0000002

gabriel laboratories, ltd.
Environmental & Energy Services

142: North Elston Ave.
Chicago, Illinois 60622
Phone (312) 486-2123
Fax (312) 486-0004

Friday, April 12, 1991

Jepscor Metals, Inc.
P.O. Box 200
Dixon, IL 61021

EPA Region 5 Records Ctr.
247996

Attn: Mr. Elwin Millsap

Subject: *Level II Environmental Investigation at 3321 South Pulaski Road, Chicago, Illinois*

Dear Mr. Millsap,

Enclosed is the Level II report for the soil investigation performed at 3321 South Pulaski Road, Chicago, Illinois. The Level II report includes laboratory analysis from soil samples collected during the course of the investigation. The Level II testing was recommended in our Level I property assessment report dated December 19, 1990, (project number P91-11033) and was initiated upon your request.

If you have any questions regarding this report or would like to expand this investigation, please feel free to contact me at any time.

Sincerely,

Richard E. Schmidt
Field Services Engineer

Attachments

project # P91-03010

gabriel laboratories, ltd.
Environmental & Energy Services

LEVEL II

ENVIRONMENTAL INVESTIGATION

Performed For

Jepscor Metals, Inc.
P.O. Box 200
Dixon, IL 61021

Site Location:

3321 South Pulaski Road
Chicago, Illinois

By

Gabriel Laboratories, Ltd.
1421 North Elston Avenue
Chicago, Illinois 60622

Submitted on 4/12/91 by:

Richard E. Schmidt
Field Services Engineer

Reviewed by:

Steven C. Sawyer
Vice President

John Polich P.E.
President

project # P91-03010

gabriel laboratories, ltd.
Environmental & Energy Services
3321 South Pulaski Road, Chicago, Illinois
Friday, April 12, 1991

Table of Contents

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I. Introduction

Gabriel Laboratories, Ltd. was retained by Mr. Elwin Millsap, of Jepscor Metals, Inc., to conduct a Level I property survey of the property and structures located at 3321 South Pulaski Road, Chicago, Illinois. This survey was performed on November 20, 1990.

In our Level I report, dated December 19, 1990, Gabriel recommended further investigation into the potential environmental liabilities present on site. Our Level I recommendations are reproduced below:

1) Oil staining was observed beneath the three 300-gallon above ground storage tanks located within the original building. Gabriel recommends performing a wipe sample in this area to test for the presence of PCBs. Additionally, soil borings should be performed in the same area to determine the extent of soil contamination (if any) that is present. Gabriel would also suggest fabricating a secondary form of containment (i.e. dike or tray) to contain any future leaks/spills.

2) Staining was also observed around the seven 55-gallon drums of waste oil and diesel fuel were found stored. Soil borings and a secondary form of containment are also recommended in this area.

3) Excessive staining of the soil was found beneath the two above ground storage tanks located outside the southwest corner of the steel building. The tanks had been used for storing diesel fuel. Gabriel recommends performing soil borings and analysis in this area.

4) Gabriel recommends performing additional site borings on the remainder of the property for the following reasons; the industrial nature and historical use of the property, the emplacement of underground storage tanks on the property, and the nearby rail road tracks (a rail spur is located on site). The samples obtained during drilling should be analyzed for common industrial contaminants (volatile organic compounds, RCRA metals, and PCBs).

The Level II investigation, initiated upon the request of Mr. Millsap, addressed the recommendations for soil testing and PCB analysis. Thirteen soil borings were performed on the site on March 11, 1991. Composite samples made from the soil borings were analyzed for volatile organic compounds and RCRA metals. One PBC wipe sample was collected on March 29, 1991, and was analyzed accordingly.

Section II of this report contains the sampling and analytical methodologies used in the completion of this project. Analytical results from samples collected during the borings are discussed in Section III of this report, and are contained within the appendix. Also included in the appendix are site sketches in which the tank and sampling locations are provided.

II. Methodology

During the course of the Level II Investigation performed at 3321 South Pulaski Road, Chicago, Illinois, samples were procured from various matrices in order to further evaluate the conditions present on site. The methodologies enacted during this investigation are presented below.

Subsurface Soil Borings

Three soil borings were performed by hand using an AMS soil auger bucket, and various extensions and accessories. A concrete coring machine was used within the building to expose the subsurface soil. The remaining ten soil borings were drilled utilizing a truck-mounted rotary drill rig. The boreholes were advanced by continuous flight auger method (ASTM Standard D 1452-80), with the use of various cutting bits and augers.

The soil borings were drilled to depths of approximately ten feet. The hand borings were dug to depths of four feet, except in areas were solid obstructions were encountered.

The subsurface soil boring locations were chosen in accordance with a visual inspection of the site with an emphasis on the potentially impacted areas that were outlined in our Level I report. Also, visual and olfactory observations made during the sample collection were used to determine additional boring locations.

Sample Collection and Compositing

Representative soil samples were obtained from the soil cores with a hand shovel and stainless steel spatula. All of the sampling equipment was cleaned with an alkaline detergent and water in between the collection of each sample. Spatulas and hand shovels were then rinsed with deionized water to further minimize the possibility of sample cross contamination.

Soil samples were placed in plastic-capped glass containers. The samples submitted for organics analysis were placed in septum vials with Teflon lined caps, to minimize organic release and sample cross contamination.

Composite samples were made from several of the boring locations in an attempt to reduce analytical costs. The table below includes which borings location samples were composited, and which analytical parameters were run.

Gabriel log #	Boring Location(s)	Analytical Parameters
2987-91	composite of B-1, B-2 & B-3	volatile organics, RCRA metals
2988-91	composite of B-7, B-8 & B-9	volatile organics, RCRA metals
2989-91	surface sample beneath diesel tanks	volatile organics
2990-91	B-5	volatile organics
2991-91	composite of B-4 & B-6	volatile organics
2992-91	B-10	volatile organics
2993-91	composite of B-11, B-12 & B-13	volatile organics
3880-91	wipe sample below 300 gal ASTs	PCBs

PCB Wipe Sampling

PCB wipe samples are collected using an inert absorbant fabric and suitable solvent (hexane). The absorbant is moistened with the solvent and is wiped over a one hundred square centimeter area of the surface to be tested. The absorbant, solvent, and sample (residue on the fabric) are then placed in a sealed container and are submitted for laboratory analysis.

