2021 Hazardous Waste Scanning Project

File Form Naming Convention.

(*File_Type*).(*Program*).(*Site_Number*).(*YYYY-MM-DD*).(*File_Name*).pdf

Note 1: Each category is separated by a period "."
Note 2: Each word within category is separated by an underscore "_"

Specific File Naming Convention Label:

Report.HW.932118.1991-05-09.Phase_II_Appendices.pdf

EMPIRE
SOILS INVESTIGATIONS INC.

RECEIVED
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N.Y.S. DEPT. OF
ENVIRONMENTAL CONSERVATION

Entered

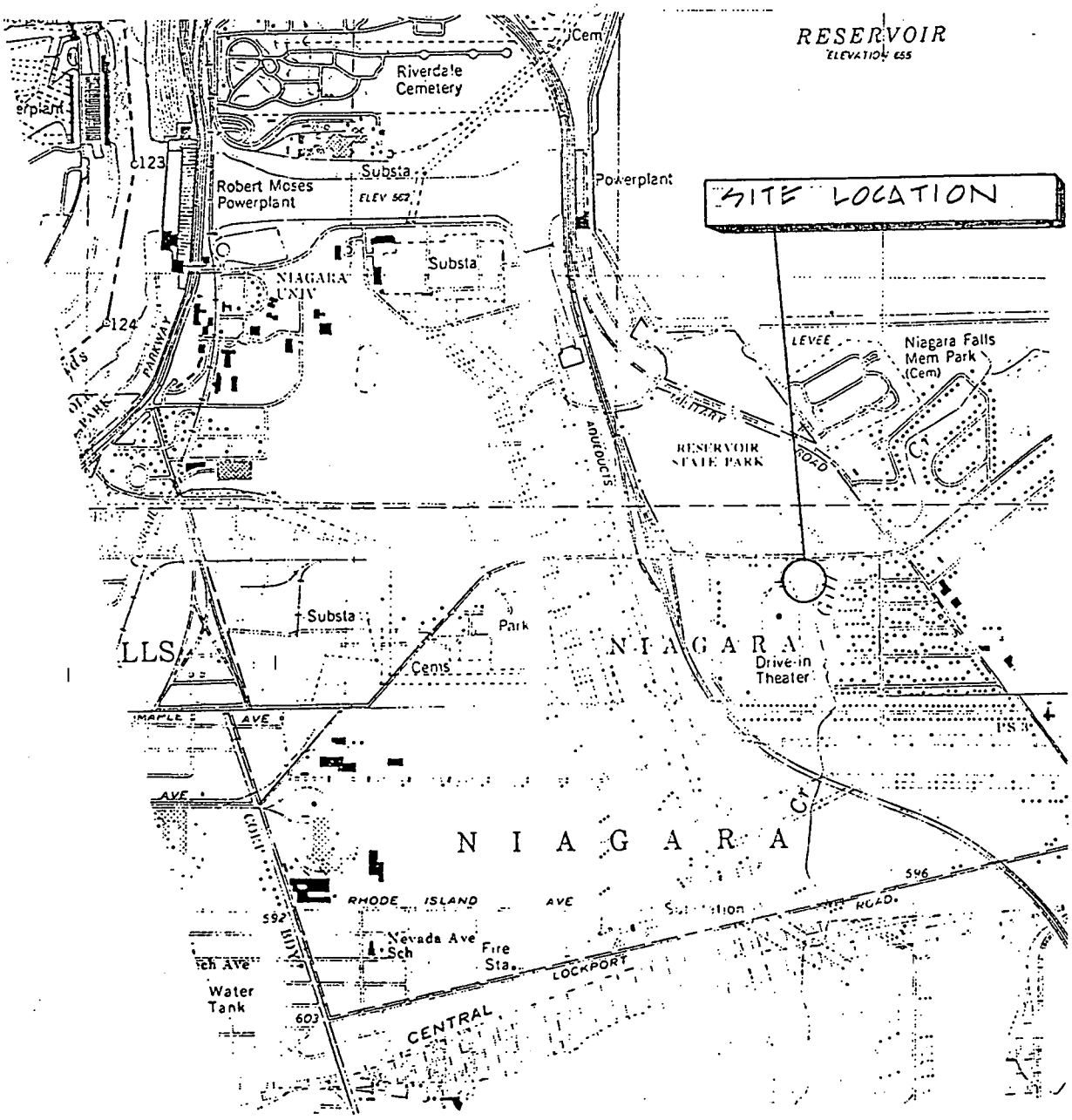
APPENDIX A - H

S-5167 SOUTH PARK AVENUE, P.O. BOX 0913, HAMBURG, NY 14075, 716-649-8110, TELEFAX 716-649-8051

EMPIRE SOILS INVESTIGATIONS, INC.
S-5167 SOUTH PARK AVENUE
HAMBURG, NEW YORK 14075

APPENDIX A

DRAWINGS



NOTES:

- THIS DRAWING IS FOR ILLUSTRATIVE PURPOSES ONLY
- THIS PLAN WAS ADAPTED FROM A USGS QUADRANGLE MAPS. (LEWISTON, N.Y., ONT. (1980) & NIA. FALLS, ONT. N.Y (1965)

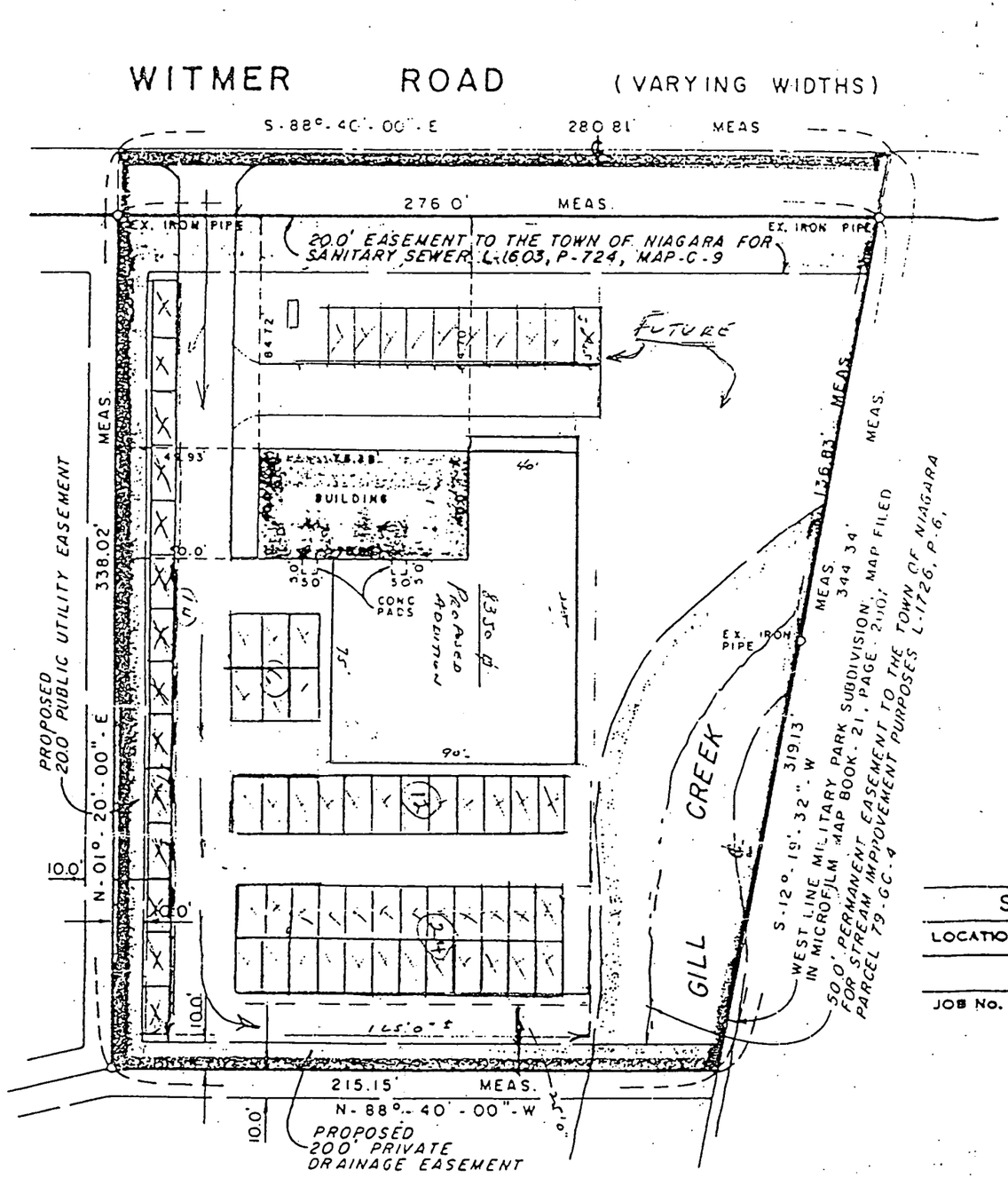
EMPIRE SOILS INVESTIGATIONS INC

SITE LOCATION PLAN.

ENVIRONMENTAL SITE ASSESSMENT
4287 WITMER ROAD
TOWN OF NIAGARA, N.Y.

DR.BY D.W. LABELLE	SCALE: 1" 2000'	PROJ NO. STA 8939A
CK'D.BY: DMH	DATE: AUG. 89'	DRWG.NO. 1

R/T FOR[illegible]



McINTOSH & McINTOSH, P.C.
CONSULTING ENGINEERS, LAND SURVEYORS, PLANNERS
LOCKPORT, NEW YORK PHONE 434-8138
BUFFALO, NEW YORK PHONE 625-8360

SURVEY OF PART OF LOT-20, TWP.-13, R-9, HOLLAND PURCHACE

LOCATION TOWN OF NIAGARA, NIAGARA COUNTY, NEW YORK

JOB No. 8623-7-1 | SCALE: 1" = 50' | DATE: MARCH 16, 1987

DRAWN TMB
COMP.
DESC.
CHECKED

EMPIRE SOILS INVESTIGATIONS INC

PROPERTY MAP
4287 WITMER ROAD
TOWN OF NIAGARA, NEW YORK

DR.BY: P.W.LABELLE | SCALE: 1" = 50' | PROJ. NO. BTA 88059
CK'D.BY: DmH | DATE: AUG. 1988. | DRWG.NO. 2

R/T FORM R-2

276.0'

WITNER ROAD.

X UPSTREAM SAMPLE POINT - DOWNSTREAM OF BRIDGE ACROSS WITNER ROAD.

NORTH

VACANT.

ASPHALT DRIVEWAY.

HIGH PID READING ASSOCIATED WITH TAR-LIKE COMPOUND ON BURIED WOOD

EXISTING BUILDING

B.M.

ASPHALT PAVING AREA

PROPERTY LINE

APPROXIMATE EDGE OF CREEK BANK

LIMIT OF VOLATILE CONTAMINATION.

AREA OF IDENTIFIED VOLATILE CONTAMINATION

GILL CREEK

SEEP LOCATION

DOWNSTREAM SAMPLE POINT

FLOW

338.02'

215.15'

PROPERTY LINES.

VACANT

LEGEND :

- TEST BORING LOCATIONS.
- SOIL GAS SURVEY LOCATION
- TEST PIT LOCATIONS.
- BENCHMARK. ASSUMED ELEVATION 100.00'
- SEEP SAMPLE LOCATION.
- BORING NO. / PID READING
- PID READING. (MAXIMUM.)

NOTES:

- THIS DRAWING WAS ADAPTED FROM A DRAWING PROVIDED BY ASTECO, INC. & IS INTEND FOR ILLUSTRATIVE PURPOSES ONLY.
- BENCHMARK IS FINISHED FLOOR OF THE EXISTING BUILDING (B.M.) ELEVATION ASSUMED TO BE 100.0'.
- AREA OF IDENTIFIED CONTAMINATION 7480 FT²
- LIMIT OF VOLATILE CONTAMINATION 12,290 FT²
- UPSTREAM SAMPLE POINT - IMMEDIATELY DOWNSTREAM OF BRIDGE ACROSS WITNER RD.
- PID - PHOTOIONIZATION DETECTOR

CHECKED BY: DMH

DATE: JUNE 1989.

PROJECT NO: BTL89039

SCALE: 1" = 20'-0"

DR. BY: DUANE LABELLE

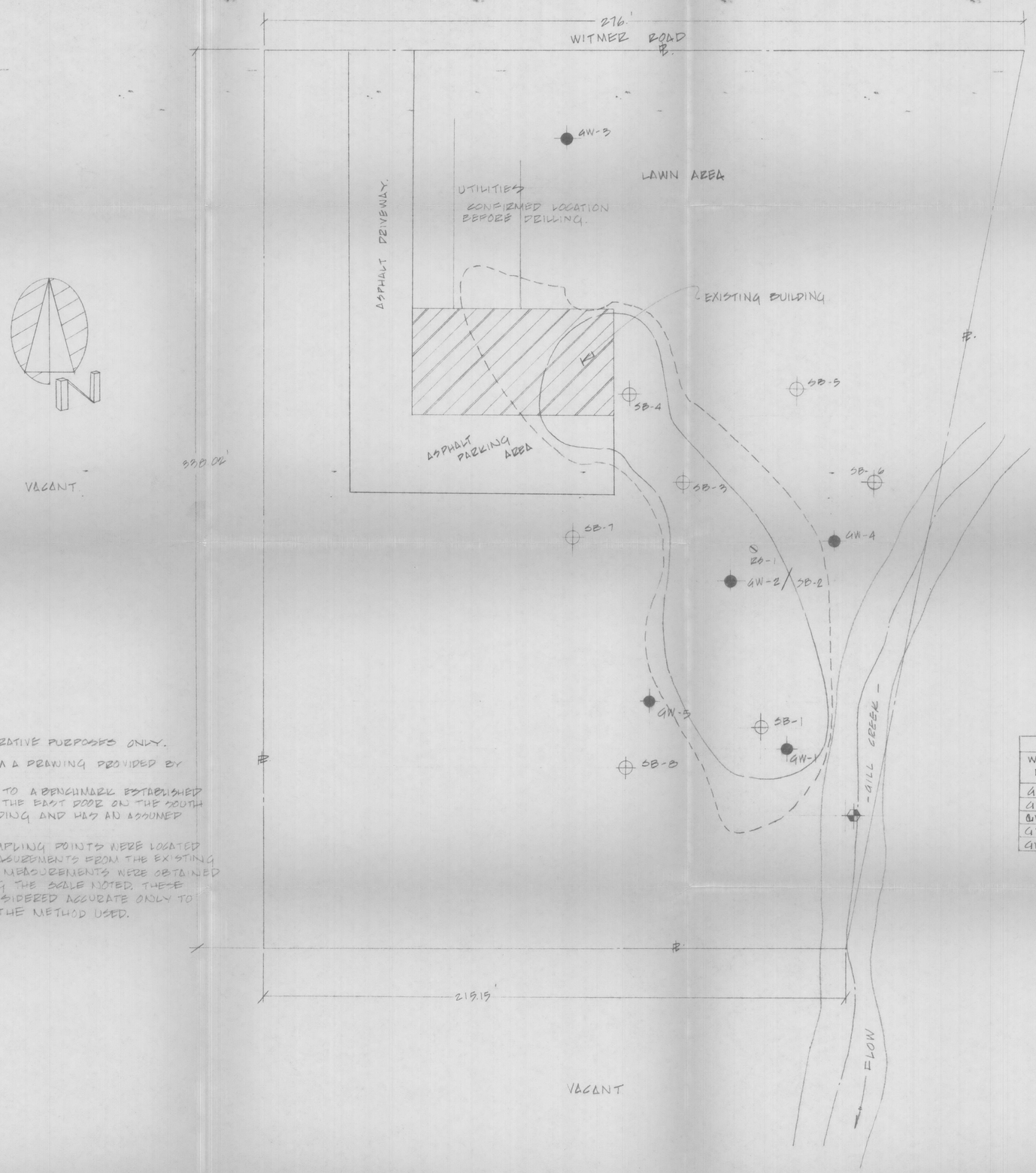
TITLE:

ENVIRONMENTAL SITE ASSESSMENT
ASTECO, NIAGARA FALLS.

EMPIRE SOILS INVESTIGATIONS INC.

SUBSURFACE EXPLORATION PLAN AND SOIL GAS SURVEY POINTS.

DRAWING NO 3



NOTES:

THIS DRAWING IS FOR ILLUSTRATIVE PURPOSES ONLY.

THIS PLAN WAS ADAPTED FROM A DRAWING PROVIDED BY ASTEGO, INC.

ELEVATIONS ARE REFERENCED TO A BENCHMARK ESTABLISHED AS THE FINISHED FLOOR AT THE EAST DOOR ON THE SOUTH SIDE OF THE EXISTING BUILDING AND HAS AN ASSUMED ELEVATION OF 100.00 FT.

MONITORING WELLS & SAMPLING POINTS WERE LOCATED IN THE FIELD BY TAPED MEASUREMENTS FROM THE EXISTING BUILDING ON THE SITE. THE MEASUREMENTS WERE OBTAINED FROM THIS DRAWING USING THE SCALE NOTED. THESE LOCATIONS SHOULD BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE METHOD USED.

LEGEND:

- PROPOSED WELL LOCATION
- SEEP SAMPLE LOCATION
- RESIN SAMPLE LOCATION
- EP TOX - LEAD SAMPLE
- ℄ PROPERTY LINE

ELEVATIONS.

WELL NO:	GROUND SURFACE	TOP OF WELL
GW-1	97.73	100.70
GW-2	98.01	100.36
GW-3	98.85	98.64
GW-4	97.67	100.76
GW-5	100.04	102.18

DRAWING NO. 4

CHECKED BY: DMH

DATE MARCH 1990

PROJECT NO. BTA 89038 B.

SCALE: 1" = 20'

DR BY: DUANE W. LABELLE

SUBSURFACE INVESTIGATION PLAN

TITLE:

ENVIRONMENTAL SITE ASSESSMENT
ASTEGO, NIA FALLS N.Y.

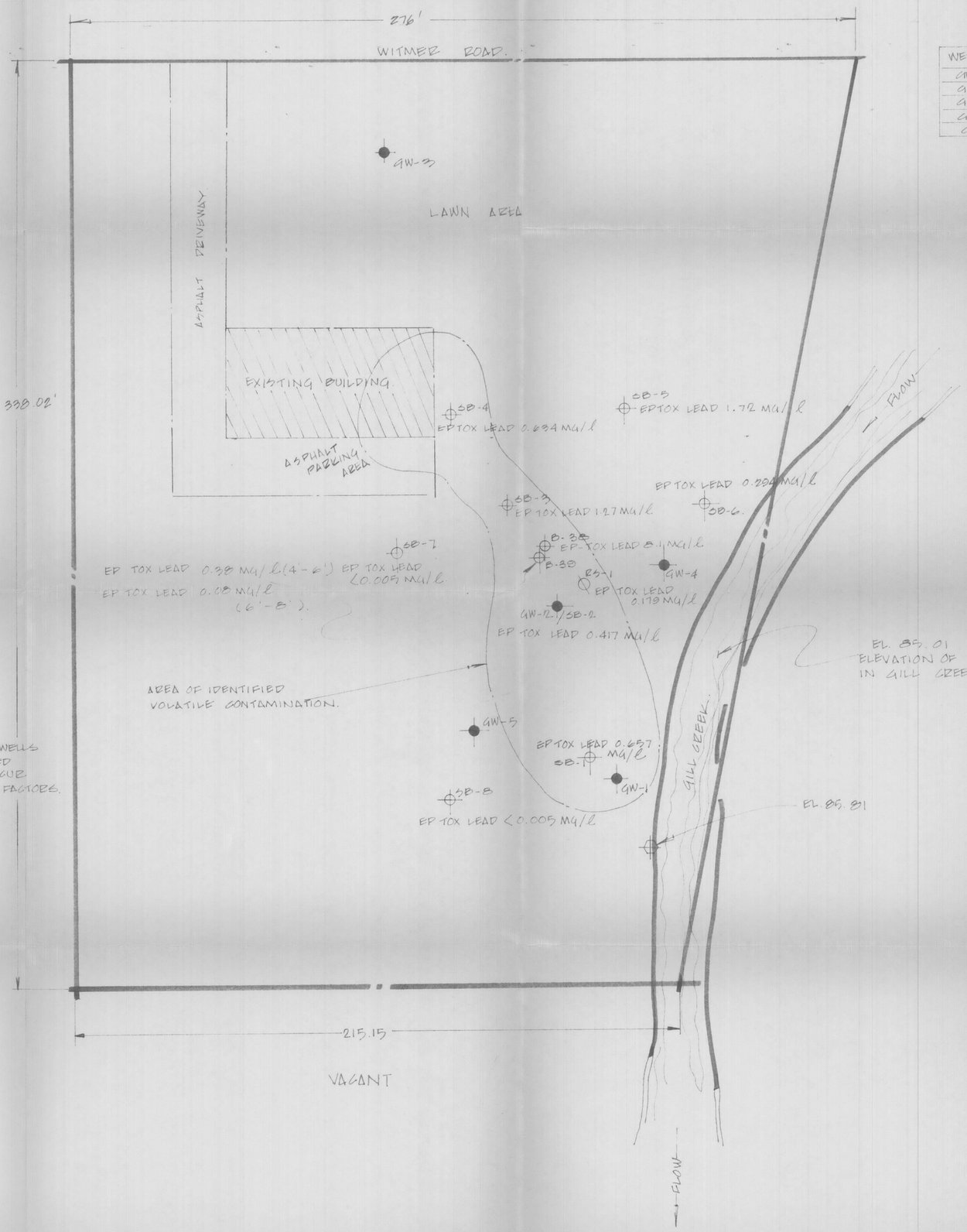
EMPIRE SOILS INVESTIGATIONS INC.

Legend:

- WELL LOCATIONS.
- SEEP SAMPLE LOCATION
- PROPERTY LINE
- EP TOX SAMPLE LOCATION
- RESIN SAMPLE LOCATION.

Notes:

1. THIS DRAWING IS FOR ILLUSTRATIVE PURPOSES ONLY.
2. THIS DRAWING WAS ADAPTED BY A DRAWING BY ASTECO INC.
3. GROUND WATER LEVEL READINGS HAVE BEEN MADE IN MONITORING WELLS AT TIMES AND UNDER CONDITIONS STATED. IT SHOULD BE NOTED THE FLUCTUATIONS IN THE LEVEL OF THE GROUND WATER MAY OCCUR DUE TO VARIATIONS IN RAINFALL, TEMPERATURE AND OTHER FACTORS OCCURING FROM THE TIME MEASUREMENTS WERE MADE.



Elevations

WELL NO	GROUND SURFACE	TOP OF WELL	GROUND WATER SURFACE *
GW-1	97.73	100.70	89.80
GW-2	98.01	100.36	94.05
GW-3	98.85	98.64	85.77
GW-4	97.67	100.76	91.14
GW-5	100.04	103.18	96.62

* MAY 30 & 31, 1990

SUMMARY OF EP TOXICITY METALS ANALYSES TEST RESULTS.

SAMPLE LOCATION	CONCENTRATION (MG/L) ARSENIC	BARIUM	CADMIUM	CHROMIUM	LEAD	MERCURY	SELENIUM	SILVER
PHASE 1								
SB-2-7-13 (8-38)	<0.05	0.50	0.02	0.02	8.1	<0.002	<0.05	0.05
B-3-3 (8-38)	0.078	3.1	<0.005	<0.01	0.38	<0.002	<0.05	<0.01
B-3-4 (8-38)	0.048	1.4	<0.005	<0.01	0.08	<0.002	<0.05	<0.01
PHASE 2								
RESIN SAMPLE	<0.067	0.860	0.0173	0.019	0.179	<0.0005	<0.068	<0.01
SB-1	NA	NA	NA	NA	0.657	NA	NA	NA
SB-2	NA	NA	NA	NA	0.417	NA	NA	NA
SB-3	NA	NA	NA	NA	1.27	NA	NA	NA
SB-4	NA	NA	NA	NA	0.634	NA	NA	NA
SB-5	NA	NA	NA	NA	1.72	NA	NA	NA
SB-6	NA	NA	NA	NA	0.294	NA	NA	NA
SB-7	NA	NA	NA	NA	<0.005	NA	NA	NA
SB-8	NA	NA	NA	NA	<0.005	NA	NA	NA
EPA CRITERIA	5.0	100	1.0	5.0	5.0	0.2	1.0	5.0

NA - NOT ANALYZED (IN ACCORDANCE WITH WORK PLAN SPECIFICATIONS).

EMPIRE SOILS INVESTIGATIONS INC.

SUMMARY OF EP TOXICITY TEST RESULTS.

SCALE: 1" = 20'
DATE: SEPT. 90
APPROVED BY
DRAWN BY D.W.L.
PTA 90 39B.

ENVIRONMENTAL SITE ASSESSMENT
42.87 WITMER RD. NIA. FALLS N.Y.

DRAWING NUMBER 5

DIETZGEN NO. 196MF AGEPROOF MASTER FORM

Legend:

- WELL LOCATIONS.
- SEEP SAMPLE LOCATION
- PROPERTY LINE

Notes:

- THIS DRAWING IS FOR ILLUSTRATIVE PURPOSES ONLY.
- THIS DRAWING WAS ADAPTED BY A DRAWING BY ASTECO INC.
- GROUND WATER LEVEL READINGS HAVE BEEN MADE IN MONITORING WELLS AT TIMES AND UNDER CONDITIONS STATED. IT SHOULD BE NOTED THE FLUCTUATIONS IN THE LEVEL OF THE GROUND WATER MAY OCCUR DUE TO VARIATIONS IN RAINFALL, TEMPERATURE AND OTHER FACTORS OCCURING FROM THE TIME MEASUREMENTS WERE MADE.
- THE GENERALIZED GROUNDWATER SURFACE CONTOURS ARE DRAWN FROM AVAILABLE GROUND WATER LEVEL DATA AND ARE INTENDED TO CONVEY TRENDS IN GROUND WATER FLOW DIRECTION.
- CONTOUR INTERVALS ARE AT EVERY 1.0' FEET.

Elevations

WELL NO.	GROUND SURFACE	TOP OF WELL	GROUND WATER SURFACE *
GW-1	97.73	100.70	89.80
GW-2	98.01	100.36	94.05
GW-3	98.85	98.64	95.77
GW-4	97.67	100.76	91.14
GW-5	100.04	103.18	96.62

* MAY 30 & 31, 1990

N

EMPIRE SOILS INVESTIGATIONS INC.

GROUND WATER CONTOUR PLAN
MAY 30-31, 1990

ENVIRONMENTAL SITE ASSESSMENT
4487 WITMER RD NIA. FALLS N.Y.

DR BY D.W. LABELLE | SCALE 1" = 80' | PROJ NO 8730-888
CK'D BY D.L. | DATE SEPT 90' | DRWG NO 6

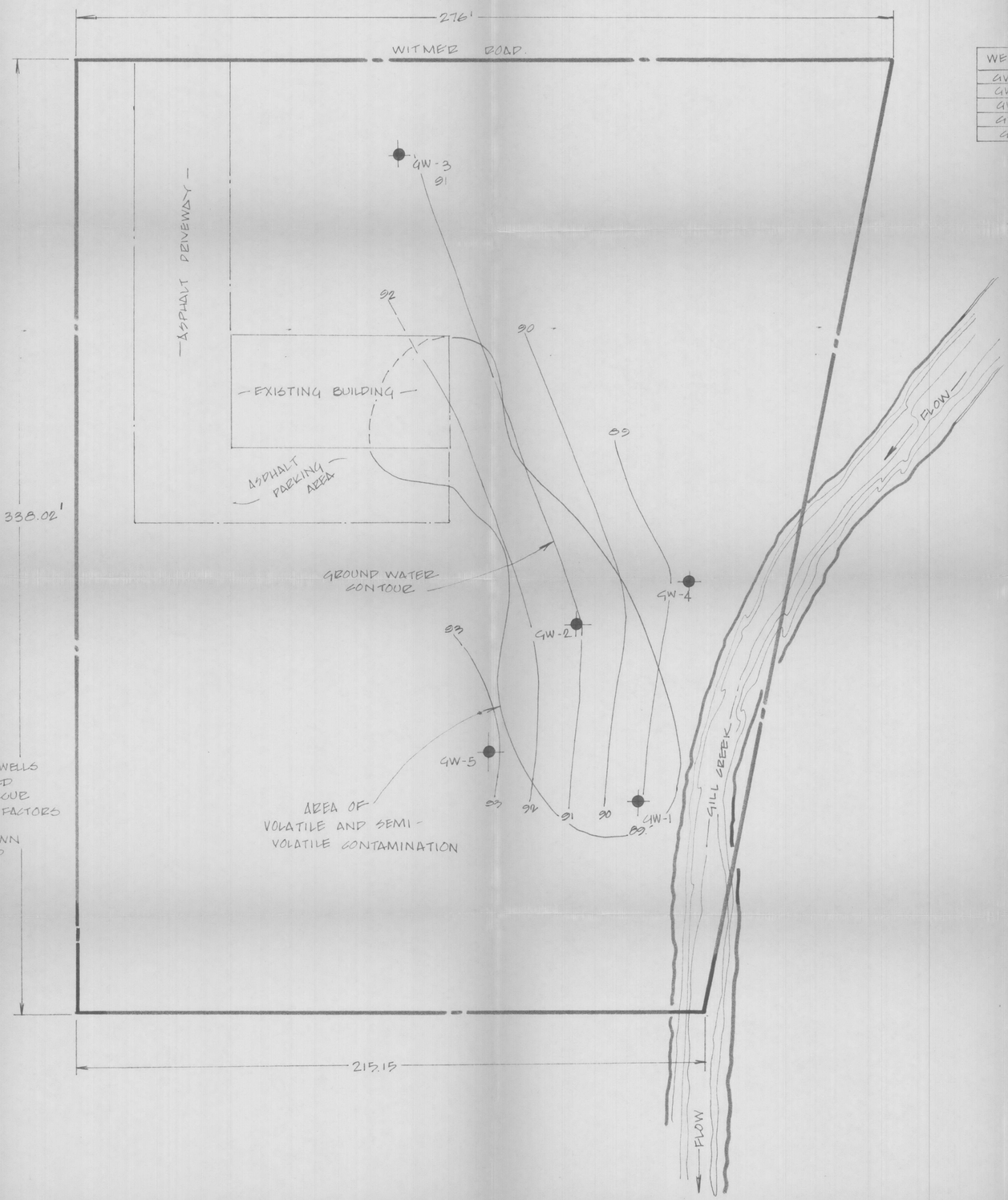
DIETZGEN NO 18RMT AGEPROOF MASTER FORM

Legend:

- WELL LOCATIONS
- PROPERTY LINE

Notes

- THIS DRAWING IS FOR ILLUSTRATIVE PURPOSES ONLY.
- THIS DRAWING WAS ADAPTED BY A DRAWING BY ASTECO INC.
- GROUND WATER LEVEL READINGS HAVE BEEN MADE IN MONITORING WELLS AT TIMES AND UNDER CONDITIONS STATED. IT SHOULD BE NOTED THE FLUCTUATIONS IN THE LEVEL OF THE GROUND WATER MAY OCCUR DUE TO VARIATIONS IN RAINFALL, TEMPERATURE AND OTHER FACTORS OCCURING FROM THE TIME MEASUREMENTS WERE MADE.
- THE GENERALIZED GROUNDWATER SURFACE CONTOURS ARE DRAWN FROM AVAILABLE GROUND WATER LEVEL DATA AND ARE INTENDED TO CONVEY TRENDS IN GROUND WATER FLOW DIRECTION.
- CONTOUR INTERVALS ARE AT EVERY 1.0' FEET.



