SMS copy

Science Applications International Corporation
An Employee-Owned Company

February 25, 2000

Ms. Patricia Romano
Pennsylvania Department of Environmental Protection
909 Elmerton Avenue
Harrisburg, PA 17110-8200

Re: 1998-1999 Annual Operations Report
Harley-Davidson Motor Company
York, Pennsylvania
SAIC Project 01-1633-00-0041-101

Dear Ms. Romano:

On behalf of Harley-Davidson Motor Company, Science Applications International Corporation (SAIC) is providing you with a copy of the attached report, entitled "Groundwater Extraction and Treatment System Annual Operations Report for the Period July 1, 1998 through June 30, 1999."

Please contact me with any questions or comments.

Very truly yours,

SCIENCE APPLICATIONS INTERNATIONAL CORPORATION

Rodney G. Myers
Project Manager

RGM:co
Attachment
cc: Tom Miller - PADEP (w/enclosures)
Gary Seyler - Harley-Davidson (w/enclosures)
Ralph Golia - Dames and Moore (w/3 enclosures)

6310 Allentown Boulevard, Harrisburg, PA 17112 (717) 901-8100 • (800) 944-6778

GROUNDWATER EXTRACTION AND TREATMENT SYSTEM ANNUAL OPERATIONS REPORT FOR THE PERIOD JULY 1, 1998 THROUGH JUNE 30, 1999

SAIC Project 01-1633-00-0041-101

Prepared for

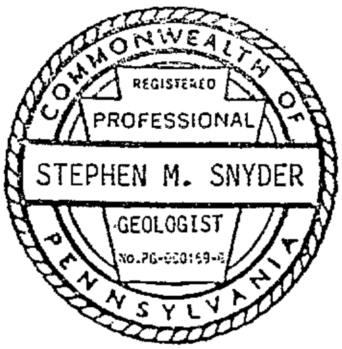
Harley-Davidson Motor Company
York, PA

By

Science Applications International Corporation
6310 Allentown Boulevard
Harrisburg, PA 17112
(717) 901-8100

February 2000

Respectfully submitted,



Rodney G. Myers
Project Manager

Stephen M. Snyder, P.G.
Project Director

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

LIST OF PLATES

LIST OF ACRONYMS

cfm	-	cubic feet per minute
DCE	-	1,2-Dichloroethene
DEP	-	Pennsylvania Department of Environmental Protection
GAC	-	granular-activated carbon
gpd	-	gallons per day
gpm	-	gallons per minute
Harley-Davidson	-	Harley-Davidson Motor Company
MCL	-	maximum contaminant level
mg/l	-	milligrams per liter
NB4	-	North Building 4
NPBA	-	Northeast Property Boundary Area
NPDES	-	National Pollutant Discharge Elimination System
PCE	-	Tetrachloroethene
PTA	-	Packed Tower Aerator
PVC	-	polyvinyl chloride
RI/FS	-	remedial investigation/feasibility study
SAIC	-	Science Applications International Corporation
SPBA	-	Southeast Property Boundary Area
TCA	-	1,1,1-Trichloroethane
TCE	-	Trichloroethene
TFO	-	Thermal Fume Oxidizer
µg/l	-	micrograms per liter
VOCs	-	volatile organic compounds
WPL	-	West Parking Lot

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

The groundwater extraction and treatment system located at Harley-Davidson Motor Company (Harley-Davidson) in York, Pennsylvania has operated continuously with few interruptions during the report period (July 1, 1998, through June 30, 1999), meeting its primary goals of: 1) preventing off-site groundwater migration in the Northeast Property Boundary Area (NPBA); 2) removing contaminated groundwater in the Trichloroethane (TCA) Tank Area; 3) removing contaminated groundwater and preventing off-site migration of groundwater in the West Parking Lot (WPL) Area; and 4) removing contaminated groundwater at the former degreaser location in the North Building 4 (NB4) Area.

On average, prior to start-up of the NB4 and WPL wells (WPL groundwater extraction system) in May 1994, the system removed approximately 131 gallons per minute (gpm) of groundwater and 1.2 pounds per day of volatile organic compounds (VOCs). Following start-up (in May 1994) of the WPL groundwater extraction system through June 30, 1998, the groundwater pumping rate increased to an average of 250 gpm and VOC loadings increased to 11 pounds per day. Science Applications International Corporation (SAIC) estimates that during the time period from November 1990 through June 1999, approximately 20,500 pounds of VOCs have been removed by the groundwater treatment system. The total amount of groundwater extracted during the report period was approximately 152 million gallons. This volume is similar to the amount reported in the previous year's report (153 million gallons from July 1997 to June 1998).

Operation of extraction wells in the NPBA resulted in overlapping cones of depression resulting in a trough in the groundwater table. The trough acts as a barrier to groundwater flow, thereby preventing off-site migration of the VOC plume. Similarly, extraction wells CW-8 and CW-16 developed a cone of depression in the TCA Tank Area, which prevented migration of the VOC-contaminated groundwater from this area. Three extraction wells were operated in the WPL, which removed contaminated groundwater and restricted its off-site migration. Groundwater elevations indicate that groundwater capture is occurring as a result of the operation of the groundwater extraction system in the WPL. Extraction well CW-15A, located at the northwestern corner of Building 4 and within the WPL area, has developed a cone of depression in the groundwater table and is successfully removing VOC-containing groundwater from this former degreaser location.

The combined influent total VOC concentrations to the Packed Tower Aerator (PTA) averaged approximately 1,500 micrograms per liter (μg/l) during the report period. Trichloroethene (TCE); TCA; 1,2-dichloroethene (DCE); and tetrachloroethene (PCE) are the predominant VOCs comprising the PTA influent chemistry. The PTA effectively removed all VOCs to non-detectable concentrations during the report period with the exception of trace concentrations that were detected in one effluent sample.

During the report period, the extraction wells were sampled two times for VOCs, the off-site water supplies were sampled four times for VOCs and cyanide, and the key monitoring wells were sampled once for VOCs and cyanide. Site-wide water levels were measured twice.

VOC concentrations in extraction and monitoring wells in the NPBA have remained fairly constant or have decreased during the report period. The VOC concentrations in the TCA Tank Area have decreased or remained the same during the report period in six of the seven wells in comparison to the previous report period. VOC concentrations have decreased or remained the same during the report period in eleven of twelve WPL wells.

Off-site sampling of local water supplies (wells and springs) indicates the presence of VOCs in 3 of 4 sampling locations although the chemicals detected are not found in the groundwater on the Harley-Davidson site, except possibly for the Jack Giambalvo well (RW-5). RW-5 which was replaced as a water supply this year by a connection to the municipal water system. The three off-site sampling locations contained trace concentrations (less than 10 μg/l) of various VOC compounds (chloroform, PCE, and TCE) with the maximum concentration (5.1 μg/l) detected at RW-5.

1.0 INTRODUCTION

1.0 INTRODUCTION

The purpose of this report is to summarize the operating record for the Harley-Davidson Motor Company (Harley-Davidson) groundwater extraction and treatment system, and to present groundwater quality data and groundwater level data monitored across the site. The Harley-Davidson facility is located in Springettsbury Township, York, Pennsylvania, as shown on Figure 1-1. This report covers a 12-month time period extending from July 1, 1998, through June 30, 1999.

The groundwater extraction portion of the system consists of 15 extraction wells (CW-1, CW-1A, CW-2 through CW-7, CW-7A, CW-8, CW-9, CW-13, CW-15A, CW-16, and CW-17) operating in three separate areas designated the Northeast Property Boundary Area (NPBA), the West Parking Lot (WPL) Area (including the North Building 4 [NB4] Area), and the Trichloroethane (TCA) Tank Area as shown on Figure 1-2.

Extracted groundwater is piped to the central treatment system, located in the groundwater treatment building, for processing through a Packed Tower Aerator (PTA) system prior to discharge to an unnamed tributary of the Codorus Creek (Figure 1-1). Figure 1-3 shows a schematic diagram of the system. Prior to May 1994, PTA off-gases were treated by a granular-activated carbon (GAC) filter system for removal of volatile organic compounds (VOCs) prior to discharge to the atmosphere. Since then, the VOCs have been directed from the PTA through a thermal fume oxidizer (TFO) for destruction prior to discharge.

The groundwater extraction and PTA treatment systems were brought on-line pursuant to an order from the Pennsylvania Department of Environmental Protection (DEP), dated September 11, 1990. In November 1990, ten extraction wells in the NPBA and TCA

Tank Areas were brought on-line, while ongoing studies were performed in the WPL. The WPL Area was brought on-line in May 1994. In conjunction with WPL start-up, PTA off-gases were redirected from the GAC filter to the TFO.

On December 2, 1993, National Pollutant Discharge Elimination System (NPDES) permit No. PA0085677 was issued for the system. This report satisfies Part C, Section 1, Item E of the permit.

The data presented in this report were collected by SAIC under contract to Harley-Davidson, and are summarized in the following chapter format:

1. Chapter 2.0, *Geology and Hydrogeology*, briefly summarizes the hydrogeologic conditions of the site.

2. Chapter 3.0, *Site-Wide Groundwater Monitoring*, summarizes groundwater levels and quality.

3. Chapter 4.0, *Groundwater Collection and Treatment System*, describes the design capacity of the system and presents the record of influent and effluent water quality. The VOC loadings to the PTA and TFO unit also are presented.

4. Chapter 5.0, *NPBA Groundwater Extraction System*, summarizes water levels and VOC concentrations for each extraction well in the NPBA. System performance is evaluated based upon observed trends in these data.
5. Chapter 6.0, *TCA Tank Area, Groundwater Extraction System*, describes operation and performance of extraction wells CW-8 and CW-16 located in

this area. Water level and VOC concentration data are used to evaluate system performance.

6. Chapter 7.0, *West Parking Lot, Groundwater Extraction System*, describes the operation of extraction wells in this area. System performance, water level data, and VOC trends are presented.

7. Chapter 8.0, *Off-Site Water Supply*, presents the record of groundwater quality data for off-site locations. System effectiveness at preventing off-site migration is evaluated based upon these data.

8. A summary for the groundwater remediation system operation and maintenance is presented in Chapter 9.0, *Summary*.

2.0 GEOLOGY AND HYDROGEOLOGY

2.0 GEOLOGY AND HYDROGEOLOGY

Two geologic rock formations underlie the site. Solution-prone, gray limestone underlies the flat lowland (western) portion of the site, and a quartzitic sandstone underlying the more steeply sloping hills or upland area is present on the eastern part of the site. Groundwater beneath the site generally flows from the upland area at the eastern part of the site westward toward Codorus Creek. A detailed discussion of the geology and hydrogeology is included in SAIC's February 1995 report entitled, "Groundwater Extraction and Treatment System Annual Operations Report."

3.0 SITE-WIDE GROUNDWATER MONITORING

3.0 SITE-WIDE GROUNDWATER MONITORING

3.1 Groundwater Flow Patterns

SAIC collected groundwater levels across the site twice during the reporting period (on December 7, 1998, and May 4, 1999). The depth to water was measured in approximately 110 monitoring wells, groundwater collection wells and piezometers during these events. The groundwater surface elevation data for these events are presented in Appendix A, Table A-1. Figure 3-1 presents the interpreted shallow groundwater table surface from water levels measured on December 7, 1998.

The general configuration of the water table at the site indicates a gradient towards the west-southwest. The water table gradient is relatively steep beneath the eastern portion of the site, which is underlain by sandstone. The water table gradient appears relatively flat beneath the western portion of the site, which is primarily underlain by limestone bedrock.

The December 1998 water level measurements were generally consistent with the November 1997 water levels. As noted in the 1997-1998 annual report, the November 1997 water levels were some of the lowest levels recorded in south-central Pennsylvania in recent years due to drought conditions. Due to continued drought conditions, the December 1998 water levels remained low. The May 1999 water table was several feet higher on average than the December 1998 levels due to increased aquifer recharge that typically occurs during the spring. A brief summary of seasonal water level fluctuations is presented below by bedrock aquifer type:

1. The water levels in the eastern portion of the site underlain by sandstone ranged from 2 to 15 feet lower in December 1998 compared to May 1999. This range was determined by using wells in the areas not affected by the pumping wells of the NPBA extraction system. Wells constructed in sandstone nearest the limestone aquifer (such as well CW-10) appear to have the largest groundwater level fluctuations due to drainage into the more permeable limestone aquifer.

2. Water levels in the limestone aquifer were generally 2 to 5 feet lower in December compared to May, except in the area of MW-29 south of the WPL. The December 1998 water level at MW-29 was approximately 12 feet lower than the May 1999 value. Water levels at MW-29 have historically appeared to be problematic with respect to adjacent wells.

3.2 Key Well Groundwater Sampling

In February 1992, a key well sampling program was initiated. Selected monitoring wells were designated as "key wells" based upon location and spatial distribution in order to provide representative groundwater quality data across the site. The key wells have historically been sampled annually to establish a database of groundwater quality and to monitor changes in groundwater chemistry over time. Analytical results from the key monitoring well sampling event, which occurred between December 7 and 14, 1998, are presented on Table A-2.

During the December 1998 sampling event, groundwater from 12 additional monitoring wells were collected and analyzed to increase coverage in two areas. Ten of these wells (MW-40S&D, MW-41S&D, MW-42M&D, MW-43S&D, and MW-64S&D) are located along the Southern Property Boundary Area (SPBA). The remaining two wells sampled during this event (MW-5 and MW-6) are located along the north-northeast extent of the West Parking Lot. The results of laboratory analyses performed on samples from these wells are included in the discussion and are presented on Table A-2.

All groundwater samples were analyzed for volatile organic compounds (VOCs) by United States Environmental Protection Agency (EPA) Method 8260. Additionally, samples were analyzed for total cyanide and cyanide (weak acid dissociable) by EPA Method 335.2. SAIC sampling personnel used the following groundwater sampling methodology during this event:

1. Prior to the initiation of well purging activities, the depth to water and total well depth were measured to the nearest 0.01-foot with an electronic water-indicating probe.

2. Prior to sampling, three well volumes of water were purged from each well using a submersible pump. Where well yields were low, the maximum practical volume was purged prior to sampling. All purge water was contained and discharged to the on-site groundwater treatment system.

3. The groundwater level within each well was allowed to recover to at least 75 percent of its initial groundwater level before sample collection. The groundwater samples were collected from each monitoring well with a new disposable polyethylene bailer.

4. Identification labels were immediately affixed to the sample containers. The containers were then placed in coolers and chilled to approximately

four degrees Celsius prior to being transported to Analytical Laboratory Services, Inc. (ALSI) under strict chain-of-custody (COC) protocol.

5. Following collection of samples for laboratory analyses, a SAIC scientist recorded field parameter measurements. Representative groundwater samples collected from each well were analyzed in the field for pH, specific conductance, and temperature. The results of the field analyses were recorded in the project field notes.

Plate 1 provides a geographical view of groundwater quality with respect to selected VOC compounds. The selected compounds (TCA, DCE, TCE, and PCE) represent the dominant VOCs detected in groundwater on-site. Areas containing the greatest VOC concentrations in the groundwater are located at the WPL and TCA Tank Areas. Elevated VOC concentrations were also detected at the NPBA, with maximum concentrations occurring in collection well CW-7A.

General groundwater quality trends based on current and past analytical results for the key wells, the SPBA wells, off-site wells, and the groundwater collection wells are discussed in subsequent chapters of this report.

4.0 GROUNDWATER COLLECTION AND TREATMENT SYSTEM

4.0 GROUNDWATER COLLECTION AND TREATMENT SYSTEM

4.1 System Description

The groundwater collection and treatment system serves to remediate groundwater containing dissolved VOCs in three main areas of the site; NPBA, TCA tank, and WPL. Extraction wells within each of these areas remove groundwater by way of electric submersible pumps controlled by liquid level probes and control circuitry. The water level within each well is maintained between the "on" and "off" probes thus producing an area of drawdown and groundwater capture. The extracted groundwater is conveyed via underground piping to the treatment system where the dissolved VOCs are effectively removed from the groundwater.

The groundwater treatment system is housed in a 30-foot by 40-foot block building attached to the west wall of the industrial wastewater treatment plant. The process flow diagram for the system is presented in Figure 1-3. The treatment system consists of a 2,600-gallon equalization tank; 5 foot-diameter by 47 foot high PTA capable of treating 400 gallons per minute (gpm) of water; and a TFO/incinerator for PTA off-gas treatment. A 10,000-pound vapor-phase GAC unit serves as backup to the TFO. If the TFO is shut down due to normal semiannual maintenance or a system malfunction, the WPL portion of the groundwater extraction system is deactivated to prevent excessive VOC loading to the backup GAC unit.

Collected groundwater is pumped from the equalization tank at a maximum flow rate of 400 gpm to the top of the PTA. The water is then distributed evenly over the top of the polypropylene packing and trickles down through the 36-foot packed section of the PTA. Air is moved from an outside source through the PTA column by a 4,000 cubic foot per minute (cfm) centrifugal blower. The VOCs are effectively "stripped" from the water and then destroyed by thermal oxidation as the off-gas passes through the TFO. The treated groundwater flows by gravity from the PTA sump to a storm water sewer and is ultimately discharged to an unnamed tributary of the Codorus Creek.

The groundwater treatment system is equipped with a PC-based Site Boss® monitoring system. Remote computer terminals are located in both Harley-Davidson and SAIC offices where extraction well pumping rates and treatment processes can be monitored and controlled. System and extraction well pumping rates are adjusted manually at the site.

4.2 Record of Groundwater Withdrawal and Chemical Removal

Table 4-1 presents recorded groundwater withdrawal and total VOC removal that has been accomplished by the groundwater extraction and treatment system. A system-wide total of approximately 20,500 pounds of VOCs has been removed since the groundwater treatment system began operation in November 1990. On average, prior to start-up of WPL system in May 1994, approximately 131 gpm of groundwater and 1.2 pounds per day of total VOCs were being extracted by the system. Since the WPL system became operational, the average groundwater pumping rate from November 1990 through June 1999 is approximately 260 gpm with 10 pounds per day of total VOCs being removed.

The total amount of groundwater extracted during the report period was approximately 152 million gallons (416,000 gallons per day [gpd]; 289 gpm). This extraction rate is similar to the previous report period (7/97 - 6/98) where approximately 153 million gallons were extracted (419,000 gpd; 291 gpm). The groundwater remediation system operated effectively throughout the current report period with few exceptions.

The total estimated pounds of VOCs removed during the report period was 1,980, compared to 2,960 recorded during the last report period. Estimated pounds per day of total VOCs extracted by the groundwater treatment system for the last five calendar years were:

1. 1998 - 7.7 pounds/day
2. 1997 - 7.3 pounds/day
3. 1996 - 10.0 pounds/day
4. 1995 - 15.3 pounds/day
5. 1994 - 10.7 pounds/day

From the time the groundwater remediation began operation in November 1990 until start-up of the WPL extraction system in May 1994, the PTA influent concentrations averaged approximately 750 micrograms per liter (µg/l) of total VOCs. Since start-up of the WPL system, the approximate average total VOC concentration increased to 3,055 µg/l. This increase is attributed to the fact that a relatively large volume of groundwater was added to the treatment system containing higher total VOC concentrations than the NPBA and TCA wells. The average total VOCs detected in the PTA influent samples during the report period were approximately 1,500 µg/l. The trend in PTA influent chemistry is illustrated on Figures 4-1 and 4-2.

The PTA effluent concentrations of VOCs were monitored twice monthly until December 1998. During 1999, the PTA effluent was sampled on a monthly basis. Analytical testing results for the reporting period are presented in Table A-4 of Appendix A. The treatment system has maintained non-detectable concentrations of VOCs during this reporting period.

5.0 NPBA GROUNDWATER EXTRACTION SYSTEM

5.0 NPBA GROUNDWATER EXTRACTION SYSTEM

5.1 Groundwater Extraction

Groundwater extraction at the NPBA commenced in November 1990. Nine groundwater extraction wells (CW-1, CW-1A, CW-2, CW-3, CW-4, CW-5, CW-6, CW-7 and CW-7A) pump to the NPBA control building where individual pumping rates are controlled and measured. The groundwater from each well is combined to a common three-inch diameter pipeline to the groundwater treatment system.

Table 5-1 presents a record of groundwater withdrawals for each extraction well on-site for the period covered by this report. Over 92 million gallons of groundwater were extracted from the NPBA from start-up of the system through June 30, 1999. This extraction system, during the current report period, removed approximately 7.2 million gallons of groundwater at an average rate of 604,000 gallons per month, or 14 gpm. This compares to 8.2 million gallons during last year's report period.

Measured groundwater levels for the current report period are presented in Table A-1. The groundwater contour map (Figure 3-1) shows the effect the groundwater extraction system imposed on the water table at the NPBA Area on December 7, 1998. Groundwater contours indicate a trough (coalescing cones) of depression on the groundwater surface which demonstrates capture of local groundwater and prevention of off-site migration.

Table 5-2 summarizes measurements of water levels for extraction wells in the NPBA. The table also lists design "pump on" and "pump off" water level elevations. During the December 1998 measurement round, water levels were maintained near the design drawdown levels (within five feet), in all nine wells. The May 1999 measurement round indicates three of the nine extraction wells exhibited higher than designed water levels. The higher than designed pumping water levels are due to pumping rates restricted by iron fouling described below.

5.2 System Operational Conditions

The nine wells in the NPBA generally operated continuously as shown in Table 5-1 and Figure 5-1. On occasion, records show obviously diminished groundwater extraction volume from an individual well. These periods of interrupted pumping were related to various repairs and maintenance of the system. The most significant maintenance item has been iron fouling of the pumps and pipelines of wells CW-2 through CW-6. Iron fouling caused high water level alarms in these wells during parts of the report period due to reduced groundwater extraction rates.

Significant declines in groundwater yields have been occurring in well CW-2, CW-4, and CW-7A over the last several years in spite of the regular replacement of pumps and acid cleaning of conveyance piping. The probable cause of the decreased performance is chemical incrustation or biofouling in the wells or in the case of CW-7A, on the well screen. As a result of this observation, these wells were rehabilitated in July 1999, which will be discussed in the 1999-2000 annual report.

The reduced ability to maintain the desired groundwater drawdown prompted SAIC to replace several groundwater extraction well pumps, which is routinely completed twice per year, and acid clean the underground conveyance piping. The piping was cleaned during the report period and has resulted in the desired maintenance of water levels at the

NPBA for several months. Visual observation of the manifold at the NPBA control building confirmed the successful cleaning of conveyance piping leading to the building.

Flow meters, y-strainers, check valves, and other components of the groundwater extraction system are maintained on a twice per month schedule. This maintenance program has successfully kept the system operational.

5.3 Groundwater Chemistry

The dominant VOCs found in groundwater beneath the NPBA are TCE and PCE. Previous reports have discussed separate source areas for these two solvents at the NPBA. Three monitoring wells (MW-10, MW-12, and RW-2) and nine collection wells (CW-1 through CW-7, CW-1A and CW-7A) were sampled at the NPBA during the report period to evaluate the effectiveness of the NPBA groundwater remediation system. The results of laboratory analyses for the monitoring wells and the collection wells are summarized on Tables A-2 and A-3, respectively.

Table 5-3 is a summary comparing 1997 TCE and PCE values for the NPBA extraction wells and key wells with 1998 values. Changes in these chemical values over this time period is unremarkable. TCE represents the 83 to 100 percent of TVOCs in all NPBA wells tested except CW-5 (48%) and CW-6 (42%).

Concentrations of TCE in NPBA key wells are shown on Figure 5-2. MW-10 increased in concentration after start-up of the NPBA extraction system, peaking after approximately two years of pumping. Since that peak, the value has hovered around 500 µg/l. MW-12 has shown a steady decline in TCE since the initiation of pumping.

During the December 1998 sampling event, the only VOC detected at RW-2 was TCE. The concentration reported indicates a slight increase compared to sampling data reported for 1997 (from 5 to 13 μg/l). However, the 1998 results do indicate a decrease in historical TCE concentration compared to an initial detection of 50 μg/l (1995). This off-site monitoring well had concentrations of 2,000 μg/l of TVOCs prior to commencement of the NPBA extraction system. This water quality data demonstrates the effectiveness of the extraction system in improving off-site groundwater quality.

Concentrations of TCE in NPBA extraction wells are shown collectively on Figure 5-3. Although the graph is dominated by the high concentrations in CW-7A and CW-1A, all extraction well values indicate a decreasing trend in TCE. This can be seen more clearly on Figures 5-4 through 5-12, which show concentrations over time of selected VOCs for each of the NPBA extraction wells.

In summary, a review of groundwater quality data from the three monitoring wells and the nine active groundwater collection wells, indicates improvement to the groundwater quality beneath the NPBA. This is based on generally decreasing concentration trends for TCE, which is the most prevalent VOC detected in this area.

6.0 TCA TANK AREA GROUNDWATER EXTRACTION SYSTEM

6.0 TCA TANK AREA GROUNDWATER EXTRACTION SYSTEM

6.1 Groundwater Extraction

Groundwater extraction was initiated in November 1990 from CW-8 to prevent TCA migration and remove VOCs from the groundwater in this area. Groundwater extraction was initiated in February 1995 from CW-16 to contain and remediate groundwater beneath the degreaser area inside Building 2. Groundwater from these wells is conveyed a distance of approximately 1,000 feet through a 3-inch line to the groundwater treatment system.

Initially, extraction well CW-8 was pumped at a rate higher than necessary to maintain capture. The early goal was to reverse the direction of migration prior to initiation of groundwater pumping planned for the WPL, which would have potentially pulled the western edge of the TCA tank plume further west. Prior to pumping of the WPL, the groundwater treatment plant, which was designed to handle water from the WPL, had excess capacity. Thus, the capacity was utilized to address the TCA tank plume.

Table 5-1 presents a record of groundwater withdrawals for extraction wells CW-8 and CW-16. Approximately 61 million gallons of groundwater were extracted from the TCA Tank Area during the report period, averaging approximately 5.1 million gallons per month (118 gpm). The total amount of groundwater extracted during the previous report period was similar at approximately 56 million gallons.

6.2 System Operational Conditions

CW-8 has generally operated continuously during the report period as shown in Table 5-1. Based on the monthly total flow data, the CW-8 daily pump rates ranged between 111,000 to 257,000 gallons. CW-16 has maintained a pumping rate during the report period between 13,000 and 20,000 gallons per day (gpd). Pump rates from CW-8 and CW-16 have averaged approximately 4.6 and 0.5 million gallons per month, respectively, during the report period.

Groundwater elevations for the report period are presented in Table A-1 of Appendix A. The site groundwater contour map (Figure 3-1) does not reflect the impact of groundwater extraction from the TCA groundwater extraction wells because both wells were not operating, due to plant facilities maintenance in the area on December 7, 1998, when the measurements were taken. In addition, the maintenance prevented the measurement of the water level in CW-16. During the May 4, 1999 round of groundwater level measurements, both wells were pumping, and water levels indicate capture of groundwater in the TCA tank area. Due to the very flat groundwater table, the capture area for these two wells is potentially extensive.

CW-8 and CW-16 are not prone to iron fouling, so twice-monthly cleaning of y-strainers is normally sufficient for these wells. CW-16 has experienced declines in groundwater yields over the past several years. It is suspected that the formation around the screen is being plugged or the well screen itself is being filled by fine sand, silt, or clay. SAIC completed rehabilitation of well CW-16 in early January 2000.

6.3 Groundwater Chemistry

The dominant VOCs found in groundwater beneath the TCA Tank Area are TCE, PCE, 1,1,1-Trichloroethane (TCA), and cis-1,2-Dichloroethene (DCE). This area is the site of a past TCA spill, which resulted in initially high concentrations of TCA. Groundwater extraction and treatment initiated at CW-8 resulted in a rapid decrease in TCA concentrations near the release, with adjacent monitoring wells exhibiting slow declines. The cone of groundwater depression resulting from the active collection wells has resulted in intercepting existing TCE and PCE sources, which now dominate the TVOC concentrations in groundwater beneath this area.

Five monitoring wells (MW-32S&D, MW-34S, MW-35D, and MW-54) and two collection wells (CW-8 and CW-16) were sampled at the TCA tank area during the report period to evaluate the effectiveness of the groundwater remediation system. The results of laboratory analyses for the monitoring wells and the collection wells are summarized on Tables A-2 and A-3, respectively. Table 6-1 summarizes concentrations of the four dominant VOCs for the TCA area wells and compares last year's and this year's values. In general, concentrations of TCA, PCE, and DCE decreased since last year for nearly all wells. TCE values decreased in four wells and increased in three wells (see Figure 6-1).

The dominant VOC at MW-32S in 1998 was DCE, which was detected at a concentration of 310 µg/l (57 percent of the TVOC concentration). Original sample data collected in 1989 indicated that TCA was the dominant VOC at this location (83 percent of the TVOC concentration). The TCA concentration at MW-32S decreased 50 percent since last year (from 260 to 130 µg/l) while the DCE concentration increased approximately 55 percent compared to the most recent data (from 200 µg/l in 1996 to 310 µg/l).

TCE is the dominant VOC at the MW-32D sampling location (70 percent of the TVOC concentration) and the TCE concentration is higher in this well than any other TCA tank well analyzed. The December 1998 detection (2,400 µg/l) represents 140 percent increase compared to 1997 (1,000 µg/l). These data represent a change in the most prevalent VOC since 1990 when TCA represented 99 percent of the TVOCs (at a reported concentration of 100,000 µg/l). The 1998 TCA detection for this location was 98 µg/l.

