The Traverse Group, Inc.
3772 Plaza Drive, Suite 5
Airport Plaza Park
Ann Arbor, Michigan 48108

(313) 747-9300 Phone
(313) 747-9229 Fax

- Groundwater and Soil Contamination Assessment and Cleanup
- Underground Storage Tank Management
- Industrial Environmental Audits
- Property Development Risk Assessments

DATE: 8-6-90

TO: Betty Michalski

FROM: Pete Weglinski

SUBJECT: City of Ann Arbor Garage

COMMENTS:

PAGES TO FOLLOW: 04

HAVE A NICE DAY!

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Ann Arbor, Michigan 48108

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- Groundwater and Soil Contamination Assessment and Cleanup
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April 5, 1990

Dan Cullen
Risk Manager
City of Ann Arbor
P.O. Box 8647
Ann Arbor, MI 48107

Dear Dan:

RE: Site Investigation Work Plan Proposal
City of Ann Arbor Garage
721 N. Main Street, Ann Arbor, Michigan

BACKGROUND

A 2,000 gallon gasoline underground storage tank (UST) was removed from the City Garage site on December 14, 1989. Visual and odor evidence of a hydrocarbon release was noted during removal operations. Soil samples collected following the tank pull indicated BTEX was present at the 1.02 part per million (ppm) level at the south end of the pit and below the 0.01 ppm detection limit at the north end.

A sample of the groundwater present in the bottom of the pit was collected during the tank removal operation and submitted for BTEX analysis. Results indicated BTEX was present at the 1.32 ppm level in the water sample.

Approximately 45 cubic yards of soil were removed from the site on January 2-3, 1990. One post excavation soil sample was collected from the south end of the pit and submitted to an analytical laboratory for benzene, toluene, ethylbenzene, and xylenes (BTEX) analysis. Review of the analysis indicated BTEX concentrations were below the 0.01 ppm detection limit.

Suggested clean-up guidelines currently in use by the Michigan Department of Natural Resources for UST sites are outlined below.

Gasoline in Ground Water:		Gasoline in Soils:	
Benzene	1 ppb	Benzene	10 ppb
Ethylbenzene	1 ppb	Ethylbenzene	10 ppb
Toluene	1 ppb	Toluene	10 ppb
Xylenes	1 ppb	Xylenes	10 ppb
Lead	50 ppb		

Review of the guidelines indicates that the hydrocarbon levels in the water sampled in the bottom of the tank pit exceed the MDNR suggested clean-up guidelines. TGI is proposing a program of work to address the hydrocarbons present in the subsurface at the City Garage site.

WORK PLAN

The site investigation work plan includes the following tasks: Project Set-up and Background Data Review; Piezometric Well Placement and Source Area Investigation; Field Investigation; Report Preparation; and Monitoring Well Placement. Each task is described in detail below, while costs associated with each project task are presented in the following section.

TASK 1: Project Set-up and Background Data Review. The project set-up task includes submitting the program of work to the MDNR for review and approval. Background data review consists of compiling all existing information pertinent to the project, such as domestic well logs, topographic maps, site plot plans, county soil survey information, etc.

TASK 2: Piezometric Well Placement and Source Area Investigation. Piezometric well placement includes installation of three two-inch diameter wells. The wells will be placed in a triangular array a minimum of 100 feet apart. Water level data collected from the wells will be used to calculate ground water flow direction and gradient. A City of Ann Arbor representative will approve each drilling location selected throughout the project.

The wells will be constructed with galvanized casings, five foot number 7 slot stainless steel screens and equipped with locking protective casings. The screens will be placed one foot above the water table to 4 feet below. A sand pack will be placed around the screen to one foot above, followed by a pelletized bentonite seal. The remainder of the annular spacing will be backfilled with a bentonite slurry grout. Well top of casing elevations and spatial locations will be mapped by a registered surveyor.

One of the three wells will be placed in the former tank pit excavation. During placement of this well, split spoon soil samples will be collected at five foot intervals from the surface to 15 feet below grade. The samples will be screened in the field with an organic vapor meter (OVM) equipped with a photo-ionization detector. Samples above the water table that screen positive for hydrocarbons and all samples collected below the water table will be submitted to an analytical laboratory. The samples will be tested for BTEX, TPH and polynuclear aromatics (PNA). Data from the analysis will be used to generate a vertical profile of the hydrocarbons in the soil, if present.
In addition to the soil sampling a series of water samples will be collected from the source area well boring utilizing a hollow stem

drilling rig equipped with a screened lead auger. The screened lead auger acts as a temporary well allowing collection of samples over depth. Water samples will be collected approximately 2', 12' and 22' below the water table. Data from the boring will generate a vertical profile of the hydrocarbons if present in the ground water.

After a one week stabilization period water level measurements will be taken and well water samples will be collected. The water samples will submitted to an analytical laboratory for BTEX and TPH analysis.

TASK 3: Field Investigation. Data collected during the piezometric well placement task will be used to calculate the ground water flow direction and determine hydrocarbon concentrations in the source area, if present. Prior to beginning the field investigation, analytical data from the source area investigation will be reviewed to determine the recommended analytical testing parameters for this phase of the investigation. Based on TGI's experience, it's likely that PNA's will not be present at the site and further testing for this parameter will not be necessary.

A series of auger borings will be placed both downgradient of the source area and across the gradient as determined by the ground water flow direction. Split spoon soil samples will be collected in each boring straddling the water table and five feet below the water table. The soil samples will be screened in the field with an organic vapor meter. Water samples will be collected 2', 12', and 22' below the water table. Both the soil and the water samples will be submitted to an analytical laboratory for BTEX and TPH analysis. The task includes collection of up to 15 soil samples and 30 water samples.

Quality assurance and quality control measures implemented during all phases of the field work will include steam cleaning of all well construction materials, sampling equipment, augers, drilling rods, and split spoons.

TASK 4: Report Preparation. The report will include a summary of all field activities and copies of all analytical data, well logs, boring logs, and well construction diagrams. A site plot plan showing well and boring locations, ground water flow direction and hydrocarbon concentrations will be generated. Possible remedial action alternatives will be listed and discussed on a preliminary level along with the need for any supplemental field work.

TASK 5: Monitoring Well Placement (Optional). Based on data collected in the site investigation TGI will recommend placement of

up three additional monitoring wells to serve as long term data collection points. Well installation will proceed as described in the piezometric well placement section. After a one week stabilization period all six monitoring wells will be sampled for BTEX and TPH.

COSTS

Costs to complete the work described in the text are outlined below by task.

o TASK 1: Project Set-up and Background Data Review...$	663.00
o TASK 2: Piezometric and Source Area Investigation...$	8,787.00
o TASK 3: Field Investigation.....$	12,115.00
o TASK 4: Report Preparation.....$	2,660.00
o TASK 5: Monitoring Well Placement (Optional).....$	5,364.00
Total	**$ 29,589.00**

TGI understands the City is concerned that Allen Drain may be a potential source or pathway for off-site contamination. Drilling locations will be selected to best determine if the ground water hydrocarbon concentrations detected in the tank pit are associated with a release from the former UST or are related to the alleged problems with Allen Drain.

TGI would like to meet to discuss our proposal with you at your earliest convenience. If you have any questions or require additional information, please contact myself, or Steve Koster, Engineering Manager.

Sincerely,

Jenny E. Gosling (SP)

Jenny E. Gosling
Project Engineer

Reviewed by:

Steve Koster, P.E.
Engineering Manager

The Trc ers Group, Inc.
3772 Plaza Drive, Suite 5
Airport Plaza Park
Ann Arbor, Michigan 48108

(313) 747-9300 Phone
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- Groundwater and Soil Contamination Assessment and Cleanup
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January 30, 1990

Ms. Betty Michalski
MDNR Jackson District
301 E. Louis Glick Building
Jackson, MI 49201

Dear Betty:

RE: Soil Excavation
City of Ann Arbor Garage
721 N. Main Street, Ann Arbor, Michigan

A total of 45 cubic yards of soil were excavated from the City Garage site on January 2-3, 1990. The soil was transported to the City of Ann Arbor landfill for disposal. One post excavation soil sample was collected form the southern end of the pit and submitted an analytical laboratory for BTEX analysis. Results of the analysis indicated BTEX is below the 0.01 part per million detection limit (see enclosed report).

