / LKUKITA	
	05/08/2008	1323	In Lab / DCASTILLO	
	05/08/2008	1500	P-37 / DCASTILLO	
P0801348-003.01	05/08/2008	1252	SMO / LKUKITA	
	05/08/2008	1323	In Lab / DCASTILLO	
	05/08/2008	1500	P-37 / DCASTILLO	
P0801348-004.01	05/08/2008	1252	SMO / LKUKITA	
	05/08/2008	1323	In Lab / DCASTILLO	
	05/08/2008	1500	P-37 / DCASTILLO	
P0801348-005.01	05/08/2008	1252	SMO / LKUKITA	
	05/08/2008	1323	In Lab / DCASTILLO	
	05/08/2008	1500	P-37 / DCASTILLO	
P0801348-006.01	05/08/2008	1252	SMO / LKUKITA	
	05/08/2008	1323	In Lab / DCASTILLO	
	05/08/2008	1500	P-37 / DCASTILLO	

Columbia Analytical Services, Inc.
Sample Acceptance Check Form

Client: Battelle

Work order: P0801348

Project: JPL Groundwater Monitoring 2Q08 / G486090

Sample(s) received on: 5/8/08

Date opened: 5/8/08

by: LKUKITA

Note: This form is used for all samples received by CAS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

- | | Yes | No | N/A |
|--|-------------------------------------|-------------------------------------|-------------------------------------|
| 1 Were sample containers properly marked with client sample ID? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 Container(s) supplied by CAS ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 Did sample containers arrive in good condition? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 Were chain-of-custody papers used and filled out? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5 Did sample container labels and/or tags agree with custody papers? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6 Was sample volume received adequate for analysis? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7 Are samples within specified holding times? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8 Was proper temperature (thermal preservation) of cooler at receipt adhered to? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Cooler Temperature _____ °C Blank Temperature <u>3</u> °C | | | |
| 9 Was a trip blank received? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Trip blank supplied by CAS: Serial # _____ -TB _____ | | | |
| 10 Were custody seals on outside of cooler/Box? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Location of seal(s)? _____ Sealing Lid? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were custody seals on outside of sample container? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Location of seal(s)? _____ Sealing Lid? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 11 Do containers have appropriate preservation , according to method/SOP or Client specified information? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Is there a client indication that the submitted samples are pH preserved? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were VOA vials checked for presence/absence of air bubbles? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Does the client/method/SOP require that the analyst check the sample pH and <u>if necessary</u> alter it? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 12 Tubes: Are the tubes capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Do they contain moisture? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 13 Badges: Are the badges properly capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Are dual bed badges separated and individually capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P0801348-001.01	125mL Plastic NP					
P0801348-002.01	125mL Plastic NP					
P0801348-003.01	125mL Plastic NP					
P0801348-004.01	125mL Plastic NP					
P0801348-005.01	125mL Plastic NP					
P0801348-006.01	125mL Plastic NP					

Explain any discrepancies: (include lab sample ID numbers): _____

*Required pH: Phenols/COD/NH3/TOC/TOX/NO3+NO2/TKN/T.PHOS, H2SO4 (pH<2); Metals, HNO3 (pH<2); CN (NaOH or NaOH/Asc Acid) (pH>12);

Diss. Sulfide, NaOH (pH>12); T. Sulfide, NaOH/ZnAc (pH>12)

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

DIVIDER SHEET

ANALYTICAL DATA
FOR

Hexavalent Chromium

ANALYSIS

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : Battelle
Project Name : JPL Groundwater Monitoring 2Q08
Project Number : G486090
Sample Matrix : WATER

Service Request : P0801348
Date Collected : 05/08/08
Date Received : 05/08/08

Chromium, Hexavalent

Prep Method : None
Analysis Method : 7196A
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	PQL	MDL	Dilution Factor	Date Extracted	Date/Time Analyzed	Result	Result Notes
MW-11-5	P0801348-001	0.010	0.006	1	NA	05/08/08 14:25	ND	
MW-11-4	P0801348-002	0.010	0.006	1	NA	05/08/08 14:25	ND	
MW-11-3	P0801348-003	0.010	0.006	1	NA	05/08/08 14:25	ND	
MW-11-2	P0801348-004	0.010	0.006	1	NA	05/08/08 14:25	ND	
MW-11-1	P0801348-005	0.010	0.006	1	NA	05/08/08 14:25	ND	
EB-11-5/8/08	P0801348-006	0.010	0.006	1	NA	05/08/08 14:25	ND	
Method Blank	P0801348-MB	0.010	0.006	1	NA	05/08/08 14:25	ND	

Approved By



Date :

5/9/08

CAS SR #P0801391

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LABORATORY REPORT

May 13, 2008

David Conner
Battelle
3990 Old Town Ave., Suite C-205
San Diego, CA 92110

RE: JPL Groundwater Monitoring 2Q08 / G486090

Dear David:

Enclosed are the results of the samples submitted to our laboratory on May 12, 2008. For your reference, these analyses have been assigned our service request number P0801391.

All analyses were performed in accordance with our laboratory's quality assurance program. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein. Your report contains 23 pages.

Columbia Analytical Services, Inc. is certified by the California Department of Health Services, NELAP Laboratory Certificate No. 02115CA; Arizona Department of Health Services, Certificate No. AZ0694; Florida Department of Health, NELAP Certification E871020; New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID #CA009; New York State Department of Health, NELAP NY Lab ID No: 11221; Oregon Environmental Laboratory Accreditation Program, NELAP ID: CA20007; The American Industrial Hygiene Association, Laboratory #101661; Department of the Navy (NFESC); Pennsylvania Registration No. 68-03307. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact me for information corresponding to a particular certification.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

Columbia Analytical Services, Inc.



Sue Anderson
Project Manager

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08 / G486090

CAS Project No: P0801391

CASE NARRATIVE

The samples were received intact under chain of custody on May 12, 2008 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Hexavalent Chromium by EPA Method 7196A

No anomalies were encountered during this analysis.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08/G486090

Service Request: P0801391

SAMPLE CROSS-REFERENCE

<u>SAMPLE #</u>	<u>CLIENT SAMPLE ID</u>	<u>DATE</u>	<u>TIME</u>
P0801391-001	MW-23-5	05/12/08	07:47
P0801391-002	MW-23-4	05/12/08	08:25
P0801391-003	MW-23-3	05/12/08	08:59
P0801391-004	MW-23-2	05/12/08	09:43
P0801391-005	MW-23-1	05/12/08	11:03
P0801391-006	EB-12-5/12/08	05/12/08	10:48
P0801391-007	DUPE-3-2Q08	05/12/08	00:00

Columbia Analytical Services, Inc.

Acronyms

CA LUFT	California DHS LUFT Method
ASTM	American Society for Testing and Materials
BTEX	Benzene/Toluene/Ethylbenzene/Xylenes
CAS Number	Chemical Abstract Service Registry Number
CFC	Chlorofluorocarbon
CRDL	Contract Required Detection Limit
DLCS	Duplicate Laboratory Control Sample
DMS	Duplicate Matrix Spike
DOH or DHS	Department of Health Services
EPA	U.S. Environmental Protection Agency
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
IC	Ion Chromatography
ICB	Initial Calibration Blank
ICV	Initial Calibration Verification
LCS	Laboratory Control Sample
LUFT	Leaking Underground Fuel Tank
M	Modified Method
MDL	Method Detection Limit
MRL	Method Reporting Limit
MS	Matrix Spike
MTBE	Methyl <i>tert</i> -Butyl Ether
NA	Not Applicable
NC	Not Calculated
ND	None Detected at or above the Method Reporting/Detection Limit (MRL/MDL)
NTU	Nephelometric Turbidity Units
ppb	Parts Per Billion
ppm	Parts Per Million
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SIM	Selected Ion Monitoring
SM	<i>Standard Methods for the Examination of Water and Wastewater</i> , 19th Ed., 1995.
SW	<i>Test Methods for Evaluating Solid Waste, Physical/Chemical Methods</i> SW-846, Third Edition, 1986 and as amended by Updates I, II, IIA, and IIB.
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
TSS	Total Suspended Solids
TTLC	Total Threshold Limit Concentration
VOA	Volatile Organic Analyte(s)
VOC	Volatile Organic Compound(s)

Qualifiers

U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
J	The result is an estimated concentration that is less than the MRL (PQL), but greater than or equal to the MDL.
B	Analyte detected in the method blank above MRL (PQL).
E	Estimated; result based on response which exceeded the instrument calibration range.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
D	The reported result is from a dilution.
X	See case narrative.



2655 Park Center Drive, Suite A
 Simi Valley, California 93065
 Phone (805) 526-7161
 Fax (805) 526-7270

Company Name & Address (Reporting Information) BATTELLE 3990 OLD TOWN AVE, C-205 SAN DIEGO, CA 92110		Project Name SPL GW MON 2R08		Requested Turnaround Time in Business Days (Surcharges) please circle 1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day - Standard		CAS Project No. 20801391							
Project Manager DAVID CONNER		Project Number 6486090		Analysis Method and/or Analytes		CAS Contact:							
P.O. # / Billing Information 2/4319/BATTELLE ATTN: GERRA TOMPHANS 505 HILGA AVE. COLUMBUS, OH 43201		Sampler (Print & Sign)		Preservative Code		Preservative Key							
Phone 619-726-7311		Fax		<input type="checkbox"/> Volatile Organics GC/MS <input type="checkbox"/> 624 <input type="checkbox"/> 8260B <input type="checkbox"/> Oxygenates <input type="checkbox"/> TPH Gas <input type="checkbox"/> TPH Gas 8015B <input type="checkbox"/> BTEX 8021B <input type="checkbox"/> MTBE 8021B <input type="checkbox"/> TPH Diesel 8015B <input type="checkbox"/> (Subcontracted) <input type="checkbox"/> TPH Diesel Low Level 8015B <input type="checkbox"/> (Subcontracted) <input type="checkbox"/> TPH FC 8015M (Subcontracted) <input type="checkbox"/> Semi-Volatile Organics GC/MS <input type="checkbox"/> 625 <input type="checkbox"/> 8270C <input type="checkbox"/> (Subcontracted)		0 None 1 HCL 2 HNO3 3 H2SO4 4 NaOH 5 Zn Acetate 6 Asc Acid 7 Other							
Client Sample ID		Laboratory ID Number		Date Collected		Time Collected		Matrix		Number of Containers		Remarks	
MW-23-5		1		5/12/08		747		W		1			
MW-23-4		2				825							
MW-23-3		3				859							
MW-23-2		4				943							
MW-23-1		5				1103							
EB-12-5/12/08		6				1048						EQUIPMENT BLANK	
DUPE-3-2008		7										EQUIPMENT BLANK	

Report Tier Levels - please select
 Tier I - (Results/Default if not specified) _____
 Tier II - (Results + QC) _____
 Tier III - (Data Validation Package) 10% Surcharge _____
 Tier V - (client specified) _____

MLL required Yes/No No
 MDL / PQL / J required Yes/No No
 EDD required Yes/No No
 Type: Geopack

Project Requirements (MRLs, QAPP)

Relinquished by (Signature) _____ Date: 5/12/08 Time: 11:33
 Relinquished by (Signature) _____ Date: 5/12/08 Time: 11:33
 Relinquished by (Signature) _____ Date: _____ Time: _____

Cooler Blank Ice No Ice 3
 Temperature _____ °C

Columbia Analytical Services, Inc.

Chain of Custody Report

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08/G486090

Service Request: P0801391

Bottle ID	Date	Time	Sample Location / User	Disposed On
P0801391-001.01	05/12/2008	1232	SMO / LKUKITA	
	05/12/2008	1242	In Lab / SANDERSON	
	05/12/2008	1400	P-37 / SANDERSON	
P0801391-002.01	05/12/2008	1232	SMO / LKUKITA	
	05/12/2008	1242	In Lab / SANDERSON	
	05/12/2008	1400	P-37 / SANDERSON	
P0801391-003.01	05/12/2008	1232	SMO / LKUKITA	
	05/12/2008	1242	In Lab / SANDERSON	
	05/12/2008	1400	P-37 / SANDERSON	
P0801391-004.01	05/12/2008	1232	SMO / LKUKITA	
	05/12/2008	1242	In Lab / SANDERSON	
	05/12/2008	1400	P-37 / SANDERSON	
P0801391-005.01	05/12/2008	1232	SMO / LKUKITA	
	05/12/2008	1243	In Lab / SANDERSON	
	05/12/2008	1400	P-37 / SANDERSON	
P0801391-006.01	05/12/2008	1232	SMO / LKUKITA	
	05/12/2008	1243	In Lab / SANDERSON	
	05/12/2008	1400	P-37 / SANDERSON	
P0801391-007.01	05/12/2008	1232	SMO / LKUKITA	
	05/12/2008	1243	In Lab / SANDERSON	
	05/12/2008	1400	P-37 / SANDERSON	

Columbia Analytical Services, Inc.
Sample Acceptance Check Form

Client: Battelle

Work order: P0801391

Project: JPL Groundwater Monitoring 2Q08 / G486090

Sample(s) received on: 5/12/08

Date opened: 5/12/08

by: LKUKITA

Note: This form is used for all samples received by CAS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

- | | <u>Yes</u> | <u>No</u> | <u>N/A</u> |
|--|-------------------------------------|-------------------------------------|-------------------------------------|
| 1 Were sample containers properly marked with client sample ID? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 Container(s) supplied by CAS ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 Did sample containers arrive in good condition? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 Were chain-of-custody papers used and filled out? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5 Did sample container labels and/or tags agree with custody papers? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6 Was sample volume received adequate for analysis? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7 Are samples within specified holding times? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8 Was proper temperature (thermal preservation) of cooler at receipt adhered to? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Cooler Temperature _____ °C Blank Temperature <u>3</u> °C | | | |
| 9 Was a trip blank received? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Trip blank supplied by CAS: Serial # _____ -TB _____ | | | |
| 10 Were custody seals on outside of cooler/Box? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Location of seal(s)? _____ Sealing Lid? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were custody seals on outside of sample container? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Location of seal(s)? _____ Sealing Lid? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 11 Do containers have appropriate preservation , according to method/SOP or Client specified information? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Is there a client indication that the submitted samples are pH preserved? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were VOA vials checked for presence/absence of air bubbles? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Does the client/method/SOP require that the analyst check the sample pH and <u>if necessary</u> alter it? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 12 Tubes: Are the tubes capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Do they contain moisture? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 13 Badges: Are the badges properly capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Are dual bed badges separated and individually capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P0801391-001.01	125mL Plastic NP					
P0801391-002.01	125mL Plastic NP					
P0801391-003.01	125mL Plastic NP					
P0801391-004.01	125mL Plastic NP					
P0801391-005.01	125mL Plastic NP					
P0801391-006.01	125mL Plastic NP					
P0801391-007.01	125mL Plastic NP					

Explain any discrepancies: (include lab sample ID numbers): _____

*Required pH: Phenols/COD/NH3/TOC/TOX/NO3+NO2/TKN/T.PHOS, H2SO4 (pH<2); Metals, HNO3 (pH<2); CN (NaOH or NaOH/Asc Acid) (pH>12);

Diss. Sulfide, NaOH (pH>12); T. Sulfide, NaOH/ZnAc (pH>12)

RSK - MBEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

DIVIDER SHEET

ANALYTICAL DATA
FOR

Hexavalent Chromium

ANALYSIS

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : Battelle
Project Name : JPL Groundwater Monitoring 2Q08
Project Number : G486090
Sample Matrix : WATER

Service Request : P0801391
Date Collected : 05/12/08
Date Received : 05/12/08

Chromium, Hexavalent

Prep Method : None
Analysis Method : 7196A
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	PQL	MDL	Dilution Factor	Date Extracted	Date/Time Analyzed	Result	Result Notes
MW-23-5	P0801391-001	0.010	0.006	1	NA	05/12/08 13:30	ND	
MW-23-4	P0801391-002	0.010	0.006	1	NA	05/12/08 13:30	ND	
MW-23-3	P0801391-003	0.010	0.006	1	NA	05/12/08 13:30	ND	
MW-23-2	P0801391-004	0.010	0.006	1	NA	05/12/08 13:30	ND	
MW-23-1	P0801391-005	0.010	0.006	1	NA	05/12/08 13:30	ND	
EB-12-5/12/08	P0801391-006	0.010	0.006	1	NA	05/12/08 13:30	ND	
DUPE-3-2Q08	P0801391-007	0.010	0.006	1	NA	05/12/08 13:30	ND	
Method Blank	P0801391-MB	0.010	0.006	1	NA	05/12/08 13:30	ND	

Approved By



Date :

5/13/08

CAS SR #P0801414

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LABORATORY REPORT

June 2, 2008

David Conner
Battelle
3990 Old Town Ave., Suite C-205
San Diego, CA 92110

RE: JPL Groundwater Monitoring 2Q08 / G486090

Dear David:

Enclosed are the results of the samples submitted to our laboratory on May 13, 2008. The samples were sent out for partial analysis to our Kelso facility. Please find their report attached. For your reference, these analyses have been assigned our service request number P0801414.

