SPARTON

SPARTON TECHNOLOGY

October 10, 1990

Technical Section (6H-CX)
RCRA Enforcement Branch
Hazardous Waste Management Division
U. S. Environmental Protection Agency
1445 Ross Avenue
Dallas, Texas 75202-2733

Attention: Mr. Guy L. Tidmore, Chief

Reference: Monthly Report
Sparton Technology, Inc.

Gentlemen:

This is the monthly progress report for Sparton Technology, Inc.'s Coors Road Facility located in Albuquerque, New Mexico, as required in Section IV.C of the Consent Order. This report summarizes activities during the month of September 1990.

1. The bi-weekly water level measurements taken to date, as required in Section IV.A.1 of the Consent Order, are included in Attachment 1.

2. The air stripper removal efficiencies continue to average over 99 percent for the measured indicator parameters. During the month 47,000 gallons of recovered groundwater were treated bringing the total volume treated to date to 1,250,200 gallons. Air stripper performance data is included in Attachment 2.

3. On September 4, technical representatives of EPA and Sparton met to discuss additional wells needed to complete the definition of the plume. On September 10, Sparton submitted to EPA a proposed plan and schedule for installation of additional wells to complete the plume delineation effort, and for resubmittal of the draft RFI report. This plan called for the installation of six additional wells. As of October 1, five of the wells had been installed.

002328

Sparton Technology, Inc. □ 4901 Rockaway Blvd., SE □ Rio Rancho, NM 87124 □ P.O. Box 1784 □ Albuquerque, NM 87103 □ (505) 892-5300 □ TWX 910-989-1657

One additional well had also been installed to bracket the leading edge of the plume within the 300-foot distance stipulated in the Consent Order. The wells are as follows:

WELL NO.	FLOW ZONE	LOCATION	QUICK TCE RESULTS ug/l
MW-58	upper	Arrowhead Ave., between MW-48 and MW-53	20
MW-59	upper-lower	near MW-51	<1
MW-60	upper-lower	Bryan Avenue, north of Arrowhead	<1
MW-61	upper-lower	Bryan Avenue, north of Arrowhead	--
MW-62	upper	Congress Avenue near Buckeye Street	--
MW-63	upper	Eagle Ranch Road near Adobe Wells Drive	--

The remaining well, MW-64, should be installed in early October. This is an upper-lower flow zone well located along Irving Boulevard approximately 20 to 30 feet north of MW-54. Permits for the wells in the County right-of-ways were received during the week ending September 21. Permits for the wells in city right-of-ways were received late Friday afternoon, September 28.

4. Attachment 3 contains laboratory data sheets for "quick" TCE analyses received during September. These include MWs 48, 55, 56, 57, 46, 58, and 59.

5. Attachment 4 contains the laboratory data sheets for the full suite analyses of wells 48, 55, and 56.

This concludes our progress report for the month of September. Additional details may be found in the weekly updates furnished to EPA during the month. If you have any questions, please contact the undersigned.

Very truly yours,

SPARTON TECHNOLOGY, INC.

for Richard D. Mico
Vice President/General Manager

Attachments: (as stated)

cc: NMEID
B. Thompson
J. DeWitt
J. Mabrey
G. Richardson
V. Samala

502.S3
10/04/90

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ATTACHMENT 1

Bi-Weekly Water Level Measurements

SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
BIWEEKLY WATER LEVEL MEASUREMENTS

[Water Level Elevation - Feet Above MSL]

DATE	MW-7	MW-9	MW-12	MW-13	MW-14	MW-15	MW-16	MW-17	MW-21	MW-22	MW-33	MW-34	MW-35	MW-36	MW-37
02-23-89	4978.48	4975.57	4975.23	4976.51	4974.24	4976.45	4980.07	4980.08	4979.76	4979.23	4975.07	---	---	---	---
03-08-89	4978.40	4975.36	4975.15	4976.35	4974.15	4976.36	4979.87	4980.08	4979.64	4979.14	4974.90	---	---	---	---
03-21-89	4978.81	4975.65	4975.40	4976.76	4974.07	4976.36	4979.82	4980.08	4979.68	4979.35	4975.15	---	---	---	---
04-06-89	4979.15	4975.11	4975.65	4977.18	4974.24	4976.45	4980.10	4980.16	4979.68	4979.64	4975.40	---	---	---	---
04-21-89	4979.31	4975.95	4975.73	4977.18	4974.32	4976.45	4980.07	4980.16	4979.84	4979.77	4975.40	---	---	---	---
05-03-89	4979.40	4976.03	4975.82	4977.18	4974.49	4976.53	4980.07	4980.24	4979.84	4979.81	4975.48	---	---	---	---
05-17-89	4979.65	4976.15	4975.90	4977.26	4974.32	4976.53	4980.10	4980.33	4979.93	4979.98	4975.57	---	---	---	---
06-01-89	4979.73	4976.24	4975.90	4977.43	4974.49	4976.54	4980.07	4980.41	4980.01	4979.98	4975.48	---	---	---	---
06-13-89	4979.90	4976.40	4976.07	4977.64	4974.55	4976.70	4980.32	4980.49	4980.01	4980.06	4975.65	---	---	---	---
06-30-89	4980.06	4976.49	4976.15	4977.60	4974.53	4976.53	4980.16	4980.49	4979.93	4980.19	4975.57	---	---	---	---
07-12-89	4980.40	4976.82	4976.40	4978.01	4974.82	4976.78	4980.57	4980.74	4980.26	4980.48	4975.78	---	---	---	---
07-28-89	4980.40	4976.20	4976.40	4977.93	4974.82	4976.78	4980.82	4980.87	4980.18	4980.56	4975.82	---	---	---	---
08-10-89	4980.06	4976.40	4976.07	4977.60	4974.53	4976.74	4980.68	4980.83	4980.26	4980.39	4975.73	---	---	---	---
08-24-89	4980.48	4976.90	4976.65	4978.18	4974.90	4976.99	4980.74	4980.91	4980.30	4980.30	4976.04	---	---	---	---
09-07-89	4980.65	4977.07	4976.73	4978.43	4975.07	4977.11	4980.82	4981.08	4980.30	4980.89	4976.19	---	---	---	---
09-21-89	4980.90	4977.24	4976.90	4978.46	4975.16	4977.16	4980.91	4981.16	4980.47	4981.06	4976.23	---	---	---	---
10-05-89	4980.90	4977.24	4976.94	4978.47	4975.15	4977.03	4981.07	4981.24	4980.49	4981.06	4976.32	---	---	---	---
10-20-89	4980.65	4976.82	4976.65	4978.01	4974.90	4977.07	4980.91	4981.08	4980.34	4980.81	4975.69	---	---	---	---
11-03-89	4980.40	4977.02	4976.40	4978.01	4974.90	4977.27	4980.92	4980.99	4980.58	4980.59	4975.89	---	---	---	---
11-17-89	4980.15	4977.02	4976.28	4977.60	4974.82	4977.52	4980.92	4980.87	4980.58	4980.38	4975.98	4976.98	4974.91	4984.83	4972.45
12-01-89	4979.81	4976.56	4975.90	4977.26	4974.40	4977.10	4980.83	4980.66	4980.50	4980.01	4975.81	4976.60	4974.65	4973.50	4972.35
12-15-89	4979.56	4976.27	4975.82	4977.10	4974.15	4977.10	4980.75	4980.49	4980.46	4979.88	4975.56	4976.28	4974.46	4973.35	4972.30
12-28-89	4979.31	4976.10	4975.61	4976.85	4974.15	4976.89	4980.42	4980.41	4980.33	4979.72	4975.48	4976.03	4974.21	4973.29	4972.23

[---------- Water Level Elevation - Feet Above MSL ----------]

DATE	MW-7	MW-9	MW-12	MW-13	MW-14	MW-15	MW-16	MW-17	MW-21	MW-22	MW-33	MW-34	MW-35	MW-36	MW-37
01-09-90	4979.15	4975.85	4975.44	4976.68	4973.99	4976.85	4980.33	4980.33	4980.29	4979.55	4975.31	4975.89	4974.19	4973.12	4972.12
01-24-90	4978.98	4975.85	4975.48	4976.43	4973.90	4976.68	4980.25	4980.16	4980.08	4979.55	4975.14	4975.84	4974.04	4973.01	4972.10
02-07-90	4978.81	4975.77	4975.40	4976.35	4973.82	4976.52	4980.00	4980.12	4980.08	4979.38	4975.06	4975.60	4974.00	4972.92	4971.28
02-21-90	4978.81	4975.52	4975.32	4976.35	4973.65	4976.35	4979.92	4980.08	4980.00	4979.13	4975.06	4975.52	4973.88	4972.94	4971.99
03-07-90	4978.81	4975.43	4975.07	4976.26	4973.65	4976.18	4980.00	4980.91	4979.75	4979.13	4975.06	4975.90	4973.97	4972.92	4972.16
03-21-90	4978.81	4975.43	4975.07	4976.26	4973.65	4975.93	4979.92	4980.08	4979.75	4979.13	4975.06	4975.67	4973.97	4973.07	4972.13
04-05-90	4979.23	4976.10	4975.65	4976.76	4974.07	4976.27	4980.00	4980.08	4979.75	4979.55	4975.48	4975.77	4973.00	4973.20	4972.26
04-18-90	4979.48	4976.27	4975.82	4977.10	4974.07	4976.27	4980.00	4980.16	4979.83	4979.55	4975.48	4976.27	4973.75	4972.55	4972.28
05-02-90	4979.65	4976.27	4975.90	4977.18	4974.15	4976.60	4980.08	4980.41	4980.00	4979.88	4975.81	4976.74	4974.60	4973.40	4972.41
05-16-90	4979.65	4976.27	4975.90	4977.18	4974.15	4976.35	4980.00	4980.24	4980.08	4979.63	4975.48	4976.02	4974.52	4973.32	4972.35
05-30-90	4979.65	4976.27	4975.90	4977.18	4974.07	4976.35	4980.00	4980.41	4980.08	4979.88	4975.56	4976.76	4974.60	4973.36	4972.31
06-13-90	4979.90	4976.68	4976.23	4977.51	4974.40	4976.60	4980.42	4980.49	4975.57	4979.97	4975.89	4976.98	4974.69	4973.39	4972.29
06-27-90	4980.06	4976.68	4976.32	4977.60	4974.49	4976.68	4980.42	4980.49	4980.08	4980.13	4975.89	4977.20	4974.86	4973.50	4972.35
07-10-90	4980.48	4976.77	4976.32	4977.93	4974.49	4976.77	4980.50	4980.49	4980.17	4980.38	4975.89	4977.40	4975.03	4973.61	4972.39
07-24-90	4980.15	4976.68	4976.23	4977.51	4974.32	4976.68	4980.67	4980.49	4980.42	4980.05	4975.81	4977.00	4974.86	4973.57	4972.37
08-08-90	4980.48	4977.10	4976.73	4978.01	4974.82	4977.02	4980.67	4980.58	4980.50	4980.47	4975.89	4977.82	4975.11	4973.68	4972.46
08-24-90	4980.90	4977.10	4976.73	4978.35	4974.82	4977.10	4981.17	4980.99	4980.75	4980.80	4975.89	4977.47	4975.19	4973.75	4972.06
09-06-90	4980.90	4976.85	4976.32	4977.60	4974.49	4977.10	4981.00	4980.91	4980.83	4980.47	4975.89	4977.18	4974.99	4973.60	4972.40
09-19-90	4980.48	4976.77	4976.32	4977.60	4974.49	4977.10	4981.17	4980.91	4980.83	4980.47	4975.89	4977.32	4975.30	4973.67	4972.43

