Environmental Consulting Services





DRAFT REPORT SOIL SAMPLING AND TESTING LOT NOS. 6, 7, 10, 13, 17 STUDEBAKER CORRIDOR SOUTH BEND, INDIANA ATEC PROJECT NUMBER 21-07459



MR. K.C. POCIUS **DEPARTMENT OF ECONOMIC DEVELOPMENT**COUNTY CITY BUILDING

SOUTH BEND, IN 46601



February 1, 1991

Mr. K.C. Pocius
Department of Economic Development
County City Building
South Bend, IN 46601

Re: Draft Report

Soil Sampling and Testing Lot Nos. 6, 7, 10, 13, 17 Studebaker Corridor South Bend, Indiana

ATEC Project Number 21-07459

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

Dear Mr. Pocius:

ATEC Environmental Consultants (ATEC) has conducted a hand auger soil sampling and testing program of selected lots throughout the Studebaker Corridor.

The purpose of soil sample collection and analysis was to determine if contamination may be present in the shallow subsurface soils at these locations.

We trust this submittal is responsive to your needs. If you have any questions or comments regarding this report, or if we can be of any further service to you in the future, please do not hesitate to contact us.

Very truly yours,

ATEC Associates, Inc.

Kurtis H. Gilliam

Staff Environmental Scientist

Matthew C. Stokes, C.H.M.M.

Project Manager/Environmental Scientist

MCS/ca

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DRAFT REPORT SOIL SAMPLING AND TESTING

Studebaker Corridor South Bend, Indiana ATEC Project Number 21-07459

1.0 INTRODUCTION

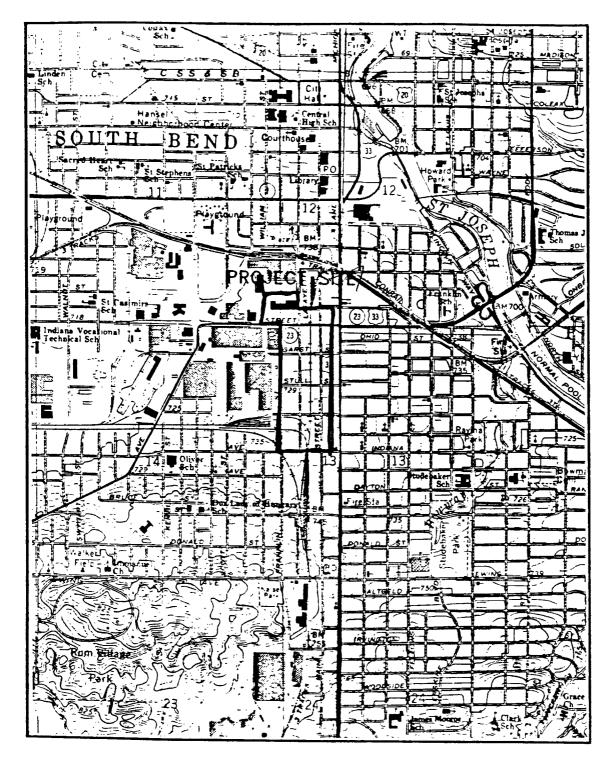
ATEC Environmental Consultants (ATEC) has conducted a hand auger soil sampling and testing program at the Studebaker Corridor in South Bend, Indiana as shown in Figure 1. This investigation consisted of collecting twenty-eight (28) soil samples at five (5) lots. All soil samples collected were preserved and transported to the ATEC laboratory in Indianapolis, Indiana for analytical testing. It should be noted that based on the client's request, the number of soil borings analyzed during this study was limited to the minimum number of samples necessary to provide essential information concerning possible contamination at these sites.

2.0 SITE DESCRIPTION

The project area included five (5) lots in the Studebaker Corridor project area. The lots included numbers Six, Seven, Ten, Thirteen, and Seventeen. These lots were selected based on their potential for contamination of shallow subsurface soils due to historical use and past operations at these locations. Specific sample locations were chosen based on visual inspection. Locations judged as likely to be contaminated included stained areas or areas in which hazardous materials usage may have occurred. Hand auger soil boring samples were collected at exterior locations with respect to structures located on these lots. Interior inspection of these structures was conducted and is discussed in ATEC Report Number 21-07460.

3.0 WORK PERFORMED

On December 11 through 13, 1990, ATEC personnel performed an investigation consisting of a total of twenty-eight (28) hand auger soil borings. Borings were advanced in areas of potential environmental concern (i.e., drum storage areas, surface stained areas). On the larger lots (i.e, Six and Ten), sample locations were spread out over the lot to fully represent the lot. Figures 2 through 6 showing sample boring locations for each lot are provided in Appendix A.



235

VICINITY MAP STUDEBAKER CORRIDOR SOUTH BEND, INDIANA

PROJECT	NO.
21-0	7262
SCALE	
. ??	2000'

 $\frac{1}{1} = 2000$ FIGURE NO.



From each site, samples were either analyzed for Total Petroleum Hydrocarbons (TPH) or Volatile Organic Compounds (VOCs). Soil samples were also tested for PCBs and total heavy metals. Test parameters were chosen at each location based on possible contaminants present with at least two (2) tests performed on each sample. The lot number, boring identification numbers, and parameters analyzed at each hand auger boring is provided in Table 1.

	Table 1 Soil Sample Testing Scheme Summary								
Lot #	Sample I.D. # THM VOCs PCBs TPH								
17	B-1		X	X					
	B-2	X	X						
	B-3		X	X					
	B-4	X	X						
	B-5			X	X				
	B-6	X			X				
	B-7			X	X				
	B-8	X			X				
6	B-9	X	X						
	B-10	X	X						
	B-11		X	X					
	B-12	X	X						
	B-13		X	X					
	B-14		X	X					
	B-15		X	X					
	B-16	X	X						
7	B-17			X	X				
	B-18	X			X				
	B-19	X			X				
	B-20			X	X				

Table 1 (continued) Soil Sample Testing Scheme Summary										
Lot #	Lot # Sample I.D. # THM VOCs PCBs TPH									
13	B-21		X	X						
	B-22	X	X							
	B-23		X	X						
	B-24	X	X							
10	B-25	X	X							
	B-26		X	X						
B-27 X X										
B-28 X X										
THM = Total Heavy Metals VOC = Volatile Organic Compounds PCB = Polychlorinated Biphenyls TPH = Total Petroleum Hydrocarbons										

All soil samples were collected using a stainless steel hand auger equipped with a 3 in. O.D. sample bucket. ATEC utilized a hand operated power auger drill to penetrate subsurface media to the desired sample depth at locations which hand auger refusal was encountered. Throughout each sample depth interval, the stainless steel hand auger was used to collect samples.

Prior to drilling each boring, the stainless steel hand auger and power drill auger flights were washed with on-site tap water containing concentrated detergent. The equipment was then rinsed with tap water followed by a distilled water final rinse. Prior to collecting soil samples for PCBs, the equipment was rinsed with hexane prior to the distilled water rinse.

Borings were advanced to a maximum depth of approximately 6.0 ft. Soil samples were composited through each 1.5 ft interval and placed in a zip-lock bag. Each sample was classified using the Unified Soil Classification System (USCS) and inspected for signs of contamination. The soil samples were field screened for Total Flame-ionizable Vapors (TFVs) using a Porta FID II. The Porta FID detected TFVs emitted from the soil in parts per million (ppm). Porta FID operating procedures are provided in Appendix B.

The soil sample exhibiting the greatest potential for contamination based on visual observations and TFV readings was selected from each boring location. All samples were collected in appropriate sample containers for each analysis and placed on ice. Sample depths from which soil samples were collected is shown in Table 2. All samples were collected, preserved, and transported to ATEC's laboratory in Indianapolis, Indiana for analysis following all proper chain-of-custody procedures. Boring logs showing soil classifications and field observations for each sample location are provided in Appendix C.

Table 2 Soil Sample Depth Summary						
Sample I.D. #	Sample Depth (ft)	Sample I.D. #	Sample Depth (ft)			
B-1	0.0 - 1.5	B-15	0.0 - 1.5			
B-2	0.0 - 1.5	B-16	0.0 - 1.5			
B-3	0.0 - 1.5	B-17	0.0 - 1.0			
B-4	0.0 - 1.5	B-18	0.0 - 1.5			
B-5	0.0 - 1.5	B-19	0.0 - 1.5			
B-6	0.0 - 1.5	B-20	0.0 - 1.0			
B-7	0.0 - 1.5	B-21	0.0 - 1.5			
B-8	0.0 - 1.5	B-22	0.0 - 1.5			
B-9	0.0 - 1.5	B-23	0.0 - 1.5			
B-10	0.0 - 1.5	B-24	0.0 - 1.5			
B-11	0.0 - 1.5	B-25	0.0 - 1.5			
B-12	1.5 - 3.0	B-26	0.0 - 1.0			
B-13	0.0 - 1.0	B-27	0.0 - 1.5			
B-14	0.0 - 1.5	B-28	0.0 - 0.5			

4.0 ANALYTICAL FINDINGS

A total of twenty-eight (28) soil samples were collected at five (5) lots throughout the project site. Specific test parameters were assigned to soil samples as described in Table 1. Of the twenty-eight (28) samples tested, fourteen (14) were analyzed for total heavy metals (THM), twenty (20) samples were analyzed for Volatile Organic Compounds (VOCs), fourteen (14) samples were analyzed for PCBs, and eight (8) samples were tested for TPH.

THM analysis includes testing for total arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver. Analysis for VOCs includes testing for a total of thirty-five (35) various organic compounds including certain petroleum constituents and several chlorinated hydrocarbons. PCB analysis consists of seven (7) different types of polychlorinated aroclors, which are specific types of PCBs found on the Environmental Protection Agency (EPA) priority pollutants list. TPH analysis tests for a total concentration of petroleum based hydrocarbons in each sample.

Metals samples were analyzed on a Perkin-Elmer 5100 Atomic Absorption Spectrophotometer according to the 7000 Series of the methods outlined in SW 846 and a Thermo Jarrell Ash ICAP-61 according to SW 846 Method 6010. The soil volatile samples were analyzed on a Finnigan 1020 OWA GC/MS/DS System, complete with Superincos Software, via SW 846 Method 8240 for Purgeable Organic Compounds. PCB analyses were performed on a Varian 3400 Gas Chromatograph using Electron Capture Detection via SW 846 Method 8080 and the TPH analyses were performed on a Varian 3700 Gas Chromatograph using Flame Ionization Detection via SW 846 Method 8015 California Modified. Complete documentation of laboratory analytical reports is provided in Appendix D.

The following discussion presents the analytical data from each lot and sample location. A summary of the analytical results is shown in Table 3 for each lot location and sample. Analytical results are shown in the table for those constituents detected above the quantitation limits.

The client should note that methylene chloride and acetone is reported as being detected in many samples. Methylene chloride as well as acetone and toluene are used as laboratory extraction solvents for various organic analyses. Although the extraction and preparation processes are all performed by trained personnel in separate rooms under a vented fumehood, some vapors escape and are released into the laboratory atmosphere. The release of these vapors into the laboratory atmosphere is basically a random process dependent upon daily usage and the care and diligence of laboratory personnel involved in handling the solvents. Once these compounds are released into the atmosphere they can contaminate any sample once it is removed from the sample container and exposed to the atmosphere. Given the extreme sensitivity of the analytical instrumentation, these compounds are often detected in low levels in environmental samples. The U.S. EPA recognizes limited concentrations of these contaminants above the quantitation limit as laboratory artifacts. Results for this series of test reveal methylene chloride at concentrations above 25 ppm throughout different sites. Based on this consistency, ATEC believes these concentrations are a result of laboratory artifacts and not due to on-site activities. Also, please note that with regard to toluene concentrations, no other petroleum based constituents were detected therefore these concentrations were also believed to be laboratory artifacts. A discussion of this summary follows Table 3.

Table 3 Analytical Data Summary								
Lot #	Sample I.D.	Arsenic (ppm)	Barium (ppm)	Chromium (ppm)	Lead (ppm)	PCB (ppb)		
17	B-2	7.3	60	17	130			
	B-4	ND	120	7.7	180			
	B-6	2.6	170	25	310			
	B-8	ND	48	8.6	57			
6	B-9	2.9	190	27	330			
	B-10	ND	42	11	13			
	B-12	6.1	51	21	33			
	B-14	NA	NA	NA	NA	210*		
	B-15	NA	NA	NA	NA	180*		
	B-16	2.2	57	8.6	36			
7	B-18	3.6	88	20	140			
	B-19	2.9	100	13	60			
13	B-22	ND	250	10	20			
	B-24	2.6	85	8.8	26			
10	B-25	5.1	97	16	150			
	B-27	ND	68	15	120			
	B-28	NA	NA	NA	NA	13,000+		

ppm = Parts per million

ppb = Parts per billion

ND = Not detected above quantitation limits

NA = Not analyzed

* = PCB 1248

+ = PCB 1254

Upon review of the analytical data, only metals and PCBs revealed test results at concentrations which require documentation, shown in Table 3 above. Analytical results for TPH did not reveal concentrations above quantitation limits for any samples submitted. Also analytical results show that no VOCs were detected above quantitation limits with the exception of constituents of known laboratory artifact. As previously noted, toluene

concentrations in four (4) soil samples appear to be laboratory artifact. As reaffirmation of this, no other petroleum constituents such as benzene, ethylbenzene, or xylene showed up in these four (4) samples. Therefore, evidence of on-site activities generating these low parts per billion concentrations is lacking. ATEC believes VOCs detected above quantitation are laboratory artifacts.

As shown, total metals is the parameter which was detected above quantitation and are believed to be a result of on-site activities for certain constituents. Discussion of these concentrations with regard to action levels is found in the following section of this report.

5.0 EVALUATION CRITERIA

The objective of this section is to determine the acceptable action levels or clean-up levels which are to be used to compare the test results obtained during this study. Concerning total metals concentrations, it must be considered that all soil samples were shallow and were collected in a heavily urbanized area. As a result, background soil metals concentrations in this urbanized area may be elevated due to normal activities consistent throughout the project site. However, EPA has proposed guidelines for corrective actions at waste sites to include certain total metals. ATEC compared actual sample concentrations obtained during this study for total metals in soils to these proposed guidelines. Test results did not show concentrations above the action levels for arsenic, barium, and chromium.

Proposed action levels provided for these total metals are shown in Table 4.

Table 4 Proposed Action Levels for Soil Test Results (in parts per million)					
Constituent Proposed Action Level*					
Arsenic 800					
Barium 4000					
Chromium 40					
*Federal Register, Volume 55, No. 145 Friday July 27, 1990, pg. 30865,6,7.					

Based on comparison of test data to proposed action levels for arsenic, barium, and chromium, no further recommendations concerning these parameters are made.

It should be noted here that no proposed action level for lead is provided in the above referenced Federal Register. Known background concentrations of total lead in soils range from 2.0 to 200.0 ppm in the United States¹. Considering actual sample concentrations for total lead as shown in Table 3, sample locations B-6 and B-9 are substantially above all other sample tests for lead and the background of total lead in Indiana soils. As a result further sampling and testing is recommended at these locations as discussed in the conclusions and recommendations section of this report.

With regard to PCB concentrations, the Code of Federal Regulations (CFR) soil concentrations of 10 ppm PCBs is considered as a clean-up level². Sample locations B-14 and B-15 of Lot Six, and B-28 of Lot Ten each revealed concentrations of PCBs. All three (3) sample locations are on property of the former South Bend Foundry. Specific sample locations can be found in figures provided in Appendix A. At each sample location in which PCB results were revealed, ATEC believes a determination of the possible extent of contamination must be made to verify concentrations do not exceed the clean-up level. It should be noted that sample B-28 revealed a PCB concentration above the established clean-up level. Therefore, further sampling is recommended in the conclusions and recommendations section of this report.

