A Department of Ecology Report

WASHINGTON STATE DEPARTMENT OF ECOLOGY

Lakewood/Plaza Cleaners
January 9, 1997

Summary

This document is one in a series describing the results of ground water sampling at Lakewood/Plaza Cleaners. Ecology has conducted semi-annual ground water sampling at the site since 1991. The objective of this sampling is to collect ground water quality data for the Toxics Cleanup Program to evaluate the effectiveness of Lakewood supply wells H1 and H2 (Figure 1) to contain and remove contaminated ground water caused by Plaza Cleaners. Samples were collected on January 9, 1997 from one municipal well (H2) and four monitoring wells: MW-16A, MW-20A, MW-20B, and MW-27 (Figure 1). All samples were analyzed for volatile organics (VOAs). The quality assurance review and laboratory reporting sheets are presented in Appendix A.

Monitoring wells MW-20B and MW-16A, as well as municipal well H2, continue to have elevated PERC concentrations. PERC concentrations in these wells were: MW-20B (373 µg/L), MW-16A (54 µg/L) and H2 (18 µg/L). Cis-1,2-DCE was also detected in wells MW-20B and MW-16A at concentrations of 6.4 µg/L and 3.1 µg/L, respectively. TCE was not detected in MW-20B this sample round due to a high quantitation limit (100 µg/L). TCE is typically detected around 10 µg/L in MW-20B. Model Toxic Control Act (MTCA) cleanup levels were exceeded for PERC (5.0 µg/L) in MW-20B, MW-16A and H2. Overall, concentrations are similar to those reported in previous sample rounds.

Results

Field Observations

Table 1 lists field observation data for each of the sampled wells: static water level, pH, specific conductance, temperature, purged volume, well depth, and the geologic unit. Well MW-20A had a pH reading of 7.9 standard units, which is unusually high, but is consistent with previous measurements. High pH readings can be related to well construction. In the case of MW-20A it is most likely caused by bentonite inadvertently

being placed within the screened interval during well construction. The specific conductance in well MW-20B (445 umhos/cm), which is screened in a fine-grained till unit, was approximately two times greater than the other wells. Specific conductance readings are typically higher for water from fine-grained units.

Laboratory Results

Table 2 summarizes laboratory results. The highest concentrations of tetrachloroethene (PERC) and cis-1,2-dichloroethene (cis-1,2-DCE) occurred in well MW-20B with 373 µg/L and 6.4 µg/L, respectively. Trichloroethene (TCE) was not detected in MW-20B due to a high quantitation limit (100 µg/L). PERC and cis-1,2-DCE were also detected in MW-16A with concentrations of 54 µg/L and 3.1 µg/L, respectively. Municipal well H2 had a PERC concentration of 18 µg/L. PERC was detected below the practical quantitation limit of 1 µg/L in well MW-20A. TCE was detected near the quantitation limit of 1 µg/L in wells MW-16A and H2.

Table 3 shows PERC, TCE, and cis-1,2-DCE concentrations for sampling events from January 1991 through January 1997. PERC and cis-1,2-DCE concentrations continue to be elevated in well MW-20B and MW-16A. Municipal wells H1/H2, which were added to the monitoring program in 1995, also have elevated PERC concentrations. Figure 2 shows PERC concentrations for MW-20B and MW-16A between 1984 and 1997. Since 1984, PERC concentrations in both wells have varied substantially. PERC concentrations decreased initially in MW-20B from March 1985 (4800 ppb) to May 1985 (570 ppb). After May 1985, concentrations have ranged between 86 ppb and 1200 ppb. Over the monitoring period PERC concentrations in MW-16A have varied between 3 ppb and 110 ppb.

Methods

Ground Water Sampling

Samples were collected on January 9, 1997 from municipal well H2 and four monitoring wells: MW-16A, MW-20A, MW-20B, and MW-27 (Figure 1). Prior to sample collection, static water level measurements were obtained using an electronic water level probe. The probe was rinsed with deionized water after each use. All monitoring wells were purged a minimum of three well volumes and until pH, temperature, and specific conductance readings stabilized. Purge water was discharged to storm drains or to the ground near each well. All monitoring wells were purged and sampled using dedicated bladder pumps, except for MW-20B. Well MW-20B was purged and sampled with a decontaminated teflon bailer. Municipal well H2, which pumps continuously, was sampled from a tap nearest the well. Samples collected for volatile organics were free of headspace and preserved with two drops of 1:1 hydrochloric acid.

The bailer was pre-cleaned with a Liquinox® wash and sequential rinses of hot tap water, 10% nitric acid, distilled/deionized water, and pesticide-grade acetone. After cleaning, the bailer was air-dried and wrapped in aluminum foil. Chain-of-custody procedures were followed in accordance with Manchester Laboratory protocol (Ecology, 1994).

Quality Assurance Samples

Quality control samples collected in the field for ground water monitoring consisted of a blind duplicate sample. A blind duplicate sample was collected from well MW-16A. Duplicate samples are two sets of samples collected from a well simultaneously and submitted to the laboratory with different identification. In addition to quality control samples collected in the field, laboratory quality control samples consisted of matrix spikes, matrix spike duplicates and surrogate compound recoveries. Volatile organic samples were analyzed using EPA SW-846 Method 8260 (U.S. EPA, 1986).

The quality of the data is acceptable for use. Volatile organic analyses were performed by the Manchester Laboratory. Greg Perez of the Manchester Laboratory conducted the quality assurance review. Duplicate samples collected at MW-16A provide an estimate of combined sampling and laboratory precision. The numeric comparison of duplicate results is expressed as the relative percent difference or RPD. RPDs are the ratio of the difference and the mean of the duplicate results expressed as a percentage. The RPDs for tetrachloroethene, trichloroethene and cis-1,2-dichloroethene were 16%, 0%, and 0%, respectively. All matrix spike and spike duplicate recoveries are within the QC limits of ±25% for water sample analysis.

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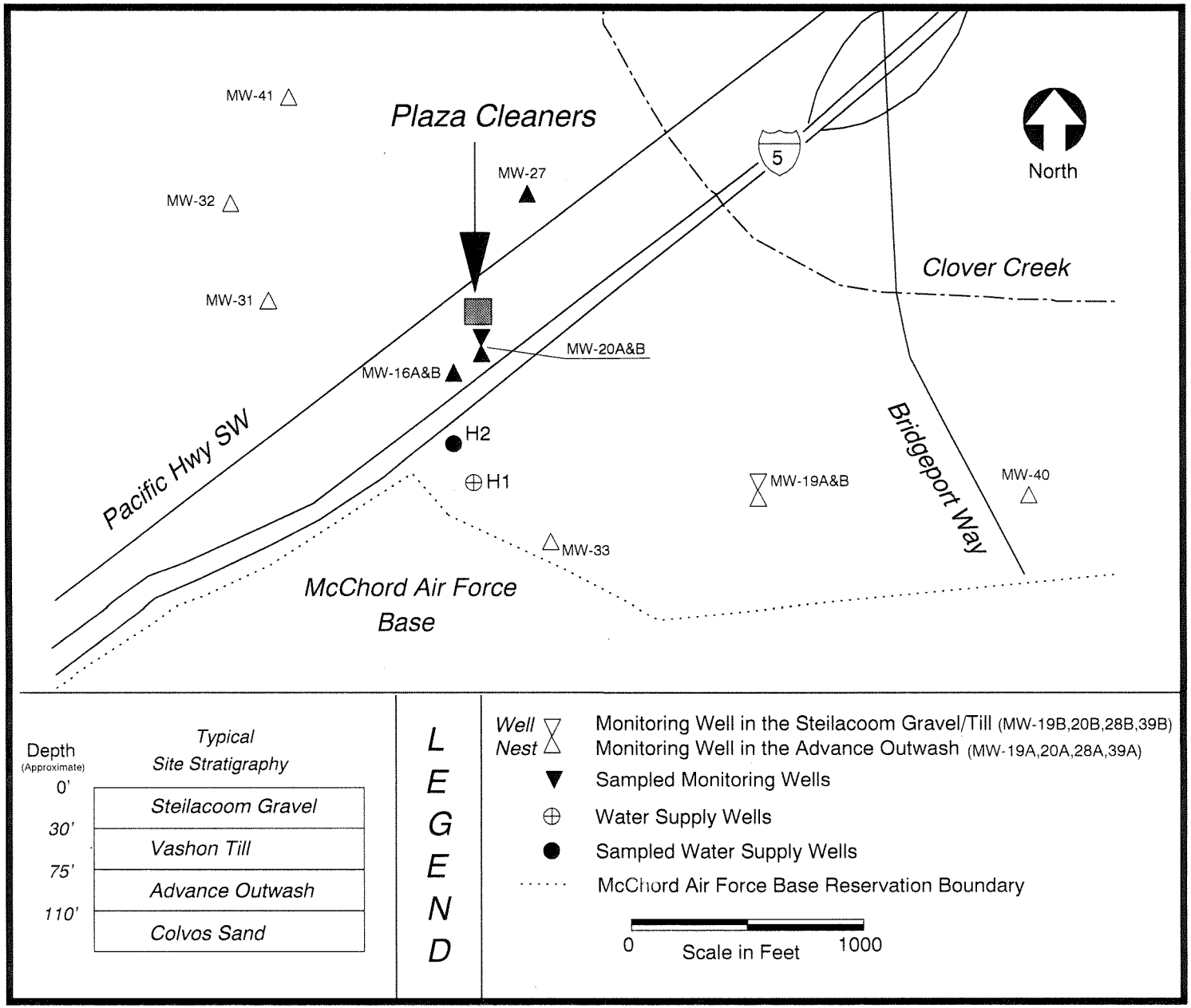


Figure 1: Well Location Map - Lakewood/Plaza Cleaners

Table 1: Field Parameter Results for January, 1997

Monitoring Well	Total Depth (Feet)	Geologic Unit Screened	Depth to Water (Feet)	pH (s.u.)	Specific Conductance (umhos/cm)	Temperature (°C)	Purge Volume (gallons)
MW-16A	109	Advance Outwash	38.65	7.4	244	11	152
MW-19A	97.5	Advance Outwash	---	---	---	---	---
MW-20A	97.3	Advance Outwash	33.02	7.9	245	11.5	40
MW-20B	50.4	Vashon Till	33.15	6.8	455	11.5	18
MW-27	96.4	Advance Outwash	++	6.6	175	11.2	30
MW-31	91.5	Advance Outwash	++	---	---	---	---
MW-33	99.3	Advance Outwash	++	---	---	---	---
H2	110	Advance Outwash	++	6.9	190	10.5	>1000

++ = Dedicated pump obstructs water-level measurement.