ATTACHMENT 2

Air Stripper Performance Data

SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
ALBUQUERQUE, NEW MEXICO

GROUNDWATER RECOVERY SYSTEM
VOLUME TREATED
MONTH OF SEPTEMBER 1990

DATE	BEGIN READING	END READING	GALLONS	CUMULATIVE GALLONS
				1,203,200
09-01-90	398100	399700	1600	1,204,800
09-05-90	399700	401200	1500	1,206,300
09-06-90	401200	402800	1600	1,207,900
09-09-90	402800	407300	4500	1,212,400
09-10-90	407300	408800	1500	1,213,900
09-11-90	408800	410500	1700	1,215,600
09-12-90	410500	411900	1400	1,217,000
09-13-90	411900	413700	1800	1,218,800
09-16-90	413700	417800	4100	1,222,900
09-17-90	417800	419200	1400	1,224,300
09-18-90	419200	420800	1600	1,225,900
09-19-90	420800	422200	1400	1,227,300
09-20-90	422200	424300	2100	1,229,400
09-23-90	424300	431000	6700	1,236,100
09-24-90	431000	431700	700	1,236,800
09-25-90	431700	434000	2300	1,239,100
09-26-90	434000	436200	2200	1,241,300
09-27-90	436200	438300	2100	1,243,400
09-30-90	438300	445100	6800	1,250,200
			47,000	

AIR STRIPPER PERFORMANCE

Sparton Technology, Inc.
Albuquerque, New Mexico

(all concentrations in micrograms per liter (ppb))

DATE SAMPLED	1,1-Dichloroethylene INFLUENT	1,1-Dichloroethylene EFFLUENT	1,1-Dichloroethylene PERCENT REDUCTION	Methylene Chloride INFLUENT	Methylene Chloride EFFLUENT	Methylene Chloride PERCENT REDUCTION	1,1,1-Trichloroethane INFLUENT	1,1,1-Trichloroethane EFFLUENT	1,1,1-Trichloroethane PERCENT REDUCTION	Trichloroethylene INFLUENT	Trichloroethylene EFFLUENT	Trichloroethylene PERCENT REDUCTION
12/12/88	21	0.32	98.5	293	5.4	98.2	95	1.9	98.0	328	6.3	98.1
12/14/88	170	1.1	99.4	2,230	26.5	98.8	1,090	9.7	99.1	2,490	22.4	99.1
12/19/88	87	0.4	99.5	1,320	13.6	99.0	862	6.0	99.3	2,200	14.8	99.3
12/27/88	89	0.5	99.4	1,250	2.4	99.8	648	3.3	99.5	1,300	7.2	99.4
01/06/89	64	0.2	99.7	581	3.3	99.4	340	1.7	99.5	712	4.1	99.4
01/23/89	82	0.2	99.8	545	7.4	98.6	571	2.6	99.5	1,220	7.5	99.4
02/02/89	83	0.3	99.6	514	0.1	100.0	389	2.2	99.4	1,550	8.6	99.4
03/06/89	107	1.5	98.6	38	0.4	98.9	708	11.0	98.4	1,300	21.0	98.4
04/03/89	79	1	98.7	87	1	98.9	371	1	99.7	880	1.5	99.8
05/01/89	94	1	98.9	14	1	92.9	243	1	99.6	632	1	99.8
06/05/89	28	1	96.4	148	1	99.3	198	1	99.5	685	1	99.9
07/05/89	20	0.1	99.5	2.4	0.1	95.8	154	0.1	99.9	452	0.14	100.0
08/07/89	27	0.1	99.6	2.4	0.1	95.8	152	0.18	99.9	477	0.19	100.0
09/05/89	53	0.1	99.8	8.5	0.1	98.8	310	0.1	100.0	785	0.2	100.0
10/02/89	62	0.1	99.8	2.6	0.1	96.2	286	0.1	100.0	905	0.1	100.0
11/06/89	20.9	0.1	99.5	140	0.26	99.8	87.5	0.1	99.9	392	0.25	99.9
12/04/89	23.0	0.1	99.6	131	0.2	99.8	71	0.1	99.9	378	0.4	99.9
01/08/90	19.7	0.1	99.5	140	0.41	99.7	90.3	0.18	99.8	359	0.91	99.7
02/05/90	34.0	0.1	99.7	44	0.22	99.5	250	0.47	99.8	670	1.8	99.7
03/05/90	45.0	0.1	99.8	35	0.2	99.4	240	0.19	99.9	780	0.91	99.9
04/02/90	64.0	0.1	99.8	10	0.4	96.0	310	0.1	100.0	1300	0.32	100.0
05/07/90	43.0	0.1	99.8	8.7	0.1	98.9	190	0.1	99.9	720	0.18	100.0
06/04/90	70.0	0.1	99.9	1	0.1	90.0	180	0.1	99.9	820	0.1	100.0
07-02-90	30.0	0.1	99.7	1	1.0	0.0	140	0.1	99.9	625	0.1	100.0
08-06-90	40.0	0.1	99.8	21	0.1	99.5	140	0.1	99.9	550	0.59	99.9
09-10-90	44.0	0.1	99.8	5.9	0.1	98.3	150	0.1	99.9	800	1	99.9
avgs	57.7	0.3	99.4	291	2.5	99.1	318	1.7	99.5	897	3.9	99.6

002336

ATTACHMENT 3

Quick TCE Analyses

ASSAIGAI ANALYTICAL LABORATORIES

TO: Metric Corporation
8429 Washington Place, NE #A
Albuquerque, NM 87113-1672
ATTN: Gary Richardson

DATE: 5 September 1990
WORK ORDER NO: 3580

SAMPLE SITE: MW-46
RECEIVED: 4 September 1990
ANALYTE: Trichloroethylene (TCE)
METHOD: EPA Method #601

ANALYTE	ANALYTICAL RESULTS	NOMINAL DETECTION LIMIT
TCE	4800 ug/L	1 ug/L

An invoice for services is enclosed. Thank you for contacting Assaigai Laboratories.

Sincerely,

Dean Dupree
Supervisor - Organic Division

XC: Ven Samala, Sparton Technology

002338

7300 Jefferson, N.E. • Albuquerque, New Mexico 87109 • (505) 345-8964

ASSAIGAI ANALYTICAL LABORATORIES

TO: Metric Corporation
8429 Washington Place, NE #A
Albuquerque, NM 87113-1672
ATTN: Gary Richardson

DATE: 21 August 1990
WORK ORDER NO: 3494

SAMPLE SITE: MW-48
RECEIVED: 20 August 1990
ANALYTE: Trichloroethylene (TCE)
METHOD: EPA Method #601

ANALYTE	ANALYTICAL RESULTS	NOMINAL DETECTION LIMIT
TCE	600 ug/L	1 ug/L

An invoice for services is enclosed. Thank you for contacting Assaigai Laboratories.

Sincerely,

Dean Dupree
Supervisor - Organic Division

XC: Ven Samala, Sparton Technology

002339

P.O. Box 90430 • Albuquerque, New Mexico 87199-0430 • (505) 345-8964

ASSAIGAI ANALYTICAL LABORATORIES

TO: Metric Corporation
8429 Washington Place, NE #A
Albuquerque, NM 87113-1672
ATTN: Gary Richardson

DATE: 22 August 1990
WORK ORDER NO: 3503

SAMPLE SITE: MW-55
RECEIVED: 21 August 1990
ANALYTE: Trichloroethylene (TCE)
METHOD: EPA Method #601

ANALYTE	ANALYTICAL RESULTS	NOMINAL DETECTION LIMIT
TCE	9.2 ug/L	1 ug/L

An invoice for services is enclosed. Thank you for contacting Assaigai Laboratories.

Sincerely,

Dean Dupree
Supervisor - Organic Division

XC: Ven Samala, Sparton Technology

002340

P.O. Box 90430 • Albuquerque, New Mexico 87199-0430 • (505) 345-8964

ASSAIGAI ANALYTICAL LABORATORIES

TO: Metric Corporation
8429 Washington Place, NE #A
Albuquerque, NM 87113-1672
ATTN: Gary Richardson

DATE: 21 August 1990
WORK ORDER NO: 3498

SAMPLE SITE: MW-56
RECEIVED: 20 August 1990
ANALYTE: Trichloroethylene (TCE)
METHOD: EPA Method #601

ANALYTE	ANALYTICAL RESULTS	NOMINAL DETECTION LIMIT
TCE	29 ug/L	1 ug/L

An invoice for services is enclosed. Thank you for contacting Assaigai Laboratories.

Sincerely,

Dean Dupree
Supervisor - Organic Division

XC: Ven Samala, Sparton Technology

002341

P.O. Box 90430 • Albuquerque, New Mexico 87199-0430 • (505) 345-8964

ASSAIGAI ANALYTICAL LABORATORIES

TO: Metric Corporation
8429 Washington Place, NE #A
Albuquerque, NM 87113-1672
ATTN: Gary Richardson

DATE: 31 August 1990
WORK ORDER NO: 3573

SAMPLE SITE: MW-57
RECEIVED: 31 August 1990
ANALYTE: Trichloroethylene (TCE)
METHOD: EPA Method #601

ANALYTE	ANALYTICAL RESULTS	NOMINAL DETECTION LIMIT
TCE	<1 ug/L	1 ug/L

An invoice for services is enclosed. Thank you for contacting Assaigai Laboratories.