TCE comprises 60 percent of the TVOC concentration at MW-34S while it represents 66 percent of the TVOC concentration at MW-35D. The TCE concentration reported for both MW-34S and MW-35D (290 µg/l) represents a 4 percent increase compared to data collected last year (280 µg/l). PCE represents an additional 25 percent at MW-34S and 13 percent at MW-35D. Both PCE and TCE have been detected in samples from these locations at similar concentrations dating back to 1991-1992.

TCA continues to be the most prevalent VOC at MW-54; however, its representation as the dominant VOC has decreased from 72 to 28 percent of the TVOC concentration (from 1993 to 1998). A continual decrease in TCA concentration is evident for MW-54 since it was first sampled in 1993. The 1998 TCA data indicates a decrease of 53 percent over the past year (from 1,600 µg/l to 760 µg/l). TCA was initially detected at a concentration of 30,000 µg/l in 1993.

Figures 6-2 and 6-3 show concentrations of dominant VOCs in TCA tank area extraction wells since start of pumping. Groundwater quality data for the collection wells in this area (CW-8 and CW-16) indicate that TCE concentrations in extracted groundwater remain generally consistent. The average TCE concentration for CW-8 increased approximately 3 percent (from an average of 510 µg/l to 525 µg/l) while the TCE concentration for CW-16 decreased approximately 23 percent (from an average of 800 µg/l to 650 µg/l). One noteworthy trend in the data for collection well CW-8 is that the dominant VOC present has clearly shifted from 1,1,1-TCA to TCE. In 1990, 1,1,1-TCA accounted for 80 to 85 percent of the TVOC concentration at this well. In 1999, 1,1,1-TCA accounts for only 5 to 9 percent of the TVOC concentration. Currently, TCE accounts for 75 to 85 percent of the TVOC concentration at both wells CW-8 and CW-16.

In summary, a review of groundwater quality data from the five monitoring wells and the two active groundwater collection wells, generally indicates improving groundwater quality beneath the TCA Tank Area (with respect to TCA). However, data from this area indicates fluctuating or increasing concentrations of TCE, which is now the most prevalent VOC detected in this area. This data suggests that a source of TCE appears to have been drawn towards this location due to the induced groundwater drawdown.

7.0 WEST PARKING LOT GROUNDWATER EXTRACTION SYSTEM

7.0 WEST PARKING LOT GROUNDWATER EXTRACTION SYSTEM

7.1 Groundwater Extraction

Three groundwater extraction wells (CW-9, CW-13, and CW-17) operate in the WPL Area of the Harley-Davidson property. One extraction well (CW-15A) is located near the northwest corner of Building 4. These four wells are referred to as the WPL wells. The purpose of the WPL groundwater extraction system is to prevent off-site migration of groundwater containing dissolved VOCs and to control the migration of VOCs in a plume located near the northwest corner of Building 4. Extracted groundwater from the WPL wells is conveyed up to 1,400 feet via underground piping to the groundwater treatment system. The wells are individually piped to the groundwater treatment plant so that flow control, flow measurements and water samples may be obtained for each well at this central location.

Extraction wells CW-9, CW-13, and CW-15A began operation in May 1994, and CW-17 began operating in September 1995. Well CW-17 was a replacement extraction well for CW-14. CW-14 operated as one of the WPL extraction wells between June 1994 and March 1995, when it stopped operating due to excessive sediment buildup in the well.

7.2 System Operational Conditions

Since start-up of the WPL groundwater extraction system in May 1994, approximately 364 million gallons of groundwater have been removed through June 30, 1998. The average withdrawal rate during the report period was approximately 7.0 million gallons per month, or approximately 162 gpm with a total amount of approximately 84 million gallons. The total amount of groundwater extracted during the previous report period was similar at 82 million gallons. The pumping data is presented in Table 5-1. Figure 3-1 shows closed groundwater table contours around the pumping wells in the WPL. These closed contours indicate prevention of off-site contaminant migration and capture of groundwater beneath the WPL, excepting the southwestern corner (area of MW-37).

Table 5-2 presents the designed drawdown levels and the calculated water table elevations for the December 1998 and May 1999 measurement rounds. Both measurement rounds demonstrate that groundwater levels were within the design limit.

The WPL wells operated as designed throughout the report period with few exceptions. The only required routine maintenance on the WPL wells is twice-monthly cleaning of the y-strainers. The current maintenance program has maintained reliable operation of extraction wells CW-9, CW-13, CW-15A, and CW-17.

7.3 Groundwater Chemistry

TCE, PCE, DCE, and TCA are the dominant VOCs present in groundwater beneath this area. Nine monitoring wells (MW-5, MW-6, MW-37S&D, MW-38S&D, MW-39D, and MW-51S&D) and four collection wells (CW-9, CW-13, CW-15A, and CW-17) were sampled in the WPL area during the report period. SAIC planned to sample MW-39S but did not, due to the presence of insufficient water. The results of laboratory analyses for the monitoring wells and the collection wells are summarized on Tables A-2 and A-3, respectively. Concentrations of the most prevalent VOC in this area (TCE) is graphed for monitoring wells and extraction wells and included as Figures 7-1 and 7-2, respectively.

Table 7-1 summarizes concentrations of the four dominant VOCs for the WPL wells, and compares last year's and this year's values. While wells CW-9 and MW-37S increased from last year to this year, all other wells sampled in the WPL decreased for most of these dominant VOCs.

At the request of Harley, two wells that are not considered key wells (MW-5 and MW-6) were sampled and laboratory analyzed during the December 1998 sampling event. TCE and DCE were the only VOCs detected in the MW-5 sample (at concentrations of 34 and 40 µg/l, respectively). The reported concentrations represent no significant change compared to analytical results reported in 1986 (TCE=63 µg/l, DCE=40 µg/l).

Only trace levels of VOCs were detected in the groundwater sample collected from MW-6. A concentration of 2.5 µg/l was reported for 1,1-dichloroethane.

The dominant VOC at MW-37S is PCE (49 percent of the TVOC concentration). The PCE concentration in MW-37S increased 121 percent during this reporting period (from 280 µg/l to 620 µg/l). The 1998 concentration remains well below the maximum PCE concentration of 4,100 µg/l reported for this location in 1992.

At MW-37D, PCE concentrations increased 6 percent (from 1,800 µg/l to 1,900 µg/l) during the past year. While PCE is the dominant VOC at this location, TCE concentrations are also relatively elevated. However, TCE concentrations, which represent 22 percent of the 1998 TVOC concentration, decreased by 55 percent during the past year (from 1,700 to 760 µg/l).

At MW-38S, low concentrations of VOCs (less than 10 µg/l) continue to be present after an initial concentration of 126 µg/l was detected in 1990. TCE was detected at the highest concentration (7.4 µg/l) at this sampling location.

DCE is the most prevalent VOC at MW-38D (63 percent of the TVOC concentration). The DCE concentration has decreased from a maximum of 670 µg/l (in 1990) to its most recent concentration of 240 µg/l (in 1998). However, the most noteworthy detection in 1998 is the vinyl chloride concentration of 110 µg/l. The previous maximum concentration of this parameter (10 µg/l) was reported in 1997. The increase in vinyl chloride concentration, coupled with the fact vinyl chloride is a degradation product of DCE, suggests that the rate of degradation for DCE is increasing at this location.

TCE is the dominant VOC detected at MW-39D (55 percent of the TVOC concentration). From 1997 to 1998, TCE concentrations exhibited a slight increase of 9 percent (from 110 µg/l to 120 µg/l); however, they are still below the maximum TCE concentration for this location (3,200 µg/l in 1994). DCE, the second most prevalent VOC at this location (42 percent of the TVOC concentration), also is well below its maximum concentration to date (2,700 µg/l in 1994).

MW-39S was not sampled during the current report period because it lacked sufficient water for sampling.

TCE (54 percent), PCE (18 percent), and DCE (16 percent) are the most prevalent VOCs in groundwater at MW-51S. The TCE concentration detected in 1998 represents a decrease of 37 percent from 1997 (from 6,200 to 3,900 µg/l). An obvious decreasing trend in the TCE concentration at this location is evident since a maximum concentration of 23,000 µg/l was reported in 1991.

DCE (45 percent) and TCE (38 percent) are the dominant VOCs in groundwater at MW-51D. The 1998 TCE concentration at MW-51D (1,000 µg/l) is 29 percent greater than the 1997 concentration (710 µg/l), while 1997 analytical data for DCE does not exist. This location has exhibited a generally decreasing concentration trend for TCE since a maximum concentration of 6,200 µg/l was reported in 1991. The DCE concentration has historically remained at or near its maximum concentration of 1,200 µg/l (reported in 1991 and 1998).

Figures 7-3 through 7-6 show concentrations of dominant VOCs in WPL extraction wells since start-up of pumping.

TCE is the dominant VOC recovered by three of the four collection wells in this area. Each of these three wells exhibits a relatively consistent decreasing trend in TCE concentration. Using average concentrations for the past two years of sampling, concentration decreases ranging between 24 percent (for CW-17) and 31 percent (for both CW-13 and CW-15A) have been observed.

PCE is the dominant VOC detected in the CW-9 groundwater samples. PCE concentrations reported for collection well CW-9 in 1998 represent an increase of 61 percent compared to 1997 (from 1,550 µg/l to 2,500 µg/l). TCE, which is the second most dominant VOC at this location, was also detected at increasing concentrations over the past year (from an average of 735 μg/l to an average of 1,200 μg/l). The trends indicated by concentrations of PCE and TCE on Figure 7-3 indicate that groundwater extraction has caused the migration of a second source, which reached the well during 1998.

In summary, a review of groundwater quality data from three of the four active groundwater collection wells generally indicates improving groundwater quality beneath the WPL (with respect to TCE). CW-9 indicated an increasing trend in PCE concentration. Data from this area indicates some recent fluctuating concentrations of TCE, PCE, and DCE; however, the overall trend in concentrations is generally decreasing. This data suggests VOCs continue to be drawn towards the active collection wells in this area.

8.0 SOUTHERN PROPERTY BOUNDARY AREA WELL MONITORING

8.0 SOUTHERN PROPERTY BOUNDARY AREA WELL MONITORING

SAIC sampled ten wells (MW-40S&D, MW-41S&D, MW-42M&D, MW-43S&D, and MW-64S&D) located near the Southern Property Boundary Area. These wells are not part of the regular key well sampling event. The dominant VOCs detected in groundwater beneath this area are TCE and PCE. The analytical results are discussed below and summarized on Table A-2. Concentrations of the most prevalent VOC in this area (TCE) are graphed and included as Figure 8-1, showing the relative concentrations of the SPBA wells.

TCE is the dominant VOC at the MW-40 well pair. When compared to the most recent available sampling data (December 1995), a decrease in the TCE concentration is evidenced for the groundwater sampled from the MW-40 well pair. At MW-40S, the TCE concentration decreased 19 percent (from 64 to 52 µg/l). For the MW-40D sampling location, a 72 percent decrease was realized (from 92 to 26 µg/l).

TCE is also the most prevalent VOC at well pairs MW-41S&D, MW-42M&D, and MW-43S&D. Similar TCE concentration decreases were observed when the December 1998 data for these well pairs were compared to the December 1995 data. At MW-41S, the TCE concentration decreased 61 percent (from 110 to 43 µg/l), while at MW-41D, the TCE concentration decreased 64 percent (from 75 to 27 µg/l). For the MW-42M sampling location, a 43 percent decrease was realized (from 230 to 130 µg/l), while at MW-42D, a 52 percent decrease was observed (from 120 to 58 µg/l). Finally, the TCE concentration at MW-43S decreased 40 percent (from 3 to 1.8 µg/l) while the TCE concentration at MW-43D decreased 28 percent (from 810 to 580 µg/l).

TCE is also the dominant VOC at the final sampling location (MW-64S&D); however, data collected indicates that the TCE concentration decreased in the shallow portion of the aquifer but increased in the deeper portion. The TCE concentration decreased 52 percent in groundwater sampled from MW-64S (from 1,500 to 720 μg/l). However, a 23 percent increase in TCE concentration was realized at MW-64D using an average of two 1995 sampling results (1,950 μg/l) and the 1998 detection (2,400 μg/l).

9.0 EASTERN AREA WELL MONITORING

9.0 EASTERN AREA WELL MONITORING

As part of the key well sampling program, two wells are sampled to monitor groundwater quality near the eastern portion of the Harley-Davidson property. Wells MW-2 and MW-17 were sampled during the December 1998 event. A brief summary of the analytical results is presented below:

1. MW-2 is located next to a former cyanide disposal area near the eastern site property boundary. PCE and TCE were the only VOCs detected in the MW-2 sample. The PCE concentration at MW-2 decreased 28 percent between 1997 and 1998 (from 250 μg/l to 180 μg/l), while the TCE concentration decreased 26 percent during this same time period (from 120 to 89 μg/l). TCE and PCE concentrations have exhibited a generally consistent decreasing trend since they were first quantified in 1986. Figure 9-1 shows TCE concentrations over time for MW-2.

   Total cyanide was also detected in the December 1998 sample collected from MW-2. The reported concentration was 1.6 milligrams per liter (mg/l), compared to the 1997 detection of 1.5 mg/l.

2. Monitoring well MW-17 is located in the east-central portion of the site, south of the landfill. The only VOC detected in the December 1998 sample from this location was TCE. The TCE concentration (70 μg/l) represents a 42 percent decrease when compared to the 1997 TCE detection (120 μg/l). TCE concentrations have exhibited a relatively consistent decreasing concentration trend since it was initially detected at a maximum

concentration of 254 µg/l in 1987. Figure 9-1 shows TCE concentrations over time for MW-17.

10.0 OFF-SITE GROUNDWATER MONITORING

10.0 OFF-SITE GROUNDWATER MONITORING

A regular quarterly sampling program of off-site groundwater supplies adjacent to and downgradient of the Harley-Davidson property was initiated in April 1988. During this report period, the sampling occurred in September 1998, December 1998, March 1999, and June 1999. Four groundwater supplies designated "RW" for a residential well and "S" for a spring sample were included in this sampling program during the report period:

1. RW-4 - Folk residence.
2. RW-5 - Giambalvo Pontiac.
3. S-6 - Hollinger spring.
4. S-7 - Wilhide spring.

Well RW-5 (Giambalvo Pontiac) was not sampled during the last quarter (June 1999), because RW-5 is no longer utilized as a water supply well. Harley-Davidson connected Giambalvo Pontiac to the city water supply in January 1999.

Groundwater sampling locations RW-4, S-6, and S-7 are located to the north of the Harley-Davidson property and RW-5 is located southwest of the site as shown on Plate 1. A complete description of baseline sampling of residential wells is contained in the R.E. Wright Environmental, Inc. report, entitled "Report of Investigations in the NPBA, TCA tank, and containment areas of the Harley-Davidson, Inc. York facility," dated August 1988.

During the reporting period, RW-4 and RW-5 (residential wells) were sampled directly from the tap within the residence, with one exception. In March 1999, RW-5 was no longer in use as a water supply well. Therefore, during the March 1999 sampling, three well volumes were purged prior to collection of the RW-5 sample. S-6 and S-7 are springs on residential properties. Grab samples were collected directly from the spring at these locations.

The off-site samples were analyzed for VOCs and free and total cyanide. Analytical results for the four locations are presented in Table A-5 of Appendix A.

10.1 RW-4 (Folk Residence)

VOCs were not detected during any of the sampling events in this report period. Total cyanide was detected during the December 1, 1998 sampling and the June 8, 1999 sampling at 55 µg/l and 35 µg/l, respectively. Total cyanide was detected previously in RW-4 in 1993. The cyanide concentrations in this well remain well below the MCL of 200 µg/l.

10.2 RW-5 (Giambalvo Pontiac)

TCE was detected in all three sampling rounds for this well ranging from 3.2 to 6.5 µg/l. PCE was detected during the December 1, 1998 sampling and the March 2, 1999 sampling at 2.1 µg/l and 1.7 µg/l, respectively. TCE had previously been detected at a maximum concentration of 57 µg/l during the 1995 reporting period (Figure 10-1). This well will no longer be sampled quarterly as part of the off-site groundwater supply monitoring program since Giambalvo Pontiac was connected to city water supply in January 1999. It will, however, be sampled as part of the key well (annual) sampling program.

10.3 S-6 (Tate Residence)

Total cyanide was detected at 33 μg/l during the June 1999 sampling event. Cyanide was previously detected in S-6 at 13 μg/l in 1992. The concentration remains well below the MCL of 200 μg/l. Chloroform was detected during all four sampling events in S-6, ranging from 4.9 μg/l to 7 μg/l. Chloroform has been detected in S-6 during every sampling event since September 1995, but levels remain well below the MCL of 100 μg/l.

10.4 S-7 (Hermann Residence)

Chloroform was detected during all four sampling rounds in S-7, ranging from 1 to 3 μg/l. Chloroform has consistently been detected in S-7 since June 1997, with the exception of March 1998. Levels have remained well below the MCL of 100 μg/l.

Total cyanide was detected during the December 1998 and the June 1999 sampling events at 57 μg/l and 34 μg/l, respectively. Cyanide has been detected in previous sampling events in S-7, and the concentrations have remained below the MCL of 200 μg/l.

10.5 Quality Assurance/Quality Control

A trip blank sample accompanied each set of off-site samples as part of the quality control procedures. VOCs were detected in one of the four (June 1999) trip blanks where methylene chloride was detected at 1.3 μg/l. According to EPA data validation procedures, associated samples with detected concentrations of this analyte (up to ten times the concentration detected in the blank) should be qualified with a "B" (on

Table A-5) to indicate potential contamination by the blank. Methylene chloride was not detected in any of the associated samples.

11.0 SUMMARY

11.0 SUMMARY

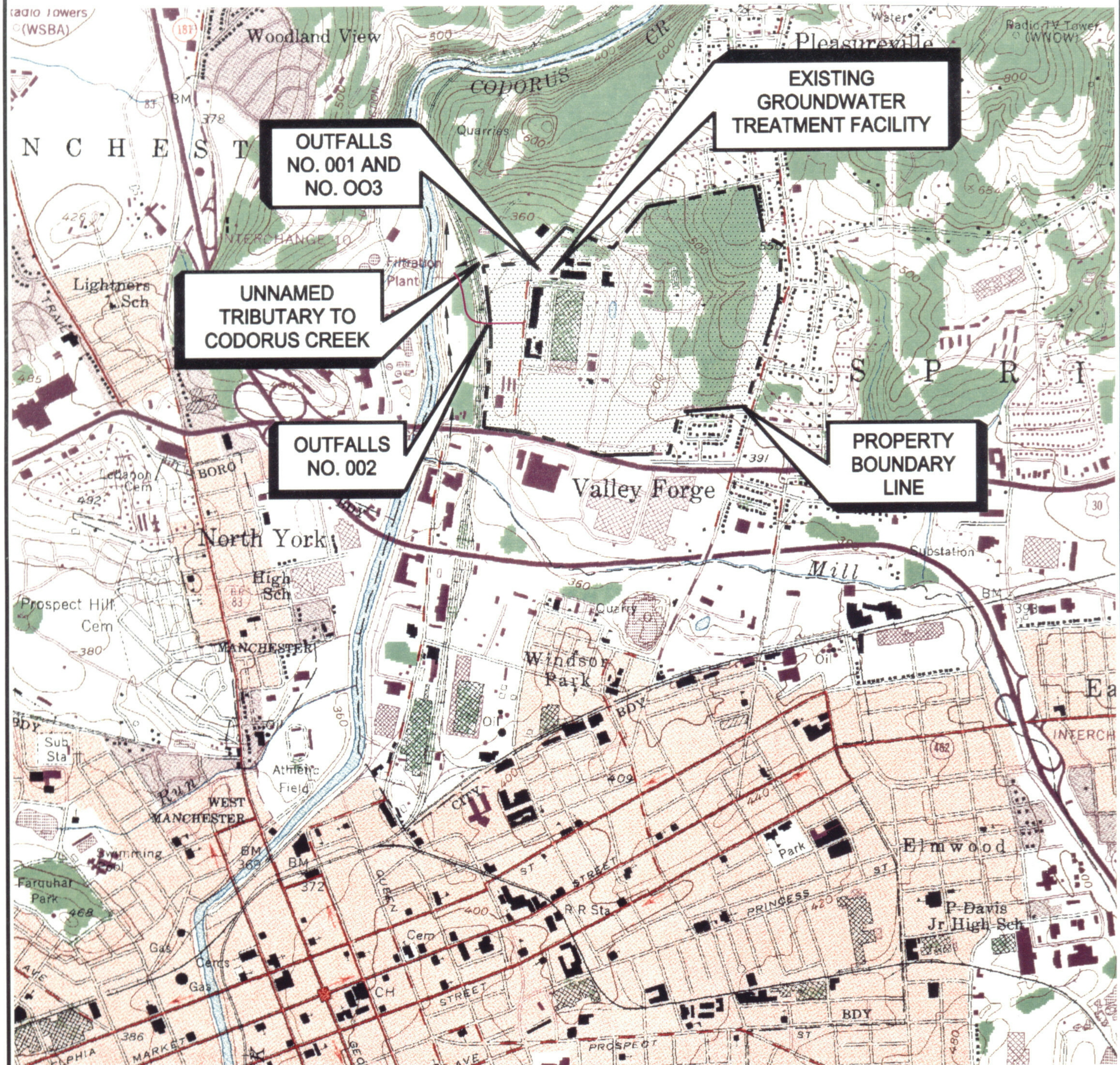
Operation of extraction wells in the NPBA resulted in overlapping cones of depression resulting in a trough in the groundwater table. The trough acts as a barrier to groundwater flow, thereby preventing off-site migration. Similarly, three extraction wells were operated in the WPL, which removed contaminated groundwater and restricted off-site migration of groundwater. Removal of groundwater from extraction wells CW-8 and CW-16 developed a cone of depression in the TCA Tank Area, and removed significant quantities of VOCs. One additional extraction well, operating next to the WPL (CW-15A), also successfully removed VOC-containing groundwater at the former degreaser location in the North Building 4 (NB4) Area.

VOC concentrations of the treatment system influent have steadily declined since pumping was initiated at the WPL in May 1994. During 1998/1999, VOC concentrations in extraction and monitoring wells in the NPBA have remained fairly constant or have decreased. The VOC concentrations in the TCA Tank Area have decreased or remained the same during the report period in six of the seven wells in comparison to the previous report period. VOC concentrations have decreased or remained the same during the report period in eleven of twelve WPL wells.

The current bimonthly preventâtive maintenance program has pro-actively facilitated continuous operation of the groundwater extraction and treatment systems with few exceptions during the report period.

The current groundwater monitoring program involves measuring groundwater levels and sampling/analyzing from on and off-site locations. The current monitoring provides sufficient data to assess the effectiveness of the collection and treatment systems.

FIGURES

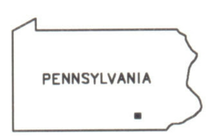


NOTE: BASE MAP FROM THE YORK PA., USGS 7 1/2 MIN TOPOGRAPHIC QUADRANGLE (PR 1990).

2000' 0 2000'

SCALE IN FEET

N



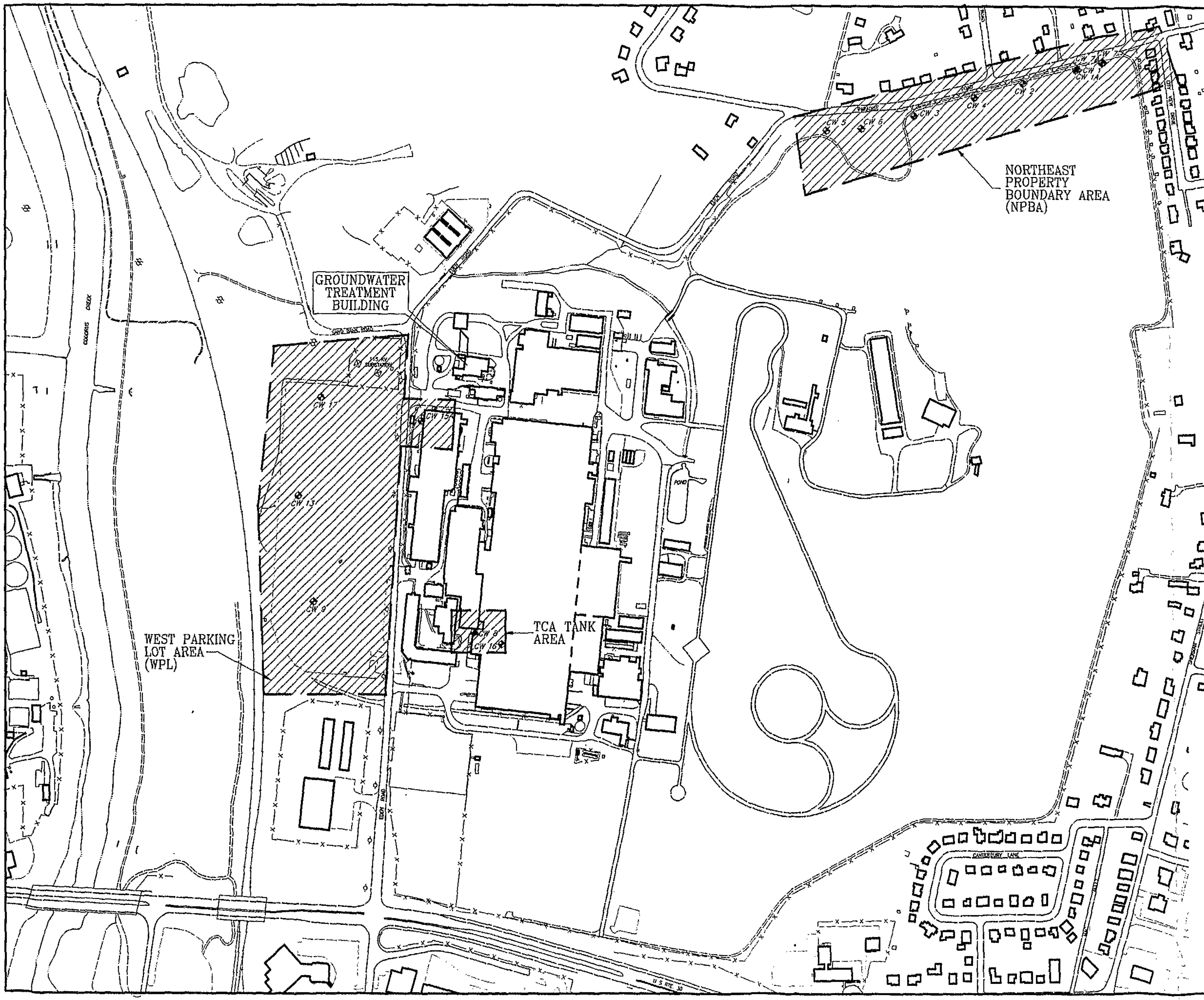
QUADRANGLE LOCATION

HARLEY-DAVIDSON MOTOR COMPANY
YORK FACILITY

SITE LOCATION MAP

drawn RAM	checked RGM	approved SMS	figure no.
date 12/02/99	date 2/25/00	date 2/25/00	1-1
job no. 01-1408-00-1818-101		file no. 01618-007-A	