Table 2: Summary of Analytes Detected in Samples Collected January 9, 1997

Geologic Unit Screened	Vashon Till	Advance Outwash							
Monitoring Well	MW-20B	MW-16A	MW-16B (Duplicate)	MW-20A	MW-27	MW-31	Upgradient Wells MW-33	Upgradient Wells MW-19A	Municipal Well H2
Volatile Organics: (ug/L)									
Tetrachloroethene (PERC)	**373**	**54**	**46**	**0.37 J**	1 U	--	--	--	**18**
Trichloroethene (TCE)	100 U	**1.1**	**1.1**	1 U	1 U	--	--	--	**0.35 J**
cis-1,2-Dichloroethene (cis-1,2-DCE)	**6.4 J**	**3.1**	**3.1**	1 U	1 U	--	--	--	**0.4 J**
1,1,1-Trichloroethane	1 U	1 U	1 U	**0.2 J**	1 U	--	--	--	1 U

U = The analyte was not detected at or above the reported value.
J = The analyte was positively identified. The associated numerical result is an estimate.
-- = Not Tested
= The analyte was positively identified.

Table 3: Summary of Sample Results (ug/L) from January 1991 to January 1997

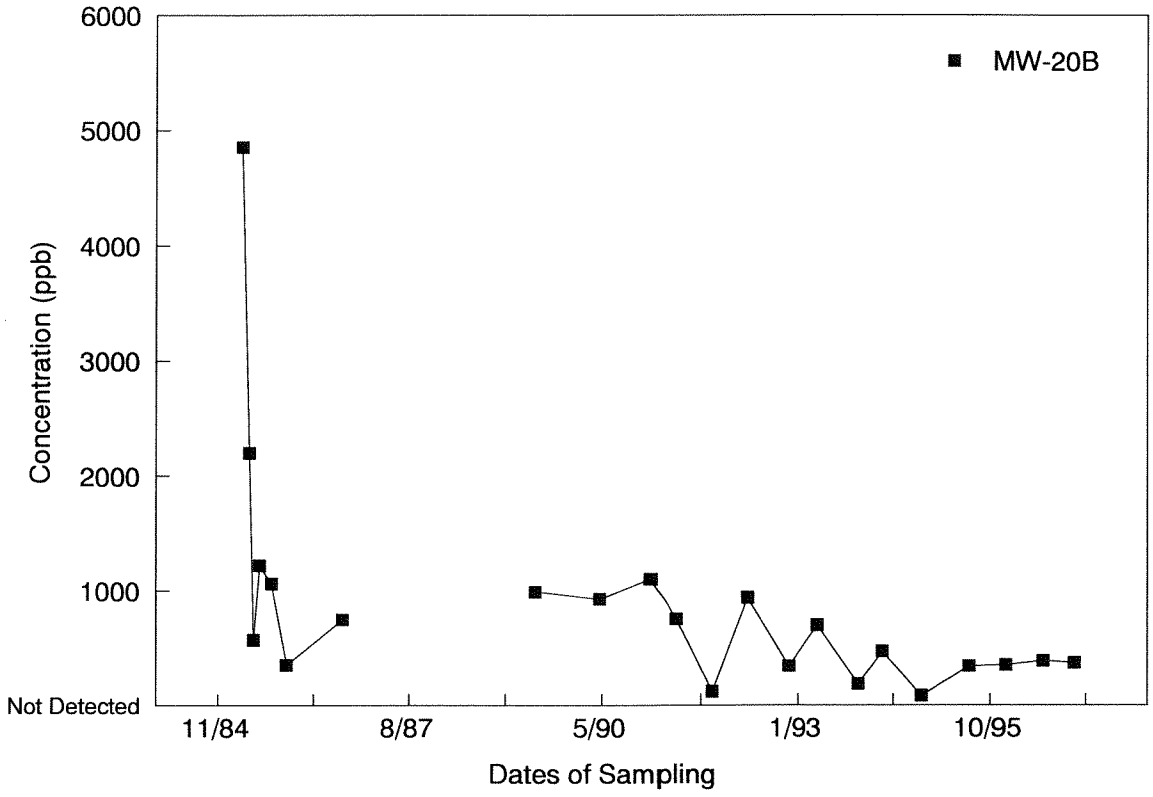
Well	January 1991			May 1991			November 1991			May 1992			December 1992			May 1993			December 1993		
Number	PERC	TCE	cis-1,2-DCE	PERC	TCE	cis-1,2-DCE	PERC	TCE	cis-1,2-DCE	PERC	TCE	cis-1,2-DCE	PERC	TCE	cis-1,2-DCE	PERC	TCE	cis-1,2-DCE	PERC	TCE	cis-1,2-DCE
MW-16A	28	1 J	2.4 J	26	0.6 J	2	2.7 J	1 U	0.6 J	7	1 U	1	9 J	0.3 J	0.8 J	44	10 U	2 J	13	0.3 J	0.7 J
MW-20A	1 U	1 U	1 U	0.4 J	1 U	1 U	0.4 J	1 U	1 U	0.5 J	1 U	1 U	0.8 J	1 UJ	1 UJ	10 U	10 U	10 U	0.3 J	1 U	1 U
MW-20B	1100 D	18	33	752	16	30	120	2.6 J	6.7	940	13	32	340 J	14 J	20 J	700 D	12	21	187	50 U	8.2 J
MW-21	2.1 J	1 U	1 J	2	1 U	0.7 J	2.2 J	1 U	1.0 J	2	1 U	0.6 J	2	0.2 J	0.3 J	1 J	10 U	10 U	1.6	1 U	0.4 J
MW-27	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	10 U	10 U	10 U	1 U	1 U	1 U
MW-28A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-31	1 J	1 U	1.9 J	0.6 J	1 U	2	0.9 J	1 U	2.2 J	0.8 J	1 U	1	0.5 J	1 UJ	0.9 J	10 U	10 U	10 U	0.8 J	1 U	1.2 J
MW-32	1 J	1 U	1.1 J	1	1 U	2	0.6 J	1 U	0.6 J	0.7 J	1 U	1	0.7 J	1 UJ	0.5 J	10 U	10 U	10 U	0.7 J	1 U	0.6 J
MW-41	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	10 U	10 U	10 U	1 U	1 U	1 U
MW-19A	--	--	--	--	--	--	1 U	0.5 J	1 U	--	--	--	1 U	1 UJ	1 UJ	--	--	--	1 U	0.4	1 U
MW-33	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-40	1 U	1 U	1 U	--	--	--	1 U	1 U	1 U	--	--	--	1 U	1 UJ	1 UJ	--	--	--	1 U	1 U	1 U
H1/H2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