All analyses were performed in accordance with our laboratory's quality assurance program. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein. Your report contains 143 pages.

Columbia Analytical Services, Inc. is certified by the California Department of Health Services, NELAP Laboratory Certificate No. 02115CA; Arizona Department of Health Services, Certificate No. AZ0694; Florida Department of Health, NELAP Certification E871020; New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID #CA009; New York State Department of Health, NELAP NY Lab ID No: 11221; Oregon Environmental Laboratory Accreditation Program, NELAP ID: CA20007; The American Industrial Hygiene Association, Laboratory #101661; Department of the Navy (NFESC); Pennsylvania Registration No. 68-03307. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact me for information corresponding to a particular certification.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

Columbia Analytical Services, Inc.



Sue Anderson
Project Manager

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08 / G486090

CAS Project No: P0801414

CASE NARRATIVE

The samples were received intact under chain of custody on May 13, 2008 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Hexavalent Chromium by EPA Method 7196A

No anomalies were encountered during this analysis.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08/G486090

Service Request: P0801414

SAMPLE CROSS-REFERENCE

<u>SAMPLE #</u>	<u>CLIENT SAMPLE ID</u>	<u>DATE</u>	<u>TIME</u>
P0801414-001	MW-24-5	05/13/08	08:20
P0801414-002	MW-24-4	05/13/08	09:10
P0801414-003	MW-24-3	05/13/08	09:42
P0801414-004	MW-24-2	05/13/08	10:30
P0801414-005	MW-24-1	05/13/08	11:16
P0801414-006	EB-13-5/13/08	05/13/08	11:00
P0801414-007	DUPE-4-2Q08	05/13/08	00:00

Columbia Analytical Services, Inc.

Acronyms

CA LUFT	California DHS LUFT Method
ASTM	American Society for Testing and Materials
BTEX	Benzene/Toluene/Ethylbenzene/Xylenes
CAS Number	Chemical Abstract Service Registry Number
CFC	Chlorofluorocarbon
CRDL	Contract Required Detection Limit
DLCS	Duplicate Laboratory Control Sample
DMS	Duplicate Matrix Spike
DOH or DHS	Department of Health Services
EPA	U.S. Environmental Protection Agency
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
IC	Ion Chromatography
ICB	Initial Calibration Blank
ICV	Initial Calibration Verification
LCS	Laboratory Control Sample
LUFT	Leaking Underground Fuel Tank
M	Modified Method
MDL	Method Detection Limit
MRL	Method Reporting Limit
MS	Matrix Spike
MTBE	Methyl <i>tert</i> -Butyl Ether
NA	Not Applicable
NC	Not Calculated
ND	None Detected at or above the Method Reporting/Detection Limit (MRL/MDL)
NTU	Nephelometric Turbidity Units
ppb	Parts Per Billion
ppm	Parts Per Million
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SIM	Selected Ion Monitoring
SM	<i>Standard Methods for the Examination of Water and Wastewater</i> , 19th Ed., 1995.
SW	<i>Test Methods for Evaluating Solid Waste, Physical/Chemical Methods</i> SW-846, Third Edition, 1986 and as amended by Updates I, II, IIA, and IIB.
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
TSS	Total Suspended Solids
TTLC	Total Threshold Limit Concentration
VOA	Volatile Organic Analyte(s)
VOC	Volatile Organic Compound(s)

Qualifiers

U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
J	The result is an estimated concentration that is less than the MRL (PQL), but greater than or equal to the MDL.
B	Analyte detected in the method blank above MRL (PQL).
E	Estimated; result based on response which exceeded the instrument calibration range.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
D	The reported result is from a dilution.
X	See case narrative.



2655 Park Center Drive, Suite A
Simi Valley, California 93065
Phone (805) 526-7161
Fax (805) 526-7270

Requested Turnaround Time in Business Days (Surcharges) please circle
 1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day - Standard

CAS Project No. 20801414
CAS Contact:

Company Name & Address (Reporting Information) BATTELLE 3990 OLD TOWN AVE, C-205 SAN DIEGO, CA 92110		Project Name <u>JPL GW MON 2808</u>			
Project Manager DAVID CONNER		Project Number <u>64 486090</u>			
Phone <u>619-726-7311</u>		P.O. # / Billing Information <u>214319/BATTELLE</u> <u>ATTN: GERALD TOMPHINS</u> <u>505 KING AVE.</u> <u>COLUMBUS, OH 43201</u>			
Email Address for Result Reporting		Sampler (Print & Sign)			
Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Matrix	Number of Containers
<u>MW-24-5</u>	<u>1</u>	<u>5/13/08</u>	<u>820</u>	<u>W</u>	<u>1</u>
<u>MW-24-4</u>	<u>2</u>	<u>910</u>	<u>910</u>	<u>1</u>	<u>1</u>
<u>MW-24-3</u>	<u>3</u>	<u>942</u>	<u>942</u>	<u>1</u>	<u>1</u>
<u>MW-24-2</u>	<u>4</u>	<u>1030</u>	<u>1030</u>	<u>1</u>	<u>1</u>
<u>MW-24-1</u>	<u>5</u>	<u>1116</u>	<u>1116</u>	<u>3</u>	<u>3</u>
<u>EB-13-5/13/08</u>	<u>6</u>	<u>1100</u>	<u>1100</u>	<u>1</u>	<u>1</u>
<u>DUPE-4-2808</u>	<u>7</u>	<u>—</u>	<u>—</u>	<u>3</u>	<u>3</u>

Analysis Method and/or Analytes	
Preservative Code	Preservative Key
Volatile Organics GC/MS <input type="checkbox"/> 624 <input type="checkbox"/> 8260B <input type="checkbox"/> Oxygenates <input type="checkbox"/> TPH Gas <input type="checkbox"/> TPH Gas 8015B <input type="checkbox"/> BTEX 8021B <input type="checkbox"/> MTBE 8021B <input type="checkbox"/> TPH Diesel 8015B <input type="checkbox"/> (Subcontracted) <input type="checkbox"/> TPH Diesel Low Level 8015B <input type="checkbox"/> (Subcontracted) <input type="checkbox"/> TPH FC <input type="checkbox"/> 8015M (Subcontracted) <input type="checkbox"/> Semi-Volatile Organics GC/MS <input type="checkbox"/> 625 <input type="checkbox"/> 8270C <input type="checkbox"/> (Subcontracted) <input type="checkbox"/> C-17 (719) <input type="checkbox"/> NBMA (1625.0) <input type="checkbox"/>	0 None 1 HCL 2 HNO3 3 H2SO4 4 NaOH 5 Zn Acetate 6 Asc Acid 7 Other

Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Matrix	Number of Containers	Remarks
<u>MW-24-5</u>	<u>1</u>	<u>5/13/08</u>	<u>820</u>	<u>W</u>	<u>1</u>	
<u>MW-24-4</u>	<u>2</u>	<u>910</u>	<u>910</u>	<u>1</u>	<u>1</u>	
<u>MW-24-3</u>	<u>3</u>	<u>942</u>	<u>942</u>	<u>1</u>	<u>1</u>	
<u>MW-24-2</u>	<u>4</u>	<u>1030</u>	<u>1030</u>	<u>1</u>	<u>1</u>	
<u>MW-24-1</u>	<u>5</u>	<u>1116</u>	<u>1116</u>	<u>3</u>	<u>3</u>	<u>LEVEL ID QC</u>
<u>EB-13-5/13/08</u>	<u>6</u>	<u>1100</u>	<u>1100</u>	<u>1</u>	<u>1</u>	<u>COMPARE BLANK</u>
<u>DUPE-4-2808</u>	<u>7</u>	<u>—</u>	<u>—</u>	<u>3</u>	<u>3</u>	<u>DIFFERENTIATE</u>

Report Tier Levels - please select
 Tier I - (Results/Default if not specified) _____
 Tier II - (Results + QC) _____
 Tier III - (Data Validation Package) 10% Surcharge _____
 Tier V - (client specified) _____

MRL required Yes / No _____
 EDD required Yes / No _____
 MDL / PQL / J required Yes / No _____

Relinquished by: (Signature) _____ Date: 5/13/08 Time: 1317
 Relinquished by: (Signature) _____ Date: 5/13/08 Time: 1357
 Relinquished by: (Signature) _____ Date: _____ Time: _____

Project Requirements (MRLs, QAPP) _____
 Cooler/Blank/No Ice _____
 Temperature _____ °C

Columbia Analytical Services, Inc.

Chain of Custody Report

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08/G486090

Service Request: P0801414

Bottle ID	Date	Time	Sample Location / User	Disposed On
P0801414-001.01	05/13/2008	1405	SMO / LKUKITA	
	05/13/2008	1414	In Lab / DCASTILLO	
	05/13/2008	1554	P-37 / DCASTILLO	
P0801414-002.01	05/13/2008	1405	SMO / LKUKITA	
	05/13/2008	1414	In Lab / DCASTILLO	
	05/13/2008	1554	P-37 / DCASTILLO	
P0801414-003.01	05/13/2008	1405	SMO / LKUKITA	
	05/13/2008	1414	In Lab / DCASTILLO	
	05/13/2008	1554	P-37 / DCASTILLO	
P0801414-004.01	05/13/2008	1405	SMO / LKUKITA	
	05/13/2008	1414	In Lab / DCASTILLO	
	05/13/2008	1554	P-37 / DCASTILLO	
P0801414-005.01	05/13/2008	1405	SMO / LKUKITA	
	05/13/2008	1427	SUBBED / LKUKITA	
	05/14/2008	1401	K-SAM-21 / AJUELL	
	05/15/2008	0836	In Lab / MBLACK	
	05/15/2008	1513	K-Disposed / LRAVERT	05/15/2008
P0801414-005.02	05/13/2008	1405	SMO / LKUKITA	
	05/13/2008	1427	SUBBED / LKUKITA	
	05/14/2008	1401	K-SAM-21 / AJUELL	
	05/15/2008	0836	In Lab / MBLACK	
	05/15/2008	1543	K-SAM-21 / TLEWIS	
P0801414-005.03	05/13/2008	1405	SMO / LKUKITA	
	05/13/2008	1414	In Lab / DCASTILLO	
	05/13/2008	1554	P-37 / DCASTILLO	
P0801414-006.01	05/13/2008	1405	SMO / LKUKITA	
	05/13/2008	1414	In Lab / DCASTILLO	
	05/13/2008	1554	P-37 / DCASTILLO	
P0801414-007.01	05/13/2008	1405	SMO / LKUKITA	
	05/13/2008	1427	SUBBED / LKUKITA	
	05/14/2008	1401	K-SAM-21 / AJUELL	
	05/15/2008	0836	In Lab / MBLACK	
	05/15/2008	1543	K-SAM-21 / TLEWIS	
P0801414-007.02	05/13/2008	1405	SMO / LKUKITA	

Columbia Analytical Services, Inc.

Chain of Custody Report

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08/G486090

Service Request: P0801414

Bottle ID	Date	Time	Sample Location / User	Disposed On
P0801414-007.02	05/13/2008	1427	SUBBED / LKUKITA	
	05/14/2008	1401	K-SAM-21 / AJUELL	
P0801414-007.03	05/13/2008	1405	SMO / LKUKITA	
	05/13/2008	1414	In Lab / DCASTILLO	
	05/13/2008	1554	P-37 / DCASTILLO	

Columbia Analytical Services, Inc.
Sample Acceptance Check Form

Client: Battelle Work order: P0801414
 Project: JPL Groundwater Monitoring 2Q08 / G486090
 Sample(s) received on: 5/13/08 Date opened: 5/13/08 by: LKUKITA

Note: This form is used for all samples received by CAS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

- | | Yes | No | N/A |
|--|-------------------------------------|-------------------------------------|-------------------------------------|
| 1 Were sample containers properly marked with client sample ID? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 Container(s) supplied by CAS ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 Did sample containers arrive in good condition? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 Were chain-of-custody papers used and filled out? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5 Did sample container labels and/or tags agree with custody papers? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6 Was sample volume received adequate for analysis? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7 Are samples within specified holding times? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8 Was proper temperature (thermal preservation) of cooler at receipt adhered to? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Cooler Temperature _____ °C Blank Temperature <u>3</u> °C | | | |
| 9 Was a trip blank received? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Trip blank supplied by CAS: Serial # _____ -TB _____ | | | |
| 10 Were custody seals on outside of cooler/Box? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Location of seal(s) _____ Sealing Lid? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were custody seals on outside of sample container? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Location of seal(s) _____ Sealing Lid? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 11 Do containers have appropriate preservation , according to method/SOP or Client specified information? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Is there a client indication that the submitted samples are pH preserved? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were VOA vials checked for presence/absence of air bubbles? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Does the client/method/SOP require that the analyst check the sample pH and <u>if necessary</u> alter it? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 12 Tubes: Are the tubes capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Do they contain moisture? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 13 Badges: Are the badges properly capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Are dual bed badges separated and individually capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Lab Sample ID	Container Description	Required pH*	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P0801414-001.01	125mL Plastic NP					
P0801414-002.01	125mL Plastic NP					
P0801414-003.01	125mL Plastic NP					
P0801414-004.01	125mL Plastic NP					
P0801414-005.01	1000ml AG NP					
P0801414-005.02	1000ml AG NP					
P0801414-005.03	125mL Plastic NP					

Explain any discrepancies: (include lab sample ID numbers): _____

*Required pH: Phenols/COD/NH3/TOC/TOX/NO3+NO2/TKN/T.PHOS, H2SO4 (pH<2); Metals, HNO3 (pH<2); CN (NaOH or NaOH/Asc Acid) (pH>12);

DIVIDER SHEET

ANALYTICAL DATA

FOR

Hexavalent Chromium

ANALYSIS

Analytical Report

Client : Battelle
 Project Name : JPL Groundwater Monitoring 2Q08
 Project Number : G486090
 Sample Matrix : WATER

Service Request : P0801414
 Date Collected : 05/13/08
 Date Received : 05/13/08

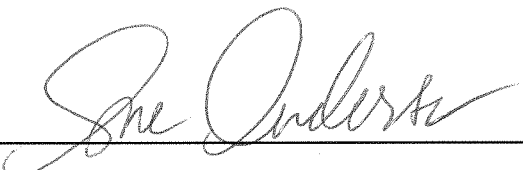
Chromium, Hexavalent

Prep Method : None
 Analysis Method : 7196A
 Test Notes :

Units : mg/L (ppm)
 Basis : NA

Sample Name	Lab Code	PQL	MDL	Dilution Factor	Date Extracted	Date/Time Analyzed	Result	Result Notes
MW-24-5	P0801414-001	0.010	0.006	1	NA	05/13/08 15:00	ND	
MW-24-4	P0801414-002	0.010	0.006	1	NA	05/13/08 15:00	0.007	J
MW-24-3	P0801414-003	0.010	0.006	1	NA	05/13/08 15:00	ND	
MW-24-2	P0801414-004	0.010	0.006	1	NA	05/13/08 15:00	ND	
MW-24-1	P0801414-005	0.010	0.006	1	NA	05/13/08 15:00	ND	
EB-13-5/13/08	P0801414-006	0.010	0.006	1	NA	05/13/08 15:00	ND	
DUPE-4-2Q08	P0801414-007	0.010	0.006	1	NA	05/13/08 15:00	ND	
Method Blank	P0801414-MB	0.010	0.006	1	NA	05/13/08 15:00	ND	

J Estimated concentration. The result is less than the PQL but greater than the MDL.