Sincerely,

Dean Dupree

Dean Dupree
Supervisor - Organic Division

XC: Ven Samala, Sparton Technology

002342

P.O. Box 90430 • Albuquerque, New Mexico 87199-0430 • (505) 345-8964

ASSAIGAI ANALYTICAL LABORATORIES

TO: Metric Corporation
8429 Washington Place, NE #A
Albuquerque, NM 87113-1672
ATTN: Gary Richardson

DATE: 17 September 1990
WORK ORDER NO: 5749

SAMPLE SITE: MW-58
RECEIVED: 13 September 1990
ANALYTE: Trichloroethylene (TCE)
METHOD: EPA Method #601

ANALYTE	ANALYTICAL RESULTS	NOMINAL DETECTION LIMIT
TCE	20 ug/L	1 ug/L

An invoice for services is enclosed. Thank you for contacting Assaigai Laboratories.

Sincerely,

Thomas Dye
Laboratory Director

XC: Ven Samala, Sparton Technology

002343

7300 Jefferson, N.E. • Albuquerque, New Mexico 87109 • (505) 345-8964

ASSAIGAI ANALYTICAL LABORATORIES

TO: Metric Corporation
8429 Washington Place, NE #A
Albuquerque, NM 87113-1672
ATTN: Pete Metzner

DATE: 26 September 1990
WORK ORDER NO: 5798

SAMPLE SITE: MW-59
RECEIVED: 21 September 1990
ANALYTE: Trichloroethylene (TCE)
METHOD: EPA Method #601

ANALYTE	ANALYTICAL RESULTS	MATRIX DETECTION LIMIT
TCE	<1 ug/L	1 ug/L

An invoice for services will follow. Thank you for contacting Assaigai Laboratories.

Thank you,

Thomas Dye
Laboratory Director

002344

7300 Jefferson, N.E. • Albuquerque, New Mexico 87109 • (505) 345-8964

ATTACHMENT 4

Full Suite Analyses

Rocky Mountain
Analytical Laboratory

Enseco
A CORNING Company

September 28, 1990

Mr. Ven Samala
Sparton Technology
9621 Coors Road, N.W.
Albuquerque, NM 87114

Dear Mr. Samala:

Enclosed is the report for five aqueous samples received at Enseco-Rocky Mountain Analytical Laboratory on August 21 and 22, 1990.

Included with the report is a quality control summary.

Please call if you have any questions.

Sincerely,

Joel E. Holtz
Program Administrator

Reviewed by:

Sue Dalla
Manager
Program Administration

JEH/SD/brm
Enclosures

RMAL #010712

002346

Enseco Incorporated
4955 Yarrow Street
Arvada, Colorado 80002
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Rocky Mountain
Analytical Laboratory

Enseco

ANALYTICAL RESULTS
FOR
SPARTON TECHNOLOGY
ENSECO-RMAL NO. 010712

SEPTEMBER 28, 1990

Reviewed by: Joel E. Holtz

Joel E. Holtz

Sue Dalla

Sue Dalla

Enseco Incorporated
4955 Yarrow Street
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Introduction

This report presents the analytical results as well as supporting information to aid in the evaluation and interpretation of the data and is arranged in the following order:

- Sample Description Information
- Analytical Test Requests
- Analytical Results
- Quality Control Report

Consistent with directives in the CLP protocol in SW-846 and other EPA methods, all GC/MS analyses were performed so that the maximum concentration of sample was analyzed. Some samples required dilutions to avoid saturation of the detector, to achieve linearity for a specific target compound or to reduce matrix interferences. As stated in Section 7.5.4 of Method 8270, 7.4.1.16 of Method 8240 and Exhibit E of the CLP protocol these dilutions must be performed. The reporting limits for these samples are therefore proportionate to the dilution required. Surrogate compounds may not be measurable in samples which have been diluted.

Sample 010712-0001 was diluted for Method 8240 due to the concentration of target compounds and the reporting limits were raised accordingly.

All samples were run within holding times for Method 340.2. Due to questions concerning the quality of the analysis, all samples were reanalyzed outside holding times. All original data was confirmed by the reanalysis, except for sample 010712-0004. The data for this sample analyzed outside holding times was accepted and reported.

Sample Description Information

The Sample Description Information lists all of the samples received in this project together with the internal laboratory identification number assigned for each sample. Each project received at Enseco - RMAL is assigned a unique six digit number. Samples within the project are numbered sequentially. The laboratory identification number is a combination of the six digit project code and the sample sequence number.

Also given in the Sample Description Information is the Sample Type (matrix), Date of Sampling (if known) and Date of Receipt at the laboratory.

Analytical Test Requests

The Analytical Test Requests lists the analyses that were performed on each sample. The Custom Test column indicates where tests have been modified to conform to the specific requirements of this project.

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SAMPLE DESCRIPTION INFORMATION
for
Sparton Technology Inc.

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
010712-0001-SA	MW-48	AQUEOUS	20 AUG 90	12:08	21 AUG 90
010712-0002-SA	MW-56	AQUEOUS	20 AUG 90	17:00	21 AUG 90
010712-0003-SA	TRIP BLANK	AQUEOUS	20 AUG 90	12:30	21 AUG 90
010712-0004-SA	FIELD BLANK	AQUEOUS	20 AUG 90	12:30	21 AUG 90
010712-0005-SA	MW-55	AQUEOUS	21 AUG 90		22 AUG 90

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ANALYTICAL TEST REQUESTS
for
Sparton Technology Inc.

Lab ID: 010712	Group Code	Analysis Description	Custom Test?
0001 - 0005	A	Volatile Organics	N
		Appendix IX List	N
		Screen - Volatile Organics	N
		ICP Metals (Total)	Y
		Prep - Total Metals, ICP	N
		Arsenic, Furnace AA (Total)	N
		Prep - Total Metals, Furnace AA	N
		Lead, Furnace AA (Total)	N
		Selenium, Furnace AA (Total)	N
		Thallium, Furnace AA (Total)	N
		Mercury, Cold Vapor AA (Total)	N
		Prep - Mercury, Cold Vapor AA (Total)	N
		Ammonia	N
		Nitrate, Ion Chromatography	N
		Sulfate, Ion Chromatography	N
		Chloride, Ion Chromatography	N
		Fluoride, Electrode	N
		Total Kjeldahl Nitrogen (TKN)	N

Analytical Results

The analytical results for this project are presented in the following data tables. Each data table includes sample identification information, and when available and appropriate, dates sampled, received, authorized, prepared and analyzed. The authorization data is the date when the project was defined by the client such that laboratory work could begin.

Data sheets contain a listing of the parameters measured in each test, the analytical results and the Enseco reporting limit. Reporting limits are adjusted to reflect dilution of the sample, when appropriate. Solid and waste samples are reported on an "as received" basis, i.e. no correction is made for moisture content.

Enseco-RMAL is no longer routinely blank-correcting analytical data. Uncorrected analytical results are reported, along with associated blank results, for all organic and metals analyses. Analytical results and blank results are reported for conventional inorganic parameters as specified in the method. This policy is described in detail in the Enseco Incorporated Quality Assurance Program Plan for Environmental Chemical Monitoring, Revision 3.3, May, 1989.

The results from the Standard Enseco QA/QC Program, which generates data which are independent of matrix effects, is provided subsequently.

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Volatile Organics
Appendix IX List
Method 8240

Client Name: Sparton Technology Inc.
Client ID: MW-48
Lab ID: 010712-0001-SA Enseco ID: 1089026
Matrix: AQUEOUS Sampled: 20 AUG 90 Received: 21 AUG 90
Authorized: 21 AUG 90 Prepared: 23 AUG 90 Analyzed: 29 AUG 90

Parameter	Result	Units	Reporting Limit
Acetone	110	ug/L	100
Acetonitrile	ND	ug/L	2000
Acrolein	ND	ug/L	1000
Acrylonitrile	ND	ug/L	1000
Allyl chloride	ND	ug/L	100
Benzene	ND	ug/L	50
Bromodichloromethane	ND	ug/L	50
Bromoform	ND	ug/L	50
Bromomethane	ND	ug/L	100
2-Butanone (MEK)	ND	ug/L	100
Carbon disulfide	ND	ug/L	50
Carbon tetrachloride	ND	ug/L	50
Chlorobenzene	ND	ug/L	50
Chloroethane	ND	ug/L	100
Chloroform	ND	ug/L	50
Chloromethane	ND	ug/L	100
Chloroprene	ND	ug/L	50
Dibromochloromethane	ND	ug/L	50
1,2-Dibromo-3-chloro-propane (DBCP)	ND	ug/L	100
1,2-Dibromoethane (EDB)	ND	ug/L	100
Dibromomethane	ND	ug/L	50
trans-1,4-Dichloro-2-butene	ND	ug/L	50
Dichlorodifluoromethane	ND	ug/L	200
1,1-Dichloroethane	ND	ug/L	50
1,2-Dichloroethane	ND	ug/L	50
1,1-Dichloroethene	ND	ug/L	50
1,2-Dichloroethene (total)	ND	ug/L	50
1,2-Dichloropropane	ND	ug/L	50
cis-1,3-Dichloropropene	ND	ug/L	50
trans-1,3-Dichloropropene	ND	ug/L	50
1,4-Dioxane	ND	ug/L	5000
Ethylbenzene	ND	ug/L	50
Ethyl methacrylate	ND	ug/L	200
Iodomethane	ND	ug/L	50
Isobutanol	ND	ug/L	2000
2-Hexanone	ND	ug/L	100
Methacrylonitrile	ND	ug/L	50
Methylene chloride	ND	ug/L	50

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Deneen Miller Approved By: Jeff Lowry

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Volatile Organics
Appendix IX List
Method 8240

Client Name: Sparton Technology Inc.
Client ID: MW-48
Lab ID: 010712-0001-SA Enseco ID: 1089026
Matrix: AQUEOUS Sampled: 20 AUG 90 Received: 21 AUG 90
Authorized: 21 AUG 90 Prepared: 23 AUG 90 Analyzed: 29 AUG 90

Parameter	Result	Units	Reporting Limit
Methyl methacrylate	ND	ug/L	200
4-Methyl-2-pentanone (MIBK)	ND	ug/L	100
Propionitrile	ND	ug/L	50
Styrene	ND	ug/L	50
1,1,1,2-Tetrachloroethane	ND	ug/L	50
1,1,2,2-Tetrachloroethane	ND	ug/L	50
Tetrachloroethene	ND	ug/L	50
Toluene	ND	ug/L	50
1,1,1-Trichloroethane	ND	ug/L	50
1,1,2-Trichloroethane	ND	ug/L	50
Trichloroethene	1100	ug/L	50
Trichlorofluoromethane	ND	ug/L	50
1,2,3-Trichloropropane	ND	ug/L	50
Vinyl acetate	ND	ug/L	100
Vinyl chloride	ND	ug/L	100
Xylenes (total)	ND	ug/L	50
Toluene-d8	101	%	--
4-Bromofluorobenzene	101	%	--
1,2-Dichloroethane-d4	110	%	--

ND = Not detected
NA = Not applicable

Reported By: Deneen Miller Approved By: Jeff Lowry

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Volatile Organics
Appendix IX List
Method 8240

