DEPARTMENT OF ECOLOGY

March 20, 1997

TO: Mike Ruef, Toxics Cleanup Program

FROM: Pam Marti, Environmental Investigations & Laboratory Services

SUBJECT: Lakewood/Plaza Cleaners Long-term Monitoring - July 1996

The attached document summarizes the findings of samples collected at Lakewood/Plaza Cleaners on July 31, 1996.

Wells MW-20B and MW-16A are the only wells in which tetrachloroethene (PERC), trichloroethene (TCE) and cis-1,2-dichloroethene (cis-1,2-DCE) continue to be elevated. PERC, TCE and cis-1,2-DCE concentrations in well MW-20B were 387 µg/L, 7.6 µg/L, and 15 µg/L, respectively. PERC and cis-1,2-DCE concentrations in MW-16A were 43 µg/L and 1.9 µg/L, respectively. PERC was detected below the practical quantitation limit of 1 µg/L in wells MW-20A and H2, as well as for TCE in MW-16A. Model Toxic Control Act (MTCA) cleanup levels were exceeded for tetrachloroethene (5.0 µg/L) in MW-20B and MW-16A and for trichloroethene (5.0 µg/L) in MW-20B. Overall, concentrations are similar to those reported in previous sample rounds.

Samples were collected in January 1997. Results from this sample event will be sent to you shortly. The next sample round will be conducted in July 1997. If you have any questions or comments please call me at 407-6768 or stop by my cubicle #C2D-91.

PM:jl
cc: Larry Goldstein

A Department of Ecology Report

WASHINGTON STATE DEPARTMENT OF ECOLOGY

Lakewood/Plaza Cleaners
July 31, 1996

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 July 31, 1996 from one municipal well (H2) and five monitoring wells: MW-16A, MW-20A, MW-20B, MW-27, and MW-33 (Figure 1). All samples were analyzed for volatile organics (VOAs). The quality assurance review and laboratory reporting sheets are presented in Appendix A.

Wells MW-20B and MW-16A are the only wells in which PERC, TCE and cis-1,2-DCE concentrations continue to be elevated. Concentrations is well MW-20B were 387 µg/L, 7.6 µg/L, and 15 µg/L, respectively. PERC and cis-1,2-DCE concentrations in MW-16A were 43 µg/L and 1.9 µg/L, respectively. PERC was detected below the practical quantitation limit of 1 µg/L in wells MW-20A and H2, as well as for TCE in MW-16A. Model Toxic Control Act (MTCA) cleanup levels were exceeded for tetrachloroethene (5.0 µg/L) in MW-20B and MW-16A and for trichloroethene (5.0 µg/L) in MW-20B. 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 consistent with previous

by Pamela B. Marti
March 1997
Waterbody No. WA-12-1115GW
(Segment No. 05-12-GW)
Ecology Report #97-312

measurements. Well H2 also had a high pH of 7.8. High pH readings are often 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 (440 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), trichloroethene (TCE), and cis-1,2-dichloroethene (cis-1,2-DCE) occurred in well MW-20B with 387 µg/L, 7.6 µg/L, and 15 µg/L, respectively. PERC and cis-1,2-DCE were also detected in MW-16A with concentrations of 43 µg/L and 1.9 µg/L, respectively. PERC was detected below the practical quantitation limit of 1 µg/L in wells MW-20A and H2, as well as for TCE in MW-16A.

Table 3 shows PERC, TCE, and cis-1,2-DCE concentrations for sampling events from January 1991 through July 1996. Wells MW-20B and MW-16A are the only wells in which PERC, TCE and cis-1,2-DCE concentrations continue to be elevated. Figure 2 shows PERC concentrations for these wells between 1984 and 1996. 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 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 July 31, 1996 from municipal well H2 and five monitoring wells: MW-16A, MW-20A, MW-20B, MW-27, and MW-33 (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 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 0%, 15%, and 0%, respectively. All matrix spike and spike duplicate recoveries are within the QC limits of ±25% for water sample analysis.

Bibliography

CH2M HILL, 1990a. Sampling and Analysis Plan Remedial Action - Lakewood.

------, 1990b. Technical Memorandum from Lisa Dally Wilson to Ann Williamson RE: Groundwater Sampling at Lakewood (April 1990). Project No. SEA69018RA.FQ.

Marti, P., 1991. Lakewood/Plaza Cleaners Monitoring Round I - January, 1991. Department of Ecology - Environmental Investigations.

------, 1991. Lakewood/Plaza Cleaners Monitoring Round II - May, 1991. Department of Ecology - Environmental Investigations.

------, 1992. Lakewood/Plaza Cleaners Monitoring Round III - November, 1991. Department of Ecology - Environmental Investigations.

------, 1992. Lakewood/Plaza Cleaners Monitoring Round IV - May, 1992. Department of Ecology - Environmental Investigations.

------, 1993. Lakewood/Plaza Cleaners Monitoring Round V - December, 1992. Department of Ecology - Environmental Investigations.

------, 1993. Lakewood/Plaza Cleaners Monitoring Round VI - May, 1993. Department of Ecology - Environmental Investigations.

------, 1994. Lakewood/Plaza Cleaners Monitoring Round VII - December, 1993. Department of Ecology - Environmental Investigations.

------, 1994. Lakewood/Plaza Cleaners Monitoring Round VIII - April, 1994. Department of Ecology - Environmental Investigations.

------, 1995. Lakewood/Plaza Cleaners Monitoring Round IX - November, 1994. Department of Ecology - Environmental Investigations.

------, 1995. Lakewood/Plaza Cleaners Monitoring - July 11, 12 & 14, 1995. Department of Ecology - Environmental Investigations.

------, 1996. Lakewood/Plaza Cleaners Monitoring - January 17-18, 1996. Department of Ecology - Environmental Investigations.

U.S. Environmental Protection Agency, 1986. Test Methods for Evaluating Solid Waste, SW-846. Office of Emergency Response, Washington , D.C., 1986.

Washington State Department of Ecology, 1994. Manchester Environmental Laboratory - Laboratory Users Manual. Edited by D. Huntamer and J. Hyre.