Approved By 

Date : 5/14/08

DIVIDER SHEET

CAS-KELSO REPORT

ANALYSIS

May 28, 2008

Analytical Report for Service Request No: P0801414

Sue Anderson
Columbia Analytical Services
2655 Park Center Drive
Suite A
Simi Valley, CA 93065-6209

RE: JPL Groundwater Monitoring 2Q08/G486090


Dear Sue:

Enclosed are the results of the samples submitted to our laboratory on May 13, 2008. For your reference, these analyses have been assigned our service request number P0801414.

All analyses were performed according to our laboratory's quality assurance program. Where applicable, the methods cited conform to the Methods Update Rule (effective 4/11/2007), which relates to the use of analytical methods for the drinking water and waste water programs. The test results meet requirements of the NELAC standards. Exceptions are noted in the case narrative report where applicable. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3280. You may also contact me via Email at LKennedy@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Les Kennedy
Project Chemist

LK/ln

Page 1 of _____

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- i The MRL/MDL has been elevated due to a matrix interference.
- X See case narrative.

Metals Data Qualifiers

- # The control limit criteria is not applicable. See case narrative.
- B The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- E The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
- M The duplicate injection precision was not met.
- N The Matrix Spike sample recovery is not within control limits. See case narrative.
- S The reported value was determined by the Method of Standard Additions (MSA).
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- W The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
- i The MRL/MDL has been elevated due to a matrix interference.
- X See case narrative.
- * The duplicate analysis not within control limits. See case narrative.
- + The correlation coefficient for the MSA is less than 0.995.

Organic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- A A tentatively identified compound, a suspected aldol-condensation product.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result.
- C The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
- D The reported result is from a dilution.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- N The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
- P The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results (25% for CLP Pesticides).
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- i The MRL/MDL has been elevated due to a chromatographic interference.
- X See case narrative.

Additional Petroleum Hydrocarbon Specific Qualifiers

- F The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
- L The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
- H The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
- O The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
- Y The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
- Z The chromatographic fingerprint does not resemble a petroleum product.

Columbia Analytical Services, Inc.
Kelso, WA
State Certifications, Accreditations, and Licenses

Program	Number
Alaska DEC UST	UST-040
Arizona DHS	AZ0339
Arkansas - DEQ	88-0637
California DHS	2286
Colorado DPHE	-
Florida DOH	E87412
Hawaii DOH	-
Idaho DHW	-
Indiana DOH	C-WA-01
Louisiana DEQ	3016
Louisiana DHH	LA050010
Maine DHS	WA0035
Michigan DEQ	9949
Minnesota DOH	053-999-368
Montana DPHHS	CERT0047
Nevada DEP	WA35
New Jersey DEP	WA005
New Mexico ED	-
North Carolina DWQ	605
Oklahoma DEQ	9801
Oregon - DHS	WA200001
South Carolina DHEC	61002
Utah DOH	COLU
Washington DOE	C1203
Wisconsin DNR	998386840
Wyoming (EPA Region 8)	-

Case Narrative

COLUMBIA ANALYTICAL SERVICES, INC.

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08 / G486090
Sample Matrix: Water
Service Request No.: P0801414
Date Received: 5/13/08

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Two water samples received for analysis at Columbia Analytical Services, Simi Valley laboratory on 5/13/08 were forwarded and received in the Kelso laboratory on 5/14/08 in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Nitrosamines by EPA Method 521

Matrix Spike (MS) Recovery Exceptions:

The recovery of N-Nitrosodimethylamine in the MS and Duplicate MS performed on sample MW-24-1 was outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicates the analytical batch was in control. The matrix spike outlier suggests a potential low bias in this matrix. No further corrective action was appropriate.

Approved by _____

W

Date _____

5/30/08

Chain of Custody Documentation

Project Name: JPL Groundwater Monitoring 2008
Project Number: G486090
Project Manager: David Conner
Company: Battelle

Lab Code	Client Sample ID	# of Cont.	Matrix	Sample		Date Received	Send To
				Date	Time		
P0801414-005	MW-24-1	2	Water	05/13/08	1116	05/13/08	KELSO
P0801414-007	DUPE-4-2008	2	Water	05/13/08	0000	05/13/08	KELSO

Nitrosamines
521

Test Comments
 Nitrosamines - 521 P0801414-005,7 NDMA

Folder Comments:
 Note: EDF files for client's internal data base; LogCode is BAT, do not have Global ID. EDD & pdf of report sent to Betsy Cutie (cutiee@battelle.org) via file share site
<https://fk.battelle.org>. For EDF unique spike ids (ex: P0701XXXX01MS or SD).

Special Instructions/Comments		
Turaround Requirements <input type="checkbox"/> RUSH (Surcharges Apply) PLEASE CIRCLE WORK DAYS 1 2 3 4 5 <input checked="" type="checkbox"/> STANDARD Requested FAX Date: _____ Requested Report Date: 05/30/08		
Report Requirements I. Results Only _____ II. Results + QC Summaries _____ III. Results + QC and Calibration Summaries <input checked="" type="checkbox"/> <i>raw data package</i> IV. Data Validation Report with Raw Data _____ POL/MDL/1 _____ N _____ EDD _____ Y _____		Invoice Information PO# P0801414 Bill to _____

Relinquished By: *[Signature]* 5/13/08 1455

Received By: *[Signature]* Airbill Number: _____

**Columbia Analytical Services, Inc.
Cooler Receipt and Preservation Form**

PC LES

Client / Project: Cas Sini Service Request 608 PO801414
 Received: 5/14/08 Opened: 5/14/08 By: T. Skate

1. Samples were received via? US Mail Fed Ex UPS DHL GH GS PDX Courier Hand Delivered
2. Samples were received in: (circle) Cooler Box Envelope Other _____ NA
3. Were custody seals on coolers? NA Y N If yes, how many and where? 1 front
 If present, were custody seals intact? Y N If present, were they signed and dated? Y N
4. Is shipper's air-bill filed? If not, record air-bill-number: 129653E11351764263 NA Y N
5. Temperature of cooler(s) upon receipt (°C): 2.1
 Temperature Blank (°C): 0.9
6. If applicable, list Chain of Custody Numbers: _____
7. Were custody papers properly filled out (ink, signed, etc.)? NA Y N
8. Packing material used. Inserts Baggies Bubble Wrap Gel-Packs Wet Ice Sleeves Other _____
9. Did all bottles arrive in good condition (unbroken)? Indicate in the table below. NA Y N
10. Were all sample labels complete (i.e analysis, preservation, etc.)? Y N
11. Did all sample labels and tags agree with custody papers? Indicate in the table below. Y N
12. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N
13. Were the pH-preserved bottles tested* received at the appropriate pH? Indicate in the table below. NA Y N
14. Were VOA vials and 1631 Mercury bottles received without headspace? Indicate in the table below. NA Y N
15. Are CWA Microbiology samples received with >1/2 the 24hr. hold time remaining from collection? NA Y N
16. Was C12/Res negative? NA Y N

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Sample ID	Bottle Count	Bottle Type	Out of Temp	Head-space	Broken	pH	Reagent	Volume added	Reagent Lot Number	Initials

*Does not include all pH preserved sample aliquots received. See sample receiving SOP (SMO-GEN).

Additional Notes, Discrepancies, & Resolutions: _____

Nitrosamines by EPA 521

Organic Analysis:
Nitrosamines by EPA 521

Summary Package

Sample and QC Results

COLUMBIA ANALYTICAL SERVICES, INC.

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08/G486090

Service Request: P0801414

Cover Page - Organic Analysis Data Package
Nitrosamines by EPA 521

Sample Name	Lab Code	Date Collected	Date Received
MW-24-1MS	KWG0804492-1	05/13/2008	05/13/2008
MW-24-1DMS	KWG0804492-2	05/13/2008	05/13/2008
MW-24-1	P0801414-005	05/13/2008	05/13/2008
DUPE-4-2Q08	P0801414-007	05/13/2008	05/13/2008

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the case narrative. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Tom E Patwood

Name: Tom Patwood

Date: 5/28/08

Title: Supervisor

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08/G486090
Sample Matrix: Water

Service Request: P0801414
Date Collected: 05/13/2008
Date Received: 05/13/2008

Nitrosamines by EPA 521

Sample Name: MW-24-1
Lab Code: P0801414-005
Extraction Method: METHOD
Analysis Method: 521

Units: ng/L
Basis: NA
Level: Low

Analyte Name	Result Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
N-Nitrosodimethylamine	ND U	2.0	1.4	1	05/15/08	05/22/08	KWG0804492	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
N-Nitrosodimethylamine-d6	73	70-130	05/22/08	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08/G486090
Sample Matrix: Water

Service Request: P0801414
Date Collected: 05/13/2008
Date Received: 05/13/2008

Nitrosamines by EPA 521

Sample Name: DUPE-4-2Q08
Lab Code: P0801414-007
Extraction Method: METHOD
Analysis Method: 521

Units: ng/L
Basis: NA
Level: Low

Analyte Name	Result Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
N-Nitrosodimethylamine	ND U	2.0	1.4	1	05/15/08	05/22/08	KWG0804492	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
N-Nitrosodimethylamine-d6	83	70-130	05/22/08	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08/G486090
Sample Matrix: Water

Service Request: P0801414
Date Collected: NA
Date Received: NA

Nitrosamines by EPA 521

Sample Name: Method Blank
Lab Code: KWG0804492-4
Extraction Method: METHOD
Analysis Method: 521

Units: ng/L
Basis: NA
Level: Low

Analyte Name	Result Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
N-Nitrosodimethylamine	ND U	2.0	1.4	1	05/15/08	05/22/08	KWG0804492	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
N-Nitrosodimethylamine-d6	82	70-130	05/22/08	Acceptable

Comments: _____

CAS SR #P0801429

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LABORATORY REPORT

May 14, 2008

David Conner
Battelle
3990 Old Town Ave., Suite C-205
San Diego, CA 92110

RE: JPL Groundwater Monitoring 2Q08 / G486090

Dear David:

Enclosed are the results of the samples submitted to our laboratory on May 14, 2008. For your reference, these analyses have been assigned our service request number P0801429.

All analyses were performed in accordance with our laboratory's quality assurance program. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein. Your report contains 23 pages.

Columbia Analytical Services, Inc. is certified by the California Department of Health Services, NELAP Laboratory Certificate No. 02115CA; Arizona Department of Health Services, Certificate No. AZ0694; Florida Department of Health, NELAP Certification E871020; New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID #CA009; New York State Department of Health, NELAP NY Lab ID No: 11221; Oregon Environmental Laboratory Accreditation Program, NELAP ID: CA20007; The American Industrial Hygiene Association, Laboratory #101661; Department of the Navy (NFESC); Pennsylvania Registration No. 68-03307. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact me for information corresponding to a particular certification.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

Columbia Analytical Services, Inc.



Sue Anderson
Project Manager

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08 / G486090

CAS Project No: P0801429

CASE NARRATIVE

The samples were received intact under chain of custody on May 14, 2008 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Hexavalent Chromium by EPA Method 7196A

No anomalies were encountered during this analysis.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08/G486090

Service Request: P0801429

SAMPLE CROSS-REFERENCE

<u>SAMPLE #</u>	<u>CLIENT SAMPLE ID</u>	<u>DATE</u>	<u>TIME</u>
P0801429-001	MW-25-5	05/14/08	08:37
P0801429-002	MW-25-4	05/14/08	09:20
P0801429-003	MW-25-3	05/14/08	10:02
P0801429-004	MW-25-2	05/14/08	10:41
P0801429-005	MW-25-1	05/14/08	11:26
P0801429-006	EB-14-05/14/08	05/14/08	11:09

Columbia Analytical Services, Inc.

Acronyms

CA LUFT	California DHS LUFT Method
ASTM	American Society for Testing and Materials
BTEX	Benzene/Toluene/Ethylbenzene/Xylenes
CAS Number	Chemical Abstract Service Registry Number
CFC	Chlorofluorocarbon
CRDL	Contract Required Detection Limit
DLCS	Duplicate Laboratory Control Sample
DMS	Duplicate Matrix Spike
DOH or DHS	Department of Health Services
EPA	U.S. Environmental Protection Agency
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
IC	Ion Chromatography
ICB	Initial Calibration Blank
ICV	Initial Calibration Verification
LCS	Laboratory Control Sample
LUFT	Leaking Underground Fuel Tank
M	Modified Method
MDL	Method Detection Limit
MRL	Method Reporting Limit
MS	Matrix Spike
MTBE	Methyl <i>tert</i> -Butyl Ether
NA	Not Applicable
NC	Not Calculated
ND	None Detected at or above the Method Reporting/Detection Limit (MRL/MDL)
NTU	Nephelometric Turbidity Units
ppb	Parts Per Billion
ppm	Parts Per Million
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SIM	Selected Ion Monitoring
SM	<i>Standard Methods for the Examination of Water and Wastewater</i> 19th Ed., 1995.
SW	<i>Test Methods for Evaluating Solid Waste, Physical/Chemical Methods</i> SW-846, Third Edition, 1986 and as amended by Updates I, II, IIA, and IIB.
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
TSS	Total Suspended Solids
TTLC	Total Threshold Limit Concentration
VOA	Volatile Organic Analyte(s)
VOC	Volatile Organic Compound(s)

Qualifiers

U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
J	The result is an estimated concentration that is less than the MRL (PQL), but greater than or equal to the MDL.
B	Analyte detected in the method blank above MRL (PQL).
E	Estimated; result based on response which exceeded the instrument calibration range.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
D	The reported result is from a dilution.
X	See case narrative.



