FINAL REPORT

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NYS DEPT. OF ENVIRONMENTAL CONSERVATION-REGION 8

INTERIM REMEDIAL MEASURE 7TH QTR. PROGRESS REPORT (OCTOBER - DECEMBER 1998)

FORMER GRIFFIN TECHNOLOGY FACILITY FARMINGTON, NEW YORK INDEX NO. (B8-315-90-01)

Prepared for
Diebold, Inc.
Canton, Ohio

March 5, 1999

URS Greiner Woodward Clyde, Inc.
A Division of URS Corporation

30775 Bainbridge Road
Suite 200
Solon, Ohio 44139
440/ 349-2708
Project No. 38-06E06191.00

CERTIFICATION

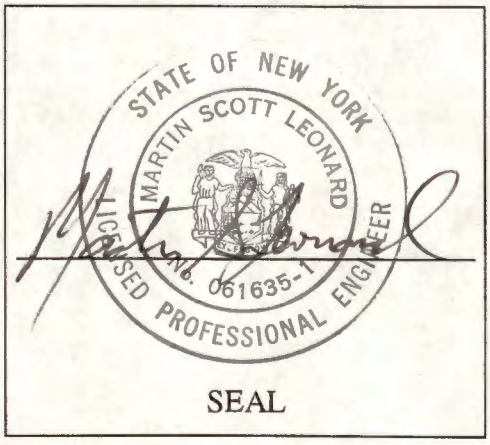
INTERIM REMEDIAL MEASURE 7TH QUARTER PROGRESS REPORT
GRIFFIN TECHNOLOGY, INC. FACILITY
TOWN OF FARMINGTON
ONTARIO COUNTY, NEW YORK

The enclosed 7th Quarter Progress Report has been reviewed by the undersigned, and has been found to be consistent with the requirements of the Order on Consent (Index No. B8-315-90-01), entered into by the New York State Department of Environmental Conservation and Griffin Technology, Inc.

Name: Martin S. Leonard P.E.

Title: Consulting Professional Engineer

Date: March 6, 1999



SEAL

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This report presents the information collected during the seventh quarter of operation (October through December 1998) of the Interim Remedial Measure (IRM) system at the Griffin Technology, Inc. (GTI) site located at 6132 Victor-Manchester Road in the Town of Farmington, Ontario County, New York. The IRM system consists of three wells equipped with groundwater extraction pumps, which have been plumbed to discharge groundwater into the local sanitary sewer system. A general location map is included as Figure 1. The system layout is shown in Figure 2.

The IRM system was proposed in the *IRM Work Plan* submitted to the New York State Department of Environmental Conservation (NYSDEC) on July 10, 1996. The Work Plan was prepared in accordance with the Order on Consent agreement (Index No. B8-315-90-01) entered into by GTI and the NYSDEC. Information supporting the selected IRM, such as a Field Sampling Plan (FSP), Quality Assurance Project Plan (QAPP), and Health and Safety Plan (HASP) were included in the Work Plan.

On September 27, 1996, GTI submitted an *Interim Remedial Measure Program, Final Design Document* to the NYSDEC. This document contained the proposed layout and detail drawings for the IRM system and a copy of the letter approving the discharge of recovered groundwater into the local publicly-owned treatment works (POTW) sanitary sewer. In addition, an implementation schedule to construct the system and a proposed two year sample collection and reporting schedule were included in the design document.

During December 1996 and January 1997, the IRM components were installed at the site. Following approval by the NYSDEC and the Canandaguia-Farmington Water and Sewer District to discharge recovery water into the sanitary sewer system, the system was placed on-line. The IRM system began operating on February 18, 1997.

The activities performed during the seventh quarter of operation are described in Section 2.0. Information collected during the seventh quarter of operation are presented in Section 3.0. Summary information is presented in Section 4.0.

The activities performed during the seventh quarter of IRM operation consisted of measuring monitoring well groundwater elevations, recording the quantity of water discharged by the IRM system, and collecting samples of the IRM system effluent for laboratory analysis. Each of these activities are described in greater detail below.

2.1. HYDRAULIC HEAD MEASUREMENT

During the seventh quarter of IRM operation, hydraulic head (groundwater elevation) measurements were collected of twice per month from each groundwater well and piezometer located on site, and off-site monitoring well MW-11D. Hydraulic head measurements were also collected monthly from off-site wells MW-6S and MW-6D. These off-site wells are located in the immediate vicinity of the IRM system. Measurements were collected using an electronic water level indicator capable of measuring the water elevation to the nearest 0.01 ft.

2.2. EFFLUENT MONITORING, SAMPLING AND ANALYSIS

At the end of each month of operation, the quantity of effluent discharged by the IRM system was recorded from a totalizing flow meter located on the common header discharge in the Central Access Vault. The value from the preceding months operation was subtracted from this value in order to determine the monthly effluent discharge to the Farmington Water and Sewer District wastewater treatment facility. In addition, a sample of the effluent was collected monthly from a sample port located on the header discharge in the Central Access Vault in order to evaluate the quality of the groundwater being recovered by the IRM system. The effluent samples were submitted to Columbia Analytical Services, Inc. (CASI) for analysis of volatile organic compounds (VOCs) by United States Environmental Protection Agency (USEPA) method 8260. The analytical results of the samples collected were used to report estimated loadings to the POTW.

Data collected and analytical results obtained during the seventh quarter of IRM system operation are presented in the following subsections.

3.1. EFFLUENT OPERATING DATA AND ANALYTICAL RESULTS

A summary of the operating data and effluent analysis collected during each month of the IRM system operation is presented in Table 1. The results indicate that groundwater containing chemicals of concern (COCs) is being removed from underneath the GTI site. The COCs detected in the effluent samples consisted of trichloroethene (TCE); 1,1,1-trichloroethane (1,1,1-TCA); and cis-1,2-dichloroethene (1,2-DCE). This is consistent with earlier results. TCE was consistently the compound with the highest reported concentration. The concentrations of COCs in the system effluent were relatively consistent. The concentrations were slightly higher than during the previous quarter, but were within historical levels. The quantity of water discharged by the system continued to be at or near the lowest values recorded since the system was started. This appears to be related to low seasonal groundwater elevations recorded in the fall of 1998. Laboratory data sheets for effluent sampling performed during this quarter of operation are provided in Appendix A.

3.2. HYDRAULIC HEAD MEASUREMENT RESULTS

Hydraulic head measurements collected during the seventh quarter of IRM system operation are presented in Table 2. These data were used to prepare monthly groundwater elevation and flow maps for the overburden and bedrock groundwater zones (Figures 3 through 8).

Groundwater elevations continued to decrease during this quarter of operation. The groundwater contour maps from the GTI site indicate that groundwater in the overburden water-bearing zone generally appears to flow to the south or southwest. In the bedrock water-bearing zone, groundwater generally appears to flow toward a groundwater low area near the southwest corner of the site, in the vicinity of RW-03. The data indicate that the IRM system is continuing to influence groundwater flow patterns at the GTI site. These data are consistent with previous observed site conditions.

Based on the information collected during the seventh quarterly monitoring period of IRM system operation, the following summary has been developed regarding environmental conditions at the GTI site:

- Groundwater flow in the overburden water-bearing zone at this site is primarily to the south and southwest. This is consistent with previous reports for the GTI site.
- The IRM system is affecting groundwater flow patterns in the vicinity of the GTI facility. The groundwater elevation data indicate the presence of a groundwater low in the bedrock water-bearing zone in the southwest portion of the site, which is in the immediate vicinity of the IRM system.
- Regional groundwater elevations have decreased during the last three months. The monthly quantity of groundwater discharged by the IRM system has decreased and remained low. The depressed elevations are apparently reducing the rate of groundwater recovery by the IRM system at the GTI site by reducing the rate of recharge in the wells.
- The concentrations of COCs in the IRM system effluent were relatively consistent. TCE was consistently the COC with the highest reported concentration.

Data collection activities during the next quarter of IRM operation will consist of the same activities performed during the previous months of operation. The fourth semi-annual sampling of all groundwater monitoring wells is scheduled at the end of the eighth quarter (March 1999).

Tables

TABLE 1
SUMMARY OF EFFLUENT DISCHARGES TO POTW
GRIFFIN TECHNOLOGY FACILITY
FARMINGTON, NEW YORK

MONTH	DISCHARGE (GAL.)	CONCENTRATIONS TCE	1,1,1-TCA	1,2-DCE	2-BUTANONE
March 1997	320,150	610	14.0	6.5	ND
April 1997	362,132	240	5.8	6.0	ND
May 1997	235,601	360	9.8	ND	ND
June 1997	213,976	380	12.0	10.0	ND
July 1997	135,320	570	16.0	15.0	ND
August 1997	68,270	700	21.0	13.0	26.0
September 1997	70,218	810	ND	ND	ND
October 1997	90,717	880	18.0	10.0	ND
November 1997	93,914	690	17.0	12.0	ND
December 1997	210,268	420	ND	ND	ND
January 1998	456,551	250	ND	ND	ND
February 1998	191,493	180	ND	ND	ND
March 1998	387,910	200	5.4	ND	ND
April 1998	352,742	150	ND	ND	ND
May 1998	191,088	250	ND	ND	ND
June 1998	96,750	320	7.5	ND	ND
July 1998	270,973	200	ND	ND	ND
August 1998	68,147	400	13.0	12.0	ND
September 1998	44,030	510	14.0	15.0	ND
October 1998	66,160	400	ND	ND	ND
November 1998	44,150	440	12.0	ND	ND
December 1998	43,580	590	22.0	19.0	ND

Notes:

1. All results expressed in micrograms per liter (µg/l).
2. No other VOC compounds detected.
3. ND indicates not detected.