6.0 CONCLUSIONS AND RECOMMENDATIONS

With regard to total lead concentrations, several locations revealed total lead levels above quantitation limits. Total lead concentrations at sample location B-6 on Lot Seventeen and sample location B-9 on Lot Six showed total lead levels at substantially elevated concentrations. ATEC believes these concentrations may be attributable to specific occurrences at these properties. Potential concern with lead arises primarily if leachable

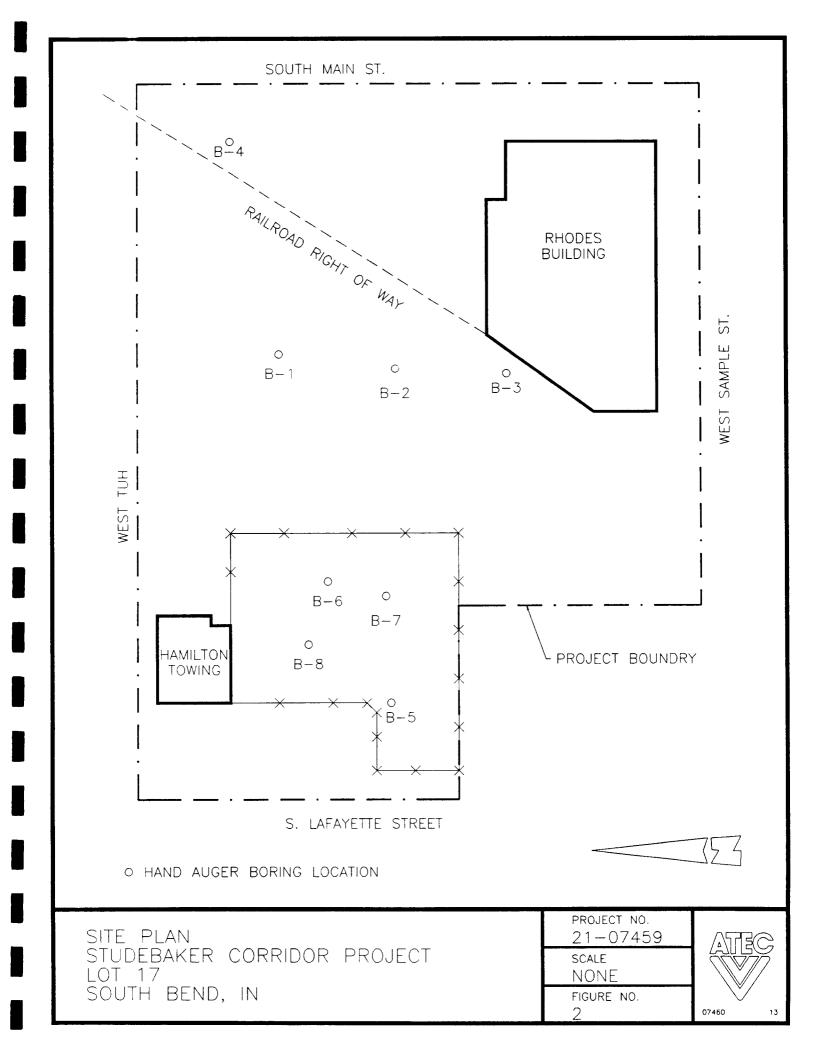
¹ James Drugan, "The Soil Chemistry of Hazardous Materials", Hazardous Materials Control Institute, Silver Spring, Maryland.

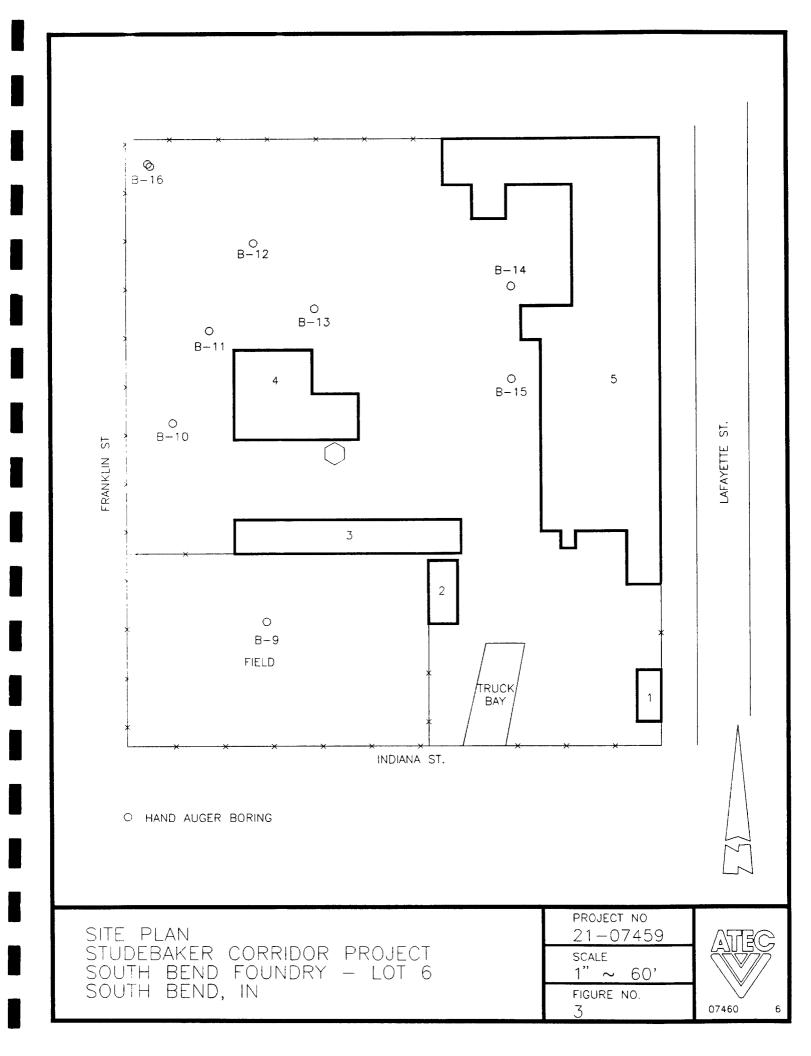
²40 CFR Part 761.125, requirements for PCB spill clean-up.

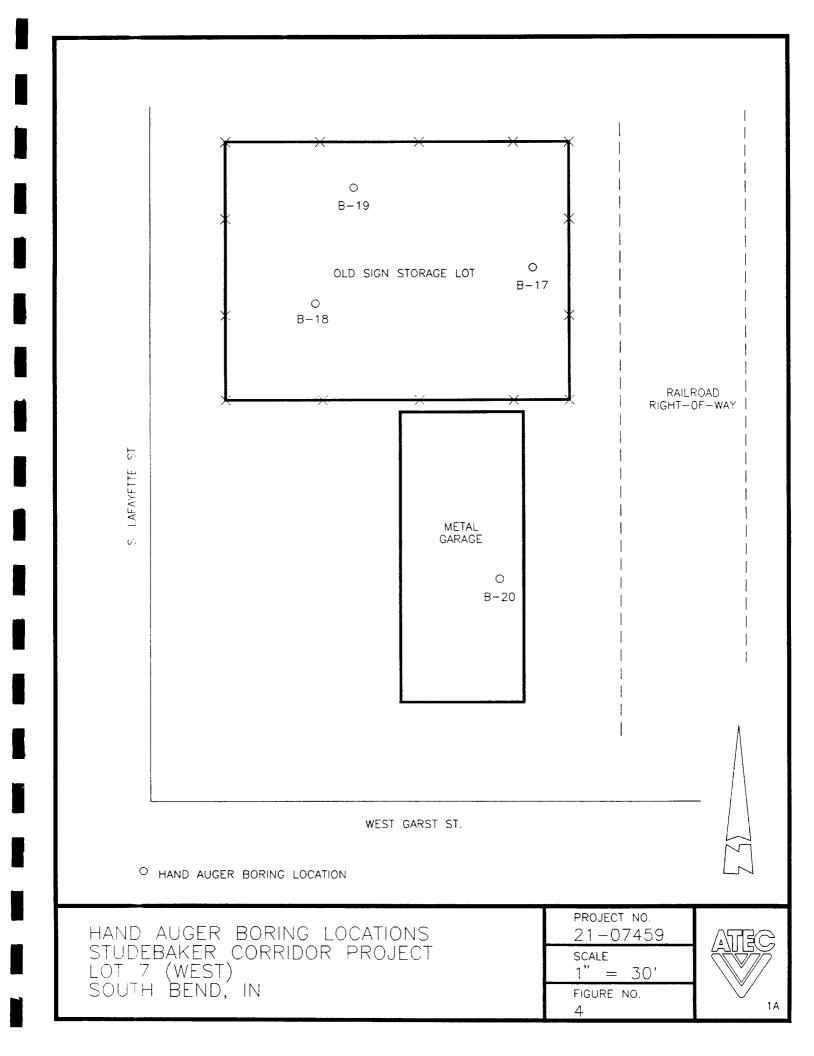
concentrations are present which may allow lead to enter groundwater supplies. The analytical method to determine if leachable lead is present is the Toxicity Characteristic Leaching Procedure (TCLP). ATEC recommends that soil samples B-6 and B-9 be analyzed for TCLP lead. Original sample remaining from the initial soil tests on these boring samples can be used by ATEC to analyzed using TCLP for lead. Information obtained from the TCLP tests is important to determine if lead concentrations in soils at these locations has potential of affecting groundwater supplies.

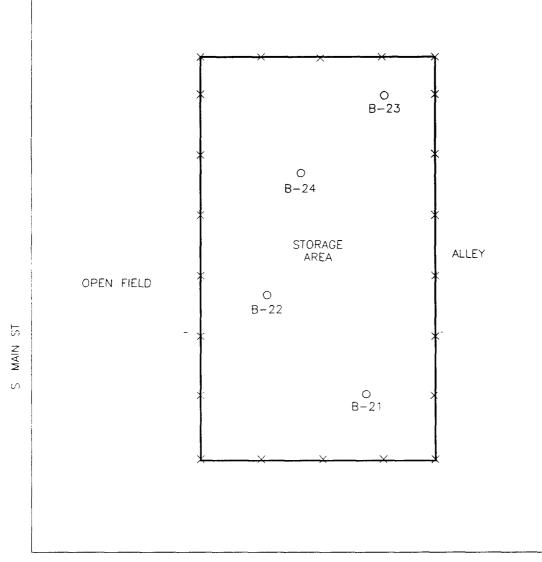
The PCB test results showed concentrations detected at sample locations B-14 and B-15 on Lot Six and sample location B-28 on Lot Ten. Based on these concentrations, ATEC recommends collecting two (2) additional samples at each location to determine the possible extent of contamination. These samples will be analyzed for PCBs at a sample location within proximity of the original boring locations. These additional test results will provide information to evaluate the possible extent of PCB affected soil away from each of the original boring locations. Soils determined to have concentrations above the clean-up level of 10 ppm will be recommended to be removed and properly disposed of off-site.

APPENDIX A FIGURES









WEST BROADWAY

imes- FENCE

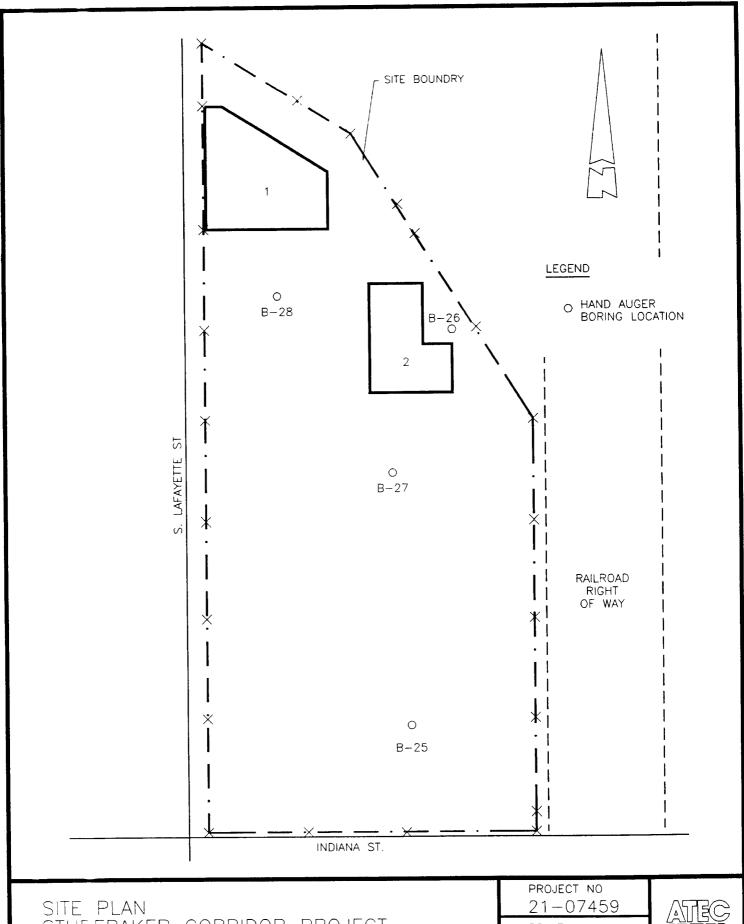
O- HAND AUGER BORING LOCATION



HAND AUGER BORING LOCATIONS STUDEBAKER CORRIDOR PROJECT LOT 13 SOUTH BEND, IN

21-07459	
SCALE 1" = 20'	
FIGURE NO.	





SITE PLAN STUDEBAKER CORRIDOR PROJECT SOUTH BEND FOUNDRY — LOT 10 SOUTH BEND, IN PROJECT NO
21-07459

SCALE
NONE

FIGURE NO.
6



APPENDIX B FIELD INSTRUMENTATION

VAPOR SCREENING EQUIPMENT

The Porta-FID utilizes the principle of hydrogen flame ionization for detection and measurement of total flame-ionizable vapors (TFVs). The instrument measures organic vapor concentration by producing a response to an unknown sample, which can be related to a gas of known composition to which the instrument has previously been calibrated. During normal survey mode operation, a continuous sample is drawn into the probe and transmitted to the detector chamber by an internal pumping system.

The sample stream is metered and passed through particle filters before reaching the detector chamber. Inside the detector chamber, the sample is exposed to a hydrogen flame which ionizes the organic vapors. When most organic vapors burn, they leave positively charged carbon-containing ions. An electric field drives the ions to a collecting electrode. As the positive ions are collected, a current corresponding to the collection rate is generated. This current is measured with a linear electrometer preamplifier which has an output signal proportional to the ionization current. A signal conditioning amplifier is used to amplify the signal from the preamp and to condition it for subsequent meter or external recorder display. The display is an integral part of the Probe/Readout Assembly and has 270° scale deflection.

In general, the hydrogen flame ionization detector is more sensitive for hydrocarbons than any other class of organic compounds. The response of the Porta-FID varies from compound to compound, but gives repeatable results with all types of hydrocarbons; i.e., saturated hydrocarbons (alkanes), unsaturated hydrocarbons (alkanes) and aromatic hydrocarbons.

APPENDIX C BORING LOGS

CLIENT	Department of Economic Development	JOB NO. 21-07459
PROJECT NAME	Studebaker Corridor Project	START DATE 12/11/90
PROJECT LOCATION	South Bend, Indiana	BORING METHOD HA
BORING LOCATION $\overline{}$	Lot #17; Railroad Right-of-Way; North	ROCK CORE DIA. IN.
FOREMAN		SHELBY TUBE DIA IN.
INSPECTOR	C. Cashman	

SOIL/ROCK DESCRIPTION	STRATUM		CAMPLE	COT	050	TPV	DEMARKS
Surface Elevation	ft.	ft.	SAMPLE NO.	SPT (*)	REC %	ppm (**)	REMARKS
Sand and Gravel fill	10.	10.		\ /	70	<u> </u>	
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-	1.25	1	14		100	ND	
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BORING METHODS
HSA-HOLLOW STEM AUGERS
CFA-CONT.FLIGHT AUGERS
HA-HAND AUGER

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CLIENT	Department of Economic Development	JOB NO	21-07459
PROJECT NAME	Studebaker Corridor Project	START DATE	12/11/90
PROJECT LOCATION	South Bend, Indiana	BORING METH	IOD HA
BORING LOCATION	Lot #17; Railroad Right-of-Way; Center	ROCK CORE D	IA. IN.
FOREMAN		SHELBY TUBE	DIA IN.
INSPECTOR	C. Cashman		

SOIL/ROCK DESCRIPTION	STRATUM	<u> </u>				TPV	
5012) 100K 5250KI 125K		DEPTH	SAMPLE	SPT	REC	ppm	REMARKS
Surface Elevation	ft.	ft.	NO.	(*)	_%	(**)	
Black Sand and Gravel fill							
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BORING METHODS
HSA-HOLLOW STEM AUGERS
CFA-CONT.FLIGHT AUGERS
HA-HAND AUGER

LOG.	0F	BORING	NO.	B-3	

CLIENT	Department of Economic Development	JOB NO	21-07	459
PROJECT NAME	Studebaker Corridor Project	START DATE	12/11	./90
PROJECT LOCATION	South Bend, Indiana	BORING METH		HA
BORING LOCATION	Lot #17; Railroad Right-of-Way; Southern	ROCK CORE D		IN.
FOREMAN		SHELBY TUBE	DIA	IN.
INSPECTOR	C. Cashman	_		

SOIL/ROCK DESCRIPTION	STRATUM					TPV	
		DEPTH		SPT		ppm	REMARKS
Surface Elevation	ft.	ft.	<u>NO.</u>	(*)	<u> </u>	(**)	
_ Sand and Gravel fill							
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- Brown moist SILTY fine to coarse SAND	-	-					
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WATER LEVEL OBSERVATIONS BO	RING METH	HODS		A	NOTE	S:(*)	BLOWS/6 in., In Three

BORING METHODS
HSA-HOLLOW STEM AUGERS
CFA-CONT.FLIGHT AUGERS
HA-HAND AUGER

LOG C	NF BOR	ING NO.	. B-4	

CLIENT	Department of Economic Development	JOB NO	21-074	59
PROJECT NAME	Studebaker Corridor Project	START DATE	12/11/	′ 90
PROJECT LOCATION	South Bend, Indiana	BORING METH	OD	HA
BORING LOCATION	Lot #17; in field on NE corner of property	ROCK CORE D	IA.	IN.
FOREMAN		SHELBY TUBE	DIA_	IN.
INSPECTOR	D. Ben Chandler, Jr.			