Client Name: Sparton Technology Inc.
Client ID: MW-56
Lab ID: 010712-0002-SA Enseco ID: 1089027
Matrix: AQUEOUS Sampled: 20 AUG 90 Received: 21 AUG 90
Authorized: 21 AUG 90 Prepared: 23 AUG 90 Analyzed: 29 AUG 90

Parameter	Result	Units	Reporting Limit
Acetone	23	ug/L	10
Acetonitrile	ND	ug/L	200
Acrolein	ND	ug/L	100
Acrylonitrile	ND	ug/L	100
Allyl chloride	ND	ug/L	10
Benzene	ND	ug/L	5.0
Bromodichloromethane	ND	ug/L	5.0
Bromoform	ND	ug/L	5.0
Bromomethane	ND	ug/L	10
2-Butanone (MEK)	ND	ug/L	10
Carbon disulfide	ND	ug/L	5.0
Carbon tetrachloride	ND	ug/L	5.0
Chlorobenzene	ND	ug/L	5.0
Chloroethane	ND	ug/L	10
Chloroform	ND	ug/L	5.0
Chloromethane	ND	ug/L	10
Chloroprene	ND	ug/L	5.0
Dibromochloromethane	ND	ug/L	5.0
1,2-Dibromo-3-chloro-propane (DBCP)	ND	ug/L	10
1,2-Dibromoethane (EDB)	ND	ug/L	10
Dibromomethane	ND	ug/L	5.0
trans-1,4-Dichloro-2-butene	ND	ug/L	5.0
Dichlorodifluoromethane	ND	ug/L	20
1,1-Dichloroethane	ND	ug/L	5.0
1,2-Dichloroethane	ND	ug/L	5.0
1,1-Dichloroethene	ND	ug/L	5.0
1,2-Dichloroethene (total)	ND	ug/L	5.0
1,2-Dichloropropane	ND	ug/L	5.0
cis-1,3-Dichloropropene	ND	ug/L	5.0
trans-1,3-Dichloropropene	ND	ug/L	5.0
1,4-Dioxane	ND	ug/L	500
Ethylbenzene	ND	ug/L	5.0
Ethyl methacrylate	ND	ug/L	20
Iodomethane	ND	ug/L	5.0
Isobutanol	ND	ug/L	200
2-Hexanone	ND	ug/L	10
Methacrylonitrile	ND	ug/L	5.0
Methylene chloride	ND	ug/L	5.0

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ND = Not detected
NA = Not applicable

Reported By: Deneen Miller Approved By: Jeff Lowry

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Volatile Organics
Appendix IX List
Method 8240

Client Name: Sparton Technology Inc.
Client ID: MW-56
Lab ID: 010712-0002-SA Enseco ID: 1089027
Matrix: AQUEOUS Sampled: 20 AUG 90 Received: 21 AUG 90
Authorized: 21 AUG 90 Prepared: 23 AUG 90 Analyzed: 29 AUG 90

Parameter	Result	Units	Reporting Limit
Methyl methacrylate	ND	ug/L	20
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10
Propionitrile	ND	ug/L	5.0
Styrene	ND	ug/L	5.0
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0
Tetrachloroethene	ND	ug/L	5.0
Toluene	ND	ug/L	5.0
1,1,1-Trichloroethane	ND	ug/L	5.0
1,1,2-Trichloroethane	ND	ug/L	5.0
Trichloroethene	50	ug/L	5.0
Trichlorofluoromethane	ND	ug/L	5.0
1,2,3-Trichloropropane	ND	ug/L	5.0
Vinyl acetate	ND	ug/L	10
Vinyl chloride	ND	ug/L	10
Xylenes (total)	ND	ug/L	5.0
Toluene-d8	106	%	--
4-Bromofluorobenzene	103	%	--
1,2-Dichloroethane-d4	110	%	--

ND = Not detected
NA = Not applicable

Reported By: Deneen Miller Approved By: Jeff Lowry

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Volatile Organics
Appendix IX List
Method 8240

Client Name: Sparton Technology Inc.
Client ID: TRIP BLANK
Lab ID: 010712-0003-SA Enseco ID: 1089028
Matrix: AQUEOUS Sampled: 20 AUG 90 Received: 21 AUG 90
Authorized: 21 AUG 90 Prepared: 23 AUG 90 Analyzed: 29 AUG 90

Parameter	Result	Units	Reporting Limit
Acetone	ND	ug/L	10
Acetonitrile	ND	ug/L	200
Acrolein	ND	ug/L	100
Acrylonitrile	ND	ug/L	100
Allyl chloride	ND	ug/L	10
Benzene	ND	ug/L	5.0
Bromodichloromethane	ND	ug/L	5.0
Bromoform	ND	ug/L	5.0
Bromomethane	ND	ug/L	10
2-Butanone (MEK)	ND	ug/L	10
Carbon disulfide	ND	ug/L	5.0
Carbon tetrachloride	ND	ug/L	5.0
Chlorobenzene	ND	ug/L	5.0
Chloroethane	ND	ug/L	10
Chloroform	ND	ug/L	5.0
Chloromethane	ND	ug/L	10
Chloroprene	ND	ug/L	5.0
Dibromochloromethane	ND	ug/L	5.0
1,2-Dibromo-3-chloro-propane (DBCP)	ND	ug/L	10
1,2-Dibromoethane (EDB)	ND	ug/L	10
Dibromomethane	ND	ug/L	5.0
trans-1,4-Dichloro-2-butene	ND	ug/L	5.0
Dichlorodifluoromethane	ND	ug/L	20
1,1-Dichloroethane	ND	ug/L	5.0
1,2-Dichloroethane	ND	ug/L	5.0
1,1-Dichloroethene	ND	ug/L	5.0
1,2-Dichloroethene (total)	ND	ug/L	5.0
1,2-Dichloropropane	ND	ug/L	5.0
cis-1,3-Dichloropropene	ND	ug/L	5.0
trans-1,3-Dichloropropene	ND	ug/L	5.0
1,4-Dioxane	ND	ug/L	500
Ethylbenzene	ND	ug/L	5.0
Ethyl methacrylate	ND	ug/L	20
Iodomethane	ND	ug/L	5.0
Isobutanol	ND	ug/L	200
2-Hexanone	ND	ug/L	10
Methacrylonitrile	ND	ug/L	5.0
Methylene chloride	ND	ug/L	5.0

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ND = Not detected
NA = Not applicable

Reported By: Deneen Miller Approved By: Jeff Lowry

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Volatile Organics
Appendix IX List
Method 8240

Client Name: Sparton Technology Inc.
Client ID: TRIP BLANK
Lab ID: 010712-0003-SA Enseco ID: 1089028
Matrix: AQUEOUS Sampled: 20 AUG 90 Received: 21 AUG 90
Authorized: 21 AUG 90 Prepared: 23 AUG 90 Analyzed: 29 AUG 90

Parameter	Result	Units	Reporting Limit
Methyl methacrylate	ND	ug/L	20
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10
Propionitrile	ND	ug/L	5.0
Styrene	ND	ug/L	5.0
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0
Tetrachloroethene	ND	ug/L	5.0
Toluene	ND	ug/L	5.0
1,1,1-Trichloroethane	ND	ug/L	5.0
1,1,2-Trichloroethane	ND	ug/L	5.0
Trichloroethene	ND	ug/L	5.0
Trichlorofluoromethane	ND	ug/L	5.0
1,2,3-Trichloropropane	ND	ug/L	5.0
Vinyl acetate	ND	ug/L	10
Vinyl chloride	ND	ug/L	10
Xylenes (total)	ND	ug/L	5.0
Toluene-d8	102	%	--
4-Bromofluorobenzene	102	%	--
1,2-Dichloroethane-d4	111	%	--

ND = Not detected
NA = Not applicable

Reported By: Deneen Miller Approved By: Jeff Lowry

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Volatile Organics
Appendix IX List
Method 8240

Client Name: Sparton Technology Inc.
Client ID: FIELD BLANK
Lab ID: 010712-0004-SA Enseco ID: 1089029
Matrix: AQUEOUS Sampled: 20 AUG 90 Received: 21 AUG 90
Authorized: 21 AUG 90 Prepared: 23 AUG 90 Analyzed: 29 AUG 90

Parameter	Result	Units	Reporting Limit
Acetone	13	ug/L	10
Acetonitrile	ND	ug/L	200
Acrolein	ND	ug/L	100
Acrylonitrile	ND	ug/L	100
Allyl chloride	ND	ug/L	10
Benzene	ND	ug/L	5.0
Bromodichloromethane	ND	ug/L	5.0
Bromoform	ND	ug/L	5.0
Bromomethane	ND	ug/L	10
2-Butanone (MEK)	ND	ug/L	10
Carbon disulfide	ND	ug/L	5.0
Carbon tetrachloride	ND	ug/L	5.0
Chlorobenzene	ND	ug/L	5.0
Chloroethane	ND	ug/L	10
Chloroform	ND	ug/L	5.0
Chloromethane	ND	ug/L	10
Chloroprene	ND	ug/L	5.0
Dibromochloromethane	ND	ug/L	5.0
1,2-Dibromo-3-chloro-propane (DBCP)	ND	ug/L	10
1,2-Dibromoethane (EDB)	ND	ug/L	10
Dibromomethane	ND	ug/L	5.0
trans-1,4-Dichloro-2-butene	ND	ug/L	5.0
Dichlorodifluoromethane	ND	ug/L	20
1,1-Dichloroethane	ND	ug/L	5.0
1,2-Dichloroethane	ND	ug/L	5.0
1,1-Dichloroethene	ND	ug/L	5.0
1,2-Dichloroethene (total)	ND	ug/L	5.0
1,2-Dichloropropane	ND	ug/L	5.0
cis-1,3-Dichloropropene	ND	ug/L	5.0
trans-1,3-Dichloropropene	ND	ug/L	5.0
1,4-Dioxane	ND	ug/L	500
Ethylbenzene	ND	ug/L	5.0
Ethyl methacrylate	ND	ug/L	20
Iodomethane	ND	ug/L	5.0
Isobutanol	ND	ug/L	200
2-Hexanone	ND	ug/L	10
Methacrylonitrile	ND	ug/L	5.0
Methylene chloride	ND	ug/L	5.0

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ND = Not detected
NA = Not applicable

Reported By: Deneen Miller Approved By: Jeff Lowry

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Volatile Organics
Appendix IX List
Method 8240

Client Name: Sparton Technology Inc.
Client ID: FIELD BLANK
Lab ID: 010712-0004-SA Enseco ID: 1089029
Matrix: AQUEOUS Sampled: 20 AUG 90 Received: 21 AUG 90
Authorized: 21 AUG 90 Prepared: 23 AUG 90 Analyzed: 29 AUG 90