Contacts

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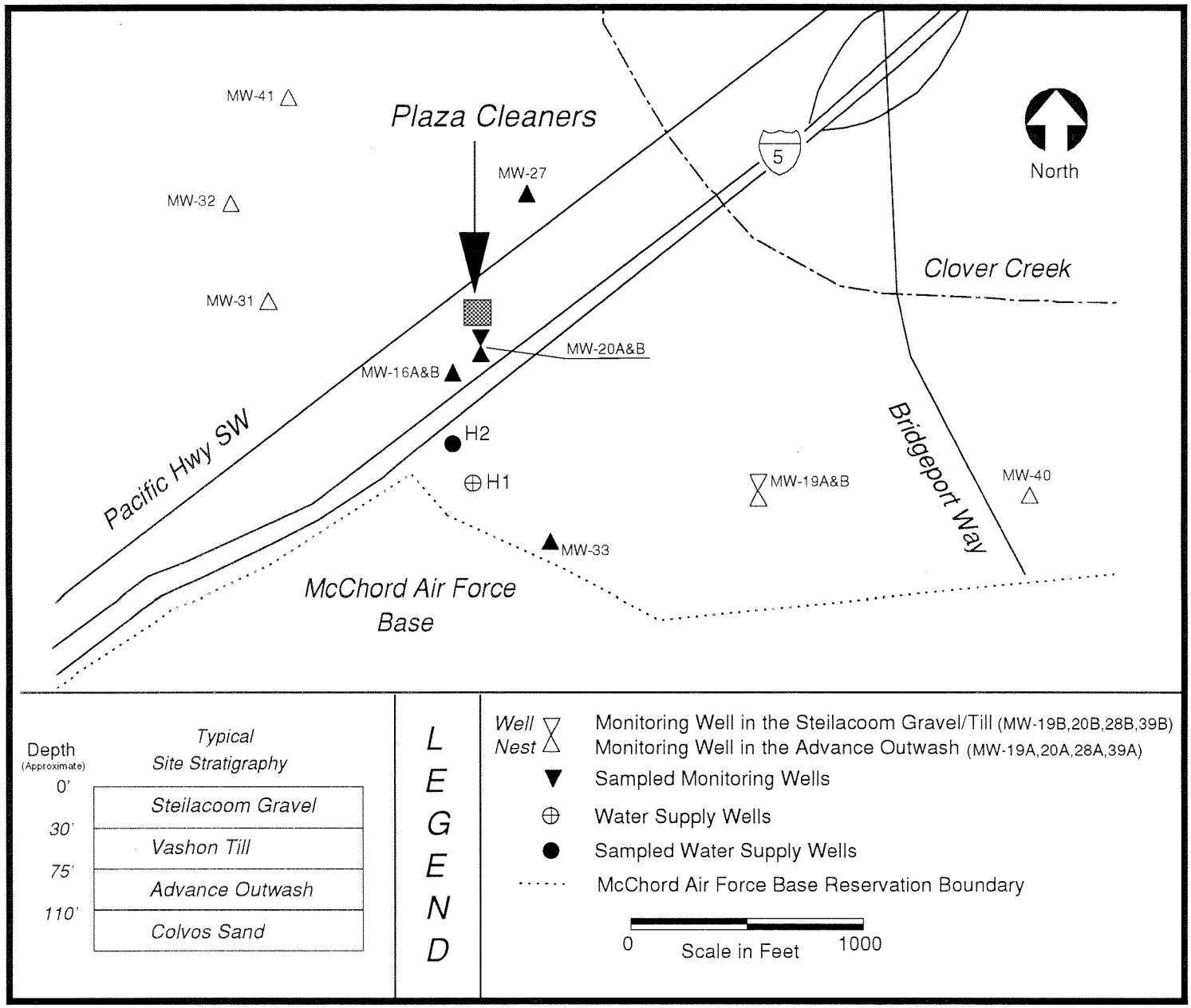


Figure 1: Well Location Map - Lakewood/Plaza Cleaners

Table 1: Field Parameter Results for July, 1996

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	6.9	232	12.8	120
MW-19A	97.5	Advance Outwash	---	---	---	---	---
MW-20A	97.3	Advance Outwash	33.02	7.9	230	13.4	40
MW-20B	50.4	Vashon Till	33.15	6.5	440	14.1	8
MW-27	96.4	Advance Outwash	++	6.8	195	12.5	30
MW-31	91.5	Advance Outwash	++	---	---	---	---
MW-33	99.3	Advance Outwash	++	7.0	198	11.5	30
H2	?	Advance Outwash	++	7.8	205	14.4	>1000

++ = Dedicated pump obstructs water-level measurement.

Table 2: Summary of Analytes Detected in Samples Collected July 31, 1996

Geologic Unit Screened	Vashon Till	Advance Outwash							
Monitoring Well	MW-20B	MW-16A	MW-16B (Duplicate)	MW-20A	MW-27	MW-31	MW-33	Upgradient MW-19A	Municipal Well H2
Volatile Organics: (ug/L)									
Tetrachloroethene (PERC)	**387**	**43**	**43**	**0.36 J**	1 U	--	1 U	--	**0.14 J**
Trichloroethene (TCE)	**7.6**	**0.65 J**	**0.76 J**	1 U	1 U	--	1 U	--	1 U
cis-1,2-Dichloroethene (cis-1,2-DCE)	**15**	**1.9**	**1.9**	1 U	1 U	--	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 July 1996

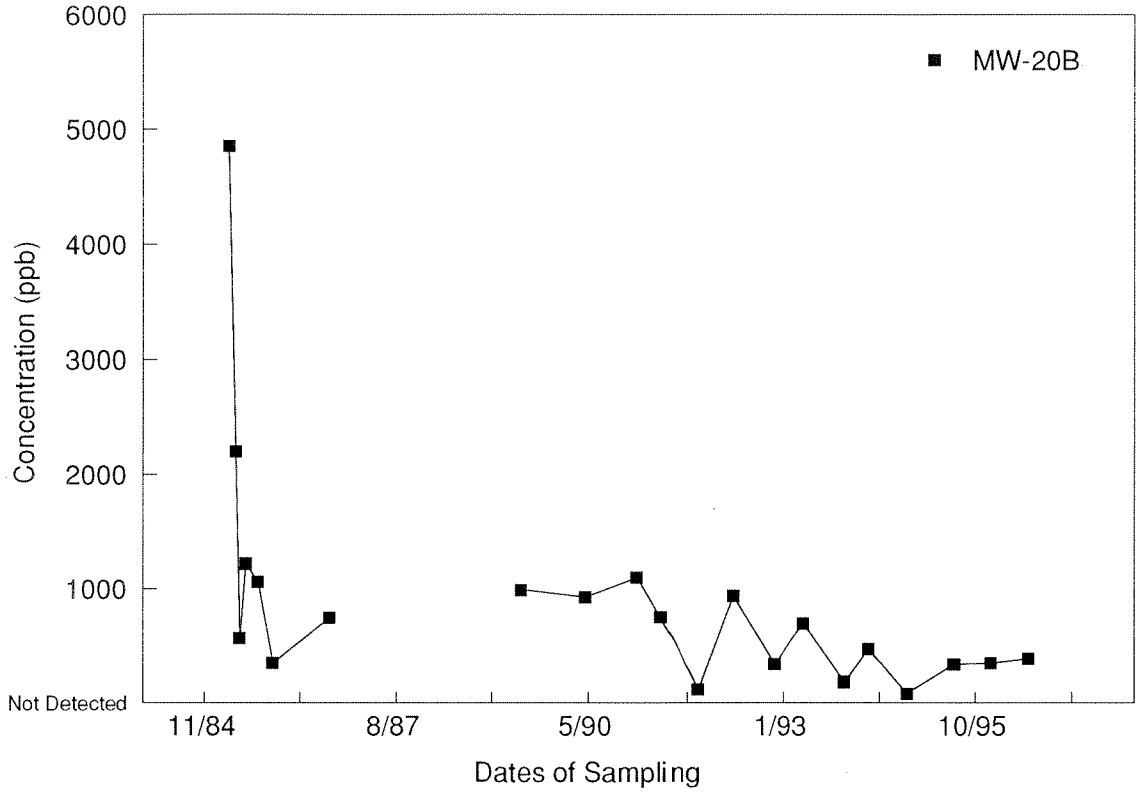
Well	January 1991			May 1991			November 1991			May 1992			December 1992			May 1993		
Number	PERC	TCE	cis-1,2-DCE	PERC	TCE	cis-1,2-DCE	PERC	TCE	cis-1,2-DCE	PERC	TCE	cis-1,2-DCE	PERC	TCE	cis-1,2-DCE	PERC	TCE	cis-1,2-DCE
MW-16A	28	1 J	2.4 J	26	0.6 J	2	2.7 J	1 U	0.6 J	7	1 U	1	9 J	0.3 J	0.8 J	44	10 U	2 J
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
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
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
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
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
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
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
MW-19A	--	--	--	--	--	--	1 U	0.5 J	1 U	--	--	--	1 U	1 UJ	1 UJ	--	--	--
MW-40	1 U	1 U	1 U	--	--	--	1 U	1 U	1 U	--	--	--	1 U	1 UJ	1 UJ	--	--	--