SOIL/ROCK DESCRIPTION	STRATUM	<u> </u>				TPV	
			SAMPLE	SPT		ppm	REMARKS
Surface Elevation	ft.	ft.	NO.	(*)	%	(**)	,
Black moist SANDY CLAY (CL) with trace							
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 Brown moist SILTY fine to coarse SAND (SM-SW) with trace fine to medium Gravel 	j						
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							*Soil sample obtained
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	-						Heavy Metals analysis
Bottom of test boring @ 6.0'			.			}	
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ATER LEVEL OBSERVATIONS BO	RING METH	IODS			NOTE:	S:(*)	BLOWS/6 in., In Three

BORING METHODS
HSA-HOLLOW STEM AUGERS
CFA-CONT.FLIGHT AUGERS
HA-HAND AUGER

LOG	OF	BORING	NΩ	B-5
LVU	S	DOLLTING		U-J

6 in. Increments

REC %: Sample Recovery, %

(**)TPV-Total Photoionizable Vapors
 ppm (parts per million)

CLIENT	Department of Economic Development	JOB NO. 21-07459
PROJECT NAME	Studebaker Corridor Project	START DATE 12/11/90
PROJECT LOCATION	South Bend, Indiana	BORING METHOD HA
BORING LOCATION —	Lot #17; Fenced area; south of gate, west side	ROCK CORE DIA. IN.
FOREMAN		SHELBY TUBE DIA IN.
INSPECTOR	D. Ben Chandler, Jr.	

SOIL/ROCK DESCRIPTION	STRATUM					TPV	
Surface Elevation	DEPTH ft.		SAMPLE NO.	SPT (*)	REC %	ppm (**)	REMARKS
Black moist Sand and Gravel (fill)	16.	ft.	NO.	(")		(**)	
Three more said and areas (1111)							
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Brown moist SILTY CLAYEY fine to coarse			1*		100	ND	
SAND (SM) with trace Gravel							
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		l	2		100	ND	
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	3.25	- 3-					
Brown moist SILTY fine to coarse SAND			1				
(SM-SW) with trace Gravel			1				
			3		100	ND	
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Bottom of test boring @ 4.0'							
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							for TPH and PCB
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HSA-HOLLOW STEM AUGERS

CFA-CONT.FLIGHT AUGERS

HA-HAND AUGER

NOTED ON RODS

AT COMPLETION AFTER HRS.

FT

FT

6 in. Increments

REC %: Sample Recovery, %

(**)TPV-Total Photoionizable Vapors
 ppm (parts per million)

CLIENT	Department of Economic Development	JOB NO. 21-0	7459
PROJECT NAME	Studebaker Corridor Project	START DATE 12/1	1/90
PROJECT LOCATION	South Bend, Indiana	BORING METHOD	HA
BORING LOCATION -	Lot #17; Fenced area - eastern most; hand auger location	ROCK CORE DIA.	IN.
FOREMAN		SHELBY TUBE DIA	IN.
TNSDECTOR	C Cachman		

SOIL/ROCK DESCRIPTION	STRATUM					TPV	PEANDY C
Surface Elevation	DEPTH ft.	DEPIH ft.	SAMPLE NO.	SPT (*)		ppm (**)	REMARKS
Black moist Sand and Gravel fill	10.	Τ	 				
	0.5	ļ					
- Black moist SILTY SANDY CLAY (CL)	0.5						
- DIRCK MOISE SIETT SHIRT CENT (CE)							
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Brown below 2.0'		<u> </u> _ 2—					
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_			2		100	ND	
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	3.0	3					
Brown moist SILTY fine to coarse SAND							
_ (SM-SW)		ļ	.				
_	į		3		100	ND	
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- Bottom of tost boxing 0 1 E'		ļ 					
Bottom of test boring @ 4.5'							
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			.				for TPH and Total Heavy Metals analysi
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	RING METH				NOTE	S:(*)	BLOWS/6 in., In Three

HSA-HOLLOW STEM AUGERS

CFA-CONT.FLIGHT AUGERS

HA-HAND AUGER

FT

FT

FT

NOTED ON RODS

AFTER____HRS.

CLIENT	Department of Economic Development
PROJECT NAME	Studebaker Corridor Project
PROJECT LOCATION	South Bend, Indiana
BORING LOCATION	Lot #17; Fenced area - middle of area, southern half
FOREMAN	
TAICDECTOD	D. Ron Chandler .lr

JOB NO. 21-07459

START DATE 12/11/90

BORING METHOD HA

ROCK CORE DIA. IN.

SHELBY TUBE DIA IN.

SOIL/ROCK DESCRIPTION	STRATUM				250	TPV	DEMADIC
							KEIHKKS
Surface Elevation	Τι.	Τι.	190.	()	/6	(· · · /	
SOIL/ROCK DESCRIPTION Surface Elevation Black moist Sand and Gravel (fill) Brown moist SILTY CLAYEY fine to coarse SAND (SM) with trace Gravel Brown moist SILTY fine to coarse SAND (SM-SW) with trace Gravel			SAMPLE NO.	SPT (*)		ND ND	REMARKS
Bottom of test boring @ 4.0'		5					*Soil sample obtained for TPH and PCB analysis

WATER LEVEL OBSERVATIONS
NOTED ON RODS FT
AT COMPLETION FT
AFTER HRS. FT

BORING METHODS
HSA-HOLLOW STEM AUGERS
CFA-CONT.FLIGHT AUGERS
HA-HAND AUGER

l NG	ŊΕ	BORING	NΩ	B-8
LOO	O.	DOLLTING	IVO.	D-0

CLIENT	Department of Economic Development	JOB NO. 21-07459
PROJECT NAME	Studebaker Corridor Project	START DATE 12/11/90
PROJECT LOCATION	South Bend, Indiana	BORING METHOD HA
BORING LOCATION	Lot #17; Fenced area - middle of area - northern half	ROCK CORE DIA. IN
FOREMAN		SHELBY TUBE DIA IN
INSPECTOR	C Cashman	

SOIL/ROCK DESCRIPTION	STRATUM					TPV	
		DEPTH		SPT		ppm	REMARKS
Surface Elevation	ft.	ft.	<u>NO.</u>	(*)	7 %	(**)	
0.5' Pea Grave1							
	0.5					,	
- Black moist SILTY SANDY CLAY (CL) with			1				
trace Gravel	j	1-1-					
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-		- 2-					
			2		100	ND	
Brown below 3.0'		 - 3-					
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	3.5						
Brown moist SILTY fine to coarse SAND			3		100	ND	
- (SM-SW)		4					
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Bottom of test boring @ 4.5'							
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_							*Soil sample obtained
-		<u> </u>	.				for TPH and Total Heavy Metals analysis
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LINTED LEVEL ODSEDVATIONS BO	DING METH	1000	1		NOTE	(- (+)	RIOWS/6 in In Three

BORING METHODS
HSA-HOLLOW STEM AUGERS
CFA-CONT.FLIGHT AUGERS
HA-HAND AUGER

LOG	0F	BORING	NO.	B-9	
LUG	O,	DOLLING	140.	U-9	

6 in. Increments

REC %: Sample Recovery, %

ppm (parts per million)

(**)TPV-Total Photoionizable Vapors

CLIENT	Department of Economic Development	JOB NO. 21-07459
PROJECT NAME	Studebaker Corridor Project	START DATE 12/12/90
PROJECT LOCATION	South Bend, Indiana	BORING METHOD HA
BORING LOCATION	Lot #6; Southwest grassy field	ROCK CORE DIAIN.
FOREMAN		SHELBY TUBE DIA IN.
INSPECTOR	C. Cashman	

SOIL/ROCK DESCRIPTION	STRATUM	DEPTH	SAMPLE	SPT	PEC	TPV ppm	REMARKS
Surface Elevation	ft.	ft.	NO.	(*)	%	(**)	NET PARTS
Black moist SILTY fine to coarse SAND					T	<u> </u>	
(SM-SW) with trace fine to medium Gravel	Ì						
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Brown below 2.0'			1			! 	
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Bottom of test boring @ 4.5'		5				İ	
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							for VOC and Total Heavy Metals analys
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HSA-HOLLOW STEM AUGERS

CFA-CONT.FLIGHT AUGERS

HA-HAND AUGER

NOTED ON RODS

AT COMPLETION

AFTER HRS.

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CLIENT	Department of Economic Development	JOB NO. 21-07459
PROJECT NAME	Studebaker Corridor Project	START DATE 12/12/90
PROJECT LOCATION	South Bend, Indiana	BORING METHOD HA
BORING LOCATION	Lot #6; West central	ROCK CORE DIA. IN.
FOREMAN		SHELBY TUBE DIA IN.
INSPECTOR	D. Ben Chandler, Jr.	

SOIL/ROCK DESCRIPTION	STRATUM					TPV	
			SAMPLE	SPT		ppm	REMARKS
Surface Elevation	ft.	ft.	<u>NO.</u>	(*)	%_	(**)	
Black moist SILTY fine to coarse SAND					ļ		
and Gravel (SM)		 			1		
Brown below 0.5'; decreasing Gravel				i			
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_	ING METH				1	İ	BLOWS/6 in In Three

BORING METHODS
HSA-HOLLOW STEM AUGERS
CFA-CONT.FLIGHT AUGERS
HA-HAND AUGER

CLIENT	Department of Economic Development	JOB NO
PROJECT NAME	Studebaker Corridor Project	START
PROJECT LOCATION	South Bend, Indiana	BORING
BORING LOCATION	Lot #6; Just NW of Cupola Building	ROCK C
FOREMAN		SHELBY
INSPECTOR	D. Ben Chandler, Jr.	

JOB NO. 21-07459
START DATE 12/12/90
BORING METHOD HA
ROCK CORE DIA. IN.
SHELBY TUBE DIA IN.

SOIL/ROCK DESCRIPTION	STRATUM					TPV	
			SAMPLE	SPT		ppm	REMARKS
Surface Elevation	ft.	ft.	NO.	(*)	<u> %</u>	(**)	
Black moist fine to coarse Sand and			.] [
Gravel (fill) with little Silt			.				
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		1	1*		100	3.5	
-					100	3.3	
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- Brown moist SILTY fine to coarse SAND			1				
- (SM) with little Gravel	ì	2-					
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-			2		100	0.8	
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Bottom of test boring @ 3.0'			-			1	
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			_				*Soil sample obtained
			_				for VOC and PCB
			-				analysis
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HATER LEVEL ORSEDVATIONS RO	PING MET	JODC		<u> </u>	NOTE	C./*1	BLOWS/6 in In Three

WATER LEVEL OBSERVATIONS
NOTED ON RODS FT
AT COMPLETION FT
AFTER HRS. FT

BORING METHODS
HSA-HOLLOW STEM AUGERS
CFA-CONT.FLIGHT AUGERS
HA-HAND AUGER

LOG OF BORING NO.	B-12
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CLIENT	Department of Economic Development	JOB NO. 21-07459
PROJECT NAME	Studebaker Corridor Project	START DATE 12/12/90
PROJECT LOCATION	South Bend, Indiana	BORING METHOD HA
BORING LOCATION	Lot #6; North central of Cupola Building	ROCK CORE DIAIN
FOREMAN		SHELBY TUBE DIAIN
INSPECTOR	C Cashman	

SOIL/ROCK DESCRIPTION	STRATUM	DEPTH	SAMPLE	SPT	REC	TPV ppm	REMARKS
Surface Elevation	ft.	ft.	NO.	(*)	%	(**)	
Black moist Sand and Gravel with some Silt (fill)			1		100	3.0	
Dark brown SILTY fine to coarse SAND (SM-SW) with trace fine Gravel Brown below 2.5'	2.0	_ 2	2*		100	18.0	
Bottom of test boring @ 4.0'	=	4	3		100	ND	
		5					
			-				*Soil sample obtained for VOC and Total Heavy Metals analysis
			-				

BORING METHODS
HSA-HOLLOW STEM AUGERS
CFA-CONT.FLIGHT AUGERS
HA-HAND AUGER

6 in. Increments

REC %: Sample Recovery, %

ppm (parts per million)

(**)TPV-Total Photoionizable Vapors

CLIENT	Department of Economic Development	JOB NO. 21-07459
PROJECT NAME	Studebaker Corridor Project	START DATE 12/12/90
PROJECT LOCATION	South Bend, Indiana	BORING METHOD HA
BORING LOCATION	Lot #6; Northeast of Cupola Building	ROCK CORE DIA. IN
FOREMAN		SHELBY TUBE DIAIN
INSPECTOR	C. Cashman	

SOIL/ROCK DESCRIPTION	STRATUM					TPV	
	DEPTH D			SPT	REC		REMARKS
Surface Elevation	ft.	ft.	NO.	(*)	%	(**)	
Black Sand and Gravel fill	_						
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			1*		100	ND	Black oil stained
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Auger refusal @ 1.0'	-		1				
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HSA-HOLLOW STEM AUGERS

CFA-CONT.FLIGHT AUGERS

HA-HAND AUGER

NOTED ON RODS

AT COMPLETION

AFTER HRS.

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FT

LOG	0F	BORING	NO.	B-14

CLIENT	Department of Economic Development	JOB NO. 21-07459
PROJECT NAME	Studebaker Corridor Project	START DATE 12/12/90
PROJECT LOCATION	South Bend, Indiana	BORING METHOD HA
BORING LOCATION	Lot #6; West of Trailer Repair Entrance	ROCK CORE DIA. IN.
FOREMAN		SHELBY TUBE DIA IN.
INSPECTOR	C Cashman	

SOIL/ROCK DESCRIPTION	STRATUM					TPV	
SOLE/ NOCK DESCRIPTION			SAMPLE	SPT	REC	ppm	REMARKS
Surface Elevation	ft.	ft.	NO.	(*)	%	(**)	
Black moist SILTY fine to coarse SAND (SM)		l					
with trace Gravel							
Doub has a bolo 1 01							
Dark brown below 1.0'		1	1*		100	ND	
-			1		100	ND	
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		<u> </u>					
Brown below 2.5'							
			2		100	ND	
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Bottom of test boring @ 3.0'							
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				-			*Soil sample obtained
						İ	for VOC and PCB
							analysis
							
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NATED LEVEL ORSEDVATIONS ROD	ING METH	ODC .			NOTE	C-/41	RI OWS /6 in In Three

BORING METHODS
HSA-HOLLOW STEM AUGERS
CFA-CONT.FLIGHT AUGERS
HA-HAND AUGER

REC %: Sample Recovery, %

ppm (parts per million)

(**)TPV-Total Photoionizable Vapors

PROJECT NAME	Department of Economic Dev Studebaker Corridor Project South Bend, Indiana						_ S1	DB NO. 21-07459 FART DATE 12/12/90 DRING METHOD HA
	Lot #6; west side of found	lry					_	OCK CORE DIAIN.
FOREMAN							_ St	HELBY TUBE DIAIN.
INSPECTOR	C. Cashman							
SOIL/ROCK DESC	RIPTION	STRATUM					TPV	
JUIL/NOCK DESC	3/11/11/01			SAMPLE	SPT	REC	ppm	REMARKS
Surface Elevation		ft.	ft.	NO.	(*)	<u>%</u>	(**)	
	fine to coarse SAND (SM)							
with trace fine 0	Gravel							
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Brown below 2.0'			<u> </u>					
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Bottom of test bo	oring @ 4.0'							
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WATER LEVEL OBSERVA NOTED ON RODS		ING METH -HOLLOW		IGERS		NUIE		BLOWS/6 in., In Three 6 in. Increments

CFA-CONT.FLIGHT AUGERS

HA-HAND AUGER

AT COMPLETION

AFTER HRS.

