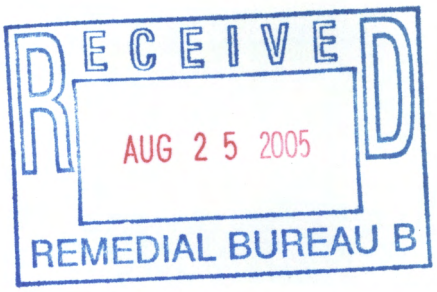
URS



August 23, 2005

Mr. Ronnie Lee
NYS Department of Environmental Conservation
625 Broadway, 12th Floor
Albany, New York 12233-7015

Re: Former EMCA Site, Mamaroneck, New York
Groundwater Sampling and Analysis Report – May 2005 Sampling Event

Dear Mr. Lee:

Enclosed is a copy of the *Groundwater Sampling and Analysis Report for the May 2005 Sampling Event at the Former EMCA Site.*

Please do not hesitate to call if you have questions.

Sincerely,

URS Corporation

Bruce J. Przybyl
Project Manager

cc: File: 05-35673.01 (C-1)

N:\11172730.00000\WORD\DRAFT\Lee-EMCA-May 2005.doc

Former EMCA Site
Mamaroneck, New York

GROUNDWATER SAMPLING AND ANALYSIS REPORT MAY 2005 SAMPLING EVENT

prepared for:
ROHM AND HAAS COMPANY

submitted by:
URS CORPORATION

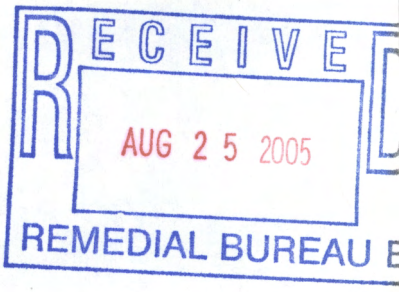
AUGUST 2005

03093C

FORMER EMCA SITE

SITE NO. 360025

MAMARONECK, NEW YORK



GROUNDWATER SAMPLING AND ANALYSIS REPORT

MAY 2005 SAMPLING EVENT

Prepared for:

ROHM AND HAAS COMPANY

Submitted by:

URS CORPORATION

AUGUST 2005

TABLE OF CONTENTS

TABLES

FIGURES

APPENDICES

1.0 INTRODUCTION

This report presents results of groundwater sampling and analysis conducted on May 31, 2005 at the Rohm and Haas former EMCA site located in Mamaroneck, New York (Figure 1). The sampling and analysis episode was performed to evaluate groundwater conditions approximately 6 months following an Interim Remedial Measure (IRM) that involved the injection of emulsified soybean oil and sodium lactate to stimulate biological processes that result in the reductive dechlorination of 1,1,2-trichloro- 1,2,2- trifluoroethane (Freon 113; CAS No. 76-13-1) in site groundwater.

2.0 GROUNDWATER SAMPLING AND ANALYSIS

Groundwater samples were collected using low flow purging and sampling procedures. Static groundwater level measurements were taken prior to purging and sampling. Field purging and sampling logs are presented in Appendix A.

Chain-of-custody was initiated immediately after the groundwater samples were collected and maintained through shipment to the laboratory. Laboratory analyses were performed for the following parameters:

Parameter	Analytical Method
Freon 113	USEPA CLP OLM 04.2
Freon 123a	USEPA CLP OLM 04.2
Freon 1113	USEPA CLP OLM 04.2
Methane	RSK-175
Sulfate	375.4

3.0 RESULTS

Groundwater level data is provided on Table 1 and a groundwater elevation contour map is presented on Figure 2, which indicates that flow across the site was west towards the Sheldrake River.

Analytical results for groundwater samples collected during the period May 21, 2003 to May 31, 2005 are summarized in Table 2. Laboratory data sheets and a data usability summary report for the May 31, 2005 samples are provided in Appendix B. Freon 113 concentrations are shown graphically on Figure 3 and analytical data plots are presented for Freon 113 (Figure 4 and 5), Freon 123a (Figure 6), sulfate (Figure 7), methane (Figure 8), dissolved oxygen (Figure 9) and oxidation reduction potential (Figure 10).

4.0 DATA ASSESSMENT

The groundwater analytical results for the May 31, 2005 sampling episode indicate that Freon 113 concentrations have decreased in all site wells except MW-02 since the IRM activities were performed in November 2004. MW-02 is situated in the area of IRM injection of EOS™. Freon 113 was detected in off site well MW-05 at 0.5 micrograms per liter (µg/L), which is below the New York State Class GA water quality standard of 5 µg/L. Downgradient well MW-04, located on the former EMCA site, did not contain a detectable concentration of Freon 113. Well MW-06, located near the Cablevision building, contained 1 µg/L of Freon 113.

Compared to pre-IRM data (July 22, 2004), the concentrations of Freon 123a and Freon 1113, expected reductive dechlorination daughter products, have also decreased or remained relatively constant in all wells sampled except MW-02. The recent data also indicates that the overall saturated zone within the IRM area became more reducing as evidenced by decreased Freon, dissolved oxygen, oxidation-reduction potential, and sulfate and increased methane concentrations.

At MW-02, the concentrations of Freon 113, Freon 123a, Freon 1113, methane, and sulfate increased between July 22, 2004 (prior to IRM injection) and May 31, 2005. In May 2005 Freon 113 was detected at a concentration of 1,200 µg/L in MW-02. Historical concentrations in this well ranged from a high of 2,400 µg/L in July 2001 to a low of 12 µg/L in December 2003 (Figure 3). The recent Freon 113 concentration and presence of sulfate at MW-02 do not yet provide strong evidence for the occurrence of reductive dechlorination at this well. However, this pattern has been observed before at this site. Increases in Freon 113 concentrations were observed at MW-03 and MW-07 during the pilot study before ultimate reduction to the lower levels currently observed at these wells. Adsorption-desorption effects associated with the EOS™ injection may also be impacting the results at this well. Because the effects of EOS™ injection are expected to last at least 1-3 years, significant reduction of Freon at MW-02 may yet occur.

5.0 RECOMMENDATIONS

It is recommended that a groundwater-monitoring event be conducted in November 2005 using the same wells that were sampled in May 2005 and the same analytical parameters. No additional injections are recommended, since the positive impact of the injections in November 2004 should extend for at least 1-year.

TABLES

TABLE 1
FORMER EMCA SITE, MAMARONECK, NEW YORK
GROUNDWATER ELEVATION MEASUREMENTS (5/31/05)

Location	Measuring Point Elevation (ft.)	Depth to Water (ft.)	Water Surface Elevation (ft.)
GZ-03	102.71	9.18	93.53
GZ-06	101.55	7.54	94.01
MW-01	99.22	6.60	92.62
MW-02	99.18	6.03	93.15
MW-03	99.35	6.25	93.10
MW-04	98.61	5.65	92.96
MW-05	98.14	5.15	92.99
MW-06	ND	8.60	ND
MW-07	ND	6.32	ND
WS-04	97.00	4.57	92.43

Notes:

ND = Not Determined

TABLE 2
FORMER EMCA SITE, MAMARONECK, NEW YORK
GROUNDWATER ANALYTICAL RESULTS

Location ID		GZ-06	GZ-06	GZ-06	GZ-06	GZ-06
Sample ID		GZ06_52103	GZ06	GZ06-091703	GZ-06-121803	GZ06
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		05/21/03	07/23/03	09/17/03	12/18/03	07/22/04
Parameter	Units					
Volatiles						
Acetone	UG/L	5.0 U	10 U	5.0 U	5.0 U	NA
Benzene	UG/L	5.0 U	10 U	5.0 U	5.0 U	NA
Methyl ethyl ketone (2-Butanone)	UG/L	5.0 UR	10 UR	5.0 UR	5.0 UR	NA
Chlorotrifluoroethene (Freon-1113)	UG/L	0 U	0 U	5.4 NJ	0 U	24
1,1-Dichloroethene	UG/L	0.8 J	1.5 J	2.0 U	2.0 U	NA
cis-1,2-Dichloroethene	UG/L	5.0 U	10 U	5.0 U	5.0 U	NA
Ethylbenzene	UG/L	4.0 U	8 U	4.0 U	4.0 U	NA
2-Hexanone	UG/L	5.0 U	10 U	5.0 U	5.0 U	NA
4-Methyl-2-Pentanone	UG/L	5.0 U	10 U	5.0 U	5.0 U	NA
Tetrachloroethene	UG/L	0.6 J	2 U	0.5 J	1.0 U	NA
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon-113)	UG/L	100	230	74	5.0 U	100 J
Vinyl Chloride	UG/L	5.0 U	10 U	5.0 U	5.0 U	NA
Xylene (total)	UG/L	5.0 U	10 U	5.0 U	5.0 U	NA
1,2-Dichloro-1,1,2-trifluoroethane (Freon-123A)	UG/L	20	41	26	0.7 J	36
Dissolved Gases						
Methane	UG/L	140	98	89	5.9	48
Total Metals						
Iron	UG/L	2,390	866	517 J	173	NA
Dissolved Metals						
Iron	UG/L	2,290	778	583 J	85.3 B	NA
Miscellaneous Parameters						
Chloride	MG/L	559	474	477 J	218	1,610
Conductivity	UMHOS	2.27	1.99	1.98	1.11	5.25

Flags assigned during chemistry validation are shown.

NA - Not Analyzed; U - Non-Detect
R - Rejected result; J - Estimated Result
NJ - Analyte is reported as tentatively identified compound at an estimated concentration.

Only Detected Results Reported.

Detection Limits shown are PQL

TABLE 2
FORMER EMCA SITE, MAMARONECK, NEW YORK
GROUNDWATER ANALYTICAL RESULTS

Location ID		GZ-06	GZ-06	GZ-06	GZ-06	GZ-06
Sample ID		GZ06_52103	GZ06	GZ06-091703	GZ-06-121803	GZ06
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		05/21/03	07/23/03	09/17/03	12/18/03	07/22/04
Parameter	Units					
Miscellaneous Parameters						
Dissolved Oxygen	MG/L	0.76	0.50	0.48	6.86	1.15
Nitrogen, Ammonia (As N)	MG/L	0.1 U	0.1 U	0.1 U	0.1 U	NA
Nitrogen, Kjeldahl, Total	MG/L	0.5 U	0.7	1.3	0.57	NA
Nitrogen, Nitrate	MG/L	0.1 U	NA	0.58	0.1 U	NA
Nitrogen, Nitrate-Nitrite	MG/L	NA	0.12 J	NA	NA	NA
Oxidation Reduction Potential	mV	-110	-75	-129	73	-210
Sulfate	MG/L	25.2	27.5	32.4	5.0 U	20.8
Ferrous Iron (field)	MG/L	2.8	9.6	0.25	0.03	NA
Ferric Iron (lab)	MG/L	0.1 U	0.1 U	0.52	0.143	NA
Fluoride	MG/L	0.1 U	0.1 U	0.1 U	0.32	1.00 U
Oil & Grease	MG/L	NA	NA	5.21 UR	NA	NA

Flags assigned during chemistry validation are shown.

NA - Not Analyzed; U - Non-Detect
R - Rejected result; J - Estimated Result
NJ - Analyte is reported as tentatively identified compound at an estimated concentration.

Only Detected Results Reported.

Detection Limits shown are PQL

TABLE 2
FORMER EMCA SITE, MAMARONECK, NEW YORK
GROUNDWATER ANALYTICAL RESULTS

Location ID		GZ-06	MW-02	MW-02	MW-02	MW-02
Sample ID		GZ-06	MW02-5-20-03	MW02-5-20-03DUP	DUP-7_22_03	MW02-7_22_03
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		05/31/05	05/20/03	05/20/03	07/22/03	07/22/03
Parameter	Units			Field Duplicate (1-1)	Field Duplicate (1-1)	
Volatiles						
Acetone	UG/L	NA	140 J	130 J	50 UR	50 UR
Benzene	UG/L	NA	50 U	25 U	50 U	50 U
Methyl ethyl ketone (2-Butanone)	UG/L	NA	50 UR	25 UR	50 UR	50 UR
Chlorotrifluoroethene (Freon-1113)	UG/L	15	0 U	0 U	0 U	0 U
1,1-Dichloroethene	UG/L	NA	4.4 J	5.1 J	8.2 J	7.5 J
cis-1,2-Dichloroethene	UG/L	NA	50 U	25 U	50 U	50 U
Ethylbenzene	UG/L	NA	40 U	20 U	40 U	3.4 J
2-Hexanone	UG/L	NA	50 U	25 U	50 U	50 U
4-Methyl-2-Pentanone	UG/L	NA	50 U	25 U	50 U	50 U
Tetrachloroethene	UG/L	NA	10 U	5.0 U	10 U	10 U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon-113)	UG/L	9.0 J	710	880	1,000	1,000
Vinyl Chloride	UG/L	NA	50 U	25 U	50 U	50 U
Xylene (total)	UG/L	NA	50 U	25 U	7.1 J	11 J
1,2-Dichloro-1,1,2-trifluoroethane (Freon-123A)	UG/L	4.0 J	34 J	40	40 J	41 J
Dissolved Gases						
Methane	UG/L	310	26	32	54	52
Total Metals						
Iron	UG/L	NA	27,800	28,300	30,100	30,900
Dissolved Metals						
Iron	UG/L	NA	27,900	28,200	30,500	30,500
Miscellaneous Parameters						
Chloride	MG/L	NA	338	338	307	283
Conductivity	UMHOS	1.43	1.68	NA	NA	1.65

Flags assigned during chemistry validation are shown.

NA - Not Analyzed; U - Non-Detect
R - Rejected result; J - Estimated Result
NJ - Analyte is reported as tentatively identified compound at an estimated concentration.

Only Detected Results Reported.

Detection Limits shown are PQL

TABLE 2
FORMER EMCA SITE, MAMARONECK, NEW YORK
GROUNDWATER ANALYTICAL RESULTS

Location ID		GZ-06	MW-02	MW-02	MW-02	MW-02
Sample ID		GZ-06	MW02-5-20-03	MW02-5-20-03DUP	DUP-7_22_03	MW02-7_22_03
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		05/31/05	05/20/03	05/20/03	07/22/03	07/22/03
Parameter	Units			Field Duplicate (1-1)	Field Duplicate (1-1)	
Miscellaneous Parameters						
Dissolved Oxygen	MG/L	0.11	0.36	NA	NA	0.26
Nitrogen, Ammonia (As N)	MG/L	NA	3.3	3.4	4.1	3.8
Nitrogen, Kjeldahl, Total	MG/L	NA	6.6	6.2	6.6	6.1
Nitrogen, Nitrate	MG/L	NA	0.15	0.16	0.1 U	0.1
Nitrogen, Nitrate-Nitrite	MG/L	NA	NA	NA	NA	NA
Oxidation Reduction Potential	mV	-107	-108	NA	NA	-190
Sulfate	MG/L	14.2	44	46	32.3	32.5
Ferrous Iron (field)	MG/L	NA	25.3	NA	25.7	28.0
Ferric Iron (lab)	MG/L	NA	2.5	3	4.4	2.9
Fluoride	MG/L	NA	0.28	0.3	0.37	0.39
Oil & Grease	MG/L	NA	NA	NA	NA	NA

Flags assigned during chemistry validation are shown.

