AVANTI - WELL SAMPLES 9-23-94

9/23/94

[redacted]

ATEC®

Groundwater Sampling
Former Avanti Facility
NWC Lafayette Street and Sample Street
South Bend, Indiana
ATEC Project No. 21-07-94-00637

Prepared For:

City of South Bend
Department of Community and Economic Development
1200 County-City Building
South Bend, IN 46601

Attn: Ms. Ann E. Kolata

September 23, 1994

ATEC Associates, Inc.
Environmental Consultants
5150 East 65th Street
Indianapolis, Indiana 46220-4871
(317) 849-4990, FAX (317) 849-5260

September 23, 1994

Ms. Ann E. Kolata
Community of Economic Development
City of South Bend, Indiana
1200 County-City Building
South Bend, IN 46601

Re: Groundwater Sampling
Lot One - Avanti Site
NWC Lafayette Street and Sample Street
South Bend, Indiana
ATEC Project No. 21-07-94-00637

Dear Ms. Kolata:

ATEC Associates, Inc. (ATEC) is pleased to present the City of South Bend with this report documenting the groundwater sampling performed at the above referenced site. The purpose of the study was to determine the current status of groundwater impact at the site. The attached report summarizes the activities performed by ATEC to accomplish this objective.

We appreciate the opportunity to conduct this investigation and trust this report is responsive to your needs. Please do not hesitate to contact the undersigned if you have any comments or questions concerning this study.

Sincerely,

ATEC ASSOCIATES, INC.

Brad K. Lewis
Staff Environmental Scientist

Matthew C. Stokes, C.H.M.M.
Senior Project Manager

BKL:MCS/cla
attachment

TABLE OF CONTENTS

GROUNDWATER SAMPLING

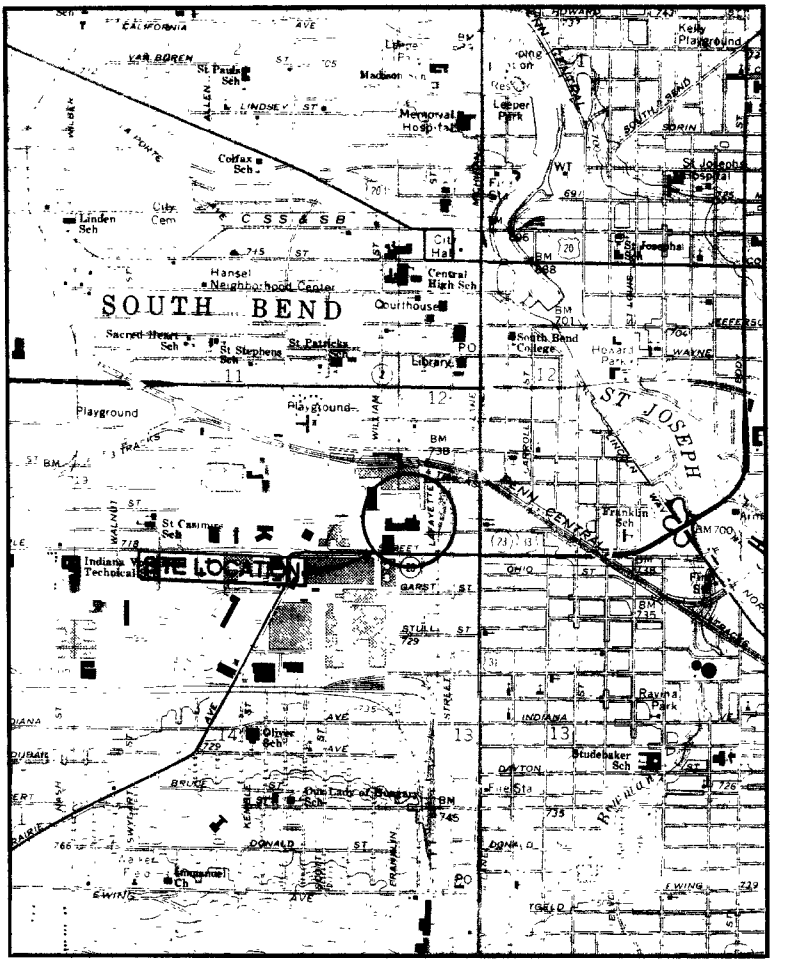
FORMER AVANTI FACILITY
NWC Lafayette Street and Sample Street
South Bend, Indiana
ATEC Project No. 21-07-94-00637

1.0 INTRODUCTION

ATEC Associates, Inc. (ATEC) was retained by the City of South Bend Department of Community and Economic Development to perform groundwater sampling of four monitoring wells located on the former Avanti facility at the northwest corner of Lafayette and Sample Streets. The purpose of this sampling was to evaluate the current status of volatile organic compounds (VOCs) in the on-site wells. Figure 1 shows the project site and surrounding vicinity.

ATEC arrived on site August 18, 1994 to sample four wells. The project site consisted of a vacant lot. The Avanti building structure and parking lots had been demolished and removed since the last sampling event. In the process of demolishing the building, two monitoring wells have been destroyed and/or buried and could not be found. Monitoring well MW-4 and MW-2 were located. The metal protective cover and the well casing above ground level on monitoring well MW-4 had been bent to the ground. With the casing bend over the well could not be sampled. ATEC used a hack saw to saw the metal casing and the well casing off at ground level so that the well could be sampled. The well was recapped but it is not protected or secured.

The former parking lot at the project site has been demolished and removed. The grade at the site has been lowered by approximately 3 ft. MW-2 was originally set in a manhole flush with the surface elevation. Since the grade around the well has been lowered the PVC well casing extends 2 to 3 ft out of the ground. Towards the top of the PVC piping is the cement grout and manhole cover that once set into the ground. The well appeared to be undamaged. The well is currently unprotected and it is vulnerable to damage.



VICINITY MAP

GROUND WATER SAMPLING
FORMER AVANTI FACILITY
NWC LAFAYETTE ST. AND SAMPLE ST.
SOUTH BEND, INDIANA

Project Number	21-07-94-00637
Drawing File	637
Date	1994
Scale	1" = 2000'
Drn By	ML
Ckd By	BL
App'd By	--
Figure	1

ATEC

2.0 FIELD ACTIVITIES

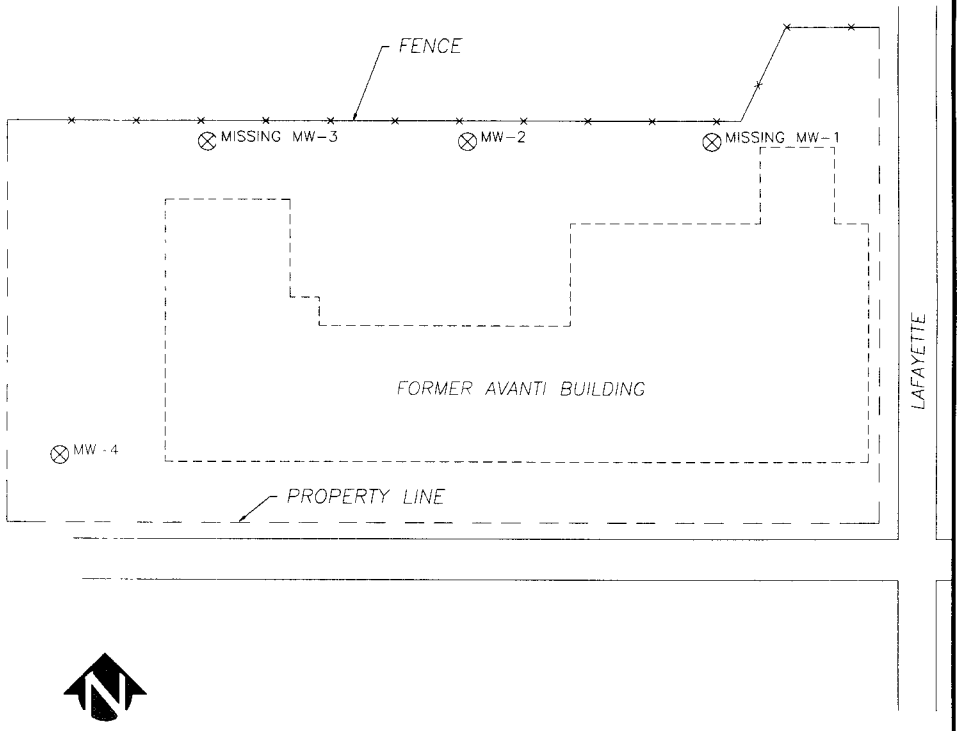
2.1 Groundwater Sampling

On August 18, 1994, groundwater samples were collected from two out of four monitoring wells. Figure 2 shows the project site and location of the monitoring wells. The two monitoring wells were gauged with an electronic water level indicator before the well was sampled. Prior to sampling, each well was purged a minimum of three well volumes of water to ensure a representative groundwater sample was collected. A Teflon® bailer was used to collect the groundwater from the well. The bailer was decontaminated with a non-phosphate detergent wash and a tap water rinse prior to sampling each well. The groundwater was collected in three 40 milliliter glass VOC vials, preserved on ice and transported to the ATEC laboratory using proper QA/QC procedures and chain-of-custody protocols. The groundwater samples were submitted for volatile organic compounds. Table 1 summarizes depth to water and the amount of water purged from each monitoring well.

Table 1
Monitoring Well Purge Volumes
Former Avanti Site
South Bend, Indiana
ATEC Project No. 21-07-94-00637

Well I.D. No.	DTW	DTB	3 Well Vol.	Amount Purged
MW-4	23.45	28.6	2.5 gal	5 gal
MW-2	24.66	31.2	3.2 gal	5 gal

DTW: Depth to water (from top of well casing)
DTB: Depth to bottom (from top of well casing)



MONITORING WELL LOCATION MAP

GROUND WATER SAMPLING
FORMER AVANTI FACILITY
NWC LAFAYETTE ST. AND SAMPLE ST.
SOUTH BEND, INDIANA

Project Number	21-07-94-00637
Drawing File	6.37
Date	1994
Scale	NOT TO SCALE
Drn By	ML
Ckd By	BL
App'd By	--
Figure	2

ATEC

2.2 Static Water Level Elevations

Monitoring well MW-4 had been damaged from demolition work at the project site. In order for the well to be sampled the protective cover and the well casing were cut off at ground level. The top of the casing elevation has therefore been altered. Monitoring well MW-2 does not appear to have been damaged; however, due to the demolition work at the site the top of well casing elevation may have been altered. If these wells are to be used to verify groundwater flow direction, they will need to be re-surveyed.

Three static water level elevations are needed to accurately determine groundwater flow direction. Because there are only two monitoring wells still remaining and their top of casing elevations are unknown, no static water level elevation table or groundwater flow map could be generated for this sampling event.

3.0 FINDINGS

3.1 VOC Analytical Test Results

Groundwater samples from MW-2 and MW-4 were submitted to the ATEC laboratory for VOC analysis. VOC analysis was performed on a Finnigan Incos 50 GC/MS/DS system, complete with Superincos Software, according to SW 846 Method 8240 for Purgeable Organic Compounds. Table 2 summarizes the VOC analytical results.

Table 2
Groundwater Monitoring Well Samples
Volatile Organic Compounds Analysis
Former Avanti Facility
South Bend, Indiana
ATEC Project No. 21-07-94-00637

Sample I.D.	Constituent Detected	Concentration (ppb)
MW-2	None-detected	N.D.
MW-4	Tetrachloroethene	11

N.D. = None detected

Analytical results for monitoring well MW-4 reveal 11 parts per billion (ppb) of tetrachloroethene. All other VOC results for MW-2 and MW-4 are below method quantitation limits. Appendix A provides a complete copy of the laboratory report for monitoring wells MW-2 and MW-4.

3.2 Historical Groundwater VOC Results

The groundwater monitoring wells at the project site have been sampled two times prior to the August 18, 1994 sampling event. The first sampling event occurred in November, 1990 and the second sampling event occurred in February, 1991. Table 3 shows the analytical result for the detected VOC compounds over the three sampling events. Note that no samples were collected for MW-1 and MW-3 for the most recent (August, 1994) sampling event.