Science Applications International Corporation
An Employee-Owned Company



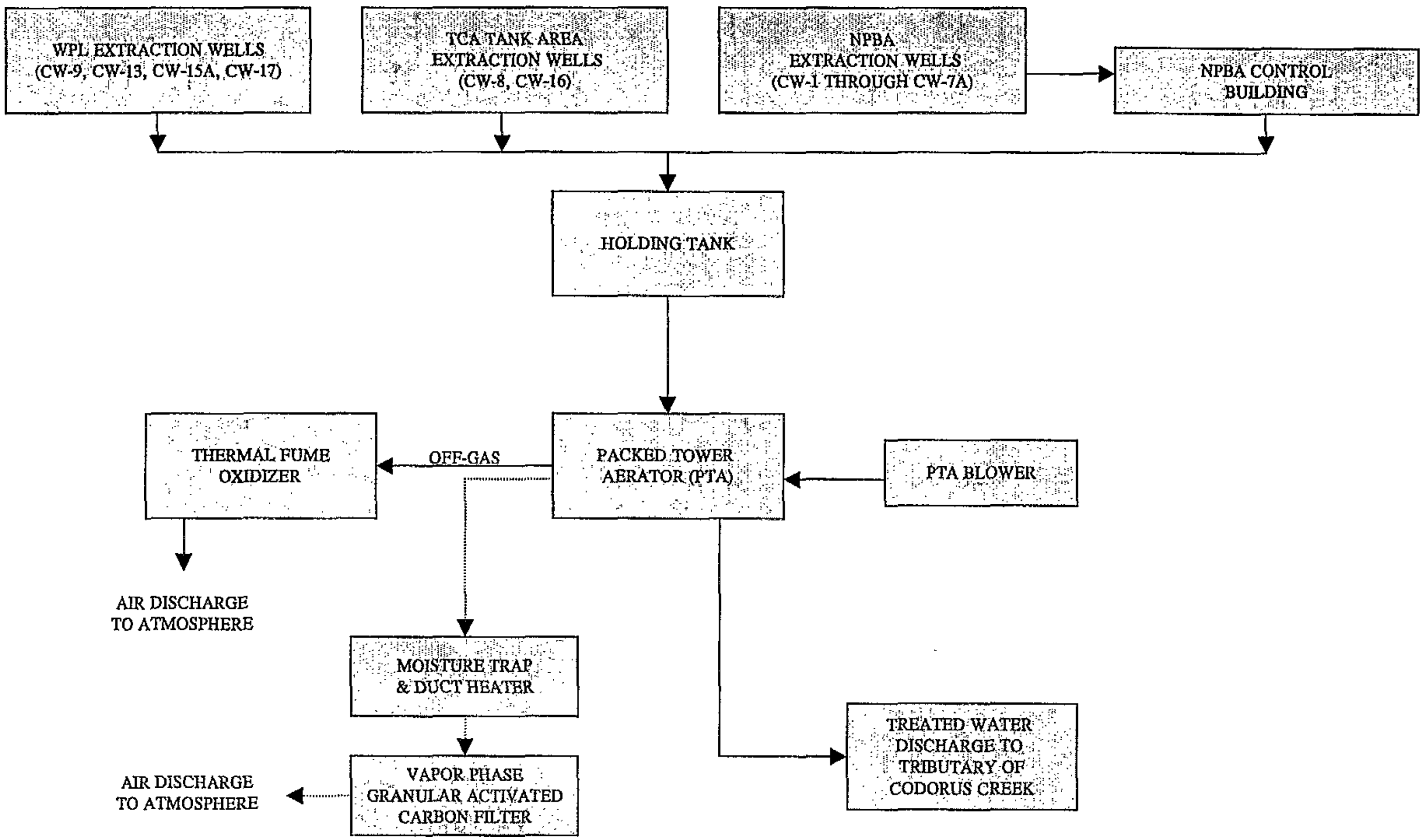
HARLEY-DAVIDSON MOTOR COMPANY

SITE MAP

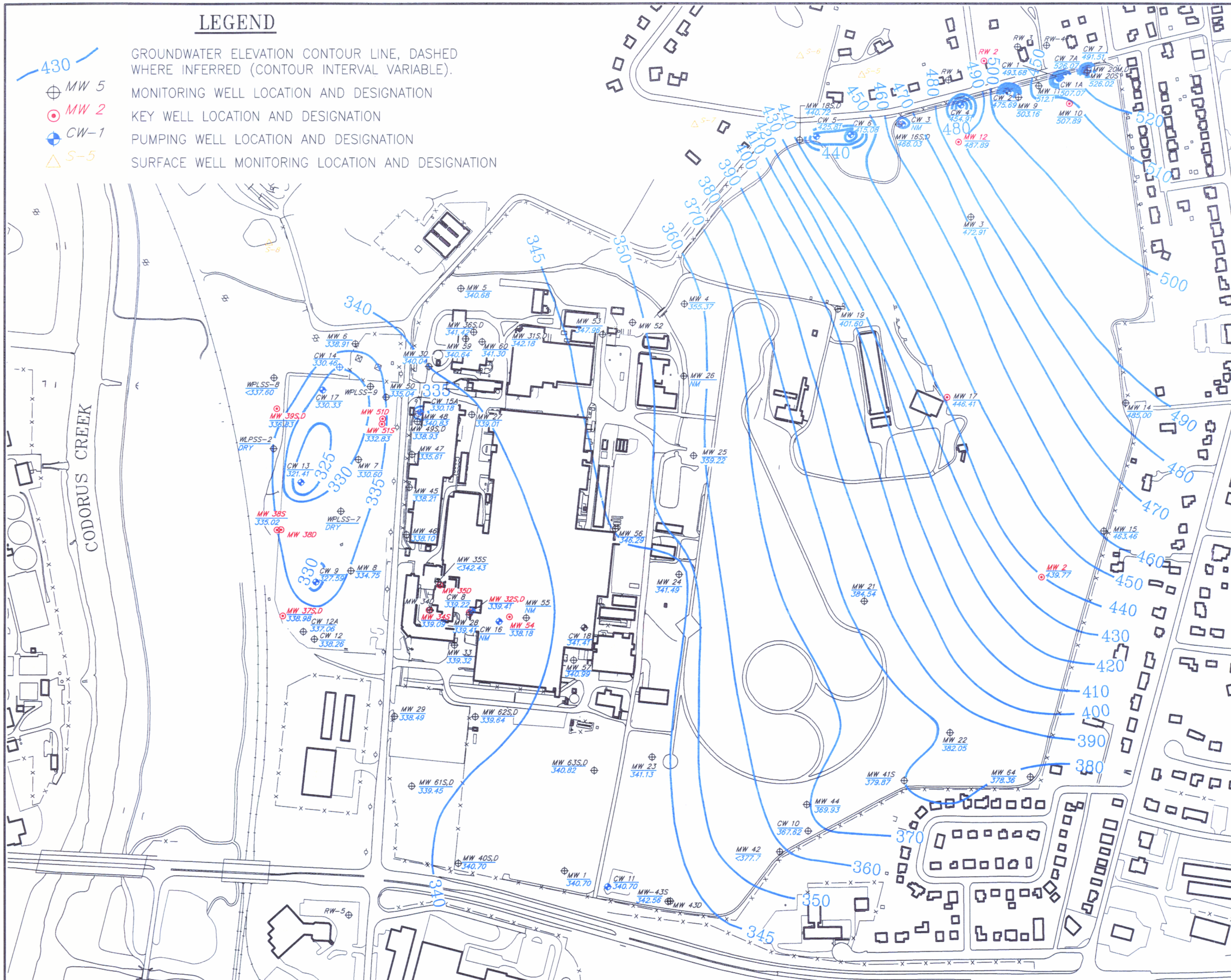
drawn RAM	checked RGM	approved SMS	figure no.
date 11/02/90	date 12/3/99	date 12/3/99	1-2
job no. 01-1408-00-1618-101		file no. 01618-005-B	

Science Applications International Corporation
An Employee Owned Company

FIGURE 1-3
GROUNDWATER TREATMENT SYSTEM
Harley-Davidson Motor Company



H/JOBS/1992/92003/98REPORT/FIG_3.PPT



12/7/98 GROUNDWATER SURFACE ELEVATIONS & APPROXIMATE DAILY PUMPING RATES FROM "CW" WELLS HARLEY-DAVIDSON MOTOR COMPANY

WELL ID	ELEVATION *	PUMPAGE **	WELL ID	ELEVATION *
CW-1	493.68	3880	MW-24	341.49
CW-1A	507.07	20	MW-25	359.22
CW-2	475.69	0	MW-26	NM
CW-3	NM	4750	MW-27	339.01
CW-4	454.91	4040	MW-28	339.41
CW-5	425.81	430	MW-29	338.49
CW-6	415.08	4960	MW-30	340.04
CW-7	491.51	620	MW-31S	342.18
CW-7A	526.07	0	MW-32S	339.41
CW-8	339.22	0	MW-33	339.32
CW-9	327.59	72000	MW-34S	339.09
CW-10	367.62	NO	MW-35S	<342.43
CW-11	340.70	NO	MW-36S	341.42
CW-12	338.26	NO	MW-37S	338.98
CW-12A	337.06	NO	MW-38S	335.02
CW-13	321.41	9200	MW-39S	336.83
CW-14	330.46	NO	MW-40S	340.70
CW-15	NM	NO	MW-41S	379.87
CW-15A	330.18	5100	MW-42S	<377.7
CW-16	NM	0	MW-43S	342.56
CW-17	330.33	73400	MW-44	369.93
CW-18	341.41	NO	MW-45	338.21
MW-1	340.70		MW-46	338.10
MW-2	439.77		MW-47	335.61
MW-3	472.91		MW-48	340.83
MW-4	355.37		MW-49S	338.93
MW-5	340.68		MW-50S	335.04
MW-6	338.91		MW-51S	332.83
MW-7	330.60		MW-53	347.96
MW-8	334.75		MW-54	338.18
MW-9	503.16		MW-55	NM
MW-10	507.89		MW-56	346.29
MW-11	512.10		MW-57	340.99
MW-12	487.89		MW-59	340.64
MW-14	485.00		MW-60	341.30
MW-15	463.46		MW-61S	339.45
MW-16S	466.03		MW-62S	339.64
MW-17	446.41		MW-63S	340.82
MW-18S	440.72		MW-64S	378.36
MW-19	401.60		TWB-6	NM
MW-20S	526.02		WPL-SS-2	DRY
MW-21	384.54		WPL-SS-7	DRY
MW-22	382.05		WPL-SS-8	<337.60
MW-23	341.13		CODORUS CR.	~340.00

NOTES:
* Elevation in feet above Mean Sea Level.
** Approximate gallons pumped on 12-7-98.
NO = not operational.
NM = not measured.
"<" = Elevation less than reported value because well was dry at time of water level measurement.

HARLEY-DAVIDSON MOTOR COMPANY

GROUNDWATER ELEVATION CONTOUR MAP - DECEMBER 7, 1998

drawn	checked	approved	figure no.
RAM/KRG	RGM	SMS	3-1
date 11/24/99	date 2/25/00	date 2/25/00	
job no. 01-1408-00-0041-101		file no. 00041-001-B	

SAIC® Science Applications International Corporation
An Employee-Owned Company

Figure 4-1
Record of Tower Influent Chemistry
Total VOC Concentrations
Start-up through June 30, 1999

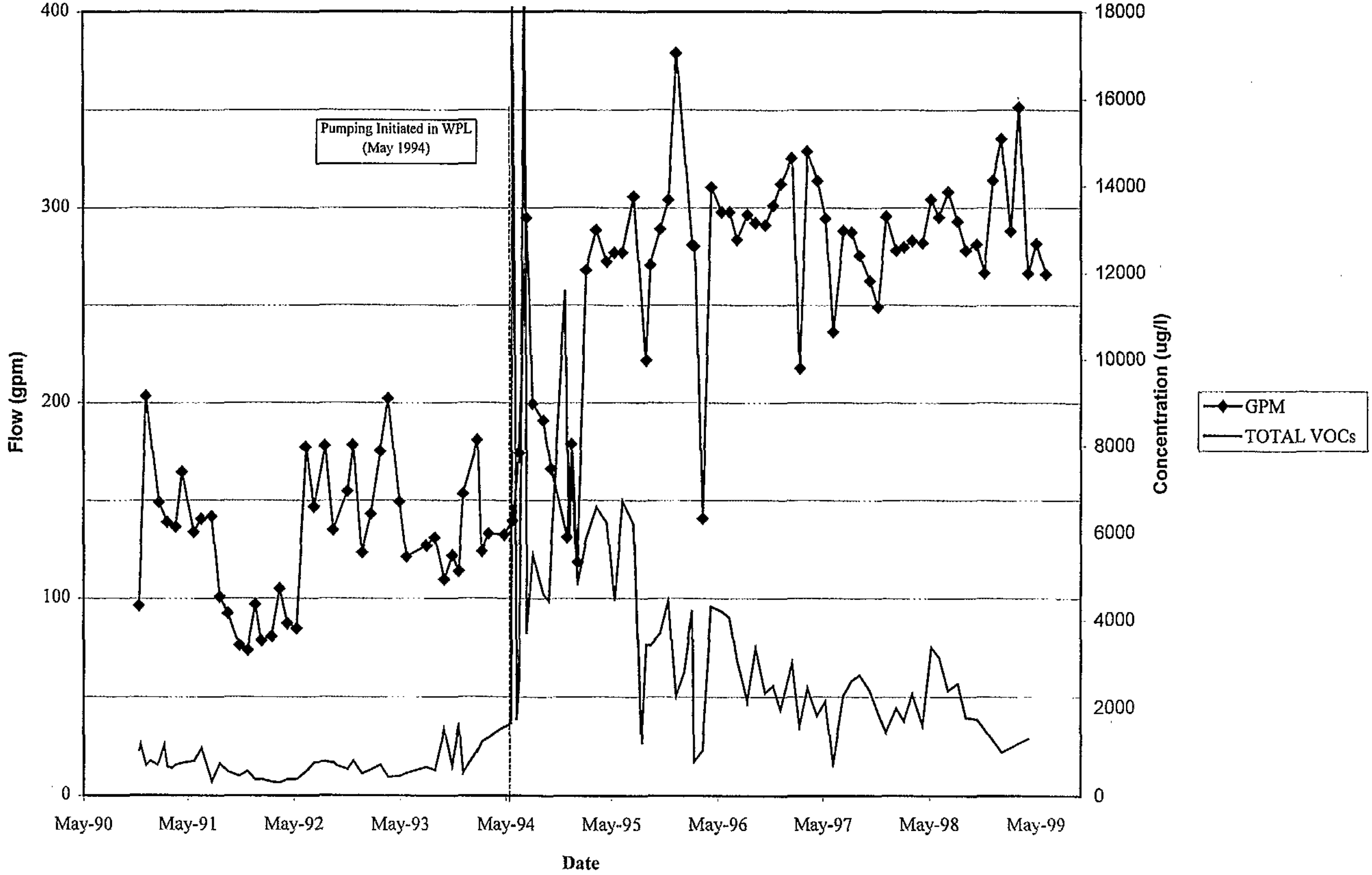
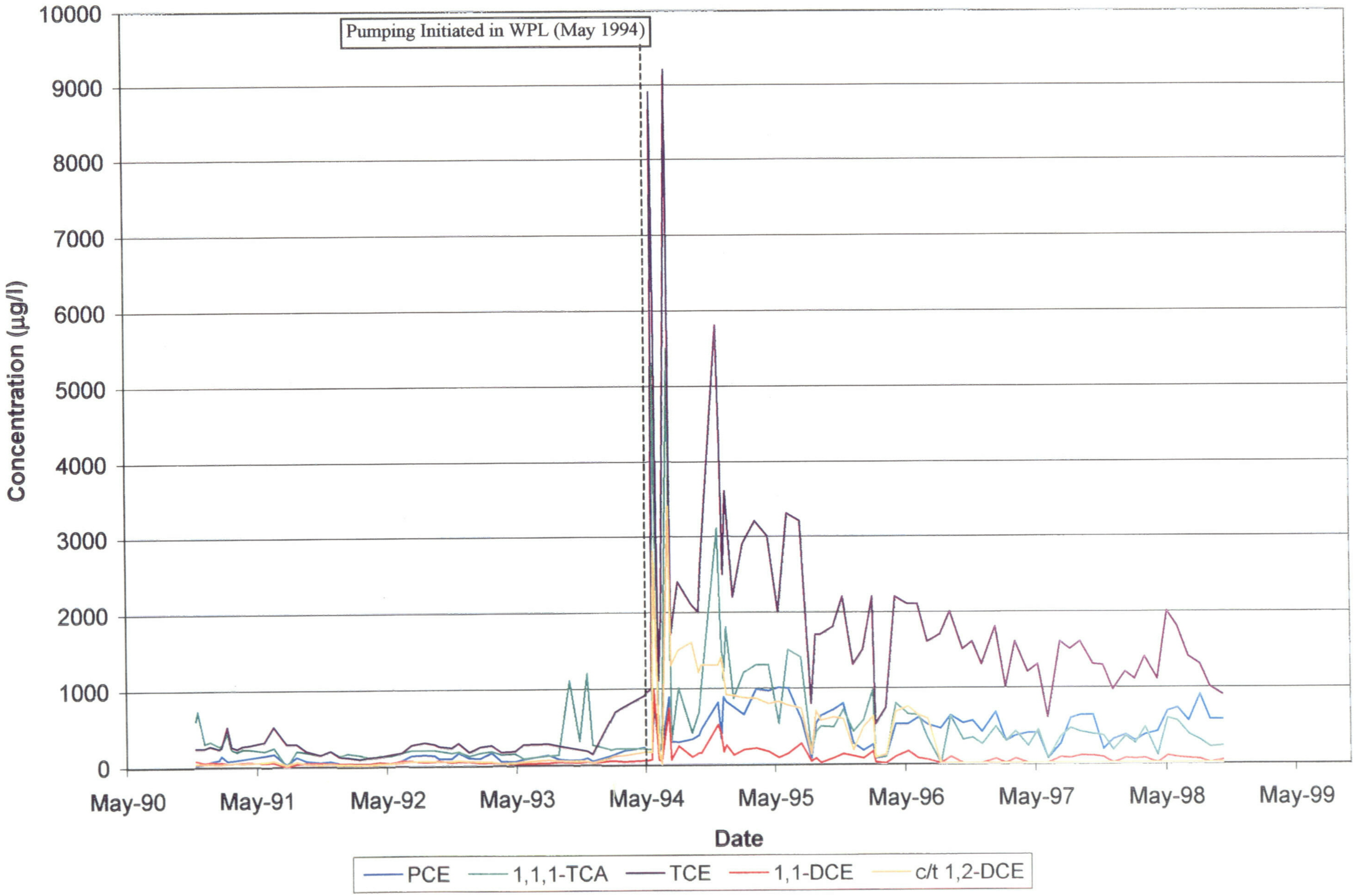


Figure 4-2
Record of Tower Influent Chemistry
Individual VOC Concentrations
Start-up through June 30, 1999



H:\jobs\1992\92003\99report\Tower Data_5_6.xls

Figure 5-1

Groundwater Withdrawals

Gallons Per Month for Each Extraction Area

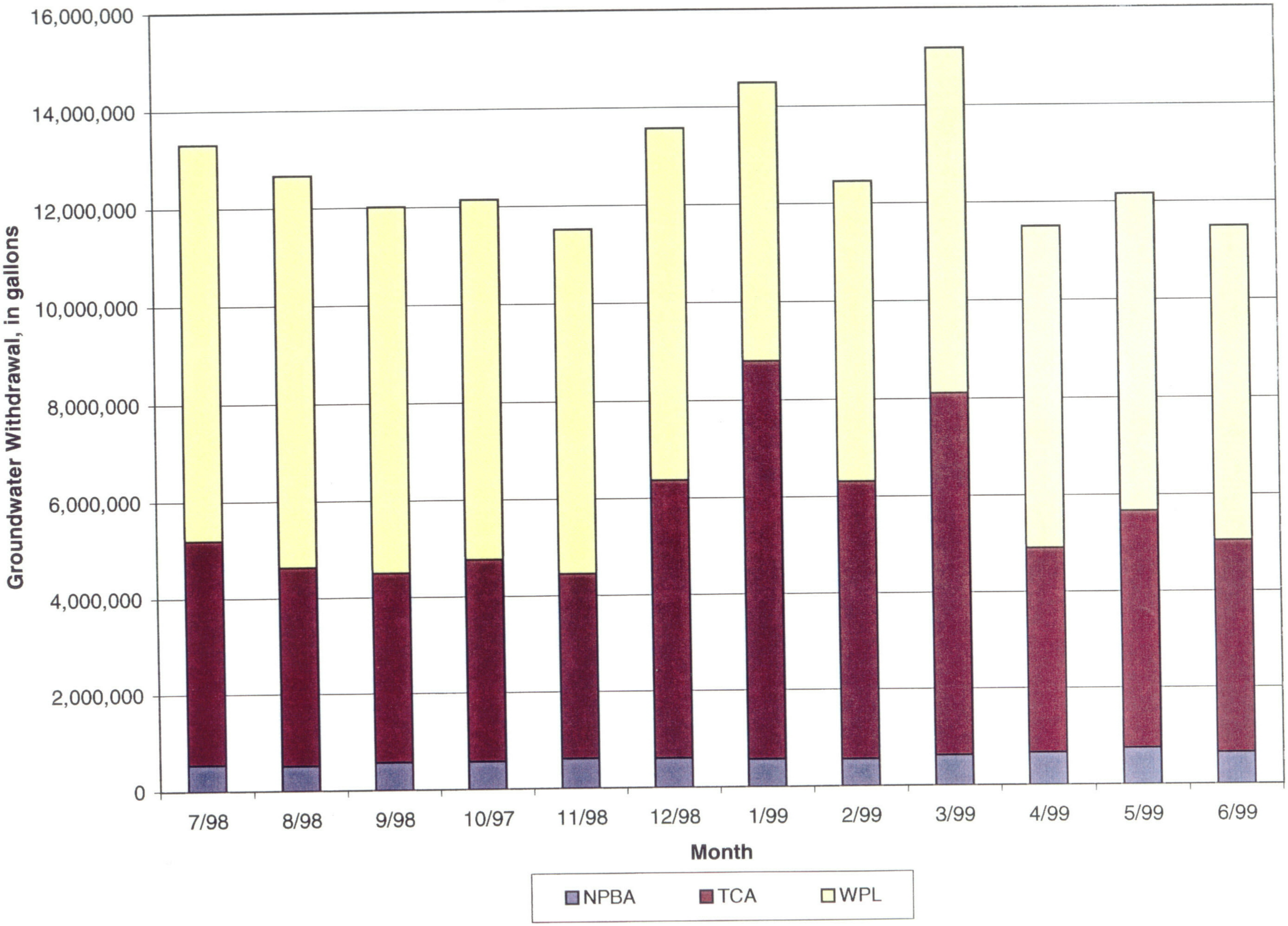
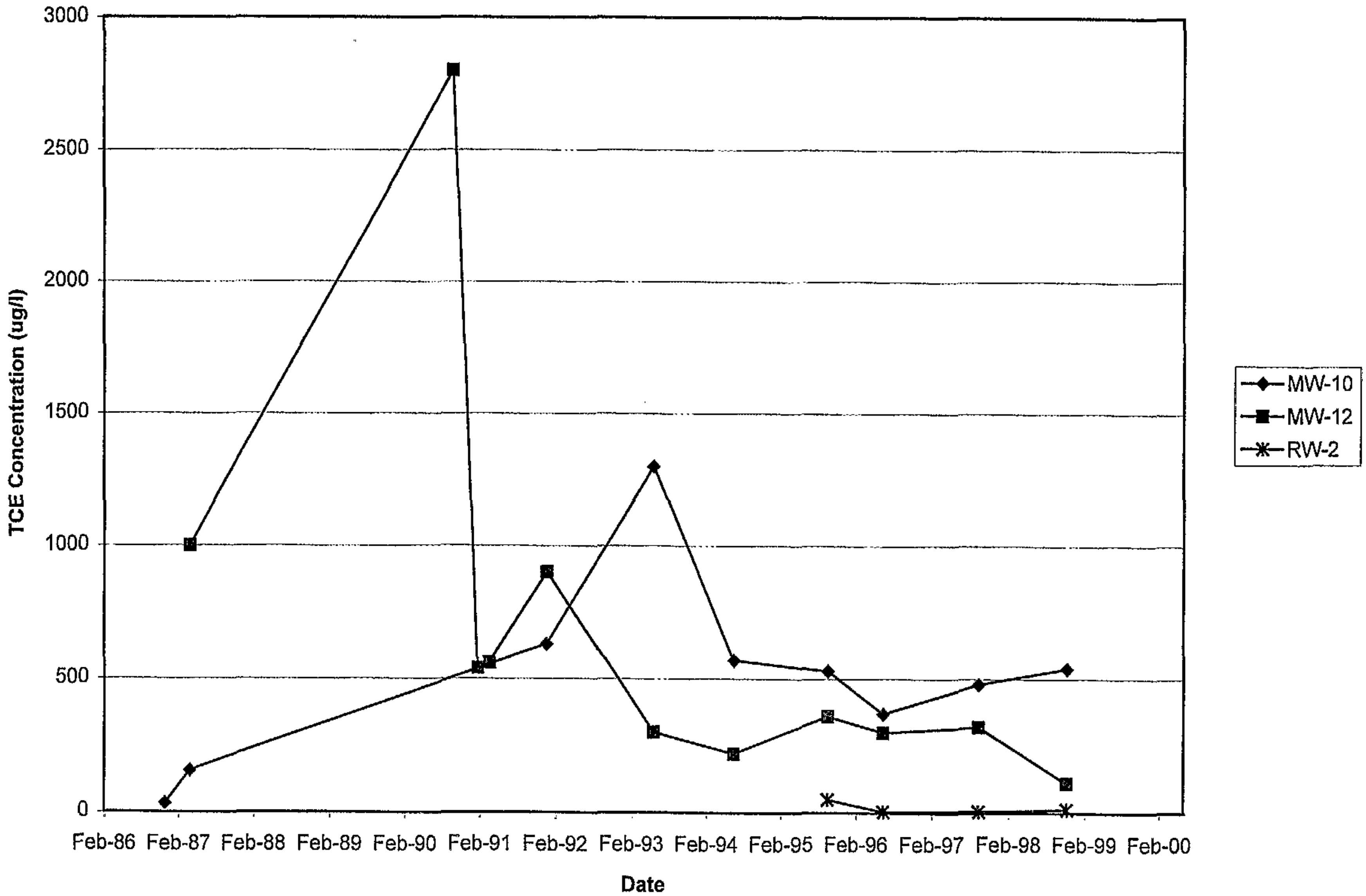
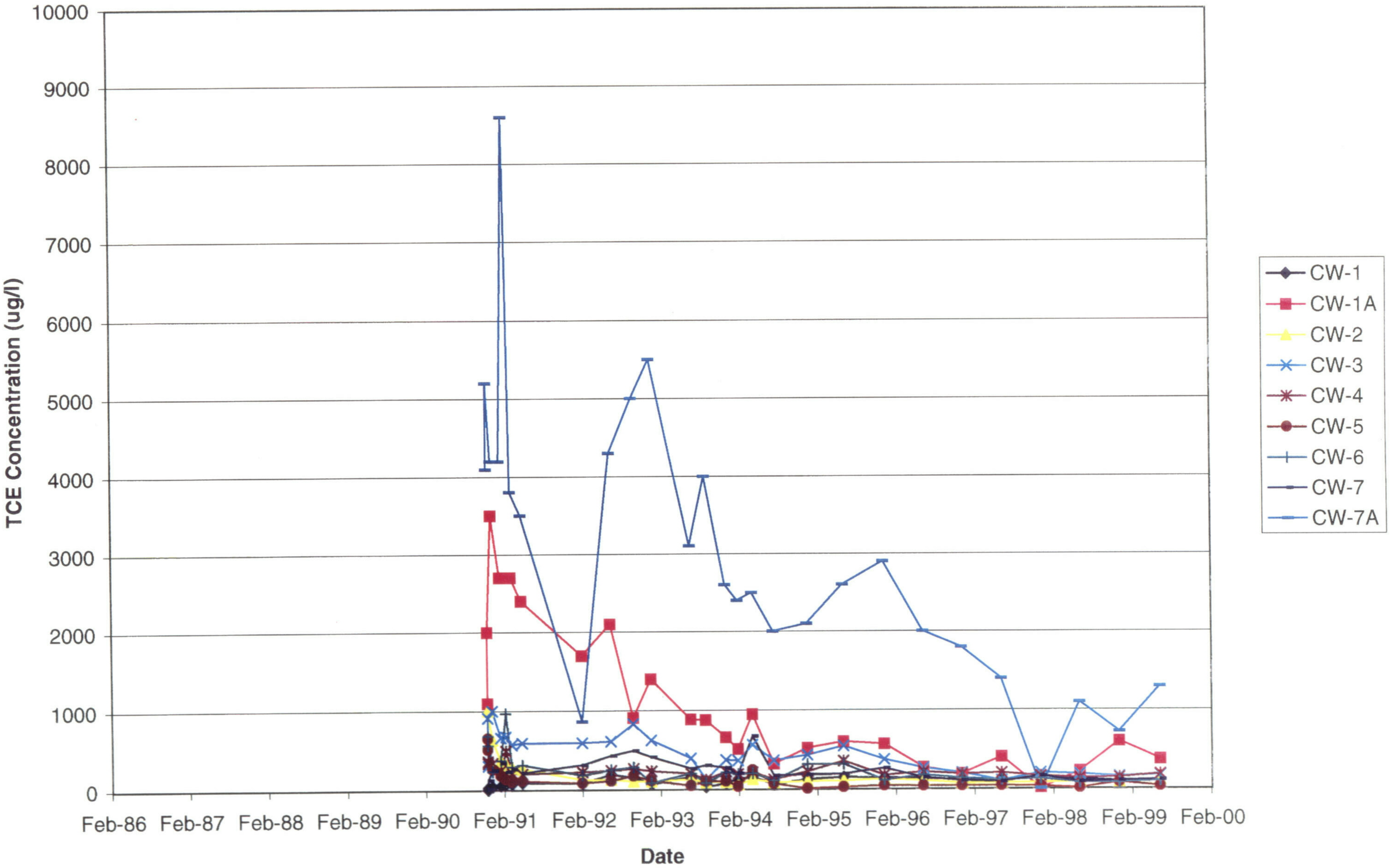