If you have any questions or require further information please contact me.

Sincerely,

Jenny E. Gosling

Jenny E. Gosling
Project Engineer

enc.

cc: Dan Cullen, Risk Manager
City of Ann Arbor

The Traverse Group, Inc.
Report#: L-90-01-07
Sampling Site: City Garage
Sampling Date: 1-3-90

SAMPLE	BENZENE	TOLUENE	ETHYLBENZENE	XYLENES	UNITS	MATRIX
ug 2000 South	<0.01	<0.01	<0.01	<0.01	mg/kg (ppm) as received	soil

Fred Hoitash

Fred Hoitash
Director of Environmental Services

DIHYDRO ANALYTICAL SERVICES
4541 Fletcher Wayne, MI 48184 (313) 595-0335
A Division of DIHYDRO

Ann Arbor City Garage

The Tr rse Group, Inc.
3772 Plaza Drive, Suite 5
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Ann Arbor, Michigan 48108

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January 29, 1990

Ms. Betty Michalski
M.D.N.R. Jackson District
301 East Louis Glick Building
Jackson, MI. 49201

RE: Site Check Report and Site Investigation Work Plan
City of Ann Arbor Garage
721 N. Main Street, Ann Arbor, Michigan

Dear Betty:

Initial abatement measures completed to date at the City Garage are outlined in the previous 20 Day Report addressed to you and dated January 3, 1990.

The following is a site check report and investigative work plan, both of which are requirements for the 45 day release report as outlined in Michigan Act No. 478, PA 1988. A Free Product Recovery Report is not applicable for the City Garage site since there was no free floating product encountered in the subsurface.

Site Check Report

On December 14, 1989 a 2,000 gallon gasoline underground storage tank was removed from the site. This tank was earlier reported as a 500 gallon tank. During the removal of the tank's overburden soil, there was both visual and odor evidence of a subsurface hydrocarbon release. Estimating the quantity of the release is not feasible at this time as a portion of the impacted soil has been removed and the remaining subsurface hydrocarbon is not yet delineated.

The City of Ann Arbor, which has a population of approximately 107,000, provides water and sewer services to residential and commercial enterprises located within the city. Upon contacting the Washtenaw County Department of Environmental Health, it was found that there are no domestic wells within the vicinity of the City Garage.

Site location in reference to major highways and surface streets can be found in Figure 1, while land use and surface water bodies in the vicinity of the site are shown in Figure 2. Sewer lines located near the site can be found in Figure 3. The Allen Drain reportedly runs across the site and given the contamination history of the drain, the City of Ann Arbor is concerned that possible off-site contamination sources may be present and if present, affect contaminant levels in the subsurface.

The general lithology of the site can be classified as a soft clay layer to a depth of approximately six feet below grade, followed by a medium grained sand to a depth of at least eight feet below grade. The water table at the site was encountered approximately eight feet below grade. Free floating product was not present in the tank pit.

Soil and ground water samples were collected following the removal of the tank. All samples were submitted to an analytical laboratory for BTEX analysis, the results of which are found in the analytical reports provided with the 20-day report.

Climatological conditions at the site are typical of those found in any southeastern Michigan location.

Site Investigative Work Plan

The City of Ann Arbor is considering a work plan which would involve the further excavation of hydrocarbon affected soil to the south and east of the former tank location, as a possible first step. The feasibility and effectiveness of supplemental soil removal is under evaluation. The second stage of the investigative work plan involves the placement of three monitoring wells to determine ground water flow direction and also to serve as future ground water quality monitoring points. Once ground water flow direction is determined, work will continue with split spoon soil sampling at the water table, along with ground water sampling by way of the hollow stem screened auger method. Sampling locations will be selected to delineate the vertical and aerial extent of a subsurface hydrocarbon plume if present at the site. Borings will

also be placed in the vicinity of the Allen Drain to determine if the drain is serving as a pathway for existing off-site contamination to enter the subsurface at the City Garage site.

If you have any questions regarding the site check report or investigative work plan, please contact Jenny Gosling, Project Engineer.

Sincerely,

Michael F. Leahy

Michael F. Leahy
Field Hydrogeologist

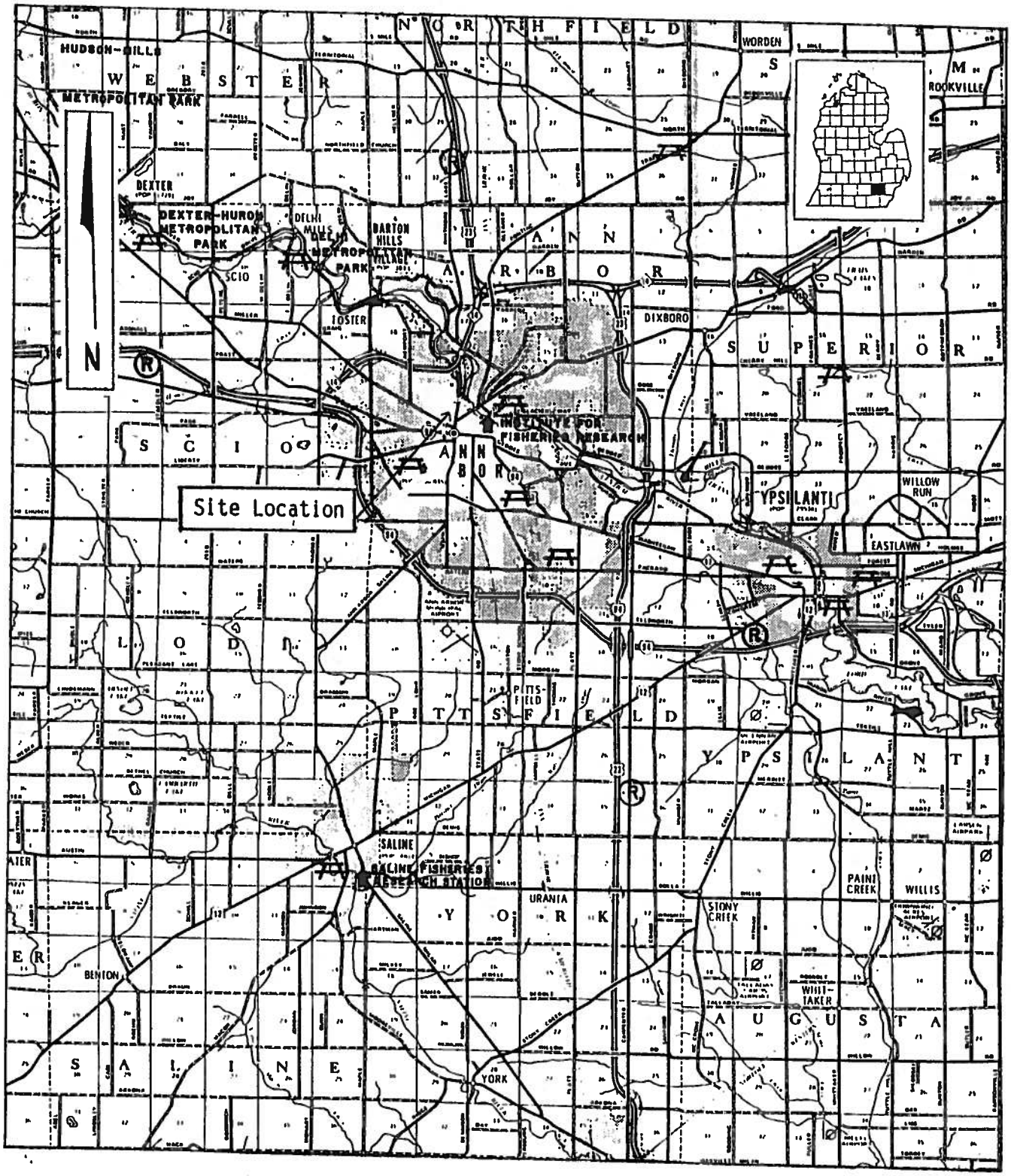
Reviewed by:

Jenny E. Gosling

Jenny E. Gosling
Project Engineer

MFL:jw
Enclosure

cc: Dan Cullen, Risk Manager
City of Ann Arbor



Ann Arbor City Garage

Site Location Map

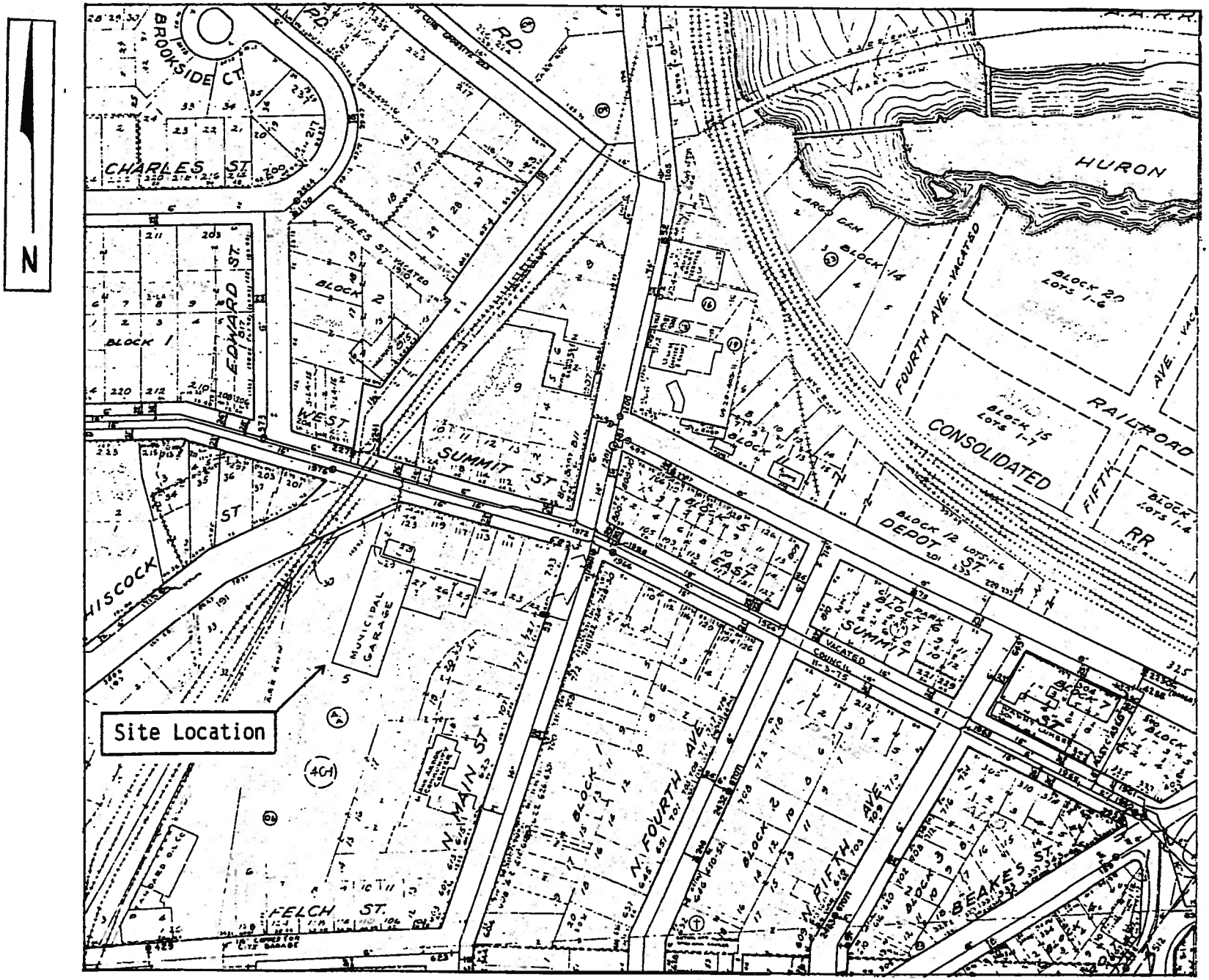
Figure 1

Source: Mapbook of Michigan Counties, 1984

Figure 2

City of Ann Arbor
Topographics Features Map

Source: U.S. Geological Survey. 1983



Ann Arbor City Garage
and Sewer Locations

Source: City of Ann Arbor

Figure 3

The Traverse Group, Inc.
3772 Plaza Drive, Suite 5
Airport Plaza Park
Ann Arbor, Michigan 48108

(313) 747-9300 Phone
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December 5, 1991

Cheryl English
Jackson District Office
MDNR-Environmental Response Division
301 East Louis Glick Highway
Jackson, Michigan 49201

TGI REF: 569

RE: 45 Day Report
The Ann Arbor City Garage
721 North Main Street
Ann Arbor, Michigan 48104

Dear Ms. English:

The Traverse Group, Inc. (TGI) has been retained by the owner/operator of the underground storage tank (UST) at the facility named herein, to conduct environmental consulting services relating to a confirmed release from a UST system at the above mentioned site.

The following is a site characterization report and investigative work plan, both of which are part of the 45-Day release report requirements per the Leaking Underground Storage Tank Act (1988 P.A.478, as Amended). Floating hydrocarbon product was not visible in the subsurface at the site, therefore a Free Product Recovery Report is not applicable at this time. Initial abatement measures completed to date for the Ann Arbor City Garage are outlined in the 20-Day Report submitted to you by TGI, dated November 6, 1991. Information relating to the release can be found in this report.

If you have any questions, please call TGI at your earliest convenience. Thank you for your assistance in this matter.

Sincerely,

Peter J. Weglinski
Staff Engineer

Reviewed by,

Jenny E. Gosling, P.E.
Operations Manager

cc: Dan Cullen

The Traverse Group, Inc.
3772 Plaza Drive, Suite 5
Airport Plaza Park
Ann Arbor, Michigan 48108

(313) 747-9300 Phone
(313) 747-9229 Fax

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November 27, 1991

Cheryl English
Jackson District Office
MDNR - Environmental Response Division
Jackson State Office Building
301 East Louis Glick Highway
Jackson, Michigan 49201

RE: City of Ann Arbor
City Garage
Notification of Work Being Performed

Dear Cheryl:

This letter serves as a follow up to our phone conversations on Friday November 20, 1991 and Tuesday November 26, 1991 regarding on-site work being performed by The Traverse Group, Inc. (TGI) on Wednesday November 27, 1991. TGI has scheduled the heavy equipment subcontractor for the project, Carlo Environmental Technologies, Inc. (CET), to conduct the work. The work scheduled to be performed at the site includes excavating soil from the north wall of the former tank pit and collecting a soil sample from this wall. The sample will be submitted to Environmental Quality Labs in Sterling Heights, Michigan for Polynuclear Aromatics (PNAs), Benzene, Toluene, Ethylbenzene and Xylenes (BTEX), cadmium, chromium and lead analyses.

On November 20, 1991, we discussed the likelihood of performing the above mentioned on-site work at the City Garage site on the week of Thanksgiving. In our phone conversation on November 26, 1991, the work schedule was given verbal approval by the Michigan Department of Natural Resources (MDNR).

Thank you for helping expedite the work at the site. Please call if you have any questions.

Sincerely,

Peter J. Weglinski
Staff Engineer

Reviewed By,

Jenny E. Gosling
Operations Manager

T. Mark Tussing, plan to remove more soil 9/Nov 9

The Traverse Group, Inc.
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Airport Plaza Park
Ann Arbor, Michigan 48108

(313) 747-9300 Phone
(313) 747-9229 Fax

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- Property Development Risk Assessments

November 6, 1991

Cheryl English
Jackson District Office
MDNR - Environmental Response Division
Jackson State Office Building
301 East Louis Glick Highway
Jackson, Michigan 49201

RE: 20 Day Report - Initial Abatement Measures
Ann Arbor City Garage
721 North Main Street
Ann Arbor, MI 48108

Dear Ms. English:

The Traverse Group, Inc. (TGI) has been retained by the owner/operator of the UST at the facility named herein, to conduct UST removal and associated environmental consulting services.

The following report describes the initial abatement measures taken to date at the site.

If you have any questions or require additional information, please contact Mark Tussing at (313) 747-9300.

Sincerely,

Peter J. Weglinski
Staff Engineer

Reviewed By,

Mark Tussing
Project Coordinator

Reviewed by,

Jenny Gosling, P.E.
Operations Manager

enc.
cc: Dan Cullen, City of Ann Arbor

Name of Facility: Ann Arbor City Garage
Name of Contact: Dan Cullen (313) 994-6696
Facility Address: 721 North Main Street
Ann Arbor, MI 48108

Date Release reported to the State Police/State Fire Marshal UST Division: October 23, 1991

Number of USTs removed: 1

Tank size: 500 gallon

Chemical or liquid that was stored in the tank: Waste Oil

No other liquids or chemicals were previously stored in the UST.

