

URS Greiner Woodward Clyde

A Division of URS Corporation

October 7, 1999
38-06E06191.00

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Solon, OH 44139
Tel: 440.349.2708
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Offices Worldwide

Mr. David Pratt
Division of Hazardous Waste Remediation
NYS Department of Environmental Conservation
6274 East Avon-Lima Road
Avon, NY 14414

RECEIVED
OCT 12 1999
DER/HAZ. WASTE REMED
REGION 8

Subject: Ninth Quarter Interim Remedial Measure Progress Report
April - June 1999
Griffin Technology, Inc. Facility
Farmington, New York

Dear Mr. Pratt:

On behalf of Diebold, Inc., URS Greiner Woodward Clyde is pleased to submit the Ninth Quarter Interim Remedial Measure Progress Report to the New York State Department of Environmental Conservation (NYSDEC). Enclosed please find three copies of the report for your review and consideration. These reports contain the information collected during the ninth quarter of operation of the Interim Remedial Measure system at the Griffin Technology, Inc. facility in Farmington, New York.

This document is submitted in accordance with the Order on Consent (Index No. B8-315-90-01) agreement between the NYSDEC and Diebold, Inc. (formerly Griffin Technology, Inc.). Please contact us if you require further information.

Sincerely,

URS Greiner Woodward Clyde

Lisa M. Havemann

Lisa M. Havemann
Civil Engineer

Mark T. Schmidt

Mark T. Schmidt
Project Geologist

Attachment

cc. Mark Tucker - Diebold, Inc.
David A Rinehart - Diebold, Inc.

FINAL REPORT

INTERIM REMEDIAL MEASURE NINTH QUARTER PROGRESS REPORT (APRIL-JUNE 1999)

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

Prepared for:
Diebold, Inc.
Canton, Ohio

September 30, 1999

URS Greiner Woodward Clyde

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 NINTH QUARTER PROGRESS REPORT

GRIFFIN TECHNOLOGY, INC. FACILITY

TOWN OF FARMINGTON

ONTARIO COUNTY, NEW YORK

The enclosed 9th Quarter Progress Report has been reviewed by the undersigned and 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: Oct. 5, 1999

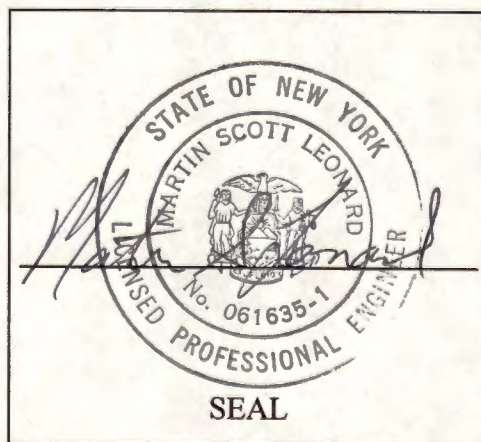


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This report presents the information collected during the ninth quarter of operation (April through June 1999) of the Interim Remedial Measure (IRM) system at the Griffin Technology, Inc. (GTI) site located at 6132 Victor-Manchester Road in the Town of Farmington, Ontario County, New York. The IRM system consists of four 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. The components included three recovery wells and one deep monitoring well with the potential to be converted to a recovery well in the future. Following approval by the NYSDEC and the Canandagua-Farmington Water and Sewer District to discharge recovery water into the sanitary sewer system, the system was placed on-line with three recovery wells. The IRM system began operating on February 18, 1997. Between April and June 1999, one deep monitoring well (MW-2D) was converted to a recovery well (RW-4) and brought on-line.

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

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

2.1. HYDRAULIC HEAD MEASUREMENT

During the ninth quarter of IRM operation, hydraulic head (groundwater elevation) measurements were collected an average of twice per month from each on-site groundwater well and piezometer and off-site monitoring well MW-11D. Hydraulic head measurements were also collected monthly from off-site monitoring 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 feet.

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.

2.3. MODIFICATIONS AND REPAIRS

Between April and June 1999, monitoring Well MW-2D was connected to the groundwater remediation system at the site and brought on-line as recovery well RW-4. Activities involved in connecting the well to the system included the following:

- Trenching from the central access vault to MW-2D; installing electrical conduit, wiring, groundwater containment piping, and pump discharge tubing between the vault and well; backfilling the trench with the excavated soil;
- Cutting the well casing below ground surface;

- Installing a flush-mount, protective well cover;
- Surveying the new top-of-casing elevation for the well;
- Installing a Goulds Models 10GS electric submersible pump in the well;
- Installing a PumpTec® "Load-Sensor" type controller in an additional control panel in the shed, over the central access vault;
- Installing a water meter on the pump discharge line; and
- Modifying the piping manifold to accommodate a fourth pump discharge line.

The work was performed by Sickles Plumbing & Mechanical with oversight by URSGWC.

In addition to the system modifications, repairs were made to piezometers PZ-2S and PZ-2D. Over the winter, the top of the protective stick-up casing over these piezometers had become damaged, and the top of the internal polyvinylchloride (PVC) casing of piezometer PZ-2S had become cracked.

On April 15, 1999, the top of the protective stick-up casing over these piezometers was cut off and a new piece was welded in its place. The damaged portion of the PVC casing at PZ-2S was also cut off. These repairs were performed by Nothnagle Drilling under the supervision of URSGWC. After completion of the repairs, the new top-of-casing elevation at PZ-2S was determined.

Data collected and analytical results obtained during the ninth 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 only COC detected in the effluent samples was trichloroethene (TCE). These results are consistent with earlier results, except that previously identified COCs, such as 1,1,1-trichloroethane (1,1,1-TCA) and cis-1,2-dichloroethene (cis-1,2-DCE), were not detected. Vinyl chloride, which was detected for the first time in one sample collected during the previous quarter, also was not detected during this quarter.

Historically, TCE has been consistently the compound with the highest reported concentration in the effluent samples. The concentrations of TCE in the system effluent were lower at the beginning of this quarter and higher at the end of the quarter, but were within historical levels. The quantity of water discharged by the system was higher at the beginning of the quarter and lower at the end of the quarter. The quantity of water discharged by the system appears to correlate with seasonal changes in groundwater elevations. Laboratory data sheets for the ninth quarter effluent sampling are provided in Appendix A.

3.2. HYDRAULIC HEAD MEASUREMENT RESULTS

Hydraulic head measurements collected during the ninth 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).