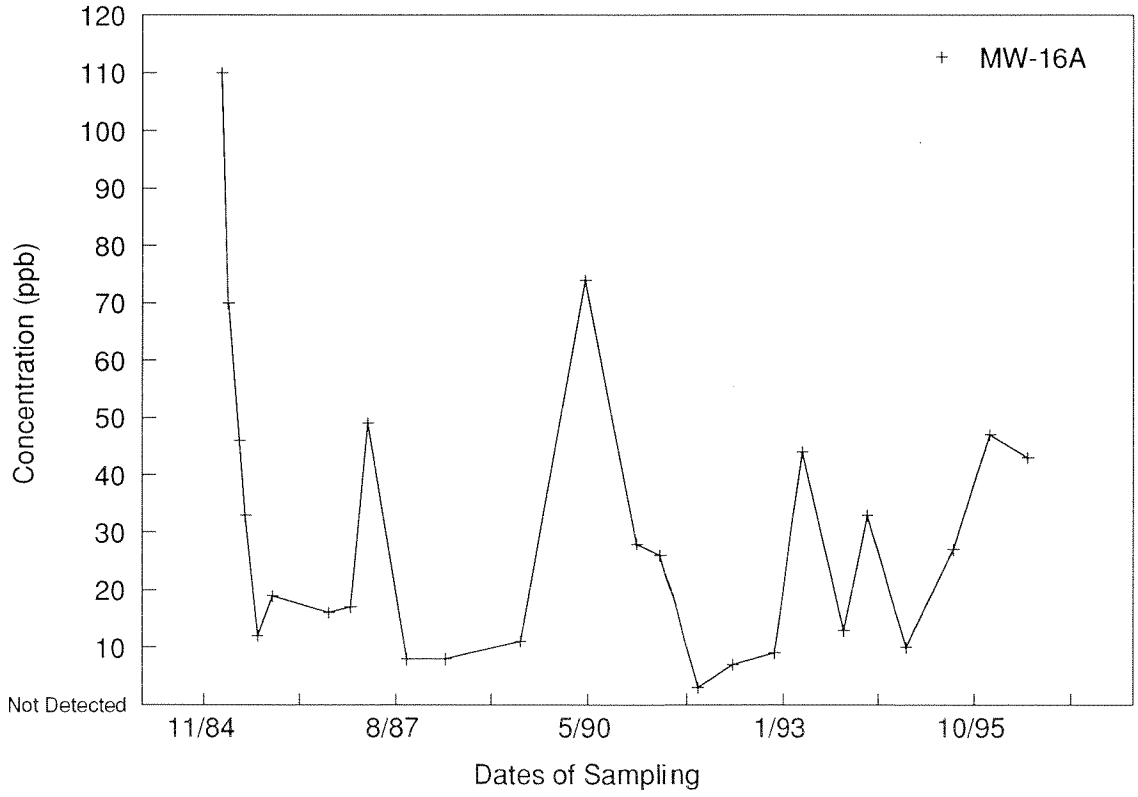
Well	December 1993			April 1994			November 1994			July 1995			January 1996			July 1996		
Number	PERC	TCE	cis-1,2-DCE	PERC	TCE	cis-1,2-DCE	PERC	TCE	cis-1,2-DCE	PERC	TCE	cis-1,2-DCE	PERC	TCE	cis-1,2-DCE	PERC	TCE	cis-1,2-DCE
MW-16A	13	0.3 J	0.7 J	33	0.6	1.4	9.7	0.3 J	0.5 J	27	0.5 J	0.8 J	47 E	0.8 J	1.5	43	0.7 J	1.9
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
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
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
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	0.3 J	1 U	1 U

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 1996





APPENDIX A

Analytical Results
Lakewood/Plaza Cleaners
July 31, 1996

Manchester Environmental Laboratory

7411 Beach Dr E, Port Orchard Washington 98366

CASE NARRATIVE

September 25, 1996

Subject: Lakewood Plaza Cleaners
Samples: 96315000 - 006
Case No. 150196
Officer: Pam Marti
By: Greg Perez
Organics Analysis Unit

VOLATILE ORGANIC ANALYSIS

SUMMARY:

Sample 319005 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: Lakewood/Plaza Cleaners **LIMS Project ID:** 1501-96

Sample: 96319000 **Date Received:** 08/01/96 **Method:** SW8260
Field ID: MW-33 **Matrix:** Water
Project Officer: P. Marti **Date Analyzed:** 08/11/96 **Units:** ug/L

Analyte	Result	Qualifier	Analyte	Result	Qualifier
Dichlorodifluoromethane	2	U	Chloroacetonitrile	5	UJ
Chloromethane	2	U	Cis-1,3-Dichloropropene	1.1	U
Vinyl Chloride	1	U	4-Methyl-2-Pentanone	2	U
Bromomethane	1	UJ	1,1-Dichloropropanone	2	U
Chloroethane	1	U	Toluene	1	U
Trichlorofluoromethane	1	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	20	U	2-Hexanone	2	U
Carbon Disulfide	2	U	Dibromochloromethane	2	U
Allyl Chloride	1	U	1,2-Dibromoethane (EDB)	2	U
Methylene Chloride	1	U	Chlorobenzene	1	U
Trans-1,2-Dichloroethene	1	U	1,1,1,2-Tetrachloroethane	2	U
Acrylonitrile	1	U	Ethylbenzene	1	U
2-Methyoxy-2-Methylpropane	2	U	m & p-Xylene	2	U
1,1-Dichloroethane	1	U	o-Xylene	2	U
2,2-Dichloropropane	1	U	Styrene	2	UJ
Cis-1,2-Dichloroethene	1	U	Bromoform	5	UJ
2-Butanone	2	U	Isopropylbenzene (Cumene)	1	U
Methyl acrylate	1	U	Bromobenzene	1	U
Bromochloromethane	2	U	1,1,2,2-Tetrachloroethane	1	U
Methyacrilonitrile	1	U	1,2,3-Trichloropropane	1	U
Tetrahydrofuran	1	U	Trans-1,4-Dichloro-2-butene	1	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	5	UJ
1,2-Dichloroethane	1	U	1,2,4-Trimethylbenzene	1	U
Trichloroethene	1	U	Sec-Butylbenzene	2	U
1,2-Dichloropropane	1	U	1,3-Dichlorobenzene	1	U
Methyl Methacrylate	2	UJ	p-Isopropyltoluene	2	U
Dibromomethane	1	U	1,4-Dichlorobenzene	2	U
Bromodichloromethane	1	U	n-Butylbenzene	2	U
2-Nitropropane	1	UJ	1,2-Dichlorobenzene	1	U

Authorized By: _____ Release Date: 9/25/96 Page: 1

Manchester Environmental Laboratory

Department of Ecology

Analysis Report for

Volatile Organic Analysis

Project Name: Lakewood/Plaza Cleaners **LIMS Project ID:** 1501-96

Sample: 96319000 **Date Received:** 08/01/96 **Method:** SW8260
Field ID: MW-33 **Matrix:** Water
Project Officer: P. Marti **Date Analyzed:** 08/11/96 **Units:** ug/L

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

Surrogate Recoveries

1,2-Dichloroethane-D4	**97**	**%**
1,4-Difluorobenzene	**101**	**%**
Toluene-D8	**98**	**%**
p-Bromofluorobenzene	**90**	**%**
1,2-Dichlorobenzene-D4	**103**	**%**

Authorized By: _____ Release Date: 9/25/96

Manchester Environmental Laboratory

Department of Ecology

Analysis Report for

Volatile Organic Analysis

Project Name: Lakewood/Plaza Cleaners **LIMS Project ID:** 1501-96

Sample: 96319001 **Date Received:** 08/01/96 **Method:** SW8260
Field ID: MW-27 **Matrix:** Water
Project Officer: P. Marti **Date Analyzed:** 08/11/96 **Units:** ug/L