Description of the release: Release confirmed based on analytical results of site assessment samples. Samples were collected on October 15, 1991 and submitted for analysis on October 16, 1991. Analytical results were reported by the laboratory on October 22, 1991.

Component of UST system from which the release occurred: Tank. A hole was found in the tank during cleaning. The hole measured approximately 2 inches long and approximately one-half inch wide and was located in the side of the tank.

Steps taken to prevent further release:

1) Tank was pumped dry of liquid contents;

2) Tank and associated piping were removed from the excavation pit;

Steps taken to mitigate/monitor fire and/or safety hazards:

1) Prior to removal, tank was pumped dry;

2) Following removal, the tank was triple-rinsed with water, pumped dry, cut into sections and rendered useless.

Free hydrocarbon product was not noted in the subsurface.

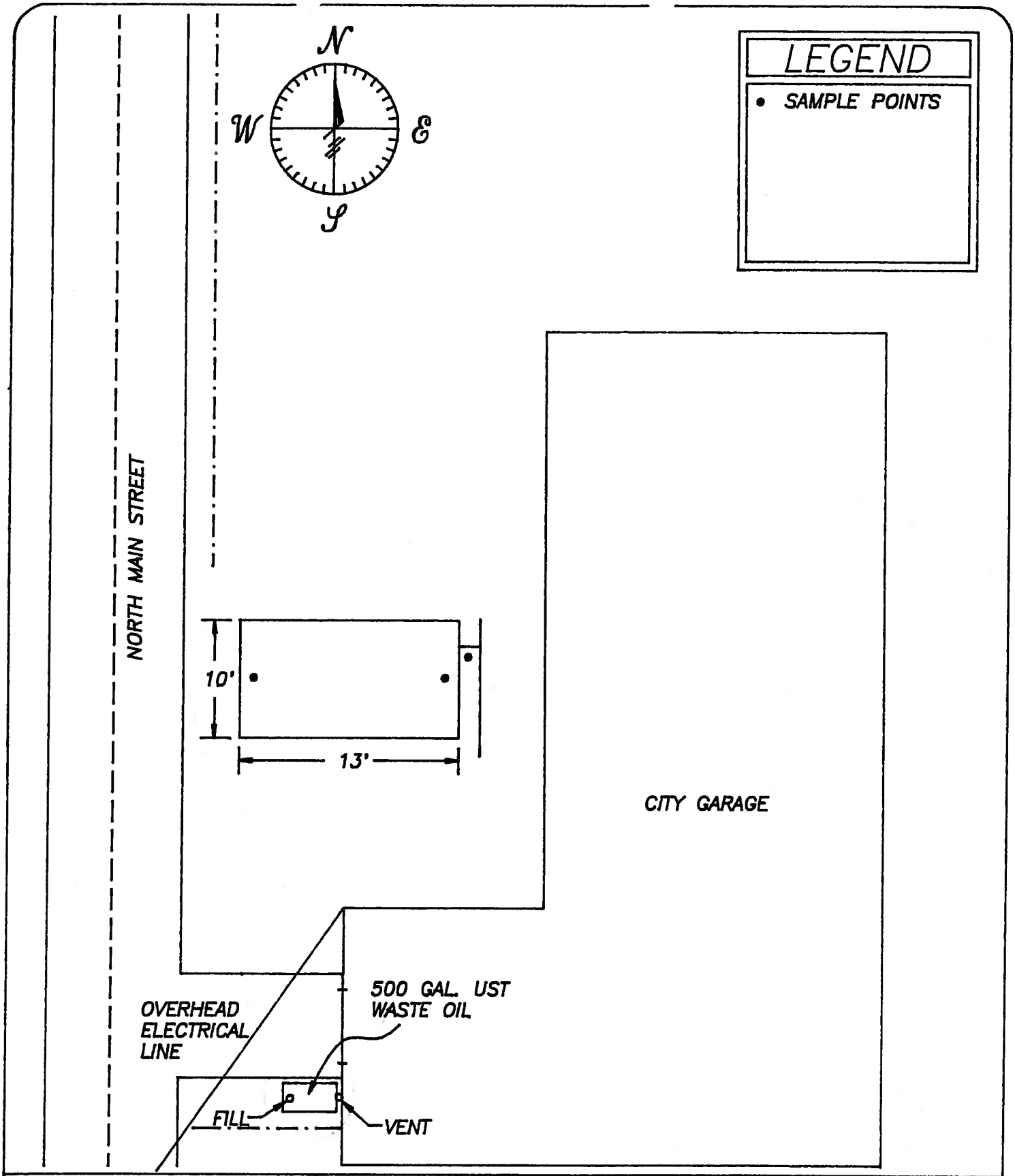
No vapors or free product were detected in nearby subsurface structures.

Soil Samples Collected: Immediately following tank removal, three soil samples were collected, one from underneath each end of the tank at approximately five and one-half feet below grade and one from the piping run at approximately two feet below grade. Sample

locations can be found on the attached site sketch. Samples were analyzed for Polynuclear Aromatics (PNAs) and Benzene, Toluene, Ethylbenzene and Xylenes (BTEX). Analytical results are enclosed with this report.

Contaminated soil has been excavated. Approximately 28 cubic yards of contaminated soil were excavated and transported for proper disposed of at the Ann Arbor Landfill on October 24, 1991. Following excavation, the tank pit measured approximately 16' long, 10' wide and 6' deep. A total of six soil samples were collected following excavation: one from each wall and two from the floor. Samples were analyzed for PNAs and BTEX. Analytical results and a detailed site sketch, including post-excavation sample locations will be submitted to the MDNR with the 45-Day Report. The waste manifests and the landfill receipts will also be included in the 45-Day Report. Analytical results of PCBs, total lead, cadmium and chromium are pending and will be included in the 45-Day Report.

Tank location in reference to the facility building and site assessment sample locations can be seen on the attached site sketch.



CLIENT: CITY OF ANN ARBOR	The Traverse Group, Inc. 3772 Plaza Drive, Suite 5 Airport Plaza Park Ann Arbor, Michigan 48108	TITLE: SITE SKETCH	
SITE: CITY GARAGE		DATE: 10-30-91	ENGINEER
LOCATION: 721 N. MAIN ST. ANN ARBOR, MICHIGAN		PROJECT: 569	DWG: CAA91158
		SCALE: NONE	DRAFTED BY: DEE

ENVIRONMENTAL QUALITY LABORATORIES, INC.
6540 Diplomat Drive
Sterling Heights, Michigan 48314-1420
(313) 731-1818
Outside Michigan Dial 1-800-368-5227
Fax Line 313-731-2590

CLIENT: THE TRAVERSE GROUP
3772 PLAZA DR., SUITE5
AIRPORT PLAZA PARK
ANN ARBOR, MI 48108
SAMPLE DESCRIPTION: CITY GARAGE
CG 101-WASTE OIL TANK, EAST FLOOR - SOIL
DATE REPORTED: 10/22/91
DATE RECEIVED: 10/16/91
LAB NO. 8035

ORGANICS ANALYSIS DATA SHEET

8310 SCAN

LAB NO.	COMPOUND NAME	REFERENCE METHOD	CONCENTRATION
	Napthalene	8310/3550	*Less Than 0.30 ppMillion
	Acenaphthylene	8310/3550	Less Than 0.30 ppMillion
	Acenaphthene	8310/3550	Less Than 0.30 ppMillion
	Fluorene	8310/3550	Less Than 0.30 ppMillion
	Phenanthrene	8310/3550	Less Than 0.30 ppMillion
	Anthracene	8310/3550	Less Than 0.30 ppMillion
	Fluoranthene	8310/3550	0.45 ppMillion
	Pyrene	8310/3550	Less Than 0.30 ppMillion
	Benzo(a)anthracene	8310/3550	Less Than 0.30 ppMillion
	Chrysene	8310/3550	Less Than 0.30 ppMillion
	Benzo(b)fluoranthene	8310/3550	Less Than 0.30 ppMillion
	Benzo(k)fluoranthene	8310/3550	Less Than 0.30 ppMillion
	Benzo(a)pyrene	8310/3550	Less Than 0.30 ppMillion
	Dibenzo(ah)anthracene	8310/3550	Less Than 0.30 ppMillion
	Benzo(ghi)perylene	8310/3550	Less Than 0.30 ppMillion
	Indeno(123-cd)pyrene	8310/3550	Less Than 0.30 ppMillion

***NOTE: TERM LESS THAN DENOTES DETECTION LIMIT OF TEST.**

Thomas S. Megna, M.S. Laboratory Director

James Tomalia, Laboratory Supervisor

Chris Bloom, Assistant Laboratory Supervisor

REFERENCES: 40 CFR PART 136. CURRENT EDITION.