Table 3
Historic Groundwater Sampling Events
Volatile Organic Compound (VOC) Analysis
Former Avanti Facility
South Bend, Indiana
ATEC Project No. 21-07-94-00637

Constituent	MW-1			MW-2			MW-3			MW-4		
	11/90	2/91	8/94	11/90	2/91	8/94	11/90	2/91	8/94	11/90	2/91	8/94
Trans 1,2-Dichloroethene	ND	8		37	18	ND	<5*	<5*		ND	ND	ND
1,1,1-Trichloroethane	ND	ND		ND	ND	ND	10	13		ND	ND	ND
Trichloroethene	ND	ND		<5*	ND	ND	ND	ND		ND	ND	ND
Tetrachloroethene	ND	ND		10	5	ND	ND	ND		<5*	<5*	11
Vinyl Chloride	ND	24		ND	33	ND	ND	ND		ND	ND	ND
1,1 Dichloroethane	ND	ND		ND	ND	ND	ND	<5*		ND	ND	ND

*Constituent detected but concentration present is less than quantitation limits
ND: Constituent not detected
MW-1 and MW-3 were missing or destroyed and could not be sampled on 8/94

4.0 CONCLUSIONS AND RECOMMENDATIONS

Analysis of the groundwater sample from MW-2 indicates that the VOC concentration in the vicinity of this well may be diminishing. Historical results from MW-4 indicate that on both previous sampling events tetrachloroethene was detected however it was below the method quantitation limit of 5 ppb. The most recent result of 11 ppb would indicate that the area is still impacted by tetrachloroethene. Monitoring well MW-4 is the upgradient well, as determined by the groundwater flow map generated November 30, 1990. The tetrachloroethene concentrations in the upgradient well may indicate a possible off-site source for this constituent.

ATEC recommends that attempts be made to locate and properly close MW-1 and MW-3 wells. ATEC recommends that two new wells be installed to replace these former wells. ATEC recommends that the two remaining wells and the two replacement wells be surveyed and a groundwater flow map generated. ATEC also recommends another round of groundwater sampling for VOCs based on the history from test results at MW-2 and the current findings at MW-4.

APPENDIX A

LABORATORY REPORT

ATEC Associates, Inc.
Environmental Consultants
5150 East 65th Street
Indianapolis, Indiana 46220-4871
(317) 849-4990, FAX (317) 842-7932

ACCREDITED

Solid & Hazardous Waste Site Assessments
Remedial Design & Construction
Underground Tank Management
Asbestos Surveys & Analysis
Hydrogeologic Investigations & Monitoring
Analytical Testing / Chemistry
Industrial Hygiene / Hazard Communication
Environmental Audits & Permitting
Exploratory Drilling & Monitoring Wells

September 2, 1994

Mr. Brad Lewis
ATEC Environmental Consultants
5150 E. 65th Street
Indianapolis, IN 46220

Re: Two Water VOA
City of South Bend
ATEC Work Order Number 9408299
ATEC Project Number 21-07-94-00637

Dear Mr. Lewis:

Attached is a ten page report of results for the Organic Analyses for the two water samples which were submitted to the ATEC Environmental/Analytical Testing Division on August 19, 1994, on behalf of the City of South Bend. The volatile samples were analyzed on a Finnigan Incos 50 GC/MS/DS system, complete with Superincos Software, via SW 846 Method 8240A for Purgeable Aromatic Compounds. Prior to analysis, the system was tuned against Bromofluorobenzene and calibrated with the appropriate standard.

The analytical procedures are performed in accordance with the ATEC Analytical Standard Operating Procedures, which are based on the methods referenced in this report. These SOPs are available for your review upon request.

Any associated Quality Control information will be maintained in the Testing Division files, a copy of which can be forwarded to you upon request. After a thirty-day period, a fee will be assessed for this additional information.

A Definition of LIMS Terms is included in this report for your convenience. Two copies of this Analytical Report are being provided for your records. Additional copies can be provided at a minimum cost of $30.00 per copy. It has been a pleasure serving you and, as always, if there are any questions concerning these results or the ATEC policies, please feel free to contact me.

Respectfully submitted,
ATEC ASSOCIATES, INC.

Mary McGill-Maxwell

Mary McGill-Maxwell
GC/MS Group Leader
Environmental/Analytical
Testing Division

ATEC ENVIRONMENTAL DIV.
5150 E. 65TH ST.
Indianapolis, IN 46220

Attn: Brad Lewis
Invoice Number:

Order #: 94-08-299
Date: 09/02/94 12:23
Work ID: City/South Bend(2107-9400637)
Date Received: 08/19/94
Date Completed: 09/01/94

SAMPLE IDENTIFICATION

ATEC Sample Number	Client Sample Description	ATEC Sample Number	Client Sample Description
01	MW-2	02	MW-4

Certified By
Mary McGill-Maxwell

ATEC Associates REPORT Work Order # 94-08-299

Received: 08/19/94

REPORT COMMENTS

LIMS General Definition of Terms

Order Number:	ATEC Laboratory Identification for your sample set. (Please reference this number with any correspondence)
Sample Number:	ATEC Laboratory Identification for individual samples with the set.
Sample Description:	Your Sample Identification
Test Description:	Analytical Test
Result:	Analytical Value Obtained
Result Qualifiers:	< denotes less than > denotes greater than N/A denotes not applicable NR denotes not reported J denotes analyte detected but amount present is less than the Quantitation Limit M denotes analyte spiked with matrix spike compound B denotes analyte found in method blank ND not detected
Units:	Unit of Measurement
Limit:	Denotes Quantitation Limit: Limit of reliability based on the sample quantity analyzed, the sample matrix, and the analytical method sensitivity
Analyzed:	Optional Field for Date Analyzed
By:	Optional Field for Test Analyst

ATEC Associates REPORT Work Order # 94-08-299

Received: 08/19/94

SAMPLE ID MW-2 TEST CODE 8240 NAME Volatile

FRACTION 01A Date & Time Collected 08/18/94 Category WATER

DATE ANALYZED	08/30/94
INSTRUMENT	Incos 8V2
DILUTION FACTOR	1
ANALYST	R. Booknis
VERIFIED BY	M. McGill
UNITS	ug/L

COMMENTS:

Analytical Method SW 846 Mtd. 8240A

PRIORITY POLLUTANTS VOLATILE COMPOUNDS

PARAMETER	CAS #	RESULT	LIMIT
Chloromethane	74-87-3	<10	10
Bromomethane	74-83-9	<10	10
Vinyl Chloride	75-01-4	<10	10
Chloroethane	75-00-3	<10	10
Methylene Chloride	75-09-2	<5	5
Acetone	67-64-1	<100	100
Carbon Disulfide	75-15-0	<100	100
1,1-Dichloroethene	75-34-4	<5	5
1,1-Dichloroethane	75-34-3	<5	5
Total 1,2-Dichloroethene	156-60-5	<5	5
Chloroform	67-66-3	<5	5
1,2-Dichloroethane	107-06-2	<5	5
2-Butanone	78-93-3	<100	100
1,1,1-Trichloroethane	71-55-6	<5	5
Carbon Tetrachloride	56-23-5	<5	5
Vinyl Acetate	108-05-4	<50	50
Bromodichloromethane	75-27-4	<5	5
1,2-Dichloropropane	78-87-5	<5	5
Trans-1, 3-Dichloropropene	10061-02-6	<5	5
Trichloroethene	79-01-6	<5	5

ATEC Associates REPORT Work Order # 94-08-299

Received: 08/19/94

SAMPLE ID MW-2 TEST CODE 8240 NAME Volatile

FRACTION 01A Date & Time Collected 08/18/94 Category WATER

Dibromochloromethane	124-48-1	<5	5
1,1,2-Trichloroethane	79-00-5	<5	5
Benzene	71-43-2	<5	5
cis-1, 3-Dichloropropene	10061-01-5	<5	5
2-Chloroethylvinylether	110-75-8	<10	10
Bromoform	75-25-2	<5	5
4-Methyl-2-Pentanone	108-10-1	<50	50
2-Hexanone	591-78-6	<50	50
Tetrachloroethene	127-18-4	<5	5
1,1,2,2-Tetrachloroethane	79-34-5	<5	5
Toluene	108-88-3	<5	5
Chlorobenzene	108-90-7	<5	5
Ethylbenzene	100-41-4	<5	5
Styrene	100-42-5	<5	5
Total Xylenes		<5	5
Acrolein	107-02-8	<10	10
Acrylonitrile	98-86-2	<100	100
Iodomethane	74-88-4	<100	100
1,4-Dichloro-2-butene	764-41-0	<100	100
Ethyl methacrylate	97-63-2	<100	100
1,2,3-Trichloropropane	96-18-4	<100	100
Trichlorofluoromethane	75-69-4	<10	10
Dichlorodifluoromethane	75-61-8	<100	100

ATEC Associates REPORT Work Order # 94-08-299

Received: 08/19/94

SAMPLE ID MW-4 TEST CODE 8240 NAME Volatile

FRACTION 02A Date & Time Collected 08/18/94 Category WATER

DATE ANALYZED	08/24/94
INSTRUMENT	Incos BV2
DILUTION FACTOR	1
ANALYST	R. Booknis
VERIFIED BY	M. McGill
UNITS	ug/L

COMMENTS:

Analytical Method SW 846 Mtd. 8240A

PRIORITY POLLUTANTS VOLATILE COMPOUNDS

PARAMETER	CAS #	RESULT	LIMIT
Chloromethane	74-87-3	<10	10
Bromomethane	74-83-9	<10	10
Vinyl Chloride	75-01-4	<10	10
Chloroethane	75-00-3	<10	10
Methylene Chloride	75-09-2	<5	5
Acetone	67-64-1	<100	100
Carbon Disulfide	75-15-0	<100	100
1,1-Dichloroethene	75-34-4	<5	5
1,1-Dichloroethane	75-34-3	<5	5
Total 1,2-Dichloroethene	156-60-5	<5	5
Chloroform	67-66-3	<5	5
1,2-Dichloroethane	107-06-2	<5	5
2-Butanone	78-93-3	<100	100
1,1,1-Trichloroethane	71-55-6	<5	5
Carbon Tetrachloride	56-23-5	<5	5
Vinyl Acetate	108-05-4	<50	50
Bromodichloromethane	75-27-4	<5	5
1,2-Dichloropropane	78-87-5	<5	5
Trans-1, 3-Dichloropropene	10061-02-6	<5	5
Trichloroethene	79-01-6	<5	5

ATEC Associates REPORT Work Order # 94-08-299

Received: 08/19/94

SAMPLE ID MW-4 TEST CODE 8240 NAME Volatile

FRACTION 02A Date & Time Collected 08/18/94 Category WATER

Dibromochloromethane	124-48-1	<5	5
1,1,2-Trichloroethane	79-00-5	<5	5
Benzene	71-43-2	<5	5
cis-1, 3-Dichloropropene	10061-01-5	<5	5
2-Chloroethylvinylether	110-75-8	<10	10
Bromoform	75-25-2	<5	5
4-Methyl-2-Pentanone	108-10-1	<50	50
2-Hexanone	591-78-6	<50	50
Tetrachloroethene	**127-18-4**	**11**	**5**
1,1,2,2-Tetrachloroethane	79-34-5	<5	5
Toluene	108-88-3	<5	5
Chlorobenzene	108-90-7	<5	5
Ethylbenzene	100-41-4	<5	5
Styrene	100-42-5	<5	5
Total Xylenes		<5	5
Acrolein	107-02-8	<10	10
Acrylonitrile	98-86-2	<100	100
Iodomethane	74-88-4	<100	100
1,4-Dichloro-2-butene	764-41-0	<100	100
Ethyl methacrylate	97-63-2	<100	100
1,2,3-Trichloropropane	96-18-4	<100	100
Trichlorofluoromethane	75-69-4	<10	10
Dichlorodifluoromethane	75-61-8	<100	100

ATEC Associates REPORT Work Order # 94-08-299

Received: 08/19/94

SAMPLE ID Method Blank TEST CODE 8240 NAME Volatile
FRACTION 028 Date & Time Collected _____ Category WATER

DATE ANALYZED	08/24/94
INSTRUMENT	Incos BV2
DILUTION FACTOR	1
ANALYST	R. Booknis
VERIFIED BY	M. McGill
UNITS	ug/L

COMMENTS:

Analytical Method SW 846 Mtd. 8240A

PRIORITY POLLUTANTS
VOLATILE COMPOUNDS

PARAMETER	CAS #	RESULT	LIMIT
Chloromethane	74-87-3	<10	10
Bromomethane	74-83-9	<10	10
Vinyl Chloride	75-01-4	<10	10
Chloroethane	75-00-3	<10	10
Methylene Chloride	75-09-2	<5	5
Acetone	67-64-1	<100	100
Carbon Disulfide	75-15-0	<100	100
1,1-Dichloroethene	75-34-4	<5	5
1,1-Dichloroethane	75-34-3	<5	5
Total 1,2-Dichloroethene	156-60-5	<5	5
Chloroform	67-66-3	<5	5
1,2-Dichloroethane	107-06-2	<5	5
2-Butanone	78-93-3	<100	100
1,1,1-Trichloroethane	71-55-6	<5	5
Carbon Tetrachloride	56-23-5	<5	5
Vinyl Acetate	108-05-4	<50	50
Bromodichloromethane	75-27-4	<5	5
1,2-Dichloropropane	78-87-5	<5	5
Trans-1, 3-Dichloropropene	10061-02-6	<5	5
Trichloroethene	79-01-6	<5	5

ATEC Associates REPORT Work Order # 94-08-299

Received: 08/19/94

SAMPLE ID Method Blank TEST CODE 8240 NAME Volatile

FRACTION 02B Date & Time Collected _____ Category WATER

Dibromochloromethane	124-48-1	<5	5
1,1,2-Trichloroethane	79-00-5	<5	5
Benzene	71-43-2	<5	5
cis-1, 3-Dichloropropene	10061-01-5	<5	5
2-Chloroethylvinylether	110-75-8	<10	10
Bromoform	75-25-2	<5	5
4-Methyl-2-Pentanone	108-10-1	<50	50
2-Hexanone	591-78-6	<50	50
Tetrachloroethene	127-18-4	<5	5
1,1,2,2-Tetrachloroethane	79-34-5	<5	5
Toluene	108-88-3	<5	5
Chlorobenzene	108-90-7	<5	5
Ethylbenzene	100-41-4	<5	5
Styrene	100-42-5	<5	5
Total Xylenes		<5	5
Acrolein	107-02-8	<10	10
Acrylonitrile	98-86-2	<100	100
Iodomethane	74-88-4	<100	100
1,4-Dichloro-2-butene	764-41-0	<100	100
Ethyl methacrylate	97-63-2	<100	100
1,2,3-Trichloropropane	96-18-4	<100	100
Trichlorofluoromethane	75-69-4	<10	10
Dichlorodifluoromethane	75-61-8	<100	100

ATEC Associates REPORT Work Order # 94-08-299

Received: 08/19/94

SAMPLE ID Method Blank TEST CODE 8240 NAME Volatile
FRACTION 02C Date & Time Collected _____ Category WATER

DATE ANALYZED	08/30/94
INSTRUMENT	Incos 8V2
DILUTION FACTOR	1
ANALYST	R. Booknis
VERIFIED BY	M. McGill
UNITS	ug/L

COMMENTS:

Analytical Method SW 846 Mtd. 8240A

PRIORITY POLLUTANTS
VOLATILE COMPOUNDS

PARAMETER	CAS #	RESULT	LIMIT
Chloromethane	74-87-3	<10	10
Bromomethane	74-83-9	<10	10
Vinyl Chloride	75-01-4	<10	10
Chloroethane	75-00-3	<10	10
Methylene Chloride	75-09-2	**8**	5
Acetone	67-64-1	<100	100
Carbon Disulfide	75-15-0	<100	100
1,1-Dichloroethene	75-34-4	<5	5
1,1-Dichloroethane	75-34-3	<5	5
Total 1,2-Dichloroethene	156-60-5	<5	5
Chloroform	67-66-3	<5	5
1,2-Dichloroethane	107-06-2	<5	5
2-Butanone	78-93-3	<100	100
1,1,1-Trichloroethane	71-55-6	<5	5
Carbon Tetrachloride	56-23-5	<5	5
Vinyl Acetate	108-05-4	<50	50
Bromodichloromethane	75-27-4	<5	5
1,2-Dichloropropane	78-87-5	<5	5
Trans-1, 3-Dichloropropene	10061-02-6	<5	5
Trichloroethene	79-01-6	<5	5

ATEC Associates REPORT Work Order # 94-08-299

Received: 08/19/94

SAMPLE ID Method Blank TEST CODE 8240 NAME Volatile

FRACTION 02C Date & Time Collected _____ Category WATER

Dibromochloromethane	124-48-1	<5	5
1,1,2-Trichloroethane	79-00-5	<5	5
Benzene	71-43-2	<5	5
cis-1, 3-Dichloropropene	10061-01-5	<5	5
2-Chloroethylvinylether	110-75-8	<10	10
Bromoform	75-25-2	<5	5
4-Methyl-2-Pentanone	108-10-1	<50	50
2-Hexanone	591-78-6	<50	50
Tetrachloroethene	127-18-4	<5	5
1,1,2,2-Tetrachloroethane	79-34-5	<5	5
Toluene	108-88-3	<5	5
Chlorobenzene	108-90-7	<5	5
Ethylbenzene	100-41-4	<5	5
Styrene	100-42-5	<5	5
Total Xylenes		<5	5
Acrolein	107-02-8	<10	10
Acrylonitrile	98-86-2	<100	100
Iodomethane	74-88-4	<100	100
1,4-Dichloro-2-butene	764-41-0	<100	100
Ethyl methacrylate	97-63-2	<100	100
1,2,3-Trichloropropane	96-18-4	<100	100
Trichlorofluoromethane	75-69-4	<10	10
Dichlorodifluoromethane	75-61-8	<100	100

CHAIN OF CUSTODY RECORD

PROJ. NO. 7-94-0637 | PROJECT NAME Monitoring Well Sampling | CLIENT City of South Bend (L.71-07 PXL) | LAB PROJ. NO. 9409219

SAMPLERS: (Signature) [signature]

SAMPLING METHOD: Teflon Bailer

SAMPLE I.D NO	DATE	TIME	COMPOSITE	GRAB	WATER	SOIL	FILTERED	ACIDIFIED	ICED	NUMBER OF CONTAINERS	LAB I.D NUMBER
MW-4	8/18	12:36		X	X				X	3	1
MW-2	7/18	1:34		X	X				X	3	1

LABORATORY ANALYSIS

VOLATILE ORGANICS	BTX & E	TOTAL HYDROCARBONS	PCB'S	TOTAL METALS (8)	SAMPLE LOCATION / REMARKS
X					
X					

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by (Signature)	Date / Time	Received by: (Signature)
[signature]	7/19/94 2:10				

Relinquished by (Signature)	Date / Time	Received for Laboratory by (Signature)	Date / Time	Project Manager / Phone #:
		[signature]		

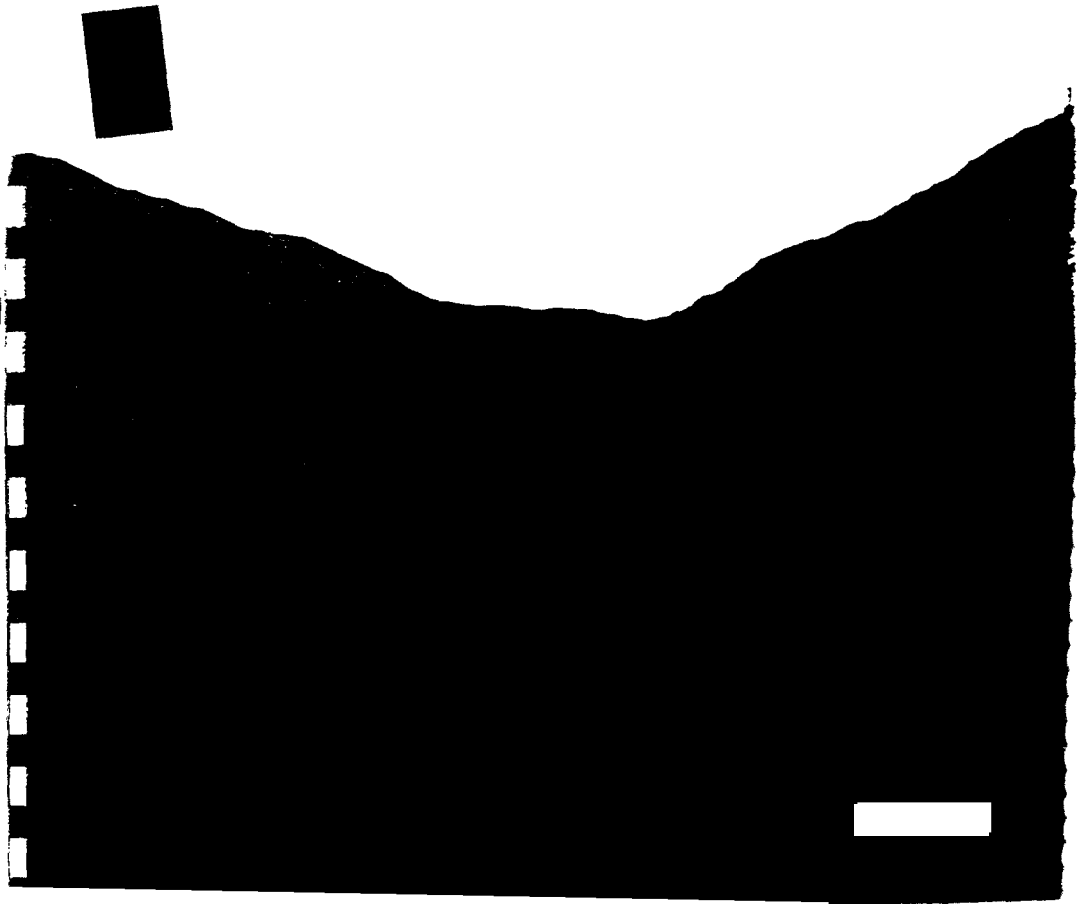
ATEC Environmental Consultants
Division of ATEC Associates, Inc.
5150 East 65th Street
Indianapolis, Indiana 46220-4871
(317) 849-4990, FAX # (317) 849-4278

Corporate Headquarters

8665 Bash Street
Indianapolis, IN 46256-1202
(317) 577-1761
FAX (317) 842-7308

With Offices Nationwide

Groundwater Sampling
Former Avanti Facility
NWC Lafayette Street and Sample Street
South Bend, Indiana
ATEC Project No. 21-07-94-00637



ATEC Associates, Inc.
Environmental Consultants
5150 East 65th Street
Indianapolis, Indiana 46220-4871
(317) 849-4990. FAX (317) 849-5260

September 23, 1994

Ms. Ann E. Kolata
Community of Economic Development
City of South Bend, Indiana
1200 County-City Building
South Bend, IN 46601

Re: Groundwater Sampling
Lot One - Avanti Site
NWC Lafayette Street and Sample Street
South Bend, Indiana
ATEC Project No. 21-07-94-00637

Dear Ms. Kolata:

ATEC Associates, Inc. (ATEC) is pleased to present the City of South Bend with this report documenting the groundwater sampling performed at the above referenced site. The purpose of the study was to determine the current status of groundwater impact at the site. The attached report summarizes the activities performed by ATEC to accomplish this objective.

We appreciate the opportunity to conduct this investigation and trust this report is responsive to your needs. Please do not hesitate to contact the undersigned if you have any comments or questions concerning this study.

Sincerely,

ATEC ASSOCIATES, INC.

