

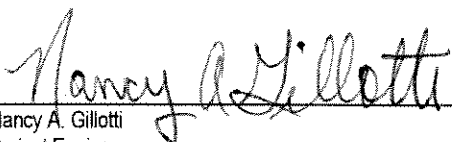


**Fifth Annual Interim Measures
Capture Zone Report**

General Motors Corporation
Moraine, Ohio
June 2001

PREPARED FOR

REALM


Nancy A. Gillotti
Project Engineer


James J. Reid, P.E.
Area Manager

**Fifth Annual Interim Measures
Capture Zone Report**

General Motors Corporation
Moraine, Ohio

Prepared for:
REALM

Prepared by:
ARCADIS G&M, Inc.
6397 Emerald Parkway
Suite 150
Dublin
Ohio 43016
Tel 614 764 2310
Fax 614 764 1270

Our Ref.:
OH000294.0004.00002

Date:
8 June 2001

This document is intended only for the use of the individual or entity for which it was prepared and may contain information that is privileged, confidential, and exempt from disclosure under applicable law. Any dissemination, distribution, or copying of this document is strictly prohibited.

Introduction	1
TW-2 Operation	1
DN-13 Operation	2
Regulatory Monitoring	2
Capture Zone Influence Monitoring	3
Groundwater Elevation Monitoring	3
Groundwater Quality Monitoring	5
Conclusions	6
References	6

Tables

1	Air Permit Influent Monitoring, Interim Measures Capture Zone Monitoring, General Motors Corporation, Moraine, Ohio.
2	NPDES Effluent Monitoring, Interim Measures Capture Zone Monitoring, General Motors Corporation, Moraine, Ohio.
3	Water-Level Elevations from Upper Aquifer Monitor Wells, Interim Measures Capture Zone Monitoring, General Motors Corporation, Moraine, Ohio.
4	Water-Level Elevations from Lower Aquifer Monitor Wells, Interim Measures Capture Zone Monitoring, General Motors Corporation, Moraine, Ohio.
5	Summary of Precipitation Measurements Recorded by the National Weather Service, During February 2000 to January 2001, Dayton, Ohio.
6	Detected Volatile Organic Compounds in Groundwater, Interim Measures Capture Zone Monitoring, General Motors Corporation, Moraine, Ohio.

Figures

1	Pre-Pumping Water-Table Surface - Shallow on January 31, 1996, Capture Zone Monitoring, General Motors Corporation, Moraine, Ohio.
2	Pre-Pumping Potentiometric Surface - Deep on January 31, 1996, Capture Zone Monitoring, General Motors Corporation, Moraine, Ohio.

3	Water-Table Surface - Shallow on April 28, 2000, Capture Zone Monitoring, General Motors Corporation, Moraine, Ohio.
4	Potentiometric Surface - Deep on April 28, 2000, Capture Zone Monitoring, General Motors Corporation, Moraine, Ohio.
5	Water-Table Surface - Shallow on May 30, 2000, Capture Zone Monitoring, General Motors Corporation, Moraine, Ohio.
6	Potentiometric Surface - Deep on May 30, 2000, Capture Zone Monitoring, General Motors Corporation, Moraine, Ohio.
7	Water-Table Surface - Shallow on July 28, 2000, Capture Zone Monitoring, General Motors Corporation, Moraine, Ohio.
8	Potentiometric Surface - Deep on July 28, 2000, Capture Zone Monitoring, General Motors Corporation, Moraine, Ohio.
9	Water-Table Surface - Shallow on October 31, 2000, Capture Zone Monitoring, General Motors Corporation, Moraine, Ohio.
10	Potentiometric Surface - Deep on October 31, 2000, Capture Zone Monitoring, General Motors Corporation, Moraine, Ohio.
11	Water-Table Surface - Shallow on January 31, 2001, Capture Zone Monitoring, General Motors Corporation, Moraine, Ohio.
12	Potentiometric Surface - Deep on January 31, 2001, Capture Zone Monitoring, General Motors Corporation, Moraine, Ohio.
13	2000 VOC First Annual Concentrations in Upper Aquifer Monitoring Wells, General Motors Corporation, Moraine, Ohio.
14	2000 VOC First Annual Concentrations in Lower Aquifer Monitoring Wells, General Motors Corporation, Moraine, Ohio.

Appendices

- A Water Table Surface, November 13 and 14, 2000
- B Final Interim Measures Design Plans for the Upper and Lower Aquifers

Introduction

General Motors Corporation (GM) has been operating a groundwater recovery and treatment system at the Delphi Harrison Thermal Systems Moraine, Ohio facility (Delphi Thermal Moraine) since January 31, 1996 as a component of interim measures required by the United States Environmental Protection Agency (U.S. EPA). The objective of these interim measures, as stated in the Final Interim Measures Design Plans (Geraghty & Miller, Inc. 1995), is to control the migration of groundwater that contains volatile organic compounds (VOCs). The Final Interim Measures Design Plans were approved by the U.S. EPA in a July 31, 1995 letter.

The interim measures consist of continued pumping of Montgomery County Well DN-13, screened in the lower aquifer, at an approximate rate of 2.6 million gallons per day (mgd) and pumping Delphi Thermal Moraine Recovery Well 2 (TW-2), screened in the upper aquifer, at the design rate of 0.239 mgd (166 gallons per minute [gpm]). DN-13 is a well that Montgomery County has been using in a Pump-to-Waste Program since March 1990. TW-2 is a component of the interim measures system, which was designed, installed, started up, and monitored in compliance with the approved Final Interim Measures Design Plans (Geraghty & Miller, Inc. 1995). The groundwater recovered by TW-2 is treated using an air stripper tower and discharged through GM's National Pollutant Discharge Elimination System (NPDES) permitted outfall to the Great Miami River.

Data collected to monitor the effectiveness of the interim measures system during the first seven months of operation (January 31, 1996 through August 29, 1996) were summarized in a report titled Interim Measures Capture Zone Monitoring (Geraghty & Miller, Inc. 1996a) in response to a request from U.S. EPA through the former PRC Environmental Management (currently known as TetraTech). Reports summarizing data collected since the 1996 start-up of TW-2 are submitted to the U.S. EPA on an annual basis. This report provides a summary of data collected during the fifth year of operation (January 31, 2000 through January 31, 2001). Data summarized in these annual reports were collected to monitor the effectiveness of the interim measures system as required by the approved Final Interim Measures Design Plans (Geraghty & Miller, Inc. 1995).

TW-2 Operation

Groundwater recovery from TW-2 began on the afternoon of January 31, 1996. During the first five years of operation (January 31, 1996 through January 31, 2001),

the system has recovered and treated a total of 376,148,220 gallons at an average flow rate of approximately 142 gpm. Annual total gallons recovered and average flow rate for the 2000 period were 64,622,210 gallons and approximately 134 gpm, respectively.

From November 1996 through the end of this reporting period, GM has monitored the water level in TW-2 and adjusted the TW-2 flow rate as recommended in the October 1996 Monthly Technical Progress Report (Geraghty & Miller, Inc. 1996b) and approved by U.S. EPA (Personal Communication, 1996). This procedure was implemented to avoid drawdown levels within the well, which could cause damage to the well screen and/or the pump. The flow rate from TW-2 is adjusted as necessary to maintain the water level in TW-2 at least 0.5 feet above the top of the well screen.

Between January 31, 2000 and January 31, 2001, the TW-2 component of the Interim Measures remediation system was shut down from February 8th to May 25th due to extremely low water-level elevations in the well and detection of a leak in the influent line. TW-2 did operate for 2 hours and 34 minutes on March 14th. An alternate upper aquifer well in the vicinity of TW-2, 4S, was selected and retrofitted with a submersible pump that was connected to the existing influent line which discharges to the air stripper tower. Well 4S operated from March 27th to May 25th, with the exception of April 6th when the water level was low and during April 7th through the 10th when repairs were completed to the underground influent line which originates at TW-2 and discharges to the air stripper tower. TW-2 was back on line by May 25th but then was shut down for two 30-minute periods on June 30th for maintenance; from July 4th to July 7th due to foaming in the tower; for approximately 24 hours on October 11th for a tower inspection; and for 2.5 hours on November 11th for tower maintenance.

DN-13 Operation

Montgomery County Well DN-13 was operational throughout the reporting period (January 31, 2000 through January 31, 2001) except for three brief shutdowns. These occurred from May 24th to 25th, 2000, when the well was shut down for 5 hours; from August 26th to 27th, 2000, when the well was shut down for a period of 24 hours; and from October 30th to 31st, 2000, when the well was shut down for a period of 24 hours. These shutdowns were to allow for repair of minor maintenance issues.

Regulatory Monitoring

The Air Permit issued to GM Remediation and NPDES Permit issued to GM for the groundwater recovery and treatment system require periodic monitoring and reporting

of water quality in the influent and effluent streams, and pumping flow rates. Samples of groundwater being pumped through the air stripping treatment tower were collected and analyzed monthly by TestAmerica, Inc., of Dayton, Ohio and ARCADIS Geraghty & Miller, for the parameters required in the permits. All analyses were conducted in accordance with methods specified in the Final Interim Measures Design Plans (Geraghty & Miller, Inc. 1995), and the VOC analyses were conducted using the updated method 8260 instead of the original method 8240, as approved by the U.S. EPA during the Supplemental RFI field investigation. The results of the influent and effluent sampling are presented in Tables 1 and 2, respectively.

Influent sampling results (Table 1) were within the required Air Permit limits during the reporting period (January 31, 2000 through January 31, 2001). Effluent sampling results (Table 2) during the same period were within the required NPDES Permit limits. Even though all pH readings were within the NPDES Permit limits, two elevated pH readings of 8.56 (laboratory result) and 9.00 (field result) were noted on February 29, 2000 and April 14, 2000, respectively. These readings were likely due to a combination of the high-carbonate aquifer formation and groundwater quality beneath a landfill. Additionally, slight increases in pH have also been noted as groundwater is treated through the air stripper tower, as would be expected with this stripping technology. An effluent sample could not be collected in March 2000 because the flow from alternate well 4S through the air stripper tower was too low which resulted in insufficient sample volume.

Capture Zone Influence Monitoring

The purpose of capture zone influence monitoring is to verify that operation of the groundwater recovery and treatment system meets the interim measures objectives. This monitoring was accomplished by collecting water levels and groundwater quality data from select wells identified in the Final Interim Measures Design Plans (Geraghty & Miller, Inc. 1995).

Groundwater Elevation Monitoring

Groundwater elevations for select upper aquifer monitoring wells and lower aquifer monitoring wells are presented in Tables 3 and 4, respectively. Groundwater elevations were collected prior to start-up of the system (with both TW-2 and DN-13 not pumping), and then during 33 other groundwater monitoring events over the five years of operation, with five of these events conducted during the current reporting period. These groundwater monitoring events provide sufficient data for evaluating the

effectiveness of the Interim Measures in accordance with the Final Interim Measures Design Plans (Geraghty & Miller, Inc. 1995).

To evaluate the effectiveness of Interim Measures, groundwater flow maps were developed. Groundwater flow maps depicting upper and lower aquifer conditions have been developed for January 1996 pre-start-up conditions (Figures 1 and 2, respectively), and for the four quarters of the reporting period (January 31, 2000 through January 31, 2001), which includes an additional groundwater monitoring event performed on May 30, 2000 when the alternate recovery well 4S was off-line and the original recovery well TW-2 was operational. The groundwater elevation measurements were performed for upper and lower wells on April 28, 2000 (Figures 3 and 4, respectively), May 30, 2000 (Figures 5 and 6, respectively), July 28, 2000 (Figures 7 and 8, respectively), October 31, 2000 (Figures 9 and 10, respectively) and January 31, 2001 (Figures 11 and 12, respectively).

Figures 3, 5, 7, 9 and 11 depict groundwater flow in the upper aquifer during the Capture Zone Monitoring quarterly events. Wells TW-2 and 4S are shown to effectively influence upper aquifer groundwater flow in all four quarters of the reporting period, when operational. The effects of shutting down the TW-2 extraction and treatment system from February 9, 2000 to March 27, 2000 (when well 4S was brought on-line) is evident in the upper aquifer groundwater flow map for April 28, 2000 (Figure 3). Groundwater levels rebounded from approximately 699 feet mean sea level (ft msl) in January 2000 to approximately 702 ft msl in April 2000. An evaluation of the influence of Well TW-2 on the upper aquifer during the end of the year was made using groundwater flow data obtained on November 13 and 14, 2000 as part of the North Settling Lagoon assessment program. The North Settling Lagoon Seventeenth Annual Groundwater Quality Assessment (ARCADIS Geraghty & Miller, 2001a) illustrates the water-table surface on November 13 and 14, 2000 (Appendix A). Figures 4, 6, 8, 10, and 12 depict the influence of the Interim Measures on groundwater flow in the lower aquifer with DN-13 operating.

Figures 3 through 12 indicate that the Interim Measures continue to be effective at maintaining hydraulic control at the southern end of the Delphi Thermal Moraine site. Additionally, it should be noted that these flow maps are consistent with the flow conditions predicted by the capture zone modeling, presented on Figures 2 and 3 of the Final Interim Measures Design Plans (Geraghty & Miller, Inc. 1995) (Appendix B). A comparison of the actual groundwater flow contours in the upper and lower aquifers to the predicted flow lines from the particle tracking analysis in the upper aquifer (Appendix B, Figure 2) and the predicted zones of capture for DN-13 in the upper and

lower aquifers (Appendix B, Figure 3) indicates that the predicted influence within each aquifer at the southern end of the Delphi Thermal Moraine site is being achieved by the Interim Measures pumping.