Elevations

WELL NO.	GROUND SURFACE	TOP OF WELL	GROUND WATER SURFACE*
GW-1	97.73	100.70	89.09
GW-2	98.01	100.36	91.07
GW-3	98.85	98.64	91.26
GW-4	97.67	100.76	88.50
GW-5	100.04	103.18	89.29

* SEPTEMBER 27, 1990

EMPIRE SOILS INVESTIGATIONS INC

GROUND WATER CONTOURS SEPTEMBER 27, 1990

SCALE: 1" =

DATE: SEPT. 90'

APPROVED BY

DRAWN BY D.W. LABELLE

ENVIRONMENTAL SITE ASSESSMENT
4287 WITMER RD. NIAGARA FALLS, N.Y.

DRAWING NUMBER 7

DIETZGEN NO. 1284F AGEPROOF MASTER FORM

ELEVATIONS

WELL NO	GROUND SURFACE	TOP OF WELL	GROUND WATER SURFACE *
GW-1	87.73	100.70	83.80
GW-2	88.01	100.36	84.05
GW-3	88.85	88.64	85.77
GW-4	87.67	100.76	91.14
GW-5	100.04	105.18	96.62

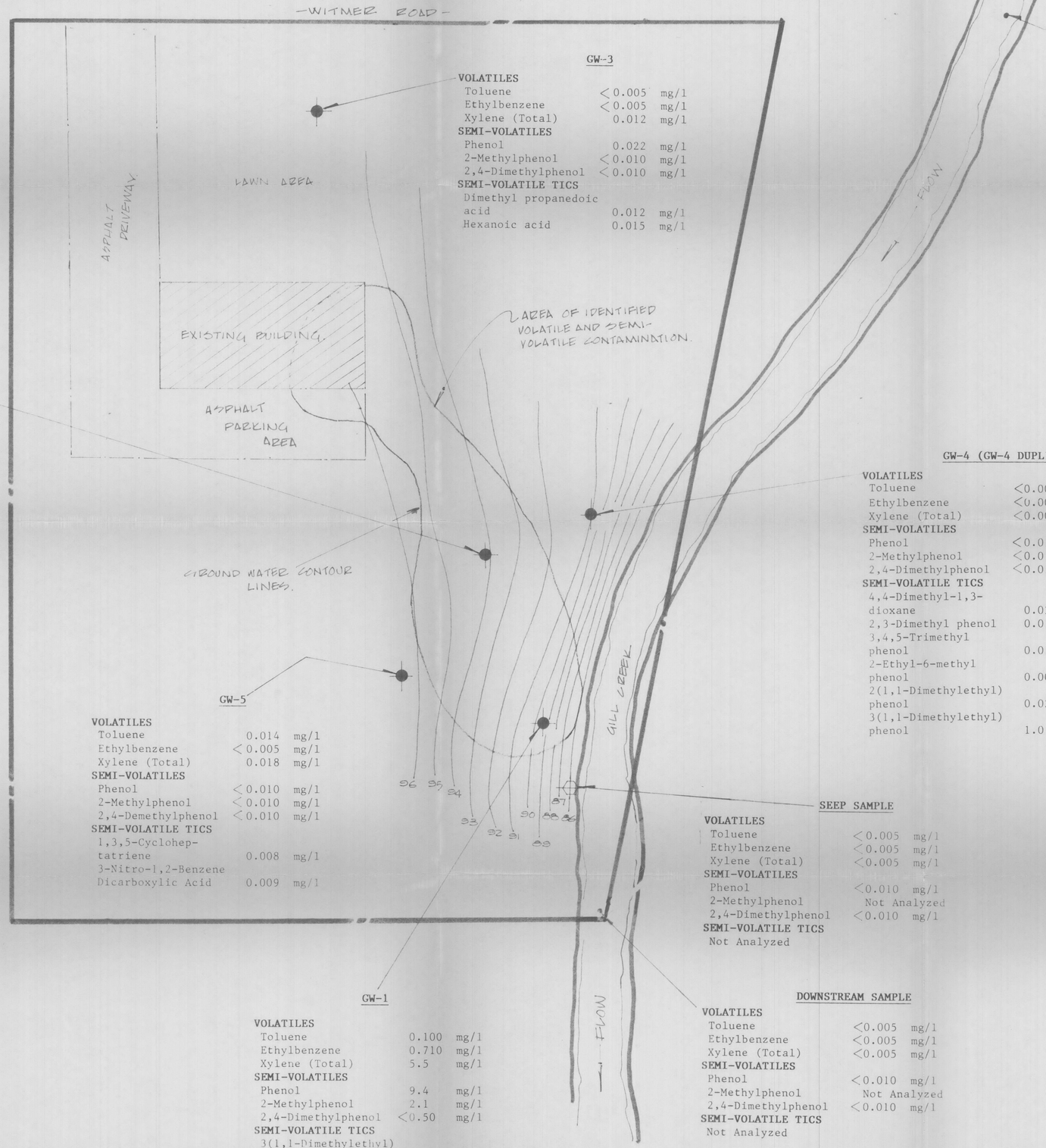
* MAY 30 & 31, 1990

Legend

- WELL LOCATIONS
- SEEP SAMPLE LOCATION
- PROPERTY LINE

Notes:

- THIS DRAWING IS FOR ILLUSTRATIVE PURPOSES ONLY.
- THIS DRAWING WAS ADAPTED BY A DRAWING BY A STECO INC.
- GROUND WATER LEVEL READINGS HAVE BEEN MADE IN MONITORING WELLS AT TIMES AND UNDER CONDITIONS STATED. IT SHOULD BE NOTED THE FLUCTUATIONS IN THE LEVEL OF THE GROUND WATER MAY OCCUR DUE TO VARIATIONS IN RAINFALL, TEMPERATURE AND OTHER FACTORS OCCURING FROM THE TIME MEASUREMENTS WERE MADE.
- THE GENERALIZED GROUNDWATER SURFACE CONTOURS ARE DRAWN FROM AVAILABLE GROUND WATER LEVEL DATA AND ARE INTENDED TO CONVEY TRENDS IN GROUND WATER FLOW DIRECTION.
- CONTOUR INTERVALS ARE AT EVERY 1.0' FEET.
- * TICS - TENTATIVELY INDENTIFIED COMPOUNDS - ONLY INDENTIFIABLE COMPOUNDS ARE PRESENTED.
- SURFACE WATER & SEEP SAMPLES OBTAINED JUNE 19, 1989.
- GROUND WATER SAMPLES OBTAINED. MAY 30, & 31 1990.



GW-2

VOLATILES		
Toluene	<1.0	mg/l
Ethylbenzene	5.5	mg/l
Xylene (Total)	40.0	mg/l
SEMI-VOLATILES		
Phenol	86.0	mg/l
2-Methylphenol	21.0	mg/l
2,4-Dimethylphenol	6.0	mg/l
SEMI-VOLATILE TICS		
2,3-Dimethyl phenol	1.1	mg/l
2-Ethylphenol	4.0	mg/l
2-Ethyl-5-methyl phenol	2.1	mg/l
3-(1,1-Dimethyl) phenol	1.8	mg/l

GW-3

VOLATILES		
Toluene	<0.005	mg/l
Ethylbenzene	<0.005	mg/l
Xylene (Total)	0.012	mg/l
SEMI-VOLATILES		
Phenol	0.022	mg/l
2-Methylphenol	<0.010	mg/l
2,4-Dimethylphenol	<0.010	mg/l
SEMI-VOLATILE TICS		
Dimethyl propanedoic acid	0.012	mg/l
Hexanoic acid	0.015	mg/l

GW-5

VOLATILES		
Toluene	0.014	mg/l
Ethylbenzene	<0.005	mg/l
Xylene (Total)	0.018	mg/l
SEMI-VOLATILES		
Phenol	<0.010	mg/l
2-Methylphenol	<0.010	mg/l
2,4-Demethylphenol	<0.010	mg/l
SEMI-VOLATILE TICS		
1,3,5-Cycloheptatriene	0.008	mg/l
3-Nitro-1,2-Benzene Dicarboxylic Acid	0.009	mg/l

GW-1

VOLATILES		
Toluene	0.100	mg/l
Ethylbenzene	0.710	mg/l
Xylene (Total)	5.5	mg/l
SEMI-VOLATILES		
Phenol	9.4	mg/l
2-Methylphenol	2.1	mg/l
2,4-Dimethylphenol	<0.50	mg/l
SEMI-VOLATILE TICS		
3(1,1-Dimethylethyl) phenol	2.0	mg/l

UPSTREAM SAMPLE

VOLATILES		
Toluene	< 0.005	mg/l
Ethylbenzene	< 0.005	mg/l
Xylene (Total)	< 0.005	mg/l
SEMI-VOLATILES		
Phenol	< 0.010	mg/l
2-Methylphenol	Not Analyzed	
2,4-Dimethylphenol	< 0.010	mg/l
SEMI-VOLATILE TICS		
Not Analyzed		

GW-4 (GW-4 DUPLICATE)

VOLATILES	
Toluene	<0.005 mg/l
Ethylbenzene	<0.005 mg/l to 0.011 mg/l
Xylene (Total)	<0.005 mg/l to 0.034 mg/l
SEMI-VOLATILES	
Phenol	<0.010 mg/l
2-Methylphenol	<0.010 mg/l
2,4-Dimethylphenol	<0.010 mg/l
SEMI-VOLATILE TICS	
4,4-Dimethyl-1,3-dioxane	0.035 mg/l
2,3-Dimethyl phenol	0.016 mg/l
3,4,5-Trimethyl phenol	0.019 mg/l
2-Ethyl-6-methyl phenol	0.007 mg/l
2(1,1-Dimethylethyl) phenol	0.024 mg/l
3(1,1-Dimethylethyl) phenol	1.0 mg/l

SEEP SAMPLE

VOLATILES		
Toluene	<0.005	mg/l
Ethylbenzene	<0.005	mg/l
Xylene (Total)	<0.005	mg/l
SEMI-VOLATILES		
Phenol	<0.010	mg/l
2-Methylphenol	Not Analyzed	
2,4-Dimethylphenol	<0.010	mg/l
SEMI-VOLATILE TICS		
Not Analyzed		

DOWNSTREAM SAMPLE

VOLATILES		
Toluene	<0.005	mg/l
Ethylbenzene	<0.005	mg/l
Xylene (Total)	<0.005	mg/l
SEMI-VOLATILES		
Phenol	<0.010	mg/l
2-Methylphenol	Not Analyzed	
2,4-Dimethylphenol	<0.010	mg/l
SEMI-VOLATILE TICS		
Not Analyzed		

N

EMPIRE SOILS INVESTIGATIONS INC.

SUMMARY OF VOLATILE & SEMI VOLATILE CONTAMINATION IN SURFACE & GR. WATER

ENVIRONMENTAL SITE ASSESSMENT
4207 WITMER RD. NIA. FALLS N.Y.

DR BY D.W. LABELLE | SCALE 1" = 20' | PROJ NO 89A0038
CK'D BY D.H. | DATE SEPT 90 | DRWG NO E

DIETZGEN NO 184MF AGEPROOF MASTER FORM

EMPIRE SOILS INVESTIGATIONS, INC.
S-5167 SOUTH PARK AVENUE
HAMBURG, NEW YORK 14075

APPENDIX B

LIMITATIONS

APPENDIX B

LIMITATIONS

1. Empire Soils Investigations, Inc. (ESI) environmental investigation was completed in accordance with generally accepted practices of other consultants undertaking similar studies, and ESI observed that degree of care and skill generally exercised by other consultants under similar circumstances and conditions. ESI's finding and conclusions must be considered not as scientific certainties but as probabilities based on our professional judgement concerning the significance of the limited data gathered during the course of the Phase I Environmental Site Assessment. Specifically, ESI does not and cannot represent that the site contains no hazardous material, petroleum products, or other latent conditions beyond that observed by ESI during this Environmental Site Assessment.

2. ESI can assume no responsibility for the undetected presence of either identified potential conditions or other latent conditions.

3. The observations described in this report were made under conditions stated therein. The conclusions presented in the report were based solely upon the services described therein and not on tasks and procedures beyond the scope of described services or the time and budgetary constraints imposed by the client.

4. In preparing this report, ESI has relied on certain information provided by the State, County and Town Officials and other parties referenced herein and on information contained in the files of the state and local agencies made available to ESI at the time of the assessment.

5. Observations were made of the subject site and on adjacent sites as indicated within the report. Where access to portions of the site or structures were limited or unavailable, ESI renders no opinion as to the presence of hazardous materials or to the presence of indirect evidence relating to hazardous material in that portion of the site or adjacent structures.

6. The purpose of this report was to assess the physical characteristics of the subject site with respect to the presence in the environment of hazardous material, or petroleum. No specific attempt was made to check on the compliance of present or past owners or operators of the site with Federal, State or Local laws and regulations, environmental or otherwise.

7. Where such analysis have been conducted by Huntingdon Analytical Services or other laboratory, ESI has relied upon the data provided and has not conducted an independent evaluation of the reliability or validity of these data.

8. This report has been prepared for the exclusive use of Asteco, Inc. and its designated agents for the specific application to the subject site. No other warranty, expressed or implied is made. The environmental concerns noted in the report (if any) are applicable to the current or identified proposed usage of the property.

9. A determination or delineation of wetlands was beyond the scope of this investigation.

EMPIRE SOILS INVESTIGATIONS, INC.
S-5167 SOUTH PARK AVENUE
HAMBURG, NEW YORK 14075

APPENDIX C

HISTORICAL AERIAL PHOTOGRAPHS

THE FOLLOWING IMAGE(S) ARE THE BEST COPY AVAILABLE

THE FOLLOWING IMAGE(S) ARE THE BEST COPY AVAILABLE

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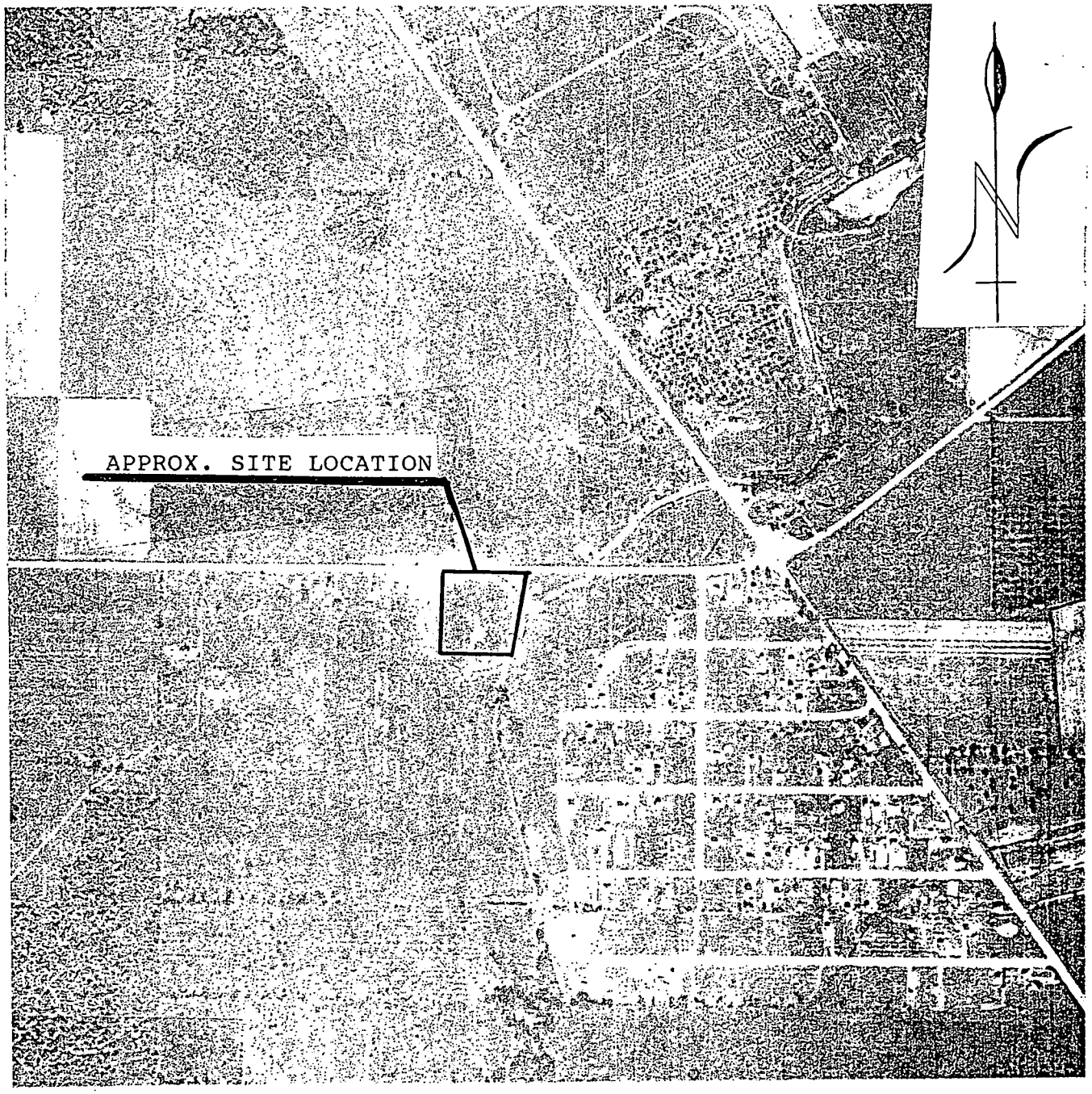
THE FOLLOWING IMAGE(S) ARE THE BEST COPY AVAILABLE

THE FOLLOWING IMAGE(S) ARE THE BEST COPY AVAILABLE

InStream, LLC



NOTE:
PHOTOGRAPH OBTAINED FROM
NIAGARA COUNTY HIGHWAY
DEPARTMENT LOCKPORT, NEW YORK
PHOTOGRAPH No. ARE-18-34

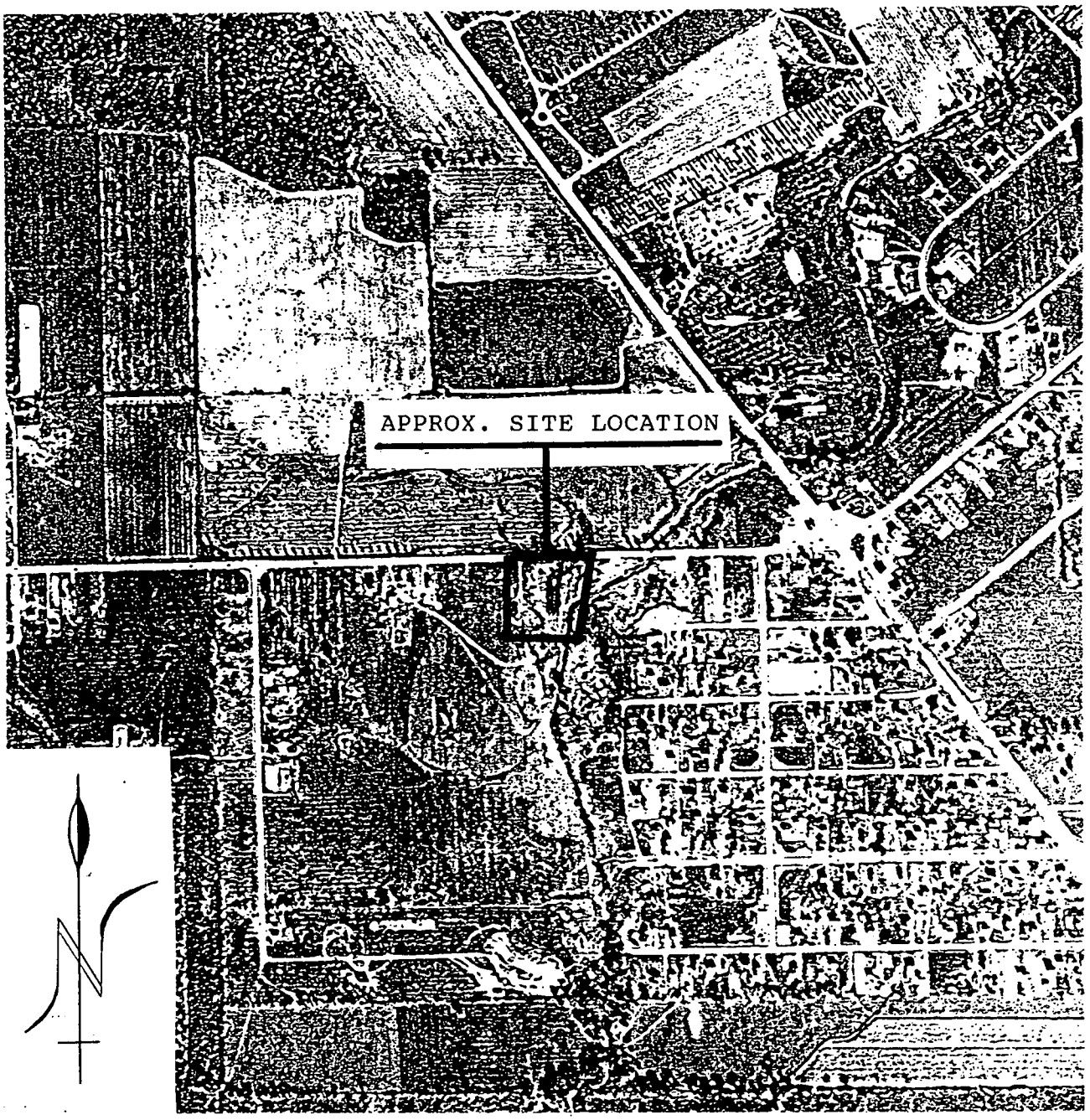
EMPIRE SOILS INVESTIGATIONS INC.

HISTORICAL
AERIAL PHOTOGRAPH (1938)

ENVIRONMENTAL SITE ASSESSMENT
4287 WITMER ROAD
TOWN OF NIAGARA, NEW YORK

DR.BY:	—	SCALE: 1" = 660'	PROJ. NO. BTA-89-39A
CK'D.BY:	—	DATE: Sept. 25, 1938	DRWG.NO.

R/T FORM R-1



NOTE:

PHOTOGRAPH OBTAINED FROM U.S SOIL CONSE-RVATION SERVICE-LOCKPORT, NEW YORK PHOTO No. ARE-5H-151

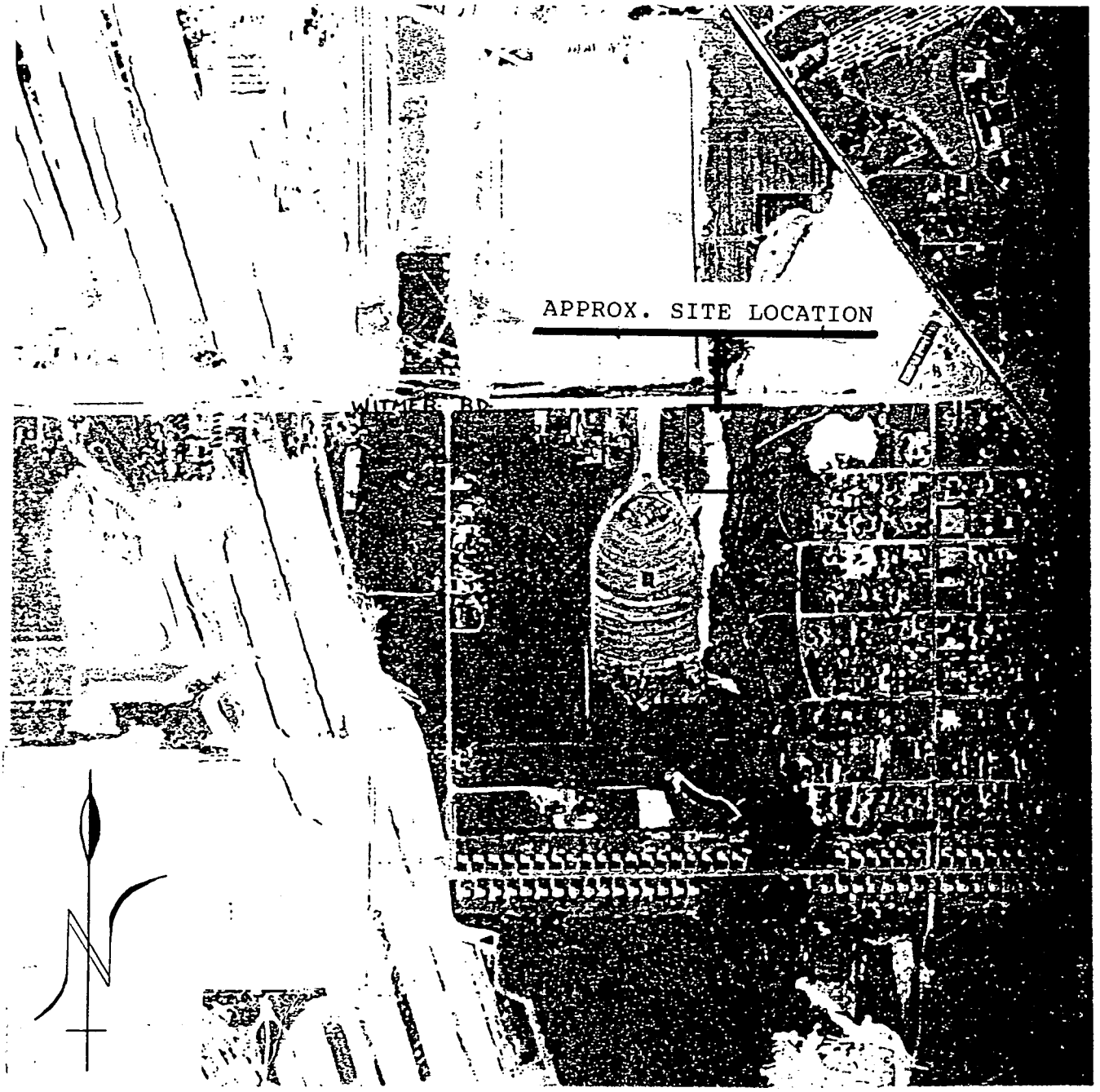
EMPIRE
SOILS INVESTIGATIONS INC

HISTORICAL
AERIAL PHOTOGRAPH (1951)

ENVIRONMENTAL SITE ASSESSMENT
4287 WITMER ROAD
TOWN OF NIAGARA, NEW YORK

DR.BY:	—	SCALE: 1" = 660'	PROJ. NO. BTA-89-39A
CK'D.BY:	—	DATE: Oct. 14, 1951	DRWG.NO.

R/T FORM R-1



NOTE:

PHOTOGRAPH OBTAINED FROM THE U.S. SOIL CONSERVATION SERVICE, LOCKPORT, NEW YORK, PHOTO NUMBER ARE-IV-24

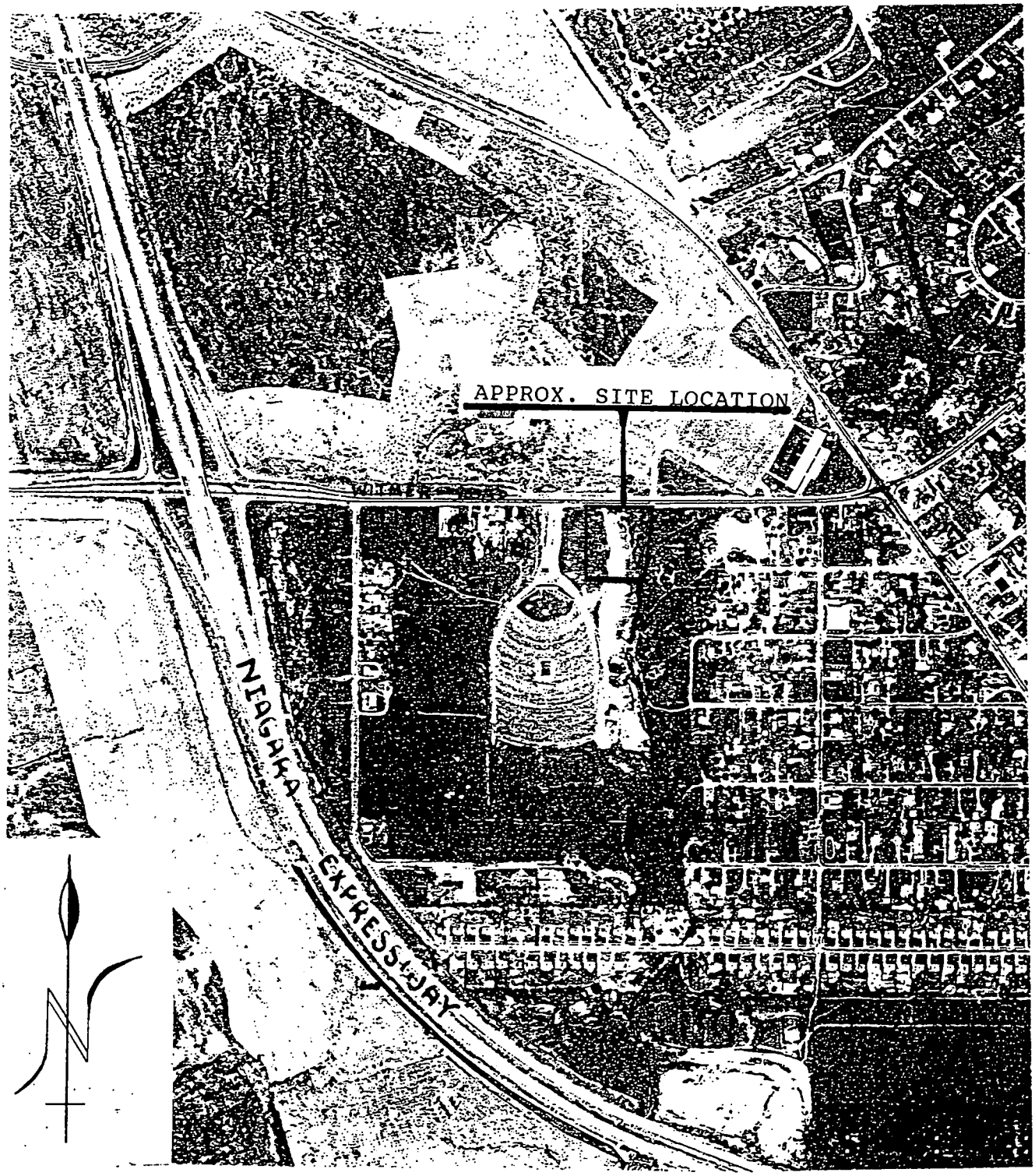
EMPIRE SOILS INVESTIGATIONS, INC.