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CLIENT	Department of Economic Development	JOB NO. 21-07459
PROJECT NAME	Studebaker Corridor Project	START DATE 12/12/90
PROJECT LOCATION	South Bend, Indiana	BORING METHOD HA
BORING LOCATION	Lot #6; Northwest corner of property	ROCK CORE DIA. IN.
FOREMAN		SHELBY TUBE DIA IN.
INSPECTOR	D. Ben Chandler. Jr.	

SOIL/ROCK DESCRIPTION	STRATUM					TPV	
SUIL/ROCK DESCRIPTION			SAMPLE	SPT	REC	ppm	REMARKS
Surface Elevation	ft.	ft.	NO.	(*)			
Dark brown moist SILTY fine to coarse							
SAND (SM) with trace Gravel							
[7]							
Brown below 1.0'		<u> </u>			100		
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Bottom of test boring @ 3.0'					ļ		
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BORING METHODS
HSA-HOLLOW STEM AUGERS
CFA-CONT.FLIGHT AUGERS
HA-HAND AUGER

1 OG	0F	BORING	NO	B-17
LOG	5	DOLLING	110.	D-17

6 in. Increments

REC %: Sample Recovery, %

(**)TPV-Total Photoionizable Vapors
 ppm (parts per million)

CLIENT	Department of Economic Development	JOB NO. 21-07459
PROJECT NAME	Studebaker Corridor Project	START DATE 12/12/90
PROJECT LOCATION	South Bend, Indiana	BORING METHOD HA
BORING LOCATION	Lot #7; East side near gate	ROCK CORE DIA. IN
FOREMAN		SHELBY TUBE DIA IN
INSPECTOR	C. Cashman	

SOIL/ROCK DESCRIPTION	STRATUM					TPV	
	DEPTH	DEPTH S		SPT		ppm	REMARKS
Surface Elevation	ft.	ft.	NO.	(*)	%	(**)	
Black Sand and Gravel fill			-				Black surface stain
			1*		100	ND	
		— 1—l					
Brick; auger refusal @ 1.0'							
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TER LEVEL OBSERVATIONS	BORING METHOL						BLOWS/6 in., In Thre

HSA-HOLLOW STEM AUGERS

CFA-CONT.FLIGHT AUGERS

HA-HAND AUGER

NOTED ON RODS

AT COMPLETION

AFTER HRS.

FT

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CLIENT	Department of Economic Development	JOB NO. 21-07459
PROJECT NAME	Studebaker Corridor Project	START DATE 12/12/90
PROJECT LOCATION	South Bend, Indiana	BORING METHOD HA
BORING LOCATION	Lot #7; Southwest corner of fenced area	ROCK CORE DIAIN
FOREMAN		SHELBY TUBE DIAIN
INSPECTOR	D. Ben Chandler, Jr.	

SOIL/ROCK DESCRIPTION	STRATUM					TPV	_
			SAMPLE	SPT		ppm	REMARKS
Surface Elevation	ft.	ft.	NO.	(*)	, %	(**)	
Dark brown moist SILTY fine to coarse SAND]				
[(SM) and Gravel							
Brown below 1.5'							
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							*Soil sample obtained
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			_				Heavy Metals analysis
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BORING METHODS
HSA-HOLLOW STEM AUGERS
CFA-CONT.FLIGHT AUGERS
HA-HAND AUGER

CLIENT	Department of Economic Development	JOB NO. 21-07459
PROJECT NAME	Studebaker Corridor Project	START DATE 12/12/90
PROJECT LOCATION	South Bend, Indiana	BORING METHOD HA
BORING LOCATION	Lot #7; North central part of fenced area	ROCK CORE DIA. IN.
FOREMAN		SHELBY TUBE DIA IN.
INSPECTOR	D. Ben Chandler, Jr.	

SOIL/ROCK DESCRIPTION	STRATUM					TPV	
SOIE/NOON DESCRIPTION		DEPTH	SAMPLE	SPT	REC	ppm	REMARKS
Surface Elevation	ft.	ft.	NO.	(*)	%	(**)	
Black moist Silty fine to coarse Sand							·· -
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Brown moist SILTY fine to coarse SAND (SM) and Gravel			1 1		100	ואו	
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Bottom of test boring @ 3.0'		ļ					
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BORING METHODS
HSA-HOLLOW STEM AUGERS
CFA-CONT.FLIGHT AUGERS
HA-HAND AUGER

LOG OF	BORING	NO.	B-20
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CLIENT	Department of Economic Development	JOB NO. 21-07459
PROJECT NAME	Studebaker Corridor Project	START DATE 12/12/90
PROJECT LOCATION	South Bend, Indiana	BORING METHOD HA
BORING LOCATION	Lot #7; Inside garage	ROCK CORE DIAIN.
FOREMAN		SHELBY TUBE DIA IN.
INSPECTOR	C. Cashman	

SOIL/ROCK DESCRIPTION	STRATUM					TPV	
			SAMPLE	SPT	REC	ppm	REMARKS
Surface Elevation	ft.	ft.	NO.	(*)	%	(**)	
Black Sand and Gravel fill							Black surface stair
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							for TPH and PCB
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AT COMPLETION FT
AFTER HRS. FT

HSA-HOLLOW STEM AUGERS
CFA-CONT.FLIGHT AUGERS
HA-HAND AUGER

L0G	0F	BORING	NO.	B-21
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CLIENT	Department of Economic Development	JOB NO.	21-074	159
PROJECT NAME	Studebaker Corridor Project	START DATE	12/13	/90
PROJECT LOCATION_	South Bend, Indiana	BORING METH	10D	HA
BORING LOCATION	Lot #13; Southeast corner of fenced area	ROCK CORE D	IA.	IN.
FOREMAN		SHELBY TUBE	DIA	IN.
INSPECTOR	D. Ben Chandler, Jr.			

SOIL/ROCK DESCRIPTION	STRATUM					TPV	
	DEPTH	DEPTH	SAMPLE	SPT	REC	ppm	REMARKS
Surface Elevation	ft.	ft.	NO.	(*)	%	(**)	
Gray dry Sand and Gravel (fill)	İ						
_	0.5						
- Brown moist SILTY fine to coarse SAND (SM)]					
-with trace Gravel						-	
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BORING METHODS
HSA-HOLLOW STEM AUGERS
CFA-CONT.FLIGHT AUGERS
HA-HAND AUGER

CLIENT	Department of Economic Development	JOB NO.	21-07	459
PROJECT NAME	Studebaker Corridor Project	START DATE	12/13	/90
PROJECT LOCATION_	South Bend, Indiana	BORING METH		HA
BORING LOCATION	Lot #13; Southwest corner of fenced area	ROCK CORE D	DIA.	IN.
FOREMAN		SHELBY TUBE	· —	IN.
INSPECTOR	C. Cashman			

SOIL/ROCK DESCRIPTION	STRATUM	·				TPV	
			SAMPLE	SPT	REC	ppm	REMARKS
Surface Elevation	ft.	ft.	NO.	(*)	%		
Brown Silty Sand fill						[
Black below 0.5'							
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Black moist SILTY fine to coarse SAND (SM)		1	1*		100	ND	
with trace fine Gravel							
Brown below 1.5'						ı	
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ATER LEVEL OBSERVATIONS BORI	NG METHO	DS T	L		INTES	· (*)	BLOWS/6 in., In Three

NOTED ON RODS FT
AT COMPLETION FT
AFTER HRS. FT

HSA-HOLLOW STEM AUGERS
CFA-CONT.FLIGHT AUGERS
HA-HAND AUGER

CLIENT	Department of Economic Development	JOB NO
PROJECT NAME	Studebaker Corridor Project	START DA
PROJECT LOCATION	South Bend, Indiana	BORING M
BORING LOCATION	Lot #13; Northeast corner of fenced area	ROCK COR
FOREMAN		SHELBY T
INSPECTOR	D. Ben Chandler, Jr.	

START DATE 12/13/90
BORING METHOD HA
ROCK CORE DIA. IN.
SHELBY TUBE DIA IN.

SOIL/ROCK DESCRIPTION	STRATUM					TPV	
	DEPTH		SAMPLE	SPT	REC	ppm	REMARKS
Surface Elevation	ft.	ft.	NO.	(*)	%	(**)	
Dark brown moist SILTY fine to coarse							
SAND (SM)							
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Brown below 1.0'		1	· [İ			
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WATER LEVEL OBSERVATIONS B	ORING METH	HODS	•		NOTE	S:(*)	BLOWS/6 in., In Three

WATER LEVEL OBSERVATIONS

NOTED ON RODS FT

AT COMPLETION FT

AFTER HRS. FT

BORING METHODS
HSA-HOLLOW STEM AUGERS
CFA-CONT.FLIGHT AUGERS
HA-HAND AUGER

LOG OF	BORING	NO.	B-24	
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CLIENT	Department of Economic Development	JOB NO	21-0745	9
PROJECT NAME	Studebaker Corridor Project	START DATE	12/13/9	0
PROJECT LOCATION	South Bend, Indiana	BORING METH	HOD H	ΙĀ
BORING LOCATION	Lot #13; Northwest corner of fenced area	ROCK CORE D)IA	IN
FOREMAN		SHELBY TUBE	DIA	IN
INSPECTOR	C. Cashman			

SOIL/ROCK DESCRIPTION	STRATUM					TPV	
			SAMPLE	SPT		ppm	REMARKS
Surface Elevation	ft.	ft.	NO	(*)	%_	(**)	
Dark brown moist SILTY fine to coarse SAN	D		.]				
(SM) with littel Gravel							
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Brown below 1.5'	{		<u> </u>		1		
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TER LEVEL OBSERVATIONS BO	I RING METH	1	L	L		<u> </u>	 BLOWS/6 in., In Three

HSA-HOLLOW STEM AUGERS
CFA-CONT.FLIGHT AUGERS
HA-HAND AUGER

6 in. Increments

REC %: Sample Recovery, %

ppm (parts per million)

(**)TPV-Total Photoionizable Vapors

CLIENT	Department of Economic Development	JOB NO. 21-07459
PROJECT NAME	Studebaker Corridor Project	START DATE 12/13/90
PROJECT LOCATION	South Bend, Indiana	BORING METHOD HA
BORING LOCATION	Lot #10; Southeast corner of property	ROCK CORE DIAIN.
FOREMAN		SHELBY TUBE DIAIN.
INSPECTOR	C. Cashman	

SOIL/ROCK DESCRIPTION	STRATUM		CAMP	CDT	DEC	TPV	REMARKS
			SAMPLE	SPT (*)	REC %	(**)	KEIMANS
Surface Elevation Black moist SILTY fine to coarse SAND	ft.	ft.	NO.				Black surface stain
	(311)						Diack Sarrace Starr
with trace fine Gravel		l			İ		
Dark brown below 1.0'							
Durk Brown Berow 210		- 1-	1*		100	ND	
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Brown below 3.0'		3	·				
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ATER LEVEL OBSERVATIONS	BORING MET	HODS			NOTE	S:(*	BLOWS/6 in., In Thr 6 in. Increments

HSA-HOLLOW STEM AUGERS

CFA-CONT.FLIGHT AUGERS

HA-HAND AUGER

NOTED ON RODS

AT COMPLETION

AFTER HRS.

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CLIENT	Department of Economic Development	JOB NO.	21-07459
PROJECT NAME	Studebaker Corridor Project	START DATE	12/13/90
PROJECT LOCATION	South Bend, Indiana	BORING METH	10D HA
BORING LOCATION	Lot #10; Middle east drum storage area	ROCK CORE D	IA. IN.
FOREMAN		SHELBY TUBE	DIA IN.
INSPECTOR	D. Ben Chandler, Jr.		

SOIL/ROCK DESCRIPTION	STRATUM	1				TPV	
			SAMPLE		REC	ppm	REMARKS
Surface Elevation	ft.	ft.	NO.	(*)	%_	(**)	
Black dry Sandy Silt (fill) with Gravel		ļ				ļ	
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_ VATER LEVEL OBSERVATIONS B	ORING METH		<u> </u>		_ _	l	 BLOWS/6 in In Three

BORING METHODS
HSA-HOLLOW STEM AUGERS
CFA-CONT.FLIGHT AUGERS
HA-HAND AUGER

LOG	0F	BORING	NO.	B-27

6 in. Increments

REC %: Sample Recovery, %

ppm (parts per million)

(**)TPV-Total Photoionizable Vapors

CLIENT	Department of Economic Development	JOB NO	21-07459
PROJECT NAME	Studebaker Corridor Project	START DATE	12/13/90
PROJECT LOCATION	South Bend, Indiana	BORING METH	OD HA
BORING LOCATION	Lot #10; South of eastern building	ROCK CORE D	IAIN
FOREMAN		SHELBY TUBE	DIA IN
INSPECTOR	C. Cashman	- -	

SOIL/ROCK DESCRIPTION	STRATUM					TPV	
			SAMPLE	SPT		ppm	REMARKS
Surface Elevation	ft.	ft.	NO.	(*)	<u>%</u>	(**)	
Black moist SILTY fine to coarse SAND (SM)	ŀ						
with little fine Gravel	ł						
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							Heavy Metals analysis
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HSA-HOLLOW STEM AUGERS

CFA-CONT.FLIGHT AUGERS

HA-HAND AUGER

NOTED ON RODS

AT COMPLETION

AFTER HRS.

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CLIENT	Department of Economic Development	JOB NO.	21-07459
PROJECT NAME	Studebaker Corridor Project	START DATE	12/13/90
PROJECT LOCATION	South Bend, Indiana	BORING METH	IOD HA
BORING LOCATION	Lot #10; South of northeast building	ROCK CORE D	IA. IN
FOREMAN		SHELBY TUBE	DIA IN
INSPECTOR	D. Ben Chandler. Jr	-	

SOIL/ROCK DESCRIPTION	STRATUM			····		TPV	
	DEPTH	DEPTH	SAMPLE		REC	ppm	REMARKS
Surface Elevation	ft.	ft.	<u>NO.</u>	(*)	%	(**)	
Black dry Sandy Silt (fill)							Black stained surface
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BORING METHODS
HSA-HOLLOW STEM AUGERS
CFA-CONT.FLIGHT AUGERS
HA-HAND AUGER

APPENDIX D ANALYTICAL DATA



5150 East 65th Street Indianapolis, Indiana 46220-4871 [317] 849-4990. FAX # [317] 849-4278

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

January 7, 1991

Mr. Matthew Stokes ATEC Environmental Consultants 5150 E. 65th Street Indianapolis, IN 46220

Re:

Eight Soil TPH

Fourteen Soil PCB, RCRA Metals

Twenty Soil VOA

SW 846 Methods 8240, 8080, 8015 California

Modified, 7000 Series, 6010

South Bend Department Economic Development

Studebaker Corridor Project ATEC Project Number 21-07459

Dear Mr. Stokes:

Enclosed are the results of the Chemical Analyses for the twenty-eight soil samples which were submitted to the ATEC Environmental/Analytical Testing Division on December 14, 1990, on behalf of South Bend Department Economic Development. The volatile samples were analyzed on Finnigan Incos 50 and 1020 OWA GC/MS/DS systems, complete with Superincos Software, via SW 846 Method 8240 for Purgeable Organic Prior to analysis the system was tuned Compounds. Bromofluorobenzene and calibrated with the appropriate standard. The PCB analyses were performed on a Varian 3400 Gas Chromatograph using Electron Capture Detection via SW 846 Method 8080. Total Petroleum Hydrocarbon analyses were performed on a Varian 3700 Gas Chromatograph using Flame Ionization Detection via SW 846 Method 8015 California Metals were analyzed on a Perkin-Elmer 5100 Atomic Absorption Spectrophotometer according to the 7000 Series of the methods outlined in SW 846 and a Thermo Jarrell Ash ICAP-61 according to SW 846 Method 6010.

All 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.

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.