Figure 5-2
TCE in NPBA Key Monitoring Wells
Harley-Davidson Motor Company



H:\jobs\1992\92003\99report\All Area Figures.xls

Figure 5-3
TCE in NPBA Collection Wells
Harley-Davidson Motor Company



H:\jobs\1992\92003\99report\All Area Figures.xls

Figure 5-4
Predominant VOC Concentrations
Extraction Well CW-1

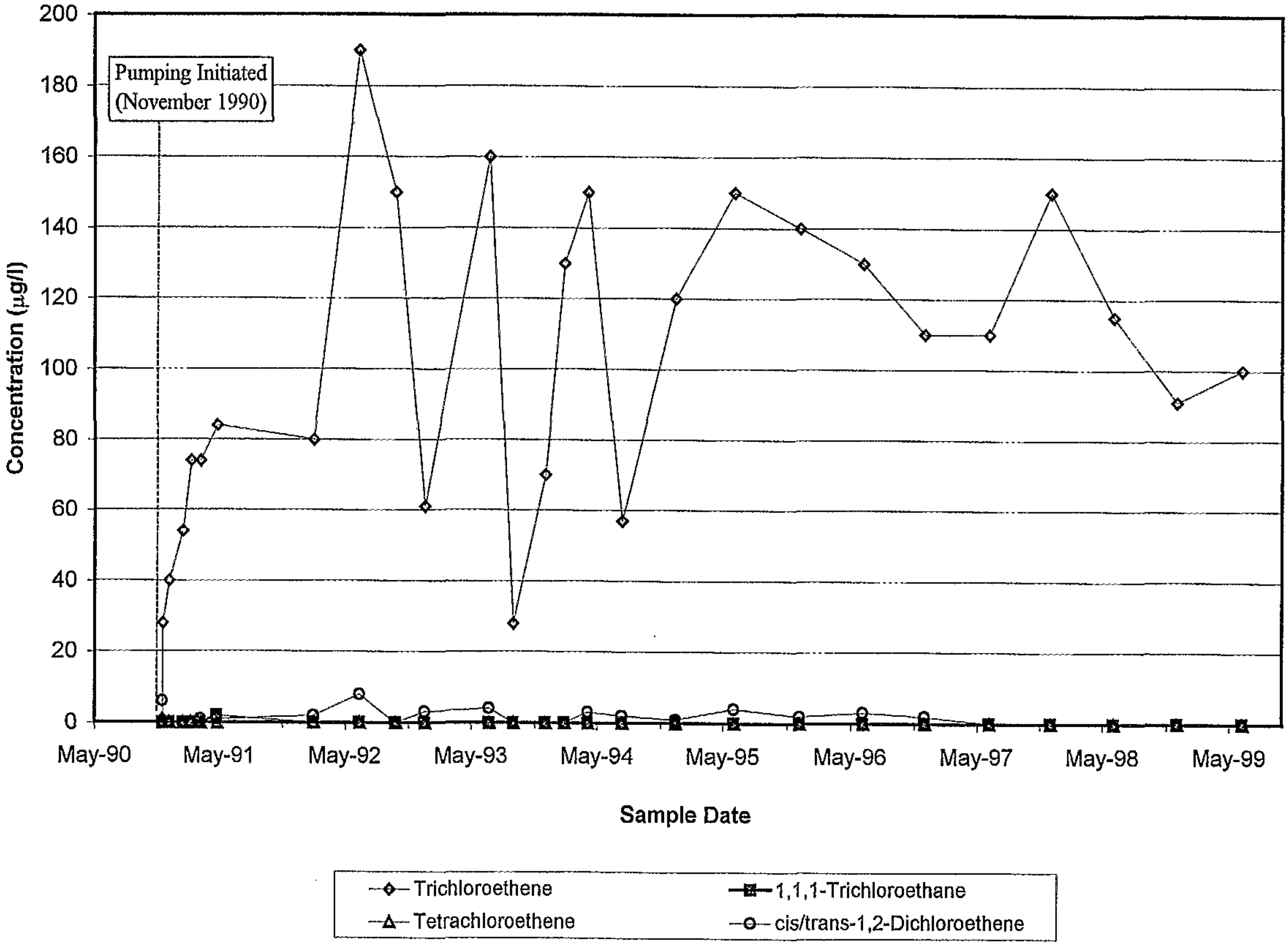
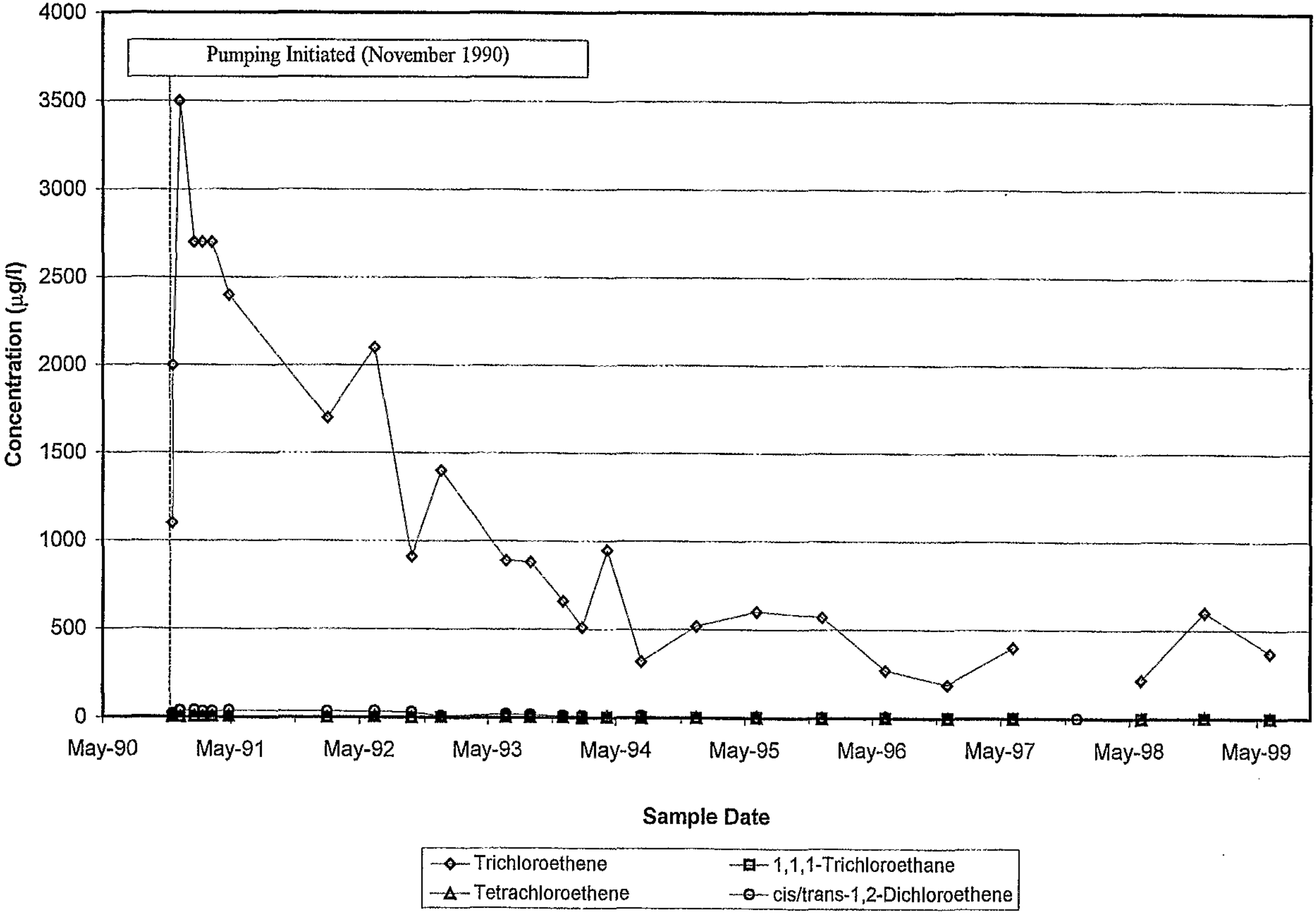


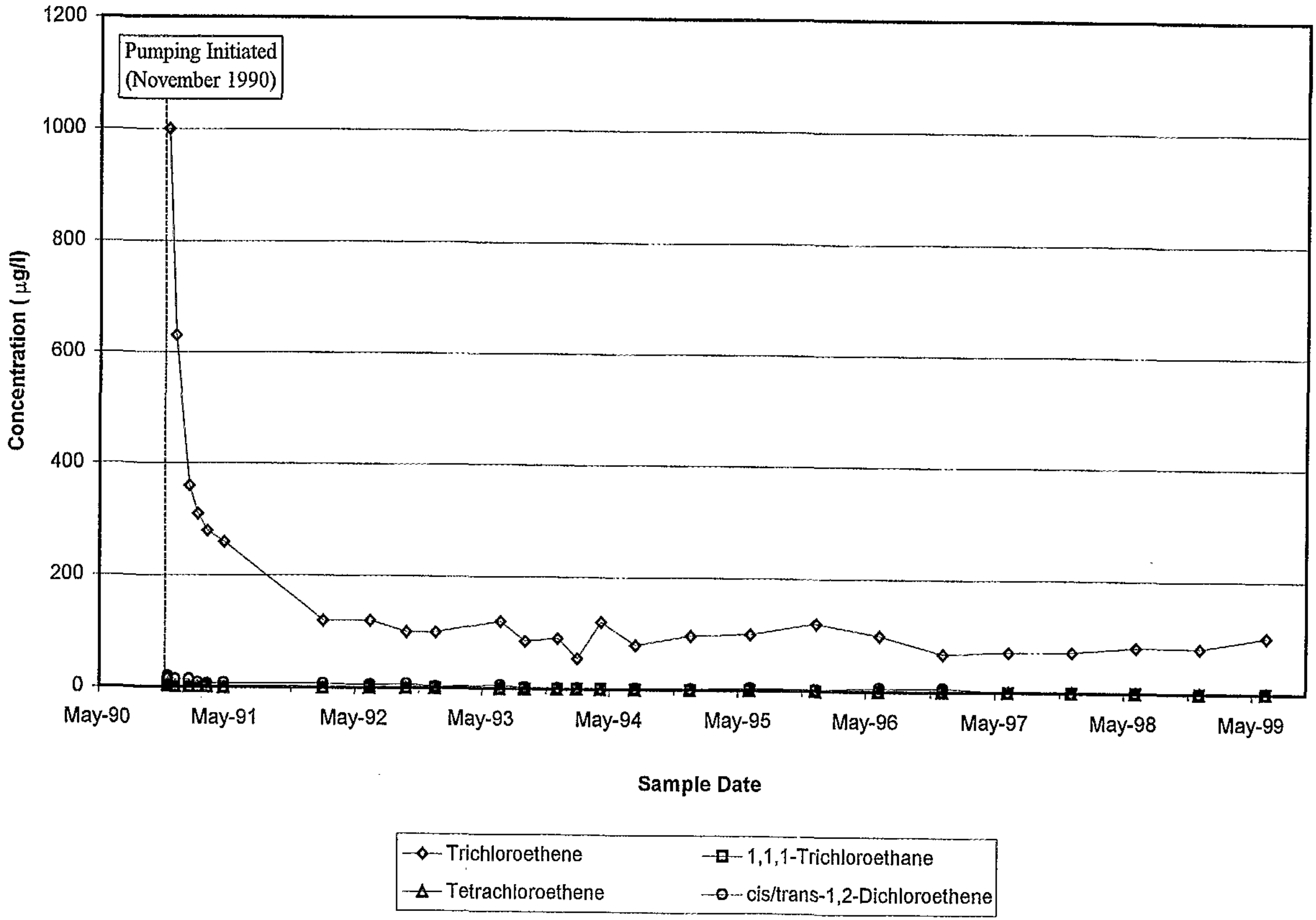
Figure 5-5

Predominant VOC Concentrations
Extraction Well CW-1A



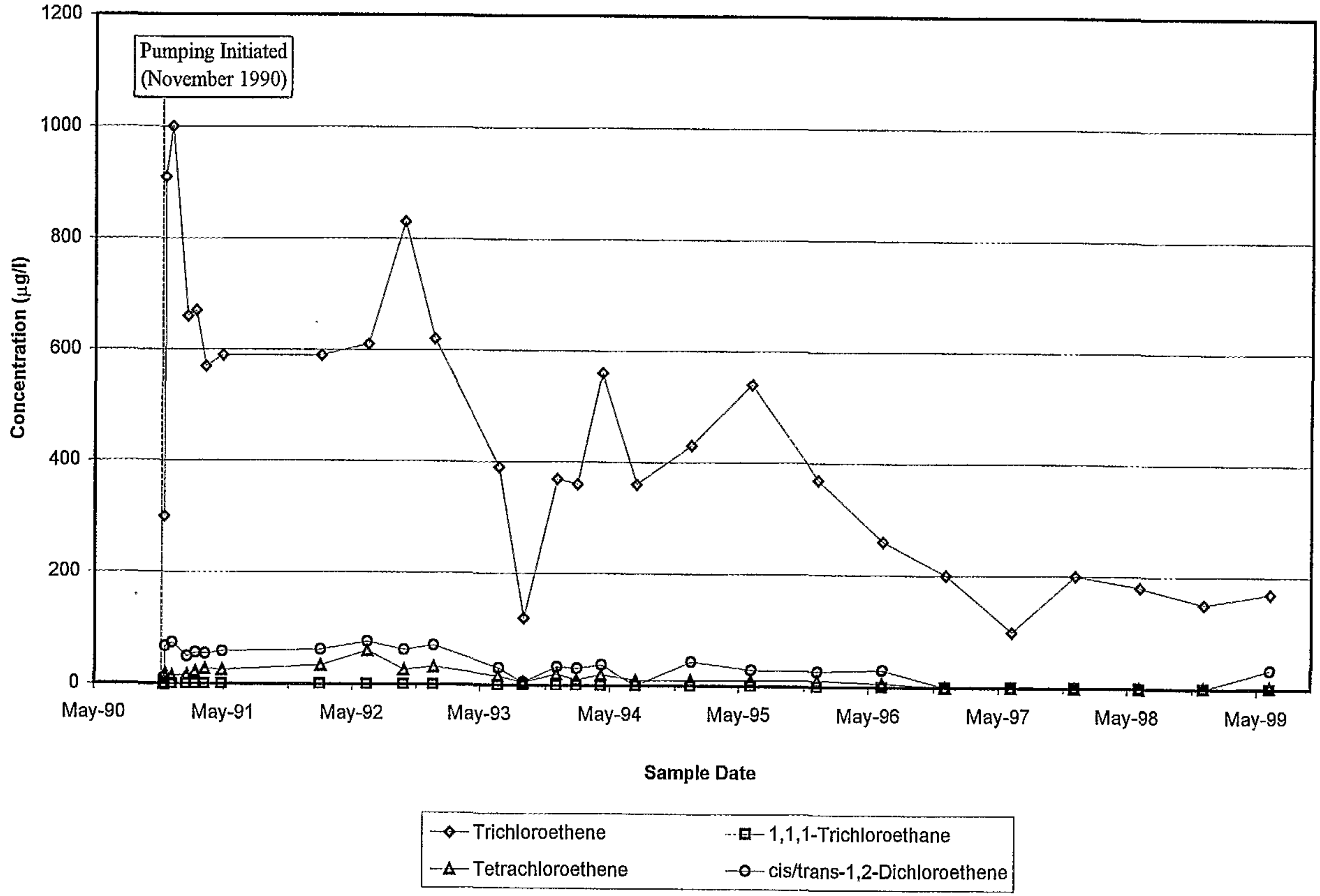
H:\jobs\1992\92003\99report\cw_data for annual.xls

Figure 5-6
Predominant VOC Concentrations
Extraction Well CW-2



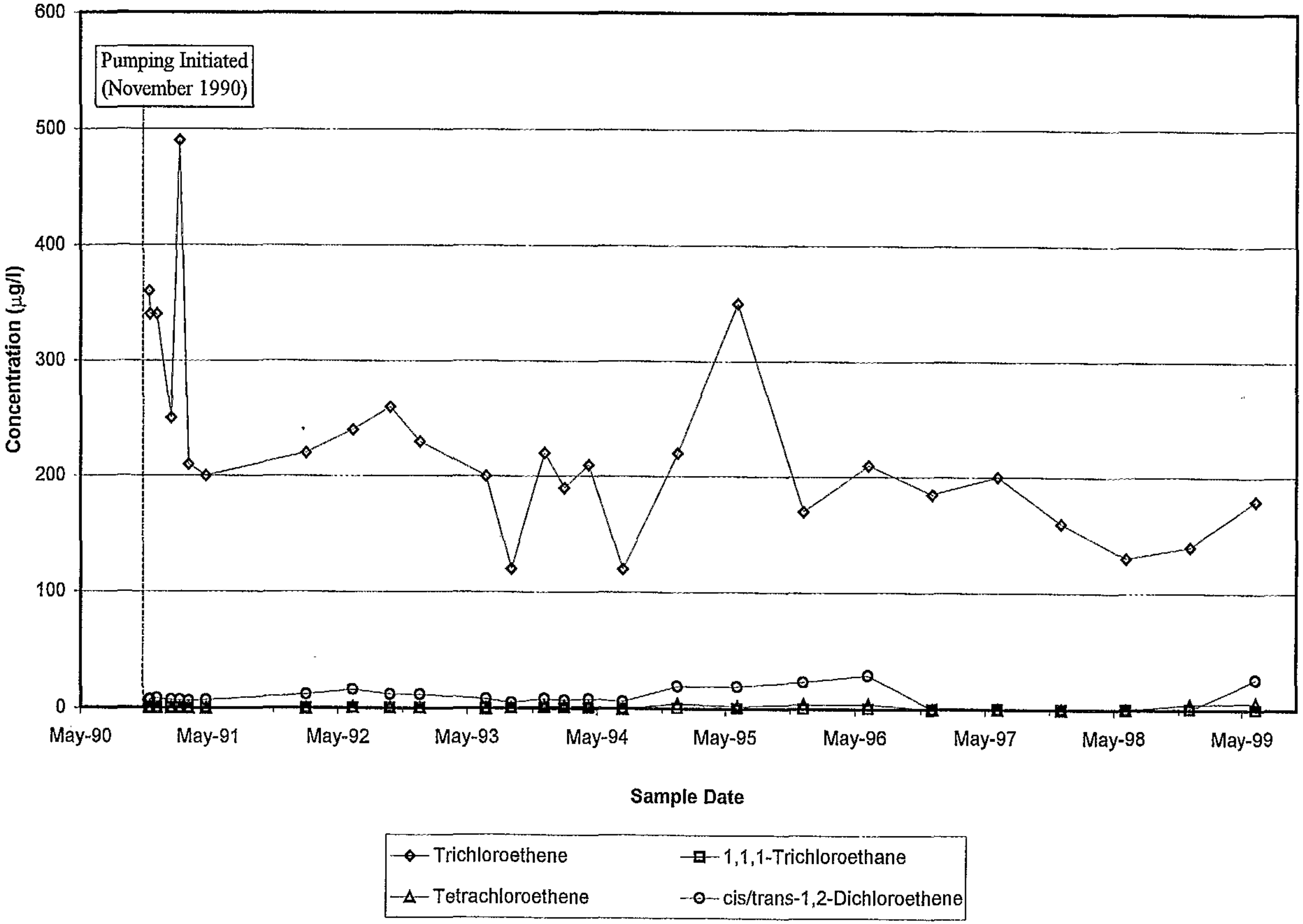
H:\jobs\1992\92003\99report\cw_data for annual.xls

Figure 5-7
Predominant VOC Concentrations
Extraction Well CW-3



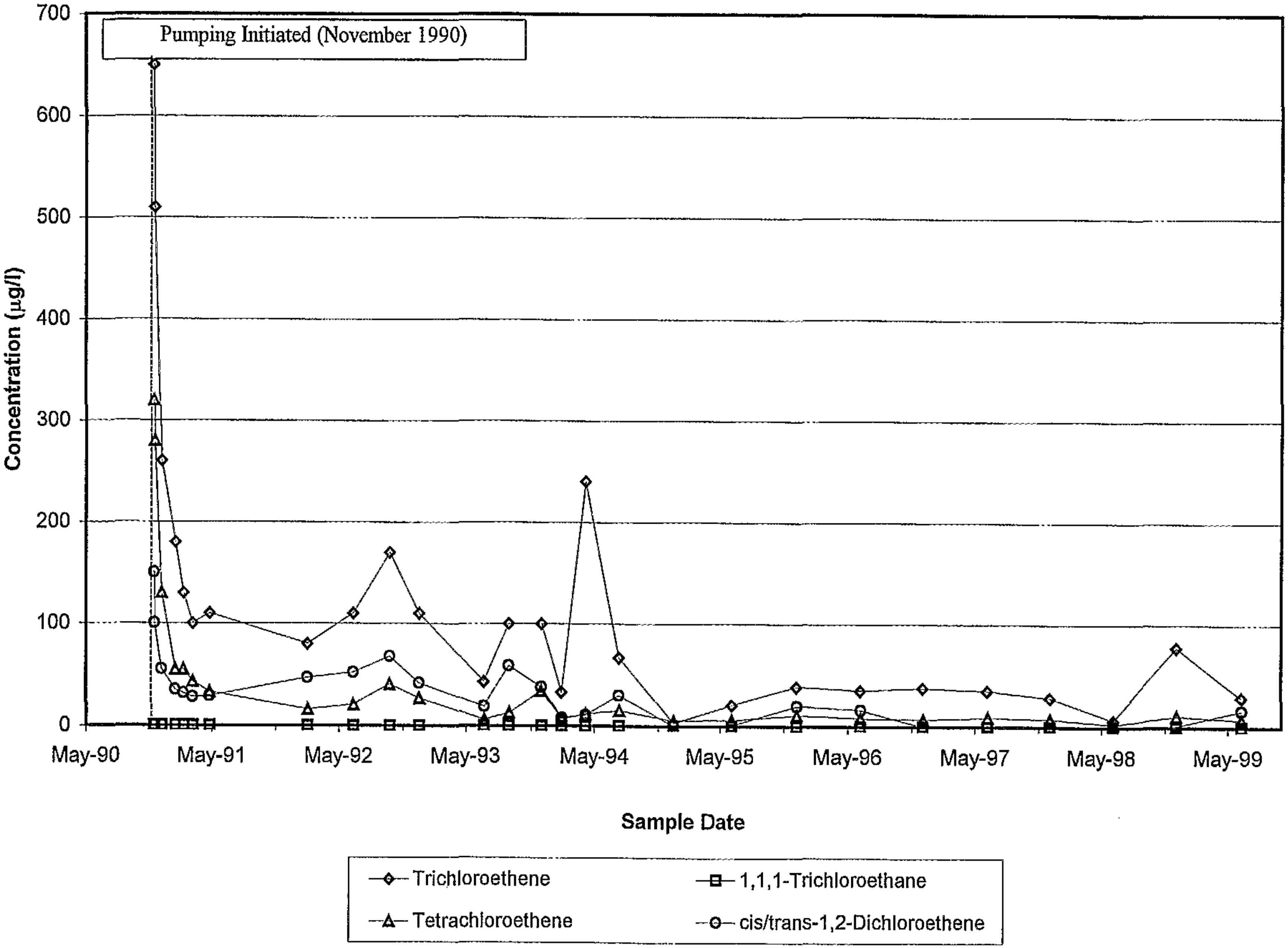
H:\jobs\1992\92003\99report\cw_data for annual.xls

Figure 5-8
Predominant VOC Concentrations
Extraction Well CW-4



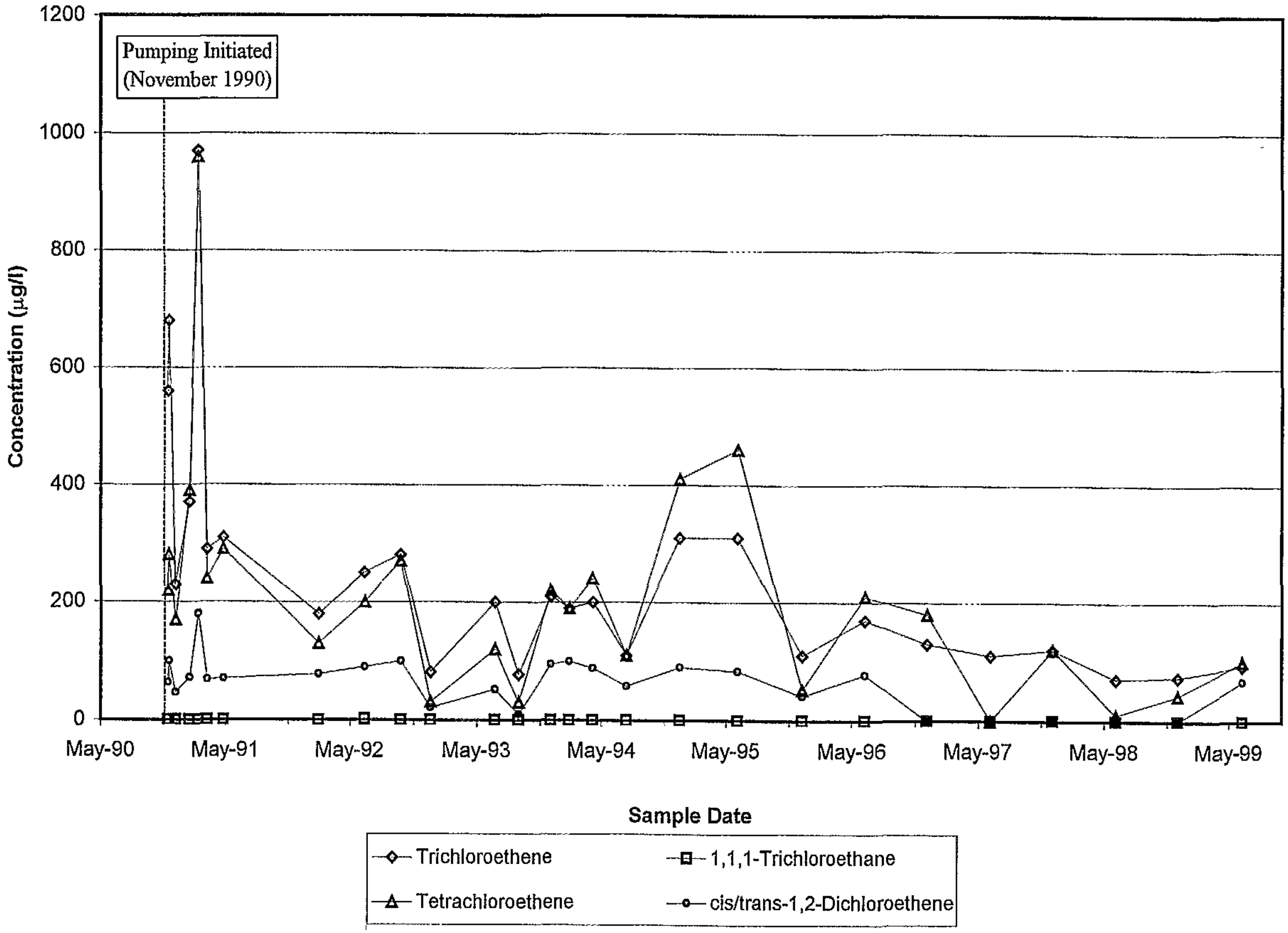
H:\jobs\1992\92003\99report\cw_data for annual.xls

Figure 5-9
Predominant VOC Concentrations
Extraction Well CW-5



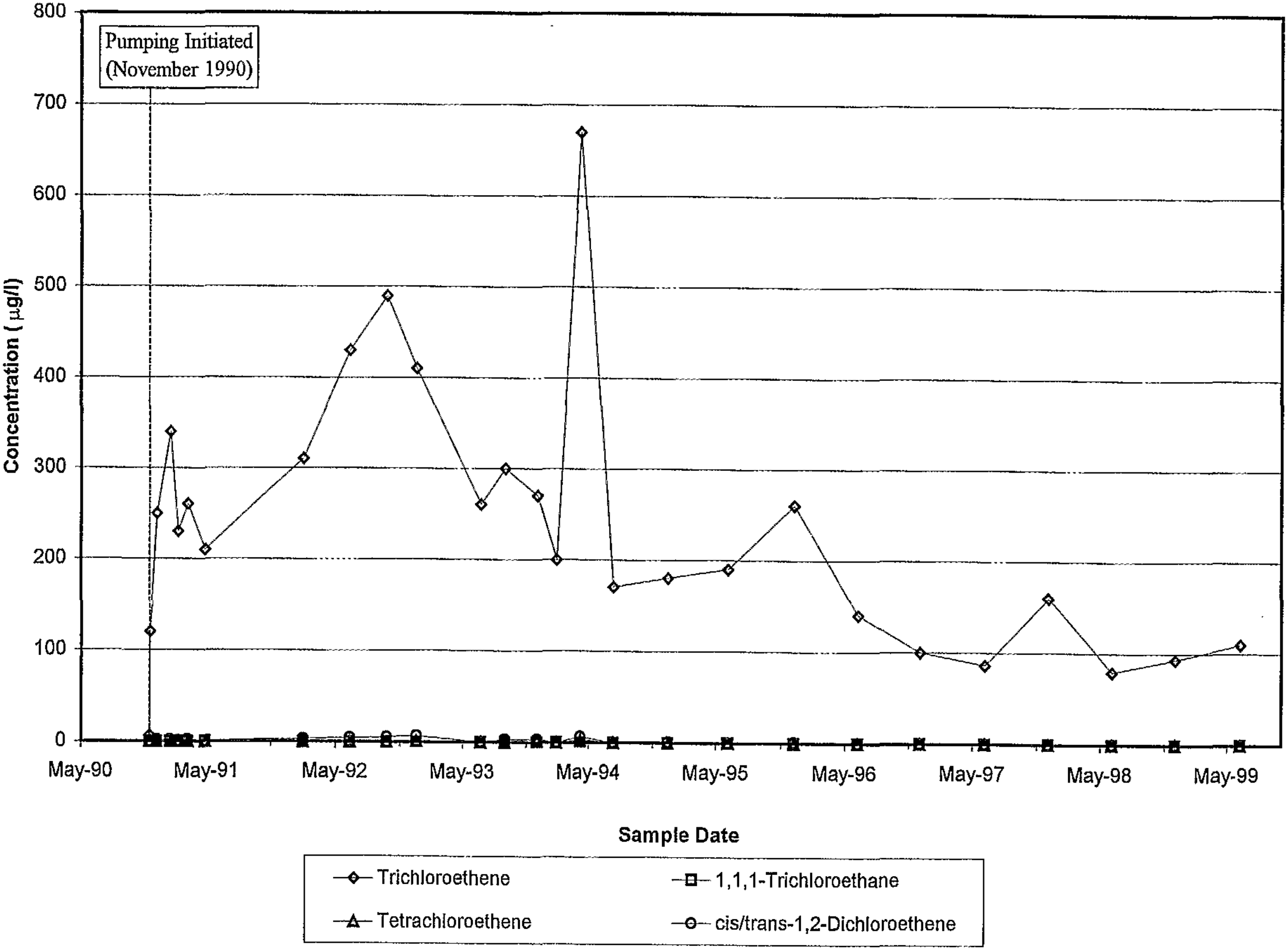
H:\jobs\1992\92003\99report\cw_data for annual.xls