HISTORICAL AERIAL PHOTOGRAPH (1958)

ENVIRONMENTAL SITE ASSESSMENT
4287 WITMER ROAD
TOWN OF NIAGARA, NEW YORK

DR.BY: SAB	SCALE: 1"=660'	PROJ. NO. ~~BTA-89-39A~~	
CK'D.BY: DMH	DATE: Aug. 2, 1958	DRWG.NO.	

R/T FORM R-1



NOTE:

PHOTOGRAPH OBTAINED FROM THE U.S. SOIL CONSERVATION SERVICE, LOCKPORT, NEW YORK, PHOTO NUMBER ARE-266-50

EMPIRE SOILS INVESTIGATIONS INC

HISTORICAL AERIAL PHOTOGRAPH (1966)

ENVIRONMENTAL SITE ASSESSMENT
4287 WITMER ROAD
TOWN OF NIAGARA, NEW YORK

DR.BY: SAB	SCALE: 1" = 660'	PROJ. NO. BTA-89-39A
CK'D.BY: DMH	DATE: JUNE 12, 1966	DRWG.NO.

R/T FORM R-1

EMPIRE SOILS INVESTIGATIONS, INC.
S-5167 SOUTH PARK AVENUE
HAMBURG, NEW YORK 14075

APPENDIX D

TEST PIT, SUBSURFACE BORING LOGS,
MONITORING WELL INSTALLATION LOGS

TEST PIT FIELD LOG

EMPIRE SOILS INVESTIGATIONS INC.

PROJECT
DESCRIPTION Proposed Asteco Addition
LOCATION 4287 Witmer Road

TEST PIT NO. TP-1
FILE NO. BTA-89-039
DATE 5/15/89

ENGINEER S. Babcock
WEATHER Overcast, 60-65°, Winds 5-15SW

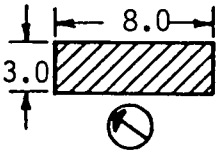
EXCAVATION EQUIPMENT
CONTRACTOR David Smith and Sons
OPERATOR John Smith
MAKE Ford MODEL 4500
CAPACITY 1/8 C.Y. REACH 14.0 FT.

GROUND ELEV. --
TIME STARTED 10:00AM
TIME COMPLETED 11:37AM

DEPTH	SOIL DESCRIPTION	EXCAV. EFFORT	BOULDER COUNT QTY. CLASS.	PID in ppm
0'	TOPSOIL			
1'	Brown SILT and Clay, some f-c Sand, little gravel, tr. glass (broken and intact possible laboratory sample jars), tr. brick, tr. wire cable, tr. metal, tr. paper, tr. wood, tr. cobbles, tr. boulders (moist, FILL) Contains "little" possible laboratory sample jars (intact and broken), tr. porcelain	E	--	BG
2'		M	5 A-C	BG
3'		M	4 A-C	BG
4'		M	4 A-C	BG
5'	Black SLUDGE, some f-c Sand, tr. gravel, tr. wood, tr. glass, (broken jars), tr. cobbles (moist-wet, FILL) very strong chemical odor. (wet)	E/M	2 A	5.0-10.0
6'		E/M	3 A	150-160
7'		E/M	3 A-B	130-140
8'	Brown Clayey SILT, some f-c Sand, little glass (broken), tr. concrete (moist, FILL) strong chemical odor	M/D	3 A-B	140-145
9'	Test Pit complete at 7.5'			
10'	PID=Organic vapors measured with Photoionization Detector (PID). Measurements recorded in parts per million (ppm).			
11'	BG=Background measurement PID=0.0-0.3ppm			
12'				
13'				
14'				

REMARKS:
1. Test pit walls unstable at completion.
2. Perched groundwater encountered at 4.5' from ground surface (slow perculation).
3. Test pit backfilled with excavation spoil upon completion.

TEST PIT PLAN



LEGEND:

BOULDER COUNT

SIZE RANGE CLASSIFICATION	LETTER DESIGNATION
6"-18"	A
18"-36"	B
36" AND LARGER	C

PROPORTIONS USED

TRACE (TR.)	0-10%
LITTLE (LI.)	10-20%
SOME (SO.)	20-35%
AND	35-50%

ABBREVIATIONS

F - FINE
M - MEDIUM
C - COARSE
F/M - FINE TO MEDIUM
F/C - FINE TO COARSE
V - VERY
GR. - GRAY
BN. - BROWN
YEL. - YELLOW

EXCAVATION EFFORT

EASY — E
MODERATE — M
DIFFICULT — D

GROUNDWATER

ELAPSED TIME TO READING (HRS.) 2 G.W.L.

TEST PIT FIELD LOG

EMPIRE SOILS INVESTIGATIONS INC.

PROJECT
DESCRIPTION: Proposed Asteco Addition
LOCATION: 4287 Witmer Road

TEST PIT NO. TP-2
FILE NO. BTA-89-039
DATE: 5/15/89

ENGINEER: S. Babcock
WEATHER: Overcast, 60-65°, Winds 5-15SW

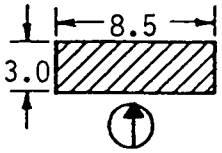
EXCAVATION EQUIPMENT
CONTRACTOR: David Smith and Sons
OPERATOR: John Smith
MAKE: Ford MODEL: 4500
CAPACITY: 1/8 C.Y. REACH: 14.0 FT.

GROUND ELEV.: --
TIME STARTED: 11:47AM
TIME COMPLETED: 12:35PM

DEPTH	SOIL DESCRIPTION	EXCAV. EFFORT	BOULDER COUNT QTY. CLASS.	PID in ppm
0'	TOPSOIL			
1'	Brown SILT and Clay, some f-c Sand, tr. gravel, tr. brick, tr. boulders, tr. glass (broken and intact, possible laboratory sample jars), tr. wood, tr. metal, tr. concrete (moist, FILL) Metal 5 gallon drum encountered at 2.5'	E/M	4 A-B	BG
2'		M/D	15 A-B	BG
3'		M/D	10 A-C	BG
4'	Black SLUDGE, some f-c Silty Sand, tr. gravel, tr. cobbles, tr. boulder, tr. wood, tr. metal, tr. glass (moist-wet, FILL) strong chemical odor	M/D	9-10 A-C	0.3-0.5
5'	Brown Clayey SILT, some glass (broken), little concrete, tr. organics (moist, FILL) strong chemical odor	M/D	5-6 A-C	250-300
6'		M	5 A-B	250-270
7'		M	6 A-B	270-280
8'	Test Pit complete at 6.5'			
9'	PID=Organic vapors measured with Photoionization Detector (PID). Measurements recorded in parts per million (ppm).			
10'	BG=Background measurement PID=0.0-0.3ppm			
11'				
12'				
13'				
14'				

REMARKS:
1. Test pit walls unstable at completion.
2. Little free standing water encountered at bottom of pit upon completion.
3. Test pit backfilled with excavation spoil at completion.

TEST PIT PLAN



LEGEND:

BOULDER COUNT

SIZE RANGE CLASSIFICATION	LETTER DESIGNATION
6"-18"	A
18"-36"	B
36" AND LARGER	C

PROPORTIONS USED

TRACE (TR.)	0-10%
LITTLE (LI.)	10-20%
SOME (SO.)	20-35%
AND	35-50%

ABBREVIATIONS
F - FINE
M - MEDIUM
C - COARSE
F/M - FINE TO MEDIUM
F/C - FINE TO COARSE
V - VERY
GR. - GRAY
BN. - BROWN
YEL. - YELLOW

EXCAVATION EFFORT
EASY — E
MODERATE — M
DIFFICULT — D

GROUNDWATER
ELAPSED TIME TO READING (HRS.) 2 G.W.L.

TEST PIT FIELD LOG

EMPIRE SOILS INVESTIGATIONS INC

PROJECT
DESCRIPTION: Proposed Asteco Addition
LOCATION: 4287 Witmer Road

TEST PIT NO. TP-3
FILE NO. BTA-89-039
DATE: 5/15/89

ENGINEER: S. Babcock
WEATHER: Overcast, 60-65°, Winds 5-15SW

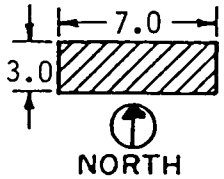
EXCAVATION EQUIPMENT
CONTRACTOR: David Smith and Sons
OPERATOR: John Smith
MAKE: Ford MODEL: 4500
CAPACITY: 1/8 C.Y. REACH: 14.0 FT.

GROUND ELEV.: --
TIME STARTED: 1:30PM
TIME COMPLETED: 2:15PM

DEPTH	SOIL DESCRIPTION	EXCAV. EFFORT	BOULDER COUNT QTY. CLASS.	PID in ppm
0'	TOPSOIL			
1'	Brown SILT and Clay, some f-c Sand, tr. gravel, tr. boulders, tr. cobbles, tr. brick, tr. concrete, tr. glass (broken and intact, possible laboratory sample jars), tr. wood, tr. clay pipe, tr. cloth, tr. cardboard, tr. paper (moist-wet, FILL) Contains tr. wood fiber-like material, strong chemical odor.	E/M	8 A-C	BG
2'		D	9 A-C	150-160
3'		M/D	8 A-C	140-150
4'	Black SLUDGE-like material, some f-c Sand, little wood, tr. glass, tr. paper, tr. cobble, tr. boulder (moist-wet, FILL)	M/D	7 A-B	300-320
5'	Brown Clayey SILT, some glass (broken), little concrete, tr. organics, tr. cobbles, tr. boulders (moist, FILL)	M/D	7 A-B	170-180
6'				
7'	Test Pit complete at 4.5'			
8'	PID=Organic vapors measured with Photoionization Detector (PID). Measurements recorded in parts per million (ppm).			
9'	BG=Background measurement PID=0.0-0.3ppm			
10'				
11'				
12'				
13'				
14'				

REMARKS:
1. Test pit walls unstable at completion.
2. Inflush of perched groundwater into test pit at 4.0'.
3. Test pit backfilled with excavation spoil at completion.

TEST PIT PLAN



LEGEND:

BOULDER COUNT

SIZE RANGE CLASSIFICATION	LETTER DESIGNATION
6"-18"	A
18"-36"	B
36" AND LARGER	C

PROPORTIONS USED

TRACE (TR.)	0-10%
LITTLE (LI.)	10-20%
SOME (SO.)	20-35%
AND	35-50%

ABBREVIATIONS

F - FINE
M - MEDIUM
C - COARSE
F/M - FINE TO MEDIUM
F/C - FINE TO COARSE
V - VERY
GR. - GRAY
BN. - BROWN
YEL. - YELLOW

EXCAVATION EFFORT

EASY — E
MODERATE — M
DIFFICULT — D

GROUNDWATER

ELAPSED TIME TO READING (HRS.) 2 G.W.L.

TEST PIT FIELD LOG

EMPIRE SOILS INVESTIGATIONS INC.

PROJECT
DESCRIPTION 5.0' East - 20' South
LOCATION Asteco, Niagara Falls

TEST PIT NO. TP-4
FILE NO. BTA-89-039
DATE 6-9-89

ENGINEER
WEATHER Cloudy 70°

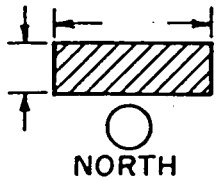
EXCAVATION EQUIPMENT
CONTRACTOR Dave Smith and Son
OPERATOR John Smith
MAKE Ford MODEL 4500
CAPACITY 1/8 C.Y. REACH 12 FT.

GROUND ELEV.
TIME STARTED 9:10
TIME COMPLETED 9:45

DEPTH	SOIL DESCRIPTION	EXCAV. EFFORT	PID	REMARK NO.
0'	0.4' TOPSOIL		0.0	
1'	Brown Clayey SILT, some f-c Sand, tr. gravel, tr. brick, tr. rubber boot, tr. cable, tr. rebar, tr. pail, tr. concrete, tr. asphaltic concrete, tr. wood, tr. metal (moist FILL)		1.0*	
2'			BG	
3'	-contains Black Organic Decay throughout (spotted)		BG	
4'			BG	
5'			BG	
6'	Becomes black (about 6") Contains little f-m Sand, tr. gravel (sludge-like)		BG	
7'	Brown-Black Contains some to "and" f-c gravel (wet, FILL)			
8'				
9'				
10'	*Note: 1.0 ppm reading taken on a spot of dark Red material approximately 8" to 1.0' below ground level			
11'				
12'				
13'				
14'	Background PID = 0.0-0.4ppm			

REMARKS:

TEST PIT PLAN



VOLUME = _____ C.Y.

LEGEND:

BOULDER COUNT

SIZE RANGE CLASSIFICATION	LETTER DESIGNATION
6"-18"	A
18"-36"	B
36" AND LARGER	C

PROPORTIONS USED

TRACE (TR.)	0 - 10%
LITTLE (LI.)	10 - 20%
SOME (SO.)	20 - 35%
AND	35 - 50%

ABBREVIATIONS

F - FINE
M - MEDIUM
C - COARSE
F/M - FINE TO MEDIUM
F/C - FINE TO COARSE
V - VERY
GR. - GRAY
BN. - BROWN
YEL. - YELLOW

EXCAVATION EFFORT

EASY — E
MODERATE — M
DIFFICULT — D

GROUNDWATER

ELAPSED TIME TO READING (HRS.) 2 G.W.L.

TEST PIT FIELD LOG

EMPIRE SOILS INVESTIGATIONS INC.

PROJECT	
DESCRIPTION	5.0' East + 46' South
LOCATION	Asteco, Niagara Falls

TEST PIT NO. TP-5
FILE NO. BTA-89-039
DATE 6-9-89

ENGINEER _____
WEATHER Partly Sunny

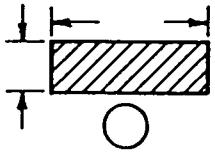
EXCAVATION EQUIPMENT
CONTRACTOR Dave Smith and Son
OPERATOR John Smith
MAKE Ford MODEL 4600
CAPACITY 1/8 C.Y. REACH 12 FT.

GROUND ELEV. _____
TIME STARTED 9:45
TIME COMPLETED _____

DEPTH	SOIL DESCRIPTION	EXCAV. EFFORT	PID	REMARK NO.
0'	3" TOPSOIL			
	Brown Clayey SILT. some f-c Sand, tr. gravel, tr. brick, tr. tile, tr. metal, tr. wood, tr. brick, tr. lime, tr. glass, tr. rebar (moist, FILL)		BG	
1'			BG	
2'			BG	
3'			BG	
4'	-Becomes reddish-brown Contains little f-m Gravel		BG	
5'			BG	
6'	Black f-m SAND, little Clayey Silt, tr. gravel, (moist-wet, FILL)			
7'	Test Pit Complete at 7.0'			
8'				
9'				
10'				
11'				
12'				
13'				
14'	Background PID = 0.0-0.2 ppm			

REMARKS:

TEST PIT PLAN



NORTH

VOLUME = _____ C.Y.

LEGEND:

BOULDER COUNT

SIZE RANGE CLASSIFICATION	LETTER DESIGNATION
6"-18"	A
18"-36"	B
36" AND LARGER	C

PROPORTIONS USED

TRACE (TR.)	0 - 10%
LITTLE (LI.)	10 - 20%
SOME (SO.)	20 - 35%
AND	35 - 50%

ABBREVIATIONS

F - FINE
M - MEDIUM
C - COARSE
F/M - FINE TO MEDIUM
F/C - FINE TO COARSE
V - VERY
GR. - GRAY
BN. - BROWN
YEL. - YELLOW

EXCAVATION EFFORT

EASY ——— E
MODERATE — M
DIFFICULT — D

GROUNDWATER

ELAPSED TIME TO READING (HRS.) 2 G.W.L.

TEST PIT FIELD LOG

EMPIRE SOILS INVESTIGATIONS INC.

PROJECT
DESCRIPTION 5' East + 71' South
LOCATION Asteco, Niagara Falls

TEST PIT NO. TP-6
FILE NO. BTA-89-039
DATE 6-9-89

ENGINEER
WEATHER Partly Sunny

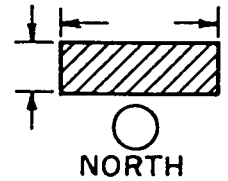
EXCAVATION EQUIPMENT
CONTRACTOR Dave Smith and Son
OPERATOR John Smith
MAKE Ford MODEL 4500
CAPACITY 1/8 C.Y. REACH 12 FT.

GROUND ELEV.
TIME STARTED 10:45
TIME COMPLETED 11:15

DEPTH	SOIL DESCRIPTION	EXCAV. EFFORT	PID	REMARK NO.
0'	5" TOPSOIL			
	Reddish-Brown Clayey SILT, little f-m Sand, tr. gravel, tr. brick, tr. metal, tr. wood, tr. plastic, tr. paper (tin can, plastic oil bottle)		BG	
1'			BG	
2'	Becomes brown Contains tr. lime		BG	
3'			BG	
4'	Contain Concrete blocks Water at 3.4'		BG	
5'	Brown f-c GRAVEL, little f-m Sand, tr. clayey Silt, tr. wood (wet, FILL) Contains tr. glass		BG	
6'			BG	
7'	Black f-c SAND and Clayey Silt, tr. gravel, tr. wood, (wet, FILL)		BG	
8'	Black Organic Topsoil Layer (moist)		BG	
	Test Pit Complete at 8.0'			
9'				
10'				
11'				
12'				
13'				
14'				

REMARKS:

TEST PIT PLAN



VOLUME = _____ C.Y.

LEGEND:

BOULDER COUNT

SIZE RANGE CLASSIFICATION	LETTER DESIGNATION
6"-18"	A
18"-36"	B
36" AND LARGER	C

PROPORTIONS USED

TRACE (TR.)	0-10%
LITTLE (LI.)	10-20%
SOME (SO.)	20-35%
AND	35-50%

ABBREVIATIONS

F - FINE
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GR. - GRAY
BN. - BROWN
YEL. - YELLOW

EXCAVATION EFFORT

EASY ——— E
MODERATE — M
DIFFICULT — D

GROUNDWATER

ELAPSED TIME TO READING (HRS.) ▽ G.W.L.

TEST PIT FIELD LOG

EMPIRE SOILS INVESTIGATIONS INC.

PROJECT
DESCRIPTION 14' East + 56.5'
LOCATION Asteco, Niagara Falls

TEST PIT NO. TP-7
FILE NO. BTA-89-039
DATE 6-9-89

ENGINEER _____
WEATHER Partly Sunny 75°

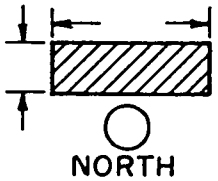
EXCAVATION EQUIPMENT
CONTRACTOR Dave Smith and Son
OPERATOR ~~John Smith~~
MAKE Ford MODEL 4500
CAPACITY 1/8 C.Y. REACH 12 FT.

GROUND ELEV. _____
TIME STARTED 11:25
TIME COMPLETED 11:55

DEPTH	SOIL DESCRIPTION	EXCAV. EFFORT	PID	REMARK NO.
0'	3" TOPSOIL			
1'	Reddish -Brown Clayey SILT, little f-m Sand, tr. gravel, tr. concrete blocks, tr. brick		BG	
2'	Becomes brown. Contains tr. glass, tr. plastic		BG	
3'	Plastic bottle (8ml?) Contains some little f-c Gravel		BG	
4'			BG	
5'			BG	
6'	Black Silty CLAY, some f-m Sand, little-tr. gravel, tr. wood (moist-wet, FILL)		BG	
7'	Contains wire, metal, concrete		BG	
8'	Test Pit Complete at 7.0'			
9'				
10'				
11'				
12'				
13'				
14'	Background PID = 0.0-0.2 ppm			

REMARKS:

TEST PIT PLAN



VOLUME = _____ C.Y.

LEGEND:

BOULDER COUNT

SIZE RANGE CLASSIFICATION	LETTER DESIGNATION
6"-18"	A
18"-36"	B
36" AND LARGER	C

PROPORTIONS USED

TRACE (TR.)	0-10%
LITTLE (LI.)	10-20%
SOME (SO.)	20-35%
AND	35-50%

ABBREVIATIONS

F - FINE
M - MEDIUM
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F/M - FINE TO MEDIUM
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GR. - GRAY
BN. - BROWN
YEL. - YELLOW

EXCAVATION EFFORT

EASY ——— E
MODERATE — M
DIFFICULT — D

GROUNDWATER

ELAPSED TIME TO READING (HRS.) 2 G.W.L.

TEST PIT FIELD LOG

EMPIRE SOILS INVESTIGATIONS INC.

PROJECT
DESCRIPTION 17' East and 72' South
LOCATION Asteco, Niagara Falls

TEST PIT NO. TP-8
FILE NO. BTA-89-039
DATE 6-9-89

ENGINEER
WEATHER Cloudy/Overcast

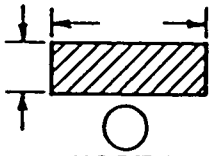
EXCAVATION EQUIPMENT
CONTRACTOR Dave Smith and Son
OPERATOR John Smith
MAKE Ford MODEL 4500
CAPACITY 1/8 C.Y. REACH 12 FT.

GROUND ELEV.
TIME STARTED 12:40
TIME COMPLETED 1:15

DEPTH	SOIL DESCRIPTION	EXCAV. EFFORT	PID	REMARK NO.
0'	3" TOPSOIL			
1'	Brown Clayey SILT, some f-c Sand, tr. gravel, tr. concrete			
2'	-Concrete Slab on top of dark Red Material*		*PID Reading as high as 125ppm	
3'	Test Pit Complete at 2.0'			
4'				
5'				
6'				
7'				
8'				
9'				
10'				
11'				
12'				
13'				
14'	Background PID = 0.0-0.2 ppm			

REMARKS:

TEST PIT PLAN



NORTH

VOLUME = _____ C.Y.

LEGEND:

BOULDER COUNT

SIZE RANGE CLASSIFICATION	LETTER DESIGNATION
.6"-18"	A
18"-36"	B
36" AND LARGER	C

PROPORTIONS USED

TRACE (TR.)	0-10%
LITTLE (LI.)	10-20%
SOME (SO.)	20-35%
AND	35-50%

ABBREVIATIONS

F - FINE
M - MEDIUM
C - COARSE
F/M - FINE TO MEDIUM
F/C - FINE TO COARSE
V - VERY
GR. - GRAY
BN. - BROWN
YEL. - YELLOW

EXCAVATION EFFORT

EASY — E
MODERATE — M
DIFFICULT — D

GROUNDWATER

ELAPSED TIME TO READING (HRS.) 2 G.W.L.

TEST PIT FIELD LOG

EMPIRE SOILS INVESTIGATIONS INC.

PROJECT
DESCRIPTION Continuation South of TP-8
LOCATION Asteco, Niagara Falls

TEST PIT NO. TP-9
FILE NO. BTA-89-039
DATE 6-9-89

ENGINEER
WEATHER Cloudy/Overcast

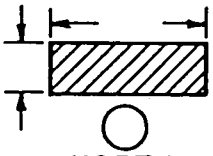
EXCAVATION EQUIPMENT
CONTRACTOR Dave Smith and Son
OPERATOR John Smith
MAKE Ford MODEL 4500
CAPACITY 1/8 C.Y. REACH 12 FT.

GROUND ELEV.
TIME STARTED 12:40
TIME COMPLETED 1:15

DEPTH	SOIL DESCRIPTION	EXCAV. EFFORT	PID	REMARK NO.
0'	3" TOPSOIL			
1'	Brown Clayey SILT, some f-c Sand, tr. gravel, tr. concrete			
2'	-Concrete Slab on top of dark Red Material*		*PID Reading as high as 125ppm	
3'	Test Pit Complete at 2.0'			
4'				
5'				
6'				
7'				
8'				
9'				
10'				
11'				
12'				
13'				
14'	Background PID = 0.0-0.2 ppm			

REMARKS:

TEST PIT PLAN



NORTH

VOLUME = _____ C.Y.

LEGEND:

BOULDER COUNT

SIZE RANGE CLASSIFICATION	LETTER DESIGNATION
6"-18"	A
18"-36"	B
36" AND LARGER	C

PROPORTIONS USED

TRACE (TR.)	0 - 10%
LITTLE (LI.)	10 - 20%
SOME (SO.)	20-35%
AND	35-50%

ABBREVIATIONS

F - FINE
M - MEDIUM
C - COARSE
F/M - FINE TO MEDIUM
F/C - FINE TO COARSE
V - VERY
GR. - GRAY
BN. - BROWN
YEL. - YELLOW

EXCAVATION EFFORT

EASY ——— E
MODERATE — M
DIFFICULT — D

GROUNDWATER

ELAPSED TIME TO READING (HRS.) ▽2 G.W.L.

DATE
STARTED 4/12/89
FINISHED 4/12/89
SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS INC.

SUBSURFACE LOG

BTA-89-039

HOLE NO. B-1
SURF. ELEV. 98.9
G. W. DEPTH see note

PROJECT Proposed Building Expansion
ASTECO, Inc.

LOCATION 4287 Witmer Road
Town of Niagara, New York

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	PID	SOIL OR ROCK CLASSIFICATION	NOTES
0		1	2	3			0.5-	TOPSOIL	PID readings obtained using HNU model PI-101
			3	5		6	0.8	Red-Brn. Clayey SILT, little f-c Sand, tr. slag, tr. glass, tr. wood (moist, FILL)	
		2	4	7			0.5-		
			10	3		17	1.0	Contains tr. paper, tr. garbage	
5		3	2	2			0.5-	Gray-Black f-c SAND and Cinders, tr. slag (wet, FILL)	
			2	2		4	1.0		
		4	1/1.0				0.5-	Brn.-Black organic SILT, some fine Sand, tr. clay, tr. roots (wet, loose)	
			1	1		1	0.8		
		5	3	4			0.5-		
10			6	8		10	0.8	Brn. Silty CLAY, little f-c Sand (moist, medium)	
		6	2	4			0.5-	Red-Brn. f-c SAND, some Silt, some f-c Gravel (moist-wet, firm)	
			8	8		12	0.8		
15		7	4	10	100	110	0.5-	Contains tr. fractured rock fragments	
							0.8		
								Boring Complete with Sample Spoon refusal at 16.5'	Free standing water recorded at 10.0' at Boring Completion
20									

N = No. blows to drive 2 " spoon 12 " with 140 lb. pin wt. falling 30 "per blow.

C = No. blows to drive _____ " casing _____ " with _____ lb. weight falling _____ "per blow.

CLASSIFICATION Visual by Geologist

METHOD OF INVESTIGATION: ASTM D-1586 USING HOLLOW STEM AUGERS

R/T Form H

DATE
STARTED 4/13/89
FINISHED 4/13/89
SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS INC.

SUBSURFACE LOG

BTA-89-039

HOLE NO. B-2
SURF. ELEV. 98.1
G. W. DEPTH see note

PROJECT Proposed Building Expansion
ASTECO, Inc.

LOCATION 4287 Witmer Road
Town of Niagara, New York

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	PID	SOIL OR ROCK CLASSIFICATION	NOTES
0		1	8	10			0.5-	TOPSOIL	PID readings obtained using HNU model PI-101
			31	4		41	1.0	Brn. f-c SAND and Silt, tr. slag, tr. wood (moist, FILL)	
		2	2	50/0.1					No recovery Sample #2
5		3	1	2			80-	Black f-c SAND and Clayey Silt, tr. glass (wet, FILL)	Driller notes augering through cobbles (FILL)
			2	2		4	100		
		4	2	4			300-		
			4	6		8	380		
		5	3	4				Red-Brn. Clayey SILT and f-c Sand (moist, medium)	Strong chemical odor noted in Samples #3, #4 and #5
10			4	8		8			
		6	4	4			7-	Red-Brn. Silty CLAY, tr. sand (moist, medium)	
			3	4		7	10		
15		7	1	2			4-	Contains occasional Silt seams	Slight chemical odor noted in Samples #6 and #7
			1	7		3	5		
		8	15	100/0.5			1-2	Red-Brn. f-c SAND, tr. silt (wet)	
20								Boring Complete with Sample Spoon refusal at 18.0'	Free standing water recorded at 13.0' at Boring Completion

N = No. blows to drive 2 " spoon 12 " with 140 lb. pin wt. falling 30 "per blow.

C = No. blows to drive _____ " casing _____ " with _____ lb. weight falling _____ "per blow.

CLASSIFICATION Visual by Geologist

METHOD OF INVESTIGATION: ASTM D-1586 USING HOLLOW STEM AUGERS

R/T Form H

DATE
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SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS INC

SUBSURFACE LOG

BTA-89-039

HOLE NO. B-3
SURF. ELEV. 99.8
G. W. DEPTH see note

PROJECT Proposed Building Expansion
ASTECO, Inc.

LOCATION 4287 Witmer Road
Town of Niagara, New York

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	PID	SOIL OR ROCK CLASSIFICATION	NOTES
0		1	3	4			0.4-	TOPSOIL	PID reading obtained using HNU model PI-101
			4	3		8	0.6	White LIME (moist, FILL)	
		2	3	3			0.4-		
			4	4		7	0.6	(wet)	
		3	2	7			0.4-		
5			3	8		10	0.6	Red-Brn. Clayey SILT, little f-c Sand (moist, medium)	
		4	2	3			0.4-		
			7	12		10	0.6		
		5	5	7			0.4-		
10			7	12		14	0.6		
		6	2	4			0.4-		
			4	4		8	0.6	Gray and Red-Brn. laminated Silty CLAY, tr. sand, occasional Silt partings (moist-wet, medium)	No recovery Sample #7
15		7	100/0.1						
								Boring Complete with auger refusal at 16.6' and Sample Spoon refusal at 16.7'	No free standing water encountered at Boring Completion
20									

N = No. blows to drive 2 " spoon 12 " with 140 lb. pin wt. falling 30 "per blow.

C = No. blows to drive _____ " casing _____ " with _____ lb. weight falling _____ "per blow.

CLASSIFICATION Visual by Geologist

METHOD OF INVESTIGATION: ASTM D-1586 USING HOLLOW STEM AUGERS

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FINISHED 4/12/89
SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS INC

SUBSURFACE LOG

BTA-89-039

HOLE NO. B-4
SURF. ELEV. 99.1
G. W. DEPTH see note

PROJECT Proposed Building Expansion
ASTECO, Inc.