Keith S. Kline

Environmental/Analytical

Keins 5 Kline

Testing Division

KSK/feb

ATEC Project Number 21-07459

Date: December 31, 1990

Client: Studebaker

1200 County City Building South Bend, IN 46601

Sample Matrix: Soil

Sample Taken By: ATEC (CC, BC)

Date Sampled: December 12 and 13, 1990

Date Received: December 14, 1990

Date Analyzed: December 15 to 27, 1990

Analyst: KEB, EVS, MAV

Verified By: JDD

ATEC Lab Number: 9012162 Page 1 of 4

Parameter		Sample I.	Quanti- tation	SW 846		
(units in mg/kg unless noted)	_B2_	<u>B4</u>	<u>B6</u>	_ <u>B8</u> _	Limit <u>(mg/kg)</u>	Analytical Method No.
Total Metals						
Arsenic	7.3	<2.0	2.6	<2.0	2.0	7060
Barium	60	120	170	48	2.0	6010
Cadmium	<2.0	<2.0	<2.0	<2.0	2.0	6010
Chromium	17	7.7	25	8.6	2.0	6010
Lead	130	180	310	57	2.0	6010
Mercury	<1.0	<1.0	<1.0	<1.0	1.0	7470
Selenium	<2.0	<2.0	<2.0	<2.0	2.0	7740
Silver	<2.0	<2.0	<2.0	<2.0	2.0	6010

ATEC Project Number 21-07459

Date: December 31, 1990

Client: Studebaker

1200 County City Building

South Bend, IN 46601

Soil Sample Matrix:

ATEC (CC, BC) Sample Taken By:

December 12 and 13, 1990 Date Sampled:

Date Received:

December 14, 1990 December 15 to 27, 1990 Date Analyzed:

KEB, EVS, MAV Analyst:

JDD Verified By:

Page 2 of 4 ATEC Lab Number: 9012162

Parameter (units in mg/kg unless noted)		Sample I.	D. Number	B16	Quanti- tation Limit (mg/kg)	SW 846 Analytical Method No.
Total Metals						
Arsenic	2.9	<2.0	6.1	2.2	2.0	7060
Barium	190	42	51	57	2.0	6010
Cadmium	<2.0	<2.0	<2.0	<2.0	2.0	6010
Chromium	27	11	21	8.6	2.0	6010
Lead	330	13	33	36	2.0	6010
Mercury	<1.0	<1.0	<1.0	<1.0	1.0	7470
Selenium	<2.0	<2.0	<2.0	<2.0	2.0	7740
Silver	<2.0	<2.0	<2.0	<2.0	2.0	6010

ATEC Project Number 21-07459

Date: December 31, 1990

Client: Studebaker

1200 County City Building South Bend, IN 46601

Sample Matrix: Soil

Sample Taken By: ATEC (CC, BC)

Date Sampled: December 12 and 13, 1990

Date Received: December 14, 1990

Date Analyzed: December 15 to 27, 1990

Analyst: KEB, EVS, MAV

Verified By: JDD

ATEC Lab Number: 9012162 Page 3 of 4

Parameter		Sample I.	Quanti- tation	SW 846		
(units in mg/kg unless noted)	B18	B19 B22 B24		Limit <u>(mg/kg)</u>	Analytical Method No.	
<u>Total Metals</u>						
Arsenic	3.6	2.9	<2.0	2.6	2.0	7060
Barium	88	100	250	85	2.0	6010
Cadmium	<2.0	<2.0	<2.0	<2.0	2.0	6010
Chromium	20	13	10	8.8	2.0	6010
Lead	140	60	20	26	2.0	6010
Mercury	<1.0	<1.0	<1.0	<1.0	1.0	7470
Selenium	<2.0	<2.0	<2.0	<2.0	2.0	7740
Silver	<2.0	<2.0	<2.0	<2.0	2.0	6010

ATEC Project Number 21-07459

Date: December 31, 1990

Client: Studebaker

1200 County City Building

South Bend, IN 46601

Sample Matrix: Soil

Sample Taken By: ATEC (CC, BC)

Date Sampled: December 12 and 13, 1990

Date Received: December 14, 1990

Date Analyzed: December 15 to 27, 1990

Analyst: KEB, EVS, MAV

Verified By: JDD

ATEC Lab Number: 9012162 Page 4 of 4

Parameter (units in mg/kg unless noted)	Sample I.	D. Number B27	Quanti- tation Limit (mg/kg)	SW 846 Analytical Method No.
Total Metals				
Arsenic	5.1	<2.0	2.0	7060
Barium	97	68	2.0	6010
Cadmium	<2.0	<2.0	2.0	6010
Chromium	16	15	2.0	6010
Lead	150	120	2.0	6010
Mercury	<1.0	<1.0	1.0	7470
Selenium	<2.0	<2.0	2.0	7740
Silver	<2.0	<2.0	2.0	6010

Respectfully submitted, ATEC Associates, Inc.

Environmental/Analytical Testing Divison

ATEC Project Number 21-07459

Date: January 7, 1991

Client: South Bend Department Economic Development

1200 County City Building South Bend, IN 46601

Analysis Information: Studebaker Corridor

Total Petroleum Hydrocarbon Analysis SW 846 Method 8015 California Modified

Sample Taken By: ATEC (CC, BC)

Sample Matrix: Soil

Date Sampled: December 11, 12 and 13, 1990

Date Received: December 14, 1990 Date Analyzed: December 18, 1990

Analyst: JMD Verified By: DSS ATEC Lab Number: 9012162

Sample Identification	Total Petroleum <u>Hydrocarbon</u>	Quantitation Limit
B-5 (0-1.5)	<1.0 ppm	1.0 ppm
B-6 (0-1.5)	<1.0 ppm	1.0 ppm
B-7 (0-1.5)	<1.0 ppm	1.0 ppm
B-8 (0-1.5)	<1.0 ppm	1.0 ppm
B-17 (0-1.0)	<1.0 ppm	1.0 ppm
B-18 (0-1.5)	<1.0 ppm	1.0 ppm
B-19 (0-1.5)	<1.0 ppm	1.0 ppm
B-20 (0-1.0)	<1.0 ppm	1.0 ppm

Respectfully submitted, ATEC Associates, Inc.

Environmental/Analytical Testing Division

Client: Client Address: South Bend Department Economic Development

1200 County City Building

South Bend, IN 46601

Client Project Number: Client Sample Identification: 21-07495

Method Blank

Sample Matrix:

Soil

Date Sample Analyzed:

December 18, 1990

Analytical Equipment: Incos BV

VOLATILE COMPOUNDS ANALYTICAL RESULTS

ATEC Lab No. BLANK1218

1 of 2

		Concentration	
Analyte	CAS Number	(ug/kg)	Limit (ug/kg)
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	<10	10
Carbon Disulfide	75-15-0	< 5	5
1,1-Dichloroethene	75-35-4	< 5	5
1,1-Dichloroethane	75-35-3	< 5	5
Trans-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	<10	10
1,1,1-Trichloroethane	71-55-6	< 5	5
Carbon Tetrachloride	56-23-5	< 5	5
Vinyl Acetate	108-05-4	<10	10
Bromodichloromethane	75-27-4	< 5	5
1,2-Dichloropropane	78-87-5	< 5	5

^{*} Analyte detected but amount present is less than the Quantitation Limit.

ANALYTICAL RESULTS

ATEC Lab No. BLANK1218

Analyte	CAS Number	Concentration (ug/kg)	Quantitation Limit (ug/kg)
Trans-1, 3-Dichloropropene	10061-02-6	< 5	5
Trichloroethene	79-01-6	< 5	5
	124-48-1		5
Dibromochloromethane			
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	<10	10
2-Hexanone	591-78-6	<10	10
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

^{*} Analyte detected but amount present is less than the Quantitation Limit.

Analytical Method: SW 846 Method 8240

Analyst: T. Harrison Verified: M. McGill

Date Reported: December 24, 1990

Respectfully submitted,

Environmental/Analytical Testing Division

Client: Client Address: South Bend Department Economic Development

1200 County City Building

South Bend, IN 46601

Client Project Number:

21-07495

Client Sample Identification: Method Blank

Sample Matrix:

Soil

Date Sample Analyzed: December 18, 1990 Analytical Equipment: 1020B

VOLATILE COMPOUNDS ANALYTICAL RESULTS

ATEC Lab No. BLANK121890

1 of 2

		Concentration	
<u>Analyte</u>	CAS Number	(ug/kg)	Limit (ug/kg)
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	6	5
Acetone	67-64-1	<10*	10
Carbon Disulfide	75-15-0	< 5	5
1,1-Dichloroethene	75-35-4	< 5	5
1,1-Dichloroethane	75-35-3	< 5	5
Trans-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	<10	10
1,1,1-Trichloroethane	71-55-6	< 5	5
Carbon Tetrachloride	56-23-5	< 5	5
Vinyl Acetate	108-05-4	<10	10
Bromodichloromethane	75-27-4	< 5	5
1,2-Dichloropropane	78-87-5	< 5	5

^{*} Analyte detected but amount present is less than the Quantitation Limit.

ANALYTICAL RESULTS

ATEC Lab No. BLANK121890

Analyte	CAS Number	Concentration (ug/kg)	Quantitation Limit (ug/kg)
Trans-1, 3-Dichloropropene	10061-02-6	< 5	5
Trichloroethene	79-01-6	< 5	5
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	<10	10
2-Hexanone	591-78-6	<10	10
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

^{*} Analyte detected but amount present is less than the Quantitation Limit.

Analytical Method: SW 846 Method 8240

Analyst: J. Rigdon Verified: M. McGill

Date Reported: December 21, 1990

Respectfully submitted,

Environmental/Analytical Testing Division

Client: Client Address: South Bend Department Economic Development

1200 County City Building South Bend, IN 46601

Client Project Number:

21-07495

Client Sample Identification:

Method Blank

Sample Matrix:

Soil

December 19, 1990

Date Sample Analyzed: December Analytical Equipment: Incos BV

VOLATILE COMPOUNDS ANALYTICAL RESULTS

ATEC Lab No. BLANK121990

1 of 2

Analyte	CAS Number	Concentration (ug/kg)	Quantitation Limit (ug/kg)
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	9	5
Acetone	67-64-1	<10	10
Carbon Disulfide	75-15-0	< 5	5
1,1-Dichloroethene	75-35-4	< 5	5
1,1-Dichloroethane	75-35-3	< 5	5
Trans-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	<10	10
1,1,1-Trichloroethane	71-55-6	< 5	5
Carbon Tetrachloride	56-23-5	< 5	5
Vinyl Acetate	108-05-4	<10	10
Bromodichloromethane	75-27-4	< 5	5
1,2-Dichloropropane	78-87-5	< 5	5

^{*} Analyte detected but amount present is less than the Quantitation Limit.

ANALYTICAL RESULTS

ATEC Lab No. BLANK121990

Analyte	CAS Number		Quantitation Limit (ug/kg)
Trans-1, 3-Dichloropropene	10061-02-6	< 5	5
Trichloroethene	79-01-6	< 5	5
Dibromochloromethane	124-48-1		5
1,1,2-Trichloroethane	79-00-5		5
Benzene	71-43-2		5
cis-1,3-Dichloropropene	10061-01-5		5
2-Chloroethylvinylether	110-75-8	<10	10
Bromoform	75-25-2	< 5	5
4-Methyl-2-Pentanone	108-10-1	<10	10
2-Hexanone	591-78-6	<10	10
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

^{*} Analyte detected but amount present is less than the Quantitation Limit.

Analytical Method: SW 846 Method 8240

Analyst: T. Harrison Verified: M. McGill

Date Reported: December 24, 1990

Respectfully submitted,

Environmental/Analytical Testing Division

Client: Client Address: South Bend Department Economic Development

1200 County City Building South Bend, IN 46601

Client Project Number:

21-07495

Client Sample Identification:

Method Blank

Sample Matrix:

Soil

Date Sample Analyzed: December 20, 1990 Analytical Equipment: Incos BV

VOLATILE COMPOUNDS ANALYTICAL RESULTS

ATEC Lab No. BLANK122090

1 of 2

No North -			Quantitation
Analyte	CAS Number	(ug/kg)	Limit (ug/kg)
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	<10	10
Carbon Disulfide	75-15-0	< 5	5
1,1-Dichloroethene	75-35-4	< 5	5
1,1-Dichloroethane	75-35-3	< 5	5
Trans-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	<10	10
1,1,1-Trichloroethane	71-55-6	< 5	5
Carbon Tetrachloride	56-23-5	< 5	5
Vinyl Acetate	108-05-4	<10	10
Bromodichloromethane	75-27-4	< 5	5
1,2-Dichloropropane	78-87-5	< 5	5

^{*} Analyte detected but amount present is less than the Quantitation Limit.

ANALYTICAL RESULTS

ATEC Lab No. BLANK122090

Analyte	CAS Number	Concentration (ug/kg)	Quantitation Limit (ug/kg)
Trans-1, 3-Dichloropropene	10061-02-6	< 5	5
Trichloroethene	79-01-6	< 5	5
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	<10	10
2-Hexanone	591-78-6	<10	10
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

^{*} Analyte detected but amount present is less than the Quantitation Limit.

Analytical Method: SW 846 Method 8240

Analyst: T. Harrison Verified: M. McGill

Date Reported: December 24, 1990

Respectfully submitted,

Environmental/Analytical Testing Division

Client: Client Address: South Bend Department Economic Development

1200 County City Building South Bend, IN 46601

Client Project Number: 21-07495 Client Sample Identification: B-1 (0-1.5)

Sample Matrix: Soil

Date Sample Collected: December 11, 1990
Date Sample Received: December 14, 1990
Date Sample Analyzed: December 18, 1990
Analytical Equipment: 1020B

VOLATILE COMPOUNDS ANALYTICAL RESULTS

ATEC Lab No. 9012162-1

1 of 2

		Concentration	
Analyte	CAS Number	(ug/kg)	Limit (ug/kg)
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	24	5
Acetone	67-64-1	14	10
Carbon Disulfide	75-15-0	< 5	5
1,1-Dichloroethene	75-35-4	< 5	5
1,1-Dichloroethane	75-35-3	< 5	5
Trans-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	<10	10
1,1,1-Trichloroethane	71-55-6	< 5	5
Carbon Tetrachloride	56-23-5	< 5	5
Vinyl Acetate	108-05-4	<10	10
Bromodichloromethane	75-27-4	< 5	5
1,2-Dichloropropane	78-87-5	< 5	5

^{*} Analyte detected but amount present is less than the Quantitation Limit.

ANALYTICAL RESULTS

ATEC Lab No. 9012162-1

Analyte	CAS Number		Quantitation Limit (ug/kg)
Trans-1, 3-Dichloropropene	10061-02-6		5
Trichloroethene	79-01-6	< 5	5
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	<10*	10
2-Hexanone	591-78-6	<10*	10
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

^{*} Analyte detected but amount present is less than the Quantitation Limit.

Analytical Method: SW 846 Method 8240

Analyst: J. Rigdon Verified: M. McGill

Date Reported: December 21, 1990

Respectfully submitted,

Environmental/Analytical Testing Division

Client: Client Address: South Bend Department Economic Development

1200 County City Building

South Bend, IN 46601

21-07459 Client Project Number: Client Sample Identification: B-1 (0-1.5)

Soil Sample Matrix:

Date Sample Collected: December 11, 1990

Date Sample Received: December 14, 1990
Date Sample Extracted: December 18, 1990
Date Sample Analyzed: December 21, 1990
Analytical Equipment: Varian 3400

PRIORITY POLLUTANTS **PCBS** ANALYTICAL RESULTS

ATEC Lab No. 9012162-1

Analyte	CAS Number	Concentration (ug/kg)	Quantitation Limit (ug/kg)
PCB-1242	53469-21-9	< 80	80
PCB-1254	11097-69-1	<160	160
PCB-1221	11104-28-2	< 80	80
PCB-1232	11141-16-5	< 80	80
PCB-1248	12672-29-6	< 80	80
PCB-1260	11096-82-5	<160	160
PCB-1016	12674-11-2	< 80	80

Analytical Method: SW 846 Method 8080

L. Scott, C. Blackard Analyst:

Verified: D. Spyker

Date Reported: December 31, 1990

Respectfully submitted,

Seith 5 Kline Environmental/Analytical Testing Division Client:

South Bend Department Economic Development

Client Address:

1200 County City Building

South Bend, IN 46601

Client Project Number: Client Sample Identification: 21-07495

Sample Matrix: Soil B-2 (0-1.5)

Date Sample Collected: December 11, 1990

Date Sample Received: December 14, 1990
Date Sample Analyzed: December 18, 1990
December 18, 1990

Analytical Equipment:

1020B

VOLATILE COMPOUNDS ANALYTICAL RESULTS

ATEC Lab No. 9012162-2D

1 of 2

Analyte	CAS Number	Concentration (ug/kg)	Quantitation Limit (ug/kg)
	74-87-3	<10	10
Chloromethane			
Bromomethane	74-83-9	<10	10
Vinyl Chloride	75-01-4	<10	10
Chloroethane	75-00-3	<10	10
Methylene Chloride	75-09-2	21	5
Acetone	67-64-1	<10	10
Carbon Disulfide	75-15-0	< 5	5
1,1-Dichloroethene	75-35-4	< 5	5
1,1-Dichloroethane	75-35-3	< 5	5
Trans-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	<10	10
1,1,1-Trichloroethane	71-55-6	< 5	5
Carbon Tetrachloride	56-23-5	< 5	5
Vinyl Acetate	108-05-4	<10	10
Bromodichloromethane	75-27-4	< 5	5
1,2-Dichloropropane	78-87-5	< 5	5

^{*} Analyte detected but amount present is less than the Quantitation Limit.