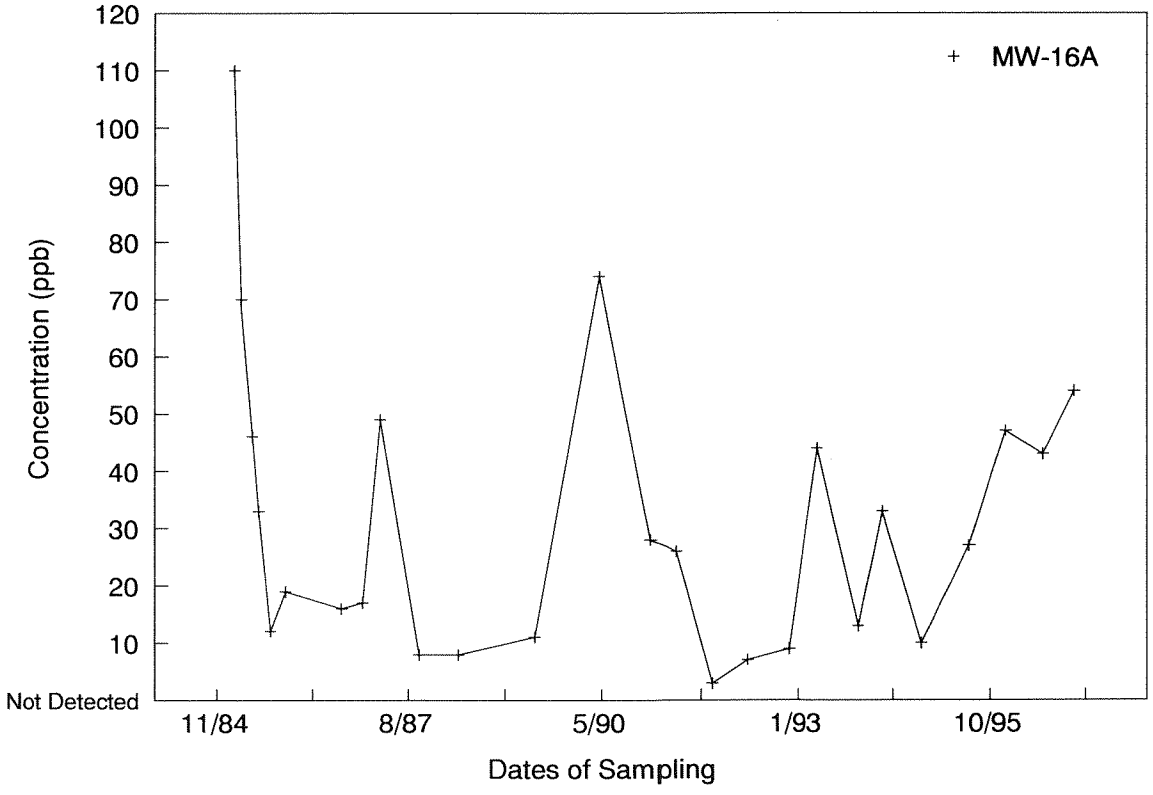
Well	December 1993			April 1994			November 1994			July 1995			January 1996			July 1996			January 1997		
Number	PERC	TCE	cis-1,2-DCE	PERC	TCE	cis-1,2-DCE	PERC	TCE	cis-1,2-DCE	PERC	TCE	cis-1,2-DCE	PERC	TCE	cis-1,2-DCE	PERC	TCE	cis-1,2-DCE	PERC	TCE	cis-1,2-DCE
MW-16A	13	0.3 J	0.7 J	33	0.6	1.4	9.7	0.3 J	0.5 J	27	0.5 J	0.8 J	47 E	0.8 J	1.5	43	0.7 J	1.9	54	1.1	3.1
MW-20A	0.3 J	1 U	1 U	0.4	0.2 U	0.2 U	0.3 J	1 U	1 U	0.4 J	1 U	1 U	0.2 J	1 U	1 U	0.4 J	1 U	1 U	0.4 J	1 U	1 U
MW-20B	187	50 U	8.2 J	472	8.6 J	12.6	86	50 U	3 J	340 D	8.4	17	353	7.2	15	387	7.6	15	373	100 U	6.4 J
MW-21	1.6	1 U	0.4 J	1.5	0.2 J	0.3	1.8	0.2 J	0.3 J	--	--	--	--	--	--	Well Decommissioned					
MW-27	1 U	1 U	1 U	0.2 U	0.2 U	0.2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
MW-28A	--	--	--	--	--	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	Well Decommissioned					
MW-31	0.8 J	1 U	1.2 J	0.7	0.2 U	1.0	0.8 J	1 U	1	0.6 J	1 U	0.5 J	0.6 J	1 U	0.7 J	--	--	--	--	--	--
MW-32	0.7 J	1 U	0.6 J	0.7	0.2 U	0.6	0.6 J	1 U	0.5 J	0.7 J	1 U	0.5 J	0.8 J	1 U	0.6 J	--	--	--	--	--	--
MW-41	1 U	1 U	1 U	0.2 U	0.2 U	0.2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	--	--	--	--	--
MW-19A	1 U	0.4	1 U	0.2 U	0.5	0.2 U	--	--	--	1 U	0.4 J	1 U	--	--	--	--	--	--	--	--	--
MW-33	--	--	--	--	--	--	--	--	--	1 U	1 U	1 U	--	--	--	1 U	1 U	1 U	--	--	--
MW-40	1 U	1 U	1 U	0.2 U	0.2 U	0.2 U	--	--	--	1 U	1 U	1 U	--	--	--	--	--	--	--	--	--
H1/H2	--	--	--	--	--	--	--	--	--	9	0.3 J	1 U	8.4	0.2 J	0.2 J	0.1 J	1 U	1 U	18	0.4 J	0.4 J

U = The analyte was not detected at or above the reported result.
J = The analyte was positively identified. The associated numerical result is an estimate.
UJ = The analyte was not detected at or above the reported estimated result.
D = Analysis performed at secondary dilution.
E = The concentration of the associated value exceeds the known calibration range.
-- = Not Tested
= The analyte was positively identified.

Figure 2

PERC Concentrations for Wells MW-20B and MW-16A from 1984 to 1997





APPENDIX A

Analytical Results
Lakewood/Plaza Cleaners
January 9, 1997

Manchester Environmental Laboratory

7411 Beach Dr E, Port Orchard Washington 98366

CASE NARRATIVE

February 26, 1997

Subject: Lakewood Plaza Cleaners
Samples: 97028087
Case No. 101397
Officer: Pam Marti
By: Greg Perez
Organics Analysis Unit

VOLATILE ORGANIC ANALYSIS

SUMMARY:

Samples 028088 and 028089 required a dliution to bring tetrachloroethylene into calibration range. No problems were encountered in the analysis of this data set. The data is usable as qualified.

ANALYTICAL METHODS:

Volatile organic compounds were analyzed using Manchester modification of the EPA Method 8260 purge-trap procedure with capillary GC/MS analysis. Normal QA/QC procedures were performed on the samples.

BLANKS:

Low levels of certain target compounds were detected in the laboratory blanks. If the concentrations of the compounds in the sample are greater than or equal to five times the concentrations of the compounds in the associated method blank, they are considered native to the sample.

SURROGATES:

Surrogate recoveries were within acceptable limits for the water samples..

HOLDING TIMES:

The water samples were analyzed within the recommended 14 day holding time.

MATRIX SPIKE AND MATRIX SPIKE DUPLICATE:

Matrix spike recoveries were within acceptable limits for the water samples.

DATA QUALIFIER CODES:

U	-	The analyte was not detected at or above the reported value.
J	-	The analyte was positively identified. The associated numerical value is an estimate.
UJ	-	The analyte was not detected at or above the reported estimated result.
REJ	-	The data are unusable for all purposes.
NAF	-	Not analyzed for.
N	-	For organic analytes there is evidence the analyte is present in this sample.
NJ	-	There is evidence that the analyte is present. The associated numerical result is an estimate.
E	-	This qualifier is used when the concentration of the associated value exceeds the known calibration range.
bold	-	The analyte was present in the sample. (Visual Aid to locate detected compound on report sheet.)

Manchester Environmental Laboratory

Department of Ecology

Analysis Report for

Volatile Organic Analysis

Project Name: Plaza Cleaners **LIMS Project ID:** 1013-97

Sample: 97028087 **Date Received:** 01/10/97 **Method:** SW8260
Field ID: MW-27 **Matrix:** Water
Project Officer: P. Marti **Date Analyzed:** 01/13/97 **Units:** ug/L

Analyte	Result	Qualifier	Analyte	Result	Qualifier
Dichlorodifluoromethane	2	U	**Chloroacetonitrile**		**REJ**
Chloromethane	1	U	Cis-1,3-Dichloropropene	1.1	U
Vinyl Chloride	1	U	4-Methyl-2-Pentanone	2	U
Bromomethane	1	U	1,1-Dichloropropanone	1	U
Chloroethane	1	U	Toluene	1	UJ
Trichlorofluoromethane	5	U	Trans-1,3-Dichloropropene	.94	U
1,1,2 Trichlorotrifluoroethane	1	U	Ethylmethacrylate	2	U
Ethyl Ether	1	U	1,1,2-Trichloroethane	1	U
1,1-Dichloroethene	1	U	Tetrachloroethene	1	U
Methyl Iodide	1	U	1,3-Dichloropropane	1	U
Acetone	10	U	2-Hexanone	2	U
Carbon Disulfide	2	U	Dibromochloromethane	1	U
Allyl Chloride	1	U	1,2-Dibromoethane (EDB)	1	U
Methylene Chloride	5	U	Chlorobenzene	1	U
Trans-1,2-Dichloroethene	1	U	1,1,1,2-Tetrachloroethane	1	U
Acrylonitrile	1	U	Ethylbenzene	1	U
2-Methyoxy-2-Methylpropane	1	U	m & p-Xylene	1	U
1,1-Dichloroethane	1	U	o-Xylene	1	U
2,2-Dichloropropane	1	U	Styrene	1	U
Cis-1,2-Dichloroethene	1	U	Bromoform	1	U
2-Butanone	2	U	Isopropylbenzene (Cumene)	1	U
Methyl acrylate	1	U	Bromobenzene	1	U
Bromochloromethane	1	U	1,1,2,2-Tetrachloroethane	1	U
Methyacrilonitrile	1	U	1,2,3-Trichloropropane	1	U
Tetrahydrofuran	2	U	Trans-1,4-Dichloro-2-butene	5	U
Chloroform	1	U	n-Propylbenzene	1	U
1,1,1-Trichloroethane	1	U	2-Chlorotoluene	1	U
1-Chlorobutane	1	U	1,3,5-Trimethylbenzene	1	U
Carbon Tetrachloride	1	U	4-Chlorotoluene	1	U
1,1-Dichloropropene	1	U	Tert-Butylbenzene	1	U
Benzene	1	U	Pentachloroethane	1	U
1,2-Dichloroethane	1	U	1,2,4-Trimethylbenzene	1	U
Trichloroethene	1	U	Sec-Butylbenzene	1	U
1,2-Dichloropropane	1	U	1,3-Dichlorobenzene	1	U
Methyl Methacrylate	1	U	p-Isopropyltoluene	1	U
Dibromomethane	1	U	1,4-Dichlorobenzene	1	U
Bromodichloromethane	1	U	n-Butylbenzene	1	U
2-Nitropropane	1	U	1,2-Dichlorobenzene	1	U

Authorized By: _____ Release Date: 2/26/97 Page: 1

Manchester Environmental Laboratory

Department of Ecology

Analysis Report for

Volatile Organic Analysis

Project Name: Plaza Cleaners **LIMS Project ID:** 1013-97

Sample: 97028087 **Date Received:** 01/10/97 **Method:** SW8260
Field ID: MW-27 **Matrix:** Water
Project Officer: P. Marti **Date Analyzed:** 01/13/97 **Units:** ug/L

Analyte	Result	Qualifier
Hexachloroethane	1	U
1,2-Dibromo-3-Chloropropane	2	U
1,2,4-Trichlorobenzene	1	U
Hexachlorobutadiene	1	UJ
Naphthalene	1	U
1,2,3-Trichlorobenzene	1	U

