FINAL REPORT

INTERIM REMEDIAL MEASURE PROGRAM

SECOND SEMI-ANNUAL PROGRESS REPORT
(SEPT. 1997 - MARCH 1998)

GRIFFIN TECHNOLOGY, INC.
TOWN OF FARMINGTON,
ONTARIO COUNTY, NEW YORK

Prepared for
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July 13, 1998

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CERTIFICATION

INTERIM REMEDIAL MEASURE SEMI-ANNUAL PROGRESS REPORT

GRIFFIN TECHNOLOGY, INC. FACILITY

TOWN OF FARMINGTON

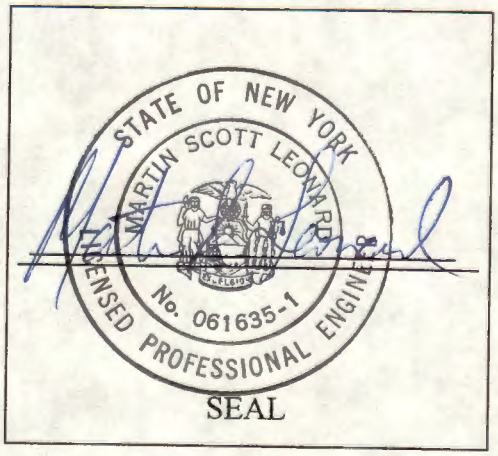
ONTARIO COUNTY, NEW YORK

The enclosed 2nd Semi-Annual 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: July 19, 1998



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This report presents the information collected during the second six month period of operation (September, 1997 through March, 1998) of the Interim Remedial Measure (IRM) 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 1-1.

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 installation of the IRM and during the second six-month period of operation are described in Section 2.0. Information collected during this period of operation is presented in Section 3.0. Conclusions and recommendations are presented in Section 4.0.

The Scope of Work for the IRM was presented in the Final Design Document presented to the NYSDEC on September 27, 1996. Implementation of the IRM consisted of the following elements:

- Installing an IRM system in the undeveloped parcel of land located downgradient of the source area. The IRM system consisted of installing three groundwater extraction wells, one bedrock monitoring well located in the source area which could potentially be used for additional recovery, two sets of nested piezometers located between each of the three extraction wells to monitor groundwater elevations between each well, a groundwater recovery and collection system to convey water to a central access vault, electrical power supply and controllers for each recovery pump, sample collection and flow monitoring appurtenances, and a force main sewer to discharge effluent from the access vault to a sanitary sewer located on the southeast portion of the site.
- Monitoring the quantity and quality of groundwater recovered from the system monthly and reporting this data to the local POTW.
- Monitoring the groundwater elevations in all on-site wells and piezometers to evaluate the effectiveness of the IRM as a groundwater extraction system and hydraulic barrier.
- Collecting groundwater samples from all wells located on-site and off-site semi-annually beginning six months after initiation of the system and continuing for a period of two years. All groundwater samples collected during these semi-annual activities will be analyzed for volatile organic compounds (VOCs) by NYSDEC Test Method ASP 91-1.
- Preparing progress reports for submission to the NYSDEC. The reports should include data collected during the preceding months of operation as well as information and activities to be performed during subsequent reporting periods.

2.1 IRM SYSTEM INSTALLATION

The IRM installation activities were performed during December 1996 and January 1997. Operation of the IRM system was initiated on February 18, 1997. The layout of the IRM system, on-site groundwater monitoring wells and piezometers, and other pertinent features discussed in this report are shown in Figure 2-1. The system is currently in operation. The components comprising the IRM system and the installation activities performed are discussed in greater detail below.

2.1.1 Well Installation

During December 5-22, 1996, Nothnagle Drilling (Nothnagle) installed three groundwater recovery wells (designated as "RW-01", "RW-02", and "RW-03"), and one bedrock groundwater monitoring well (designated as "MW-2D") in the undeveloped southwest portion of the GTI site. These wells were installed in accordance with Section 5.2.1 of the Field Sampling Plan (Appendix A of the IRM Work Plan). All drilling activities performed by Nothnagle were observed by an on-site geologist from Woodward-Clyde (Woodward-Clyde).

Prior to initiating the well installation activities at each location, all drilling equipment was cleaned to minimize the potential for cross-contamination. This was accomplished using a high pressure-low volume steam cleaner. Water for the steam cleaner was supplied by the GTI facility. Soil borings for the recovery wells and bedrock groundwater monitoring well were advanced into the overburden using 8.25-inch hollow stem augers (HSA). The HSA for MW-2D was equipped with a split-spoon sampler. Samples from this boring were collected continuously in 2-foot intervals using ASTM D-1586 methods, in order to characterize the overburden stratigraphy at each monitoring well location. Overburden samples were collected from each 2-foot interval and submitted to Columbia Analytical Services, Inc. (CASI) of Rochester, New York for analysis of VOCs by ASP 91-1. The on-site Woodward-Clyde representative classified each split spoon with respect to blow count, color, grain size, moisture content and percent recovery. Drilling continued into the overburden until auger refusal was encountered. Auger refusal was encountered at approximately 12.2 feet below ground surface (bgs) for RW-01, 18.4 feet bgs for RW-02 and RW-03, and 10.5 feet bgs for MW-2D.

The well borings were then advanced a minimum of fifteen feet into the bedrock, using an H-core barrel. The bedrock boreholes were then reamed using a H-size roller bit. All drill cuttings were placed into 55 gallon drum containers and stored on-site until being characterized and appropriately disposed.

Each well was constructed of a 6-inch diameter, Schedule 40 polyvinyl chloride (PVC) riser pipe which was flush threaded with 20 feet of 0.010-inch slotted PVC well screen. A grade zero N quartz sand pack was placed in the annular space surrounding the well screen from the bottom of the borehole to approximately 2 feet above the top of the screen. A minimum of 6 inches of grade 00N fine sand was placed above this sand pack. A minimum 3-foot thick hydrated bentonite slurry seal was then placed above the fine sand layer to straddle the soil/bedrock interface. The remaining annular space was then filled with a cement/bentonite grout. The

recovery wells were fitted with temporary plastic covers while MW-2D was fitted with a locking pressure-fit cap.

Each recovery well was completed flush with the existing surface grade and covered with a 24-inch water sealed, flush-mount box cover set in a 2-foot square concrete pad. MW-2D was finished above-grade with an outer protective casing equipped with a locking cap. The location of each well and the top of casing elevations were then surveyed by Crandall Surveyors (Crandall) of Victor, New York. The elevations were surveyed relative to a common benchmark located on the GTI property.

2.1.2 Piezometer Installation

Four piezometers (designated as "PZ-01S", "PZ-01D", "PZ-02S", and "PZ-02D") were installed as part of the IRM in a similar fashion to the monitoring and recovery wells. The difference between the well installation and the piezometer installation occurred during the installation activities, when the piezometers were installed as two 1-inch diameter PVC "nested pairs" (one overburden piezometer and one bedrock piezometer located adjacent to one another). Each bedrock piezometer was installed with a 2-foot well screen located in the upper two feet of the bedrock zone while the overburden piezometers were installed using a 10-foot section of well screen straddling the overburden saturated zone. The piezometers were finished above-grade with an outer protective casing equipped with a locking cap. The location of each piezometer and the top of casing elevations were also surveyed by Crandall relative to the common benchmark located on the GTI property.

2.1.3 Power Supply and Collection System Installation

Following installation of the wells and piezometers, trenches were excavated to facilitate the installation of a groundwater collection system and power supply conduit. These activities were performed in accordance with the design documents included in the *Final Design Document* submitted to the NYSDEC on September 27, 1996. All trench excavation were approximately 18 inches in width with a bottom depth located approximately 54 inches bgs.

The groundwater collection system consisted of recovery pumps located inside recovery wells RW-01, RW-02, and RW-03 connected to a 1-inch ID polyethylene tubing which was routed to each recovery well inside of a secondary containment pipe system. The secondary containment pipe consisted of Schedule 80 PVC pipe. The pipes ranged from 2 to 6 inches in diameter and

were sized to accommodate the tubing inside. All elbows and pipe ends were glued to provide a containment seal. The groundwater conveyance pipes were placed at a depth of 48 inches bgs.

The electrical conduits consisted of 1 and 2-inch diameter Schedule 20 PVC piping. The electrical conduits were installed at a depth of 24 inches bgs. Electrical lines were routed through these conduits from a control panel mounted on the exterior of the western wall of the GTI facility, to the Central Access Vault and subsequently to each of the three recovery wells. The supply conduits were terminated inside weatherproof boxes at each junction and wellhead. Separate wires were installed from the control panel to each wellhead to allow separate circuits and independent operation of the recovery pumps.

Goulds Model 10GS submersible pumps were selected and installed in each recovery well. These pumps required a 230 volt, single phase power source for proper operation. Each pump was connected to a PumpTec® "Load-Sensor" type controller to automate the operation of the pump. The controllers are currently operating on 4-minute reset time intervals. This interval allows the wells to recharge sufficiently before the next pumping cycle begins.

The groundwater conveyance pipes were routed to the Central Access Vault and connected to a manifold which contains a common header discharge port. Each conduit connection on the manifold is equipped with a shut-off valve, sample port, and totalizing flow meter to facilitate individual well monitoring. In addition, a shut-off valve, sample port, and totalizing flow meter has been installed on the common header pipe prior to discharge.

2.1.4 Effluent Discharges

The extracted groundwater flows from the manifold and header in the Central Access Vault through a force main pipe and into a sanitary clean-out located on the southeast portion of the site. The sanitary clean-out was installed in-line with the existing sanitary sewer to facilitate discharges into a gravity sewer. Effluent is discharged into the clean-out riser pipe, down into the sanitary sewer where it is travels by gravity to the Canandaguia-Farmington Water and Sewer District for ultimate disposal. Prior to installation of the force main discharge and subsequent system start-up, it was necessary for the Canandaguia-Farmington Water and Sewer District to receive permission from the NYSDEC to receive this wastewater.

2.2 IRM SYSTEM MONITORING

During the second six month period of operation, groundwater elevation and discharge volume data was collected to monitor the effectiveness of the IRM system. The data collected is discussed in the following subsections.

2.2.1 Hydraulic Head Measurement

Hydraulic head (groundwater elevation) measurements were collected a minimum of once per month from each groundwater well and piezometer located on-site. In addition, hydraulic head measurements were also collected from three off-site groundwater monitoring wells (MW-6S, MW-6D, and MW-11D) in order to McD groundwater elevations for the area. All groundwater measurements were collected using an electronic water level indicator capable of measuring the water elevation to the nearest 0.01 ft.

During the second semi-annual groundwater sampling event, the water level in all groundwater monitoring wells was measured and recorded to evaluate groundwater flow conditions. Measurements collected from staff gauge SG-1 were not obtained because the elevation of the creek was below this gauge's minimum depth. Groundwater elevation measurements were not obtained from MW-10S, or MW-10D because these wells could not be located due to the presence of gravel fill materials in this area. The status of these two wells is unknown at this time.

2.2.2 Groundwater Sampling and Analysis

During the second six month period of operation, composite effluent samples were collected monthly from the common header discharge in the Central Access Vault. These samples were submitted to CASI for analysis of volatile organic compounds (VOCs) by United States Environmental Protection Agency (USEPA) method 8260. The analytical results of these composite samples were used to report estimated loadings on the POTW.

On March 18, 1998, groundwater samples were collected from all monitoring wells by Woodward-Clyde to evaluate regional groundwater quality. Prior to sample collection, the static water level in each well was measured. Using the static water level measurements, the volume of water (the well volume) contained in each well was calculated. The monitoring well was then

purged of a minimum of three well volumes of water or until dry using a disposable HDPE bailer equipped with a nylon cord.

Groundwater samples were collected within 24 hours of purging each well. Samples were placed into laboratory supplied containers and placed into a cooler with ice for preservation until delivery to the laboratory for analysis. One duplicate sample was collected from monitoring well MW-13D. Groundwater samples were submitted to CASI and analyzed for VOCs by NYSDEC Test Method ASP 91-1. Chain of custody procedures were followed during sampling.

The data collected during the second six month period of IRM operation and the results of the second semi-annual groundwater sampling event 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 IRM system operation is presented in Table 3-1. The results continue to indicate that groundwater containing COC's is being removed from underneath the GTI site. However, concentrations of the COC's are beginning to decrease in the recovery well output. This data suggests a decrease in the residual quantity of COC's. Along with this, the quantity of water removed by the system has decreased during the summer months, further supporting the seasonal fluctuation of groundwater elevations. Laboratory data sheets for effluent sampling are provided in Appendix A.

3.2 GROUNDWATER ANALYTICAL RESULTS

A summary of groundwater analytical data collected from all wells on March 18, 1998 is presented in Table 3-2. Table 3-2 also summarizes the data from previous sampling events. The laboratory data sheets from CASI, for the second semi-annual groundwater sampling event, are provided in Appendix B. A data validation report of this data, prepared by Woodward-Clydes internal QA/QC reviewer is provided in Appendix C.

Results obtained from the March 18, 1998 event indicate COC concentrations in groundwater wells immediately downgradient of this IRM system to be at or below those of previous sampling events. However, several on-site wells could not be sampled due to the depressed groundwater table in the immediate area of the recovery systems.

3.3 HYDRAULIC HEAD MEASUREMENT RESULTS

Hydraulic head measurements collected during the past six months of operation from selected on-site groundwater monitoring wells and piezometers are presented in Table 3-3. The measurements collected from all on-site and off-site groundwater monitoring wells and piezometers during the March 18, 1998 sample event are presented in Table 3-4. Table 3-4 also includes hydraulic head measurements from previous sample events at the site.

Data sets from Table 3-3, representing a one month period of operation, were used to prepare groundwater contour maps for the overburden and bedrock groundwater zones. Overburden groundwater contour maps prepared from this data are presented as Figures 3-1 through 3-6 and figure 3-8. Figure 3-7 is a contour map illustrating overburden groundwater flow conditions at locations both on-site and off-site and was prepared using the data from Table 3-4. Bedrock groundwater zone contour maps, prepared from the Table 3-3 data are presented as Figures 3-9 through 3-14 and figure 3-16. Figure 3-15 is a contour map illustrating bedrock groundwater zone flow conditions at locations both on-site and off-site and was also prepared using the data from Table 3-4.

The groundwater contour maps from the GTI site indicate that water levels in both the overburden and bedrock zones continue to be depressed near the GTI site boundary with a low area being present in the vicinity of RW-03. The data indicate that the IRM system is continuing to influence groundwater flow patterns on the GTI site.

Figures 3-7 and indicate a regional south to southwest groundwater flow for the overburden groundwater. Figure 3-15 indicates that regional bedrock groundwater flow is generally towards the west-southwest. This data is consistent with previous observed site conditions.

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

- Groundwater flow in the overburden and bedrock zones at off-site locations is primarily to the west-southwest. This is consistent with previous reports for the GTI site.

- The IRM system is influencing groundwater flow patterns in the vicinity of the GTI facility. The groundwater contour maps prepared using water elevation data from the bedrock and overburden zones, indicate that the elevation of groundwater in the immediate vicinity of the IRM system has been depressed.

- The IRM system is removing COCs contained in groundwater from the overburden and bedrock water bearing zones. The removal of these COCs appears to be influencing the concentrations of COCs which were migrating off-site. Groundwater monitoring wells located in the immediately downgradient of the IRM system show significant COC concentration decreases when compared to previous sample events.

- The quantity of groundwater removed by the IRM system decreased during dry weather (summer) conditions. However, the concentrations of COCs in the groundwater removed remained relatively constant due to the increase in concentration of the COCs in the effluent. Effluent samples collected for POTW reporting indicated that TCE was consistently in the highest concentrations

Continued monitoring of the site and additional data collection during the next period of operation will provide additional data trends concerning the long term effectiveness of the IRM system. Data collection activities for the second year of IRM operation will consist of the same activities performed during this first year of IRM operation.

TABLE 3-1
SUMMARY OF EFFLUENT DISCHARGES TO POTW
GRIFFIN TECHNOLOGY, INC.
VICTOR, NEW YORK

MONTH	DISCHARGE (GAL.)	TCE	1,1,1-TCA	1,2-DCE	2-BUTANONE
March 1995	320,150	610	14.0	7.0	ND
April 1996	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
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

Notes:

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

TABLE 3-2
SUMMARY OF MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
GRIFFIN TECHNOLOGY, INC.
VICTOR, NEW YORK

Monitoring Well No.	Analysis Date	TCE	1,1,1-TCA	1,2-DCE	XYLENES
MW-01	12/19/94	ND	ND	ND	ND
1st	5/21/96	ND	ND	ND	ND
	8/13/97	ND	ND	ND	ND
2nd	3/18/98	ND	ND	ND	ND
MW-02	12/19/94	850	ND	ND	ND
1st	5/21/96	30	ND	1	ND
	8/13/97	NS	NS	NS	ND
2nd	3/18/98	17000	ND	ND	ND
MW-2D	8/13/97	450	23	42	ND
2nd	3/18/98	740	16	28	ND
MW-03	12/19/94	190	ND	ND	ND
1st	5/21/96	120	ND	2	ND
	8/13/97	150	ND	2	ND
2nd	3/18/98	88	ND	ND	ND
MW-04	12/19/94	710	6.7	23	ND
1st	5/21/96	16	ND	2	ND
	8/13/97	NS	NS	NS	ND
2nd	3/18/98	59	ND	2	ND
MW-05S	12/19/94	580	15	ND	ND
1st	5/21/96	350	16	ND	ND
	8/13/97	760	31	4	ND
2nd	3/18/98	120	4	ND	1
MW-05D	12/19/94	820	23	ND	ND
1st	5/21/96	1000	48	8	ND
	8/13/97	250	7	2	ND
2nd	3/18/98	250	7	ND	ND

Notes:

1. 12/19/94 measurements collected by Blasland, Bouck & Lee.
2. "NA" indicates no sample collected because well was abandoned.
3. No other VOC compounds detected at method detection limit.
4. ND indicates not detected at method detection limit.
5. All results expressed in micrograms per liter (µg/l).
6. "NS" indicates no sample collected.

TABLE 3-2
SUMMARY OF MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
GRIFFIN TECHNOLOGY, INC.
VICTOR, NEW YORK

Monitoring Well No.	Analysis Date	TCE	1,1,1-TCA	1,2-DCE	XYLENES
MW-06S	12/19/94	270	7.8	ND	ND
1st	5/21/96	ND	2	ND	ND
	8/13/97	140	9	3	ND
2nd	3/18/98	5	ND	ND	ND
MW-06D	12/19/94	190	7.5	ND	ND
1st	5/21/96	240	10	ND	ND
	8/13/97	150	10	2	ND
2nd	3/18/98	6	ND	ND	ND
MW-07S	12/19/94	250	6.6	8	ND
1st	5/21/96	310	7	6	ND
	8/13/97	250	6	6	ND
2nd	3/18/98	3	ND	ND	ND
MW-07D	12/19/94	260	ND	7	ND
1st	5/21/96	290	4	12	ND
	8/13/97	180	2	13	ND
2nd	3/18/98	150	2	15	ND
MW-08S	12/19/94	29	ND	ND	ND
1st	5/21/96	NA	NA	NA	NA
	8/13/97	NA	NA	NA	NA
2nd	3/18/98	NA	NA	NA	NA
MW-08D	12/19/94	55	ND	ND	ND
1st	5/21/96	NA	NA	NA	NA
	8/13/97	NA	NA	NA	NA
2nd	3/18/98	NA	NA	NA	NA
MW-09S	12/19/94	ND	ND	ND	ND
1st	5/21/96	ND	ND	ND	ND
	8/13/97	2	ND	ND	ND
2nd	3/18/98	3	ND	ND	ND

Notes:

1. 12/19/94 measurements collected by Blasland, Bouck & Lee.
2. "NA" indicates no sample collected because well was abandoned.
3. No other VOC compounds detected at method detection limit.
4. ND indicates not detected at method detection limit.
5. All results expressed in micrograms per liter (µg/l).
6. "NS" indicates no sample collected due to insufficuent recovery of well.

TABLE 3-2
SUMMARY OF MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
GRIFFIN TECHNOLOGY, INC.
VICTOR, NEW YORK

Monitoring Well No.	Analysis Date	TCE	1,1,1-TCA	1,2-DCE	XYLENES
MW-09D	12/19/94	ND	ND	ND	ND
1st	5/21/96	ND	ND	ND	ND
	8/13/97	ND	ND	ND	ND
2nd	3/18/98	ND	ND	ND	ND
MW-10S	12/19/94	7.8	ND	ND	ND
1st	5/29/96	30	1	ND	ND
	8/13/97	15	ND	ND	ND
2nd	3/18/98	NS	NS	NS	NS
MW-10D	12/19/94	8.2	ND	ND	ND
1st	5/29/96	8	ND	ND	ND
	8/13/97	15	ND	ND	ND
2nd	3/18/98	NS	NS	NS	NS
MW-11D	4/11/96	ND	ND	ND	ND
1st	5/21/96	ND	ND	ND	ND
	8/13/97	ND	ND	ND	ND
2nd	3/18/98	ND	ND	ND	ND
MW-13D	4/11/96	610	5	4	ND
1st	5/21/96	190	5	4	ND
	8/13/97	160	4	4	ND
2nd	3/18/98	110	2	ND	ND

Notes:

1. 12/19/94 measurements collected by Blasland, Bouck & Lee.
2. "NA" indicates no sample collected because well was abandoned.
3. No other VOC compounds detected at method detection limit.
4. ND indicates not detected at method detection limit.
5. All results expressed in micrograms per liter (µg/l).
6. "NS" indicates no sample collected due to insufficuent recovery of well.

TABLE 3-3
SUMMARY OF GROUNDWATER ELEVATIONS
SEPTEMBER, 1997 - MARCH, 1998
GRIFFIN TECHNOLOGY, INC.
VICTOR, NEW YORK

Well Designation	Water Elevation (ft) 9/16/97	Water Elevation (ft) 9/30/97	Water Elevation (ft) 10/15/97	Water Elevation (ft) 11/03/97	Water Elevation (ft) 11/17/97
MW-01	628.13	631.49	629.72	632.94	631.59
MW-2S	625.33	629.86	625.83	628.99	627.68
MW-2D	624.90	630.02	626.06	629.33	627.88
MW-03	625.19	629.13	627.07	631.36	628.94
MW-04	622.45	627.06	623.23	626.47	625.27
MW-5S	620.95	623.39	621.87	622.72	622.77
MW-5D	618.60	619.78	619.38	619.69	619.90
MW-06S	621.69	622.52	622.32	622.65	DRY
MW-06D	621.69	622.53	622.35	622.65	DRY
MW-11D	624.02	625.36	625.01	626.17	626.32
PZ-1S	DRY	DRY	DRY	DRY	DRY
PZ-1D	DRY	DRY	DRY	DRY	DRY
PZ-2S	DRY	DRY	DRY	DRY	DRY
PZ-2D	619.96	623.03	620.67	622.19	621.78

NOTES:

1. Water levels collected on dates shown.
2. "NM" indicates water 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).