During this quarter of operation, groundwater elevations were relatively high at the beginning of the quarter and then decreased. The groundwater contour maps from the GTI site indicate that groundwater in the overburden water-bearing zone typically flows to the south or southwest. In April 1999, groundwater beneath the northeastern portion of the site appeared to flow to the northeast. Groundwater flow in the overburden water-bearing zone appeared to resume its historical, southerly direction in May. In the bedrock water-bearing zone, groundwater generally appeared 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 ninth 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.
- Groundwater elevations were at relatively high levels in April and decreased during this quarter of operation.
- The monthly quantity of groundwater discharged by the IRM system was relatively high for the first two months (April and May 1999) and decreased at the end of the quarter (June 1999). The quantity of groundwater discharged by the system appears to correlate with seasonal changes in groundwater elevations, with higher discharge and groundwater elevations in late winter and spring and lower discharge and groundwater elevations in summer and fall.
- TCE was the only COC detected in the system effluent during this quarter. The concentrations of TCE in the IRM system effluent increased during this quarter, but remained within historical levels.

Data collection activities during the next quarter of IRM operation will consist of the same activities performed during the previous months of operation. The fifth semi-annual sampling of all groundwater monitoring wells is scheduled to be completed in September 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	Cis-1,2-DCE	2-BUTANONE	VINYL CHLORIDE
March 1997	320,150	610	14	6.5	ND	ND
April 1997	362,132	240	5.8	6	ND	ND
May 1997	235,601	360	9.8	ND	ND	ND
June 1997	213,976	380	12	10	ND	ND
July 1997	135,320	570	16	15	ND	ND
August 1997	68,270	700	21	13	26	ND
September 1997	70,218	810	ND	ND	ND	ND
October 1997	90,717	880	18	10	ND	ND
November 1997	93,914	690	17	12	ND	ND
December 1997	210,268	420	ND	ND	ND	ND
January 1998	456,551	250	ND	ND	ND	ND
February 1998	191,493	180	ND	ND	ND	ND
March 1998	387,910	200	5.4	ND	ND	ND
April 1998	352,742	150	ND	ND	ND	ND
May 1998	191,088	250	ND	ND	ND	ND
June 1998	96,750	320	7.5	ND	ND	ND
July 1998	270,973	200	ND	ND	ND	ND
August 1998	68,147	400	13	12	ND	ND

Notes:

1. All results expressed in micrograms per liter ($\mu\text{g/l}$).
2. No other VOC compounds detected.
3. ND indicates not detected.

URS Greiner Woodward Clyde

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

MONTH	DISCHARGE (GAL.)	CONCENTRATIONS				
		TCE	1,1,1-TCA	Cis-1,2-DCE	2-BUTANONE	VINYL CHLORIDE
September 1998	44,030	510	14	15	ND	ND
October 1998	66,160	400	ND	ND	ND	ND
November 1998	44,150	440	12	ND	ND	ND
December 1998	43,580	590	22	19	ND	ND
January 1999	33,531	660	ND	ND	ND	ND
February 1999	144,720	230	ND	ND	ND	ND
March 1999	139,410	140	ND	12	ND	17
April 1999	188,610	170	ND	ND	ND	ND
May 1999	199,541	250	ND	ND	ND	ND
June 1999	75,780	370	ND	ND	ND	ND

Notes:

1. All results expressed in micrograms per liter ($\mu\text{g/l}$).
2. No other VOC compounds detected.
3. ND indicates not detected.

TABLE 2
SUMMARY OF GROUNDWATER ELEVATIONS - APRIL-JUNE 1999
GRIFFIN TECHNOLOGY FACILITY
FARMINGTON, NEW YORK

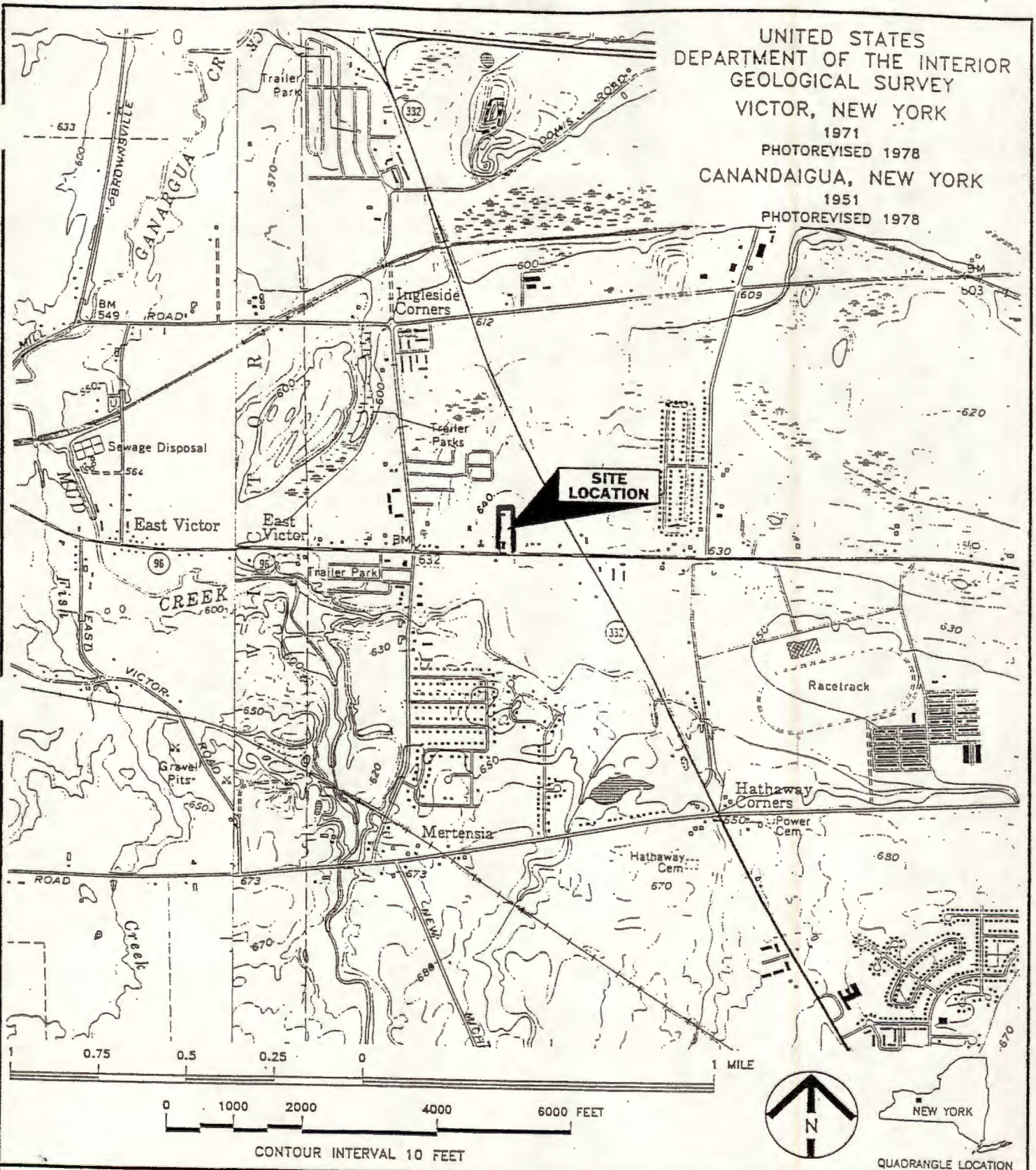
Well Designation	Groundwater Elevation (ft)						
	4/1/99	4/14/99	4/30/99	5/17/99	6/1/99	6/15/99	6/30/99
MW-01	638.31	632.07	637.49	635.68	632.94	630.17	628.90
MW-2S	637.21	636.66	635.15	631.95	628.46	625.99	DRY
MW-2D	637.19	636.67	NA	NA	NA	NA	NA
MW-03	637.28	636.74	635.55	631.19	628.39	626.46	625.22
MW-04	636.69	636.06	634.35	627.74	624.37	622.89	623.40
MW-5S	635.60	635.06	632.57	625.53	622.66	621.33	620.78
MW-5D	633.91	633.49	629.74	622.12	620.38	619.32	618.89
MW-06S	NM	632.41	NM	626.13	NM	622.23	NM
MW-06D	NM	632.48	NM	626.23	NM	622.26	NM
MW-11D	634.54	634.57	633.04	629.49	626.28	625.24	624.31
PZ-1S	636.52	635.89	634.06	DRY	DRY	DRY	DRY
PZ-1D	636.54	635.94	634.12	627.57	DRY	DRY	DRY
PZ-2S	634.94	634.33	631.64	624.99	622.11	DRY	DRY
PZ-2D	634.97	634.37	631.33	624.48	621.97	620.40	620.16