Seasonal weather conditions vary throughout the year and this variation will have an impact on the groundwater elevations observed at the site. Table 5 summarizes precipitation levels for the fifth annual capture zone reporting period. A review of this data indicates that below average precipitation was experienced in the Dayton area throughout 2000 (excluding April, September and October). Precipitation for the time period from February 2000 to January 2001 was 4.86 inches below average. This overall below-average precipitation led to a lowering of groundwater levels across the site as the year progressed. The regional reduction in water levels results in an increased cone of depression around the recovery system.

The observed elevation differences are a result of the below average precipitation and changes in the pumping rate of TW-2. Water-level elevations in TW-2 are constantly monitored to ensure the water level does not fall below the well screen. If the water level approaches the well screen, the pumping rate is reduced for protection of the pump. During the early part of the year 2000, it was necessary to shut down well TW-2 due to low water levels. The pumping rate for DN-13 is not adjusted; therefore, only seasonal variations influence water level elevations at DN-13. Effective capture has been maintained in spite of seasonal variations and pumping rate adjustments in both the upper and lower aquifers.

Groundwater Quality Monitoring

Groundwater samples from TW-2 and four monitoring wells were collected and analyzed for VOCs during the month before the system was initially started, 6 months after operation began, 18 months after operation began, 30 months after operation began, 42 months after operation began and 52 months after operation began (July 28, 2000). While some individual VOCs have increased at certain wells, the total VOC concentrations have decreased in these wells during the five years of combined TW-2 and DN-13 operation. Results from these sampling events are provided in Table 6. Additional analytical results from other RFI sampling events have been added to Table 6. As discussed in the Supplemental RFI report, on a site-wide basis, most VOC concentrations have decreased or remained the same, while some VOC concentrations have increased. The Supplemental RFI also contains a discussion of site-wide trends for individual VOCs (ARCADIS Geraghty & Miller, 2000).

As part of the site-wide groundwater monitoring program, the first annual groundwater sampling event was completed in September 2000. VOC concentrations at each well sampled during the first annual event in the upper and lower aquifers are posted on Figures 13 and 14, respectively. The complete set of these results is presented in the Interim Measures/Corrective Measures Report (ARCADIS Geraghty & Miller, 2001b).

Conclusions

The results of monitoring conducted to evaluate the performance of the interim measures during the fifth year of operation indicate that the groundwater recovery and treatment system is operating to provide effective capture. This conclusion is based on the following facts.

1. Groundwater elevations indicate that an effective zone of influence has been developed by pumping TW-2 and DN-13 such that hydraulic control at the southern end of the facility has been established (Figures 3 through 12; Appendices A and B) as described in the approved Interim Measures Design Plans.
2. Influent groundwater samples contain VOCs at concentrations below the regulatory requirements set by the Air Permit (Table 1).
3. Effluent (treated) groundwater samples are within allowable limits for all parameters required by the NPDES permit (Table 2).
4. Groundwater quality results (Table 6) indicate that while some individual VOCs have increased at certain wells, the total VOC concentrations have, in general, decreased over the five years of combined TW-2 and DN-13 operation.

Beginning in 2001, information presented in the annual capture zone reports will be incorporated into the annual site-wide groundwater monitoring report.

References

- ARCADIS Geraghty & Miller. 2000. Supplemental RFI Report – Volume I, General Motors Powertrain Group Moraine Engine Plant and General Motors Truck Group Moraine Assembly Plant, Moraine, Ohio. April 2000.
- ARCADIS Geraghty & Miller. 2001a. Sixteenth Annual Groundwater Quality Assessment, North Settling Lagoon, January 2000 through December 2000, Delphi Harrison Thermal Systems, Moraine, Ohio. February 2001.
- ARCADIS Geraghty & Miller. 2001b. Draft Interim Measures/Corrective Measures Report, General Motors Corporation, Moraine, Ohio. March 2001.
- Geraghty & Miller, Inc. 1995. Final Interim Measures Design Plans, Harrison Division - General Motors Corporation, Moraine, Ohio. April 1995.
- Geraghty & Miller, Inc. 1996a. Interim Measures Capture Zone Monitoring. Delphi Harrison Thermal Systems, Moraine, Ohio. September 1996.
- Geraghty & Miller, Inc. 1996b. Monthly Technical Progress Report, October 1996, RCRA Facility Investigation, Delphi Harrison Thermal Systems, General Motors Corporation, Moraine, Ohio. November 1996.
- Personal Communication. 1996. Personal Communication between Mr. William Buller of the U.S. EPA and Mr. James Reid of Geraghty & Miller, Inc. November 1996.

ARCADIS GERAGHTY & MILLER

Table 1. Air Permit Influent Monitoring, Interim Measures Capture Zone Monitoring, General Motors Corporation, Moraine, Ohio.

Constituent*	02/29/00	03/31/00	04/14/00	05/12/00	06/16/00	07/21/00	08/11/00	09/15/00	10/13/00	11/10/00	12/12/00	01/19/01
Benzene	--	1.0	1.2	2.0	1.3	1.0	--	--	--	--	--	--
Chloroethane	7.0	10.0	13.9	14.6	--	5.3	--	--	--	--	--	3.5
1,1-Dichloroethane	33.4	14.7	15.5	24.3	25.4	23.8	20.1	18.3	16.8	19.8	18.9	18.0
trans-1,2-Dichloroethene	6.2	2.1	2.3	3.3	3.5	3.3	3.2	3.0	2.6	3.5	3.0	2.6
Ethylbenzene	8.8	--	--	2.8	20.8	13.0	9.7	7.8	10.3	9.3	9.4	8.1
Tetrachloroethene	38.2	--	--	--	25.1	34.5	38.8	31.4	33.1	39.8	32.4	29.4
Toluene	--	--	--	--	4.8	4.4	2.7	--	1.3	--	--	--
1,1,1-Trichloroethane	11.0	--	--	--	7.6	7.6	7.2	6.5	6.3	7.1	6.3	5.0
Trichloroethene	54.3	6.4	13.8	17.0	45.6	55.7	61.6	56.0	56.8	70.1	60.3	63.0
Vinyl chloride	38.6	9.1	8.2	11.2	6.3	4.9	4.2	3.4	3.4	5.4	3.7	3.9
Xylenes	1.6	--	--	1.2	37.3	36.8	32.1	22.6	21.5	12.6	10.0	10.9
Total VOCs**	199.1	43.3	54.9	76.4	177.7	190.3	179.6	149	152.1	167.6	144	144.4

*Analytical method for VOC analysis is SW-846 Method 8260.

** Permit Limit 850 ug/L.

All concentrations in micrograms per liter (ug/L) as reported by the laboratory.

-- Not detected.

ARCADIS GERAGHTY & MILLER

Table 2. NPDES Effluent Monitoring, Interim Measures Capture Zone Monitoring, General Motors Corporation, Moraine, Ohio.

Constituent	Units	Permit Limit	02/29/00	03/31/00	04/14/00	05/12/00	06/16/00	07/21/00	08/11/00	09/15/00	10/13/00	11/10/00	12/12/00	01/19/01
Fats, Oils & Grease	mg/L	10 mg/L	--	NA	-- ³	--	--	--	--	--	--	--	--	--
pH ¹	S.U.	6.5 - 9.0 S.U.	8.56	NA	9 ⁴	7.81	8.01	7.81	7.99	8.00	8.05	7.65	7.72	8.12
Benzene ²	ug/L	5 ug/L	--	NA	--	--	--	--	--	--	--	--	--	--
Ethylbenzene ²	ug/L	5 ug/L	--	NA	--	--	1.8	--	--	--	--	--	--	--
Toluene ²	ug/L	5 ug/L	--	NA	--	--	--	--	--	--	--	--	--	--
Xylenes ²	ug/L	NA	--	NA	--	--	3.7	4.9	1.4	1.5	1.1	--	--	--

mg/L Milligrams per Liter.

S.U. Standard Units.

ug/L Micrograms per Liter.

-- Not detected.

NA Not available. Effluent sample was not collected because the flow through the tower was too low which resulted in insufficient sample volume.

1 Analytical method for pH is EPA 150.1.

2 Analytical method for VOC analysis is SW-846 Method 8260.

3 Sample taken 4/25/00

4 pH reading was taken in the field.

ARCADIS GERAGHTY & MILLER

Table 3. Water-Level Elevations from Upper Aquifer Monitor Wells, Interim Measures Capture Zone Monitoring, General Motors Corporation, Moraine, Ohio.

Date	Water-Level Elevation (Feet MSL)														TW-2 Pumping Rate gpm
	GM-2	4S	GM-6	GM-8	GM-16	GM-17	GM-18	WS-17	WS-18	WS-19	TW-2	GM-10	WSU-24	GM-26	
1/31/96	705.77	705.75	705.80	705.88	705.68	705.46	705.63	705.83	705.79	705.92	705.76	NA	NA	NA	168
2/1/96	705.66	705.51	705.34	705.62	705.47	705.46	705.42	705.46	704.96	705.67	702.88	NA	NA	NA	168
2/2/96	705.57	705.38	705.20	705.49	705.34	705.31	705.26	705.32	705.32	705.53	702.71	NA	NA	NA	168
2/3/96	705.50	705.31	705.12	705.39	705.24	705.22	705.17	705.22	705.24	705.42	702.60	NA	NA	NA	168
2/4/96	705.41	705.19	704.95	705.24	705.09	705.07	705.03	705.08	705.12	705.29	702.88	NA	NA	NA	168
2/5/96	705.38	705.15	704.89	705.18	704.99	705.01	704.96	705.00	705.07	705.21	702.34	NA	NA	NA	168
2/6/96	705.31	705.09	704.82	705.11	704.90	704.93	704.87	704.92	705.01	705.14	702.26	NA	NA	NA	168
2/7/96	705.31	705.06	704.77	705.06	704.87	704.90	704.84	704.88	704.98	705.08	702.15	NA	NA	NA	168
2/13/96	705.11	704.86	704.50	704.79	704.58	704.63	704.55	704.63	714.27	704.81	701.60	NA	NA	NA	168
2/22/96	704.42	704.07	703.63	703.97	703.68	703.73	703.65	703.76	703.93	703.98	700.52	NA	NA	NA	168
2/27/96	704.28	703.94	703.51	703.86	703.61	703.63	703.56	703.64	703.82	703.85	700.35	NA	NA	NA	168
3/12/96	704.35	704.03	703.62	703.97	703.72	703.74	703.65	702.90	703.92	704.02	700.33	NA	NA	NA	168
6/10/96	709.33	708.99	708.64	708.79	708.68	707.79	708.69	708.78	708.93	708.87	705.01	NA	NA	NA	167
7/31/96	707.21	706.79	706.24	706.45	706.38	706.27	706.14	706.37	706.64	706.46	701.33	NA	NA	NA	167
10/30/96	704.28	703.89	703.44	703.75	703.42	703.49	703.38	703.38	703.79	703.76	696.77	NA	NA	NA	156
1/30/97	704.32	704.04	703.65	703.94	703.67	703.70	703.62	703.77	703.92	703.97	698.05	723.90	NA	NA	142.1
4/30/97	705.16	704.85	703.55	703.77	704.39	704.50	704.41	704.54	704.77	704.66	695.58	704.43	705.17	NA	161
7/30/97	705.43	705.10	704.66	704.87	704.59	704.72	704.69	704.78	705.00	704.91	697.38	704.64	705.40	NA	152.9
10/30/97	703.13	702.83	702.43	702.70	702.36	702.40	702.30	702.52	702.72	702.69	696.11	702.06	703.02	NA	116.6
1/30/98	702.90	702.61	702.17	702.50	702.20	702.27	702.18	702.29	702.50	702.48	700.13	701.97	702.85	NA	164.3
4/29/98	705.22	704.93	704.56	704.80	704.53	704.61	704.52	704.67	703.85	704.70	703.30	704.34	705.19	704.08	152.8
7/30/98	706.05	705.66	705.16	705.36	705.00	704.14	705.01	705.26	705.53	705.34	702.97	704.89	705.91	704.46	141.5
10/30/98	702.99	702.66	702.25	702.51	702.25	702.30	702.22	702.36	702.58	702.53	700.23	702.00	702.90	701.56	130.9
1/29/99	704.64	703.55	704.54	704.83	704.68	704.58	704.51	704.40	704.54	704.83	701.90	704.11	704.73	703.72	169
4/30/99	704.29	703.98	703.55	703.85	703.57	703.62	703.53	703.68	703.90	703.83	700.93	703.38	704.24	703.01	165
7/29/99	702.15	701.85	701.43	701.76	700.47	701.50	701.42	701.56	701.76	701.75	698.48	701.18	702.06	700.71	165
10/29/99	700.27	700.06	699.93	700.03	699.69	699.71	699.61	699.94	700.04	700.05	NM*	699.28	700.16	698.66	off
1/31/00	699.50	699.22	698.80	699.17	698.91	698.88	698.82	698.93	699.15	699.18	696.00	698.55	699.38	699.08	121.6
4/28/00	702.71	NM	702.47	702.62	702.28	702.29	702.20	702.50	702.44	702.62	NM*	701.90	702.68	701.43	71.1
5/30/00	702.69	NM	702.04	702.35	702.11	702.11	702.02	702.15	702.27	702.35	699.58	701.80	702.63	701.37	147.4
7/28/00	702.37	NM	701.65	702.01	701.75	701.75	701.67	701.80	701.98	702.04	699.29	701.42	702.29	700.93	170.7
10/31/00	703.53	NM	700.97	701.32	701.15	701.12	701.36	701.11	701.24	701.34	697.38	700.91	701.54	693.12	170.3
1/31/01	700.85	NM	700.25	700.60	700.36	700.33	700.26	700.37	700.52	700.61	696.74	700.22	700.79	699.51	158.2

NM* Not measured due to maintenance being performed on TW-2 on day of measurements.