Brad K. Lewis
Staff Environmental Scientist

Matthew C. Stokes, C.H.M.M.
Senior Project Manager

BKL:MCS/cla
attachment

TABLE OF CONTENTS

GROUNDWATER SAMPLING

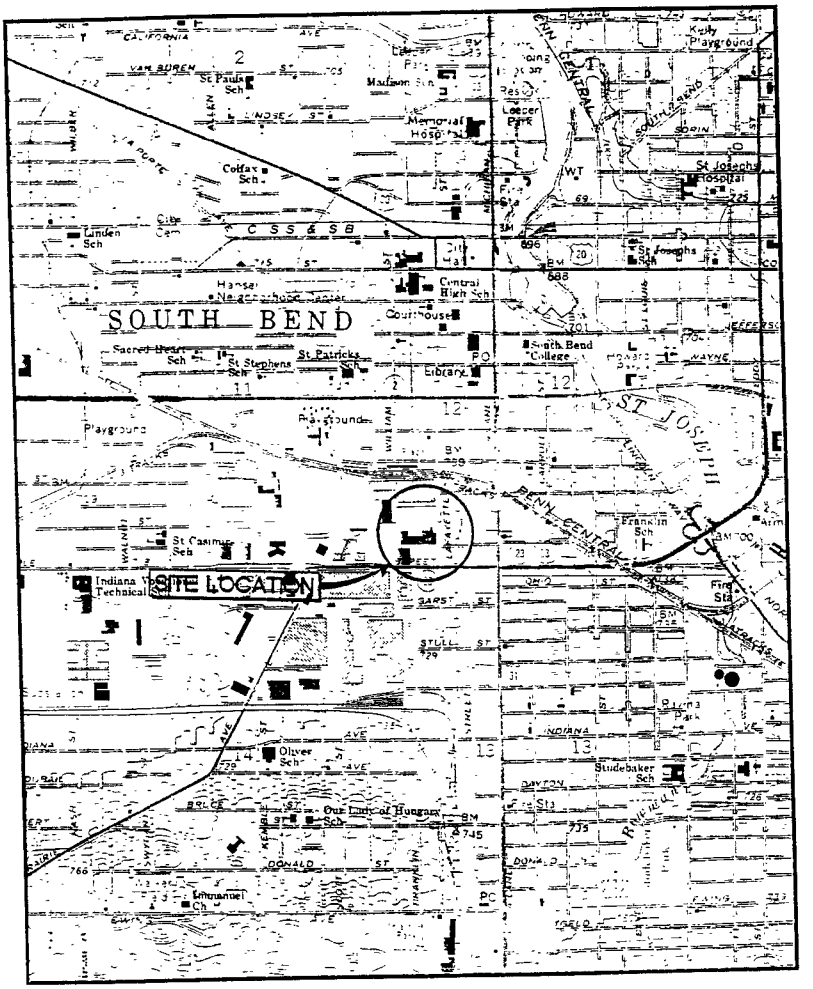
FORMER AVANTI FACILITY
NWC Lafayette Street and Sample Street
South Bend, Indiana
ATEC Project No. 21-07-94-00637

1.0 INTRODUCTION

ATEC Associates, Inc. (ATEC) was retained by the City of South Bend Department of Community and Economic Development to perform groundwater sampling of four monitoring wells located on the former Avanti facility at the northwest corner of Lafayette and Sample Streets. The purpose of this sampling was to evaluate the current status of volatile organic compounds (VOCs) in the on-site wells. Figure 1 shows the project site and surrounding vicinity.

ATEC arrived on site August 18, 1994 to sample four wells. The project site consisted of a vacant lot. The Avanti building structure and parking lots had been demolished and removed since the last sampling event. In the process of demolishing the building, two monitoring wells have been destroyed and/or buried and could not be found. Monitoring well MW-4 and MW-2 were located. The metal protective cover and the well casing above ground level on monitoring well MW-4 had been bent to the ground. With the casing bend over the well could not be sampled. ATEC used a hack saw to saw the metal casing and the well casing off at ground level so that the well could be sampled. The well was recapped but it is not protected or secured.

The former parking lot at the project site has been demolished and removed. The grade at the site has been lowered by approximately 3 ft. MW-2 was originally set in a manhole flush with the surface elevation. Since the grade around the well has been lowered the PVC well casing extends 2 to 3 ft out of the ground. Towards the top of the PVC piping is the cement grout and manhole cover that once set into the ground. The well appeared to be undamaged. The well is currently unprotected and it is vulnerable to damage.



VICINITY MAP

GROUND WATER SAMPLING
FORMER AVANTI FACILITY
NWC LAFAYETTE ST. AND SAMPLE ST.
SOUTH BEND, INDIANA

Project Number	21-07-94-00537
Drawing File	537
Date	1994
Scale	1" = 2000'
Drn By	WL
Chd By	BL
App'd By	--

ATEC

2.0 FIELD ACTIVITIES

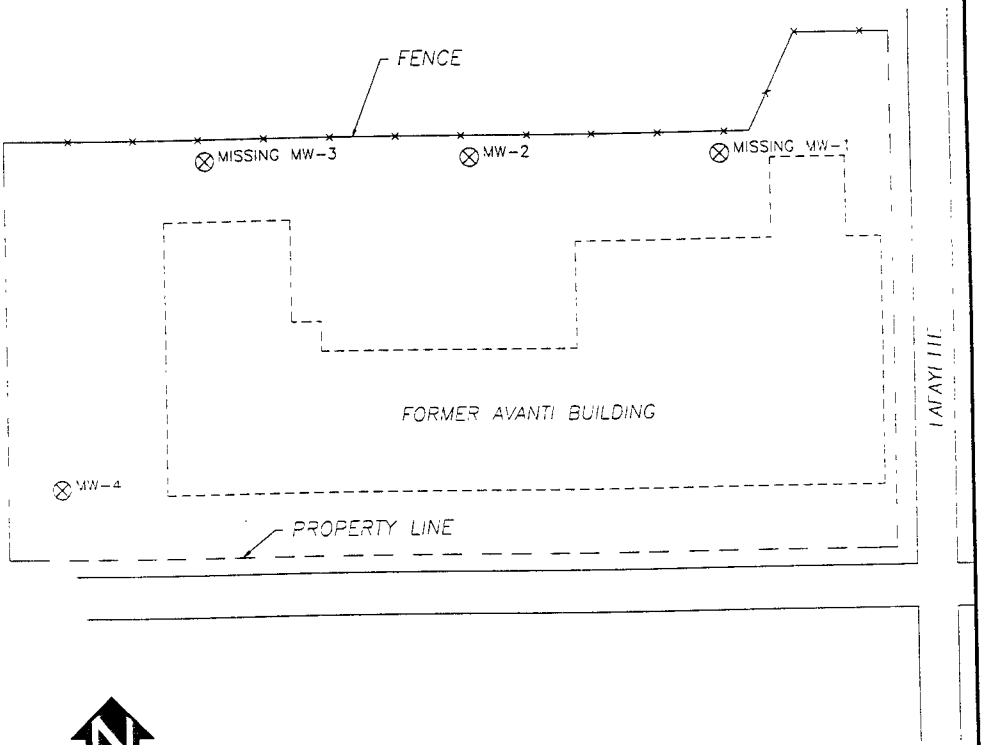
2.1 Groundwater Sampling

On August 18, 1994, groundwater samples were collected from two out of four monitoring wells. Figure 2 shows the project site and location of the monitoring wells. The two monitoring wells were gauged with an electronic water level indicator before the well was sampled. Prior to sampling, each well was purged a minimum of three well volumes of water to ensure a representative groundwater sample was collected. A Teflon® bailer was used to collect the groundwater from the well. The bailer was decontaminated with a non-phosphate detergent wash and a tap water rinse prior to sampling each well. The groundwater was collected in three 40 milliliter glass VOC vials, preserved on ice and transported to the ATEC laboratory using proper QA/QC procedures and chain-of-custody protocols. The groundwater samples were submitted for volatile organic compounds. Table 1 summarizes depth to water and the amount of water purged from each monitoring well.

Table 1
Monitoring Well Purge Volumes
Former Avanti Site
South Bend, Indiana
ATEC Project No. 21-07-94-00637

Well I.D. No.	DTW	DTB	3 Well Vol.	Amount Purged
MW-4	23.45	28.6	2.5 gal	5 gal
MW-2	24.66	31.2	3.2 gal	5 gal

DTW: Depth to water (from top of well casing)
DTB: Depth to bottom (from top of well casing)



MONITORING WELL LOCATION MAP

GROUND WATER SAMPLING
FORMER AVANTI FACILITY
NWC LAFAYETTE ST. AND SAMPLE ST.
SOUTH BEND, INDIANA

Project Number	21-07-94-00637
Drawing File	637
Date	1994
Scale	NOT TO SCALE
Drn By	ML
Ckd. By	BL
App'd By	--
Figure	2

ATEC

2.2 Static Water Level Elevations

Monitoring well MW-4 had been damaged from demolition work at the project site. In order for the well to be sampled the protective cover and the well casing were cut off at ground level. The top of the casing elevation has therefore been altered. Monitoring well MW-2 does not appear to have been damaged; however, due to the demolition work at the site the top of well casing elevation may have been altered. If these wells are to be used to verify groundwater flow direction, they will need to be re-surveyed.

Three static water level elevations are needed to accurately determine groundwater flow direction. Because there are only two monitoring wells still remaining and their top of casing elevations are unknown, no static water level elevation table or groundwater flow map could be generated for this sampling event.

3.0 FINDINGS

3.1 VOC Analytical Test Results

Groundwater samples from MW-2 and MW-4 were submitted to the ATEC laboratory for VOC analysis. VOC analysis was performed on a Finnigan Incos 50 GC/MS/DS system, complete with Superincos Software, according to SW 846 Method 8240 for Purgeable Organic Compounds. Table 2 summarizes the VOC analytical results.

Table 2
Groundwater Monitoring Well Samples
Volatile Organic Compounds Analysis
Former Avanti Facility
South Bend, Indiana
ATEC Project No. 21-07-94-00637

Sample I.D.	Constituent Detected	Concentration (ppb)
MW-2	None-detected	N.D.
MW-4	Tetrachloroethene	11

N.D. = None detected

Analytical results for monitoring well MW-4 reveal 11 parts per billion (ppb) of tetrachloroethene. All other VOC results for MW-2 and MW-4 are below method quantitation limits. Appendix A provides a complete copy of the laboratory report for monitoring wells MW-2 and MW-4.

3.2 Historical Groundwater VOC Results

The groundwater monitoring wells at the project site have been sampled two times prior to the August 18, 1994 sampling event. The first sampling event occurred in November, 1990 and the second sampling event occurred in February, 1991. Table 3 shows the analytical result for the detected VOC compounds over the three sampling events. Note that no samples were collected for MW-1 and MW-3 for the most recent (August, 1994) sampling event.

Table 3
Historic Groundwater Sampling Events
Volatile Organic Compound (VOC) Analysis
Former Avanti Facility
South Bend, Indiana
ATEC Project No. 21-07-94-00637

Constituent	MW-1			MW-2			MW-3			MW-4		
	11/90	2/91	8/94	11/90	2/91	8/94	11/90	2/91	8/94	11/90	2/91	8/94
Trans 1,2-Dichloroethene	ND	8		37	18	ND	<5*	<5*		ND	ND	ND
1,1,1-Trichloroethane	ND	ND		ND	ND	ND	10	13		ND	ND	ND
Trichloroethene	ND	ND		<5*	ND	ND	ND	ND		ND	ND	ND
Tetrachloroethene	ND	ND		10	5	ND	ND	ND		<5*	<5*	11
Vinyl Chloride	ND	24		ND	33	ND	ND	ND		ND	ND	ND
1,1 Dichloroethane	ND	ND		ND	ND	ND	ND	<5*		ND	ND	ND

*Constituent detected but concentration present is less than quantitation limits
ND: Constituent not detected
MW-1 and MW-3 were missing or destroyed and could not be sampled on 8/94

4.0 CONCLUSIONS AND RECOMMENDATIONS

Analysis of the groundwater sample from MW-2 indicates that the VOC concentration in the vicinity of this well may be diminishing. Historical results from MW-4 indicate that on both previous sampling events tetrachloroethene was detected however it was below the method quantitation limit of 5 ppb. The most recent result of 11 ppb would indicate that the area is still impacted by tetrachloroethene. Monitoring well MW-4 is the upgradient well, as determined by the groundwater flow map generated November 30, 1990. The tetrachloroethene concentrations in the upgradient well may indicate a possible off-site source for this constituent.

ATEC recommends that attempts be made to locate and properly close MW-1 and MW-3 wells. ATEC recommends that two new wells be installed to replace these former wells. ATEC recommends that the two remaining wells and the two replacement wells be surveyed and a groundwater flow map generated. ATEC also recommends another round of groundwater sampling for VOCs based on the history from test results at MW-2 and the current findings at MW-4.