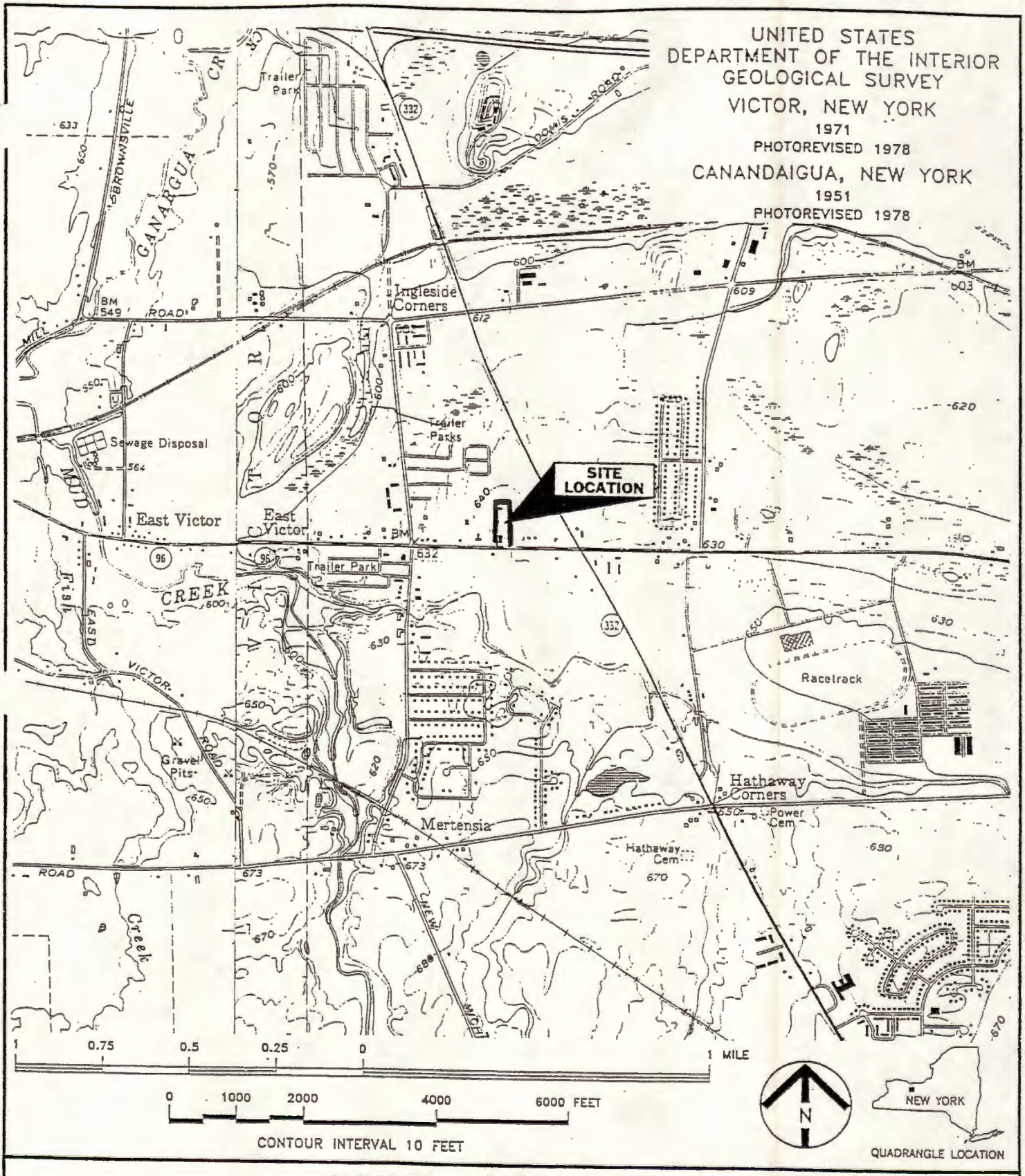
TABLE 2
SUMMARY OF GROUNDWATER ELEVATIONS - OCTOBER - DECEMBER 1998
GRIFFIN TECHNOLOGY FACILITY
FARMINGTON, NEW YORK

	Groundwater Elevation (ft)					
Well Designation	**10/01/98**	**10/15/98**	**11/02/98**	**11/16/98**	**12/01/98**	**12/15/98**
MW-01	627.90	628.51	627.14	626.61	626.26	625.89
MW-2S	DRY	625.30	DRY	DRY	DRY	DRY
MW-2D	624.82	625.42	623.96	623.46	623.14	622.71
MW-03	624.75	625.51	623.97	623.44	623.12	622.63
MW-04	622.25	623.90	622.23	622.20	622.17	622.18
MW-5S	621.09	621.35	620.27	DRY	DRY	DRY
MW-5D	618.70	618.90	618.11	617.78	617.48	616.91
MW-06S	NM	622.04	NM	620.71	NM	619.96
MW-06D	NM	622.04	NM	620.68	NM	619.91
MW-11D	624.20	624.29	623.46	623.10	622.71	622.39
PZ-1S	DRY	DRY	DRY	DRY	DRY	DRY
PZ-1D	DRY	DRY	DRY	DRY	DRY	DRY
PZ-2S	DRY	DRY	DRY	DRY	DRY	DRY
PZ-2D	620.03	620.37	619.40	619.13	619.06	618.94

Notes:

1. Groundwater elevations measured on dates shown.
2. "NM" indicates groundwater elevation not measured on date shown.
3. "DRY" indicates no water present in well at time of measurement.
4. All measurements relative to Mean Sea Level (MSL).