Figure 5-10
Predominant VOC Concentrations
Extraction Well CW-6



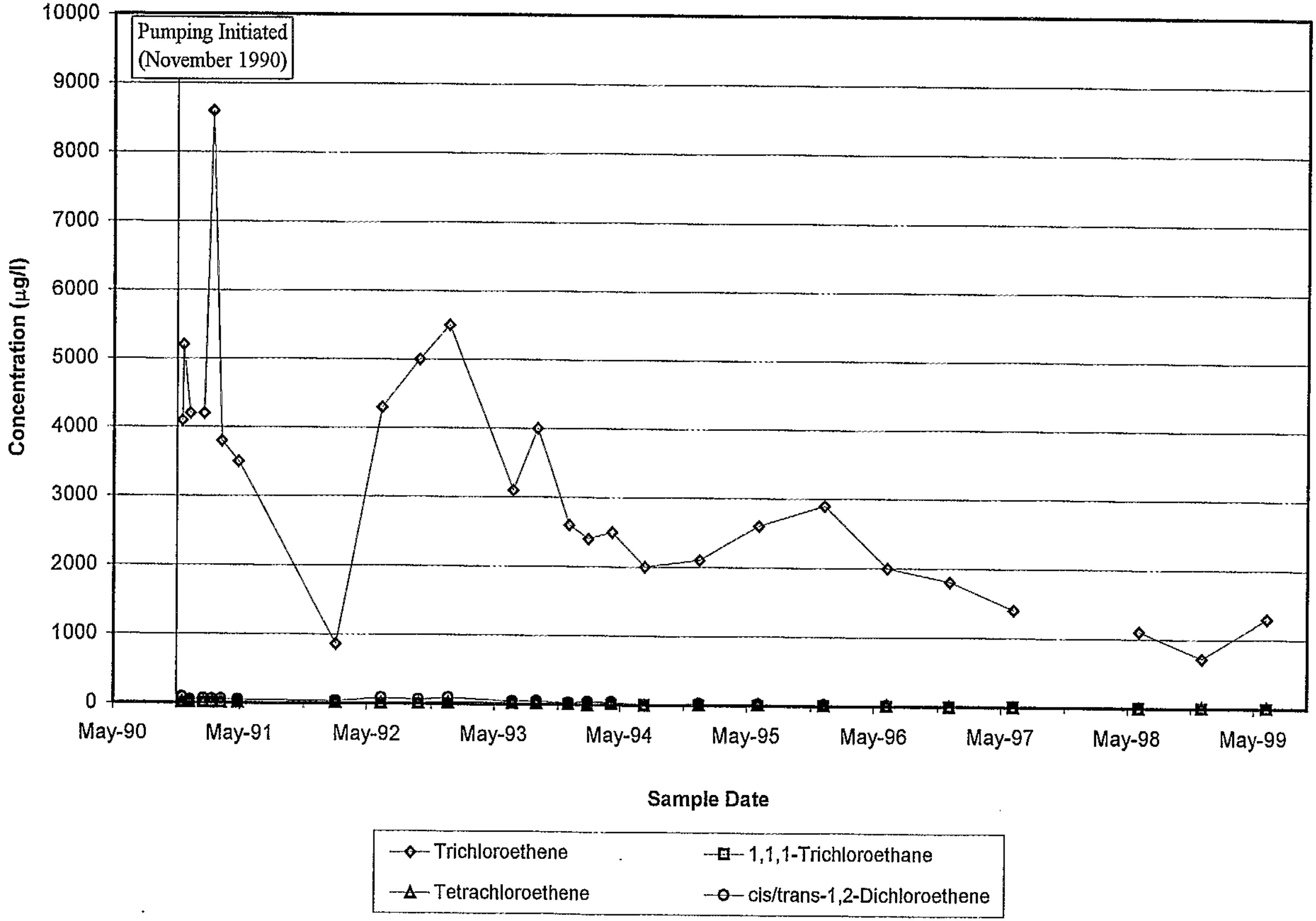
H:\jobs\1992\92003\99report\cw_data for annual.xls

Figure 5-11
Predominant VOC Concentrations
Extraction Well CW-7



H:\jobs\1992\92003\99report\cw_data for annual.xls

Figure 5-12
Predominant VOC Concentrations
Extraction Well CW-7A



H:\jobs\1992\92003\99report\cw_data for annual.xls

Figure 6-1
TCE in TCA Area Monitoring Wells
Harley-Davidson Motor Company

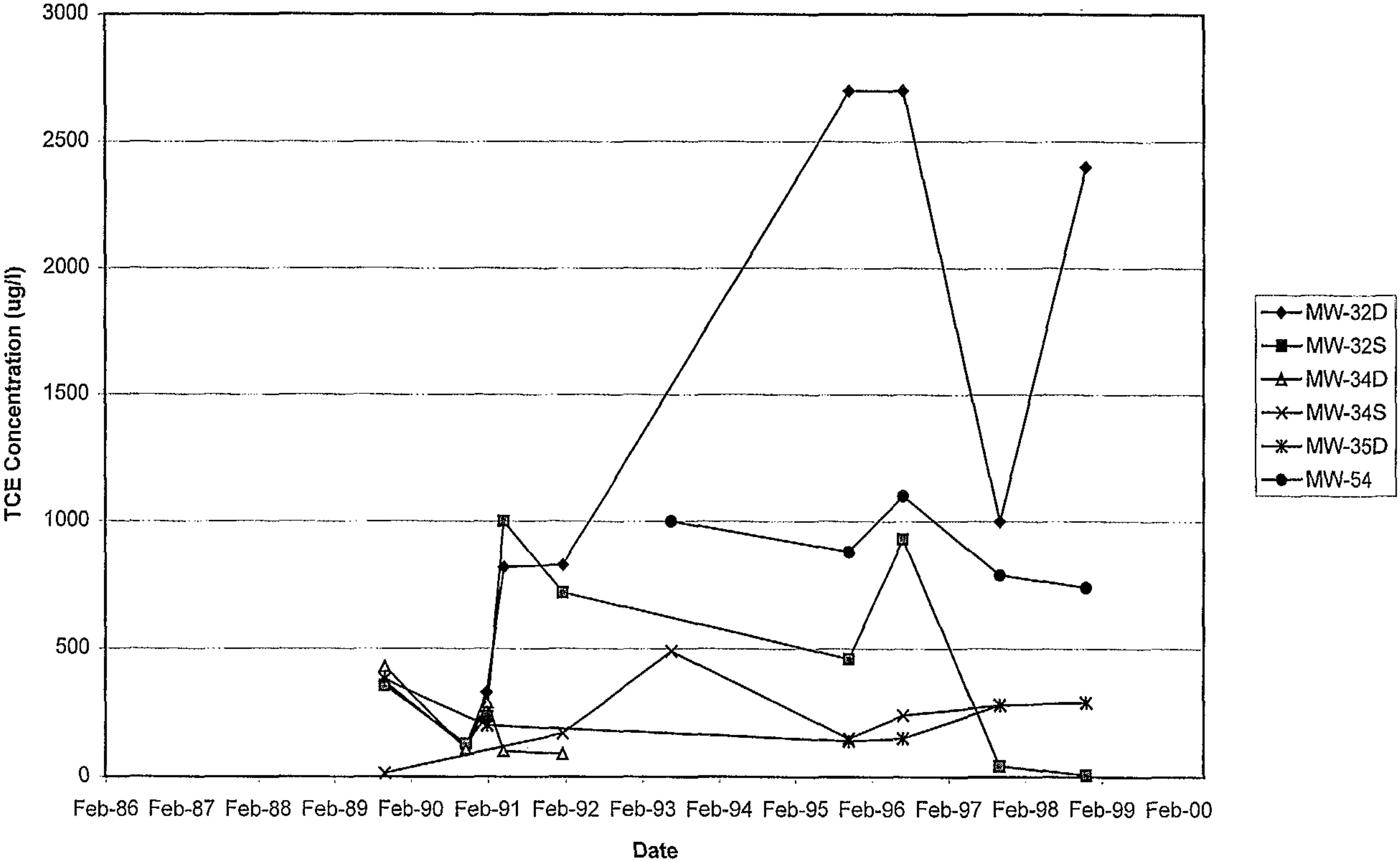
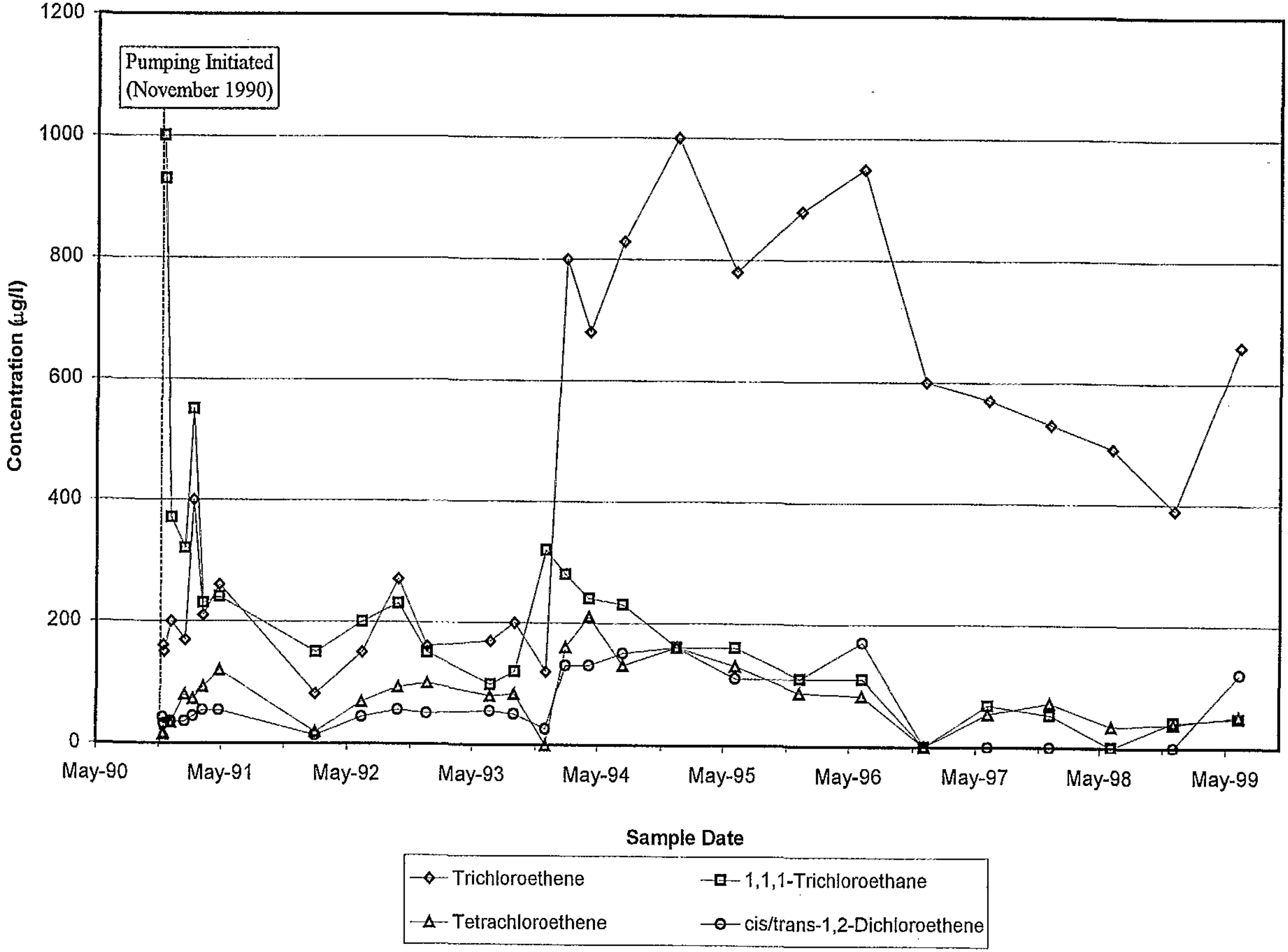
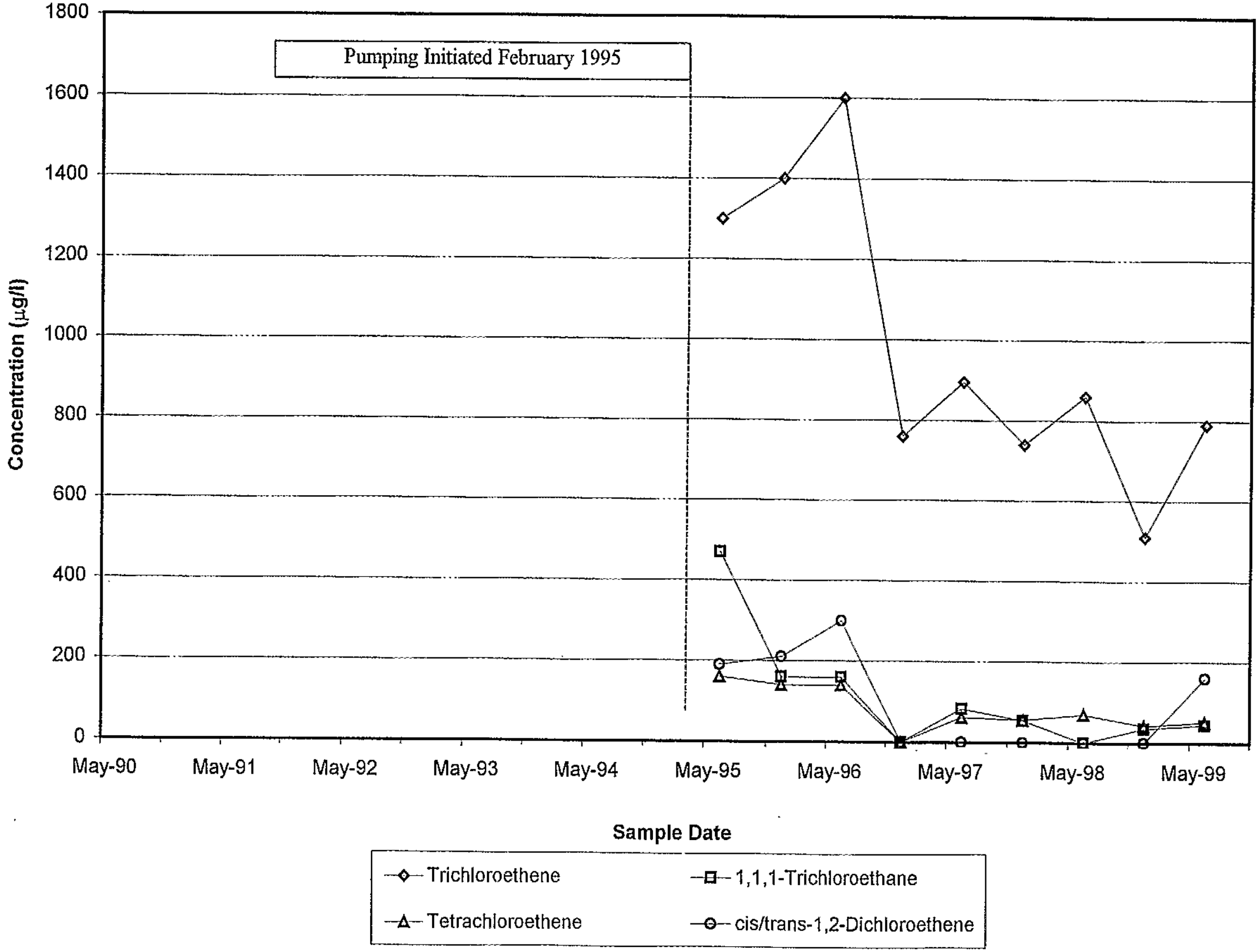


Figure 6-2
Predominant VOC Concentrations
Extraction Well CW-8



H:\jobs\1992\92003\99report\cw_data for annual.xls

Figure 6-3
Predominant VOC Concentrations
Extraction Well CW-16



H:\jobs\1992\92003\99report\cw_data for annual.xls

Figure 7-1
TCE in WPL Monitoring Wells
Harley-Davidson Motor Company

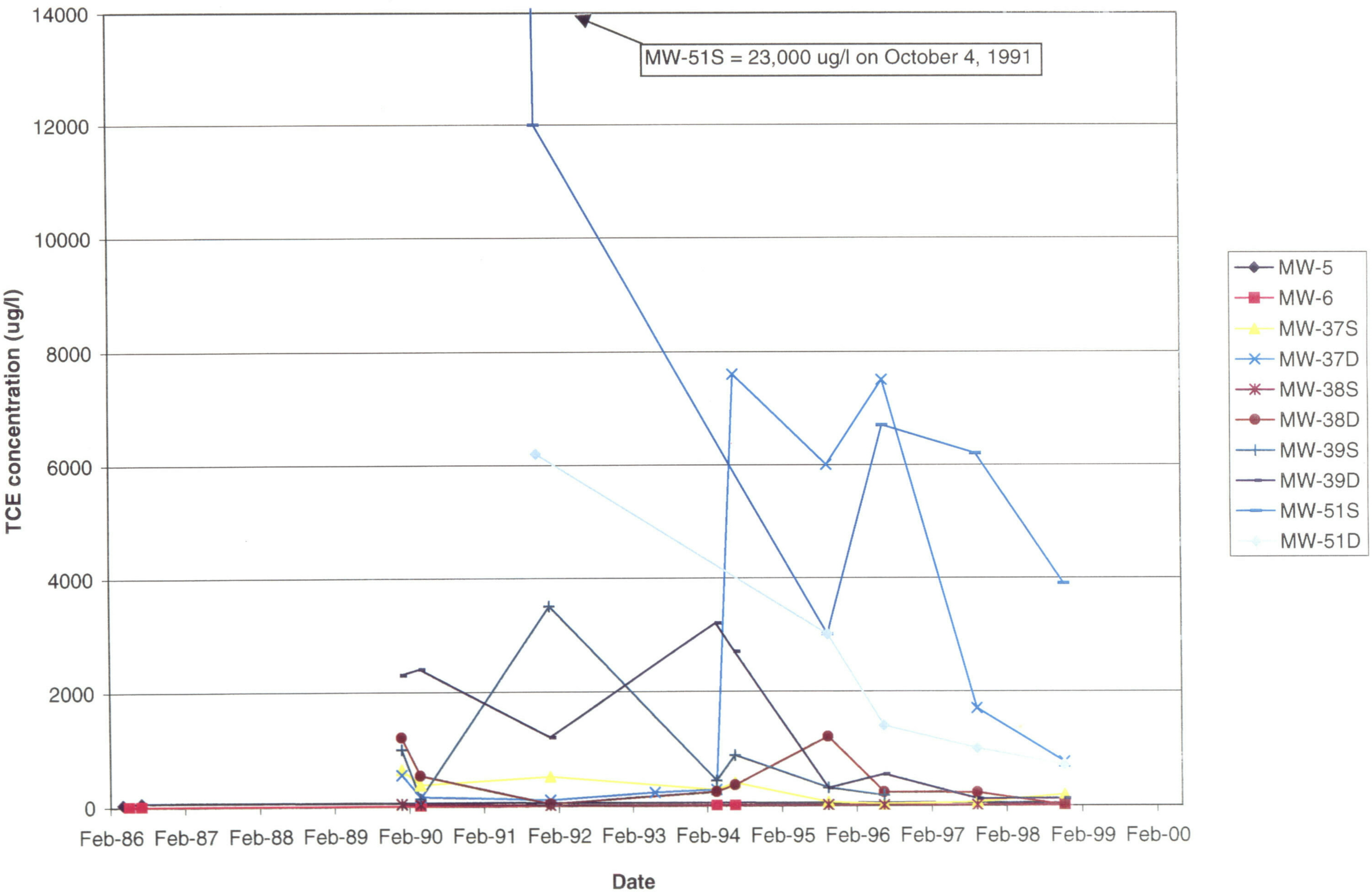
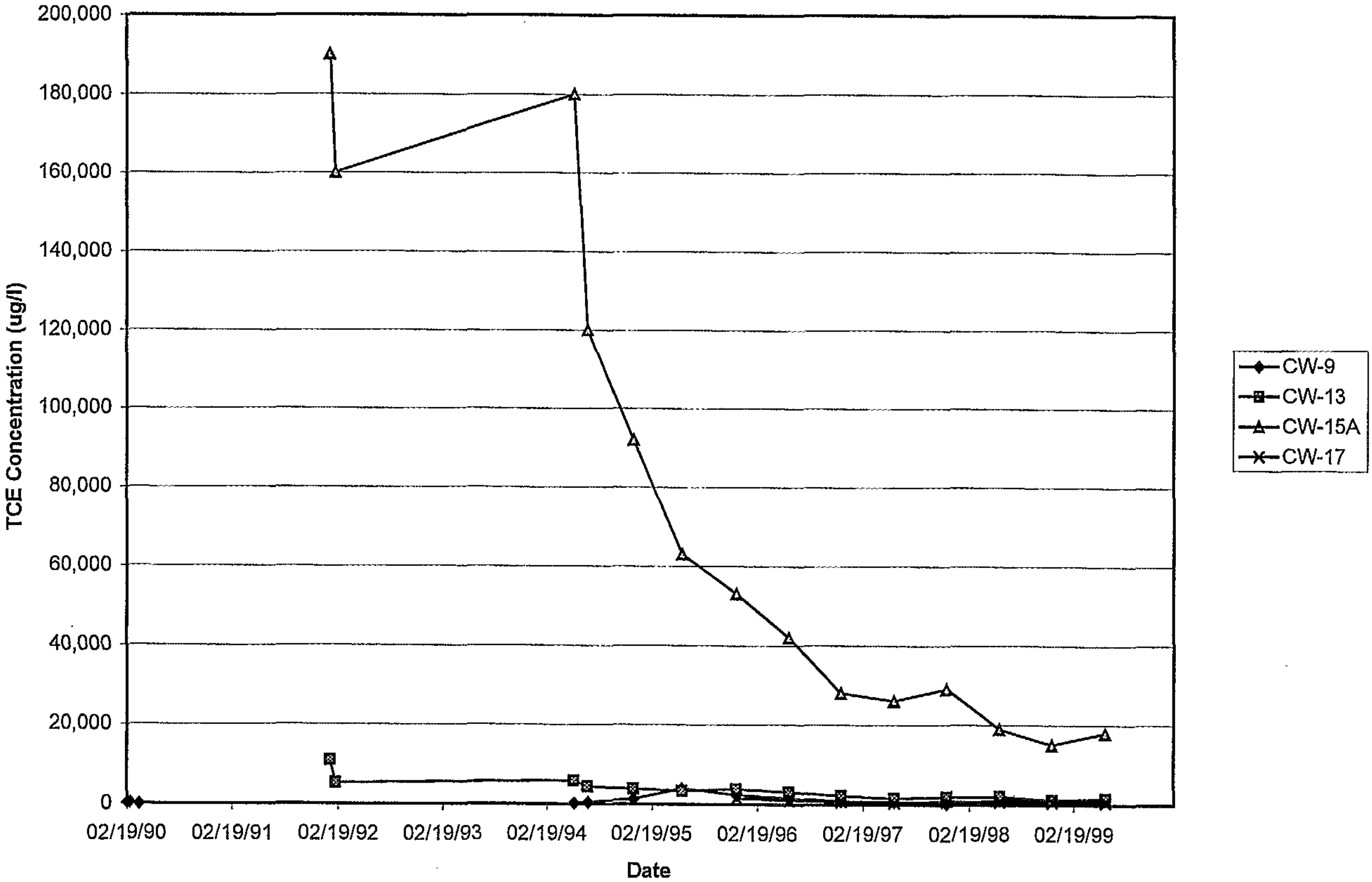
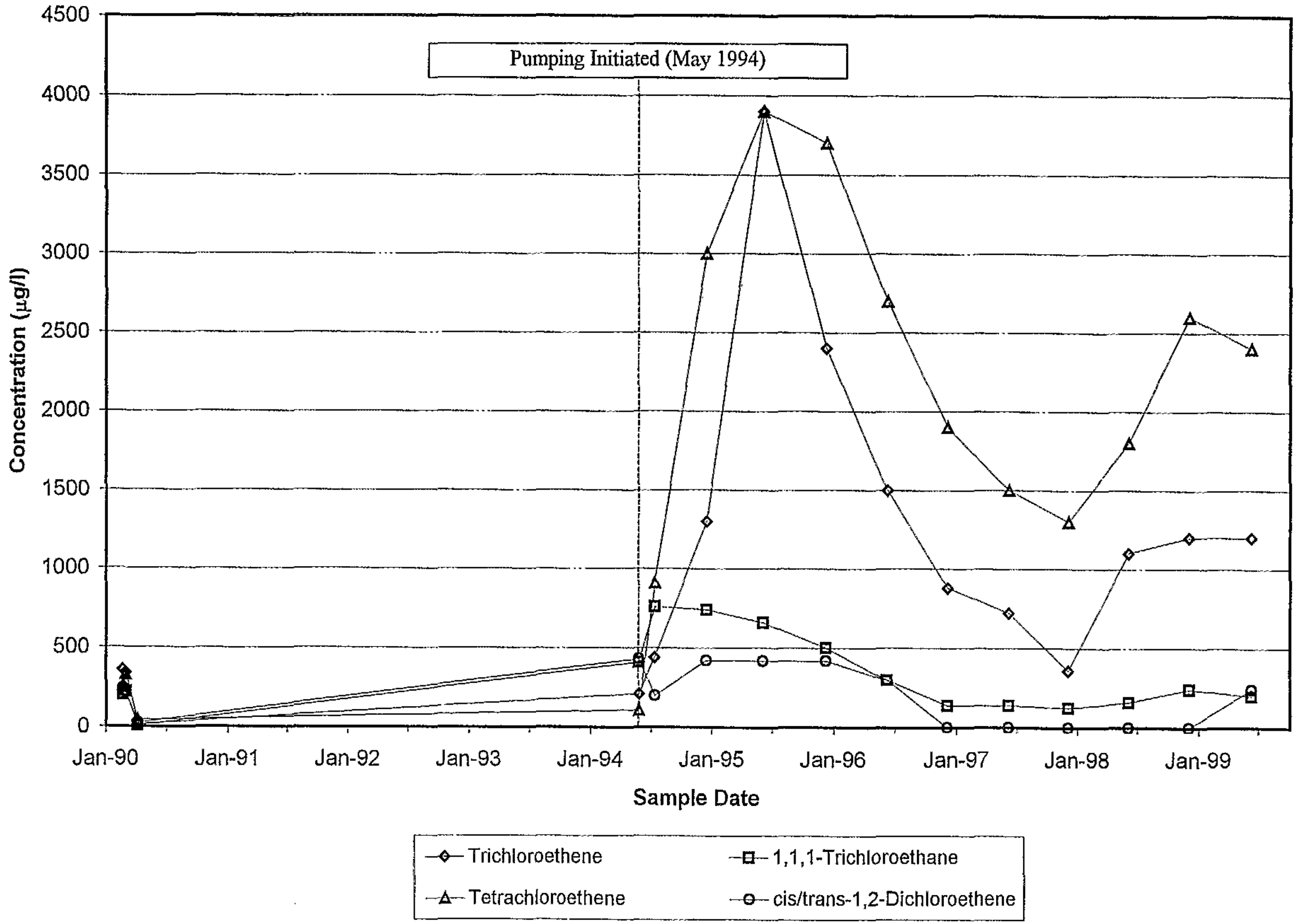