TABLE 3-3
SUMMARY OF GROUNDWATER ELEVATIONS
SEPTEMBER, 1997 - MARCH, 1998
GRIFFIN TECHNOLOGY, INC.
VICTOR, NEW YORK

Well Designation	Water Elevation (ft) 11/28/98	Water Elevation (ft) 12/15/98	Water Elevation (ft) 12/26/98	Water Elevation (ft) 1/10/98	Water Elevation (ft) 2/3/98
MW-01	636.19	636.00	637.29	638.92	638.19
MW-2S	632.75	632.41	634.50	639.5	635.56
MW-2D	632.80	632.41	634.57	639.49	635.51
MW-03	635.67	634.05	636.36	639.24	636.24
MW-04	631.02	629.71	633.60	638.06	634.63
MW-5S	628.65	627.58	631.35	635.7	632.74
MW-5D	623.46	623.08	625.08	627.7	626.06
MW-06S	629.28	627.04	632.09	634.94	632.42
MW-06D	629.35	627.07	632.02	634.92	632.42
MW-11D	631.88	631.09	634.25	636.86	634.84
PZ-1S	630.50	DRY	633.58	637.9	634.52
PZ-1D	630.28	629.28	633.57	637.86	634.57
PZ-2S	626.92	626.45	629.69	633.18	631.03
PZ-2D	626.59	626.29	629.40	632.63	630.46

NOTES:

1. Water levels collected on dates shown.
2. "NM" indicates water 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).

TABLE 3-3
SUMMARY OF GROUNDWATER ELEVATIONS
SEPTEMBER, 1997 - MARCH, 1998
GRIFFIN TECHNOLOGY, INC.
VICTOR, NEW YORK

Well Designation	Water Elevation (ft) 2/26/98	Water Elevation (ft) 3/18/98	Water Elevation (ft) 3/30/98
MW-01	638.49	634.93	638.29
MW-2S	636.6	634.41	636.22
MW-2D	636.64	634.4	636.24
MW-03	637.52	635.33	637.1
MW-04	635.85	633.48	635.43
MW-5S	633.87	631.66	633.55
MW-5D	626.59	624.33	626.5
MW-06S	633.72	631.37	633.13
MW-06D	633.61	631.42	633.2
MW-11D	635.8	634.04	635.44
PZ-1S	635.72	633.29	635.38
PZ-1D	635.77	633.32	635.38
PZ-2S	632.04	630.23	631.98
PZ-2D	631.35	629.68	631.32

NOTES:
1. Water levels collected on dates shown.
2. "NM" indicates water 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).

TABLE 3-4
SUMMARY OF GROUNDWATER ELEVATION DATA
GRIFFIN TECHNOLOGY, INC.
VICTOR, NEW YORK

Well ID	Top of Casing (ft)	Date[1]	Depth to Groundwater (ft)	Groundwater Elevation (ft)
MW-01	641.79	12/19/94	5.60	636.19
		5/24/96	3.32	638.47
		5/29/96	3.81	637.98
		8/13/97	13.61	628.18
		3/17/98	6.86	634.93
MW-02S	641.28	12/19/94	7.50	633.78
		5/24/96	3.60	637.68
		5/29/96	4.47	636.81
		8/13/97	15.92	625.36
		3/17/98	6.87	634.41
MW-02D	642.37	8/13/97	17.55	624.82
		3/17/98	7.97	-7.97
MW-03	642.17	12/19/94	7.83	634.34
		5/24/96	4.82	637.35
		5/29/96	5.77	636.40
		8/13/97	17.32	624.85
		3/17/98	6.84	635.33
MW-04	641.75	12/19/94	8.48	633.27
		5/24/96	4.42	637.33
		5/29/96	5.29	636.46
		8/13/97	19.50	622.25
		3/17/98	8.27	633.48
MW-05S	640.85	12/19/94	8.00	632.85
		5/24/96	3.85	637.00
		5/29/96	4.83	636.02
		8/13/97	19.86	620.99
		3/17/98	9.19	631.66

NOTES

"1" - 12/19/94 measurements collected by Blasland, Bouck & Lee.
NA - Data not available. Wells were abandoned or not installed at time of measurement.
NS - Water elevation not collected. Wells could not be located or are abandoned.

TABLE 3-4
SUMMARY OF GROUNDWATER ELEVATION DATA
GRIFFIN TECHNOLOGY, INC.
VICTOR, NEW YORK

Well ID	Top of Casing (ft)	Date[1]	Depth to Groundwater (ft)	Groundwater Elevation (ft)
MW-05D	641.01	12/19/94	8.44	632.57
		5/24/96	4.48	636.53
		5/29/96	5.52	635.49
		8/13/97	22.24	618.77
		3/17/98	16.68	624.33
MW-06S	636.61	12/19/94	7.36	629.25
		5/24/96	3.70	632.91
		5/29/96	4.89	631.72
		8/13/97	14.87	621.74
		3/17/98	5.24	631.37
MW-06D	636.83	12/19/94	7.43	629.40
		5/24/96	3.77	633.06
		5/29/96	5.03	631.80
		8/13/97	15.07	621.76
		3/17/98	5.41	631.42
MW-07S	634.29	12/19/94	7.53	626.76
		5/24/96	4.26	630.03
		5/29/96	5.18	629.11
		8/13/97	14.70	619.59
		3/17/98	4.85	629.44
MW-07D	634.16	12/19/94	32.95	601.21
		5/24/96	32.51	601.65
		5/29/96	31.85	602.31
		8/13/97	37.35	596.81
		3/17/98	33.02	601.14

NOTES
"1" - 12/19/94 measurements collected by Blasland, Bouck & Lee.
NA - Data not available. Wells were abandoned or not installed at time of measurement.
NS - Water elevation not collected. Wells could not be located or are abandoned.

TABLE 3-4
SUMMARY OF GROUNDWATER ELEVATION DATA
GRIFFIN TECHNOLOGY, INC.
VICTOR, NEW YORK

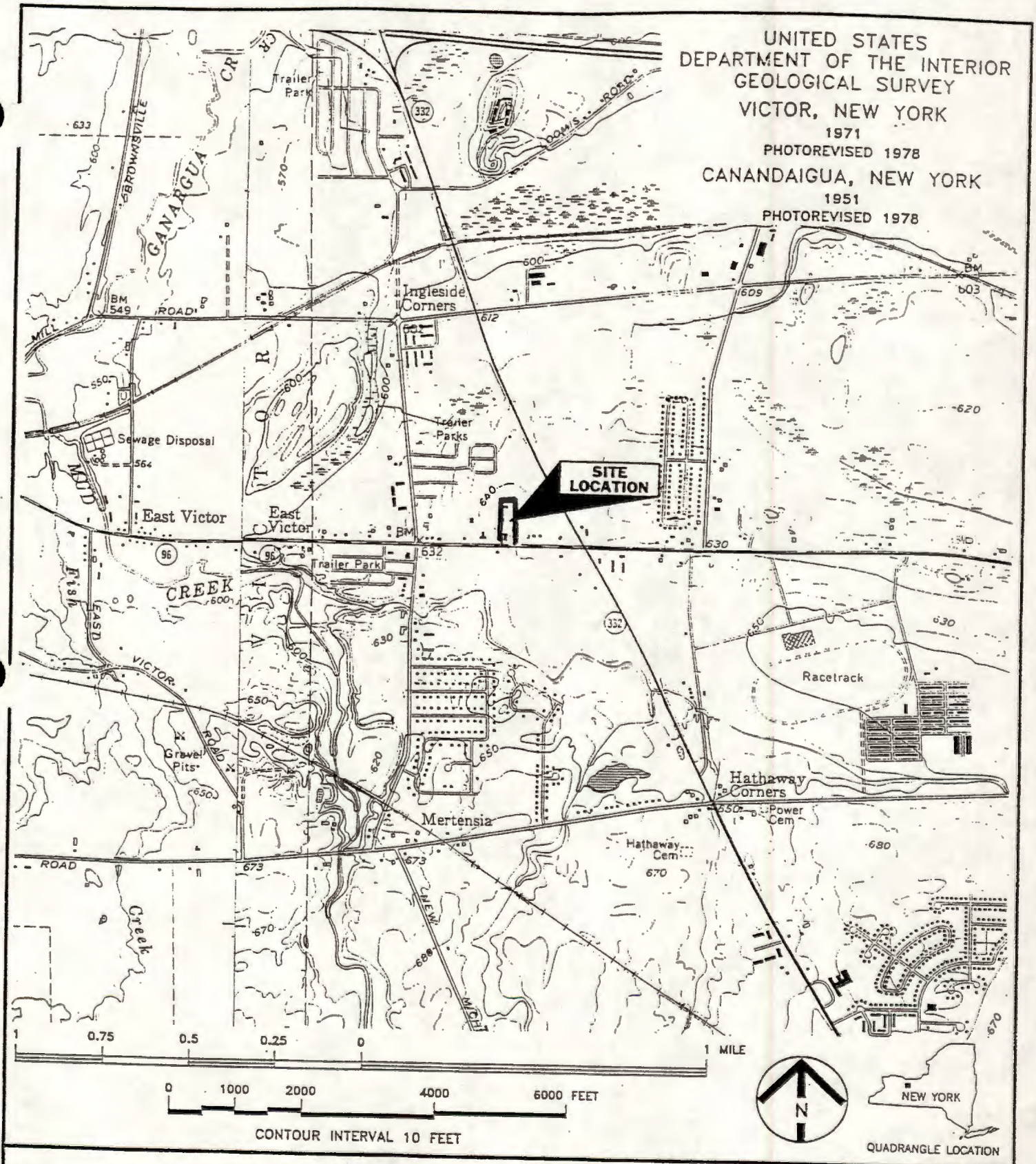
Well ID	Top of Casing (ft)	Date[1]	Depth to Groundwater (ft)	Groundwater Elevation (ft)
MW-08S	633.64	12/19/94	11.39	622.25
		5/24/96	NS	
		5/29/96	NS	
		8/13/97	NS	
		3/17/98	NS	
MW-08D	633.91	12/19/94	13.16	620.75
		5/24/96	NS	
		5/29/96	NS	
		8/13/97	NS	
		3/17/98	NS	
MW-09S	630.16	12/19/94	11.56	618.60
		5/24/96	9.17	620.99
		5/29/96	10.24	619.92
		8/13/97	14.69	615.47
		3/17/98	10.21	619.95
MW-09D	630.29	12/19/94	12.71	617.58
		5/24/96	17.02	613.27
		5/29/96	14.78	615.51
		8/13/97	20.56	609.73
		3/17/98	15.91	614.38

NOTES
"1" - 12/19/94 measurements collected by Blasland, Bouck & Lee.
NA - Data not available. Wells were abandoned or not installed at time of measurement.
NS - Water elevation not collected. Wells could not be located or are abandoned.

TABLE 3-4
SUMMARY OF GROUNDWATER ELEVATION DATA
GRIFFIN TECHNOLOGY, INC.
VICTOR, NEW YORK

Well ID	Top of Casing (ft)	Date[1]	Depth to Groundwater (ft)	Groundwater Elevation (ft)
MW-10S	629.00	12/19/94	14.87	614.13
		5/24/96	NA	NA
		5/29/96	15.26	613.74
		8/13/97	16.62	612.38
		3/17/98	NS	
MW-10D	626.80	12/19/94	16.82	609.98
		5/24/96	NA	NA
		5/29/96	4.78	622.02
		8/13/97	17.92	608.88
		3/17/98	NS	
MW-11D	641.89	12/19/94	NA	
		5/24/96	7.10	634.79
		5/29/96	8.71	633.18
		8/13/97	17.53	624.36
		3/17/98	7.85	634.04
MW-13D	636.58	12/19/94	NA	
		5/24/96	3.45	633.13
		5/29/96	4.78	631.80
		8/13/97	16.25	620.33
		3/17/98	7.29	629.29

NOTES
"1" - 12/19/94 measurements collected by Blasland, Bouck & Lee.
NA - Data not available. Wells were abandoned or not installed at time of measurement.
NS - Water elevation not collected. Wells could not be located or are abandoned.



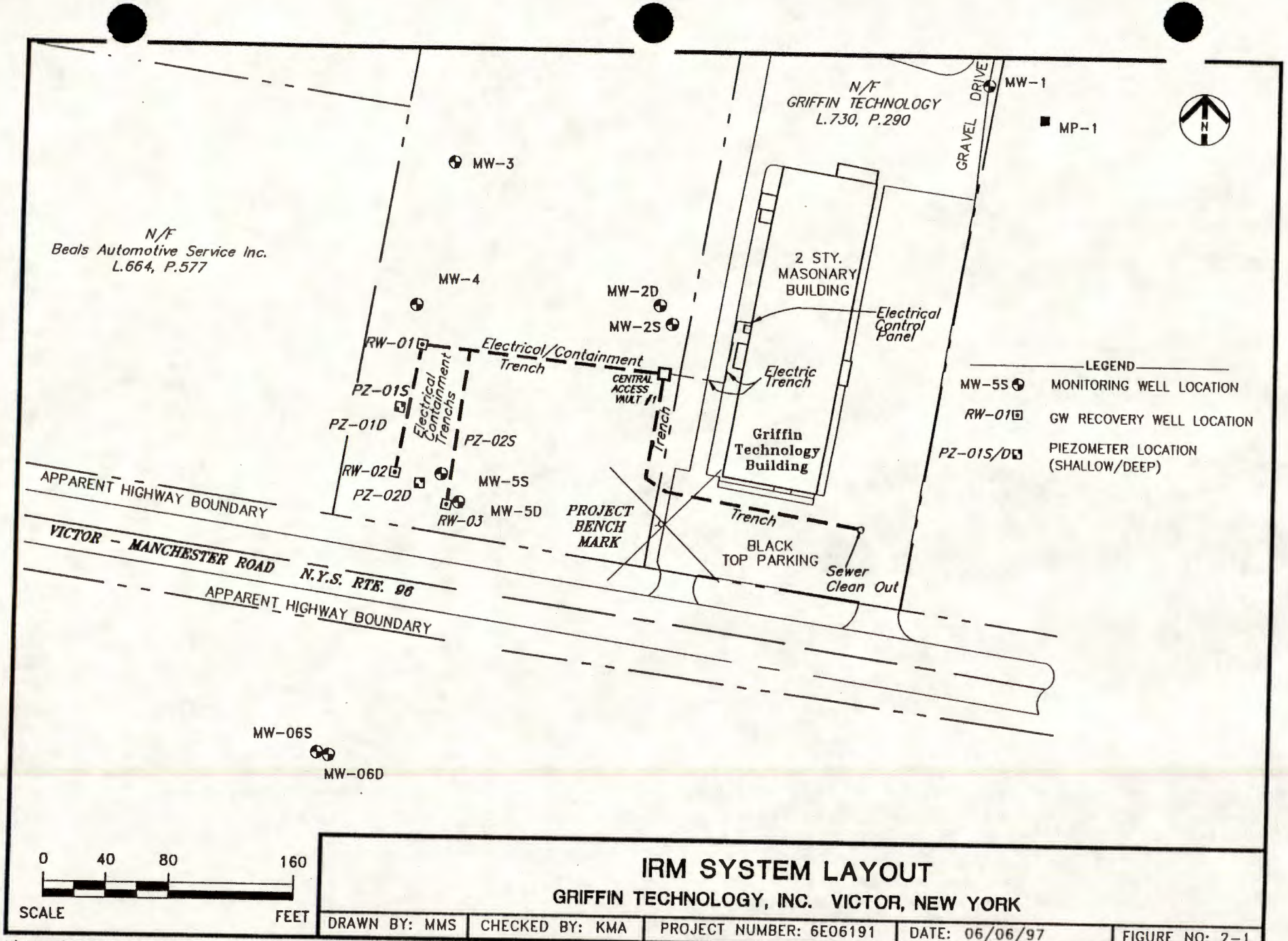
GENERAL LOCATION MAP

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

Woodward-Clyde Consultants

282\GLM



IRM SYSTEM LAYOUT

GRIFFIN TECHNOLOGY, INC. VICTOR, NEW YORK

DRAWN BY: MMS	CHECKED BY: KMA	PROJECT NUMBER: 6E06191	DATE: 06/06/97	FIGURE NO: 2-1

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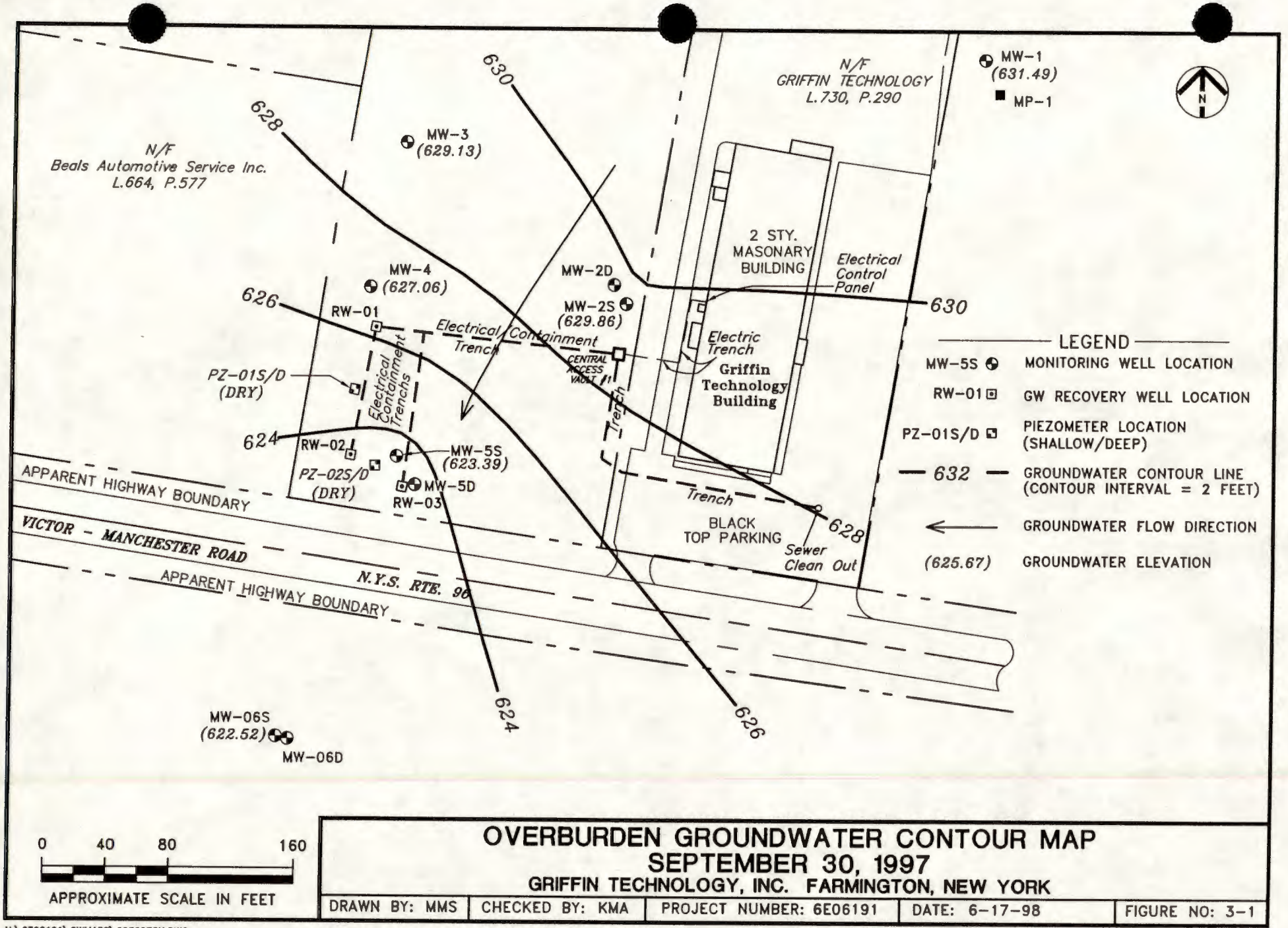
Woodward-Clyde Consultants



OVERBURDEN GROUNDWATER CONTOUR MAP
SEPTEMBER 30, 1997
GRIFFIN TECHNOLOGY, INC. FARMINGTON, NEW YORK

DRAWN BY: MMS	CHECKED BY: KMA	PROJECT NUMBER: 6E06191	DATE: 6-17-98	FIGURE NO: 3-1

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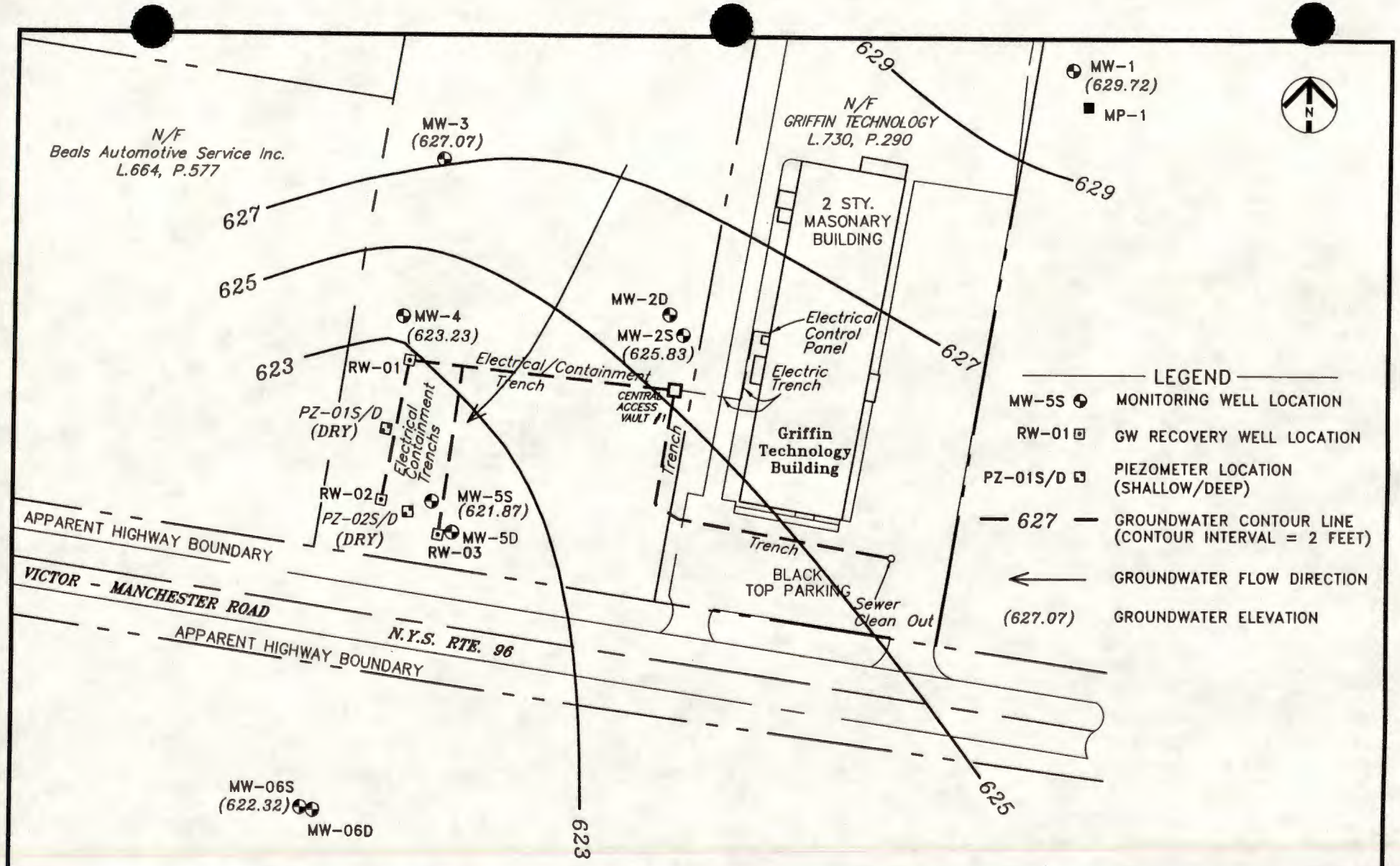
Woodward-Clyde