Figures



GENERAL LOCATION MAP

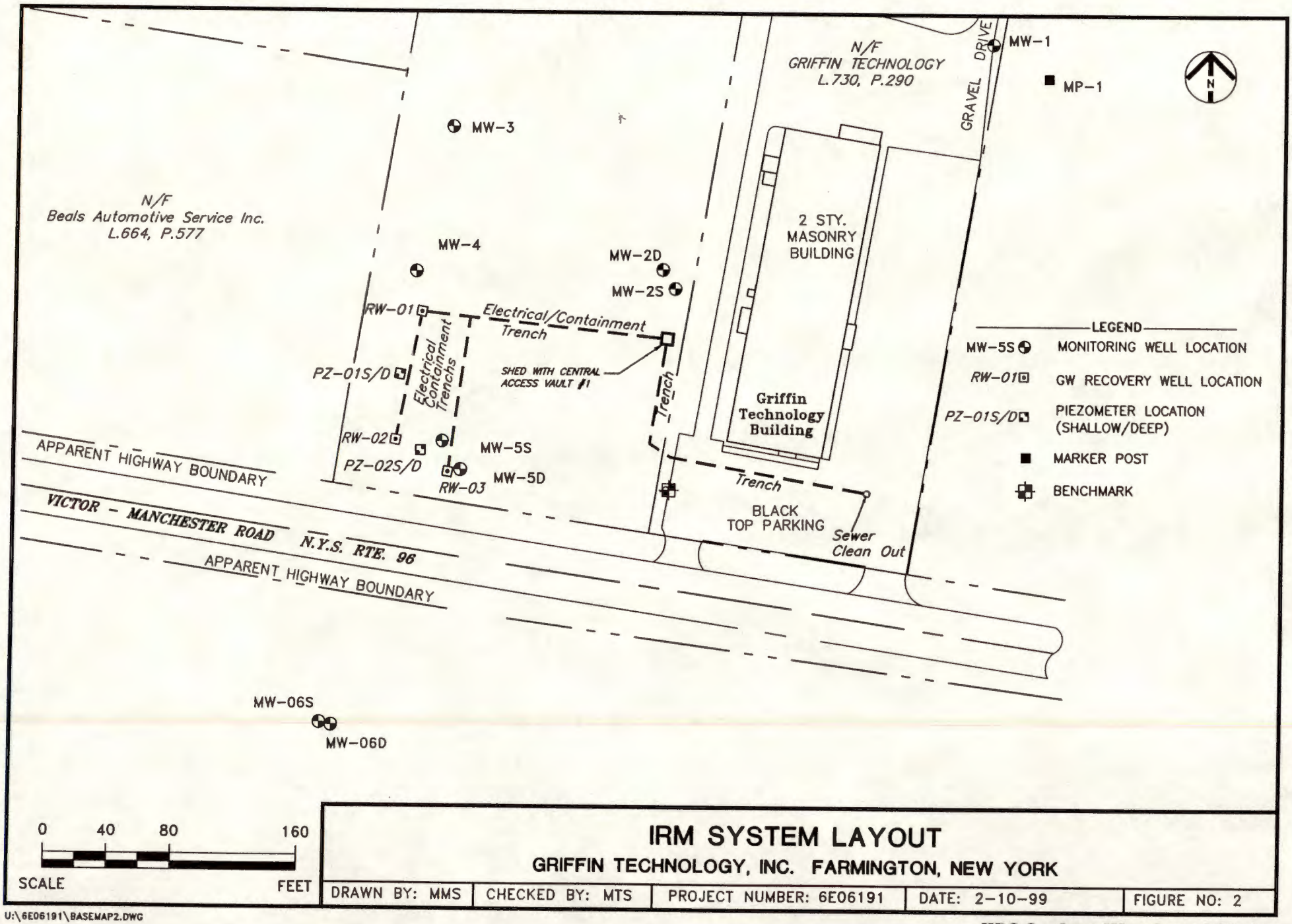
GRIFFIN TECHNOLOGY INC. - ONTARIO COUNTY - FARMINGTON, NEW YORK

DRAWN BY: MMS	CHECKED BY: KMA	PROJECT NUMBER: 4E06282	DATE: 6-10-96	FIGURE NO: 1-1

6282\GLM

URS Greiner Woodward Clyde

A Division of URS Corporation



IRM SYSTEM LAYOUT

GRIFFIN TECHNOLOGY, INC. FARMINGTON, NEW YORK

DRAWN BY: MMS	CHECKED BY: MTS	PROJECT NUMBER: 6E06191	DATE: 2-10-99	FIGURE NO: 2

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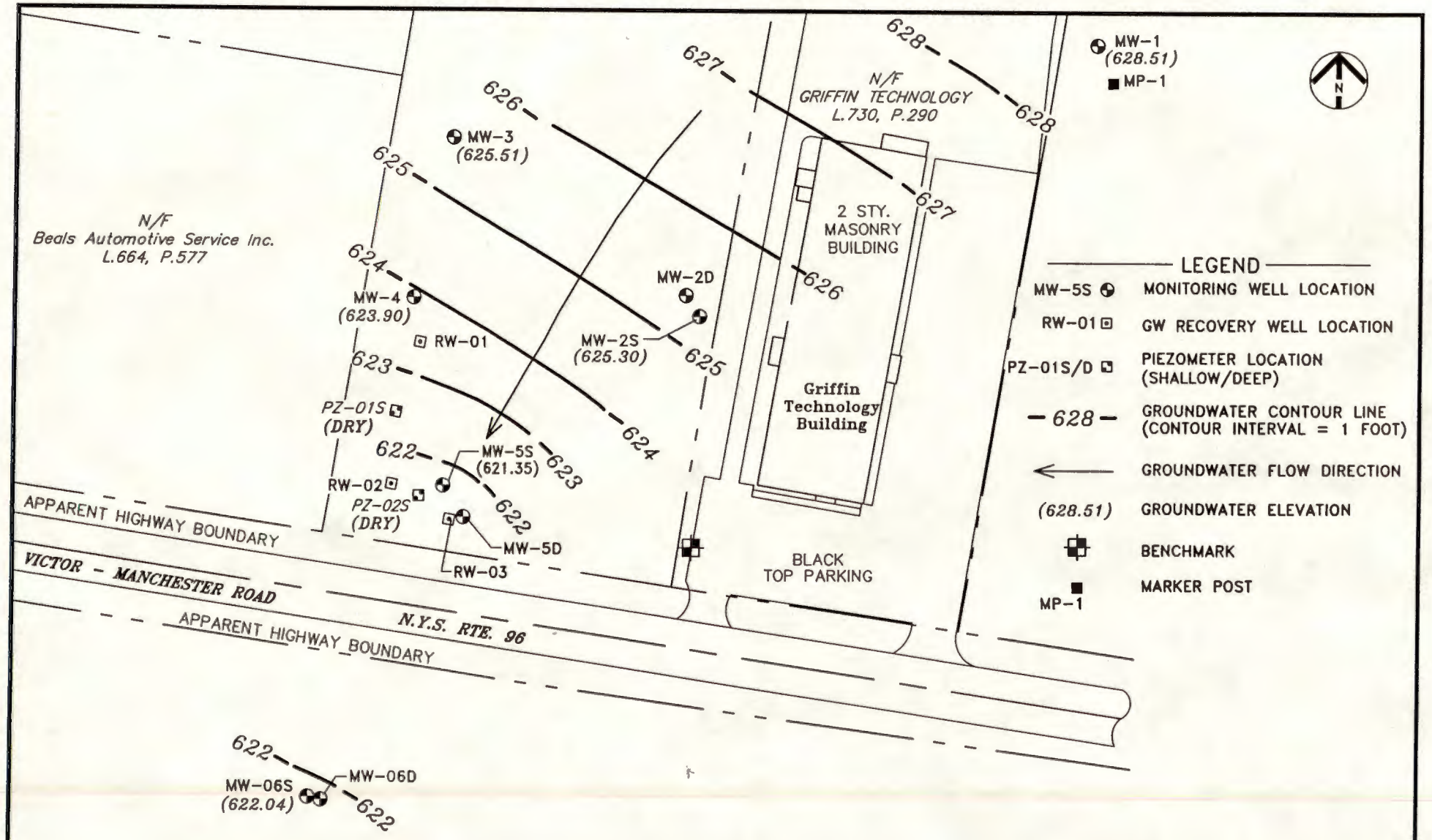
URS Greiner Woodward Clyde

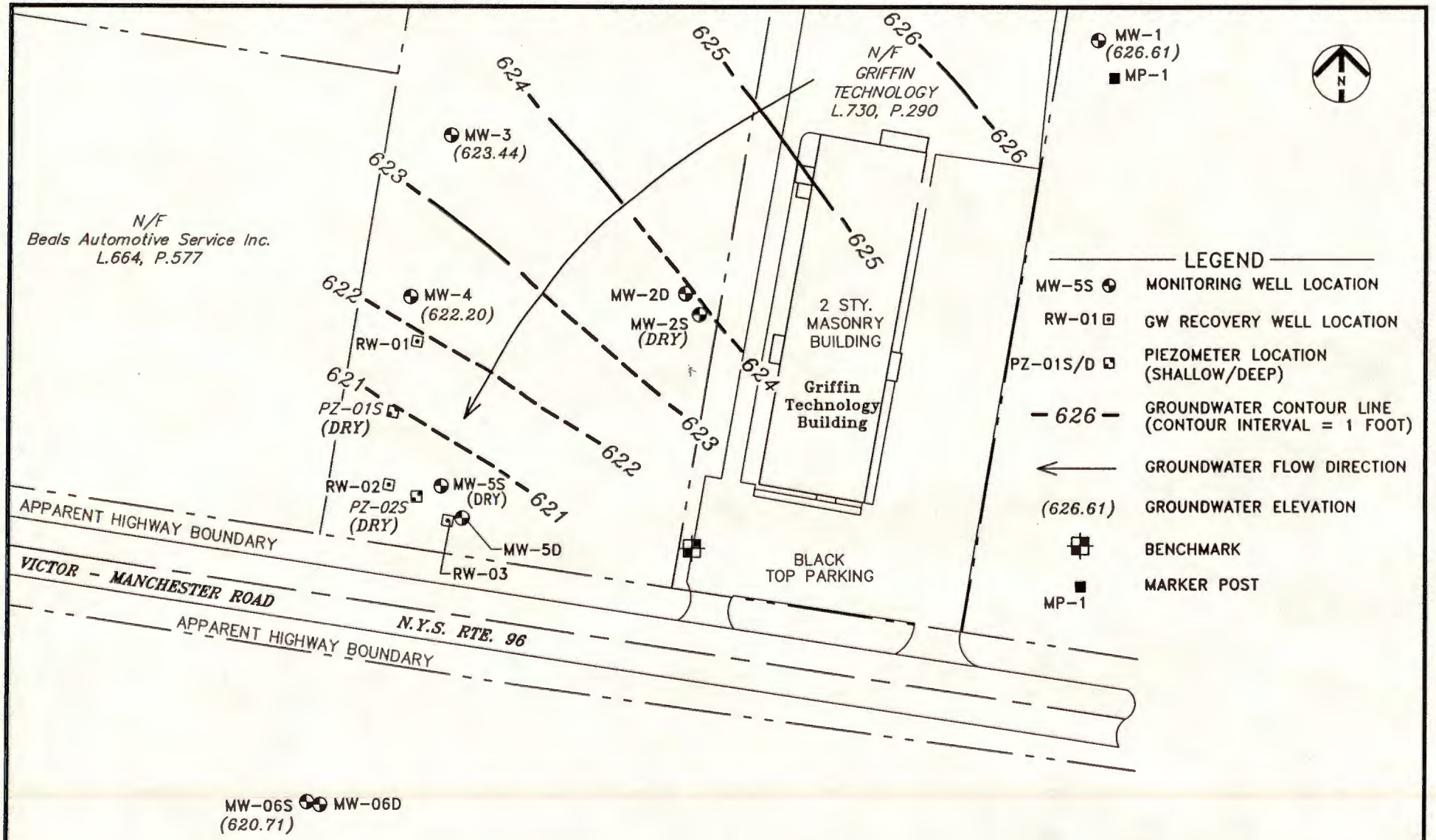


OVERBURDEN GROUNDWATER CONTOUR MAP
OCTOBER 15, 1998
GRIFFIN TECHNOLOGY, INC. FARMINGTON, NEW YORK

DRAWN BY: MMS	CHECKED BY: MTS	PROJECT NUMBER: 6E06191	DATE: 2-10-99	FIGURE NO: 3

O:\6E06191\3RD_SEM\SH981015.DWG

URS Greiner Woodward Clyde



OVERBURDEN GROUNDWATER CONTOUR MAP
NOVEMBER 16, 1998
GRIFFIN TECHNOLOGY, INC. FARMINGTON, NEW YORK

DRAWN BY: MMS	CHECKED BY: MTS	PROJECT NUMBER: 6E06191	DATE: 2-10-99	FIGURE NO: 4

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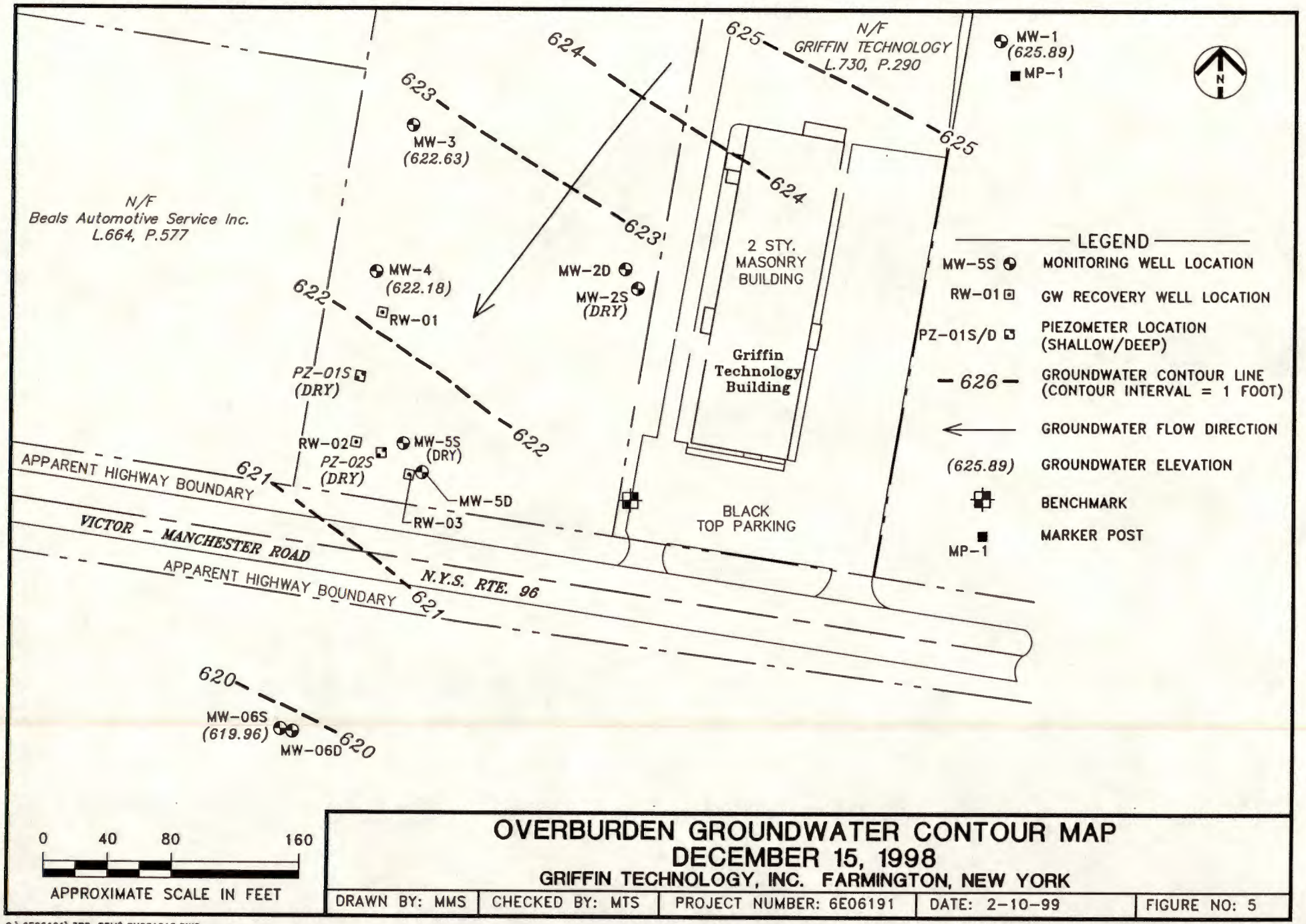
URS Greiner Woodward Clyde