2655 Park Center Drive, Suite A
 Simi Valley, California 93065
 Phone (805) 526-7161
 Fax (805) 526-7270

CAS Project No. P00001429
 CAS Contact:

Requested Turnaround Time in Business Days (Surcharges) please circle
 1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day - Standard

Company Name & Address (Reporting Information)		Project Name		Analysis Method and/or Analytes		Preservative Code		Preservative Key	
BATTLE 3990 OLD TOWN AVE. C-205 SAN DIEGO, CA 92110		JPL GW MON 2008		0				0 None 1 HCL 2 HNO3 3 H2SO4 4 NaOH 5 Zn Acetate 6 Asc Acid 7 Other	
Project Manager DAVID CONNER		Project Number 6486090		Semi-Volatile Organics GC/MS 625 <input type="checkbox"/> 8270C <input type="checkbox"/> (Subcontracted)				Remarks	
Phone 619-726-7311		PO. # / Billing Information 214319/BATTLE		TPH FC <input type="checkbox"/> 8015M (Subcontracted)					
Fax		ATTN: GERRIE TOMPKINS 525 KING AVE COLUMBUS, OH 43201		TPH Diesel 8015B <input type="checkbox"/> (Subcontracted)					
Email Address for Result Reporting		Sampler (Print & Sign)		TPH Diesel Low Level 8015B <input type="checkbox"/> (Subcontracted)					
Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Matrix	Number of Containers				
MW-25-5	1	08/14/08	0837	W	1				
MW-25-4	2		0920						
MW-25-3	3		1002						
MW-25-2	4		1041						
MW-25-1	5		1126		2				
EB-14-05/14/08	6	05/14/08	1109		1				

Report Tier Levels - please select
 Tier I - (Results/Default if not specified) _____
 Tier II - (Results & QC) _____
 Tier III - (Data Validation Package) 10% Surcharge _____
 Tier V - (Light specified) _____

MRL required Yes/No _____
 MDL / PQL / J required Yes/No _____
 EDD required Yes/No _____
 Type: _____

Relinquished by: (Signature) _____ Date: 05/14/08 Time: 12:30
 Relinquished by: (Signature) _____ Date: 05/14/08 Time: 13:20
 Relinquished by: (Signature) _____ Date: 05/14/08 Time: 13:30

Project Requirements (MRLs, QAPP)
 Cooler/Blank/Ice/No Ice _____
 Temperature _____ °C

Columbia Analytical Services, Inc.

Chain of Custody Report

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08/G486090

Service Request: P0801429

Bottle ID	Date	Time	Sample Location / User	Disposed On
P0801429-001.01	05/14/2008	1324	SMO / LKUKITA	
	05/14/2008	1341	In Lab / DCASTILLO	
	05/14/2008	1517	P-37 / DCASTILLO	
P0801429-002.01	05/14/2008	1324	SMO / LKUKITA	
	05/14/2008	1341	In Lab / DCASTILLO	
	05/14/2008	1517	P-37 / DCASTILLO	
P0801429-003.01	05/14/2008	1324	SMO / LKUKITA	
	05/14/2008	1341	In Lab / DCASTILLO	
	05/14/2008	1517	P-37 / DCASTILLO	
P0801429-004.01	05/14/2008	1324	SMO / LKUKITA	
	05/14/2008	1341	In Lab / DCASTILLO	
	05/14/2008	1517	P-37 / DCASTILLO	
P0801429-005.01	05/14/2008	1324	SMO / LKUKITA	
	05/14/2008	1341	In Lab / DCASTILLO	
	05/14/2008	1517	P-37 / DCASTILLO	
P0801429-005.02	05/14/2008	1324	SMO / LKUKITA	
	05/14/2008	1341	In Lab / DCASTILLO	
	05/14/2008	1517	P-37 / DCASTILLO	
P0801429-006.01	05/14/2008	1324	SMO / LKUKITA	
	05/14/2008	1341	In Lab / DCASTILLO	
	05/14/2008	1517	P-37 / DCASTILLO	

Columbia Analytical Services, Inc.
Sample Acceptance Check Form

Client: Battelle Work order: P0801429
 Project: JPL Groundwater Monitoring 2Q08 / G486090
 Sample(s) received on: 5/14/08 Date opened: 5/14/08 by: LKUKITA

Note: This form is used for all samples received by CAS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

- | | Yes | No | N/A |
|---|-------------------------------------|-------------------------------------|-------------------------------------|
| 1 Were sample containers properly marked with client sample ID? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 Container(s) supplied by CAS ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 Did sample containers arrive in good condition? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 Were chain-of-custody papers used and filled out? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5 Did sample container labels and/or tags agree with custody papers? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6 Was sample volume received adequate for analysis? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7 Are samples within specified holding times? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8 Was proper temperature (thermal preservation) of cooler at receipt adhered to?
Cooler Temperature _____ °C Blank Temperature <u>3</u> °C | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 9 Was a trip blank received?
Trip blank supplied by CAS: Serial # _____ -TB _____ | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 10 Were custody seals on outside of cooler/Box?
Location of seal(s)? _____ Sealing Lid?
Were signature and date included?
Were seals intact?
Were custody seals on outside of sample container?
Location of seal(s)? _____ Sealing Lid?
Were signature and date included?
Were seals intact? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 11 Do containers have appropriate preservation , according to method/SOP or Client specified information?
Is there a client indication that the submitted samples are pH preserved?
Were VOA vials checked for presence/absence of air bubbles?
Does the client/method/SOP require that the analyst check the sample pH and <u>if necessary</u> alter it? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 12 Tubes: Are the tubes capped and intact?
Do they contain moisture? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 13 Badges: Are the badges properly capped and intact?
Are dual bed badges separated and individually capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P0801429-001.01	125mL Plastic NP					
P0801429-002.01	125mL Plastic NP					
P0801429-003.01	125mL Plastic NP					
P0801429-004.01	125mL Plastic NP					
P0801429-005.01	125mL Plastic NP					
P0801429-005.02	125mL Plastic NP					
P0801429-006.01	125mL Plastic NP					

Explain any discrepancies: (include lab sample ID numbers): _____

*Required pH: Phenols/COD/NH3/TOC/TOX/NO3+NO2/TKN/T.PHOS, H2SO4 (pH<2); Metals, HNO3 (pH<2); CN (NaOH or NaOH/Asc Acid) (pH>12);

DIVIDER SHEET

ANALYTICAL DATA
FOR

Hexavalent Chromium

ANALYSIS

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : Battelle
Project Name : JPL Groundwater Monitoring 2Q08
Project Number : G486090
Sample Matrix : WATER

Service Request : P0801429
Date Collected : 05/14/08
Date Received : 05/14/08

Chromium, Hexavalent

Prep Method : None
Analysis Method : 7196A
Test Notes :

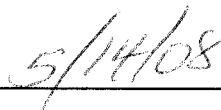
Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	PQL	MDL	Dilution Factor	Date Extracted	Date/Time Analyzed	Result	Result Notes
MW-25-5	P0801429-001	0.010	0.006	1	NA	05/14/08 14:45	ND	
MW-25-4	P0801429-002	0.010	0.006	1	NA	05/14/08 14:45	ND	
MW-25-3	P0801429-003	0.010	0.006	1	NA	05/14/08 14:45	ND	
MW-25-2	P0801429-004	0.010	0.006	1	NA	05/14/08 14:45	ND	
MW-25-1	P0801429-005	0.010	0.006	1	NA	05/14/08 14:45	ND	
EB-14-05/14/08	P0801429-006	0.010	0.006	1	NA	05/14/08 14:45	ND	
Method Blank	P0801429-MB	0.010	0.006	1	NA	05/14/08 14:45	ND	

Approved By



Date :



CAS SR #P0801438

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Hexavalent Chromium Raw Data..... 13-22



LABORATORY REPORT

May 16, 2008

David Conner
Battelle
3990 Old Town Ave., Suite C-205
San Diego, CA 92110

RE: JPL Groundwater Monitoring 2Q08 / G486090

Dear David:

Enclosed are the results of the samples submitted to our laboratory on May 15, 2008. For your reference, these analyses have been assigned our service request number P0801438.

All analyses were performed in accordance with our laboratory's quality assurance program. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein. Your report contains _____ pages.

Columbia Analytical Services, Inc. is certified by the California Department of Health Services, NELAP Laboratory Certificate No. 02115CA; Arizona Department of Health Services, Certificate No. AZ0694; Florida Department of Health, NELAP Certification E871020; New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID #CA009; New York State Department of Health, NELAP NY Lab ID No: 11221; Oregon Environmental Laboratory Accreditation Program, NELAP ID: CA20007; The American Industrial Hygiene Association, Laboratory #101661; Department of the Navy (NFESC); Pennsylvania Registration No. 68-03307. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact me for information corresponding to a particular certification.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

Columbia Analytical Services, Inc.



Sue Anderson
Project Manager

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08 / G486090

CAS Project No: P0801438

CASE NARRATIVE

The samples were received intact under chain of custody on May 15, 2008 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Hexavalent Chromium by EPA Method 7196A

No anomalies were encountered during this analysis.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08/G486090

Service Request: P0801438

SAMPLE CROSS-REFERENCE

<u>SAMPLE #</u>	<u>CLIENT SAMPLE ID</u>	<u>DATE</u>	<u>TIME</u>
P0801438-001	MW-26-2	05/15/08	07:37
P0801438-002	MW-26-1	05/15/08	08:20
P0801438-003	EB-15-5/15/08	05/15/08	08:04
P0801438-004	SB-1-2Q08	05/15/08	07:58

Columbia Analytical Services, Inc.

Acronyms

CA LUFT	California DHS LUFT Method
ASTM	American Society for Testing and Materials
BTEX	Benzene/Toluene/Ethylbenzene/Xylenes
CAS Number	Chemical Abstract Service Registry Number
CFC	Chlorofluorocarbon
CRDL	Contract Required Detection Limit
DLCS	Duplicate Laboratory Control Sample
DMS	Duplicate Matrix Spike
DOH or DHS	Department of Health Services
EPA	U.S. Environmental Protection Agency
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
IC	Ion Chromatography
ICB	Initial Calibration Blank
ICV	Initial Calibration Verification
LCS	Laboratory Control Sample
LUFT	Leaking Underground Fuel Tank
M	Modified Method
MDL	Method Detection Limit
MRL	Method Reporting Limit
MS	Matrix Spike
MTBE	Methyl <i>tert</i> -Butyl Ether
NA	Not Applicable
NC	Not Calculated
ND	None Detected at or above the Method Reporting/Detection Limit (MRL/MDL)
NTU	Nephelometric Turbidity Units
ppb	Parts Per Billion
ppm	Parts Per Million
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SIM	Selected Ion Monitoring
SM	<i>Standard Methods for the Examination of Water and Wastewater</i> , 19th Ed., 1995.
SW	<i>Test Methods for Evaluating Solid Waste, Physical/Chemical Methods</i> SW-846, Third Edition, 1986 and as amended by Updates I, II, IIA, and IIB.
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
TSS	Total Suspended Solids
TTLC	Total Threshold Limit Concentration
VOA	Volatile Organic Analyte(s)
VOC	Volatile Organic Compound(s)

Qualifiers

U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
J	The result is an estimated concentration that is less than the MRL (PQL), but greater than or equal to the MDL.
B	Analyte detected in the method blank above MRL (PQL).
E	Estimated; result based on response which exceeded the instrument calibration range.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
D	The reported result is from a dilution.
X	See case narrative.

Water & Soil - Chain of Custody Record & Analytical Service Request



2655 Park Center Drive, Suite A
 Simi Valley, California 93065
 Phone (805) 526-7161
 Fax (805) 526-7270

Requested Turnaround Time in Business Days (Surcharges) please circle
 1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day - Standard

CAS Project No. PO801430
 CAS Contact:

Company Name & Address (Reporting Information)		Project Name		Analysis Method and/or Analytes		Preservative Code		Preservative Key						
BATTELLE 3990 OLD TOWN AVE, C-205 SAN DIEGO, CA 92110		JPL GW Mon 2008 Project Number G486090		TPH Gas 8015B <input type="checkbox"/> MTBE 8021B <input type="checkbox"/> TPH Diesel Low Level 8015B <input type="checkbox"/> (Subcontracted) TPH FC <input type="checkbox"/> 8015M (Subcontracted) Semi-Volatile Organics GC/MS <input type="checkbox"/> 8270C <input type="checkbox"/> (Subcontracted)		0 None 1 HCL 2 HNO3 3 H2SO4 4 NaOH 5 Zn Acetate 6 Asc Acid 7 Other		Remarks LELE III QC MS/MSD SAMPLET BANK SOURCE BLANK						
Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Matrix	Number of Containers	624 <input type="checkbox"/> 8260B <input type="checkbox"/> Oxygates <input type="checkbox"/> TPH Gas <input type="checkbox"/>	Volatiles Organics GC/MS <input type="checkbox"/>	TPH Gas 8015B <input type="checkbox"/>	BTEX 8021B <input type="checkbox"/> MTBE 8021B <input type="checkbox"/>	TPH Diesel Low Level 8015B <input type="checkbox"/> (Subcontracted)	TPH FC <input type="checkbox"/> 8015M (Subcontracted)	Semi-Volatile Organics GC/MS <input type="checkbox"/> 8270C <input type="checkbox"/> (Subcontracted)	Preservative Code	Preservative Key
MW-26-2	1	5/15/08	737	W	1							X		
MW-26-1	2		820		2							X		
EB-15-5/15/08	3		804		1							X		
SB-1-2008	4		758		1							X		

Report Tier Levels - please select
 Tier I - (Results/Default if not specified) ___
 Tier II - (Results + Q9) ___
 Tier III - (Data Validation Package) 10% Surcharge
 Tier V - (client specified) ___

MRL required Yes/No /No
 EDD required Yes/No /No
 MDL/PQL/J required Yes/No /No

Relinquished by: (Signature) [Signature] Date: 5/15/08 Time: 10:28
 Relinquished by: (Signature) [Signature] Date: 5/15/08 Time: 12:55
 Relinquished by: (Signature) [Signature] Date: 5/15/08 Time: 12:55

Received by: (Signature) [Signature] Date: 5/15/08 Time: 10:28
 Received by: (Signature) [Signature] Date: 5/15/08 Time: 12:55
 Received by: (Signature) [Signature] Date: 5/15/08 Time: 12:55

Project Requirements (MRLs, QAPP)
 Cooler Blank Ice No
 Temperature °C

Columbia Analytical Services, Inc.