OVERBURDEN GROUNDWATER CONTOUR MAP
OCTOBER 15, 1997
GRIFFIN TECHNOLOGY, INC. FARMINGTON, NEW YORK

DRAWN BY: MMS	CHECKED BY: KMA	PROJECT NUMBER: 6E06191	DATE: 6-17-98	FIGURE NO: 3-2

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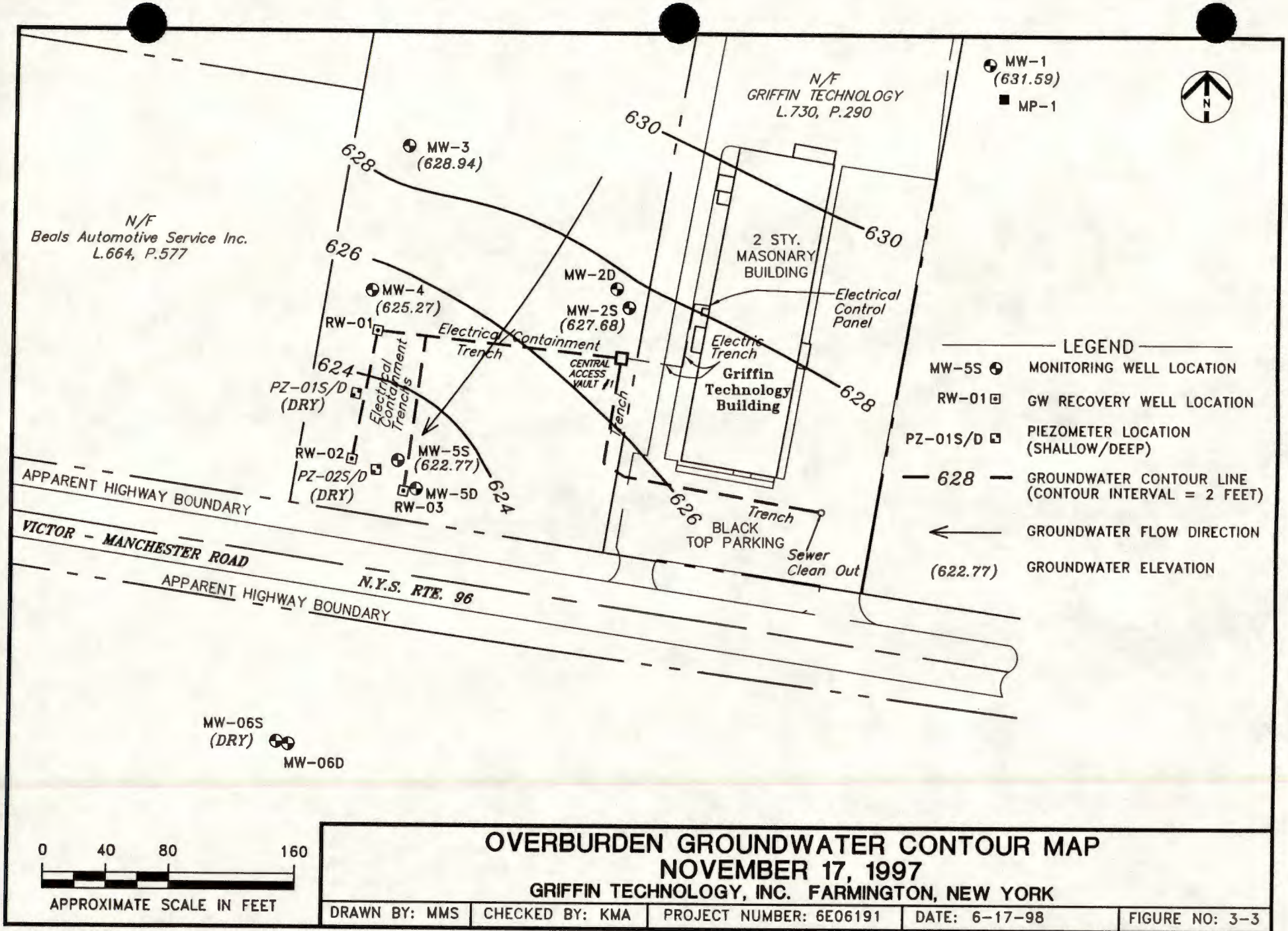
Woodward-Clyde



OVERBURDEN GROUNDWATER CONTOUR MAP
NOVEMBER 17, 1997
GRIFFIN TECHNOLOGY, INC. FARMINGTON, NEW YORK

DRAWN BY: MMS	CHECKED BY: KMA	PROJECT NUMBER: 6E06191	DATE: 6-17-98	FIGURE NO: 3-3

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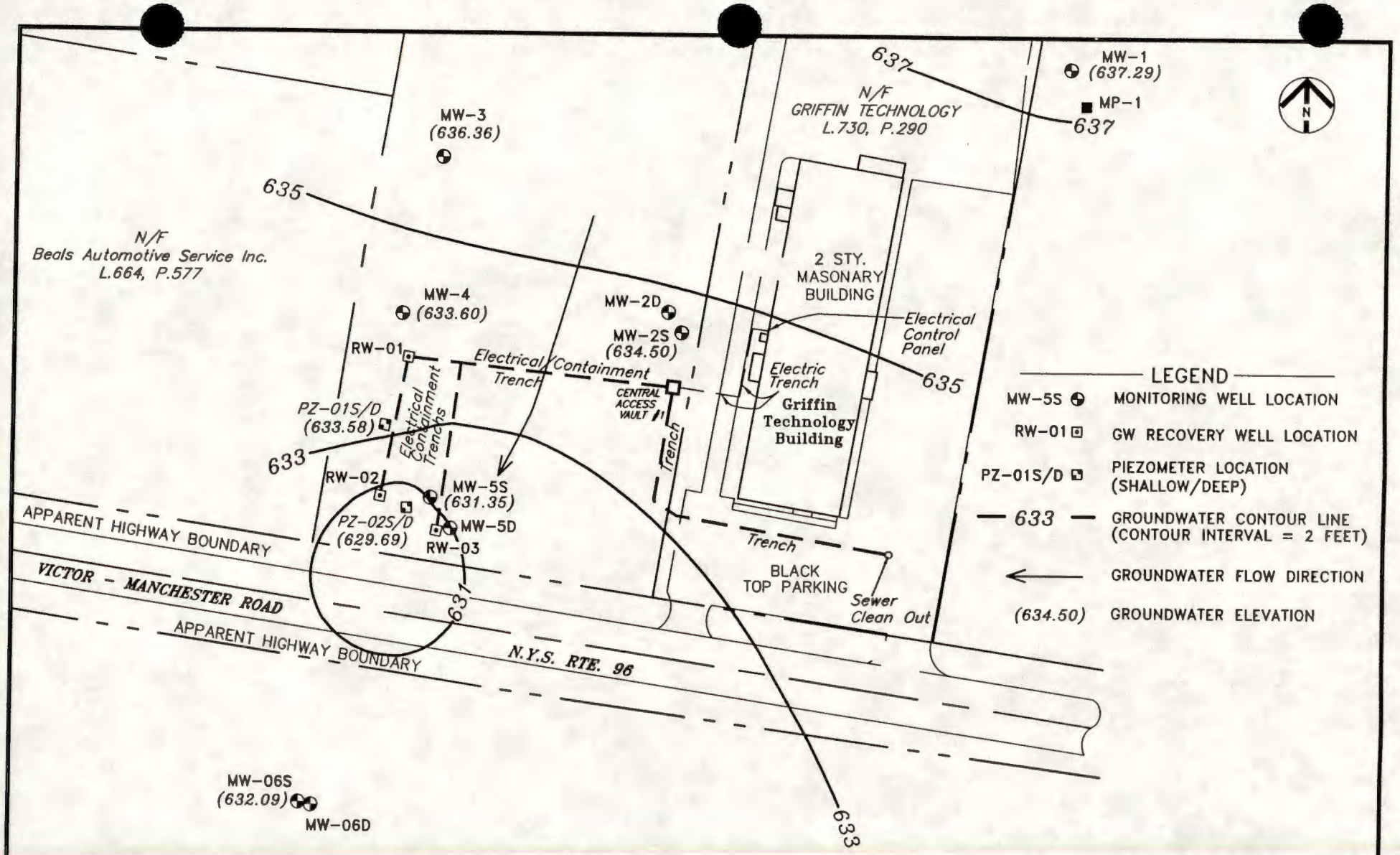
Woodward-Clyde



OVERBURDEN GROUNDWATER CONTOUR MAP
DECEMBER 26, 1997
GRIFFIN TECHNOLOGY, INC. FARMINGTON, NEW YORK

DRAWN BY: MMS	CHECKED BY: KMA	PROJECT NUMBER: 6E06191	DATE: 06-17-98	FIGURE NO: 3-4

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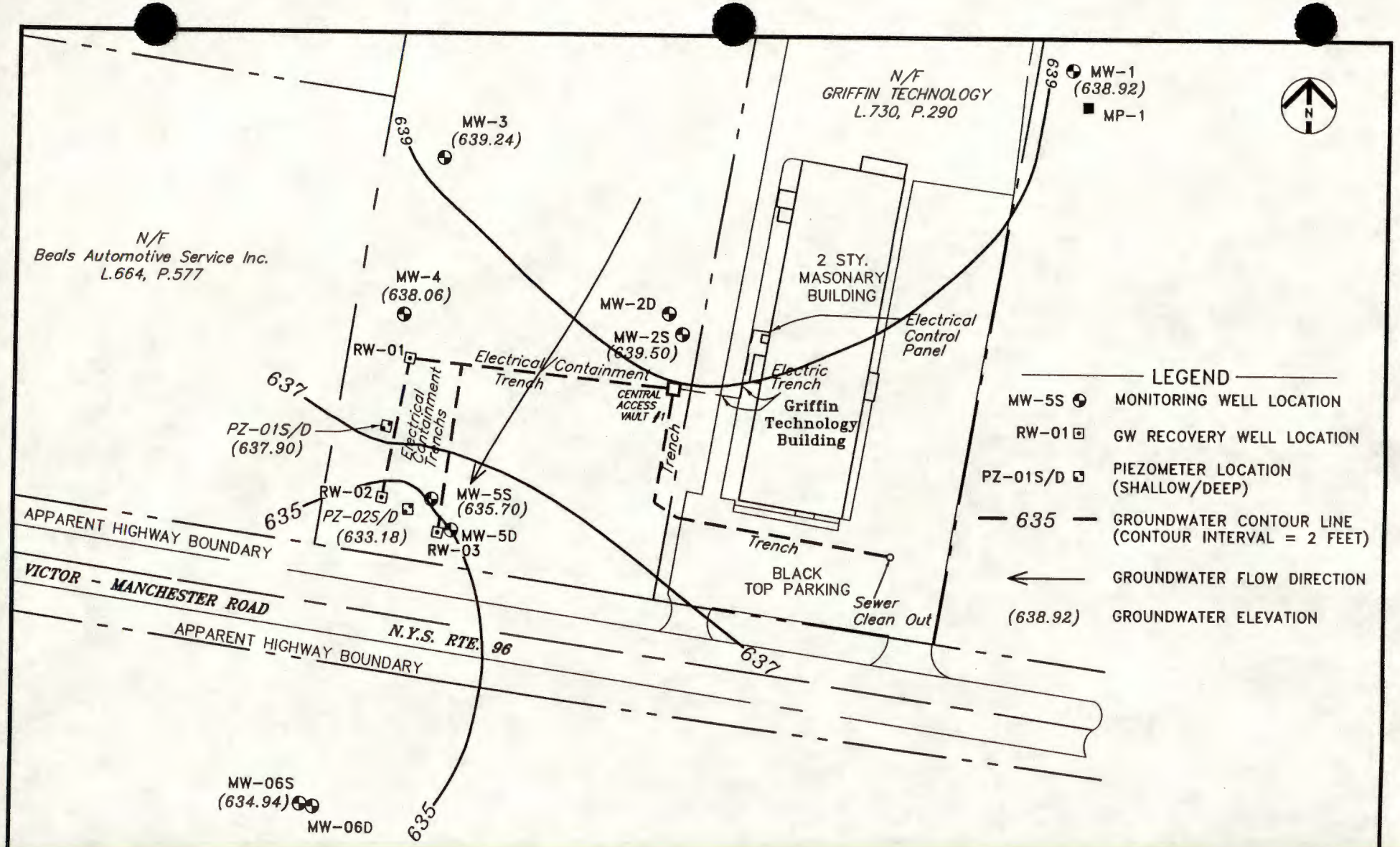
Woodward-Clyde



OVERBURDEN GROUNDWATER CONTOUR MAP
JANUARY 10, 1998
GRIFFIN TECHNOLOGY, INC. FARMINGTON, NEW YORK

DRAWN BY: MMS	CHECKED BY: KMA	PROJECT NUMBER: 6E06191	DATE: 6-17-98	FIGURE NO: 3-5

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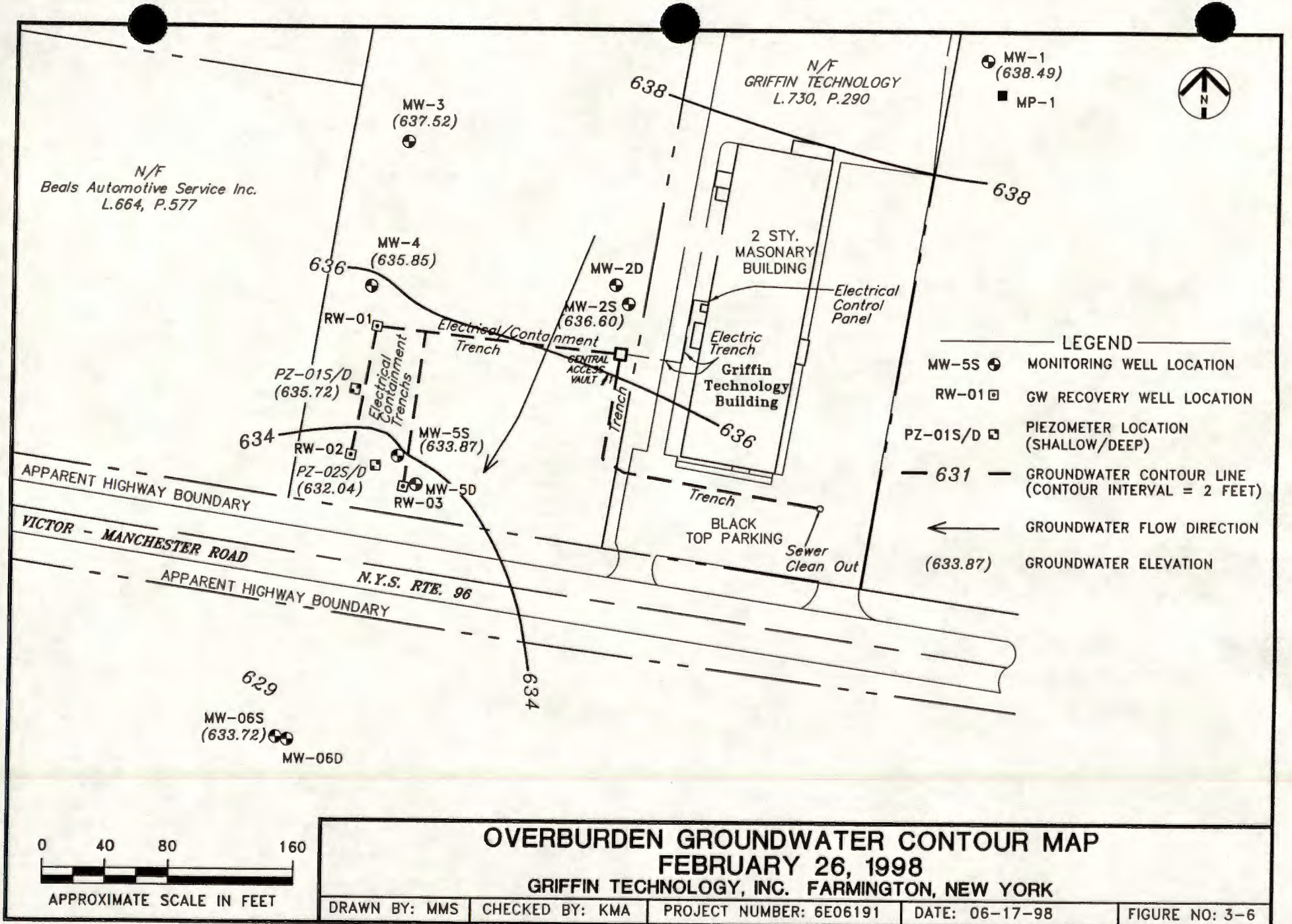
Woodward-Clyde



OVERBURDEN GROUNDWATER CONTOUR MAP
FEBRUARY 26, 1998
GRIFFIN TECHNOLOGY, INC. FARMINGTON, NEW YORK

DRAWN BY: MMS	CHECKED BY: KMA	PROJECT NUMBER: 6E06191	DATE: 06-17-98	FIGURE NO: 3-6

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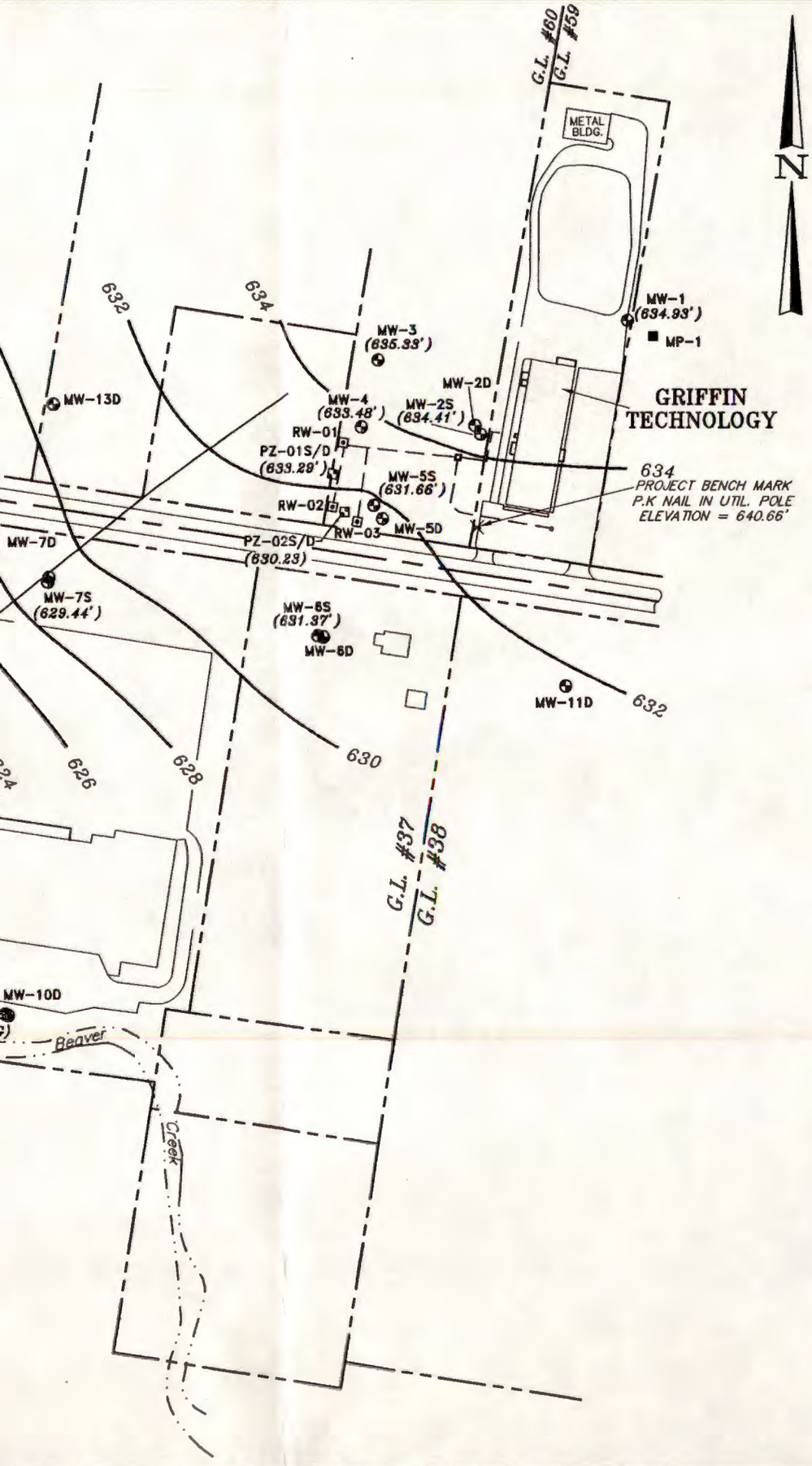
Woodward-Clyde



LEGEND

- MONITORING WELL
- STAFF GAUGE
- —632— GROUNDWATER CONTOUR (INTERVAL = 2 FEET)
- (634.93') GROUNDWATER ELEVATION 03-17-98
- GROUNDWATER FLOW DIRECTION

NOTE:
CONTOUR LINES ARE INTERPOLATED USING MARCH 17, 1998 GROUNDWATER ELEVATION DATA AND ARE APPROXIMATE.

BEDROCK MONITORING WELLS ARE DENOTED WITH A "D" (MW-6D).

References:

1.) Map prepared by Paul V. Crandall P.L.S. titled "LANDS OF R.D. PRODUCTS INC." Last dated June 17, 1983. Job #83138.

2.) Map prepared by Paul V. Crandall P.L.S. titled "GRIFFIN TECHNOLOGY 6132 VICTOR-MANCHESTER ROAD, SOIL BORINGS & MONITORING WELLS" Last dated June 19, 1991. Job #911767.

3.) Map prepared by Paul V. Crandall P.L.S. titled "MAP SHOWING LANDS OF JAMES V. ALAIMO - ANTHONY S. ALAIMO, M.D. - STEPHEN L. ALAIMO, M.D. - SAMUEL R. ALAIMO & JOSEPH W. ALAIMO ESTATE TO BE CONVEYED" Last dated August 25 1993. Job #932113.

4.) Map prepared by Blasland & Bouck Engineers, P.C. titled "GRIFFIN TECHNOLOGY INC. VICTOR, NEW YORK OFF-SITE GROUND-WATER EVALUATION PROGRAM - PROPOSED MONITORING WELL LOCATION" Last dated July 1993.

5.) Map prepared by CRANDALL SURVEYORS, titled "GRIFFIN TECHNOLOGY INC. - ON - SITE / OFF - SITE GROUND WATER EVALUATION PROGRAM - PART OF GRIFFIN TECHNOLOGY PROPERTY NORTH OF N.Y.S. ROUTE 96 & JOHN W. & JANE A. WADE PROPERTY SOUTH OF N.Y.S. ROUTE 96. Last dated 12-22-1994. Job #942296

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)

1 inch = 200 ft.

Woodward-Clyde Consultants

Engineering & sciences applied to the earth & its environment

30775 Bainbridge Road, Suite 200
Solon, Ohio 44139

CLIENT: DIEBOLD, INC.