LOCATION 4287 Witmer Road
Town of Niagara, New York

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	PID	SOIL OR ROCK CLASSIFICATION	NOTES
0		1	1	4			0.4-	TOPSOIL	PID readings obtained using HNU model HN-101
			7	12		11	0.6	Red-Brn. f-c SAND and Clayey Silt, tr. glass, tr. slag (moist, FILL)	
		2	9	5			0.4-		
			3	3		8	0.8	Becomes brn. (moist-wet)	
5		3	2	2			0.4-		
			3	4		5	0.9		
		4	2	2			0.4-	Brn.-Black organic Clayey SILT, little f-c Sand (moist-wet, medium)	
			2	4		4	0.6		
		5	2	4			0.4-	Becomes red-brn. (moist, medium)	
10			4	6		8	0.6		
		6	2	2			0.4-	Red-Brn. Silty CLAY, tr. sand (wet, soft)	
			2	2		4	0.6		
15		7	4	7			5-	Red-Brn. SILT, tr. sand, occasional Clay partings, tr. fractured rock fragments (moist, firm)	Driller notes methane odor in Sample #7
			10	100		17	10		
20								Boring Complete at 17.0'	No free standing water encountered at Boring Completion Free standing water recorded at 5.0' on 4/13/89

N = No. blows to drive 2 " spoon 12 " with 140 lb. pin wt. falling 30 "per blow.

C = No. blows to drive _____ " casing _____ " with _____ lb. weight falling _____ "per blow.

CLASSIFICATION Visual by Geologist

METHOD OF INVESTIGATION: ASTM D-1586 USING HOLLOW STEM AUGERS

R/T Form H

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STARTED 6-3-89
FINISHED 6-3-89
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EMPIRE SOILS INVESTIGATIONS INC

SUBSURFACE LOG

HOLE NO. B-5
SURF. ELEV. N/A
G. W. DEPTH see notes

PROJECT Asteco Proposed Building Expansion

LOCATION Asteco Witmer Road, Niagara Falls, New York

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	BLOW ON CASING C	SOIL OR ROCK CLASSIFICATION	NOTES	PID Breathing Space
0		1	2	10				.4' TOPSOIL	While Augeering driver pulled bricks	BG
			12	12		22	12	Brown Clayey SILT, some f-c Gravel, little-tr. sand, tr. cinders, tr. lime, tr. glass, tr. brick (moist, FILL)		BG
		2	18	50/1			*		*No recovery on S-2	
5		3	23	11			250	Becomes Dark Red		BG
			10	7		21				
		4	2	2			225	Black Clayey SILT, some f-c Sand, tr. gravel, tr. glass, tr. cinders, (moist-wet, FILL)		BG
			2	5		4				
		5	4	4			170			BG
10			7	11		11		Red-Brown Silty CLAY, little f-m Sand, tr. gravel (moist, medium)		
								Boring Complete at 10.0'	Free standing water observed at 3.8' at Boring Completion	

BG = Background PID 0.0-0.3 ppm

PID = Organic vapors measured with Photo-ionization Detector (PID) measurements recorded in parts per million (ppm)

N = No. blows to drive 2 " spoon 12 " with 140 lb. pin wt. falling 30 "per blow.

C = No. blows to drive _____ " casing _____ " with _____ lb. weight falling _____ "per blow.

CLASSIFICATION Visual by Geologist

METHOD OF INVESTIGATION: ASTM D-1586 USING HOLLOW STEM AUGERS

R/T Form H

DATE
STARTED 6-3-89
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SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS INC

SUBSURFACE LOG

HOLE NO. B-6
SURF. ELEV. N/A
G. W. DEPTH see notes

PROJECT Asteco Proposed Building Expansion

LOCATION Asteco Witmer Road, Niagara Falls, New York

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	PID	SOIL OR ROCK CLASSIFICATION	NOTES	PID Breathing Space
0		1	1	5			BG	.25' TOPSOIL		
			4	4		9		Brown-Orange f-c SAND, little Gravel, little broken Glass, tr. cinders, tr. slag (moist, FILL)		BG
		2	3	8						BG
			7	4		15	5.5			
		3	3	12				Contains tr. wood		
5			11	13		23	390	Contains tr. brick, tr. wood, tr. plastic		BG
		4	4	4						
			4	6		8	240	Black Clayey SILT, little f-m Sand, little Roots, tr. leaves, tr. grass (wet-moist, FILL)	*Picture #3 taken	BG
		5	3	5						
			10	12		15	50			BG
10								Red-Brown Silty CLAY, little f-m Sand, tr. gravel (moist, medium)		
								Boring Complete at 10.0'	Free standing water encountered at 9.0' at Boring Completion	

BG = Background PID 0.0-0.3 ppm

PID = organic vapors measured with Photo-ionization Detector (PID) measurements recorded in parts per million (ppm)

N = No. blows to drive 2 " spoon 12 " with 140 lb. pin wt. falling 30 "per blow.

C = No. blows to drive _____ " casing _____ " with _____ lb. weight falling _____ "per blow.

CLASSIFICATION Visual by Geologist

METHOD OF INVESTIGATION: ASTM D-1586 USING HOLLOW STEM AUGERS

R/T Form H

DATE
STARTED 6-3-89
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SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS INC. SUBSURFACE LOG

HOLE NO. B-7
SURF. ELEV. N/A
G. W. DEPTH see notes

PROJECT Asteco Proposed Building Expansion

LOCATION Asteco Witmer Road, Niagara Falls, New York

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	PID	SOIL OR ROCK CLASSIFICATION	NOTES	PID Breathing Space
0		1	2	8				.4' TOPSOIL		
			7	9		15	2	Brown-Orange f-c SAND, little f-m Gravel, tr. clayey silt, tr. glass, tr. brick, tr. lime (moist, FILL)		BG
		2	5	8						
			7	8		15	1			BG
5		3	3	6				Contains tr. nail, tr. lime, tr. wood		
			6	3		12	425	Becomes dark Red		BG
		4	7	14				Contains little Brick		
			10	3		24	350			BG
		5	2	4				.75' FILL		
10			6	9		10	110	Red-Brown Silty CLAY, little f-m Sand, tr. gravel, tr. roots (moist, medium)		BG
								Boring Complete at 10.0'	No free standing water observed at Boring Completion	

BG = Background PID 0.0-0.3 ppm

PID = Organic vapors measured with Photo-ionization Detector (PID) measurements recorded in parts per million (ppm)

N = No. blows to drive 2 " spoon 12 " with 140 lb. pin wt. falling 30 "per blow.

C = No. blows to drive _____ " casing _____ " with _____ lb. weight falling _____ "per blow.

CLASSIFICATION Visual by Geologist

METHOD OF INVESTIGATION: ASTM D-1586 USING HOLLOW STEM AUGERS

R/T Form H

DATE
STARTED 6-3-89
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SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS INC

SUBSURFACE LOG

HOLE NO. B-8
SURF. ELEV. N/A
G. W. DEPTH see notes

PROJECT Asteco Proposed Building Expansion

LOCATION Asteco Witmer Road Niagara Falls, New York

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	PID	SOIL OR ROCK CLASSIFICATION	NOTES	PID Breathing Space
0		1	3	5			BG	TOPSOIL		
			10	15		15		Brown-Orange Clayey SILT, some f-m Sand, tr. gravel, tr. tile, tr. roots, tr. brick, tr. glass (moist, FILL)	PID in hole read 4-8 ppm	BG
		2	18	17			*	**	*No recovery on S-2	
			10	6		27		.5' Black SILT and f-c Sand, little Gravel (wet, FILL)	Driver said probably stone.	BG
5		3	3	3			BG			BG
			1	3		4		Brown f-c SAND, some Clayey Silt, tr. gravel (moist, loose)	** Sample looked like Topsoil possible fallen in spoon from ground surface	
		4	3	3			BG			BG
			2	8		5		Red-Brown Silty CLAY, some f-c Sand		BG
		5	6	12			BG			
10			37	35		49		Boring Complete at 10.0'	Free standing water encountered at 6.8' at Boring Completion	
									BG = Background PID 0.0-0.3ppm	
									PID = Organic vapors measured with Photo-ionization Detector (PID) measurements recorded in parts per million (ppm)	

N = No. blows to drive 2 " spoon 12 " with 140 lb. pin wt. falling 30 "per blow.

C = No. blows to drive _____ " casing _____ " with _____ lb. weight falling _____ "per blow.

CLASSIFICATION Visual by Geologist

METHOD OF INVESTIGATION: ASTM D-1586 USING HOLLOW STEM AUGERS

R/T Form H

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EMPIRE SOILS INVESTIGATIONS INC. — **SUBSURFACE LOG**

HOLE NO. B-9
SURF. ELEV. N/A
G. W. DEPTH see notes

PROJECT Asteco Proposed Building Expansion

LOCATION Asteco Witmer Road, Niagara Falls, New York

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	PID	SOIL OR ROCK CLASSIFICATION	NOTES	PID Breathing Space
0		1	3	7			BG	22' TOPSOIL		
			7	7		14		Brown-Orange f-c SAND, some Silt, little Gravel, tr. roots, tr. wood, tr. glass, tr. slag (moist, FILL)		BG
		2	7	13			BG			
			22	20		33		Contains little Glass		BG
5		3	3	4				Contains tr. furnace blast, tr. brick, tr. lime		
			4	3		8	0.4			BG
		4	3	4				Contains tr. metal		
			5	4		9	0.8			BG
		5	30	17				Black f-c SAND, little Gravel, little Clayey Silt, tr. glass, tr. lime (moist-wet, FILL)		
10			11	14		28	0.8	Red-Brown Silty CLAY, little f-m Sand, tr. gravel, occasional Silt seams (moist, hard)		BG
								Boring Complete at 10.0'	Free standing water encountered at 9.2' at Boring Completion BG = Background PID 0.0-0.3 ppm PID = Organic vapors measured with Photo-ionization Detector (PID) measurements recorded in parts per million ppm	

N = No. blows to drive 2 " spoon 12 " with 140 lb. pin wt. falling 30 "per blow. CLASSIFICATION Visual by Geologist

C = No. blows to drive ____ " casing ____ " with ____ lb. weight falling ____ "per blow.

METHOD OF INVESTIGATION: ASTM D-1586 USING HOLLOW STEM AUGERS

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EMPIRE SOILS INVESTIGATIONS INC. SUBSURFACE LOG

HOLE NO. B-10
SURF. ELEV. N/A
G. W. DEPTH see notes

PROJECT Asteco Proposed Building Expansion

LOCATION Asteco Witmer Road, Niagara Falls, New York

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	PID	SOIL OR ROCK CLASSIFICATION	NOTES	PID Breathing Space
0		1	4	19	50/0		BG	Brown Clayey SILT, some f-c sand, tr. gravel, little Lime (moist, FILL)		BG
		2	100				BG	Contains tr. brick, tr. glass, tr. slag	Augeering difficult	BG
		3	1	2			BG			
5			11	2		13			Water at 7.0'	BG
		4	7	4			BG			
			2	2		6		4.4' Brown-Gray Silty CLAY, little f-m Sand (wet, FILL)		BG
		5	5	7			BG	Brown-Red Clayey SILT and f-m Sand, tr. gravel, tr. organics (moist, very hard)		
10			49	80		56				BG
		6	23	39			BG	Contains little f-m Sand (moist-wet, hard)		
			14	17		53				
								Boring Complete at 12.0'	Free standing water observed at 3.0' at Boring Completion	

BG = Background PID 0.0-0.3 ppm

PID = Organic vapors measured with Photo-ionization Detector (PID) measurements recorded in parts per million (ppm)

N = No. blows to drive_____" spoon_____" with_____lb. pin wt. falling_____"per blow.

C = No. blows to drive_____" casing_____" with_____lb. weight falling_____"per blow.

CLASSIFICATION _____

METHOD OF INVESTIGATION: _____

R/T Form H

DATE
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SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS INC.

SUBSURFACE LOG

HOLE NO. B-11
SURF. ELEV. N/A
G. W. DEPTH see notes

PROJECT Asteco Proposed Building Expansion

LOCATION Asteco Witmer Road, Niagara Falls, New York

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	PID	SOIL OR ROCK CLASSIFICATION	NOTES	PID Breathing Space
0										
		1	4	8				.5' TOPSOIL	up to 70 in hole	
			4	6		12	350	Red-Brown-Orange f-c SAND, some Clayey Silt, tr. furnace slag, tr. glass, tr. roots, tr. gravel (moist, FILL)		BG
		2	5	9						
			5	18		14	250		PID = 10 while Augeering (PID near ground surface)	BG
5		3	3	5						
			16	16		21	350	Black Clayey SILT, some f-c Sand, tr. gravel, tr. cinders, tr. glass, tr. roots, tr. metal (wet, FILL)		BG-1.5
		4	4	7						
			3	7		10	300	Contains tr. plastic, little f-c Gravel		BG
		5	6	9						
10			16	14		25	280	Contain some broken Glass .75 in S-5 Contains little f-m SAND, tr. glass, Red-Brown Silty Clay, little f-m Sand, tr. gravel (moist, medium-stiff)		BG
								Boring Complete at 10.0'	Free standing water observed at 9.8' at Boring Completion	

BG= Background PID 0.0-0.3 ppm

PID = Organic vapors measured with Photo ionization Detector (PID) measurement recorded in parts per million (ppm)

N = No. blows to drive 2 " spoon 12 " with 140 lb. pin wt. falling 30 "per blow.

C = No. blows to drive _____ " casing _____ " with _____ lb. weight falling _____ "per blow.

CLASSIFICATION Visual by Geologist

METHOD OF INVESTIGATION: ASTM D-1586 USING HOLLOW STEM AUGERS

R/T Form H

DATE
STARTED 6-6-89
FINISHED 6-6-89
SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS INC.

SUBSURFACE LOG

HOLE NO. B-12
SURF. ELEV.
G. W. DEPTH

PROJECT Asteco - Proposed Building Expansion

LOCATION Asteco-Witmer Road Niagara Falls, New York

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0/6 6/12 12/18 N	PID	SOIL OR ROCK CLASSIFICATION	NOTES
0		1		BG	Brown Clayey SILT, some f-c Sand, tr. gravel, tr. furnace slag, tr. brick	
		2		BG	Contains tr. wood	
5					Boring Complete at 4.0'	Background PID = 0-.4 ppm
10						

N = No. blows to drive 2 " spoon 12 " with 140 lb. pin wt. falling 30 "per blow. CLASSIFICATION Visual by Geologist

C = No. blows to drive _____ " casing _____ " with _____ lb. weight falling _____ "per blow.

METHOD OF INVESTIGATION: ASTM D-1586 USING HOLLOW STEM AUGERS

R/T Form H

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STARTED 6-15-89
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EMPIRE SOILS INVESTIGATIONS INC

SUBSURFACE LOG

HOLE NO. B-13
SURF. ELEV.
G. W. DEPTH see note

PROJECT Asteco Proposed Building Expansion

LOCATION Asteco-Witmer Road
Niagara Falls, New York

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	PID	SOIL OR ROCK CLASSIFICATION	NOTES
0		1	9	17		39	BG	4" TOPSOIL	
			22	12				Brown-Black Clayey SILT, some f-c Sand, tr. gravel, tr. glass, tr. cinders, tr. slag, tr. roots, tr. brick, tr. lime (moist, FILL)	
		2	4	13		31	BG		
			18	15					
5		3	6	9		20	BG	Contains little f-c Gravel	
			11	12					
		4	6	15		31	BG	Brown-Red Silty CLAY, little f-m Sand, gr. gravel (moist, stiff)	
			16	15				Contains occasional Gray f-m Sand lenses	
10								Boring Complete at 8.0'	No free standing water observed at Boring Completion Background (BG) PID = 0.0-0.4 ppm

N = No. blows to drive 2 " spoon 12 " with 140 lb. pin wt. falling 30 "per blow.

C = No. blows to drive ____ " casing ____ " with ____ lb. weight falling ____ "per blow.

CLASSIFICATION Visual by Geologist

METHOD OF INVESTIGATION: ASTM D-1586 USING HOLLOW STEM AUGERS

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EMPIRE SOILS INVESTIGATIONS INC. — **SUBSURFACE LOG**

HOLE NO. B-14
SURF. ELEV.
G. W. DEPTH

PROJECT Asteco Proposed Building Expansion

LOCATION Asteco-Witmer Road, Niagara Falls, New York

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER (0/6, 6/12, 12/18, N)	PID	SOIL OR ROCK CLASSIFICATION	NOTES
0		1		.6	Brown Clayey SILT, some f-c Sand, tr. gravel, tr. brick, tr. slag, tr. glass, contains dark red layer	
		2		6.6		
		3		325	Becomes red to dark red Brown-Red Silty CLAY, little f-c sand, tr. slag (moist, FILL)	
5					Boring Complete at 5.0'	Background PID = 0.0-0.4 ppm
10						

N = No. blows to drive 2 " spoon 12 " with 140 lb. pin wt. falling 30 "per blow.

C = No. blows to drive ____ " casing ____ " with ____ lb. weight falling ____ "per blow.

CLASSIFICATION Visual by Geologist

METHOD OF INVESTIGATION: ASTM D-1586 USING HOLLOW STEM AUGERS

R/T Form H

DATE
STARTED 6-6-89
FINISHED 6-6-89
SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS INC

SUBSURFACE LOG

HOLE NO. B-15
SURF. ELEV.
G. W. DEPTH

PROJECT Asteco Proposed Building Expansion

LOCATION Asteco - Witmer Road Niagara Falls, New York

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	PID	SOIL OR ROCK CLASSIFICATION	NOTES
0		1					0.8	Brown Clayey SILT, some f-c Sand, little f-m Gravel, tr. glass, tr. brick, tr. slag (moist, FILL) Contains tr. wood.	
		2					6.7		
5		3					8.0	Becomes Brown-Orange	
								Boring Complete at 6.0'	Background PID = 0.0-0.4 ppm

N = No. blows to drive 2 " spoon 12 " with 140 lb. pin wt. falling 30 "per blow. CLASSIFICATION Visual by Geologist

C = No. blows to drive ____ " casing ____ " with ____ lb. weight falling ____ "per blow.

METHOD OF INVESTIGATION: ASTM D-1586 USING HOLLOW STEM AUGERS

R/T Form H

DATE
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EMPIRE SOILS INVESTIGATIONS INC

SUBSURFACE LOG

HOLE NO. B-16
SURF. ELEV.
G. W. DEPTH see note

PROJECT Asteco Proposed Building Expansion

LOCATION Asteco-Witmer Road Niagara Falls, New York

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	PID	SOIL OR ROCK CLASSIFICATION	NOTES
0		1					0.7	Brown-Black-Orange Clayey SILT, some f-c Sand, tr. gravel, tr. wood, tr. roots, tr. glass, tr. furnace blast, tr. lime (moist, FILL)	
		2					0.5		
		3					325	Becomes dark red	
5								Red-Brown Silty CLAY, little f-m Sand, tr. gravel (moist, FILL)	
								Boring Complete at 6.0'	Background PID = 0.0-0.4 ppm
10									

N = No. blows to drive_____" spoon_____" with_____lb. pin wt. falling_____"per blow. CLASSIFICATION _____

C = No. blows to drive_____" casing_____" with_____lb. weight falling_____"per blow. _____

METHOD OF INVESTIGATION: _____

R/T Form H

DATE
STARTED 6-6-89
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EMPIRE SOILS INVESTIGATIONS INC.

SUBSURFACE LOG

HOLE NO. B-17
SURF. ELEV.
G. W. DEPTH see note

PROJECT Asteco Proposed Building Expansion

LOCATION Asteco-Witmer Road Niagara Falls, New York

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	BLOW ON CASING C	SOIL OR ROCK CLASSIFICATION	NOTES
0		1					BG	Brown-Black-Orange Clayey SILT and f-c Sand, tr. gravel, tr. roots, tr. glass, tr. wood, tr. furnace slag, tr. lime (moist, FILL)	
		2					4.0		
5		3					BG	Brown-Orange Silty CLAY, some f-c Sand, tr. gravel, tr. brick, tr. lime (moist, FILL)	
								Boring Complete at 5.0'	Background PID = 0.0-0.4 ppm
10									

N = No. blows to drive 2 " spoon 12 " with 140 lb. pin wt. falling 30 "per blow.

C = No. blows to drive _____ " casing _____ " with _____ lb. weight falling _____ "per blow.

CLASSIFICATION Visual by Geologist

METHOD OF INVESTIGATION: ASTM D-1586 USING HOLLOW STEM AUGERS

R/T Form H

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EMPIRE SOILS INVESTIGATIONS INC.

SUBSURFACE LOG

HOLE NO. B-18
SURF. ELEV.
G. W. DEPTH

PROJECT Asteco Proposed Building Expansion

LOCATION Asteco-Witmer Road Niagara Falls, New York

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0/6 6/12 12/18 N	BLOW ON CASING C	SOIL OR ROCK CLASSIFICATION	NOTES
0		1		BG	Brown-Black-Orange Clayey SILT, some f-c Sand, tr. gravel, tr. glass, tr. wood, tr. slag, tr. roots, tr. lime (moist, FILL) Contains tr. brick	
		2		.9		
5		3		.9		
					Boring Complete at 6.0'	Background PID = 0.0-0.4 ppm

N = No. blows to drive_____" spoon_____" with_____lb. pin wt. falling_____"per blow.

C = No. blows to drive_____" casing_____" with_____lb. weight falling_____"per blow.

CLASSIFICATION _____

METHOD OF INVESTIGATION: _____

R/T Form H

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EMPIRE SOILS INVESTIGATIONS INC.

SUBSURFACE LOG

HOLE NO. B-19
SURF. ELEV.
G. W. DEPTH

PROJECT Asteco Proposed Building Expansion

LOCATION Asteco-Witmer Road, Niagara Falls, New York

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER (0/6, 6/12, 12/18, N)	BLOW ON CASING C	SOIL OR ROCK CLASSIFICATION	NOTES
0		1		BG	Brown Clayey SILT, some f-c Sand, little Gravel, tr. roots, tr. furnace slag (moist, FILL)	
		2		.6	Becomes red-brown	
					Contains occasional f-m Sand lenses	
5		3		BG	Brown-Gray f-c SAND, some Silty Clay (moist)	
					Boring Complete at 6.0'	Background PID = 0-.4 ppm
10						

N = No. blows to drive 2 " spoon 12 " with 140 lb. pin wt. falling 30 "per blow.

C = No. blows to drive _____ " casing _____ " with _____ lb. weight falling _____ "per blow.

CLASSIFICATION Visual by Geologist

METHOD OF INVESTIGATION: ASTM D-1586 USING HOLLOW STEM AUGERS

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EMPIRE SOILS INVESTIGATIONS INC. SUBSURFACE LOG

HOLE NO. B-20
SURF. ELEV.
G. W. DEPTH see note

PROJECT Asteco Proposed Building Expansion
LOCATION Asteco- Witmer Road, Niagara Falls, New York

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	PID	SOIL OR ROCK CLASSIFICATION	NOTES
0								4" TOPSOIL	Driller excavated with shovel, Limestone and Rock obstructions
								Brown-Black Clayey SILT, some f-c Sand, tr. gravel, tr. rock, tr. brick, tr. cinders (moist, FILL)	
		2	11	16			BG		
			20	31		36			
		3	53	100			BG	Red-Brown Silty CLAY, little f-m Sand, tr. wood, occasional Silt lenses (moist, FILL)	Picture #5 & 6 of 5-1
5			28	15		128			
		4	4	12			BG	Contains tr. lime, tr. limestone rock, occasional cinder lenses	
			14	21		26			
								Red-Brown Silty CLAY, little f-m Sand, tr. gravel, contains occasional sand lenses (moist, stiff)	
10								Boring Complete at 8.0'	No free standing water observed at Boring Completion
									Background (BG) PID = 0.0-0.4 ppm

N = No. blows to drive 2 " spoon 12 " with 140 lb. pin wt. falling 30 "per blow.
C = No. blows to drive _____ " casing _____ " with _____ lb. weight falling _____ "per blow.
METHOD OF INVESTIGATION: ASTM D-1586 USING HOLLOW STEM AUGERS

CLASSIFICATION Visual by Geologist

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EMPIRE SOILS INVESTIGATIONS INC. SUBSURFACE LOG

HOLE NO. B-21
SURF. ELEV.
G. W. DEPTH see note

PROJECT Asteco Proposed Building Expansion

LOCATION Asteco-Witmer Road
Niagara Falls, New York

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	BLOW ON CASING C	SOIL OR ROCK CLASSIFICATION	NOTES
0								3" TOPSOIL	
		1	7	8		18	BG	Brown Clayey SILT. some f-c Sand, tr. gravel, tr. cinders, tr. brick, tr. glass (moist, FILL)	
			10	14					
		2	7	8		19	BG		
			11	22					
5		3	16	17		38	BG	Contains occasional Silty Clay lenses, some crushed Stone (limestone rock)	
			21	32					water at approx. 5.0'
		4	8	30		42	BG	Contains some f-c Gravel, occasional wet Black Gravel	
			12	14					
		5	4	8		20	BG	Contains tr. brick, tr. wood	
10			12	19				Becomes orange-brown, contains occasional Silty Clay lenses	
								Brown-Black Silty CLAY, little f-m Sand, tr. wood, tr. roots (moist, medium)	
								Boring Complete at 10.0'	No free standing water observed at Boring Completion
									Background (BG) PID = 0.0-0.2 ppm

N = No. blows to drive 2 " spoon 12 " with 140 lb. pin wt. falling 30 "per blow.

C = No. blows to drive _____ " casing _____ " with _____ lb. weight falling _____ "per blow.

CLASSIFICATION Visual by Geologist

METHOD OF INVESTIGATION: ASTM D-1586 USING HOLLOW STEM AUGERS

R/T Form H

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EMPIRE SOILS INVESTIGATIONS INC — SUBSURFACE LOG

HOLE NO. B-22
SURF. ELEV.
G. W. DEPTH See Note

PROJECT Asteco - Proposed Building Expansion

LOCATION Asteco-Witmer Road Niagara Falls, NY

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	PID SAMPLE	SOIL OR ROCK CLASSIFICATION	NOTES
0									
		1	3	10		30	BG	3" TOPSOIL	
			20	20				Red-Brown-Black mottled Clayey SILT, Some f-c Sand, tr. gravel, tr. roots, tr. glass, tr. slag (cinders), tr. concrete, tr. brick (moist, FILL)	
		2	6	9		17	BG		
			8	8					
5		3	17	22		57	BG	Contains tr. lime	Water at approximately 6.0'
			35	41					
		4	100/.1			Ref	BG	Becomes Red-Brown, contains occasional Silt partings, some f-m Gravel	
		5	4	9		21		Brown Black Silty CLAY, little f-m Sand, tr. roots, grass (moist, stiff)	
10			12	16					
								Boring Complete at 10.0'	Free standing water measured at 6.0' at Boring Completion.

PID = Organic vapor measurements taken with Photoionization Detector (PID). Measurements recorded in Parts Per Million (ppm).

BG = Background measurements = 0.0-0.3 ppm.

N = No. blows to drive 2 " spoon 12 " with 140 lb. pin wt. falling 30 "per blow. CLASSIFICATION Visual by Geologist

C = No. blows to drive ____ " casing ____ " with ____ lb. weight falling ____ "per blow.

METHOD OF INVESTIGATION: ASTM D-1586 Using Hollow Stem Augers. (2-1/4")

R/T Form H

DATE
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EMPIRE SOILS INVESTIGATIONS INC. — **SUBSURFACE LOG**

HOLE NO. B-23
SURF. ELEV.
G. W. DEPTH See Note

PROJECT Asteco - Proposed Building Expansion

LOCATION Asteco - Witmer Road, Niagara Falls, NY

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	PID SAMPLE	SOIL OR ROCK CLASSIFICATION	NOTES
0									
		1	4	9		28	BG	4" TOPSOIL	
			19	21				Red-Brown-Black mottled Clayey SILT, some f-m Sand, tr. gravel, tr. brick, tr. cinders, tr. glass, tr. slag, tr. lime, tr. roots, (moist, FILL)	*Driller excavated rebar and bricks
		2	40	33		59	20		
			26	35					
5		3	22	13		68	60	Contains Black WOOD, charcoal	
			55	100/3				Contains dark red substance, app. 1" thick	
							*	Dark red substance	
								Becomes Black SLUDGE-like material	*Driller notes unable to obtain split spoon, due to obstruction.
		5	11	9		25	55	Dark Red substance present at top of spoon	
10			16	29					
		6	39	34		68	1	Red-Brown Silty CLAY, little f-c Sand, tr. gravel (moist, very hard)	Augered to 8.0'
			34	30					
								Boring Complete at 12.0'	Free standing water measured at 8.0' at Boring Completion
									PID = Organic vapor measurements taken with Photoionization Detector (PID). Measurements recorded in parts per million (ppm).
									BG = Background measurements = 0.0-0.04 ppm

N = No. blows to drive 2 " spoon 12 " with 140 lb. pin wt. falling 30 "per blow. CLASSIFICATION Visual by Geologist

C = No. blows to drive ____ " casing ____ " with ____ lb. weight falling ____ "per blow.

METHOD OF INVESTIGATION: ASTM D-1586 Using Hollow Stem Augers (2-1/4")

R/T Form H

DATE
STARTED 6-16-89
FINISHED 6-16-89
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EMPIRE SOILS INVESTIGATIONS INC.

SUBSURFACE LOG

HOLE NO. B-24
SURF. ELEV.
G. W. DEPTH See Note

PROJECT Asteco - Proposed Building Expansion

LOCATION Asteco-Witmer Road Niagara Falls, NY

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	PID SAMPLE	SOIL OR ROCK CLASSIFICATION	NOTES
0									
		1	3	9		33	BG	2" TOPSOIL	
			24	45				Brown Clayey SILT, little f-m Sand tr. gravel, tr. brick, tr. cinders, tr. lime, tr. roots, tr. wood	
		2	25	45		74	50	Contains dark red material app. 1" thick	
			29	13				Boring Complete at 4.0'	No Free standing water measured at Boring Completion

PID = organic vapor measurements taken with Photoionization Detector (PID). Measurements recorded in parts per million (ppm).

BG = Background measurements = 0.0-0.4 ppm

N = No. blows to drive 2 " spoon 12 " with 140 lb. pin wt. falling 30 "per blow.

C = No. blows to drive ____ " casing ____ " with ____ lb. weight falling ____ "per blow.

CLASSIFICATION Visual by Geologist

METHOD OF INVESTIGATION: ASTM D-1586 Using Hollow Stem Augers (2-1/4")

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EMPIRE SOILS INVESTIGATIONS INC

SUBSURFACE LOG

HOLE NO. B-25
SURF. ELEV.
G. W. DEPTH See Note

PROJECT Asteco - Proposed Building Expansion

LOCATION Asteco - Witmer Road, Niagara Falls, NY

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	PID SAMPLE	SOIL OR ROCK CLASSIFICATION	NOTES
0		1	7	7		18	BG	12" TOPSOIL	
			11	17				Brown Clayey SILT, some f-c Sand, tr. gravel, tr. glass, tr. cinders, tr. brick, tr. lime (moist, FILL)	
		2	18	20		33	58	Contains dark red substance app. 2 to 3" thick	
			13	12					
5								Boring Complete at 4.0'	No free standing water measured at Boring Completion
10									PID = organic vapor measurements taken with Photoionization Detector (PID). Measurements recorded in parts per million (ppm). BG = Background measurements = 0.0-0.8 ppm

N = No. blows to drive 2 " spoon 12 " with 140 lb. pin wt. falling 30 "per blow.