ATEC Lab No. 9012162-2D

Analyte	CAS Number	Concentration (ug/kg)	Quantitation Limit (ug/kg)
Trans-1, 3-Dichloropropene	10061-02-6	< 5	5
Trichloroethene	79-01-6	< 5	5
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	<10	10
2-Hexanone	591-78-6	<10	10
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

^{*} Analyte detected but amount present is less than the Quantitation Limit.

Analytical Method: SW 846 Method 8240

Analyst: J. Rigdon Verified: M. McGill

Date Reported: December 21, 1990

Respectfully submitted,

South Bend Department Economic Development

1200 County City Building South Bend, IN 46601

Client Project Number: Client Sample Identification:

21-07495 B-3 (0-1.5)

Sample Matrix:

Soil

Date Sample Collected: December 11, 1990
Date Sample Received: December 14, 1990
Date Sample Analyzed: December 19, 1990
Analytical Equipment: Incos BV

VOLATILE COMPOUNDS ANALYTICAL RESULTS

ATEC Lab No. 9012162-3R

Analyte	CAS Number	Concentration (ug/kg)	7 .
Chloromethane	74-87-3	<10	10
			10
Bromomethane	74-83-9	<10	
Vinyl Chloride	75-01-4	<10	10
Chloroethane	75-00-3	<10	10
Methylene Chloride	75-09-2	47	5
Acetone	67-64-1	<10	10
Carbon Disulfide	75-15-0	< 5	5
1,1-Dichloroethene	75-35-4	< 5	5
1,1-Dichloroethane	75-35-3	< 5	5
Trans-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	<10	10
1,1,1-Trichloroethane	71-55-6	< 5	5
Carbon Tetrachloride	56-23-5	< 5	5
Vinyl Acetate	108-05-4	<10	10
Bromodichloromethane	75-27-4	< 5	5
1,2-Dichloropropane	78-87-5	< 5	5

^{*} Analyte detected but amount present is less than the Quantitation Limit.

ATEC Lab No. 9012162-3R

Analyte	CAS Number	Concentration (uq/kq)	Quantitation Limit (ug/kg)
Trans-1, 3-Dichloropropene	10061-02-6	< 5	5
Trichloroethene	79-01-6	< 5	5
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	<10	10
2-Hexanone	591-78-6	<10	10
Tetrachloroethene	127-18-4	< 5	5
1,1,2,2-Tetrachloroethane	79-34-5	< 5	5
Toluene	108-88-3	70	5
Chlorobenzene	108-90-7	< 5	5
Ethylbenzene	100-41-4	< 5	5
Styrene	100-42-5	< 5	5
Total Xylenes		< 5	5

^{*} Analyte detected but amount present is less than the Quantitation Limit.

Analytical Method: SW 846 Method 8240

Analyst: T. Harrison Verified: M. McGill

Date Reported: December 24, 1990

Respectfully submitted,

Client: South Bend Department Economic Development

1200 County City Building South Bend, IN 46601 Client Address:

Client Project Number: 21-07459 Client Sample Identification: B-3 (0-1.5)

Sample Matrix: Soil

Date Sample Collected: December 11, 1990
Date Sample Received: December 14, 1990
Date Sample Extracted: December 18, 1990
Date Sample Analyzed: December 26, 1990
Analytical Equipment: Varian 3400

PRIORITY POLLUTANTS **PCBS** ANALYTICAL RESULTS

ATEC Lab No. 9012162-3

Analyte	CAS Number	Concentration (ug/kg)	Quantitation Limit (ug/kg)
PCB-1242	53469-21-9	< 80	80
PCB-1254	11097-69-1	<160	160
PCB-1221	11104-28-2	< 80	80
PCB-1232	11141-16-5	< 80	80
PCB-1248	12672-29-6	< 80	80
PCB-1260	11096-82-5	<160	160
PCB-1016	12674-11-2	< 80	80

Analytical Method: SW 846 Method 8080

Analyst: L. Scott, C. Blackard

Verified: D. Spyker

Date Reported: December 31, 1990

Respectfully submitted,

Client: South Bend Department Economic Development

Client Address: 1200 County City Building

South Bend, IN 46601

Client Project Number: 21-07495 Client Sample Identification: B-4 (0-1.5)

Sample Matrix: Soil

Date Sample Collected: December 11, 1990 Date Sample Received: December 14, 1990
Date Sample Analyzed: December 18, 1990
Analytical Equipment: 1020B

1020B Analytical Equipment:

VOLATILE COMPOUNDS ANALYTICAL RESULTS

ATEC Lab No. 9012162-4

Amo Lucho	CAC Number	Concentration	
Analyte	CAS Number	(ug/kg)	Limit (ug/kg)
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	23	5
Acetone	67-64-1	<10*	10
Carbon Disulfide	75-15-0	< 5	5
1,1-Dichloroethene	75-35-4	< 5	5
1,1-Dichloroethane	75-35-3	< 5	5
Trans-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	<10	10
1,1,1-Trichloroethane	71-55-6	< 5	5
Carbon Tetrachloride	56-23-5	< 5	5
Vinyl Acetate	108-05-4	<10	10
Bromodichloromethane	75-27-4	< 5	5
1,2-Dichloropropane	78-87-5	< 5	5

^{*} Analyte detected but amount present is less than the Quantitation Limit.

ATEC Lab No. 9012162-4

Analyte	CAS Number	Concentration (ug/kg)	Quantitation Limit (ug/kg)
Trans-1, 3-Dichloropropene	10061-02-6	< 5	5
		. •	
Trichloroethene	79-01-6	< 5	5
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	<10	10
2~Hexanone	591-78-6	<10	10
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

^{*} Analyte detected but amount present is less than the Quantitation Limit.

Analytical Method: SW 846 Method 8240

Analyst: J. Rigdon Verified: M. McGill

Date Reported: December 21, 1990

Respectfully submitted,

Client: South Bend Department Economic Development

Client Address: 1200 County City Building

South Bend, IN 46601

Client Project Number: 21-07459 Client Sample Identification: B-5 (0-1.5)

Sample Matrix: Soil

Date Sample Collected: December 11, 1990 Date Sample Received: December 14, 1990
Date Sample Extracted: December 18, 1990 Date Sample Analyzed: December 21, 1990 Analytical Equipment: Varian 3400

PRIORITY POLLUTANTS PCBS ANALYTICAL RESULTS

ATEC Lab No. 9012162-5

Analyte	CAS Number	Concentration (ug/kg)	Quantitation Limit (ug/kg)
PCB-1242	53469-21-9	< 80	80
PCB-1254	11097-69-1	<160	160
PCB-1221	11104-28-2	< 80	80
PCB-1232	11141-16-5	< 80	80
PCB-1248	12672-29-6	< 80	80
PCB-1260	11096-82-5	<160	160
PCB-1016	12674-11-2	< 80	80

Analytical Method: SW 846 Method 8080

L. Scott, C. Blackard Analyst:

Verified: D. Spyker

Date Reported: December 31, 1990

Respectfully submitted,

Client:

South Bend Department Economic Development

Client Address: 1200 County City Building

South Bend, IN 46601

Client Project Number:

21-07459

Client Sample Identification: B-7 (0-1.5)

Sample Matrix:

Soil

Date Sample Collected:

December 11, 1990

Date Sample Received: December 14, 1990

Date Sample Extracted: December 18, 1990
Date Sample Analyzed: December 26, 1990
Analytical Equipment: Varian 3400

PRIORITY POLLUTANTS PCBS ANALYTICAL RESULTS

ATEC Lab No. 9012162-7

Analyte	CAS Number	Concentration (ug/kg)	Quantitation Limit (ug/kg)
PCB-1242	53469-21-9	< 80	80
PCB-1254	11097-69-1	<160	160
PCB-1221	11104-28-2	< 80	80
PCB-1232	11141-16-5	< 80	80
PCB-1248	12672-29-6	< 80	80
PCB-1260	11096-82-5	<160	160
PCB-1016	12674-11-2	< 80	80

Analytical Method: SW 846 Method 8080

Analyst: L. Scott, C. Blackard

Verified: D. Spyker

Date Reported: December 31, 1990

Respectfully submitted,

South Bend Department Economic Development

1200 County City Building South Bend, IN 46601

Client Project Number: 21-07495 Client Sample Identification: B-9 (0-1.5)

Sample Matrix:

Date Sample Collected: December 12, 1990
Date Sample Received: December 14, 1990
Date Sample Analyzed: December 18, 1990
Analytical Equipment: 1020B

VOLATILE COMPOUNDS ANALYTICAL RESULTS

ATEC Lab No. 9012162-9

Analyte	CAS Number	Concentration (ug/kg)	~
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	12	5
Acetone	67-64-1	<10*	10
Carbon Disulfide	75-15-0	< 5	5
1,1-Dichloroethene	75-35-4	< 5	5
1,1-Dichloroethane	75-35-3	< 5	5
Trans-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	<10	10
1,1,1-Trichloroethane	71-55-6	< 5	5
Carbon Tetrachloride	56-23-5	< 5	5
Vinyl Acetate	108-05-4	<10	10
Bromodichloromethane	75-27-4	< 5	5
1,2-Dichloropropane	78-87-5	< 5	5

^{*} Analyte detected but amount present is less than the Quantitation Limit.

ATEC Lab No. 9012162-9

Analyte	CAS Number		Quantitation Limit (ug/kg)
Trans-1, 3-Dichloropropene	10061-02-6		5
Trichloroethene	79-01-6	< 5	5
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	<10	10
2-Hexanone	591-78-6	<10	10
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

^{*} Analyte detected but amount present is less than the Quantitation Limit.

Analytical Method: SW 846 Method 8240

Analyst: J. Rigdon Verified: M. McGill

Date Reported: December 21, 1990

Respectfully submitted,

Client: South Bend Department Economic Development

Client Address: 1200 County City Building

South Bend, IN 46601

Client Project Number: 21-07495 Client Sample Identification: B-10 (0-1.5)

Sample Matrix: Soil

Date Sample Collected: December 12, 1990 Date Sample Received: December 14, 1990
Date Sample Analyzed: December 18, 1990
Analytical Equipment: 1020B

VOLATILE COMPOUNDS ANALYTICAL RESULTS

ATEC Lab No. 9012162-10

Analyto	CAS Number	Concentration	
Analyte	CAS Number		Limit (ug/kg)
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	18	5
Acetone	67-64-1	<10	10
Carbon Disulfide	75-15-0	< 5	5
1,1-Dichloroethene	75-35-4	< 5	5
1,1-Dichloroethane	75-35-3	< 5	5
Trans-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	<10	10
1,1,1-Trichloroethane	71-55-6	< 5	5
Carbon Tetrachloride	56-23-5	< 5	5
Vinyl Acetate	108-05-4	<10	10
Bromodichloromethane	75-27-4	< 5	5
1,2-Dichloropropane	78-87-5	< 5	5

^{*} Analyte detected but amount present is less than the Quantitation Limit.

ATEC Lab No. 9012162-10

Analyte	CAS Number	Concentration (ug/kg)	Quantitation Limit (ug/kg)
Trans-1, 3-Dichloropropene	10061-02-6	< 5	5
Trichloroethene	79-01-6	< 5	5
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	<10	10
2-Hexanone	591-78-6	<10	10
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

^{*} Analyte detected but amount present is less than the Quantitation Limit.

Analytical Method: SW 846 Method 8240

Analyst: J. Rigdon Verified: M. McGill

Date Reported: December 21, 1990

Respectfully submitted,

Client: South Bend Department Economic Development

Client Address: 1200 County City Building

South Bend, IN 46601

Client Project Number: 21-07495 Client Sample Identification: B-11 (0-1.5)

Sample Matrix: Soil

Date Sample Collected: December 12, 1990
Date Sample Received: December 14, 1990
Date Sample Analyzed: December 18, 1990
Analytical Equipment: 1020B

VOLATILE COMPOUNDS ANALYTICAL RESULTS

ATEC Lab No. 9012162-11

3 ma 3 anh a	Old Nombor	Concentration	~
Analyte	CAS Number	(ug/kg)	Limit (ug/kg)
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	24	5
Acetone	67-64-1	<10*	10
Carbon Disulfide	75-15-0	< 5	5
1,1-Dichloroethene	75-35-4	< 5	5
1,1-Dichloroethane	75-35-3	< 5	5
Trans-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	<10	10
1,1,1-Trichloroethane	71-55-6	< 5	5
Carbon Tetrachloride	56-23-5	< 5	5
Vinyl Acetate	108-05-4	<10	10
Bromodichloromethane	75-27-4	< 5	5
1,2-Dichloropropane	78-87-5	< 5	5

^{*} Analyte detected but amount present is less than the Quantitation Limit.

ATEC Lab No. 9012162-11

Analyte	CAS Number	Concentration (ug/kg)	Quantitation Limit (ug/kg)
Trans-1, 3-Dichloropropene	10061-02-6		5
Trichloroethene	79-01-6	< 5	5
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	<10	10
2-Hexanone	591-78-6	<10	10
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

^{*} Analyte detected but amount present is less than the Quantitation Limit.

Analytical Method: SW 846 Method 8240

Analyst: J. Rigdon Verified: M. McGill

Date Reported: December 21, 1990

Respectfully submitted,

South Bend Department Economic Development

1200 County City Building South Bend, IN 46601

Client Project Number:

21-07459

Client Sample Identification: B-11 (0-1.5)

Sample Matrix:

Soil

December 12, 1990

Date Sample Collected: Date Sample Received:

December 14, 1990

Date Sample Extracted: December 18, 1990

Date Sample Analyzed: December 26, 1990 Analytical Equipment: Varian 3400

PRIORITY POLLUTANTS PCBS ANALYTICAL RESULTS

ATEC Lab No. 9012162-11

Analyte	CAS Number	Concentration (ug/kg)	Quantitation Limit (ug/kg)
PCB-1242	53469-21-9	< 80	80
PCB-1254	11097-69-1	<160	160
PCB-1221	11104-28-2	< 80	80
PCB-1232	11141-16-5	< 80	80
PCB-1248	12672-29-6	< 80	80
PCB-1260	11096-82-5	<160	160
PCB-1016	12674-11-2	< 80	80

Analytical Method: SW 846 Method 8080

L. Scott, C. Blackard Analyst:

Verified: D. Spyker

Date Reported: December 31, 1990

Respectfully submitted,

Client: South Bend Department Economic Development

Client Address: 1200 County City Building

South Bend, IN 46601

Client Project Number: 21-07495

Client Sample Identification: B-12 (1.5-3.0)

Soil Sample Matrix:

Date Sample Collected: December 11, 1990
Date Sample Received: December 14, 1990
Date Sample Analyzed: December 18, 1990
Analytical Equipment: 1020B

VOLATILE COMPOUNDS ANALYTICAL RESULTS

ATEC Lab No. 9012162-12

		Concentration	
Analyte	CAS Number	(ug/kg)	Limit (ug/kg)
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	28	5
Acetone	67-64-1	<10*	10
Carbon Disulfide	75-15-0	< 5	5
1,1-Dichloroethene	75-35-4	< 5	5
1,1-Dichloroethane	75-35-3	< 5	5
Trans-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	<10	10
1,1,1-Trichloroethane	71-55-6	< 5	5
Carbon Tetrachloride	56-23-5	< 5	5
Vinyl Acetate	108-05-4	<10	10
Bromodichloromethane	75-27-4	< 5	5
1,2-Dichloropropane	78-87-5	< 5	5

^{*} Analyte detected but amount present is less than the Quantitation Limit.

ATEC Lab No. 9012162-12

Analyte	CAS Number	Concentration (ug/kg)	Quantitation Limit (ug/kg)
Trans-1, 3-Dichloropropene	10061-02-6	< 5	5
Trichloroethene	79-01-6	< 5	5
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	<10	10
2-Hexanone	591-78-6	<10	10
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

^{*} Analyte detected but amount present is less than the Quantitation Limit.