Parameter	Result	Units	Reporting Limit
Methyl methacrylate	ND	ug/L	20
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10
Propionitrile	ND	ug/L	5.0
Styrene	ND	ug/L	5.0
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0
Tetrachloroethene	ND	ug/L	5.0
Toluene	ND	ug/L	5.0
1,1,1-Trichloroethane	ND	ug/L	5.0
1,1,2-Trichloroethane	ND	ug/L	5.0
Trichloroethene	ND	ug/L	5.0
Trichlorofluoromethane	ND	ug/L	5.0
1,2,3-Trichloropropane	ND	ug/L	5.0
Vinyl acetate	ND	ug/L	10
Vinyl chloride	ND	ug/L	10
Xylenes (total)	ND	ug/L	5.0
Toluene-d8	102	%	--
4-Bromofluorobenzene	100	%	--
1,2-Dichloroethane-d4	108	%	--

ND = Not detected
NA = Not applicable

Reported By: Deneen Miller Approved By: Jeff Lowry

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Volatile Organics
Appendix IX List
Method 8240

Client Name: Sparton Technology Inc.
Client ID: MW-55
Lab ID: 010712-0005-SA Enseco ID: 1089134
Matrix: AQUEOUS Sampled: 21 AUG 90 Received: 22 AUG 90
Authorized: 21 AUG 90 Prepared: 23 AUG 90 Analyzed: 29 AUG 90

Parameter	Result	Units	Reporting Limit
Acetone	ND	ug/L	10
Acetonitrile	ND	ug/L	200
Acrolein	ND	ug/L	100
Acrylonitrile	ND	ug/L	100
Allyl chloride	ND	ug/L	10
Benzene	ND	ug/L	5.0
Bromodichloromethane	ND	ug/L	5.0
Bromoform	ND	ug/L	5.0
Bromomethane	ND	ug/L	10
2-Butanone (MEK)	ND	ug/L	10
Carbon disulfide	ND	ug/L	5.0
Carbon tetrachloride	ND	ug/L	5.0
Chlorobenzene	ND	ug/L	5.0
Chloroethane	ND	ug/L	10
Chloroform	ND	ug/L	5.0
Chloromethane	ND	ug/L	10
Chloroprene	ND	ug/L	5.0
Dibromochloromethane	ND	ug/L	5.0
1,2-Dibromo-3-chloro-propane (DBCP)	ND	ug/L	10
1,2-Dibromoethane (EDB)	ND	ug/L	10
Dibromomethane	ND	ug/L	5.0
trans-1,4-Dichloro-2-butene	ND	ug/L	5.0
Dichlorodifluoromethane	ND	ug/L	20
1,1-Dichloroethane	ND	ug/L	5.0
1,2-Dichloroethane	ND	ug/L	5.0
1,1-Dichloroethene	ND	ug/L	5.0
1,2-Dichloroethene (total)	ND	ug/L	5.0
1,2-Dichloropropane	ND	ug/L	5.0
cis-1,3-Dichloropropene	ND	ug/L	5.0
trans-1,3-Dichloropropene	ND	ug/L	5.0
1,4-Dioxane	ND	ug/L	500
Ethylbenzene	ND	ug/L	5.0
Ethyl methacrylate	ND	ug/L	20
Iodomethane	ND	ug/L	5.0
Isobutanol	ND	ug/L	200
2-Hexanone	ND	ug/L	10
Methacrylonitrile	ND	ug/L	5.0
Methylene chloride	ND	ug/L	5.0

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ND = Not detected
NA = Not applicable

Reported By: Deneen Miller Approved By: Jeff Lowry

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Volatile Organics
Appendix IX List
Method 8240

Client Name: Sparton Technology Inc.
Client ID: MW-55
Lab ID: 010712-0005-SA Enseco ID: 1089134
Matrix: AQUEOUS Sampled: 21 AUG 90 Received: 22 AUG 90
Authorized: 21 AUG 90 Prepared: 23 AUG 90 Analyzed: 29 AUG 90

Parameter	Result	Units	Reporting Limit
Methyl methacrylate	ND	ug/L	20
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10
Propionitrile	ND	ug/L	5.0
Styrene	ND	ug/L	5.0
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0
Tetrachloroethene	ND	ug/L	5.0
Toluene	ND	ug/L	5.0
1,1,1-Trichloroethane	ND	ug/L	5.0
1,1,2-Trichloroethane	ND	ug/L	5.0
Trichloroethene	13	ug/L	5.0
Trichlorofluoromethane	ND	ug/L	5.0
1,2,3-Trichloropropane	ND	ug/L	5.0
Vinyl acetate	ND	ug/L	10
Vinyl chloride	ND	ug/L	10
Xylenes (total)	ND	ug/L	5.0
Toluene-d8	101	%	--
4-Bromofluorobenzene	102	%	--
1,2-Dichloroethane-d4	108	%	--

ND = Not detected
NA = Not applicable

Reported By: Deneen Miller Approved By: Jeff Lowry

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Metals

Total Metals

Client Name: Sparton Technology Inc.
Client ID: MW-48
Lab ID: 010712-0001-SA
Matrix: AQUEOUS Sampled: 20 AUG 90 Received: 21 AUG 90
Authorized: 21 AUG 90 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/L	0.060	6010	02 SEP 90	05 SEP 90
Arsenic	ND	mg/L	0.010	7060	02 SEP 90	06 SEP 90
Barium	0.060	mg/L	0.010	6010	02 SEP 90	05 SEP 90
Beryllium	ND	mg/L	0.0020	6010	02 SEP 90	05 SEP 90
Boron	0.11	mg/L	0.10	6010	02 SEP 90	05 SEP 90
Cadmium	ND	mg/L	0.0050	6010	02 SEP 90	05 SEP 90
Chromium	0.32	mg/L	0.010	6010	02 SEP 90	05 SEP 90
Cobalt	ND	mg/L	0.010	6010	02 SEP 90	05 SEP 90
Copper	ND	mg/L	0.020	6010	02 SEP 90	05 SEP 90
Lead	ND	mg/L	0.010	7421	02 SEP 90	06 SEP 90
Manganese	ND	mg/L	0.010	6010	02 SEP 90	05 SEP 90
Mercury	ND	mg/L	0.00020	7470	23 AUG 90	24 AUG 90
Nickel	ND	mg/L	0.040	6010	02 SEP 90	05 SEP 90
Selenium	ND	mg/L	0.0050	7740	02 SEP 90	06 SEP 90
Silver	ND	mg/L	0.010	6010	02 SEP 90	05 SEP 90
Thallium	ND	mg/L	0.010	7841	02 SEP 90	06 SEP 90
Tin	ND	mg/L	0.10	6010	02 SEP 90	05 SEP 90
Vanadium	ND	mg/L	0.010	6010	02 SEP 90	05 SEP 90
Zinc	ND	mg/L	0.020	6010	02 SEP 90	05 SEP 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones Approved By: Dave Roberts

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Metals

Total Metals

Client Name: Sparton Technology Inc.
Client ID: MW-56
Lab ID: 010712-0002-SA
Matrix: AQUEOUS Sampled: 20 AUG 90 Received: 21 AUG 90
Authorized: 21 AUG 90 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/L	0.060	6010	02 SEP 90	05 SEP 90
Arsenic	ND	mg/L	0.010	7060	02 SEP 90	06 SEP 90
Barium	0.039	mg/L	0.010	6010	02 SEP 90	05 SEP 90
Beryllium	ND	mg/L	0.0020	6010	02 SEP 90	05 SEP 90
Boron	0.13	mg/L	0.10	6010	02 SEP 90	05 SEP 90
Cadmium	ND	mg/L	0.0050	6010	02 SEP 90	05 SEP 90
Chromium	0.028	mg/L	0.010	6010	02 SEP 90	05 SEP 90
Cobalt	ND	mg/L	0.010	6010	02 SEP 90	05 SEP 90
Copper	ND	mg/L	0.020	6010	02 SEP 90	05 SEP 90
Lead	ND	mg/L	0.0050	7421	02 SEP 90	06 SEP 90
Manganese	ND	mg/L	0.010	6010	02 SEP 90	05 SEP 90
Mercury	ND	mg/L	0.00020	7470	23 AUG 90	24 AUG 90
Nickel	ND	mg/L	0.040	6010	02 SEP 90	05 SEP 90
Selenium	ND	mg/L	0.0050	7740	02 SEP 90	06 SEP 90
Silver	ND	mg/L	0.010	6010	02 SEP 90	05 SEP 90
Thallium	ND	mg/L	0.010	7841	02 SEP 90	06 SEP 90
Tin	ND	mg/L	0.10	6010	02 SEP 90	05 SEP 90
Vanadium	0.020	mg/L	0.010	6010	02 SEP 90	05 SEP 90
Zinc	0.076	mg/L	0.020	6010	02 SEP 90	05 SEP 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones Approved By: Dave Roberts

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Metals

Total Metals

Client Name: Sparton Technology Inc.
Client ID: TRIP BLANK
Lab ID: 010712-0003-SA
Matrix: AQUEOUS Sampled: 20 AUG 90 Received: 21 AUG 90
Authorized: 21 AUG 90 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/L	0.060	6010	02 SEP 90	05 SEP 90
Arsenic	ND	mg/L	0.0050	7060	02 SEP 90	06 SEP 90
Barium	ND	mg/L	0.010	6010	02 SEP 90	05 SEP 90
Beryllium	ND	mg/L	0.0020	6010	02 SEP 90	05 SEP 90
Boron	ND	mg/L	0.10	6010	02 SEP 90	05 SEP 90
Cadmium	ND	mg/L	0.0050	6010	02 SEP 90	05 SEP 90
Chromium	ND	mg/L	0.010	6010	02 SEP 90	05 SEP 90
Cobalt	ND	mg/L	0.010	6010	02 SEP 90	05 SEP 90
Copper	ND	mg/L	0.020	6010	02 SEP 90	05 SEP 90
Lead	ND	mg/L	0.0050	7421	02 SEP 90	06 SEP 90
Manganese	ND	mg/L	0.010	6010	02 SEP 90	05 SEP 90
Mercury	ND	mg/L	0.00020	7470	23 AUG 90	24 AUG 90
Nickel	ND	mg/L	0.040	6010	02 SEP 90	05 SEP 90
Selenium	ND	mg/L	0.0050	7740	02 SEP 90	06 SEP 90
Silver	ND	mg/L	0.010	6010	02 SEP 90	05 SEP 90
Thallium	ND	mg/L	0.0050	7841	02 SEP 90	06 SEP 90
Tin	ND	mg/L	0.10	6010	02 SEP 90	05 SEP 90
Vanadium	ND	mg/L	0.010	6010	02 SEP 90	05 SEP 90
Zinc	ND	mg/L	0.020	6010	02 SEP 90	05 SEP 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones Approved By: Dave Roberts