NM Not measured due to the presence of a pump in well 4S.

NA Not Available.

MSL Mean Sea Level.

gpm - Gallons per minute.

TW-2 Upper Aquifer Recovery Well.

Water-level elevations measured in wells GM-16, GM-10, WSU-24, and GM-26 are not required in the Final Interim Measures Design Plans (Geraghty & Miller, Inc. 1995) but are being measured for additional data.

ARCADIS GERAGHTY & MILLER

Table 4. Water-Level Elevations from Lower Aquifer Monitor Wells, Interim Measures Capture Zone Monitoring, General Motors Corporation, Moraine, Ohio.

Date	Water-Level Elevation (Feet MSL)													DN-13 Pumping Rate*
	GM-1	GM-3	GM-4	GM-5	GM-7R	GM-9	GM-11	GM-13	GM-14	GM-15	GM-20D	M73C	MT-69	gpm
1/31/96	705.56	705.46	705.45	705.50	705.85	705.25	705.53	705.25	705.24	705.16	705.80	704.62	NA	1849
2/1/96	705.52	705.38	705.37	705.43	705.78	705.12	705.22	705.15	705.11	705.06	705.73	704.50	NA	1849
2/2/96	705.44	705.30	705.28	705.36	705.69	705.02	705.13	705.03	705.01	704.93	705.64	704.38	NA	1849
2/3/96	705.37	705.21	705.19	705.27	705.61	704.92	705.04	704.94	704.91	704.83	705.57	704.23	NA	1849
2/4/96	705.31	705.13	705.12	705.21	705.53	704.81	704.93	704.82	704.80	704.73	705.50	704.14	NA	1849
2/5/96	705.27	705.09	705.08	705.16	705.50	704.77	704.89	704.78	704.75	704.67	705.46	704.09	NA	1849
2/6/96	705.23	705.03	705.02	705.11	705.44	704.71	704.83	704.72	704.68	704.61	705.41	704.03	NA	1849
2/7/96	705.23	705.02	704.95	705.11	705.42	704.67	704.81	704.71	704.67	704.56	705.41	704.00	NA	1849
2/13/96	705.11	704.85	704.86	704.97	705.30	704.48	704.65	704.53	704.47	704.38	705.26	703.79	NA	1849
2/22/96	703.99	703.39	703.36	703.61	703.89	702.98	702.70	702.12	702.03	703.91	704.08	701.70	NA	1849
2/27/96	703.94	703.33	703.32	703.55	703.84	702.93	702.65	702.07	701.99	701.87	704.01	NA	NA	1849
3/12/96	703.98	703.39	703.36	703.53	703.90	702.97	702.43	702.13	702.01	701.92	704.06	702.24	NA	1849
6/10/96	708.83	708.18	708.20	708.43	708.63	708.04	708.63	707.09	706.98	706.82	709.03	NA	NA	1849
7/31/96	706.68	705.93	705.89	706.18	706.39	705.51	705.21	704.59	704.45	706.02	706.77	704.63	NA	1849
10/30/96	703.88	703.21	703.18	703.43	703.71	702.72	702.45	701.86	701.74	701.63	703.91	701.95	NA	1849
1/30/97	703.91	703.32	703.31	703.54	703.82	702.91	702.67	702.08	701.94	701.84	704.00	702.20	NA	1849
4/30/97	705.11	703.96	703.98	704.89	704.36	704.39	704.60	704.41	704.35	704.22	705.30	704.17	NA	1849
7/30/97	705.36	705.03	705.01	705.14	705.43	704.61	704.80	704.61	704.56	704.41	705.51	704.37	703.86	1849
10/30/97	702.66	701.97	701.93	702.22	702.48	701.46	701.20	700.50	700.39	700.22	702.67	700.62	701.36	1849
1/30/98	702.50	701.88	701.83	702.11	702.39	701.45	701.17	700.52	700.37	700.24	702.57	700.65	NA	1849
4/29/98	704.74	704.07	704.08	704.32	704.57	703.82	703.43	702.81	702.65	702.54	704.82	702.95	703.83	1849
7/30/98	705.52	704.76	704.75	705.04	705.26	704.32	704.02	703.32	703.18	703.03	705.57	703.43	NA	1849
10/30/98	702.60	701.92	701.92	702.19	702.43	701.45	701.21	700.54	700.43	700.31	702.64	700.71	NA	1849
1/29/99	704.13	703.71	703.69	703.85	704.19	703.49	703.10	702.49	702.38	702.42	704.26	702.81	703.56	1849
4/30/99	703.88	703.24	703.23	703.48	703.73	702.86	702.59	701.99	701.86	NA	703.97	702.11	NA	1849
7/29/99	701.79	701.19	701.16	701.41	701.70	700.70	700.56	699.97	699.80	699.70	701.84	700.01	NA	1849
10/29/99	699.92	699.36	699.34	699.56	699.89	698.82	698.69	698.15	697.96	697.93	699.92	698.22	NA	1849
1/31/00	699.26	698.73	698.72	698.93	699.28	698.17	698.04	697.60	697.36	697.35	699.28	697.58	697.87	1849
4/28/00	702.38	701.88	701.86	702.06	702.37	701.50	701.29	700.85	700.61	700.62	702.45	700.85	NA	1849
5/30/00	702.39	701.84	701.83	702.05	702.36	701.40	701.22	700.77	700.54	700.55	702.45	700.77	NA	1849
7/28/00	702.08	701.53	701.51	701.73	702.04	701.02	700.88	700.41	700.19	700.19	702.11	700.38	NA	1849
10/31/00	701.59	701.52	701.50	701.51	702.97	700.94	701.19	701.08	700.77	701.00	701.77	700.97	NA	1849
1/31/01	700.73	700.26	700.25	700.45	700.79	699.66	699.62	699.18	698.99	699.02	700.74	699.17	NA	1849

MSL Mean Sea Level.

NA Not Available.

Water-level elevation data in well MT-69 are not required in the Final Interim Measures Design Plans (Geraghty & Miller, Inc. 1995) but are being measured to provide additional data.

*Pumping rate for DN-13 remains constant at approximately 1849 gallons per minute (gpm).

Table 5. Summary of Precipitation Measurements Recorded by the National Weather Service,
During February 2000 to January 2001, Dayton, Ohio.

Date	Actual Precipitation	Average Precipitation	Departure from Average
February 2000	2.15	2.17	0.02 below average
March 2000	2.21	3.42	1.21 below average
April 2000	4.19	3.46	0.73 above average
May 2000	2.98	3.88	0.90 below average
June 2000	2.98	3.82	0.84 below average
July 2000	2.97	3.54	0.57 below average
August 2000	2.64	3.20	0.56 below average
September 2000	2.84	2.54	0.30 above average
October 2000	3.25	2.48	0.77 above average
November 2000	2.32	3.07	0.75 below average
December 2000	2.41	2.93	0.52 below average
January 2001	0.84	2.13	1.29 below average
Total	31.78	36.64	4.86 below average

All precipitation measurements are reported in inches.

Table 6. Detected Volatile Organic Compounds in Groundwater, Interim Measures Capture Zone Monitoring, General Motors Corporation, Moraine, Ohio.

Constituents*	TW-2							4S							
	1/31/96	7/31/96	7/30/97	7/30/98	7/29/99	7/28/00	9/26/00	1/31/96	7/31/96	7/30/97	7/30/98	7/29/99	9/20/99	7/28/00**	9/27/00**
Benzene	3.9	1.6	1.2	1.4	--	1.0	--	2.2	--	--	--	--	1.6	--	--
Chlorobenzene	--	5.5	2.5	1.9	--	--	--	4.9	--	--	--	--	--	--	--
Chloroethane	17	--	--	--	6.5	4.7	3.1	19.9	16	--	--	7.2	54.2	--	--
Dichlorodifluoromethane	--	--	--	--	--	3.3	1.8	--	--	--	--	4.4	--	--	--
1,1-Dichloroethane	110	50.6	37.6	27.7	25.4	22.6	27.8	69.6	45.6	24.5	17.7	10.7	1.6	3.1	3.7
1,1-Dichloroethene	1.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--
trans-1,2-Dichloroethene	11.1	4.4	2.6	2.8	3.1	3.4	2.9	3.7	8.4	3	--	--	--	1.4	1.3
cis-1,2-Dichloroethene	--	41.3	35.2	33.8	32.5	40.0	22.5	--	16.2	1	--	2.8	--	46.9	39.2
Ethylbenzene	127	10.7	5.7	5.6	--	10.8	10.4	2.9	4.1	--	--	--	--	--	--
Tetrachloroethene	--	10.4	26.4	26.5	37.9	34.4	5.0	--	--	--	--	--	--	9.4	7.7
Toluene	4	6.7	--	1.8	--	2.9	--	--	--	--	--	--	--	--	--
1,1,1-Trichloroethane	4.9	9.7	14.3	8.5	11.3	7.5	4.5	--	--	--	--	--	--	5.5	5.7
Trichloroethene	43	64.6	73.5	66.5	65.7	49.2	43.1	5.6	8	2.4	1.3	4.4	--	66.9	82.8
Trichlorofluoromethane	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl Chloride	32.4	8.7	3.3	4.4	4.5	5.0	5.9	--	14.1	--	--	4	--	2.0	1.7
Xylenes	103	25.6	10.3	8.9	7.4	36.0	3.2	1	--	--	--	--	--	--	--
Total VOCs	457.5	239.8	212.6	189.8	194.3	220.8	130.2	109.8	112.4	30.9	19	33.5	57.4	135.2	142.1

*Analytical method for VOC analysis is SW-846 Method 8260.

All concentrations in micrograms per liter (ug/L) as reported by the laboratory.

-- Not detected.

**GM-2 used as substitute for 4S

G:\public\delphothermal\interimmeasures\annual\2000\GWQTB1.xls

ARCADIS GERAGHTY & MILLER

Table 6. Detected Volatile Organic Compounds in Groundwater, Interim Measures Capture Zone Monitoring, General Motors Corporation, Moraine, Ohio.

Constituents*	GM-6									GM-17							
	1/31/96	7/31/96	7/30/97	3/4/98	7/30/98	7/29/99	9/20/99	7/28/00	9/26/00	1/31/96	7/31/96	7/30/97	7/30/98	7/29/99	9/21/99	7/28/00	9/27/00
Benzene	2.5	--	--	--	--	--	--	--	--	4.3	1.5	--	--	--	--	--	--
Chlorobenzene	--	--	--	--	--	--	--	--	--	3.1	6.7	3.1	--	--	--	--	--
Chloroethane	13	24.3	19.5	--	15.4	9.1	3.6	--	--	16.4	--	--	--	--	3.2	--	--
Dichlorodifluoromethane	--	--	--	--	--	15	4.6	2.4	--	--	--	--	--	--	--	2.7	--
1,1-Dichloroethane	88.5	82.6	55.4	35.3	39.3	38.3	33.2	16.2	13.0	99.7	28.1	6.4	3.3	11.3	26.4	17.0	23.9
1,1-Dichloroethene	1.2	--	1.8	--	1.7	--	1.2	--	--	--	--	--	--	--	--	--	--
trans-1,2-Dichloroethene	9.1	6.5	3	2.4	3.6	2.7	2.0	2.4	2.2	9.9	2.4	--	--	--	2.6	2.2	2.5
cis-1,2-Dichloroethene	--	97.4	119	82.4	106	80.9	52.9	59.3	41.0	--	21.2	4.1	4.3	13	30.0	34.9	41.6
Ethylbenzene	88.8	3.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachloroethene	10.3	68	94	94.0	99.8	108	81.4	65.9	51.5	1.2	1.2	1.4	2.6	4.7	--	43.2	24.6
Toluene	1.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1,1-Trichloroethane	20	36.8	48.9	36.2	27.5	27.5	24.6	11.6	12.1	7	4.7	3.4	3.7	5.8	6.4	12.2	6.7
Trichloroethene	118	160	118	119	128	110	78.2	53.6	56.6	39.2	34.5	44.6	43	45.1	28.7	68.4	48.4
Trichlorofluoromethane	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.5	--
Vinyl Chloride	16.3	21.4	7.8	2.3	14	5.3	1.6	5.0	3.7	16.6	--	--	--	--	1.4	--	--
Xylenes	37.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total VOCs	406.6	500.6	467.4	371.6	435.3	396.8	283.3	216.4	180.1	197.4	100.3	63	56.9	79.9	98.7	182.1	147.7

*Analytical method for VOC analysis is SW-846 Method 8260.

All concentrations in micrograms per liter (ug/L) as reported by the laboratory.

-- Not detected.