Analytical Method: SW 846 Method 8240

Analyst: J. Rigdon Verified: M. McGill

Date Reported: December 21, 1990

Respectfully submitted,

Client:

South Bend Department Economic Development

1200 County City Building Client Address:

South Bend, IN 46601

Client Project Number: Client Sample Identification:

21-07495

B-13 (0-1.0)

Sample Matrix:

Soil

Date Sample Collected: December 12, 1990

Date Sample Received: December 14, 1990
Date Sample Analyzed: December 18, 1990
Analytical Equipment: 1020B

1020B

Analytical Equipment:

VOLATILE COMPOUNDS ANALYTICAL RESULTS

ATEC Lab No. 9012162-13

Analyte	CAS Number	Concentration (ug/kg)	Quantitation Limit (ug/kg)
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	35	5
Acetone	67-64-1	<10*	10
Carbon Disulfide	75-15-0	< 5	5
1,1-Dichloroethene	75-35-4	< 5	5
1,1-Dichloroethane	75-35-3	< 5	5
Trans-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	<10	10
1,1,1-Trichloroethane	71-55-6	< 5	5
Carbon Tetrachloride	56-23-5	< 5	5
Vinyl Acetate	108-05-4	<10	10
Bromodichloromethane	75-27-4	< 5	5
1,2-Dichloropropane	78-87-5	< 5	5

^{*} Analyte detected but amount present is less than the Quantitation Limit.

ATEC Lab No. 9012162-13

Analyte	CAS Number	Concentration (ug/kg)	Quantitation Limit (ug/kg)
Trans-1, 3-Dichloropropene	10061-02-6	< 5	5
Trichloroethene	79-01-6	< 5	5
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	<10	10
2~Hexanone	591-78-6	<10	10
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

^{*} Analyte detected but amount present is less than the Quantitation Limit.

Analytical Method: SW 846 Method 8240

Analyst: J. Rigdon Verified: M. McGill

Date Reported: December 21, 1990

Respectfully submitted,

South Bend Department Economic Development

1200 County City Building South Bend, IN 46601

Client Project Number:

21-07459

Client Sample Identification: B-13 (0-1.0)

Sample Matrix:

Soil

Date Sample Collected:

December 12, 1990

Date Sample Received:

December 14, 1990

Date Sample Extracted: December 18, 1990

Date Sample Analyzed: December 26, 1990 Analytical Equipment: Varian 3400

PRIORITY POLLUTANTS PCBS

ANALYTICAL RESULTS

ATEC Lab No. 9012162-13

Analyte	CAS Number	Concentration (ug/kg)	Quantitation Limit (ug/kg)
PCB-1242	53469-21-9	< 800	800
PCB-1254	11097-69-1	<1,600	1,600
PCB-1221	11104-28-2	< 800	800
PCB-1232	11141-16-5	< 800	800
PCB-1248	12672-29-6	< 800	800
PCB-1260	11096-82-5	<1,600	1,600
PCB-1016	12674-11-2	< 800	800

Analytical Method: SW 846 Method 8080

Analyst: L. Scott, C. Blackard

Verified: D. Spyker

Date Reported: December 31, 1990

Respectfully submitted,

South Bend Department Economic Development

1200 County City Building

South Bend, IN 46601

Client Project Number: Client Sample Identification: 21-07495

B-14 (0-1.5)

Sample Matrix:

Soil

Date Sample Collected: December 12, 1990
Date Sample Received: December 14, 1990
Date Sample Analyzed: December 19, 1990
Analytical Equipment: Incos BV

VOLATILE COMPOUNDS ANALYTICAL RESULTS

ATEC Lab No. 9012162-14

		Concentration	
Analyte	CAS Number	(ug/kg)	Limit (ug/kg)
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	6	5
Acetone	67-64-1	<10	10
Carbon Disulfide	75-15-0	< 5	5
1,1-Dichloroethene	75-35-4	< 5	5
1,1-Dichloroethane	75-35-3	< 5	5
Trans-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	<10	10
1,1,1-Trichloroethane	71-55-6	< 5	5
Carbon Tetrachloride	56-23-5	< 5	5
Vinyl Acetate	108-05-4	<10	10
Bromodichloromethane	75-27-4	< 5	5
1,2-Dichloropropane	78-87-5	< 5	5

^{*} Analyte detected but amount present is less than the Quantitation Limit.

ATEC Lab No. 9012162-14

		Concentration	
Analyte	CAS Number	(ug/kg)	Limit (ug/kg)
Trans-1, 3-Dichloropropene	10061-02-6	< 5	5
Trichloroethene	79-01-6	< 5	5
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	<10	10
2-Hexanone	591-78-6	<10	10
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

^{*} Analyte detected but amount present is less than the Quantitation Limit.

Analytical Method: SW 846 Method 8240

Analyst: T. Harrison Verified: M. McGill

Date Reported: December 24, 1990

Respectfully submitted,

South Bend Department Economic Development 1200 County City Building

South Bend, IN 46601

Client Project Number:

21-07459

Client Sample Identification: B-14 (0-1.5)

Sample Matrix:

Soil

Date Sample Collected: December 12, 1990

Date Sample Received: December 14, 1990

Date Sample Extracted: December 18, 1990
Date Sample Analyzed: December 26, 1990
Analytical Equipment: Varian 3400

PRIORITY POLLUTANTS PCBS ANALYTICAL RESULTS

ATEC Lab No. 9012162-14

Analyte	CAS Number	Concentration (ug/kg)	Quantitation Limit (ug/kg)
PCB-1242	53469-21-9	< 80	80
PCB-1254	11097-69-1	<160	160
PCB-1221	11104-28-2	< 80	80
PCB-1232	11141-16-5	< 80	80
PCB-1248	12672-29-6	210	80
PCB-1260	11096-82-5	<160	160
PCB-1016	12674-11-2	< 80	80

Analytical Method: SW 846 Method 8080

Analyst: L. Scott, C. Blackard

Verified: D. Spyker

Date Reported: December 31, 1990

Respectfully submitted,

Client:

South Bend Department Economic Development

1200 County City Building South Bend, IN 46601 Client Address:

Client Project Number: Client Sample Identification:

21-07495 B-15 (0-1.5)

Sample Matrix:

Soil

Date Sample Collected: December 12, 1990

Date Sample Received: December 14, 1990
Date Sample Analyzed: December 19, 1990
Analytical Equipment: Incos BV

VOLATILE COMPOUNDS ANALYTICAL RESULTS

ATEC Lab No. 9012162-15D

		Concentration	
Analyte	CAS Number	(ug/kg)	Limit (ug/kg)
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	<10	10
Carbon Disulfide	75-15-0	< 5	5
1,1-Dichloroethene	75-35-4	< 5	5
1,1-Dichloroethane	75-35-3	< 5	5
Trans-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	<10	10
1,1,1-Trichloroethane	71-55-6	< 5	5
Carbon Tetrachloride	56-23-5	< 5	5
Vinyl Acetate	108-05-4	<10	10
Bromodichloromethane	75-27-4	< 5	5
1,2-Dichloropropane	78-87-5	< 5	5

^{*} Analyte detected but amount present is less than the Quantitation Limit.

ATEC Lab No. 9012162-15D

Analyte	CAS Number	Concentration (ug/kg)	Quantitation Limit (ug/kg)
Trans-1, 3-Dichloropropene	10061-02-6	< 5	5
Trichloroethene	79-01-6	< 5	5
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	<10	10
2-Hexanone	591-78-6	<10	10
Tetrachloroethene	127-18-4	< 5	5
1,1,2,2-Tetrachloroethane	79-34-5	< 5	5
Toluene	108-88-3	12	5
Chlorobenzene	108-90-7	< 5	5
Ethylbenzene	100-41-4	< 5	5
Styrene	100-42-5	< 5	5
Total Xylenes		< 5	5

^{*} Analyte detected but amount present is less than the Quantitation Limit.

Analytical Method: SW 846 Method 8240

Analyst: T. Harrison Verified: M. McGill

Date Reported: December 24, 1990

Respectfully submitted,

Client:

South Bend Department Economic Development

Client Address:

1200 County City Building South Bend, IN 46601

Client Project Number: Client Sample Identification: B-15 (0-1.5)

21-07459

Sample Matrix:

Soil

Date Sample Collected: December 12, 1990

Date Sample Received:

December 14, 1990

Date Sample Extracted: December 18, 1990

Date Sample Analyzed: December 26, 1990 Analytical Equipment: Varian 3400

Analytical Equipment:

Varian 3400

PRIORITY POLLUTANTS

PCBS

ANALYTICAL RESULTS

ATEC Lab No. 9012162-15

Analyte	CAS Number	Concentration (ug/kg)	Quantitation Limit (ug/kg)
PCB-1242	53469-21-9	< 80	80
PCB-1254	11097-69-1	<160	160
PCB-1221	11104-28-2	< 80	80
PCB-1232	11141-16-5	< 80	80
PCB-1248	12672-29-6	180	80
PCB-1260	11096-82-5	<160	160
PCB-1016	12674-11-2	< 80	80

Analytical Method: SW 846 Method 8080

L. Scott, C. Blackard Analyst:

Verified: D. Spyker

Date Reported: December 31, 1990

Respectfully submitted,

South Bend Department Economic Development

1200 County City Building

South Bend, IN 46601

Client Project Number:

21-07495

Client Sample Identification: B-16 (0-1.5)

Sample Matrix:

Soil

Date Sample Collected: December 12, 1990

Date Sample Received: December 14, 1990
Date Sample Analyzed: December 19, 1990
Analytical Equipment: Incos BV

VOLATILE COMPOUNDS ANALYTICAL RESULTS

ATEC Lab No. 9012162-16

Aug Barks	and when he are	Concentration	
Analyte	CAS Number	(ug/kg)	Limit (ug/kg)
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	11	5
Acetone	67-64-1	<10	10
Carbon Disulfide	75-15-0	< 5	5
1,1-Dichloroethene	75-35-4	< 5	5
1,1-Dichloroethane	75-35-3	< 5	5
Trans-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	<10	10
1,1,1-Trichloroethane	71-55-6	< 5	5
Carbon Tetrachloride	56-23-5	< 5	5
Vinyl Acetate	108-05-4	<10	10
Bromodichloromethane	75-27-4	< 5	5
1,2-Dichloropropane	78-87-5	< 5	5

^{*} Analyte detected but amount present is less than the Quantitation Limit.

ATEC Lab No. 9012162-16

<u>Analyte</u>	CAS Number	Concentration (ug/kg)	Quantitation Limit (ug/kg)
Trans-1, 3-Dichloropropene	10061-02-6	< 5	5
Trichloroethene	79-01-6	< 5	5
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	<10	10
2-Hexanone	591-78-6	<10	10
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

^{*} Analyte detected but amount present is less than the Quantitation Limit.

Analytical Method: SW 846 Method 8240

Analyst: T. Harrison Verified: M. McGill

Date Reported: December 24, 1990

Respectfully submitted,

Client:

South Bend Department Economic Development

1200 County City Building Client Address:

South Bend, IN 46601

Client Project Number:

21-07459

Client Sample Identification: B-17 (0-1.0)

Sample Matrix:

Soil

Date Sample Collected: December 12, 1990

Date Sample Received: December 14, 1990
Date Sample Extracted: December 18, 1990
Date Sample Analyzed: December 26, 1990
Analytical Equipment: Varian 3400

PRIORITY POLLUTANTS

PCBS

ANALYTICAL RESULTS

ATEC Lab No. 9012162-17

Analyte	CAS Number	Concentration (ug/kg)	Quantitation Limit (ug/kg)
PCB-1242	53469-21-9	< 80	80
PCB-1254	11097-69-1	<160	160
PCB-1221	11104-28-2	< 80	80
PCB-1232	11141-16-5	< 80	80
PCB-1248	12672-29-6	< 80	80
PCB-1260	11096-82-5	<160	160
PCB-1016	12674-11-2	< 80	80

Analytical Method: SW 846 Method 8080

Analyst: L. Scott, C. Blackard

Verified: D. Spyker

Date Reported: December 31, 1990

Respectfully submitted,

South Bend Department Economic Development

1200 County City Building

South Bend, IN 46601

Client Project Number:

21-07459

Client Sample Identification: B-20 (0-1.0)

Sample Matrix:

Soil

Date Sample Collected:

December 12, 1990

Date Sample Received: December 14, 1990 Date Sample Extracted: December 18, 1990

Date Sample Analyzed: December 26, 1990 Analytical Equipment: Varian 3400

PRIORITY POLLUTANTS PCBS

ANALYTICAL RESULTS

ATEC Lab No. 9012162-20

Analyte	ÇAS Number	Concentration (ug/kg)	Quantitation Limit (ug/kg)
PCB-1242	53469-21-9	< 80	80
PCB-1254	11097-69-1	<160	160
PCB-1221	11104-28-2	< 80	80
PCB-1232	11141-16-5	< 80	80
PCB-1248	12672-29-6	< 80	80
PCB-1260	11096-82-5	<160	160
PCB-1016	12674-11-2	< 80	80

Analytical Method: SW 846 Method 8080

L. Scott, C. Blackard Analyst:

Verified: D. Spyker

Date Reported: December 31, 1990

Respectfully submitted,

1200 County City Building South Bend Department Economic Development

South Bend, IN 46601

21-07495 Client Project Number: Client Sample Identification: B-21 (0-1.5)

Sample Matrix: Soil

Date Sample Collected: December 13, 1990
Date Sample Received: December 14, 1990
Date Sample Analyzed: December 19, 1990
Analytical Equipment: Incos BV

VOLATILE COMPOUNDS ANALYTICAL RESULTS

ATEC Lab No. 9012162-21

		Concentration	
Analyte	CAS Number	(ug/kg)	Limit (ug/kg)
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	29	5
Acetone	67-64-1	<10	10
Carbon Disulfide	75-15-0	< 5	5
1,1-Dichloroethene	75-35-4	< 5	5
1,1-Dichloroethane	75-35-3	< 5	5
Trans-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	<10	10
1,1,1-Trichloroethane	71-55-6	< 5	5
Carbon Tetrachloride	56-23-5	< 5	5
Vinyl Acetate	108-05-4	<10	10
Bromodichloromethane	75-27-4	< 5	5
1,2-Dichloropropane	78-87-5	< 5	5

^{*} Analyte detected but amount present is less than the Quantitation Limit.

ATEC Lab No. 9012162-21

Analyte	CAS Number	Concentration (ug/kg)	Quantitation Limit (ug/kg)
Trans-1, 3-Dichloropropene	10061-02-6	< 5	5
Trichloroethene	79-01-6	< 5	5
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	<10	10
2-Hexanone	591-78-6	<10	10
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

^{*} Analyte detected but amount present is less than the Quantitation Limit.

Analytical Method: SW 846 Method 8240

Analyst: T. Harrison Verified: M. McGill

Date Reported: December 24, 1990

Respectfully submitted,

South Bend Department Economic Development

1200 County City Building

South Bend, IN 46601

Client Project Number:

21-07459

Client Sample Identification: B-21 (0-1.5)

Sample Matrix:

Soil

December 13, 1990

Date Sample Collected: Date Sample Received: December 14, 1990

Date Sample Extracted: December 18, 1990

Date Sample Analyzed: December 26, 1990 Analytical Equipment: Varian 3400

PCBS ANALYTICAL RESULTS

PRIORITY POLLUTANTS

ATEC Lab No. 9012162-21

Analyte	CAS Number	Concentration (ug/kg)	Quantitation Limit (ug/kg)
PCB-1242	53469-21-9	< 80	80
PCB-1254	11097-69-1	<160	160
PCB-1221	11104-28-2	< 80	80
PCB-1232	11141-16-5	< 80	80
PCB-1248	12672-29-6	< 80	80
PCB-1260	11096-82-5	<160	160
PCB-1016	12674-11-2	< 80	80

Analytical Method: SW 846 Method 8080

Analyst: L. Scott, C. Blackard

Verified: D. Spyker

Date Reported: December 31, 1990

Respectfully submitted,

South Bend Department Economic Development

1200 County City Building

South Bend, IN 46601

Client Project Number:

21-07495

Client Sample Identification:

B-22 (0-1.5)

Sample Matrix:

Soil

Date Sample Collected: December 13, 1990
Date Sample Received: December 14, 1990
Date Sample Analyzed: December 19, 1990

Analytical Equipment:

Incos BV

VOLATILE COMPOUNDS ANALYTICAL RESULTS

ATEC Lab No. 9012162-22

Analyte	CAS Number	Concentration (ug/kg)	Quantitation Limit (ug/kg)
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	19	5
Acetone	67-64-1	<10	10
Carbon Disulfide	75-15-0	< 5	5
1,1-Dichloroethene	75-35-4	< 5	5
1,1-Dichloroethame	75-35-3	< 5	5
Trans-1,2-Dichloroethene	156-60-5	< 5	5
Chloroform	67-66-3	< 5	5
1,2-Dichloroethane	107-06-2	< 5	5
2-Eutanone	78-93-3	<10	10
J.1,1-Trich1orcethane	71-55-6	< 5	, 5
Carbon Tetrachloride	56-23-5	< 5	5
Vinyl Acetate	108-05-4	<10	10
Bromodichloromethane	75-27-4	< 5	5
1,2-Dichloropropane	78-87-5	< 5	5

^{*} Analyte detected but amount present is less than the Quantitation Limit.