Chain of Custody Report

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08/G486090

Service Request: P0801438

Bottle ID	Date	Time	Sample Location / User	Disposed On
P0801438-001.01	05/15/2008	1139	SMO / LKUKITA	
	05/15/2008	1152	In Lab / DCASTILLO	
	05/15/2008	1402	P-37 / DCASTILLO	
P0801438-002.01	05/15/2008	1139	SMO / LKUKITA	
	05/15/2008	1152	In Lab / DCASTILLO	
	05/15/2008	1402	P-37 / DCASTILLO	
P0801438-002.02	05/15/2008	1141	SMO / LKUKITA	
	05/15/2008	1152	In Lab / DCASTILLO	
	05/15/2008	1402	P-37 / DCASTILLO	
P0801438-003.01	05/15/2008	1139	SMO / LKUKITA	
	05/15/2008	1152	In Lab / DCASTILLO	
	05/15/2008	1402	P-37 / DCASTILLO	
P0801438-004.01	05/15/2008	1139	SMO / LKUKITA	
	05/15/2008	1152	In Lab / DCASTILLO	
	05/15/2008	1402	P-37 / DCASTILLO	

Columbia Analytical Services, Inc.
Sample Acceptance Check Form

Client: Battelle

Work order: P0801438

Project: JPL Groundwater Monitoring 2Q08 / G486090

Sample(s) received on: 5/15/08

Date opened: 5/15/08

by: LKUKITA

Note: This form is used for all samples received by CAS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

- | | Yes | No | N/A |
|--|-------------------------------------|-------------------------------------|-------------------------------------|
| 1 Were sample containers properly marked with client sample ID? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 Container(s) supplied by CAS ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 Did sample containers arrive in good condition? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 Were chain-of-custody papers used and filled out? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5 Did sample container labels and/or tags agree with custody papers? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6 Was sample volume received adequate for analysis? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7 Are samples within specified holding times? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8 Was proper temperature (thermal preservation) of cooler at receipt adhered to? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Cooler Temperature _____ °C Blank Temperature <u>2</u> °C | | | |
| 9 Was a trip blank received? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Trip blank supplied by CAS: Serial # _____ -TB _____ | | | |
| 10 Were custody seals on outside of cooler/Box? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Location of seal(s)? _____ Sealing Lid? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were custody seals on outside of sample container? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Location of seal(s)? _____ Sealing Lid? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 11 Do containers have appropriate preservation , according to method/SOP or Client specified information? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Is there a client indication that the submitted samples are pH preserved? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were VOA vials checked for presence/absence of air bubbles? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Does the client/method/SOP require that the analyst check the sample pH and <u>if necessary</u> alter it? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 12 Tubes: Are the tubes capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Do they contain moisture? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 13 Badges: Are the badges properly capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Are dual bed badges separated and individually capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P0801438-001.01	125mL Plastic NP					
P0801438-002.01	125mL Plastic NP					
P0801438-002.02	125mL Plastic NP					
P0801438-003.01	125mL Plastic NP					
P0801438-004.01	125mL Plastic NP					

Explain any discrepancies: (include lab sample ID numbers): _____

*Required pH: Phenols/COD/NH3/TOC/TOX/NO3+NO2/TKN/T.PHOS, H2SO4 (pH<2); Metals, HNO3 (pH<2); CN (NaOH or NaOH/Asc Acid) (pH>12);

DIVIDER SHEET

ANALYTICAL DATA
FOR

Hexavalent Chromium

ANALYSIS

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : Battelle
Project Name : JPL Groundwater Monitoring 2Q08
Project Number : G486090
Sample Matrix : WATER

Service Request : P0801438
Date Collected : 05/15/08
Date Received : 05/15/08

Chromium, Hexavalent

Prep Method : None
Analysis Method : 7196A
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	PQL	MDL	Dilution Factor	Date Extracted	Date/Time Analyzed	Result	Result Notes
MW-26-2	P0801438-001	0.010	0.006	1	NA	05/15/08 13:25	ND	
MW-26-1	P0801438-002	0.010	0.006	1	NA	05/15/08 13:25	ND	
EB-15-5/15/08	P0801438-003	0.010	0.006	1	NA	05/15/08 13:25	ND	
SB-1-2Q08	P0801438-004	0.010	0.006	1	NA	05/15/08 13:25	ND	
Method Blank	P0801438-MB	0.010	0.006	1	NA	05/15/08 13:25	ND	

Approved By 

Date : 5/16/08

CAS SR #P0801465

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LABORATORY REPORT

May 20, 2008

David Conner
Battelle
3990 Old Town Ave., Suite C-205
San Diego, CA 92110

RE: JPL Groundwater Monitoring 2Q08 / G486090

Dear David:

Enclosed are the results of the samples submitted to our laboratory on May 19, 2008. For your reference, these analyses have been assigned our service request number P0801465.

All analyses were performed in accordance with our laboratory's quality assurance program. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein. Your report contains 23 pages.

Columbia Analytical Services, Inc. is certified by the California Department of Health Services, NELAP Laboratory Certificate No. 02115CA; Arizona Department of Health Services, Certificate No. AZ0694; Florida Department of Health, NELAP Certification E871020; New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID #CA009; New York State Department of Health, NELAP NY Lab ID No: 11221; Oregon Environmental Laboratory Accreditation Program, NELAP ID: CA20007; The American Industrial Hygiene Association, Laboratory #101661; Department of the Navy (NFESC); Pennsylvania Registration No. 68-03307. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact me for information corresponding to a particular certification.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

Columbia Analytical Services, Inc.



Sue Anderson
Project Manager

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08 / G486090

CAS Project No: P0801465

CASE NARRATIVE

The samples were received intact under chain of custody on May 19, 2008 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Hexavalent Chromium by EPA Method 7196A

No anomalies were encountered during this analysis.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08/G486090

Service Request: P0801465

SAMPLE CROSS-REFERENCE

<u>SAMPLE #</u>	<u>CLIENT SAMPLE ID</u>	<u>DATE</u>	<u>TIME</u>
P0801465-001	MW-1	05/19/08	08:30
P0801465-002	MW-9	05/19/08	10:32

Columbia Analytical Services, Inc.

Acronyms

CA LUFT	California DHS LUFT Method
ASTM	American Society for Testing and Materials
BTEX	Benzene/Toluene/Ethylbenzene/Xylenes
CAS Number	Chemical Abstract Service Registry Number
CFC	Chlorofluorocarbon
CRDL	Contract Required Detection Limit
DLCS	Duplicate Laboratory Control Sample
DMS	Duplicate Matrix Spike
DOH or DHS	Department of Health Services
EPA	U.S. Environmental Protection Agency
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
IC	Ion Chromatography
ICB	Initial Calibration Blank
ICV	Initial Calibration Verification
LCS	Laboratory Control Sample
LUFT	Leaking Underground Fuel Tank
M	Modified Method
MDL	Method Detection Limit
MRL	Method Reporting Limit
MS	Matrix Spike
MTBE	Methyl <i>tert</i> -Butyl Ether
NA	Not Applicable
NC	Not Calculated
ND	None Detected at or above the Method Reporting/Detection Limit (MRL/MDL)
NTU	Nephelometric Turbidity Units
ppb	Parts Per Billion
ppm	Parts Per Million
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SIM	Selected Ion Monitoring
SM	<i>Standard Methods for the Examination of Water and Wastewater</i> , 19th Ed., 1995.
SW	<i>Test Methods for Evaluating Solid Waste, Physical/Chemical Methods</i> SW-846, Third Edition, 1986 and as amended by Updates I, II, IIA, and IIB.
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
TSS	Total Suspended Solids
TTLC	Total Threshold Limit Concentration
VOA	Volatile Organic Analyte(s)
VOC	Volatile Organic Compound(s)

Qualifiers

U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
J	The result is an estimated concentration that is less than the MRL (PQL), but greater than or equal to the MDL.
B	Analyte detected in the method blank above MRL (PQL).
E	Estimated; result based on response which exceeded the instrument calibration range.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
D	The reported result is from a dilution.
X	See case narrative.

Columbia Analytical Services, Inc.

Chain of Custody Report

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08/G486090

Service Request: P0801465

Bottle ID	Date	Time	Sample Location / User	Disposed On
P0801465-001.01	05/19/2008	1259	SMO / LKUKITA	
	05/19/2008	1304	In Lab / DCASTILLO	
	05/19/2008	1533	P-37 / DCASTILLO	
P0801465-001.02	05/19/2008	1259	SMO / LKUKITA	
	05/19/2008	1304	In Lab / DCASTILLO	
	05/19/2008	1533	P-37 / DCASTILLO	
P0801465-002.01	05/19/2008	1259	SMO / LKUKITA	
	05/19/2008	1304	In Lab / DCASTILLO	
	05/19/2008	1533	P-37 / DCASTILLO	

Columbia Analytical Services, Inc.
Sample Acceptance Check Form

Client: Battelle Work order: P0801465
 Project: JPL Groundwater Monitoring 2Q08 / G486090
 Sample(s) received on: 5/19/08 Date opened: 5/19/08 by: LKUKITA

Note: This form is used for all samples received by CAS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

- | | | Yes | No | N/A |
|----|--|-------------------------------------|-------------------------------------|-------------------------------------|
| 1 | Were sample containers properly marked with client sample ID? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 | Container(s) supplied by CAS ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 | Did sample containers arrive in good condition? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 | Were chain-of-custody papers used and filled out? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5 | Did sample container labels and/or tags agree with custody papers? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6 | Was sample volume received adequate for analysis? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7 | Are samples within specified holding times? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8 | Was proper temperature (thermal preservation) of cooler at receipt adhered to?
Cooler Temperature _____ °C Blank Temperature _____ 2 _____ °C | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 9 | Was a trip blank received?
Trip blank supplied by CAS: Serial # _____ -TB _____ | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 10 | Were custody seals on outside of cooler/Box?
Location of seal(s)? _____ Sealing Lid?
Were signature and date included?
Were seals intact? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | Were custody seals on outside of sample container?
Location of seal(s)? _____ Sealing Lid?
Were signature and date included?
Were seals intact? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 11 | Do containers have appropriate preservation , according to method/SOP or Client specified information?
Is there a client indication that the submitted samples are pH preserved?
Were VOA vials checked for presence/absence of air bubbles?
Does the client/method/SOP require that the analyst check the sample pH and <u>if necessary</u> alter it? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 12 | Tubes: Are the tubes capped and intact?
Do they contain moisture? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 13 | Badges: Are the badges properly capped and intact?
Are dual bed badges separated and individually capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Lab Sample ID	Container Description	Required pH*	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P0801465-001.01	125mL Plastic NP					
P0801465-001.02	125mL Plastic NP					
P0801465-002.01	125mL Plastic NP					

Explain any discrepancies: (include lab sample ID numbers): _____

*Required pH: Phenols/COD/NH3/TOC/TOX/NO3+NO2/TKN/T.PHOS, H2SO4 (pH<2); Metals, HNO3 (pH<2); CN (NaOH or NaOH/Asc Acid) (pH>12);

DIVIDER SHEET

ANALYTICAL DATA
FOR

Hexavalent Chromium

ANALYSIS

Analytical Report

Client : Battelle
 Project Name : JPL Groundwater Monitoring 2Q08
 Project Number : G486090
 Sample Matrix : WATER


Service Request : P0801465
 Date Collected : 05/19/08
 Date Received : 05/19/08

Chromium, Hexavalent

Prep Method : None
 Analysis Method : 7196A
 Test Notes :

Units : mg/L (ppm)
 Basis : NA

Sample Name	Lab Code	PQL	MDL	Dilution Factor	Date Extracted	Date/Time Analyzed	Result	Result Notes
MW-1	P0801465-001	0.010	0.006	1	NA	05/19/08 13:35	ND	
MW-9	P0801465-002	0.010	0.006	1	NA	05/19/08 13:35	ND	
Method Blank	P0801465-MB	0.010	0.006	1	NA	05/19/08 13:35	ND	

Approved By 

Date : 5/20/08

CAS SR #P0801487

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LABORATORY REPORT

May 21, 2008

David Conner
Battelle
3990 Old Town Ave., Suite C-205
San Diego, CA 92110

RE: JPL Groundwater Monitoring 2Q08 / G486090

Dear David:

Enclosed are the results of the samples submitted to our laboratory on May 20, 2008. For your reference, these analyses have been assigned our service request number P0801487.

All analyses were performed in accordance with our laboratory's quality assurance program. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein. Your report contains 23 pages.

Columbia Analytical Services, Inc. is certified by the California Department of Health Services, NELAP Laboratory Certificate No. 02115CA; Arizona Department of Health Services, Certificate No. AZ0694; Florida Department of Health, NELAP Certification E871020; New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID #CA009; New York State Department of Health, NELAP NY Lab ID No: 11221; Oregon Environmental Laboratory Accreditation Program, NELAP ID: CA20007; The American Industrial Hygiene Association, Laboratory #101661; Department of the Navy (NFESC); Pennsylvania Registration No. 68-03307. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact me for information corresponding to a particular certification.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

Columbia Analytical Services, Inc.



Sue Anderson
Project Manager

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08 / G486090

CAS Project No: P0801487

CASE NARRATIVE

The samples were received intact under chain of custody on May 20, 2008 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Hexavalent Chromium by EPA Method 7196A

The upper control criterion was exceeded for in Duplicate Matrix Spike (DMS) for MW-7 (P0801487-001DMS). The analyte in question was not detected in the associated field samples. The error associated with elevated recovery equates to a high bias; therefore, the sample data has not been significantly affected. No further corrective action was necessary.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08/G486090

Service Request: P0801487

SAMPLE CROSS-REFERENCE

<u>SAMPLE #</u>	<u>CLIENT SAMPLE ID</u>	<u>DATE</u>	<u>TIME</u>
P0801487-001	MW-7	05/20/08	09:40
P0801487-002	DUPE-5-2Q08	05/20/08	09:40

Columbia Analytical Services, Inc.

Acronyms

CA LUFT	California DHS LUFT Method
ASTM	American Society for Testing and Materials
BTEX	Benzene/Toluene/Ethylbenzene/Xylenes
CAS Number	Chemical Abstract Service Registry Number
CFC	Chlorofluorocarbon
CRDL	Contract Required Detection Limit
DLCS	Duplicate Laboratory Control Sample
DMS	Duplicate Matrix Spike
DOH or DHS	Department of Health Services
EPA	U.S. Environmental Protection Agency
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
IC	Ion Chromatography
ICB	Initial Calibration Blank
ICV	Initial Calibration Verification
LCS	Laboratory Control Sample
LUFT	Leaking Underground Fuel Tank
M	Modified Method
MDL	Method Detection Limit
MRL	Method Reporting Limit
MS	Matrix Spike
MTBE	Methyl <i>tert</i> -Butyl Ether
NA	Not Applicable
NC	Not Calculated
ND	None Detected at or above the Method Reporting/Detection Limit (MRL/MDL)
NTU	Nephelometric Turbidity Units
ppb	Parts Per Billion
ppm	Parts Per Million
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SIM	Selected Ion Monitoring
SM	<i>Standard Methods for the Examination of Water and Wastewater</i> , 19th Ed., 1995.
SW	<i>Test Methods for Evaluating Solid Waste, Physical/Chemical Methods</i> SW-846, Third Edition, 1986 and as amended by Updates I, II, IIA, and IIB.
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
TSS	Total Suspended Solids
TTLC	Total Threshold Limit Concentration
VOA	Volatile Organic Analyte(s)
VOC	Volatile Organic Compound(s)

Qualifiers

U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
J	The result is an estimated concentration that is less than the MRL (PQL), but greater than or equal to the MDL.
B	Analyte detected in the method blank above MRL (PQL).
E	Estimated; result based on response which exceeded the instrument calibration range.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
D	The reported result is from a dilution.
X	See case narrative.

Columbia Analytical Services, Inc.