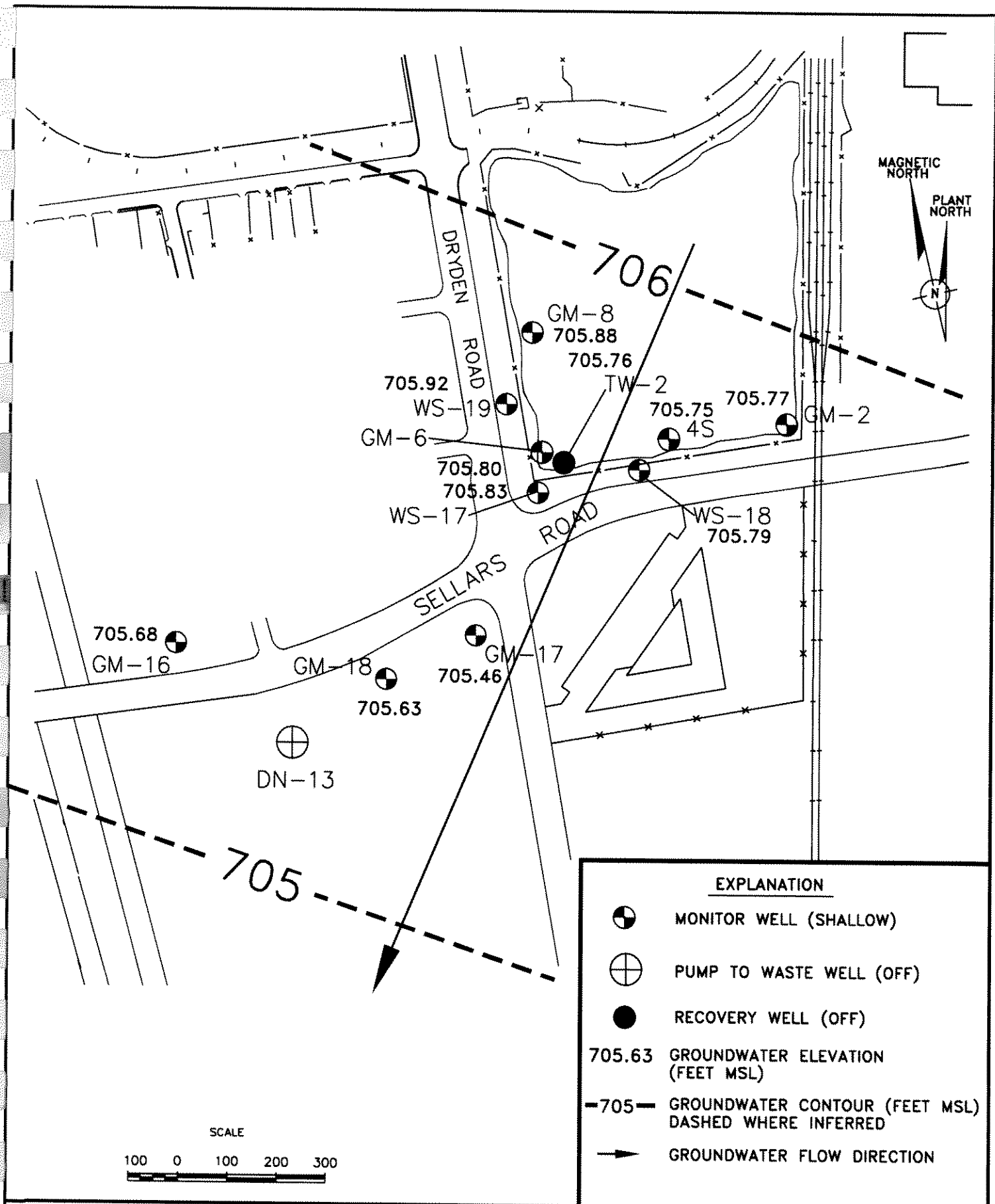
Table 6. Detected Volatile Organic Compounds in Groundwater, Interim Measures Capture Zone Monitoring, General Motors Corporation, Moraine, Ohio.

Constituents*	GM-18							
	1/31/96	7/31/96	7/30/97	7/30/98	7/29/99	9/22/99	7/28/00	9/27/00
Benzene	--	1.1	1.1	--	--	--	--	--
Chlorobenzene	--	--	--	--	--	--	--	--
Chloroethane	--	--	--	--	--	1.5	--	--
Dichlorodifluoromethane	--	--	--	--	1.5	2.7	2.7	1.1
1,1-Dichloroethane	57.1	61.6	45.4	29.1	17.8	22.6	11.7	10.4
1,1-Dichloroethene	1.9	--	1.6	--	--	1.3	1.1	1.1
trans-1,2-Dichloroethene	4.1	5.3	3.7	2.5	1.8	2.2	2.1	1.8
cis-1,2-Dichloroethene	--	118	80.8	49.9	28.5	35.3	25.3	23.9
Ethylbenzene	--	--	--	--	--	--	--	--
Tetrachloroethene	2.5	3.2	3.9	3.6	4.9	4.9	9.0	7.8
Toluene	--	--	--	--	--	--	--	--
1,1,1-Trichloroethane	41.6	41.2	33.5	31.5	29.1	42.6	33.5	31.8
Trichloroethene	105	110	105	109	113	131	101	115
Trichlorofluoromethane	--	--	--	--	--	--	2.1	--
Vinyl Chloride	--	--	--	--	--	--	--	--
Xylenes	--	--	--	--	--	--	--	--
Total VOCs	212.2	340.4	275	225.6	196.6	244.1	188.5	192.9

*Analytical method for VOC analysis is SW-846 Method 8260.

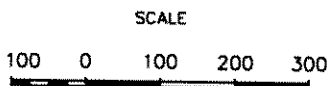
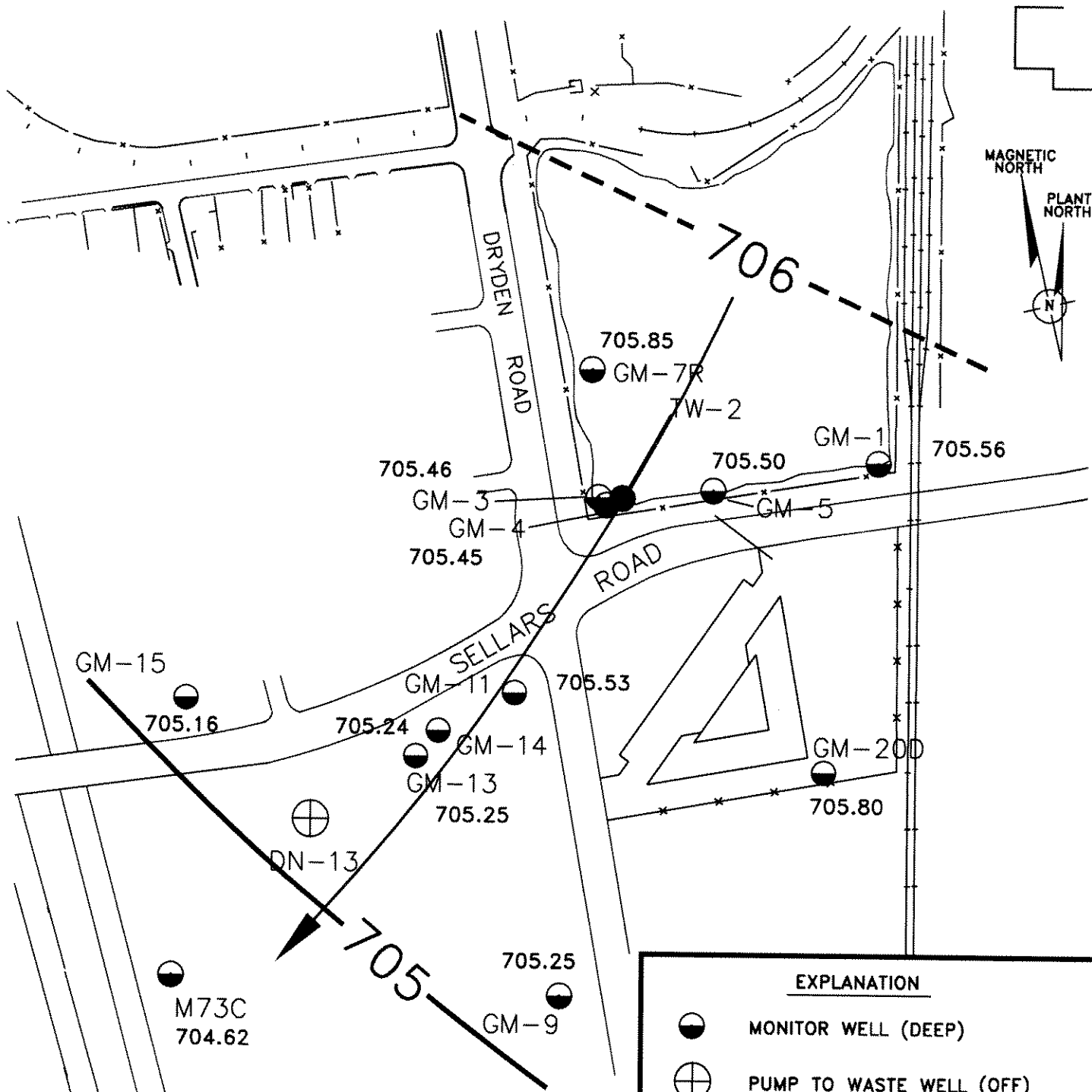
All concentrations in micrograms per liter (ug/L) as reported by the laboratory.

-- Not detected.



EXPLANATION

- MONITOR WELL (SHALLOW)
- PUMP TO WASTE WELL (OFF)
- RECOVERY WELL (OFF)
- 705.63 GROUNDWATER ELEVATION (FEET MSL)
- 705- GROUNDWATER CONTOUR (FEET MSL) DASHED WHERE INFERRED
- GROUNDWATER FLOW DIRECTION



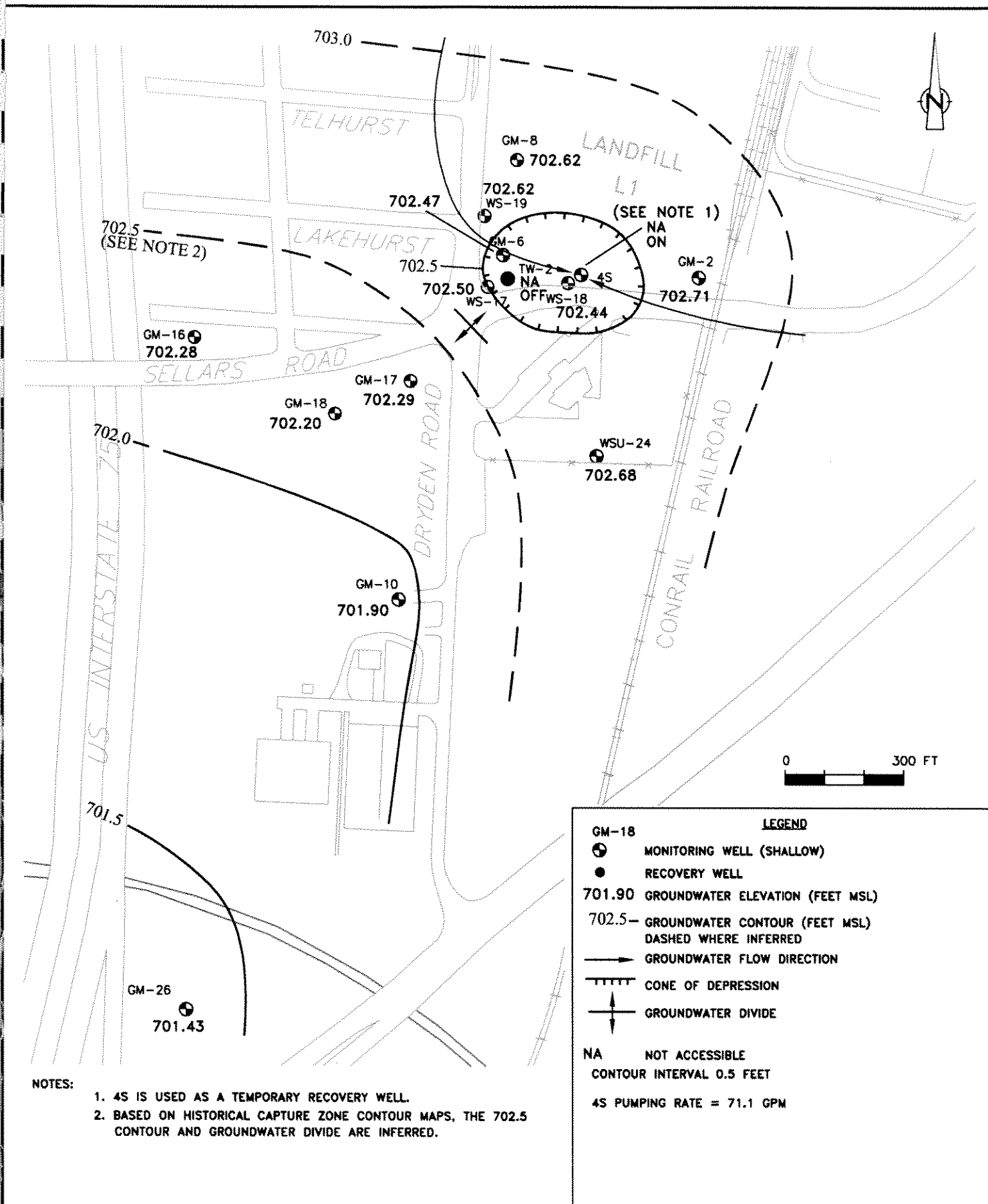
EXPLANATION	
	MONITOR WELL (DEEP)
	PUMP TO WASTE WELL (OFF)
	RECOVERY WELL (OFF)
705.25	GROUNDWATER ELEVATION (FEET MSL)
-705-	GROUNDWATER CONTOUR (FEET MSL) DASHED WHERE INFERRED
	GROUNDWATER FLOW DIRECTION

ARCADIS GERAGHTY & MILLER

6307 Emerald Parkway
Suite 150, Dublin, OH 43016
Tel: 614/764-2310 Fax: 614/764-1270

**PRE-PUMPING POTENTIOMETRIC
SURFACE - DEEP ON JANUARY 31, 1996,
CAPTURE ZONE MONITORING
GENERAL MOTORS CORPORATION
MORaine, OHIO**

DATE 05MAR96	PROJECT MANAGER R. ASTLE	DRAWING NAME MW/L1-M
DRAWN R. SMITH	LEAD DESIGN PROF. J. RED	CHECKED S. FERGUSON
PROJECT NUMBER OH000294.0003.0004		FIGURE NUMBER 2