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).
5. "NA" indicates not applicable.
6. Monitoring well MW-2D was converted to recovery well RW-04 after 4/14/99 measurement.

Figures

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
VICTOR, NEW YORK
1971
PHOTOREVISED 1978
CANANDAIGUA, NEW YORK
1951
PHOTOREVISED 1978

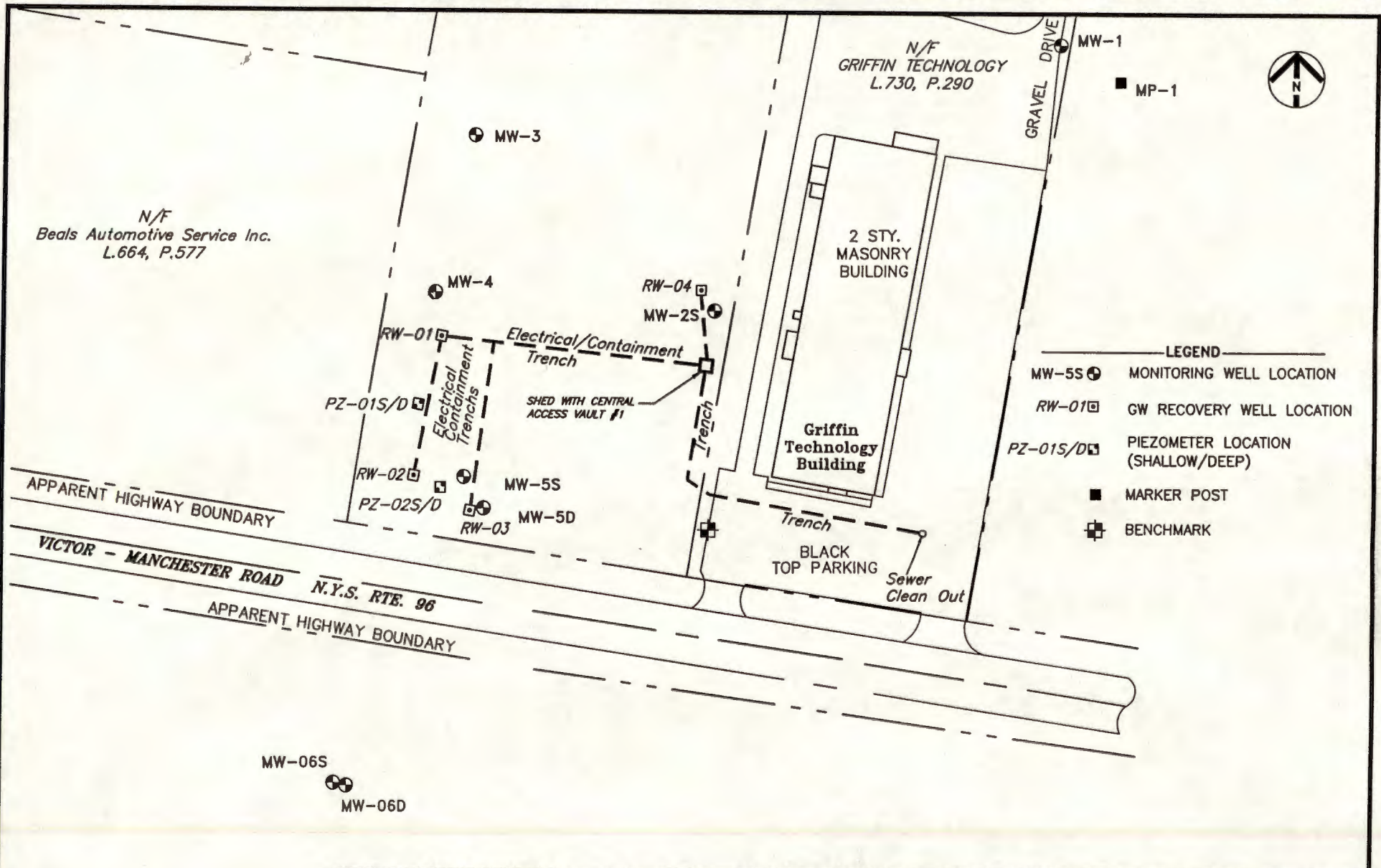



GENERAL LOCATION MAP

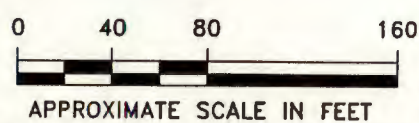
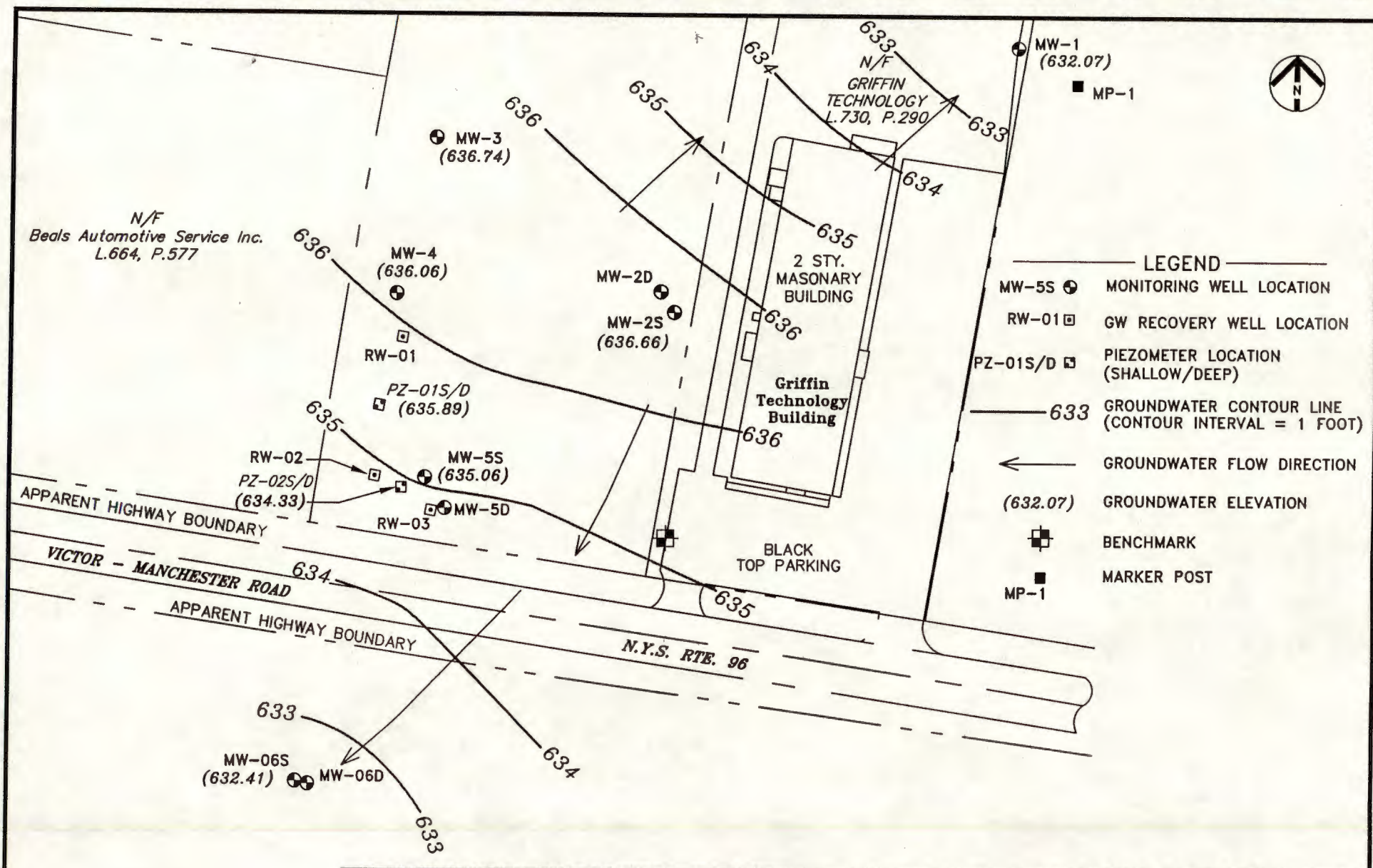
GRIFFIN TECHNOLOGY INC. - ONTARIO COUNTY - FARMINGTON, NEW YORK

DRAWN BY: MMS	CHECKED BY: KMA	PROJECT NUMBER: 4E062B2	DATE: 6-10-96	FIGURE NO: 1
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URS Greiner Woodward Clyde
A Division of URS Corporation



 <p>0 40 80 160</p> <p>SCALE FEET</p>		<p>IRM SYSTEM LAYOUT</p> <p>GRIFFIN TECHNOLOGY, INC. FARMINGTON, NEW YORK</p>							
DRAWN BY: MMS		CHECKED BY: MTS		PROJECT NUMBER: 6E06191		DATE: 9-27-99		FIGURE NO: 2	