C = No. blows to drive ____ " casing ____ " with ____ lb. weight falling ____ "per blow.

CLASSIFICATION Visual by Geologist

METHOD OF INVESTIGATION: ASTM D-1586 Using Hollow Stem Augers. (2-1/4")

R/T Form H

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EMPIRE SOILS INVESTIGATIONS INC.

SUBSURFACE LOG

HOLE NO. B-26
SURF. ELEV.
G. W. DEPTH see note

PROJECT Asteco Proposed Building Expansion

LOCATION Asteco-Witmer Road
Niagara Falls, New York

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	PID	SOIL OR ROCK CLASSIFICATION	NOTES
0		1	3	3		7	BG	2" TOPSOIL	
			4	6				Brown Clayey SILT, little f-c Sand, tr. gravel, tr. brick, tr. lime, tr. cinders (moist, FILL)	
		2	8	5		10	4.2		
			5	7					
5		3	5	4		10	2.0	Contains occasional Lime lenses, tr. porcelain, tr. roots	
			6	7				Contains porcelain (china plate)piece	
								Becomes black	
								Contains little-tr. f-m Sand	
								Boring Complete at 6.0'	No free standing water observed at Boring Completion
10									PID = Organic vapors measured with Photo-ionization Detector (PID). Measurements recorded in parts per million (ppm).
									Background (BG) measurements = 0.0-0.4 ppm.

N = No. blows to drive 3 " spoon 12 " with 140 lb. pin wt. falling 30 "per blow.

C = No. blows to drive ____ " casing ____ " with ____ lb. weight falling ____ "per blow.

CLASSIFICATION Visual by Geologist

METHOD OF INVESTIGATION: ASTM D-1586 USING 4¼ HOLLOW STEM AUGERS

B/T Form H

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EMPIRE SOILS INVESTIGATIONS INC. SUBSURFACE LOG

HOLE NO. B-27
SURF. ELEV.
G. W. DEPTH see note

PROJECT Asteco Proposed Building Expansion

LOCATION Asteco-Witmer Road
Niagara Falls, New York

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	PID	SOIL OR ROCK CLASSIFICATION	NOTES
0		1	3	15		40	BG	2" TOPSOIL	
			25	47				Brown Clayey SILT, some f-c Sand, tr. gravel, tr. brick, tr. cinder, tr. lime (moist, FILL)	
		2	11	15		37	BG		
			22	21				Whitish-Gray f-c Sand, (Lime/Cement) little f-c Gravel (moist, FILL)	
5								Boring Complete at 4.0'	No free standing water at Boring Completion
									PID = Organic vapors measured with Photo-ionization Dector (PID). Measurements recorded in parts per million (ppm).
10									Background (BG) measurements = 0.0-0.4ppm

N = No. blows to drive 3 " spoon 12 " with 140 lb. pin wt. falling 30 "per blow.

C = No blows to drive _____ " casing _____ " with _____ lb. weight falling _____ "per blow.

CLASSIFICATION Visual by Geologist

METHOD OF INVESTIGATION: ASTM D-1586 USING 4¼ HOLLOW STEM AUGERS

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EMPIRE SOILS INVESTIGATIONS INC. SUBSURFACE LOG

HOLE NO. B-28
SURF. ELEV.
G. W. DEPTH see note

PROJECT Asteco Proposed Building Expansion
LOCATION Asteco-Witmer Road, Niagara Falls, New York

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	PID	SOIL OR ROCK CLASSIFICATION	NOTES	PID Head-space 6-22
0		1	5	7		29	BG-	2" TOPSOIL		
			22	40			0.9	Brown Clayey SILT, little f-m Sand, tr. gravel, tr. broken rock, tr. brick, tr. glass, tr. cinders (moist, FILL)		0.8
		2	27	21		56	BG-			15
			35	17			1.0	Contains tr. dark red substance		
5		3	12	10		17	BG-			12.4
			7	8			0.6	Black f-c SAND, little Clayey Silt, tr. gravel, tr. wood, tr. cinders, tr. slag, tr. glass (moist, FILL)		
		4	5	6		11	BG-			25
			5	6			3.5	Contains brick piece		
		5	1	4		12	BG-	Contains some Silty CLAY (sludge/ tar-like material), tr. dark red material		25
10			8	20			1.0	Contains tr. wood		
		6	13	24		54	BG	Red-Brown Silty CLAY, some f-c Sand, tr. gravel, occasional Sand layer (moist, FILL)		BG
			30	30				Red-Brown Silty CLAY, little f-m Sand, tr. gravel, occasional Silt partings (moist, hard)		
15								Boring Complete at 12.0"	No free standing water observed at Boring Completion	
									PID = Organic vapors measured with Photo-ionization Detector (PID). Measurements recorded in parts per million (ppm).	
									Background (BG) measurements = 0.0-0.4 ppm	

N = No. blows to drive 3 " spoon 12 " with 140 lb. pin wt. falling 30 "per blow.
C = No. blows to drive ____ " casing ____ " with ____ lb. weight falling ____ "per blow.
METHOD OF INVESTIGATION: ASTM D-1586 USING 4¼ HOLLOW STEM AUGERS

CLASSIFICATION Visual by Geologist

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EMPIRE SOILS INVESTIGATIONS INC — SUBSURFACE LOG

HOLE NO. B-29
SURF. ELEV.
G. W. DEPTH see note

PROJECT Asteco Proposed Building Expansion
LOCATION Asteco-Witmer Road, Niagara Falls, New York

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	PID	SOIL OR ROCK CLASSIFICATION	NOTES	PID Head-space 6-22
0		1	2	5		14	BG	2" TOPSOIL		
			9	13				Brown Clayey SILT, some f-c Sand, tr. gravel, tr. glass, tr. brick, tr. cinders, tr. roots (moist, FILL)		BG
		2	45	18		33	BG			
			15	12						BG
		3	5	100/3		Ref	BG	Contains tr. broken rock, little-tr. black sludge-like material, tr. rubber		
5										32
		4	8	16		32	5.0-	Contains large piece of 2x4 wood	*Wood gave 500 ppm reading	
			16	16			500	Dark Brown Silty CLAY, some Wood, little f-m Sand, tr. gravel, occasional Sand lenses (moist, FILL)		300
		5	4	3		9	BG			
			6	8						100
10		6	2	6		15	BG	Contains little-tr. wood, tr. roots		
			9	11						88
								Red-Brown Silty CLAY, little f-m Sand, tr. gravel (moist, medium)	No free standing water observed at Boring Completion	
15								Boring Complete at 12.0'	PID = Organic vapors measured with Photo-ionization Detector (PID). Measurements recorded in parts per million (ppm).	
									Background (BG) measurements 0.0-0.4ppm	

N = No. blows to drive 3 " spoon 12 " with 140 lb. pin wt. falling 30 "per blow.
CLASSIFICATION Visual by Geologist
C = No. blows to drive ____ " casing ____ " with ____ lb. weight falling ____ "per blow.
METHOD OF INVESTIGATION: ASTM D-1586 USING 4¼ HOLLOW STEM AUGERS

R/T Form H

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EMPIRE SOILS INVESTIGATIONS INC. SUBSURFACE LOG

HOLE NO. B-30
SURF. ELEV.
G. W. DEPTH see note

PROJECT Asteco Proposed Building Expansion
LOCATION Asteco-Witmer Road, Niagara Falls, New York

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	PID	SOIL OR ROCK CLASSIFICATION	NOTES
0		1							Augered to 2.0'
								Contains tr. glass tr. slag, tr. brick, tr. procelain/china	Dark Red substance present as coating on concrete and bricks in hole while augering
		2	100/.5				BG		
		3	6	12		22	BG	Black f-c SAND, some Silty Clay, little cinders (sludge/tar-like material), tr. gravel, tr. glass, tr. wood (moist, FILL)	
			10	8					
5		4	5	10		22	BG		Augering difficult
			12	8					
		5	3	5		15	BG	Contains tr. brick Red-Brown Silty CLAY, little f-m Sand, tr. gravel, occasional Sand lenses (moist, FILL)	
			10	17					
		6	25	42		92	BG		
10			50	56				Red-Brown Silty CLAY, little f-m Sand, tr. gravel, occasional Silt partings (moist, hard)	No free standing water observed at Boring Completion
								Boring Complete at 11.0'	*PID reading of 2.5 ppm in hole at 1-2' while pulling up augers
15									PID = Organic vapors measured with Photo-ionization Detector (PID). Measurements recorded in parts per million (ppm).
									Background (BG) measurements = 0.0-0.4 ppm

N = No. blows to drive 3 " spoon 12 " with 140 lb. pin wt. falling 30 "per blow.
CLASSIFICATION Visual by Geologist

C = No. blows to drive _____ " casing _____ " with _____ lb. weight falling _____ "per blow.

METHOD OF INVESTIGATION: ASTM D-1586 USING 4¼ HOLLOW STEM AUGERS

R/T Form H

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EMPIRE SOILS INVESTIGATIONS INC. SUBSURFACE LOG

HOLE NO. B-31
SURF. ELEV.
G. W. DEPTH see note

PROJECT Asteco Proposed Building Expansion
LOCATION Asteco-Witmer Road, Niagara Falls, New York

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	PID	SOIL OR ROCK CLASSIFICATION	NOTES	PID Head-space 6-22
0										
		1	3	10		26	BG -	1" TOPSOIL		
			16	14			1.2	Brown f-c SAND, some Clayey Silt, tr. broken rock, tr. gravel, tr. lime, tr. roots, tr. wood (moist, FILL)		11
		2	72	7		18	BG			
			11	7						2.8
5		3	35	19		31	BG	Contains tr. cinders	* Water at approx. 4.0'	
			12	15				Brown-Black Silty CLAY, little f-m Sand, tr. gravel (moist, FILL)		0.0
								Boring Complete at 6.0'	No free standing water observed at Boring Completion	
10									PID = Organic vapors measured with Photo-ionization detector (PID). Measurements recorded in parts per million (ppm).	
									Background (BG) measurements 0.0-0.4 ppm	

N = No. blows to drive 3 " spoon 12 " with 140 lb. pin wt. falling 30 "per blow. CLASSIFICATION Visual by Geologist

C = No. blows to drive _____ " casing _____ " with _____ lb. weight falling _____ "per blow.

METHOD OF INVESTIGATION: ASTM D-1586 USING 4¼ HOLLOW STEM AUGERS

R/T Form H

DATE
STARTED 6-20-89
FINISHED 6-20-89
SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS INC — **SUBSURFACE LOG**

HOLE NO. B-32
SURF. ELEV.
G. W. DEPTH see note

PROJECT Asteco Proposed Building Expansion

LOCATION Asteco-Witmer Road
Niagara Falls, New York

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	PID	SOIL OR ROCK CLASSIFICATION	NOTES	PID Head-space 6-22
0		1	2	6		14		2" TOPSOIL		
			8	14				Brown Clayey SILT, some f-c Sand, tr. gravel, tr. glass, tr. dark red material, tr. brick, tr. lime, tr. wood, tr. cinders (moist, FILL)		BG
		2	45	60	100/.3	Ref		Contains tr. broken limestone rock	Driller notes pushing stone/boulder, spoon crooked and poor recovery, augering difficult	2.2
								Contains little Silty Clay		
5		3	22	8		17		Contains little f-c Gravel		BG
			9	8						
		4	10	10		17				BG
			7	9						
		5	6	11		31			* Note: no recovery due to rock	BG
			20	100/.4						
10		6	100/.1			*		Red-Brown-Gray mottled Silty CLAY and f-c Sand, tr. gravel, tr. broken rock (moist, FILL)		BG
								Boring Complete at 10.1'	Free standing water observed at 8.6' at Boring Completion	
15									PID = Organic vapors measured with Photo-ionization Detector (PID). Measurements recorded in parts per million (ppm).	
									Background (BG) measurements = 0.0-0.4 ppm	

N = No. blows to drive 3 " spoon 12 " with 140 lb. pin wt. falling 30 "per blow. CLASSIFICATION Visual by Geologist

C = No. blows to drive _____ " casing _____ " with _____ lb. weight falling _____ "per blow.

METHOD OF INVESTIGATION: ASTM D-1586 USING 4¼ HOLLOW STEM AUGER

R/T Form H

DATE
STARTED 6-21-89
FINISHED 6-21-89
SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS INC — **SUBSURFACE LOG**

HOLE NO. B-33
SURF. ELEV.
G. W. DEPTH see note

PROJECT Asteco Proposed Building Expansion

LOCATION Asteco-Witmer Road
Niagara Falls, New York

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	PID	SOIL OR ROCK CLASSIFICATION	NOTES
0		1	25	32		123	BG	4" ASHPALTIC CONCRETE 2" GRAY CRUSHER RUN STONE	
			91	58				Whitish-Gray f-c SAND (cement/lime) little f-c Gravel (moist, FILL)	
		2	21	26		41	BG		
			15	19					
5		3	17	29		38	BG		
			9	7					Water in spoon at approx 6.0'
		4	3	11		25	BG	Brown-Black Silty CLAY, little f-c Sand, tr. gravel, tr. lime, occasional Sand lenses (moist, FILL)	
			14	15					
		5	2	4		10	BG		
10			6	5				Red-Brown Silty CLAY, little f-m Sand, tr. gravel (moist, medium)	
								Boring Complete at 10.0'	Free Standing water observed at 2.5'

PID = Organic vapors measured with Photo-ionization Detector (PID) measurements recorded in parts per million (ppm)

Background (BG) measurements = 0.0-0.4 ppm

N = No. blows to drive 3 " spoon 12 " with 140 lb. pin wt. falling 30 "per blow. CLASSIFICATION Visual by Geologist

C = No. blows to drive ____ " casing ____ " with ____ lb. weight falling ____ "per blow.

METHOD OF INVESTIGATION: ASTM D-1586 USING 4¼ HOLLOW STEM AUGERS

R/T Form H

DATE
STARTED 6-21-89
FINISHED 6-21-89
SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS INC. SUBSURFACE LOG

HOLE NO. B-34
SURF. ELEV.
G. W. DEPTH see note

PROJECT Asteco Proposed Building Expansion

LOCATION Asteco-Witmer Road
Niagara Falls, New York

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	PID	SOIL OR ROCK CLASSIFICATION	NOTES	PID Head-space 6-22
0		1	15	28		48	BG	4" ASPHALTIC CONCRETE 2" GRAY CRUSHER RUN STONE		
			20	19			50	Brown-Gray Silty CLAY, little f-c Sand, tr. gravel, Dark Red substance spotty to approx. ½" thick (moist, FILL)	Water at approx. 3.0'	58
		2	17	24		45	*			3.5
			21	26						
5								Red-Brown Silty CLAY, little f-c Sand, tr. gravel, tr. wood (moist, FILL)	Free standing water observed at 2.0'	
								Boring Complete at 4.5'	PID = Organic vapors measured with Photo-ionization Detector (PID). Measurements recorded in parts per million (ppm).	
10									Background (BG) measurements = 0.0-0.4 ppm	
									* PID not taken on sample due to rain	

N = No. blows to drive 3 " spoon 12 " with 140 lb. pin wt. falling 30 "per blow. CLASSIFICATION Visual by Geologist

C = No. blows to drive _____ " casing _____ " with _____ lb. weight falling _____ "per blow.

METHOD OF INVESTIGATION: ASTM D-1586 USING 4¼ HOLLOW STEM AUGERS

R/T Form H

DATE
STARTED 6-21-89
FINISHED 6-21-89
SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS INC — SUBSURFACE LOG

HOLE NO. B-35
SURF. ELEV.
G. W. DEPTH see note

PROJECT Asteco Proposed Building Expansion
LOCATION Asteco-Witmer Road, Niagara Falls, New York

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	PID	SOIL OR ROCK CLASSIFICATION	NOTES	PID Head-space 6-22
0		1		17		31	BG-	4" ASPHALTIC CONCRETE 2" GRAY CRUSHER RUN STONE		
			14	13			90	Brown-Gray Clayey SILT, some f-c Sand, tr. broken rock (coated with dark red material) Dark Red material present at 1.9'-2.0'		102
		2	17	12		27	25-			
			15	14			50			110
5								Red-Brown-Black mottled Silty CLAY, little-some f-c Sand, tr. gravel, tr. wood (moist, FILL)	No free standing water observed at Boring Completion	
								Boring Complete at 4.0'	PID = Organic vapors measured with Photo-ionization Detector (PID). Measurements recorded in parts per million (ppm).	
10									Background (BG) measurements = 0.0-0.4 ppm	
15										

N = No. blows to drive 3 " spoon 12 " with 140 lb. pin wt. falling 30 "per blow. CLASSIFICATION Visual by Geologist

C = No. blows to drive _____ " casing _____ " with _____ lb. weight falling _____ "per blow.

METHOD OF INVESTIGATION: ASTM D-1586 USING 4¼ HOLLOW STEM AUGERS

R/T Form H

DATE
STARTED 6-21-89
FINISHED 6-21-89
SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS INC. SUBSURFACE LOG

HOLE NO. B-36
SURF. ELEV.
G. W. DEPTH see note

PROJECT Asteco Proposed Building Expansion

LOCATION Asteco-Witmer Road
Niagara Falls, New York

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	PID	SOIL OR ROCK CLASSIFICATION	NOTES
0		1	22	21		32	BG	4" ASPHALTIC CONCRETE 2" GRAY CRUSHER RUN STONE	
			11	15					
		2	17	41		84	BG	Brown-Black-Gray mottled Clayey SILT, little f-c Sand, tr. gravel, tr. lime, tr. cinder, tr. dark red spot, tr. roots, tr. wood (moist, FILL)	
			43	16					
5		3	14	16		31	BG		
			15	9					
		4	12	9		15	BG	Whitish-Gray f-c SAND (Lime/Cement) little f-c Gravel (moist, FILL)	
			6	5					
								Boring Complete at 8.0'	No free standing water observed at Boring Completion
10									PID = Organic vapors measured with Photo-ionization Detector (PID). Measurements recorded in parts per million (ppm).
15									Background (BG) measurements = 0.0-0.4 ppm

N = No. blows to drive 3 " spoon 12 " with 140 lb. pin wt. falling 30 "per blow.

C = No. blows to drive _____ " casing _____ " with _____ lb. weight falling _____ "per blow.

CLASSIFICATION Visual by Geologist

METHOD OF INVESTIGATION: ASTM D-1586 USING 4¼ HOLLOW STEM AUGERS

R/T Form H

DATE
STARTED 6-21-89
FINISHED 6-21-89
SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS INC. SUBSURFACE LOG

HOLE NO. B-37
SURF. ELEV.
G. W. DEPTH see note.

PROJECT Asteco Proposed Building Expansion

LOCATION Asteco-Witmer Road
Niagara Falls, New York

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	PID	SOIL OR ROCK CLASSIFICATION	NOTES
0		1	2	20		63	BG	2" TOPSOIL	
			43	40				Brown Clayey SILT, little f-c Sand, tr. gravel, tr. broken rock, tr. glass, tr. cinder, tr. tiny red spot, tr. brick, tr. roots (moist, FILL)	* No recovery
		2	68	29		71	*		
			42	17					
5								Boring Complete at 4.0'	No free standing water observed at Boring Completion
									Driller notes: Pushing rock or brick. Hole closed and moved 3' to North (B-30)
10									PID = Organic vapors measured with Photo-ionization Detector (PID). Measurements recorded in parts per million (ppm).
15									Background (BG) measurements = 0.0-0.4 ppm

N = No. blows to drive 3 " spoon 12 " with 140 lb. pin wt. falling 30 "per blow. CLASSIFICATION Visual by Geologist

C = No. blows to drive _____ " casing _____ " with _____ lb. weight falling _____ "per blow.

METHOD OF INVESTIGATION: ASTM D-1586 USING 4¼ HOLLOW STEM AUGERS

R/T Form H

DATE
STARTED 5-22-90
FINISHED 5-22-90
SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS INC.

SUBSURFACE LOG

HOLE NO. SB-1
SURF. ELEV. --
G. W. DEPTH See notes

PROJECT Witmer Road Drive-In
BTA-89-39B

LOCATION Witmer Road
Niagara Falls, New York

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	PID Sample	SOIL OR ROCK CLASSIFICATION	NOTES	% REC	PID Top Of Hole
0		1	36	60		92	30	.15' TOPSOIL Brown-red-black mottled Silty CLAY-Clayey SILT, some f-c Sand, little f-m Gravel, tr. glass, tr. roots, tr. cinders, tr. slag, occasional red resin parting, tr. wood, tr. coal (moist, FILL)		100%	9-11
			32	70				Boring complete at 2.0'	No Free Standing Water observed at boring completion.		
5									PID=Organic vapor measurements taken with a Photoionization Detector (PID). Measurements recorded in parts per million (ppm). BG=Background PID measurements =0.0 -0.3 ppm.		

N = No. blows to drive 3 " spoon 12 " with 45 lb. pin wt. falling 30 "per blow.
CLASSIFICATION Visual by geologist

C = No. blows to drive _____ " casing _____ " with _____ lb. weight falling _____ "per blow.

METHOD OF INVESTIGATION: ASTM D-1586 USING A.G. PENETROMETER

R/T Form H

DATE
STARTED 5-22-90
FINISHED 5-22-90
SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS INC. SUBSURFACE LOG

HOLE NO. GW-2/SB-2
SURF. ELEV. 98.01
G. W. DEPTH See notes

PROJECT Witmer Road Drive-In
BTA-89-39B

LOCATION Witmer Road
Niagara Falls, New York

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	PID Sample	SOIL OR ROCK CLASSIFICATION	NOTES	PID Jar Head-space	% Rec	PID Top of Auger
0		1	4	6		15	5-	.05 TOPSOIL Brown Silty SAND, little f-m Gravel, little glass, tr. resin (0.8-0.9') tr. wood, tr. slag, tr. clay, tr. brick (moist, FILL)		BG	1.75/2 88%	5- 6.2
			9	60			5.6					
		2	5	6		15	BG-			5.2- 6.5	—	BG- 3.5
			9	15			5.8					
5		3	2	2		13	60-	Becomes brown-black Silty CLAY and f-m SAND Contains tr. red resin		64- 100	—	5.5 7.0
			11	12			100					
		4	4	5		11	20-	Becomes black		55- 65	—	BG- 3.0
			6	7			30	Contains tr. organics (moist-wet)				
		5	7	8		37	BG	Brown Silty CLAY, some f-c Sand, little f. Gravel, occasional f-m sand partings (moist, hard)		20- 25	—	6- 8
10			29	21			5.2					
		6	15	20		40	40-	Contains little f-m Sand, tr. gravel, occasional silt laminations		BG	—	15- 16
			20	30			45					
								Boring complete at 12.0'	No Free Standing Water measured at boring completion			
15												

PID=Organic vapor measurements taken with a Photoionization Detector (PID). Measurements recorded in parts per million (ppm).

BG=Background PID measurements 2.0-2.5 ppm

N = No. blows to drive 2 " spoon 12 " with 140 lb. pin wt. falling 30 "per blow.

C = No. blows to drive _____ " casing _____ " with _____ lb. weight falling _____ "per blow.

CLASSIFICATION Visual by geologist

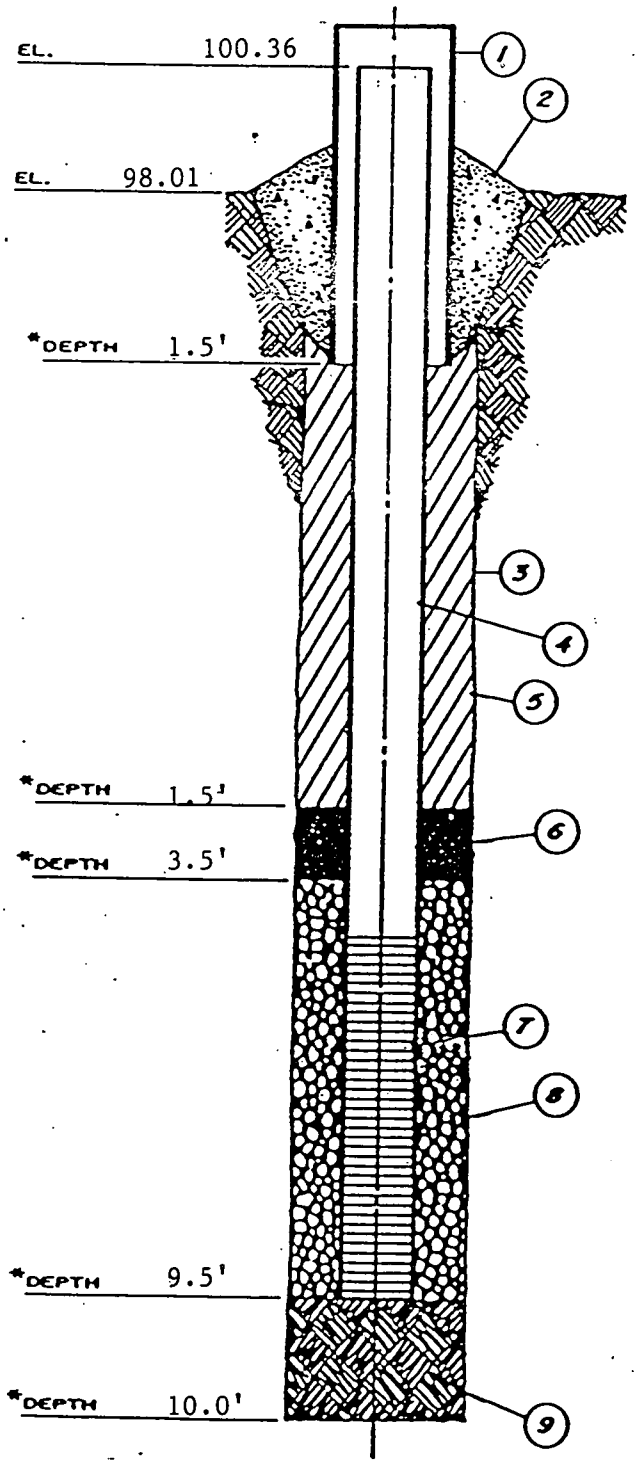
METHOD OF INVESTIGATION: ASTM D-1586 USING 4-1/4" HOLLOW STEM AUGERS

R/T Form H

MONITOR WELL COMPLETION REPORT :

WELL Nº GW-2 JOB Nº BTA-89-39B

PROJECT Witmer Road Drive - In
Niagara Falls, New York



*Depth in feet below grade.

1. PROTECTIVE CASING I.D. 6 INCHES.

2. SURFACE SEAL TYPE Quickrete Concrete

3. BOREHOLE DIAMETER 10 INCHES.

4. RISER PIPE:
   a. Type 40 Schedule PVC
   b. I.D. 2 INCHES
   c. Length 7 FEET
   d. Joint Type Flush Couple Threaded with PTFE (Teflon) Taped Joints

5. BACKFILL:
   a. Type 3% Bentonite/Cement Grout
   b. Installation From Surface

6. Type of SEAL Bentonite Pellets

7. SCREEN
   a. Type 40 Schedule PVC
   b. I.D. 2 INCHES
   c. Slot Size .010 INCHES
   d. Length 5 FEET

8. SCREEN FILTER TYPE #2 Q-Rok Sand

9. BACKFILL TYPE #2 Q-Rok Sand

EMPIRE
SOILS INVESTIGATIONS INC.

DATE
STARTED 5-21-90
FINISHED 5-21-90
SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS INC. SUBSURFACE LOG

HOLE NO. SB-3
SURF. ELEV. --
G. W. DEPTH See note

PROJECT Witmer Road Drive-In
BTA-89-39B

LOCATION Witmer Road
Niagara Falls, New York

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	PID Sample	SOIL OR ROCK CLASSIFICATION	NOTES	% Rec	PID Top of Auger
0		1	4	11		37	*	.15' TOPSOIL Brown Clayey SILT, some f-c Sand, little f. Gravel, tr. lime, tr. brick, tr. cinders (moist, FILL) Contains tr. broken rock fragment, tr. glass, tr. wood, approx. 0.6' resin.		1.0/2	*
			23	27						50%	
		2	20	32		69	14-15			1.25/2	
			37	41						63%	5
5								Boring complete at 4.0'			
									No Free Standing Water measured at boring completion.		
									*No PID measurements taken due to moisture in the air.		
10									PID=Organic vapor measurements taken with a Photoionization Detector (PID). Measurements recorded in parts per million (ppm).		
									BG=Background PID measurements=0.0-2.5 ppm		

N = No. blows to drive 3 " spoon 12 " with 140 lb. pin wt. falling 30 "per blow.
C = No. blows to drive _____ " casing _____ " with _____ lb. weight falling _____ "per blow.

CLASSIFICATION Visual by geologist

METHOD OF INVESTIGATION: ASTM D-1586 USING 4-1/4" HOLLOW STEM AUGERS

R/T Form H

DATE
STARTED 5-21-90
FINISHED 5-21-90
SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS INC — **SUBSURFACE LOG**

HOLE NO. SB-4
SURF. ELEV. --
G. W. DEPTH See notes

PROJECT Witmer Road Drive - In
BTA-89-39B

LOCATION Witmer Road
Niagara Falls, New York

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	PID Sample	SOIL OR ROCK CLASSIFICATION	NOTES	% Rec	PID TOP OF HOLE
0											
		1	3	13		21	*	.20' TOPSOIL Brown Clayey SILT, little f-c Sand, tr. gravel, tr. glass, tr. cinders, tr. resin (moist, FILL)		1.43/2 72%	*
			8	20							
		2	22	19		39	*			1.60/2 80%	*
			20	20				Contains tr. brick, tr. slag, tr. L. gravel			
5		3	7	15		22	*			1.35/2 68%	*
			7	11				Contains occasional black sludge-like material (moist-wet), tr. carbide			
		4	4	5		16	*			1.0/2 50%	*
			11	7				Becomes black	Note water at approx. 8.0'		
		5	6	14		22	*	Contains tr. organics, tr. wood, tr. concrete (wet)		1.78/2 89%	*
10			8	23							
								Red-brown Silty CLAY, little f-m Sand, tr. gravel, occasional silt partings (moist, stiff)			
								Boring complete at 10.0'			

Free Standing Water measured at 3.9' at boring completion.

*No PID measurements taken due to mist and moisture in the air.

N = No. blows to drive 3 " spoon 12 " with 140 lb. pin wt. falling 30 "per blow.

C = No. blows to drive ____ " casing ____ " with ____ lb. weight falling ____ "per blow.