NA - Not Analyzed; U - Non-Detect
R - Rejected result; J - Estimated Result
NJ - Analyte is reported as tentatively identified compound at an estimated concentration.

Only Detected Results Reported.

Detection Limits shown are PQL

TABLE 2
FORMER EMCA SITE, MAMARONECK, NEW YORK
GROUNDWATER ANALYTICAL RESULTS

Location ID		MW-02	MW-02	MW-02	MW-02	MW-03
Sample ID		MW02-091803	MW-02-121803	MW-02	MW-02	MW03_52103
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		09/18/03	12/18/03	07/22/04	05/31/05	05/21/03
Parameter	**Units**					
Volatiles						
Acetone	UG/L	5.0 U	5.0 U	NA	NA	250 U
Benzene	UG/L	5.0 U	5.0 U	NA	NA	250 U
Methyl ethyl ketone (2-Butanone)	UG/L	5.0 UR	5.0 UR	NA	NA	250 UR
Chlorotrifluoroethene (Freon-1113)	UG/L	0 U	0 U	14	120	0 U
1,1-Dichloroethene	UG/L	2.0 U	2.0 U	NA	NA	33 J
cis-1,2-Dichloroethene	UG/L	5.0 U	5.0 U	NA	NA	250 U
Ethylbenzene	UG/L	4.0 U	4.0 U	NA	NA	200 U
2-Hexanone	UG/L	5.0 U	5.0 U	NA	NA	250 U
4-Methyl-2-Pentanone	UG/L	5.0 U	5.0 U	NA	NA	250 U
Tetrachloroethene	UG/L	1.0 U	1.0 U	NA	NA	50 U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon-113)	UG/L	54	12	21 J	1,200	5,800
Vinyl Chloride	UG/L	5.0 U	5.0 U	NA	NA	250 U
Xylene (total)	UG/L	5.0 U	5.0 U	NA	NA	250 U
1,2-Dichloro-1,1,2-trifluoroethane (Freon-123A)	UG/L	7.8	3.3 J	4 J	86 J	78 J
Dissolved Gases						
Methane	UG/L	410	320	140	2,000	86
Total Metals						
Iron	UG/L	63,800 J	69,000	NA	NA	1,170
Dissolved Metals						
Iron	UG/L	60,900 J	69,300	NA	NA	267
Miscellaneous Parameters						
Chloride	MG/L	839	769	238	NA	113
Conductivity	UMHOS	3.17	3.28	2.34	1.19	0.638

Flags assigned during chemistry validation are shown.

NA - Not Analyzed; U - Non-Detect
R - Rejected result; J - Estimated Result
NJ - Analyte is reported as tentatively identified compound at an estimated concentration.

Only Detected Results Reported.

Detection Limits shown are PQL

TABLE 2
FORMER EMCA SITE, MAMARONECK, NEW YORK
GROUNDWATER ANALYTICAL RESULTS

Location ID		MW-02	MW-02	MW-02	MW-02	MW-03
Sample ID		MW02-091803	MW-02-121803	MW-02	MW-02	MW03_52103
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		09/18/03	12/18/03	07/22/04	05/31/05	05/21/03
Parameter	Units					
Miscellaneous Parameters						
Dissolved Oxygen	MG/L	0.53	0 U	0.91	0 U	0.58
Nitrogen, Ammonia (As N)	MG/L	11.5	11.9	NA	NA	0.36
Nitrogen, Kjeldahl, Total	MG/L	17.1	16.9	NA	NA	1.3
Nitrogen, Nitrate	MG/L	0.1 U	0.1 U	NA	NA	2
Nitrogen, Nitrate-Nitrite	MG/L	NA	NA	NA	NA	NA
Oxidation Reduction Potential	mV	-99	-108	-133	-140	40
Sulfate	MG/L	4.8	5.0 U	15.2	25.2	32.7
Ferrous Iron (field)	MG/L	49.3	6.3	NA	NA	0.5
Ferric Iron (lab)	MG/L	48.3	62.7	NA	NA	0.67
Fluoride	MG/L	0.3	0.31	0.294	NA	0.28
Oil & Grease	MG/L	5 U	NA	NA	NA	NA

Flags assigned during chemistry validation are shown.

NA - Not Analyzed; U - Non-Detect
R - Rejected result; J - Estimated Result
NJ - Analyte is reported as tentatively identified compound at an estimated concentration.

Only Detected Results Reported.

Detection Limits shown are PQL

TABLE 2
FORMER EMCA SITE, MAMARONECK, NEW YORK
GROUNDWATER ANALYTICAL RESULTS

Location ID		MW-03	MW-03	MW-03	MW-03	MW-03
Sample ID		MW03	DUP-91703	MW03-091703	DUP1_121703	MW-03_121703
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		07/23/03	09/17/03	09/17/03	12/17/03	12/17/03
Parameter	Units		Field Duplicate (1-1)		Field Duplicate (1-1)	
Volatiles						
Acetone	UG/L	78	110	110	130 J	120 J
Benzene	UG/L	2.3	2.2	1.8	10 U	10 U
Methyl ethyl ketone (2-Butanone)	UG/L	130 J	69 J	65 J	39 J	38 J
Chlorotrifluoroethene (Freon-1113)	UG/L	7.0 NJ	6.2 NJ	0 U	0 U	0 U
1,1-Dichloroethene	UG/L	2.0 U	2.0 U	2.0 U	4.0 U	4 U
cis-1,2-Dichloroethene	UG/L	5.0 U	5.0 U	5.0 U	10 U	10 U
Ethylbenzene	UG/L	0.3 J	4.0 U	4.0 U	8.0 U	8 U
2-Hexanone	UG/L	5.0 U	19	16	10 U	10 U
4-Methyl-2-Pentanone	UG/L	5.0 U	11	11	10 U	10 U
Tetrachloroethene	UG/L	1.0 U	1.0 U	1.0 U	4.9	4.6
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon-113)	UG/L	68	26	16	150	150
Vinyl Chloride	UG/L	5.0 U	5.0 U	5.0 U	10 U	10 U
Xylene (total)	UG/L	1.1 J	5.0 U	5.0 U	10 U	10 U
1,2-Dichloro-1,1,2-trifluoroethane (Freon-123A)	UG/L	43	180	110	170	160
Dissolved Gases						
Methane	UG/L	56	2,400	2,500	7,200	4,900
Total Metals						
Iron	UG/L	150,000	174,000 J	178,000 J	156,000	164,000
Dissolved Metals						
Iron	UG/L	152,000	187,000 J	186,000 J	167,000	176,000
Miscellaneous Parameters						
Chloride	MG/L	143	99.2 J	91.5 J	224	192
Conductivity	UMHOS	4.35	NA	1.64	NA	1.99

Flags assigned during chemistry validation are shown.

NA - Not Analyzed; U - Non-Detect
R - Rejected result; J - Estimated Result
NJ - Analyte is reported as tentatively identified compound at an estimated concentration.

Only Detected Results Reported.

Detection Limits shown are PQL

N:\11172730.00000\DB\PROGRAM\EDMS.mde
Printed: 08/18/05 11:24:52 AM
[MATRIX] = 'WG' AND [LOGDATE] >= #05/20/03#

TABLE 2
FORMER EMCA SITE, MAMARONECK, NEW YORK
GROUNDWATER ANALYTICAL RESULTS

Location ID		MW-03	MW-03	MW-03	MW-03	MW-03
Sample ID		MW03	DUP-91703	MW03-091703	DUP1_121703	MW-03_121703
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		07/23/03	09/17/03	09/17/03	12/17/03	12/17/03
Parameter	Units		Field Duplicate (1-1)		Field Duplicate (1-1)	
Miscellaneous Parameters						
Dissolved Oxygen	MG/L	0 U	NA	0.01	NA	0.35
Nitrogen, Ammonia (As N)	MG/L	2.7	0.86	0.95	1.4	1.2
Nitrogen, Kjeldahl, Total	MG/L	10.8	4.5	4.4	4.0	4.0
Nitrogen, Nitrate	MG/L	NA	0.1 U	0.1 U	0.1 U	0.1 U
Nitrogen, Nitrate-Nitrite	MG/L	0.1 UJ	NA	NA	NA	NA
Oxidation Reduction Potential	mV	-103	NA	-90	NA	-59
Sulfate	MG/L	26.9	5.0 U	5.0 U	5.0 U	5.0 U
Ferrous Iron (field)	MG/L	3.7	25.5	27.9	23.5	30.0
Ferric Iron (lab)	MG/L	146	67.0	93.0	132	134
Fluoride	MG/L	0.44	0.27	0.2	0.22	0.25
Oil & Grease	MG/L	NA	9.26 R	9.26 R	NA	NA

Flags assigned during chemistry validation are shown.

NA - Not Analyzed; U - Non-Detect
R - Rejected result; J - Estimated Result
NJ - Analyte is reported as tentatively identified compound at an estimated concentration.

Only Detected Results Reported.

Detection Limits shown are PQL

N:\11172730.00000\DB\PROGRAM\EDMS.mdb
Printed: 08/18/05 11:24:52 AM
[MATRIX] = 'WG' AND [LOGDATE] >= #05/20/03#

TABLE 2
FORMER EMCA SITE, MAMARONECK, NEW YORK
GROUNDWATER ANALYTICAL RESULTS

Location ID		MW-03	MW-03	MW-04	MW-04	MW-04
Sample ID		MW-03	MW-03	MW04-5-20-03	MW-04_121703	Dup1
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		07/23/04	05/31/05	05/20/03	12/17/03	07/22/04
Parameter	Units					Field Duplicate (1-1)
Volatiles						
Acetone	UG/L	NA	NA	5.0 U	5.0 U	NA
Benzene	UG/L	NA	NA	5.0 U	5.0 U	NA
Methyl ethyl ketone (2-Butanone)	UG/L	NA	NA	5.0 UR	5.0 UR	NA
Chlorotrifluoroethene (Freon-1113)	UG/L	68 J	83	0 U	0 U	10 U
1,1-Dichloroethene	UG/L	NA	NA	2.0 U	2.0 U	NA
cis-1,2-Dichloroethene	UG/L	NA	NA	5.0 U	5.0 U	NA
Ethylbenzene	UG/L	NA	NA	4.0 U	4.0 U	NA
2-Hexanone	UG/L	NA	NA	5.0 U	5.0 U	NA
4-Methyl-2-Pentanone	UG/L	NA	NA	5.0 U	5.0 U	NA
Tetrachloroethene	UG/L	NA	NA	1.0 U	1.0 U	NA
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon-113)	UG/L	4,900 J	2.0 J	5.0 U	5.0 U	10 UJ
Vinyl Chloride	UG/L	NA	NA	5.0 U	5.0 U	NA
Xylene (total)	UG/L	NA	NA	5.0 U	5.0 U	NA
1,2-Dichloro-1,1,2-trifluoroethane (Freon-123A)	UG/L	3,900	14	5.0 U	5.0 U	10 U
Dissolved Gases						
Methane	UG/L	2,700	6,300	380	35	69
Total Metals						
Iron	UG/L	NA	NA	18,400	3,640	NA
Dissolved Metals						
Iron	UG/L	NA	NA	18,500	3,760	NA
Miscellaneous Parameters						
Chloride	MG/L	71.7	NA	238	294	158
Conductivity	UMHOS	2.40	3.19	1.61	0.99	NA

Flags assigned during chemistry validation are shown.

NA - Not Analyzed; U - Non-Detect
R - Rejected result; J - Estimated Result
NJ - Analyte is reported as tentatively identified compound at an estimated concentration.

Only Detected Results Reported.

Detection Limits shown are PQL

TABLE 2
FORMER EMCA SITE, MAMARONECK, NEW YORK
GROUNDWATER ANALYTICAL RESULTS

Location ID		MW-03	MW-03	MW-04	MW-04	MW-04
Sample ID		MW-03	MW-03	MW04-5-20-03	MW-04_121703	Dup1
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		07/23/04	05/31/05	05/20/03	12/17/03	07/22/04
Parameter	Units					Field Duplicate (1-1)
Miscellaneous Parameters						
Dissolved Oxygen	MG/L	1.05	1.24	0.54	0 U	NA
Nitrogen, Ammonia (As N)	MG/L	NA	NA	1.6	1.2	NA
Nitrogen, Kjeldahl, Total	MG/L	NA	NA	6.2	1.9	NA
Nitrogen, Nitrate	MG/L	NA	NA	0.1 U	0.1 U	NA
Nitrogen, Nitrate-Nitrite	MG/L	NA	NA	NA	NA	NA
Oxidation Reduction Potential	mV	-143	-133	-115	0 U	NA
Sulfate	MG/L	5.0 U	5.0 U	5.0 U	9.4	10.8
Ferrous Iron (field)	MG/L	NA	NA	17.6	2.2	NA
Ferric Iron (lab)	MG/L	NA	NA	0.76	1.3	NA
Fluoride	MG/L	0.397	NA	0.27	0.19	0.304
Oil & Grease	MG/L	NA	NA	NA	NA	NA

Flags assigned during chemistry validation are shown.

NA - Not Analyzed; U - Non-Detect
R - Rejected result; J - Estimated Result
NJ - Analyte is reported as tentatively identified compound at an estimated concentration.

Only Detected Results Reported.