OVERBURDEN GROUNDWATER CONTOUR MAP
DECEMBER 15, 1998
GRIFFIN TECHNOLOGY, INC. FARMINGTON, NEW YORK

DRAWN BY: MMS	CHECKED BY: MTS	PROJECT NUMBER: 6E06191	DATE: 2-10-99	FIGURE NO: 5

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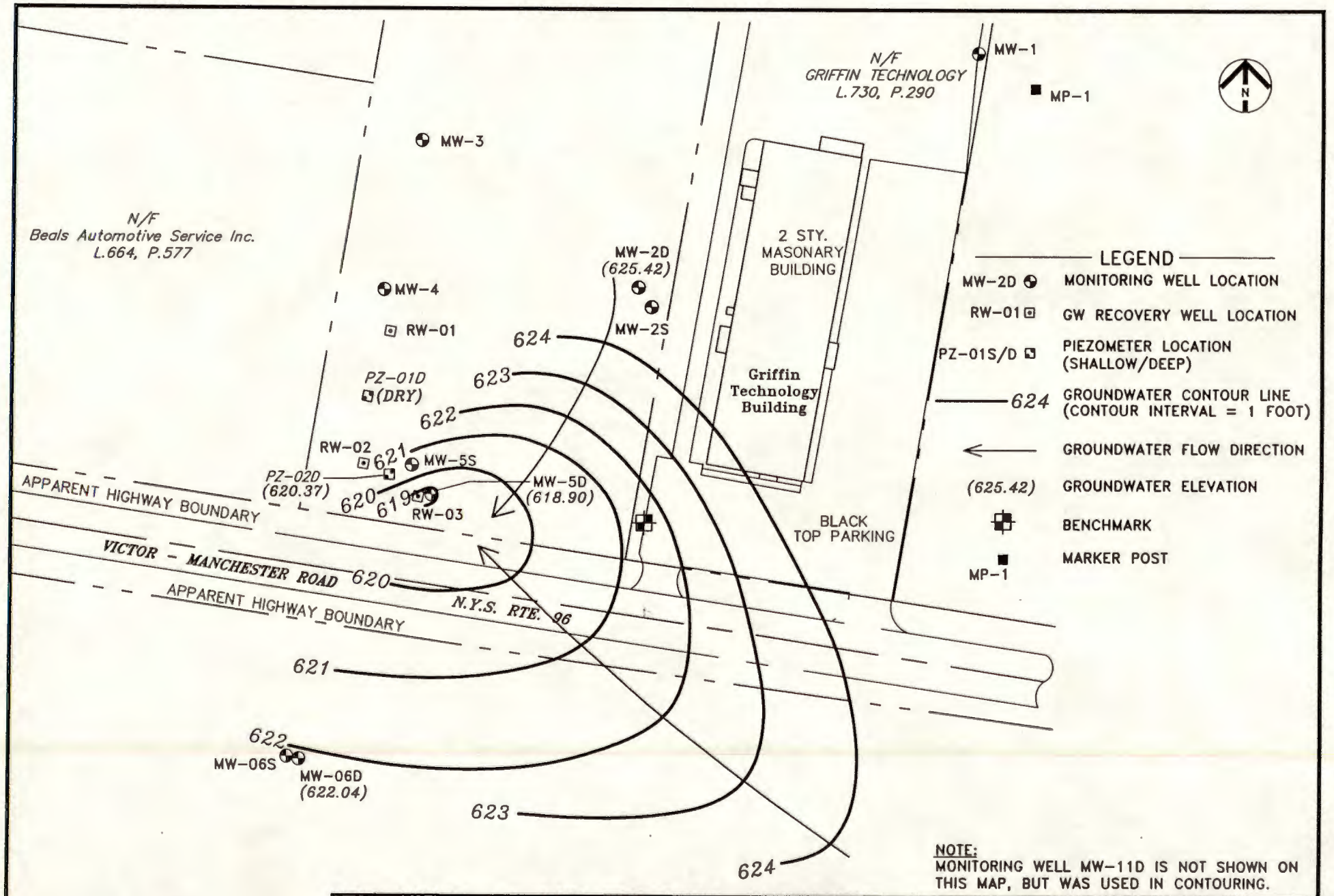
URS Greiner Woodward Clyde



NOTE:
MONITORING WELL MW-11D IS NOT SHOWN ON THIS MAP, BUT WAS USED IN CONTOURING.

BEDROCK GROUNDWATER CONTOUR MAP
OCTOBER 15, 1998
GRIFFIN TECHNOLOGY, INC. FARMINGTON, NEW YORK

DRAWN BY: MMS	CHECKED BY: MTS	PROJECT NUMBER: 6E06191	DATE: 02-10-99	FIGURE NO: 6

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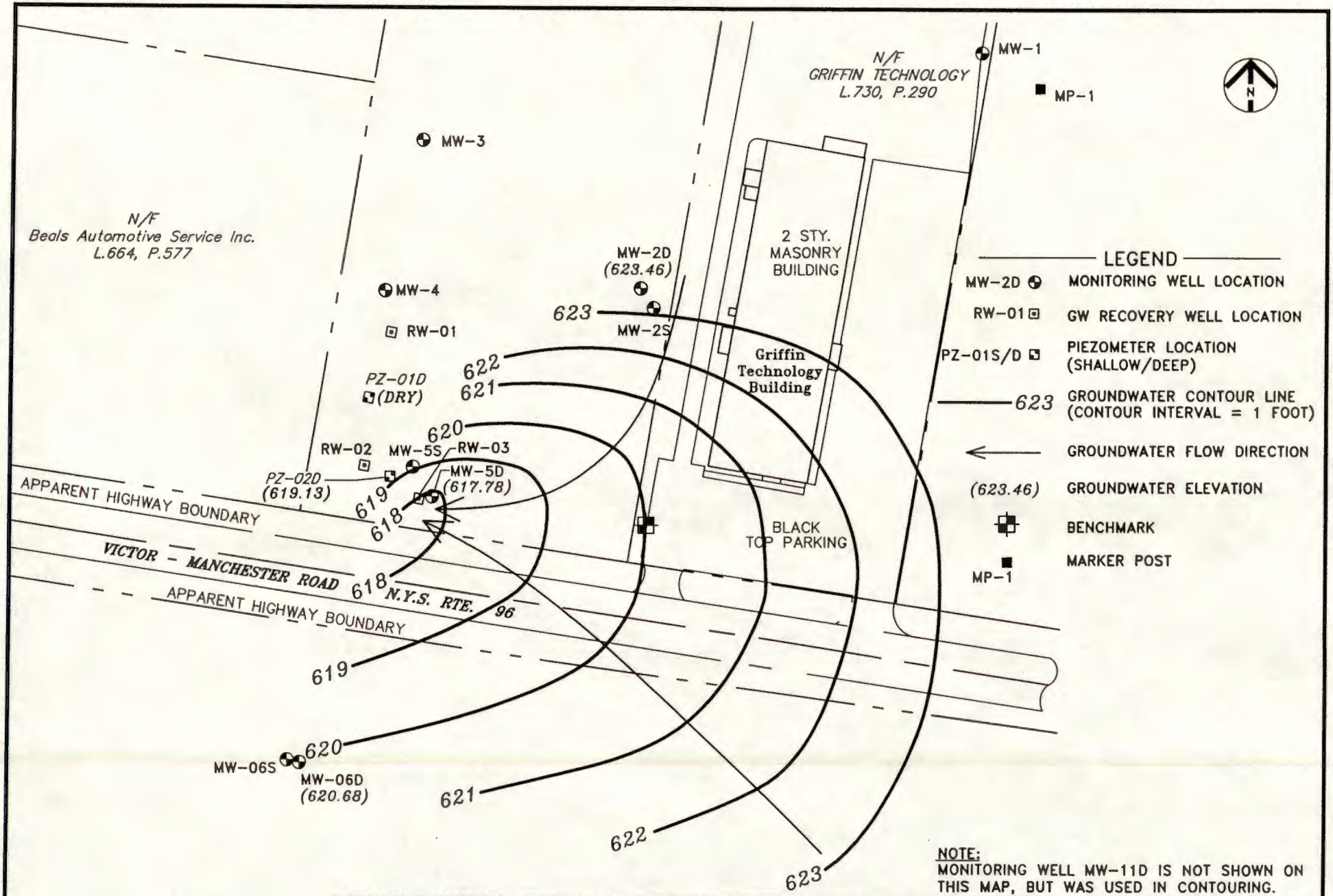
URS Greiner Woodward Clyde