ENVIRONMENTAL QUALITY LABORATORIES, INC.
6540 Diplomat Drive
Sterling Heights, Michigan 48314-1420
(313) 731-1818
Outside Michigan Dial 1-800-368-5227
Fax Line 313-731-2590

CLIENT: THE TRAVERSE GROUP
3772 PLAZA DR., SUITE5
AIRPORT PLAZA PARK
ANN ARBOR, MI 48108
SAMPLE DESCRIPTION: CITY GARAGE
CG 102-WASTE OIL TANK, WEST FLOOR - SOIL
DATE REPORTED: 10/22/91
DATE RECEIVED: 10/16/91
LAB NO. 8036

ORGANICS ANALYSIS DATA SHEET

8310 SCAN

LAB NO.	COMPOUND NAME	REFERENCE METHOD	CONCENTRATION
	Napthalene	8310/3550	*Less Than 0.30 ppMillion
	Acenaphthylene	8310/3550	Less Than 0.30 ppMillion
	Acenaphthene	8310/3550	Less Than 0.30 ppMillion
	Fluorene	8310/3550	Less Than 0.30 ppMillion
	Phenanthrene	8310/3550	Less Than 0.30 ppMillion
	Anthracene	8310/3550	Less Than 0.30 ppMillion
	Fluoranthene	8310/3550	0.73 ppMillion
	Pyrene	8310/3550	0.37 ppMillion
	Benzo(a)anthracene	8310/3550	Less Than 0.30 ppMillion
	Chrysene	8310/3550	0.35 ppMillion
	Benzo(b)fluoranthene	8310/3550	Less Than 0.30 ppMillion
	Benzo(k)fluoranthene	8310/3550	Less Than 0.30 ppMillion
	Benzo(a)pyrene	8310/3550	Less Than 0.30 ppMillion
	Dibenzo(ah)anthracene	8310/3550	Less Than 0.30 ppMillion
	Benzo(ghi)perylene	8310/3550	Less Than 0.30 ppMillion
	Indeno(123-cd)pyrene	8310/3550	Less Than 0.30 ppMillion

*NOTE: TERM LESS THAN DENOTES DETECTION LIMIT OF TEST.

Thomas S. Megna, M.S. Laboratory Director

James Tomalia, Laboratory Supervisor

Chris Bloom, Assistant Laboratory Supervisor

REFERENCES: 40 CFR PART 136, CURRENT EDITION.

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Sterling Heights, Michigan 48314-1420
(313) 731-1818
Outside Michigan Dial 1-800-368-5227
Fax Line 313-731-2590

CLIENT: THE TRAVERSE GROUP
3772 PLAZA DR., SUITE5
AIRPORT PLAZA PARK
ANN ARBOR, MI 48108
SAMPLE DESCRIPTION: CITY GARAGE
CG 103-WASTE OIL TANK, PIPING - SOIL
DATE REPORTED: 10/22/91
DATE RECEIVED: 10/16/91
LAB NO. 8037

ORGANICS ANALYSIS DATA SHEET

8310 SCAN

LAB NO.	COMPOUND NAME	REFERENCE METHOD	CONCENTRATION
	Napthalene	8310/3550	*Less Than 0.30 ppMillion
	Acenaphthylene	8310/3550	Less Than 0.30 ppMillion
	Acenaphthene	8310/3550	Less Than 0.30 ppMillion
	Fluorene	8310/3550	Less Than 0.30 ppMillion
	Phenanthrene	8310/3550	Less Than 0.30 ppMillion
	Anthracene	8310/3550	Less Than 0.30 ppMillion
	Fluoranthene	8310/3550	LESS THAN 0.30 ppMillion
	Pyrene	8310/3550	Less Than 0.30 ppMillion
	Benzo(a)anthracene	8310/3550	Less Than 0.30 ppMillion
	Chrysene	8310/3550	Less Than 0.30 ppMillion
	Benzo(b)fluoranthene	8310/3550	Less Than 0.30 ppMillion
	Benzo(k)fluoranthene	8310/3550	Less Than 0.30 ppMillion
	Benzo(a)pyrene	8310/3550	Less Than 0.30 ppMillion
	Dibenzo(ah)anthracene	8310/3550	Less Than 0.30 ppMillion
	Benzo(ghi)perylene	8310/3550	Less Than 0.30 ppMillion
	Indeno(123-cd)pyrene	8310/3550	Less Than 0.30 ppMillion

*NOTE: TERM LESS THAN DENOTES DETECTION LIMIT OF TEST.

Thomas S. Megna, M.S. Laboratory Director

James Tomalia, Laboratory Supervisor

Chris Bloom, Assistant Laboratory Supervisor

REFERENCES: 40 CFR PART 136. CURRENT EDITION.

CHAIN OF CUSTODY RECORD

The Traverse Group, Inc.
3772 Plaza Drive, Suite 5
Airport Plaza Park
Ann Arbor, Michigan 48108

PROJECT NO. | CLIENT/SITE

SAMPLERS (Signature)

COOLER #

TYPE OF ANALYSIS

DATE	TIME	SAMPLE LOCATION	PRESERVED	NUMBER OF CONTAINERS	BTEX	TPH	PNA	DEPTH TO WATER (in feet)	REMARKS
10-9-91	#8035	City Garage		1			X		
10-9-91	8036	City Garage		2			X		
10-9-91	8037	City Garage		2			X		

RELINQUISHED BY: (Signature)	TIME	DATE	RECIVED BY: (Signature)	TIME	DATE	RECIVED FOR LAB BY: (Signature)	TIME	DA
		10-9-91		1134	10-10-91			
RELINQUISHED BY: (Signature)	TIME	DATE	RECIVED BY: (Signature)	TIME	DATE	DATE ENTERED BY: (Signature)	TIME	DA
	1600	10-10-91						
RELINQUISHED BY: (Signature)	TIME	DATE	RECIVED BY: (Signature)	TIME	DATE	REMARKS		

STATE OF MICHIGAN

JOHN ENGLER, Governor

DEPARTMENT OF NATURAL RESOURCES

ROLAND HARMES, Director

4th Floor State Office Building
301 E. Louis Glick Hwy., Jackson, Michigan 49201

August 6, 1993

Mr. Dan Cullen
City of Ann Arbor
100 North Fifth Avenue
P.O. Box 8607
Ann Arbor, Michigan 48104-8607

Dear Mr. Cullen:

In your June 21, 1993 report, you indicated that the necessary remedial activities concerning the waste oil underground storage tank at the Ann Arbor City Garage facility, 721 North Main Street, Ann Arbor, Washtenaw County, have been completed. The Michigan Department of Natural Resources (MDNR) staff reviewed the data you submitted and the work performed at the facility and concur that remedial activities at this site relating to this waste oil underground storage tank are complete.

The contamination on the facility property consisted of benzene, toluene, ethylbenzene, xylenes (BTEX), polynuclear aromatic compounds (PNAs), cadmium, chromium and lead. Site cleanup included the sampling and removal of contaminated soils. Based on the data submitted to the MDNR, it appears that soils impacted by the release have been removed from the site.

The study conducted at the site relates to petroleum releases and resulting contamination from an underground storage tank containing waste oil. All known areas of petroleum contamination have been reduced to levels below the Type A target cleanup levels, which are the method detection limits as found in the MDNR's July 16, 1993 document entitled "MERA Operational Memorandum #8, Revision 2". The MDNR is unable, for lack of information, to express any opinion as to whether the site is clean or not clean with regard to any contaminant other than BTEX, PNAs, cadmium, chromium or lead or whether the site is clean or not clean with regard to any contamination beyond that found and remediated in the clean-up area.