Detection Limits shown are PQL

TABLE 2
FORMER EMCA SITE, MAMARONECK, NEW YORK
GROUNDWATER ANALYTICAL RESULTS

Location ID		MW-04	MW-04	MW-05	MW-05	MW-05
Sample ID		MW-04	MW-04	MW05_52103	MW-05-121803	MW-05
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		07/22/04	05/31/05	05/21/03	12/18/03	07/23/04
Parameter	**Units**					
Volatiles						
Acetone	UG/L	NA	NA	5.0 U	5.0 U	NA
Benzene	UG/L	NA	NA	5.0 U	5.0 U	NA
Methyl ethyl ketone (2-Butanone)	UG/L	NA	NA	5.0 UR	5.0 UR	NA
Chlorotrifluoroethene (Freon-1113)	UG/L	10 U	1.0 J	0 U	0 U	10 U
1,1-Dichloroethene	UG/L	NA	NA	2.0 U	2.0 U	NA
cis-1,2-Dichloroethene	UG/L	NA	NA	5.0 U	5.0 U	NA
Ethylbenzene	UG/L	NA	NA	4.0 U	4.0 U	NA
2-Hexanone	UG/L	NA	NA	5.0 U	5.0 U	NA
4-Methyl-2-Pentanone	UG/L	NA	NA	5.0 U	5.0 U	NA
Tetrachloroethene	UG/L	NA	NA	0.4 J	1.0 U	NA
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon-113)	UG/L	0.7 J	10 U	5.0 U	5.0 U	0.5 J
Vinyl Chloride	UG/L	NA	NA	5.0 U	5.0 U	NA
Xylene (total)	UG/L	NA	NA	5.0 U	5.0 U	NA
1,2-Dichloro-1,1,2-trifluoroethane (Freon-123A)	UG/L	10 U	10 U	5.0 U	5.0 U	10 U
Dissolved Gases						
Methane	UG/L	99	190	27	6.7	47
Total Metals						
Iron	UG/L	NA	NA	2,110	15,500	NA
Dissolved Metals						
Iron	UG/L	NA	NA	1,670	39.7 U	NA
Miscellaneous Parameters						
Chloride	MG/L	161	NA	49.8	27.5	63.9
Conductivity	UMHOS	1.05	1.85	0.426	0.629	0.463

Flags assigned during chemistry validation are shown.

NA - Not Analyzed; U - Non-Detect
R - Rejected result; J - Estimated Result
NJ - Analyte is reported as tentatively identified compound at an estimated concentration.

Only Detected Results Reported.

Detection Limits shown are PQL

TABLE 2
FORMER EMCA SITE, MAMARONECK, NEW YORK
GROUNDWATER ANALYTICAL RESULTS

Location ID		MW-04	MW-04	MW-05	MW-05	MW-05
Sample ID		MW-04	MW-04	MW05_52103	MW-05-121803	MW-05
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		07/22/04	05/31/05	05/21/03	12/18/03	07/23/04
Parameter	Units					
Miscellaneous Parameters						
Dissolved Oxygen	MG/L	0.82	0 U	0.37	0 U	0.97
Nitrogen, Ammonia (As N)	MG/L	NA	NA	0.25	0.1 U	NA
Nitrogen, Kjeldahl, Total	MG/L	NA	NA	3.6	0.61	NA
Nitrogen, Nitrate	MG/L	NA	NA	0.22	0.18	NA
Nitrogen, Nitrate-Nitrite	MG/L	NA	NA	NA	NA	NA
Oxidation Reduction Potential	mV	-136	-126	26	121	46
Sulfate	MG/L	10.8	14.2	50.1	61.4	42.3
Ferrous Iron (field)	MG/L	NA	NA	1.7	0.07	NA
Ferric Iron (lab)	MG/L	NA	NA	0.43	15.4	NA
Fluoride	MG/L	0.302	NA	0 U	0.12	0.103
Oil & Grease	MG/L	NA	NA	NA	NA	NA

Flags assigned during chemistry validation are shown.

NA - Not Analyzed; U - Non-Detect
R - Rejected result; J - Estimated Result
NJ - Analyte is reported as tentatively identified compound at an estimated concentration.

Only Detected Results Reported.

Detection Limits shown are PQL

TABLE 2
FORMER EMCA SITE, MAMARONECK, NEW YORK
GROUNDWATER ANALYTICAL RESULTS

Location ID		MW-06	MW-06	MW-06	MW-06	MW-06
Sample ID		MW06-6-10-03	MW06-7_22_03	MW06-091803	MW-06_121703	MW-06
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		06/10/03	07/22/03	09/18/03	12/17/03	07/23/04
Parameter	Units					
Volatiles						
Acetone	UG/L	10 U	5.0 U	5.0 U	10 U	NA
Benzene	UG/L	10 U	5.0 U	5.0 U	10 U	NA
Methyl ethyl ketone (2-Butanone)	UG/L	10 UR	5.0 UR	5.0 UR	10 UR	NA
Chlorotrifluoroethene (Freon-1113)	UG/L	0 U	5.7 NJ	0 U	0 U	5 J
1,1-Dichloroethene	UG/L	4 U	1.2 J	2.0 U	4 U	NA
cis-1,2-Dichloroethene	UG/L	10 U	1.7 J	1.4 J	1.3 J	NA
Ethylbenzene	UG/L	8 U	4.0 U	4.0 U	8 U	NA
2-Hexanone	UG/L	10 U	5.0 U	5.0 U	10 U	NA
4-Methyl-2-Pentanone	UG/L	10 U	5.0 U	5.0 U	10 U	NA
Tetrachloroethene	UG/L	2 U	1.0 U	1.0 U	2 U	NA
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon-113)	UG/L	220	180	97	250	140 J
Vinyl Chloride	UG/L	10 U	1.2 J	5.0 U	10 U	NA
Xylene (total)	UG/L	10 U	5.0 U	5.0 U	10 U	NA
1,2-Dichloro-1,1,2-trifluoroethane (Freon-123A)	UG/L	8.8 J	9.5	8.6	14	23
Dissolved Gases						
Methane	UG/L	49	81	99	78	40
Total Metals						
Iron	UG/L	14,400	10,500	8,370 J	7,690	NA
Dissolved Metals						
Iron	UG/L	14,300	10,300	8,470 J	7,670	NA
Miscellaneous Parameters						
Chloride	MG/L	184	82.3	74.6	84.0	60.5
Conductivity	UMHOS	0.741	0.866	0.581	602	0.513

Flags assigned during chemistry validation are shown.

NA - Not Analyzed; U - Non-Detect
R - Rejected result; J - Estimated Result
NJ - Analyte is reported as tentatively identified compound at an estimated concentration.

Only Detected Results Reported.

Detection Limits shown are PQL

TABLE 2
FORMER EMCA SITE, MAMARONECK, NEW YORK
GROUNDWATER ANALYTICAL RESULTS

Location ID		MW-06	MW-06	MW-06	MW-06	MW-06
Sample ID		MW06-6-10-03	MW06-7_22_03	MW06-091803	MW-06_121703	MW-06
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		06/10/03	07/22/03	09/18/03	12/17/03	07/23/04
Parameter	**Units**					
Miscellaneous Parameters						
Dissolved Oxygen	MG/L	0.93	1.07	0 U	0 U	1.04
Nitrogen, Ammonia (As N)	MG/L	0.19	0.33	0.31	0.36	NA
Nitrogen, Kjeldahl, Total	MG/L	0.72	1.1	0.88	0.79	NA
Nitrogen, Nitrate	MG/L	0.33	0.1 U	0.1 U	0.1 UJ	NA
Nitrogen, Nitrate-Nitrite	MG/L	NA	NA	NA	NA	NA
Oxidation Reduction Potential	mV	-145	-155	-143	-110	-64
Sulfate	MG/L	32	30.5	39.2	39.1	33.5
Ferrous Iron (field)	MG/L	14.3	8.6	6.0	8.7	NA
Ferric Iron (lab)	MG/L	0.12	1.9	8.4	1.0 U	NA
Fluoride	MG/L	0.46	0.56	0.37	0.42	0.467
Oil & Grease	MG/L	NA	NA	5 U	NA	NA

Flags assigned during chemistry validation are shown.

NA - Not Analyzed; U - Non-Detect
R - Rejected result; J - Estimated Result
NJ - Analyte is reported as tentatively identified compound at an estimated concentration.

Only Detected Results Reported.

Detection Limits shown are PQL

TABLE 2
FORMER EMCA SITE, MAMARONECK, NEW YORK
GROUNDWATER ANALYTICAL RESULTS

Location ID		MW-06	MW-06	MW-07	MW-07	MW-07
Sample ID		Field-Dup	MW-06	MW07-6-10-03	MW07	MW07-91703
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		05/31/05	05/31/05	06/10/03	07/23/03	09/17/03
Parameter	Units	Field Duplicate (1-1)				
Volatiles						
Acetone	UG/L	NA	NA	250 U	500 U	250 U
Benzene	UG/L	NA	NA	250 U	500 U	250 U
Methyl ethyl ketone (2-Butanone)	UG/L	NA	NA	250 UR	500 UR	250 UR
Chlorotrifluoroethene (Freon-1113)	UG/L	6.0 J	5.0 J	0 U	0 U	0 U
1,1-Dichloroethene	UG/L	NA	NA	100 U	68 J	100 U
cis-1,2-Dichloroethene	UG/L	NA	NA	250 U	500 U	250 U
Ethylbenzene	UG/L	NA	NA	200 U	400 U	200 U
2-Hexanone	UG/L	NA	NA	250 U	500 U	250 U
4-Methyl-2-Pentanone	UG/L	NA	NA	250 U	500 U	250 U
Tetrachloroethene	UG/L	NA	NA	50 U	100 U	50 U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon-113)	UG/L	1.0 J	1.0 J	5,400	8,500	6,100
Vinyl Chloride	UG/L	NA	NA	250 U	500 U	250 U
Xylene (total)	UG/L	NA	NA	250 U	500 U	250 U
1,2-Dichloro-1,1,2-trifluoroethane (Freon-123A)	UG/L	16	14	68 J	130 J	130 J
Dissolved Gases						
Methane	UG/L	3,600	3,300	740	420	1,200
Total Metals						
Iron	UG/L	NA	NA	21,300	21,200	32,700 J
Dissolved Metals						
Iron	UG/L	NA	NA	20,800	20,800	32,500 J
Miscellaneous Parameters						
Chloride	MG/L	NA	NA	140	168	300 J
Conductivity	UMHOS	NA	1.13	0.93	1.11	1.44

Flags assigned during chemistry validation are shown.

NA - Not Analyzed; U - Non-Detect
R - Rejected result; J - Estimated Result
NJ - Analyte is reported as tentatively identified compound at an estimated concentration.

Only Detected Results Reported.

Detection Limits shown are PQL

N:\11172730.00000\DB\PROGRAM\EDMS.mde
Printed: 08/18/05 11:24:52 AM
[MATRIX] = 'WG' AND [LOGDATE] >= #05/20/03#

TABLE 2
FORMER EMCA SITE, MAMARONECK, NEW YORK
GROUNDWATER ANALYTICAL RESULTS

Location ID		MW-06	MW-06	MW-07	MW-07	MW-07
Sample ID		Field-Dup	MW-06	MW07-6-10-03	MW07	MW07-91703
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		05/31/05	05/31/05	06/10/03	07/23/03	09/17/03
Parameter	Units	Field Duplicate (1-1)				
Miscellaneous Parameters						
Dissolved Oxygen	MG/L	NA	0 U	0.90	0.10	0 U
Nitrogen, Ammonia (As N)	MG/L	NA	NA	0.39	0.6	0.66
Nitrogen, Kjeldahl, Total	MG/L	NA	NA	1.2	1.8	2.1
Nitrogen, Nitrate	MG/L	NA	NA	0.1 U	NA	0.1 U
Nitrogen, Nitrate-Nitrite	MG/L	NA	NA	NA	0.1 UJ	NA
Oxidation Reduction Potential	mV	NA	-140	-130	-108	-118
Sulfate	MG/L	5.0 U	5.0 U	32.8	31	23.6
Ferrous Iron (field)	MG/L	NA	NA	20.2	19.8	33.8
Ferric Iron (lab)	MG/L	NA	NA	1	1.4	14.1
Fluoride	MG/L	NA	NA	0.33	0.25	0.24
Oil & Grease	MG/L	NA	NA	NA	NA	5.44 U

Flags assigned during chemistry validation are shown.

NA - Not Analyzed; U - Non-Detect
R - Rejected result; J - Estimated Result
NJ - Analyte is reported as tentatively identified compound at an estimated concentration.

Only Detected Results Reported.

Detection Limits shown are PQL

TABLE 2
FORMER EMCA SITE, MAMARONECK, NEW YORK
GROUNDWATER ANALYTICAL RESULTS

Location ID		MW-07	MW-07	MW-07
Sample ID		MW-07_121703	MW-07	MW-07
Matrix		Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-
Date Sampled		12/17/03	07/22/04	05/31/05
Parameter	**Units**			
Volatiles				
Acetone	UG/L	50 U	NA	NA
Benzene	UG/L	14	NA	NA
Methyl ethyl ketone (2-Butanone)	UG/L	50 UR	NA	NA
Chlorotrifluoroethene (Freon-1113)	UG/L	0 U	210	140
1,1-Dichloroethene	UG/L	20 U	NA	NA
cis-1,2-Dichloroethene	UG/L	50 U	NA	NA
Ethylbenzene	UG/L	49	NA	NA
2-Hexanone	UG/L	50 U	NA	NA
4-Methyl-2-Pentanone	UG/L	50 U	NA	NA
Tetrachloroethene	UG/L	10 U	NA	NA
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon-113)	UG/L	370	110 J	10 U
Vinyl Chloride	UG/L	50 U	NA	NA
Xylene (total)	UG/L	50 U	NA	NA
1,2-Dichloro-1,1,2-trifluoroethane (Freon-123A)	UG/L	940	50	2.0 J
Dissolved Gases				
Methane	UG/L	1,700	2,500	5,900
Total Metals				
Iron	UG/L	38,900	NA	NA
Dissolved Metals				
Iron	UG/L	38,900	NA	NA
Miscellaneous Parameters				
Chloride	MG/L	328	303	NA
Conductivity	UMHOS	1.94	1.69	1.75

Flags assigned during chemistry validation are shown.

NA - Not Analyzed; U - Non-Detect
R - Rejected result; J - Estimated Result
NJ - Analyte is reported as tentatively identified compound at an estimated concentration.

Only Detected Results Reported.

Detection Limits shown are PQL

TABLE 2
FORMER EMCA SITE, MAMARONECK, NEW YORK
GROUNDWATER ANALYTICAL RESULTS

Location ID		MW-07	MW-07	MW-07
Sample ID		MW-07_121703	MW-07	MW-07
Matrix		Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-
Date Sampled		12/17/03	07/22/04	05/31/05
Parameter	Units			
Miscellaneous Parameters				
Dissolved Oxygen	MG/L	3.33	0.88	0 U
Nitrogen, Ammonia (As N)	MG/L	0.99	NA	NA
Nitrogen, Kjeldahl, Total	MG/L	2.8	NA	NA
Nitrogen, Nitrate	MG/L	0.1 U	NA	NA
Nitrogen, Nitrate-Nitrite	MG/L	NA	NA	NA
Oxidation Reduction Potential	mV	-115	-153	-152
Sulfate	MG/L	5.0 U	5.0 U	5.0 U
Ferrous Iron (field)	MG/L	19.5	NA	NA
Ferric Iron (lab)	MG/L	19.4	NA	NA
Fluoride	MG/L	0.19	0.190	NA
Oil & Grease	MG/L	NA	NA	NA

Flags assigned during chemistry validation are shown.