Gabriel personnel collected one wipe sample beneath the three 300-gallon above ground storage tanks found within the building. The sample was collected over a one hundred square centimeter area of the oil stained floor.

Laboratory Analyses

The seven samples submitted for volatile organics analysis were analyzed according to USEPA methods 601 and 8020, on a gas chromatograph.

Two samples were submitted for RCRA metals analysis. These metals include; arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver. The analysis was performed on an Inductively Coupled Plasma spectrometer (ICP) and/or Atomic Absorption spectrometer (AA) according to USEPA method SW-846.

One PCB wipe sample was collected. The sample was analyzed according to USEPA method 8080 on a gas chromatograph.

III. Data Review

Boring Log

The soil borings and underground fuel oil tank locations are marked on the site sketches included in the appendix of this report. The thirteen boring locations are labeled B-1 through B-13. Also included in the appendix are the results of all samples submitted for analysis.

The tables below summarize the soil conditions observed during the sampling.

Depth (feet)	Boring B-1	Boring B-2	Boring B-3	Boring B-4	Boring B-5
0.0	black soil	concrete	concrete	concrete	concrete
0.5	fill	fill	cinder fill	cinder fill	cinder fill
1.0	"	"	"	obstruction/	obstruction/
1.5	brown clay	"	"	end of boring	end of boring
2.0	"	brown clay	"		
2.5	"	"	"		
3.0	"	"	"		
3.5	"	"	"		
4.0	"	"	"		
4.5	"	"	"		
5.0	"	"	"		
5.5	"	"	"		
6.0	"	"	black clay		
6.5	"	"	"		
7.0	"	"	"		
7.5	"	"	"		
8.0	"	"	"		
8.5	"	"	"		
9.0	"	"	"		
9.5	"	"	"		
10.0	end of boring	end of boring	end of boring		

Depth (feet)	Boring B-6	Boring B-7	Boring B-8	Boring B-9	Boring B-10
0.0	concrete	concrete	concrete	black soil	asphalt
0.5	cinder fill	"	sand/gravel	fill	cinder fill
1.0	"	gravel	fill	"	"
1.5	"	sand	"	"	"
2.0	"	black soil	"	"	"
2.5	brown clay	"	"	"	"
3.0	"	"	"	"	brown/gray
3.5	end of boring	"	"	"	clay
4.0		"	"	brown/gray	"

Depth (feet)	Boring B-6	Boring B-7	Boring B-8	Boring B-9	Boring B-10
4.5		"	"	clay	"
5.0		"	black clay	"	"
5.5		"	"	"	black clay
6.0		"	"	"	"
6.5		"	"	"	"
7.0		"	gray clay	"	"
7.5		brown clay	"	"	"
8.0		"	"	"	"
8.5		"	"	"	"
9.0		"	"	"	"
9.5		"	"	"	"
10.0		end of boring	end of boring	end of boring	end of boring

Depth (feet)	Boring B-11	Boring B-12	Boring B-13
0.0	asphalt	black soil	concrete
0.5	gravel	fill	gravel
1.0	cinder fill	"	black soil
1.5	"	"	"
2.0	"	"	"
2.5	brown clay	"	"
3.0	"	"	"
3.5	"	"	"
4.0	"	gray clay	"
4.5	"	"	black clay
5.0	"	"	"
5.5	black clay	black clay	"
6.0	"	"	black clay
6.5	"	"	"
7.0	"	"	brown clay
7.5	"	"	"
8.0	"	"	"
8.5	"	"	"
9.0	"	"	"
9.5	"	"	"
10.0	end of boring	end of boring	end of boring

Volatile Organics Analysis

The seven samples submitted for volatile organics analysis were tested for BETX compounds (benzene, ethylbenzene, toluene, and m+p xylenes) and 601 compounds (24 additional compounds). The results of analyses (including chromatograms) are included in the appendix of this report. The first column in the analytical reports contains the volatile organic compounds, the second column

the detection limit, and the third the results. The letters BQL (below quantitation limit) in the result column indicate that particular compound was not found above the detection limit. The table below summarizes those compounds found above our detection limits for samples identified as containing volatile organic contamination. The results are expressed in parts per billion (ppb).

	GABRIEL SAMPLE NUMBER (results expressed in ppb)						
COMPOUND	2987-91	2988-91	2989-91	2990-91	2991-91	2992-91	2993-91
benzene	-	9	-	6	-	-	-
toluene	11	18	-	-	29	13	9
ethylbenzene	-	6	213	-	-	-	-
m+p xylenes	-	9	724	-	-	5	-
o-xylene	-	-	706	-	-	-	-
trichloroethene	-	-	-	-	-	8	-
tetrachloroethene	-	-	-	20	-	-	-

Sample #2987-91 was composited from boring locations B-1, B-2 & B-3, and sample #2988-91 was composited from boring locations B-7, B-8 & B-9. Both composite samples were found to contain relatively low levels of BETX.

Sample #2989-91 was collected from the stained soil beneath the 300 and 500 gallon diesel fuel tanks. This sample was found to contain the highest levels of BETX. Sample #2992-91 was collected from boring location B-10, approximately ten feet west of the tanks. Sample #2993-90 was composited from boring locations B-11, B-12 and B-13, located even further away from the tanks (up to 20 feet). Petroleum odors were observed in the soil beneath the tank and at boring location B-10. A reduction in the amount of contaminants is evident in the samples collected away from the tanks.

Diesel fuel in 55-gallon drums and oil in three above ground tanks is stored in the building near the loading dock. Sample #2990-91 was collected from boring location B-5, located north of the tanks and drums. Twenty ppb of tetrachloroethene was found at B-5. Sample #2991-91 was collected from boring locations B-4 and B-6, located east and west of the tanks/drums, respectively. Twenty nine ppb of toluene was detected. No visual or olfactory evidence of contamination was observed during sampling in this area.