CLASSIFICATION Visual by geologist

METHOD OF INVESTIGATION: ASTM D-1586 USING 4-1/4" HOLLOW STEM AUGERS

R/T Form H

DATE
STARTED 5-21-90
FINISHED 5-21-90
SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS INC.

SUBSURFACE LOG

HOLE NO. SB-5
SURF. ELEV. --
G. W. DEPTH See notes

PROJECT Witmer Road Drive-In
BTA-89-39B

LOCATION Witmer Road
Niagara Falls, New York

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	PID Sample	SOIL OR ROCK CLASSIFICATION	NOTES	% Rec	PID Top of Hole
0		1	5	11		16	*	.15' TOPSOIL Brown CLAYEY-SILT, some-and f-c SAND, little f-m Gravel, tr. wire, tr. nail, tr. brick, tr. cinders, (moist, FILL)		1.5/2 75%	*
			5	13							
		2	32	35		55	*			1.5/2 75%	*
			20	19							
5								Contains tr. broken rock fragments, tr. wood Boring complete at 4.0'	No Free Standing Water measured at boring completion.		
10									PID=Organic vapor measurements taken with a Photoionization Detector (PID). Measurements recorded in parts per million (ppm). *No PID readings due to moisture in the air.		

N = No. blows to drive 3 " spoon 12 " with 140 lb. pin wt. falling 30 "per blow.
C = No. blows to drive _____ " casing _____ " with _____ lb. weight falling _____ "per blow.

CLASSIFICATION Visual by geologist

METHOD OF INVESTIGATION: ASTM D-1586 USING 4-1/4" HOLLOW STEM AUGERS

R/T Form H

DATE
STARTED 5-22-90
FINISHED 5-22-90
SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS INC. — **SUBSURFACE LOG**

HOLE NO. SB-6
SURF. ELEV. --
G. W. DEPTH See notes

PROJECT Witmer Road Drive-In
BTA-89-39B

LOCATION Witmer Road
Niagara Falls, New York

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	PID Sample	SOIL OR ROCK CLASSIFICATION	NOTES	% Rec	PID Top of Hole
0		1	25	39/.1		REF	*	0.1' TOPSOIL Brown-red Clayey SILT, some f-c Sand, little f. Gravel, tr. wood, tr. glass, tr. cinders, tr. broken rock, (moist , FILL) Contains tr. brick, tr. slag Boring complete at 4.0'	Note: Obstruction at .6' shovel was used to dig & remove rock & spoon was continued after approx 0.3 ft.	1.7/2 85%	*
			43	35							
5		2	15	25		42	*			1.6/2 80%	*
			17	26							

No Free Standing Water measured at boring completion.

PID=Organic vapor measurements taken with a Photoionzation Detector (PID).
*No PID measurements taken due to low battery.

Measurements recorded in parts per million (ppm).

N = No. blows to drive 3 " spoon 12 " with 45 lb. pin wt. falling 30 "per blow.

C = No. blows to drive _____ " casing _____ " with _____ lb. weight falling _____ "per blow.

CLASSIFICATION Visual by geologist

METHOD OF INVESTIGATION: ASTM D-1586 USING A.G. PENETROMETER

B/T Form H

DATE
STARTED 5-21-90
FINISHED 5-21-90
SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS INC.

SUBSURFACE LOG

HOLE NO. SB-7
SURF. ELEV. --
G. W. DEPTH See notes

PROJECT Witmer Road Drive-In
BTA-89-39B

LOCATION Witmer Road
Niagara Falls, New York

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	PID Sample	SOIL OR ROCK CLASSIFICATION	NOTES	% Rec	PID Top of Hole
0											
		1	8	25		37	*	.25' TOPSOIL Gray-white f-c SAND, (LIME), little-some f-m Gravel, tr. silt (moist-FILL)		100%	*
			12	13							
		2	8	8		20	*	(wet)		1.2/2 60%	*
			12	19							
								Boring complete at 4.0'	Free Standing Water measured at 2.0' at boring completion		
5											
10									* Unable to obtain PID measurements due to moisture in air.		
									PID=Organic vapor measurements taken with a Photoionization Detector (PID). Measurements recorded in parts per million (ppm).		

N = No. blows to drive 3 " spoon 12 " with 140 lb. pin wt. falling 30 "per blow.
C = No. blows to drive _____ " casing _____ " with _____ lb. weight falling _____ "per blow.

CLASSIFICATION Visual by geologist

METHOD OF INVESTIGATION: ASTM D-1586 USING 4-1/4" HOLLOW STEM AUGERS

R/T Form H

DATE
STARTED 5-22-90
FINISHED 5-22-90
SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS INC.

SUBSURFACE LOG

HOLE NO. SB-8
SURF. ELEV. --
G. W. DEPTH See notes

PROJECT Witmer Road Drive-In
BTA-89-39B

LOCATION Witmer Road
Niagara Falls, New York

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	PID Sample	SOIL OR ROCK CLASSIFICATION	NOTES	% Rec	PID Top of Hole
0		1	3	10		17	BG	.15 TOPSOIL Brown Clayey SILT, little-some f-c Sand, tr. gravel,tr. wood, tr. cinders, tr. nail (moist, FILL) Contains tr. concrete, tr. slag		1.3/2 65%	BG
			7	10							
		2	7	14		24	BG			1.2/2 60%	3.0
			10	31							
5								Boring complete at 4.0'	Free Standing Water measured at 2.5' at boring completion.		
10									PID=Organic vapor measurements taken with a Photoionization Detector (PID). Measurements recorded in parts per million (ppm).		
									BG=Background PID measurements = 3.0-3.4 ppm		

N = No. blows to drive 3 " spoon 12 " with 140 lb. pin wt. falling 30 "per blow.
C = No. blows to drive _____ " casing _____ " with _____ lb. weight falling _____ "per blow.

CLASSIFICATION Visual by geologist

METHOD OF INVESTIGATION: ASTM D-1586 USING 4-1/4" HOLLOW STEM AUGERS

R/T Form H

DATE
STARTED 5-22-90
FINISHED 5-22-90
SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS INC

SUBSURFACE LOG

HOLE NO. "Resin Sample"
SURF. ELEV. --
G. W. DEPTH See notes

PROJECT Witmer Road Drive-In
BTA-89-39B

LOCATION Witmer Road
Niagara Falls, New York

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	PID Sample	SOIL OR ROCK CLASSIFICATION	NOTES	% Rec	PID Top of Hole
0											
		1	4	5		17	BG	.1' TOPSOIL Brown Silty SAND, little f-m Gravel, tr. metal, tr. glass, tr. paper, tr. rubber, tr. cinders, tr. wood (moist, FILL)		1.5/2 75%	4.7
			12	20							
		2	15	30		68	50-			1.6/2 80%	100-110
			38	32			80				
								Contains tr. slag, tr. coal (carbide) tr. red resin (approx. 2.55 to 2.65')			
5								Boring complete at 4.0'	Free Standing Water measured at 3.5' at boring completion.		
10											
									PID=Organic vapor measurements taken with a Photoionization Detector (PID). Measurements recorded in parts per million (ppm).		
									BG=Background PID measurements 3-3.4 ppm.		

N = No. blows to drive 3 " spoon 12 " with 140 lb. pin wt. falling 30 "per blow.
C = No. blows to drive ____ " casing ____ " with ____ lb. weight falling ____ "per blow.

CLASSIFICATION Visual by geologist

METHOD OF INVESTIGATION: ASTM D-1586 USING 4-1/4" HOLLOW STEM AUGERS

R/T Form H

DATE
STARTED 5-23-90
FINISHED 5-23-90
SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS INC. SUBSURFACE LOG

HOLE NO. GW-1
SURF. ELEV. 97.73
G. W. DEPTH See notes

PROJECT Witmer Road Drive-In
BTA-89-39B

LOCATION Witmer Road
Niagara Falls, New York

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	PID Sample	SOIL OR ROCK CLASSIFICATION	NOTES	PID Jar Head-space	PID Top of Auger
0											
		1	2	5		9	BG-	.1' TOPSOIL		BG	BG
			4	7			3.8	Brown f-c SAND, little f-m Gravel, little Silt, tr. glass, tr. cinders, tr. slag (moist, FILL)			
		2	2	4		8	14.4-			7.9-10	3-3.2
			4	4			15.0	Contains tr. resin, tr. brick, tr. carbide			
5		3	1	3		4	BG-			8.2	5.0
			1	4			3.4	Contains tr. wood, tr. organics, some Clayey Silt			
		4	21	51		87	80-	Becomes black (moist-wet)		92-104	30-35
			36	15			100	Red-brown Clayey SILT, little wood, little f-m Sand, tr. gravel, tr. resin (moist-wet, FILL)			
		5	1	2		5	30-			76-84	12-14
			3	6			45	Becomes Silty CLAY	Water at approx. 6.0'		
10		6	2	10		16	BG-	Contains tr. wood, little-tr. Sand		19.4	
			6	11			4.0	Red-brown Silty CLAY, little-tr. f-m Sand, tr. gravel, occ. silt partings (moist, medium)			
15								Boring complete at 12.0'	No Free Standing Water measured at boring completion.		

PID=Organic vapor measurements taken with Photoionization Detector (PID). Measurements recorded in parts per million (ppm).

BG=Background PID measurements = 0.0-2.5 ppm.

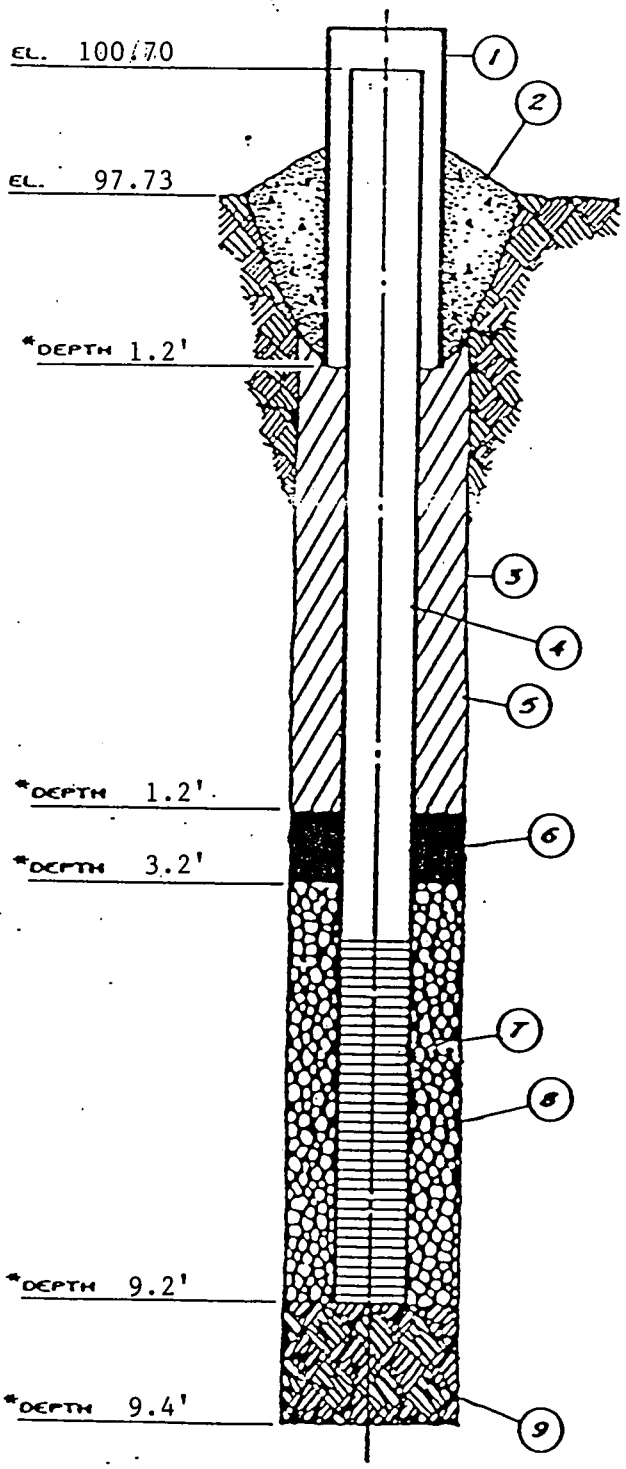
N = No. blows to drive 2 " spoon 12 " with 140 lb. pin wt. falling 30 "per blow.
C = No. blows to drive _____ " casing _____ " with _____ lb. weight falling _____ "per blow.
CLASSIFICATION Visual by geologist
METHOD OF INVESTIGATION: ASTM D-1586 USING 4-1/4" HOLLOW STEM AUGERS

R/T Form H

MONITOR WELL COMPLETION REPORT :

WELL Nº GW-1 JOB Nº BTA-89-39B

PROJECT Witmer Road Drive-In
Niagara Falls, New York



*Depth in feet below grade.

1. PROTECTIVE CASING I.D. 6 INCHES.

2. SURFACE SEAL TYPE Quickrete Concrete

3. BOREHOLE DIAMETER 10 INCHES.

4. RISER PIPE:
   a. Type 40 Schedule PVC
   b. I.D. 2 INCHES
   c. Length 8 FEET
   d. Joint Type PTFE (Teflon) Taped Flush Couple Threaded

5. BACKFILL:
   a. Type 3% Bentonite/Cement Grout
   b. Installation From Surface

6. Type of SEAL Bentonite Pellets

7. SCREEN
   a. Type 40 Schedule PVC
   b. I.D. 2 INCHES
   c. Slot Size 0.010 INCHES
   d. Length 5 FEET

8. SCREEN FILTER TYPE #2 Q-Roc Sand

9. BACKFILL TYPE #2 Q Roc Sand

EMPIRE SOILS INVESTIGATIONS INC

DATE
STARTED 5-24-90
FINISHED 5-24-90
SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS INC.

SUBSURFACE LOG

HOLE NO. GW-3
SURF. ELEV. 98.85
G. W. DEPTH See Notes

PROJECT Witmer Road Drive-In
BTA-89-39B

LOCATION Witmer Road
Niagara Falls, New York

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	PID Sample	SOIL OR ROCK CLASSIFICATION	NOTES	PID Jar Head-Space	PID Top of Auger
0											
		1	3	4		10	BG	.2' TOPSOIL Brown f-c SAND, some Silt, tr. gravel, tr. cinders, tr. porcelain, tr. glass, tr. brick, tr. coal (moist, FILL)		BG	
			6	6							
		2	3	4		10	BG			BG	BG
			6	12							
5		3	13	30		34	*	Contains tr. slag, some-and Clayey Silt		BG	BG
			4	5							
		4	3	5		13	BG	Black-brown Silty CLAY, little f-m Sand, tr. gravel, occasional silt laminations, tr. organics (moist, medium)	*No Recovery on S-3.	BG	BG
			8	10							
		5	3	7		18	BG			BG	BG
10			11	14				Becomes brown-red Contains occasional f-sand partings			
								Boring complete at 10.0'			
15											

Free Standing Water measured at 8.2' at boring completion.

PID=Organic vapor measurements taken with a Photoionization Detector (PID). Measurements recorded in parts per million (ppm).

BG=Background PID measurements = 0.0-2.0 ppm.

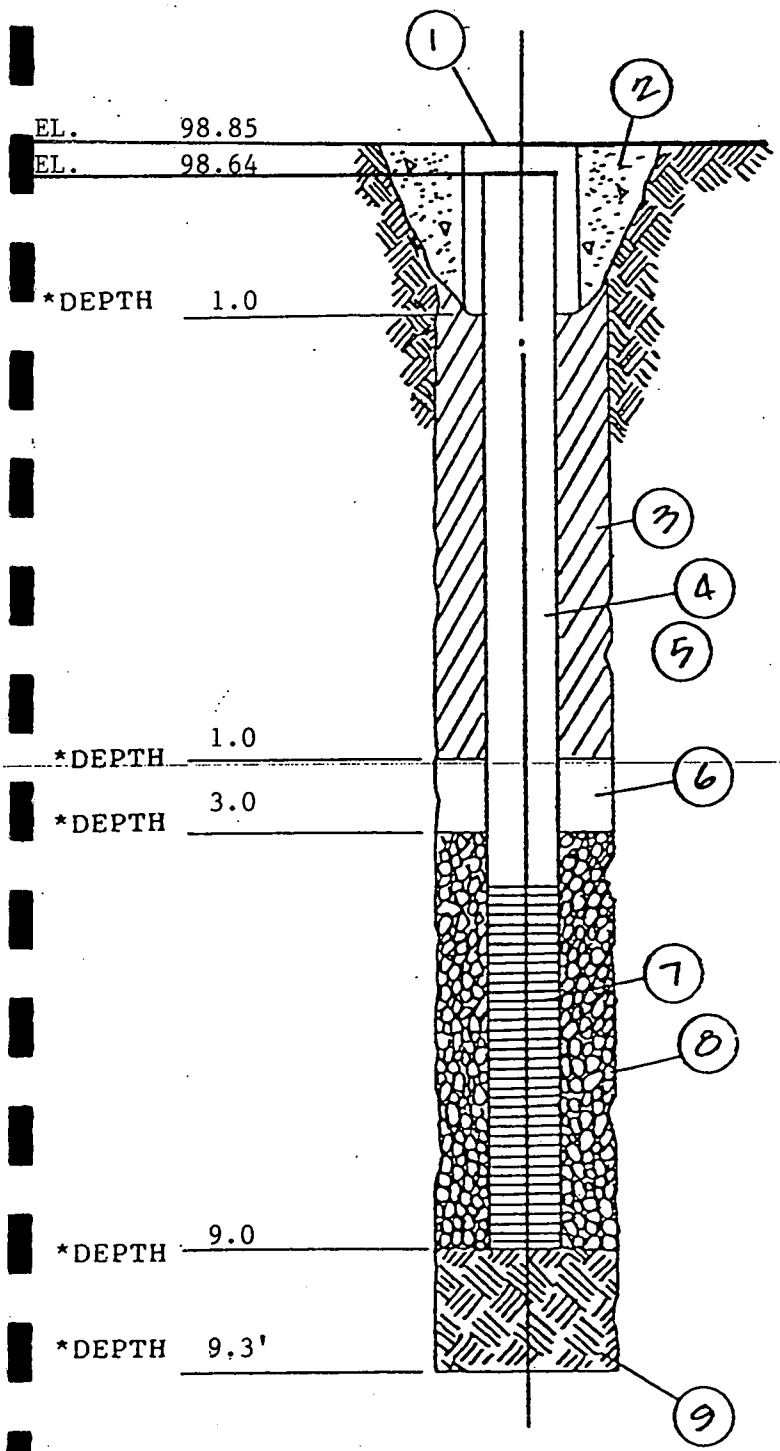
N = No. blows to drive 2 " spoon 12 " with 140 lb. pin wt. falling 30 "per blow.
C = No. blows to drive _____ " casing _____ " with _____ lb. weight falling _____ "per blow.

CLASSIFICATION Visual by geologist

METHOD OF INVESTIGATION: ASTM D-1586 USING 4-1/4" HOLLOW STEM AUGERS.

R/T Form H

MONITOR WELL COMPLETION REPORT:



*DEPTH IN FEET BELOW GROUND SURFACE.

WELL No. GW-3 JOB No. BTA-89-39B
PROJECT: Witmer Road Drive-In
Niagara Falls, New York

1. GATE BOX I.D.: 8 INCHES
2. SURFACE SEAL TYPE: Quickrete Concrete
3. BOREHOLE DIAMETER 10 INCHES
4. RISER PIPE:
   a. TYPE 40 Schedule PVC
   b. I.D. 2 INCHES
   c. LENGTH 4.5 FEET
   d. JOINT TYPE PTFE (Teflon) Taped Flush Couple Threaded
5. BACKFILL:
   a. TYPE 3% Bentonite/Cement Grout
   b. INSTALLATION Surface pour
6. TYPE OF SEAL: Bentonite Pellets
7. SCREEN:
   a. TYPE 40 Schedule PVC
   b. I.D. 2 INCHES
   C. SLOT SIZE .010 In.
   d. LENGTH 5 FT.
8. SCREEN FILTER TYPE: #2 Q-Rok Sand
9. BACKFILL TYPE: #2 Q Rok Sand

EMPIRE SOILS INVESTIGATIONS INC.

DATE
STARTED 5-23-90
FINISHED 5-23-90
SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS INC.

SUBSURFACE LOG

HOLE NO. GW-4
SURF. ELEV. 97.67
G. W. DEPTH See notes

PROJECT Witmer Road Drive-In
BTA-89-39B

LOCATION Witmer Road
Niagara Falls, New York

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	PID Sample	SOIL OR ROCK CLASSIFICATION	NOTES	PID Jar Head-space	PID Top of Auger
0											
		1	2	6		13	BG	.1' TOPSOIL		BG-3.2	
			7	9				Brown f-c SAND, some Silt, little-tr. gravel, tr. brick, tr. slag, tr. glass (moist, FILL)			
		2	6	7		12	BG	Contains tr. cinders		BG	BG
			5	6							
5		3	1	3		5	BG	Contains tr. coal (carbide)		BG	
			2	4							
		4	4	6		9	BG	Contains tr. silty clay		BG	BG
			3	3							
		5	1	1		4	BG	(wet)		BG	
			3	8				Red-brown Silty CLAY, little f-m Sand, tr. gravel, occasional gray silt laminations (moist, soft)			
10								Boring complete at 10.0'			
									Free Standing Water measured at 9.0' at boring completion.		
15									PID=Organic vapor measurements taken with a Photoionization Detector (PID). Measurements recorded in parts per million (ppm).		
									BG=Background PID measurements-0.0-1.0 ppm.		

N = No. blows to drive 2 " spoon 12 " with 140 lb. pin wt. falling 30 "per blow.
C = No. blows to drive _____ " casing _____ " with _____ lb. weight falling _____ "per blow.

CLASSIFICATION Visual by geologist

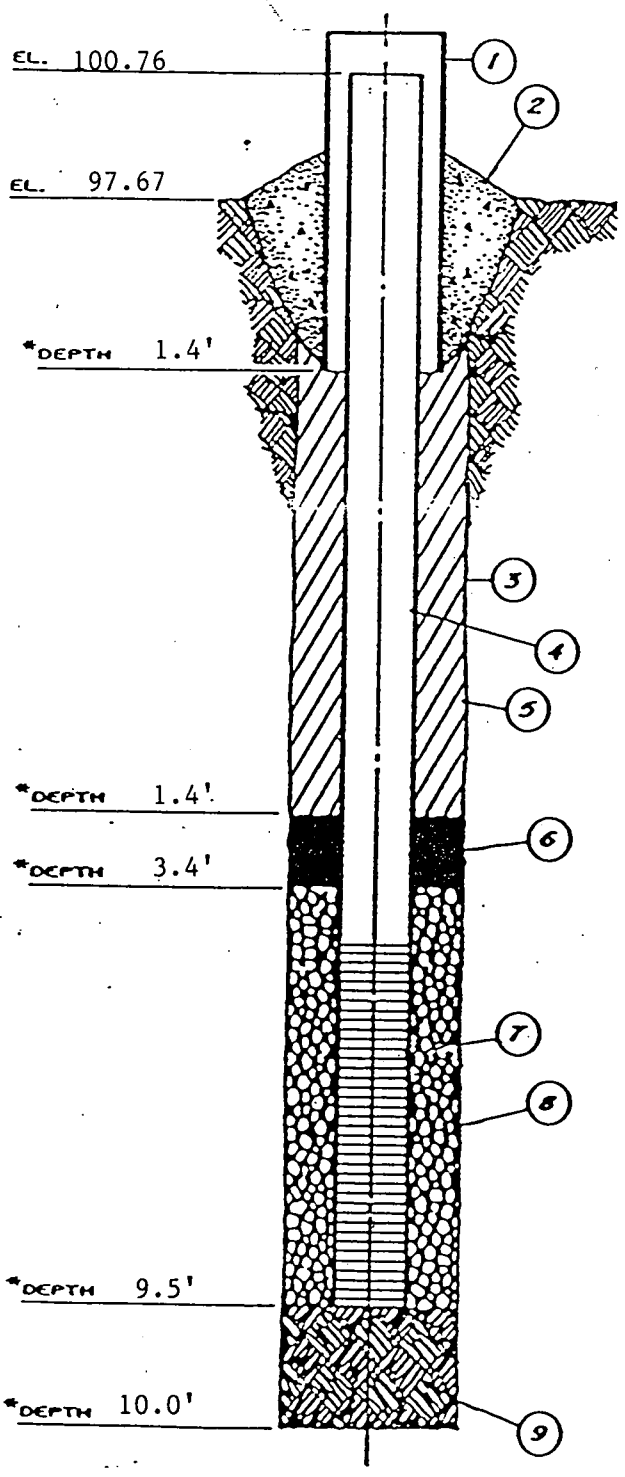
METHOD OF INVESTIGATION: ASTM D-1586 USING 4-1/4" HOLLOW STEM AUGERS

B/T Form H

MONITOR WELL COMPLETION REPORT :

WELL Nº GW - 4 JOB Nº BTA-89-39B

PROJECT Witmer Road Drive-In
Niagara Falls, New York



*Depth in feet below grade.

1. PROTECTIVE CASING I.D. 6 INCHES.

2. SURFACE SEAL TYPE Quickrete Concrete

3. BOREHOLE DIAMETER 10 INCHES.

4. RISER PIPE:
   a. Type 40 Schedule PVC
   b. I.D. 2 INCHES
   c. Length 7.5 FEET
   d. Joint Type PTFE (Teflon) Taped Flush Couple Threaded

5. BACKFILL:
   a. Type 3% Bentonite/Cement Grout
   b. Installation From Surface

6. Type of SEAL Bentonite Pellets

7. SCREEN
   a. Type 40 Schedule PVC
   b. I.D. 2 INCHES
   c. Slot Size 0.010 INCHES
   d. Length 5 FEET

8. SCREEN FILTER TYPE #2 Q-Rok Sand

9. BACKFILL TYPE #2 Q-Rok Sand

EMPIRE SOILS INVESTIGATIONS INC.

DATE
STARTED 5-24-90
FINISHED 5-24-90
SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS INC.

SUBSURFACE LOG

HOLE NO. GW-5
SURF. ELEV. 100.04
G. W. DEPTH See notes

PROJECT Witmer Road Drive-In
BTA-89-39B

LOCATION Witmer Road
Niagara Falls, New York

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	PID Sample	SOIL OR ROCK CLASSIFICATION	NOTES	PID Jar Head-space	PID Top of Auger
0											
		1	4	12		24	BG	.3' TOPSOIL White-gray f-c SAND (lime), little Silt, tr. gravel (moist, FILL)		BG	BG
			12	5							
		2	3	5		10	BG			BG	
			5	4							
5		3	3	4		9	BG	Contains little f-c Gravel, tr. silt, (wet)		BG	BG
			5	4							
		4	1	2		6	BG			BG	BG
			4	6							
		5	5	2		17	BG	Contains "and" f-m GRAVEL		BG	BG
			15	32							
10		6	5	11		26	BG	Red-brown Silty CLAY, little f-m Sand, tr. gravel, occasional silt partings (moist, hard)		BG	BG
			15	21							
								Boring complete at 12.0'	Free Standing Water measured at 7.3' at boring completion.		
15											

PID= Organic vapor measurements taken with a Photoionization Detector (PID). Measurements recorded in parts per million (ppm).

BG=Background PID measurements = 0.0-0.6 ppm

N = No. blows to drive 2 " spoon 12 " with 140 lb. pin wt. falling 30 "per blow.

C = No blows to drive _____ " casing _____ " with _____ lb. weight falling _____ "per blow.

CLASSIFICATION Visual by geologist

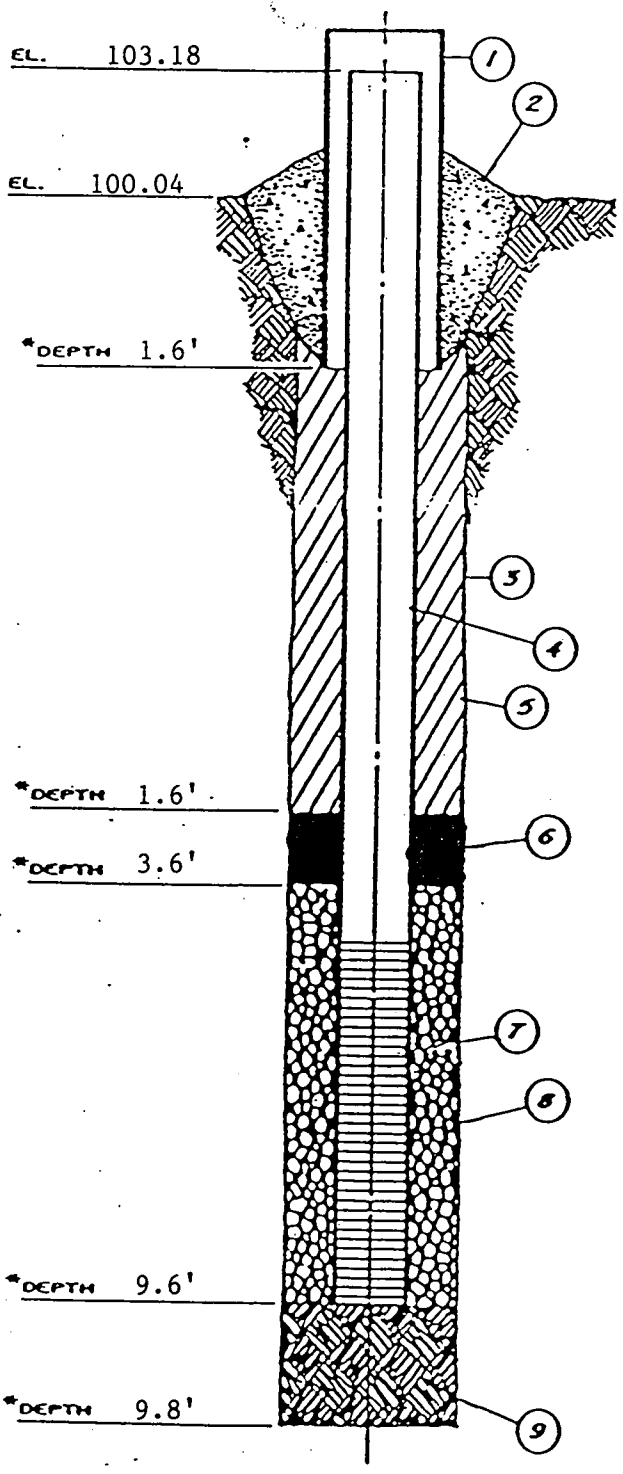
METHOD OF INVESTIGATION: ASTM D-1586 USING 4-1/4" HOLLOW STEM AUGERS

R/T Form H

MONITOR WELL COMPLETION REPORT :

WELL Nº GW-5 JOB Nº BTA-89-39B

PROJECT Witmer Road Drive-In
Niagara Falls, New York



*Depth in feet below grade.