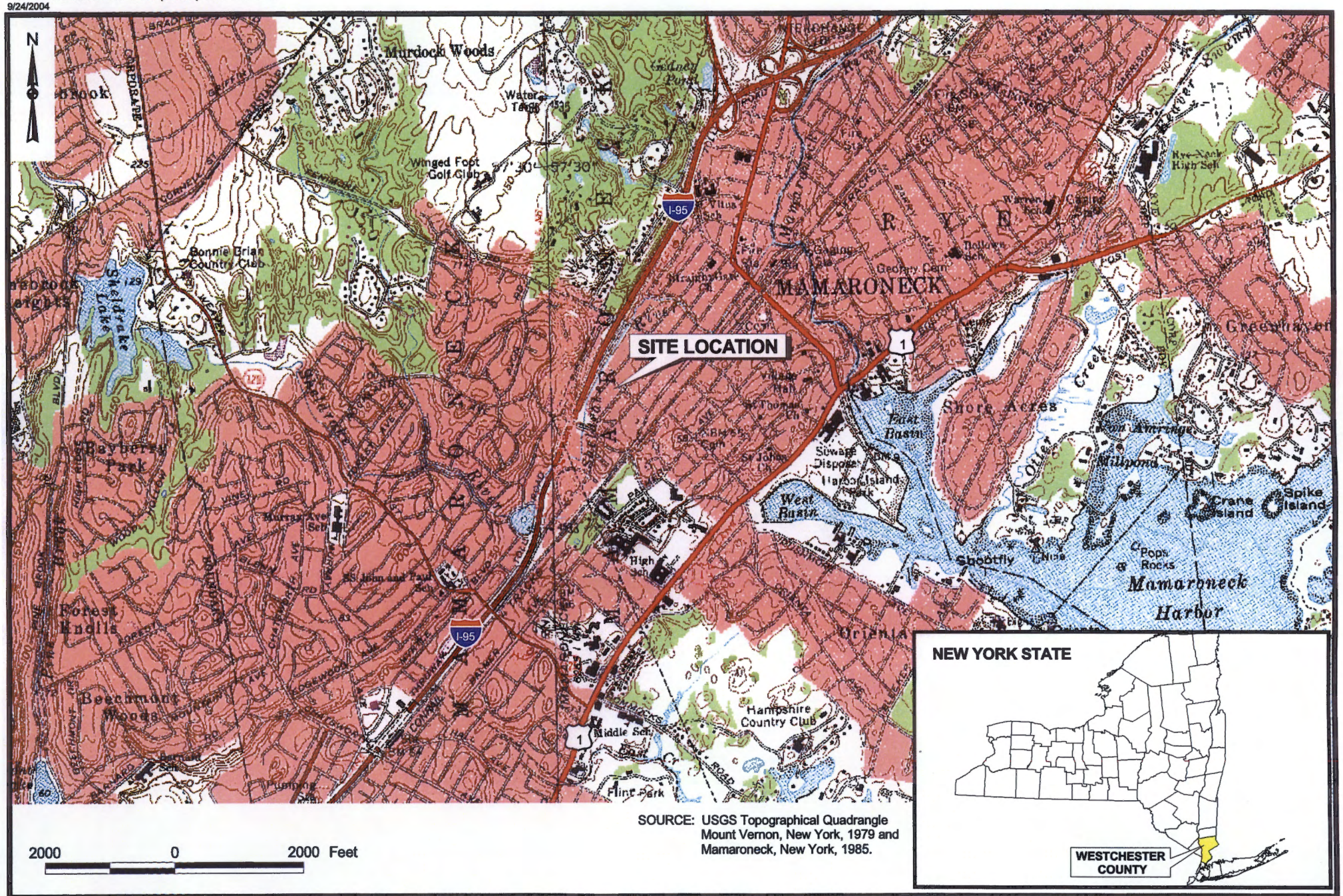
NA - Not Analyzed; U - Non-Detect
R - Rejected result; J - Estimated Result
NJ - Analyte is reported as tentatively identified compound at an estimated concentration.

Only Detected Results Reported.

Detection Limits shown are PQL

FIGURES

N:\11172730.00000\DB\GIS\2001\report00.apr SITE LOCATION
9/24/2004

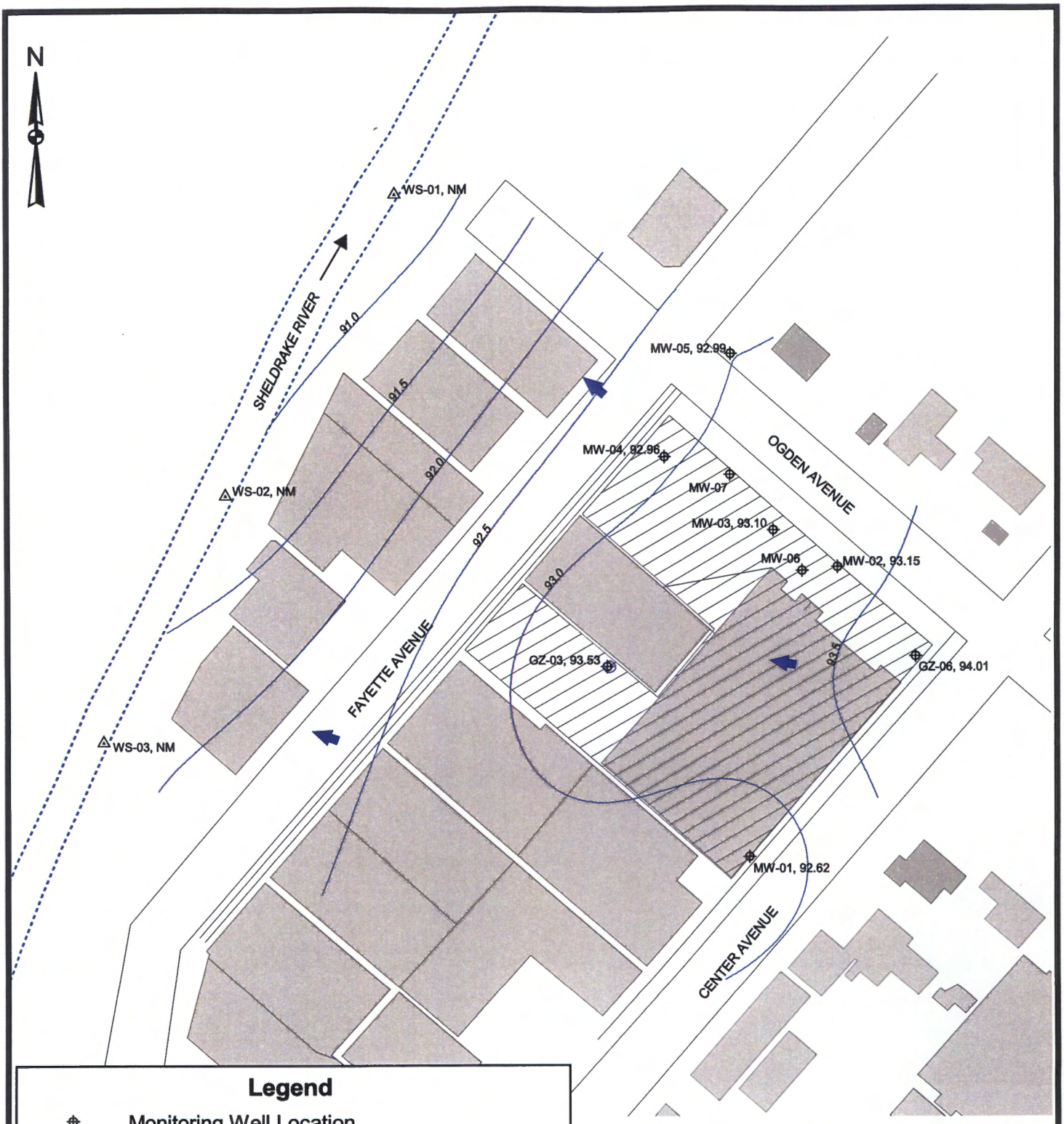


SOURCE: USGS Topographical Quadrangle Mount Vernon, New York, 1979 and Mamaroneck, New York, 1985.

URS

FORMER EMCA SITE
LOCATION MAP

FIGURE 1



Legend

- Monitoring Well Location
- Stream Gauge Location
- Former EMCA Site Boundary (Approximate)
- 92.0 — Groundwater Elevation Contour

MW-05, 92.95
- Location ID
- Groundwater Elevation (based upon URS survey datum)

NOTES:
(1) NM - Not Measured
(2) Groundwater elevation contours between elevation 92.5 and elevation 88.5 were estimated using previous data from 5/19/03, 7/22/03 and 9/17/03.

80 0 80 Feet

URS

FORMER EMCA SITE
GROUNDWATER ELEVATION CONTOUR
MAP (MAY 2005)

FIGURE 2

N:\11172730.00000\DB\GIS\2001\welev.apr 05/31/05 GROUNDWATER ELEVATIONS 8/10/2005

N

MW-04	10/99	07/00	07/01	05/03	12/03	07/04	05/05
1,1,2-Trichloro-1,2,2-trifluoroethane	11	ND	ND	ND	ND	0.70	ND

MW-05	07/00	07/01	05/03	12/03	07/04
1,1,2-Trichloro-1,2,2-trifluoroethane	7	ND	ND	ND	0.50

MW-07	06/03	07/03	09/03	12/03	07/04	05/05
1,1,2-Trichloro-1,2,2-trifluoroethane	5400	8500	6100	370	110	ND

MW-03	10/99	07/00	07/01	05/03	07/03	09/03	12/03	07/04	05/05
1,1,2-Trichloro-1,2,2-trifluoroethane	17000	11000	13000	5800	68	26	150	4900	2

MW-02	10/99	07/00	07/01	05/03	07/03	09/03	12/03	07/04	05/05
1,1,2-Trichloro-1,2,2-trifluoroethane	740	1700	2400	880	1000	54	12	21	1200

MW-06	06/03	07/03	09/03	12/03	07/04	05/05
1,1,2-Trichloro-1,2,2-trifluoroethane	220	180	97	250	140	1

GZ-06	05/88	03/89	10/99	07/00	07/01	05/03	07/03	09/03	12/03	07/04	05/05
1,1,2-Trichloro-1,2,2-trifluoroethane	1274	200	49	900	250	100	230	74	ND	100	9

OGDEN AVENUE

SHELDRAKE RIVER

FAYETTE AVENUE

CENTER AVENUE

Legend

- Existing Monitoring Well Location
- Concentration Exceeds NYSDEC TOGS (1.1.1) Class GA Standards
- Generalized Groundwater Flow Direction

GZ-06 05/88 1,1,2-Trichloro-1,2,2-trifluoroethane, 1274

Location ID — Parameter — Sample Date — Concentration

ND - Not Detected

All Analytical Results are Reported in UG/L

60 0 60 Feet

FORMER EMCA SITE
SUMMARY OF FREON 113 DETECTIONS IN GROUNDWATER

URS

FIGURE 3

N:\11172730.00000\DB\GIS\2001\chemical1.apr REVISED SUMMARY OF FREON 113 DETECTIONS 8/10/2005