LOCATION: FARMINGTON, ONTARIO COUNTY, NEW YORK

OVERBURDEN GROUNDWATER CONTOUR MAP MARCH 17, 1998

DRAWN BY:	CHECKED BY:	PROJECT NO:	DATE:	FIGURE NO:
KMA	MLS	6E06191	6-28-98	3-7

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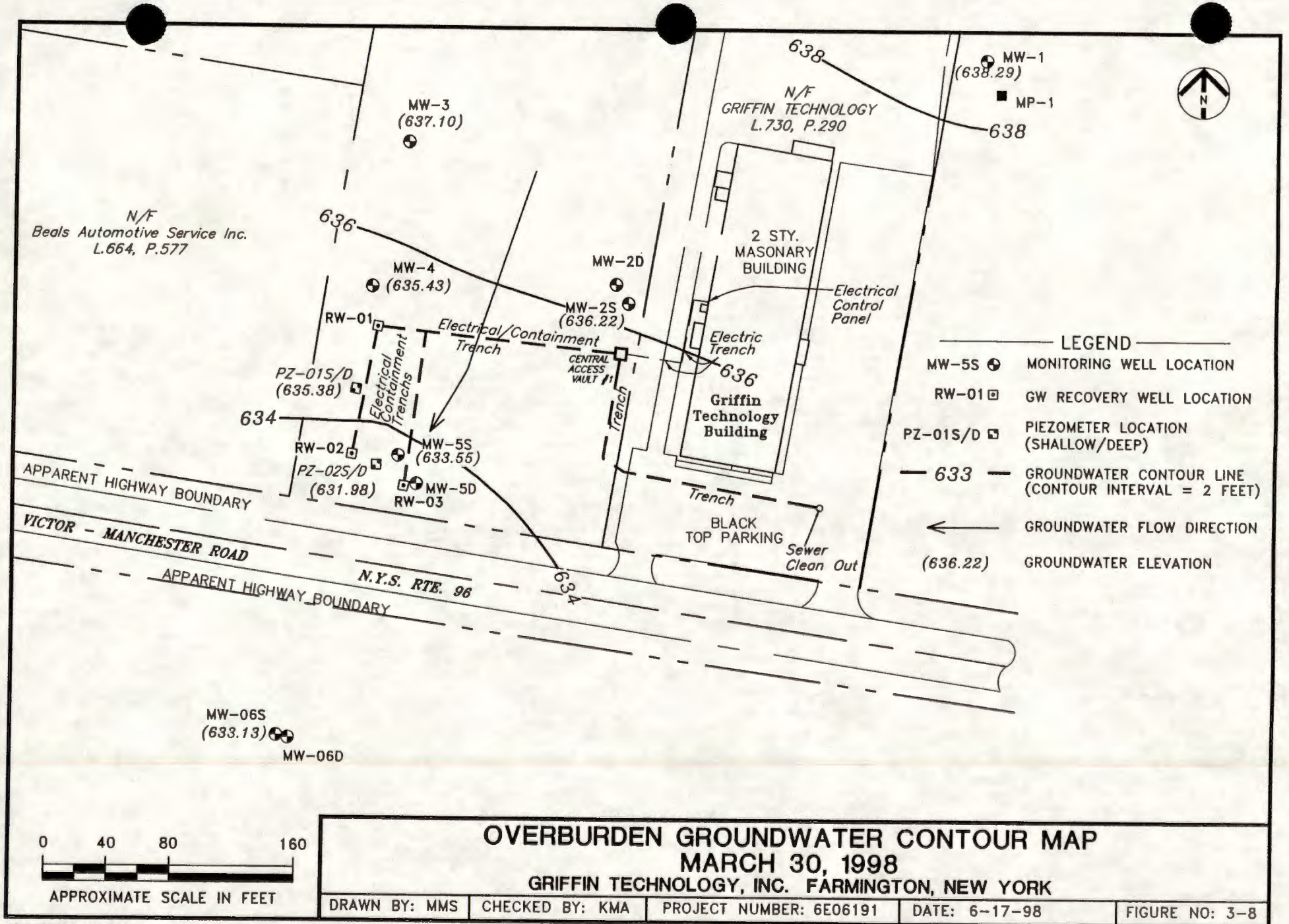

OVERBURDEN GROUNDWATER CONTOUR MAP
MARCH 30, 1998
GRIFFIN TECHNOLOGY, INC. FARMINGTON, NEW YORK

DRAWN BY: MMS	CHECKED BY: KMA	PROJECT NUMBER: 6E06191	DATE: 6-17-98	FIGURE NO: 3-8

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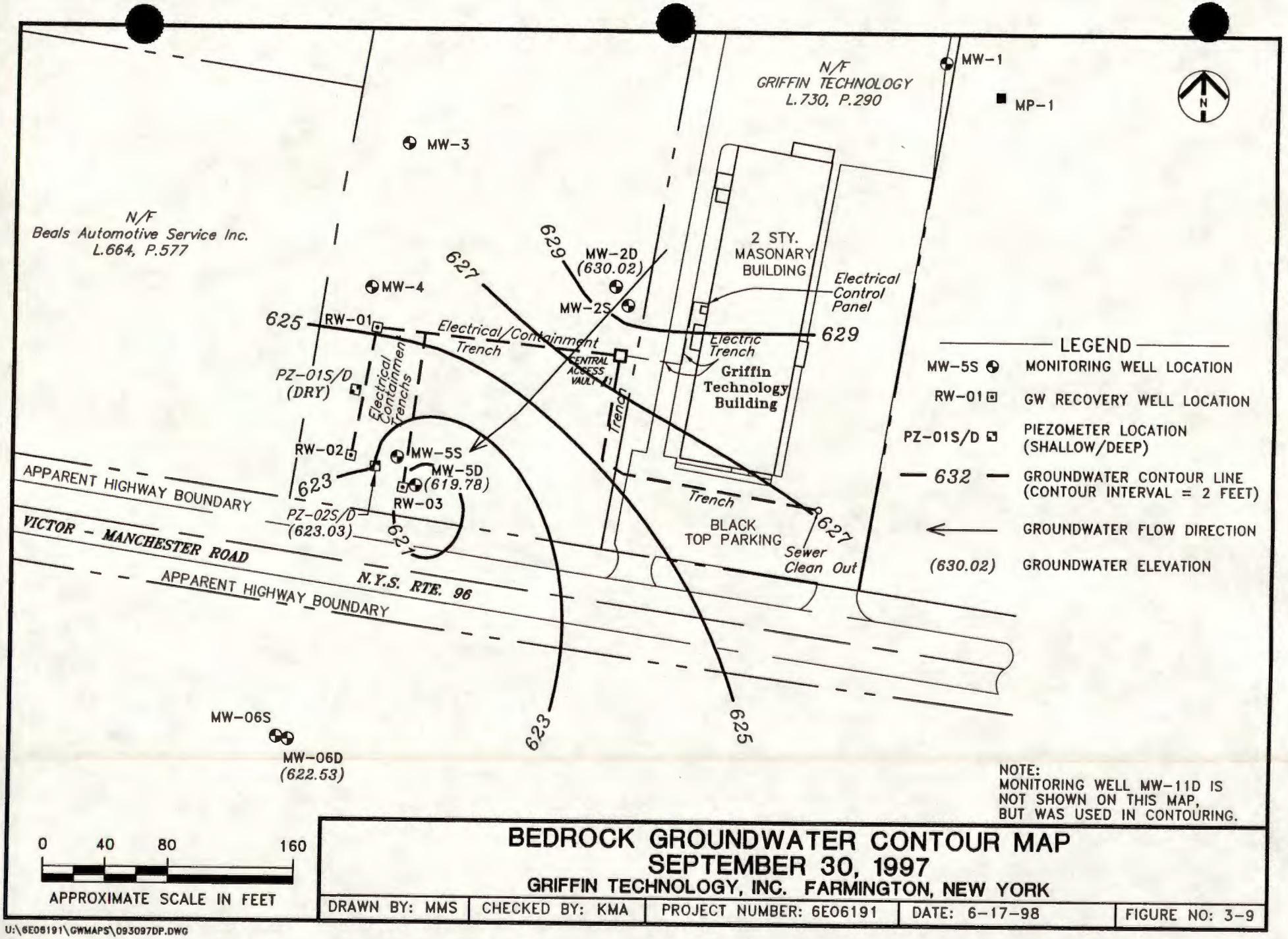
Woodward-Clyde



BEDROCK GROUNDWATER CONTOUR MAP
SEPTEMBER 30, 1997
GRIFFIN TECHNOLOGY, INC. FARMINGTON, NEW YORK

DRAWN BY: MMS	CHECKED BY: KMA	PROJECT NUMBER: 6E06191	DATE: 6-17-98	FIGURE NO: 3-9

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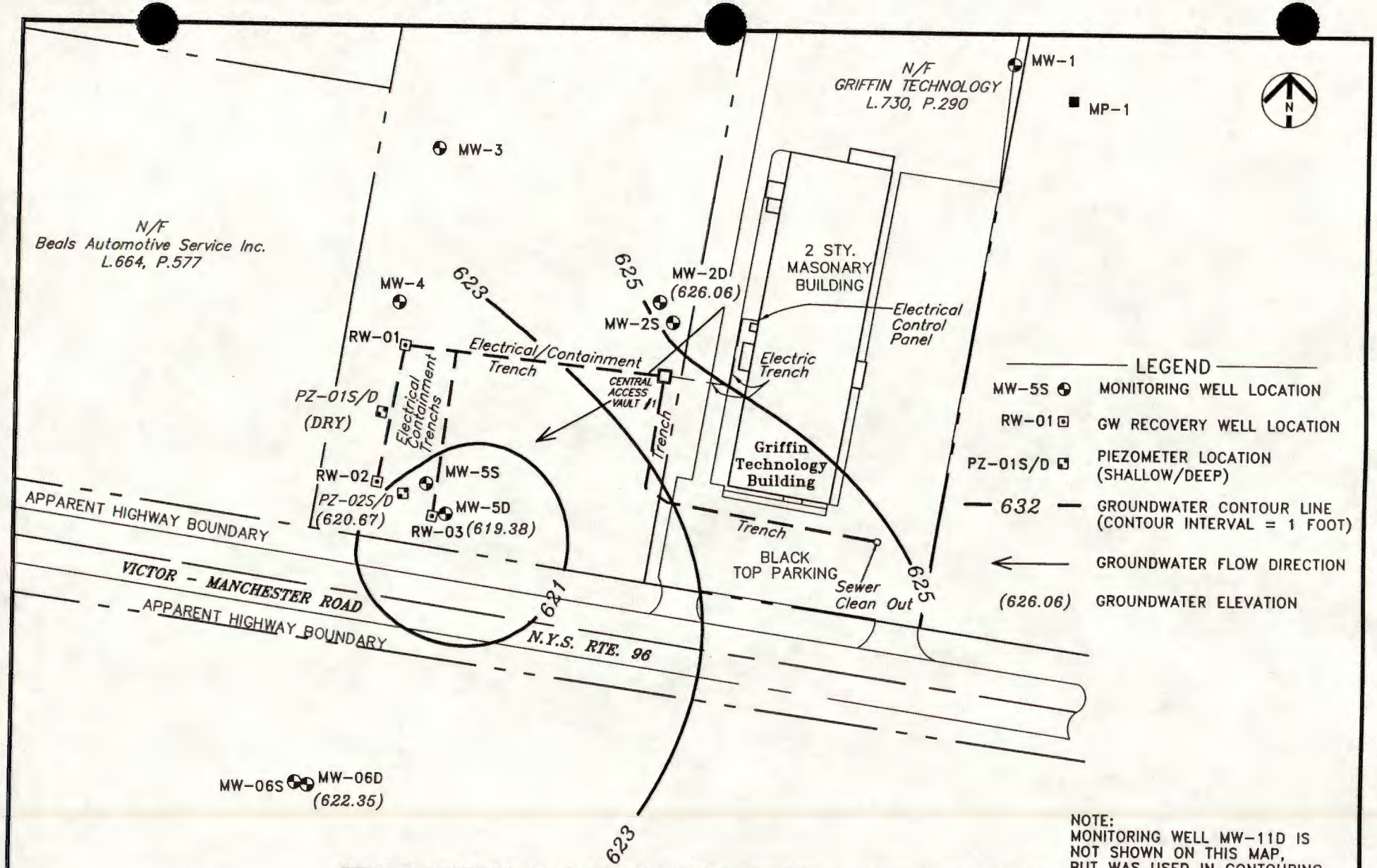
Woodward-Clyde



BEDROCK GROUNDWATER CONTOUR MAP
OCTOBER 15, 1997
GRIFFIN TECHNOLOGY, INC. FARMINGTON, NEW YORK

DRAWN BY: TBC	CHECKED BY: KMA	PROJECT NUMBER: 6E06191	DATE: 6-17-98	FIGURE NO: 3-10

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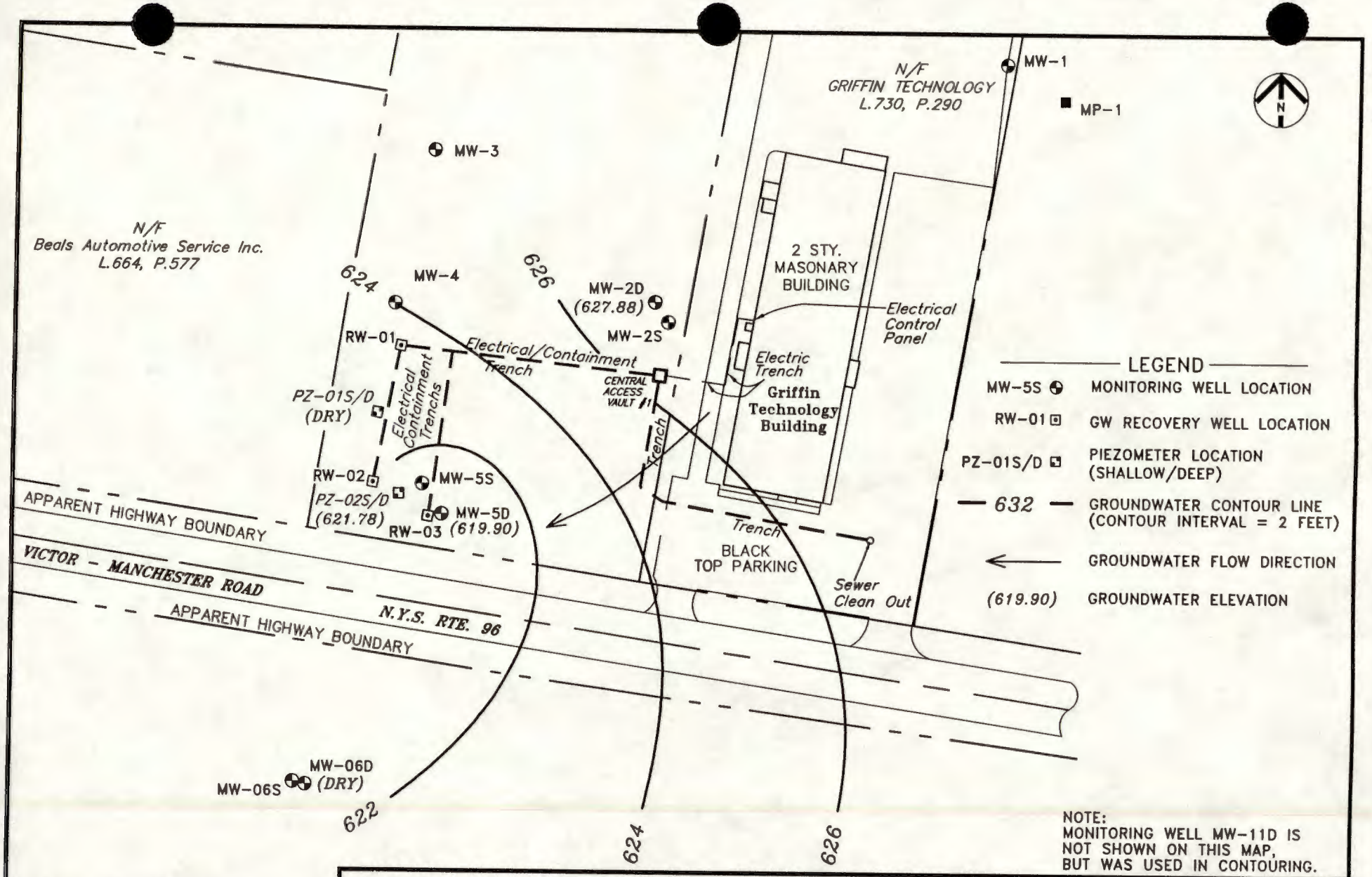
Woodward-Clyde



BEDROCK GROUNDWATER CONTOUR MAP
NOVEMBER 17, 1997
GRIFFIN TECHNOLOGY, INC. FARMINGTON, NEW YORK

DRAWN BY: TBC	CHECKED BY: KMA	PROJECT NUMBER: 6E06191	DATE: 6-17-98	FIGURE NO: 3-11

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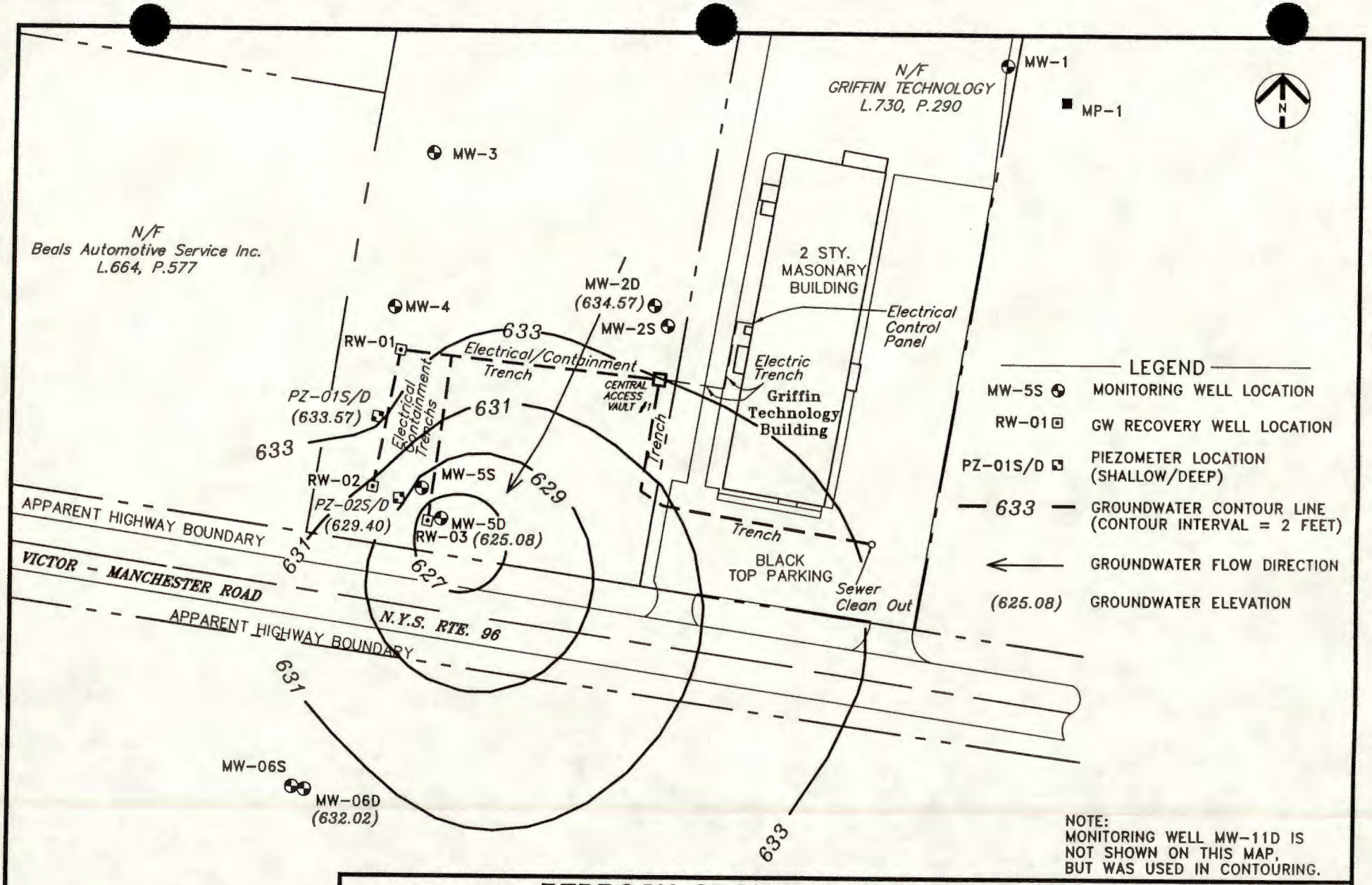
Woodward-Clyde



BEDROCK GROUNDWATER CONTOUR MAP
DECEMBER 26, 1997
GRIFFIN TECHNOLOGY, INC. FARMINGTON, NEW YORK

DRAWN BY: TBC	CHECKED BY: KMA	PROJECT NUMBER: 6E06191	DATE: 6-17-98	FIGURE NO: 3-12

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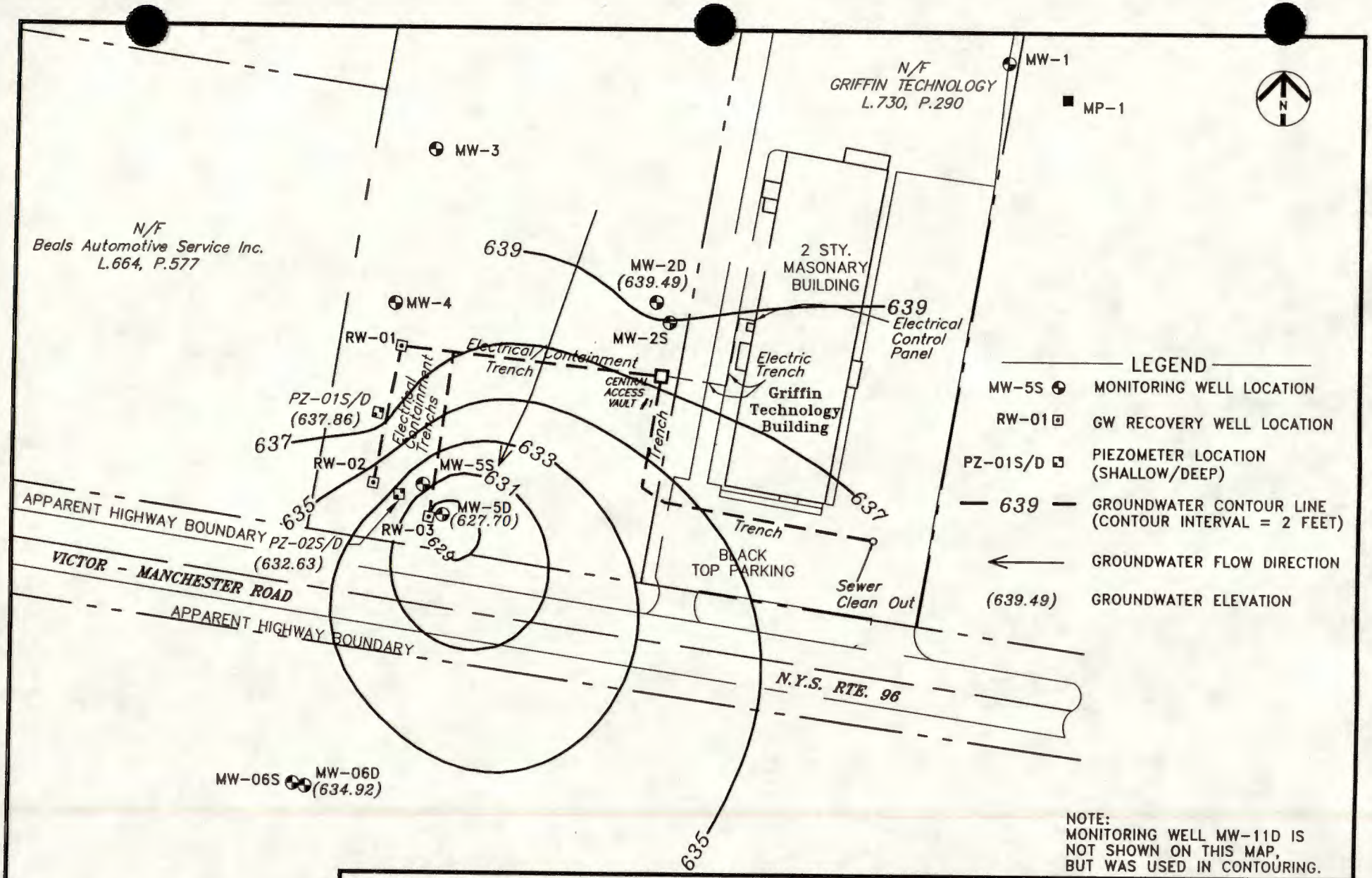
Woodward-Clyde