Chain of Custody Report

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08/G486090

Service Request: P0801487

Bottle ID	Date	Time	Sample Location / User	Disposed On
P0801487-001.01	05/20/2008	1328	SMO / LKUKITA	
	05/20/2008	1335	In Lab / DCASTILLO	
	05/20/2008	1515	P-37 / DCASTILLO	
P0801487-002.01	05/20/2008	1328	SMO / LKUKITA	
	05/20/2008	1335	In Lab / DCASTILLO	
	05/20/2008	1515	P-37 / DCASTILLO	

Columbia Analytical Services, Inc.
Sample Acceptance Check Form

Client: Battelle

Work order: P0801487

Project: JPL Groundwater Monitoring 2Q08 / G486090

Sample(s) received on: 5/20/08

Date opened: 5/20/08

by: LKUKITA

Note: This form is used for all samples received by CAS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

- | | <u>Yes</u> | <u>No</u> | <u>N/A</u> |
|--|-------------------------------------|-------------------------------------|-------------------------------------|
| 1 Were sample containers properly marked with client sample ID? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 Container(s) supplied by CAS ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 Did sample containers arrive in good condition? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 Were chain-of-custody papers used and filled out? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5 Did sample container labels and/or tags agree with custody papers? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6 Was sample volume received adequate for analysis? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7 Are samples within specified holding times? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8 Was proper temperature (thermal preservation) of cooler at receipt adhered to? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Cooler Temperature _____ °C Blank Temperature <u>3</u> °C | | | |
| 9 Was a trip blank received? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Trip blank supplied by CAS: Serial # _____ -TB _____ | | | |
| 10 Were custody seals on outside of cooler/Box? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Location of seal(s)? _____ Sealing Lid? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were custody seals on outside of sample container? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Location of seal(s)? _____ Sealing Lid? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 11 Do containers have appropriate preservation , according to method/SOP or Client specified information? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Is there a client indication that the submitted samples are pH preserved? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were VOA vials checked for presence/absence of air bubbles? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Does the client/method/SOP require that the analyst check the sample pH and <u>if necessary</u> alter it? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 12 Tubes: Are the tubes capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Do they contain moisture? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 13 Badges: Are the badges properly capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Are dual bed badges separated and individually capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P0801487-001.01	125mL Plastic NP					
P0801487-002.01	125mL Plastic NP					

Explain any discrepancies: (include lab sample ID numbers): _____

*Required pH: Phenols/COD/NH3/TOC/TOX/NO3+NO2/TKN/T.PHOS, H2SO4 (pH<2); Metals, HNO3 (pH<2); CN (NaOH or NaOH/Asc Acid) (pH>12);

DIVIDER SHEET

ANALYTICAL DATA
FOR

Hexavalent Chromium

ANALYSIS

Analytical Report

Client : Battelle
Project Name : JPL Groundwater Monitoring 2Q08
Project Number : G486090
Sample Matrix : WATER


Service Request : P0801487
Date Collected : 05/20/08
Date Received : 05/20/08

Chromium, Hexavalent

Prep Method : None
Analysis Method : 7196A
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	PQL	MDL	Dilution Factor	Date Extracted	Date/Time Analyzed	Result	Result Notes
MW-7	P0801487-001	0.010	0.006	1	NA	05/20/08 14:10	ND	
DUPE-5-2Q08	P0801487-002	0.010	0.006	1	NA	05/20/08 14:10	ND	
Method Blank	P0801487-MB	0.010	0.006	1	NA	05/20/08 14:10	ND	

Approved By  Date : 5/21/08 **9**

CAS SR #P0801509

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LABORATORY REPORT

June 30, 2008

David Conner
Battelle
3990 Old Town Ave., Suite C-205
San Diego, CA 92110

RE: JPL Groundwater Monitoring 2Q08 / G486090

Dear David:

Enclosed are the results of the samples submitted to our laboratory on May 21, 2008. The samples were sent out for partial analysis to our Kelso facility. Please find their report attached. For your reference, these analyses have been assigned our service request number P0801509.

All analyses were performed in accordance with our laboratory's quality assurance program. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein. Your report contains 151 pages.

Columbia Analytical Services, Inc. is certified by the California Department of Health Services, NELAP Laboratory Certificate No. 02115CA; Arizona Department of Health Services, Certificate No. AZ0694; Florida Department of Health, NELAP Certification E871020; New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID #CA009; New York State Department of Health, NELAP NY Lab ID No: 11221; Oregon Environmental Laboratory Accreditation Program, NELAP ID: CA20007; The American Industrial Hygiene Association, Laboratory #101661; Department of the Navy (NFESC); Pennsylvania Registration No. 68-03307. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact me for information corresponding to a particular certification.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

Columbia Analytical Services, Inc.



Sue Anderson
Project Manager

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08 / G486090

CAS Project No: P0801509

CASE NARRATIVE

The samples were received intact under chain of custody on May 21, 2008 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Hexavalent Chromium by EPA Method 7196A

No anomalies were encountered during this analysis.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08/G486090

Service Request: P0801509

SAMPLE CROSS-REFERENCE

<u>SAMPLE #</u>	<u>CLIENT SAMPLE ID</u>	<u>DATE</u>	<u>TIME</u>
P0801509-001	MW-13	05/21/08	08:55
P0801509-002	MW-16	05/21/08	11:26
P0801509-003	MW-8	05/21/08	13:43
P0801509-004	DUPE-6-2Q08	05/21/08	00:00

Columbia Analytical Services, Inc.

Acronyms

CA LUFT	California DHS LUFT Method
ASTM	American Society for Testing and Materials
BTEX	Benzene/Toluene/Ethylbenzene/Xylenes
CAS Number	Chemical Abstract Service Registry Number
CFC	Chlorofluorocarbon
CRDL	Contract Required Detection Limit
DLCS	Duplicate Laboratory Control Sample
DMS	Duplicate Matrix Spike
DOH or DHS	Department of Health Services
EPA	U.S. Environmental Protection Agency
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
IC	Ion Chromatography
ICB	Initial Calibration Blank
ICV	Initial Calibration Verification
LCS	Laboratory Control Sample
LUFT	Leaking Underground Fuel Tank
M	Modified Method
MDL	Method Detection Limit
MRL	Method Reporting Limit
MS	Matrix Spike
MTBE	Methyl <i>tert</i> -Butyl Ether
NA	Not Applicable
NC	Not Calculated
ND	None Detected at or above the Method Reporting/Detection Limit (MRL/MDL)
NTU	Nephelometric Turbidity Units
ppb	Parts Per Billion
ppm	Parts Per Million
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SIM	Selected Ion Monitoring
SM	<i>Standard Methods for the Examination of Water and Wastewater</i> , 19th Ed., 1995.
SW	<i>Test Methods for Evaluating Solid Waste, Physical/Chemical Methods</i> SW-846, Third Edition, 1986 and as amended by Updates I, II, IIA, and IIB.
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
TSS	Total Suspended Solids
TTLIC	Total Threshold Limit Concentration
VOA	Volatile Organic Analyte(s)
VOC	Volatile Organic Compound(s)

Qualifiers

U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
J	The result is an estimated concentration that is less than the MRL (PQL), but greater than or equal to the MDL.
B	Analyte detected in the method blank above MRL (PQL).
E	Estimated; result based on response which exceeded the instrument calibration range.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
D	The reported result is from a dilution.
X	See case narrative.

Columbia Analytical Services, Inc.

Chain of Custody Report

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08/G486090

Service Request: P0801509

Bottle ID	Date	Time	Sample Location / User	Disposed On
P0801509-001.01	05/21/2008	1510	SMO / LKUKITA	
	05/21/2008	1529	SUBBED / LKUKITA	
	05/23/2008	1251	K-SAM-40 / AJUELL	
	06/02/2008	0745	Custodian / KSMITH	
	06/02/2008	0927	In Lab / MBLACK	
	06/02/2008	1802	K-SAM-40 / TLEWIS	
P0801509-001.02	05/21/2008	1510	SMO / LKUKITA	
	05/21/2008	1529	SUBBED / LKUKITA	
	05/23/2008	1251	K-SAM-40 / AJUELL	
P0801509-001.03	05/21/2008	1510	SMO / LKUKITA	
	05/21/2008	1515	In Lab / DCASTILLO	
	05/21/2008	1652	P-37 / DCASTILLO	
P0801509-002.01	05/21/2008	1510	SMO / LKUKITA	
	05/21/2008	1529	SUBBED / LKUKITA	
	05/23/2008	1251	K-SAM-40 / AJUELL	
P0801509-002.02	05/21/2008	1510	SMO / LKUKITA	
	05/21/2008	1529	SUBBED / LKUKITA	
	05/23/2008	1251	K-SAM-40 / AJUELL	
	06/02/2008	0745	Custodian / KSMITH	
	06/02/2008	0927	In Lab / MBLACK	
	06/02/2008	1801	K-SAM-40 / TLEWIS	
P0801509-002.03	05/21/2008	1510	SMO / LKUKITA	
	05/21/2008	1516	In Lab / DCASTILLO	
	05/21/2008	1652	P-37 / DCASTILLO	
P0801509-003.01	05/21/2008	1510	SMO / LKUKITA	
	05/21/2008	1516	In Lab / DCASTILLO	
	05/21/2008	1652	P-37 / DCASTILLO	
P0801509-004.01	05/21/2008	1510	SMO / LKUKITA	
	05/21/2008	1529	SUBBED / LKUKITA	
	05/23/2008	1251	K-SAM-40 / AJUELL	
	06/02/2008	0745	Custodian / KSMITH	
	06/02/2008	0927	In Lab / MBLACK	
	06/02/2008	1802	K-SAM-40 / TLEWIS	
P0801509-004.02	05/21/2008	1510	SMO / LKUKITA	
	05/21/2008	1529	SUBBED / LKUKITA	
	05/23/2008	1251	K-SAM-40 / AJUELL	

4A

Columbia Analytical Services, Inc.

Chain of Custody Report

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08/G486090

Service Request: P0801509

Bottle ID	Date	Time	Sample Location / User	Disposed On
P0801509-004.03	05/21/2008	1510	SMO / LKUKITA	
	05/21/2008	1515	In Lab / DCASTILLO	
	05/21/2008	1652	P-37 / DCASTILLO	

Columbia Analytical Services, Inc.
Sample Acceptance Check Form

Client: Battelle Work order: P0801509
 Project: JPL Groundwater Monitoring 2Q08 / G486090
 Sample(s) received on: 5/21/08 Date opened: 5/21/08 by: LKUKITA

Note: This form is used for all samples received by CAS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

- | | Yes | No | N/A |
|--|-------------------------------------|-------------------------------------|-------------------------------------|
| 1 Were sample containers properly marked with client sample ID? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 Container(s) supplied by CAS ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 Did sample containers arrive in good condition? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 Were chain-of-custody papers used and filled out? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5 Did sample container labels and/or tags agree with custody papers? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6 Was sample volume received adequate for analysis? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7 Are samples within specified holding times? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8 Was proper temperature (thermal preservation) of cooler at receipt adhered to? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Cooler Temperature _____ °C Blank Temperature <u>3</u> °C | | | |
| 9 Was a trip blank received? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Trip blank supplied by CAS: Serial # _____ -TB _____ | | | |
| 10 Were custody seals on outside of cooler/Box? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Location of seal(s)? _____ Sealing Lid? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were custody seals on outside of sample container? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Location of seal(s)? _____ Sealing Lid? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 11 Do containers have appropriate preservation , according to method/SOP or Client specified information? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Is there a client indication that the submitted samples are pH preserved? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were VOA vials checked for presence/absence of air bubbles? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Does the client/method/SOP require that the analyst check the sample pH and <u>if necessary</u> alter it? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 12 Tubes: Are the tubes capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Do they contain moisture? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 13 Badges: Are the badges properly capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Are dual bed badges separated and individually capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Lab Sample ID	Container Description	Required pH*	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P0801509-001.01	1000ml AG NP					
P0801509-001.02	1000ml AG NP					
P0801509-001.03	125mL Plastic NP					
P0801509-002.01	1000ml AG NP					
P0801509-002.02	1000ml AG NP					
P0801509-002.03	125mL Plastic NP					
P0801509-003.01	125mL Plastic NP					

Explain any discrepancies: (include lab sample ID numbers): _____
 1 of 2 ambers for -002 and -004 are non CAS bottles.

*Required pH: Phenols/COD/NH3/TOC/TOX/NO3+NO2/TKN/T.PHOS, H2SO4 (pH<2); Metals, HNO3 (pH<2); CN (NaOH or NaOH/Asc Acid) (pH>12);

DIVIDER SHEET

ANALYTICAL DATA

FOR

Hexavalent Chromium

ANALYSIS

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : Battelle
Project Name : JPL Groundwater Monitoring 2Q08
Project Number : G486090
Sample Matrix : WATER

Service Request : P0801509
Date Collected : 05/21/08
Date Received : 05/21/08

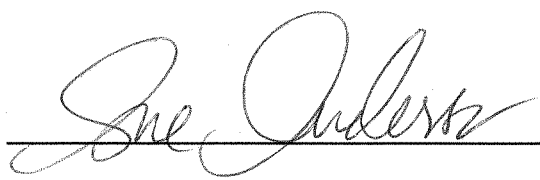
Chromium, Hexavalent

Prep Method : None
Analysis Method : 7196A
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	PQL	MDL	Dilution Factor	Date Extracted	Date/Time Analyzed	Result	Result Notes
MW-13	P0801509-001	0.020	0.012	2	NA	05/21/08 15:45	0.058	
MW-16	P0801509-002	0.010	0.006	1	NA	05/21/08 15:45	0.017	
MW-8	P0801509-003	0.010	0.006	1	NA	05/21/08 15:45	0.007	J
DUPE-6-2Q08	P0801509-004	0.010	0.006	1	NA	05/21/08 15:45	0.021	
Method Blank	P0801509-MB	0.010	0.006	1	NA	05/21/08 15:45	ND	

J Estimated concentration. The result is less than the PQL but greater than the MDL.

Approved By 

Date : 5/22/08

DIVIDER SHEET

CAS-KELSO REPORT

ANALYSIS

June 27, 2008

Analytical Report for Service Request No: P0801509

Sue Anderson
Columbia Analytical Services
2655 Park Center Drive
Suite A
Simi Valley, CA 93065-6209

RE: JPL Groundwater Monitoring 2Q08/G486090

Dear Sue:

Enclosed are the results of the samples submitted to our laboratory on May 21, 2008. For your reference, these analyses have been assigned our service request number P0801509.

All analyses were performed according to our laboratory's quality assurance program. Where applicable, the methods cited conform to the Methods Update Rule (effective 4/11/2007), which relates to the use of analytical methods for the drinking water and waste water programs. The test results meet requirements of the NELAC standards. Exceptions are noted in the case narrative report where applicable. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3280. You may also contact me via Email at LKennedy@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Les Kennedy
Project Chemist

LK/lb

Page 1 of 125

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
 - i The MRL/MDL has been elevated due to a matrix interference.
- X See case narrative.

Metals Data Qualifiers

- # The control limit criteria is not applicable. See case narrative.
- B The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- E The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
- M The duplicate injection precision was not met.
- N The Matrix Spike sample recovery is not within control limits. See case narrative.
- S The reported value was determined by the Method of Standard Additions (MSA).
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- W The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
 - i The MRL/MDL has been elevated due to a matrix interference.
- X See case narrative.
- * The duplicate analysis not within control limits. See case narrative.
- + The correlation coefficient for the MSA is less than 0.995.