RCRA Metals Analysis

Two of the composite samples were also analyzed for the seven RCRA metals. A table summarizing the results is provided below:

Log Number:	2987-91	2988-91
Composite of:	B-1, B-2 & B-3	B-7, B-8 & B-9
RCRA Metal	**Total (ppm)**	**Total (ppm)**
arsenic	<10	<10
barium	62	114
cadmium	25	11
chromium	21	23
lead	84	99
mercury	0.034	0.117
selenium	<10	<10
silver	<2.5	<2.5

No arsenic, selenium, or silver was found in either sample above our detection limits of 10, 10, and 2.5 parts per million (ppm), respectively.

PCB Analysis

One PCB wipe sample was collected from the oil stained floor beneath the 300-gallon above ground storage tanks. The sample was collected over an area of 100 square centimeters. The analytical results indicate none of the seven PCB Aroclors were found above our detection limit of 10.0 ug.

V. Summary/Conclusions

The two composite samples analyzed for RCRA metals were found to have typical levels of the eight metals for city soil. The two composites were made from soil collected from eight boring locations (B-1 through B-3 and B-7 through B-9). The boring locations were spread across the site and were chosen ideally to represent the soil conditions of the entire site. The eight RCRA metals are common target elements which are used in determining the hazardous nature of materials.

The PCB wipe sample was collected in the oil stained area beneath the three above ground storage tanks located within the building. PCBs are occasionally found in oil products. The analysis indicates that none of the eight PCB aroclors were found above our detection limit of 10 ug in the 100 square centimeter wipe sample. Federal regulations generally require decontamination of PCB spills to 10 micrograms per 100 square centimeters for low-contact, indoor, impervious solid surfaces.

The volatile organics analysis indicates some contaminants are present on site. The first composite sample (B-1, B-2 & B-3) was found to contain a relatively low amount of toluene (11 ppb) and does not suggest a significant problem exists in the three areas where the sample was collected. Additionally no visual or olfactory evidence of volatile organics contamination was observed during drilling.

The second composite sample (B-7, B-8, & B-9) was found to contain relatively low levels of benzene, toluene, ethylbenzene and xylenes (BETX). Sample location B-7 was chosen in an area where records indicate an underground storage tank was located. Sample location B-8 is in the masonry building where drums of diesel fuel were stored. The source of the BETX parameters can be from diesel fuel used in the underground tanks or drums. The levels encountered, however do not appear substantial enough to warrant remediation. For example, cleanup objectives for leaking petroleum underground storage tanks (LUST cleanup objectives) are 25 ppb for benzene and 16,025 ppb for total BETX. The levels encountered were well below these guidelines.

Two samples were made from three borings made around the three above ground oil tanks. The drums of diesel fuel stored in the building were moved into this area. Oil and spilled diesel fuel were observed on the concrete surface. There was sufficient crackage in the floor to suggest that potential contamination of the soil below may have occurred. The borings were performed around the tank/drum area, and not directly over the spill areas. If gross contamination were present, significant contamination would have likely been detected in the perimeter samples. During

sampling no visual or olfactory evidence of contamination was observed. The analysis on the composite sample of B-4 and B-6 indicated 29 ppb of toluene was detected. The sample analyzed from sample location B-5 was found to contain 6 ppb of benzene and 20 ppb tetrachloroethene were detected. The benzene and toluene are typical components of petroleum products, however the tetrachloroethene is not. Chlorinated hydrocarbons are typically used as de-greasers and solvents. The maintenance shop is located west of the tanks/drums, and sampling location B-5 is located at the entrance to the shop. The tetrachloroethene may be from a solvent based cleaner spilled in this area.

The highest levels of volatile organic contamination was encountered in the samples collected near the outside above ground storage tanks. Both visual and olfactory evidence of soil contamination were observed during drilling. A sample of the contaminated soil directly below the tanks was submitted for analysis. Less than 100 ppb of benzene and less than 1,843 ppb of total BETX were detected (the detection limits for this sample had to be raised to 100 ppb due to interference from heavier compounds in the diesel fuel). The LUST cleanup objectives do not specifically apply to these tanks because they are above ground tanks, however the LUST objectives can be used as a guideline.

The Illinois Environmental Protection Agency (IEPA) has set cleanup objectives for petroleum related leaking underground storage tank (LUST) sites. The LUST cleanup objectives are as follows:

1) Removal of all visibly contaminated soil.

2) Removal of all soil exhibiting petroleum odors.

3) Benzene - 0.025 ppm (25 ppb)

4) Benzene, Ethylbenzene, Toluene, and Xylene (BETX); Benzene plus the total of the other three - 16.025 ppm (16,025 ppb)