OVERBURDEN GROUNDWATER CONTOUR MAP

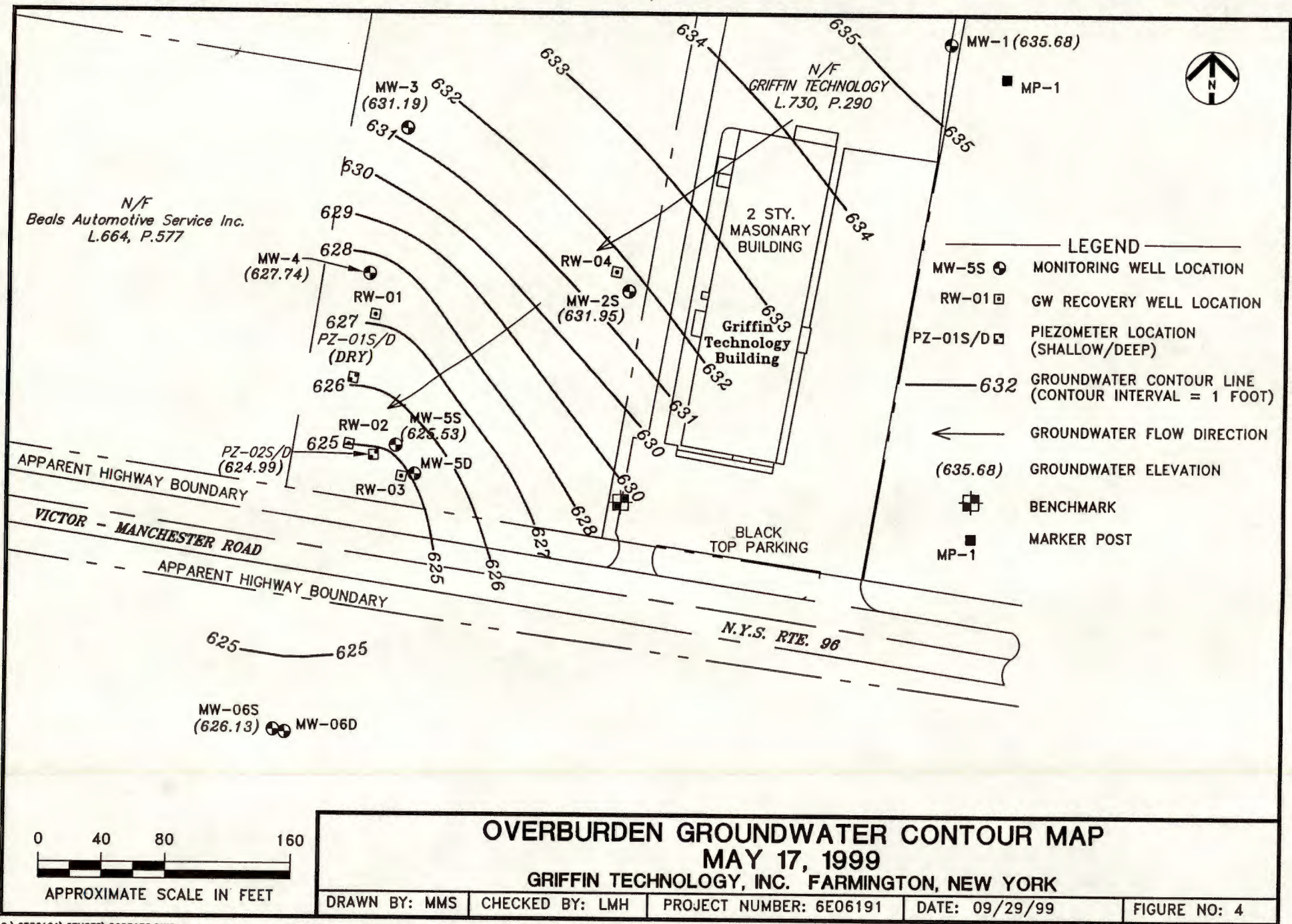
APRIL 14, 1999

GRIFFIN TECHNOLOGY, INC. FARMINGTON, NEW YORK

DRAWN BY: MMS	CHECKED BY: LMH	PROJECT NUMBER: 6E06191	DATE: 09/27/99	FIGURE NO: 3
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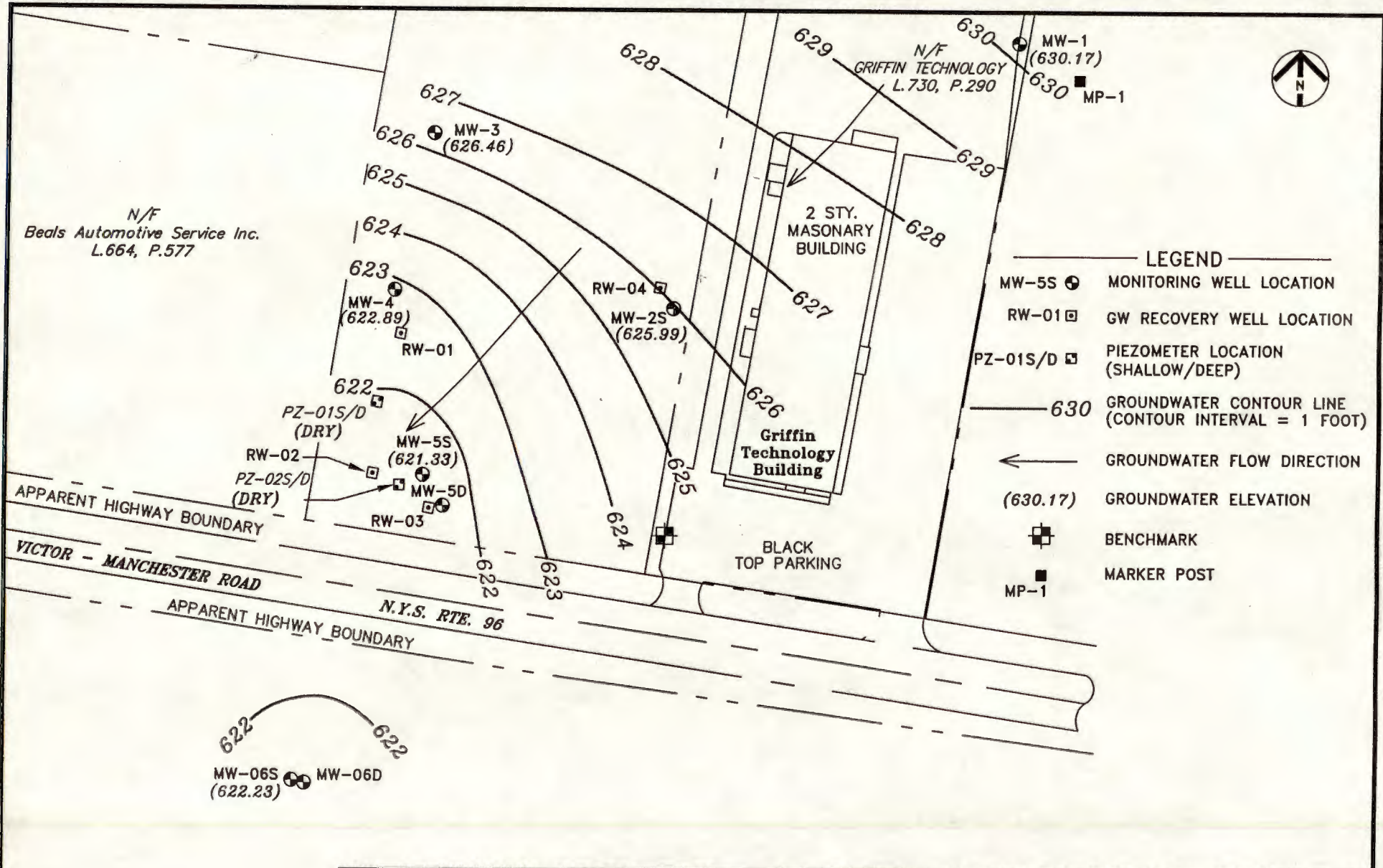
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URS Greiner Woodward Clyde