We make no warranty or guarantee as to the fitness of this site for any general or specific use, and prospective purchasers or users of this site are advised to use due diligence in acquiring or using this site. The MDNR reserves the right to request additional investigation and/or remedial action, pursuant to applicable regulations, should change in site conditions or additional information become known or available.

If you have any further questions, please contact Terry Hiske at 517-780-7928.

Sincerely,

Gary Klepper

Gary Klepper
Jackson District Supervisor
Environmental Response Division

cc: Mr. Peter Ollila, MDNR
Mr. Eric Helzer, TGI
Mr. Robert Blake, WCHD
Ms. Anne Couture, MDNR

SYNOPSIS FOR CLOSURE

FACILITY:	Ann Arbor City Garage
ADDRESS:	721 North Main Street, Ann Arbor
COUNTY:	Washtenaw
CLOSURE:	Type A
REMEDIATION METHOD:	Excavation
CLOSURE REPORT DATE:	June 21, 1993
CONSULTANT:	Traverse Group
DATE OF RELEASE:	October 22, 1991
LEAK DETECTED:	Analytical results
DATE OF REMOVAL:	October 5, 1991
UST's:	500 gallon steel waste oil
SOILS REMOVED:	80 cubic yards from an excavation that measured 23 X 13 X 7.5 (deep) feet
SOILS ENCOUNTERED:	Primarily fill type materials; general stratigraphy is 0-1 foot sand and gravel, 1-4 feet sand, 4-6 feet clayey sand, 6-7.5 feet silty sand
GROUNDWATER:	Not encountered
SAMPLES COLLECTED:	A total of 10 soil samples were collected from the excavation, six of these were final verification samples (four wall and two bottom samples). An additional 12 soil samples were collected from six soil borings. These borings were conducted in an effort to determine site specific background values for lead, chromium and cadmium in soils.
SAMPLE ANALYSIS:	Closure soil samples were analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX) using EPA method 8020; polynuclear aromatic compounds (PNAs) using EPA method 8310; polychlorinated biphenyls (PCBs) using EPA method 8080; lead using EPA method 7421; cadmium using EPA method 7131; and chromium using EPA method 7191. Analysis for site specific background values for metals used the same corresponding EPA methods. Acceptable detection limits were used for analysis conducted. Final closure samples did not contain detectable quantities of the aforementioned organic compounds; the amount of chromium and cadmium in soils were less than the default values of 1.2 and 18 parts per million (ppm), respectively. Four of the six closure samples exhibited lead values ranging from 3.6 ppm to 6.6 ppm. The West Floor sample contained 13.2 ppm and the East Floor sample contained 45.2 ppm. The soil samples collected to determine the site specific background value for lead in soils ranged from 1.4 ppm to 69.6 ppm.
BACKGROUND METALS:	Default background values for chromium (18 ppm) and cadmium (1.2 ppm) in soils were used. An attempt was made to establish a site specific background value for lead in soils. Three separate strata were noted and four samples were collected from each layer. The sand and gravel layer contained from 1.4 ppm to 23.8 ppm of lead, the clayey sand layer contained from 3.3 ppm to 69.6 ppm of lead and the silty sand contained from 2.8 ppm to 10.8 ppm of lead. Use

of these numbers yields statistically invalid values. These samples were collected at a sufficient distance to ensure that they are not in an area impacted by this or other known releases from storage tanks at this site.

ADDITIONAL INFORMATION: The Allen Creek Drain runs down the center of this site. This site is the location of a former landfill where open burning occurred. A 2000 gallon diesel underground storage tank had a release reported at this site; the investigation has been completed and the groundwater remediation design is to begin. There was also a release, approximately 12 years ago, from an above ground storage tank that has impacted this site. Groundwater in the vicinity of these two releases has been impacted. Due to fill material a site specific background value for lead in soils has not and will not be able to be determined.

The study conducted at this site relates to petroleum releases and resulting contamination from a waste oil underground storage tank. All known areas of petroleum contamination have been reduced to levels below the target cleanup levels, which are those values found in the Michigan Department of Natural Resources (MDNR) Environmental Response Division's March 16, 1992 document titled "MERA Operational Memorandum #8, Revision 1". The MDNR is unable, for lack of information, to express any opinion whether the site is clean or not clean with regard to any contamination other than BTEX, PNAs, PCBs, cadmium and chromium, or whether the site is clean or not clean with regard to any contamination beyond that found and remediated in the cleanup area.

We make no warranty or guarantee as to the fitness of this site for any general or specific use, and prospective purchasers or users of this site are advised to use due diligence in acquiring or using this site. The MDNR reserves the right to request additional investigation and/or remedial action, pursuant to applicable regulations, should change in site conditions or additional information become known or available.