Figure 7-2
TCE in WPL Collection Wells
Harley-Davidson Motor Company



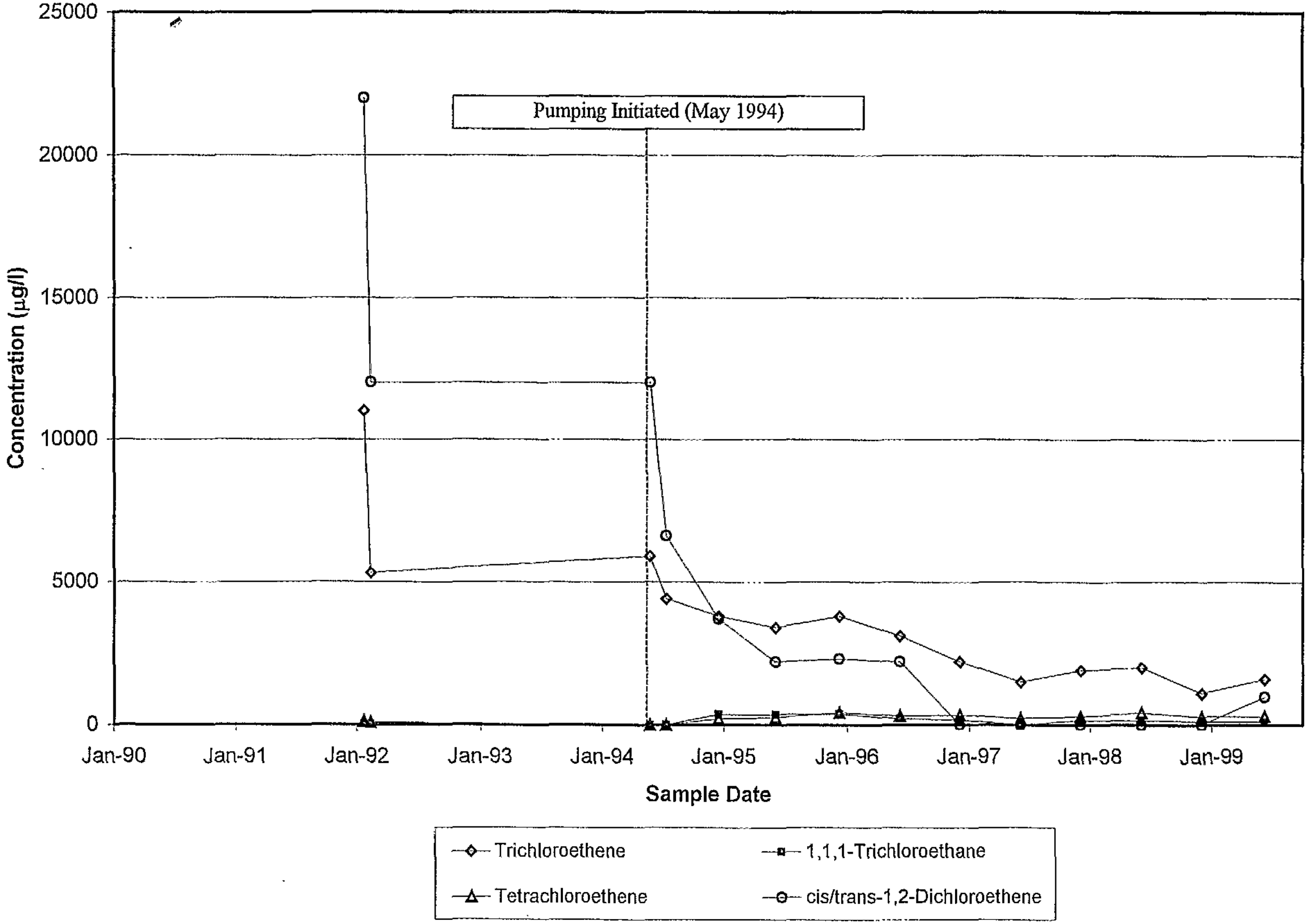
H:\jobs\1992\92003\99report\All Area Figures.xls

Figure 7-3
Predominant VOC Concentrations
Extraction Well CW-9



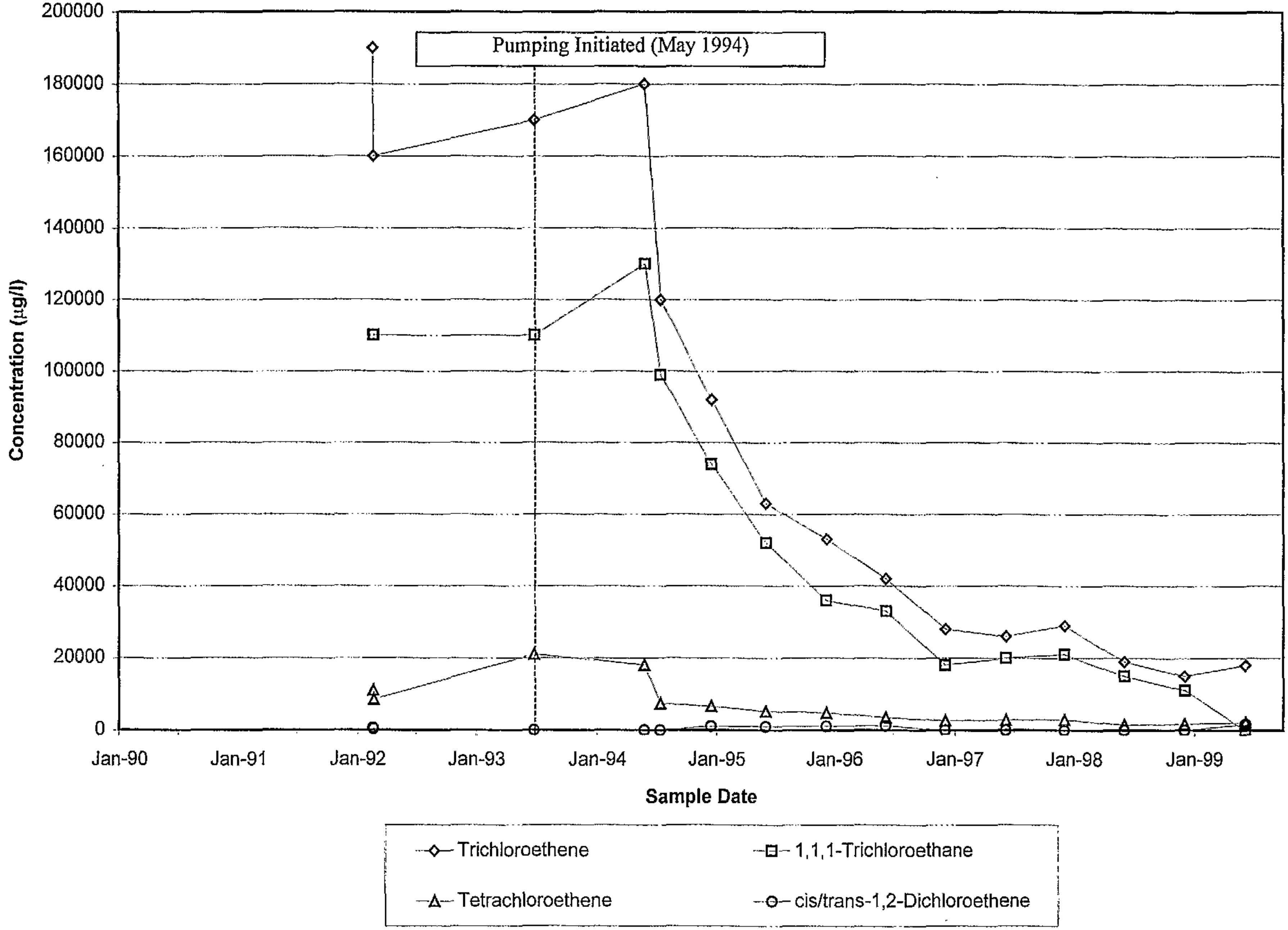
H:\jobs\1992\92003\99report\cw_data for annual.xls

Figure 7-4
Predominant VOC Concentrations
Extraction Well CW-13



H:\jobs\1992\92003\99report\cw_data for annual.xls

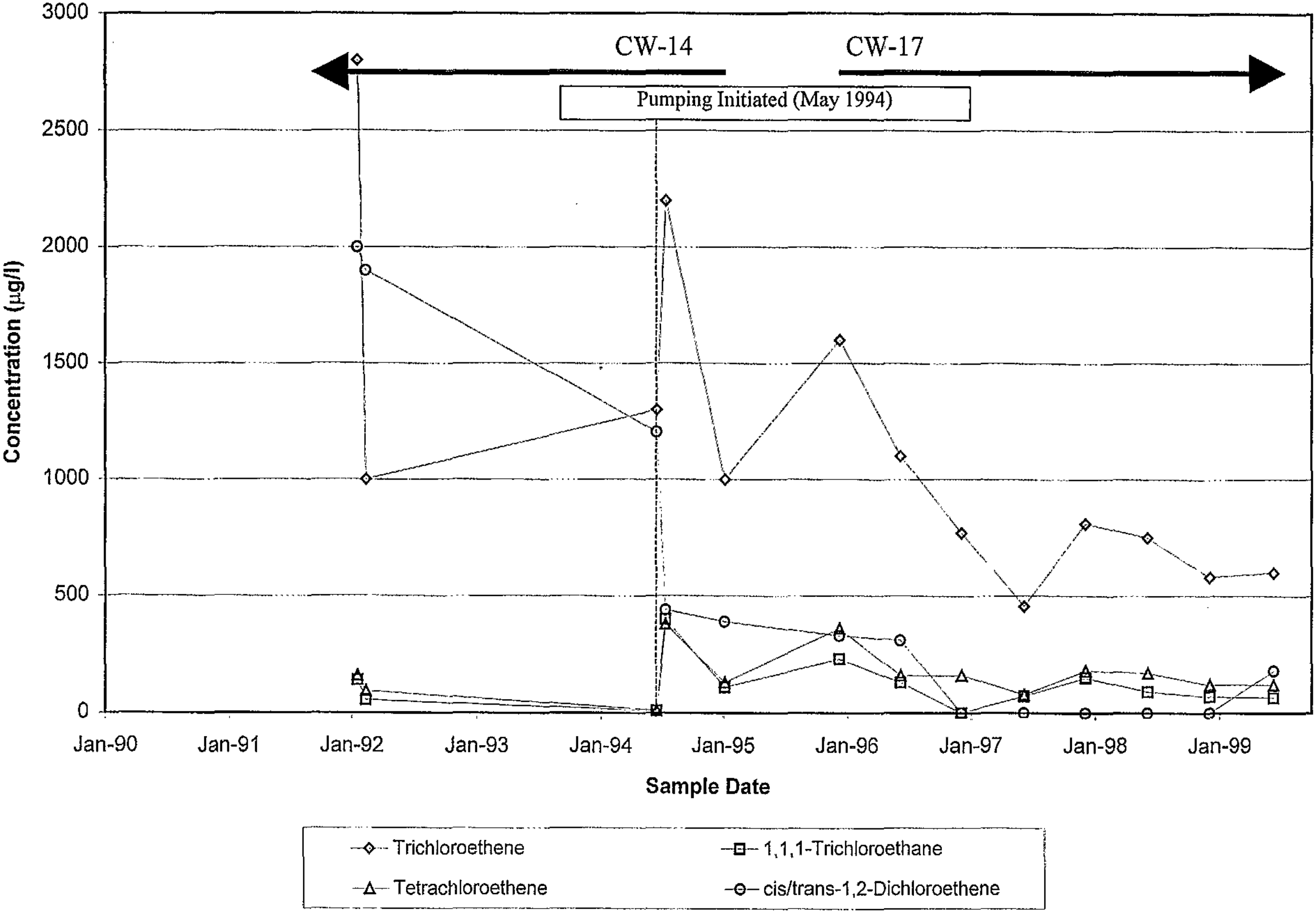
Figure 7-5
Predominant VOC Concentrations
Extraction Well CW-15A



H:\jobs\1992\92003\99report\cw_data for annual.xls

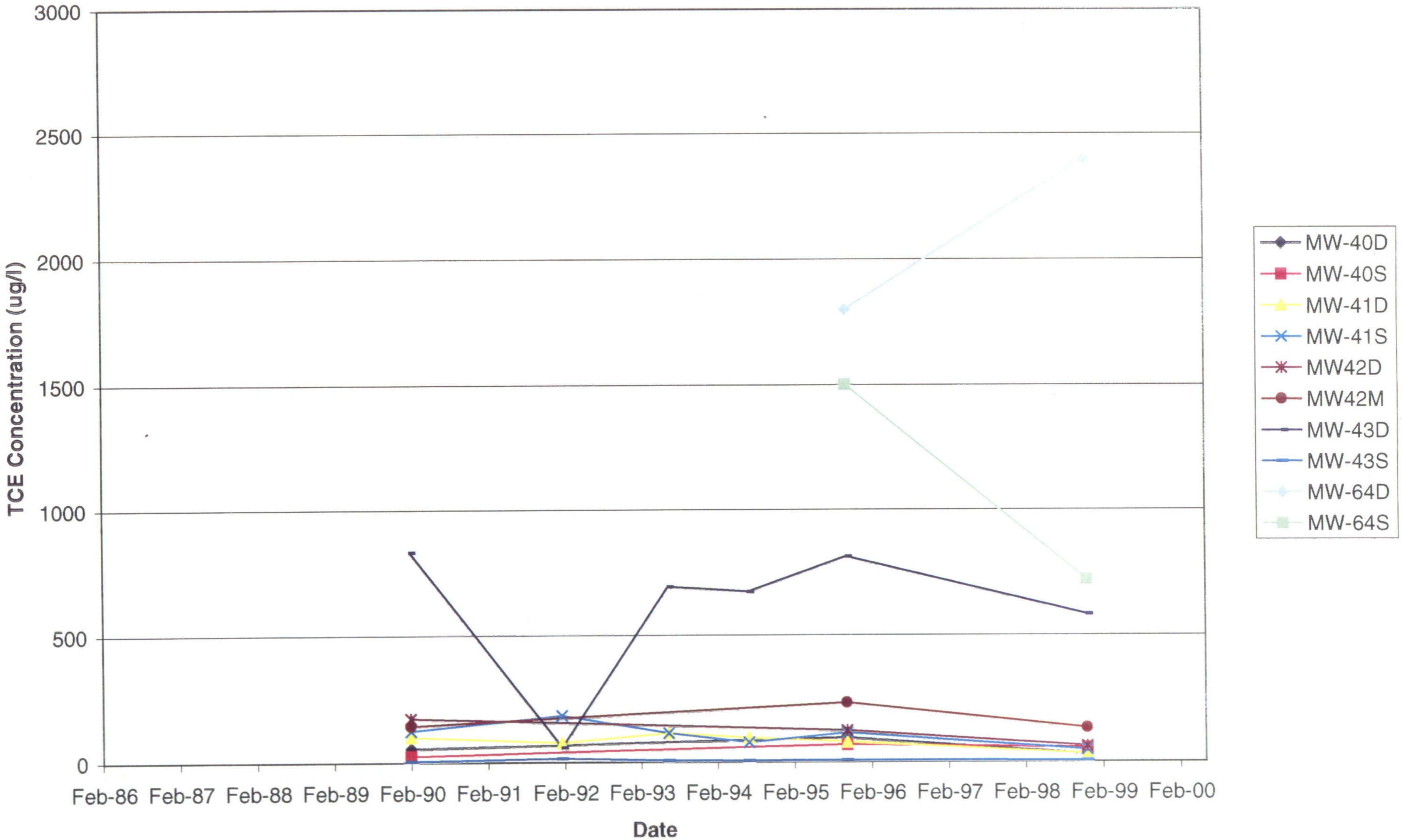
Figure 7-6

Predominant VOC Concentrations
Extraction Wells CW-14 and CW-17



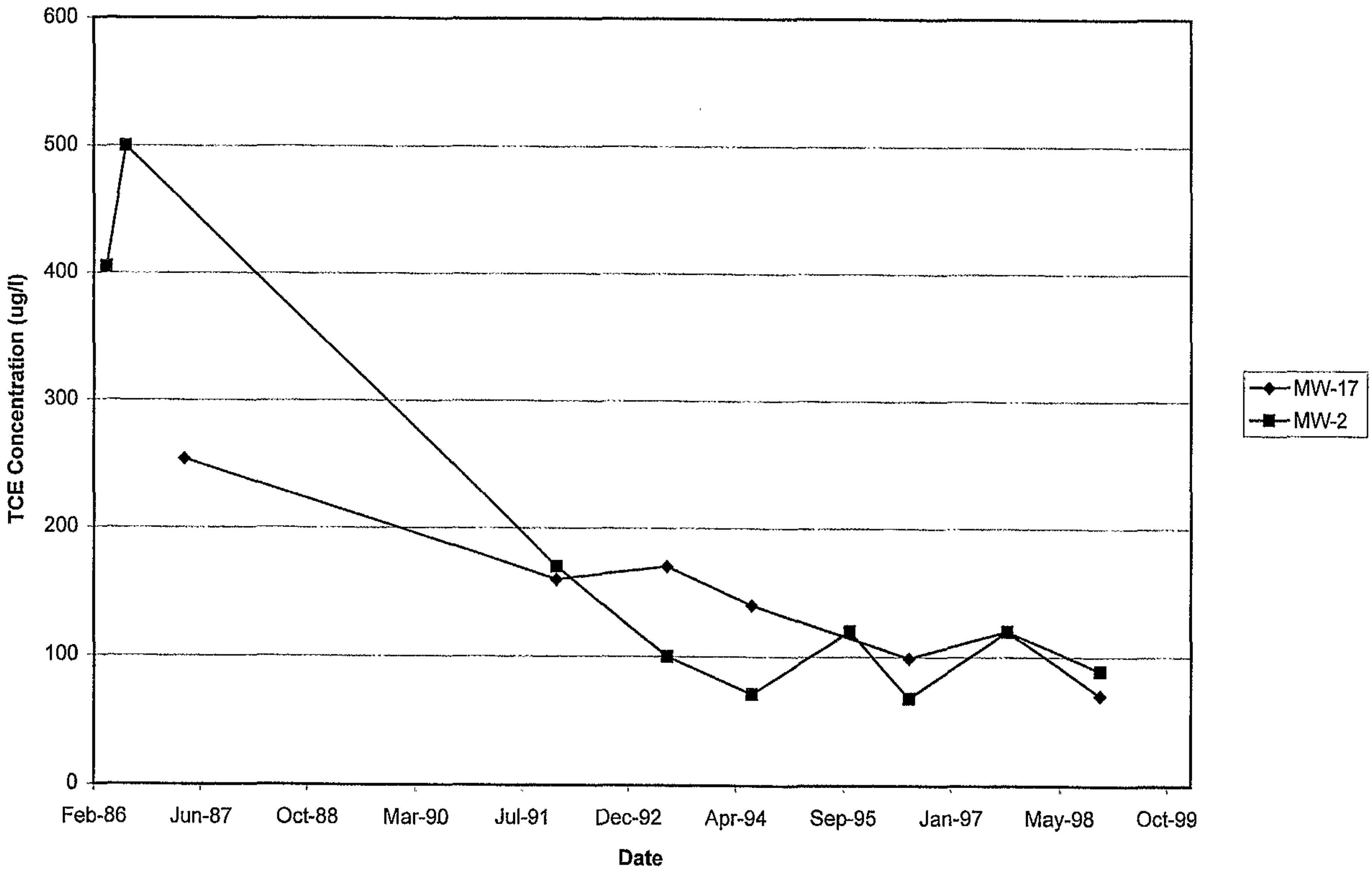
H:\jobs\1992\92003\99report\cw_data for annual.xls

Figure 8-1
TCE in SPBA Monitoring Wells
Harley-Davidson Motor Company



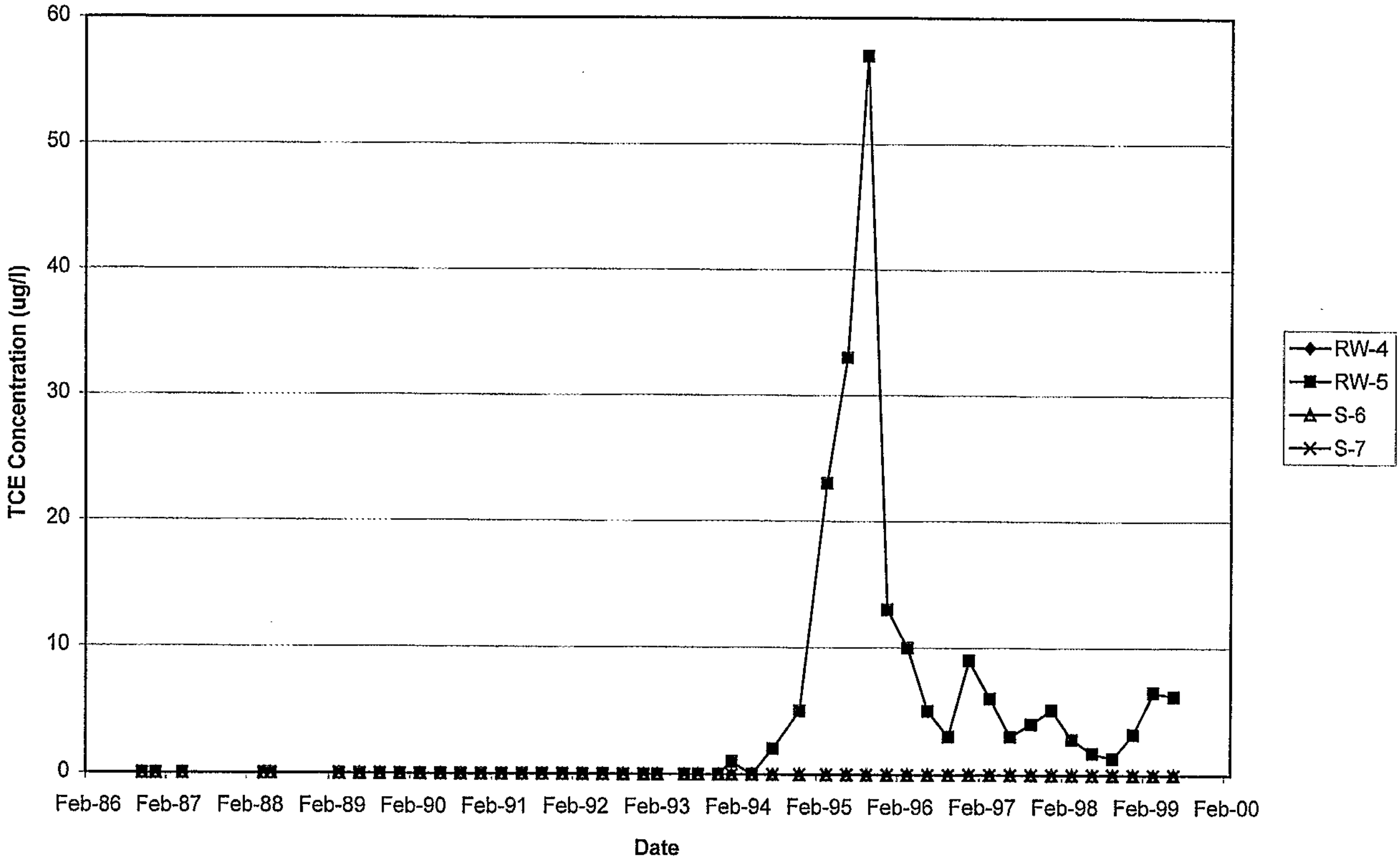
H:\jobs\1992\92003\99report\All Area Figures.xls

Figure 9-1
TCE in Eastern Area Monitoring Wells
Harley Davidson Motor Company



H:\jobs\1992\92003\99report\All Area Figures.xls

Figure 10-1
TCE in Off-Site Wells
Harley-Davidson Motor Company



H:\jobs\1992\92003\99report\off_site figs.xls

TABLES

TABLE 4-1
VOCs REMOVED FROM COLLECTED GROUNDWATER
GROUNDWATER TREATMENT SYSTEM
JULY 1, 1998 - JUNE 30, 1999
Harley - Davidson Motor Company

DATE	MONTHLY GROUNDWATER WITHDRAWAL (PTA Totalizer, gallons)	AVERAGE MONTHLY TOTAL VOCs (ppb)	ESTIMATED MONTHLY VOC REMOVAL (pounds)
JUL 98	14,404,100	2390	287
AUG 98	13,907,500	2553	296
SEP 98	13,594,500	1780	202
OCT 98	12,994,300	1745	189
NOV 98	12,591,300	1367 *	144
DEC 98	12,746,000	1367 *	145
JAN 99	11,071,800	988	91
FEB 99	11,372,800	1146 *	109
MAR 99	12,959,400	1146 *	124
APR 99	11,578,600	1304	126
MAY 99	12,367,700	1304 **	135
JUN 99	11,944,900	1304 **	130
TOTAL	151,532,900	NA	1980

ANNUAL TOTALS		
YEAR	YEARLY GROUNDWATER WITHDRAWAL (gallons)	ESTIMATED YEARLY VOC REMOVAL (pounds)
1990 (NOV & DEC)	12,954,886	92
1991	62,458,393	357
1992	66,081,120	322
1993	72,198,940	421
1994	88,387,251	3905
1995	141,357,856	5572
1996	152,168,899	3631
1997	150,246,400	2675
1998	157,461,800	2795
JAN 99 - JUN 99	71,295,200	715

NOTES:

* - No sample collected this month; concentration is an average of preceeding and subsequent analytical results.

** - No sample collected this month; concentration is the most recent previous analytical result.

NA - Not Applicable

TABLE 5-1
RECORD OF GROUNDWATER WITHDRAWALS
GALLONS PER MONTH FOR EACH EXTRACTION WELL
JULY 1, 1998 - JUNE 30, 1999
Harley-Davidson Motor Company

	NPBA WELLS										TCA WELLS			WPL WELLS					MONTHLY
MONTH	CW-1	CW-1A	CW-2	CW-3	CW-4	CW-5	CW-6	CW-7	CW-7A	SUBTOTAL	CW-8	CW-16	SUBTOTAL	CW-9	CW-13	CW-15A	CW-17	SUBTOTAL	TOTAL
7/98	164,964	954	8,194	79,689	29,494	3,725	232,944	22,747	71	542,782	4,038,400	608,400	4,646,800	2,658,919	3,001,115	232,333	2,228,530	8,120,897	13,310,479
8/98	151,839	1,650	7,750	40,760	24,077	4,052	262,586	19,836	117	512,667	3,541,500	572,330	4,113,830	2,618,560	2,993,102	213,341	2,208,631	8,033,634	12,660,131
9/98	144,201	1,329	4,354	44,745	25,065	51,440	283,092	18,107	96	572,429	3,380,400	543,470	3,923,870	2,333,352	2,837,786	197,911	2,148,637	7,517,686	12,013,985
10/97	138,123	1,163	170	142,230	99,043	40,516	130,910	18,768	303	571,226	3,620,500	565,180	4,185,680	2,360,176	2,807,084	62,579	2,160,021	7,389,860	12,146,766
11/98	125,567	675	4	157,822	131,288	19,776	163,101	18,865	13	617,111	3,331,800	501,000	3,832,800	2,128,158	2,689,566	136,666	2,116,133	7,070,523	11,520,434
12/98	113,987	558	11	154,215	122,569	13,784	182,620	18,967	3	606,714	5,324,100	439,680	5,763,780	2,054,048	2,789,127	145,978	2,208,518	7,197,671	13,568,165
1/99	110,101	588	187	128,238	100,421	64,056	152,397	19,240	3	575,231	7,720,100	503,090	8,223,190	508,923	2,830,707	121,209	2,228,204	5,689,043	14,487,464
2/99	93,025	344	3,326	53,726	112,130	79,591	195,801	18,560	8	556,511	5,307,700	449,590	5,757,290	1,520,577	2,522,570	79,113	2,014,410	6,136,670	12,450,471
3/99	139,236	494	5,660	72,640	89,506	106,164	188,805	22,079	1,638	626,222	7,039,000	447,170	7,486,170	1,869,813	2,790,662	150,153	2,252,099	7,062,727	15,175,119
4/99	142,659	2,023	6,000	101,134	54,933	123,824	202,679	21,959	9,975	665,186	3,846,500	395,240	4,241,740	1,770,077	2,574,948	124,058	2,135,137	6,604,220	11,511,146
5/99	152,283	1,691	816	159,071	111,099	100,742	192,444	22,495	10,670	751,311	4,470,200	448,270	4,918,470	1,665,816	2,466,208	122,051	2,237,219	6,491,294	12,161,075
6/99	132,465	1,248	790	154,967	104,419	76,706	157,207	20,034	1,763	649,599	3,870,000	522,320	4,392,320	1,763,567	2,461,564	121,371	2,102,098	6,448,600	11,490,519
TOTALS	1,608,450	12,717	37,262	1,289,237	1,004,044	684,376	2,344,586	241,657	24,660	7,246,989	55,490,200	5,995,740	61,485,940	23,251,986	32,764,439	1,706,763	26,039,637	83,762,825	152,495,754

Note: Monthly groundwater withdrawal value from Table 1 differs slightly from the monthly total in the last column in Table 2 above. The value in Table 1 is taken directly from the PTA totalizer, while the value in Table 2 is the sum of the individual well totalizers. The difference is utilized to determine the necessity for calibration of the totalizers.