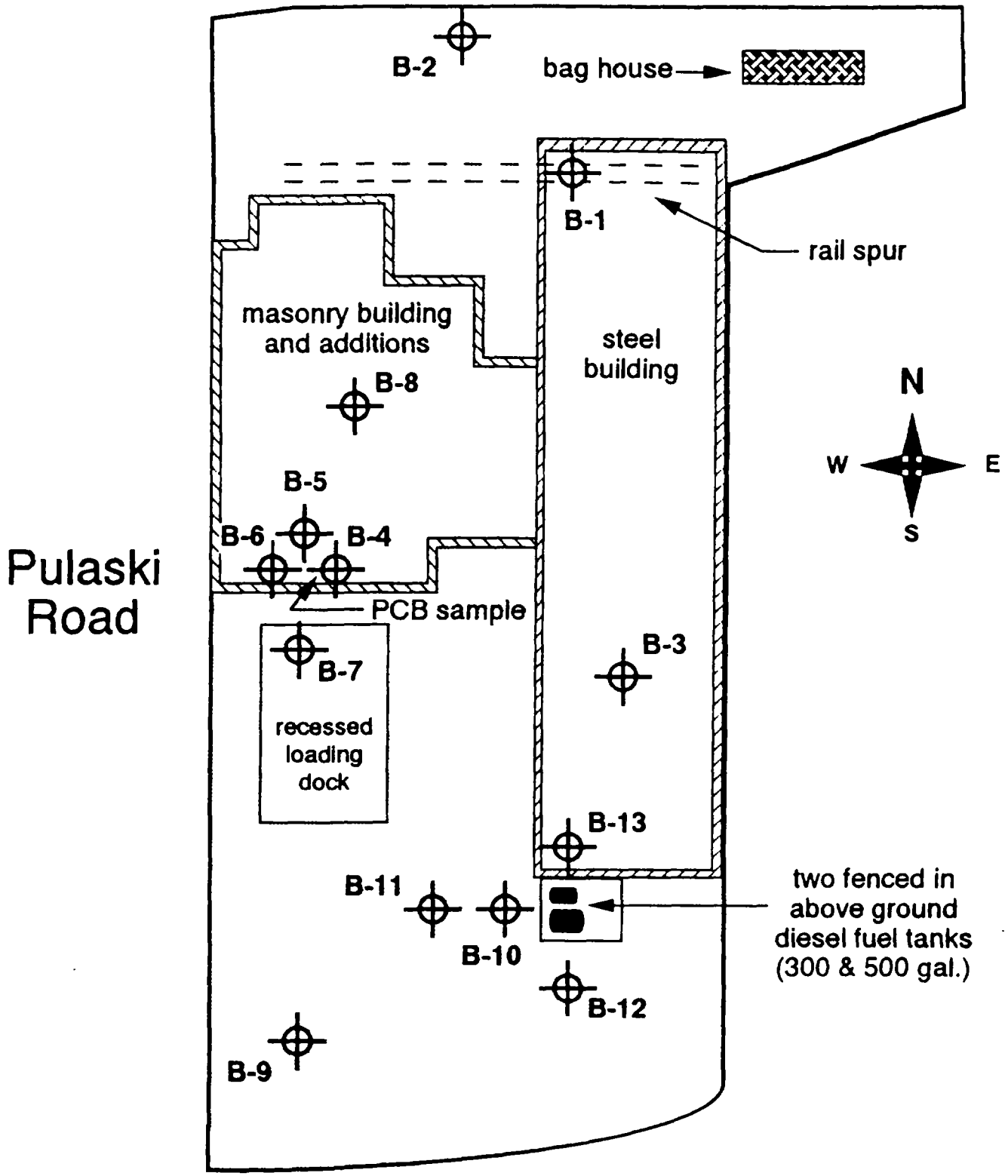
The analytical results indicate the levels of Benzene and total BETX are below the LUST cleanup objectives in the samples collected around the above ground diesel tanks (the surface sample may be an exception with the detection limit set at 100 ppb for benzene). However, a noticeable petroleum odor was observed at boring location B-10 (located ten feet west of the tanks). the odor subsided once a depth of ten feet was obtained. Boring location B-11 (20 feet west of the tanks) was observed to have mild petroleum odor. No petroleum odor was observed at boring locations B-12 and B-13, located south and north of the tarks, respectively. Due to physical obstructions no sample was collected east of the tanks, however, the ground in this area

tends to slope toward the west, and the surface runoff would tend to go in that direction.

Gabriel recommends performing voluntary cleanup of the contaminated soil beneath the diesel fuel tanks. The soil should be excavated until the remaining soil meets the generic cleanup objectives, at least within reason (the requirement for removing all soil exhibiting petroleum odors is somewhat subjective). Roughly 30 to 50 cubic yards of contaminated soil would need to be removed (additional borings would be necessary to get a more accurate estimate). A remediation contractor can be contacted for estimated cleanup costs.

Since the above ground diesel fuel tanks are no longer in use no preventative action for future spills is necessary (i.e. a spill dike). However, a spill dike or some other form of secondary containment is suggested for the oil tanks and diesel fuel drums stored inside the building. Spillage was observed in the floor of the building from product transfer. The cost of secondary containment is easily justified when considering the relatively high cost of soil remediation.

V. Appendix



CLIENT Double A Metals, Inc.		DRAWN BY RS	SHEET 1
SITE 3321 South Pulaski Road, Chicago, Illinois		DATE 3/19/91	OF 1
SUBJECT Sample Location Sketch	PROJECT NO. P91-03010	SCALE not to scale	

gabriel laboratories, ltd.
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gabriel laboratories, ltd.
Environmental & Energy Services
3321 South Pulaski Road, Chicago, Illinois
Friday, April 12, 1991

Results of Metals Analysis

Gabriel Log Number: 2987-91
Sample Date: 3/11/91
Date Recieved: 3/11/91

Sample Description: Composite sample from boring locations B-1, B-2, & B-3

Parameter	Total (ppm)
arsenic	<10
barium	62
cadmium	25
chromium	21
lead	84
mercury	0.034
selenium	<10
silver	<2.5

Analysis performed according to Standard Methods, latest edition; USEPA Test Methods for Evaluating Solid Wastes , SW-846, 1986 and ASTM Methods.

gabriel laboratories, ltd.
Environmental & Energy Services
3321 South Pulaski Road, Chicago, Illinois
Friday, April 12, 1991

Results of Metals Analysis

Gabriel Log Number: 2988-91
Sample Date: 3/11/91
Date Recieved: 3/11/91

Sample Description: Composite sample from boring locations B-7, B-8, & B-9

Parameter	Total (ppm)
arsenic	<10
barium	114
cadmium	11
chromium	23
lead	99
mercury	0.117
selenium	<10
silver	<2.5

Analysis performed according to Standard Methods, latest edition; USEPA Test Methods for Evaluating Solid Wastes , SW-846, 1986 and ASTM Methods.

gabriel laboratories, ltd.
Environmental & Energy Services

3100 SOUTH PULASKI ROAD, CHICAGO, ILLINOIS

CERTIFICATE OF ANALYSIS

DATE OF REPORT:	April 4, 1991
DATE SAMPLE RECEIVED:	April 2, 1991
TYPE OF SAMPLE:	Wipe Sample From Beneath 300 gal ASTs
LABORATORY NUMBER:	3880-91

ANALYTICAL RESULTS

Aroclor 1016	ND @ 10.0	ug/wipe
Arcclor 1221	ND @ 10.0	ug/wipe
Aroclor 1232	ND @ 10.0	ug/wipe
Aroclor 1242	ND @ 10.0	ug/wipe
Aroclor 1248	ND @ 10.0	ug/wipe
Aroclor 1254	ND @ 10.0	ug/wipe
Aroclor 1260	ND @ 10.0	ug/wipe

ND = Not Detected

gabriel laboratories, ltd.
Environmental & Energy Services

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Chicago, Illinois 60622
Phone (312) 486-2123
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Organics Analysis Report
BTEX COMPOUNDS