FIGURE 4
FORMER EMCA SITE
Freon 113 Concentrations

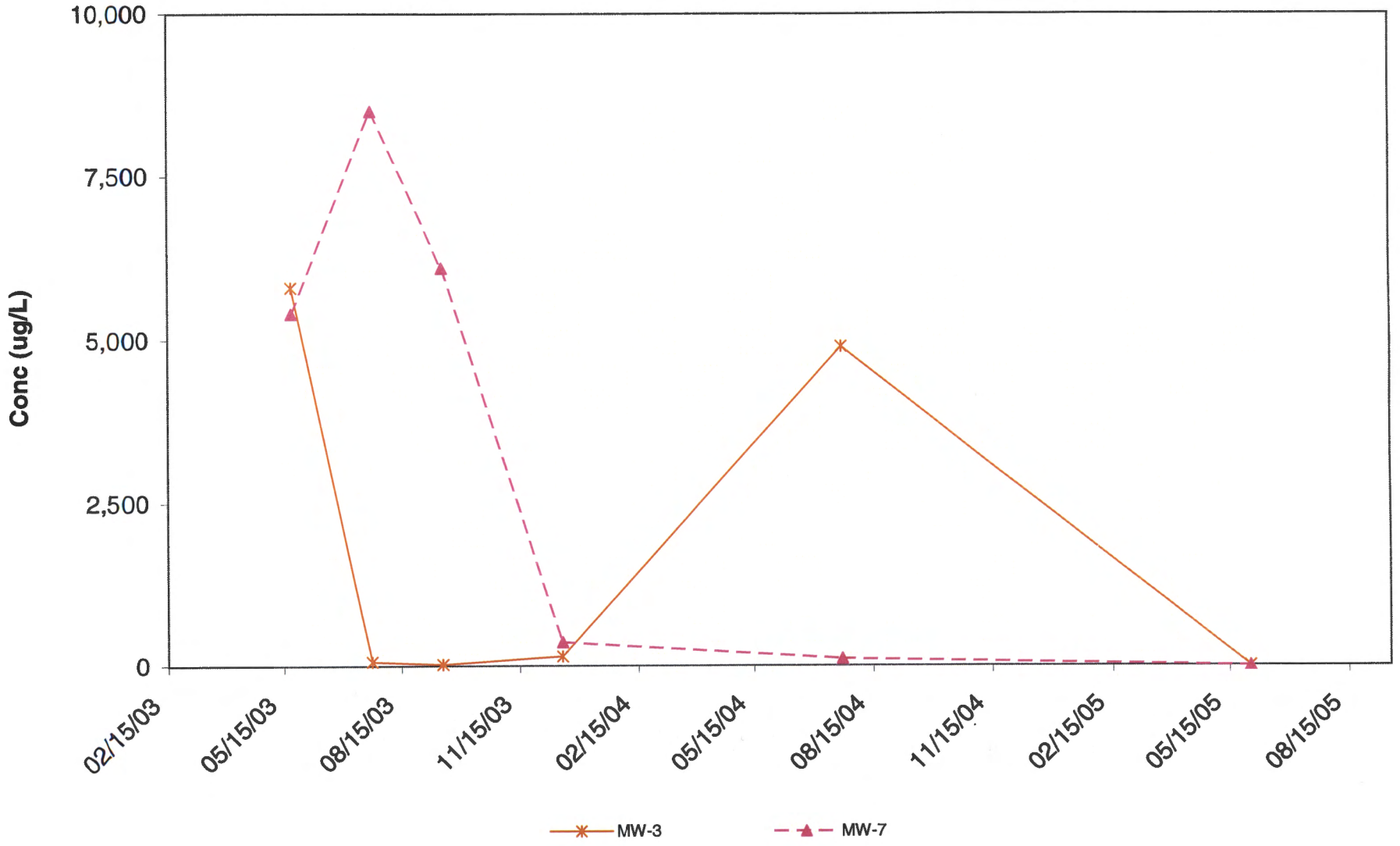


FIGURE 5
FORMER EMCA SITE
Freon 113 Concentrations

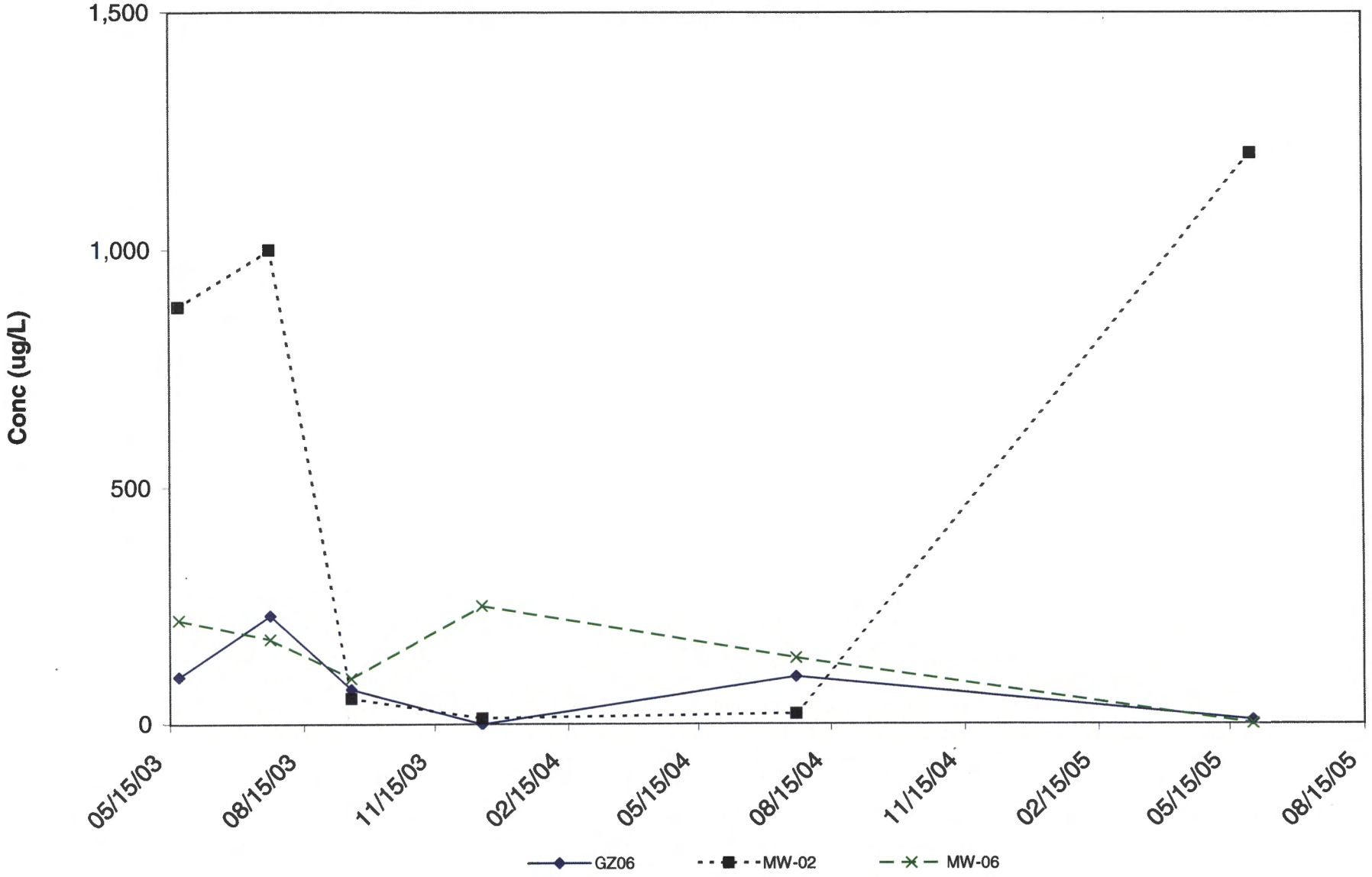


FIGURE 6
FORMER EMCA SITE
Freon 123a Concentrations

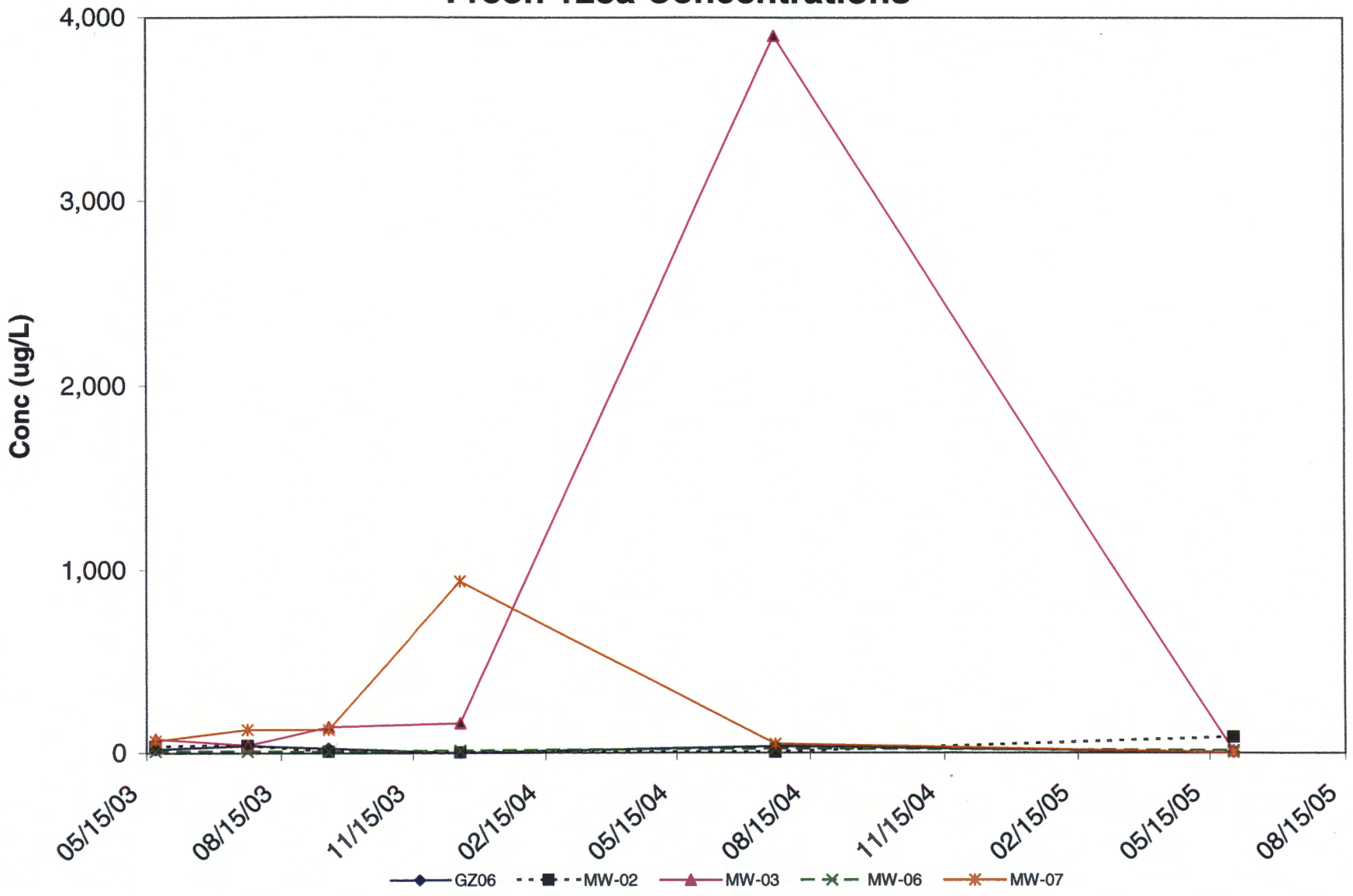


FIGURE 7
FORMER EMCA SITE
Sulfate Concentrations

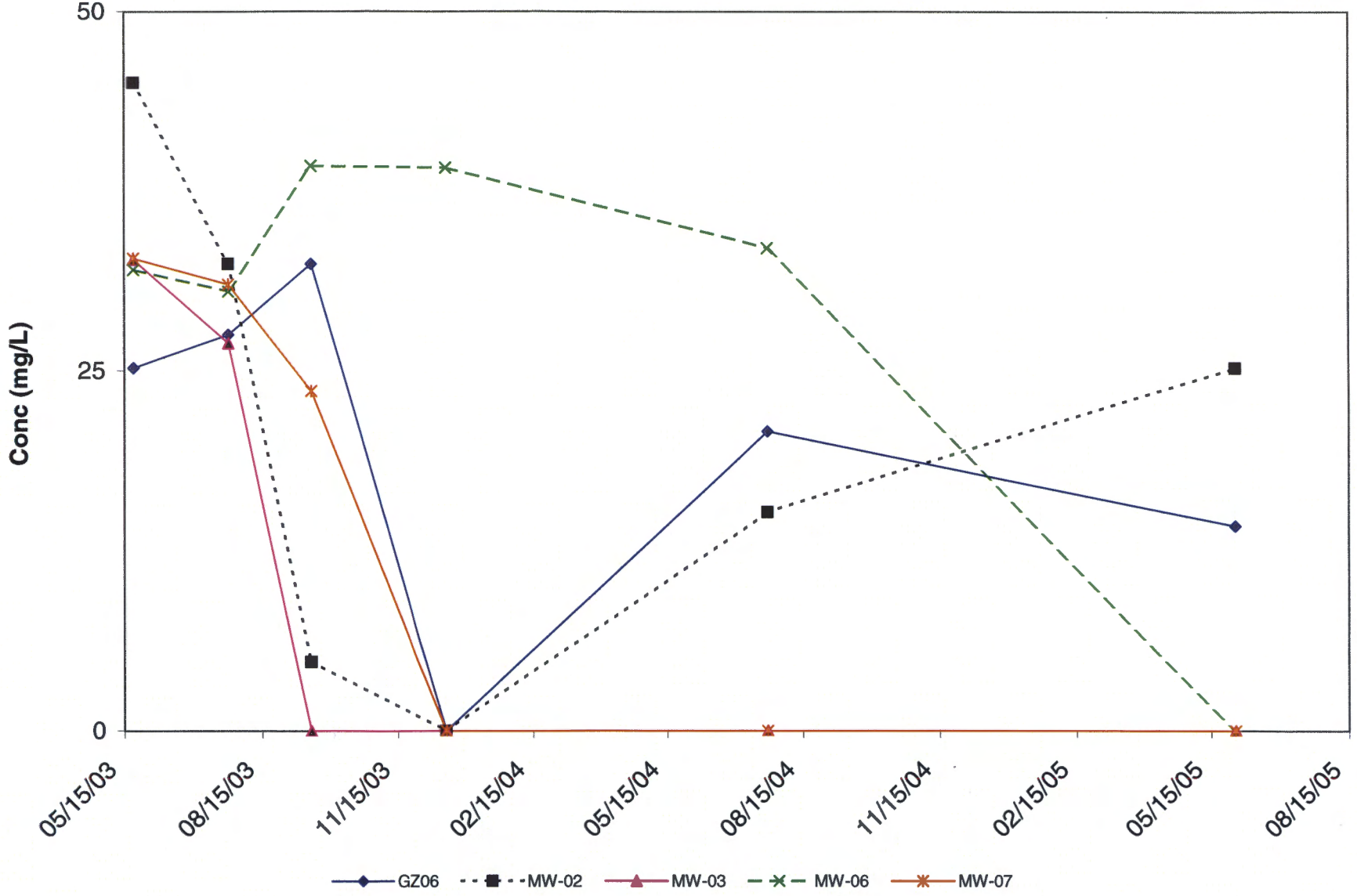


FIGURE 8
FORMER EMCA SITE
Methane Concentrations

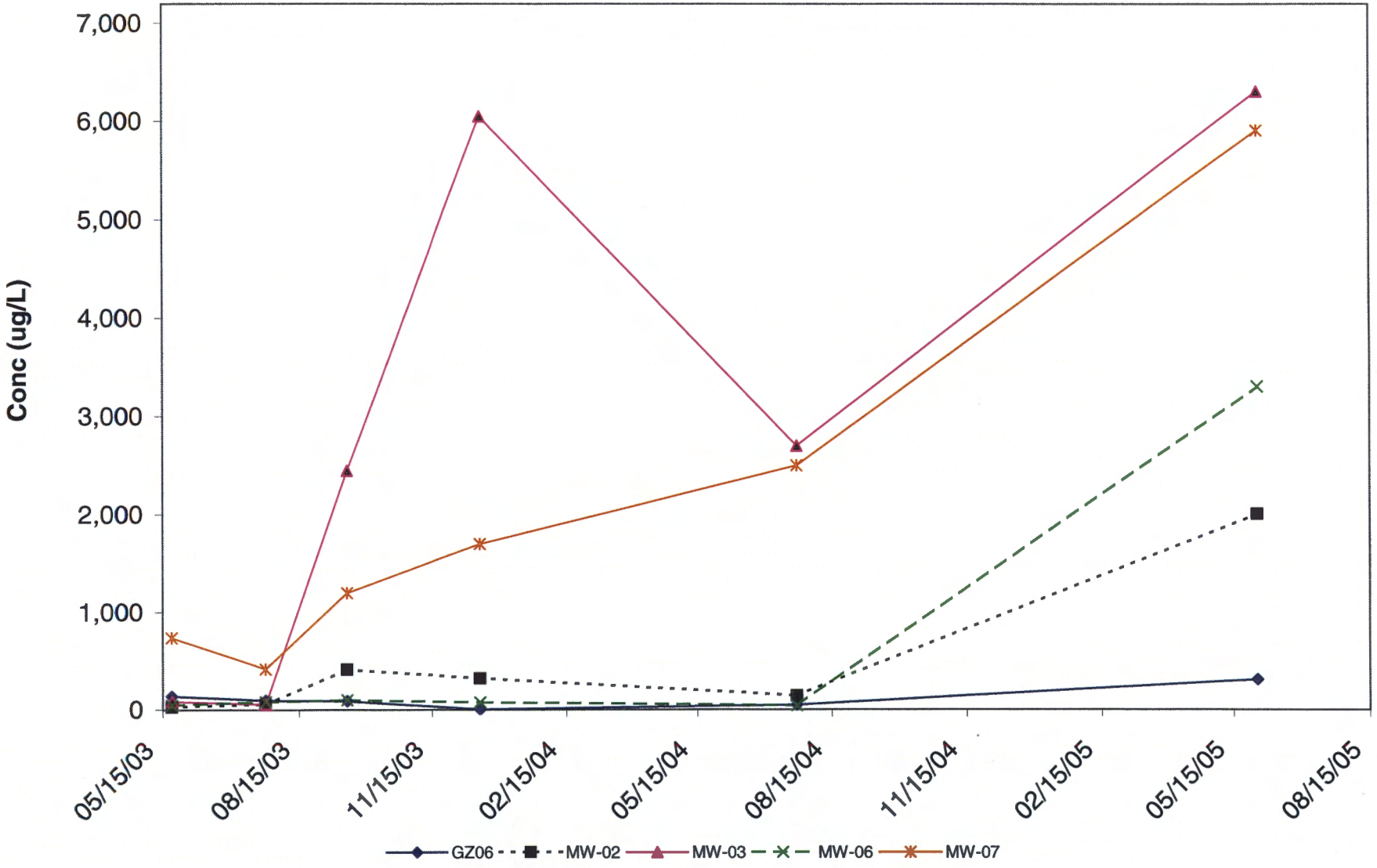


FIGURE 9
FORMER EMCA SITE

Dissolved Oxygen Concentrations

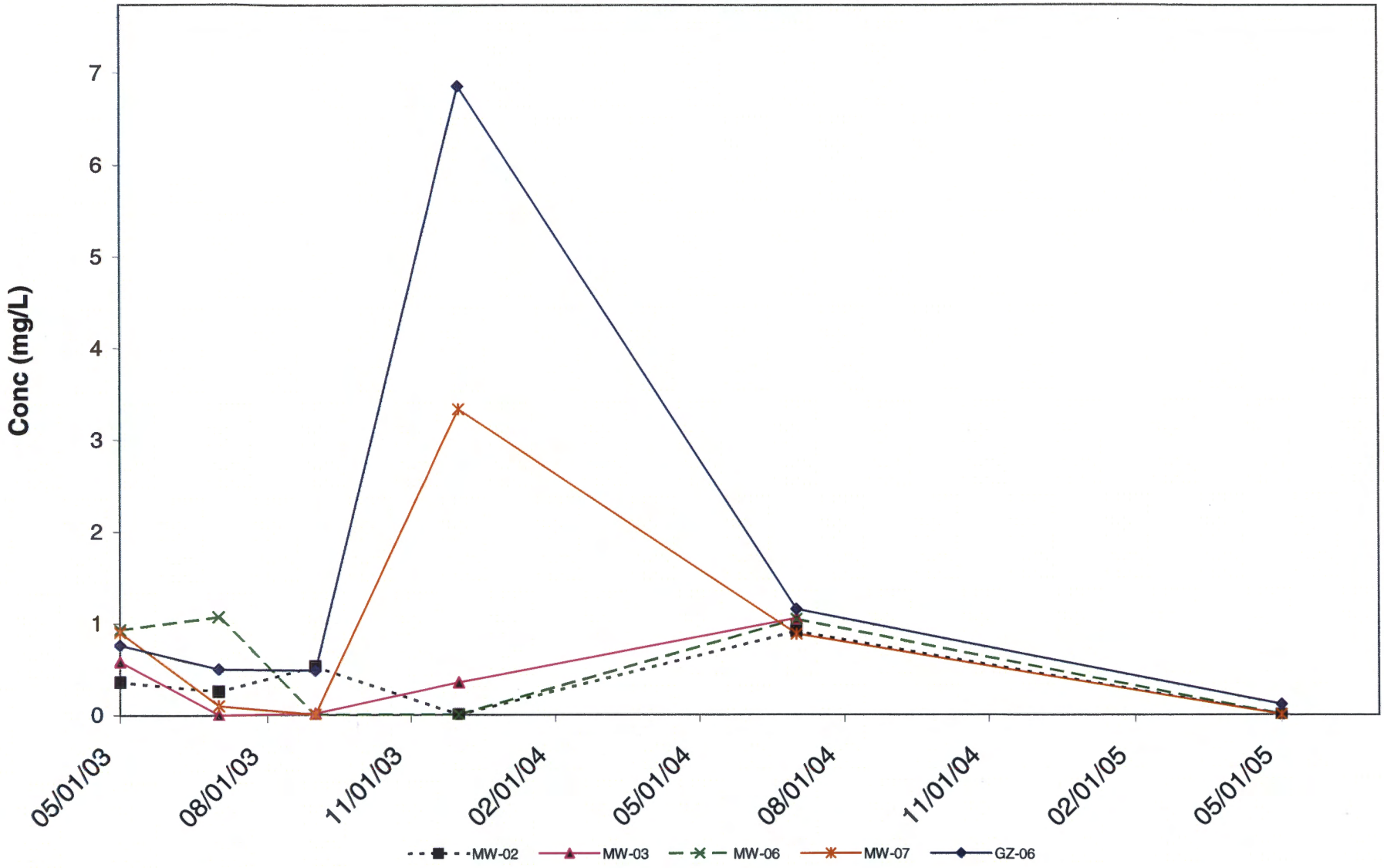
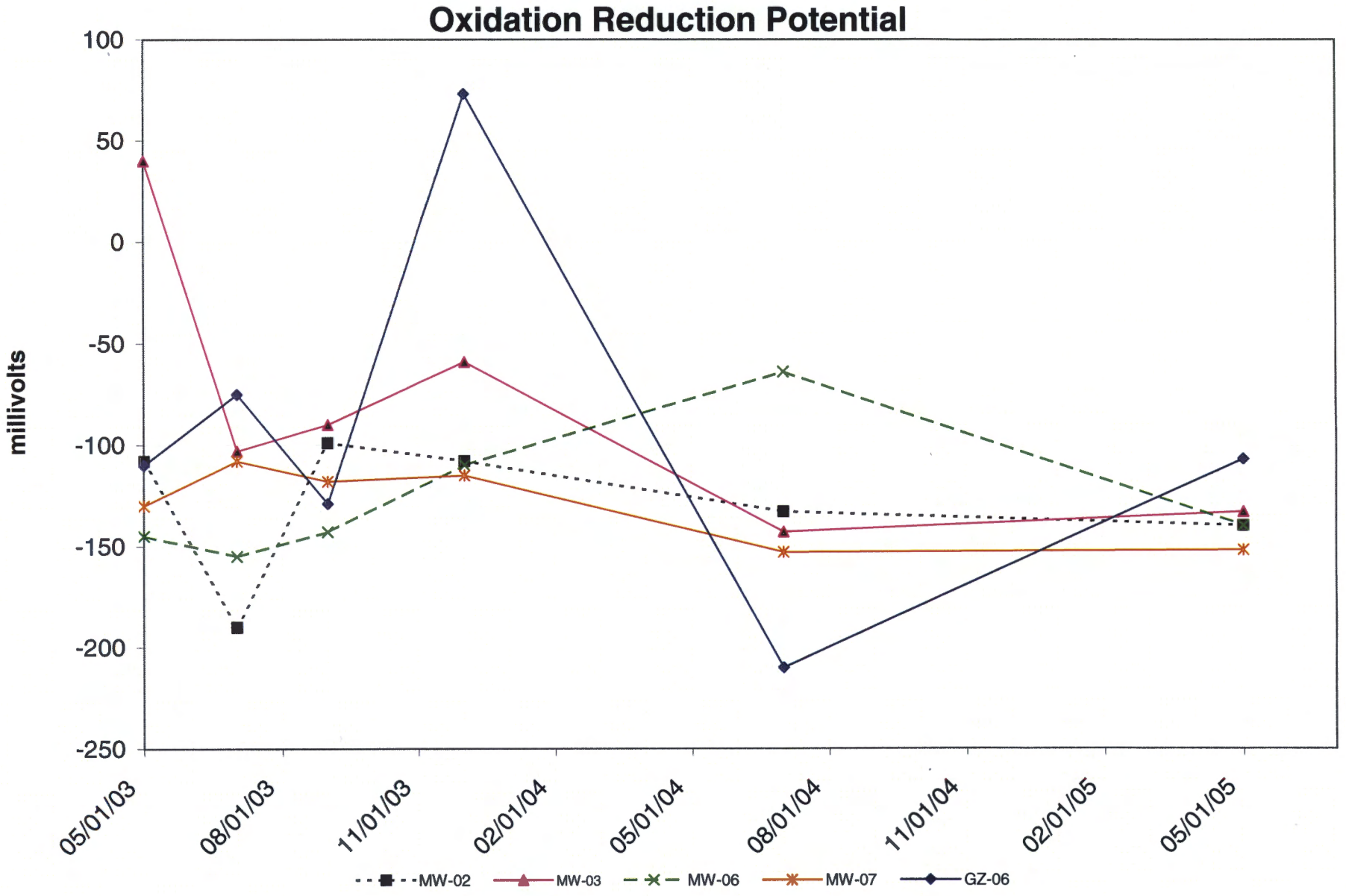


FIGURE 10
FORMER EMCA SITE



APPENDIX A

LOW FLOW GROUNDWATER PURGING/SAMPLING LOGS

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 11174053.00000 Site: Former EMCA Site Well I.D.: GZ-06

Date: 5/31/2005 Sampling Personnel: Eric Lovendowski Company: URS Corporation

Purging/Sampling Device: Low Flow Peristaltic Pump (GeoPump 2) Tubing Type: Teflon-lined HDPE & Silicone Pump/Tubing Inlet Location: Midpoint of saturated portion of screen

Measuring Point: Below Top of Riser Initial Depth to Water (ft.): 7.54 Depth to Well Bottom (ft.): 15.31 Well Diameter (in): 2 Screen Length (ft.): 10

Casing Type: PVC Volume in 1 Well Casing (liters): 4.8 Estimated Purge Volume (liters): 5.1

Sample ID: 20050531GZ-06V08N Sample Time: 16:05 QA/QC: 20050531GZ-06V08MS 20050531GZ-06V08SD

Sample Paramaters: Freon 113, Freon 1113, Freon 123a, Sulfate, & Methane

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
15:34	6.78	14.7	1.42	2.64	29.1	-92	200	7.78
15:39	6.75	14.4	1.39	0.00	5.93	-97	200	7.82
15:44	6.70	14.4	1.38	0.00	7.79	-96	200	7.85
15:49	6.64	14.6	1.46	0.06	6.24	-94	200	7.84
15:54	6.66	14.6	1.47	0.08	6.03	-98	200	7.84
15:59	6.68	14.6	1.45	0.09	6.21	-104	200	7.84
16:04	6.69	14.4	1.43	0.11	6.09	-107	200	7.85
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	---

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 11174053.00000 Site: Former EMCA Site Well I.D.: MW-02

Date: 5/31/2005 Sampling Personnel: Eric Lovendowski Company: URS Corporation

Purging/Sampling Device: Low Flow Peristaltic Pump (GeoPump 2) Tubing Type: Teflon-lined HDPE & Silicone Pump/Tubing Inlet Location: Midpoint of saturated portion of screen

Measuring Point: Below Top of Riser Initial Depth to Water (ft.): 6.03 Depth to Well Bottom (ft.): 16 Well Diameter (in): 1 Screen Length (ft.): 13