Type A Closure Approved on August 5, 1993

Terry Hiske 8-5-93

Terry Hiske - Project Manager date

Jackson District Closure Review Committee

Gary Klepper 8-5-93

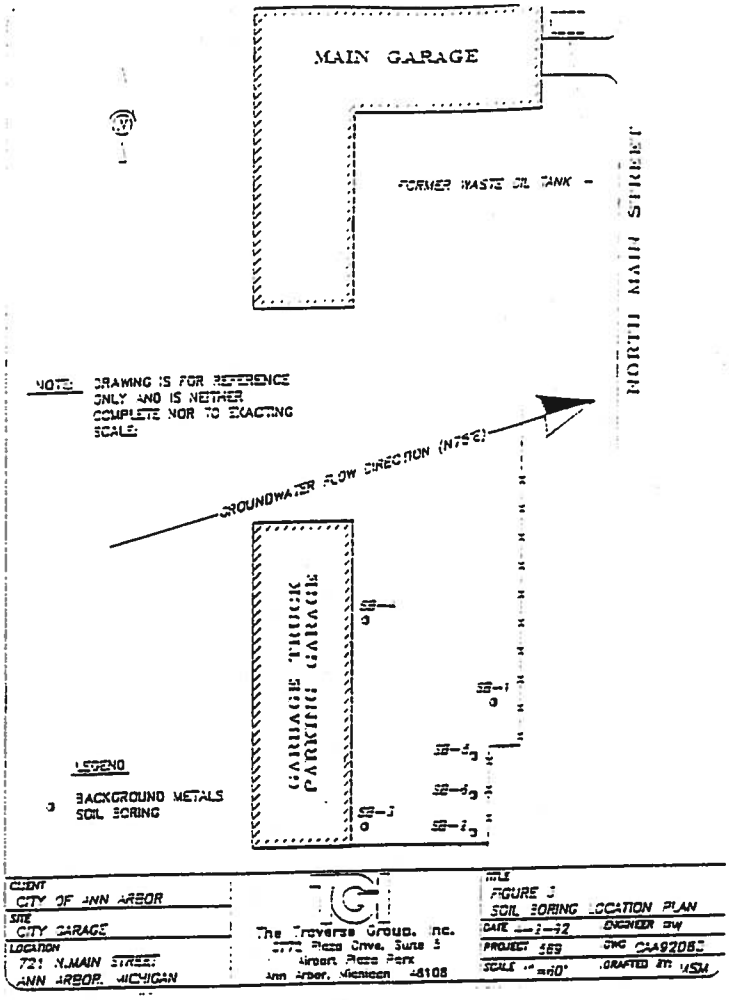
Gary Klepper - District Supervisor

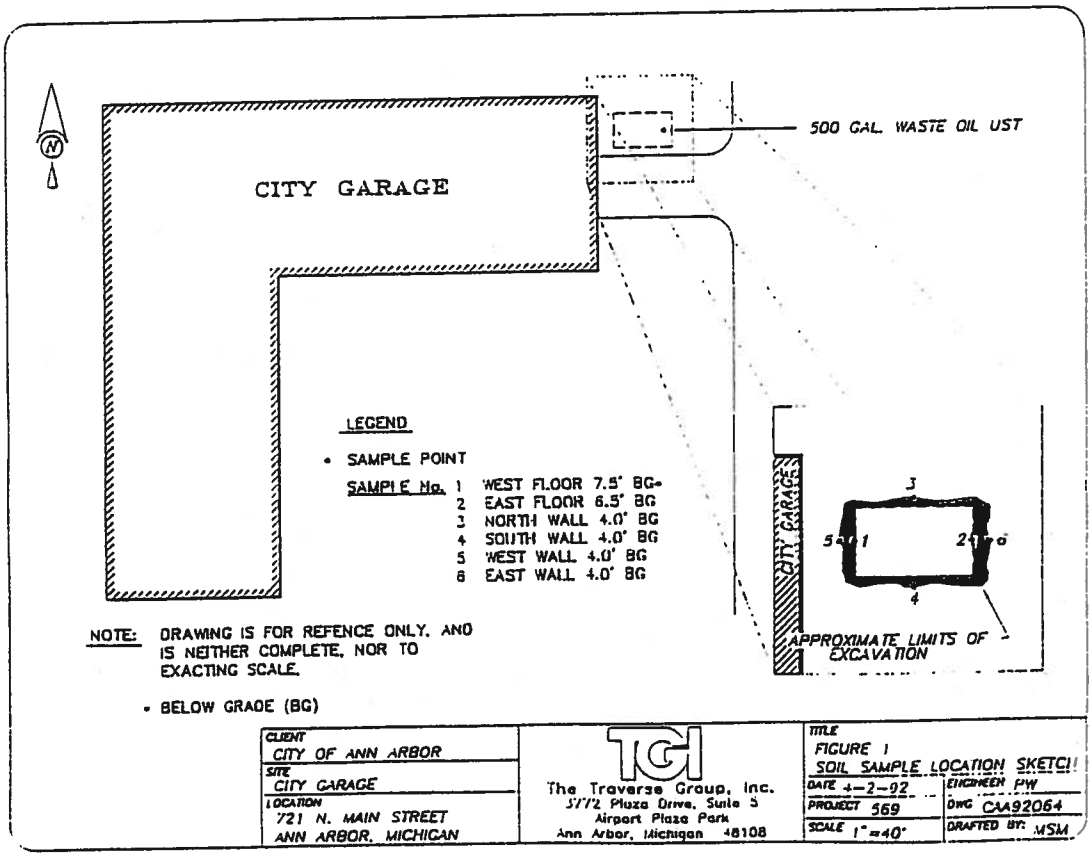
Leee Carter - Lust Unit Supervisor

R. Dowe Parsons 8/5/93

R. Dowe Parsons - 307 Unit Supervisor

Leonard Lipinski - Senior Geologist


MAIN GARAGE
FORMER WASTE OIL TANK
NORTH MAIN STREET
NOTE: DRAWING IS FOR REFERENCE ONLY AND IS NEITHER COMPLETE NOR TO EXACTING SCALE.
GROUNDWATER FLOW DIRECTION (N75°E)
GARAGE TRUCK PARKING GARAGE
SB-3
SB-1
SB-4
SB-6
SB-5
SB-2
LEGEND
BACKGROUND METALS SOIL BORING
CLIENT
CITY OF ANN ARBOR
SITE
CITY GARAGE
LOCATION
721 N.MAIN STREET
ANN ARBOR, MICHIGAN
The Traverse Group, Inc.
5772 Plaza Drive, Suite 5
Airport Plaza Park
Ann Arbor, Michigan 48108
TITLE
FIGURE 2
SOIL BORING LOCATION PLAN
DATE 1-2-92
ENGINEER PW
PROJECT 569
DWG CAA92082
SCALE 1"=40'
DRAFTED BY: MSM


CITY GARAGE
500 GAL. WASTE OIL UST
CITY GARAGE
LEGEND
• SAMPLE POINT
SAMPLE No. 1 WEST FLOOR 7.5' BG
2 EAST FLOOR 6.5' BG
3 NORTH WALL 4.0' BG
4 SOUTH WALL 4.0' BG
5 WEST WALL 4.0' BG
6 EAST WALL 4.0' BG
3
4
APPROXIMATE LIMITS OF EXCAVATION
NOTE: DRAWING IS FOR REFENCE ONLY, AND IS NEITHER COMPLETE, NOR TO EXACTING SCALE.
• BELOW GRADE (BG)
CLIENT
CITY OF ANN ARBOR
SITE
CITY GARAGE
LOCATION
721 N. MAIN STREET
ANN ARBOR, MICHIGAN
The Traverse Group, Inc.
5772 Plaza Drive, Suite 5
Airport Plaza Park
Ann Arbor, Michigan 48108
TITLE
FIGURE 1
SOIL SAMPLE LOCATION SKETCH
DATE 1-2-92
ENGINEER PW
PROJECT 569
DWG CAA92064
SCALE 1"=40'
DRAFTED BY: MSM

C-1129-89
13021389
Cullen 3 doz

26

MICHIGAN STATE POLICE FIRE MARSHAL DIVISION
UST PROGRAM
SUSPECTED/CONFIRMED RELEASE
Sec. 280.50/280.61 EPA Rules

Person Reporting Release Dan Cullen - fax

Company/Contractor Name _____

Location of Release

Facility Name City of Ann Arbor

Address 721 N. Main St.

City/State/Zip Ann Arbor,

County Washtenaw Township _____

Company Mailing Address

Address P.O. 8647

City/State/Zip A.A. 48107

Contact Person Danie Cullen Phone # 313/994-6693

Have you notified

DNR: Yes___ No___ Local Fire Department: Yes___ No___

Release Information

Type of tank _____ Capacity 500

Substance Released dresel

Site Condition (Circle reason for believing a leak may have/has occurred)

Presence of product/vapors in soil/basements/failed tank tightness test

Unusual operating conditions (sudden loss of product/inventory records)

Other _____

Copy of this form sent to: DNR ✓ FD (info only) ✓ DMB ✓

Financial Responsibility Letter Mailed _____ Date Received _____
(confirmed release only)

Person Receiving Information Jeni Date/Time Received 12/15/89

(10/89) ****INTERNAL USE ONLY****

1302139

RECEIVED
NOV 27 1989
JACKSON DISTRICT
☐ ENVIR. RESPONSE DIV.
☐ SURFACE WATER QUALITY DIV.
☑ WASTE MGMT DIV.

MICHIGAN STATE POLICE FIRE MARSHAL DIVISION
UST PROGRAM
NOTIFICATION OF UST REMOVAL/CLOSURE
Sec. 280.71(a) EPA Rules

Date Received 11/9/89 Person Receiving Information Jerry

Method of Notification: Phone__ Letter X (attach to file copy of form)

Name of Person Giving Information: _____

Location of Tanks

Company Name City of Ann Arbor - City Garage

Address 721 N. Main

City/State/Zip Ann Arbor, 48104

County Washtenaw Township _____

Contact Person Dan Cullen Phone 313/994-6696

Company Mailing Address City of Ann Arbor P.O. Box 8647

Ann Arbor, 48107

Tank Information

Date Tanks are to be Removed 12/22/89

Number Removed 1 Capacity 1 500 2 _____ 3 _____

4 _____ 5 _____ 6 _____

Company Doing Removal

Name unknown

Address _____

City/State/Zip _____

Copy of this Form Sent To: DNR (field) X FD (information only) X

Date Sent 11/16/89

Follow-Up Letter Sent (owner/operator): Date 11/16/89

INTERNAL USE ONLY

MICHIGAN STATE POLICE FIRE MARSHAL DIVISION
UST PROGRAM
SUSPECTED/CONFIRMED RELEASE

Facility ID Number 8427 **Incident Number** C-2246-91

Person Reporting Release Mark Tussing
Company/Contractor Name The Traverse Group, Inc

Location of Release
Facility Name City Garage.
Address 721 N. Main St
City/State/Zip Ann Arbor, Mi 48104
County Washtenaw Township _____

Company Mailing Address
Name City of Ann Arbor
Address 1000 N Fifth Ave
City/State/Zip Ann Arbor, Mi 49107
Contact Person Dan Cullen Phone # 313-994-6696

Release Information
Date and Time Release Known 10/22/91 4:14pm
Tank: FRP (Steel) Composite Capacity 500
Substance and Amount Released Waste Oil

Site Condition (Circle reason for believing a leak may have/has occurred)
Presence of product/vapors in soil/basements/failed tank tightness test
Unusual operating conditions/site assessment showed contamination
Other _____

Copy of this form sent to: DNR____ FD (info only)____ DMB____
Date/Time Received 10/23/91 10:04a tx / (fax) / voice mail
Person Receiving Information Zimmerman

Reply to:

4th Floor
State Office Building
301 E. Louis Glick Hwy.
Jackson, MI 49201

STATE OF MICHIGAN

JAMES J. BLANCHARD, Governor

DEPARTMENT OF NATURAL RESOURCES

DAVID F. HALES, Director

August 13, 1990

Mr. Dan Cullen
Risk Manager
City of Ann Arbor
P.O. Box 8647
Ann Arbor, MI 48107

Dear Mr. Cullen:

Subject: Site Investigation Work Plan
City of Ann Arbor Garage, 721 N. Main Street, Ann Arbor

The site investigation work plan dated April 5, 1990 for your facility at the above referenced location appears to be adequate. Please proceed with the project as specified in the work plan. It is understood, however, that further site study may be necessary upon review of these study findings.