GABRIEL LAB NUMBER:..... 2987-91
CLIENT..... 3321 S. PULASKI
DATE..... 20-Mar 1991
MATRIX:..... SOIL
SAMPLE DESCRIPTION:..... B-1, B-2, B-3

FILE..... C:\2700\DATA2\3CA0048.raw
DATE OF ANALYSIS:... 3/19/91
ANALYST :..... DP
METHOD :..... 8020
DIL FACTOR..... 5

COMPOUND	PQL	RESULTS
Benzene	5	BQL
Toluene	5	11
Ethylbenzene	5	BQL
m+p Xylenes	5	BQL
o-Xylene	5	BQL

Surrogate Recoveries	Actual	%REC
5.715	6.3	90.71 %

PQL = Practical Quantitation Limit
BQL = Below Quantitation Limit
E = Exceeded Calibration Range
Units reported as: ug/kg
B = Compound was detected in QC Blank

All Standards, Blanks, and Samples were analyzed using 2-DB-624 columns connected in series. No second column confirmation was performed.

gabriel laboratories, ltd.
Environmental & Energy Services

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Chicago, Illinois 60622
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Organics Analysis Report
601 Compounds

GABRIEL LAB NUMBER.....	2987-91	FILE.....	C:\2700\DATA2\4CA0048.raw
CLIENT.....	3321 S. PULASKI	DATE OF ANALYSIS...	3/19/91
DATE.....	03/20	ANALYST.....	DP
MATRIX.....	SOIL	METOD.....	601
SAMPLE DESCRIPTION.....	B-1, B-2, B-3	DIL FACT.....	5

Compound	PQL	RESULTS
Trichlorofluoromethane	25	BQL
1,1,-Dichloroethene	25	BQL
Methylene Chloride	25	BQL
Trans-1,2 Dichloroethene	5	BQL
1,1 Dichloroethane	5	BQL
Chloroform	5	BQL
1,1,1-Trichloroethane	5	BQL
Carbon Tetrachloride	5	BQL
1,2-Dichloroethane	5	BQL
Trichloroethene	5	BQL
1,2-Dichloropropane	5	BQL
Bromodichloromethane	5	BQL
2-Chloroethyl Vinyl Ether	5	BQL
Cis-1,3-Dichloropropene	5	BQL
Trans-1,3-Dichloropropene	5	BQL
1,1,2-Trichloroethane	5	BQL
Tetrachloroethene	5	BQL
Dibromochloromethane	5	BQL
Chlorobenzene	5	BQL
Bromoform	5	BQL
1,1,2,2-Tetrachloroethane	5	BQL
1,3-Dichlorobenzene	5	BQL
1,4-Dichlorobenzene	5	BQL
1,2-Dichlorobenzene	5	BQL

Surrogate Recoveries	Actual	%REC
4.7	6.3	75 %

PQL = Practical Quantitation Limit
BQL = Below Quantitation Limit
E = Exceed Calibration Range
B = Compound was detected in QC Blank
Units reported as : ug/kg

All Standards, Blanks, and Samples were analyzed using 2-DB-624 columns connected in series. No second column confirmation was performed.

gabriel laboratories, ltd.
Environmental & Energy Services

Organics Analysis Report
BTEX COMPOUNDS

GABRIEL LAB NUMBER:..... 2988-91
CLIENT..... 3321 S. PULASKI
DATE..... 20-Mar 1991
MATRIX:..... SOIL
SAMPLE DESCRIPTION:..... B-7, B-8, B-9

FILE..... C:\2700\DATA2\3CA0038.raw
DATE OF ANALYSIS:... 3/20/91
ANALYST :..... DP
METHOD :..... 8020
DIL FACTOR..... 5

Compound	PQL	RESULTS
Benzene	5	9
Toluene	5	18
Ethylbenzene	5	6
m+p xylenes	5	9
o-xylene	5	BQL

Surrogate Recoveries	Actual	%REC
3.907	6.3	62.01 %

PQL = Practical Quantitation Limit
BQL = Below Quantitation Limit
E = Exceeded Calibration Range
Units reported as: ug/kg
B = Compound was detected in QC Blank

All Standards, Blanks, and Samples were analyzed using 2-DB-624 columns connected in series. No second column confirmation was performed.

gabriel laboratories, ltd.
Environmental & Energy Services

Organics Analysis Report
601 Compounds

GABRIEL LAB NUMBER.....	2988-91	FILE.....	C:\2700\DATA2\3CA0038.raw
CLIENT.....	3321 S. PULASKI	DATE OF ANALYSIS...	3/20/91
DATE.....	03/20	ANALYST.....	DP
MATRIX.....	SOIL	METOD.....	601
SAMPLE DESCRIPTION.....	B-7, B-8, B-9	DIL FACT.....	5

Compound	PQL	RESULTS
Trichlorofluoromethane	25	BQL
1,1,-Dichloroethene	25	BQL
Methylene Chloride	25	BQL
Trans-1,2 Dichloroethene	5	BQL
1,1 Dichloroetnane	5	BQL
Chloroform	5	BQL
1,1,1-Trichloroethane	5	BQL
Carbon Tetrachloride	5	BQL
1,2-Dichloroetnane	5	BQL
Trichloroetnene	5	BQL
1,2-Dichloropropane	5	BQL
Bromodichlorometnane	5	BQL
2-Chloroethyl Vinyl Ether	5	BQL
Cis-1,3-Dichloropropene	5	BQL
Trans-1,3-Dichloropropene	5	BQL
1,1,2-Trichloroetnane	5	BQL
Tetrachloroetnene	5	BQL
Dibromochlorometnane	5	BQL
Chlorobenzene	5	BQL
Bromoform	5	BQL
1,1,2,2-Tetrachloroetnane	5	BQL
1,3-Dichlorobenzene	5	BQL
1,4-Dichlorobenzene	5	BQL
1,2-Dichlorobenzene	5	BQL

Surrogate Recoveries	Actual	%REC

PQL = Practical Quantitation Limit
BQL = Below Quantitation Limit
E = Exceed Calibration Range
B = Compound was detected in QC Blank
Units reported as : ug/kg

All Standards,Blanks, and Samples were analyzed using 2-DB-624 columns connected in series. No second column confirmation was performed.