BEDROCK GROUNDWATER CONTOUR MAP
NOVEMBER 16, 1998
GRIFFIN TECHNOLOGY, INC. FARMINGTON, NEW YORK

DRAWN BY: MMS	CHECKED BY: MTS	PROJECT NUMBER: 6E06191	DATE: 02-10-99	FIGURE NO: 7

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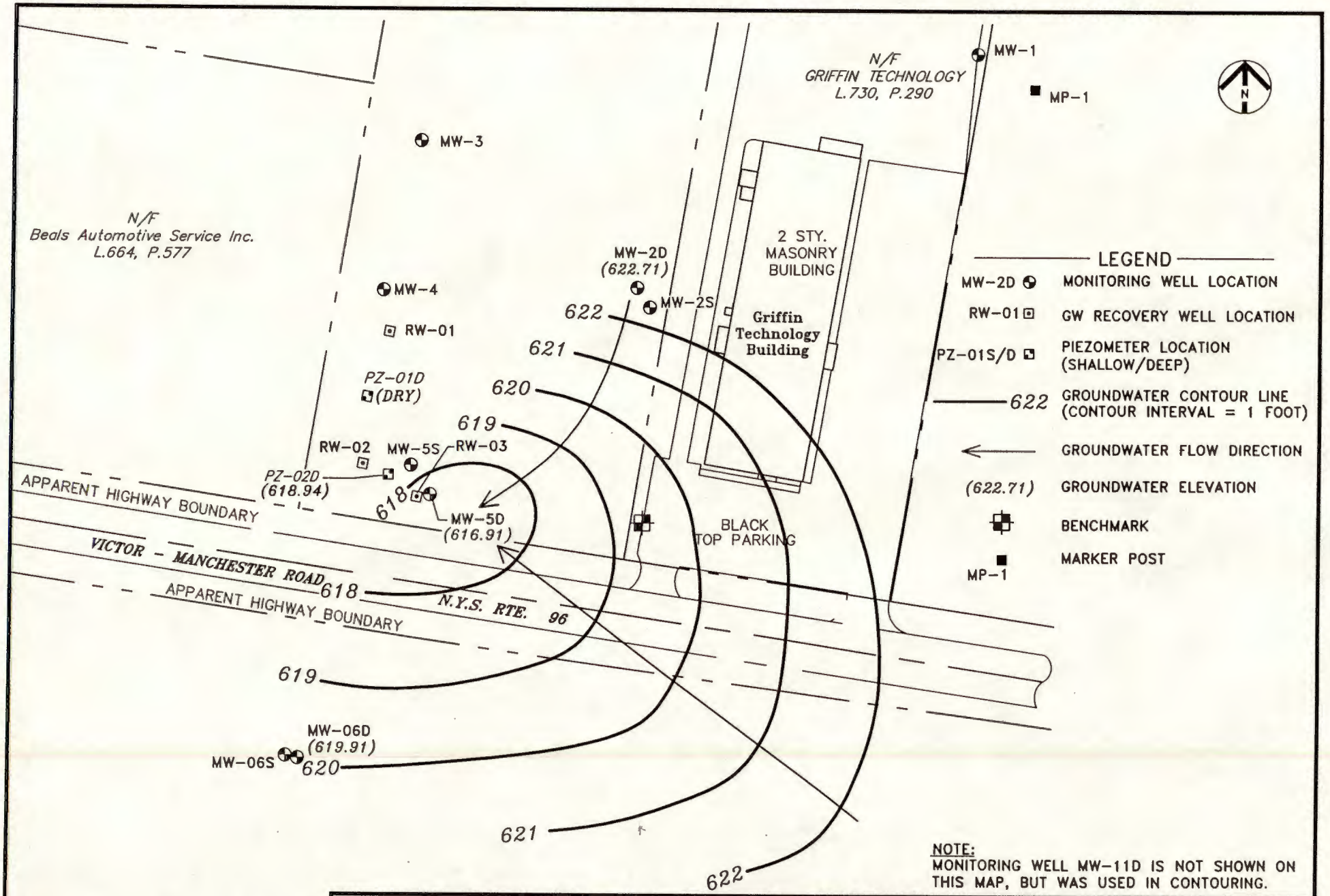
URS Greiner Woodward Clyde



BEDROCK GROUNDWATER CONTOUR MAP
DECEMBER 15, 1998
GRIFFIN TECHNOLOGY, INC. FARMINGTON, NEW YORK

DRAWN BY: MMS	CHECKED BY: MTS	PROJECT NUMBER: 6E06191	DATE: 02-10-99	FIGURE NO: 8

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URS Greiner Woodward Clyde

Appendix A

Columbia Analytical Services inc.

A FULL SERVICE ENVIRONMENTAL LABORATORY

October 30, 1998

Mr. Ken Armstrong
Woodward Clyde Consultants
30775 Bainbridge Road
Suite 200
Solon, OH 44139

PROJECT:GRIFFIN IRM-MONTHLY
Submission #:9810000247

Dear Mr. Armstrong

Enclosed are the analytical results of the analyses requested. All data has been reviewed prior to report submission. Should you have any questions please contact me at (716) 288-5380.

Thank you for letting us provide this service.

Sincerely,

COLUMBIA ANALYTICAL SERVICES

Mark Wilson
Client Service Manager

Enc.

RECEIVED
NOV 05 1998

This package has been reviewed by Columbia Analytical Services' QA Department/Laboratory Director prior to report submittal._____

1 Mustard St.• Suite 250 • Rochester, NY 14609 • Tele:(716)288-5380 • Fax:(716)288-8475
65 Ramapo Valley Rd. • Suite 16 • Mahwah, NJ 07430 • Tele:(201)512-3292 • Fax:(201)512-3362

Columbia Analytical Services Inc.

Effective 04/01/96

CAS LIST OF QUALIFIERS

(The basis of this proposal are the EPA-CLP Qualifiers)

U - Indicates compound was analyzed for but was not detected. The sample quantitation limit must be corrected for dilution and for percent moisture.

J - Indicates an estimated value. For further explanation see case narrative / cover letter.

B - This flag is used when the analyte is found in the associated blank as well as in the sample.

E - This flag identifies compounds whose concentrations exceed the calibration range.

A - This flag indicates that a TIC is a suspected aldol-condensation product.

N - Spiked sample recovery not within control limits.
(Flag the entire batch - Inorganic analysis only)

* - Duplicate analysis not within control limits.
(Flag the entire batch - Inorganic analysis only)

- Also used to qualify Organics QC data outside limits.

D - Spike diluted out.

S - Reported value determined by Method of Standard Additions. (MSA)

X - As specified in the case narrative.

CAS Lab ID # for State Certifications

NY ID # in Rochester:	10145	NJ ID # in Rochester:	73004
CT ID # in Rochester:	PH0556	RI ID # in Rochester:	158
MA ID # in Rochester:	M-NY032		

COLUMBIA ANALYTICAL SERVICES

VOLATILE ORGANICS
METHOD 8260B TCL
Reported: 10/30/98

Woodward Clyde Consultants
Project Reference: GRIFFIN IRM-MONTHLY
Client Sample ID : EFF-10-15-98

Date Sampled : 10/15/98 **Order #:** 247565 **Sample Matrix:** WATER
Date Received: 10/15/98 **Submission #:** 9810000247 **Analytical Run** 31777

ANALYTE	PQL	RESULT	UNITS
DATE ANALYZED : 10/29/98			
ANALYTICAL DILUTION: 2.50			
ACETONE	20	50 U	UG/L
BENZENE	5.0	13 U	UG/L
BROMODICHLOROMETHANE	5.0	13 U	UG/L
BROMOFORM	5.0	13 U	UG/L
BROMOMETHANE	5.0	13 U	UG/L
2-BUTANONE (MEK)	10	25 U	UG/L
CARBON DISULFIDE	10	25 U	UG/L
CARBON TETRACHLORIDE	5.0	13 U	UG/L
CHLOROBENZENE	5.0	13 U	UG/L
CHLOROETHANE	5.0	13 U	UG/L
CHLOROFORM	5.0	13 U	UG/L
CHLOROMETHANE	5.0	13 U	UG/L
DIBROMOCHLOROMETHANE	5.0	13 U	UG/L
1,1-DICHLOROETHANE	5.0	13 U	UG/L
1,2-DICHLOROETHANE	5.0	13 U	UG/L
1,1-DICHLOROETHENE	5.0	13 U	UG/L
CIS-1,2-DICHLOROETHENE	5.0	13 U	UG/L
TRANS-1,2-DICHLOROETHENE	5.0	13 U	UG/L
1,2-DICHLOROPROPANE	5.0	13 U	UG/L
CIS-1,3-DICHLOROPROPENE	5.0	13 U	UG/L
TRANS-1,3-DICHLOROPROPENE	5.0	13 U	UG/L
ETHYLBENZENE	5.0	13 U	UG/L
2-HEXANONE	10	25 U	UG/L
METHYLENE CHLORIDE	5.0	13 U	UG/L
4-METHYL-2-PENTANONE (MIBK)	10	25 U	UG/L
STYRENE	5.0	13 U	UG/L
1,1,2,2-TETRACHLOROETHANE	5.0	13 U	UG/L
TETRACHLOROETHENE	5.0	13 U	UG/L
TOLUENE	5.0	13 U	UG/L
1,1,1-TRICHLOROETHANE	5.0	13 U	UG/L
1,1,2-TRICHLOROETHANE	5.0	13 U	UG/L
TRICHLOROETHENE	5.0	400	UG/L
VINYL CHLORIDE	5.0	13 U	UG/L
O-XYLENE	5.0	13 U	UG/L
M+P-XYLENE	5.0	13 U	UG/L

SURROGATE RECOVERIES	QC LIMITS		
4-BROMOFLUOROBENZENE	(86 - 115 %)	102	%
TOLUENE-D8	(88 - 110 %)	101	%
DIBROMOFLUOROMETHANE	(86 - 118 %)	93	%