Analyte	Result	Qualifier	Analyte	Result	Qualifier
Dichlorodifluoromethane	2	U	Chloroacetonitrile	5	UJ
Chloromethane	2	U	Cis-1,3-Dichloropropene	1.1	U
Vinyl Chloride	1	U	4-Methyl-2-Pentanone	2	U
Bromomethane	1	UJ	1,1-Dichloropropanone	2	U
Chloroethane	1	U	Toluene	1	U
Trichlorofluoromethane	1	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	20	U	2-Hexanone	2	U
Carbon Disulfide	2	U	Dibromochloromethane	2	U
Allyl Chloride	1	U	1,2-Dibromoethane (EDB)	2	U
Methylene Chloride	1	U	Chlorobenzene	1	U
Trans-1,2-Dichloroethene	1	U	1,1,1,2-Tetrachloroethane	2	U
Acrylonitrile	1	U	Ethylbenzene	1	U
2-Methyoxy-2-Methylpropane	2	U	m & p-Xylene	2	U
1,1-Dichloroethane	1	U	o-Xylene	2	U
2,2-Dichloropropane	1	U	Styrene	2	UJ
Cis-1,2-Dichloroethene	1	U	Bromoform	5	UJ
2-Butanone	2	U	Isopropylbenzene (Cumene)	1	U
Methyl acrylate	1	U	Bromobenzene	1	U
Bromochloromethane	2	U	1,1,2,2-Tetrachloroethane	1	U
Methyacrilonitrile	1	U	1,2,3-Trichloropropane	1	U
Tetrahydrofuran	1	U	Trans-1,4-Dichloro-2-butene	1	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	5	UJ
1,2-Dichloroethane	1	U	1,2,4-Trimethylbenzene	1	U
Trichloroethene	1	U	Sec-Butylbenzene	2	U
1,2-Dichloropropane	1	U	1,3-Dichlorobenzene	1	U
Methyl Methacrylate	2	UJ	p-Isopropyltoluene	2	U
Dibromomethane	1	U	1,4-Dichlorobenzene	2	U
Bromodichloromethane	1	U	n-Butylbenzene	2	U
2-Nitropropane	1	UJ	1,2-Dichlorobenzene	1	U

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Volatile Organic Analysis

Project Name: Lakewood/Plaza Cleaners **LIMS Project ID:** 1501-96

Sample: 96319001 **Date Received:** 08/01/96 **Method:** SW8260
Field ID: MW-27 **Matrix:** Water
Project Officer: P. Marti **Date Analyzed:** 08/11/96 **Units:** ug/L

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

Surrogate Recoveries

1,2-Dichloroethane-D4	**99**	**%**
1,4-Difluorobenzene	**103**	**%**
Toluene-D8	**97**	**%**
p-Bromofluorobenzene	**88**	**%**
1,2-Dichlorobenzene-D4	**100**	**%**

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Analysis Report for

Volatile Organic Analysis

Project Name: Lakewood/Plaza Cleaners **LIMS Project ID:** 1501-96

Sample: 96319002 **Date Received:** 08/05/96 **Method:** SW8260
Field ID: MW-16A **Matrix:** Water
Project Officer: P. Marti **Date Analyzed:** 08/11/96 **Units:** ug/L

Analyte	Result	Qualifier	Analyte	Result	Qualifier
Dichlorodifluoromethane	2	U	Chloroacetonitrile	5	UJ
Chloromethane	2	U	Cis-1,3-Dichloropropene	1.1	U
Vinyl Chloride	1	U	4-Methyl-2-Pentanone	2	U
Bromomethane	1	UJ	1,1-Dichloropropanone	2	U
Chloroethane	1	U	Toluene	1	U
Trichlorofluoromethane	1	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**	**43**	
Methyl Iodide	1	U	1,3-Dichloropropane	1	U
Acetone	20	U	2-Hexanone	2	U
Carbon Disulfide	2	U	Dibromochloromethane	2	U
Allyl Chloride	1	U	1,2-Dibromoethane (EDB)	2	U
Methylene Chloride	1	U	Chlorobenzene	1	U
Trans-1,2-Dichloroethene	1	U	1,1,1,2-Tetrachloroethane	2	U
Acrylonitrile	1	U	Ethylbenzene	1	U
2-Methyoxy-2-Methylpropane	2	U	m & p-Xylene	2	U
1,1-Dichloroethane	1	U	o-Xylene	2	U
2,2-Dichloropropane	1	U	Styrene	2	UJ
Cis-1,2-Dichloroethene	**1.9**		Bromoform	5	UJ
2-Butanone	2	U	Isopropylbenzene (Cumene)	1	U
Methyl acrylate	1	U	Bromobenzene	1	U
Bromochloromethane	2	U	1,1,2,2-Tetrachloroethane	1	U
Methyacrilonitrile	1	U	1,2,3-Trichloropropane	1	U
Tetrahydrofuran	1	U	Trans-1,4-Dichloro-2-butene	1	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	5	UJ
1,2-Dichloroethane	1	U	1,2,4-Trimethylbenzene	1	U
Trichloroethene	**.65**	**J**	Sec-Butylbenzene	2	U
1,2-Dichloropropane	1	U	1,3-Dichlorobenzene	1	U
Methyl Methacrylate	2	UJ	p-Isopropyltoluene	2	U
Dibromomethane	1	U	1,4-Dichlorobenzene	2	U
Bromodichloromethane	1	U	n-Butylbenzene	2	U
2-Nitropropane	1	UJ	1,2-Dichlorobenzene	1	U

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Volatile Organic Analysis

Project Name: Lakewood/Plaza Cleaners **LIMS Project ID:** 1501-96

Sample: 96319002 **Date Received:** 08/05/96 **Method:** SW8260
Field ID: MW-16A **Matrix:** Water
Project Officer: P. Marti **Date Analyzed:** 08/11/96 **Units:** ug/L

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

Surrogate Recoveries

1,2-Dichloroethane-D4	**100**	**%**
1,4-Difluorobenzene	**105**	**%**
Toluene-D8	**99**	**%**
p-Bromofluorobenzene	**87**	**%**
1,2-Dichlorobenzene-D4	**103**	**%**

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Analysis Report for

Volatile Organic Analysis

Project Name: Lakewood/Plaza Cleaners **LIMS Project ID:** 1501-96

Sample: 96319003 **Date Received:** 08/05/96 **Method:** SW8260
Field ID: MW-16B **Matrix:** Water
Project Officer: P. Marti **Date Analyzed:** 08/11/96 **Units:** ug/L