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Metals

Total Metals

Client Name: Sparton Technology Inc.
Client ID: FIELD BLANK
Lab ID: 010712-0004-SA
Matrix: AQUEOUS Sampled: 20 AUG 90 Received: 21 AUG 90
Authorized: 21 AUG 90 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/L	0.060	6010	02 SEP 90	05 SEP 90
Arsenic	ND	mg/L	0.0050	7060	02 SEP 90	06 SEP 90
Barium	ND	mg/L	0.010	6010	02 SEP 90	05 SEP 90
Beryllium	ND	mg/L	0.0020	6010	02 SEP 90	05 SEP 90
Boron	ND	mg/L	0.10	6010	02 SEP 90	05 SEP 90
Cadmium	ND	mg/L	0.0050	6010	02 SEP 90	05 SEP 90
Chromium	ND	mg/L	0.010	6010	02 SEP 90	05 SEP 90
Cobalt	ND	mg/L	0.010	6010	02 SEP 90	05 SEP 90
Copper	ND	mg/L	0.020	6010	02 SEP 90	05 SEP 90
Lead	ND	mg/L	0.0050	7421	02 SEP 90	06 SEP 90
Manganese	ND	mg/L	0.010	6010	02 SEP 90	05 SEP 90
Mercury	ND	mg/L	0.00020	7470	23 AUG 90	24 AUG 90
Nickel	0.050	mg/L	0.040	6010	02 SEP 90	05 SEP 90
Selenium	ND	mg/L	0.0050	7740	02 SEP 90	06 SEP 90
Silver	ND	mg/L	0.010	6010	02 SEP 90	05 SEP 90
Thallium	ND	mg/L	0.0050	7841	02 SEP 90	06 SEP 90
Tin	ND	mg/L	0.10	6010	02 SEP 90	05 SEP 90
Vanadium	ND	mg/L	0.010	6010	02 SEP 90	05 SEP 90
Zinc	0.022	mg/L	0.020	6010	02 SEP 90	05 SEP 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones Approved By: Dave Roberts

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Metals

Total Metals

Client Name: Sparton Technology Inc.
Client ID: MW-55
Lab ID: 010712-0005-SA
Matrix: AQUEOUS Sampled: 21 AUG 90 Received: 22 AUG 90
Authorized: 21 AUG 90 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/L	0.060	6010	02 SEP 90	06 SEP 90
Arsenic	ND	mg/L	0.010	7060	02 SEP 90	06 SEP 90
Barium	0.062	mg/L	0.010	6010	02 SEP 90	06 SEP 90
Beryllium	ND	mg/L	0.0020	6010	02 SEP 90	06 SEP 90
Boron	ND	mg/L	0.10	6010	02 SEP 90	06 SEP 90
Cadmium	ND	mg/L	0.0050	6010	02 SEP 90	06 SEP 90
Chromium	ND	mg/L	0.010	6010	02 SEP 90	06 SEP 90
Cobalt	ND	mg/L	0.010	6010	02 SEP 90	06 SEP 90
Copper	ND	mg/L	0.020	6010	02 SEP 90	06 SEP 90
Lead	ND	mg/L	0.0050	7421	02 SEP 90	06 SEP 90
Manganese	ND	mg/L	0.010	6010	02 SEP 90	06 SEP 90
Mercury	ND	mg/L	0.00020	7470	23 AUG 90	24 AUG 90
Nickel	ND	mg/L	0.040	6010	02 SEP 90	06 SEP 90
Selenium	ND	mg/L	0.0050	7740	02 SEP 90	06 SEP 90
Silver	ND	mg/L	0.010	6010	02 SEP 90	06 SEP 90
Thallium	ND	mg/L	0.010	7841	02 SEP 90	06 SEP 90
Tin	ND	mg/L	0.10	6010	02 SEP 90	06 SEP 90
Vanadium	ND	mg/L	0.010	6010	02 SEP 90	06 SEP 90
Zinc	0.079	mg/L	0.020	6010	02 SEP 90	06 SEP 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones Approved By: Dave Roberts

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General Inorganics

Client Name: Sparton Technology Inc.
Client ID: MW-48
Lab ID: 010712-0001-SA
Matrix: AQUEOUS Sampled: 20 AUG 90 Received: 21 AUG 90
Authorized: 21 AUG 90 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Chloride	38.0	mg/L	3.0	300.0	NA	21 AUG 90
Fluoride	0.28	mg/L	0.10	340.2	NA	12 SEP 90
Ammonia as N	ND	mg/L	0.10	350.1	NA	27 AUG 90
Nitrate as N	2.3	mg/L	0.10	300.0	NA	21 AUG 90
Sulfate	130	mg/L	5.0	300.0	NA	22 AUG 90
Total Kjeldahl Nitrogen as N	ND	mg/L	0.50	351.2	NA	30 AUG 90

ND = Not detected
NA = Not applicable

Reported By: Dan Appelhans Approved By: Toni Stovall

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General Inorganics

Client Name: Sparton Technology Inc.
Client ID: MW-56
Lab ID: 010712-0002-SA
Matrix: AQUEOUS Sampled: 20 AUG 90 Received: 21 AUG 90
Authorized: 21 AUG 90 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Chloride	22.5	mg/L	3.0	300.0	NA	21 AUG 90
Fluoride	0.55	mg/L	0.10	340.2	NA	12 SEP 90
Ammonia as N	ND	mg/L	0.10	350.1	NA	27 AUG 90
Nitrate as N	2.1	mg/L	0.10	300.0	NA	21 AUG 90
Sulfate	102	mg/L	5.0	300.0	NA	22 AUG 90
Total Kjeldahl Nitrogen as N	ND	mg/L	0.50	351.2	NA	30 AUG 90

ND = Not detected
NA = Not applicable

Reported By: Dan Appelhans Approved By: Toni Stovall

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General Inorganics

Client Name: Sparton Technology Inc.
Client ID: TRIP BLANK
Lab ID: 010712-0003-SA
Matrix: AQUEOUS Sampled: 20 AUG 90 Received: 21 AUG 90
Authorized: 21 AUG 90 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Chloride	ND	mg/L	3.0	300.0	NA	21 AUG 90
Fluoride	ND	mg/L	0.10	340.2	NA	12 SEP 90
Ammonia as N	ND	mg/L	0.10	350.1	NA	27 AUG 90
Nitrate as N	ND	mg/L	0.10	300.0	NA	21 AUG 90
Sulfate	ND	mg/L	5.0	300.0	NA	22 AUG 90
Total Kjeldahl Nitrogen as N	ND	mg/L	0.50	351.2	NA	30 AUG 90

ND = Not detected
NA = Not applicable

Reported By: Dan Appelhans Approved By: Toni Stovall

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General Inorganics

Client Name: Sparton Technology Inc.
Client ID: FIELD BLANK
Lab ID: 010712-0004-SA
Matrix: AQUEOUS Sampled: 20 AUG 90 Received: 21 AUG 90
Authorized: 21 AUG 90 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Chloride	ND	mg/L	3.0	300.0	NA	21 AUG 90
Fluoride	ND	mg/L	0.10	340.2	NA	26 SEP 90
Ammonia as N	ND	mg/L	0.10	350.1	NA	27 AUG 90
Nitrate as N	ND	mg/L	0.10	300.0	NA	21 AUG 90
Sulfate	ND	mg/L	5.0	300.0	NA	21 AUG 90
Total Kjeldahl Nitrogen as N	ND	mg/L	0.50	351.2	NA	30 AUG 90

ND = Not detected
NA = Not applicable

Reported By: Dan Appelhans Approved By: Toni Stovall

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General Inorganics

Client Name: Sparton Technology Inc.
Client ID: MW-55
Lab ID: 010712-0005-SA
Matrix: AQUEOUS Sampled: 21 AUG 90 Received: 22 AUG 90
Authorized: 21 AUG 90 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Chloride	19.5	mg/L	3.0	300.0	NA	22 AUG 90
Fluoride	0.36	mg/L	0.10	340.2	NA	12 SEP 90
Ammonia as N	ND	mg/L	0.10	350.1	NA	24 AUG 90
Nitrate as N	1.9	mg/L	0.10	300.0	NA	22 AUG 90
Sulfate	81.2	mg/L	5.0	300.0	NA	22 AUG 90
Total Kjeldahl Nitrogen as N	ND	mg/L	0.50	351.2	NA	30 AUG 90

ND = Not detected
NA = Not applicable

Reported By: Dan Appelhans Approved By: Toni Stovall

Quality Control Results

The Enseco laboratories operate under a vigorous QA/QC program designed to ensure the generation of scientifically valid, legally defensible data by monitoring every aspect of laboratory operations. Routine QA/QC procedures include the use of approved methodologies, independent verification of analytical standards, use of duplicate Laboratory Control Samples to assess the precision and accuracy of the methodology on a routine basis, and a rigorous system of data review.

In addition, the Enseco laboratories maintain a comprehensive set of certifications from both state and federal governmental agencies which require frequent analyses of blind audit samples. Enseco - Rocky Mountain Analytical Laboratory is certified by the EPA under the EPA/CLP program for both Organic and Inorganic analyses, under the USATHAMA (U.S. Army) program, by the Army Corps of Engineers, and the states of Colorado, New Jersey, New York, Utah, and Florida, among others.

The standard laboratory QC package is designed to:

1) establish a strong, cost-effective QC program that ensures the generation of scientifically valid, legally defensible data

2) assess the laboratory's performance of the analytical method using control limits generated with a well-defined matrix

3) establish clear-cut guidelines for acceptability of analytical data so that QC decisions can be made immediately at the bench, and

4) provide a standard set of reportables which assures the client of the quality of his data.

The Enseco QC program is based upon monitoring the precision and accuracy of an analytical method by analyzing a set of Duplicate Control Samples (DCS) at frequent, well-defined intervals. Each DCS is a well-characterized matrix which is spiked with target compounds at 5-100 times the reporting limit, depending upon the methodology being monitored. The purpose of the DCS is not to duplicate the sample matrix, but rather to provide an interference-free, homogeneous matrix from which to gather data to establish control limits. These limits are used to determine whether data generated by the laboratory on any given day is in control.

Control limits for accuracy (percent recovery) are based on the average, historical percent recovery +/- 3 standard deviation units. Control limits for precision (relative percent difference) range from 0 (identical duplicate DCS results) to the average, historical relative percent difference + 3 standard deviation units. These control limits are fairly narrow based on the consistency of the matrix being monitored and are updated on a quarterly basis.