COLUMBIA ANALYTICAL SERVICES

VOLATILE ORGANICS
METHOD 8260B TCL
Reported: 10/30/98

Project Reference:
Client Sample ID : METHOD BLANK

Date Sampled : **Order #:** 251268 **Sample Matrix:** WATER
Date Received: **Submission #:** **Analytical Run** 31777

ANALYTE	PQL	RESULT	UNITS
DATE ANALYZED : 10/29/98			
ANALYTICAL DILUTION: 1.00			
ACETONE	20	20 U	UG/L
BENZENE	5.0	5.0 U	UG/L
BROMODICHLOROMETHANE	5.0	5.0 U	UG/L
BROMOFORM	5.0	5.0 U	UG/L
BROMOMETHANE	5.0	5.0 U	UG/L
2-BUTANONE (MEK)	10	10 U	UG/L
CARBON DISULFIDE	10	10 U	UG/L
CARBON TETRACHLORIDE	5.0	5.0 U	UG/L
CHLOROBENZENE	5.0	5.0 U	UG/L
CHLOROETHANE	5.0	5.0 U	UG/L
CHLOROFORM	5.0	5.0 U	UG/L
CHLOROMETHANE	5.0	5.0 U	UG/L
DIBROMOCHLOROMETHANE	5.0	5.0 U	UG/L
1,1-DICHLOROETHANE	5.0	5.0 U	UG/L
1,2-DICHLOROETHANE	5.0	5.0 U	UG/L
1,1-DICHLOROETHENE	5.0	5.0 U	UG/L
CIS-1,2-DICHLOROETHENE	5.0	5.0 U	UG/L
TRANS-1,2-DICHLOROETHENE	5.0	5.0 U	UG/L
1,2-DICHLOROPROPANE	5.0	5.0 U	UG/L
CIS-1,3-DICHLOROPROPENE	5.0	5.0 U	UG/L
TRANS-1,3-DICHLOROPROPENE	5.0	5.0 U	UG/L
ETHYLBENZENE	5.0	5.0 U	UG/L
2-HEXANONE	10	10 U	UG/L
METHYLENE CHLORIDE	5.0	5.0 U	UG/L
4-METHYL-2-PENTANONE (MIBK)	10	10 U	UG/L
STYRENE	5.0	5.0 U	UG/L
1,1,2,2-TETRACHLOROETHANE	5.0	5.0 U	UG/L
TETRACHLOROETHENE	5.0	5.0 U	UG/L
TOLUENE	5.0	5.0 U	UG/L
1,1,1-TRICHLOROETHANE	5.0	5.0 U	UG/L
1,1,2-TRICHLOROETHANE	5.0	5.0 U	UG/L
TRICHLOROETHENE	5.0	5.0 U	UG/L
VINYL CHLORIDE	5.0	5.0 U	UG/L
O-XYLENE	5.0	5.0 U	UG/L
M+P-XYLENE	5.0	5.0 U	UG/L

SURROGATE RECOVERIES	QC LIMITS		
4-BROMOFLUOROBENZENE	(86 - 115 %)	99	%
TOLUENE-D8	(88 - 110 %)	101	%
DIBROMOFLUOROMETHANE	(86 - 118 %)	93	%

[redacted]

COLUMBIA ANALYTICAL SERVICES, INC.
1 Mustard St., Suite 250, P.O. Box 90859, Rochester, NY 14609-0859
(716) 288-5380 • FAX (716) 288-8475

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

(800) 695-7222

DATE 10-15-98 PAGE 1 OF 1

PROJECT NAME Griffin IRM
PROJECT MANAGER/CONTACT Ken Armstrong
COMPANY/ADDRESS 30775 Bainbridge Rd., Ste 200
Solon, Ohio
TEL (440) 349-2708 FAX (440) 349-1514
SAMPLER'S SIGNATURE Bob Fabian

ANALYSIS REQUESTED

SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX	# OF CONTAINERS	GC/MS VOA's ☐ 8260 ☐ 624	GC/MS SVOA's ☐ 8270A ☐ 625	GC VOA's ☐ 8010/8020 ☐ 601/602	PESTICIDES/PCB's ☐ 8080 ☐ 608	STAR'S LIST 8021 VOA's ☐ TOTAL ☐ TCLP	STAR'S LIST 8270 SVOA's ☐ TOTAL ☐ TCLP	TCLP ☐ METALS ☐ VOA's ☐ SVOA's ☐ H/P	WASTE CHARACTERIZATION ☐ React ☐ Corros. ☐ Ignit.	METALS, TOTAL (LIST BELOW)	METALS, DISSOLVED (LIST BELOW)	8240							PRESERVATION pH < 2.0	PRESERVATION pH > 12	PRESERVATION Other
EFF-10-15-98	10-15-98	12:07	247565	WATER	2											X									

RELINQUISHED BY:
Signature Bob Fabian
Printed Name BOB FABIAN
Firm WCC
Date/Time 10-15-98 13:00

RECEIVED BY:
Signature Tom Hastings
Printed Name Tom Hastings
Firm CAS
Date/Time 10/15/98 13:00

RELINQUISHED BY:
Signature
Printed Name
Firm
Date/Time

RECEIVED BY:
Signature
Printed Name
Firm
Date/Time

RELINQUISHED BY:
Signature
Printed Name
Firm
Date/Time

RECEIVED BY:
Signature
Printed Name
Firm
Date/Time

TURNAROUND REQUIREMENTS
__ 24 hr. __ 48 hr. __ 5 day
X Standard (10-15 working days)
__ Provide Verbal Preliminary Results
X Provide FAX Preliminary Results
Requested Report Date _____

REPORT REQUIREMENTS
(X) 1. Routine Report
__ 2. Routine Rep. w/CASE Narrative
__ 3. EPA Level III Validatable Package
__ 4. N.J. Reduced Deliverables Level IV
__ 5. NY ASP/CLP Deliverables
__ 6. Site specific QC.

INVOICE INFORMATION:
P.O. #:
Bill To:

SAMPLE RECEIPT:
Shipping Via: Client
Shipping #:
Temperature: 9.9
Submission No: 10-247

SPECIAL INSTRUCTIONS/COMMENTS:
METALS quote 1340
ORGANICS: X TCL ☐ PPL ☐ AE Only ☐ BN Only ☐ Special List

65 RAMAPO VALLEY ROAD, MAHWAH, NJ 07430 — 201-512-3292 — FAX 201-512-3362
309 WEST RIDLEY AVE., RIDLEY PARK, PA 19078 — 610-521-3083 — FAX 610-521-4589

Columbia Analytical Services inc.

A FULL SERVICE ENVIRONMENTAL LABORATORY

December 3, 1998

RECEIVED

DEC 09 1998

Woodward-Clyde Consultants
Solon, Ohio

Mr. Mark Schmidt
Woodward Clyde Consultants
30775 Bainbridge Road
Suite 200
Solon, OH 44139

PROJECT:GRIFFIN IRM-MONTHLY
Submission #:9811000278

Dear Mr. Schmidt:

Enclosed are the analytical results of the analyses requested. The analytical data was provided to you on 12/01/98 per a Facsimile transmittal. All data has been reviewed prior to report submission.

Should you have any questions please contact me at (716) 288-5380.

Thank you for letting us provide this service.

Sincerely,

COLUMBIA ANALYTICAL SERVICES

Mark Wilson
Client Service Manager

Enc.

This package has been reviewed by Columbia Analytical Services' QA Department/Laboratory Director prior to report submittal.

1 Mustard St. • Suite 250 • Rochester, NY 14608 • Tele:(716)288-5380 • Fax:(716)288-8475
65 Rampo Vally Rd. • Suite 16 • Mahwah, NJ 07430 • Tele:(201)512-3292 • Fax:(201)512-3362

Columbia Analytical Services Inc.

Effective 04/01/96

CAS LIST OF QUALIFIERS

(The basis of this proposal are the EPA-CLP Qualifiers)

U - Indicates compound was analyzed for but was not detected. The sample quantitation limit must be corrected for dilution and for percent moisture.

J - Indicates an estimated value. For further explanation see case narrative / cover letter.

B - This flag is used when the analyte is found in the associated blank as well as in the sample.

E - This flag identifies compounds whose concentrations exceed the calibration range.

A - This flag indicates that a TIC is a suspected aldol-condensation product.

N - Spiked sample recovery not within control limits.
(Flag the entire batch - Inorganic analysis only)

* - Duplicate analysis not within control limits.
(Flag the entire batch - Inorganic analysis only)

- Also used to qualify Organics QC data outside limits.

D - Spike diluted out.

S - Reported value determined by Method of Standard Additions. (MSA)

X - As specified in the case narrative.