BEDROCK GROUNDWATER CONTOUR MAP
JANUARY 10, 1998
GRIFFIN TECHNOLOGY, INC. FARMINGTON, NEW YORK

DRAWN BY: TBC	CHECKED BY: KMA	PROJECT NUMBER: 6E06191	DATE: 6-17-98	FIGURE NO: 3-13

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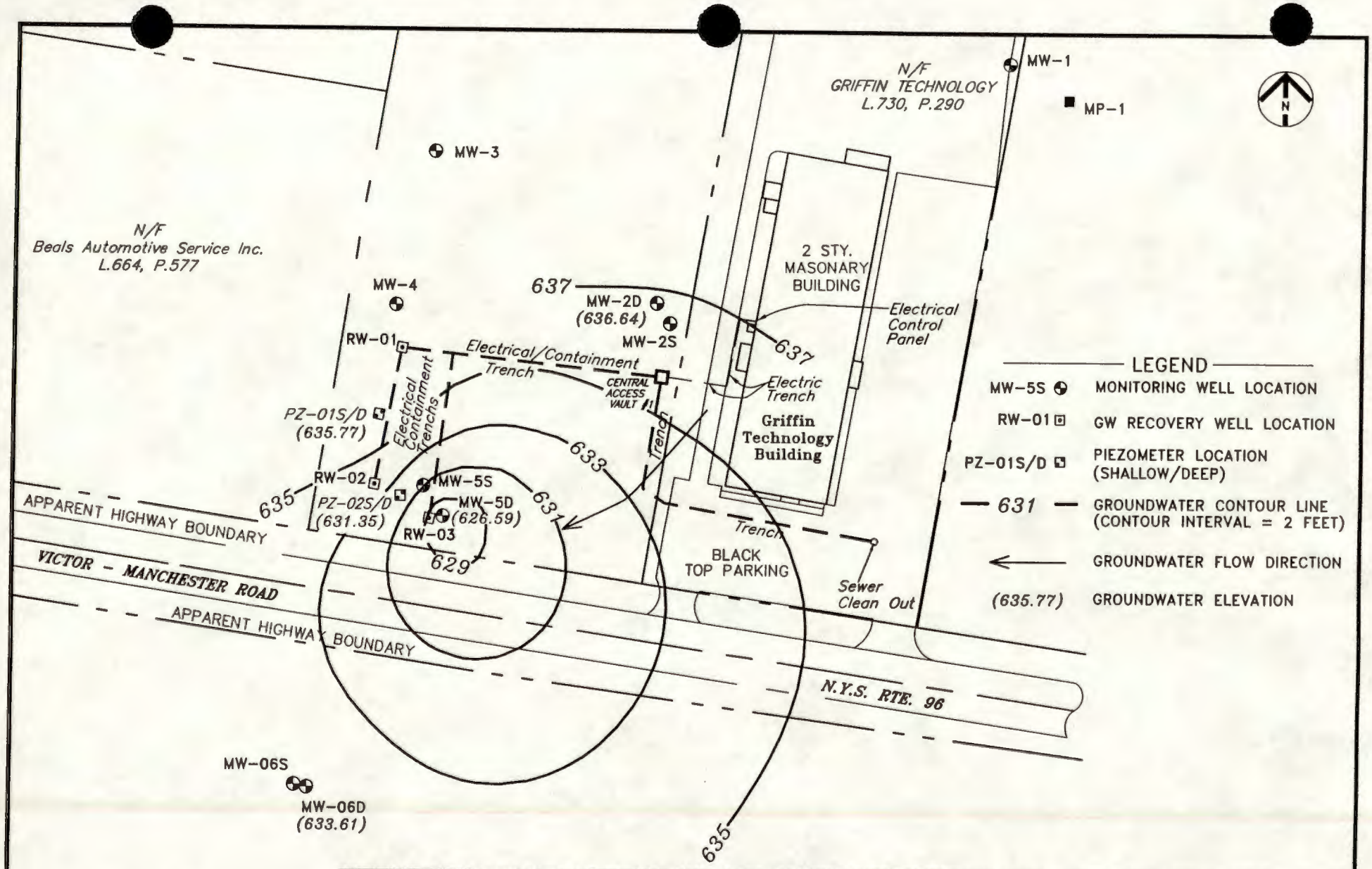
Woodward-Clyde



BEDROCK GROUNDWATER CONTOUR MAP
FEBRUARY 26, 1998
GRIFFIN TECHNOLOGY, INC. FARMINGTON, NEW YORK

DRAWN BY: MMS	CHECKED BY: KMA	PROJECT NUMBER: 6E06191	DATE: 6-17-98	FIGURE NO: 3-14

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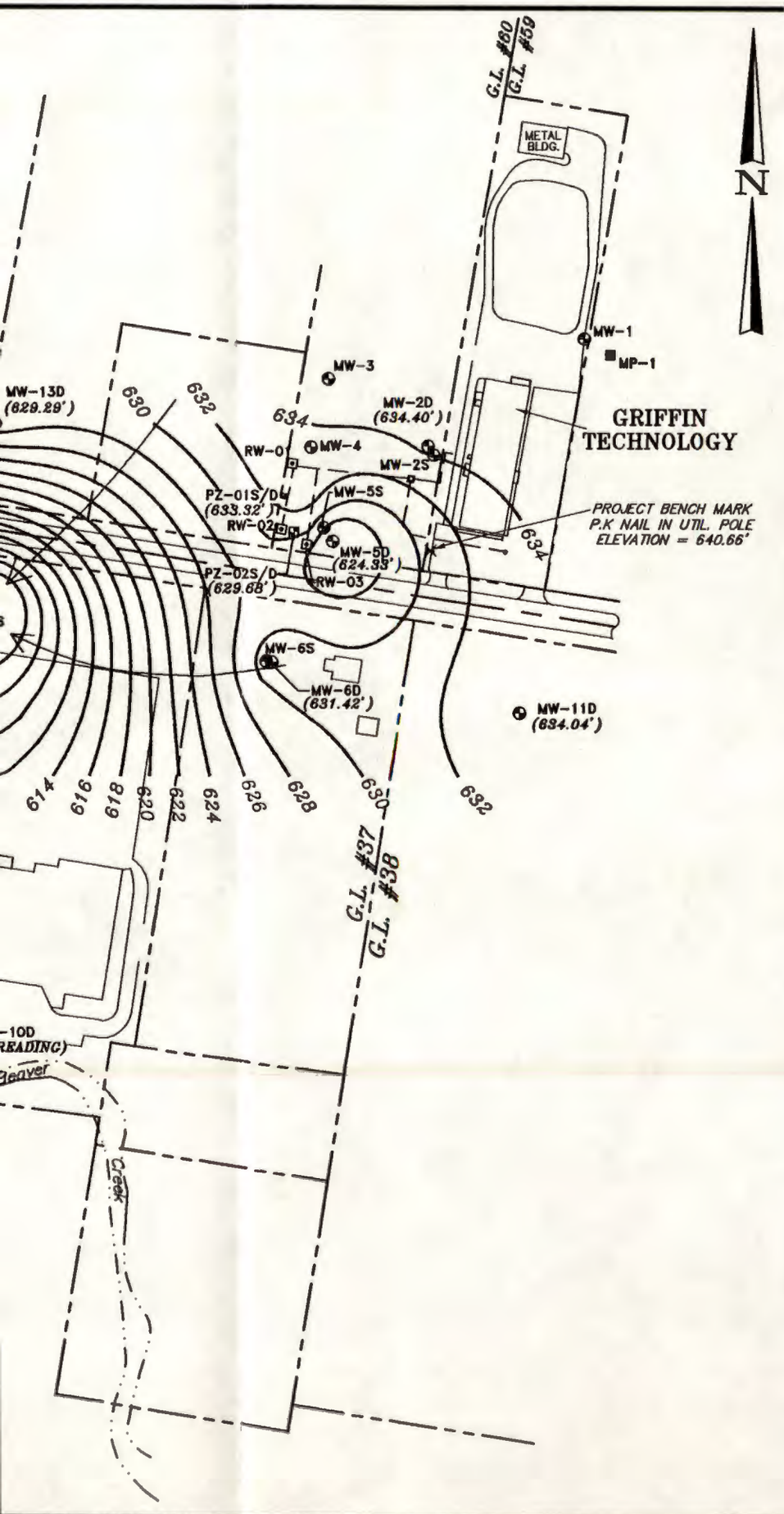
Woodward-Clyde



LEGEND

- MONITORING WELL
- STAFF GAUGE
- —632— GROUNDWATER CONTOUR (INTERVAL = 2 FEET)
- (634.40') GROUNDWATER ELEVATION 03-17-98
- GROUNDWATER FLOW DIRECTION

NOTE:
CONTOUR LINES ARE INTERPOLATED USING MARCH 17, 1998 GROUNDWATER ELEVATION DATA AND ARE APPROXIMATE.

BEDROCK MONITORING WELLS ARE DENOTED WITH A "D" (MW-6D).

References:

1.) Map prepared by Paul V. Crandall P.L.S. titled "LANDS OF R.D. PRODUCTS INC." Last dated June 17, 1983. Job #83138.

2.) Map prepared by Paul V. Crandall P.L.S. titled "GRIFFIN TECHNOLOGY 6132 VICTOR-MANCHESTER ROAD, SOIL BORINGS & MONITORING WELLS" Last dated June 19, 1991. Job #911767.

3.) Map prepared by Paul V. Crandall P.L.S. titled "MAP SHOWING LANDS OF JAMES V. ALAIMO - ANTHONY S. ALAIMO, M.D. - STEPHEN L. ALAIMO, M.D. - SAMUEL R. ALAIMO & JOSEPH W. ALAIMO ESTATE TO BE CONVEYED" Last dated August 25 1993. Job #932113.

4.) Map prepared by Blasland & Bouck Engineers, P.C. titled "GRIFFIN TECHNOLOGY INC. VICTOR, NEW YORK OFF-SITE GROUND-WATER EVALUATION PROGRAM - PROPOSED MONITORING WELL LOCATION" Last dated July 1993.

5.) Map prepared by CRANDALL SURVEYORS, titled "GRIFFIN TECHNOLOGY INC. - ON - SITE / OFF - SITE GROUND WATER EVALUATION PROGRAM - PART OF GRIFFIN TECHNOLOGY PROPERTY NORTH OF N.Y.S. ROUTE 96 & JOHN W. & JANE A. WADE PROPERTY SOUTH OF N.Y.S. ROUTE 96. Last dated 12-22-1994. Job #942296

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)

1 inch = 200 ft.

Woodward-Clyde Consultants

Engineering & sciences applied to the earth & its environment

30775 Bainbridge Road, Suite 200
Solon, Ohio 44139

CLIENT: DIEBOLD, INC.

LOCATION: FARMINGTON, ONTARIO COUNTY, NEW YORK

BEDROCK GROUNDWATER CONTOUR MAP MARCH 17, 1998

DRAWN BY:	CHECKED BY:	PROJECT NO:	DATE:	FIGURE NO:
KMA	MLS	6E06191	6/26/98	3-15

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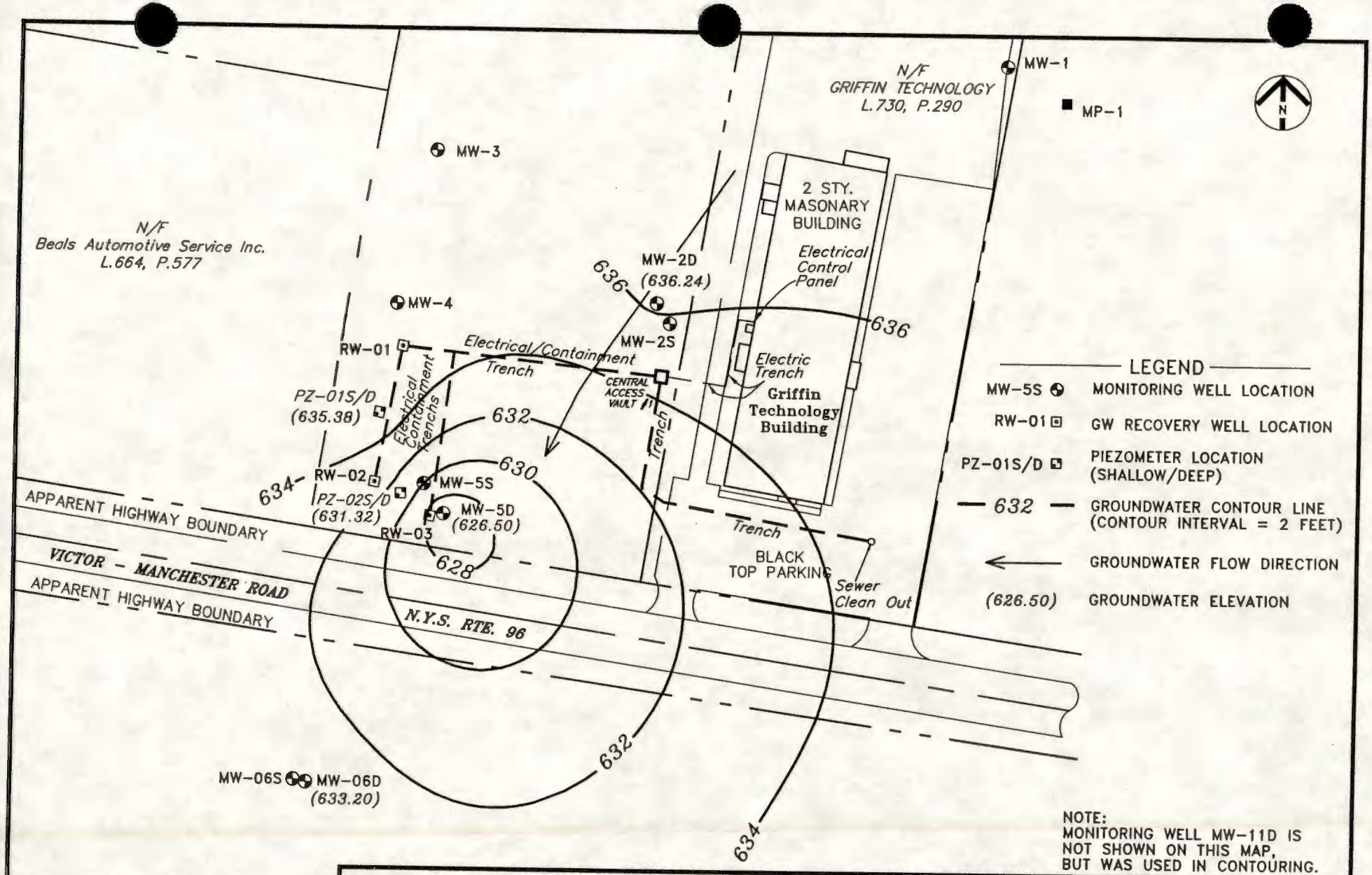

BEDROCK GROUNDWATER CONTOUR MAP
MARCH 30, 1998
GRIFFIN TECHNOLOGY, INC. FARMINGTON, NEW YORK

DRAWN BY: TBC	CHECKED BY: KMA	PROJECT NUMBER: 6E06191	DATE: 06-15-98	FIGURE NO: 3-16

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Woodward-Clyde

COLUMBIA ANALYTICAL SERVICES

VOLATILE ORGANICS
METHOD 8260 TCL
Reported: 09/15/97

Project Reference: GRIFFIN IRM
Client Sample ID : EFF-8-29-97

Date Sampled : 08/29/97 **Order #:** 165171 **Sample Matrix:** WATER
Date Received: 08/29/97 **Submission #:** 9709000003 **Analytical Run** 19996

ANALYTE	PQL	RESULT	UNITS
DATE ANALYZED : 09/08/97			
ANALYTICAL DILUTION: 1.0			
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	26	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	13	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	21	UG/L
1,1,2-TRICHLOROETHANE	5.0	5.0 U	UG/L
TRICHLOROETHENE	5.0	700	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 %)	96	%
TOLUENE-D8	(88 - 110 %)	96	%
DIBROMOFLUOROMETHANE	(86 - 118 %)	91	%

COLUMBIA ANALYTICAL SERVICES

VOLATILE ORGANICS
METHOD 8260 TCL
Reported: 09/15/97

Project Reference:
Client Sample ID : METHOD BLANK

Date Sampled : **Order #:** 166978 **Sample Matrix:** WATER
Date Received: **Submission #:** **Analytical Run** 19996

ANALYTE	PQL	RESULT	UNITS
DATE ANALYZED : 09/08/97			
ANALYTICAL DILUTION: 1.0			
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 %)	92	%

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, INC.
1 Mustang 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 8-29-97 PAGE 1 OF 1

PROJECT NAME Griffin IRM
PROJECT MANAGER/CONTACT Ken Armstrong
COMPANY/ADDRESS 30775 Bainbridge Rd., Ste 200
Solon, Ohio 44139
TEL (216) 349-2708 FAX (216) 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)								PRESERVATION pH < 2.0	PRESERVATION pH > 12	PRESERVATION Other
EFF-8-29-97	8-29-97	12:20	165171	WATER	2	X																		

RELINQUISHED BY:
Signature Bob Fabian
Printed Name BOB FABIAN
Firm WCC
Date/Time 8-29-97 1:15

RECEIVED BY: B Brue
Signature Cindy Toomey
Printed Name Cindy Toomey
Firm CAS
Date/Time 8-29-97 1315

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
__ 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. 97-9-3

SPECIAL INSTRUCTIONS/COMMENTS:
METALS
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

VOLATILE ORGANICS
METHOD 8260 TCL
Reported: 09/24/97

Woodward Clyde Consultants
Project Reference: GRIFFIN IRM
Client Sample ID : EFF-9-16-97

Date Sampled : 09/16/97 **Order #:** 167959 **Sample Matrix:** WATER
Date Received: 09/16/97 **Submission #:** 9709000223 **Analytical Run** 20251

DATE ANALYZED : 09/19/97
ANALYTICAL DILUTION: 5.0

ANALYTE	PQL	RESULT	UNITS
ACETONE	20	100 U	UG/L
BENZENE	5.0	25 U	UG/L
BROMODICHLOROMETHANE	5.0	25 U	UG/L
BROMOFORM	5.0	25 U	UG/L
BROMOMETHANE	5.0	25 U	UG/L
2-BUTANONE (MEK)	10	50 U	UG/L
CARBON DISULFIDE	10	50 U	UG/L
CARBON TETRACHLORIDE	5.0	25 U	UG/L
CHLOROBENZENE	5.0	25 U	UG/L
CHLOROETHANE	5.0	25 U	UG/L
CHLOROFORM	5.0	25 U	UG/L
CHLOROMETHANE	5.0	25 U	UG/L
DIBROMOCHLOROMETHANE	5.0	25 U	UG/L
1,1-DICHLOROETHANE	5.0	25 U	UG/L
1,2-DICHLOROETHANE	5.0	25 U	UG/L
1,1-DICHLOROETHENE	5.0	25 U	UG/L
CIS-1,2-DICHLOROETHENE	5.0	25 U	UG/L
TRANS-1,2-DICHLOROETHENE	5.0	25 U	UG/L
1,2-DICHLOROPROPANE	5.0	25 U	UG/L
CIS-1,3-DICHLOROPROPENE	5.0	25 U	UG/L
TRANS-1,3-DICHLOROPROPENE	5.0	25 U	UG/L
ETHYLBENZENE	5.0	25 U	UG/L
2-HEXANONE	10	50 U	UG/L
METHYLENE CHLORIDE	5.0	25 U	UG/L
4-METHYL-2-PENTANONE (MIBK)	10	50 U	UG/L
STYRENE	5.0	25 U	UG/L
1,1,2,2-TETRACHLOROETHANE	5.0	25 U	UG/L
TETRACHLOROETHENE	5.0	25 U	UG/L
TOLUENE	5.0	25 U	UG/L
1,1,1-TRICHLOROETHANE	5.0	25 U	UG/L
1,1,2-TRICHLOROETHANE	5.0	25 U	UG/L
TRICHLOROETHENE	5.0	810	UG/L
VINYL CHLORIDE	5.0	25 U	UG/L
O-XYLENE	5.0	25 U	UG/L
M+P-XYLENE	5.0	25 U	UG/L

SURROGATE RECOVERIES	QC LIMITS		
4-BROMOFLUOROBENZENE	(86 - 115 %)	99	%
TOLUENE-D8	(88 - 110 %)	101	%
DIBROMOFLUOROMETHANE	(86 - 118 %)	98	%

COLUMBIA ANALYTICAL SERVICES

VOLATILE ORGANICS
METHOD 8260 TCL
Reported: 09/24/97

Project Reference:
Client Sample ID : METHOD BLANK

Date Sampled : **Order #:** 168665 **Sample Matrix:** WATER
Date Received: **Submission #:** **Analytical Run** 20251

ANALYTE	PQL	RESULT	UNITS
DATE ANALYZED : 09/19/97			
ANALYTICAL DILUTION: 1.0			
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 %)	98	%

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, INC.
1 Mustang 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 9-16-97 PAGE 1 OF 1

PROJECT NAME Griffin IRM
PROJECT MANAGER/CONTACT Ken Armstrong
COMPANY/ADDRESS 30775 Bainbridge Rd, Ste 200
Solon, Ohio
TEL (216) 349-2708 FAX (216) 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-9-16-97	9-16-97	12:56		WATER	2											X									

RELINQUISHED BY:
Signature Bob Fabian
Printed Name Bob Fabian
Firm WCC
Date/Time 9-16-97 14:25

RECEIVED BY:
Signature Andy Toomey
Printed Name Andy Toomey
Firm
Date/Time 9-16-97 14:25

RELINQUISHED BY:
Signature
Printed Name
Firm
Date/Time

RECEIVED BY:
Signature Tom Hastings
Printed Name Tom Hastings
Firm
Date/Time 9/16/97 14:25

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: 97-9-223

SPECIAL INSTRUCTIONS/COMMENTS:
METALS
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

VOLATILE ORGANICS
METHOD 8260 TCL
Reported: 10/30/97

Woodward Clyde Consultants
Project Reference: GRIFFIN IRM
Client Sample ID : EFF-10-15-97

Date Sampled : 10/15/97 **Order #:** 173516 **Sample Matrix:** WATER
Date Received: 10/15/97 **Submission #:** 9710000235 **Analytical Run** 21177

ANALYTE	PQL	RESULT	UNITS
DATE ANALYZED : 10/22/97			
ANALYTICAL DILUTION: 1.0			
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	10	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	18	UG/L
1,1,2-TRICHLOROETHANE	5.0	5.0 U	UG/L
TRICHLOROETHENE	5.0	880	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 %)	87	%
TOLUENE-D8	(88 - 110 %)	105	%
DIBROMOFLUOROMETHANE	(86 - 118 %)	99	%

COLUMBIA ANALYTICAL SERVICES

VOLATILE ORGANICS
METHOD 8260 TCL
Reported: 10/30/97

Project Reference:
Client Sample ID : METHOD BLANK

Date Sampled : **Order #:** 174732 **Sample Matrix:** WATER
Date Received: **Submission #:** **Analytical Run** 21177

DATE ANALYZED : 10/22/97
ANALYTICAL DILUTION: 1.0

ANALYTE	PQL	RESULT	UNITS
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 %)	104	%
TOLUENE-D8	(88 - 110 %)	102	%
DIBROMOFLUOROMETHANE	(86 - 118 %)	100	%