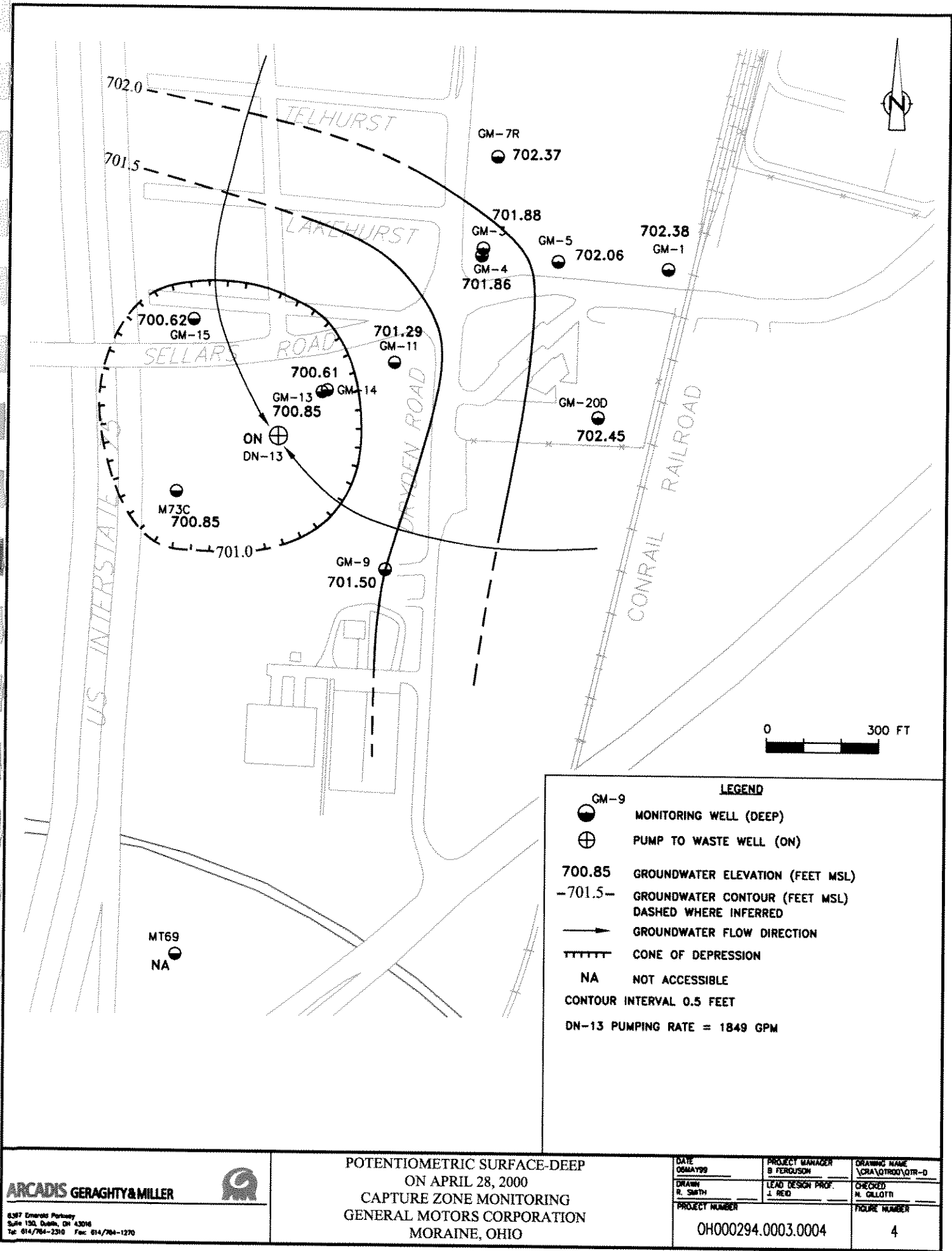
ARCADIS GERAGHTY & MILLER

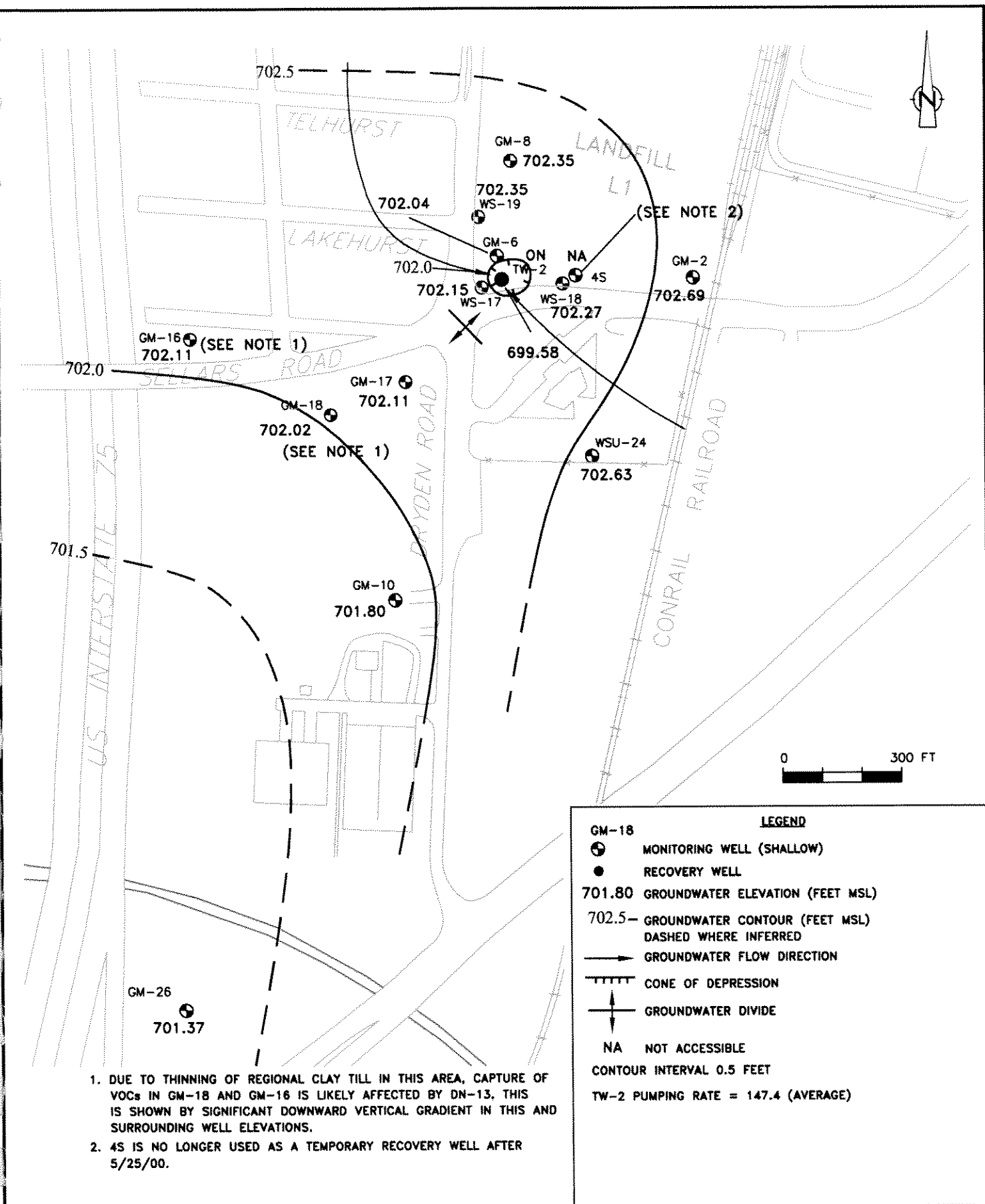


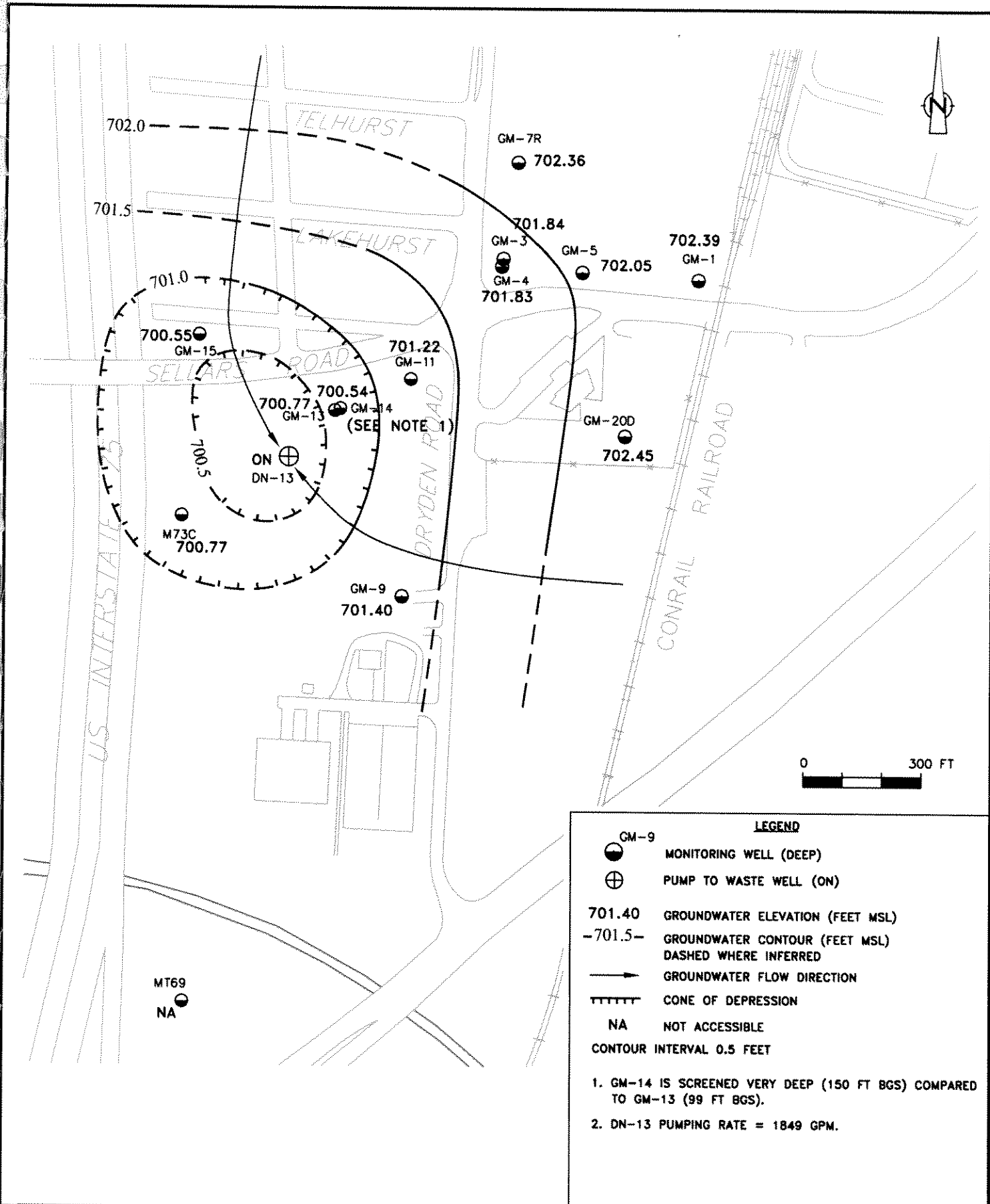
6307 Emerald Parkway
Suite 150, Dublin, OH 43016
Tel: 614/764-2310 Fax: 614/764-1270

WATER-TABLE SURFACE-SHALLOW
ON APRIL 28, 2000
CAPTURE ZONE MONITORING
GENERAL MOTORS CORPORATION
MORaine, OHIO

DATE 08MAY99	PROJECT MANAGER B. FERGUSON	DRAWING NAME \\CRA\OTR00\QTR-S
DRAWN R. SMITH	LEAD DESIGN PROF. J. ROE	CHECKED M. GILGIST
PROJECT NUMBER OH000294.0003.0004	FIGURE NUMBER 3	