CAS Lab ID # for State Certifications

NY ID # in Rochester:	10145	NJ ID # in Rochester:	73004
CT ID # in Rochester:	PH0556	RI ID # in Rochester:	158
MA ID # in Rochester:	M-NY032		

COLUMBIA ANALYTICAL SERVICES

VOLATILE ORGANICS
METHOD 8260B TCL
Reported: 12/03/98

Woodward Clyde Consultants
Project Reference: GRIFFIN IRM-MONTHLY
Client Sample ID : EFF-11-16-98

Date Sampled : 11/16/98 **Order #:** 256028 **Sample Matrix:** WATER
Date Received: 11/16/98 **Submission #:** 9811000278 **Analytical Run** 32970

ANALYTE	PQL	RESULT	UNITS
DATE ANALYZED : 11/20/98			
ANALYTICAL DILUTION: 2.00			
ACETONE	20	40 U	UG/L
BENZENE	5.0	10 U	UG/L
BROMODICHLOROMETHANE	5.0	10 U	UG/L
BROMOFORM	5.0	10 U	UG/L
BROMOMETHANE	5.0	10 U	UG/L
2-BUTANONE (MEK)	10	20 U	UG/L
CARBON DISULFIDE	10	20 U	UG/L
CARBON TETRACHLORIDE	5.0	10 U	UG/L
CHLOROBENZENE	5.0	10 U	UG/L
CHLOROETHANE	5.0	10 U	UG/L
CHLOROFORM	5.0	10 U	UG/L
CHLOROMETHANE	5.0	10 U	UG/L
DIBROMOCHLOROMETHANE	5.0	10 U	UG/L
1,1-DICHLOROETHANE	5.0	10 U	UG/L
1,2-DICHLOROETHANE	5.0	10 U	UG/L
1,1-DICHLOROETHENE	5.0	10 U	UG/L
CIS-1,2-DICHLOROETHENE	5.0	10 U	UG/L
TRANS-1,2-DICHLOROETHENE	5.0	10 U	UG/L
1,2-DICHLOROPROPANE	5.0	10 U	UG/L
CIS-1,3-DICHLOROPROPENE	5.0	10 U	UG/L
TRANS-1,3-DICHLOROPROPENE	5.0	10 U	UG/L
ETHYLBENZENE	5.0	10 U	UG/L
2-HEXANONE	10	20 U	UG/L
METHYLENE CHLORIDE	5.0	10 U	UG/L
4-METHYL-2-PENTANONE (MIBK)	10	20 U	UG/L
STYRENE	5.0	10 U	UG/L
1,1,2,2-TETRACHLOROETHANE	5.0	10 U	UG/L
TETRACHLOROETHENE	5.0	10 U	UG/L
TOLUENE	5.0	10 U	UG/L
1,1,1-TRICHLOROETHANE	5.0	12	UG/L
1,1,2-TRICHLOROETHANE	5.0	10 U	UG/L
TRICHLOROETHENE	5.0	440 E	UG/L
VINYL CHLORIDE	5.0	10 U	UG/L
O-XYLENE	5.0	10 U	UG/L
M+P-XYLENE	5.0	10 U	UG/L

SURROGATE RECOVERIES	QC LIMITS		
4-BROMOFLUOROBENZENE	(86 - 115 %)	93	%
TOLUENE-D8	(88 - 110 %)	99	%
DIBROMOFLUOROMETHANE	(86 - 118 %)	100	%

COLUMBIA ANALYTICAL SERVICES

VOLATILE ORGANICS
METHOD 8260B TCL
Reported: 12/03/98

Project Reference:
Client Sample ID : METHOD BLANK

Date Sampled : **Order #:** 259324 **Sample Matrix:** WATER
Date Received: **Submission #:** **Analytical Run** 32970

ANALYTE	PQL	RESULT	UNITS
DATE ANALYZED : 11/20/98			
ANALYTICAL DILUTION: 1.00			
ACETONE	20	20 U	UG/L
BENZENE	5.0	5.0 U	UG/L
BROMODICHLOROMETHANE	5.0	5.0 U	UG/L
BROMOFORM	5.0	5.0 U	UG/L
BROMOMETHANE	5.0	5.0 U	UG/L
2-BUTANONE (MEK)	10	10 U	UG/L
CARBON DISULFIDE	10	10 U	UG/L
CARBON TETRACHLORIDE	5.0	5.0 U	UG/L
CHLOROBENZENE	5.0	5.0 U	UG/L
CHLOROETHANE	5.0	5.0 U	UG/L
CHLOROFORM	5.0	5.0 U	UG/L
CHLOROMETHANE	5.0	5.0 U	UG/L
DIBROMOCHLOROMETHANE	5.0	5.0 U	UG/L
1,1-DICHLOROETHANE	5.0	5.0 U	UG/L
1,2-DICHLOROETHANE	5.0	5.0 U	UG/L
1,1-DICHLOROETHENE	5.0	5.0 U	UG/L
CIS-1,2-DICHLOROETHENE	5.0	5.0 U	UG/L
TRANS-1,2-DICHLOROETHENE	5.0	5.0 U	UG/L
1,2-DICHLOROPROPANE	5.0	5.0 U	UG/L
CIS-1,3-DICHLOROPROPENE	5.0	5.0 U	UG/L
TRANS-1,3-DICHLOROPROPENE	5.0	5.0 U	UG/L
ETHYLBENZENE	5.0	5.0 U	UG/L
2-HEXANONE	10	10 U	UG/L
METHYLENE CHLORIDE	5.0	5.0 U	UG/L
4-METHYL-2-PENTANONE (MIBK)	10	10 U	UG/L
STYRENE	5.0	5.0 U	UG/L
1,1,2,2-TETRACHLOROETHANE	5.0	5.0 U	UG/L
TETRACHLOROETHENE	5.0	5.0 U	UG/L
TOLUENE	5.0	5.0 U	UG/L
1,1,1-TRICHLOROETHANE	5.0	5.0 U	UG/L
1,1,2-TRICHLOROETHANE	5.0	5.0 U	UG/L
TRICHLOROETHENE	5.0	5.0 U	UG/L
VINYL CHLORIDE	5.0	5.0 U	UG/L
O-XYLENE	5.0	5.0 U	UG/L
M+P-XYLENE	5.0	5.0 U	UG/L

SURROGATE RECOVERIES	QC LIMITS		
4-BROMOFLUOROBENZENE	(86 - 115 %)	86	%
TOLUENE-D8	(88 - 110 %)	98	%
DIBROMOFLUOROMETHANE	(86 - 118 %)	100	%

COLUMBIA ANALYTICAL SERVICES, INC.
1 Mustard St., Suite 250, P.O. Box 90859, Rochester, NY 14609-0859
(716) 288-5380 • FAX (716) 288-8475

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

(800) 695-7222

DATE 11-16-98 PAGE 1 OF 1

PROJECT NAME Griffin
PROJECT MANAGER/CONTACT Mark Schmidt
COMPANY/ADDRESS 30775 Bainbridge Rd. Ste 200
Solon, Ohio 44139
TEL (440) 349-2708 FAX (440) 349-1514
SAMPLER'S SIGNATURE

ANALYSIS REQUESTED

SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX	# OF CONTAINERS	GC/MS VOA's ☐ 8260 ☐ 624	GC/MS SVOA's ☐ 8270A ☐ 625	GC VOA's ☐ 8010/8020 ☐ 601/602	PESTICIDES/PCB's ☐ 8080 ☐ 608	STAR'S LIST 8021 VOA's ☐ TOTAL ☐ TCLP	STAR'S LIST 8270 SVOA's ☐ TOTAL ☐ TCLP	TCLP ☐ METALS ☐ VOA's ☐ SVOA's ☐ H/P	WASTE CHARACTERIZATION ☐ React ☐ Corros. ☐ Ignit.	METALS, TOTAL (LIST BELOW)	METALS, DISSOLVED (LIST BELOW)	8260							PRESERVATION pH < 2.0	PRESERVATION pH > 12	PRESERVATION Other
EFF-11-16-98	11-16-98	1120	2560283	WATER	2											X									

RELINQUISHED BY:
Signature Bob Fabian
Printed Name Bob Fabian
Firm WCC
Date/Time 11-16-98 12:09

RECEIVED BY:
Signature Tom Hastings
Printed Name Tom Hastings
Firm CAS
Date/Time 11/16/98 12:09

RELINQUISHED BY:
Signature
Printed Name
Firm
Date/Time

RECEIVED BY:
Signature
Printed Name
Firm
Date/Time

RELINQUISHED BY:
Signature
Printed Name
Firm
Date/Time

RECEIVED BY:
Signature
Printed Name
Firm
Date/Time

TURNAROUND REQUIREMENTS
__ 24 hr. __ 48 hr. __ 5 day
__ Standard (10-15 working days)
__ Provide Verbal Preliminary Results
__ Provide FAX Preliminary Results
Requested Report Date _____

REPORT REQUIREMENTS
__ 1. Routine Report
__ 2. Routine Rep. w/CASE Narrative
__ 3. EPA Level III Validatable Package
__ 4. N.J. Reduced Deliverables Level IV
__ 5. NY ASP/CLP Deliverables
__ 6. Site specific QC.

INVOICE INFORMATION:
P.O. #:
Bill To:

SAMPLE RECEIPT:
Shipping Via:
Shipping #:
Temperature:
Submission No: 9811-276

SPECIAL INSTRUCTIONS/COMMENTS:
METALS WCC 4 __ 6 = Mr. Mark Schmidt
ORGANICS: ☐ TCL ☐ PPL ☐ AE Only ☐ BN Only ☐ Special List

65 RAMAPO VALLEY ROAD
MAHWAH, NJ 07430
201-512-3292
FAX 201-512-3362

309 WEST RIDLEY AVE.
RIDLEY PARK, PA 19078
610-521-3083
FAX 610-521-4589

Columbia Analytical Services inc.

A FULL SERVICE ENVIRONMENTAL LABORATORY

January 20, 1999

Mr. Mark Schmidt
Woodward Clyde Consultants
30775 Bainbridge Road
Suite 200
Solon, OH 44139

PROJECT:GRIFFIN IRM-MONTHLY
Submission #:9812000210

Dear Mr. Schmidt

Enclosed are the analytical results of the analyses requested. All data has been reviewed prior to report submission. Should you have any questions please contact me at (716) 288-5380.

Thank you for letting us provide this service.

Sincerely,

COLUMBIA ANALYTICAL SERVICES

Mark Wilson
Client Service Manager

Enc.

This package has been reviewed by Columbia Analytical Services' QA Department/Laboratory Director prior to report submittal.

1 Mustard St.• Suite 250 • Rochester, NY 14609 • Tele:(716)288-5380 • Fax:(716)288-8475
65 Ramapo Valley Rd. • Suite 16 • Mahwah, NJ 07430 • Tele:(201)512-3292 • Fax:(201)512-3362

Columbia Analytical Services Inc.

Effective 04/01/96

CAS LIST OF QUALIFIERS

(The basis of this proposal are the EPA-CLP Qualifiers)

U - Indicates compound was analyzed for but was not detected. The sample quantitation limit must be corrected for dilution and for percent moisture.

J - Indicates an estimated value. For further explanation see case narrative / cover letter.

B - This flag is used when the analyte is found in the associated blank as well as in the sample.

E - This flag identifies compounds whose concentrations exceed the calibration range.