Surrogate Recoveries

1,2-Dichloroethane-D4	**103**	%
1,4-Difluorobenzene	**101**	%
Toluene-D8	**100**	%
p-Bromofluorobenzene	**96**	%
1,2-Dichlorobenzene-D4	**102**	%

Authorized By: _____ Release Date: 2/26/97

Manchester Environmental Laboratory

Department of Ecology

Analysis Report for

Volatile Organic Analysis

Project Name: Plaza Cleaners **LIMS Project ID:** 1013-97

Sample: 97028088 **Date Received:** 01/10/97 **Method:** SW8260
Field ID: MW-16A **Matrix:** Water
Project Officer: P. Marti **Date Analyzed:** 01/13/97 **Units:** ug/L

Analyte	Result	Qualifier	Analyte	Result	Qualifier
Dichlorodifluoromethane	2	U	**Chloroacetonitrile**		**REJ**
Chloromethane	1	U	Cis-1,3-Dichloropropene	1.1	U
Vinyl Chloride	1	U	4-Methyl-2-Pentanone	2	U
Bromomethane	1	U	1,1-Dichloropropanone	1	U
Chloroethane	1	U	Toluene	1	U
Trichlorofluoromethane	5	U	Trans-1,3-Dichloropropene	.94	U
1,1,2 Trichlorotrifluoroethane	1	U	Ethylmethacrylate	2	U
Ethyl Ether	1	U	1,1,2-Trichloroethane	1	U
1,1-Dichloroethene	1	U	**Tetrachloroethene**	**75**	**E**
Methyl Iodide	1	U	1,3-Dichloropropane	1	U
Acetone	10	U	2-Hexanone	2	U
Carbon Disulfide	2	U	Dibromochloromethane	1	U
Allyl Chloride	1	U	1,2-Dibromoethane (EDB)	1	U
Methylene Chloride	5	U	Chlorobenzene	1	U
Trans-1,2-Dichloroethene	1	U	1,1,1,2-Tetrachloroethane	1	U
Acrylonitrile	1	U	Ethylbenzene	1	U
2-Methyoxy-2-Methylpropane	1	U	m & p-Xylene	1	U
1,1-Dichloroethane	1	U	o-Xylene	1	U
2,2-Dichloropropane	1	U	Styrene	1	U
Cis-1,2-Dichloroethene	**3.1**		Bromoform	1	U
2-Butanone	2	U	Isopropylbenzene (Cumene)	1	U
Methyl acrylate	1	U	Bromobenzene	1	U
Bromochloromethane	1	U	1,1,2,2-Tetrachloroethane	1	U
Methyacrilonitrile	1	U	1,2,3-Trichloropropane	1	U
Tetrahydrofuran	2	U	Trans-1,4-Dichloro-2-butene	5	U
Chloroform	1	U	n-Propylbenzene	1	U
1,1,1-Trichloroethane	1	U	2-Chlorotoluene	1	U
1-Chlorobutane	1	U	1,3,5-Trimethylbenzene	1	U
Carbon Tetrachloride	1	U	4-Chlorotoluene	1	U
1,1-Dichloropropene	1	U	Tert-Butylbenzene	1	U
Benzene	1	U	Pentachloroethane	1	U
1,2-Dichloroethane	1	U	1,2,4-Trimethylbenzene	1	U
Trichloroethene	**1.1**		Sec-Butylbenzene	1	U
1,2-Dichloropropane	1	U	1,3-Dichlorobenzene	1	U
Methyl Methacrylate	1	U	p-Isopropyltoluene	1	U
Dibromomethane	1	U	1,4-Dichlorobenzene	1	U
Bromodichloromethane	1	U	n-Butylbenzene	1	U
2-Nitropropane	1	U	1,2-Dichlorobenzene	1	U

Authorized By: _____ Release Date: 3/26/97 Page: 1

Manchester Environmental Laboratory

Department of Ecology

Analysis Report for

Volatile Organic Analysis

Project Name: Plaza Cleaners **LIMS Project ID:** 1013-97

Sample: 97028088 **Date Received:** 01/10/97 **Method:** SW8260
Field ID: MW-16A **Matrix:** Water
Project Officer: P. Marti **Date Analyzed:** 01/13/97 **Units:** ug/L

Analyte	Result	Qualifier
Hexachloroethane	1	U
1,2-Dibromo-3-Chloropropane	2	U
1,2,4-Trichlorobenzene	1	U
Hexachlorobutadiene	1	UJ
Naphthalene	1	U
1,2,3-Trichlorobenzene	1	U

Surrogate Recoveries

1,2-Dichloroethane-D4	**105**	%
1,4-Difluorobenzene	**101**	%
Toluene-D8	**100**	%
p-Bromofluorobenzene	**96**	%
1,2-Dichlorobenzene-D4	**103**	%

Authorized By: _____ Release Date: 2/26/97

Manchester Environmental Laboratory

Department of Ecology

Analysis Report for

Volatile Organic Analysis

Project Name: Plaza Cleaners **LIMS Project ID:** 1013-97

Sample: 97028088 (Dilution - DIL1) **Date Received:** 01/10/97 **Method:** SW8260
Field ID: MW-16A **Matrix:** Water
Project Officer: P. Marti **Date Analyzed:** 01/13/97 **Units:** ug/L

Analyte	Result	Qualifier	Analyte	Result	Qualifier
Dichlorodifluoromethane	10	U	**Chloroacetonitrile**		**REJ**
Chloromethane	5	U	Cis-1,3-Dichloropropene	5.3	U
Vinyl Chloride	5	U	4-Methyl-2-Pentanone	10	U
Bromomethane	5	U	1,1-Dichloropropanone	5	U
Chloroethane	5	U	Toluene	5	U
Trichlorofluoromethane	25	U	Trans-1,3-Dichloropropene	4.7	U
1,1,2 Trichlorotrifluoroethane	5	U	Ethylmethacrylate	10	U
Ethyl Ether	5	U	1,1,2-Trichloroethane	5	U
1,1-Dichloroethene	5	U	**Tetrachloroethene**	**54**	
Methyl Iodide	5	U	1,3-Dichloropropane	5	U
Acetone	50	U	2-Hexanone	10	U
Carbon Disulfide	10	U	Dibromochloromethane	5	U
Allyl Chloride	5	U	1,2-Dibromoethane (EDB)	5	U
Methylene Chloride	**2.7**	**J**	Chlorobenzene	5	U
Trans-1,2-Dichloroethene	5	U	1,1,1,2-Tetrachloroethane	5	U
Acrylonitrile	5	U	Ethylbenzene	5	U
2-Methyoxy-2-Methylpropane	5	U	m & p-Xylene	5	U
1,1-Dichloroethane	5	U	o-Xylene	5	U
2,2-Dichloropropane	5	U	Styrene	5	U
Cis-1,2-Dichloroethene	**2.1**	**J**	Bromoform	5	U
2-Butanone	10	U	Isopropylbenzene (Cumene)	5	U
Methyl acrylate	5	U	Bromobenzene	5	U
Bromochloromethane	5	U	1,1,2,2-Tetrachloroethane	5	U
Methyacrilonitrile	5	U	1,2,3-Trichloropropane	5	U
Tetrahydrofuran	10	U	Trans-1,4-Dichloro-2-butene	25	U
Chloroform	5	U	n-Propylbenzene	5	U
1,1,1-Trichloroethane	5	U	2-Chlorotoluene	5	U
1-Chlorobutane	5	U	1,3,5-Trimethylbenzene	5	U
Carbon Tetrachloride	5	U	4-Chlorotoluene	5	U
1,1-Dichloropropene	5	U	Tert-Butylbenzene	5	U
Benzene	5	U	Pentachloroethane	5	U
1,2-Dichloroethane	5	U	1,2,4-Trimethylbenzene	5	U
Trichloroethene	**.71**	**J**	Sec-Butylbenzene	5	U
1,2-Dichloropropane	5	U	1,3-Dichlorobenzene	5	U
Methyl Methacrylate	5	U	p-Isopropyltoluene	5	U
Dibromomethane	5	U	1,4-Dichlorobenzene	5	U
Bromodichloromethane	5	U	n-Butylbenzene	5	U
2-Nitropropane	5	U	1,2-Dichlorobenzene	5	U

Authorized By: _____ Release Date: 2/26/97 Page: 3

Manchester Environmental Laboratory

Department of Ecology

Analysis Report for

Volatile Organic Analysis

Project Name: Plaza Cleaners **LIMS Project ID:** 1013-97

Sample: 97028088 (Dilution - DIL1) **Date Received:** 01/10/97 **Method:** SW8260
Field ID: MW-16A **Matrix:** Water
Project Officer: P. Marti **Date Analyzed:** 01/13/97 **Units:** ug/L

Analyte	Result	Qualifier
Hexachloroethane	5	U
1,2-Dibromo-3-Chloropropane	10	U
1,2,4-Trichlorobenzene	5	U
Hexachlorobutadiene	5	UJ
Naphthalene	5	U
1,2,3-Trichlorobenzene	5	U

Surrogate Recoveries

1,2-Dichloroethane-D4	**96**	%
1,4-Difluorobenzene	**99**	%
Toluene-D8	**103**	%
p-Bromofluorobenzene	**100**	%
1,2-Dichlorobenzene-D4	**103**	%

Authorized By: _____ Release Date: 2/26/97

Manchester Environmental Laboratory

Department of Ecology

Analysis Report for

Volatile Organic Analysis

Project Name: Plaza Cleaners **LIMS Project ID:** 1013-97

Sample: 97028089 **Date Received:** 01/10/97 **Method:** SW8260
Field ID: MS-16B **Matrix:** Water
Project Officer: P. Marti **Date Analyzed:** 01/13/97 **Units:** ug/L