APPENDIX A

LABORATORY REPORT

ATEC Associates, Inc.
Environmental Consultants
5150 East 65th Street
Indianapolis, Indiana 46220-4871
(317) 849-4990. FAX (317) 842-7932

ACCREDITED

Solid & Hazardous Waste Site Assessments
Remedial Design & Construction
Underground Tank Management
Asbestos Surveys & Analysis
Hydrogeologic Investigations & Monitoring
Analytical Testing / Chemistry
Industrial Hygiene / Hazard Communication
Environmental Audits & Permitting
Exploratory Drilling & Monitoring Wells

September 2, 1994

Mr. Brad Lewis
ATEC Environmental Consultants
5150 E. 65th Street
Indianapolis, IN 46220

Re: Two Water VOA
City of South Bend
ATEC Work Order Number 9408299
ATEC Project Number 21-07-94-00637

Dear Mr. Lewis:

Attached is a ten page report of results for the Organic Analyses for the two water samples which were submitted to the ATEC Environmental/Analytical Testing Division on August 19, 1994, on behalf of the City of South Bend. The volatile samples were analyzed on a Finnigan Incos 50 GC/MS/DS system, complete with Superincos Software, via SW 846 Method 8240A for Purgeable Aromatic Compounds. Prior to analysis, the system was tuned against Bromofluorobenzene and calibrated with the appropriate standard.

The analytical procedures are performed in accordance with the ATEC Analytical Standard Operating Procedures, which are based on the methods referenced in this report. These SOPs are available for your review upon request.

Any associated Quality Control information will be maintained in the Testing Division files, a copy of which can be forwarded to you upon request. After a thirty-day period, a fee will be assessed for this additional information.

A Definition of LIMS Terms is included in this report for your convenience. Two copies of this Analytical Report are being provided for your records. Additional copies can be provided at a minimum cost of $30.00 per copy. It has been a pleasure serving you and, as always, if there are any questions concerning these results or the ATEC policies, please feel free to contact me.

Respectfully submitted,
ATEC ASSOCIATES, INC.

Mary McGill-Maxwell

Mary McGill-Maxwell
GC/MS Group Leader
Environmental/Analytical
Testing Division

MMM/feb

ATEC ENVIRONMENTAL DIV.
5150 E. 65TH ST.
Indianapolis, IN 46220

Attn: Brad Lewis
Invoice Number:

Order #: 94-08-299
Date: 09/02/94 12:23
Work ID: City/South Bend(2107-9400637)
Date Received: 08/19/94
Date Completed: 09/01/94

SAMPLE IDENTIFICATION

ATEC Sample Number	Client Sample Description
01	MW-2
02	MW-4

Certified By
Mary McGill-Maxwell

ATEC Associates REPORT Work Order # 94-08-299

Received: 08/19/94

REPORT COMMENTS

LIMS General Definition of Terms

Order Number:	ATEC Laboratory Identification for your sample set. (Please reference this number with any correspondence)
Sample Number:	ATEC Laboratory Identification for individual samples with the set.
Sample Description:	Your Sample Identification
Test Description:	Analytical Test
Result:	Analytical Value Obtained
Result Qualifiers:	< denotes less than > denotes greater than N/A denotes not applicable NR denotes not reported J denotes analyte detected but amount present is less than the Quantitation Limit M denotes analyte spiked with matrix spike compound B denotes analyte found in method blank ND not detected
Units:	Unit of Measurement
Limit:	Denotes Quantitation Limit: Limit of reliability based on the sample quantity analyzed, the sample matrix, and the analytical method sensitivity
Analyzed:	Optional Field for Date Analyzed
By:	Optional Field for Test Analyst

ATEC Associates REPORT Work Order # 94-08-299

Received: 08/19/94

SAMPLE ID MW-2 TEST CODE 8240 NAME Volatile

FRACTION 01A Date & Time Collected 08/18/94 Category WATER

DATE ANALYZED	08/30/94
INSTRUMENT	Incos 8V2
DILUTION FACTOR	1
ANALYST	R. Booknis
VERIFIED BY	M. McGill
UNITS	ug/L

COMMENTS:

Analytical Method SW 846 Mtd. 8240A

PRIORITY POLLUTANTS
VOLATILE COMPOUNDS

PARAMETER	CAS #	RESULT	LIMIT
Chloromethane	74-87-3	<10	10
Bromomethane	74-83-9	<10	10
Vinyl Chloride	75-01-4	<10	10
Chloroethane	75-00-3	<10	10
Methylene Chloride	75-09-2	<5	5
Acetone	67-64-1	<100	100
Carbon Disulfide	75-15-0	<100	100
1,1-Dichloroethene	75-34-4	<5	5
1,1-Dichloroethane	75-34-3	<5	5
Total 1,2-Dichloroethene	156-60-5	<5	5
Chloroform	67-66-3	<5	5
1,2-Dichloroethane	107-06-2	<5	5
2-Butanone	78-93-3	<100	100
1,1,1-Trichloroethane	71-55-6	<5	5
Carbon Tetrachloride	56-23-5	<5	5
Vinyl Acetate	108-05-4	<50	50
Bromodichloromethane	75-27-4	<5	5
1,2-Dichloropropane	78-87-5	<5	5
Trans-1, 3-Dichloropropene	10061-02-6	<5	5
Trichloroethene	79-01-6	<5	5

ATEC Associates REPORT Work Order # 94-08-299

Received: 08/19/94

SAMPLE ID MW-2 TEST CODE 8240 NAME Volatile

FRACTION 01A Date & Time Collected 08/18/94 Category WATER

Dibromochloromethane	124-48-1	<5	5
1,1,2-Trichloroethane	79-00-5	<5	5
Benzene	71-43-2	<5	5
cis-1, 3-Dichloropropene	10061-01-5	<5	5
2-Chloroethylvinylether	110-75-8	<10	10
Bromoform	75-25-2	<5	5
4-Methyl-2-Pentanone	108-10-1	<50	50
2-Hexanone	591-78-6	<50	50
Tetrachloroethene	127-18-4	<5	5
1,1,2,2-Tetrachloroethane	79-34-5	<5	5
Toluene	108-88-3	<5	5
Chlorobenzene	108-90-7	<5	5
Ethylbenzene	100-41-4	<5	5
Styrene	100-42-5	<5	5
Total Xylenes		<5	5
Acrolein	107-02-8	<10	10
Acrylonitrile	98-86-2	<100	100
Iodomethane	74-88-4	<100	100
1,4-Dichloro-2-butene	764-41-0	<100	100
Ethyl methacrylate	97-63-2	<100	100
1,2,3-Trichloropropane	96-18-4	<100	100
Trichlorofluoromethane	75-69-4	<10	10
Dichlorodifluoromethane	75-61-8	<100	100

ATEC Associates REPORT Work Order # 94-08-299

Received: 08/19/94

SAMPLE ID MW-4 TEST CODE 8240 NAME Volatile
FRACTION 02A Date & Time Collected 08/18/94 Category WATER

DATE ANALYZED	08/24/94
INSTRUMENT	Incos 8V2
DILUTION FACTOR	1
ANALYST	R. Booknis
VERIFIED BY	M. McGill
UNITS	ug/L

COMMENTS:

Analytical Method SW 846 Mtd. 8240A

PRIORITY POLLUTANTS
VOLATILE COMPOUNDS

PARAMETER	CAS #	RESULT	LIMIT
Chloromethane	74-87-3	<10	10
Bromomethane	74-83-9	<10	10
Vinyl Chloride	75-01-4	<10	10
Chloroethane	75-00-3	<10	10
Methylene Chloride	75-09-2	<5	5
Acetone	67-64-1	<100	100
Carbon Disulfide	75-15-0	<100	100
1,1-Dichloroethene	75-34-4	<5	5
1,1-Dichloroethane	75-34-3	<5	5
Total 1,2-Dichloroethene	156-60-5	<5	5
Chloroform	67-66-3	<5	5
1,2-Dichloroethane	107-06-2	<5	5
2-Butanone	78-93-3	<100	100
1,1,1-Trichloroethane	71-55-6	<5	5
Carbon Tetrachloride	56-23-5	<5	5
Vinyl Acetate	108-05-4	<50	50
Bromodichloromethane	75-27-4	<5	5
1,2-Dichloropropane	78-87-5	<5	5
Trans-1, 3-Dichloropropene	10061-02-6	<5	5
Trichloroethene	79-01-6	<5	5

ATEC Associates REPORT Wo . Order # 94-08-299

Received: 08/19/94

SAMPLE ID MW-4 TEST CODE 8240 NAME Volatile

FRACTION 02A Date & Time Collected 08/18/94 Category WATER

Dibromochloromethane	124-48-1	<5	5
1,1,2-Trichloroethane	79-00-5	<5	5
Benzene	71-43-2	<5	5
cis-1, 3-Dichloropropene	10061-01-5	<5	5
2-Chloroethylvinylether	110-75-8	<10	10
Bromoform	75-25-2	<5	5
4-Methyl-2-Pentanone	108-10-1	<50	50
2-Hexanone	591-78-6	<50	50
Tetrachloroethene	**127-18-4**	**11**	5
1,1,2,2-Tetrachloroethane	79-34-5	<5	5
Toluene	108-88-3	<5	5
Chlorobenzene	108-90-7	<5	5
Ethylbenzene	100-41-4	<5	5
Styrene	100-42-5	<5	5
Total Xylenes		<5	5
Acrolein	107-02-8	<10	10
Acrylonitrile	98-86-2	<100	100
Iodomethane	74-88-4	<100	100
1,4-Dichloro-2-butene	764-41-0	<100	100
Ethyl methacrylate	97-63-2	<100	100
1,2,3-Trichloropropane	96-18-4	<100	100
Trichlorofluoromethane	75-69-4	<10	10
Dichlorodifluoromethane	75-61-8	<100	100

ATEC Associates REPORT Wc Order # 94-08-299

Received: 08/19/94

SAMPLE ID Method Blank TEST CODE 8240 NAME Volatile
FRACTION 028 Date & Time Collected _____ Category WATER

DATE ANALYZED	08/24/94
INSTRUMENT	Incos BV2
DILUTION FACTOR	1
ANALYST	R. Booknis
VERIFIED BY	M. McGill
UNITS	ug/L

COMMENTS:

Analytical Method SW 846 Mtd. 8240A

PRIORITY POLLUTANTS
VOLATILE COMPOUNDS

PARAMETER	CAS #	RESULT	LIMIT
Chloromethane	74-87-3	<10	10
Bromomethane	74-83-9	<10	10
Vinyl Chloride	75-01-4	<10	10
Chloroethane	75-00-3	<10	10
Methylene Chloride	75-09-2	<5	5
Acetone	67-64-1	<100	100
Carbon Disulfide	75-15-0	<100	100
1,1-Dichloroethene	75-34-4	<5	5
1,1-Dichloroethane	75-34-3	<5	5
Total 1,2-Dichloroethene	156-60-5	<5	5
Chloroform	67-66-3	<5	5
1,2-Dichloroethane	107-06-2	<5	5
2-Butanone	78-93-3	<100	100
1,1,1-Trichloroethane	71-55-6	<5	5
Carbon Tetrachloride	56-23-5	<5	5
Vinyl Acetate	108-05-4	<50	50
Bromodichloromethane	75-27-4	<5	5
1,2-Dichloropropane	78-87-5	<5	5
Trans-1, 3-Dichloropropene	10061-02-6	<5	5
Trichloroethene	79-01-6	<5	5

ATEC Associates REPORT Work Order # 94-08-299

Received: 08/19/94

SAMPLE ID Method Blank TEST CODE 8240 NAME Volatile
FRACTION 02B Date & Time Collected Category WATER