1. PROTECTIVE CASING I.D. 6 INCHES.

2. SURFACE SEAL TYPE Quickrete Concrete

3. BOREHOLE DIAMETER 10 INCHES.

4. RISER PIPE:
   a. Type 40 Schedule PVC
   b. I.D. 2 INCHES
   c. Length 8 FEET
   d. Joint Type PTFE (Teflon) Taped Flush Couple Threaded

5. BACKFILL:
   a. Type 3% Bentonite/Cement Grout
   b. Installation From Surface

6. Type of SEAL Bentonite Pellets

7. SCREEN
   a. Type 40 Schedule PVC
   b. I.D. 2 INCHES
   c. Slot Size .010 INCHES
   d. Length 5 FEET

8. SCREEN FILTER TYPE #2 Q Rok Sand

9. BACKFILL TYPE #2 Q Rok Sand

EMPIRE SOILS INVESTIGATIONS INC.

EMPIRE SOILS INVESTIGATIONS, INC.
S-5167 SOUTH PARK AVENUE
HAMBURG, NEW YORK 14075

APPENDIX E

PHOTOGRAPHS

EMPIRE
SOILS INVESTIGATIONS INC

PROJECT NO: BTA-89-39B DATE PHOTOGRAPHED: 5/21/90

CLIENT: Asteco, Inc.

PROJECT: Witmer Road Drive - In

PROJECT LOCATION: 4287 Witmer Road , Niagara Falls , New York

PHOTOGRAPHED BY: L. Zimmerman PAGE 1 OF 20

1

Soil sample location SB-7

from 0 to 2.0-feet.

EMPIRE
SOILS INVESTIGATIONS INC.

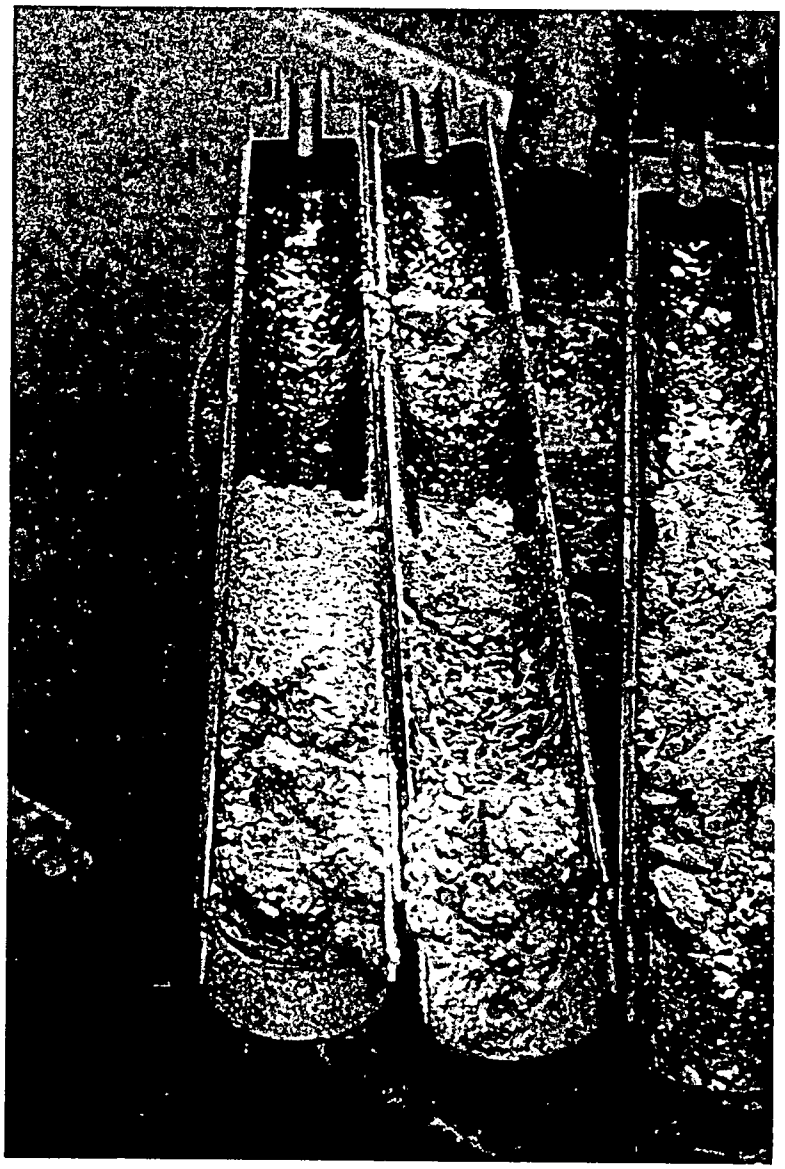
PROJECT NO: BTA-89-39B DATE PHOTOGRAPHED: 5/21/90

CLIENT: Asteco, Inc.

PROJECT: Witmer Road Drive - In

PROJECT LOCATION: 4287 Witmer Road , Niagara Falls , New York

PHOTOGRAPHED BY: L. Zimmerman PAGE 2 OF 20



2

Soil sample location SB-7

from 2.0 to 4.0-feet.

EMPIRE
SOILS INVESTIGATIONS INC

PROJECT NO: BTA-89-39B DATE PHOTOGRAPHED: 5/21/90

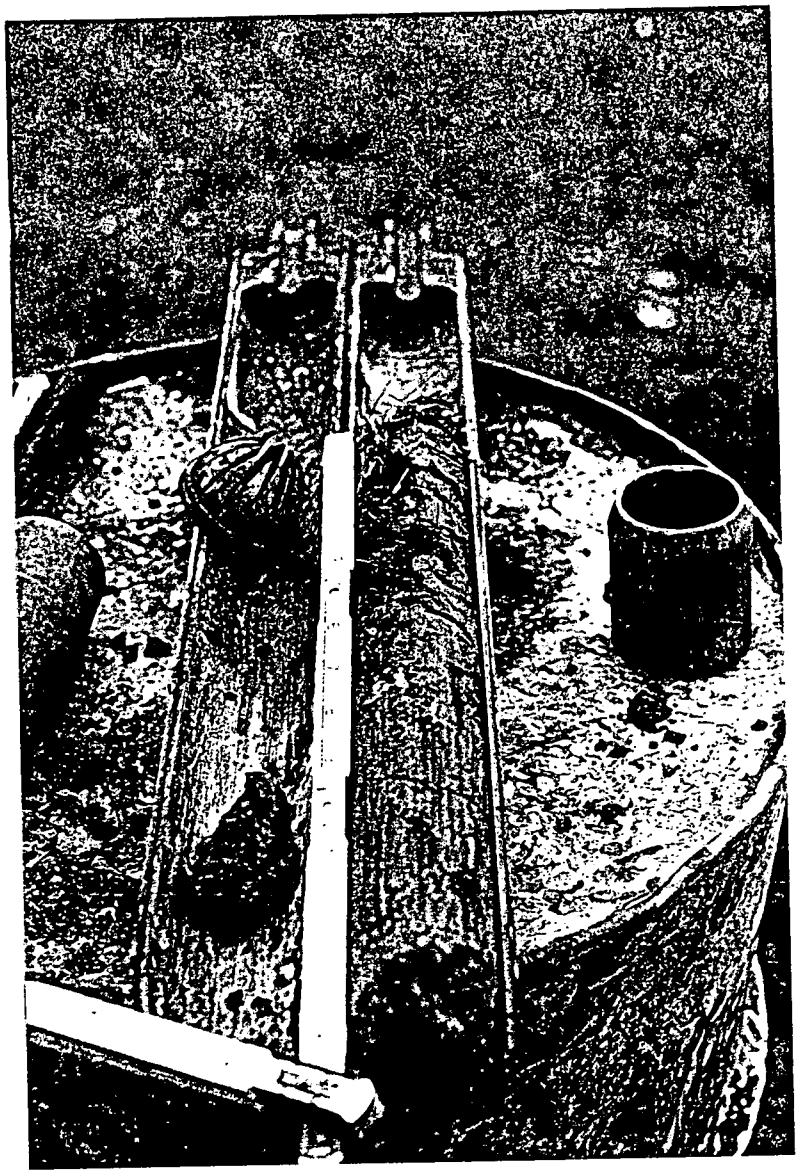
CLIENT: Asteco, Inc.

PROJECT: Witmer Road Drive - In

PROJECT LOCATION: 4287 Witmer Road , Niagara Falls , New York

PHOTOGRAPHED BY: L. Zimmerman PAGE 3 OF 20

3



Soil sample location SB-4

from 0 to 2.0-feet.

EMPIRE
SOILS INVESTIGATIONS, INC.

CLIENT: Asteco, Inc.

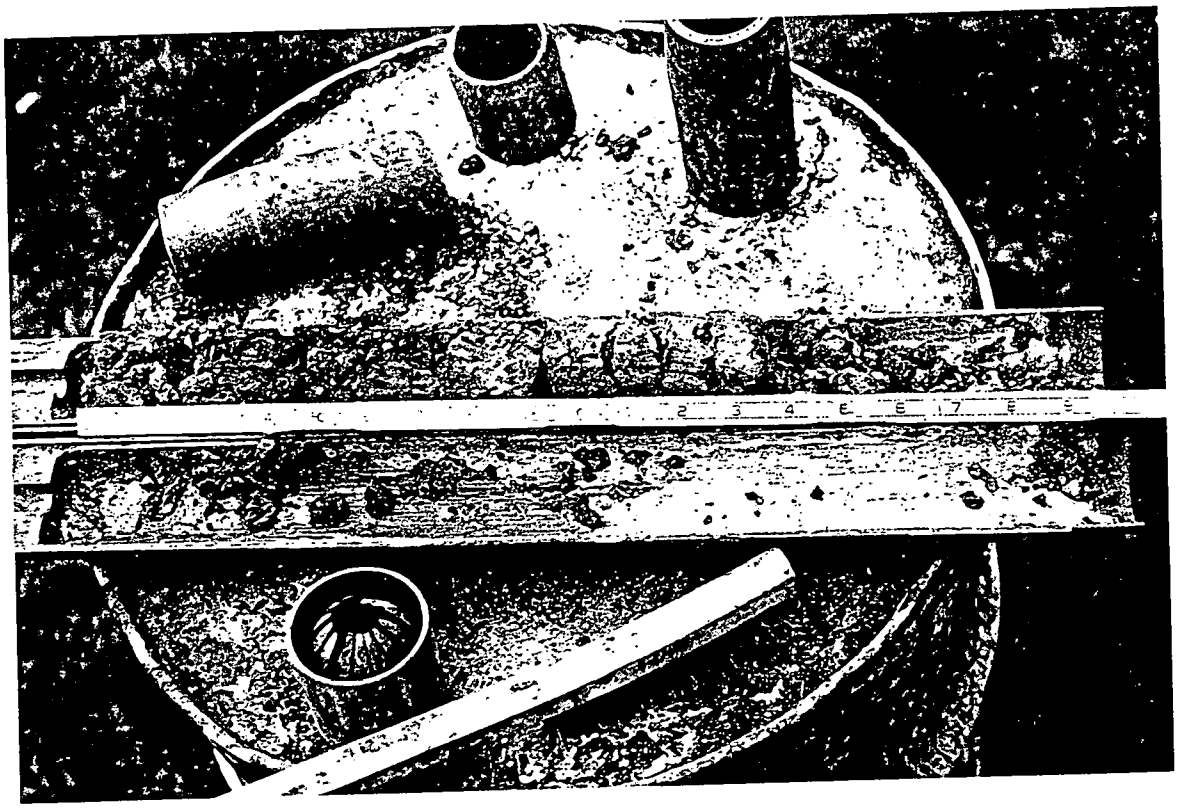
PROJECT: Witmer Road Drive-In

PROJECT LOCATION: 4287 Witmer Road, Niagara Falls, New York

PROJECT NO.: BTA-89-39B DATE PHOTOGRAPHED: 5/21/90

PHOTOGRAPHED BY: L. Zimmerman PAGE 4 OF 20

4



DESCRIPTION: Soil sample location SB-4 from 2.0 to 4.0-feet.

EMPIRE
SOILS INVESTIGATIONS, INC.

CLIENT: Asteco, Inc.

PROJECT: Witmer Road Drive-In

PROJECT LOCATION: 4287 Witmer Road, Niagara Falls, New York

PROJECT NO.: BTA-89-39B DATE PHOTOGRAPHED: 5/21/90

PHOTOGRAPHED BY: L. Zimmerman PAGE 5 OF 20

5

DESCRIPTION: Soil sample location SB-4 from 4.0 to 6.0-feet.

EMPIRE
SOILS INVESTIGATIONS

CLIENT: Asteco, Inc.

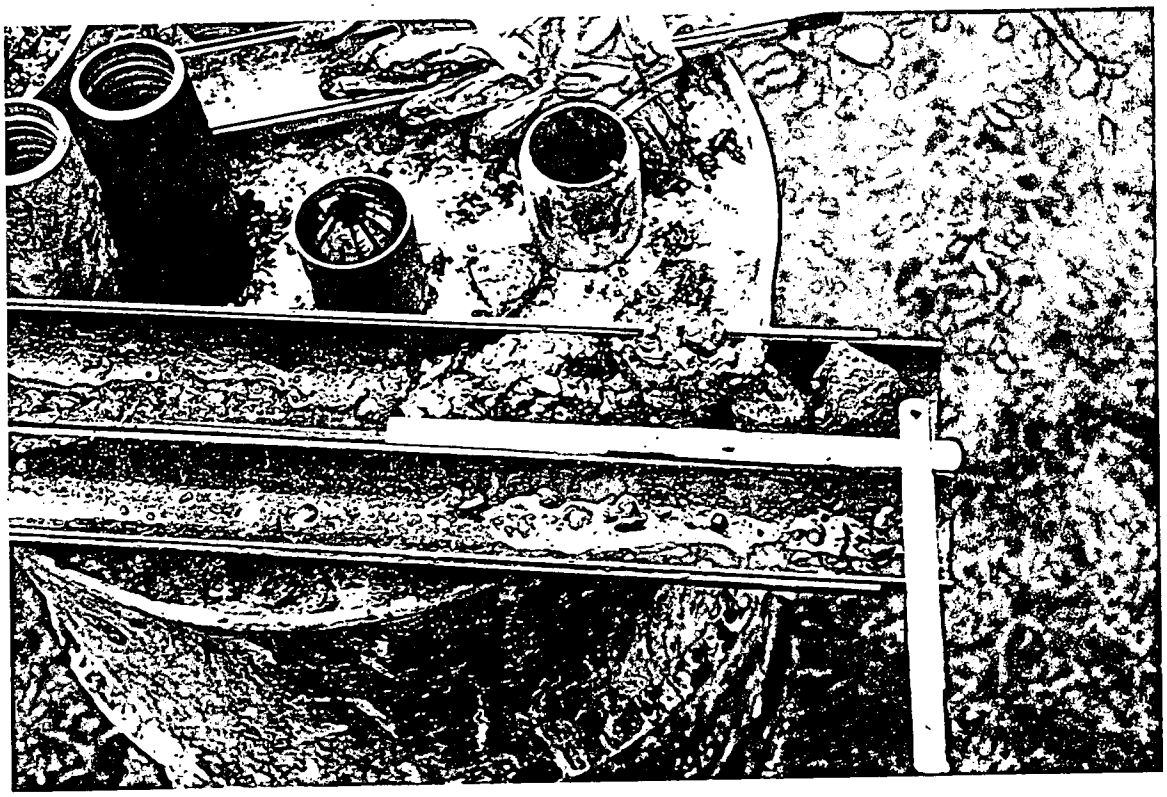
PROJECT: Witmer Road Drive-In

PROJECT LOCATION: 4287 Witmer Road, Niagara Falls, New York

PROJECT NO.: BTA-89-39B DATE PHOTOGRAPHED: 5/21/90

PHOTOGRAPHED BY: L. Zimmerman PAGE 6 OF 20

6



DESCRIPTION: Soil sample location SB-4 from 6.0 to 8.0-feet.

EMPIRE
SOILS INVESTIGATIONS, INC.

CLIENT: Asteco, Inc.

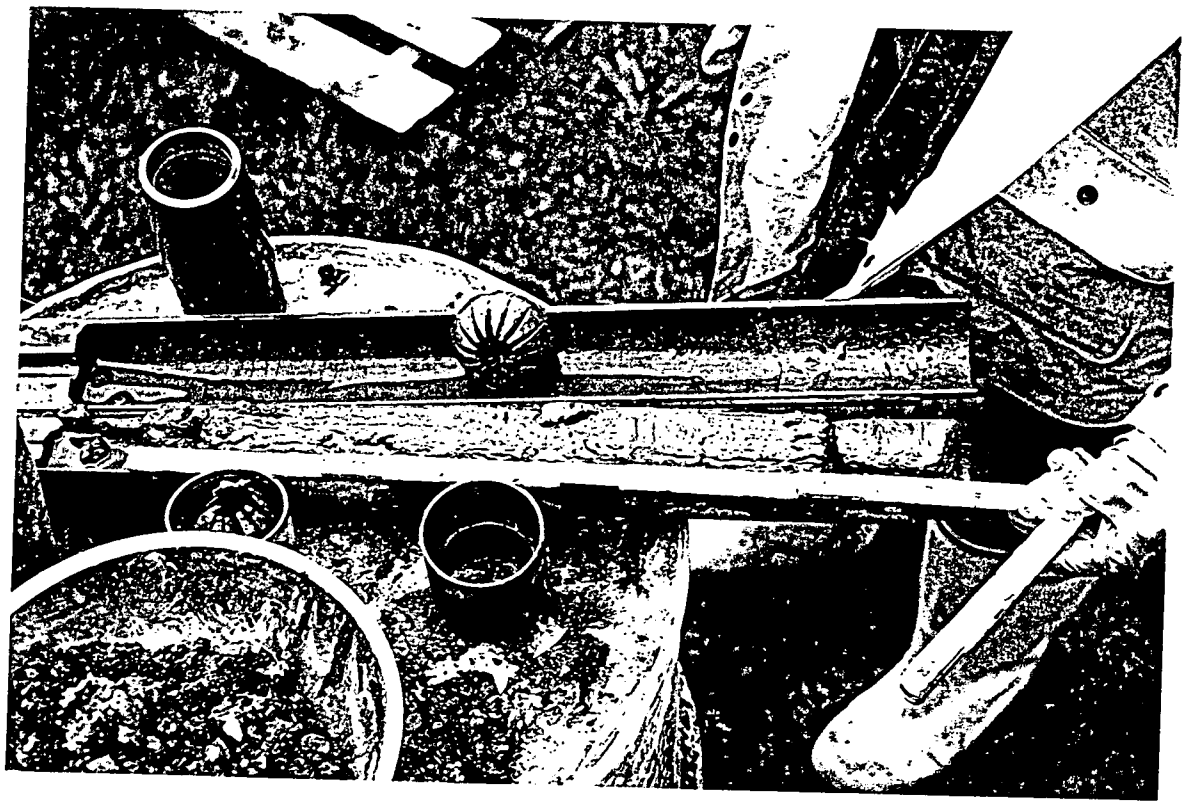
PROJECT: Witmer Road Drive-In

PROJECT LOCATION: 4287 Witmer Road, Niagara Falls, New York

PROJECT NO.: BTA-89-39B DATE PHOTOGRAPHED: 5/21/90

PHOTOGRAPHED BY: L. Zimmerman PAGE 7 OF 20

7



DESCRIPTION: Soil sample location SB-4 from 8.0 to 10.0-feet.

EMPIRE
SOILS INVESTIGATIONS, INC.

CLIENT: Asteco, Inc.

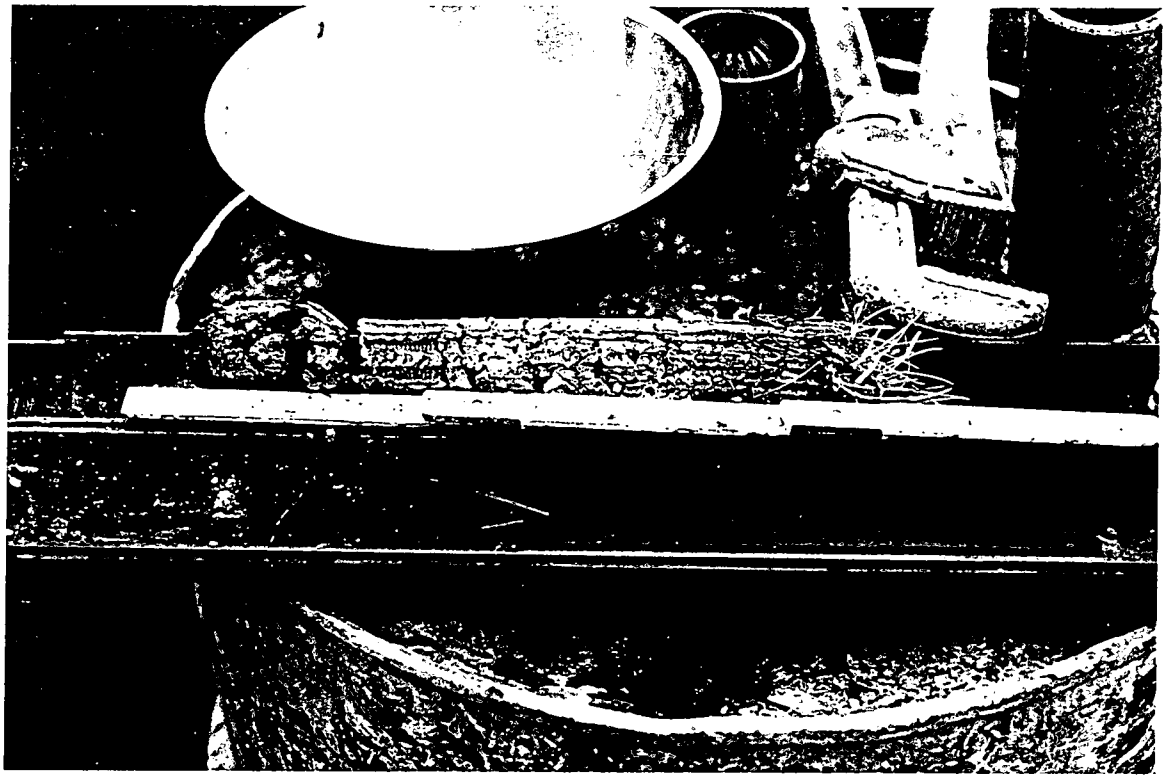
PROJECT: Witmer Road Drive-In

PROJECT LOCATION: 4287 Witmer Road, Niagara Falls, New York

PROJECT NO.: BTA-89-39B DATE PHOTOGRAPHED: 5/21/90

PHOTOGRAPHED BY: L. Zimmerman PAGE 8 OF 20

8



DESCRIPTION: Soil sample location SB-3 from 0.0 to 2.0-feet.

EMPIRE
SOILS INVESTIGATIONS

CLIENT: Asteco, Inc.

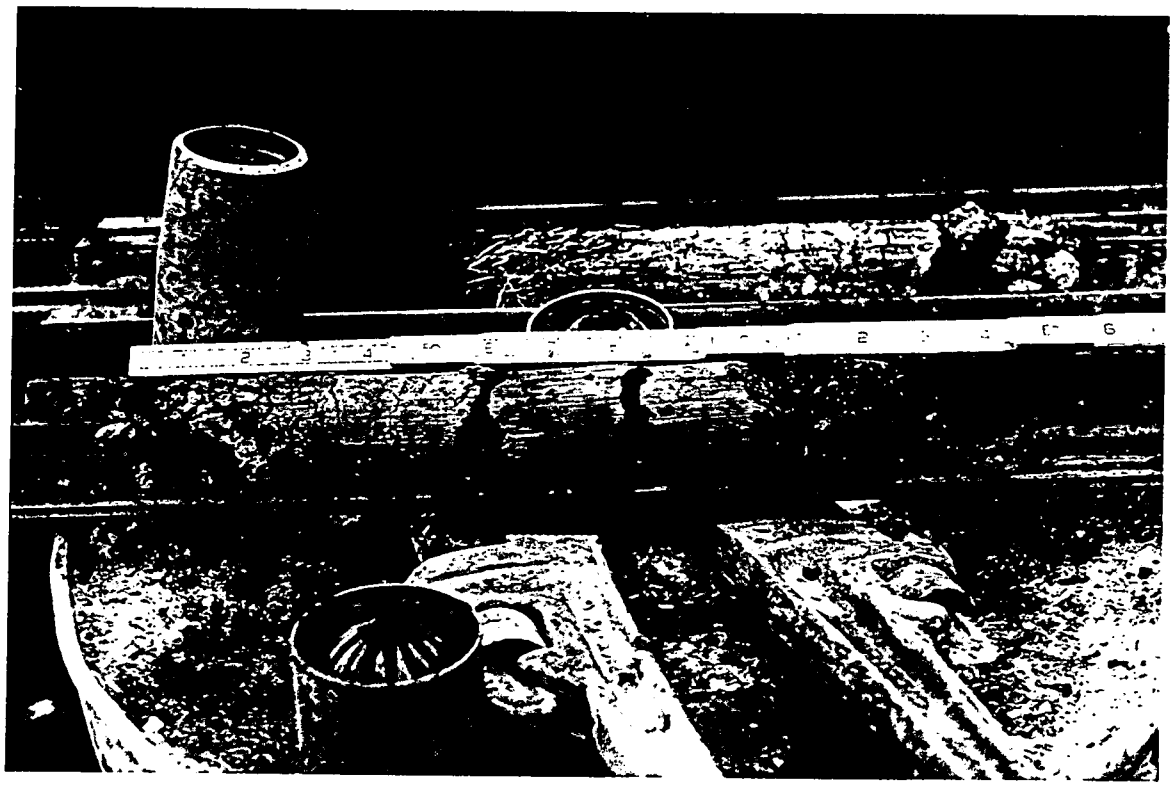
PROJECT: Witmer Road Drive-In

PROJECT LOCATION: 4287 Witmer Road, Niagara Falls, New York

PROJECT NO.: BTA-89-39B DATE PHOTOGRAPHED: 5/21/90

PHOTOGRAPHED BY: L. Zimmerman PAGE 9 OF 20

9



DESCRIPTION: Soil sample location SB-3 from 2.0 to 4.0-feet.

Note: Red resin located at bottom of sample from approximately 1.05 to 1.25-feet (on engineers rule).

EMPIRE
SOILS INVESTIGATIONS, INC.

CLIENT: Asteco, Inc.

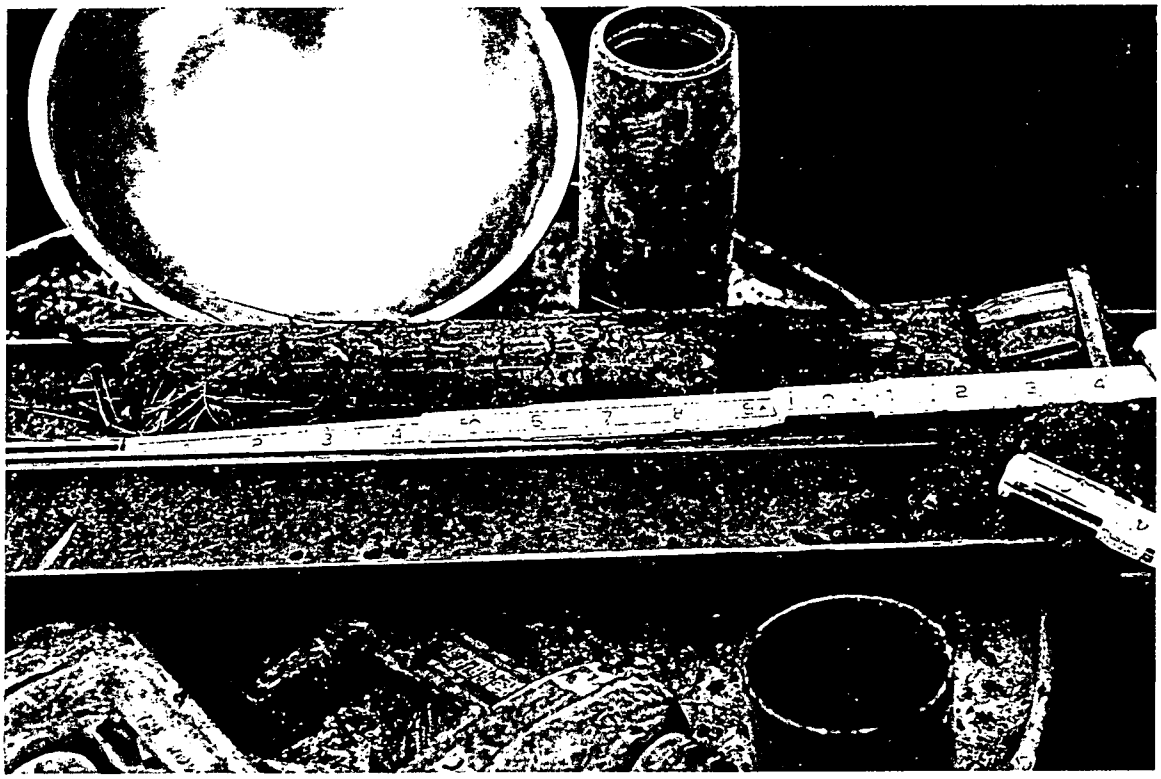
PROJECT: Witmer Road Drive-In

PROJECT LOCATION: 4287 Witmer Road, Niagara Falls, New York

PROJECT NO.: BTA-89-39B DATE PHOTOGRAPHED: 5/21/90

PHOTOGRAPHED BY: L. Zimmerman PAGE 10 OF 20

10



DESCRIPTION: Soil sample location SB-5 from 0.0 to 2.0-feet.

EMPIRE
SOILS INVESTIGATIONS

CLIENT: Asteco, Inc.