Analyte	Result	Qualifier	Analyte	Result	Qualifier
Dichlorodifluoromethane	2	U	**Chloroacetonitrile**		**REJ**
Chloromethane	1	U	Cis-1,3-Dichloropropene	1.1	U
Vinyl Chloride	1	U	4-Methyl-2-Pentanone	2	U
Bromomethane	1	U	1,1-Dichloropropanone	1	U
Chloroethane	1	U	Toluene	1	U
Trichlorofluoromethane	5	U	Trans-1,3-Dichloropropene	.94	U
1,1,2 Trichlorotrifluoroethane	1	U	Ethylmethacrylate	2	U
Ethyl Ether	1	U	1,1,2-Trichloroethane	1	U
1,1-Dichloroethene	1	U	**Tetrachloroethene**	**75**	**E**
Methyl Iodide	1	U	1,3-Dichloropropane	1	U
Acetone	10	U	2-Hexanone	2	U
Carbon Disulfide	2	U	Dibromochloromethane	1	U
Allyl Chloride	1	U	1,2-Dibromoethane (EDB)	1	U
Methylene Chloride	5	U	Chlorobenzene	1	U
Trans-1,2-Dichloroethene	1	U	1,1,1,2-Tetrachloroethane	1	U
Acrylonitrile	1	U	Ethylbenzene	1	U
2-Methyoxy-2-Methylpropane	1	U	m & p-Xylene	1	U
1,1-Dichloroethane	1	U	o-Xylene	1	U
2,2-Dichloropropane	1	U	Styrene	1	U
Cis-1,2-Dichloroethene	**3.1**		Bromoform	1	U
2-Butanone	2	U	Isopropylbenzene (Cumene)	1	U
Methyl acrylate	1	U	Bromobenzene	1	U
Bromochloromethane	1	U	1,1,2,2-Tetrachloroethane	1	U
Methyacrilonitrile	1	U	1,2,3-Trichloropropane	1	U
Tetrahydrofuran	2	U	Trans-1,4-Dichloro-2-butene	5	U
Chloroform	1	U	n-Propylbenzene	1	U
1,1,1-Trichloroethane	1	U	2-Chlorotoluene	1	U
1-Chlorobutane	1	U	1,3,5-Trimethylbenzene	1	U
Carbon Tetrachloride	1	U	4-Chlorotoluene	1	U
1,1-Dichloropropene	1	U	Tert-Butylbenzene	1	U
Benzene	1	U	Pentachloroethane	1	U
1,2-Dichloroethane	1	U	1,2,4-Trimethylbenzene	1	U
Trichloroethene	**1.1**		Sec-Butylbenzene	1	U
1,2-Dichloropropane	1	U	1,3-Dichlorobenzene	1	U
Methyl Methacrylate	1	U	p-Isopropyltoluene	1	U
Dibromomethane	1	U	1,4-Dichlorobenzene	1	U
Bromodichloromethane	1	U	n-Butylbenzene	1	U
2-Nitropropane	1	U	1,2-Dichlorobenzene	1	U

Authorized By: _____ Release Date: 2/26/97 Page: 1

Manchester Environmental Laboratory

Department of Ecology

Analysis Report for

Volatile Organic Analysis

Project Name: Plaza Cleaners **LIMS Project ID:** 1013-97

Sample: 97028089 **Date Received:** 01/10/97 **Method:** SW8260
Field ID: MS-16B **Matrix:** Water
Project Officer: P. Marti **Date Analyzed:** 01/13/97 **Units:** ug/L

Analyte	Result	Qualifier
Hexachloroethane	1	U
1,2-Dibromo-3-Chloropropane	2	U
1,2,4-Trichlorobenzene	1	U
Hexachlorobutadiene	1	UJ
Naphthalene	1	U
1,2,3-Trichlorobenzene	1	U

Surrogate Recoveries

1,2-Dichloroethane-D4	**106**	%
1,4-Difluorobenzene	**99**	%
Toluene-D8	**101**	%
p-Bromofluorobenzene	**98**	%
1,2-Dichlorobenzene-D4	**102**	%

Authorized By: _____ Release Date: 2/26/97

Manchester Environmental Laboratory

Department of Ecology

Analysis Report for

Volatile Organic Analysis

Project Name: Plaza Cleaners **LIMS Project ID:** 1013-97

Sample: 97028089 (Dilution - DIL1) **Date Received:** 01/10/97 **Method:** SW8260
Field ID: MS-16B **Matrix:** Water
Project Officer: P. Marti **Date Analyzed:** 01/13/97 **Units:** ug/L

Analyte	Result	Qualifier	Analyte	Result	Qualifier
Dichlorodifluoromethane	10	U	**Chloroacetonitrile**		**REJ**
Chloromethane	5	U	Cis-1,3-Dichloropropene	5.3	U
Vinyl Chloride	5	U	4-Methyl-2-Pentanone	10	U
Bromomethane	5	U	1,1-Dichloropropanone	5	U
Chloroethane	5	U	Toluene	5	U
Trichlorofluoromethane	25	U	Trans-1,3-Dichloropropene	4.7	U
1,1,2 Trichlorotrifluoroethane	5	U	Ethylmethacrylate	10	U
Ethyl Ether	5	U	1,1,2-Trichloroethane	5	U
1,1-Dichloroethene	5	U	**Tetrachloroethene**	**46**	
Methyl Iodide	5	U	1,3-Dichloropropane	5	U
Acetone	50	U	2-Hexanone	10	U
Carbon Disulfide	10	U	Dibromochloromethane	5	U
Allyl Chloride	5	U	1,2-Dibromoethane (EDB)	5	U
Methylene Chloride	**2.7**	**J**	Chlorobenzene	5	U
Trans-1,2-Dichloroethene	5	U	1,1,1,2-Tetrachloroethane	5	U
Acrylonitrile	5	U	Ethylbenzene	5	U
2-Methyoxy-2-Methylpropane	5	U	m & p-Xylene	5	U
1,1-Dichloroethane	5	U	o-Xylene	5	U
2,2-Dichloropropane	5	U	Styrene	5	U
Cis-1,2-Dichloroethene	**2.4**	**J**	Bromoform	5	U
2-Butanone	10	U	Isopropylbenzene (Cumene)	5	U
Methyl acrylate	5	U	Bromobenzene	5	U
Bromochloromethane	5	U	1,1,2,2-Tetrachloroethane	5	U
Methyacrilonitrile	5	U	1,2,3-Trichloropropane	5	U
Tetrahydrofuran	10	U	Trans-1,4-Dichloro-2-butene	25	U
Chloroform	5	U	n-Propylbenzene	5	U
1,1,1-Trichloroethane	5	U	2-Chlorotoluene	5	U
1-Chlorobutane	5	U	1,3,5-Trimethylbenzene	5	U
Carbon Tetrachloride	5	U	4-Chlorotoluene	5	U
1,1-Dichloropropene	5	U	Tert-Butylbenzene	5	U
Benzene	5	U	Pentachloroethane	5	U
1,2-Dichloroethane	5	U	1,2,4-Trimethylbenzene	5	U
Trichloroethene	5	U	Sec-Butylbenzene	5	U
1,2-Dichloropropane	5	U	1,3-Dichlorobenzene	5	U
Methyl Methacrylate	5	U	p-Isopropyltoluene	5	U
Dibromomethane	5	U	1,4-Dichlorobenzene	5	U
Bromodichloromethane	5	U	n-Butylbenzene	5	U
2-Nitropropane	5	U	1,2-Dichlorobenzene	5	U

Authorized By: _____ Release Date: 2/26/97 Page: 3

Manchester Environmental Laboratory

Department of Ecology

Analysis Report for

Volatile Organic Analysis

Project Name: Plaza Cleaners **LIMS Project ID:** 1013-97

Sample: 97028089 (Dilution - DIL1) **Date Received:** 01/10/97 **Method:** SW8260
Field ID: MS-16B **Matrix:** Water
Project Officer: P. Marti **Date Analyzed:** 01/13/97 **Units:** ug/L

Analyte	Result	Qualifier
Hexachloroethane	5	U
1,2-Dibromo-3-Chloropropane	10	U
1,2,4-Trichlorobenzene	5	U
Hexachlorobutadiene	5	UJ
Naphthalene	5	U
1,2,3-Trichlorobenzene	5	U

Surrogate Recoveries

1,2-Dichloroethane-D4	**98**	%
1,4-Difluorobenzene	**99**	%
Toluene-D8	**101**	%
p-Bromofluorobenzene	**99**	%
1,2-Dichlorobenzene-D4	**103**	%

Authorized By: _____ Release Date: 2/26/97

Manchester Environmental Laboratory

Department of Ecology

Analysis Report for

Volatile Organic Analysis

Project Name: Plaza Cleaners **LIMS Project ID:** 1013-97

Sample: 97028090 **Date Received:** 01/10/97 **Method:** SW8260
Field ID: MW-20A **Matrix:** Water
Project Officer: P. Marti **Date Analyzed:** 01/13/97 **Units:** ug/L