Analyte	Result	Qualifier	Analyte	Result	Qualifier
Dichlorodifluoromethane	2	U	Chloroacetonitrile	5	UJ
Chloromethane	2	U	Cis-1,3-Dichloropropene	1.1	U
Vinyl Chloride	1	U	4-Methyl-2-Pentanone	2	U
Bromomethane	1	UJ	1,1-Dichloropropanone	2	U
Chloroethane	1	U	Toluene	1	U
Trichlorofluoromethane	1	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**	**43**	
Methyl Iodide	1	U	1,3-Dichloropropane	1	U
Acetone	20	U	2-Hexanone	2	U
Carbon Disulfide	2	U	Dibromochloromethane	2	U
Allyl Chloride	1	U	1,2-Dibromoethane (EDB)	2	U
Methylene Chloride	1	U	Chlorobenzene	1	U
Trans-1,2-Dichloroethene	1	U	1,1,1,2-Tetrachloroethane	2	U
Acrylonitrile	1	U	Ethylbenzene	1	U
2-Methyoxy-2-Methylpropane	2	U	m & p-Xylene	2	U
1,1-Dichloroethane	1	U	o-Xylene	2	U
2,2-Dichloropropane	1	U	Styrene	2	UJ
Cis-1,2-Dichloroethene	**1.9**		Bromoform	5	UJ
2-Butanone	2	U	Isopropylbenzene (Cumene)	1	U
Methyl acrylate	1	U	Bromobenzene	1	U
Bromochloromethane	2	U	1,1,2,2-Tetrachloroethane	1	U
Methyacrilonitrile	1	U	1,2,3-Trichloropropane	1	U
Tetrahydrofuran	1	U	Trans-1,4-Dichloro-2-butene	1	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	5	UJ
1,2-Dichloroethane	1	U	1,2,4-Trimethylbenzene	1	U
Trichloroethene	**.76**	**J**	Sec-Butylbenzene	2	U
1,2-Dichloropropane	1	U	1,3-Dichlorobenzene	1	U
Methyl Methacrylate	2	UJ	p-Isopropyltoluene	2	U
Dibromomethane	1	U	1,4-Dichlorobenzene	2	U
Bromodichloromethane	1	U	n-Butylbenzene	2	U
2-Nitropropane	1	UJ	1,2-Dichlorobenzene	1	U

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Analysis Report for

Volatile Organic Analysis

Project Name: Lakewood/Plaza Cleaners **LIMS Project ID:** 1501-96

Sample: 96319003 **Date Received:** 08/05/96 **Method:** SW8260
Field ID: MW-16B **Matrix:** Water
Project Officer: P. Marti **Date Analyzed:** 08/11/96 **Units:** ug/L

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

Surrogate Recoveries

1,2-Dichloroethane-D4	**97**	**%**
1,4-Difluorobenzene	**105**	**%**
Toluene-D8	**97**	**%**
p-Bromofluorobenzene	**87**	**%**
1,2-Dichlorobenzene-D4	**103**	**%**

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Analysis Report for

Volatile Organic Analysis

Project Name: Lakewood/Plaza Cleaners **LIMS Project ID:** 1501-96

Sample: 96319004 **Date Received:** 08/01/96 **Method:** SW8260
Field ID: MW-20A **Matrix:** Water
Project Officer: P. Marti **Date Analyzed:** 08/11/96 **Units:** ug/L

Analyte	Result	Qualifier	Analyte	Result	Qualifier
Dichlorodifluoromethane	2	UJ	Chloroacetonitrile	5	UJ
Chloromethane	2	U	Cis-1,3-Dichloropropene	1.1	U
Vinyl Chloride	1	U	4-Methyl-2-Pentanone	2	U
Bromomethane	1	UJ	1,1-Dichloropropanone	2	U
Chloroethane	1	U	Toluene	1	U
Trichlorofluoromethane	1	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**	**.36**	**J**
Methyl Iodide	1	U	1,3-Dichloropropane	1	U
Acetone	20	U	2-Hexanone	2	U
Carbon Disulfide	2	U	Dibromochloromethane	2	U
Allyl Chloride	1	U	1,2-Dibromoethane (EDB)	2	U
Methylene Chloride	1	U	Chlorobenzene	1	U
Trans-1,2-Dichloroethene	1	U	1,1,1,2-Tetrachloroethane	2	U
Acrylonitrile	1	U	Ethylbenzene	1	U
2-Methyoxy-2-Methylpropane	2	U	m & p-Xylene	2	U
1,1-Dichloroethane	1	U	o-Xylene	2	U
2,2-Dichloropropane	1	U	Styrene	2	UJ
Cis-1,2-Dichloroethene	1	U	Bromoform	5	UJ
2-Butanone	2	U	Isopropylbenzene (Cumene)	1	U
Methyl acrylate	1	U	Bromobenzene	1	U
Bromochloromethane	2	U	1,1,2,2-Tetrachloroethane	1	U
Methyacrilonitrile	1	U	1,2,3-Trichloropropane	1	U
Tetrahydrofuran	1	U	Trans-1,4-Dichloro-2-butene	1	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	5	UJ
1,2-Dichloroethane	1	U	1,2,4-Trimethylbenzene	1	U
Trichloroethene	1	U	Sec-Butylbenzene	2	U
1,2-Dichloropropane	1	U	1,3-Dichlorobenzene	1	U
Methyl Methacrylate	2	UJ	p-Isopropyltoluene	2	U
Dibromomethane	1	U	1,4-Dichlorobenzene	2	U
Bromodichloromethane	1	U	n-Butylbenzene	2	U
2-Nitropropane	1	UJ	1,2-Dichlorobenzene	1	U

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Analysis Report for

Volatile Organic Analysis

Project Name: Lakewood/Plaza Cleaners **LIMS Project ID:** 1501-96

Sample: 96319004 **Date Received:** 08/01/96 **Method:** SW8260
Field ID: MW-20A **Matrix:** Water
Project Officer: P. Marti **Date Analyzed:** 08/11/96 **Units:** ug/L

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

Surrogate Recoveries

1,2-Dichloroethane-D4	**94**	**%**
1,4-Difluorobenzene	**98**	**%**
Toluene-D8	**91**	**%**
p-Bromofluorobenzene	**87**	**%**
1,2-Dichlorobenzene-D4	**98**	**%**

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Analysis Report for

Volatile Organic Analysis

Project Name: Lakewood/Plaza Cleaners **LIMS Project ID:** 1501-96

Sample: 96319005 **Date Received:** 08/01/96 **Method:** SW8260
Field ID: MW-20B **Matrix:** Water
Project Officer: P. Marti **Date Analyzed:** 08/11/96 **Units:** ug/L

Analyte	Result	Qualifier	Analyte	Result	Qualifier
Dichlorodifluoromethane	2	U	Chloroacetonitrile	5	UJ
Chloromethane	2	U	Cis-1,3-Dichloropropene	1.1	U
Vinyl Chloride	1	U	4-Methyl-2-Pentanone	2	U
Bromomethane	1	UJ	1,1-Dichloropropanone	2	U
Chloroethane	1	U	Toluene	1	U
Trichlorofluoromethane	1	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**	**648**	**E**
Methyl Iodide	1	U	1,3-Dichloropropane	1	U
Acetone	20	U	2-Hexanone	2	U
Carbon Disulfide	2	U	Dibromochloromethane	2	U
Allyl Chloride	1	U	1,2-Dibromoethane (EDB)	2	U
Methylene Chloride	1	U	Chlorobenzene	1	U
Trans-1,2-Dichloroethene	1	U	1,1,1,2-Tetrachloroethane	2	U
Acrylonitrile	1	U	Ethylbenzene	1	U
2-Methyoxy-2-Methylpropane	2	U	m & p-Xylene	2	U
1,1-Dichloroethane	1	U	o-Xylene	2	U
2,2-Dichloropropane	1	U	Styrene	2	UJ
Cis-1,2-Dichloroethene	**15**		Bromoform	5	UJ
2-Butanone	2	U	Isopropylbenzene (Cumene)	1	U
Methyl acrylate	1	U	Bromobenzene	1	U
Bromochloromethane	2	U	1,1,2,2-Tetrachloroethane	1	U
Methyacrilonitrile	1	U	1,2,3-Trichloropropane	1	U
Tetrahydrofuran	1	U	Trans-1,4-Dichloro-2-butene	1	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	5	UJ
1,2-Dichloroethane	1	U	1,2,4-Trimethylbenzene	1	U
Trichloroethene	**7.6**		Sec-Butylbenzene	2	U
1,2-Dichloropropane	1	U	1,3-Dichlorobenzene	1	U
Methyl Methacrylate	2	UJ	p-Isopropyltoluene	2	U
Dibromomethane	1	U	1,4-Dichlorobenzene	2	U
Bromodichloromethane	1	U	n-Butylbenzene	2	U
2-Nitropropane	1	UJ	1,2-Dichlorobenzene	1	U