Some of the actions approved implicitly or explicitly in this work plan may not be eligible expenditures from the Michigan Underground Storage Tank Financial Assurance (MUSTFA) fund, such as resurfacing, building construction or canopy installation. Please contact Mr. John Connelly, Department of Management and Budget, at 1-800-4MUSTFA if you have questions regarding MUSTFA-eligible expenditures.

As indicated in Sec. 8(6) of the Leaking Underground Storage Tank Act, P.A. 478 of 1988, as amended, once you have completed all corrective actions in full at the site, the Michigan Department of Natural Resources (MDNR) may provide you with a document stating that the corrective actions have been completed. To receive this document, you must:

1. be in compliance with the Act,
2. provide the MDNR a written statement asserting all corrective actions have been completed,
3. provide sufficient documentation to show full compliance with the approved corrective action plan.

Enclosed is an outline of the documentation required to show full compliance with the approved corrective action plan.

If you have any questions or concerns, please contact Betty Michalski at 517-788-9598.

Sincerely,

Gary Klepper

Gary Klepper
District Supervisor
Environmental Response Division

cc: Mr. Leon Moore, WCHD
Ms. Betty Michalski, MDNR

The Traverse Group, Inc.
3772 Plaza Drive, Suite 5
Airport Plaza Park
Ann Arbor, Michigan 48108

(313) 747-9300 Phone
(313) 747-9229 Fax

- Groundwater and Soil Contamination Assessment and Cleanup
- Underground Storage Tank Management
- Industrial Environmental Audits
- Property Development Risk Assessments

January 26, 1990

Ms. Betty Michalski
MDNR - Jackson District
301 East Louis Glick Building
Jackson, MI 49201

Dear Betty:

RE: City of Ann Arbor UST Removal
45 Day Reports

Enclosed please find copies of the Twenty Day Reports for:

City Garage, 721 N. Main;

The reports were faxed to your office as follows:

REPORT	FAX TIME
City Garage	03:55 p.m., 1/26/90

The fax transmittal form has been retained by TGI for our records. Copies will be provided upon request. If you have any questions, please contact me.

Sincerely,

Jenny E. Gosling

Jenny E. Gosling
Project Engineer

JEG:jw
Enclosures

cc: Dan Cullen, Risk Manager
City of Ann Arbor

The Travers Group, Inc.
3772 Plaza Drive, Suite 5
Airport Plaza Park
Ann Arbor, Michigan 48108

(313) 747-9300 Phone
(313) 747-9229 Fax

- Groundwater and Soil Contamination Assessment and Cleanup
- Underground Storage Tank Management
- Industrial Environmental Audits
- Property Development Risk Assessments

January 3, 1990

Ms. Betty Michalski
M.D.N.R. Jackson District
301 East Louis Glick Building
Jackson, Mi. 49201

RE: City of Ann Arbor,
City Garage Tank Removal Site
721 N. Main Street
Initial Abatement Measures (20 Day Report)

Dear Betty:

The following is a summary of the tank pull project at the City Garage, which is owned and operated by the City of Ann Arbor. A 2,000 gallon gasoline underground storage tank was removed from the site on December 14, 1989. This tank was earlier reported as a 500 gallon tank.

The removal began with the breaking up of a 4'x 7'concrete slab and a one foot asphalt border around the concrete. Approximately 10 feet of underground piping was capped and removed, as well as the tank's vent pipe.

The tank was buried approximatly three feet below grade. The soil in the pit consisted of a layer of soft clay to a depth of six feet below grade, followed by a medium grained sand layer reaching a depth of at least 8 feet below grade. A strong gasoline odor was detected on the south and east side of the tank pit in the upper clay layer. One grab sample was collected from the east side of the tank and heated prior to screening. A reading of 110 parts per million (ppm) was obtained on an HNU Meter. The release was reported to the State of Michigan Fire Marshall Hotline Service on December 15, 1989 by Dan Cullen, City of Ann Arbor Risk Manager.

The tank rested in ground water which was encountered at a depth of approximatly eight feet below grade. No free product was encountered. One soil sample was collected on the south fill end and one sample at the north end of the tank. Ground water samples

were also collected. All samples were submitted to an analytical laboratory for BTEX analysis. The results of these analyses are tabulated below and copies of the analytical laboratory reports are attached.

SAMPLE	DATE COLLECTED	TOTAL BTEX (PPM)
Soil (north)	12/14/89	<0.01
Soil (south)	12/14/89	1.02
Water	12/14/89	1.32

The tank itself was found to be in very good condition, and upon removal was cut to render it useless, then steam cleaned per TGI tank removal specifications which are based on API recommended practice 1604. The tank was then removed from the site, disposed of properly, and the pit area was barricaded.

Additional soil excavation at the site is slated for the first part of January.

If you have any questions regarding the details of the tank removal, please contact Jenny Gosling, Project Engineer.

Sincerely,

Michael F. Leahy

Michael F. Leahy MEG
Field Hydrogeologist

Reviewed by:

Jenny E. Gosling

Jenny E. Gosling
Project Engineer

Enclosure
cc: Dan Cullen, Risk Manager
City of Ann Arbor

The Traverse Group, Inc.
Report#: L-89-12-114
Sampling Date: 12-14-89
Sampling Site: City of Ann Arbor

SAMPLE	BENZENE	TOLUENE	ETHYLBENZENE	XYLENES	UNITS	MATRIX
City Garage UG 2000 South end	0.04	0.36	0.06	0.56	mg/kg (ppm) as received	soil
City Garage UG 2000 North end	<0.01	<0.01	<0.01	<0.01	mg/kg (ppm) as received	soil
City Garage UG 2000	24	12	180	1100	µg/l (ppb)	water

Fred Hoitash
Director of Environmental Services

DIHYDRO ANALYTICAL SERVICES
4541 Fletcher Wayne, MI 48184 (313) 595-0335
A Division of DIHYDRO

File

STATE OF MICHIGAN

JAMES J. BLANCHARD, Governor

DEPARTMENT OF NATURAL RESOURCES

DAVID F. HALES, Director

December 18, 1989

Mr. Dan Cullen
City of Ann Arbor
P.O. Box 8647
Ann Arbor, Michigan 48107

Dear Mr. Cullen:

SUBJECT: Underground Storage Tank System Release
721 N. Main Street, Ann Arbor, Michigan

On December 12, 1989, the Michigan State Police Fire Marshall Division received notification that there was a confirmed release at the above referenced location.

The Leaking Underground Storage Tank Act, P.A. 478 1988, requires that initial contamination abatement measures be taken. As specified in Section 7(1), these measures include: 1) removing as much of the product from the underground storage tank system as is necessary to prevent further release, 2) preventing further migration of contamination of above ground or exposed below ground releases, 3) monitoring and/or mitigating any fire or safety hazards, 4) remediating contaminated soil, and providing this office reasonable notice and opportunity to monitor these activities, 5) investigating for the presence of free product and begin free product removal as soon as possible, and 6) sampling soil and groundwater to evaluate the level of contamination.

As required by Section 7(2), a report summarizing the initial abatement steps you have taken must be submitted to this office by January 4, 1990. If the report indicates contamination remains at this site, follow-up reports and a site investigation work plan for determining the extent of contamination must be submitted, as specified in Sections 7(4), 7(5) and 7(6), by January 29, 1990.

A copy of Act 478, which defines the responsibilities of an owner/operator of a leaking underground storage tank system, is enclosed. Please contact me if you have any questions or need additional information.

Sincerely,

Betty Michalski

Betty Michalski
Environmental Response Division
Jackson District
(517)788-9598

cc: Leon Moore, WCHD
Gary Klepper, MDNR