Analyte	Result	Qualifier	Analyte	Result	Qualifier
Dichlorodifluoromethane	2	UJ	**Chloroacetonitrile**		**REJ**
Chloromethane	1	U	Cis-1,3-Dichloropropene	1.1	U
Vinyl Chloride	1	U	4-Methyl-2-Pentanone	2	U
Bromomethane	1	U	1,1-Dichloropropanone	1	U
Chloroethane	1	U	Toluene	1	UJ
Trichlorofluoromethane	5	U	Trans-1,3-Dichloropropene	.94	U
1,1,2 Trichlorotrifluoroethane	1	U	Ethylmethacrylate	2	U
Ethyl Ether	1	U	1,1,2-Trichloroethane	1	U
1,1-Dichloroethene	1	U	**Tetrachloroethene**	**.37**	**J**
Methyl Iodide	1	U	1,3-Dichloropropane	1	U
Acetone	10	U	2-Hexanone	2	U
Carbon Disulfide	2	U	Dibromochloromethane	1	U
Allyl Chloride	1	U	1,2-Dibromoethane (EDB)	1	U
Methylene Chloride	5	U	Chlorobenzene	1	U
Trans-1,2-Dichloroethene	1	U	1,1,1,2-Tetrachloroethane	1	U
Acrylonitrile	1	U	Ethylbenzene	1	U
2-Methyoxy-2-Methylpropane	1	U	m & p-Xylene	1	U
1,1-Dichloroethane	1	U	o-Xylene	1	U
2,2-Dichloropropane	1	U	Styrene	1	U
Cis-1,2-Dichloroethene	1	U	Bromoform	1	U
2-Butanone	2	U	Isopropylbenzene (Cumene)	1	U
Methyl acrylate	1	U	Bromobenzene	1	U
Bromochloromethane	1	U	1,1,2,2-Tetrachloroethane	1	U
Methyacrilonitrile	1	U	1,2,3-Trichloropropane	1	U
Tetrahydrofuran	2	U	Trans-1,4-Dichloro-2-butene	5	U
Chloroform	1	U	n-Propylbenzene	1	U
1,1,1-Trichloroethane	**.2**	**J**	2-Chlorotoluene	1	U
1-Chlorobutane	1	U	1,3,5-Trimethylbenzene	1	U
Carbon Tetrachloride	1	U	4-Chlorotoluene	1	U
1,1-Dichloropropene	1	U	Tert-Butylbenzene	1	U
Benzene	1	U	Pentachloroethane	1	U
1,2-Dichloroethane	1	U	1,2,4-Trimethylbenzene	1	U
Trichloroethene	1	U	Sec-Butylbenzene	1	U
1,2-Dichloropropane	1	U	1,3-Dichlorobenzene	1	U
Methyl Methacrylate	1	U	p-Isopropyltoluene	1	U
Dibromomethane	1	U	1,4-Dichlorobenzene	1	U
Bromodichloromethane	1	U	n-Butylbenzene	1	U
2-Nitropropane	1	U	1,2-Dichlorobenzene	1	U

Authorized By: _____ Release Date: 2/24/97 Page: 1

Manchester Environmental Laboratory

Department of Ecology

Analysis Report for

Volatile Organic Analysis

Project Name: Plaza Cleaners **LIMS Project ID:** 1013-97

Sample: 97028090 **Date Received:** 01/10/97 **Method:** SW8260
Field ID: MW-20A **Matrix:** Water
Project Officer: P. Marti **Date Analyzed:** 01/13/97 **Units:** ug/L

Analyte	Result	Qualifier
Hexachloroethane	1	U
1,2-Dibromo-3-Chloropropane	2	U
1,2,4-Trichlorobenzene	1	U
Hexachlorobutadiene	1	UJ
Naphthalene	1	U
1,2,3-Trichlorobenzene	1	U

Surrogate Recoveries

1,2-Dichloroethane-D4	**106**	%
1,4-Difluorobenzene	**101**	%
Toluene-D8	**101**	%
p-Bromofluorobenzene	**97**	%
1,2-Dichlorobenzene-D4	**103**	%

Authorized By: _____ Release Date: 3/27/97

Manchester Environmental Laboratory

Department of Ecology

Analysis Report for

Volatile Organic Analysis

Project Name: Plaza Cleaners **LIMS Project ID:** 1013-97

Sample: 97028090 (Matrix Spike - LMX1) **Date Received:** 01/10/97 **Method:** SW8260
Field ID: MW-20A **Matrix:** Water
Project Officer: P. Marti **Date Analyzed:** 01/13/97 **Units:** % Recovery

Analyte	Result	Qualifier	Analyte	Result	Qualifier
Dichlorodifluoromethane	88		Chloroacetonitrile		REJ
Chloromethane	97		Cis-1,3-Dichloropropene	107	
Vinyl Chloride	111		4-Methyl-2-Pentanone	107	
Bromomethane	105		1,1-Dichloropropanone	87	
Chloroethane	115		Toluene	104	
Trichlorofluoromethane	89		Trans-1,3-Dichloropropene	96	
1,1,2 Trichlorotrifluoroethane	146		Ethylmethacrylate	94	
Ethyl Ether	109		1,1,2-Trichloroethane	102	
1,1-Dichloroethene	109		Tetrachloroethene	107	
Methyl Iodide	107		1,3-Dichloropropane	107	
Acetone	126		2-Hexanone	101	
Carbon Disulfide	110		Dibromochloromethane	92	
Allyl Chloride	117		1,2-Dibromoethane (EDB)	106	
Methylene Chloride	106		Chlorobenzene	106	
Trans-1,2-Dichloroethene	119		1,1,1,2-Tetrachloroethane	98	
Acrylonitrile	116		Ethylbenzene	107	
2-Methyoxy-2-Methylpropane	113		m & p-Xylene	103	
1,1-Dichloroethane	120		o-Xylene	100	
2,2-Dichloropropane	104		Styrene	99	
Cis-1,2-Dichloroethene	105		Bromoform	94	
2-Butanone	112		Isopropylbenzene (Cumene)	110	
Methyl acrylate	104		Bromobenzene	104	
Bromochloromethane	106		1,1,2,2-Tetrachloroethane	100	
Methyacrilonitrile	98		1,2,3-Trichloropropane	109	
Tetrahydrofuran	96		Trans-1,4-Dichloro-2-butene	90	
Chloroform	111		n-Propylbenzene	105	
1,1,1-Trichloroethane	113		2-Chlorotoluene	106	
1-Chlorobutane	110		1,3,5-Trimethylbenzene	109	
Carbon Tetrachloride	109		4-Chlorotoluene	106	
1,1-Dichloropropene	109		Tert-Butylbenzene	113	
Benzene	106		Pentachloroethane	85	
1,2-Dichloroethane	116		1,2,4-Trimethylbenzene	108	
Trichloroethene	110		Sec-Butylbenzene	111	
1,2-Dichloropropane	108		1,3-Dichlorobenzene	104	
Methyl Methacrylate	91		p-Isopropyltoluene	106	
Dibromomethane	107		1,4-Dichlorobenzene	103	
Bromodichloromethane	107		n-Butylbenzene	108	
2-Nitropropane	68		1,2-Dichlorobenzene	103	

Authorized By: _____ Release Date: 3/26/97

Manchester Environmental Laboratory

Department of Ecology

Analysis Report for

Volatile Organic Analysis

Project Name: Plaza Cleaners **LIMS Project ID:** 1013-97

Sample: 97028090 (Matrix Spike - LMX1) **Date Received:** 01/10/97 **Method:** SW8260
Field ID: MW-20A **Matrix:** Water
Project Officer: P. Marti **Date Analyzed:** 01/13/97 **Units:** % Recovery

Analyte	Result	Qualifier
Hexachloroethane	87	
1,2-Dibromo-3-Chloropropane	91	
1,2,4-Trichlorobenzene	92	
Hexachlorobutadiene	104	
Naphthalene	91	
1,2,3-Trichlorobenzene	91	

Surrogate Recoveries

1,2-Dichloroethane-D4	108	%
1,4-Difluorobenzene	99	%
Toluene-D8	100	%
p-Bromofluorobenzene	98	%
1,2-Dichlorobenzene-D4	100	%

Authorized By: _____ Release Date: 5/26/97

Manchester Environmental Laboratory

Department of Ecology

Analysis Report for

Volatile Organic Analysis

Project Name: Plaza Cleaners **LIMS Project ID:** 1013-97

Sample: 97028090 (Matrix Spike - LMX2) **Date Received:** 01/10/97 **Method:** SW8260
Field ID: MW-20A **Matrix:** Water
Project Officer: P. Marti **Date Analyzed:** 01/13/97 **Units:** % Recovery

Analyte	Result	Qualifier	Analyte	Result	Qualifier
Dichlorodifluoromethane	25		Chloroacetonitrile		REJ
Chloromethane	93		Cis-1,3-Dichloropropene	106	
Vinyl Chloride	108		4-Methyl-2-Pentanone	100	
Bromomethane	99		1,1-Dichloropropanone	81	
Chloroethane	97		Toluene	105	
Trichlorofluoromethane	89		Trans-1,3-Dichloropropene	91	
1,1,2 Trichlorotrifluoroethane	136		Ethylmethacrylate	97	
Ethyl Ether	105		1,1,2-Trichloroethane	103	
1,1-Dichloroethene	98		Tetrachloroethene	102	
Methyl Iodide	100		1,3-Dichloropropane	106	
Acetone	114		2-Hexanone	105	
Carbon Disulfide	102		Dibromochloromethane	93	
Allyl Chloride	128		1,2-Dibromoethane (EDB)	104	
Methylene Chloride	97		Chlorobenzene	103	
Trans-1,2-Dichloroethene	109		1,1,1,2-Tetrachloroethane	96	
Acrylonitrile	92		Ethylbenzene	103	
2-Methyoxy-2-Methylpropane	107		m & p-Xylene	101	
1,1-Dichloroethane	112		o-Xylene	101	
2,2-Dichloropropane	97		Styrene	98	
Cis-1,2-Dichloroethene	103		Bromoform	95	
2-Butanone	109		Isopropylbenzene (Cumene)	107	
Methyl acrylate	99		Bromobenzene	104	
Bromochloromethane	105		1,1,2,2-Tetrachloroethane	101	
Methyacrilonitrile	95		1,2,3-Trichloropropane	106	
Tetrahydrofuran	91		Trans-1,4-Dichloro-2-butene	93	
Chloroform	107		n-Propylbenzene	105	
1,1,1-Trichloroethane	106		2-Chlorotoluene	106	
1-Chlorobutane	108		1,3,5-Trimethylbenzene	103	
Carbon Tetrachloride	104		4-Chlorotoluene	105	
1,1-Dichloropropene	103		Tert-Butylbenzene	110	
Benzene	104		Pentachloroethane	88	
1,2-Dichloroethane	108		1,2,4-Trimethylbenzene	103	
Trichloroethene	107		Sec-Butylbenzene	105	
1,2-Dichloropropane	104		1,3-Dichlorobenzene	102	
Methyl Methacrylate	96		p-Isopropyltoluene	105	
Dibromomethane	103		1,4-Dichlorobenzene	100	
Bromodichloromethane	105		n-Butylbenzene	106	
2-Nitropropane	74		1,2-Dichlorobenzene	101	