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Analysis Report for

Volatile Organic Analysis

Project Name: Lakewood/Plaza Cleaners **LIMS Project ID:** 1501-96

Sample: 96319005 **Date Received:** 08/01/96 **Method:** SW8260
Field ID: MW-20B **Matrix:** Water
Project Officer: P. Marti **Date Analyzed:** 08/11/96 **Units:** ug/L

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

Surrogate Recoveries

1,2-Dichloroethane-D4	**94**	**%**
1,4-Difluorobenzene	**102**	**%**
Toluene-D8	**96**	**%**
p-Bromofluorobenzene	**86**	**%**
1,2-Dichlorobenzene-D4	**102**	**%**

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Analysis Report for

Volatile Organic Analysis

Project Name: Lakewood/Plaza Cleaners **LIMS Project ID:** 1501-96

Sample: 96319005 (Dilution - DIL1) **Date Received:** 08/01/96 **Method:** SW8260
Field ID: MW-20B **Matrix:** Water
Project Officer: P. Marti **Date Analyzed:** 08/11/96 **Units:** ug/L

Analyte	Result	Qualifier	Analyte	Result	Qualifier
Dichlorodifluoromethane	200	U	Chloroacetonitrile	500	UJ
Chloromethane	200	U	Cis-1,3-Dichloropropene	106	U
Vinyl Chloride	100	U	4-Methyl-2-Pentanone	200	U
Bromomethane	100	UJ	1,1-Dichloropropanone	200	U
Chloroethane	100	U	Toluene	100	U
Trichlorofluoromethane	100	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**	**387**	
Methyl Iodide	100	U	1,3-Dichloropropane	100	U
Acetone	2000	U	2-Hexanone	200	U
Carbon Disulfide	200	U	Dibromochloromethane	200	U
Allyl Chloride	100	U	1,2-Dibromoethane (EDB)	200	U
Methylene Chloride	100	U	Chlorobenzene	100	U
Trans-1,2-Dichloroethene	100	U	1,1,1,2-Tetrachloroethane	200	U
Acrylonitrile	100	U	Ethylbenzene	100	U
2-Methyoxy-2-Methylpropane	200	U	m & p-Xylene	200	U
1,1-Dichloroethane	100	U	o-Xylene	200	U
2,2-Dichloropropane	100	U	Styrene	200	UJ
Cis-1,2-Dichloroethene	100	U	Bromoform	500	UJ
2-Butanone	200	U	Isopropylbenzene (Cumene)	100	U
Methyl acrylate	100	U	Bromobenzene	100	U
Bromochloromethane	200	U	1,1,2,2-Tetrachloroethane	100	U
Methyacrilonitrile	100	U	1,2,3-Trichloropropane	100	U
Tetrahydrofuran	100	U	Trans-1,4-Dichloro-2-butene	100	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	500	UJ
1,2-Dichloroethane	100	U	1,2,4-Trimethylbenzene	100	U
Trichloroethene	100	U	Sec-Butylbenzene	200	U
1,2-Dichloropropane	100	U	1,3-Dichlorobenzene	100	U
Methyl Methacrylate	200	UJ	p-Isopropyltoluene	200	U
Dibromomethane	100	U	1,4-Dichlorobenzene	200	U
Bromodichloromethane	100	U	n-Butylbenzene	200	U
2-Nitropropane	100	UJ	1,2-Dichlorobenzene	100	U

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Analysis Report for

Volatile Organic Analysis

Project Name: Lakewood/Plaza Cleaners **LIMS Project ID:** 1501-96

Sample: 96319005 (Dilution - DIL1) **Date Received:** 08/01/96 **Method:** SW8260
Field ID: MW-20B **Matrix:** Water
Project Officer: P. Marti **Date Analyzed:** 08/11/96 **Units:** ug/L

Analyte	Result	Qualifier
Hexachloroethane	100	U
1,2-Dibromo-3-Chloropropane	500	UJ
1,2,4-Trichlorobenzene	500	UJ
Hexachlorobutadiene	500	UJ
Naphthalene	1000	UJ
1,2,3-Trichlorobenzene	500	UJ

Surrogate Recoveries

1,2-Dichloroethane-D4	**94**	**%**
1,4-Difluorobenzene	**98**	**%**
Toluene-D8	**90**	**%**
p-Bromofluorobenzene	**86**	**%**
1,2-Dichlorobenzene-D4	**96**	**%**

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Analysis Report for

Volatile Organic Analysis

Project Name: Lakewood/Plaza Cleaners **LIMS Project ID:** 1501-96

Sample: 96319005 (Matrix Spike - LMX1) **Date Received:** 08/01/96 **Method:** SW8260
Field ID: MW-20B **Matrix:** Water
Project Officer: P. Marti **Date Analyzed:** 08/11/96 **Units:** % Recovery

Analyte	Result	Qualifier	Analyte	Result	Qualifier
Dichlorodifluoromethane	77		Chloroacetonitrile	93	
Chloromethane	101		Cis-1,3-Dichloropropene	91	
Vinyl Chloride	99		4-Methyl-2-Pentanone	90	
Bromomethane	103		1,1-Dichloropropanone	67	
Chloroethane	99		Toluene	89	
Trichlorofluoromethane	87		Trans-1,3-Dichloropropene	83	
1,1,2 Trichlorotrifluoroethane	104		Ethylmethacrylate	88	
Ethyl Ether	100		1,1,2-Trichloroethane	93	
1,1-Dichloroethene	100		Tetrachloroethene	97	
Methyl Iodide	101		1,3-Dichloropropane	92	
Acetone	94		2-Hexanone	87	
Carbon Disulfide	101		Dibromochloromethane	94	
Allyl Chloride	93		1,2-Dibromoethane (EDB)	94	
Methylene Chloride	75		Chlorobenzene	96	
Trans-1,2-Dichloroethene	96		1,1,1,2-Tetrachloroethane	95	
Acrylonitrile	95		Ethylbenzene	89	
2-Methyoxy-2-Methylpropane	85		m & p-Xylene	92	
1,1-Dichloroethane	91		o-Xylene	93	
2,2-Dichloropropane	87		Styrene	97	
Cis-1,2-Dichloroethene	91		Bromoform	87	
2-Butanone	87		Isopropylbenzene (Cumene)	90	
Methyl acrylate	91		Bromobenzene	93	
Bromochloromethane	103		1,1,2,2-Tetrachloroethane	92	
Methyacrilonitrile	91		1,2,3-Trichloropropane	89	
Tetrahydrofuran	88		Trans-1,4-Dichloro-2-butene	86	
Chloroform	91		n-Propylbenzene	94	
1,1,1-Trichloroethane	88		2-Chlorotoluene	92	
1-Chlorobutane	92		1,3,5-Trimethylbenzene	92	
Carbon Tetrachloride	91		4-Chlorotoluene	95	
1,1-Dichloropropene	91		Tert-Butylbenzene	85	
Benzene	91		Pentachloroethane	84	
1,2-Dichloroethane	93		1,2,4-Trimethylbenzene	90	
Trichloroethene	98		Sec-Butylbenzene	90	
1,2-Dichloropropane	92		1,3-Dichlorobenzene	93	
Methyl Methacrylate	95		p-Isopropyltoluene	91	
Dibromomethane	92		1,4-Dichlorobenzene	94	
Bromodichloromethane	92		n-Butylbenzene	88	
2-Nitropropane	89		1,2-Dichlorobenzene	93	