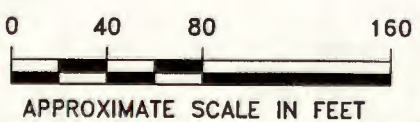


Q:\6E06191\9THQTR\990517S.DWG

URS Greiner Woodward Clyde



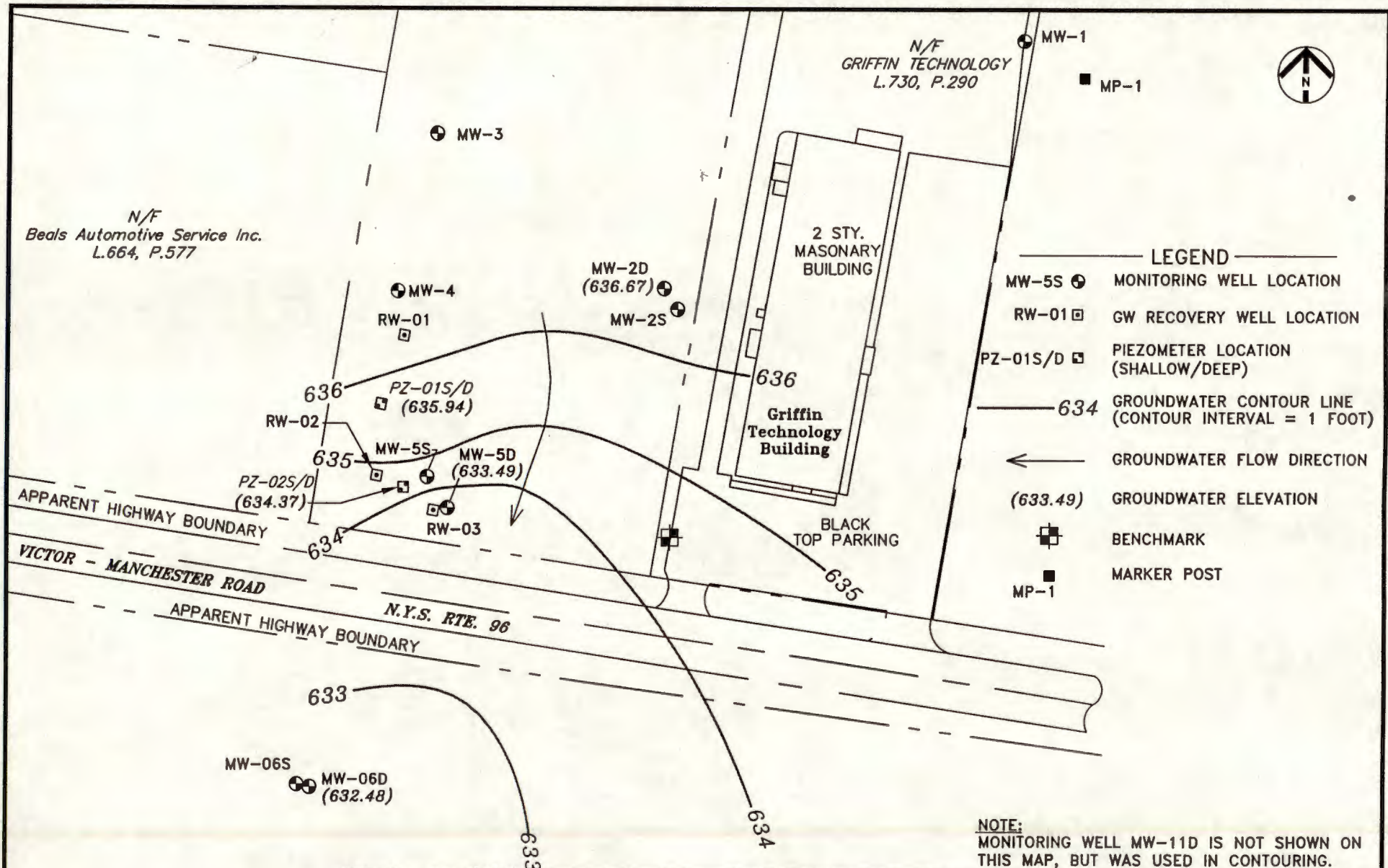
- LEGEND**
- MW-5S ● MONITORING WELL LOCATION
 - RW-01 □ GW RECOVERY WELL LOCATION
 - PZ-01S/D □ PIEZOMETER LOCATION (SHALLOW/DEEP)
 - 630 — GROUNDWATER CONTOUR LINE (CONTOUR INTERVAL = 1 FOOT)
 - ← GROUNDWATER FLOW DIRECTION
 - (630.17) GROUNDWATER ELEVATION
 - ⊕ BENCHMARK
 - MP-1 MARKER POST



OVERBURDEN GROUNDWATER CONTOUR MAP			
JUNE 15, 1999			
GRIFFIN TECHNOLOGY, INC. FARMINGTON, NEW YORK			