Dibromochloromethane	124-48-1	<5	5
1,1,2-Trichloroethane	79-00-5	<5	5
Benzene	71-43-2	<5	5
cis-1, 3-Dichloropropene	10061-01-5	<5	5
2-Chloroethylvinylether	110-75-8	<10	10
Bromoform	75-25-2	<5	5
4-Methyl-2-Pentanone	108-10-1	<50	50
2-Hexanone	591-78-6	<50	50
Tetrachloroethene	127-18-4	<5	5
1,1,2,2-Tetrachloroethane	79-34-5	<5	5
Toluene	108-88-3	<5	5
Chlorobenzene	108-90-7	<5	5
Ethylbenzene	100-41-4	<5	5
Styrene	100-42-5	<5	5
Total Xylenes		<5	5
Acrolein	107-02-8	<10	10
Acrylonitrile	98-86-2	<100	100
Iodomethane	74-88-4	<100	100
1,4-Dichloro-2-butene	764-41-0	<100	100
Ethyl methacrylate	97-63-2	<100	100
1,2,3-Trichloropropane	96-18-4	<100	100
Trichlorofluoromethane	75-69-4	<10	10
Dichlorodifluoromethane	75-61-8	<100	100

ATEC Associates REPORT Wc Order # 94-08-299

Received: 08/19/94

SAMPLE ID Method Blank TEST CODE 8240 NAME Volatile
FRACTION 02C Date & Time Collected _____ Category WATER

DATE ANALYZED	08/30/94
INSTRUMENT	Incos 8V2
DILUTION FACTOR	1
ANALYST	R. Booknis
VERIFIED BY	M. McGill
UNITS	ug/L

COMMENTS:

Analytical Method SW 846 Mtd. 8240A

PRIORITY POLLUTANTS
VOLATILE COMPOUNDS

PARAMETER	CAS #	RESULT	LIMIT
Chloromethane	74-87-3	<10	10
Bromomethane	74-83-9	<10	10
Vinyl Chloride	75-01-4	<10	10
Chloroethane	75-00-3	<10	10
Methylene Chloride	75-09-2	8	5
Acetone	67-64-1	<100	100
Carbon Disulfide	75-15-0	<100	100
1,1-Dichloroethene	75-34-4	<5	5
1,1-Dichloroethane	75-34-3	<5	5
Total 1,2-Dichloroethene	156-60-5	<5	5
Chloroform	67-66-3	<5	5
1,2-Dichloroethane	107-06-2	<5	5
2-Butanone	78-93-3	<100	100
1,1,1-Trichloroethane	71-55-6	<5	5
Carbon Tetrachloride	56-23-5	<5	5
Vinyl Acetate	108-05-4	<50	50
Bromodichloromethane	75-27-4	<5	5
1,2-Dichloropropane	78-87-5	<5	5
Trans-1, 3-Dichloropropene	10061-02-6	<5	5
Trichloroethene	79-01-6	<5	5

ATEC Associates REPORT Work Order # 94-08-299

Received: 08/19/94

SAMPLE ID Method Blank TEST CODE 8240 NAME Volatile

FRACTION 02C Date & Time Collected _____ Category WATER

Dibromochloromethane	124-48-1	<5	5
1,1,2-Trichloroethane	79-00-5	<5	5
Benzene	71-43-2	<5	5
cis-1, 3-Dichloropropene	10061-01-5	<5	5
2-Chloroethylvinylether	110-75-8	<10	10
Bromoform	75-25-2	<5	5
4-Methyl-2-Pentanone	108-10-1	<50	50
2-Hexanone	591-78-6	<50	50
Tetrachloroethene	127-18-4	<5	5
1,1,2,2-Tetrachloroethane	79-34-5	<5	5
Toluene	108-88-3	<5	5
Chlorobenzene	108-90-7	<5	5
Ethylbenzene	100-41-4	<5	5
Styrene	100-42-5	<5	5
Total Xylenes		<5	5
Acrolein	107-02-8	<10	10
Acrylonitrile	98-86-2	<100	100
Iodomethane	74-88-4	<100	100
1,4-Dichloro-2-butene	764-41-0	<100	100
Ethyl methacrylate	97-63-2	<100	100
1,2,3-Trichloropropane	96-18-4	<100	100
Trichlorofluoromethane	75-69-4	<10	10
Dichlorodifluoromethane	75-61-8	<100	100

CHAIN OF CUSTODY RECORD

PROJ. NO	PROJECT NAME	LAB PROJ NO
07-94-0637	Monitoring Well Sampling	140321
	CLIENT City of South Bend (L21-07 PAL)	

SAMPLERS. *(Signature)*

SAMPLING METHOD: Teflon Bailer

SAMPLE I.D. NO.	DATE	TIME	COMPOSITE	GRAB	WATER	SOIL	FILTERED	ACIDIFIED	ICED	NUMBER OF CONTAINERS	LAB ID NUMBER	VOLATILE ORGANICS	BTX & E	TOTAL HYDROCARBONS	PCB'S	TOTAL METALS (8)	SAMPLE LOCATION / REMARKS
MW-4	7/18	12:36		X	X				X	3	2	X					
MW-2	7/18	1:24		X	X				X	3	1	X					

LABORATORY ANALYSIS

Relinquished by *(Signature)*	Date / Time	Received by *(Signature)*	Relinquished by *(Signature)*	Date / Time	Received by. *(Signature)*
[signature]	7/1/14 2:15	[signature]			
Relinquished by *(Signature)*	Date / Time	Received for Laboratory by *(Signature)*	Date / Time	Project Manager / Phone #	
		[signature]			

ATEC Environmental Consultants
Division of ATEC Associates, Inc.
5150 East 65th Street
Indianapolis, Indiana 46220-4871
(317) 849-4990, FAX # (317) 849-4278

Copied
5-17-01

Groundwater Sampling
Former Avanti Facility
NWC Lafayette Street and Sample Street
South Bend, Indiana
ATEC Project No. 21-07-94-00637

ATEC Associates, Inc.
Environmental Consultants
5150 East 65th Street
Indianapolis, Indiana 46220-4871
(317) 849-4990. FAX (317) 849-5260

Solid & Hazardous Waste Site Assessments
Remedial Design & Construction
Underground Tank Management
Asbestos Surveys & Analysis
Hydrogeologic Investigations & Monitoring
Analytical Testing / Chemistry
Industrial Hygiene / Hazard Communication
Environmental Audits & Permitting
Exploratory Drilling & Monitoring Wells

September 23, 1994

Ms. Ann E. Kolata
Community of Economic Development
City of South Bend, Indiana
1200 County-City Building
South Bend, IN 46601

Re: Groundwater Sampling
Lot One - Avanti Site
NWC Lafayette Street and Sample Street
South Bend, Indiana
ATEC Project No. 21-07-94-00637

Dear Ms. Kolata:

ATEC Associates, Inc. (ATEC) is pleased to present the City of South Bend with this report documenting the groundwater sampling performed at the above referenced site. The purpose of the study was to determine the current status of groundwater impact at the site. The attached report summarizes the activities performed by ATEC to accomplish this objective.

We appreciate the opportunity to conduct this investigation and trust this report is responsive to your needs. Please do not hesitate to contact the undersigned if you have any comments or questions concerning this study.

Sincerely,

ATEC ASSOCIATES, INC.

Brad K. Lewis
Staff Environmental Scientist

Matthew C. Stokes, C.H.M.M.
Senior Project Manager

BKL:MCS/cla
attachment

TABLE OF CONTENTS

GROUNDWATER SAMPLING

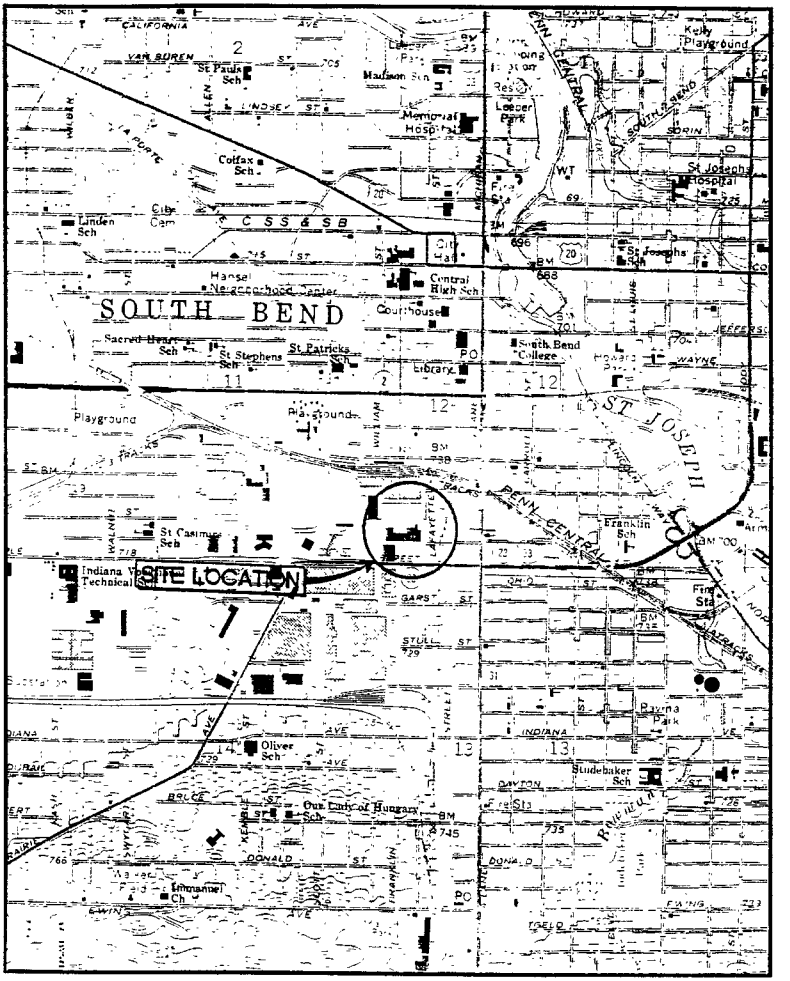
FORMER AVANTI FACILITY
NWC Lafayette Street and Sample Street
South Bend, Indiana
ATEC Project No. 21-07-94-00637

1.0 INTRODUCTION

ATEC Associates, Inc. (ATEC) was retained by the City of South Bend Department of Community and Economic Development to perform groundwater sampling of four monitoring wells located on the former Avanti facility at the northwest corner of Lafayette and Sample Streets. The purpose of this sampling was to evaluate the current status of volatile organic compounds (VOCs) in the on-site wells. Figure 1 shows the project site and surrounding vicinity.

ATEC arrived on site August 18, 1994 to sample four wells. The project site consisted of a vacant lot. The Avanti building structure and parking lots had been demolished and removed since the last sampling event. In the process of demolishing the building, two monitoring wells have been destroyed and/or buried and could not be found. Monitoring well MW-4 and MW-2 were located. The metal protective cover and the well casing above ground level on monitoring well MW-4 had been bent to the ground. With the casing bend over the well could not be sampled. ATEC used a hack saw to saw the metal casing and the well casing off at ground level so that the well could be sampled. The well was recapped but it is not protected or secured.

The former parking lot at the project site has been demolished and removed. The grade at the site has been lowered by approximately 3 ft. MW-2 was originally set in a manhole flush with the surface elevation. Since the grade around the well has been lowered the PVC well casing extends 2 to 3 ft out of the ground. Towards the top of the PVC piping is the cement grout and manhole cover that once set into the ground. The well appeared to be undamaged. The well is currently unprotected and it is vulnerable to damage.