Casing Type: PVC Volume in 1 Well Casing (liters): 1.5 Estimated Purge Volume (liters):

Sample ID: 20050531MW-02V06N Sample Time: 15:21 QA/QC: None

Sample Paramaters: Freon 113, Freon 1113, Freon 123a, Sulfate, & Methane

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
14:44	6.89	16.2	2.17	3.79	>1,100	-142	250	6.15
14:49	6.69	15.6	2.07	0.35	125	-144	250	6.16
14:54	6.62	15.5	1.88	0.00	60.1	-138	250	6.16
14:59	6.61	15.1	1.65	0.00	38.3	-135	250	6.18
15:04	6.64	14.8	1.39	0.00	15.4	-135	250	6.18
15:09	6.70	14.9	1.26	0.00	13.3	-138	250	6.18
15:14	6.73	14.8	1.21	0.00	13.8	-139	250	6.18
15:19	6.76	15.0	1.19	0.00	13.5	-140	250	6.18
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	---

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 11174053.00000 Site: Former EMCA Site Well I.D.: MW-03

Date: 5/31/2005 Sampling Personnel: Eric Lovendowski Company: URS Corporation

Purging/ Sampling Device: Low Flow Peristaltic Pump (GeoPump 2) Tubing Type: Teflon-lined HDPE & Silicone Pump/Tubing Inlet Location: Midpoint of saturated portion of screen

Measuring Point: Below Top of Riser Initial Depth to Water (ft.): 6.25 Depth to Well Bottom (ft.): 14.30 Well Diameter (in): 1 Screen Length (ft.): 10

Casing Type: PVC Volume in 1 Well Casing (liters): 1.2 Estimated Purge Volume (liters): 1.5

Sample ID: 20050531MW-03V10N Sample Time: 18:00 QA/QC: None

Sample Paramaters: Freon 113, Freon 1113, Freon 123a, Sulfate, & Methane

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
17:20	6.68	14.3	3.28	0.14	325	-142	150	6.42
17:25	6.65	15.7	3.19	1.24	110	-133	150	9.35
Note: Unable to control drawdown by adjusting pumping rate. Well dry after approx. 1.5 L purged. Sample collected after well recharged.								
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	---

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cy} = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 11174053.00000 Site: Former EMCA Site Well I.D.: MW-04

Date: 5/31/2005 Sampling Personnel: Eric Lovendowski Company: URS Corporation

Purging/ Sampling Device: Low Flow Peristaltic Pump (GeoPump 2) Tubing Type: Teflon-lined HDPE & Silicone Pump/Tubing Inlet Location: Midpoint of saturated portion of screen

Measuring Point: Below Top of Riser Initial Depth to Water (ft.): 5.65 Depth to Well Bottom (ft.): 10.56 Well Diameter (in): 1 Screen Length (ft.): 10

Casing Type: PVC Volume in 1 Well Casing (liters): 0.8 Estimated Purge Volume (liters):