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, INC.
1 Mustar[illegible] 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 10-15-97 PAGE 1 OF 1

PROJECT NAME Griffin IRM
PROJECT MANAGER/CONTACT Ken Armstrong
COMPANY/ADDRESS 30775 Bainbridge Rd., Ste 200 Solon, Ohio
TEL (216) 349-2708 FAX (216) 349-1514
SAMPLER'S SIGNATURE Bob Fabian

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-10-15-97	10-15-97	13:25	173516	WATER	2											X									

RELINQUISHED BY:
Signature Bob Fabian
Printed Name Bob Fabian
Firm WCC
Date/Time 10-15-97 14:25

RECEIVED BY:
Signature Tom Hastings
Printed Name Tom Hastings
Firm CAS
Date/Time 10/15/97 14:25

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: Client
Shipping #:
Temperature: NA
Submission No: 97-10-235

SPECIAL INSTRUCTIONS/COMMENTS:
METALS
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

VOLATILE ORGANICS
METHOD 8260 TCL
Reported: 12/02/97

Woodward Clyde Consultants
Project Reference: GRIFFIN IRM
Client Sample ID : EFF-11-17-97

Date Sampled : 11/17/97 **Order #:** 178151 **Sample Matrix:** WATER
Date Received: 11/17/97 **Submission #:** 9711000226 **Analytical Run** 22028

ANALYTE	PQL	RESULT	UNITS
DATE ANALYZED : 11/19/97			
ANALYTICAL DILUTION: 2.0			
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	12	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	17	UG/L
1,1,2-TRICHLOROETHANE	5.0	10 U	UG/L
TRICHLOROETHENE	5.0	690	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 %)	95	%
DIBROMOFLUOROMETHANE	(86 - 118 %)	94	%

COLUMBIA ANALYTICAL SERVICES

VOLATILE ORGANICS
METHOD 8260 TCL
Reported: 12/02/97

Project Reference:
Client Sample ID : METHOD BLANK

Date Sampled : **Order #:** 180144 **Sample Matrix:** WATER
Date Received: **Submission #:** **Analytical Run** 22028

ANALYTE	PQL	RESULT	UNITS
DATE ANALYZED : 11/19/97			
ANALYTICAL DILUTION: 1.0			
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 %)	100	%
TOLUENE-D8	(88 - 110 %)	99	%
DIBROMOFLUOROMETHANE	(86 - 118 %)	96	%

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, 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 11-17-97 PAGE 1 OF 1

PROJECT NAME Griffin IRM
PROJECT MANAGER/CONTACT Ken Armstrong
COMPANY/ADDRESS 30775 Bainbridge Rd., Ste 200 Solon, Ohio
TEL (216) 349-2708 FAX (216) 349-1574
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-11-17-97	111797	10:40	178151	(W)	2											X									

RELINQUISHED BY:
Signature: Bob Fabian
Printed Name: Bob Fabian
Firm: WCC
Date/Time: 11-17-97 11:30

RECEIVED BY:
Signature: V Gardner
Printed Name: V Gardner
Firm: CAS
Date/Time: 11/17/97 @ 1130

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: Client
Shipping #:
Temperature: 4°C
Submission No: 97-11226

SPECIAL INSTRUCTIONS/COMMENTS:
METALS
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

VOLATILE ORGANICS
METHOD 8260 TCL
Reported: 12/30/97

Woodward Clyde Consultants
Project Reference: GRIFFIN TECH
Client Sample ID : EFF 12-15-97

Date Sampled : 12/15/97 **Order #:** 183266 **Sample Matrix:** WATER
Date Received: 12/15/97 **Submission #:** 9712000249 **Analytical Run** 22646

ANALYTE	PQL	RESULT	UNITS
DATE ANALYZED : 12/23/97			
ANALYTICAL DILUTION: 2.5			
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	420	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 %)	106	%
TOLUENE-D8	(88 - 110 %)	104	%
DIBROMOFLUOROMETHANE	(86 - 118 %)	100	%

COLUMBIA ANALYTICAL SERVICES

VOLATILE ORGANICS
METHOD 8260 TCL
Reported: 12/30/97

Project Reference:
Client Sample ID : METHOD BLANK

Date Sampled : **Order #:** 185143 **Sample Matrix:** WATER
Date Received: **Submission #:** **Analytical Run** 22646

ANALYTE	PQL	RESULT	UNITS
DATE ANALYZED : 12/23/97			
ANALYTICAL DILUTION: 1.0			
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 %)	91	%
TOLUENE-D8	(88 - 110 %)	90	%
DIBROMOFLUOROMETHANE	(86 - 118 %)	107	%

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		

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

CHAIN O[illegible]USTODY/LABORATORY ANALYSIS REQUEST FORM

(800) 695-7222

DATE 12/15/97 PAGE 1 OF 1

PROJECT NAME Griffin Tech. (EO&M)
PROJECT MANAGER/CONTACT Ken Armstrong
COMPANY/ADDRESS Woodward Clyde
30795 Bainbridge Rd Solon Ohio 44139
TEL (440) 349-2700 FAX (440) 349-1514
SAMPLER'S SIGNATURE Kenneth M. Armstrong

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)								PRESERVATION pH < 2.0	PRESERVATION pH > 12	PRESERVATION Other
EFF 12-15-97	12/15/97	10:42	1832606	water	2	X																		

RELINQUISHED BY:
Signature: Kenneth M. Armstrong
Printed Name: Kenneth M. Armstrong
Firm: Woodward Clyde
Date/Time: 12/15/97 11:40 am

RECEIVED BY:
Signature: Cindy Toomey
Printed Name: Cindy Toomey
Firm: [illegible]
Date/Time: 12-15-97 1140

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
__ 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: N/A
Submission No: 97-12-249

SPECIAL INSTRUCTIONS/COMMENTS:
METALS
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

VOLATILE ORGANICS
METHOD 8260 TCL
Reported: 01/22/98

Woodward Clyde Consultants
Project Reference: GRIFFIN IRM
Client Sample ID : EFF-1-10-98

Date Sampled : 01/10/98 **Order #:** 188353 **Sample Matrix:** WATER
Date Received: 01/13/98 **Submission #:** 9801000157 **Analytical Run** 23270

ANALYTE	PQL	RESULT	UNITS
DATE ANALYZED : 01/15/98			
ANALYTICAL DILUTION: 2.0			
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 %)	93	%
TOLUENE-D8	(88 - 110 %)	91	%
DIBROMOFLUOROMETHANE	(86 - 118 %)	108	%

COLUMBIA ANALYTICAL SERVICES

VOLATILE ORGANICS
METHOD 8260 TCL
Reported: 01/22/98

Project Reference:
Client Sample ID : METHOD BLANK

Date Sampled : **Order #:** 189631 **Sample Matrix:** WATER
Date Received: **Submission #:** **Analytical Run** 23270

ANALYTE	PQL	RESULT	UNITS
DATE ANALYZED : 01/15/98			
ANALYTICAL DILUTION: 1.0			
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 %)	112	%

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, INC.
1 Mustar[redacted] Suite 250, P.O. Box 90859, Rochester, NY 14609-0859
(716) 288-5380 • FAX (716) 288-8475

CHAIN O[redacted]CUSTODY/LABORATORY ANALYSIS REQU[redacted]ST FORM

(800) 695-7222

DATE 1-12-98 PAGE 1 OF 1

PROJECT NAME Griffin IRM
PROJECT MANAGER/CONTACT Ken Armstrong
COMPANY/ADDRESS 30775 Bainbridge Rd, Ste 200
Solon, Ohio
TEL (216) 349-2708 FAX (216) 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)	8240							PRESERVATION pH < 2.0	pH > 12	Other
EFF-1-10-98	1-10-98	13:55	188353	WATER	2											X									

RELINQUISHED BY:
Signature Bob Fabian
Printed Name WCC
Firm
Date/Time 1-12-98

RECEIVED BY:
Signature FEDEX
Printed Name
Firm
Date/Time 1-13-98 @ 0950

RELINQUISHED BY:
Signature
Printed Name
Firm
Date/Time

RECEIVED BY:
Signature Tom Hastings
Printed Name Tom Hastings
Firm CAS
Date/Time 1/13/98 0950

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: Fed Ex
Shipping #: No Seals
Temperature: 2.6
Submission No: 98-1-157

SPECIAL INSTRUCTIONS/COMMENTS:
METALS
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

VOLATILE ORGANICS
METHOD 8260 TCL
Reported: 03/17/98

Woodward Clyde Consultants
Project Reference: GRIFFIN IRM
Client Sample ID : EFF-2-26-98

Date Sampled : 02/26/98 **Order #:** 197545 **Sample Matrix:** WATER
Date Received: 02/26/98 **Submission #:** 9803000075 **Analytical Run** 24671

ANALYTE	PQL	RESULT	UNITS
DATE ANALYZED : 03/09/98			
ANALYTICAL DILUTION: 1.0			
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	180	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 %)	106	%
TOLUENE-D8	(88 - 110 %)	104	%
DIBROMOFLUOROMETHANE	(86 - 118 %)	116	%

COLUMBIA ANALYTICAL SERVICES

VOLATILE ORGANICS
METHOD 8260 TCL
Reported: 03/17/98

Project Reference:
Client Sample ID : METHOD BLANK

Date Sampled : **Order #:** 199091 **Sample Matrix:** WATER
Date Received: **Submission #:** **Analytical Run** 24671

ANALYTE	PQL	RESULT	UNITS
DATE ANALYZED : 03/09/98			
ANALYTICAL DILUTION: 1.0			
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 %)	114	%
TOLUENE-D8	(88 - 110 %)	106	%
DIBROMOFLUOROMETHANE	(86 - 118 %)	97	%

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)

- Aiso 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, INC.
1 Mustang 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 WWC4

DATE 2-26-98 PAGE 1 OF 1

PROJECT NAME Griffin IRM

PROJECT MANAGER/CONTACT Ken Armstrong

COMPANY/ADDRESS 30775 Bainbridge Rd
Solon, Ohio

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)	8240	PRESERVATION pH < 2.0	pH > 12	Other
EFF-2-26-98	2-26-98	11:25	197545	WATER	2											X			

RELINQUISHED BY:
Signature Bob Fabian
Printed Name Bob Fabian
Firm WCC
Date/Time 2-26-98 12:20

RECEIVED BY:
Signature Joni Janson
Printed Name Joni Janson
Firm C.A.S.
Date/Time 2-26-98 12:20

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: Client
Shipping #:
Temperature:
Submission No: 3-75

SPECIAL INSTRUCTIONS/COMMENTS:
METALS
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

VOLATILE ORGANICS
METHOD 8260 TCL
Reported: 04/03/98

Woodward Clyde Consultants
Project Reference: 6E06191 GRIFFIN/DIEBOLD
Client Sample ID : EFF3-18-98

Date Sampled : 03/18/98 **Order #:** 199989 **Sample Matrix:** WATER
Date Received: 03/18/98 **Submission #:** 9803000281 **Analytical Run** 25036

DATE ANALYZED : 03/27/98
ANALYTICAL DILUTION: 1.0

ANALYTE	PQL	RESULT	UNITS
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	5.4	UG/L
1,1,2-TRICHLOROETHANE	5.0	5.0 U	UG/L
TRICHLOROETHENE	5.0	200	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 %)	97	%
DIBROMOFLUOROMETHANE	(86 - 118 %)	98	%

COLUMBIA ANALYTICAL SERVICES

VOLATILE ORGANICS
METHOD 8260 TCL
Reported: 04/03/98

Project Reference:
Client Sample ID : METHOD BLANK

Date Sampled :
Date Received:
Order #: 202903
Submission #:
Sample Matrix: WATER
Analytical Run 25036

DATE ANALYZED : 03/27/98
ANALYTICAL DILUTION: 1.0

ANALYTE	PQL	RESULT	UNITS
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 %)	103	%
TOLUENE-D8	(88 - 110 %)	99	%
DIBROMOFLUOROMETHANE	(86 - 118 %)	95	%

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, INC.
1 Mustang, 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 3/18/98 PAGE 2 OF 3

PROJECT NAME Ecorail Griffin / Richfield
PROJECT MANAGER/CONTACT K Armstrong
COMPANY/ADDRESS Woodward-Clyde
2175 Point Blvd. Elgin, Ohio
TEL (330) 359-2708 FAX (216) 359-1514
SAMPLER'S SIGNATURE Kenneth M. Armstrong

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)	VOC's by ASP 91-1	PRESERVATION pH < 2.0	PRESERVATION pH > 12	PRESERVATION Other
MW-4	3/18	10:24	199176	water	2											X			
MW-55		10:35	77		2											X			
MW-5D		10:41	78		2											X			
MW-2D		11:05	79		2											X			
MW-25		10:56	80		2											X			
Duplicate		11:08	81		2											X			
MW-1		11:20	82		2											X			
Field Blank		11:35	83		2											X			
Trip Blank		—	85		2											X			
EAF 3-18-98		11:47	199189	water	2	X													

RELINQUISHED BY:
Signature: Kenneth M. Armstrong
Printed Name: Kenneth M. Armstrong
Firm: Woodward Clyde
Date/Time: 3/18/98 @ 1345

RECEIVED BY:
Signature: V. Gardner
Printed Name: V. Gardner
Firm: CAS
Date/Time: 3/18/98 @ 1345

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: Client
Shipping #:
Temperature: 4.2°C
Submission No: 98-3-279

SPECIAL INSTRUCTIONS/COMMENTS:
METALS 98-3-281
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

CASE NARRATIVE

COMPANY: Woodward Clyde Consultants
Diebold Griffin
SUBMISSION #: 9803000279

WCC water samples were collected on 03/18/98 and received at CAS on 03/18/98 in good condition at a temperature of 4.2 C. See the CAS Batching form to cross reference between Client ID and CAS sample numbers.

VOLATILE ORGANICS

Twenty water samples and a trip blank were analyzed for Target Compound List (TCL) of volatile organics by method 91-1 from the NYSASP 1991.

Several samples were analyzed at dilutions to obtain target compounds within the linear range of the method.

Sample MW13 was analyzed for site specific QC. All matrix spike recoveries and %RPD were within QC Limits except for the RPD of Trichloroethene..

All tuning criteria for BFB were met.

The initial and continuing calibration criteria were met for all analytes.

All surrogate standard recoveries were within acceptance limits.

All internal standard areas were within QC Limits. Internal standard retention times were outside windows for IS3 in samples VBLK02MS, MW-13, MW-9D and MW-11 by approximately 0.1 minutes. These samples were not able to be reanalyzed within the required holding time. All chromatograms for these samples have been manually reviewed closely for any target compounds.

All samples were analyzed within the holding time as specified in the method.

No other analytical or QC problems were encountered.

1 Mustard Street, Suite 250 ▪ Rochester, NY 14609 ▪ Telephone (716) 288-5380 ▪ Fax (716) 288-8475

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DUPLICATE

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Matrix: (soil/water) WATER Lab Sample ID: 199981 5.0

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: R8227.D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 03/25/98

GC Column: RTX 502 ID: 0.53 (mm) Dilution Factor: ~~1.0~~ 5.0 CF 4/17

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

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	50	U
75-01-4	Vinyl chloride	50	U
75-00-3	Chloroethane	50	U
74-83-9	Bromomethane	50	U
67-64-1	Acetone	50	U
75-35-4	1,1-Dichloroethene	50	U
75-09-2	Methylene chloride	50	U
75-15-0	Carbon disulfide	50	U
75-34-3	1,1-Dichloroethane	50	U
78-93-3	2-Butanone	50	U
540-59-0	1,2-Dichloroethene (total)	29	J
67-66-3	Chloroform	50	U
107-06-2	1,2-Dichloroethane	50	U
71-55-6	1,1,1-Trichloroethane	19	J
56-23-5	Carbon tetrachloride	50	U
71-43-2	Benzene	50	U
79-01-6	Trichloroethene	760	
78-87-5	1,2-Dichloropropane	50	U
75-27-4	Bromodichloromethane	50	U
10061-01-5	cis-1,3-Dichloropropene	50	U
10061-02-6	trans-1,3-Dichloropropene	50	U
79-00-5	1,1,2-Trichloroethane	50	U
124-48-1	Dibromochloromethane	50	U
75-25-2	Bromoform	50	U
108-10-1	4-Methyl-2-pentanone	50	U
108-88-3	Toluene	50	U
591-78-6	2-Hexanone	50	U
127-18-4	Tetrachloroethene	50	U
108-90-7	Chlorobenzene	50	U
100-41-4	Ethylbenzene	50	U
1330-20-7	Xylenes (total)	50	U
100-42-5	Styrene	50	U
108-88-3	1,1,2,2-Tetrachloroethane	50	U

CF 4/17

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

DUPLICATE

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Matrix: (soil/water) WATER Lab Sample ID: 199981 5.0

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: R8227.D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 03/25/98

GC Column: RTX 502 ID: 0.53 (mm) Dilution Factor: 1.0

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

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND	RT	EST. CONC.	Q

CB 4/17

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

FIELD BLANK

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Matrix: (soil/water) WATER Lab Sample ID: 199983 1.0

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: R8191.D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 03/23/98

GC Column: RTX 502 ID: 0.53 (mm) Dilution Factor: 1.0

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

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	U
75-01-4	Vinyl chloride	10	U
75-00-3	Chloroethane	10	U
74-83-9	Bromomethane	10	U
67-64-1	Acetone	10	U
75-35-4	1,1-Dichloroethene	10	U
75-09-2	Methylene chloride	10	U
75-15-0	Carbon disulfide	10	U
75-34-3	1,1-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon tetrachloride	10	U
71-43-2	Benzene	10	U
79-01-6	Trichloroethene	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
124-48-1	Dibromochloromethane	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylenes (total)	10	U
100-42-5	Styrene	10	U
108-88-3	1,1,2,2-Tetrachloroethane	10	U

4/17

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

FIELD BLANK

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Matrix: (soil/water) WATER Lab Sample ID: 199983 1.0

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: R8191.D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 03/23/98

GC Column: RTX 502 ID: 0.53 (mm) Dilution Factor: 1.0

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

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 1

CAS NO.	COMPOUND	RT	EST. CONC.	Q
1.	unknown	3.70	13	J

4/17

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-1

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Matrix: (soil/water) WATER Lab Sample ID: 199982 1.0

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: R8230.D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 03/25/98

GC Column: RTX 502 ID: 0.53 (mm) Dilution Factor: 1.0

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

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	U
75-01-4	Vinyl chloride	10	U
75-00-3	Chloroethane	10	U
74-83-9	Bromomethane	10	U
67-64-1	Acetone	10	U
75-35-4	1,1-Dichloroethene	10	U
75-09-2	Methylene chloride	10	U
75-15-0	Carbon disulfide	10	U
75-34-3	1,1-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon tetrachloride	10	U
71-43-2	Benzene	10	U
79-01-6	Trichloroethene	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
124-48-1	Dibromochloromethane	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylenes (total)	10	U
100-42-5	Styrene	10	U
108-88-3	1,1,2,2-Tetrachloroethane	10	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW-1

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Matrix: (soil/water) WATER Lab Sample ID: 199982 1.0

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: R8230.D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 03/25/98

GC Column: RTX 502 ID: 0.53 (mm) Dilution Factor: 1.0

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

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND	RT	EST. CONC.	Q

RE 4/17

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-2D

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Matrix: (soil/water) WATER Lab Sample ID: 199979 5.0

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: R8226.D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 03/25/98

GC Column: RTX 502 ID: 0.53 (mm) Dilution Factor: ~~1~~ 5.0 4/17

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

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	50	U
75-01-4	Vinyl chloride	50	U
75-00-3	Chloroethane	50	U
74-83-9	Bromomethane	50	U
67-64-1	Acetone	50	U
75-35-4	1,1-Dichloroethene	50	U
75-09-2	Methylene chloride	50	U
75-15-0	Carbon disulfide	50	U
75-34-3	1,1-Dichloroethane	50	U
78-93-3	2-Butanone	50	U
540-59-0	1,2-Dichloroethene (total)	28	J
67-66-3	Chloroform	50	U
107-06-2	1,2-Dichloroethane	50	U
71-55-6	1,1,1-Trichloroethane	16	J
56-23-5	Carbon tetrachloride	50	U
71-43-2	Benzene	50	U
79-01-6	Trichloroethene	740	
78-87-5	1,2-Dichloropropane	50	U
75-27-4	Bromodichloromethane	50	U
10061-01-5	cis-1,3-Dichloropropene	50	U
10061-02-6	trans-1,3-Dichloropropene	50	U
79-00-5	1,1,2-Trichloroethane	50	U
124-48-1	Dibromochloromethane	50	U
75-25-2	Bromoform	50	U
108-10-1	4-Methyl-2-pentanone	50	U
108-88-3	Toluene	50	U
591-78-6	2-Hexanone	50	U
127-18-4	Tetrachloroethene	50	U
108-90-7	Chlorobenzene	50	U
100-41-4	Ethylbenzene	50	U
1330-20-7	Xylenes (total)	50	U
100-42-5	Styrene	50	U
108-88-3	1,1,2,2-Tetrachloroethane	50	U

4/17

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW-2D

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Matrix: (soil/water) WATER Lab Sample ID: 199979 5.0

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: R8226.D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 03/25/98

GC Column: RTX 502 ID: 0.53 (mm) Dilution Factor: ~~1.0~~ 5.0 RH/M

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

CONCENTRATION UNITS:

Number TICs found: 0 (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND	RT	EST. CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-2S

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Matrix: (soil/water) WATER Lab Sample ID: 199980 100

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: R8224.D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 03/25/98

GC Column: RTX 502 ID: 0.53 (mm) Dilution Factor: ~~1.0~~ 100 4/17

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	1000	U
75-01-4	Vinyl chloride	1000	U
75-00-3	Chloroethane	1000	U
74-83-9	Bromomethane	1000	U
67-64-1	Acetone	1000	U
75-35-4	1,1-Dichloroethene	1000	U
75-09-2	Methylene chloride	1000	U
75-15-0	Carbon disulfide	1000	U
75-34-3	1,1-Dichloroethane	1000	U
78-93-3	2-Butanone	1000	U
540-59-0	1,2-Dichloroethene (total)	1000	U
67-66-3	Chloroform	1000	U
107-06-2	1,2-Dichloroethane	1000	U
71-55-6	1,1,1-Trichloroethane	1000	U
56-23-5	Carbon tetrachloride	1000	U
71-43-2	Benzene	1000	U
79-01-6	Trichloroethene	17000	
78-87-5	1,2-Dichloropropane	1000	U
75-27-4	Bromodichloromethane	1000	U
10061-01-5	cis-1,3-Dichloropropene	1000	U
10061-02-6	trans-1,3-Dichloropropene	1000	U
79-00-5	1,1,2-Trichloroethane	1000	U
124-48-1	Dibromochloromethane	1000	U
75-25-2	Bromoform	1000	U
108-10-1	4-Methyl-2-pentanone	1000	U
108-88-3	Toluene	1000	U
591-78-6	2-Hexanone	1000	U
127-18-4	Tetrachloroethene	1000	U
108-90-7	Chlorobenzene	1000	U
100-41-4	Ethylbenzene	1000	U
1330-20-7	Xylenes (total)	1000	U
100-42-5	Styrene	1000	U
108-88-3	1,1,2,2-Tetrachloroethane	1000	U

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1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW-2S

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Matrix: (soil/water) WATER Lab Sample ID: 199980 100

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: R8224.D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 03/25/98

GC Column: RTX 502 ID: 0.53 (mm) Dilution Factor: 1.0

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

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND	RT	EST. CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-3

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Matrix: (soil/water) WATER Lab Sample ID: 199975 1.0

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: R8213.D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 03/24/98