For each batch of samples analyzed, an additional control measure is taken in the form of a Single Control Sample (SCS). The SCS consists of a control matrix that is spiked with either representative target compounds or surrogate compounds appropriate to the method being used. An SCS is prepared for each sample lot for which the DCS pair are not analyzed.

Accuracy for DCS and SCS is measured by Percent Recovery.

$$\% \text{ Recovery} = \frac{\text{Measured Concentration}}{\text{Actual Concentration}} \times 100$$

Precision for DCS is measured by Relative Percent Difference (RPD).

$$\text{RPD} = \frac{|\text{Measured Concentration DCS1} - \text{Measured Concentration DCS2}|}{(\text{Measured Concentration DCS1} + \text{Measured Concentration DCS2})/2} \times 100$$

All samples analyzed concurrently by the same test are assigned the same QC lot number. Projects which contain numerous samples, analyzed over several days, may have multiple QC lot numbers associated with each test. The QC information which follows includes a listing of the QC lot numbers associated with each of the samples reported, DCS and SCS (where applicable) recoveries from the QC lots associated with the samples, and control limits for these lots. The QC data is reported by test code, in the order that the tests are reported in the analytical results section of this report.

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QC LOT ASSIGNMENT REPORT
Volatile Organics by GC/MS

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
010712-0001-SA	AQUEOUS	624-A	14 AUG 90-D	29 AUG 90-D
010712-0002-SA	AQUEOUS	624-A	14 AUG 90-D	29 AUG 90-D
010712-0003-SA	AQUEOUS	624-A	14 AUG 90-D	29 AUG 90-D
010712-0004-SA	AQUEOUS	624-A	14 AUG 90-D	29 AUG 90-D
010712-0005-SA	AQUEOUS	624-A	14 AUG 90-D	29 AUG 90-D

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DUPLICATE CONTROL SAMPLE REPORT
Volatile Organics by GC/MS

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	Measured AVG	Accuracy Average(%) DCS	Accuracy Average(%) Limits	Precision (RPD) DCS	Precision (RPD) Limit
Category: 624-A								
Matrix: AQUEOUS								
QC Lot: 14 AUG 90-D								
Concentration Units: ug/L								
1,1-Dichloroethene	50	53.0	51.6	52.3	105	61-145	2.7	14
Trichloroethene	50	51.3	50.6	51.0	102	71-120	1.4	14
Benzene	50	52.9	52.5	52.7	105	76-127	0.8	11
Toluene	50	55.9	56.8	56.4	113	76-125	1.6	13
Chlorobenzene	50	56.2	55.3	55.8	112	75-130	1.6	13

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

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SINGLE CONTROL SAMPLE REPORT
Volatile Organics by GC/MS

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) SCS	Accuracy(%) Limits
Category: 624-A				
Matrix: AQUEOUS				
QC Lot: 14 AUG 90-D QC Run: 29 AUG 90-D				
Concentration Units: ug/L				
1,2-Dichloroethane-d4	50.0	56.2	112	76-114
4-Bromofluorobenzene	50.0	52.3	105	86-115
Toluene-d8	50.0	49.7	99	88-110

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

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METHOD BLANK REPORT
Volatile Organics by GC/MS

Test: 8240CP-AP9-AP
Matrix: AQUEOUS
QC Lot: 14 AUG 90-D QC Run: 29 AUG 90-D

Analyte	Result	Units	Reporting Limit
Acetone	ND	ug/L	10
Acetonitrile	ND	ug/L	200
Acrolein	ND	ug/L	100
Acrylonitrile	ND	ug/L	100
Allyl chloride	ND	ug/L	10
Benzene	ND	ug/L	5.0
Bromodichloromethane	ND	ug/L	5.0
Bromoform	ND	ug/L	5.0
Bromomethane	ND	ug/L	10
2-Butanone (MEK)	ND	ug/L	10
Carbon disulfide	ND	ug/L	5.0
Carbon tetrachloride	ND	ug/L	5.0
Chlorobenzene	ND	ug/L	5.0
Chloroethane	ND	ug/L	10
Chloroform	ND	ug/L	5.0
Chloromethane	ND	ug/L	10
Chloroprene	ND	ug/L	5.0
Dibromochloromethane	ND	ug/L	5.0
1,2-Dibromo-3-chloro-propane (DBCP)	ND	ug/L	10
1,2-Dibromoethane (EDB)	ND	ug/L	10
Dibromomethane	ND	ug/L	5.0
trans-1,4-Dichloro-2-butene	ND	ug/L	5.0
Dichlorodifluoromethane	ND	ug/L	20
1,1-Dichloroethane	ND	ug/L	5.0
1,2-Dichloroethane	ND	ug/L	5.0
1,1-Dichloroethene	ND	ug/L	5.0
1,2-Dichloroethene (total)	ND	ug/L	5.0
1,2-Dichloropropane	ND	ug/L	5.0
cis-1,3-Dichloropropene	ND	ug/L	5.0
trans-1,3-Dichloropropene	ND	ug/L	5.0
1,4-Dioxane	ND	ug/L	500
Ethylbenzene	ND	ug/L	5.0
Ethyl methacrylate	ND	ug/L	20
Iodomethane	ND	ug/L	5.0
Isobutanol	ND	ug/L	200
2-Hexanone	ND	ug/L	10
Methacrylonitrile	ND	ug/L	5.0
Methylene chloride	ND	ug/L	5.0

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METHOD BLANK REPORT
Volatile Organics by GC/MS (cont.)

Analyte	Result	Units	Reporting Limit
Test: 8240CP-AP9-AP			
Matrix: AQUEOUS			
QC Lot: 14 AUG 90-D QC Run: 29 AUG 90-D			
Methyl methacrylate	ND	ug/L	20
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10
Propionitrile	ND	ug/L	5.0
Styrene	ND	ug/L	5.0
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0
Tetrachloroethene	ND	ug/L	5.0
Toluene	ND	ug/L	5.0
1,1,1-Trichloroethane	ND	ug/L	5.0
1,1,2-Trichloroethane	ND	ug/L	5.0
Trichloroethene	ND	ug/L	5.0
Trichlorofluoromethane	ND	ug/L	5.0
1,2,3-Trichloropropane	ND	ug/L	5.0
Vinyl acetate	ND	ug/L	10
Vinyl chloride	ND	ug/L	10
Xylenes (total)	ND	ug/L	5.0

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QC LOT ASSIGNMENT REPORT
Metals Analysis and Preparation

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
010712-0001-SA	AQUEOUS	ICP-AT	02 SEP 90-Z	02 SEP 90-Z
010712-0001-SA	AQUEOUS	AS-FAA-AT	02 SEP 90-X	02 SEP 90-X
010712-0001-SA	AQUEOUS	PB-FAA-AT	02 SEP 90-A	02 SEP 90-A
010712-0001-SA	AQUEOUS	SE-FAA-AT	02 SEP 90-X	02 SEP 90-X
010712-0001-SA	AQUEOUS	TL-FAA-AT	02 SEP 90-X	02 SEP 90-X
010712-0001-SA	AQUEOUS	HG-CVAA-AT	23 AUG 90-B	23 AUG 90-B
010712-0002-SA	AQUEOUS	ICP-AT	02 SEP 90-Z	02 SEP 90-Z
010712-0002-SA	AQUEOUS	AS-FAA-AT	02 SEP 90-X	02 SEP 90-X
010712-0002-SA	AQUEOUS	PB-FAA-AT	02 SEP 90-A	02 SEP 90-A
010712-0002-SA	AQUEOUS	SE-FAA-AT	02 SEP 90-X	02 SEP 90-X
010712-0002-SA	AQUEOUS	TL-FAA-AT	02 SEP 90-X	02 SEP 90-X
010712-0002-SA	AQUEOUS	HG-CVAA-AT	23 AUG 90-B	23 AUG 90-B
010712-0003-SA	AQUEOUS	ICP-AT	02 SEP 90-Z	02 SEP 90-Z
010712-0003-SA	AQUEOUS	AS-FAA-AT	02 SEP 90-X	02 SEP 90-X
010712-0003-SA	AQUEOUS	PB-FAA-AT	02 SEP 90-A	02 SEP 90-A
010712-0003-SA	AQUEOUS	SE-FAA-AT	02 SEP 90-X	02 SEP 90-X
010712-0003-SA	AQUEOUS	TL-FAA-AT	02 SEP 90-X	02 SEP 90-X
010712-0003-SA	AQUEOUS	HG-CVAA-AT	23 AUG 90-B	23 AUG 90-B
010712-0004-SA	AQUEOUS	ICP-AT	02 SEP 90-Z	02 SEP 90-Z
010712-0004-SA	AQUEOUS	AS-FAA-AT	02 SEP 90-X	02 SEP 90-X
010712-0004-SA	AQUEOUS	PB-FAA-AT	02 SEP 90-A	02 SEP 90-A
010712-0004-SA	AQUEOUS	SE-FAA-AT	02 SEP 90-X	02 SEP 90-X
010712-0004-SA	AQUEOUS	TL-FAA-AT	02 SEP 90-X	02 SEP 90-X
010712-0004-SA	AQUEOUS	HG-CVAA-AT	23 AUG 90-B	23 AUG 90-B
010712-0005-SA	AQUEOUS	ICP-AT	02 SEP 90-Z	02 SEP 90-Z
010712-0005-SA	AQUEOUS	AS-FAA-AT	02 SEP 90-X	02 SEP 90-X
010712-0005-SA	AQUEOUS	PB-FAA-AT	02 SEP 90-A	02 SEP 90-A
010712-0005-SA	AQUEOUS	SE-FAA-AT	02 SEP 90-X	02 SEP 90-X
010712-0005-SA	AQUEOUS	TL-FAA-AT	02 SEP 90-X	02 SEP 90-X
010712-0005-SA	AQUEOUS	HG-CVAA-AT	23 AUG 90-B	23 AUG 90-B

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DUPLICATE CONTROL SAMPLE REPORT
Metals Analysis and Preparation