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Analysis Report for

Volatile Organic Analysis

Project Name: Lakewood/Plaza Cleaners **LIMS Project ID:** 1501-96

Sample: 96319005 (Matrix Spike - LMX1) **Date Received:** 08/01/96 **Method:** SW8260
Field ID: MW-20B **Matrix:** Water
Project Officer: P. Marti **Date Analyzed:** 08/11/96 **Units:** % Recovery

Analyte	Result	Qualifier
Hexachloroethane	92	
1,2-Dibromo-3-Chloropropane	88	
1,2,4-Trichlorobenzene	87	
Hexachlorobutadiene	98	
Naphthalene	67	
1,2,3-Trichlorobenzene	79	

Surrogate Recoveries

1,2-Dichloroethane-D4	94	%
1,4-Difluorobenzene	96	%
Toluene-D8	90	%
p-Bromofluorobenzene	91	%
1,2-Dichlorobenzene-D4	97	%

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Analysis Report for

Volatile Organic Analysis

Project Name: Lakewood/Plaza Cleaners **LIMS Project ID:** 1501-96

Sample: 96319005 (Matrix Spike - LMX2) **Date Received:** 08/01/96 **Method:** SW8260
Field ID: MW-20B **Matrix:** Water
Project Officer: P. Marti **Date Analyzed:** 08/11/96 **Units:** % Recovery

Analyte	Result	Qualifier	Analyte	Result	Qualifier
Dichlorodifluoromethane	58		Chloroacetonitrile	96	
Chloromethane	103		Cis-1,3-Dichloropropene	95	
Vinyl Chloride	102		4-Methyl-2-Pentanone	91	
Bromomethane	101		1,1-Dichloropropanone	68	
Chloroethane	95		Toluene	93	
Trichlorofluoromethane	89		Trans-1,3-Dichloropropene	87	
1,1,2 Trichlorotrifluoroethane	101		Ethylmethacrylate	90	
Ethyl Ether	97		1,1,2-Trichloroethane	94	
1,1-Dichloroethene	94		Tetrachloroethene	102	
Methyl Iodide	111		1,3-Dichloropropane	91	
Acetone	82		2-Hexanone	86	
Carbon Disulfide	107		Dibromochloromethane	97	
Allyl Chloride	100		1,2-Dibromoethane (EDB)	94	
Methylene Chloride	77		Chlorobenzene	98	
Trans-1,2-Dichloroethene	97		1,1,1,2-Tetrachloroethane	99	
Acrylonitrile	91		Ethylbenzene	93	
2-Methyoxy-2-Methylpropane	84		m & p-Xylene	96	
1,1-Dichloroethane	94		o-Xylene	96	
2,2-Dichloropropane	89		Styrene	98	
Cis-1,2-Dichloroethene	96		Bromoform	82	
2-Butanone	83		Isopropylbenzene (Cumene)	91	
Methyl acrylate	89		Bromobenzene	90	
Bromochloromethane	103		1,1,2,2-Tetrachloroethane	92	
Methyacrilonitrile	87		1,2,3-Trichloropropane	84	
Tetrahydrofuran	85		Trans-1,4-Dichloro-2-butene	85	
Chloroform	94		n-Propylbenzene	95	
1,1,1-Trichloroethane	90		2-Chlorotoluene	94	
1-Chlorobutane	96		1,3,5-Trimethylbenzene	93	
Carbon Tetrachloride	95		4-Chlorotoluene	93	
1,1-Dichloropropene	94		Tert-Butylbenzene	86	
Benzene	95		Pentachloroethane	86	
1,2-Dichloroethane	94		1,2,4-Trimethylbenzene	91	
Trichloroethene	103		Sec-Butylbenzene	92	
1,2-Dichloropropane	94		1,3-Dichlorobenzene	93	
Methyl Methacrylate	92		p-Isopropyltoluene	93	
Dibromomethane	91		1,4-Dichlorobenzene	93	
Bromodichloromethane	95		n-Butylbenzene	91	
2-Nitropropane	90		1,2-Dichlorobenzene	94	

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Analysis Report for

Volatile Organic Analysis

Project Name: Lakewood/Plaza Cleaners **LIMS Project ID:** 1501-96

Sample: 96319005 (Matrix Spike - LMX2) **Date Received:** 08/01/96 **Method:** SW8260
Field ID: MW-20B **Matrix:** Water
Project Officer: P. Marti **Date Analyzed:** 08/11/96 **Units:** % Recovery

Analyte	Result	Qualifier
Hexachloroethane	91	
1,2-Dibromo-3-Chloropropane	83	
1,2,4-Trichlorobenzene	86	
Hexachlorobutadiene	94	
Naphthalene	69	
1,2,3-Trichlorobenzene	82	

Surrogate Recoveries

1,2-Dichloroethane-D4	93	%
1,4-Difluorobenzene	95	%
Toluene-D8	90	%
p-Bromofluorobenzene	90	%
1,2-Dichlorobenzene-D4	96	%

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Analysis Report for

Volatile Organic Analysis

Project Name: Lakewood/Plaza Cleaners **LIMS Project ID:** 1501-96

Sample: 96319006 **Date Received:** 08/01/96 **Method:** SW8260
Field ID: H1 **Matrix:** Water
Project Officer: P. Marti **Date Analyzed:** 08/11/96 **Units:** ug/L

Analyte	Result	Qualifier	Analyte	Result	Qualifier
Dichlorodifluoromethane	2	U	Chloroacetonitrile	5	UJ
Chloromethane	2	U	Cis-1,3-Dichloropropene	1.1	U
Vinyl Chloride	1	U	4-Methyl-2-Pentanone	2	U
Bromomethane	1	UJ	1,1-Dichloropropanone	2	U
Chloroethane	1	U	Toluene	1	U
Trichlorofluoromethane	1	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**	**.14**	**J**
Methyl Iodide	1	U	1,3-Dichloropropane	1	U
Acetone	20	U	2-Hexanone	2	U
Carbon Disulfide	2	U	Dibromochloromethane	2	U
Allyl Chloride	1	U	1,2-Dibromoethane (EDB)	2	U
Methylene Chloride	1	U	Chlorobenzene	1	U
Trans-1,2-Dichloroethene	1	U	1,1,1,2-Tetrachloroethane	2	U
Acrylonitrile	1	U	Ethylbenzene	1	U
2-Methyoxy-2-Methylpropane	2	U	m & p-Xylene	2	U
1,1-Dichloroethane	1	U	o-Xylene	2	U
2,2-Dichloropropane	1	U	Styrene	2	UJ
Cis-1,2-Dichloroethene	1	U	Bromoform	5	UJ
2-Butanone	2	U	Isopropylbenzene (Cumene)	1	U
Methyl acrylate	1	U	Bromobenzene	1	U
Bromochloromethane	2	U	1,1,2,2-Tetrachloroethane	1	U
Methyacrilonitrile	1	U	1,2,3-Trichloropropane	1	U
Tetrahydrofuran	1	U	Trans-1,4-Dichloro-2-butene	1	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	5	UJ
1,2-Dichloroethane	1	U	1,2,4-Trimethylbenzene	1	U
Trichloroethene	1	U	Sec-Butylbenzene	2	U
1,2-Dichloropropane	1	U	1,3-Dichlorobenzene	1	U
Methyl Methacrylate	2	UJ	p-Isopropyltoluene	2	U
Dibromomethane	1	U	1,4-Dichlorobenzene	2	U
Bromodichloromethane	1	U	n-Butylbenzene	2	U
2-Nitropropane	1	UJ	1,2-Dichlorobenzene	1	U