GC Column: RTX 502 ID: 0.53 (mm) Dilution Factor: 1.0

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

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	U
75-01-4	Vinyl chloride	10	U
75-00-3	Chloroethane	10	U
74-83-9	Bromomethane	10	U
67-64-1	Acetone	10	U
75-35-4	1,1-Dichloroethene	10	U
75-09-2	Methylene chloride	10	U
75-15-0	Carbon disulfide	10	U
75-34-3	1,1-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon tetrachloride	10	U
71-43-2	Benzene	10	U
79-01-6	Trichloroethene	88	
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
124-48-1	Dibromochloromethane	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylenes (total)	10	U
100-42-5	Styrene	10	U
108-88-3	1,1,2,2-Tetrachloroethane	10	U

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1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW-3

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Matrix: (soil/water) WATER Lab Sample ID: 199975 1.0

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: R8213.D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 03/24/98

GC Column: RTX 502 ID: 0.53 (mm) Dilution Factor: 1.0

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

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND	RT	EST. CONC.	Q

FORM I VOA-TIC

95-1 ASP

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-4

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Matrix: (soil/water) WATER Lab Sample ID: 199976 1.0

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: R8214.D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 03/24/98

GC Column: RTX 502 ID: 0.53 (mm) Dilution Factor: 1.0

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

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	U
75-01-4	Vinyl chloride	10	U
75-00-3	Chloroethane	10	U
74-83-9	Bromomethane	10	U
67-64-1	Acetone	10	U
75-35-4	1,1-Dichloroethene	10	U
75-09-2	Methylene chloride	10	U
75-15-0	Carbon disulfide	10	U
75-34-3	1,1-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
540-59-0	1,2-Dichloroethene (total)	2	J
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon tetrachloride	10	U
71-43-2	Benzene	10	U
79-01-6	Trichloroethene	59	
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
124-48-1	Dibromochloromethane	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylenes (total)	10	U
100-42-5	Styrene	10	U
108-88-3	1,1,2,2-Tetrachloroethane	10	U

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1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW-4

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Matrix: (soil/water) WATER Lab Sample ID: 199976 1.0

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: R8214.D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 03/24/98

GC Column: RTX 502 ID: 0.53 (mm) Dilution Factor: 1.0

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

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND	RT	EST. CONC.	Q

FORM I VOA-TIC

95-1 ASP

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-5D

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Matrix: (soil/water) WATER Lab Sample ID: 199978 2.0

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: R8229.D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 03/25/98

GC Column: RTX 502 ID: 0.53 (mm) Dilution Factor: ~~1.0~~ 2.0 R 4/17

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

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	20	U
75-01-4	Vinyl chloride	20	U
75-00-3	Chloroethane	20	U
74-83-9	Bromomethane	20	U
67-64-1	Acetone	20	U
75-35-4	1,1-Dichloroethene	20	U
75-09-2	Methylene chloride	20	U
75-15-0	Carbon disulfide	20	U
75-34-3	1,1-Dichloroethane	20	U
78-93-3	2-Butanone	20	U
540-59-0	1,2-Dichloroethene (total)	20	U
67-66-3	Chloroform	20	U
107-06-2	1,2-Dichloroethane	20	U
71-55-6	1,1,1-Trichloroethane	20	U
56-23-5	Carbon tetrachloride	7	J
71-43-2	Benzene	20	U
79-01-6	Trichloroethene	20	U
78-87-5	1,2-Dichloropropane	250	
75-27-4	Bromodichloromethane	20	U
10061-01-5	cis-1,3-Dichloropropene	20	U
10061-02-6	trans-1,3-Dichloropropene	20	U
79-00-5	1,1,2-Trichloroethane	20	U
124-48-1	Dibromochloromethane	20	U
75-25-2	Bromoform	20	U
108-10-1	4-Methyl-2-pentanone	20	U
108-88-3	Toluene	20	U
591-78-6	2-Hexanone	20	U
127-18-4	Tetrachloroethene	20	U
108-90-7	Chlorobenzene	20	U
100-41-4	Ethylbenzene	20	U
1330-20-7	Xylenes (total)	20	U
100-42-5	Styrene	20	U
108-88-3	1,1,2,2-Tetrachloroethane	20	U

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1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW-5D

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Matrix: (soil/water) WATER Lab Sample ID: 199978 2.0

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: R8229.D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 03/25/98

GC Column: RTX 502 ID: 0.53 (mm) Dilution Factor: ~~1.0~~ 2.0 RH 4/17

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

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND	RT	EST. CONC.	Q

RH 4/17

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-5S

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Matrix: (soil/water) WATER Lab Sample ID: 199977 1.0

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: R8228.D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 03/25/98

GC Column: RTX 502 ID: 0.53 (mm) Dilution Factor: 1.0

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

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	U
75-01-4	Vinyl chloride	10	U
75-00-3	Chloroethane	10	U
74-83-9	Bromomethane	10	U
67-64-1	Acetone	10	U
75-35-4	1,1-Dichloroethene	10	U
75-09-2	Methylene chloride	10	U
75-15-0	Carbon disulfide	10	U
75-34-3	1,1-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
71-55-6	1,1,1-Trichloroethane	4	J
56-23-5	Carbon tetrachloride	10	U
71-43-2	Benzene	10	U
79-01-6	Trichloroethene	120	
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
124-48-1	Dibromochloromethane	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylenes (total)	1	J
100-42-5	Styrene	10	U
108-88-3	1,1,2,2-Tetrachloroethane	10	U

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1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW-5S

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Matrix: (soil/water) WATER Lab Sample ID: 199977 1.0

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: R8228.D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 03/25/98

GC Column: RTX 502 ID: 0.53 (mm) Dilution Factor: 1.0

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

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND	RT	EST. CONC.	Q

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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-6D

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Matrix: (soil/water) WATER Lab Sample ID: 199968 1.0

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: R8207.D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 03/24/98

GC Column: RTX 502 ID: 0.53 (mm) Dilution Factor: 1.0

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

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
75-01-4	Vinyl chloride	10	U
75-00-3	Chloroethane	10	U
74-83-9	Bromomethane	10	U
67-64-1	Acetone	10	U
75-35-4	1,1-Dichloroethene	10	U
75-09-2	Methylene chloride	10	U
75-15-0	Carbon disulfide	10	U
75-34-3	1,1-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon tetrachloride	10	U
71-43-2	Benzene	10	U
79-01-6	Trichloroethene	6	J
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
124-48-1	Dibromochloromethane	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylenes (total)	10	U
100-42-5	Styrene	10	U
108-88-3	1,1,2,2-Tetrachloroethane	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW-6D

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Matrix: (soil/water) WATER Lab Sample ID: 199968 1.0

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: R8207.D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 03/24/98

GC Column: RTX 502 ID: 0.53 (mm) Dilution Factor: 1.0

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

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND	RT	EST. CONC.	Q

FORM I VOA-TIC

95-1 ASP

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-6S

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Matrix: (soil/water) WATER Lab Sample ID: 199967 1.0

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: R8245.D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 03/26/98

GC Column: RTX 502 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
74-87-3	Chloromethane	10	U
75-01-4	Vinyl chloride	10	U
75-00-3	Chloroethane	10	U
74-83-9	Bromomethane	10	U
67-64-1	Acetone	10	U
75-35-4	1,1-Dichloroethene	10	U
75-09-2	Methylene chloride	10	U
75-15-0	Carbon disulfide	10	U
75-34-3	1,1-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon tetrachloride	10	U
71-43-2	Benzene	10	U
79-01-6	Trichloroethene	5	J
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
124-48-1	Dibromochloromethane	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylenes (total)	10	U
100-42-5	Styrene	10	U
108-88-3	1,1,2,2-Tetrachloroethane	10	U

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1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW-6S

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Matrix: (soil/water) WATER Lab Sample ID: 199967 1.0

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: R8245.D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 03/26/98

GC Column: RTX 502 ID: 0.53 (mm) Dilution Factor: 1.0

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

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND	RT	EST. CONC.	Q

FORM I VOA-TIC

95-1 ASP

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-7D

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Matrix: (soil/water) WATER Lab Sample ID: 199970 1.0

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: R8209.D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 03/24/98

GC Column: RTX 502 ID: 0.53 (mm) Dilution Factor: 1.0

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

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	U
75-01-4	Vinyl chloride	10	U
75-00-3	Chloroethane	10	U
74-83-9	Bromomethane	10	U
67-64-1	Acetone	10	U
75-35-4	1,1-Dichloroethene	10	U
75-09-2	Methylene chloride	10	U
75-15-0	Carbon disulfide	10	U
75-34-3	1,1-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
540-59-0	1,2-Dichloroethene (total)	15	
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
71-55-6	1,1,1-Trichloroethane	2	J
56-23-5	Carbon tetrachloride	10	U
71-43-2	Benzene	10	U
79-01-6	Trichloroethene	150	
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
124-48-1	Dibromochloromethane	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylenes (total)	10	U
100-42-5	Styrene	10	U
108-88-3	1,1,2,2-Tetrachloroethane	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW-7D

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Matrix: (soil/water) WATER Lab Sample ID: 199970 1.0

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: R8209.D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 03/24/98

GC Column: RTX 502 ID: 0.53 (mm) Dilution Factor: 1.0

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

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND	RT	EST. CONC.	Q

FORM I VOA-TIC 95-1 ASP

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-7S

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Matrix: (soil/water) WATER Lab Sample ID: 199969 1.0

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: R8208.D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 03/24/98

GC Column: RTX 502 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
74-87-3	Chloromethane	10	U
75-01-4	Vinyl chloride	10	U
75-00-3	Chloroethane	10	U
74-83-9	Bromomethane	10	U
67-64-1	Acetone	10	U
75-35-4	1,1-Dichloroethene	10	U
75-09-2	Methylene chloride	10	U
75-15-0	Carbon disulfide	10	U
75-34-3	1,1-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon tetrachloride	10	U
71-43-2	Benzene	10	U
79-01-6	Trichloroethene	3	J
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
124-48-1	Dibromochloromethane	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylenes (total)	10	U
100-42-5	Styrene	10	U
108-88-3	1,1,2,2-Tetrachloroethane	10	U

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1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW-7S

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Matrix: (soil/water) WATER Lab Sample ID: 199969 1.0

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: R8208.D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 03/24/98

GC Column: RTX 502 ID: 0.53 (mm) Dilution Factor: 1.0

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

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND	RT	EST. CONC.	Q

FORM I VOA-TIC

95-1 ASP

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-9D

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Matrix: (soil/water) WATER Lab Sample ID: 199972 1.0

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: R8211.D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 03/24/98

GC Column: RTX 502 ID: 0.53 (mm) Dilution Factor: 1.0

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

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	U
75-01-4	Vinyl chloride	10	U
75-00-3	Chloroethane	10	U
74-83-9	Bromomethane	10	U
67-64-1	Acetone	10	U
75-35-4	1,1-Dichloroethene	10	U
75-09-2	Methylene chloride	10	U
75-15-0	Carbon disulfide	10	U
75-34-3	1,1-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon tetrachloride	10	U
71-43-2	Benzene	10	U
79-01-6	Trichloroethene	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
124-48-1	Dibromochloromethane	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylenes (total)	10	U
100-42-5	Styrene	10	U
108-88-3	1,1,2,2-Tetrachloroethane	10	U

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1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW-9D

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Matrix: (soil/water) WATER Lab Sample ID: 199972 1.0

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: R8211.D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 03/24/98

GC Column: RTX 502 ID: 0.53 (mm) Dilution Factor: 1.0

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

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND	RT	EST. CONC.	Q

FORM I VOA-TIC

95-1 ASP

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-9S

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Matrix: (soil/water) WATER Lab Sample ID: 199971 1.0

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: R8210.D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 03/24/98

GC Column: RTX 502 ID: 0.53 (mm) Dilution Factor: 1.0

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

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	U
75-01-4	Vinyl chloride	10	U
75-00-3	Chloroethane	10	U
74-83-9	Bromomethane	10	U
67-64-1	Acetone	10	U
75-35-4	1,1-Dichloroethene	10	U
75-09-2	Methylene chloride	10	U
75-15-0	Carbon disulfide	10	U
75-34-3	1,1-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon tetrachloride	10	U
71-43-2	Benzene	10	U
79-01-6	Trichloroethene	2	J
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
124-48-1	Dibromochloromethane	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylenes (total)	10	U
100-42-5	Styrene	10	U
108-88-3	1,1,2,2-Tetrachloroethane	10	U

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1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW-9S

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Matrix: (soil/water) WATER Lab Sample ID: 199971 1.0

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: R8210.D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 03/24/98

GC Column: RTX 502 ID: 0.53 (mm) Dilution Factor: 1.0

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

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND	RT	EST. CONC.	Q

FORM I VOA-TIC

95-1 ASP

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-11

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Matrix: (soil/water) WATER Lab Sample ID: 199974 1.0

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: R8212.D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 03/24/98

GC Column: RTX 502 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
74-87-3	Chloromethane	10	U
75-01-4	Vinyl chloride	10	U
75-00-3	Chloroethane	10	U
74-83-9	Bromomethane	10	U
67-64-1	Acetone	10	U
75-35-4	1,1-Dichloroethene	10	U
75-09-2	Methylene chloride	10	U
75-15-0	Carbon disulfide	10	U
75-34-3	1,1-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon tetrachloride	10	U
71-43-2	Benzene	10	U
79-01-6	Trichloroethene	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
124-48-1	Dibromochloromethane	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylenes (total)	10	U
100-42-5	Styrene	10	U
108-88-3	1,1,2,2-Tetrachloroethane	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW-11

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Matrix: (soil/water) WATER Lab Sample ID: 199974 1.0

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: R8212.D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 03/24/98

GC Column: RTX 502 ID: 0.53 (mm) Dilution Factor: 1.0

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

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND	RT	EST. CONC.	Q

FORM I VOA-TIC

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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-13

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Matrix: (soil/water) WATER Lab Sample ID: 199973 1.0

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: R8204.D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 03/24/98

GC Column: RTX 502 ID: 0.53 (mm) Dilution Factor: 1.0

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

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	U
75-01-4	Vinyl chloride	10	U
75-00-3	Chloroethane	10	U
74-83-9	Bromomethane	10	U
67-64-1	Acetone	10	U
75-35-4	1,1-Dichloroethene	10	U
75-09-2	Methylene chloride	10	U
75-15-0	Carbon disulfide	10	U
75-34-3	1,1-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
71-55-6	1,1,1-Trichloroethane	2	J
56-23-5	Carbon tetrachloride	10	U
71-43-2	Benzene	10	U
79-01-6	Trichloroethene	110	
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
124-48-1	Dibromochloromethane	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylenes (total)	10	U
100-42-5	Styrene	10	U
108-88-3	1,1,2,2-Tetrachloroethane	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW-13

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Matrix: (soil/water) WATER Lab Sample ID: 199973 1.0

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: R8204.D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 03/24/98

GC Column: RTX 502 ID: 0.53 (mm) Dilution Factor: 1.0

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

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND	RT	EST. CONC.	Q

BH 4/17

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

RW-01

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Matrix: (soil/water) WATER Lab Sample ID: 199986 1.0

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: R8242.D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 03/26/98

GC Column: RTX 502 ID: 0.53 (mm) Dilution Factor: 1.0

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

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	U
75-01-4	Vinyl chloride	10	U
75-00-3	Chloroethane	10	U
74-83-9	Bromomethane	10	U
67-64-1	Acetone	10	U
75-35-4	1,1-Dichloroethene	10	U
75-09-2	Methylene chloride	10	U
75-15-0	Carbon disulfide	10	U
75-34-3	1,1-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
540-59-0	1,2-Dichloroethene (total)	5	J
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
71-55-6	1,1,1-Trichloroethane	4	J
56-23-5	Carbon tetrachloride	10	U
71-43-2	Benzene	10	U
79-01-6	Trichloroethene	150	
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
124-48-1	Dibromochloromethane	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylenes (total)	10	U
100-42-5	Styrene	10	U
108-88-3	1,1,2,2-Tetrachloroethane	10	U

Rptln

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

RW-01

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Matrix: (soil/water) WATER Lab Sample ID: 199986 1.0

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: R8242.D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 03/26/98

GC Column: RTX 502 ID: 0.53 (mm) Dilution Factor: 1.0

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

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND	RT	EST. CONC.	Q

Reflin

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

RW-02

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Matrix: (soil/water) WATER Lab Sample ID: 199987 1.0

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: R8243.D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 03/26/98

GC Column: RTX 502 ID: 0.53 (mm) Dilution Factor: 1.0

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

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
75-01-4	Vinyl chloride	10	U
75-00-3	Chloroethane	10	U
74-83-9	Bromomethane	10	U
67-64-1	Acetone	10	U
75-35-4	1,1-Dichloroethene	10	U
75-09-2	Methylene chloride	10	U
75-15-0	Carbon disulfide	10	U
75-34-3	1,1-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
71-55-6	1,1,1-Trichloroethane	3	J
56-23-5	Carbon tetrachloride	10	U
71-43-2	Benzene	10	U
79-01-6	Trichloroethene	110	
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
124-48-1	Dibromochloromethane	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylenes (total)	10	U
100-42-5	Styrene	10	U
108-88-3	1,1,2,2-Tetrachloroethane	10	U

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1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

RW-02

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Matrix: (soil/water) WATER Lab Sample ID: 199987 1.0

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: R8243.D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 03/26/98

GC Column: RTX 502 ID: 0.53 (mm) Dilution Factor: 1.0

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

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND	RT	EST. CONC.	Q

RH 4/17

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

RW-03

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Matrix: (soil/water) WATER Lab Sample ID: 199988 1.0

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: R8244.D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 03/26/98

GC Column: RTX 502 ID: 0.53 (mm) Dilution Factor: 1.0

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

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	U
75-01-4	Vinyl chloride	10	U
75-00-3	Chloroethane	10	U
74-83-9	Bromomethane	10	U
67-64-1	Acetone	10	U
75-35-4	1,1-Dichloroethene	10	U
75-09-2	Methylene chloride	10	U
75-15-0	Carbon disulfide	10	U
75-34-3	1,1-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
71-55-6	1,1,1-Trichloroethane	6	J
56-23-5	Carbon tetrachloride	10	U
71-43-2	Benzene	10	U
79-01-6	Trichloroethene	200	
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
124-48-1	Dibromochloromethane	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylenes (total)	10	U
100-42-5	Styrene	10	U
108-88-3	1,1,2,2-Tetrachloroethane	10	U

4/17

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

RW-03

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Matrix: (soil/water) WATER Lab Sample ID: 199988 1.0

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: R8244.D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 03/26/98

GC Column: RTX 502 ID: 0.53 (mm) Dilution Factor: 1.0

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

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND	RT	EST. CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TRIP BLANK

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Matrix: (soil/water) WATER Lab Sample ID: 199985 1.0

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: R8192.D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 03/23/98

GC Column: RTX 502 ID: 0.53 (mm) Dilution Factor: 1.0

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

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
75-01-4	Vinyl chloride	10	U
75-00-3	Chloroethane	10	U
74-83-9	Bromomethane	10	U
67-64-1	Acetone	10	U
75-35-4	1,1-Dichloroethene	10	U
75-09-2	Methylene chloride	10	U
75-15-0	Carbon disulfide	10	U
75-34-3	1,1-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon tetrachloride	10	U
71-43-2	Benzene	10	U
79-01-6	Trichloroethene	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
124-48-1	Dibromochloromethane	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylenes (total)	10	U
100-42-5	Styrene	10	U
108-88-3	1,1,2,2-Tetrachloroethane	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

TRIP BLANK

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Matrix: (soil/water) WATER Lab Sample ID: 199985 1.0

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: R8192.D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 03/23/98

GC Column: RTX 502 ID: 0.53 (mm) Dilution Factor: 1.0

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

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND	RT	EST. CONC.	Q

FORM I VOA-TIC

95-1 ASP

2A

WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: CAS/ROCH Contract: WCC-GRIFFIN

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

	EPA SAMPLE NO.	SMC1 #	SMC2 #	SMC3 #	TOT OUT
01	VBLK01	102	98	95	0
02	FIELD BLANK	107	95	107	0
03	TRIP BLANK	102	89	97	0
04	VBLK02	99	102	94	0
05	VBLK02MS	99	100	101	0
06	MW-13	100	102	101	0
07	MW-13MS	108	109	107	0
08	MW-13MSD	109	103	104	0
09	MW-6D	97	99	94	0
10	MW-7S	98	98	100	0
11	MW-7D	97	101	93	0
12	MW-9S	102	95	98	0
13	MW-9D	104	97	97	0
14	MW-11	107	107	103	0
15	MW-3	105	110	99	0
16	MW-4	94	94	101	0
17	VBLK03	109	96	109	0
18	MW-2S	100	92	109	0
19	MW-2D	113	95	102	0
20	DUPLICATE	108	92	99	0
21	MW-5S	108	89	107	0
22	MW-5D	105	91	103	0
23	MW-1	104	96	102	0
24	VBLK04	108	105	99	0
25	RW-01	106	92	101	0
26	RW-02	101	107	103	0
27	RW-03	101	99	106	0
28	MW-6S	112	95	102	0

			QC LIMITS
SMC1	=	1,2-Dichloroethane-d4	(76-114)
SMC2	=	Toluene-d8	(88-110)
SMC3	=	Bromofluorobenzene	(86-115)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

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3A

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CAS/ROCH Contract: WCC-GRIFFIN

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Matrix Spike - EPA Sample No.: MW-13

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	50	0.0	55	110	61 - 145
Benzene	50	0.0	56	112	71 - 120
Trichloroethene	50	110	170	118	76 - 127
Toluene	50	0.0	56	112	76 - 125
Chlorobenzene	50	0.0	55	110	75 - 130

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	50	54	108	2	14	61 - 145
Benzene	50	55	110	2	14	71 - 120
Trichloroethene	50	160	100	18 *	11	76 - 127
Toluene	50	52	104	7	13	76 - 125
Chlorobenzene	50	54	108	2	13	75 - 130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 1 out of 5 outside limits

Spike Recovery: 0 out of 10 outside limits

COMMENTS: _____

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-13MS

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Matrix: (soil/water) WATER Lab Sample ID: 199973 1.0MS

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: R8205.D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 03/24/98

GC Column: RTX 502 ID: 0.53 (mm) Dilution Factor: 1.0

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

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	U
75-01-4	Vinyl chloride	10	U
75-00-3	Chloroethane	10	U
74-83-9	Bromomethane	10	U
67-64-1	Acetone	10	U
75-35-4	1,1-Dichloroethene	55	
75-09-2	Methylene chloride	10	U
75-15-0	Carbon disulfide	10	U
75-34-3	1,1-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
71-55-6	1,1,1-Trichloroethane	2	J
56-23-5	Carbon tetrachloride	10	U
71-43-2	Benzene	56	
79-01-6	Trichloroethene	170	
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
124-48-1	Dibromochloromethane	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	56	
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
108-90-7	Chlorobenzene	55	
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylenes (total)	10	U
100-42-5	Styrene	10	U
108-88-3	1,1,2,2-Tetrachloroethane	10	U

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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-13MSD

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Matrix: (soil/water) WATER Lab Sample ID: 199973 1.0MS

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: R8206.D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 03/24/98

GC Column: RTX 502 ID: 0.53 (mm) Dilution Factor: 1.0

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

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	U
75-01-4	Vinyl chloride	10	U
75-00-3	Chloroethane	10	U
74-83-9	Bromomethane	10	U
67-64-1	Acetone	10	U
75-35-4	1,1-Dichloroethene	54	
75-09-2	Methylene chloride	10	U
75-15-0	Carbon disulfide	10	U
75-34-3	1,1-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
71-55-6	1,1,1-Trichloroethane	2	J
56-23-5	Carbon tetrachloride	10	U
71-43-2	Benzene	55	
79-01-6	Trichloroethene	160	
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
124-48-1	Dibromochloromethane	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	52	
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
108-90-7	Chlorobenzene	54	
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylenes (total)	10	U
100-42-5	Styrene	10	U
108-88-3	1,1,2,2-Tetrachloroethane	10	U