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	Measured AVG	Accuracy Average(%) DCS	Accuracy Average(%) Limits	Precision (RPD) DCS	Precision (RPD) Limit
Category: ICP-AT Matrix: AQUEOUS QC Lot: 02 SEP 90-Z Concentration Units: mg/L								
Aluminum	2.0	2.08	2.06	2.07	104	75-125	1.3	20
Antimony	0.5	0.496	0.489	0.493	99	75-125	1.4	20
Arsenic	0.5	0.520	0.527	0.523	105	75-125	1.4	20
Barium	2.0	2.05	2.03	2.04	102	75-125	1.0	20
Beryllium	0.05	0.0510	0.0513	0.0512	102	75-125	0.6	20
Cadmium	0.05	0.0468	0.0468	0.0468	94	75-125	0.1	20
Calcium	100	106	106	106	106	75-125	0.9	20
Chromium	0.2	0.206	0.206	0.206	103	75-125	0.2	20
Cobalt	0.5	0.501	0.498	0.500	100	75-125	0.6	20
Copper	0.25	0.259	0.267	0.263	105	75-125	2.9	20
Iron	1.0	1.07	1.06	1.06	106	75-125	1.0	20
Lead	0.5	0.515	0.500	0.508	102	75-125	3.1	20
Magnesium	50	51.5	50.9	51.2	102	75-125	1.2	20
Manganese	0.5	0.507	0.507	0.507	101	75-125	0.1	20
Nickel	0.5	0.510	0.508	0.509	102	75-125	0.3	20
Potassium	50	50.5	49.8	50.1	100	75-125	1.3	20
Silver	0.05	0.0425	0.0418	0.0421	84	75-125	1.7	20
Sodium	100	104	103	104	104	75-125	1.6	20
Vanadium	0.5	0.519	0.512	0.515	103	75-125	1.3	20
Zinc	0.5	0.490	0.501	0.495	99	75-125	2.2	20
Category: AS-FAA-AT Matrix: AQUEOUS QC Lot: 02 SEP 90-X Concentration Units: mg/L								
Arsenic	0.04	0.0358	0.0370	0.0364	91	75-125	3.3	20
Category: PB-FAA-AT Matrix: AQUEOUS QC Lot: 02 SEP 90-A Concentration Units: mg/L								
Lead	0.02	0.0213	0.0204	0.0208	104	75-125	4.3	20

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

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DUPLICATE CONTROL SAMPLE REPORT
Metals Analysis and Preparation (cont.)

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	Measured AVG	Accuracy Average(%) DCS	Accuracy Average(%) Limits	Precision (RPD) DCS	Precision (RPD) Limit
Category: SE-FAA-AT Matrix: AQUEOUS QC Lot: 02 SEP 90-X Concentration Units: mg/L								
Selenium	0.01	0.0108	0.0108	0.0108	108	75-125	0.0	20
Category: TL-FAA-AT Matrix: AQUEOUS QC Lot: 02 SEP 90-X Concentration Units: mg/L								
Thallium	0.05	0.0486	0.0486	0.0486	97	75-125	0.0	20
Category: HG-CVAA-AT Matrix: AQUEOUS QC Lot: 23 AUG 90-B Concentration Units: mg/L								
Mercury	0.0010	0.00103	0.00104	0.00104	104	75-125	1.0	20

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

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METHOD BLANK REPORT
Metals Analysis and Preparation

Analyte	Result	Units	Reporting Limit
Test: ICP-AT			
Matrix: AQUEOUS			
QC Lot: 02 SEP 90-Z QC Run: 02 SEP 90-Z			
Antimony	ND	mg/L	0.060
Barium	ND	mg/L	0.010
Beryllium	ND	mg/L	0.0020
Boron	ND	mg/L	0.10
Cadmium	ND	mg/L	0.0050
Chromium	ND	mg/L	0.010
Cobalt	ND	mg/L	0.010
Copper	ND	mg/L	0.020
Manganese	ND	mg/L	0.010
Nickel	ND	mg/L	0.040
Silver	ND	mg/L	0.010
Tin	ND	mg/L	0.10
Vanadium	ND	mg/L	0.010
Zinc	ND	mg/L	0.020
Test: AS-FAA-AT			
Matrix: AQUEOUS			
QC Lot: 02 SEP 90-X QC Run: 02 SEP 90-X			
Arsenic	ND	mg/L	0.0050
Test: PB-FAA-AT			
Matrix: AQUEOUS			
QC Lot: 02 SEP 90-A QC Run: 02 SEP 90-A			
Lead	ND	mg/L	0.0050
Test: SE-FAA-AT			
Matrix: AQUEOUS			
QC Lot: 02 SEP 90-X QC Run: 02 SEP 90-X			
Selenium	ND	mg/L	0.0050

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METHOD BLANK REPORT
Metals Analysis and Preparation (cont.)

Analyte	Result	Units	Reporting Limit
Test: TL-FAA-AT Matrix: AQUEOUS QC Lot: 02 SEP 90-X QC Run: 02 SEP 90-X			
Thallium	ND	mg/L	0.0050
Test: HG-CVAA-AT Matrix: AQUEOUS QC Lot: 23 AUG 90-B QC Run: 23 AUG 90-B			
Mercury	ND	mg/L	0.00020

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QC LOT ASSIGNMENT REPORT
Wet Chemistry Analysis and Preparation

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
010712-0001-SA	AQUEOUS	NH3-A	27 AUG 90-B	-
010712-0001-SA	AQUEOUS	NO3-IC-A	21 AUG 90-M	-
010712-0001-SA	AQUEOUS	SO4-IC-A	21 AUG 90-M	-
010712-0001-SA	AQUEOUS	CL-IC-A	21 AUG 90-M	-
010712-0001-SA	AQUEOUS	F-A	12 SEP 90-A	-
010712-0001-SA	AQUEOUS	TKN-A	27 AUG 90-A	27 AUG 90-A
010712-0002-SA	AQUEOUS	NH3-A	27 AUG 90-B	-
010712-0002-SA	AQUEOUS	NO3-IC-A	21 AUG 90-M	-
010712-0002-SA	AQUEOUS	SO4-IC-A	21 AUG 90-M	-
010712-0002-SA	AQUEOUS	CL-IC-A	21 AUG 90-M	-
010712-0002-SA	AQUEOUS	F-A	12 SEP 90-A	-
010712-0002-SA	AQUEOUS	TKN-A	27 AUG 90-A	27 AUG 90-A
010712-0003-SA	AQUEOUS	NH3-A	27 AUG 90-B	-
010712-0003-SA	AQUEOUS	NO3-IC-A	21 AUG 90-M	-
010712-0003-SA	AQUEOUS	SO4-IC-A	21 AUG 90-M	-
010712-0003-SA	AQUEOUS	CL-IC-A	21 AUG 90-M	-
010712-0003-SA	AQUEOUS	F-A	12 SEP 90-A	-
010712-0003-SA	AQUEOUS	TKN-A	27 AUG 90-A	27 AUG 90-A
010712-0004-SA	AQUEOUS	NH3-A	27 AUG 90-B	-
010712-0004-SA	AQUEOUS	NO3-IC-A	21 AUG 90-M	-
010712-0004-SA	AQUEOUS	SO4-IC-A	21 AUG 90-M	-
010712-0004-SA	AQUEOUS	CL-IC-A	21 AUG 90-M	-
010712-0004-SA	AQUEOUS	F-A	26 SEP 90-B	-
010712-0004-SA	AQUEOUS	TKN-A	27 AUG 90-A	27 AUG 90-A
010712-0005-SA	AQUEOUS	NH3-A	24 AUG 90-B	-
010712-0005-SA	AQUEOUS	NO3-IC-A	22 AUG 90-M	-
010712-0005-SA	AQUEOUS	SO4-IC-A	22 AUG 90-M	-
010712-0005-SA	AQUEOUS	CL-IC-A	22 AUG 90-M	-
010712-0005-SA	AQUEOUS	F-A	12 SEP 90-A	-
010712-0005-SA	AQUEOUS	TKN-A	27 AUG 90-A	27 AUG 90-A

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DUPLICATE CONTROL SAMPLE REPORT
Wet Chemistry Analysis and Preparation

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	AVG	Accuracy Average(%) DCS	Accuracy Average(%) Limits	Precision (RPD) DCS	Precision (RPD) Limit
Category: NH3-A Matrix: AQUEOUS QC Lot: 27 AUG 90-B Concentration Units: mg/L								
Ammonia as N	8.0	7.96	7.83	7.90	99	93-107	1.6	10
Category: NO3-IC-A Matrix: AQUEOUS QC Lot: 21 AUG 90-M Concentration Units: mg/L								
Nitrate as N	20	18.8	18.6	18.7	94	91-109	1.1	20
Category: SO4-IC-A Matrix: AQUEOUS QC Lot: 21 AUG 90-M Concentration Units: mg/L								
Sulfate	200	200	198	199	100	93-107	1.0	20
Category: CL-IC-A Matrix: AQUEOUS QC Lot: 21 AUG 90-M Concentration Units: mg/L								
Chloride	100	98.6	98.6	98.6	99	92-108	0.0	20
Category: F-A Matrix: AQUEOUS QC Lot: 12 SEP 90-A Concentration Units: mg/L								
Fluoride	4.1	3.90	3.84	3.87	94	88-112	1.6	15

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

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DUPLICATE CONTROL SAMPLE REPORT
Wet Chemistry Analysis and Preparation (cont.)

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	Measured AVG	Accuracy Average(%) DCS	Accuracy Average(%) Limits	Precision (RPD) DCS	Precision (RPD) Limit
Category: TKN-A Matrix: AQUEOUS QC Lot: 27 AUG 90-A Concentration Units: mg/L								
Total Kjeldahl Nitrogen as N	2.9	2.74	2.67	2.70	93	78-122	2.6	20
Category: F-A Matrix: AQUEOUS QC Lot: 26 SEP 90-B Concentration Units: mg/L								
Fluoride	4.1	3.77	3.81	3.79	92	88-112	1.1	15
Category: NH3-A Matrix: AQUEOUS QC Lot: 24 AUG 90-B Concentration Units: mg/L								
Ammonia as N	9.1	9.06	9.07	9.06	100	93-107	0.1	10
Category: NO3-IC-A Matrix: AQUEOUS QC Lot: 22 AUG 90-M Concentration Units: mg/L								
Nitrate as N	20	19.5	19.4	19.4	97	91-109	0.5	20
Category: SO4-IC-A Matrix: AQUEOUS QC Lot: 22 AUG 90-M Concentration Units: mg/L								
Sulfate	200	206	206	206	103	93-107	0.0	20

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

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DUPLICATE CONTROL SAMPLE REPORT
Wet Chemistry Analysis and Preparation (cont.)

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	Measured AVG	Accuracy Average(%) DCS	Accuracy Average(%) Limits	Precision (RPD) DCS	Precision (RPD) Limit
Category: CL-IC-A								
Matrix: AQUEOUS								
QC Lot: 22 AUG 90-M								
Concentration Units: mg/L								
Chloride	100	102	102	102	102	92-108	0.0	20

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

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METHOD BLANK REPORT
Wet Chemistry Analysis and Preparation

Analyte	Result	Units	Reporting Limit
Test: TKN-TEC-A			
Matrix: AQUEOUS			
QC Lot: 27 AUG 90-A QC Run: 27 AUG 90-A			
Total Kjeldahl Nitrogen as N	ND	mg/L	0.50