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Volatile Organic Analysis

Project Name: Lakewood/Plaza Cleaners **LIMS Project ID:** 1501-96

Sample: 96319006 **Date Received:** 08/01/96 **Method:** SW8260
Field ID: H1 **Matrix:** Water
Project Officer: P. Marti **Date Analyzed:** 08/11/96 **Units:** ug/L

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

Surrogate Recoveries

1,2-Dichloroethane-D4	**98**	**%**
1,4-Difluorobenzene	**103**	**%**
Toluene-D8	**96**	**%**
p-Bromofluorobenzene	**86**	**%**
1,2-Dichlorobenzene-D4	**105**	**%**

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Volatile Organic Analysis

Project Name: Lakewood/Plaza Cleaners **LIMS Project ID:** 1501-96

Sample: BLN62706 **Method:** SW8260
Blank ID: DBW6225 **Matrix:** Water
Project Officer: P. Marti **Date Analyzed:** 08/12/96 **Units:** ug/L

Analyte	Result	Qualifier	Analyte	Result	Qualifier
Dichlorodifluoromethane	2	U	Chloroacetonitrile	5	UJ
Chloromethane	2	U	Cis-1,3-Dichloropropene	1.1	U
Vinyl Chloride	1	U	4-Methyl-2-Pentanone	2	U
Bromomethane	1	UJ	1,1-Dichloropropanone	2	U
Chloroethane	1	U	**Toluene**	**.1**	**J**
Trichlorofluoromethane	1	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	**1.6**	**J**	2-Hexanone	2	U
Carbon Disulfide	2	U	Dibromochloromethane	2	U
Allyl Chloride	1	U	1,2-Dibromoethane (EDB)	2	U
Methylene Chloride	**.24**	**J**	Chlorobenzene	1	U
Trans-1,2-Dichloroethene	1	U	1,1,1,2-Tetrachloroethane	2	U
Acrylonitrile	1	U	Ethylbenzene	1	U
2-Methyoxy-2-Methylpropane	**.14**	**J**	m & p-Xylene	2	U
1,1-Dichloroethane	1	U	o-Xylene	2	U
2,2-Dichloropropane	1	U	Styrene	2	UJ
Cis-1,2-Dichloroethene	1	U	Bromoform	5	UJ
2-Butanone	**.3**	**J**	Isopropylbenzene (Cumene)	1	U
Methyl acrylate	1	U	Bromobenzene	1	U
Bromochloromethane	2	U	1,1,2,2-Tetrachloroethane	1	U
Methyacrilonitrile	1	U	1,2,3-Trichloropropane	1	U
Tetrahydrofuran	1	U	Trans-1,4-Dichloro-2-butene	1	U
Chloroform	1	U	n-Propylbenzene	1	U
1,1,1-Trichloroethane	**.22**	**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**	**J**	Pentachloroethane	5	UJ
1,2-Dichloroethane	1	U	1,2,4-Trimethylbenzene	1	U
Trichloroethene	1	U	Sec-Butylbenzene	2	U
1,2-Dichloropropane	1	U	1,3-Dichlorobenzene	1	U
Methyl Methacrylate	2	UJ	p-Isopropyltoluene	2	U
Dibromomethane	1	U	1,4-Dichlorobenzene	2	U
Bromodichloromethane	1	U	n-Butylbenzene	2	U
2-Nitropropane	1	UJ	1,2-Dichlorobenzene	1	U

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Analysis Report for

Volatile Organic Analysis

Project Name: Lakewood/Plaza Cleaners **LIMS Project ID:** 1501-96

Sample: BLN62706 **Method:** SW8260
Blank ID: DBW6225 **Matrix:** Water
Project Officer: P. Marti **Date Analyzed:** 08/12/96 **Units:** ug/L

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

Surrogate Recoveries

1,2-Dichloroethane-D4	**94**	**%**
1,4-Difluorobenzene	**97**	**%**
Toluene-D8	**90**	**%**
p-Bromofluorobenzene	**89**	**%**
1,2-Dichlorobenzene-D4	**99**	**%**

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Analysis Report for

Volatile Organic Analysis

Project Name: Lakewood/Plaza Cleaners **LIMS Project ID:** 1501-96

Sample: BLN63294 **Method:** SW8260
Blank ID: DBW6222 **Matrix:** Water
Project Officer: P. Marti **Date Analyzed:** 08/09/96 **Units:** ug/L

Analyte	Result	Qualifier	Analyte	Result	Qualifier
Dichlorodifluoromethane	2	U	Chloroacetonitrile	5	UJ
Chloromethane	2	U	Cis-1,3-Dichloropropene	1.1	U
Vinyl Chloride	1	U	4-Methyl-2-Pentanone	2	U
Bromomethane	1	UJ	1,1-Dichloropropanone	2	U
Chloroethane	1	U	**Toluene**	**.1**	**J**
Trichlorofluoromethane	1	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	**1.5**	**J**	2-Hexanone	2	U
Carbon Disulfide	2	U	Dibromochloromethane	2	U
Allyl Chloride	1	U	1,2-Dibromoethane (EDB)	2	U
Methylene Chloride	**.18**	**J**	Chlorobenzene	1	U
Trans-1,2-Dichloroethene	1	U	1,1,1,2-Tetrachloroethane	2	U
Acrylonitrile	1	U	Ethylbenzene	1	U
2-Methyoxy-2-Methylpropane	**.28**	**J**	m & p-Xylene	2	U
1,1-Dichloroethane	1	U	o-Xylene	2	U
2,2-Dichloropropane	1	U	Styrene	2	U
Cis-1,2-Dichloroethene	1	U	Bromoform	5	UJ
2-Butanone	**.37**	**J**	Isopropylbenzene (Cumene)	1	UJ
Methyl acrylate	1	U	Bromobenzene	1	U
Bromochloromethane	2	U	1,1,2,2-Tetrachloroethane	1	U
Methyacrilonitrile	1	U	1,2,3-Trichloropropane	1	U
Tetrahydrofuran	1	U	Trans-1,4-Dichloro-2-butene	1	U
Chloroform	1	U	n-Propylbenzene	1	U
1,1,1-Trichloroethane	**.33**	**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	**.091**	**J**	Pentachloroethane	5	UJ
1,2-Dichloroethane	1	U	1,2,4-Trimethylbenzene	1	U
Trichloroethene	1	U	Sec-Butylbenzene	2	U
1,2-Dichloropropane	1	U	1,3-Dichlorobenzene	1	U
Methyl Methacrylate	2	UJ	p-Isopropyltoluene	2	U
Dibromomethane	1	U	1,4-Dichlorobenzene	2	U
Bromodichloromethane	1	U	n-Butylbenzene	2	U
2-Nitropropane	1	UJ	1,2-Dichlorobenzene	1	U

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Analysis Report for

Volatile Organic Analysis

Project Name: Lakewood/Plaza Cleaners **LIMS Project ID:** 1501-96

Sample: BLN63294 **Method:** SW8260
Blank ID: DBW6222 **Matrix:** Water
Project Officer: P. Marti **Date Analyzed:** 08/09/96 **Units:** ug/L

Analyte	Result	Qualifier
Hexachloroethane	1	U
1,2-Dibromo-3-Chloropropane	5	UJ
1,2,4-Trichlorobenzene	5	UJ
Hexachlorobutadiene	5	UJ
Naphthalene	**.09**	**J**
1,2,3-Trichlorobenzene	5	UJ

Surrogate Recoveries

1,2-Dichloroethane-D4	**99**	**%**
1,4-Difluorobenzene	**100**	**%**
Toluene-D8	**99**	**%**
p-Bromofluorobenzene	**95**	**%**
1,2-Dichlorobenzene-D4	**104**	**%**

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