DRAWN BY: MMS	CHECKED BY: LMH	PROJECT NUMBER: 6E06191	DATE: 09/27/99
			FIGURE NO: 5

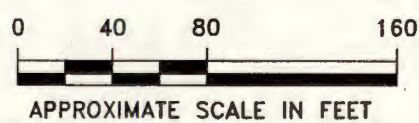
Q:\6E06191\9THQTR\990615S.DWG

URS Greiner Woodward Clyde

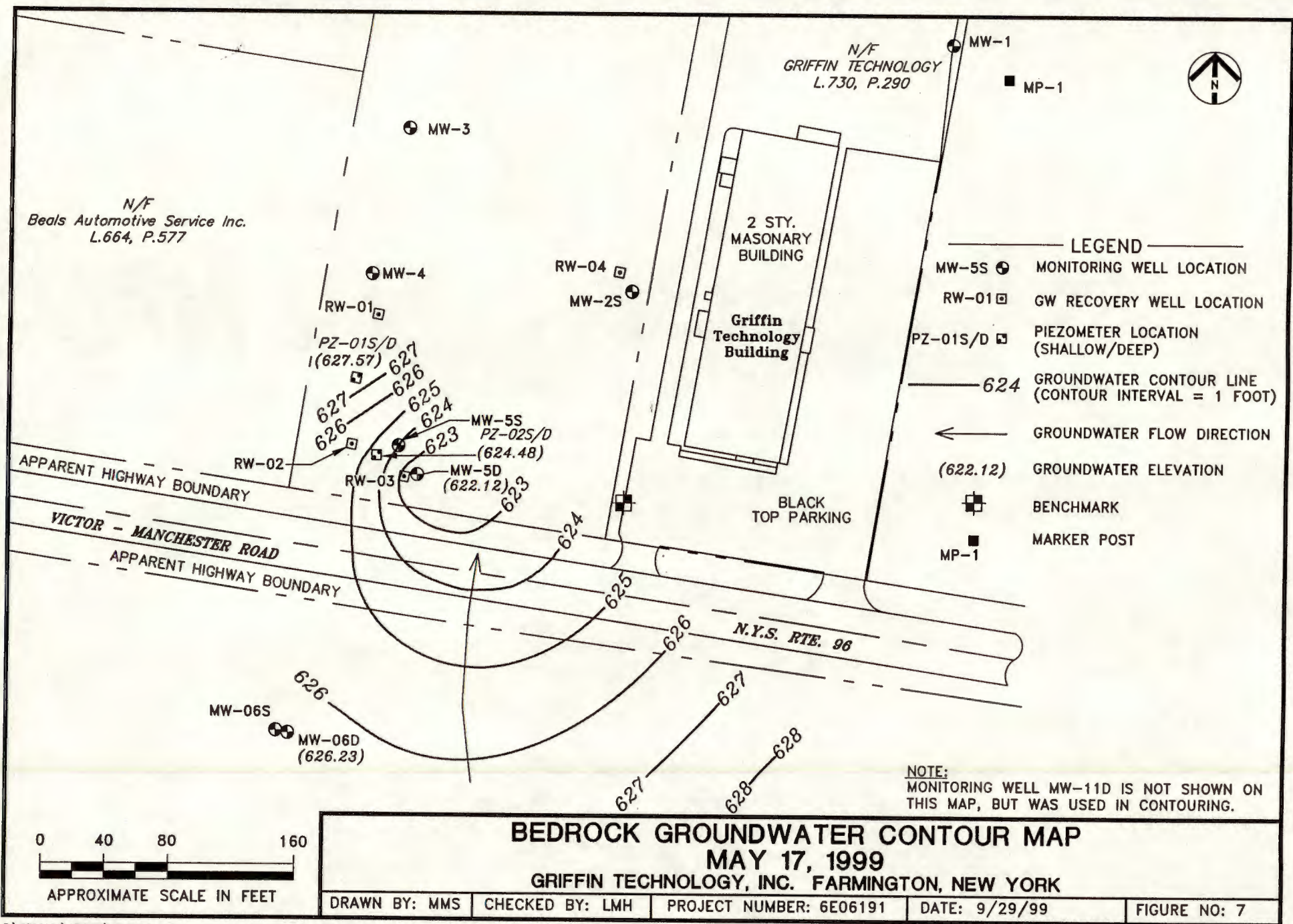


- LEGEND**
- MW-5S ● MONITORING WELL LOCATION
 - RW-01 □ GW RECOVERY WELL LOCATION
 - PZ-01S/D □ PIEZOMETER LOCATION (SHALLOW/DEEP)
 - 634 — GROUNDWATER CONTOUR LINE (CONTOUR INTERVAL = 1 FOOT)
 - ← GROUNDWATER FLOW DIRECTION
 - (633.49) GROUNDWATER ELEVATION
 - ⊕ BENCHMARK
 - MP-1 MARKER POST