gabriel laboratories, ltd.
Environmental & Energy Services

Organics Analysis Report
BTEX COMPOUNDS

GABRIEL LAB NUMBER:.....	2989-91	FILE.....	C:\2700\DATA2\3CA0059.raw
CLIENT.....	3321 S PULASKI	DATE OF ANALYSIS:...	3/20/91
DATE.....	21-Mar 1991	ANALYST :.....	DP
MATRIX:.....	SOIL	METHOD :.....	8020
SAMPLE DESCRIPTION:.....	AST SURFACE	DIL FACTOR.....	100

Compound	PQL	RESULTS	Comments
Benzene	100	BQL	Surrogate Recoveries / Actual / %REC
Toluene	100	BQL	
Ethylbenzene	100	213	PQL = Practical Quantitation Limit
m+p Xylenes	100	724	BQL = Below Quantitation Limit E = Exceeded Calibration Range Units reported as: ug/kg
o-Xylene	100	706	B = Compound was detected in QC Blank
			All Standards, Blanks, and Samples were analyzed using 2-DB-624 columns connected in series. No second column confirmation was performed.

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Organics Analysis Report
601 Compounds

GABRIEL LAB NUMBER.....	2989-91	FILE.....	C:\2700\DATA2\4CA0042.raw
CLIENT.....	3321 S. PULASKI	DATE OF ANALYSIS...	3/20/91
DATE.....	03/20	ANALYST.....	DP
MATRIX.....	SOIL	METOD.....	601
SAMPLE DESCRIPTION.....	AST, SURFACE	DIL FACT.....	50

Compound	PQL	RESULTS
Trichlorofluoromethane	250	BQL
1,1,-Dichloroethene	250	BQL
Methylene Chloride	250	BQL
Trans-1,2 Dichloroethene	50	BQL
1,1 Dichloroethane	50	BQL
Chloroform	50	BQL
1,1,1-Trichloroethane	50	BQL
Carbon Tetrachloride	50	BQL
1,2-Dichloroethane	50	BQL
Trichloroethene	50	BQL
1,2-Dichloropropane	50	BQL
Bromodichloromethane	50	BQL
2-Chloroethyl Vinyl Ether	50	BQL
Cis-1,3-Dichloropropene	50	BQL
Trans-1,3-Dichloropropene	50	BQL
1,1,2-Trichloroethane	50	BQL
Tetrachloroethene	50	BQL
Dibromochloromethane	50	BQL
Chlorobenzene	50	BQL
Bromoform	50	BQL
1,1,2,2-Tetrachloroethane	50	BQL
1,3-Dichlorobenzene	50	BQL
1,4-Dichlorobenzene	50	BQL
1,2-Dichlorobenzene	50	BQL

Surrogate Recoveries	Actual	%REC

PQL = Practical Quantitation Limit
BQL = Below Quantitation Limit
E = Exceed Calibration Range
B = Compound was detected in QC Blank
Units reported as : ug/kg

All Standards, Blanks, and Samples were analyzed using 2-DB-624 columns connected in series. No second column confirmation was performed.

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Organics Analysis Report
BTEX COMPOUNDS

GABRIEL LAB NUMBER:..... 2990-91
CLIENT..... 3321 S. PULASKI
DATE..... 20-Mar 1991
MATRIX:..... SOIL
SAMPLE DESCRIPTION:..... B-5

FILE..... C:\2700\DATA2\3CA0040.raw
DATE OF ANALYSIS:... 3/20/91
ANALYST :..... DP
METHOD :..... 8020
DIL FACTOR..... 5

Compound	PQL	RESULTS
Benzene	5	6
Toluene	5	BQL
Ethylbenzene	5	BQL
m+p Xylenes	5	BQL
o-Xylene	5	BQL

Surrogate Recoveries	Actual	%REC

PQL = Practical Quantitation Limit
BQL = Below Quantitation Limit
E = Exceeded Calibration Range
Units reported as: ug/kg
B = Compound was detected in QC Blank

All Standards, Blanks, and Samples were analyzed using 2-DB-624 columns connected in series. No second column confirmation was performed.

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Environmental & Energy Services

Organics Analysis Report
601 Compounds

GABRIEL LAB NUMBER.....	2990-91	FILE.....	C:\2700\DATA2\4CA0040.raw
CLIENT.....	3321 S. PULASKI	DATE OF ANALYSIS...	3/20/91
DATE.....	03/20	ANALYST.....	DP
MATRIX.....	SOIL	METOD.....	601
SAMPLE DESCRIPTION.....	B-5	DIL FACT.....	5

Compound	PQL	RESULTS
Trichlorofluoromethane	25	BQL
1,1,-Dichloroethene	25	BQL
Methylene Chloride	25	BQL
Trans-1,2 Dichloroethene	5	BQL
1,1 Dichloroethane	5	BQL
Chloroform	5	BQL
1,1,1-Trichloroethane	5	BQL
Carbon Tetrachloride	5	BQL
1,2-Dichloroethane	5	BQL
Trichloroethene	5	BQL
1,2-Dichloropropane	5	BQL
Bromodichloromethane	5	BQL
2-Chloroethyl Vinyl Ether	5	BQL
Cis-1,3-Dichloropropene	5	BQL
Trans-1,3-Dichloropropene	5	BQL
1,1,2-Trichloroethane	5	BQL
Tetrachloroethene	5	20
Dibromochloromethane	5	BQL
Chlorobenzene	5	BQL
Bromoform	5	BQL
1,1,2,2-Tetrachloroethane	5	BQL
1,3-Dichlorobenzene	5	BQL
1,4-Dichlorobenzene	5	BQL
1,2-Dichlorobenzene	5	BQL

Surrogate Recoveries	Actual	%REC

PQL = Practical Quantitation Limit
BQL = Below Quantitation Limit
E = Exceed Calibration Range
B = Compound was detected in QC Blank
Units reported as : ug/kg

All Standards, Blanks, and Samples were analyzed using 2-DB-624 columns connected in series. No second column confirmation was performed.