TABLE 5-2
GROUNDWATER EXTRACTION WELL
PUMPING ELEVATIONS
Harley-Davidson Motor Company

Extraction System Location	Well No.	Reference Elevation (ft AMSL)	Range (ft AMSL)		Groundwater Elev. (ft AMSL)	
			Pump On (High)	Pump Off (Low)	12/7/98	5/4/99
NPBA	CW-1	570.88	496.38	493.38	493.68	494.57
	CW-1A	569.93	510.43	507.43	507.07	505.91
	CW-2	557.79	484.29	481.29	475.69	500.6
	CW-3	519.43	441.43	438.43	NM	455.05
	CW-4	542.32	458.82	455.82	454.91	481.15
	CW-5	472.06	426.56	423.56	425.81	424.76
	CW-6	486.98	416.48	413.48	415.08	414.73
	CW-7	574.61	494.11	491.11	491.51	490.77
	CW-7A	574.71	524.21	521.21	526.07	528.85
WPL	CW-9	360.79	333.79	328.79	327.59	333.84
	CW-13	361.64	327.6	322.6	321.41	327.48
	CW-15A	362.57	333.5	328.5	330.18	333.41
	CW-17	361.67	335.67	330.67	330.33	333.79
TCA	CW-8	363.84	339.84	335.84	339.22	337.9
	CW-16	364.32	334.32	329.32	NM	339.72

Notes:
ft AMSL - feet above mean sea level
NM - Not Measured

TABLE 5-3
NORTH PROPERTY BOUNDARY AREA
HARLEY-DAVIDSON MOTOR COMPANY
YORK, PA

SAIC Project 01-1408-00-0041-101

Wells	Pumpage 1997-98 Gallons	Pumpage 1998-99 Gallons	TCE 1997* (ug/l)	TCE Dec-98 (ug/l)	TCE%** Dec-98	PCE 1997* (ug/l)	PCE Dec-98 (ug/l)	PCE%** Dec-98
CW-1	1,983,933	1,608,450	150	91	95	ND	ND	0
CW-1A	15,190	12,717	NA	600	99	NA	6.3	1
CW-2	53,559	37,262	72	80	98	ND	ND	0
CW-3	1,579,977	1,289,237	200	150	83	ND	2.1	1
CW-4	1,211,156	1,004,044	160	140	85	ND	4.4	3
CW-5	408,312	684,376	29	78	48	8	11	7
CW-6	2,545,782	2,344,586	120	74	42	120	43	24
CW-7	271,458	241,657	160	93	100	ND	ND	0
CW-7A	111,865	24,660	NA	720	97	NA	14	2
TOTALS	8,181,232	7,246,989						
MW-10	NA	NA	480	540	89	ND	ND	0
MW-12	NA	NA	320	110	89	5	ND	0
RW-2	NA	NA	5	13	100	ND	ND	0

* - Collection wells (CW) sampled in 12/97, key wells (MW and RW) sampled in 10/97
** - Represents the percent of the total volatile organic compound concentration
NA - Not Applicable
ND - Not Detected above method detection limit
ug/l - Micrograms per liter

TABLE 6-1
TCA TANK AREA
HARLEY-DAVIDSON MOTOR COMPANY
YORK, PA

SAIC Project No. 01-1408-00-0041-101

Wells	Pumpage 1997-98 Gallons	Pumpage 1998-99 Gallons	TCA 1997* (ug/l)	TCA Dec-98 (ug/l)	TCE 1997* (ug/l)	TCE Dec-98 (ug/l)	PCE 1997* (ug/l)	PCE Dec-98 (ug/l)	DCE*** 1997* (ug/l)	DCE*** Dec-98 (ug/l)
CW-8	47,697,600	55,490,200	53	42	530	390	72	39	NA	93
CW-16	8,353,700	5,995,740	54	35	740	510	56	43	NA	110
MW-32S	NA	NA	260	130	43	7.1	ND	ND	NA	310
MW-32D	NA	NA	83	98	1,000	2,400	78	130	NA	620
MW-34S	NA	NA	19	16	280	290	220	120	NA	52
MW-35D	NA	NA	15	11	280	290	90	56	NA	73
MW-54	NA	NA	1,600	760	790	740	68	43	NA	260

Wells	% TCA** Dec-98	% TCE** Dec-98	% PCE** Dec-98	% DCE** Dec-98
CW-8	7	67	7	16
CW-16	5	70	6	15
MW-32S	24	1	0	57
MW-32D	3	70	4	18
MW-34S	3	60	25	11
MW-35D	3	66	13	17
MW-54	28	27	2	9

* - Collection wells (CW) sampled in 12/97, key wells (MW) sampled in 10/97
** - Represents the percent of the total volatile organic compound concentration
*** - Represents the concentration of cis-1,2-DCE
NA - Not Applicable/Analyzed
ND - Not Detected above method detection limit
ug/l - Micrograms per liter

H:\jobs\1992\92003\99report\percent_tables.xls

TABLE 7-1
WEST PARKING LOT
HARLEY-DAVIDSON MOTOR COMPANY
YORK, PA

SAIC Project No. 01-1408-00-0041-101

Wells	Pumpage 1997-98 Gallons	Pumpage 1998-99 Gallons	TCA 1997* (ug/l)	TCA Dec-98 (ug/l)	TCE 1997* (ug/l)	TCE Dec-98 (ug/l)	PCE 1997* (ug/l)	PCE Dec-98 (ug/l)	DCE*** 1997* (ug/l)	DCE*** Dec-98 (ug/l)
CW-9	21,304,814	23,251,986	130	240	370	1,200	1,300	2,600	NA	220
CW-13	35,600,998	32,764,439	170	120	1,900	1,100	290	280	NA	730
CW-15A	1,981,285	1,706,763	21,000	11,000	29,000	15,000	2,900	1,700	NA	1,200
CW-17	22,950,350	26,039,637	150	70	810	580	180	120	NA	170
MW-5	NA	NA	NA	ND	NA	34	NA	ND	NA	40
MW-6	NA	NA	NA	ND	NA	ND	NA	ND	NA	ND
MW-37S	NA	NA	74	280	55	190	280	620	NA	160
MW-37D	NA	NA	760	460	1,700	760	1,800	1,900	NA	260
MW-38S	NA	NA	2	2	ND	7	ND	ND	NA	ND
MW-38D	NA	NA	39	16	220	ND	13	ND	NA	240
MW-39D	NA	NA	1	ND	110	120	3	6	NA	92
MW-51S	NA	NA	1,500	730	6,200	3,900	2,000	1,100	NA	1,000
MW-51D	NA	NA	21	ND	710	1,000	60	86	NA	1,200

Wells	% TCA** Dec-98	% TCE** Dec-98	% PCE** Dec-98	% DCE** Dec-98
CW-9	6	28	60	5
CW-13	5	49	13	33
CW-15A	36	49	6	4
CW-17	7	59	12	17
MW-5	0	46	0	54
MW-6	0	0	0	0
MW-37S	22	15	49	13
MW-37D	13	22	55	8
MW-38S	21	79	0	0
MW-38D	4	0	0	63
MW-39D	0	55	3	42
MW-51S	10	54	15	14
MW-51D	0	38	3	45

* - Collection wells (CW) sampled in 12/97, key wells (MW) sampled in 10/97
** - Represents the percent of the total volatile organic compound concentration
*** - Represents the concentration of cis-1,2-DCE
NA - Not Applicable/Analyzed
ND - Not Detected above method detection limit
ug/l - Micrograms per liter

APPENDIX A

Data Tables

Table A-1
Site-Wide Groundwater Levels and Elevation Data
Harley-Davidson Motor Company

Well	Reference Elevation (ft AMSL)	12/07/98 Depth (feet)	Water Level (ft AMSL)	5/4/99 Depth (feet)	Water Level (ft AMSL)
CW-1	570.88	77.2	493.68	76.31	494.57
CW-1A	569.93	62.86	507.07	64.02	505.91
CW-2	557.79	82.1	475.69	57.19	500.6
CW-3	519.43	NM	--	64.38	455.05
CW-4	542.32	87.41	454.91	61.17	481.15
CW-5	472.06	46.25	425.81	47.3	424.76
CW-6	486.98	71.9	415.08	72.25	414.73
CW-7	574.61	83.1	491.51	83.84	490.77
CW-7A	574.71	48.64	526.07	45.86	528.85
CW-8	363.84	24.62	339.22	25.94	337.9
CW-9	360.79	33.2	327.59	26.95	333.84
CW-10	417.43	49.81	367.62	34.52	382.91
CW-11	374.3	33.6	340.7	31.16	343.14
CW-12	362.06	23.8	338.26	21.39	340.67
CW-12A	362.18	25.12	337.06	22.01	340.17
CW-13	361.64	40.23	321.41	34.16	327.48
CW-14	362.08	31.62	330.46	28.17	333.91
CW-15A	362.57	32.39	330.18	29.16	333.41
CW-16	364.32	NM	--	24.6	339.72
CW-17	361.67	31.34	330.33	27.88	333.79
CW-18	365.76	24.35	341.41	21.66	344.1
MW-1	376.35	35.65	340.7	33.21	343.14
MW-2	509.44	69.67	439.77	62.35	447.09
MW-3	542.11	69.2	472.91	62.31	479.8
MW-4	397.82	42.45	355.37	35.11	362.71
MW-5	370.8	30.12	340.68	27.14	343.66
MW-6	361.06	22.15	338.91	20.54	340.52
MW-7	362.18	31.58	330.6	27.87	334.31
MW-8	360.55	25.8	334.75	22.08	338.47
MW-9	559.76	56.6	503.16	49.68	510.08
MW-10	568.75	60.86	507.89	55.62	513.13
MW-11	565.11	53.01	512.1	34.3	530.81
MW-12	536.69	48.8	487.89	40.24	496.45
MW-14	520.39	35.39	485	30.54	489.85
MW-15	524.9	61.44	463.46	59.42	465.48
MW-16S	517.5	51.47	466.03	38.29	479.21
MW-16D	517.5	16.64	500.86	6.69	510.81
MW-17	458.03	11.62	446.41	10.39	447.64
MW-18S	465.37	24.65	440.72	20.98	444.39
MW-18D	465.37	25.9	439.47	21.23	444.14
MW-19	428.2	26.6	401.6	21.4	406.8
MW-20S	575.34	49.32	526.02	44.66	530.68
MW-20M	575.21	42.21	533	47.53	527.68
MW-20D	575.21	53.58	521.63	46.72	528.49
MW-21	426.76	42.22	384.54	33.42	393.34

Table A-1 Site-Wide Groundwater Levels and Elevation Data Harley-Davidson Motor Company					
Well	Reference Elevation (ft AMSL)	12/07/98 Depth (feet)	Water Level (ft AMSL)	5/4/99 Depth (feet)	Water Level (ft AMSL)
MW-22	448.57	66.52	382.05	57.35	391.22
MW-23	374.07	32.94	341.13	30.29	343.78
MW-24	375.44	33.95	341.49	30.8	344.64
MW-25	381.73	22.51	359.22	10.14	371.59
MW-26	377.52	NM	--	25.65	351.87
MW-27	362.26	23.25	339.01	20.33	341.93
MW-28	363.96	24.55	339.41	23.3	340.66
MW-29	365.63	27.14	338.49	14.69	350.94
MW-30	364.99	24.95	340.04	21.25	343.74
MW-31S	368.31	26.13	342.18	21.61	346.7
MW-31D	368.31	26.07	342.24	21.72	346.59
MW-32S	363.46	24.05	339.41	22.9	340.56
MW-32D	363.46	24.15	339.31	22.35	341.11
MW-33	364.94	25.62	339.32	24.17	340.77
MW-34S	362.12	23.03	339.09	21.36	340.76
MW-34D	362.12	22.8	339.32	21.46	340.66
MW-35S	361.58	DRY	<342.43	DRY	<342.43
MW-35D	361.59	22.33	339.26	20.92	340.67
MW-36S	372.3	30.88	341.42	28.33	343.97
MW-36D	372.3	31.56	340.74	28.57	343.73
MW-37S	360.83	21.85	338.98	19.78	341.05
MW-37D	360.83	24.17	336.66	21.13	339.7
MW-38S	359.47	24.45	335.02	20.09	339.38
MW-38D	359.48	24.89	334.59	20.81	338.67
MW-39S	361.56	24.73	336.83	21.98	339.58
MW-39D	361.56	26.35	335.21	23.14	338.42
MW-40S	375.83	35.13	340.7	32.76	343.07
MW-40D	375.83	35.11	340.72	32.77	343.06
MW-41S	426.08	46.21	379.87	36.75	389.33
MW-41D	426.08	38.39	387.69	42.58	383.5
MW-42S	411.39	DRY	<377.7	28.48	382.91
MW-42M	411.39	44.05	367.34	28.61	382.78
MW-42D	411.39	59.58	351.81	44.96	366.43
MW-43S	380.93	38.37	342.56	32.04	348.89
MW-43D	381.31	38.75	342.56	32.74	348.57
MW-44	417.37	47.44	369.93	31.43	385.94
MW-45	361.13	22.92	338.21	20.12	341.01
MW-46	360.25	22.15	338.1	19.33	340.92
MW-47	361.74	26.13	335.61	22.65	339.09
MW-48	362.85	22.02	340.83	22	340.85
MW-49S	363.02	24.09	338.93	21.07	341.95
MW-49D	363.02	23.75	339.27	20.72	342.3
MW-50S	361.72	26.09	335.04	22.98	338.74
MW-50D	361.69	24.77	336.37	22.2	339.49
MW-51S	363.46	30.63	332.83	27.89	335.57

Table A-1 Site-Wide Groundwater Levels and Elevation Data Harley-Davidson Motor Company					
Well	Reference Elevation (ft AMSL)	12/07/98 Depth (feet)	Water Level (ft AMSL)	5/4/99 Depth (feet)	Water Level (ft AMSL)
MW-51D	363.86	30.48	333.38	30.12	333.74
MW-52	368.52	20.85	347.67	11.11	357.41
MW-53	368.25	20.29	347.96	15.13	353.12
MW-54	364.98	26.8	338.18	25.29	339.69
MW-55	364.89	NM	--	25.18	339.71
MW-56	373.03	26.74	346.29	22.79	350.24
MW-57	366.02	25.03	340.99	22.35	343.67
MW-59	373.19	32.55	340.64	29.47	343.72
MW-60	369.15	27.85	341.3	24.12	345.03
MW-61S	373.87	34.42	339.45	31.3	342.57
MW-61D	373.87	35.2	338.67	32.17	341.7
MW-62S	371.28	31.64	339.64	28.65	342.63
MW-62D	371.27	32.13	339.14	29.69	341.58
MW-63S	374.95	34.13	340.82	31.7	343.25
MW-63D	374.96	34.18	340.78	31.69	343.27
MW-64S	417.26	38.9	378.36	33.99	383.27
MW-64D	417.27	64.83	352.44	60.27	357
WPL-SS-2	363.21	DRY	--	24.77	338.44
WPL-SS-7	361.92	DRY	--	25.96	335.96
WPL-SS-8	365.26	DRY	<337.6	25.76	339.5
NM = Not Measured					

TABLE A-2
GROUNDWATER QUALITY ANALYSES
KEY MONITORING WELL SAMPLES (July 1, 1998 - June 30, 1999)
VOLATILE ORGANIC COMPOUND AND CYANIDE CONCENTRATIONS
Harley-Davidson Motor Company

SAMPLE ID LAB ID SAMPLE DATE ANALYTE	UNITS	RW-2 298120377006 12/08/98 RESULT	MW-2 298120377001 12/09/98 RESULT	MW-5 298120447013 12/11/98 RESULT	MW-6 298120447012 12/11/98 RESULT	MW-10 298120377007 12/08/98 RESULT	MW-12 298120377008 12/08/98 RESULT	MW-17 298120447001 12/10/98 RESULT	MW-32S 298120447002 12/10/98 RESULT	MW-32D 298120447003 12/10/98 RESULT	MW-34S 298120447011 12/11/98 RESULT	MW-35D 298120447017 12/11/98 RESULT	MW-37S 298120511001 12/14/98 RESULT
1,1,1-Trichloroethane	µg/l	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	130	98	16	11	280
1,1,2,2-Tetrachloroethane	µg/l	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5
1,1,2-Trichloroethane	µg/l	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5
1,1-Dichloroethane	µg/l	N.D.@5	N.D.@5	N.D.@5	2.5	N.D.@5	N.D.@5	N.D.@5	33	44	N.D.@5	N.D.@5	13
1,1-Dichloroethene	µg/l	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	63	160	7.7	8.3	8.5
1,2-Dichloroethane	µg/l	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5
1,2-Dichloropropane	µg/l	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5
2-Butanone (MEK)	µg/l	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10
2-Hexanone (MBK)	µg/l	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10
4-Methyl-2-pentanone (MIBK)	µg/l	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10
Acetone	µg/l	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10
Benzene	µg/l	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5
Bromodichloromethane	µg/l	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5
Bromoform	µg/l	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5
Bromomethane	µg/l	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5
Carbon disulfide	µg/l	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5
Carbon tetrachloride	µg/l	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5
Chlorobenzene	µg/l	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5
Chloroethane	µg/l	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5
Chloroform	µg/l	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5
Chloromethane(Methyl Chloride)	µg/l	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5
cis-1,2-Dichloroethene	µg/l	N.D.@5	N.D.@5	40	N.D.@1	66	14	N.D.@5	310	620	52	73	160
cis-1,3-Dichloropropene	µg/l	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5
Dibromochloromethane	µg/l	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5
Ethylbenzene	µg/l	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5
Methylene Chloride	µg/l	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5
Styrene	µg/l	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5
Tetrachloroethene	µg/l	N.D.@5	180	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@5	130	120	56	620
Toluene	µg/l	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5
Total Xylenes	µg/l	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5
trans-1,2-Dichloroethene	µg/l	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5
trans-1,3-Dichloropropene	µg/l	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5
Trichloroethene	µg/l	13	89	34	N.D.@1	540	110	70	7.1	2400	290	290	190
Vinyl acetate	µg/l	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10
Vinyl chloride	µg/l	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5
TOTAL VOCs	µg/l	13	269	74	2.5	606	124	70	543.1	3452	485.7	438.3	1271.5
Cyanide (Free)	mg/l	N.D.@0.01	0.2	N.D.@0.01	N.D.@0.01	N.D.@0.01	N.D.@0.01	N.D.@0.01	N.D.@0.01	N.D.@0.01	N.D.@0.01	N.D.@0.01	N.D.@0.01
Cyanide (Total)	mg/l	N.D.@0.01	1.6	N.D.@0.01	N.D.@0.01	N.D.@0.01	N.D.@0.01	N.D.@0.01	N.D.@0.01	N.D.@0.01	N.D.@0.01	N.D.@0.01	N.D.@0.01

Notes:
N.D.@1 - Not detected at indicated concentration

TABLE A-2
GROUNDWATER QUALITY ANALYSES
KEY MONITORING WELL SAMPLES (July 1, 1998 - June 30, 1999)
VOLATILE ORGANIC COMPOUND AND CYANIDE CONCENTRATIONS
Harley-Davidson Motor Company

SAMPLE ID LAB ID SAMPLE DATE ANALYTE	UNITS	MW-37D 298120511002 12/14/98 RESULT	MW-38S 298120511003 12/14/98 RESULT	MW-38D 298120511004 12/14/98 RESULT	MW-39D 298120447014 12/11/98 RESULT	MW-40S 298120447004 12/10/98 RESULT	MW-40D 298120447005 12/10/98 RESULT	MW-41S 298120377004 12/09/98 RESULT	MW-41D 298120377003 12/09/98 RESULT	MW-42M 298120447006 12/10/98 RESULT	MW-42D 298120447007 12/10/98 RESULT	MW-43S 298120447008 12/10/98 RESULT	MW-43D 298120447009 12/10/98 RESULT
1,1,1-Trichloroethane	µg/l	460	2	16	N.D.@5	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	1.9	N.D.@1	N.D.@5
1,1,2,2-Tetrachloroethane	µg/l	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@1	N.D.@5
1,1,2-Trichloroethane	µg/l	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@1	N.D.@5
1,1-Dichloroethane	µg/l	18	N.D.@1	13	N.D.@5	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@1	N.D.@5
1,1-Dichloroethene	µg/l	42	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@1	N.D.@5
1,2-Dichloroethane	µg/l	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@1	N.D.@5
1,2-Dichloropropane	µg/l	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@1	N.D.@5
2-Butanone (MEK)	µg/l	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10
2-Hexanone (MBK)	µg/l	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10
4-Methyl-2-pentanone (MIBK)	µg/l	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10
Acetone	µg/l	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10
Benzene	µg/l	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@1	N.D.@5
Bromodichloromethane	µg/l	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@1	N.D.@5
Bromoform	µg/l	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@1	N.D.@5
Bromomethane	µg/l	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@1	N.D.@5
Carbon disulfide	µg/l	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@1	N.D.@5
Carbon tetrachloride	µg/l	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@1	N.D.@5
Chlorobenzene	µg/l	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@1	N.D.@5
Chloroethane	µg/l	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@1	N.D.@5
Chloroform	µg/l	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	1.4	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@1	N.D.@5
Chloromethane(Methyl Chloride)	µg/l	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@1	N.D.@5
cis-1,2-Dichloroethene	µg/l	260	N.D.@1	240	92	14	4	N.D.@5	N.D.@5	6.4	N.D.@1	N.D.@1	21
cis-1,3-Dichloropropene	µg/l	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@1	N.D.@5
Dibromochloromethane	µg/l	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@1	N.D.@5
Ethylbenzene	µg/l	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@1	N.D.@5
Methylene Chloride	µg/l	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@1	N.D.@5
Styrene	µg/l	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@1	N.D.@5
Tetrachloroethene	µg/l	1900	N.D.@1	N.D.@5	5.7	N.D.@5	N.D.@1	17	12	6.2	3.1	N.D.@1	9.3
Toluene	µg/l	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@1	N.D.@5
Total Xylenes	µg/l	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@1	N.D.@5
trans-1,2-Dichloroethene	µg/l	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@1	N.D.@5
trans-1,3-Dichloropropene	µg/l	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@1	N.D.@5
Trichloroethene	µg/l	760	7.4	N.D.@5	120	52	26	43	27	130	58	1.8	580
Vinyl acetate	µg/l	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10
Vinyl chloride	µg/l	17	N.D.@1	110	N.D.@5	N.D.@5	N.D.@1	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@1	N.D.@5
TOTAL VOCs	µg/l	3457	9.4	379	217.7	66	31.4	60	39	142.6	63	1.8	610.3
Cyanide (Free)	mg/l	N.D.@0.02	N.D.@0.02	N.D.@0.02	N.D.@0.01	N.D.@0.01	N.D.@0.01	N.D.@0.01	N.D.@0.01	N.D.@0.01	N.D.@0.01	N.D.@0.01	N.D.@0.01
Cyanide (Total)	mg/l	N.D.@0.02	N.D.@0.02	N.D.@0.02	N.D.@0.01	N.D.@0.01	N.D.@0.01	N.D.@0.01	N.D.@0.01	N.D.@0.01	N.D.@0.01	N.D.@0.01	N.D.@0.01

Notes:
N.D.@1 - Not detected at indicated concentration

TABLE A-2
GROUNDWATER QUALITY ANALYSES
KEY MONITORING WELL SAMPLES (July 1, 1998 - June 30, 1999)
VOLATILE ORGANIC COMPOUND AND CYANIDE CONCENTRATIONS
Harley-Davidson Motor Company

SAMPLE ID LAB ID SAMPLE DATE ANALYTE	UNITS	MW-51S 298120447019 12/11/98 RESULT	MW-51D 298120447018 12/11/98 RESULT	MW-54 298120447010 12/10/98 RESULT	MW-64S 298120377009 12/08/98 RESULT	MW-64D 298120377010 12/08/98 RESULT	FIELD BLANK 298120377002 12/09/98 RESULT	FIELD BLANK 298120447016 12/11/98 RESULT	FIELD BLANK 298120511005 12/14/98 RESULT	TRIP BLANK 298120377005 12/09/98 RESULT	TRIP BLANK 298120447015 12/11/98 RESULT	TRIP BLANK 298120511006 12/14/98 RESULT
1,1,1-Trichloroethane	µg/l	730	N.D.@5	760	N.D.@5	N.D.@5	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
1,1,2,2-Tetrachloroethane	µg/l	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
1,1,2-Trichloroethane	µg/l	N.D.@5	N.D.@5	6.6	N.D.@5	N.D.@5	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
1,1-Dichloroethane	µg/l	36	120	150	N.D.@5	N.D.@5	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
1,1-Dichloroethene	µg/l	400	120	750	N.D.@5	N.D.@5	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
1,2-Dichloroethane	µg/l	N.D.@5	N.D.@5	20	N.D.@5	N.D.@5	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
1,2-Dichloropropane	µg/l	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
2-Butanone (MEK)	µg/l	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10
2-Hexanone (MBK)	µg/l	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10
4-Methyl-2-pentanone (MIBK)	µg/l	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10
Acetone	µg/l	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10
Benzene	µg/l	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
Bromodichloromethane	µg/l	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
Bromoform	µg/l	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
Bromomethane	µg/l	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
Carbon disulfide	µg/l	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
Carbon tetrachloride	µg/l	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
Chlorobenzene	µg/l	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
Chloroethane	µg/l	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
Chloroform	µg/l	N.D.@5	N.D.@5	11	N.D.@5	N.D.@5	1.2	1.3	1.3	N.D.@1	N.D.@1	N.D.@1
Chloromethane(Methyl Chloride)	µg/l	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
cis-1,2-Dichloroethene	µg/l	1000	1200	260	N.D.@5	N.D.@5	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
cis-1,3-Dichloropropene	µg/l	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
Dibromochloromethane	µg/l	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
Ethylbenzene	µg/l	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
Methylene Chloride	µg/l	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
Styrene	µg/l	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
Tetrachloroethene	µg/l	1100	86	43	330	550	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
Toluene	µg/l	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
Total Xylenes	µg/l	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
trans-1,2-Dichloroethene	µg/l	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
trans-1,3-Dichloropropene	µg/l	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
Trichloroethene	µg/l	3900	1000	740	720	2400	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
Vinyl acetate	µg/l	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10
Vinyl chloride	µg/l	33	55	N.D.@5	N.D.@5	N.D.@5	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
TOTAL VOCs	µg/l	7199	2659	2740.6	1050	2950	1.2	1.3	1.3	0	0	0
Cyanide (Free)	mg/l	N.D.@0.02	N.D.@0.01	N.D.@0.02	N.D.@0.01	N.D.@0.01	NA	NA	NA	NA	NA	NA
Cyanide (Total)	mg/l	0.01	N.D.@0.01	N.D.@0.02	N.D.@0.01	N.D.@0.01	NA	NA	NA	NA	NA	NA

Notes:
N.D.@1 - Not detected at indicated concentration

TABLE A-3
GROUNDWATER QUALITY ANALYSES
COLLECTION WELL SAMPLES (July 1, 1998 - June 30, 1999)
VOLATILE ORGANIC COMPOUND CONCENTRATIONS
Harley-Davidson Motor Company

SAMPLE ID		CW-1	CW-1	CW-1A	CW-1A	CW-2	CW-2	CW-3	CW-3	CW-4	CW-4	CW-5
LAB ID		298120091003	299060265006	298120091004	299060265007	298120091005	299060265008	298120091006	299060265009	298120091007	299060265010	298120091008
SAMPLE DATE		12/01/1998	06/08/1999	12/01/1998	06/08/1999	12/01/1998	06/08/1999	12/01/1998	06/08/1999	12/01/1998	06/08/1999	12/01/1998
ANALYTE	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
1,1,1-Trichloroethane	µg/l	N.D.@1	N.D.@1	N.D.@10	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
1,1,2,2-Tetrachloroethane	µg/l	N.D.@1	N.D.@1	N.D.@10	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
1,1,2-Trichloroethane	µg/l	N.D.@1	N.D.@1	N.D.@10	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
1,1-Dichloroethane	µg/l	N.D.@1	N.D.@1	N.D.@10	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
1,1-Dichloroethene	µg/l	N.D.@1	N.D.@1	N.D.@10	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
1,2-Dichloroethane	µg/l	N.D.@1	N.D.@1	N.D.@10	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
1,2-Dichloropropane	µg/l	N.D.@1	N.D.@1	N.D.@10	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
2-Chloroethyl vinyl ether	µg/l	N.D.@1	N.D.@1	N.D.@10	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
Benzene	µg/l	N.D.@1	N.D.@1	N.D.@10	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
Bromodichloromethane	µg/l	N.D.@1	N.D.@1	N.D.@10	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
Bromoform	µg/l	N.D.@1	N.D.@1	N.D.@10	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
Bromomethane	µg/l	N.D.@1	N.D.@1	N.D.@10	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
Carbon tetrachloride	µg/l	N.D.@1	N.D.@1	N.D.@10	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
Chlorobenzene	µg/l	N.D.@1	N.D.@1	N.D.@10	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
Chloroethane	µg/l	N.D.@1	N.D.@1	N.D.@10	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
Chloroform	µg/l	N.D.@1	N.D.@1	N.D.@10	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
Chloromethane	µg/l	N.D.@1	N.D.@1	N.D.@10	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
cis-1,3-Dichloropropene	µg/l	N.D.@1	N.D.@1	N.D.@10	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
Dibromochloromethane	µg/l	N.D.@1	N.D.@1	N.D.@10	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
Ethylbenzene	µg/l	N.D.@1	N.D.@1	N.D.@10	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
Methylene Chloride	µg/l	N.D.@1	N.D.@1	N.D.@10	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
Tetrachloroethene	µg/l	N.D.@1	N.D.@1	6.3	3.7	N.D.@1	N.D.@1	2.1	3	4.4	5.6	11
Toluene	µg/l	N.D.@1	N.D.@1	N.D.@10	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
trans-1,2-Dichloroethene	µg/l	N.D.@1	N.D.@1	N.D.@10	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	1.5
trans-1,3-Dichloropropene	µg/l	N.D.@1	N.D.@1	N.D.@10	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
Trichloroethene	µg/l	91	100	600	370	80	100	150	170	140	180	78
Vinyl chloride	µg/l	N.D.@1	N.D.@1	N.D.@10	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
cis-1,2-Dichloroethene	µg/l	4.7	5.8	N.D.@10	5	13	9.7	29	34	21	26	72
TOTAL VOCs	µg/l	95.7	105.8	606.3	378.7	93	109.7	181.1	207	165.4	211.6	162.5

Notes:
N.D.@1 - Not detected at indicated concentration.