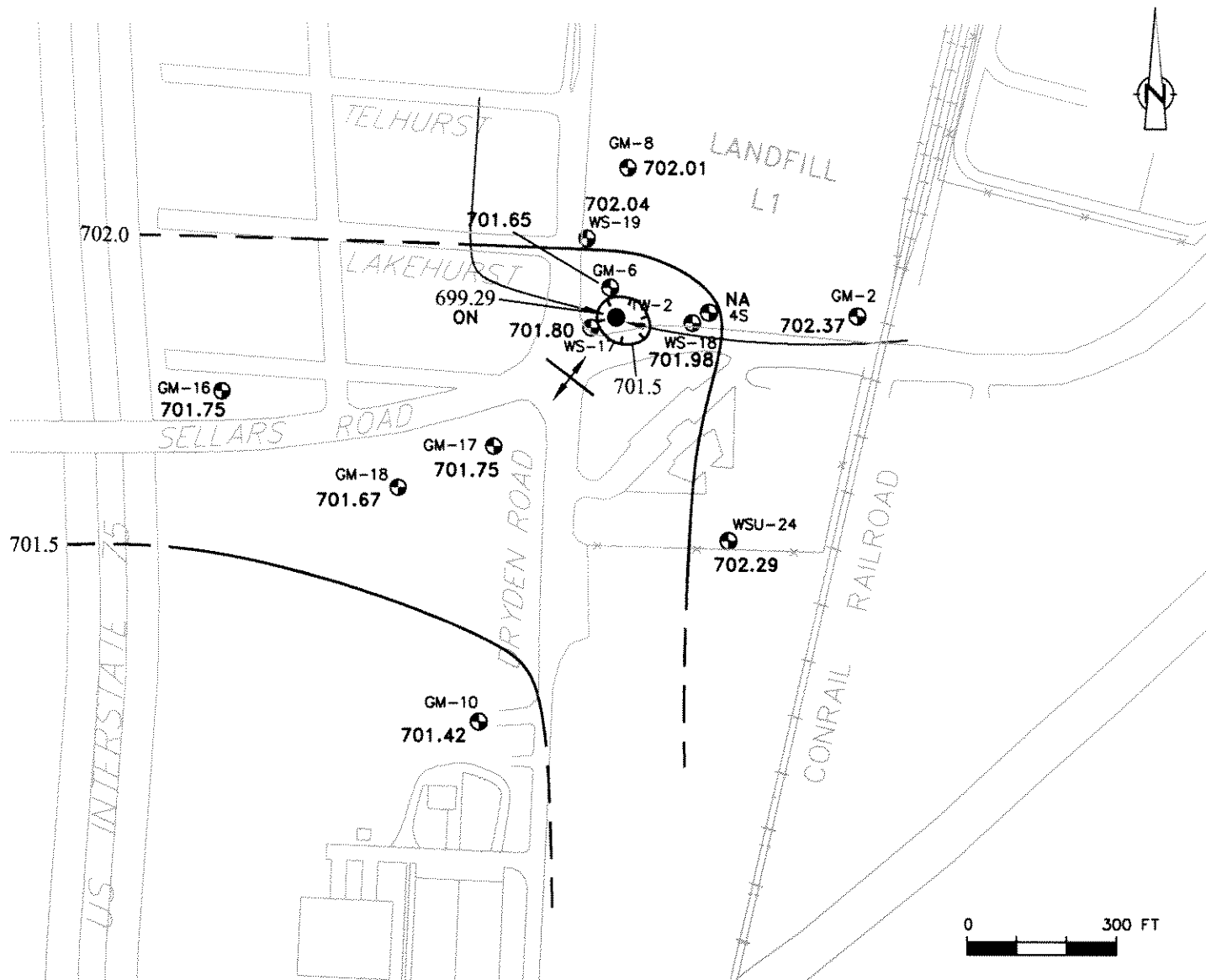
ARCADIS GERAGHTY & MILLER



6367 Emerald Parkway
Suite 150, Dublin, OH 43016
Tel: 614/764-2310 Fax: 614/764-1270

POTENTIOMETRIC SURFACE - DEEP
ON MAY 30, 2000
CAPTURE ZONE MONITORING
GENERAL MOTORS CORPORATION
MORaine, OHIO

DATE 05MAY99	PROJECT MANAGER B. FERGUSON	DRAWING NAME \\CRA\OTR00\OTR-D
DRAWN BY R. SMITH	LEAD DESIGN PROF. J. REID	CHECKED M. GILLOTT
PROJECT NUMBER OH000294.0003.0004		FIGURE NUMBER 6



- LEGEND**
- GM-18
 - MONITORING WELL (SHALLOW)
 - RECOVERY WELL
 - 700.93 GROUNDWATER ELEVATION (FEET MSL)
 - 702.0- GROUNDWATER CONTOUR (FEET MSL)
DASHED WHERE INFERRED
 - GROUNDWATER FLOW DIRECTION
 - TTTTT CONE OF DEPRESSION
 - ↑ ↓ GROUNDWATER DIVIDE
 - NA NOT ACCESSIBLE
 - CONTOUR INTERVAL 0.5 FEET
 - TW-2 PUMPING RATE = 170.7 GPM

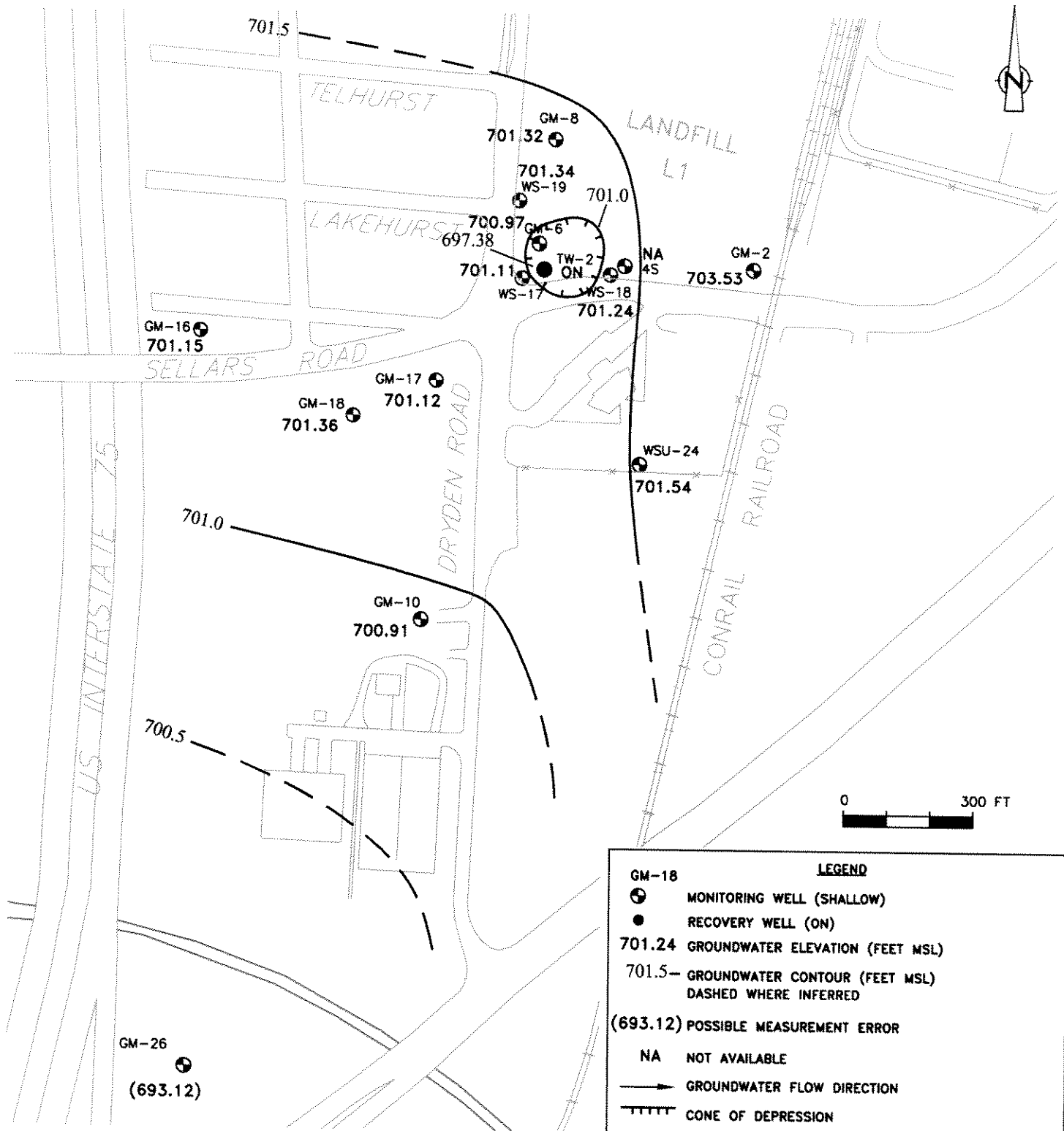
ARCADIS GERAGHTY & MILLER



8387 Emerald Parkway
Suite 150, Dublin, OH 43016
Tel: 614/764-2310 Fax: 614/764-1270

WATER-TABLE SURFACE-SHALLOW
ON JULY 28, 2000
CAPTURE ZONE MONITORING
GENERAL MOTORS CORPORATION
MORaine, OHIO

DATE 08/04/99	PROJECT MANAGER B. FERGUSON	DRAWING NAME VOR\01000\QTR-5
DRAWN R. SMITH	LEAD DESIGN PROF. J. REDD	CHECKED M. GILLOTT
PROJECT NUMBER OH000294.0003.0004	FIGURE NUMBER 7	



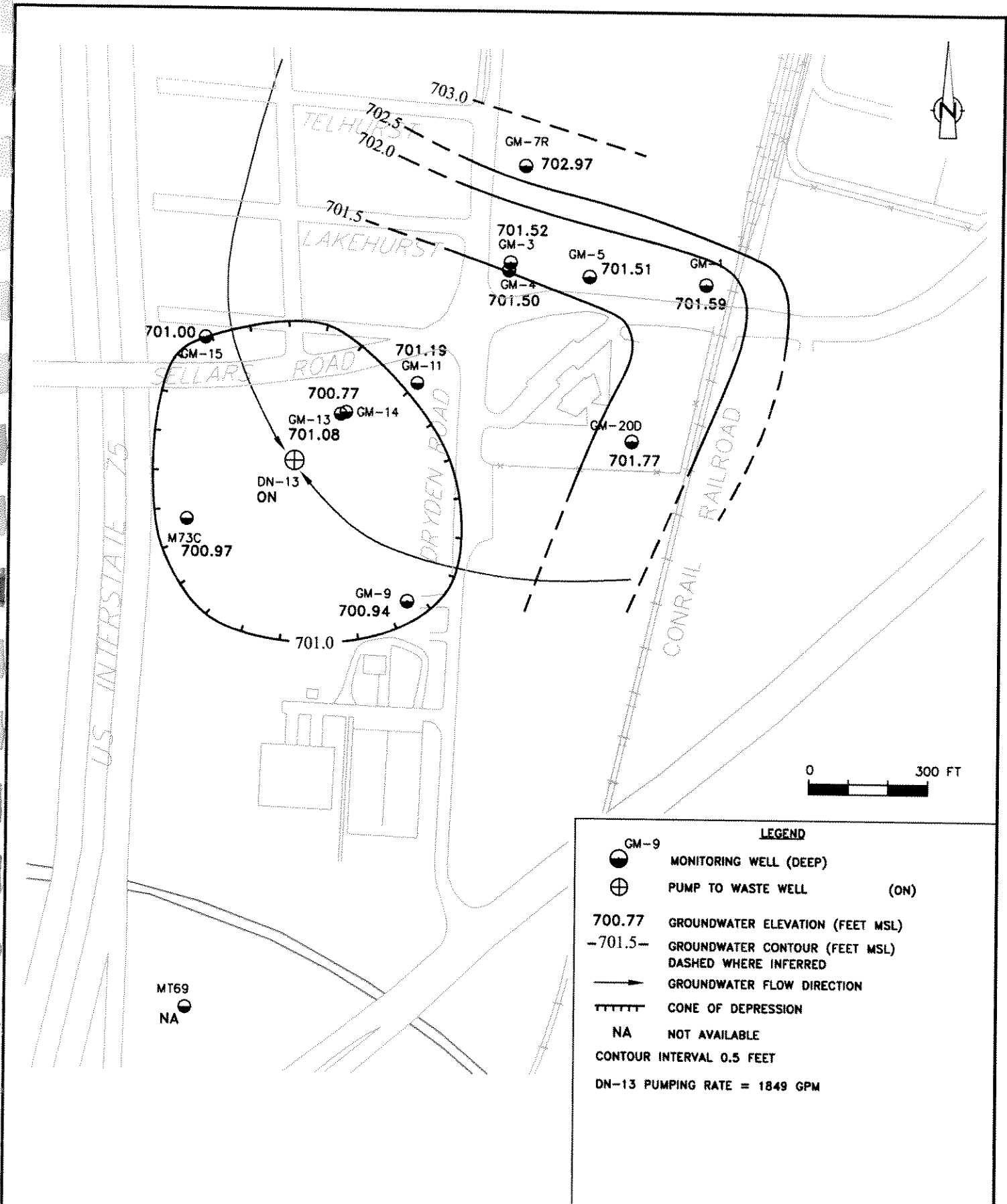
ARCADIS GERAGHTY & MILLER



6307 Emerald Parkway
Suite 150, Dublin, OH 43016
Tel: 614/764-2310 Fax: 614/764-1270

WATER-TABLE SURFACE-SHALLOW
ON OCTOBER 31, 2000
CAPTURE ZONE MONITORING
GENERAL MOTORS CORPORATION
MORAIN, OHIO

DATE 05MAY99	PROJECT MANAGER B. FERGUSON	DRAWING NAME VCR/07000/070-5
DRAWN R. SMITH	LEAD DESIGN PROF. J. ROSS	CHECKED M. OLLOTT
PROJECT NUMBER OH000294.0003.0004		FIGURE NUMBER 9



LEGEND

GM-9
 MONITORING WELL (DEEP)

PUMP TO WASTE WELL (ON)