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Organics Analysis Report
BTEX COMPOUNDS

GABRIEL LAB NUMBER:..... 2991-91
CLIENT..... 3321 S. PULASKI
DATE..... 20-Mar 1991
MATRIX:..... SOIL
SAMPLE DESCRIPTION:..... B-4, B-6

FILE..... C:\2700\DATA2\3CA0045.raw
DATE OF ANALYSIS:... 3/20/91
ANALYST :..... DP
METHOD :..... 8020
DIL FACTOR..... 5

Compound	PQL	RESULTS
Benzene	5	BQL
Toluene	5	29
Ethylbenzene	5	BQL
m+p Xylenes	5	BQL
o-Xylene	5	BQL

Comments		
Surrogate Recoveries	Actual	%REC

PQL = Practical Quantitation Limit
BQL = Below Quantitation Limit
E = Exceeded Calibration Range
Units reported as: ug/kg
B = Compound was detected in QC Blank

All Standards, Blanks, and Samples were analyzed using 2-DB-624 columns connected in series. No second column confirmation was performed.

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Organics Analysis Report
601 Compounds

GABRIEL LAB NUMBER.....	2991-91	FILE.....	C:\2700\DATA2\4CA0045.raw
CLIENT.....	3321 S. PULASKI	DATE OF ANALYSIS...	3/20/91
DATE.....	03/20	ANALYST.....	DP
MATRIX.....	SOIL	METOD.....	601
SAMPLE DESCRIPTION.....	B-4, B-6	DIL FACT.....	5

Compound	PQL	RESULTS
Trichlorofluoromethane	25	BQL
1,1,-Dichloroethene	25	BQL
Methylene Chloride	25	BQL
Trans-1,2 Dichloroethene	5	BQL
1,1 Dichloroethane	5	BQL
Chloroform	5	BQL
1,1,1-Trichloroethane	5	BQL
Carbon Tetrachloride	5	BQL
1,2-Dichloroethane	5	BQL
Trichloroethene	5	BQL
1,2-Dichloropropane	5	BQL
Bromodichloromethane	5	BQL
2-Chloroethyl Vinyl Ether	5	BQL
Cis-1,3-Dichloropropene	5	BQL
Trans-1,3-Dichloropropene	5	BQL
1,1,2-Trichloroethane	5	BQL
Tetrachloroethene	5	BQL
Dibromochloromethane	5	BQL
Chlorobenzene	5	BQL
Bromoform	5	BQL
1,1,2,2-Tetrachloroethane	5	BQL
1,3-Dichlorobenzene	5	BQL
1,4-Dichlorobenzene	5	BQL
1,2-Dichlorobenzene	5	BQL

Surrogate Recoveries	Actual	%REC

PQL = Practical Quantitation Limit
BQL = Below Quantitation Limit
E = Exceed Calibration Range
B = Compound was detected in QC Blank
Units reported as : ug/kg

All Standards, Blanks, and Samples were analyzed using 2-DB-624 columns connected in series. No second column confirmation was performed.

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Organics Analysis Report
BTEX COMPOUNDS

GABRIEL LAB NUMBER:..... 2992-91
CLIENT..... 3321 S. PULASKI
DATE..... 20-Mar 1991
MATRIX:..... SOIL
SAMPLE DESCRIPTION:..... B-10

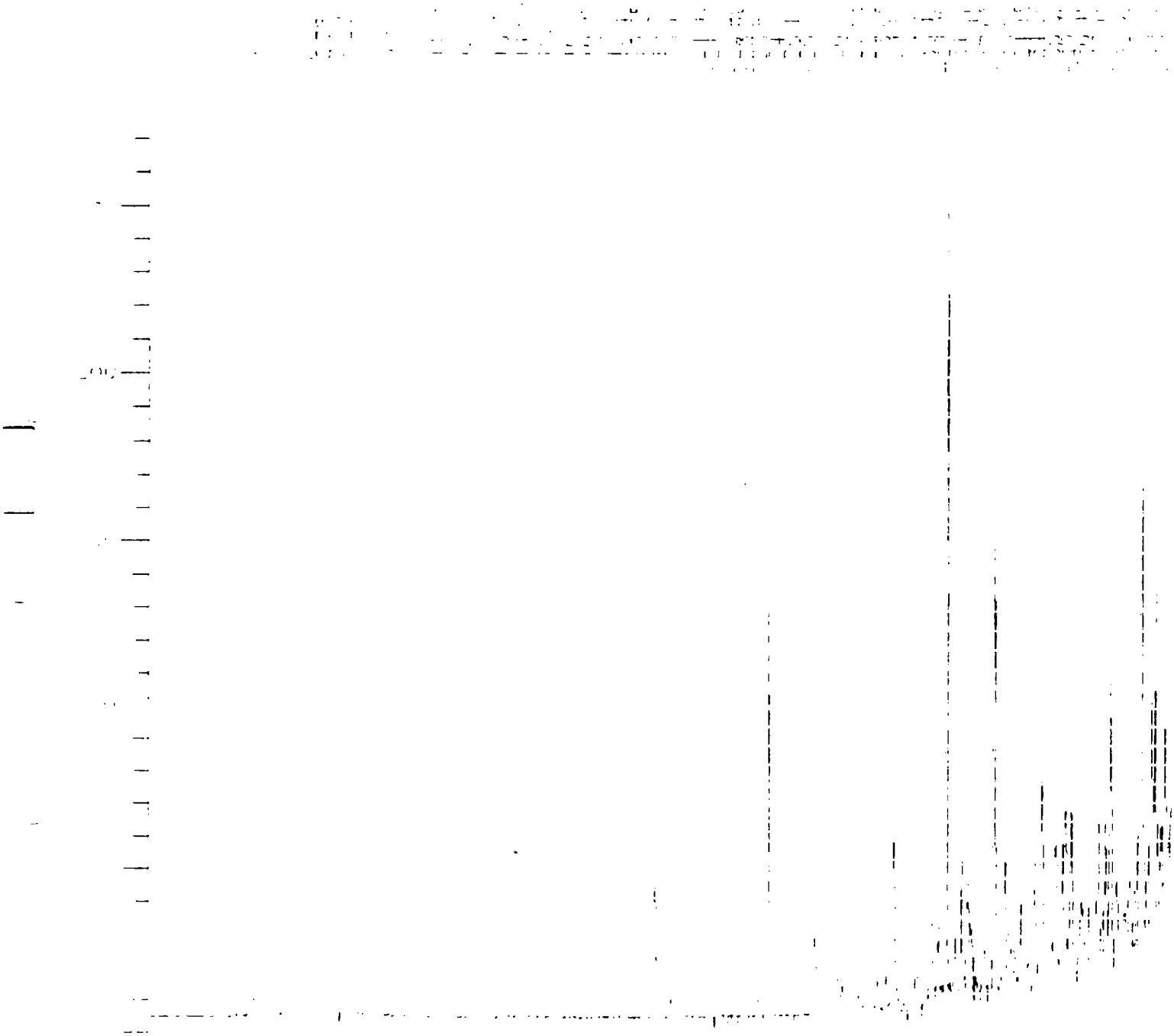
FILE..... C:\2700\DATA2\3CA0041.raw
DATE OF ANALYSIS:... 3/20/91
ANALYST :..... DP
METHOD :..... 8020
DIL FACTOR..... 5