Authorized By: _____ Release Date: 3/26/97

Manchester Environmental Laboratory

Department of Ecology

Analysis Report for

Volatile Organic Analysis

Project Name: Plaza Cleaners **LIMS Project ID:** 1013-97

Sample: 97028090 (Matrix Spike - LMX2) **Date Received:** 01/10/97 **Method:** SW8260
Field ID: MW-20A **Matrix:** Water
Project Officer: P. Marti **Date Analyzed:** 01/13/97 **Units:** % Recovery

Analyte	Result	Qualifier
Hexachloroethane	86	
1,2-Dibromo-3-Chloropropane	86	
1,2,4-Trichlorobenzene	90	
Hexachlorobutadiene	101	
Naphthalene	90	
1,2,3-Trichlorobenzene	90	

Surrogate Recoveries

1,2-Dichloroethane-D4	109	%
1,4-Difluorobenzene	101	%
Toluene-D8	100	%
p-Bromofluorobenzene	100	%
1,2-Dichlorobenzene-D4	101	%

Authorized By: _____ Release Date: 2/20/97

Manchester Environmental Laboratory

Department of Ecology

Analysis Report for

Volatile Organic Analysis

Project Name: Plaza Cleaners **LIMS Project ID:** 1013-97

Sample: **97028091** **Date Received:** 01/10/97 **Method:** SW8260
Field ID: MW-20B **Matrix:** Water
Project Officer: P. Marti **Date Analyzed:** 01/13/97 **Units:** ug/L

Analyte	Result	Qualifier	Analyte	Result	Qualifier
Dichlorodifluoromethane	200	U	**Chloroacetonitrile**		**REJ**
Chloromethane	100	U	Cis-1,3-Dichloropropene	106	U
Vinyl Chloride	100	U	4-Methyl-2-Pentanone	200	U
Bromomethane	100	U	1,1-Dichloropropanone	100	U
Chloroethane	100	U	Toluene	100	U
Trichlorofluoromethane	500	U	Trans-1,3-Dichloropropene	94	U
1,1,2 Trichlorotrifluoroethane	100	U	Ethylmethacrylate	200	U
Ethyl Ether	100	U	1,1,2-Trichloroethane	100	U
1,1-Dichloroethene	100	U	**Tetrachloroethene**	**373**	
Methyl Iodide	100	U	1,3-Dichloropropane	100	U
Acetone	1000	U	2-Hexanone	200	U
Carbon Disulfide	200	U	Dibromochloromethane	100	U
Allyl Chloride	100	U	1,2-Dibromoethane (EDB)	100	U
Methylene Chloride	500	U	Chlorobenzene	100	U
Trans-1,2-Dichloroethene	100	U	1,1,1,2-Tetrachloroethane	100	U
Acrylonitrile	100	U	Ethylbenzene	100	U
2-Methyoxy-2-Methylpropane	100	U	m & p-Xylene	100	U
1,1-Dichloroethane	100	U	o-Xylene	100	U
2,2-Dichloropropane	100	U	Styrene	100	U
Cis-1,2-Dichloroethene	**6.4**	**J**	Bromoform	100	U
2-Butanone	200	U	Isopropylbenzene (Cumene)	100	U
Methyl acrylate	100	U	Bromobenzene	100	U
Bromochloromethane	100	U	1,1,2,2-Tetrachloroethane	100	U
Methyacrilonitrile	100	U	1,2,3-Trichloropropane	100	U
Tetrahydrofuran	200	U	Trans-1,4-Dichloro-2-butene	500	U
Chloroform	100	U	n-Propylbenzene	100	U
1,1,1-Trichloroethane	100	U	2-Chlorotoluene	100	U
1-Chlorobutane	100	U	1,3,5-Trimethylbenzene	100	U
Carbon Tetrachloride	100	U	4-Chlorotoluene	100	U
1,1-Dichloropropene	100	U	Tert-Butylbenzene	100	U
Benzene	100	U	Pentachloroethane	100	U
1,2-Dichloroethane	100	U	1,2,4-Trimethylbenzene	100	U
Trichloroethene	100	U	Sec-Butylbenzene	100	U
1,2-Dichloropropane	100	U	1,3-Dichlorobenzene	100	U
Methyl Methacrylate	100	U	p-Isopropyltoluene	100	U
Dibromomethane	100	U	1,4-Dichlorobenzene	100	U
Bromodichloromethane	100	U	n-Butylbenzene	100	U
2-Nitropropane	100	U	1,2-Dichlorobenzene	100	U

Authorized By: _____ Release Date: 3/26/97 Page: 1

Manchester Environmental Laboratory

Department of Ecology

Analysis Report for

Volatile Organic Analysis

Project Name: Plaza Cleaners **LIMS Project ID:** 1013-97

Sample: 97028091 **Date Received:** 01/10/97 **Method:** SW8260
Field ID: MW-20B **Matrix:** Water
Project Officer: P. Marti **Date Analyzed:** 01/13/97 **Units:** ug/L

Analyte	Result	Qualifier
Hexachloroethane	100	U
1,2-Dibromo-3-Chloropropane	200	U
1,2,4-Trichlorobenzene	100	U
Hexachlorobutadiene	100	UJ
Naphthalene	100	U
1,2,3-Trichlorobenzene	100	U

Surrogate Recoveries

1,2-Dichloroethane-D4	**104**	%
1,4-Difluorobenzene	**100**	%
Toluene-D8	**103**	%
p-Bromofluorobenzene	**99**	%
1,2-Dichlorobenzene-D4	**103**	%

Authorized By: _____ Release Date: 2/26/97

Manchester Environmental Laboratory

Department of Ecology

Analysis Report for

Volatile Organic Analysis

Project Name: Plaza Cleaners **LIMS Project ID:** 1013-97

Sample: 97028092 **Date Received:** 01/10/97 **Method:** SW8260
Field ID: H2 **Matrix:** Water
Project Officer: P. Marti **Date Analyzed:** 01/13/97 **Units:** ug/L

Analyte	Result	Qualifier	Analyte	Result	Qualifier
Dichlorodifluoromethane	2	U	**Chloroacetonitrile**		**REJ**
Chloromethane	1	U	Cis-1,3-Dichloropropene	1.1	U
Vinyl Chloride	1	U	4-Methyl-2-Pentanone	2	U
Bromomethane	1	U	1,1-Dichloropropanone	1	U
Chloroethane	1	U	Toluene	1	U
Trichlorofluoromethane	5	U	Trans-1,3-Dichloropropene	.94	U
1,1,2 Trichlorotrifluoroethane	1	U	Ethylmethacrylate	2	U
Ethyl Ether	1	U	1,1,2-Trichloroethane	1	U
1,1-Dichloroethene	1	U	**Tetrachloroethene**	**18**	
Methyl Iodide	1	U	1,3-Dichloropropane	1	U
Acetone	10	U	2-Hexanone	2	U
Carbon Disulfide	2	U	Dibromochloromethane	1	U
Allyl Chloride	1	U	1,2-Dibromoethane (EDB)	1	U
Methylene Chloride	5	U	Chlorobenzene	1	U
Trans-1,2-Dichloroethene	1	U	1,1,1,2-Tetrachloroethane	1	U
Acrylonitrile	1	U	Ethylbenzene	1	U
2-Methyoxy-2-Methylpropane	1	U	m & p-Xylene	1	U
1,1-Dichloroethane	1	U	o-Xylene	1	U
2,2-Dichloropropane	1	U	Styrene	1	U
Cis-1,2-Dichloroethene	**.4**	**J**	Bromoform	1	U
2-Butanone	2	U	Isopropylbenzene (Cumene)	1	U
Methyl acrylate	1	U	Bromobenzene	1	U
Bromochloromethane	1	U	1,1,2,2-Tetrachloroethane	1	U
Methyacrilonitrile	1	U	1,2,3-Trichloropropane	1	U
Tetrahydrofuran	2	U	Trans-1,4-Dichloro-2-butene	5	U
Chloroform	1	U	n-Propylbenzene	1	U
1,1,1-Trichloroethane	1	U	2-Chlorotoluene	1	U
1-Chlorobutane	1	U	1,3,5-Trimethylbenzene	1	U
Carbon Tetrachloride	1	U	4-Chlorotoluene	1	U
1,1-Dichloropropene	1	U	Tert-Butylbenzene	1	U
Benzene	1	U	Pentachloroethane	1	U
1,2-Dichloroethane	1	U	1,2,4-Trimethylbenzene	1	U
Trichloroethene	**.35**	**J**	Sec-Butylbenzene	1	U
1,2-Dichloropropane	1	U	1,3-Dichlorobenzene	1	U
Methyl Methacrylate	1	U	p-Isopropyltoluene	1	U
Dibromomethane	1	U	1,4-Dichlorobenzene	1	U
Bromodichloromethane	1	U	n-Butylbenzene	1	U
2-Nitropropane	1	U	1,2-Dichlorobenzene	1	U