700.77 GROUNDWATER ELEVATION (FEET MSL)

-701.5- GROUNDWATER CONTOUR (FEET MSL)
 DASHED WHERE INFERRED

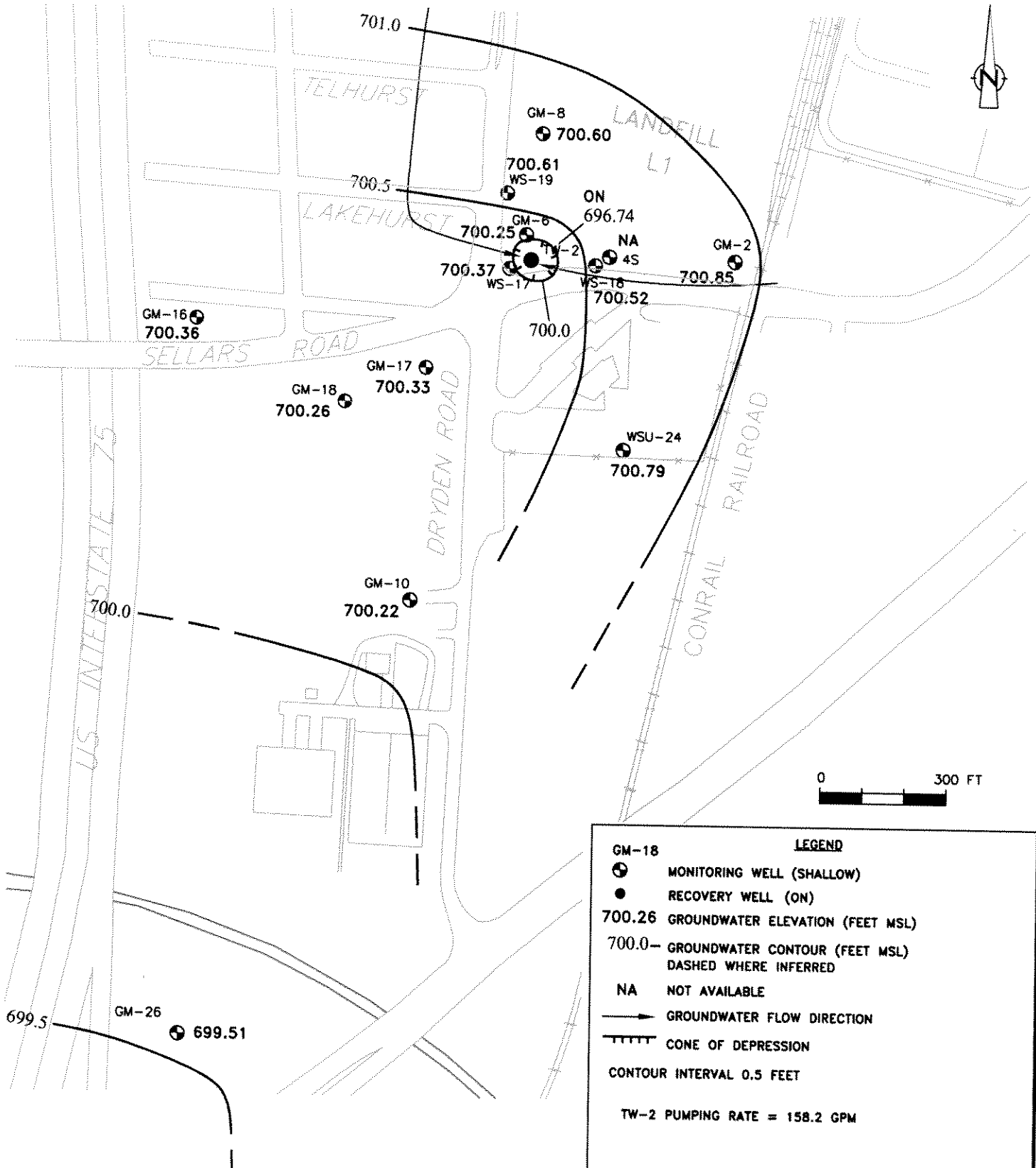
GROUNDWATER FLOW DIRECTION

CONE OF DEPRESSION

NA NOT AVAILABLE

CONTOUR INTERVAL 0.5 FEET

DN-13 PUMPING RATE = 1849 GPM



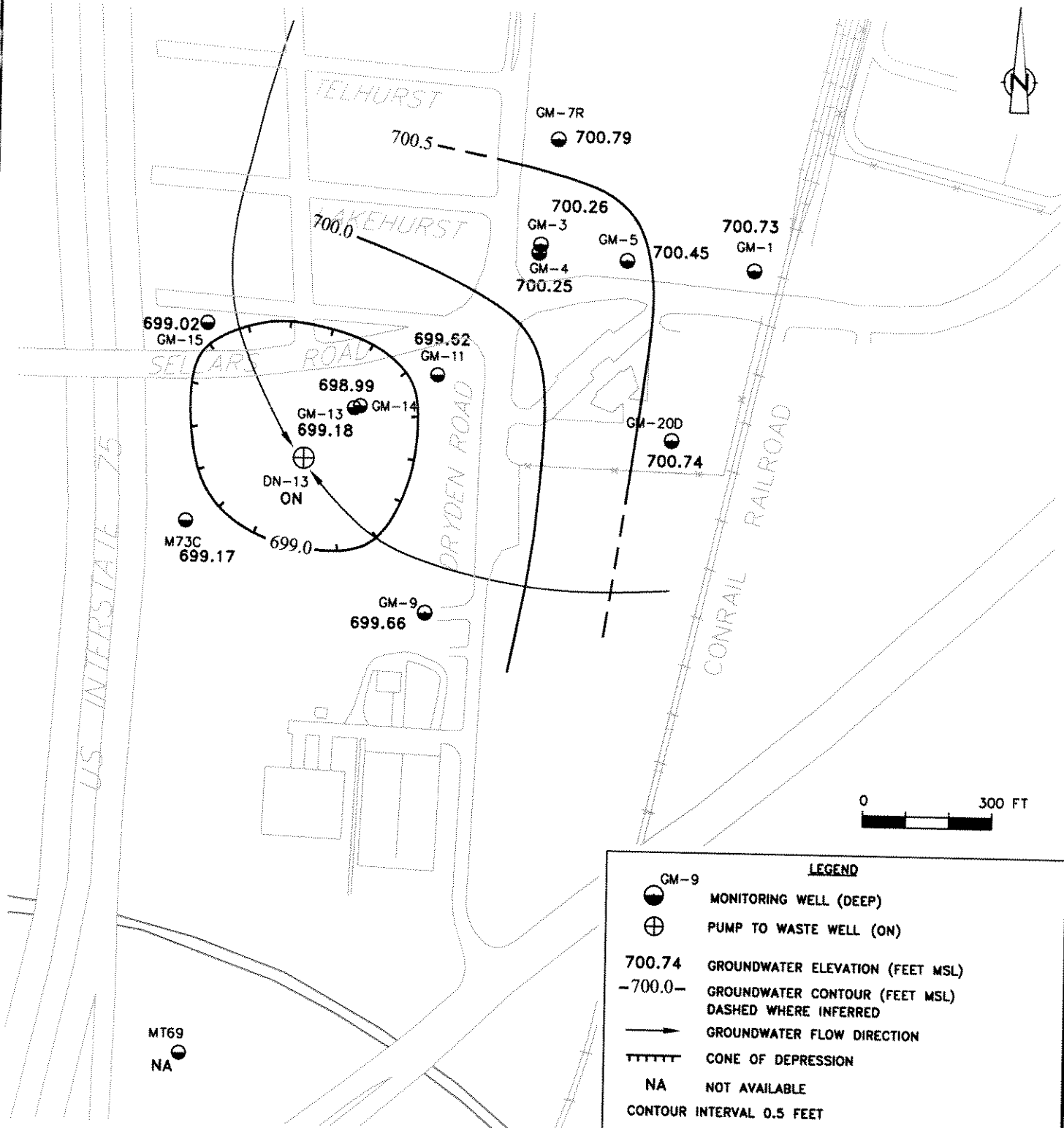
ARCADIS GERAGHTY & MILLER



5307 Emerald Parkway
Suite 150, Dublin, OH 43016
Tel: 614/794-2310 Fax: 614/794-1270

WATER-TABLE SURFACE-SHALLOW
ON JANUARY 31, 2001
CAPTURE ZONE MONITORING
GENERAL MOTORS CORPORATION
MORaine, OHIO

DATE 4/3/2001	PROJECT MANAGER N. GILLOTTI	DRAWING NAME \\ORA\OTROI\OTROI-S
DRAWN R. SMITH	LEAD DESIGN PROF. J. REID	CHECKED J. WALLACE
PROJECT NUMBER OH000294.0003.0004	FIGURE NUMBER 11	



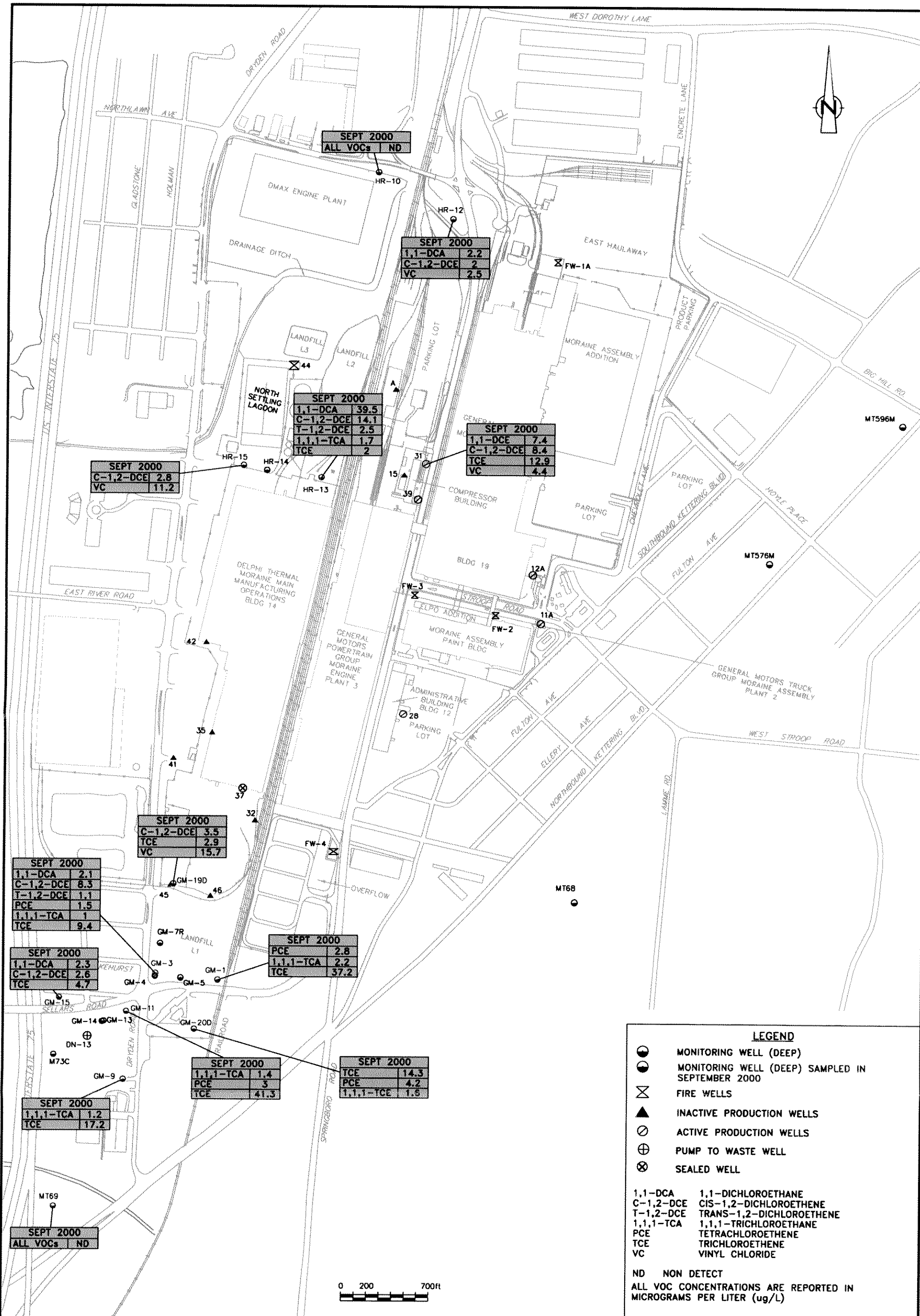
ARCADIS GERAGHTY & MILLER



6397 Emerald Parkway
Suite 150, Dublin, OH 43016
Tel: 614/764-2310 Fax: 614/764-1270

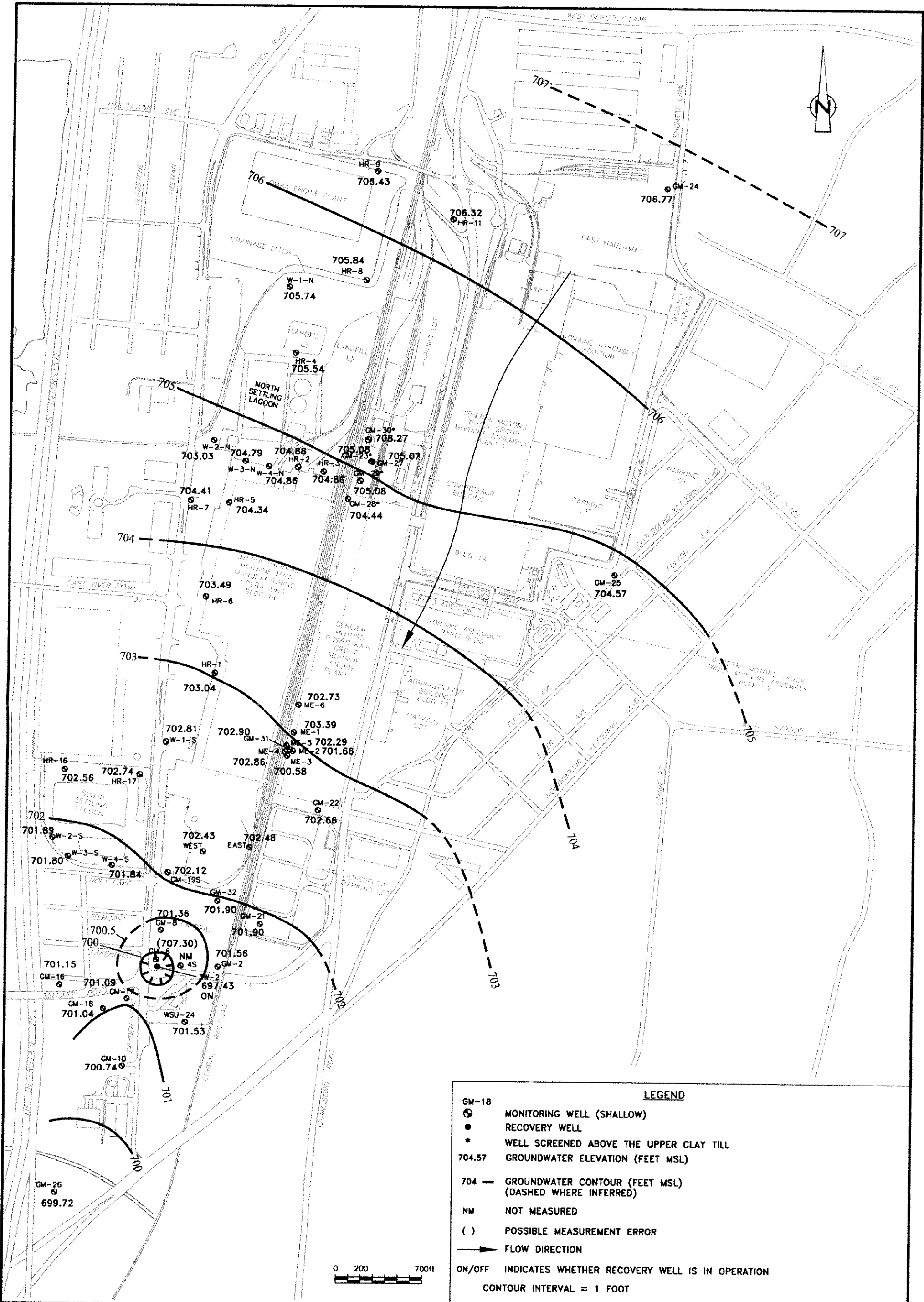
POTENTIOMETRIC SURFACE-DEEP
ON JANUARY 31, 2001
CAPTURE ZONE MONITORING
GENERAL MOTORS CORPORATION
MORaine, OHIO