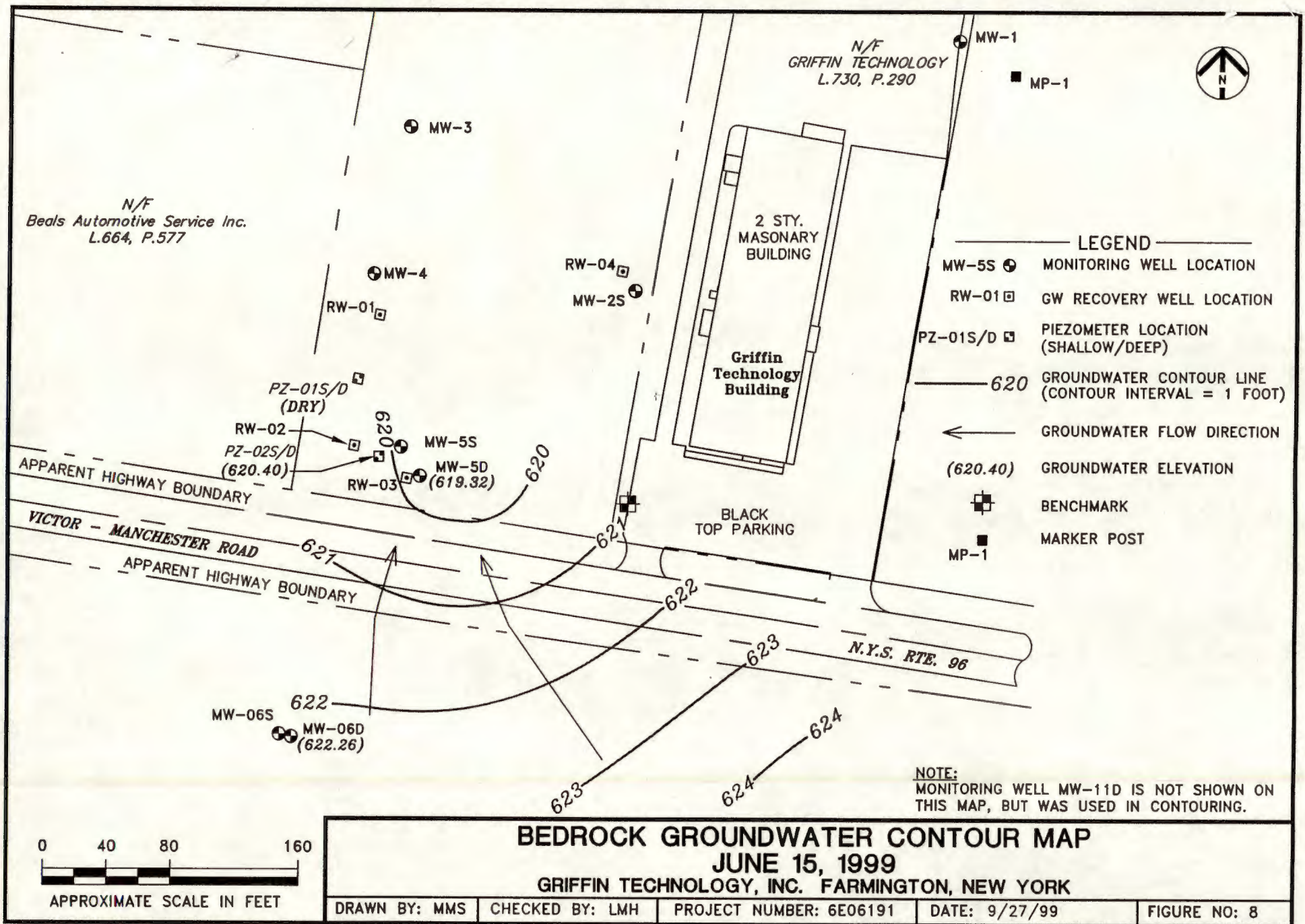
NOTE:
MONITORING WELL MW-11D IS NOT SHOWN ON THIS MAP, BUT WAS USED IN CONTOURING.



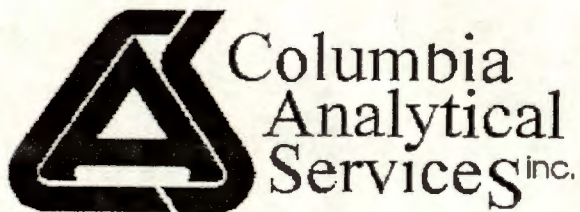
BEDROCK GROUNDWATER CONTOUR MAP			
APRIL 14, 1999			
GRIFFIN TECHNOLOGY, INC. FARMINGTON, NEW YORK			
DRAWN BY: MMS	CHECKED BY: LMH	PROJECT NUMBER: 6E06191	DATE: 09/27/99
			FIGURE NO: 6



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Appendix A



Columbia
Analytical
Services^{Inc.}

A FULL SERVICE ENVIRONMENTAL LABORATORY

April 29, 1999

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

PROJECT: GRIFFIN IRM-MONTHLY
Submission #: 9904000198

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.

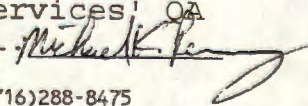
Thank you for letting us provide this service.

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. 