Authorized By: _____ Release Date: 2/26/97 Page: 1

Manchester Environmental Laboratory

Department of Ecology

Analysis Report for

Volatile Organic Analysis

Project Name: Plaza Cleaners **LIMS Project ID:** 1013-97

Sample: 97028092 **Date Received:** 01/10/97 **Method:** SW8260
Field ID: H2 **Matrix:** Water
Project Officer: P. Marti **Date Analyzed:** 01/13/97 **Units:** ug/L

Analyte	Result	Qualifier
Hexachloroethane	1	U
1,2-Dibromo-3-Chloropropane	2	U
1,2,4-Trichlorobenzene	1	U
Hexachlorobutadiene	1	UJ
Naphthalene	1	U
1,2,3-Trichlorobenzene	1	U

Surrogate Recoveries

1,2-Dichloroethane-D4	**106**	%
1,4-Difluorobenzene	**100**	%
Toluene-D8	**100**	%
p-Bromofluorobenzene	**95**	%
1,2-Dichlorobenzene-D4	**102**	%

Authorized By: _____ Release Date: 2/26/97

Manchester Environmental Laboratory

Department of Ecology

Analysis Report for

Volatile Organic Analysis

Project Name: Plaza Cleaners **LIMS Project ID:** 1013-97

Sample: BLN70126 **Method:** SW8260
Blank ID: ODBW7013 **Matrix:** Water
Project Officer: P. Marti **Date Analyzed:** 01/13/97 **Units:** ug/L

Analyte	Result	Qualifier	Analyte	Result	Qualifier
Dichlorodifluoromethane	2	U	Chloroacetonitrile	1	U
Chloromethane	1	U	Cis-1,3-Dichloropropene	1.1	U
Vinyl Chloride	1	U	4-Methyl-2-Pentanone	2	U
Bromomethane	1	U	1,1-Dichloropropanone	1	U
Chloroethane	1	U	**Toluene**	**.09**	**J**
Trichlorofluoromethane	5	U	Trans-1,3-Dichloropropene	.94	U
1,1,2 Trichlorotrifluoroethane	1	U	Ethylmethacrylate	2	U
Ethyl Ether	1	U	1,1,2-Trichloroethane	1	U
1,1-Dichloroethene	1	U	Tetrachloroethene	1	U
Methyl Iodide	1	U	1,3-Dichloropropane	1	U
Acetone	10	U	2-Hexanone	2	U
Carbon Disulfide	2	U	Dibromochloromethane	1	U
Allyl Chloride	1	U	1,2-Dibromoethane (EDB)	1	U
Methylene Chloride	5	U	Chlorobenzene	1	U
Trans-1,2-Dichloroethene	1	U	1,1,1,2-Tetrachloroethane	1	U
Acrylonitrile	1	U	Ethylbenzene	1	U
2-Methyoxy-2-Methylpropane	1	U	m & p-Xylene	1	U
1,1-Dichloroethane	1	U	o-Xylene	1	U
2,2-Dichloropropane	1	U	Styrene	1	U
Cis-1,2-Dichloroethene	1	U	Bromoform	1	U
2-Butanone	**.52**	**J**	Isopropylbenzene (Cumene)	1	U
Methyl acrylate	1	U	Bromobenzene	1	U
Bromochloromethane	1	U	1,1,2,2-Tetrachloroethane	1	U
Methyacrilonitrile	1	U	1,2,3-Trichloropropane	1	U
Tetrahydrofuran	2	U	Trans-1,4-Dichloro-2-butene	5	U
Chloroform	1	U	n-Propylbenzene	1	U
1,1,1-Trichloroethane	1	U	2-Chlorotoluene	1	U
1-Chlorobutane	1	U	1,3,5-Trimethylbenzene	1	U
Carbon Tetrachloride	1	U	4-Chlorotoluene	1	U
1,1-Dichloropropene	1	U	Tert-Butylbenzene	1	U
Benzene	1	U	Pentachloroethane	1	U
1,2-Dichloroethane	1	U	1,2,4-Trimethylbenzene	1	U
Trichloroethene	1	U	Sec-Butylbenzene	1	U
1,2-Dichloropropane	1	U	1,3-Dichlorobenzene	1	U
Methyl Methacrylate	1	U	p-Isopropyltoluene	1	U
Dibromomethane	1	U	1,4-Dichlorobenzene	1	U
Bromodichloromethane	1	U	n-Butylbenzene	1	U
2-Nitropropane	1	U	1,2-Dichlorobenzene	1	U

Authorized By: _____ Release Date: 2/26/97

Manchester Environmental Laboratory

Department of Ecology

Analysis Report for

Volatile Organic Analysis

Project Name: Plaza Cleaners **LIMS Project ID:** 1013-97

Sample: BLN70126 **Method:** SW8260
Blank ID: ODBW7013 **Matrix:** Water
Project Officer: P. Marti **Date Analyzed:** 01/13/97 **Units:** ug/L

Analyte	Result	Qualifier
Hexachloroethane	1	U
1,2-Dibromo-3-Chloropropane	2	U
1,2,4-Trichlorobenzene	1	U
Hexachlorobutadiene	1	U
Naphthalene	1	U
1,2,3-Trichlorobenzene	1	U

Surrogate Recoveries

1,2-Dichloroethane-D4	**104**	%
1,4-Difluorobenzene	**100**	%
Toluene-D8	**102**	%
p-Bromofluorobenzene	**99**	%
1,2-Dichlorobenzene-D4	**101**	%

Authorized By: _____ Release Date: 2/26/97

Manchester Environmental Laboratory

Department of Ecology

Analysis Report for

Volatile Organic Analysis

Project Name: Plaza Cleaners **LIMS Project ID:** 1013-97

Sample: BLN70295 **Method:** SW8260
Blank ID: ODBW7014 **Date Prepared:** 01/14/97 **Matrix:** Water
Project Officer: P. Marti **Date Analyzed:** 01/14/97 **Units:** ug/L

Analyte	Result	Qualifier	Analyte	Result	Qualifier
Dichlorodifluoromethane	2	U	Methyl Methacrylate	1	U
Chloromethane	1	U	1,1-Dichloropropanone	1	U
Vinyl Chloride	1	U	Cis-1,3-Dichloropropene	1.1	U
Bromomethane	1	U	4-Methyl-2-Pentanone	2	U
Chloroethane	1	U	Trans-1,3-Dichloropropene	.94	U
Trichlorofluoromethane	5	U	1,1,2-Trichloroethane	1	U
Acetone	10	U	**Toluene**	**.07**	**J**
Ethyl Ether	1	U	1,3-Dichloropropane	1	U
1,1-Dichloroethene	1	U	Ethylmethacrylate	2	U
Acrylonitrile	1	U	2-Hexanone	2	U
Methyl Iodide	1	U	Dibromochloromethane	1	U
Methylene Chloride	5	U	1,2-Dibromoethane (EDB)	1	U
1,1,2 Trichlorotrifluoroethane	1	U	Tetrachloroethene	1	U
Allyl Chloride	1	U	1,1,1,2-Tetrachloroethane	1	U
Carbon Disulfide	2	U	Chlorobenzene	1	U
Trans-1,2-Dichloroethene	1	U	Ethylbenzene	1	U
2-Methyoxy-2-Methylpropane	1	U	**m & p-Xylene**	**.099**	**J**
1,1-Dichloroethane	1	U	Bromoform	1	U
2-Butanone	2	U	Styrene	1	U
Methyacrilonitrile	1	U	1,1,2,2-Tetrachloroethane	1	U
Cis-1,2-Dichloroethene	1	U	o-Xylene	1	U
Bromochloromethane	1	U	1,2,3-Trichloropropane	1	U
Chloroform	1	U	Trans-1,4-Dichloro-2-butene	5	U
Methyl acrylate	1	U	Isopropylbenzene (Cumene)	1	U
2,2-Dichloropropane	1	U	Bromobenzene	1	U
Tetrahydrofuran	2	U	n-Propylbenzene	1	U
1,2-Dichloroethane	1	U	2-Chlorotoluene	1	U
1-Chlorobutane	1	U	4-Chlorotoluene	1	U
1,1,1-Trichloroethane	1	U	1,2,4-Trimethylbenzene	1	U
1,1-Dichloropropene	1	U	Pentachloroethane	1	U
Carbon Tetrachloride	1	U	Tert-Butylbenzene	1	U
Benzene	**.2**	**J**	1,3,5-Trimethylbenzene	1	U
Chloroacetonitrile		**REJ**	Sec-Butylbenzene	1	U
Dibromomethane	1	U	1,3-Dichlorobenzene	1	U
1,2-Dichloropropane	1	U	1,4-Dichlorobenzene	1	U
Trichloroethene	1	U	p-Isopropyltoluene	1	U
2-Nitropropane	1	U	1,2-Dichlorobenzene	1	U
Bromodichloromethane	1	U	n-Butylbenzene	1	U

Authorized By: _____ Release Date: 2/26/97 Page: 1

Manchester Environmental Laboratory

Department of Ecology

Analysis Report for

Volatile Organic Analysis

Project Name: Plaza Cleaners **LIMS Project ID:** 1013-97

Sample: BLN70295
Blank ID: ODBW7014 **Date Prepared:** 01/14/97 **Method:** SW8260
Project Officer: P. Marti **Date Analyzed:** 01/14/97 **Matrix:** Water
Units: ug/L

Analyte	Result	Qualifier
1,2-Dibromo-3-Chloropropane	2	U
Hexachloroethane	1	U
1,2,4-Trichlorobenzene	1	U
Naphthalene	**.04**	**J**
Hexachlorobutadiene	1	UJ
1,2,3-Trichlorobenzene	1	U

Surrogate Recoveries

1,2-Dichloroethane-D4	**105**	%
1,4-Difluorobenzene	**101**	%
Toluene-D8	**100**	%
p-Bromofluorobenzene	**95**	%
1,2-Dichlorobenzene-D4	**104**	%

Authorized By: _____ Release Date: 2/26/97