Sample ID: 20050531MW-04V10N Sample Time: 17:00 QA/QC: None

Sample Paramaters: Freon 113, Freon 1113, Freon 123a, Sulfate, & Methane

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
16:27	6.83	16.6	1.49	1.89	22.5	-96	200	5.96
16:32	6.68	16.7	1.67	0.00	18.7	-105	200	5.99
16:37	6.57	16.2	1.80	0.00	8.56	-108	200	6.03
16:42	6.59	16.1	1.84	0.00	6.23	-112	200	6.05
16:47	6.65	15.9	1.86	0.00	7.10	-121	200	6.08
16:52	6.68	16.0	1.85	0.00	2.81	-124	200	6.08
16:57	6.70	15.8	1.85	0.00	3.22	-126	200	6.10
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	---

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cy} = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 11174053.00000 Site: Former EMCA Site Well I.D.: MW-06

Date: 5/31/2005 Sampling Personnel: Eric Lovendowski Company: URS Corporation

Purging/ Sampling Device: Low Flow Peristaltic Pump (GeoPump 2) Tubing Type: Teflon-lined HDPE & Silicone Pump/Tubing Inlet Location: Midpoint of saturated portion of screen

Measuring Point: Below Top of Riser Initial Depth to Water (ft.): 8.60 Depth to Well Bottom (ft.): 18.74 Well Diameter (in): 1 Screen Length (ft.): 10

Casing Type: PVC Volume in 1 Well Casing (liters): 1.6 Estimated Purge Volume (liters):

Sample ID: 20050531MW-06V15N Sample Time: 13:37 QA/QC: 20050531MW-06V15FD

Sample Paramaters: Freon 113, Freon 1113, Freon 123a, Sulfate, & Methane

Note: White residue in sample

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
13:05	6.23	16.1	0.98	1.15	290	-112	250	8.61
13:10	6.32	16.3	1.08	0.01	210	-127	250	8.61
13:15	6.40	16.0	1.16	0.00	157	-134	250	8.61
13:20	6.48	16.0	1.12	0.00	122	-139	250	8.61
13:25	6.50	16.0	1.14	0.00	119	-140	250	8.61
13:30	6.52	16.0	1.14	0.00	98	-140	250	8.61
13:25	6.52	16.1	1.13	0.00	82	-140	250	8.61
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	---

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 11174053.00000 Site: Former EMCA Site Well I.D.: MW-07

Date: 5/31/2005 Sampling Personnel: Eric Lovendowski Company: URS Corporation

Purging/Sampling Device: Low Flow Peristaltic Pump (GeoPump 2) Tubing Type: Teflon-lined HDPE & Silicone Pump/Tubing Inlet Location: Midpoint of saturated portion of screen

Measuring Point: Below Top of Riser Initial Depth to Water (ft.): 6.32 Depth to Well Bottom (ft.): 19.92 Well Diameter (in): 1 Screen Length (ft.): 10

Casing Type: PVC Volume in 1 Well Casing (liters): 2.1 Estimated Purge Volume (liters):

Sample ID: 20050531MW-07V15N Sample Time: 14:30 QA/QC: None

Sample Paramaters: Freon 113, Freon 1113, Freon 123a, Sulfate, & Methane

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
13:58	6.72	16.1	2.20	4.32	725	-159	225	6.49
14:03	6.67	15.5	2.13	2.37	354	-154	225	6.49
14:08	6.61	15.3	2.11	1.48	114	-148	225	6.49
14:13	6.68	15.2	1.98	0.39	52	-148	225	6.49
14:18	6.74	15.2	1.87	0.00	38.5	-151	225	6.49
14:23	6.77	15.2	1.79	0.00	18.5	-152	225	6.49
14:28	6.78	15.2	1.75	0.00	15.1	-152	225	6.49
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	---

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

APPENDIX B

DATA USABILITY SUMMARY REPORT

DATA USABILITY SUMMARY REPORT

MAY 2005 SAMPLING EVENT

FORMER EMCA SITE
SITE NO. 360025
MAMARONECK, NEW YORK

Analyses Performed by:

SEVERN TRENT LABORATORIES, INC.
777 NEW DURHAM ROAD
EDISON, NEW JERSEY 08817

Prepared for:

ROHM & HAAS COMPANY
3100 STATE ROAD
CROYDON, PA 19021

Prepared by:

URS CORPORATION
77 GOODELL STREET
BUFFALO, NY 14203

JULY 2005

TABLE OF CONTENTS

TABLES
(Following Text)

ATTACHMENTS

I. INTRODUCTION

This Data Usability Summary Report (DUSR) has been prepared following the guidelines provided in New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation *Guidance for the Development of Data Usability Summary Reports*, dated June 1999. This DUSR discusses the results for the groundwater samples collected from the Pilot Study conducted at the Former EMCA Site located in Mamaroneck, New York.

II. ANALYTICAL METHODOLOGIES

The data being evaluated are for six groundwater samples, one field duplicate, one matrix spike/matrix spike duplicate (MS/MSD), one equipment rinsate blank, and one trip blank collected on May 31, 2005. Table 1 summarizes the samples collected and the requested analytical parameters. The analytical laboratory that performed the analyses is Severn Trent Laboratories, Inc. (Edison, NJ). The samples were analyzed for the following parameters:

Parameter	Method No.	References
Volatile Organic Compounds (VOCs)*	OLM04.2	1
Methane, Ethane, Ethene	RSK-175	2
Sulfate	375.4	1

References:

1 NYSDEC Analytical Services Protocol, June 2000.

2 USEPA, R.S. Kerr Environmental Research Laboratory, March 15, 1989.

Notes:

* - VOCs include 1,1,2-trichloro-1,2,2-trifluoroethane (Freon-113), 1,2-dichloro-1,1,2-trifluoroethane (Freon-123a), and chlorotrifluoroethene (Freon-1113).

A limited data validation was performed following the guidelines in USEPA Region II *Contract Laboratory Program Organics Data Review and Preliminary Review for Statement of Work OLM04.2*, SOP No. HW-6, Revision 12, March 2001 and USEPA Region II *Evaluation of Metals Data for the Contract Laboratory Program, based on SOW 3/90*, Revision XI, January 1992. The validated analytical results are presented in Tables 2 and 3. Copies of the validated laboratory results (i.e., Form 1's) are presented in Attachment A. Copies of the case narratives and chain-of-custody, and documentation supporting the qualification of data are presented in Attachment B. Only problems affecting data usability are discussed in this report.

III. DATA DELIVERABLE COMPLETENESS

The laboratory deliverable data packages were in accordance with NYSDEC Analytical Services Protocol (ASP) Category A requirements.

IV. PRESERVATION/HOLDING TIMES/SAMPLE RECEIPT

All samples were received by the laboratory intact, properly preserved, and were analyzed within required holding times, except for the following instances.

The methane, ethane, ethene containers for sample MW-04 and the VOC containers for the rinse blank were unpreserved. Since the samples were analyzed within holding times for non-aromatic compounds (i.e., 14 days from collection), no qualification of the data was necessary.

V. NONCONFORMANCES

Dilutions

The sulfate analyses of samples MW-03 and MW-07 were performed at a dilution due to sample matrix. Sulfate was detected in either sample. The usability of the data is not affected since the resulting reporting limits are below the project action level.

VI. SUMMARY

All sample analyses were found to be compliant with the method criteria and are usable as reported. URS does not recommend the re-collection of any samples at this time.

DEFINITIONS OF USEPA REGION II DATA QUALIFIERS

U – The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J – The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

UJ – The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R – The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

D – The sample results are reported from a separate secondary dilution analysis.

TABLE 1
SAMPLE AND ANALYSIS SUMMARY
FORMER EMCA SITE - PILOT STUDY

SDG No.	Sample ID	Matrix	Date of Collection	VOCs*	Methane, Ethane, Ethene	Sulfate	Comments
Z347/Z3471	MW-06	GW	05/31/05	X	X	X	---
	Field Duplicate	GW		X	X	X	Field Duplicate of MW-06
	MW-07	GW		X	X	X	---
	MW-02	GW		X	X	X	---
	GZ-06	GW		X	X	X	MS/MSD
	MW-04	GW		X	X	X	---
	MW-03	GW		X	X	X	---
	Rinse Blank	Water		X	X	X	---
	Trip Blank	Water		X	X	---	---

Notes:
* - Volatile Organic Compounds (VOCs) include 1,1,2-trichloro-1,2,2-trifluoroethane (Freon-113); 1,2-dichloro-1,1,2-trifluoroethane (Freon-123a); and chlorotrifluoroethene (Freon-1113).

X - Parameter requested.
--- - Parameter not requested/analyzed or no comment.
GW - Groundwater
MS/MSD - Matrix Spike/Matrix Spike Duplicate

TABLE 2
GROUNDWATER ANALYTICAL RESULTS
FORMER EMCA SITE

Location ID			GZ-06	MW-02	MW-03	MW-04	MW-06
Sample ID			GZ-06	MW-02	MW-03	MW-04	Field-Dup
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			05/31/05	05/31/05	05/31/05	05/31/05	05/31/05
Parameter	**Units**	**Criteria***					Field Duplicate (1-1)
Volatiles							
Chlorotrifluoroethene (Freon-1113)	UG/L	5	15	120	83	1.0 J	6.0 J
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon-113)	UG/L	5	9.0 J	1,200	2.0 J	10 U	1.0 J
1,2-Dichloro-1,1,2-trifluoroethane (Freon-123A)	UG/L	5	4.0 J	86 J	14	10 U	16
Dissolved Gases							
Ethane	UG/L	-	50 U	100 U	500 U	10 U	250 U
Ethene	UG/L	-	50 U	100 U	500 U	10 U	250 U
Methane	UG/L	-	310	2,000	6,300	190	3,600
Miscellaneous Parameters							
Sulfate	MG/L	250	14.2	25.2	10.0 U	14.2	5.0 U

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, Class GA, Revised April 2000.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria

U - Non-Detect

J - Estimated result.

Detection Limits shown are MDL

N:\11172730.00000\DB\PROGRAM\program.mde
Printed: 07/29/05 8:15:54 AM
[MATRIX] = 'WG' AND ([SACODE] = 'N' OR [SACODE] = 'FD') AND [LOGDATE] = #05/31/05#

TABLE 2
GROUNDWATER ANALYTICAL RESULTS
FORMER EMCA SITE

Location ID			MW-06	MW-07
Sample ID			MW-06	MW-07
Matrix			Groundwater	Groundwater
Depth Interval (ft)			-	-
Date Sampled			05/31/05	05/31/05
Parameter	**Units**	**Criteria***		
Volatiles				
Chlorotrifluoroethene (Freon-1113)	UG/L	5	5.0 J	140
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon-113)	UG/L	5	1.0 J	10 U
1,2-Dichloro-1,1,2-trifluoroethane (Freon-123A)	UG/L	5	14	2.0 J
Dissolved Gases				
Ethane	UG/L	-	250 U	250 U
Ethene	UG/L	-	250 U	250 U
Methane	UG/L	-	3,300	5,900
Miscellaneous Parameters				
Sulfate	MG/L	250	5.0 U	10.0 U

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, Class GA, Revised April 2000.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria

U - Non-Detect

J - Estimated result.

Detection Limits shown are MDL

N:\11172730.00000\DB\PROGRAM\program.mdb
Printed: 07/29/05 8:15:54 AM
[MATRIX] = 'WG' AND ([SACODE] = 'N' OR [SACODE] = 'FD') AND [LOGDATE] = #05/31/05#

TABLE 3
FIELD QC ANALYTICAL RESULTS
FORMER EMCA SITE

Location ID			FIELDQC	FIELDQC
Sample ID			RINSE-BLANK	TRIP-BLANK
Matrix			Water	Water
Depth Interval (ft)			-	-
Date Sampled			05/31/05	05/31/05
Parameter	**Units**	**Criteria***	Material Rinse Blank (1-1)	Trip Blank (1-1)
Volatiles				
Chlorotrifluoroethene (Freon-1113)	UG/L	5	10 U	10 U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon-113)	UG/L	5	10 U	10 U
1,2-Dichloro-1,1,2-trifluoroethane (Freon-123A)	UG/L	5	10 U	10 U
Dissolved Gases				
Ethane	UG/L	-	5.0 U	5.0 U
Ethene	UG/L	-	5.0 U	5.0 U
Methane	UG/L	-	5.0 U	5.0 U
Miscellaneous Parameters				
Sulfate	MG/L	250	5.0 U	NA

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, Class GA, Revised April 2000.

Flags assigned during chemistry validation are shown.

(oval) Concentration Exceeds Criteria

Detection Limits shown are MDL

ATTACHMENT A

VALIDATED FORM 1's

DEFINITIONS OF USEPA REGION II DATA QUALIFIERS

U – The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J – The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

UJ – The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R – The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

D – The sample results are reported from a separate secondary dilution analysis.