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
CT ID # in Rochester: PH0556
MA ID # in Rochester: M-NY032
OH EPA # in Rochester: VAP

NJ ID # in Rochester: 73004
RI ID # in Rochester: 158
NH ID # in Rochester: 294198-A
AIHA # in Rochester: 7889

COLUMBIA ANALYTICAL & VICES

VOLATILE ORGANICS
METHOD 8260B TCL
Reported: 04/29/99

URS Greiner Woodward Clyde
Project Reference: GRIFFIN IRM-MONTHLY
Client Sample ID : EFF-4-14-99

Date Sampled : 04/14/99 Order #: 285173 Sample Matrix: WATER
Date Received: 04/14/99 Submission #: 9904000198 Analytical Run 37517

ANALYTE	PQL	RESULT	UNITS
DATE ANALYZED : 04/27/99			
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	170	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 %)	94	%
TOLUENE-D8	(88 - 110 %)	101	%
DIBROMOFLUOROMETHANE	(86 - 118 %)	102	%

Project Reference:
Client Sample ID : METHOD BLANK

Date Sampled :	Order #: 288411	Sample Matrix: WATER
Date Received:	Submission #:	Analytical Run 37517

ANALYTE	PQL	RESULT	UNITS
DATE ANALYZED	: 04/27/99		
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 %)	95	%
TOLUENE-D8	(88 - 110 %)	100	%
DIBROMOFLUOROMETHANE	(86 - 118 %)	101	%

(716) 288-5380 • FAX (716) 288-8475

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

(800) 695-7222

DATE 4-14-99 PAGE 1 OF 1

[illegible]

Columbia Analytical Services Inc.
Cooler Receipt And Preservation Check Form

Project/Client Griffin Submission Number 4-198

Cooler received on 4/14/99 and opened on 4/14/99 by BC

1. Were custody seals on outside of cooler? YES NO
If yes, how many and where? C/Port Delivered
2. Were signature & date correct? YES NO
3. Were custody papers properly filled out (ink, signed, etc)? YES NO
4. Did all bottles arrive in good condition (unbroken)? YES NO
5. Were all bottle labels complete (i.e. analysis, preservation, etc)? YES NO
6. Did all bottle labels and tags agree with custody papers? YES NO
7. Were correct bottles used for the tests indicated? YES NO
8. Were VOA vials checked for absence of air bubbles, and noted if so? YES NO
9. Where did the bottles originate? CAS/A CAS/K CAS/S CAS/L CAS/X CAS/J CAS/R
10. Temperature of cooler(s) upon receipt: 5.0
Is the temperature within $4 \pm 2^\circ \text{C}$: Yes ☒ Yes ☐ Yes ☐ Yes ☐ Yes ☐
If No, Explain Below No ☐ No ☐ No ☐ No ☐ No ☐
Date/Time Temperatures Taken: 4/14/99 1340
Thermometer ID: 134 Circle One: Temp Blank Sample Bottle Cooler Temp.

Explain any discrepancies: _____

		YES	NO	Sample I.D.	Reagent	Vol. Added
pH	Reagent					
12	NaOH					
2	HNO ₃					
2	H ₂ SO ₄					
5-9*	P/PCBs (608 only)					

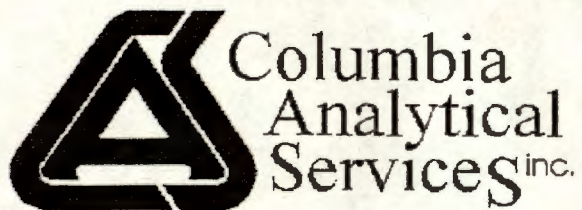
YES = All samples OK

NO = Samples were preserved at lab as listed

*If pH adjustment is required, use NaOH and/or H₂SO₄

VOC Vial pH Verification (Tested after Analysis) Following Samples Exhibited pH > 2					

CLIENT NOTIFICATION: _____



A FULL SERVICE ENVIRONMENTAL LABORATORY

June 7, 1999

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

PROJECT: GRIFFIN IRM
Submission #: 9905000269

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.



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
CT ID # in Rochester: PH0556
MA ID # in Rochester: M-NY032
OH EPA # in Rochester: VAP

NJ ID # in Rochester: 73004
RI ID # in Rochester: 158
NH ID # in Rochester: 294198-A
AIHA # in Rochester: 7889

COLUMBIA ANALYTICAL SERVICESVOLATILE ORGANICS
METHOD 8260B TCL
Reported: 06/07/99URS Greiner Woodward Clyde
Project Reference: GRIFFIN IRM
Client Sample ID : EFF-5-17-99Date Sampled : 05/17/99 Order #: 293345 Sample Matrix: WATER
Date Received: 05/17/99 Submission #: 9905000269 Analytical Run 38891

ANALYTE	PQL	RESULT	UNITS
DATE ANALYZED : 05/28/99			
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	10 U	UG/L
1,1,2-TRICHLOROETHANE	5.0	10 U	UG/L
TRICHLOROETHENE	5.0	250	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 %)	100	%
TOLUENE-D8	(88 - 110 %)	102	%
DIBROMOFLUOROMETHANE	(86 - 118 %)	99	%

COLUMBIA ANALYTICAL SERVICES

VOLATILE ORGANICS
METHOD 8260B TCL
Reported: 06/07/99

Project Reference:

Client Sample ID : METHOD BLANK

Date Sampled : Order #: 297528 Sample Matrix: WATER
Date Received: Submission #: Analytical Run 38891

ANALYTE	PQL	RESULT	UNITS
DATE ANALYZED	: 05/28/99		
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 %)	98	%
TOLUENE-D8	(88 - 110 %)	99	%
DIBROMOFLUOROMETHANE	(86 - 118 %)	99	%

[illegible]



A FULL SERVICE ENVIRONMENTAL LABORATORY

June 30, 1999

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

PROJECT: GRIFFIN IRM
Submission #: 9906000195

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

A handwritten signature in black ink, appearing to read 'Mark Wilson', is written over the printed name.

Mark Wilson
Client Service Manager

Enc.

This package has been reviewed by Columbia Analytical Services' QA Department/Laboratory Director prior to report submittal. A handwritten signature in black ink, appearing to read 'Michael K. [unclear]', is written over the printed name.



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
CT ID # in Rochester: PH0556
MA ID # in Rochester: M-NY032
OH EPA # in Rochester: VAP

NJ ID # in Rochester: 73004
RI ID # in Rochester: 158
NH ID # in Rochester: 294198-A
AIHA # in Rochester: 7889

COLUMBIA ANALYTICAL SERVICESVOLATILE ORGANICS
METHOD 8260B TCL
Reported: 06/30/99URS Greiner Woodward Clyde
Project Reference: GRIFFIN IRM
Client Sample ID : EFF-6-15-99Date Sampled : 06/15/99 Order #: 299613 Sample Matrix: WATER
Date Received: 06/15/99 Submission #: 9906000195 Analytical Run 39587

ANALYTE	PQL	RESULT	UNITS
DATE ANALYZED : 06/22/99			
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	13 U	UG/L
VINYL CHLORIDE	5.0	370	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 %)	99	%
TOLUENE-D8	(88 - 110 %)	99	%
DIBROMOFLUOROMETHANE	(86 - 118 %)	97	%

COLUMBIA ANALYTICAL SERVICES

VOLATILE ORGANICS
METHOD 8260B TCL
Reported: 06/30/99

Project Reference:
Client Sample ID : METHOD BLANK

Date Sampled : Order #: 303507 Sample Matrix: WATER
Date Received: Submission #: Analytical Run 39587

ANALYTE	PQL	RESULT	UNITS
DATE ANALYZED : 06/22/99			
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 %)	97	%
TOLUENE-D8	(88 - 110 %)	96	%
DIBROMOFLUOROMETHANE	(86 - 118 %)	96	%

[illegible]