A - This flag indicates that a TIC is a suspected aldol-condensation product.

N - Spiked sample recovery not within control limits.
(Flag the entire batch - Inorganic analysis only)

* - Duplicate analysis not within control limits.
(Flag the entire batch - Inorganic analysis only)

- Also used to qualify Organics QC data outside limits.

D - Spike diluted out.

S - Reported value determined by Method of Standard Additions. (MSA)

X - As specified in the case narrative.

CAS Lab ID # for State Certifications

NY ID # in Rochester:	10145	NJ ID # in Rochester:	73004
CT ID # in Rochester:	PH0556	RI ID # in Rochester:	158
MA ID # in Rochester:	M-NY032		

COLUMBIA ANALYTICAL SERVICES

VOLATILE ORGANICS
METHOD 8260B TCL
Reported: 01/20/99

Woodward Clyde Consultants
Project Reference: GRIFFIN IRM-MONTHLY
Client Sample ID : EFF-12-15-98

Date Sampled : 12/15/98 **Order #:** 262639 **Sample Matrix:** WATER
Date Received: 12/15/98 **Submission #:** 9812000210 **Analytical Run** 34329

ANALYTE	PQL	RESULT	UNITS
DATE ANALYZED : 12/23/98			
ANALYTICAL DILUTION: 1.00			
ACETONE	20	20 U	UG/L
BENZENE	5.0	5.0 U	UG/L
BROMODICHLOROMETHANE	5.0	5.0 U	UG/L
BROMOFORM	5.0	5.0 U	UG/L
BROMOMETHANE	5.0	5.0 U	UG/L
2-BUTANONE (MEK)	10	10 U	UG/L
CARBON DISULFIDE	10	10 U	UG/L
CARBON TETRACHLORIDE	5.0	5.0 U	UG/L
CHLOROBENZENE	5.0	5.0 U	UG/L
CHLOROETHANE	5.0	5.0 U	UG/L
CHLOROFORM	5.0	5.0 U	UG/L
CHLOROMETHANE	5.0	5.0 U	UG/L
DIBROMOCHLOROMETHANE	5.0	5.0 U	UG/L
1,1-DICHLOROETHANE	5.0	5.0 U	UG/L
1,2-DICHLOROETHANE	5.0	5.0 U	UG/L
1,1-DICHLOROETHENE	5.0	5.0 U	UG/L
CIS-1,2-DICHLOROETHENE	5.0	19	UG/L
TRANS-1,2-DICHLOROETHENE	5.0	5.0 U	UG/L
1,2-DICHLOROPROPANE	5.0	5.0 U	UG/L
CIS-1,3-DICHLOROPROPENE	5.0	5.0 U	UG/L
TRANS-1,3-DICHLOROPROPENE	5.0	5.0 U	UG/L
ETHYLBENZENE	5.0	5.0 U	UG/L
2-HEXANONE	10	10 U	UG/L
METHYLENE CHLORIDE	5.0	5.0 U	UG/L
4-METHYL-2-PENTANONE (MIBK)	10	10 U	UG/L
STYRENE	5.0	5.0 U	UG/L
1,1,2,2-TETRACHLOROETHANE	5.0	5.0 U	UG/L
TETRACHLOROETHENE	5.0	5.0 U	UG/L
TOLUENE	5.0	5.0 U	UG/L
1,1,1-TRICHLOROETHANE	5.0	22	UG/L
1,1,2-TRICHLOROETHANE	5.0	5.0 U	UG/L
TRICHLOROETHENE	5.0	590	UG/L
VINYL CHLORIDE	5.0	5.0 U	UG/L
O-XYLENE	5.0	5.0 U	UG/L
M+P-XYLENE	5.0	5.0 U	UG/L

SURROGATE RECOVERIES	QC LIMITS		
4-BROMOFLUOROBENZENE	(86 - 115 %)	102	%
TOLUENE-D8	(88 - 110 %)	101	%
DIBROMOFLUOROMETHANE	(86 - 118 %)	102	%

COLUMBIA ANALYTICAL SERVICES

VOLATILE ORGANICS
METHOD 8260B TCL
Reported: 01/20/99

Project Reference:
Client Sample ID : METHOD BLANK

Date Sampled : **Order #:** 267224 **Sample Matrix:** WATER
Date Received: **Submission #:** **Analytical Run** 34329

ANALYTE	PQL	RESULT	UNITS
DATE ANALYZED : 12/23/98			
ANALYTICAL DILUTION: 1.00			
ACETONE	20	20 U	UG/L
BENZENE	5.0	5.0 U	UG/L
BROMODICHLOROMETHANE	5.0	5.0 U	UG/L
BROMOFORM	5.0	5.0 U	UG/L
BROMOMETHANE	5.0	5.0 U	UG/L
2-BUTANONE (MEK)	10	10 U	UG/L
CARBON DISULFIDE	10	10 U	UG/L
CARBON TETRACHLORIDE	5.0	5.0 U	UG/L
CHLOROBENZENE	5.0	5.0 U	UG/L
CHLOROETHANE	5.0	5.0 U	UG/L
CHLOROFORM	5.0	5.0 U	UG/L
CHLOROMETHANE	5.0	5.0 U	UG/L
DIBROMOCHLOROMETHANE	5.0	5.0 U	UG/L
1,1-DICHLOROETHANE	5.0	5.0 U	UG/L
1,2-DICHLOROETHANE	5.0	5.0 U	UG/L
1,1-DICHLOROETHENE	5.0	5.0 U	UG/L
CIS-1,2-DICHLOROETHENE	5.0	5.0 U	UG/L
TRANS-1,2-DICHLOROETHENE	5.0	5.0 U	UG/L
1,2-DICHLOROPROPANE	5.0	5.0 U	UG/L
CIS-1,3-DICHLOROPROPENE	5.0	5.0 U	UG/L
TRANS-1,3-DICHLOROPROPENE	5.0	5.0 U	UG/L
ETHYLBENZENE	5.0	5.0 U	UG/L
2-HEXANONE	10	10 U	UG/L
METHYLENE CHLORIDE	5.0	5.0 U	UG/L
4-METHYL-2-PENTANONE (MIBK)	10	10 U	UG/L
STYRENE	5.0	5.0 U	UG/L
1,1,2,2-TETRACHLOROETHANE	5.0	5.0 U	UG/L
TETRACHLOROETHENE	5.0	5.0 U	UG/L
TOLUENE	5.0	5.0 U	UG/L
1,1,1-TRICHLOROETHANE	5.0	5.0 U	UG/L
1,1,2-TRICHLOROETHANE	5.0	5.0 U	UG/L
TRICHLOROETHENE	5.0	5.0 U	UG/L
VINYL CHLORIDE	5.0	5.0 U	UG/L
O-XYLENE	5.0	5.0 U	UG/L
M+P-XYLENE	5.0	5.0 U	UG/L

SURROGATE RECOVERIES	QC LIMITS		
4-BROMOFLUOROBENZENE	(86 - 115 %)	102	%
TOLUENE-D8	(88 - 110 %)	103	%
DIBROMOFLUOROMETHANE	(86 - 118 %)	102	%

COLUMBIA ANALYTICAL SERVICES, INC.
1 Mustard St., Suite 250, P.O. Box 90859, Rochester, NY 14609-0859
(716) 288-5380 • FAX (716) 288-8475

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

(800) 695-7222

DATE 12-15-98 PAGE 1 OF 1

PROJECT NAME Griffin IRm
PROJECT MANAGER/CONTACT Mark Schmidt
COMPANY/ADDRESS 30775 Bainbridge Rd., Ste 200
Solon, Ohio
TEL (440) 349-2708 FAX (440) 349-1514
SAMPLER'S SIGNATURE Bob Fabian

ANALYSIS REQUESTED

SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX	# OF CONTAINERS	GC/MS VOA's ☐ 8260 ☐ 624	GC/MS SVOA's ☐ 8270A ☐ 625	GC VOA's ☐ 8010/8020 ☐ 601/602	PESTICIDES/PCB's ☐ 8080 ☐ 608	STAR'S LIST 8021 VOA's ☐ TOTAL ☐ TCLP	STAR'S LIST 8270 SVOA's ☐ TOTAL ☐ TCLP	TCLP ☐ METALS ☐ VOA's ☐ SVOA's ☐ H/P	WASTE CHARACTERIZATION ☐ React ☐ Corros. ☐ Ignit.	METALS, TOTAL (LIST BELOW)	METALS, DISSOLVED (LIST BELOW)	8240						PRESERVATION pH < 2.0	pH > 12	Other
EFF-12-15-98	12-15-98	10:58	262639	WATER	2											X								

RELINQUISHED BY:	RECEIVED BY:
Signature: Bob Fabian	Signature: Tom Hastings
Printed Name: Bob Fabian	Printed Name: Tom Hastings
Firm: WCC	Firm: CAS
Date/Time: 12-15-98 11:45	Date/Time: 12/15/98 11:45

RELINQUISHED BY:	RECEIVED BY:
Signature	Signature
Printed Name	Printed Name
Firm	Firm
Date/Time	Date/Time

RELINQUISHED BY:	RECEIVED BY:
Signature	Signature
Printed Name	Printed Name
Firm	Firm
Date/Time	Date/Time

TURNAROUND REQUIREMENTS
__ 24 hr. __ 48 hr. __ 5 day
__ Standard (10-15 working days)
__ Provide Verbal Preliminary Results
__ Provide FAX Preliminary Results
Requested Report Date ______

REPORT REQUIREMENTS
__ 1. Routine Report
__ 2. Routine Rep. w/CASE Narrative
__ 3. EPA Level III Validatable Package
__ 4. N.J. Reduced Deliverables Level IV
__ 5. NY ASP/CLP Deliverables
__ 6. Site specific QC.

INVOICE INFORMATION:
P.O. #:
Bill To:

SAMPLE RECEIPT:
Shipping Via: client
Shipping #:
Temperature: 4.0
Submission No: 9812-210

SPECIAL INSTRUCTIONS/COMMENTS:
METALS
ORGANICS: ☐ TCL ☐ PPL ☐ AE Only ☐ BN Only ☐ Special List