VICINITY MAP

GROUND WATER SAMPLING
FORMER AVANTI FACILITY
NWC LAFAYETTE ST. AND SAMPLE ST.
SOUTH BEND, INDIANA

Project Number	21-07-94-00637
Drawing File	637
Date	1994
Scale	1" = 2000'
Drn By	VL
Ckd By	BL
Appd By	--

ATEC

2.0 FIELD ACTIVITIES

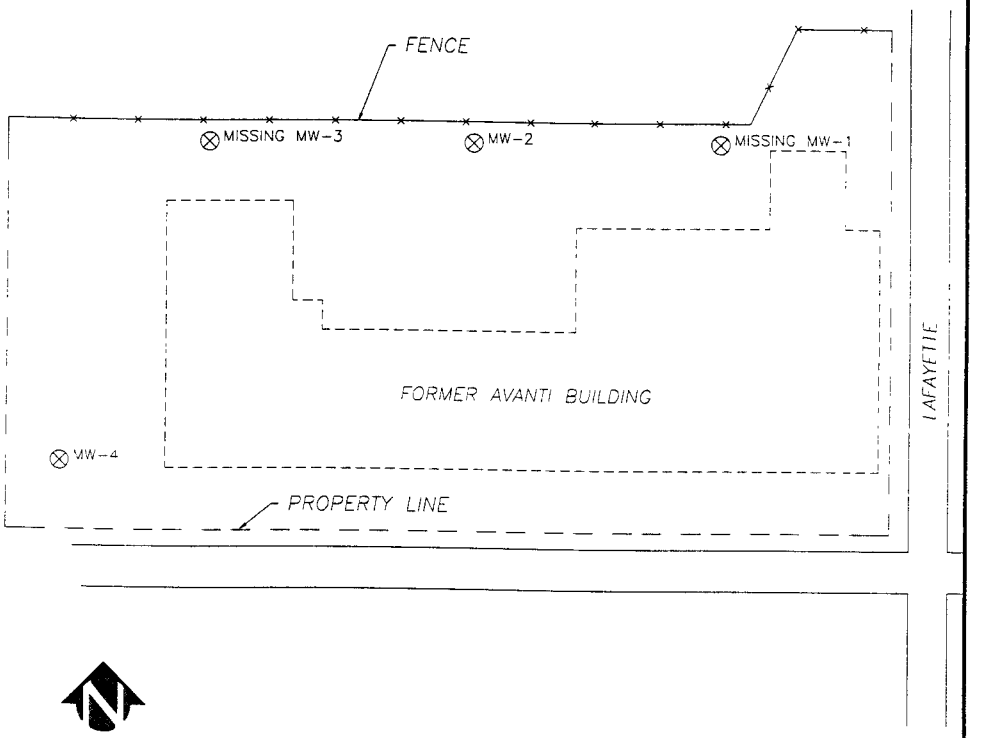
2.1 Groundwater Sampling

On August 18, 1994, groundwater samples were collected from two out of four monitoring wells. Figure 2 shows the project site and location of the monitoring wells. The two monitoring wells were gauged with an electronic water level indicator before the well was sampled. Prior to sampling, each well was purged a minimum of three well volumes of water to ensure a representative groundwater sample was collected. A Teflon® bailer was used to collect the groundwater from the well. The bailer was decontaminated with a non-phosphate detergent wash and a tap water rinse prior to sampling each well. The groundwater was collected in three 40 milliliter glass VOC vials, preserved on ice and transported to the ATEC laboratory using proper QA/QC procedures and chain-of-custody protocols. The groundwater samples were submitted for volatile organic compounds. Table 1 summarizes depth to water and the amount of water purged from each monitoring well.

Table 1
Monitoring Well Purge Volumes
Former Avanti Site
South Bend, Indiana
ATEC Project No. 21-07-94-00637

Well I.D. No.	DTW	DTB	3 Well Vol.	Amount Purged
MW-4	23.45	28.6	2.5 gal	5 gal
MW-2	24.66	31.2	3.2 gal	5 gal

DTW: Depth to water (from top of well casing)
DTB: Depth to bottom (from top of well casing)



MONITORING WELL LOCATION MAP

GROUND WATER SAMPLING
FORMER AVANTI FACILITY
NWC LAFAYETTE ST. AND SAMPLE ST.
SOUTH BEND, INDIANA

Project Number	21-07-94-00637
Drawing File	637
Date	1994
Scale	NOT TO SCALE
Drn By	ML
Ckd By	BL
App'd By	--
Figure.	2

ATEC

2.2 Static Water Level Elevations

Monitoring well MW-4 had been damaged from demolition work at the project site. In order for the well to be sampled the protective cover and the well casing were cut off at ground level. The top of the casing elevation has therefore been altered. Monitoring well MW-2 does not appear to have been damaged; however, due to the demolition work at the site the top of well casing elevation may have been altered. If these wells are to be used to verify groundwater flow direction, they will need to be re-surveyed.

Three static water level elevations are needed to accurately determine groundwater flow direction. Because there are only two monitoring wells still remaining and their top of casing elevations are unknown, no static water level elevation table or groundwater flow map could be generated for this sampling event.

3.0 FINDINGS

3.1 VOC Analytical Test Results

Groundwater samples from MW-2 and MW-4 were submitted to the ATEC laboratory for VOC analysis. VOC analysis was performed on a Finnigan Incos 50 GC/MS/DS system, complete with Superincos Software, according to SW 846 Method 8240 for Purgeable Organic Compounds. Table 2 summarizes the VOC analytical results.

Table 2
Groundwater Monitoring Well Samples
Volatile Organic Compounds Analysis
Former Avanti Facility
South Bend, Indiana
ATEC Project No. 21-07-94-00637

Sample I.D.	Constituent Detected	Concentration (ppb)
MW-2	None-detected	N.D.
MW-4	Tetrachloroethene	11

N.D. = None detected

Analytical results for monitoring well MW-4 reveal 11 parts per billion (ppb) of tetrachloroethene. All other VOC results for MW-2 and MW-4 are below method quantitation limits. Appendix A provides a complete copy of the laboratory report for monitoring wells MW-2 and MW-4.

3.2 Historical Groundwater VOC Results

The groundwater monitoring wells at the project site have been sampled two times prior to the August 18, 1994 sampling event. The first sampling event occurred in November, 1990 and the second sampling event occurred in February, 1991. Table 3 shows the analytical result for the detected VOC compounds over the three sampling events. Note that no samples were collected for MW-1 and MW-3 for the most recent (August, 1994) sampling event.

Table 3
Historic Groundwater Sampling Events
Volatile Organic Compound (VOC) Analysis
Former Avanti Facility
South Bend, Indiana
ATEC Project No. 21-07-94-00637

Constituent	MW-1			MW-2			MW-3			MW-4		
	11/90	2/91	8/94	11/90	2/91	8/94	11/90	2/91	8/94	11/90	2/91	8/94
Trans 1,2-Dichloroethene	ND	8		37	18	ND	<5*	<5*		ND	ND	ND
1,1,1-Trichloroethane	ND	ND		ND	ND	ND	10	13		ND	ND	ND
Trichloroethene	ND	ND		<5*	ND	ND	ND	ND		ND	ND	ND
Tetrachloroethene	ND	ND		10	5	ND	ND	ND		<5*	<5*	11
Vinyl Chloride	ND	24		ND	33	ND	ND	ND		ND	ND	ND
1,1 Dichloroethane	ND	ND		ND	ND	ND	ND	<5*		ND	ND	ND

*Constituent detected but concentration present is less than quantitation limits
ND: Constituent not detected
MW-1 and MW-3 were missing or destroyed and could not be sampled on 8/94

4.0 CONCLUSIONS AND RECOMMENDATIONS

Analysis of the groundwater sample from MW-2 indicates that the VOC concentration in the vicinity of this well may be diminishing. Historical results from MW-4 indicate that on both previous sampling events tetrachloroethene was detected however it was below the method quantitation limit of 5 ppb. The most recent result of 11 ppb would indicate that the area is still impacted by tetrachloroethene. Monitoring well MW-4 is the upgradient well, as determined by the groundwater flow map generated November 30, 1990. The tetrachloroethene concentrations in the upgradient well may indicate a possible off-site source for this constituent.

ATEC recommends that attempts be made to locate and properly close MW-1 and MW-3 wells. ATEC recommends that two new wells be installed to replace these former wells. ATEC recommends that the two remaining wells and the two replacement wells be surveyed and a groundwater flow map generated. ATEC also recommends another round of groundwater sampling for VOCs based on the history from test results at MW-2 and the current findings at MW-4.

APPENDIX A

LABORATORY REPORT

ATEC Associates, Inc.
Environmental Consultants
5150 East 65th Street
Indianapolis, Indiana 46220-4871
(317) 849-4990. FAX (317) 842-7932

ACCREDITED

Solid & Hazardous Waste Site Assessments
Remedial Design & Construction
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Hydrogeologic Investigations & Monitoring
Analytical Testing / Chemistry
Industrial Hygiene / Hazard Communication
Environmental Audits & Permitting
Exploratory Drilling & Monitoring Wells

September 2, 1994

Mr. Brad Lewis
ATEC Environmental Consultants
5150 E. 65th Street
Indianapolis, IN 46220

Re: Two Water VOA
City of South Bend
ATEC Work Order Number 9408299
ATEC Project Number 21-07-94-00637

Dear Mr. Lewis:

Attached is a ten page report of results for the Organic Analyses for the two water samples which were submitted to the ATEC Environmental/Analytical Testing Division on August 19, 1994, on behalf of the City of South Bend. The volatile samples were analyzed on a Finnigan Incos 50 GC/MS/DS system, complete with Superincos Software, via SW 846 Method 8240A for Purgeable Aromatic Compounds. Prior to analysis, the system was tuned against Bromofluorobenzene and calibrated with the appropriate standard.

The analytical procedures are performed in accordance with the ATEC Analytical Standard Operating Procedures, which are based on the methods referenced in this report. These SOPs are available for your review upon request.

Any associated Quality Control information will be maintained in the Testing Division files, a copy of which can be forwarded to you upon request. After a thirty-day period, a fee will be assessed for this additional information.

A Definition of LIMS Terms is included in this report for your convenience. Two copies of this Analytical Report are being provided for your records. Additional copies can be provided at a minimum cost of $30.00 per copy. It has been a pleasure serving you and, as always, if there are any questions concerning these results or the ATEC policies, please feel free to contact me.

Respectfully submitted,
ATEC ASSOCIATES, INC.

Mary McGill-Maxwell

Mary McGill-Maxwell
GC/MS Group Leader
Environmental/Analytical
Testing Division

MMM/feb

ATEC ENVIRONMENTAL DIV.
5150 E. 65TH ST.
Indianapolis, IN 46220

Attn: Brad Lewis
Invoice Number:

Order #: 94-08-299
Date: 09/02/94 12:23
Work ID: City/South Bend(2107-9400637)
Date Received: 08/19/94
Date Completed: 09/01/94

SAMPLE IDENTIFICATION

ATEC Sample Number	Client Sample Description
01	MW-2
02	MW-4

Certified By
Mary McGill-Maxwell

Received: 08/19/94

REPORT COMMENTS

LIMS General Definition of Terms

Order Number:	ATEC Laboratory Identification for your sample set. (Please reference this number with any correspondence)
Sample Number:	ATEC Laboratory Identification for individual samples with the set.
Sample Description:	Your Sample Identification
Test Description:	Analytical Test
Result:	Analytical Value Obtained
Result Qualifiers:	< denotes less than > denotes greater than N/A denotes not applicable NR denotes not reported J denotes analyte detected but amount present is less than the Quantitation Limit M denotes analyte spiked with matrix spike compound B denotes analyte found in method blank ND not detected
Units:	Unit of Measurement
Limit:	Denotes Quantitation Limit: Limit of reliability based on the sample quantity analyzed, the sample matrix, and the analytical method sensitivity
Analyzed:	Optional Field for Date Analyzed
By:	Optional Field for Test Analyst

ATEC Associates REPORT Work Order # 94-08-299

Received: 08/19/94

SAMPLE ID MW-2 TEST CODE 8240 NAME Volatile
FRACTION 01A Date & Time Collected 08/18/94 Category WATER

DATE ANALYZED	08/30/94
INSTRUMENT	Incos BV2
DILUTION FACTOR	1
ANALYST	R. Booknis
VERIFIED BY	M. McGill
UNITS	ug/L

COMMENTS:

Analytical Method SW 846 Mtd. 8240A

PRIORITY POLLUTANTS
VOLATILE COMPOUNDS

PARAMETER	CAS #	RESULT	LIMIT
Chloromethane	74-87-3	<10	10
Bromomethane	74-83-9	<10	10
Vinyl Chloride	75-01-4	<10	10
Chloroethane	75-00-3	<10	10
Methylene Chloride	75-09-2	<5	5
Acetone	67-64-1	<100	100
Carbon Disulfide	75-15-0	<100	100
1,1-Dichloroethene	75-34-4	<5	5
1,1-Dichloroethane	75-34-3	<5	5
Total 1,2-Dichloroethene	156-60-5	<5	5
Chloroform	67-66-3	<5	5
1,2-Dichloroethane	107-06-2	<5	5
2-Butanone	78-93-3	<100	100
1,1,1-Trichloroethane	71-55-6	<5	5
Carbon Tetrachloride	56-23-5	<5	5
Vinyl Acetate	108-05-4	<50	50
Bromodichloromethane	75-27-4	<5	5
1,2-Dichloropropane	78-87-5	<5	5
Trans-1, 3-Dichloropropene	10061-02-6	<5	5
Trichloroethene	79-01-6	<5	5