Client ID: MW-06
Site: Rohm & Haas

Lab Sample No: 637720
Lab Job No: Z374

Date Sampled: 05/31/05
Date Received: 06/01/05
Date Analyzed: 06/14/05
GC Column: GS-Q
Instrument ID: VSCREEN3.i
Lab File ID: scrc8884.d

Matrix: WATER
Level: MED
Purge Volume: 10.0 ml
Final Volume: 0.0 mL
Dilution Factor: 50.0

METHANE, ETHANE, ETHENE
METHOD 3810

Parameter	Analytical Result Units: ug/l	Quantitation Limit Units: ug/l
Methane	3300	250
Ethene	ND	250
Ethane	ND	250

Client ID: **Field-Dup**
Site: Rohm & Haas

Lab Sample No: 637721
Lab Job No: Z374

Date Sampled: 05/31/05
Date Received: 06/01/05
Date Analyzed: 06/14/05
GC Column: GS-Q
Instrument ID: VSCREEN3.i
Lab File ID: scrc8880.d

Matrix: WATER
Level: MED
Purge Volume: 10.0 ml
Final Volume: 0.0 mL
Dilution Factor: 50.0

METHANE, ETHANE, ETHENE
METHOD 3810

Parameter	Analytical Result Units: ug/l	Quantitation Limit Units: ug/l
Methane	3600	250
Ethene	ND	250
Ethane	ND	250

Client ID: MW-07
Site: Rohm & Haas

Lab Sample No: 637722
Lab Job No: Z374

Date Sampled: 05/31/05
Date Received: 06/01/05
Date Analyzed: 06/14/05
GC Column: GS-Q
Instrument ID: VSCREEN3.i
Lab File ID: scrc8882.d

Matrix: WATER
Level: MED
Purge Volume: 10.0 ml
Final Volume: 0.0 mL
Dilution Factor: 50.0

METHANE, ETHANE, ETHENE
METHOD 3810

Parameter	Analytical Result Units: ug/l	Quantitation Limit Units: ug/l
Methane	5900	250
Ethene	ND	250
Ethane	ND	250

Client ID: **MW-02**
Site: Rohm & Haas

Lab Sample No: **637723**
Lab Job No: Z374

Date Sampled: 05/31/05
Date Received: 06/01/05
Date Analyzed: 06/13/05
GC Column: GS-Q
Instrument ID: VSCREEN3.i
Lab File ID: scrc8864.d

Matrix: WATER
Level: MED
Purge Volume: 10.0 ml
Final Volume: 0.0 mL
Dilution Factor: 20.0

METHANE, ETHANE, ETHENE
METHOD 3810

Parameter	Analytical Result Units: ug/l	Quantitation Limit Units: ug/l
Methane	2000	100
Ethene	ND	100
Ethane	ND	100

Client ID: **GZ-06**
Site: Rohm & Haas

Lab Sample No: **637724**
Lab Job No: Z374

Date Sampled: 05/31/05
Date Received: 06/01/05
Date Analyzed: 06/14/05
GC Column: GS-Q
Instrument ID: VSCREEN3.i
Lab File ID: scrc8877.d

Matrix: WATER
Level: MED
Purge Volume: 10.0 ml
Final Volume: 0.0 mL
Dilution Factor: 10.0

METHANE, ETHANE, ETHENE
METHOD 3810

Parameter	Analytical Result Units: ug/l	Quantitation Limit Units: ug/l
Methane	310	50
Ethene	ND	50
Ethane	ND	50

Client ID: **MW-04**
Site: Rohm & Haas

Lab Sample No: **637725**
Lab Job No: Z374

Date Sampled: 05/31/05
Date Received: 06/01/05
Date Analyzed: 06/13/05
GC Column: GS-Q
Instrument ID: VSCREEN3.i
Lab File ID: scrc8863.d

Matrix: WATER
Level: MED
Purge Volume: 10.0 ml
Final Volume: 0.0 mL
Dilution Factor: 2.0

METHANE, ETHANE, ETHENE
METHOD 3810

Parameter	Analytical Result Units: ug/l	Quantitation Limit Units: ug/l
Methane	190	10
Ethene	ND	10
Ethane	ND	10

Client ID: **MW-03**
Site: Rohm & Haas

Lab Sample No: **637726**
Lab Job No: Z374

Date Sampled: 05/31/05
Date Received: 06/01/05
Date Analyzed: 06/14/05
GC Column: GS-Q
Instrument ID: VSCREEN3.i
Lab File ID: scrc8883.d

Matrix: WATER
Level: MED
Purge Volume: 10.0 ml
Final Volume: 0.0 mL
Dilution Factor: 100.0

METHANE, ETHANE, ETHENE
METHOD 3810

Parameter	Analytical Result Units: ug/l	Quantitation Limit Units: ug/l
Methane	6300	500
Ethene	ND	500
Ethane	ND	500

Client ID: **RINSE-BLANK**
Site: Rohm & Haas

Lab Sample No: **637727**
Lab Job No: Z374

Date Sampled: 05/31/05
Date Received: 06/01/05
Date Analyzed: 06/13/05
GC Column: GS-Q
Instrument ID: VSCREEN3.i
Lab File ID: scrc8851.d

Matrix: WATER
Level: MED
Purge Volume: 10.0 ml
Final Volume: 0.0 mL
Dilution Factor: 1.0

METHANE, ETHANE, ETHENE
METHOD 3810

Parameter	Analytical Result Units: ug/l	Quantitation Limit Units: ug/l
Methane	ND	5.0
Ethene	ND	5.0
Ethane	ND	5.0

Client ID: **TRIP-BLANK**
Site: Rohm & Haas

Lab Sample No: **637728**
Lab Job No: Z374

Date Sampled: 05/31/05
Date Received: 06/01/05
Date Analyzed: 06/13/05
GC Column: GS-Q
Instrument ID: VSCREEN3.i
Lab File ID: scrc8852.d

Matrix: WATER
Level: MED
Purge Volume: 10.0 ml
Final Volume: 0.0 mL
Dilution Factor: 1.0

METHANE, ETHANE, ETHENE
METHOD 3810

Parameter	Analytical Result Units: ug/l	Quantitation Limit Units: ug/l
Methane	ND	5.0
Ethene	ND	5.0
Ethane	ND	5.0

Site: Rohm & Haas
Matrix: WATER

Lab Job No: Z374
QA Batch: 2178

Sulfate

STL Edison Sample #	Client ID	Date Sampled	Date Analyzed	Dilution Factor	Analytical Result Units: mg/l
637720	MW-06	05/31/05	06/03/05	1.0	ND
637721	Field-Dup	05/31/05	06/03/05	1.0	ND
637722	MW-07	05/31/05	06/03/05	2.0	ND
637723	MW-02	05/31/05	06/03/05	2.0	25.2
637724	GZ-06	05/31/05	06/03/05	1.0	14.2
637725	MW-04	05/31/05	06/03/05	1.0	14.2
637726	MW-03	05/31/05	06/03/05	2.0	ND
637727	RINSE-BLANK	05/31/05	06/03/05	1.0	ND

Quantitation Limit for Sulfate is 5.0 mg/l.

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-06

Lab Name: STL EDISON Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: Z3741

Matrix: (soil/water) WATER Lab Sample ID: 637720

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: B38540

Level: (low/med) LOW Date Received: 06/01/05

% Moisture: not dec. _____ Date Analyzed: 06/08/05

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
76-13-1	112-Trichlorotrifluoroethane	1	J
79-38-9	Chlorotrifluoroethene	5	J
354-23-4	1,2-Dichlorotrifluoroethane	14	

FORM I VOA-1 OLM04.2

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

FIELD-DUP

Lab Name: STL EDISON Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: Z3741

Matrix: (soil/water) WATER Lab Sample ID: 637721

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: B38541

Level: (low/med) LOW Date Received: 06/01/05

% Moisture: not dec. _____ Date Analyzed: 06/08/05

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
76-13-1	112-Trichlorotrifluoroethane	1	J
79-38-9	Chlorotrifluoroethene	6	J
354-23-4	1,2-Dichlorotrifluoroethane	16	

FORM I VOA-1 OLM04.2

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-07

Lab Name: STL EDISON Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: Z3741

Matrix: (soil/water) WATER Lab Sample ID: 637722

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: B38547

Level: (low/med) LOW Date Received: 06/01/05

% Moisture: not dec. _____ Date Analyzed: 06/08/05

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
76-13-1	112-Trichlorotrifluoroethane	10	U
79-38-9	Chlorotrifluoroethene	140	
354-23-4	1,2-Dichlorotrifluoroethane	2	J

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-02

Lab Name: STL EDISON Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: Z3741

Matrix: (soil/water) WATER Lab Sample ID: 637723

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: B38539

Level: (low/med) LOW Date Received: 06/01/05

% Moisture: not dec. _____ Date Analyzed: 06/08/05

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 10.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
76-13-1	112-Trichlorotrifluoroethane	1200	
79-38-9	Chlorotrifluoroethene	120	
354-23-4	1,2-Dichlorotrifluoroethane	86	J

FORM I VOA-1 OLM04.2

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GZ-06

Lab Name: STL EDISON Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: Z3741

Matrix: (soil/water) WATER Lab Sample ID: 637724

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: B38542

Level: (low/med) LOW Date Received: 06/01/05

% Moisture: not dec. _____ Date Analyzed: 06/08/05

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
76-13-1	112-Trichlorotrifluoroethane	9	J
79-38-9	Chlorotrifluoroethene	15	
354-23-4	1,2-Dichlorotrifluoroethane	4	J

FORM I VOA-1 OLM04.2

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-04

Lab Name: STL EDISON Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: Z3741

Matrix: (soil/water) WATER Lab Sample ID: 637725

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: B38543

Level: (low/med) LOW Date Received: 06/01/05

% Moisture: not dec. _____ Date Analyzed: 06/08/05

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
76-13-1	112-Trichlorotrifluoroethane	10	U
79-38-9	Chlorotrifluoroethene	1	J
354-23-4	1,2-Dichlorotrifluoroethane	10	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-03

Lab Name: STL EDISON Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: Z3741

Matrix: (soil/water) WATER Lab Sample ID: 637726

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: B38544

Level: (low/med) LOW Date Received: 06/01/05

% Moisture: not dec. _____ Date Analyzed: 06/08/05

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
76-13-1	112-Trichlorotrifluoroethane	2	J
79-38-9	Chlorotrifluoroethene	83	
354-23-4	1,2-Dichlorotrifluoroethane	14	

FORM I VOA-1 OLM04.2

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

RINSE-BLANK

Lab Name: STL EDISON Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: Z3741

Matrix: (soil/water) WATER Lab Sample ID: 637727

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: B38545

Level: (low/med) LOW Date Received: 06/01/05

% Moisture: not dec. _____ Date Analyzed: 06/08/05

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg)	UG/L	Q
76-13-1	112-Trichlorotrifluoroethane	10	U	
79-38-9	Chlorotrifluoroethene	10	U	
354-23-4	1,2-Dichlorotrifluoroethane	10	U	

FORM I VOA-1 OLM04.2

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TRIP-BLANK

Lab Name: STL EDISON Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: Z3741

Matrix: (soil/water) WATER Lab Sample ID: 637728

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: B38546

Level: (low/med) LOW Date Received: 06/01/05

% Moisture: not dec. _____ Date Analyzed: 06/08/05

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
76-13-1	112-Trichlorotrifluoroethane	10	U
79-38-9	Chlorotrifluoroethene	10	U
354-23-4	1,2-Dichlorotrifluoroethane	10	U

FORM I VOA-1 OLM04.2

ATTACHMENT B

SUPPORT DOCUMENTATION

SEVERN TRENT STL

Nonconformance Summary

STL Edison Job Number: Z374

Client: URS Greiner-NY

Date: 7/5/2005

Sample Receipt:

Sample delivery conforms with requirements.

Volatile Organic Analysis (GC):

All data conforms with method requirements.

Wet Chemistry \ Microbiology:

All data conforms with method requirements.

I certify that the test results contained in this data package meet all requirements of NELAC both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Michael J. Urban

Michael J.Urban
Laboratory Manager

SDG NARRATIVE

STL EDISON

SDG No. Z3741

STL Edison Sample	Client ID
637720	MW-06
637721	Field-Dup
637722	MW-07
637723	MW-02
637724	GZ-06
637725	MW-04
637726	MW-03
637727	RINSE-BLANK
637728	TRIP-BLANK

Fraction	Problems Encountered	Corrective Action Taken
Volatiles	None	N/A

I certify that this data package is in compliance with the terms of the contract (OLM04.2) both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this data package has been authorized by the laboratory manager or his designee.

7/5/05

Michael J. Urban
Laboratory Manager

Z37410

CHAIN OF CUSTODY RECORD

Z374

PROJECT NO.	SITE NAME
11172730.00000	Rohm+Haas - Former EPCA SITE

SAMPLERS (PRINT/SIGNATURE): Eric Lovendusk / EJS

DELIVERY SERVICE: FED EX AIRBILL NO.: 8473 9121 2246

URS

LAB STL-EDISON

COOLER 1 of 1

PAGE 1 of 1

LOCATION IDENTIFIER	DATE	TIME	COMP/ GRAB	SAMPLE ID	MATRIX	TOTAL NO. OF CONTAINERS	TESTS: From 113, 1113, 1235	TESTS: Methane RSK-175	TESTS: Sulfide 375.4	BOTTLE TYPE AND PRESERVATIVE: 2 40 mL VOA vials w/ HCl	BOTTLE TYPE AND PRESERVATIVE: 2-40 mL VOA vials w/ HCl	BOTTLE TYPE AND PRESERVATIVE: 1 250 mL poly - unpres	REMARKS	SAMPLE TYPE	BEGINNING DEPTH (IN FEET)	ENDING DEPTH (IN FEET)	FIELD LOT NO. # (ERPIMS)
MW-06	05/31/05	1337	GRAB	20050531MW-06V15N	WG	5	X	X	X			687720		N1	—	—	
Field Dup	05/31/05	—	GRAB	20050531MW-06V15FD	WG	5	X	X	X			687721		FR1	—	—	
MW-07	05/31/05	1430	GRAB	20050531MW-07V15N	WG	5	X	X	X			687722		N1	—	—	
MW-02	05/31/05	1521	GRAB	20050531MW-02V06N	WG	5	X	X	X			687723		N1	—	—	
GZ-06	05/31/05	1605	GRAB	20050531GZ-06V03N	WG	5	X	X	X			687724		N1	—	—	
GZ-06	05/31/05	1605	GRAB	20050531GZ-06V03MS	WG	5	X	X	X			687724		MS1	—	—	
GZ-06	05/31/05	1605	GRAB	20050531GZ-06V03SD	WG	5	X	X	X			687724		SD1	—	—	
MW-04	05/31/05	1700	GRAB	20050531MW-04V10N	WG	5	X	X	X			687725	* METHANE SAMPLE UNPRESERVED	N1	—	—	
MW-03	05/31/05	1900		20050531MW-03V10N	WG	5	X	X	X			687726		N1	—	—	
RINSE BLANK	5/31/05	1830	GRAB	20050531MTNEB	WQ	5	X	X	X			687727	VOAs are unpreserved	RB1	—	—	
TRIP BLANK	5/31/05	—	GRAB	20050531MTNTB	WQ	4	X	X				687728		TB1	—	—	

MATRIX CODES: AA - AMBIENT AIR; SE - SEDIMENT; SH - HAZARDOUS SOLID WASTE; SL - SLUDGE; WP - DRINKING WATER; WW - WASTE WATER; WG - GROUND WATER; SO - SOIL; DC - DRILL CUTTINGS; WL - LEACHATE; GS - SOIL GAS; WC - DRILLING WATER; WO - OCEAN WATER; WS - SURFACE WATER; WQ - WATER FIELD QC; LH - HAZARDOUS LIQUID WASTE; LF - FLOATING/FREE PRODUCT ON GW TABLE.

SAMPLE TYPE CODES: TB# - TRIP BLANK; SD# - MATRIX SPIKE DUPLICATE; RB# - RINSE BLANK; FR# - FIELD REPLICATE; N# - NORMAL ENVIRONMENTAL SAMPLE; MS# - MATRIX SPIKE; (# - SEQUENTIAL NUMBER (FROM 1 TO 9) TO ACCOMMODATE MULTIPLE SAMPLES IN A SINGLE DAY)

RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY (SIGNATURE)	DATE	TIME
	5/31/05	1900	FedEx		
RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED FOR LAB BY (SIGNATURE)	DATE	TIME
FedEx				6/1/05	1030

SPECIAL INSTRUCTIONS

SAMPLES SHIPPED ON ICE

CONTACT PETER FAIRBANKS W/QUESTIONS!

1-716-856-5636

Distribution: Original accompanies shipment, copy to coordinator field files

URSF-075C/1 OF 1/CofCR/GCM

STL Edison

12