DATE 4/3/2001	PROJECT MANAGER N. GILLOTT	DRAWING NAME CRA\OTROT\OTROT-D
DRAWN R. SMITH	LEAD DESIGN PROF. J. REID	CHECKED J. WALLACE
PROJECT NUMBER 0H000294.0003.0004		FIGURE NUMBER 12



Appendix A

Water Table Surface, November 13 and 14,
2000



LEGEND

GM-18
● MONITORING WELL (SHALLOW)
● RECOVERY WELL
* WELL SCREENED ABOVE THE UPPER CLAY TILL
704.57 GROUNDWATER ELEVATION (FEET MSL)

704 — GROUNDWATER CONTOUR (FEET MSL)
(DASHED WHERE INFERRED)

NM NOT MEASURED
() POSSIBLE MEASUREMENT ERROR
→ FLOW DIRECTION

ON/OFF INDICATES WHETHER RECOVERY WELL IS IN OPERATION
CONTOUR INTERVAL = 1 FOOT

Appendix B

Final Interim Measures Design Plans for the
Upper and Lower Aquifers

DRAFTER: RTS

APPROVED: -

CHECKED: -

DRAWING: TITLE

FILE NO HARRISON

PRJCT NO -

DWG DATE: -



FEET
0 600 1200 1800

— 705.5 — Steady-State Heads
in Shallow Aquifer

— Particle Pathways

TW-2 - 166 GPM
DN-13 - 2.663 MGD
(All Other Wells at Steady-
State Calibrated Value)

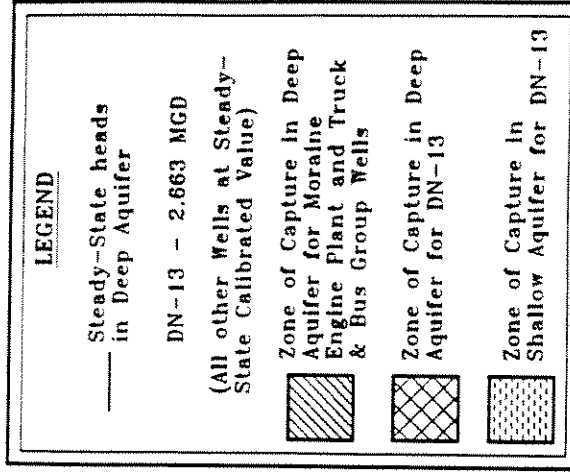
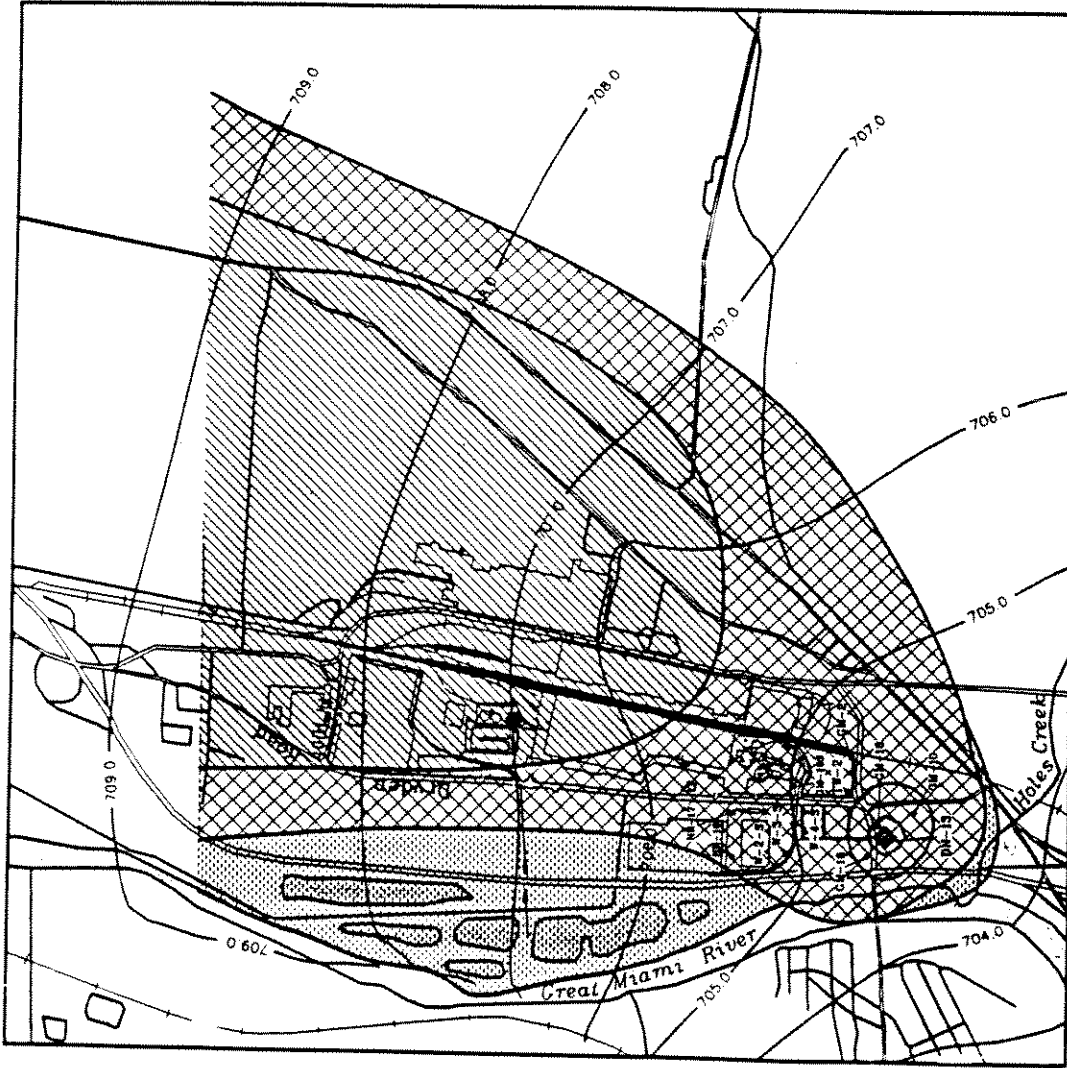


**GERAGHTY
& MILLER, INC.**
Environmental Services

Particle Tracking Results in the Shallow
Aquifer From Pumping TW-2 and Pumping
DN-13 in Deep Aquifer
Final Interim Measures Design Plans
HARRISON DIVISION - GMC
MORaine, OHIO

FIGURE

2





FEET
0 600 1200 1800

— 705.5 — Steady-State Heads
in Shallow Aquifer

— Particle Pathways

TW-2 - 166 GPM
DN-13 - 2.663 MGD
(All Other Wells at Steady-
State Calibrated Value)

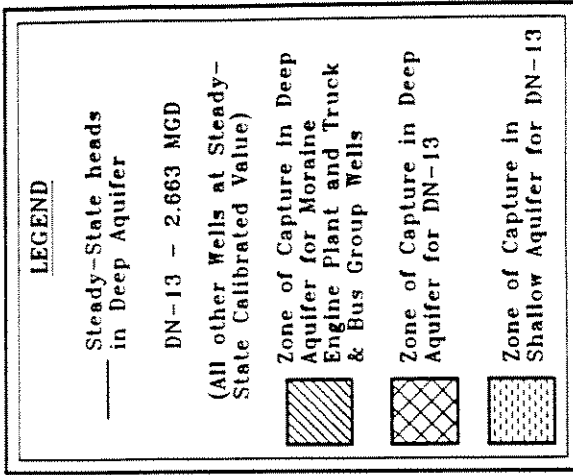
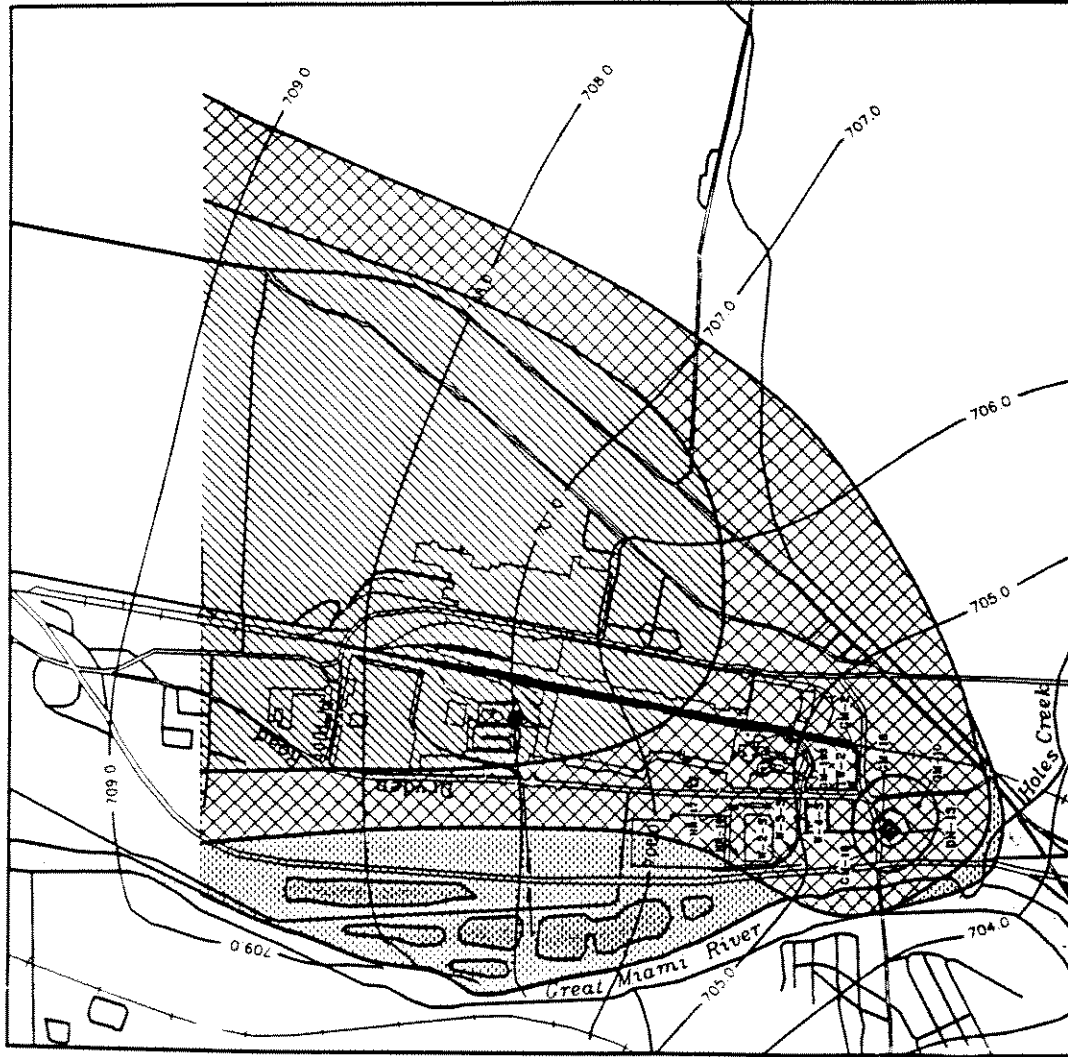


**GERAGHTY
& MILLER, INC.**
Environmental Services

Particle Tracking Results in the Shallow
Aquifer From Pumping TW-2 and Pumping
DN-13 in Deep Aquifer
Final Interim Measures Design Plans
HARRISON DIVISION - GMC
MORaine, OHIO

FIGURE

2



Zones of Capture for DN-13, Moraine Engine Plant, and Truck & Bus Group Wells
 Final Interim Measures Design Plans

HARRISON DIVISION - GMC
 MORAIN, OHIO