Organic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- A A tentatively identified compound, a suspected aldol-condensation product.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result.
- C The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
- D The reported result is from a dilution.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- N The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
- P The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results (25% for CLP Pesticides).
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
 - i The MRL/MDL has been elevated due to a chromatographic interference.
- X See case narrative.

Additional Petroleum Hydrocarbon Specific Qualifiers

- F The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
- L The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
- H The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
- O The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
- Y The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
- Z The chromatographic fingerprint does not resemble a petroleum product.

Columbia Analytical Services, Inc.
Kelso, WA
State Certifications, Accreditations, and Licenses

Program	Number
Alaska DEC UST	UST-040
Arizona DHS	AZ0339
Arkansas - DEQ	88-0637
California DHS	2286
Colorado DPHE	-
Florida DOH	E87412
Hawaii DOH	-
Idaho DHW	-
Indiana DOH	C-WA-01
Louisiana DEQ	3016
Louisiana DHH	LA050010
Maine DHS	WA0035
Michigan DEQ	9949
Minnesota DOH	053-999-368
Montana DPHHS	CERT0047
Nevada DEP	WA35
New Jersey DEP	WA005
New Mexico ED	-
North Carolina DWQ	605
Oklahoma DEQ	9801
Oregon - DHS	WA200001
South Carolina DHEC	61002
Utah DOH	COLU
Washington DOE	C1203
Wisconsin DNR	998386840
Wyoming (EPA Region 8)	-



Case Narrative

COLUMBIA ANALYTICAL SERVICES, INC.

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08 / G486090
Sample Matrix: Water
Service Request No.: P0801509
Date Received: 5/21/08

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Three water samples received for analysis at Columbia Analytical Services, Simi Valley laboratory on 5/21/08 were forwarded and received in the Kelso laboratory on 5/23/08 in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Nitrosamines by EPA Method 521

No anomalies associated with the analysis of this batch were observed.

Approved by WU Date 6/30/08

**Chain of Custody
Documentation**

Project Name: JPL Groundwater Monitoring 2Q08
 Project Number: G486090
 Project Manager: David Conner
 Company: Battelle

Lab Code	Client Sample ID	# of Cont.	Matrix	Sample		Date Received	Send To	Nitrosamines 521
				Date	Time			
P0801509-001	MMW-13	2	Water	05/21/08	0855	05/21/08	KELSO	III
P0801509-002	MMW-16	2	Water	05/21/08	1126	05/21/08	KELSO	III
P0801509-004	DUPE-6-2Q08	2	Water	05/21/08	0000	05/21/08	KELSO	III

Test Comments
 Nitrosamines - 521 P0801509-001,2,4 NDMA

Folder Comments:
 Note: EDF files for client's internal data base; LogCode is BAT, do not have Global ID. EDD & pdf of report sent to Betsy Cutie (cutiee@battelle.org) via file share site
<https://fx.battelle.org>. For EDF unique spike ids (ex: P0701XXX01MS or SD).

Special Instructions/Comments		Turnaround Requirements <input type="checkbox"/> RUSH (Surcharges Apply) PLEASE CIRCLE WORK DAYS 1 2 3 4 5 <input checked="" type="checkbox"/> STANDARD Requested FAX Date: _____ Requested Report Date: 06/08/08		Report Requirements <input type="checkbox"/> I. Results Only <input type="checkbox"/> II. Results + QC Summaries <input checked="" type="checkbox"/> III. Results + QC and Calibration Summaries <input type="checkbox"/> IV. Data Validation Report with Raw Data PQL/MDL/J _____ EDD <u>Y</u>		Invoice Information PO# P0801509 Bill to _____	
-------------------------------	--	---	--	---	--	--	--

Relinquished By: *Shirley Kuster* 5/22/08 1515
 Received By: *Amel Mas* 5/23/08 1030
 Airbill Number: _____

**Columbia Analytical Services, Inc.
Cooler Receipt and Preservation Form**

PCLES

Client / Project: Cas/Simi Valley Service Request ~~K08~~ P0801509

Received: 5/23/08 Opened: 5/23/08 By: AJ

1. Samples were received via? US Mail Fed Ex UPS DHL CH GS PDX Courier Hand Delivered
2. Samples were received in: (circle) Cooler Box Envelope Other NA
3. Were custody seals on coolers? NA Y N If yes, how many and where? 1F
If present, were custody seals intact? Y N If present, were they signed and dated? Y N
4. Is shipper's air-bill filed? If not, record air-bill number: 179653E11350931600 NA Y N
5. Temperature of cooler(s) upon receipt (°C): 0.3
Temperature Blank (°C): _____
6. If applicable, list Chain of Custody Numbers: _____
7. Were custody papers properly filled out (ink, signed, etc.)? NA Y N
8. Packing material used. Inserts Baggies Bubble Wrap Gel Packs Wet Ice Sleeves Other _____
9. Did all bottles arrive in good condition (unbroken)? Indicate in the table below. NA Y N
10. Were all sample labels complete (i.e analysis, preservation, etc.)? Y N
11. Did all sample labels and tags agree with custody papers? Indicate in the table below Y N
12. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N
13. Were the pH-preserved bottles tested* received at the appropriate pH? Indicate in the table below NA Y N
14. Were VOA vials and 1631 Mercury bottles received without headspace? Indicate in the table below. NA Y N
15. Are CWA Microbiology samples received with >1/2 the 24hr. hold time remaining from collection? NA Y N
16. Was C12/Res negative? NA Y N

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Sample ID	Bottle Count	Bottle Type	Out of Temp	Head-space	Broken	pH	Reagent	Volume added	Reagent Lot Number	Initials

*Does not include all pH preserved sample aliquots received. See sample receiving SOP (SMO-GEN).

Additional Notes, Discrepancies, & Resolutions: _____

**Nitrosamines by
EPA Method 521**

Organic Analysis:
Nitrosamines by EPA 521

Summary Package

Sample and QC Results

COLUMBIA ANALYTICAL SERVICES, INC.

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08/G486090

Service Request: P0801509

Cover Page - Organic Analysis Data Package
Nitrosamines by EPA 521

Sample Name	Lab Code	Date Collected	Date Received
MW-13	P0801509-001	05/21/2008	05/21/2008
MW-16	P0801509-002	05/21/2008	05/21/2008
DUPE-6-2Q08	P0801509-004	05/21/2008	05/21/2008

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the case narrative. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Loren Pertwood

Name: Loren Pertwood

Date: 6/27/08

Title: Supervisor

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08/G486090
Sample Matrix: Water

Service Request: P0801509
Date Collected: 05/21/2008
Date Received: 05/21/2008

Nitrosamines by EPA 521

Sample Name: MW-13
Lab Code: P0801509-001
Extraction Method: METHOD
Analysis Method: 521

Units: ng/L
Basis: NA
Level: Low

Analyte Name	Result Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
N-Nitrosodimethylamine	ND U	2.0	1.4	1	06/02/08	06/26/08	KWG0805079	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
N-Nitrosodimethylamine-d6	85	70-130	06/26/08	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08/G486090
Sample Matrix: Water

Service Request: P0801509
Date Collected: 05/21/2008
Date Received: 05/21/2008

Nitrosamines by EPA 521

Sample Name: MW-16
Lab Code: P0801509-002
Extraction Method: METHOD
Analysis Method: 521

Units: ng/L
Basis: NA
Level: Low

Analyte Name	Result Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
N-Nitrosodimethylamine	ND U	2.0	1.4	1	06/02/08	06/26/08	KWG0805079	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
N-Nitrosodimethylamine-d6	79	70-130	06/26/08	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08/G486090
Sample Matrix: Water

Service Request: P0801509
Date Collected: 05/21/2008
Date Received: 05/21/2008

Nitrosamines by EPA 521

Sample Name: DUPE-6-2Q08
Lab Code: P0801509-004
Extraction Method: METHOD
Analysis Method: 521

Units: ng/L
Basis: NA
Level: Low

Analyte Name	Result Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
N-Nitrosodimethylamine	ND U	2.0	1.4	1	06/02/08	06/26/08	KWG0805079	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
N-Nitrosodimethylamine-d6	82	70-130	06/26/08	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08/G486090
Sample Matrix: Drinking water

Service Request: P0801509
Date Collected: NA
Date Received: NA

Nitrosamines by EPA 521

Sample Name: Method Blank
Lab Code: KWG0805079-5
Extraction Method: METHOD
Analysis Method: 521

Units: ng/L
Basis: NA
Level: Low

Analyte Name	Result Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
N-Nitrosodimethylamine	ND U	2.0	1.4	1	06/02/08	06/26/08	KWG0805079	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
N-Nitrosodimethylamine-d6	98	70-130	06/26/08	Acceptable

Comments: _____

CAS SR #P0801523

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LABORATORY REPORT

May 27, 2008

David Conner
Battelle
3990 Old Town Ave., Suite C-205
San Diego, CA 92110

RE: JPL Groundwater Monitoring 2Q08 / G486090

Dear David:

Enclosed are the results of the samples submitted to our laboratory on May 22, 2008. For your reference, these analyses have been assigned our service request number P0801523.

All analyses were performed in accordance with our laboratory's quality assurance program. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein. Your report contains 23 pages.

Columbia Analytical Services, Inc. is certified by the California Department of Health Services, NELAP Laboratory Certificate No. 02115CA; Arizona Department of Health Services, Certificate No. AZ0694; Florida Department of Health, NELAP Certification E871020; New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID #CA009; New York State Department of Health, NELAP NY Lab ID No: 11221; Oregon Environmental Laboratory Accreditation Program, NELAP ID: CA20007; The American Industrial Hygiene Association, Laboratory #101661; Department of the Navy (NFESC); Pennsylvania Registration No. 68-03307. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact me for information corresponding to a particular certification.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

Columbia Analytical Services, Inc.



Sue Anderson
Project Manager

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08 / G486090

CAS Project No: P0801523

CASE NARRATIVE

The samples were received intact under chain of custody on May 22, 2008 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Hexavalent Chromium by EPA Method 7196A

No anomalies were encountered during this analysis.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08/G486090

Service Request: P0801523

SAMPLE CROSS-REFERENCE

<u>SAMPLE #</u>	<u>CLIENT SAMPLE ID</u>	<u>DATE</u>	<u>TIME</u>
P0801523-001	MW-10	05/22/08	08:09
P0801523-002	MW-15	05/22/08	09:41
P0801523-003	DUPE-7-2Q08	05/22/08	00:00

Columbia Analytical Services, Inc.

Acronyms

CA LUFT	California DHS LUFT Method
ASTM	American Society for Testing and Materials
BTEX	Benzene/Toluene/Ethylbenzene/Xylenes
CAS Number	Chemical Abstract Service Registry Number
CFC	Chlorofluorocarbon
CRDL	Contract Required Detection Limit
DLCS	Duplicate Laboratory Control Sample
DMS	Duplicate Matrix Spike
DOH or DHS	Department of Health Services
EPA	U.S. Environmental Protection Agency
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
IC	Ion Chromatography
ICB	Initial Calibration Blank
ICV	Initial Calibration Verification
LCS	Laboratory Control Sample
LUFT	Leaking Underground Fuel Tank
M	Modified Method
MDL	Method Detection Limit
MRL	Method Reporting Limit
MS	Matrix Spike
MTBE	Methyl <i>tert</i> -Butyl Ether
NA	Not Applicable
NC	Not Calculated
ND	None Detected at or above the Method Reporting/Detection Limit (MRL/MDL)
NTU	Nephelometric Turbidity Units
ppb	Parts Per Billion
ppm	Parts Per Million
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SIM	Selected Ion Monitoring
SM	<i>Standard Methods for the Examination of Water and Wastewater</i> , 19th Ed., 1995.
SW	<i>Test Methods for Evaluating Solid Waste, Physical/Chemical Methods</i> SW-846, Third Edition, 1986 and as amended by Updates I, II, IIA, and IIB.
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
TSS	Total Suspended Solids
TTLc	Total Threshold Limit Concentration
VOA	Volatile Organic Analyte(s)
VOC	Volatile Organic Compound(s)

Qualifiers

U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
J	The result is an estimated concentration that is less than the MRL (PQL), but greater than or equal to the MDL.
B	Analyte detected in the method blank above MRL (PQL).
E	Estimated; result based on response which exceeded the instrument calibration range.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
D	The reported result is from a dilution.
X	See case narrative.

Water & Soil - Chain of Custody Record & Analytical Service Request



2655 Park Center Drive, Suite A
Simi Valley, California 93065
Phone (805) 526-7161
Fax (805) 526-7270

Requested Turnaround Time in Business Days (Surcharges) please circle
 1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day - Standard

CAS Project No. P0801523
CAS Contact:

Company Name & Address (Reporting Information) BATTELLE 3990 OLD TOWN AVE, C-205 SAN DIEGO, CA 92110		Project Name <u>JPL GW MON 2808</u> Project Number <u>6486090</u>	
Project Manager DAVID CONNER Phone <u>619-726-7311</u>		P.O. # / Billing Information <u>214319/BATTELLE</u> ATTN: GERALD THOMPSON <u>505 KING AVE</u> <u>COLUMBUS, OH 43201</u>	
Email Address for Result Reporting		Sampler (Print & Sign)	

Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Matrix	Number of Containers	Analysis Method and/or Analytes							Preservative Key	Remarks						
						624 ☐ Volatile Organics GC/MS	625 ☐ Sem-Volatile Organics GC/MS	TPH Gas 8015B ☐	TPH Diesel 8015B ☐ (Subcontracted)	TPH Diesel Low Level 8015B ☐ (Subcontracted)	TPH FC 8015M ☐ (Subcontracted)	8260B ☐ Oxygenates			8270C ☐ (Subcontracted)	8280B ☐ (Subcontracted)	Preservative Code			
MW-10	1	5/22/58	809	W	1															
MW-15	2	1	941	1	1															
DUP-7-2008	3	1	-	1	1															

Report Tier Levels - please select Tier I - (Results/Default if not specified) _____ Tier II - (Results + QC) _____ Tier III - (Data Validation Package) 10% Surcharge _____ Tier V - (client specified) <u>X</u>		MRL-required Yes (No) / No / PQL / J required Yes / No EDD required Yes / No Type: <u>General</u>	
Relinquished by: (Signature)	Relinquished by: (Signature)	Relinquished by: (Signature)	Relinquished by: (Signature)
Date: <u>5/22/58</u>	Date: <u>5/22/58</u>	Date: <u>5/22/58</u>	Date: <u>5/22/58</u>
Time: <u>1135</u>	Time: <u>1135</u>	Time: <u>1135</u>	Time: <u>1135</u>
Relinquished by: (Signature)	Relinquished by: (Signature)	Relinquished by: (Signature)	Relinquished by: (Signature)
Date: <u>5/22/58</u>	Date: <u>5/22/58</u>	Date: <u>5/22/58</u>	Date: <u>5/22/58</u>
Time: <u>1135</u>	Time: <u>1135</u>	Time: <u>1135</u>	Time: <u>1135</u>