ATEC Associates REPORT Work Order # 94-08-299

Received: 08/19/94

SAMPLE ID MW-2 TEST CODE 8240 NAME Volatile
FRACTION 01A Date & Time Collected 08/18/94 Category WATER

Dibromochloromethane	124-48-1	<5	5
1,1,2-Trichloroethane	79-00-5	<5	5
Benzene	71-43-2	<5	5
cis-1, 3-Dichloropropene	10061-01-5	<5	5
2-Chloroethylvinylether	110-75-8	<10	10
Bromoform	75-25-2	<5	5
4-Methyl-2-Pentanone	108-10-1	<50	50
2-Hexanone	591-78-6	<50	50
Tetrachloroethene	127-18-4	<5	5
1,1,2,2-Tetrachloroethane	79-34-5	<5	5
Toluene	108-88-3	<5	5
Chlorobenzene	108-90-7	<5	5
Ethylbenzene	100-41-4	<5	5
Styrene	100-42-5	<5	5
Total Xylenes		<5	5
Acrolein	107-02-8	<10	10
Acrylonitrile	98-86-2	<100	100
Iodomethane	74-88-4	<100	100
1,4-Dichloro-2-butene	764-41-0	<100	100
Ethyl methacrylate	97-63-2	<100	100
1,2,3-Trichloropropane	96-18-4	<100	100
Trichlorofluoromethane	75-69-4	<10	10
Dichlorodifluoromethane	75-61-8	<100	100

ATEC Associates REPORT Work Order # 94-08-299

Received: 08/19/94

SAMPLE ID MW-4 TEST CODE 8240 NAME Volatile
FRACTION 02A Date & Time Collected 08/18/94 Category WATER

DATE ANALYZED	08/24/94
INSTRUMENT	Incos BV2
DILUTION FACTOR	1
ANALYST	R. Booknis
VERIFIED BY	M. McGill
UNITS	ug/L

COMMENTS:

Analytical Method SW 846 Mtd. 8240A

PRIORITY POLLUTANTS
VOLATILE COMPOUNDS

PARAMETER	CAS #	RESULT	LIMIT
Chloromethane	74-87-3	<10	10
Bromomethane	74-83-9	<10	10
Vinyl Chloride	75-01-4	<10	10
Chloroethane	75-00-3	<10	10
Methylene Chloride	75-09-2	<5	5
Acetone	67-64-1	<100	100
Carbon Disulfide	75-15-0	<100	100
1,1-Dichloroethene	75-34-4	<5	5
1,1-Dichloroethane	75-34-3	<5	5
Total 1,2-Dichloroethene	156-60-5	<5	5
Chloroform	67-66-3	<5	5
1,2-Dichloroethane	107-06-2	<5	5
2-Butanone	78-93-3	<100	100
1,1,1-Trichloroethane	71-55-6	<5	5
Carbon Tetrachloride	56-23-5	<5	5
Vinyl Acetate	108-05-4	<50	50
Bromodichloromethane	75-27-4	<5	5
1,2-Dichloropropane	78-87-5	<5	5
Trans-1, 3-Dichloropropene	10061-02-6	<5	5
Trichloroethene	79-01-6	<5	5

ATEC Associates REPORT Work Order # 94-08-299

Received: 08/19/94

SAMPLE ID MW-4 TEST CODE 8240 NAME Volatile
FRACTION 02A Date & Time Collected 08/18/94 Category WATER

Dibromochloromethane	124-48-1	<5	5
1,1,2-Trichloroethane	79-00-5	<5	5
Benzene	71-43-2	<5	5
cis-1, 3-Dichloropropene	10061-01-5	<5	5
2-Chloroethylvinylether	110-75-8	<10	10
Bromoform	75-25-2	<5	5
4-Methyl-2-Pentanone	108-10-1	<50	50
2-Hexanone	591-78-6	<50	50
Tetrachloroethene	**127-18-4**	11	5
1,1,2,2-Tetrachloroethane	79-34-5	<5	5
Toluene	108-88-3	<5	5
Chlorobenzene	108-90-7	<5	5
Ethylbenzene	100-41-4	<5	5
Styrene	100-42-5	<5	5
Total Xylenes		<5	5
Acrolein	107-02-8	<10	10
Acrylonitrile	98-86-2	<100	100
Iodomethane	74-88-4	<100	100
1,4-Dichloro-2-butene	764-41-0	<100	100
Ethyl methacrylate	97-63-2	<100	100
1,2,3-Trichloropropane	96-18-4	<100	100
Trichlorofluoromethane	75-69-4	<10	10
Dichlorodifluoromethane	75-61-8	<100	100

ATEC Associates REPORT Work Order # 94-08-299

Received: 08/19/94

SAMPLE ID Method Blank TEST CODE 8240 NAME Volatile
FRACTION 02B Date & Time Collected _____ Category WATER

DATE ANALYZED	08/24/94
INSTRUMENT	Incos BV2
DILUTION FACTOR	1
ANALYST	R. Booknis
VERIFIED BY	M. McGill
UNITS	ug/L

COMMENTS:

Analytical Method SW 846 Mtd. 8240A

PRIORITY POLLUTANTS
VOLATILE COMPOUNDS

PARAMETER	CAS #	RESULT	LIMIT
Chloromethane	74-87-3	<10	10
Bromomethane	74-83-9	<10	10
Vinyl Chloride	75-01-4	<10	10
Chloroethane	75-00-3	<10	10
Methylene Chloride	75-09-2	<5	5
Acetone	67-64-1	<100	100
Carbon Disulfide	75-15-0	<100	100
1,1-Dichloroethene	75-34-4	<5	5
1,1-Dichloroethane	75-34-3	<5	5
Total 1,2-Dichloroethene	156-60-5	<5	5
Chloroform	67-66-3	<5	5
1,2-Dichloroethane	107-06-2	<5	5
2-Butanone	78-93-3	<100	100
1,1,1-Trichloroethane	71-55-6	<5	5
Carbon Tetrachloride	56-23-5	<5	5
Vinyl Acetate	108-05-4	<50	50
Bromodichloromethane	75-27-4	<5	5
1,2-Dichloropropane	78-87-5	<5	5
Trans-1, 3-Dichloropropene	10061-02-6	<5	5
Trichloroethene	79-01-6	<5	5

ATEC Associates REPORT Work Order # 94-08-299

Received: 08/19/94

SAMPLE ID Method Blank TEST CODE 8240 NAME Volatile

FRACTION 028 Date & Time Collected Category WATER

Dibromochloromethane	124-48-1	<5	5
1,1,2-Trichloroethane	79-00-5	<5	5
Benzene	71-43-2	<5	5
cis-1, 3-Dichloropropene	10061-01-5	<5	5
2-Chloroethylvinylether	110-75-8	<10	10
Bromoform	75-25-2	<5	5
4-Methyl-2-Pentanone	108-10-1	<50	50
2-Hexanone	591-78-6	<50	50
Tetrachloroethene	127-18-4	<5	5
1,1,2,2-Tetrachloroethane	79-34-5	<5	5
Toluene	108-88-3	<5	5
Chlorobenzene	108-90-7	<5	5
Ethylbenzene	100-41-4	<5	5
Styrene	100-42-5	<5	5
Total Xylenes		<5	5
Acrolein	107-02-8	<10	10
Acrylonitrile	98-86-2	<100	100
Iodomethane	74-88-4	<100	100
1,4-Dichloro-2-butene	764-41-0	<100	100
Ethyl methacrylate	97-63-2	<100	100
1,2,3-Trichloropropane	96-18-4	<100	100
Trichlorofluoromethane	75-69-4	<10	10
Dichlorodifluoromethane	75-61-8	<100	100

ATEC Associates REPORT Work Order # 94-08-299

Received: 08/19/94

SAMPLE ID Method Blank TEST CODE 8240 NAME Volatile
FRACTION 02C Date & Time Collected _____ Category WATER

DATE ANALYZED	08/30/94
INSTRUMENT	Incos BV2
DILUTION FACTOR	1
ANALYST	R. Booknis
VERIFIED BY	M. McGill
UNITS	ug/L

COMMENTS:

Analytical Method SW 846 Mtd. 8240A

PRIORITY POLLUTANTS
VOLATILE COMPOUNDS

PARAMETER	CAS #	RESULT	LIMIT
Chloromethane	74-87-3	<10	10
Bromomethane	74-83-9	<10	10
Vinyl Chloride	75-01-4	<10	10
Chloroethane	75-00-3	<10	10
Methylene Chloride	75-09-2	**8**	5
Acetone	67-64-1	<100	100
Carbon Disulfide	75-15-0	<100	100
1,1-Dichloroethene	75-34-4	<5	5
1,1-Dichloroethane	75-34-3	<5	5
Total 1,2-Dichloroethene	156-60-5	<5	5
Chloroform	67-66-3	<5	5
1,2-Dichloroethane	107-06-2	<5	5
2-Butanone	78-93-3	<100	100
1,1,1-Trichloroethane	71-55-6	<5	5
Carbon Tetrachloride	56-23-5	<5	5
Vinyl Acetate	108-05-4	<50	50
Bromodichloromethane	75-27-4	<5	5
1,2-Dichloropropane	78-87-5	<5	5
Trans-1, 3-Dichloropropene	10061-02-6	<5	5
Trichloroethene	79-01-6	<5	5

ATEC Associates REPORT Work Order # 94-08-299

Received: 08/19/94

SAMPLE ID Method Blank TEST CODE 8240 NAME Volatile
FRACTION 02C Date & Time Collected _____ Category WATER

Dibromochloromethane	124-48-1	<5	5
1,1,2-Trichloroethane	79-00-5	<5	5
Benzene	71-43-2	<5	5
cis-1, 3-Dichloropropene	10061-01-5	<5	5
2-Chloroethylvinylether	110-75-8	<10	10
Bromoform	75-25-2	<5	5
4-Methyl-2-Pentanone	108-10-1	<50	50
2-Hexanone	591-78-6	<50	50
Tetrachloroethene	127-18-4	<5	5
1,1,2,2-Tetrachloroethane	79-34-5	<5	5
Toluene	108-88-3	<5	5
Chlorobenzene	108-90-7	<5	5
Ethylbenzene	100-41-4	<5	5
Styrene	100-42-5	<5	5
Total Xylenes		<5	5
Acrolein	107-02-8	<10	10
Acrylonitrile	98-86-2	<100	100
Iodomethane	74-88-4	<100	100
1,4-Dichloro-2-butene	764-41-0	<100	100
Ethyl methacrylate	97-63-2	<100	100
1,2,3-Trichloropropane	96-18-4	<100	100
Trichlorofluoromethane	75-69-4	<10	10
Dichlorodifluoromethane	75-61-8	<100	100

CHAIN OF CUSTODY RECORD

PROJ. NO. 07-94-0637 | PROJECT NAME Monitoring Well Sampling | LAB PROJ NO. 9403219

CLIENT City of South Bend (21-07 PRL)

SAMPLERS. (Signature)

SAMPLING METHOD Tedlar Bulb

SAMPLE I.D. NO.	DATE	TIME	COMPOSITE	GRAB	WATER	SOIL		FILTERED	ACIDIFIED	ICED		NUMBER OF CONTAINERS	LAB I.D. NUMBER
MW-4	3/18	1326		X	X					X		3	2
MW-2	3/18	1329		X	X					X		3	1

LABORATORY ANALYSIS

VOLATILE ORGANICS | BTX & E | TOTAL HYDROCARBONS | PCB'S | TOTAL METALS (8) | SAMPLE LOCATION / REMARKS

Relinquished by: (Signature)	Date / Time	Received by (Signature)	Relinquished by (Signature)	Date / Time	Received by (Signature)
[signature]	3/19/14 2:15				
Relinquished by (Signature)	Date / Time	Received for Laboratory by (Signature)	Date / Time	Project Manager / Phone #	
		[signature]			

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