3A

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CAS/ROCH Contract: WCC-GRIFFIN

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Matrix Spike - EPA Sample No.: VBLK02

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	50	0.0	55	110	61 - 145
Benzene	50	0.0	53	106	71 - 120
Trichloroethene	50	0.0	45	90	76 - 127
Toluene	50	0.0	53	106	76 - 125
Chlorobenzene	50	0.0	50	100	75 - 130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 5 out of 5 outside limits

Spike Recovery: 5 out of 10 outside limits

COMMENTS: _____

_____

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK02MS

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Matrix: (soil/water) WATER Lab Sample ID: VBLK02MS

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: R8203.D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 03/24/98

GC Column: RTX 502 ID: 0.53 (mm) Dilution Factor: 1.0

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

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	U
75-01-4	Vinyl chloride	10	U
75-00-3	Chloroethane	10	U
74-83-9	Bromomethane	10	U
67-64-1	Acetone	10	U
75-35-4	1,1-Dichloroethene	55	
75-09-2	Methylene chloride	10	U
75-15-0	Carbon disulfide	10	U
75-34-3	1,1-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon tetrachloride	10	U
71-43-2	Benzene	53	
79-01-6	Trichloroethene	45	
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
124-48-1	Dibromochloromethane	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	53	
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
108-90-7	Chlorobenzene	50	
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylenes (total)	10	U
100-42-5	Styrene	10	U
108-88-3	1,1,2,2-Tetrachloroethane	10	U

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4A

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK01

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Lab File ID: R8179.D Lab Sample ID: VBLK01

Date Analyzed: 03/23/98 Time Analyzed: 10:09

GC Column: RTX 502 ID: 0.53 (mm) Heated Purge: (Y/N) N

Instrument ID: GCMS#5

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	FIELD BLANK	199983 1.0	R8191.D	18:40
02	TRIP BLANK	199985 1.0	R8192.D	19:22

COMMENTS

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK01

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Matrix: (soil/water) WATER Lab Sample ID: VBLK01

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: R8179.D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 03/23/98

GC Column: RTX 502 ID: 0.53 (mm) Dilution Factor: 1.0

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

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	U
75-01-4	Vinyl chloride	10	U
75-00-3	Chloroethane	10	U
74-83-9	Bromomethane	10	U
67-64-1	Acetone	10	U
75-35-4	1,1-Dichloroethene	10	U
75-09-2	Methylene chloride	10	U
75-15-0	Carbon disulfide	10	U
75-34-3	1,1-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon tetrachloride	10	U
71-43-2	Benzene	10	U
79-01-6	Trichloroethene	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
124-48-1	Dibromochloromethane	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylenes (total)	10	U
100-42-5	Styrene	10	U
108-88-3	1,1,2,2-Tetrachloroethane	10	U

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1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLK01

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Matrix: (soil/water) WATER Lab Sample ID: VBLK01

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: R8179.D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 03/23/98

GC Column: RTX 502 ID: 0.53 (mm) Dilution Factor: 1.0

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

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND	RT	EST. CONC.	Q

Ge 4/17

4A

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK02

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Lab File ID: R8201.D Lab Sample ID: VBLK02

Date Analyzed: 03/24/98 Time Analyzed: 11:57

GC Column: RTX 502 ID: 0.53 (mm) Heated Purge: (Y/N) N

Instrument ID: GCMS#5

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VBLK02MS	VBLK02MS	R8203.D	13:27
02	MW-13	199973 1.0	R8204.D	14:09
03	MW-13MS	199973 1.0MS	R8205.D	14:51
04	MW-13MSD	199973 1.0MSD	R8206.D	15:34
05	MW-6D	199968 1.0	R8207.D	16:12
06	MW-7S	199969 1.0	R8208.D	16:54
07	MW-7D	199970 1.0	R8209.D	17:36
08	MW-9S	199971 1.0	R8210.D	18:18
09	MW-9D	199972 1.0	R8211.D	19:00
10	MW-11	199974 1.0	R8212.D	19:42
11	MW-3	199975 1.0	R8213.D	20:23
12	MW-4	199976 1.0	R8214.D	21:05

COMMENTS

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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK02

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Matrix: (soil/water) WATER Lab Sample ID: VBLK02

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: R8201.D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 03/24/98

GC Column: RTX 502 ID: 0.53 (mm) Dilution Factor: 1.0

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

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	U
75-01-4	Vinyl chloride	10	U
75-00-3	Chloroethane	10	U
74-83-9	Bromomethane	10	U
67-64-1	Acetone	10	U
75-35-4	1,1-Dichloroethene	10	U
75-09-2	Methylene chloride	10	U
75-15-0	Carbon disulfide	10	U
75-34-3	1,1-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon tetrachloride	10	U
71-43-2	Benzene	10	U
79-01-6	Trichloroethene	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
124-48-1	Dibromochloromethane	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylenes (total)	10	U
100-42-5	Styrene	10	U
108-88-3	1,1,2,2-Tetrachloroethane	10	U

RE 4/17

~~00053~~

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1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLK02

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Matrix: (soil/water) WATER Lab Sample ID: VBLK02

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: R8201.D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 03/24/98

GC Column: RTX 502 ID: 0.53 (mm) Dilution Factor: 1.0

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

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND	RT	EST. CONC.	Q

4/11/17

4A

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK03

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Lab File ID: R8217.D Lab Sample ID: VBLK03

Date Analyzed: 03/25/98 Time Analyzed: 10:36

GC Column: RTX 502 ID: 0.53 (mm) Heated Purge: (Y/N) N

Instrument ID: GCMS#5

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	MW-2S	199980 100	R8224.D	16:17
02	MW-2D	199979 5.0	R8226.D	17:47
03	DUPLICATE	199981 5.0	R8227.D	18:29
04	MW-5S	199977 1.0	R8228.D	19:11
05	MW-5D	199978 2.0	R8229.D	19:53
06	MW-1	199982 1.0	R8230.D	20:36

COMMENTS

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK03

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Matrix: (soil/water) WATER Lab Sample ID: VBLK03

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: R8217.D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 03/25/98

GC Column: RTX 502 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
74-87-3	Chloromethane	10	U
75-01-4	Vinyl chloride	10	U
75-00-3	Chloroethane	10	U
74-83-9	Bromomethane	10	U
67-64-1	Acetone	10	U
75-35-4	1,1-Dichloroethene	10	U
75-09-2	Methylene chloride	10	U
75-15-0	Carbon disulfide	10	U
75-34-3	1,1-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon tetrachloride	10	U
71-43-2	Benzene	10	U
79-01-6	Trichloroethene	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
124-48-1	Dibromochloromethane	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylenes (total)	10	U
100-42-5	Styrene	10	U
108-88-3	1,1,2,2-Tetrachloroethane	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLK03

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Matrix: (soil/water) WATER Lab Sample ID: VBLK03

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: R8217.D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 03/25/98

GC Column: RTX 502 ID: 0.53 (mm) Dilution Factor: 1.0

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

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND	RT	EST. CONC.	Q

4A

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK04

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Lab File ID: R8239.D Lab Sample ID: VBLK04

Date Analyzed: 03/26/98 Time Analyzed: 10:34

GC Column: RTX 502 ID: 0.53 (mm) Heated Purge: (Y/N) N

Instrument ID: GCMS#5

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	RW-01	199986 1.0	R8242.D	14:22
02	RW-02	199987 1.0	R8243.D	15:48
03	RW-03	199988 1.0	R8244.D	17:05
04	MW-6S	199967 1.0	R8245.D	17:43

COMMENTS

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK04

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Matrix: (soil/water) WATER Lab Sample ID: VBLK04

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: R8239.D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 03/26/98

GC Column: RTX 502 ID: 0.53 (mm) Dilution Factor: 1.0

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

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	U
75-01-4	Vinyl chloride	10	U
75-00-3	Chloroethane	10	U
74-83-9	Bromomethane	10	U
67-64-1	Acetone	10	U
75-35-4	1,1-Dichloroethene	10	U
75-09-2	Methylene chloride	10	U
75-15-0	Carbon disulfide	10	U
75-34-3	1,1-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon tetrachloride	10	U
71-43-2	Benzene	10	U
79-01-6	Trichloroethene	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
124-48-1	Dibromochloromethane	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylenes (total)	10	U
100-42-5	Styrene	10	U
108-88-3	1,1,2,2-Tetrachloroethane	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLK04

Lab Name: CAS/ROCH Contract: WCC-GRIF

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Matrix: (soil/water) WATER Lab Sample ID: VBLK04

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: R8239.D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 03/26/98

GC Column: RTX 502 ID: 0.53 (mm) Dilution Factor: 1.0

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

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND	RT	EST. CONC.	Q

RH 4/17

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CAS/ROCH Contract: WCC-GRIFFIN

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Lab File ID (Standard): R8178.D Date Analyzed: 03/23/98

Instrument ID: GCMS#5 Time Analyzed: 09:06

GC Column: RTX 502.2 ID: 0.53 (mm) Heated Purge: (Y/N) N

		IS1 AREA #	RT #	IS2 AREA #	RT #	IS3 AREA #	RT #
	12 HOUR ST	16318	13.39	123265	15.75	80388	23.03
	LOWER LIMIT	8159	12.89	61633	15.25	40194	22.53
	UPPER LIMIT	32636	13.89	246530	16.25	160776	23.53
	EPA SAMPLE NO.						
01	VBLK01	17472	13.32	131566	15.71	83691	23.15
02	FIELD BLANK	16054	13.46	118698	15.92	79609	23.49
03	TRIP BLANK	17590	13.32	127307	15.75	83172	23.27

IS1 = Bromochloromethane
IS2 = 1,4-Difluorobenzene
IS3 = Chlorobenzene-d5

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

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CAS/ROCH Contract: WCC-GRIFFIN

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Lab File ID (Standard): R8199.D Date Analyzed: 03/24/98

Instrument ID: GCMS#5 Time Analyzed: 10:04

GC Column: RTX 502.2 ID: 0.53 (mm) Heated Purge: (Y/N) N

		IS1 AREA #	RT #	IS2 AREA #	RT #	IS3 AREA #	RT #
	12 HOUR ST	14726	13.36	117390	15.68	81350	22.83
	LOWER LIMIT	7363	12.86	58695	15.18	40675	22.33
	UPPER LIMIT	29452	13.86	234780	16.18	162700	23.33
	EPA SAMPLE NO.						
01	VBLK02	13986	13.34	102566	15.73	65529	23.25
02	VBLK02MS	15481	13.34	119321	15.79	73464	23.43 *
03	MW-13	13211	13.36	98057	15.83	63597	23.40 *
04	MW-13MS	13196	13.46	102540	15.87	65064	23.28
05	MW-13MSD	13365	13.43	103199	15.77	68640	23.19
06	MW-6D	14195	13.47	105462	15.86	67558	23.25
07	MW-7S	15571	13.51	114853	15.86	71338	23.30
08	MW-7D	13231	13.52	105146	15.88	70310	23.11
09	MW-9S	14426	13.51	112339	15.91	76171	23.23
10	MW-9D	13883	13.47	106194	15.90	71336	23.37 *
11	MW-11	13594	13.45	105149	15.87	66667	23.38 *
12	MW-3	14067	13.43	104356	15.85	66638	23.28
13	MW-4	13480	13.30	93230	15.70	66145	23.01

IS1 = Bromochloromethane
IS2 = 1,4-Difluorobenzene
IS3 = Chlorobenzene-d5

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

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CAS/ROCH Contract: WCC-GRIFFIN

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Lab File ID (Standard): R8216.D Date Analyzed: 03/25/98

Instrument ID: GCMS#5 Time Analyzed: 09:29

GC Column: RTX 502.2 ID: 0.53 (mm) Heated Purge: (Y/N) N

		IS1 AREA #	RT #	IS2 AREA #	RT #	IS3 AREA #	RT #
	12 HOUR ST	14705	13.46	115192	15.79	69620	23.25
	LOWER LIMIT	7353	12.96	57596	15.29	34810	22.75
	UPPER LIMIT	29410	13.96	230384	16.29	139240	23.75
	EPA SAMPLE NO.						
01	VBLK03	15581	13.42	114579	15.78	72044	23.26
02	MW-2S	14336	13.52	111029	15.90	74337	23.13
03	MW-2D	15098	13.45	117772	15.87	74003	23.22
04	DUPLICATE	14620	13.35	109177	15.85	73930	23.21
05	MW-5S	15106	13.34	112990	15.77	74807	23.22
06	MW-5D	15216	13.31	114865	15.69	70384	23.22
07	MW-1	15822	13.34	118759	15.71	72528	23.20

IS1 = Bromochloromethane
IS2 = 1,4-Difluorobenzene
IS3 = Chlorobenzene-d5

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

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CAS/ROCH Contract: WCC-GRIFFIN

Lab Code: 10145 Case No.: _____ SAS No.: _____ SDG No.: MW-1

Lab File ID (Standard): R8238.D Date Analyzed: 03/26/98

Instrument ID: GCMS#5 Time Analyzed: 09:11

GC Column: RTX 502.2 ID: 0.53 (mm) Heated Purge: (Y/N) N

		IS1 AREA #	RT #	IS2 AREA #	RT #	IS3 AREA #	RT #
	12 HOUR ST	13336	13.49	101917	15.91	73023	23.11
	LOWER LIMIT	6668	12.99	50959	15.41	36512	22.61
	UPPER LIMIT	26672	13.99	203834	16.41	146046	23.61
	EPA SAMPLE NO.						
01	VBLK04	12427	13.33	100055	15.76	65708	22.99
02	RW-01	12375	13.52	96894	15.88	65560	23.20
03	RW-02	13566	13.39	97483	15.73	58939	23.21
04	RW-03	12347	13.54	93168	15.95	58587	23.47
05	MW-6S	13102	13.33	95840	15.71	60027	23.32

IS1 = Bromochloromethane

IS2 = 1,4-Difluorobenzene

IS3 = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area

AREA LOWER LIMIT = - 50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.

* Values outside of contract required QC limits

INTRODUCTION

This appendix presents the findings of a validation of analytical data for groundwater and effluent samples collected in March 1998 at the Griffin Technology Inc. (GTI) Site. Sampling was conducted by Woodward-Clyde International Americas (WCIA) and analytical services were provided by Columbia Analytical Services, Inc. (CASI) of Rochester, New York. All samples were analyzed for volatile organic compounds (VOCs) in accordance with New York State Department of Environmental Conservation (NYSDEC) Analytical Service Protocol (ASP) Method 95-1.

The procedures for validation of the data followed guidance from the following documents:

1. Interim Remedial Measure Program Appendix B: Quality Assurance Project Plan (QAPP). July 1997. Prepared by Woodward-Clyde Consultants.

2. CLP Organics Data Review and Preliminary Review. S.O.P. No. HW-6 No. 8, January 1992. Prepared by USEPA Region II.

The above "Guidelines" provided the criteria to review. Additional quantitative criteria are given in the analytical method.

The criteria evaluated included the following:

VOCs

Significant problems identified in case narrative
Results reported from secondary dilutions
Sample holding times
Instrument performance and calibration
Method blank, rinsate blank and trip blank contamination
Surrogate spike recoveries
MS/MSD recoveries and relative percent difference (RPD) values
Internal standard areas and retention times

VOCs continued:

Field duplicate results
Compound identification and quantitation
Overall assessment of data

The following sections present the data validation:

SIGNIFICANT PROBLEMS IDENTIFIED IN CASE NARRATIVE

- The MS/MSD analysis performed on groundwater sample MW-13 had one outlying relative percent difference (RPD) value. Further discussion is provided in the MS/MSD section of this appendix.

- Internal standards were reported outside retention time windows for the analyses of samples MW-9D, MW-11, and MW-13. Further discussion is provided in the internal standards section of this appendix.

No other significant problems were identified in the laboratory case narrative.

RESULTS REPORTED FROM SECONDARY DILUTIONS

For samples that required dilutions, part of the validation process is to evaluate which set of results (initial or diluted) are considered to be more usable. For this data set, four samples required dilutions for VOC analyses.

- All VOC results for samples MW-2D, MW-2S, MW-5D and Duplicate (field duplicated of sample MW-2D) were reported at dilutions since screening prior to final analysis indicated analyte concentrations above the instrument's linear calibration range. For these samples, results of an undiluted sample analysis were not reported by the laboratory.

SAMPLE HOLDING TIMES

The VOC holding time criterion established in the QAPP is seven days from receipt at the laboratory to analysis. Samples MW-6S, RW-01, RW-02, and RW-03 were analyzed eight days from sample receipt. Data qualification was not considered necessary since the samples were analyzed within the "Guidelines" holding time criterion of 14 days from collection to analyses.

GC/MS INSTRUMENT PERFORMANCE

GC/MS instrument performance checks are performed to ensure mass resolution, identification, and instrument sensitivity. Criteria for instrument performance checks included evaluation of possible transcription or calculation errors, adherence to instrument tuning frequency requirements, mass assignments, and ion abundance criteria. All criteria for bromofluorobenzene (BFB) for VOCs were met for this data set. Additionally, no transcription errors or calculation errors were found.

INITIAL AND CONTINUING CALIBRATION

Initial and continuing calibration criteria are established to ensure the instruments are capable of producing acceptable qualitative and quantitative data for VOCs. All initial and continuing calibrations were performed at the required frequency.

All VOC initial calibration relative response factor (RRF) values and relative standard deviation (%RSD) values met the acceptance criteria presented in the "Guidelines".

All VOC continuing calibration RRF values met the acceptance criterion presented in the "Guidelines". Three VOC continuing calibration analyses had percent difference (%D) values between initial and continuing calibration response factors in excess of the "Guidelines" criterion of 25 percent. As such for the associated samples, detected and non-detected results for the affected compounds were qualified as estimated (J for detects UJ for non-detects). Sample results requiring qualification based on the outlying continuing calibration %D values are as follows:

Instrument	Date	Compound	%D	Qualifier Detects/Non-detects
1. GCMS#5	3/23/98	acetone	59.3	J/UJ
		2-butanone	50.9	J/UJ
		bromoform	29.8	J/UJ
		2-hexanone	53.9	J/UJ
Associated Samples: Field Blank and Trip Blank				
2. GCMS#5	3/24/98	acetone	26.5	J/UJ
		2-butanone	27.0	J/UJ
Associated Samples: MW-1, MW-2D, MW-2S, Duplicate, MW-5D, MW-5S				
3. GCMS#5	3/26/98	acetone	59.5	J/UJ
		2-butanone	44.8	J/UJ
		4-methyl-2-pentanone	27.6	J/UJ
		2-hexanone	44.5	J/UJ
Associated Samples: MW-6S, RW-01, RW-02, RW-03				

J - estimated result for detects
UJ - estimated result for non-detects

Additionally, no errors in calculations or transcriptions were noted during the validation of the calibration data from this data set.

LABORATORY METHOD BLANKS

Laboratory method blanks evaluate the existence and magnitude of contamination problems resulting from laboratory activities. All laboratory method blanks were analyzed at the prescribed method frequencies.

All VOC method blanks were contaminant-free for the target analytes. This indicated that the potential for laboratory contamination from laboratory activities was minimal.

TRIP BLANK SAMPLES

Trip blank samples are used to assess VOC cross-contamination during shipment to the laboratory. One trip blank sample was submitted with the cooler containing aqueous samples for VOC analyses.

The trip blank sample was VOC-free, which indicated that the potential for cross contamination of samples during shipping was minimal.

RINSATE BLANK SAMPLES

Rinsate blank sample results are evaluated to determine the effectiveness of the sampling equipment decontamination procedures used in the field. One rinsate blank sample was collected with the groundwater samples from this sampling event. Rinsate blank samples were not collected with the effluent samples since these samples were collected directly into laboratory supplied containers.

One VOC tentatively identified compound (TIC) was reported as detected in the rinsate blank. The TIC was not detected in any of the investigative samples, and as such, no data qualification was required.

SURROGATE SPIKE RECOVERIES

Samples analyzed for VOCs were spiked with surrogate compounds prior to analysis. Surrogate compounds are used to evaluate overall laboratory performance for sample preparation efficiency on a per sample basis. The "Guidelines" require that all VOC surrogate spike recoveries meet acceptance criteria.

All VOC surrogate spike recoveries were within the laboratory's established control limits, which indicated that the laboratory's preparation procedure was acceptable.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) ANALYSES

Matrix effects on the analytical results are checked by analyzing matrix spike/matrix spike duplicate (MS/MSD) samples. MW-13 was analyzed as an MS/MSD sample for this sampling event. All VOC MS/MSD recoveries were within the methods' established control limits, indicating that acceptable analytical accuracy was achieved for these analyses..

The MS/MSD analysis had one outlying relative percent difference (RPD) value associated with trichloroethene (TCE) at 18 percent (control limit of 11 percent). Since the TCE MS/MSD recoveries were acceptable, only detected TCE sample results for this data set required qualification as estimated (J) based on the outlying TCE RPD value.

INTERNAL STANDARDS

Internal standards (I.S.) performance criteria ensures that the GC/MS sensitivity and response are stable during each analytical run. All VOC area responses were within the established control limits. Samples MW-9D, MW-11, and MW-13 had one I.S. retention time (R.T.) each that were marginally outside their respective R.T. acceptance windows (less than 0.07 minutes). The chromatograms for these three samples were reviewed to determine if the laboratory could have reported false detects or non-detects based on the outlying I.S. retention times. No anomalies were found and therefore, data qualification was not considered necessary.

Validation of the I.S. data also included spot checking the retention times and areas summarized on Form-8 to those on the instrument chromatograms; no anomalies were noted.

FIELD DUPLICATE RESULTS

Field duplicate results were used to evaluate representativeness. For aqueous samples, when analytes for both duplicate and sample values are greater than five times the quantitation limit, satisfactory representativeness is indicated by an RPD less than or equal to 50 percent. Where one or both of the analytes of a field duplicate pair are reported at less than five times the quantitation limit, satisfactory representativeness is indicated if the field duplicate results

agree within 2.5 times the quantitation limit. Field duplicate results that do not meet these criteria may indicate unsatisfactory representativeness of the results.

One field duplicate sample pair, labeled as MW-2D and Duplicate, was collected with this sampling event. The results reported for the field duplicate sample pair are in agreement with the above criteria, which indicates that the aggregate sampling and analytical precision was acceptable.

COMPOUND IDENTIFICATION AND QUANTITATION

Data for one or more detected compound/analytes were checked for potential identification errors and were recalculated from the raw data. No anomalies or transcription errors were noted during validation of the reported analyte identifications and quantitations.

OVERALL DATA ASSESSMENT

Based on the criteria outlined, it is recommended that the results reported for these analyses be accepted for their intended use. Acceptable levels of accuracy, precision, and representativeness (based on MS/MSD analyses and field duplicate results) were achieved for this data set, except where noted in this appendix. In addition, completeness, defined to be the percentage of analytical results which are judged to be valid, including estimated (J or UJ) values, for this data set was 100 percent. Sample results from this investigation required some qualification based on the minor QC deficiencies summarized below:

Select VOC results for twelve samples were qualified as estimated (J for detects, UJ for non-detects) based on outlying continuing calibration data. Detected TCE results for the samples in this data set were qualified as estimated (J) due to an outlying MS/MSD RPD value. Additionally, no transcription errors or calculation errors were found during validation of the reported VOC results from this data set.