ATEC Lab No. 9012162-22

CAS Number		Quantitation Limit (ug/kg)
10061-02-6	< 5	5
79-01-6	< 5	5
124-48-1	< 5	5
79-00-5	< 5	5
71-43-2	< 5	5
10061-01-5	< 5	5
110-75-8	<10	10
75-25-2	< 5	5
108-10-1	<10	10
591-78-6	<10	10
127-18-4	< 5	5
79-34-5	< 5	5
108-88-3	< 5	5
108-90-7	< 5	5
100-41-4	< 5	5
100-42-5	< 5	5
	< 5	5
	10061-02-6 79-01-6 124-48-1 79-00-5 71-43-2 10061-01-5 110-75-8 75-25-2 108-10-1 591-78-6 127-18-4 79-34-5 108-88-3 108-90-7 100-41-4	10061-02-6 < 5

^{*} Analyte detected but amount present is less than the Quantitation Limit.

Analytical Method: SW 846 Method 8240

Analyst: T. Harrison Verified: M. McGill

Date Reported: December 24, 1990

Respectfully submitted,

South Bend Department Economic Development

1200 County City Building South Bend, IN 46601

Client Project Number:

21-07495

Client Sample Identification:

B-23 (0-1.5)

Sample Matrix:

Date Sample Collected: December 13, 1990
Date Sample Received: December 14, 1990
Date Sample Analyzed: December 20, 1990
Analytical Equipment: Incos BV

Analytical Equipment:

Incos BV

VOLATILE COMPOUNDS ANALYTICAL RESULTS

ATEC Lab No. 9012162-23

Analyte	CAS Number	Concentration (ug/kg)	Quantitation Limit (ug/kg)
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	<10	10
Carbon Disulfide	75-15-0	< 5	5
1,1-Dichloroethene	75-35-4	< 5	5
1,1-Dichloroethane	75-35-3	< 5	5
Trans-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	<10	10
1,1,1-Trichloroethane	71-55-6	< 5	5
Carbon Tetrachloride	56-23-5	< 5	5
Vinyl Acetate	108-05-4	<10	10
Bromodichloromethane	75-27-4	< 5	5
1,2-Dichloropropane	78-87-5	< 5	5

^{*} Analyte detected but amount present is less than the Quantitation Limit.

ATEC Lab No. 9012162-23

Analyte	CAS Number	Concentration (ug/kg)	Quantitation Limit (ug/kg)
Trans-1, 3-Dichloropropene	10061-02-6	< 5	5
Trichloroethene	79-01-6	< 5	5
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	<10	10
2-Hexanone	591-78-6	<10	10
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

^{*} Analyte detected but amount present is less than the Quantitation Limit.

Analytical Method: SW 846 Method 8240

Analyst: T. Harrison Verified: M. McGill

Date Reported: December 24, 1990

Respectfully submitted,

Client:

South Bend Department Economic Development

Client Address:

1200 County City Building

South Bend, IN 46601

Client Project Number:

21-07459

Client Sample Identification: B-23 (0-1.5)

Sample Matrix:

Soil

Date Sample Collected: December 13, 1990

Date Sample Received: December 14, 1990

Date Sample Extracted: December 18, 1990

Date Sample Analyzed: December 26, 1990 Analytical Equipment: Varian 3400

PRIORITY POLLUTANTS PCBS ANALYTICAL RESULTS

ATEC Lab No. 9012162-23

Analyte	CAS Number	Concentration (ug/kg)	Quantitation Limit (ug/kg)
PCB-1242	53469-21-9	< 80	80
PCB-1254	11097-69-1	<160	160
PCB-1221	11104-28-2	< 80	80
PCB-1232	11141-16-5	< 80	80
PCB-1248	12672-29-6	< 80	80
PCB-1260	11096-82-5	<160	160
PCB-1016	12674-11-2	< 80	80

Analytical Method: SW 846 Method 8080

Analyst: L. Scott, C. Blackard

Verified: D. Spyker

Date Reported: December 31, 1990

Respectfully submitted,

Client:

South Bend Department Economic Development

1200 County City Building South Bend, IN 46601 Client Address:

Client Project Number: Client Sample Identification:

B-24 (0-1.5)

Sample Matrix:

Soil

21-07495

Date Sample Collected: December 13, 1990
Date Sample Received: December 14, 1990
Date Sample Analyzed: December 19, 1990
Analytical Equipment: Incos BV

VOLATILE COMPOUNDS ANALYTICAL RESULTS

ATEC Lab No. 9012162-24

Analyte	CAS Number	Concentration (ug/kg)	Quantitation Limit (ug/kg)
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	13	5
Acetone	67-64-1	<10	10
Carbon Disulfide	75-15-0	< 5	5
1,1-Dichloroethene	75-35-4	< 5	5
1,1-Dichloroethane	75-35-3	< 5	5
Trans-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	<10	10
1,1,1-Trichloroethane	71-55-6	< 5	5
Carbon Tetrachloride	56-23-5	< 5	5
Vinyl Acetate	108-05-4	<10	10
Bromodichloromethane	75-27-4	< 5	5
1,2-Dichloropropane	78-87-5	< 5	5

^{*} Analyte detected but amount present is less than the Quantitation Limit.

ATEC Lab No. 9012162-24

Analyte	CAS Number	Concentration (ug/kg)	Quantitation Limit (ug/kg)
Trans-1, 3-Dichloropropene	10061-02-6	< 5	5
Trichloroethene	79-01-6	< 5	5
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	<10	10
2-Hexanone	591 - 78-6	<10	10
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

^{*} Analyte detected but amount present is less than the Quantitation Limit.

Analytical Method: SW 846 Method 8240

Analyst: T. Harrison Verified: M. McGill

Date Reported: December 24, 1990

Respectfully submitted,

South Bend Department Economic Development

1200 County City Building South Bend, IN 46601

Client Project Number:

21-07495

Client Sample Identification:

B-25 (0-1.5)

Sample Matrix:

Soil

Date Sample Collected: December 13, 1990
Date Sample Received: December 14, 1990
Date Sample Analyzed: December 19, 1990
Analytical Equipment: Incos BV

VOLATILE COMPOUNDS ANALYTICAL RESULTS

ATEC Lab No. 9012162-25

Analyte	CAS Number	Concentration (ug/kg)	Quantitation Limit (ug/kg)
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	12	5
Acetone	67-64-1	<10	10
Carbon Disulfide	75-15-0	< 5	5
1,1-Dichloroethene	75-35-4	< 5	5
1,1-Dichloroethane	75-35-3	< 5	5
Trans-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	<10	10
1,1,1-Trichloroethane	71-55-6	< 5	5
Carbon Tetrachloride	56-23-5	< 5	5
Vinyl Acetate	108-05-4	<10	10
Bromodichloromethane	75-27-4	< 5	5
1,2-Dichloropropane	78-87-5	< 5	5

^{*} Analyte detected but amount present is less than the Quantitation Limit.

ATEC Lab No. 9012162-25

Analyte	CAS Number	Concentration (ug/kg)	Quantitation Limit (ug/kg)
Trans-1, 3-Dichloropropene	10061-02-6	< 5	5
Trichloroethene	79-01-6	< 5	5
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	<10	10
2-Hexanone	591-78-6	<10	10
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

^{*} Analyte detected but amount present is less than the Quantitation Limit.

Analytical Method: SW 846 Method 8240

Analyst: T. Harrison Verified: M. McGill

Date Reported: December 24, 1990

Respectfully submitted,

South Bend Department Economic Development

1200 County City Building South Bend, IN 46601

Client Project Number:

21-07495

Client Sample Identification:

B-26 (0-1.0)

Sample Matrix:

Soil

Date Sample Collected: December 13, 1990
Date Sample Received: December 14, 1990
Date Sample Analyzed: December 20, 1990
Analytical Equipment: Incos BV

VOLATILE COMPOUNDS ANALYTICAL RESULTS

ATEC Lab No. 9012162-26R

3	Cl C Wark and	Concentration	Quantitation
Analyte	CAS Number	(ug/kg)	Limit (ug/kg)
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	<10	10
Carbon Disulfide	75-15-0	< 5	5
1,1-Dichloroethene	75-35-4	< 5	5
1,1-Dichloroethane	75-35-3	< 5	5
Trans-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	<10	10
1,1,1-Trichloroethane	71-55-6	< 5	5
Carbon Tetrachloride	56-23-5	< 5	5
Vinyl Acetate	108-05-4	<10	10
Bromodichloromethane	75-27-4	< 5	5
1,2-Dichloropropane	78-87-5	< 5	5

^{*} Analyte detected but amount present is less than the Quantitation Limit.

ATEC Lab No. 9012162-26R

	01 0 17 ml	Concentration	
<u>Analyte</u>	CAS Number	(ug/kg)	Limit (ug/kg)
Trans-1, 3-Dichloropropene	10061-02-6	< 5	5
Trichloroethene	79-01-6	< 5	5
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-Pentarone	108-10-1	<10	10
2-Hexanone	591-78-6	<10	10
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

^{*} Analyte detected but amount present is less than the Quantitation Limit.

Analytical Method: SW 846 Method 8240

Analyst: T. Harrison Verified: M. McGill

Date Reported: December 24, 1990

Respectfully submitted,

Client:

South Bend Department Economic Development

Client Address:

1200 County City Building

South Bend, IN 46601

Client Project Number:

21-07459

Client Sample Identification: B-26 (0-1.0)

Sample Matrix:

Soil

Date Sample Collected: December 13, 1990

Date Sample Received: December 14, 1990
Date Sample Extracted: December 18, 1990

Date Sample Analyzed: December 26, 1990

Analytical Equipment: Varian 3400

PRIORITY POLLUTANTS **PCBS**

ANALYTICAL RESULTS

ATEC Lab No. 9012162-26

Analyte	CAS Number	Concentration (ug/kg)	Quantitation Limit (ug/kg)
PCB-1242	53469-21-9	< 80	80
PCB-1254	11097-69-1	<160	160
PCB-1221	11104-28-2	< 80	80
PCB-1232	11141-16-5	< 80	80
PCB-1248	12672-29-6	< 80	80
PCB-1260	11096-82-5	<160	160
PCB-1016	12674-11-2	< 80	80

Analytical Method: SW 846 Method 8080

L. Scott, C. Blackard Analyst:

Verified: D. Spyker

Date Reported: December 31, 1990

Respectfully submitted,

South Bend Department Economic Development 1200 County City Building

South Bend, IN 46601

Client Project Number: 21-07495 Client Sample Identification: B-27 (0-1.5)

Sample Matrix: Soil

Date Sample Collected: December 13, 1990
Date Sample Received: December 14, 1990
Date Sample Analyzed: December 18, 1990
Analytical Equipment: Incos BV

VOLATILE COMPOUNDS ANALYTICAL RESULTS

ATEC Lab No. 9012162-27

Anaryte	CAS Number	Concentration (ug/kg)	Quantitation Limit (ug/kg)
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	20	5
Acetone	67-64-1	<10	10
Carbon Disulfide	75-15-0	< 5	5
1,1-Dichloroethene	75-35-4	< 5	5
1,1-Dichloroethane	75-35-3	< 5	5
Trans-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	<10	10
1,1,1-Trichloroethane	71-55-6	< 5	5
Carbon Tetrachloride	56-23-5	< 5	5
Vinyl Acetate	108-05-4	<10	10
Bromodichloromethane	75-27-4	< 5	5
1,2-Dichloropropane	78-87-5	< 5	5

^{*} Analyte detected but amount present is less than the Quantitation Limit.

ATEC Lab No. 9012162-27

Analyte	CAS Number	Concentration (ug/kg)	Quantitation Limit (uq/kq)
Trans-1, 3-Dichloropropene	10061-02-6	< 5	5
Trichloroethene	79-01-6		5
			-
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	<10	10
2-Hexanone	591-78-6	<10	10
Tetrachloroethene	127-18-4	< 5	5
1,1,2,2-Tetrachloroethane	79-34-5	< 5	5
Toluene	108-88-3	43	5
Chlorobenzene	108-90-7	< 5	5
Ethylbenzene	100-41-4	< 5	5
Styrene	100-42-5	< 5	5
Total Xylenes		< 5	5

^{*} Analyte detected but amount present is less than the Quantitation Limit.

Analytical Method: SW 846 Method 8240

Analyst: T. Harrison Verified: M. McGill

Date Reported: December 24, 1990

Respectfully submitted,

South Bend Department Economic Development

1200 County City Building

South Bend, IN 46601

Client Project Number: Client Sample Identification:

21-07495

Sample Matrix: Soil

B-28 (0-0.5)

Date Sample Collected: December 13, 1990

Date Sample Received: December 14, 1990
Date Sample Analyzed: December 18, 1990
Analytical Equipment: Incos BV

VOLATILE COMPOUNDS ANALYTICAL RESULTS

ATEC Lab No. 9012162-28

Analyte	CAS Number	Concentration	
		(ug/kg)	Limit (ug/kg)
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	28	5
Acetone	67-64-1	<10	10
Carbon Disulfide	75-15-0	< 5	5
1,1-Dichloroethene	75-35-4	< 5	5
1,1-Dichloroethane	75-35-3	< 5	5
Trans-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	<10	10
1,1,1-Trichloroethane	71-55-6	< 5	5
Carbon Tetrachloride	56-23-5	< 5	5
Vinyl Acetate	108-05-4	<10	10
Bromodichloromethane	75-27-4	< 5	5
1,2-Dichloropropane	78-87-5	< 5	5

^{*} Analyte detected but amount present is less than the Quantitation Limit.

ATEC Lab No. 9012162-28

Analyte	CAS Number	Concentration (ug/kg)	Quantitation Limit (ug/kg)
Trans-1, 3-Dichloropropene	10061-02-6	< 5	5
Trichloroethene	79-01-6	< 5	5
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	<10	10
2-Hexanone	591-78-6	<10	10
Tetrachloroethene	127-18-4	< 5	5
1,1,2,2-Tetrachloroethane	79-34-5	< 5	5
Toluene	108-88-3	40	5
Chlorobenzene	108-90-7	< 5	5
Ethylbenzene	100-41-4	< 5	5
Styrene	100-42-5	< 5	5
Total Xylenes		< 5	5

^{*} Analyte detected but amount present is less than the Quantitation Limit.

Analytical Method: SW 846 Method 8240

Analyst: T. Harrison Verified: M. McGill

Date Reported: December 24, 1990

Respectfully submitted,

South Bend Department Economic Development

1200 County City Building South Bend, IN 46601

Client Project Number:

21-07459

Client Sample Identification: B-28 (0-0.5)

Sample Matrix:

Soil

Date Sample Collected: December 13, 1990
Date Sample Received: December 14, 1990
Date Sample Extracted: December 18, 1990

Date Sample Analyzed: December 27, 1990
Analytical Equipment: Varian 3400

PRIORITY POLLUTANTS

PCBS

ANALYTICAL RESULTS

ATEC Lab No. 9012162-28

<u>Analyte</u>	CAS Number	Concentration (ug/kg)	Quantitation Limit (ug/kg)
PCB-1242	53469-21-9	< 800	800
PCB-1254	11097-69-1	13,000	1,600
PCB-1221	11104-28-2	< 800	800
PCB-1232	11141-16-5	< 800	800
PCB-1248	12672-29-6	< 800	800
PCB-1260	11096-82-5	<1,600	1,600
PCB-1016	12674-11-2	< 800	800

Analytical Method: SW 846 Method 8080

Analyst: L. Scott, C. Blackard

Verified: D. Spyker

Date Reported: December 31, 1990

Respectfully submitted,

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