Project Requirements (MRLs, QAPP)
Cooler/ Blank (Ice) No Ice
Temperature 3 °C

Columbia Analytical Services, Inc.
Chain of Custody Report

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08/G486090

Service Request: P0801523

Bottle ID	Date	Time	Sample Location / User	Disposed On
P0801523-001.01	05/22/2008	1223	SMO / LKUKITA	
	05/22/2008	1253	In Lab / SANDERSON	
	05/22/2008	1345	P-37 / DCASTILLO	
P0801523-002.01	05/22/2008	1223	SMO / LKUKITA	
	05/22/2008	1253	In Lab / SANDERSON	
	05/22/2008	1345	P-37 / DCASTILLO	
P0801523-003.01	05/22/2008	1223	SMO / LKUKITA	
	05/22/2008	1253	In Lab / SANDERSON	
	05/22/2008	1345	P-37 / DCASTILLO	

Columbia Analytical Services, Inc.
Sample Acceptance Check Form

Client: Battelle Work order: P0801523
 Project: JPL Groundwater Monitoring 2Q08 / G486090
 Sample(s) received on: 5/22/08 Date opened: 5/22/08 by: LKUKITA

Note: This form is used for all samples received by CAS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

- | | Yes | No | N/A |
|--|-------------------------------------|-------------------------------------|-------------------------------------|
| 1 Were sample containers properly marked with client sample ID? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 Container(s) supplied by CAS ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 Did sample containers arrive in good condition? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 Were chain-of-custody papers used and filled out? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5 Did sample container labels and/or tags agree with custody papers? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6 Was sample volume received adequate for analysis? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7 Are samples within specified holding times? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8 Was proper temperature (thermal preservation) of cooler at receipt adhered to? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Cooler Temperature _____ °C Blank Temperature <u>3</u> °C | | | |
| 9 Was a trip blank received? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Trip blank supplied by CAS: Serial # _____ -TB _____ | | | |
| 10 Were custody seals on outside of cooler/Box? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Location of seal(s)? _____ Sealing Lid? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were custody seals on outside of sample container? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Location of seal(s)? _____ Sealing Lid? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 11 Do containers have appropriate preservation , according to method/SOP or Client specified information? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Is there a client indication that the submitted samples are pH preserved? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were VOA vials checked for presence/absence of air bubbles? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Does the client/method/SOP require that the analyst check the sample pH and <u>if necessary</u> alter it? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 12 Tubes: Are the tubes capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Do they contain moisture? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 13 Badges: Are the badges properly capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Are dual bed badges separated and individually capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P0801523-001.01	125mL Plastic NP					
P0801523-002.01	125mL Plastic NP					
P0801523-003.01	125mL Plastic NP					

Explain any discrepancies: (include lab sample ID numbers): _____

*Required pH: Phenols/COD/NH3/TOC/TOX/NO3+NO2/TKN/T.PHOS, H2SO4 (pH<2); Metals, HNO3 (pH<2); CN (NaOH or NaOH/Asc Acid) (pH>12);

Diss. Sulfide, NaOH (pH>12); T. Sulfide, NaOH/ZnAc (pH>12) RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

DIVIDER SHEET

ANALYTICAL DATA
FOR

Hexavalent Chromium

ANALYSIS

Analytical Report

Client : Battelle
Project Name : JPL Groundwater Monitoring 2Q08
Project Number : G486090
Sample Matrix : WATER


Service Request : P0801523
Date Collected : 05/22/08
Date Received : 05/22/08

Chromium, Hexavalent

Prep Method : None
Analysis Method : 7196A
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	PQL	MDL	Dilution Factor	Date Extracted	Date/Time Analyzed	Result	Result Notes
MW-10	P0801523-001	0.010	0.006	1	NA	05/22/08 13:20	ND	
MW-15	P0801523-002	0.010	0.006	1	NA	05/22/08 13:20	ND	
DUPE-7-2Q08	P0801523-003	0.010	0.006	1	NA	05/22/08 13:20	ND	
Method Blank	P0801523-MB	0.010	0.006	1	NA	05/22/08 13:20	ND	

Approved By  Date : 5/27/08 **9**

CAS SR #P0801570

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LABORATORY REPORT

May 27, 2008

David Conner
Battelle
3990 Old Town Ave., Suite C-205
San Diego, CA 92110

RE: JPL Groundwater Monitoring 2Q08 / G486090

Dear David:

Enclosed are the results of the samples submitted to our laboratory on May 27, 2008. For your reference, these analyses have been assigned our service request number P0801570.

All analyses were performed in accordance with our laboratory's quality assurance program. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein. Your report contains 23 pages.

Columbia Analytical Services, Inc. is certified by the California Department of Health Services, NELAP Laboratory Certificate No. 02115CA; Arizona Department of Health Services, Certificate No. AZ0694; Florida Department of Health, NELAP Certification E871020; New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID #CA009; New York State Department of Health, NELAP NY Lab ID No: 11221; Oregon Environmental Laboratory Accreditation Program, NELAP ID: CA20007; The American Industrial Hygiene Association, Laboratory #101661; Department of the Navy (NFESC); Pennsylvania Registration No. 68-03307. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact me for information corresponding to a particular certification.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

Columbia Analytical Services, Inc.



Sue Anderson
Project Manager

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08 / G486090

CAS Project No: P0801570

CASE NARRATIVE

The samples were received intact under chain of custody on May 27, 2008 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Hexavalent Chromium by EPA Method 7196A

No anomalies were encountered during this analysis.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08/G486090

Service Request: P0801570

SAMPLE CROSS-REFERENCE

<u>SAMPLE #</u>	<u>CLIENT SAMPLE ID</u>	<u>DATE</u>	<u>TIME</u>
P0801570-001	MW-5	05/27/08	08:43
P0801570-002	MW-6	05/27/08	10:40
P0801570-003	DUPE-8-2Q08	05/27/08	00:00

Columbia Analytical Services, Inc.

Acronyms

CA LUFT	California DHS LUFT Method
ASTM	American Society for Testing and Materials
BTEX	Benzene/Toluene/Ethylbenzene/Xylenes
CAS Number	Chemical Abstract Service Registry Number
CFC	Chlorofluorocarbon
CRDL	Contract Required Detection Limit
DLCS	Duplicate Laboratory Control Sample
DMS	Duplicate Matrix Spike
DOH or DHS	Department of Health Services
EPA	U.S. Environmental Protection Agency
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
IC	Ion Chromatography
ICB	Initial Calibration Blank
ICV	Initial Calibration Verification
LCS	Laboratory Control Sample
LUFT	Leaking Underground Fuel Tank
M	Modified Method
MDL	Method Detection Limit
MRL	Method Reporting Limit
MS	Matrix Spike
MTBE	Methyl <i>tert</i> -Butyl Ether
NA	Not Applicable
NC	Not Calculated
ND	None Detected at or above the Method Reporting/Detection Limit (MRL/MDL)
NTU	Nephelometric Turbidity Units
ppb	Parts Per Billion
ppm	Parts Per Million
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SIM	Selected Ion Monitoring
SM	<i>Standard Methods for the Examination of Water and Wastewater</i> , 19th Ed., 1995.
SW	<i>Test Methods for Evaluating Solid Waste, Physical/Chemical Methods</i> , SW-846, Third Edition, 1986 and as amended by Updates I, II, IIA, and IIB.
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
TSS	Total Suspended Solids
TTLC	Total Threshold Limit Concentration
VOA	Volatile Organic Analyte(s)
VOC	Volatile Organic Compound(s)

Qualifiers

U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
J	The result is an estimated concentration that is less than the MRL (PQL), but greater than or equal to the MDL.
B	Analyte detected in the method blank above MRL (PQL).
E	Estimated; result based on response which exceeded the instrument calibration range.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
D	The reported result is from a dilution.
X	See case narrative.

Water & Soil - Chain of Custody Record & Analytical Service Request



2655 Park Center Drive, Suite A
 Simi Valley, California 93065
 Phone (805) 526-7161
 Fax (805) 526-7270

Company Name & Address (Reporting Information) DAVID BANNER 3990 OLD TOWN AVE., C-205 SAN DIEGO, CA 92110		Project Name JPL GW MON 2008		Requested Turnaround Time in Business Days (Surcharges) please circle 1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day - Standard		CAS Project No. 0501570	
Project Manager DAVID BANNER		Project Number G486090		Analysis Method and/or Analytes		CAS Contact:	
PO # / Billing Information 214319 / BATTLE		Address for Result Reporting ATTN: GERALD TOMPHINS 505 KING AVE. COLUMBUS, OH 43201		Preservative Code 0		Preservative Key 0 None 1 HCL 2 HNO3 3 H2SO4 4 NaOH 5 Zn Acetate 6 Asc Acid 7 Other	
Phone 619-726-7311		Fax		Volatile Organics GCMS <input type="checkbox"/> TPH Gas <input type="checkbox"/> 624 <input type="checkbox"/> 8260B <input type="checkbox"/> Oxygenates <input type="checkbox"/> TPH Gas <input type="checkbox"/> BTEX 8021B <input type="checkbox"/> MTBE 8021B <input type="checkbox"/> TPH Diesel Low Level 8015B <input type="checkbox"/> (Subcontracted) TPH Diesel 8015B <input type="checkbox"/> (Subcontracted) TPH FC 8015M <input type="checkbox"/> (Subcontracted) Semi-Volatile Organics GCMS <input type="checkbox"/> 8270C <input type="checkbox"/> (Subcontracted)		Remarks DUPLICATE	
Client Sample ID MW-5 MW-6 DUPE-8-2008		Laboratory ID Number ① ② ③		Date Collected 5/27/08 1040		Time Collected 0843 1040	
Matrix W		Number of Containers 1		TPH Gas 8015B <input type="checkbox"/> TPH Diesel 8015B <input type="checkbox"/> (Subcontracted) TPH FC 8015M <input type="checkbox"/> (Subcontracted) Semi-Volatile Organics GCMS <input type="checkbox"/> 8270C <input type="checkbox"/> (Subcontracted)		624 <input type="checkbox"/> 8260B <input type="checkbox"/> Oxygenates <input type="checkbox"/> TPH Gas <input type="checkbox"/> BTEX 8021B <input type="checkbox"/> MTBE 8021B <input type="checkbox"/> TPH Diesel Low Level 8015B <input type="checkbox"/> (Subcontracted) TPH Diesel 8015B <input type="checkbox"/> (Subcontracted) TPH FC 8015M <input type="checkbox"/> (Subcontracted) Semi-Volatile Organics GCMS <input type="checkbox"/> 8270C <input type="checkbox"/> (Subcontracted)	

Report Tier Levels - please select Tier I - (Results/Default if not specified) _____ Tier II - (Results + QC) _____ Tier III - (Data Validation Package) 10% Surcharge _____ Tier V - (client specified) <input checked="" type="checkbox"/>		MRL required Yes / No MDL / PQL / J required Yes / No		EDD required Yes / No Type: <i>Geopack</i>	
Relinquished by (Signature) [Signature]		Received by (Signature) [Signature]		Date: 5/27/08 Time: 11:30	
Relinquished by (Signature) [Signature]		Received by (Signature) [Signature]		Date: 5/27/08 Time: 11:04	
Relinquished by (Signature) [Signature]		Received by (Signature) [Signature]		Date: 5/27/08 Time: 11:04	
Project Requirements (MRLs, QAPP)				Temperature 2 °C	

Columbia Analytical Services, Inc.

Chain of Custody Report

Client: Battelle
Project: JPL Groundwater Monitoring 2Q08/G486090

Service Request: P0801570

Bottle ID	Date	Time	Sample Location / User	Disposed On
P0801570-001.01	05/27/2008	1210	SMO / MZAMORA	
	05/27/2008	1211	P-37 / MZAMORA	
	05/27/2008	1301	In Lab / DCASTILLO	
	05/27/2008	1507	P-37 / DCASTILLO	
P0801570-002.01	05/27/2008	1210	SMO / MZAMORA	
	05/27/2008	1211	P-37 / MZAMORA	
	05/27/2008	1301	In Lab / DCASTILLO	
	05/27/2008	1507	P-37 / DCASTILLO	
P0801570-003.01	05/27/2008	1210	SMO / MZAMORA	
	05/27/2008	1211	P-37 / MZAMORA	
	05/27/2008	1301	In Lab / DCASTILLO	
	05/27/2008	1507	P-37 / DCASTILLO	

Columbia Analytical Services, Inc.
Sample Acceptance Check Form

Client: Battelle Work order: P0801570
 Project: JPL Groundwater Monitoring 2Q08 / G486090
 Sample(s) received on: 5/27/08 Date opened: 5/27/08 by: MZAMORA

Note: This form is used for all samples received by CAS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

- | | Yes | No | N/A |
|---|-------------------------------------|-------------------------------------|-------------------------------------|
| 1 Were sample containers properly marked with client sample ID? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 Container(s) supplied by CAS ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 Did sample containers arrive in good condition? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 Were chain-of-custody papers used and filled out? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5 Did sample container labels and/or tags agree with custody papers? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6 Was sample volume received adequate for analysis? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7 Are samples within specified holding times? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8 Was proper temperature (thermal preservation) of cooler at receipt adhered to?
Cooler Temperature <u>2</u> °C Blank Temperature _____ °C | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 9 Was a trip blank received?
Trip blank supplied by CAS: Serial # _____ -TB _____ | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 10 Were custody seals on outside of cooler/Box?
Location of seal(s)? _____ Sealing Lid?
Were signature and date included?
Were seals intact? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Were custody seals on outside of sample container?
Location of seal(s)? _____ Sealing Lid?
Were signature and date included?
Were seals intact? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 11 Do containers have appropriate preservation , according to method/SOP or Client specified information?
Is there a client indication that the submitted samples are pH preserved?
Were VOA vials checked for presence/absence of air bubbles?
Does the client/method/SOP require that the analyst check the sample pH and <u>if necessary</u> alter it? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 12 Tubes: Are the tubes capped and intact?
Do they contain moisture? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 13 Badges: Are the badges properly capped and intact?
Are dual bed badges separated and individually capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Lab Sample ID	Container Description	Required pH*	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P0801570-001.01	125mL Plastic NP					
P0801570-002.01	125mL Plastic NP					
P0801570-003.01	125mL Plastic NP					

Explain any discrepancies: (include lab sample ID numbers): _____

*Required pH: Phenols/COD/NH3/TOC/TOX/NO3+NO2/TKN/T.PHOS, H2SO4 (pH<2); Metals, HNO3 (pH<2); CN (NaOH or NaOH/Asc Acid) (pH>12);

DIVIDER SHEET

ANALYTICAL DATA
FOR

Hexavalent Chromium

ANALYSIS

Analytical Report

Client : Battelle
Project Name : JPL Groundwater Monitoring 2Q08
Project Number : G486090
Sample Matrix : WATER

Service Request : P0801570
Date Collected : 05/27/08
Date Received : 05/27/08

Chromium, Hexavalent

Prep Method : None
Analysis Method : 7196A
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	PQL	MDL	Dilution Factor	Date Extracted	Date/Time Analyzed	Result	Result Notes
MW-5	P0801570-001	0.010	0.006	1	NA	05/27/08 13:55	ND	
MW-6	P0801570-002	0.010	0.006	1	NA	05/27/08 13:55	ND	
DUPE-8-2Q08	P0801570-003	0.010	0.006	1	NA	05/27/08 13:55	ND	
Method Blank	P0801570-MB	0.010	0.006	1	NA	05/27/08 13:55	ND	

Approved By



Date :