Compound	PQL	RESULTS
Benzene	5	BQL
Toluene	5	13
Ethylbenzene	5	BQL
m+p xylenes	5	5
o-xylene	5	BQL

Surrogate Recoveries	Actual	%REC

PQL = Practical Quantitation Limit
BQL = Below Quantitation Limit
E = Exceeded Calibration Range
Units reported as: ug/kg
B = Compound was detected in QC Blank

All Standards, Blanks, and Samples were analyzed using 2-DB-624 columns connected in series. No second column confirmation was performed.



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Organics Analysis Report
601 Compounds

GABRIEL LAB NUMBER.....	2991-91	FILE.....	C:\2700\DATA2\4CA0041.raw
CLIENT.....	3321 S. PULASKI	DATE OF ANALYSIS...	3/20/91
DATE.....	03/20	ANALYST.....	DP
MATRIX.....	SOIL	METOD.....	601
SAMPLE DESCRIPTION.....	B-10	DIL FACT.....	5

Compound	PQL	RESULTS
Trichlorofluoromethane*	25	BQL
1,1,-Dichloroethene	25	BQL
Methylene Chloride	25	BQL
Trans-1,2 Dichloroethene	5	BQL
1,1 Dichloroethane	5	BQL
Chloroform	5	BQL
1,1,1-Trichloroethane	5	BQL
Carbon Tetrachloride	5	BQL
1,2-Dichloroethane	5	BQL
Trichloroethene	5	8
1,2-Dichloropropane	5	BQL
Bromodichloromethane	5	BQL
2-Chloroethyl Vinyl Ether	5	BQL
Cis-1,3-Dichloropropene	5	BQL
Trans-1,3-Dichloropropene	5	BQL
1,1,2-Trichloroethane	5	BQL
Tetrachloroethene	5	BQL
Dibromochloromethane	5	BQL
Chlorobenzene	5	BQL
Bromoform	5	BQL
1,1,2,2-Tetrachloroethane	5	BQL
1,3-Dichlorobenzene	5	BQL
1,4-Dichlorobenzene	5	BQL
1,2-Dichlorobenzene	5	BQL

Surrogate Recoveries	Actual	%REC

PQL = Practical Quantitation Limit
BQL = Below Quantitation Limit
E = Exceed Calibration Range
B = Compound was detected in QC Blank
Units reported as : ug/kg

All Standards, Blanks, and Samples were analyzed using 2-DB-624 columns connected in series. No second column confirmation was performed.

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Organics Analysis Report
BTEX COMPOUNDS

GABRIEL LAB NUMBER:..... 2993-91
CLIENT..... 3321 S. PULASKI
DATE..... 20-Mar 1991
MATRIX:..... SOIL
SAMPLE DESCRIPTION:..... B-11, B-12, B-13

FILE..... C:\2700\DATA2\3CA0039.raw
DATE OF ANALYSIS:... 3/20/91
ANALYST :..... DP
METHOD :..... 8020
DIL FACTOR..... 5

Compound	PQL	RESULTS
Benzene	5	BQL
Toluene	5	9
Ethylbenzene	5	BQL
m+o xylenes	5	BQL
o-xylene	5	BQL

Surrogate Recoveries	Actual	%REC
4.148	6.3	65.84 %

PQL = Practical Quantitation Limit
BQL = Below Quantitation Limit
E = Exceeded Calibration Range
Units reported as: ug/kg
B = Compound was detected in QC Blank

All Standards, Blanks, and Samples were analyzed using 2-DB-624 columns connected in series. No second column confirmation was performed.

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Organics Analysis Report
601 Compounds

GABRIEL LAB NUMBER.....	2993-91	FILE.....	C:\2700\DATA2\4CA0039.raw
CLIENT.....	3321 S. PULASKI	DATE OF ANALYSIS...	3/20/91
DATE.....	03/20	ANALYST.....	DP
MATRIX.....	SOIL	METOD.....	601
SAMPLE DESCRIPTION.....	B-11, B-12, B-13	DIL FACT.....	5

Compound	PQL	RESULTS	Comments
Trichlorofluoromethane	25	BQL	
1,1,-Dichloroethene	25	BQL	
Methylene Chloride	25	BQL	
Trans-1,2 Dichloroethene	5	BQL	
1,1 Dichloroethane	5	BQL	
Chloroform	5	BQL	
1,1,1-Trichloroethane	5	BQL	
Carbon Tetrachloride	5	BQL	
1,2-Dichloroethane	5	BQL	
Trichloroethene	5	BQL	
1,2-Dichloropropane	5	BQL	
Bromodichloromethane	5	BQL	
2-Chloroethyl Vinyl Ether	5	BQL	
Cis-1,3-Dichloropropene	5	BQL	
Trans-1,3-Dichloropropene	5	BQL	
1,1,2-Trichloroethane	5	BQL	
Tetrachloroethene	5	BQL	
Dibromochloromethane	5	BQL	
Chlorobenzene	5	BQL	
Bromoform	5	BQL	
1,1,2,2-Tetrachloroethane	5	BQL	
1,3-Dichlorobenzene	5	BQL	
1,4-Dichlorobenzene	5	BQL	
1,2-Dichlorobenzene	5	BQL	

Surrogate Recoveries	Actual	%REC

PQL = Practical Quantitation Limit
BQL = Below Quantitation Limit
E = Exceed Calibration Range
B = Compound was detected in QC Blank
Units reported as : ug/kg

All Standards, Blanks, and Samples were analyzed using 2-DB-624 columns connected in series. No second column confirmation was performed.