TABLE A-3
GROUNDWATER QUALITY ANALYSES
COLLECTION WELL SAMPLES (July 1, 1998 - June 30, 1999)
VOLATILE ORGANIC COMPOUND CONCENTRATIONS
Harley-Davidson Motor Company

SAMPLE ID LAB ID SAMPLE DATE ANALYTE	Units	CW-5 299060265011 06/08/1999 Result	CW-6 298120091009 12/01/1998 Result	CW-6 299060265012 06/08/1999 Result	CW-7 298120091010 12/01/1998 Result	CW-7 299060265013 06/08/1999 Result	CW-7A 298120091011 12/01/1998 Result	CW-7A 299060265014 06/08/1999 Result	CW-8 298120091012 12/01/1998 Result	CW-8 299060265015 06/08/1999 Result	CW-9 298120091015 12/01/1998 Result	CW-9 299060265017 06/08/1999 Result
1,1,1-Trichloroethane	µg/l	N.D.@1	N.D.@1	N.D.@10	N.D.@1	N.D.@1	N.D.@10	N.D.@10	42	48	240	200
1,1,2,2-Tetrachloroethane	µg/l	N.D.@1	N.D.@1	N.D.@10	N.D.@1	N.D.@1	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10
1,1,2-Trichloroethane	µg/l	N.D.@1	N.D.@1	N.D.@10	N.D.@1	N.D.@1	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10
1,1-Dichloroethane	µg/l	N.D.@1	N.D.@1	N.D.@10	N.D.@1	N.D.@1	N.D.@10	N.D.@10	N.D.@10	N.D.@10	11	N.D.@10
1,1-Dichloroethene	µg/l	N.D.@1	N.D.@1	N.D.@10	N.D.@1	N.D.@1	N.D.@10	N.D.@10	18	19	40	33
1,2-Dichloroethane	µg/l	N.D.@1	N.D.@1	N.D.@10	N.D.@1	N.D.@1	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	10
1,2-Dichloropropane	µg/l	N.D.@1	N.D.@1	N.D.@10	N.D.@1	N.D.@1	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10
2-Chloroethyl vinyl ether	µg/l	N.D.@1	N.D.@1	N.D.@10	N.D.@1	N.D.@1	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10
Benzene	µg/l	N.D.@1	N.D.@1	N.D.@10	N.D.@1	N.D.@1	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10
Bromodichloromethane	µg/l	N.D.@1	N.D.@1	N.D.@10	N.D.@1	N.D.@1	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10
Bromoform	µg/l	N.D.@1	N.D.@1	N.D.@10	N.D.@1	N.D.@1	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10
Bromomethane	µg/l	N.D.@1	N.D.@1	N.D.@10	N.D.@1	N.D.@1	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10
Carbon tetrachloride	µg/l	N.D.@1	N.D.@1	N.D.@10	N.D.@1	N.D.@1	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10
Chlorobenzene	µg/l	N.D.@1	N.D.@1	N.D.@10	N.D.@1	N.D.@1	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10
Chloroethane	µg/l	N.D.@1	N.D.@1	N.D.@10	N.D.@1	N.D.@1	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10
Chloroform	µg/l	N.D.@1	N.D.@1	N.D.@10	N.D.@1	N.D.@1	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10
Chloromethane	µg/l	N.D.@1	N.D.@1	N.D.@10	N.D.@1	N.D.@1	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10
cis-1,3-Dichloropropene	µg/l	N.D.@1	N.D.@1	N.D.@10	N.D.@1	N.D.@1	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10
Dibromochloromethane	µg/l	N.D.@1	N.D.@1	N.D.@10	N.D.@1	N.D.@1	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10
Ethylbenzene	µg/l	N.D.@1	N.D.@1	N.D.@10	N.D.@1	N.D.@1	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10
Methylene Chloride	µg/l	N.D.@1	N.D.@1	N.D.@10	N.D.@1	N.D.@1	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10
Tetrachloroethene	µg/l	7	43	101	N.D.@1	N.D.@1	14	14	39	51	2600	2400
Toluene	µg/l	N.D.@1	N.D.@1	N.D.@10	N.D.@1	N.D.@1	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10
trans-1,2-Dichloroethene	µg/l	N.D.@1	N.D.@1	N.D.@10	N.D.@1	N.D.@1	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10
trans-1,3-Dichloropropene	µg/l	N.D.@1	N.D.@1	N.D.@10	N.D.@1	N.D.@1	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10
Trichloroethene	µg/l	29	74	94	93	110	720	1300	390	660	1200	1200
Vinyl chloride	µg/l	N.D.@1	N.D.@1	N.D.@10	N.D.@1	N.D.@1	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@10
cis-1,2-Dichloroethene	µg/l	16	59	68	N.D.@1	N.D.@1	12	N.D.@10	93	120	220	240
TOTAL VOCs	µg/l	52	176	263	93	110	746	1314	582	898	4311	4083

Notes:
N.D.@1 - Not detected at
indicated concentration.

TABLE A-3
GROUNDWATER QUALITY ANALYSES
COLLECTION WELL SAMPLES (July 1, 1998 - June 30, 1999)
VOLATILE ORGANIC COMPOUND CONCENTRATIONS
Harley-Davidson Motor Company

SAMPLE ID		CW-13	CW-13	CW-15A	CW-15A	CW-16	CW-16	CW-17	CW-17	TRIP BLANK	TRIP BLANK
LAB ID		298120091016	299060265018	298120091014	299060265019	298120091013	299060265016	298120091017	299060265020	298120091002	299060265005
SAMPLE DATE		12/01/1998	06/08/1999	12/01/1998	06/08/1999	12/01/1998	06/08/1999	12/01/1998	06/08/1999	12/01/1998	06/08/1999
ANALYTE	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
1,1,1-Trichloroethane	µg/l	120	100	11000	N.D.@100	35	45	70	66	N.D.@1	N.D.@1
1,1,2,2-Tetrachloroethane	µg/l	N.D.@100	N.D.@10	N.D.@100	N.D.@100	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@1	N.D.@1
1,1,2-Trichloroethane	µg/l	N.D.@100	N.D.@10	N.D.@100	N.D.@100	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@1	N.D.@1
1,1-Dichloroethane	µg/l	N.D.@100	N.D.@10	N.D.@100	N.D.@100	N.D.@10	N.D.@10	5.4	N.D.@10	N.D.@1	N.D.@1
1,1-Dichloroethene	µg/l	N.D.@100	44	1900	2700	31	41	41	40	N.D.@1	N.D.@1
1,2-Dichloroethane	µg/l	N.D.@100	N.D.@10	N.D.@100	N.D.@100	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@1	N.D.@1
1,2-Dichloropropane	µg/l	N.D.@100	N.D.@10	N.D.@100	N.D.@100	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@1	N.D.@1
2-Chloroethyl vinyl ether	µg/l	N.D.@100	N.D.@10	N.D.@100	N.D.@100	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@1	N.D.@1
Benzene	µg/l	N.D.@100	N.D.@10	N.D.@100	N.D.@100	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@1	N.D.@1
Bromodichloromethane	µg/l	N.D.@100	N.D.@10	N.D.@100	N.D.@100	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@1	N.D.@1
Bromoform	µg/l	N.D.@100	N.D.@10	N.D.@100	N.D.@100	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@1	N.D.@1
Bromomethane	µg/l	N.D.@100	N.D.@10	N.D.@100	N.D.@100	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@1	N.D.@1
Carbon tetrachloride	µg/l	N.D.@100	N.D.@10	N.D.@100	N.D.@100	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@1	N.D.@1
Chlorobenzene	µg/l	N.D.@100	N.D.@10	N.D.@100	N.D.@100	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@1	N.D.@1
Chloroethane	µg/l	N.D.@100	N.D.@10	N.D.@100	N.D.@100	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@1	N.D.@1
Chloroform	µg/l	N.D.@100	10	N.D.@100	N.D.@100	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@1	N.D.@1
Chloromethane	µg/l	N.D.@100	N.D.@10	N.D.@100	N.D.@100	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@1	N.D.@1
cis-1,3-Dichloropropene	µg/l	N.D.@100	N.D.@10	N.D.@100	N.D.@100	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@1	N.D.@1
Dibromochloromethane	µg/l	N.D.@100	N.D.@10	N.D.@100	N.D.@100	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@1	N.D.@1
Ethylbenzene	µg/l	N.D.@100	N.D.@10	N.D.@100	N.D.@100	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@1	N.D.@1
Methylene Chloride	µg/l	N.D.@100	N.D.@10	N.D.@100	N.D.@100	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@1	1.3
Tetrachloroethene	µg/l	280	290	1700	2200	43	52	120	120	N.D.@1	N.D.@1
Toluene	µg/l	N.D.@100	N.D.@10	N.D.@100	N.D.@100	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@1	N.D.@1
trans-1,2-Dichloroethene	µg/l	N.D.@100	N.D.@10	N.D.@100	N.D.@100	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@1	N.D.@1
trans-1,3-Dichloropropene	µg/l	N.D.@100	N.D.@10	N.D.@100	N.D.@100	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@1	N.D.@1
Trichloroethene	µg/l	1100	1600	15000	18000	510	790	580	600	N.D.@1	N.D.@1
Vinyl chloride	µg/l	N.D.@100	24	N.D.@100	N.D.@100	N.D.@10	N.D.@10	N.D.@10	N.D.@10	N.D.@1	N.D.@1
cis-1,2-Dichloroethene	µg/l	730	970	1200	1700	110	160	170	180	N.D.@1	N.D.@1
TOTAL VOCs	µg/l	2230	3038	30800	24600	729	1088	986.4	1006	0	1.3

Notes:
N.D.@1 - Not detected at
indicated concentration.

TABLE A-4
WATER QUALITY ANALYSES
PACKED TOWER AERATOR SAMPLES (July 1, 1998 - June 30, 1999)
VOLATILE ORGANIC COMPOUND CONCENTRATIONS
Harley - Davidson Motor Company

Sample ID Lab ID Sample Date Parameter	Units	PTA Effl. B14835-2 7/3/98 Result	PTA Effl. B15634-1 7/17/98 Result	PTA Effl. B16612-2 8/4/98 Result	PTA Effl. B17407-1 8/17/98 Result	PTA Effl. B18360-2 9/1/98 Result	PTA Effl. B19699-1 9/22/98 Result	PTA Effl. 298100141002 10/6/98 Result	PTA Effl. 298100682001 10/20/98 Result
1,1,1-TRICHLOROETHANE	µg/l	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1.0	N.D.@1.0
1,1-DICHLOROETHANE	µg/l	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1.0	N.D.@1.0
1,1-DICHLOROETHENE	µg/l	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1.0	N.D.@1.0
1,2-DICHLOROETHANE	µg/l	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1.0	N.D.@1.0
CHLOROBENZENE	µg/l	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1.0	N.D.@1.0
CHLOROFORM	µg/l	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1.0	N.D.@1.0
DICHLOROBROMOMETHANE	µg/l	N.D.@2	N.D.@2	N.D.@2	N.D.@2	N.D.@2	N.D.@2	N.D.@1.0	N.D.@1.0
TETRACHLOROETHENE	µg/l	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1.0	N.D.@1.0
TRICHLOROETHENE	µg/l	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1.0	N.D.@1.0
VINYL CHLORIDE	µg/l	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1.0	N.D.@1.0
TRANS 1,2-DICHLOROETHENE	µg/l	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1.0	N.D.@1.0
TOTAL VOCs	µg/l	0	0	0	0	0	0	0	0

Sample ID Lab ID Sample Date Parameter	Units	PTA Effl. B22063-2 11/3/98 Result	PTA Effl. 298120091001 12/1/98 Result	PTA Effl. B25606-2 1/5/99 Result	PTA Effl. 127356-1 2/5/99 Result	PTA Effl. 299030110001 3/2/99 Result	PTA Effl. 131021-2 4/6/99 Result	PTA Effl. 132901-1 5/4/99 Result	PTA Effl. 299060265001 6/8/99 Result
1,1,1-TRICHLOROETHANE	µg/l	N.A.	N.D.@1.0	N.A.	N.A.	N.D.@1.0	N.A.	N.A.	N.A.
1,1-DICHLOROETHANE	µg/l	N.A.	N.D.@1.0	N.A.	N.A.	N.D.@1.0	N.A.	N.A.	N.A.
1,1-DICHLOROETHENE	µg/l	N.D.@1	N.D.@1.0	N.D.@1	N.D.@1	N.D.@1.0	N.D.@1	N.D.@1	N.D.@1.0
1,2-DICHLOROETHANE	µg/l	N.A.	N.D.@1.0	N.A.	N.A.	N.D.@1.0	N.A.	N.A.	N.A.
CHLOROBENZENE	µg/l	N.A.	N.D.@1.0	N.A.	N.A.	N.D.@1.0	N.A.	N.A.	N.A.
CHLOROFORM	µg/l	N.A.	N.D.@1.0	N.A.	N.A.	N.D.@1.0	N.A.	N.A.	N.A.
DICHLOROBROMOMETHANE	µg/l	N.A.	N.D.@1.0	N.A.	N.A.	N.D.@1.0	N.A.	N.A.	N.A.
TETRACHLOROETHENE	µg/l	N.D.@1	N.D.@1.0	N.D.@1	N.D.@1	N.D.@1.0	N.D.@1	N.D.@1	N.D.@1.0
TRICHLOROETHENE	µg/l	N.D.@1	N.D.@1.0	N.D.@1	N.D.@1	N.D.@1.0	N.D.@1	N.D.@1	N.D.@1.0
VINYL CHLORIDE	µg/l	N.A.	N.D.@1.0	N.A.	N.A.	N.D.@1.0	N.A.	N.A.	N.A.
TRANS 1,2-DICHLOROETHENE	µg/l	N.A.	N.D.@1.0	N.A.	N.A.	N.D.@1.0	N.A.	N.A.	N.A.
TOTAL VOCs	µg/l	0	0	0	0	0	0	0	0

Sample ID Lab ID Sample Date Parameter	Units	PTA Infl. B14835-1 7/3/98 Result	PTA Infl. B16612-1 8/4/98 Result	PTA Infl. B18360-1 9/1/98 Result	PTA Infl. 98-10-0141-00 10/6/98 Result	PTA Infl. B25606-1 1/5/99 Result	PTA Infl. 131021-1 4/6/99 Result
1,1,1-TRICHLOROETHANE	µg/l	380	300	210	220	N.A.	N.A.
1,1-DICHLOROETHANE	µg/l	N.D.@50	N.D.@50	N.D.@50	7.6	N.A.	N.A.
1,1-DICHLOROETHENE	µg/l	60	53	N.D.@50	39	N.D.@50	N.D.@50
1,2-DICHLOROETHANE	µg/l	N.D.@50	N.D.@50	N.D.@50	N.D.@1.0	N.A.	N.A.
CHLOROBENZENE	µg/l	N.D.@50	N.D.@50	N.D.@50	N.D.@1.0	N.A.	N.A.
CHLOROFORM	µg/l	N.D.@50	N.D.@50	N.D.@50	N.D.@1.0	N.A.	N.A.
DICHLOROBROMOMETHANE	µg/l	N.D.@100	N.D.@100	N.D.@100	N.D.@1.0	N.A.	N.A.
TETRACHLOROETHENE	µg/l	550	900	570	570	140	454
TRICHLOROETHENE	µg/l	1400	1300	1000	900	848	850
VINYL CHLORIDE	µg/l	N.D.@50	N.D.@50	N.D.@50	4.2	N.A.	N.A.
TRANS 1,2-DICHLOROETHENE	µg/l	N.D.@50	N.D.@50	N.D.@50	4.4	N.A.	N.A.
TOTAL VOCs	µg/l	2390	2553	1780	1745.2	988	1304

N.D.@1 - Not detected at indicated concentration.
N.A. - Not Analyzed.

TABLE A-5
GROUNDWATER QUALITY ANALYSES
OFF-SITE SAMPLES (July 1, 1998 - June 30, 1999)
VOLATILE ORGANIC COMPOUND AND CYANIDE CONCENTRATIONS
Harley - Davidson Motor Company

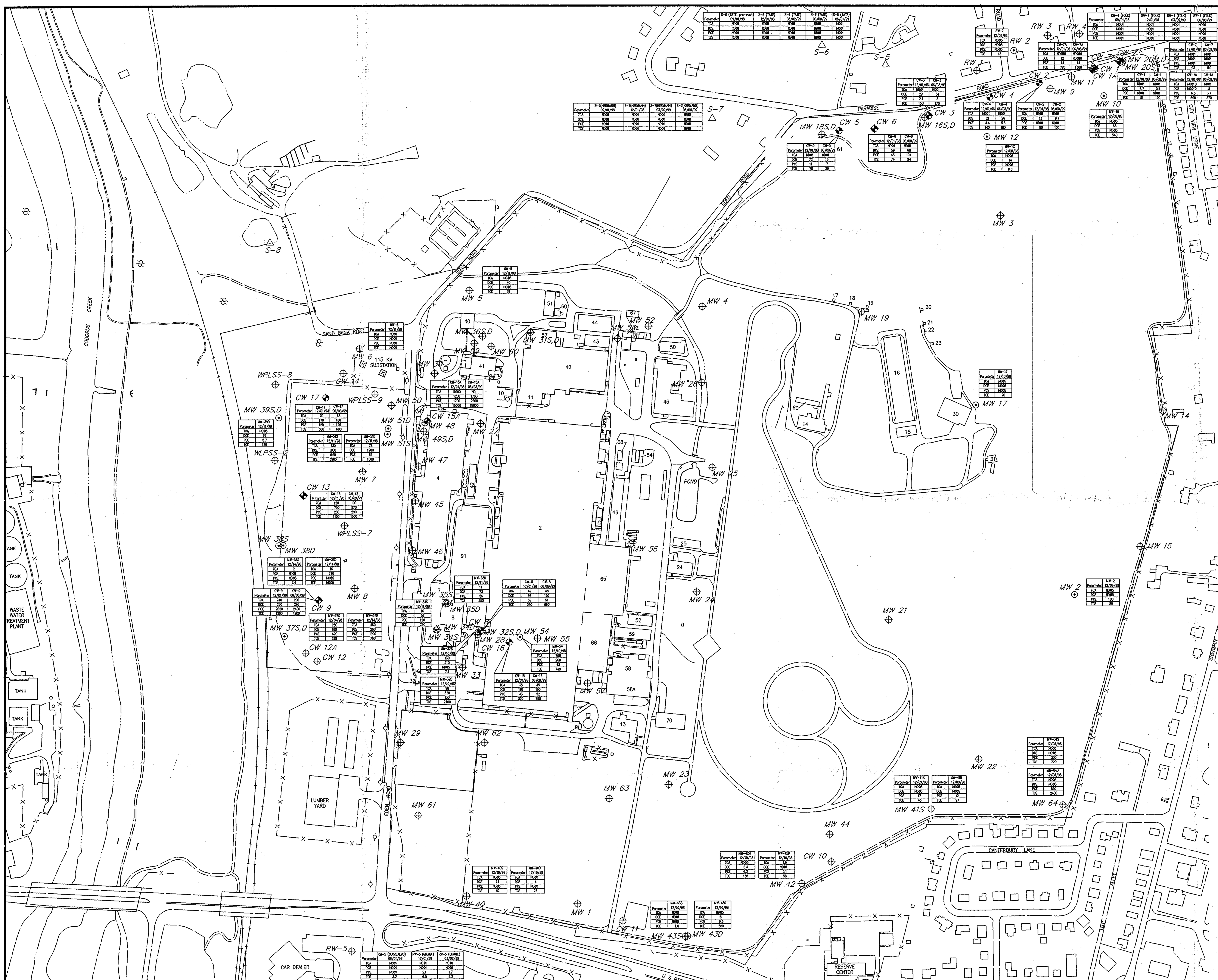
SAMPLE ID		RW-4 (FOLK)				RW-5 (GIAMBALVO)			S-6 (TATE)				
LAB ID		B18360-4	298120091020	299030110002	299060265002	B18360-5	298120091021	299030110003	B18360-8*	B18360-7	298120091018	299030110004	299060265003
SAMPLE DATE		09/01/1998	12/01/1998	03/02/1999	06/08/1999	09/01/1998	12/01/1998	03/02/1999	09/01/1998	09/01/1998	12/01/1998	03/02/1999	06/08/1999
ANALYTE	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
1,1,1-Trichloroethane	µg/l	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
1,1,2,2-Tetrachloroethane	µg/l	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
1,1,2-Trichloroethane	µg/l	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
1,1-Dichloroethane	µg/l	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
1,1-Dichloroethene	µg/l	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
1,2-Dichloroethane	µg/l	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
1,2-Dichloropropane	µg/l	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
2-Chloroethyl vinyl ether	µg/l	NA	N.D.@1	N.D.@1	N.D.@1	NA	N.D.@1	N.D.@1	NA	NA	N.D.@1	N.D.@1	N.D.@1
Benzene	µg/l	N.D.@2	N.D.@1	N.D.@1	N.D.@1	N.D.@2	N.D.@1	N.D.@1	N.D.@2	N.D.@2	N.D.@1	N.D.@1	N.D.@1
Bromodichloromethane	µg/l	N.D.@2	N.D.@1	N.D.@1	N.D.@1	N.D.@2	N.D.@1	N.D.@1	N.D.@2	N.D.@2	N.D.@1	N.D.@1	N.D.@1
Bromoform	µg/l	N.D.@2	N.D.@1	N.D.@1	N.D.@1	N.D.@2	N.D.@1	N.D.@1	N.D.@2	N.D.@2	N.D.@1	N.D.@1	N.D.@1
Bromomethane	µg/l	N.D.@5	N.D.@1	N.D.@1	N.D.@1	N.D.@5	N.D.@1	N.D.@1	N.D.@5	N.D.@5	N.D.@1	N.D.@1	N.D.@1
Carbon tetrachloride	µg/l	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
Chlorobenzene	µg/l	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
Chloroethane	µg/l	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
Chloroform	µg/l	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	8.8	7	4.9	5.7	6.4
Chloromethane	µg/l	N.D.@5	N.D.@1	N.D.@1	N.D.@1	N.D.@5	N.D.@1	N.D.@1	N.D.@5	N.D.@5	N.D.@1	N.D.@1	N.D.@1
cis-1,3-Dichloropropene	µg/l	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
cis-1,2-Dichloroethene	µg/l	NA	N.D.@1	N.D.@1	N.D.@1	NA	N.D.@1	N.D.@1	NA	NA	N.D.@1	N.D.@1	N.D.@1
Dibromochloromethane	µg/l	N.D.@2	N.D.@1	N.D.@1	N.D.@1	N.D.@2	N.D.@1	N.D.@1	N.D.@2	N.D.@2	N.D.@1	N.D.@1	N.D.@1
Ethylbenzene	µg/l	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
Methylene Chloride	µg/l	N.D.@2	N.D.@1	N.D.@1	N.D.@1	N.D.@2	N.D.@1	N.D.@1	N.D.@2	N.D.@2	N.D.@1	N.D.@1	N.D.@1
Tetrachloroethene	µg/l	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	2.1	1.7	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
Toluene	µg/l	N.D.@2	N.D.@1	N.D.@1	N.D.@1	N.D.@2	N.D.@1	N.D.@1	N.D.@2	N.D.@2	N.D.@1	N.D.@1	N.D.@1
trans-1,2-Dichloroethene	µg/l	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
trans-1,3-Dichloropropene	µg/l	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
Trichloroethene	µg/l	N.D.@1	N.D.@1	N.D.@1	N.D.@1	3.2	6.5	6.2	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
Vinyl chloride	µg/l	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
TOTAL VOCs	µg/l	0	0	0	0	3.2	8.6	7.9	8.8	7	4.9	5.7	6.4
Cyanide (Free)	mg/l	N.D.@0.005	N.D.@0.005	N.D.@0.005	N.D.@0.005	N.D.@0.005	N.D.@0.005	N.D.@0.005	NA	N.D.@0.005	N.D.@0.01	N.D.@0.005	N.D.@0.005
Cyanide (total)	mg/l	N.D.@0.005	0.055	N.D.@0.005	0.035	N.D.@0.005	N.D.@0.005	N.D.@0.005	NA	N.D.@0.005	N.D.@0.01	N.D.@0.005	0.033

Notes:
1) N.D. - Not Detected.
2) NA - Not Analyzed.
3) *S-6 TATE on this date was taken before the washer

TABLE A-5
GROUNDWATER QUALITY ANALYSES
OFF-SITE SAMPLES (July 1, 1998 - June 30, 1999)
VOLATILE ORGANIC COMPOUND AND CYANIDE CONCENTRATIONS
Harley - Davidson Motor Company

SAMPLE ID		S-7 (HERMANN)				TRIP BLANK			
LAB ID		B18360-6	298120091019	299030110005	299060265004	18360A-3	298120091002	299030110006	299060265005
SAMPLE DATE		09/01/1998	12/01/1998	03/02/1999	06/08/1999	09/01/1998	12/01/1998	03/02/1999	06/08/1999
ANALYTE	Units	Result	Result	Result	Result	Result	Result	Result	Result
1,1,1-Trichloroethane	µg/l	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
1,1,2,2-Tetrachloroethane	µg/l	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
1,1,2-Trichloroethane	µg/l	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
1,1-Dichloroethane	µg/l	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
1,1-Dichloroethene	µg/l	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
1,2-Dichloroethane	µg/l	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
1,2-Dichloropropane	µg/l	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
2-Chloroethyl vinyl ether	µg/l	NA	N.D.@1	N.D.@1	N.D.@1	NA	N.D.@1	N.D.@1	N.D.@1
Benzene	µg/l	N.D.@2	N.D.@1	N.D.@1	N.D.@1	N.D.@2	N.D.@1	N.D.@1	N.D.@1
Bromodichloromethane	µg/l	N.D.@2	N.D.@1	N.D.@1	N.D.@1	N.D.@2	N.D.@1	N.D.@1	N.D.@1
Bromoform	µg/l	N.D.@2	N.D.@1	N.D.@1	N.D.@1	N.D.@2	N.D.@1	N.D.@1	N.D.@1
Bromomethane	µg/l	N.D.@5	N.D.@1	N.D.@1	N.D.@1	N.D.@5	N.D.@1	N.D.@1	N.D.@1
Carbon tetrachloride	µg/l	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
Chlorobenzene	µg/l	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
Chloroethane	µg/l	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
Chloroform	µg/l	2.9/2.7(DUP)	1.9	2.1	3	1	N.D.@1	N.D.@1	N.D.@1
Chloromethane	µg/l	N.D.@5	N.D.@1	N.D.@1	N.D.@1	N.D.@5	N.D.@1	N.D.@1	N.D.@1
cis-1,3-Dichloropropene	µg/l	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
cis-1,2-Dichloroethene	µg/l	NA	N.D.@1	N.D.@1	N.D.@1	NA	N.D.@1	N.D.@1	N.D.@1
Dibromochloromethane	µg/l	N.D.@2	N.D.@1	N.D.@1	N.D.@1	N.D.@2	N.D.@1	N.D.@1	N.D.@1
Ethylbenzene	µg/l	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
Methylene Chloride	µg/l	N.D.@2	N.D.@1	N.D.@1	N.D.@1	N.D.@2	N.D.@1	N.D.@1	1.3
Tetrachloroethene	µg/l	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
Toluene	µg/l	N.D.@2	N.D.@1	N.D.@1	N.D.@1	N.D.@2	N.D.@1	N.D.@1	N.D.@1
trans-1,2-Dichloroethene	µg/l	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
trans-1,3-Dichloropropene	µg/l	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
Trichloroethene	µg/l	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
Vinyl chloride	µg/l	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1	N.D.@1
TOTAL VOCs	µg/l	2.8	1.9	2.1	3	0	0	0	1.3
Cyanide (Free)	mg/l	N.D.@0.005	N.D.@0.006	N.D.@0.005	N.D.@0.005	NA	NA	NA	NA
Cyanide (total)	mg/l	N.D.@0.005	0.057	N.D.@0.005	0.034	NA	NA	NA	NA

Notes:
1) N.D. - Not Detected.
2) NA - Not Analyzed.
3) *S-6 TATE on this date was tak



LEGEND

MW 3	MONITORING WELL LOCATION AND DESIGNATION
MW 2	KEY WELL LOCATION AND DESIGNATION
CW 1	PUMPING WELL LOCATION AND DESIGNATION
S-5	SURFACE WATER MONITORING LOCATION AND DESIGNATION
(table box)	VOLATILE ORGANIC CHEMISTRY RESULTS IN MICROGRAMS PER LITER ($\mu g/l$)

TCA = 1,1,1–TRICHLOROETHANE
DCE = CIS–1,2–DICHLOROETHENE
PCE = TETRACHLOROETHENE
TCE = TRICHLOROETHENE
ND@1 = NOT DETECTED AT REPORTED DETECTION LIMIT

NOTE: THE SEPTEMBER 1998 DATA FOR DCE AT RW–4, RW–5, S–6, AND S–7 REPRESENTS TRANS – DCE.

400' 0 400'

SCALE IN FEET

HARLEY–DAVIDSON MOTOR COMPANY

SELECTED GROUNDWATER CHEMISTRY JULY 1, 1998 THROUGH JUNE 30, 1999

drawn RAM/KRG	checked RGH	approved	plate 1
date 11/24/99	date 2/25/00	date	
job no. 01–1408–00–1618–101		file no. 01618–006–B	

Science Applications International Corporation
An Employee–Owned Company