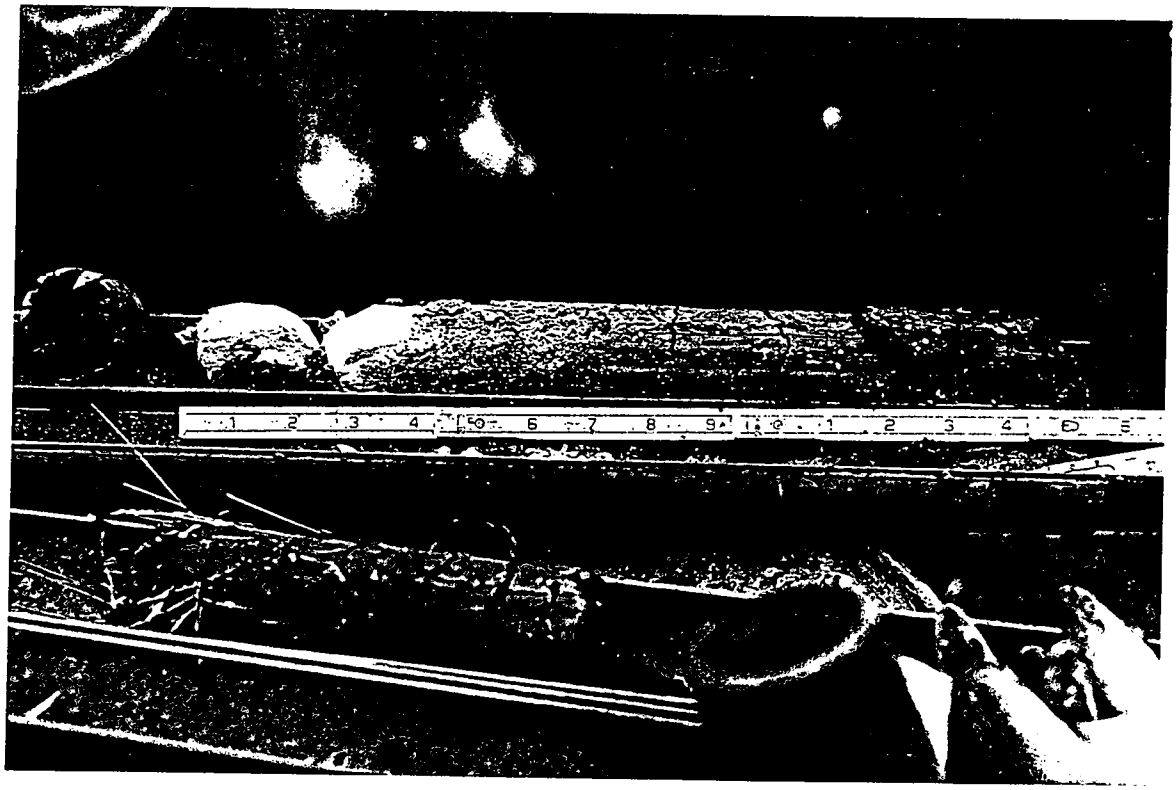
PROJECT: Witmer Road Drive-In

PROJECT LOCATION: 4287 Witmer Road, Niagara Falls, New York

PROJECT NO.: BTA-89-39B DATE PHOTOGRAPHED: 5/21/90

PHOTOGRAPHED BY: L. Zimmerman PAGE 11 OF 20

11



DESCRIPTION: Soil sample location SB-5 from 2.0 to 4.0-feet.

EMPIRE
SOILS INVESTIGATIONS

CLIENT: Asteco, Inc.

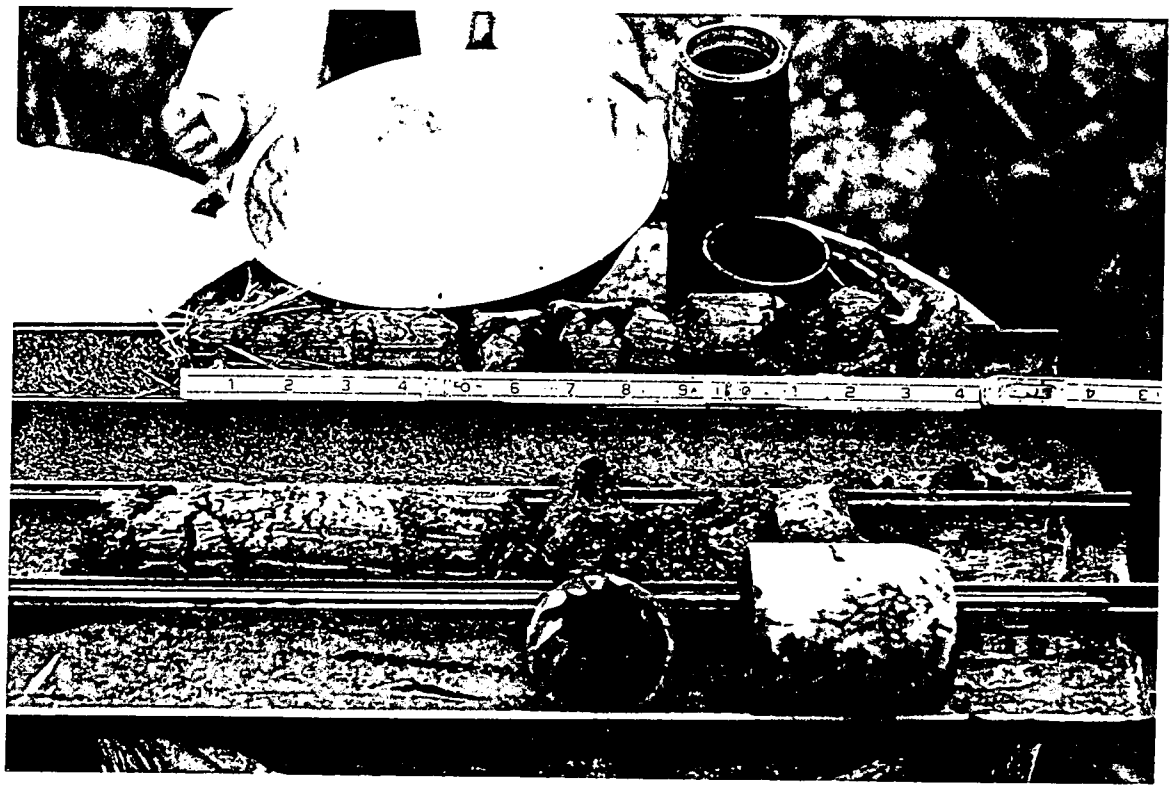
PROJECT: Witmer Road Drive-In

PROJECT LOCATION: 4287 Witmer Road, Niagara Falls, New York

PROJECT NO.: BTA-89-39B DATE PHOTOGRAPHED: 5/21/90

PHOTOGRAPHED BY: L. Zimmerman PAGE 12 OF 20

12



DESCRIPTION: Soil sample location SB-8 from 0.0 to 2.0-feet.

EMPIRE
SOILS INVESTIGATIONS

CLIENT: Asteco, Inc.

PROJECT: Witmer Road Drive-In

PROJECT LOCATION: 4287 Witmer Road, Niagara Falls, New York

PROJECT NO.: BTA-89-39B DATE PHOTOGRAPHED: 5/21/90

PHOTOGRAPHED BY: L. Zimmerman PAGE 13 OF 20

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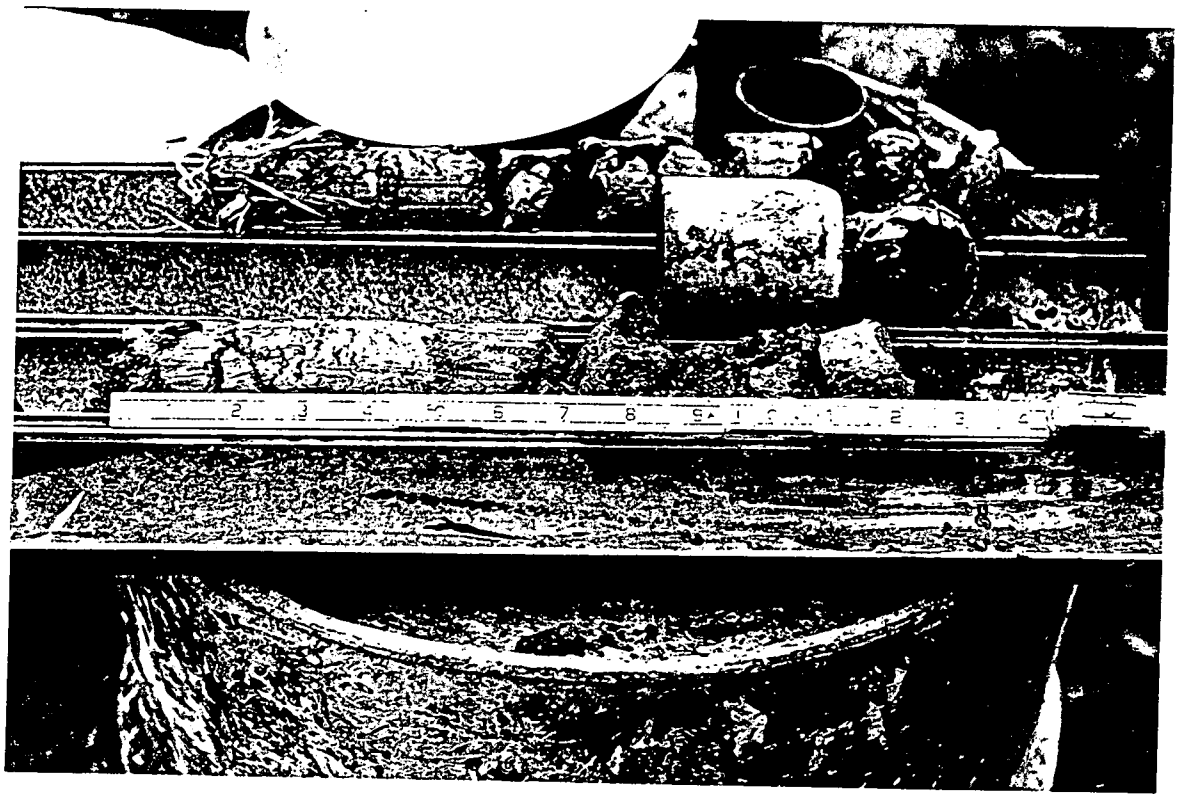


DESCRIPTION: Soil sample location SB-8 from 2.0 to 4.0-feet.

EMPIRE
SOILS INVESTIGATIONS, INC.

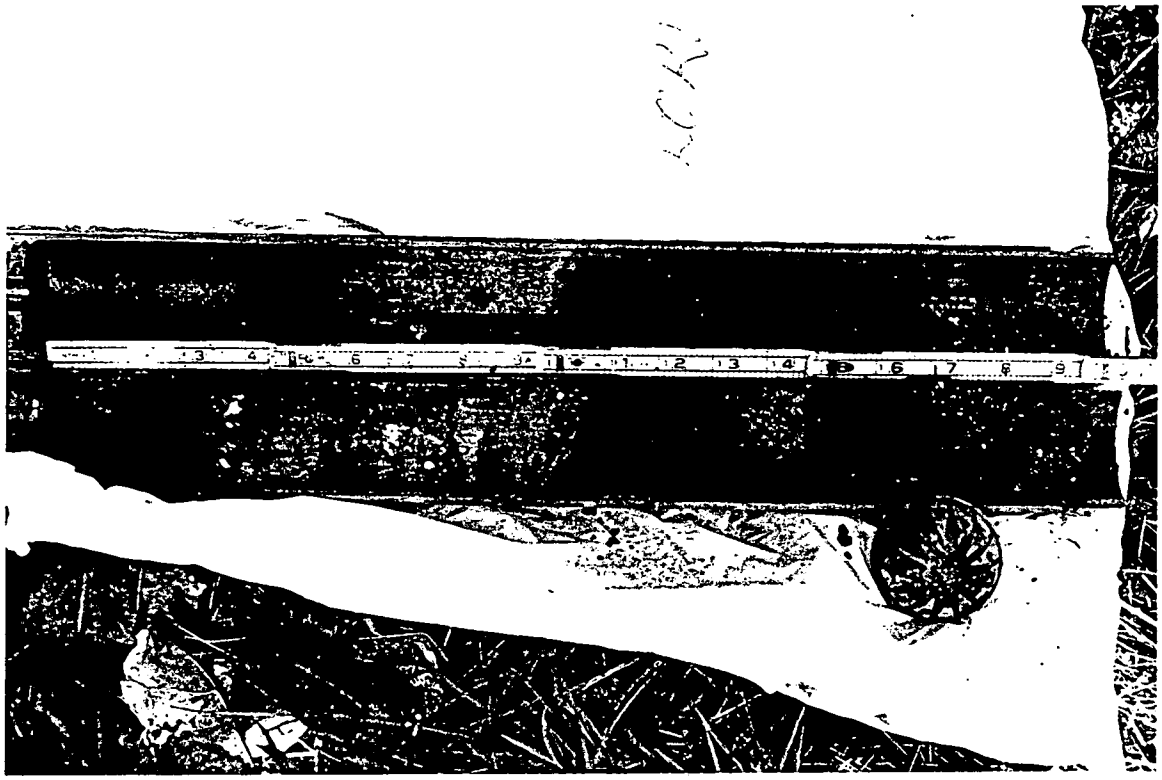
CLIENT: Asteco, Inc.

PROJECT: Witmer Road Drive-In

PROJECT LOCATION: 4287 Witmer Road, Niagara Falls, New York

PROJECT NO.: BTA-89-39B DATE PHOTOGRAPHED: 5/21/90

PHOTOGRAPHED BY: L. Zimmerman PAGE 14 OF 20



DESCRIPTION: Soil sample location SB-1 from 0.0 to 2.0-feet.

Note: Red resin present at bottom of spoon from approximately 1.05 to 2.0-feet.

EMPIRE
SOILS INVESTIGATIONS, INC.

CLIENT: Asteco, Inc.

PROJECT: Witmer Road Drive-In

PROJECT LOCATION: 4287 Witmer Road, Niagara Falls, New York

PROJECT NO.: BTA-89-39B DATE PHOTOGRAPHED: 5/21/90

PHOTOGRAPHED BY: L. Zimmerman PAGE 15 OF 20

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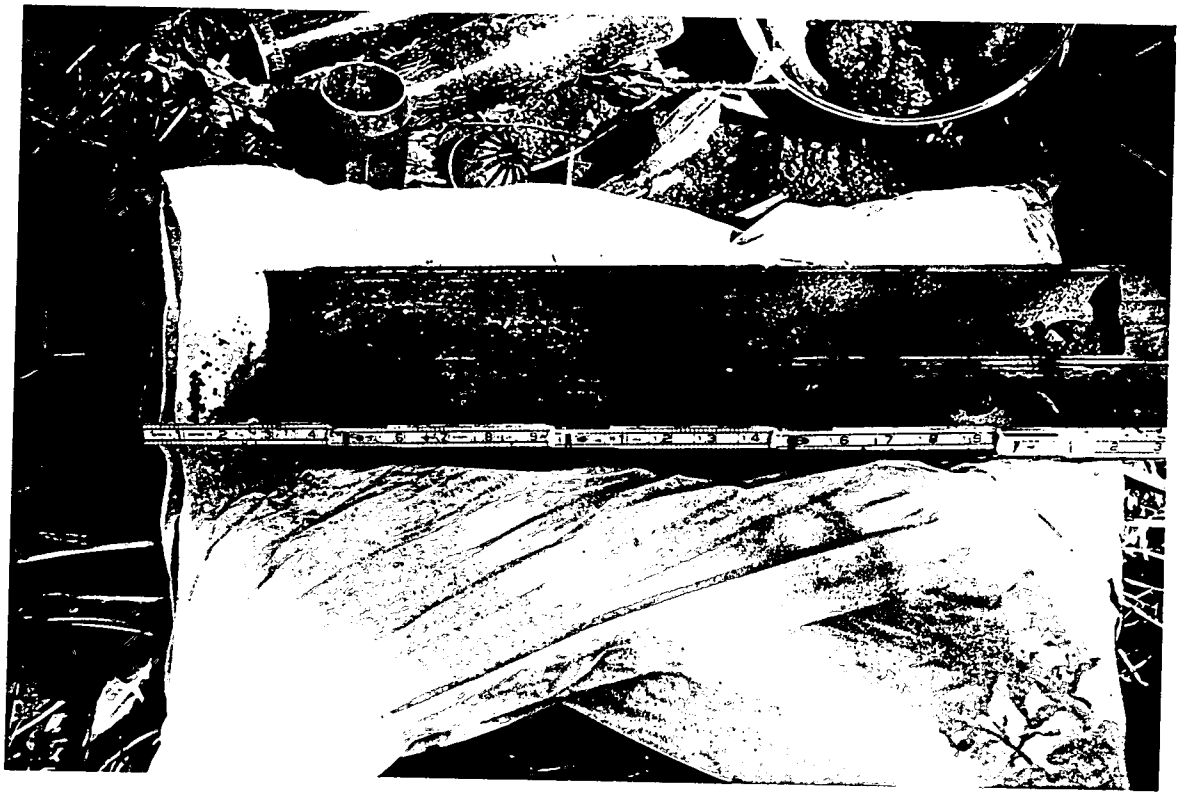

DESCRIPTION: Soil sample location SB-1 from 2.0 to 4.0-feet.

Note: Occasional red resin present throughout sample.

EMPIRE
SOILS INVESTIGATIONS, INC.

CLIENT: Asteco, Inc.

PROJECT: Witmer Road Drive-In

PROJECT LOCATION: 4287 Witmer Road, Niagara Falls, New York

PROJECT NO.: BTA-89-39B DATE PHOTOGRAPHED: 5-22-90

PHOTOGRAPHED BY: L. Zimmerman PAGE 16 OF 20

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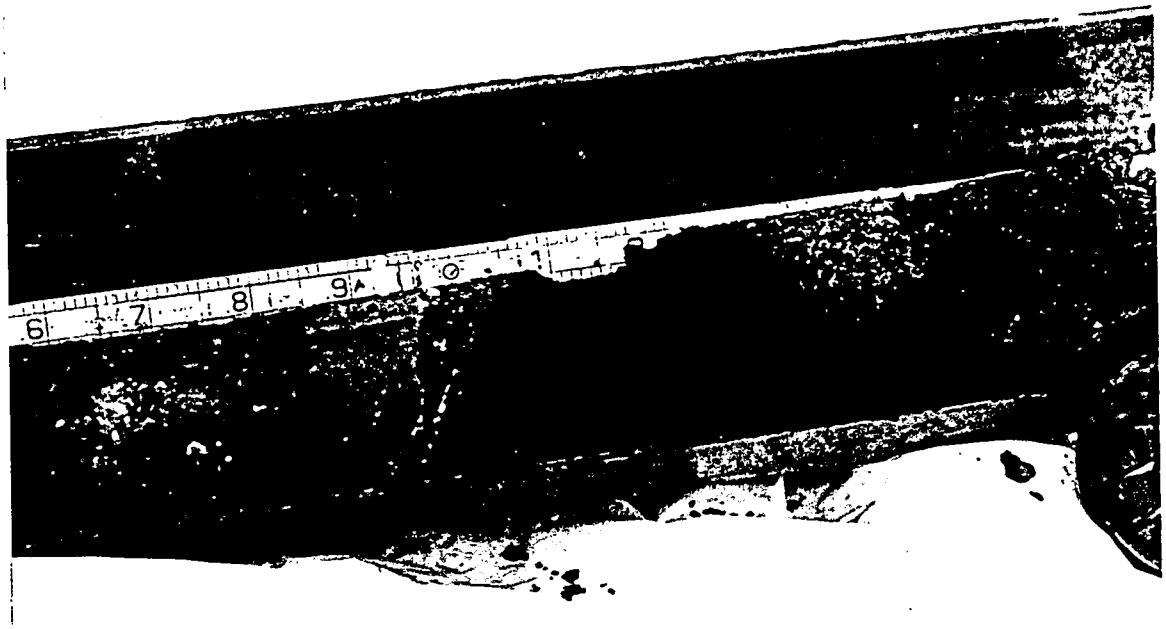

DESCRIPTION: Soil sample location SB-1 from 2.0 to 4.0-feet.

Note: Close-up of red resin from 1.05 to end of picture.

EMPIRE
SOILS INVESTIGATIONS

CLIENT: Asteco, Inc.

PROJECT: Witmer Road Drive-In

PROJECT LOCATION: 4287 Witmer Road, Niagara Falls, New York

PROJECT NO.: BTA-89-39B DATE PHOTOGRAPHED: 5-22-90

PHOTOGRAPHED BY: L. Zimmerman PAGE 17 OF 20

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DESCRIPTION: Soil sample location SB-6 from 2.0 to 4.0-feet.

EMPIRE
SOILS INVESTIGATIONS, INC.

CLIENT: Asteco, Inc.

PROJECT: Witmer Road Drive-In

PROJECT LOCATION: 4287 Witmer Road, Niagara Falls, New York

PROJECT NO.: BTA-89-39B DATE PHOTOGRAPHED: 5-22-90

PHOTOGRAPHED BY: L. Zimmerman PAGE 18 OF 20

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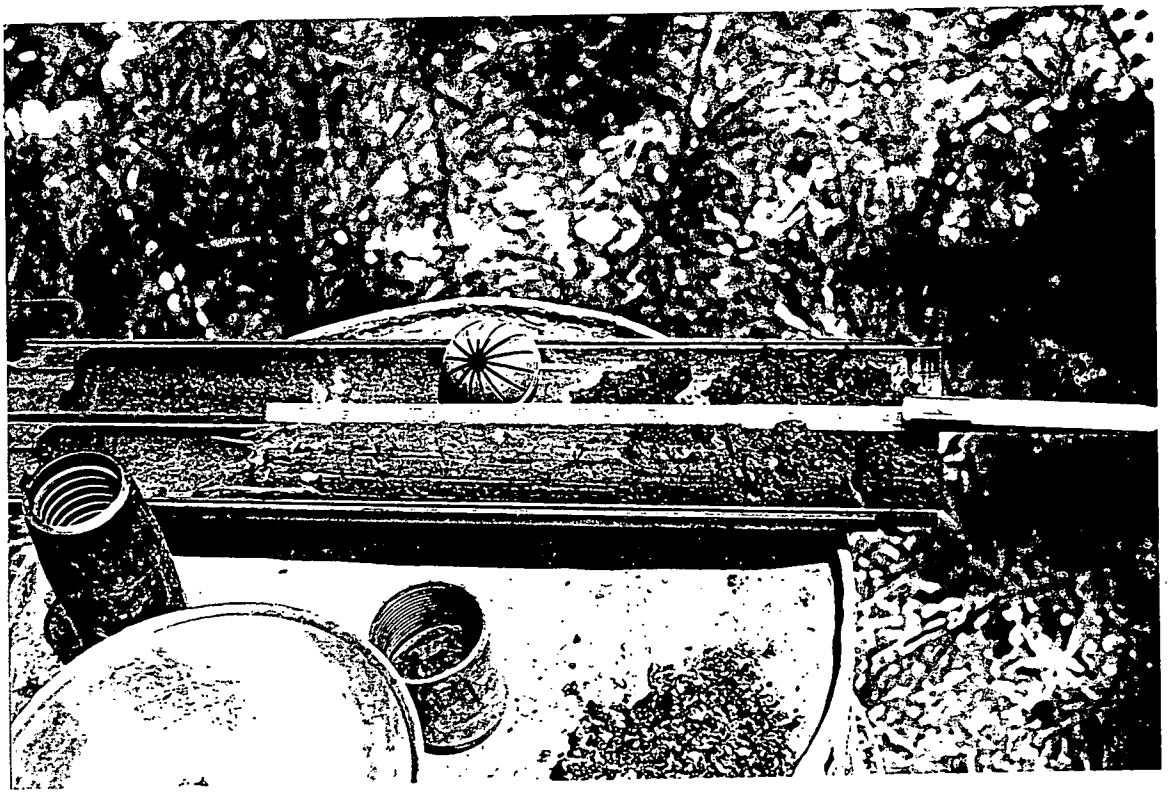

DESCRIPTION: Soil sample location "resin sample" from 0.0 to 2.0-feet.

Note: Resin present in sample from approximately 1.1 to 1.5-feet.

EMPIRE
SOILS INVESTIGATIONS

CLIENT: Asteco, Inc.

PROJECT: Witmer Road Drive-In

PROJECT LOCATION: 4287 Witmer Road, Niagara Falls, New York

PROJECT NO.: BTA-89-39B DATE PHOTOGRAPHED: 5-22-90

PHOTOGRAPHED BY: L. Zimmerman PAGE 19 OF 20

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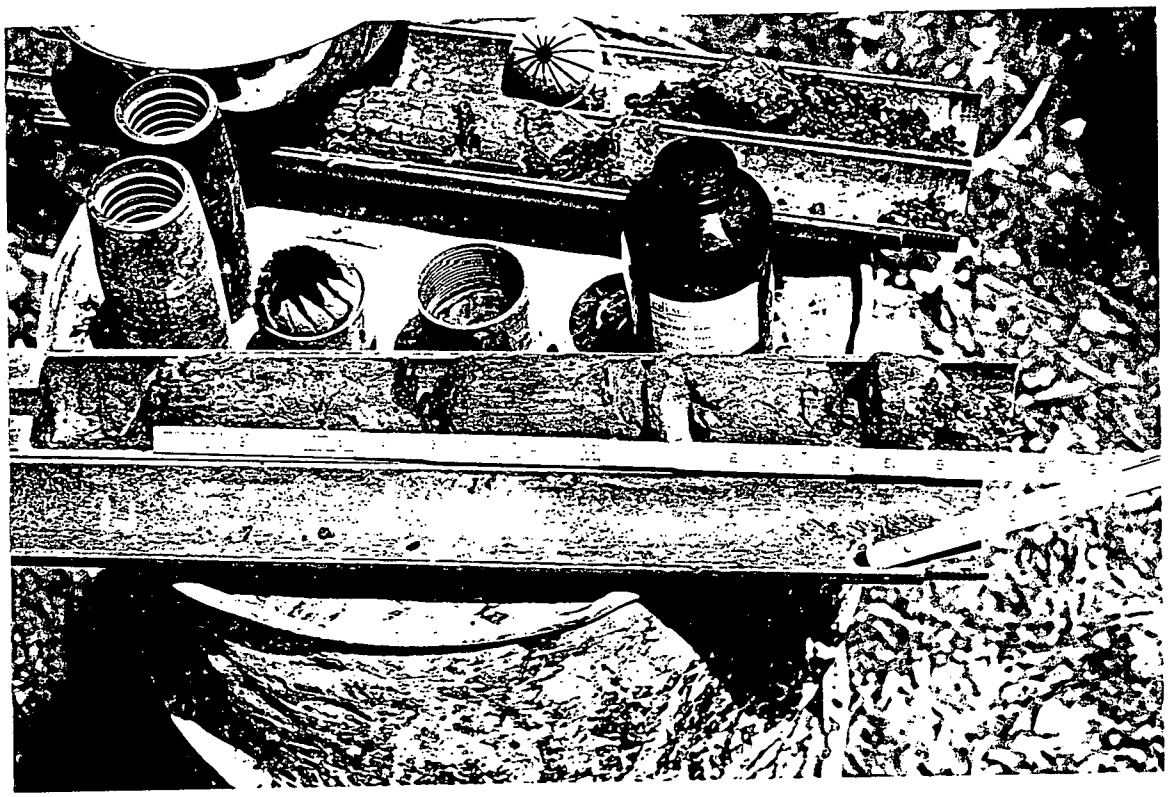

DESCRIPTION: Soil sample location SB-2 from 0 to 2.0-feet.

Note: Red resin present from approximately 0.54 to 0.65-feet.

EMPIRE
SOILS INVESTIGATIONS, INC.

CLIENT: Asteco, Inc.

PROJECT: Witmer Road Drive-In

PROJECT LOCATION: 4287 Witmer Road, Niagara Falls, New York

PROJECT NO.: BTA-89-39B DATE PHOTOGRAPHED: 5-22-90

PHOTOGRAPHED BY: L. Zinmerman PAGE 20 OF 20

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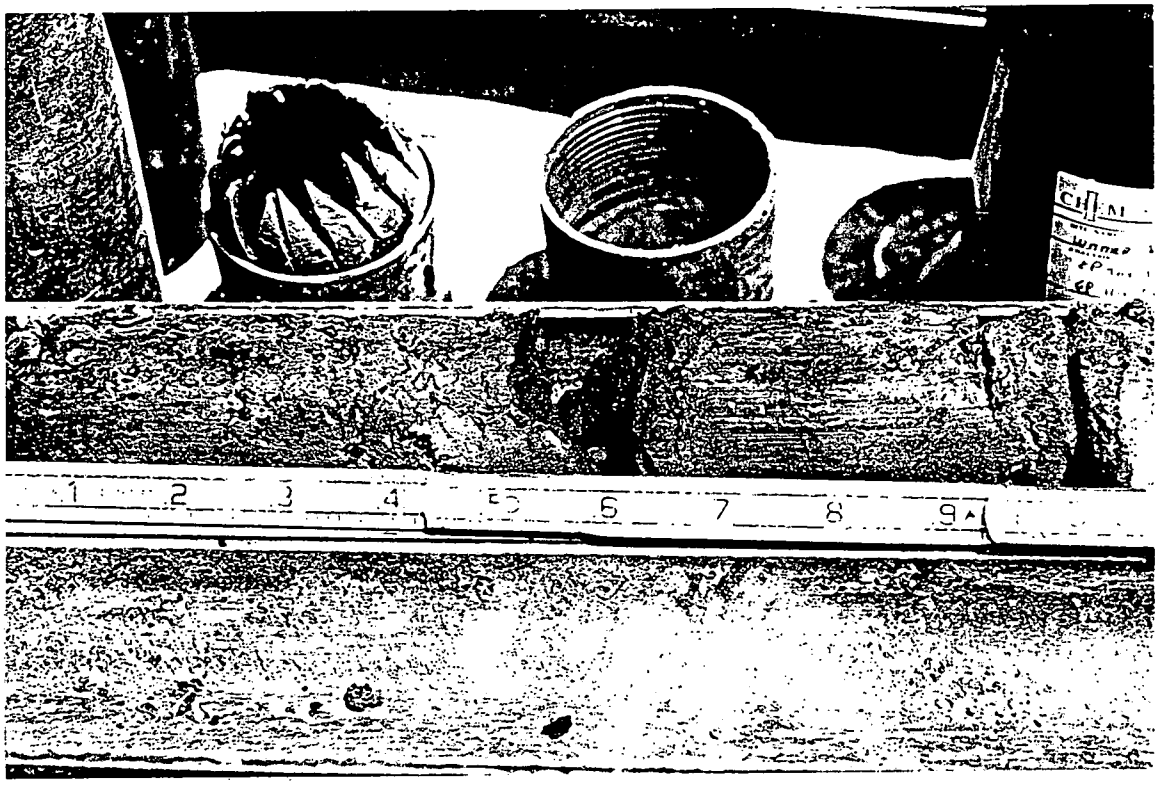

DESCRIPTION: Soil sample location SB-2. Close-up of red resin in sample from 0.0 to 2.0-feet.

EMPIRE SOILS INVESTIGATIONS, INC.
S-5167 SOUTH PARK AVENUE
HAMBURG, NEW YORK 14075

APPENDIX F

MONITORING WELL DEVELOPMENT LOGS,
AND SAMPLING LOGS

WELL DEVELOPMENT RECORD

PROJECT: Witmer Road Drive-In

PROJECT NUMBER: BTA-89-39B DATE: 5-30-90

LOCATION: 4287 Witmer Road, Niagara Falls, New York

WELL NUMBER: GW-1

PERSONNEL: L. Zimmerman and B. Schwartzott

DEVELOPMENT METHOD: (BAILERS) - BK PUMP - PERASTALLIC PUMP
~~DOWN HOLE PUMP~~ - COMPRESSED AIR
OTHER: _____

REQUIRED DEVELOPMENT CRITERIA:

TURBIDITY 490 NTU
WELL VOLUMES 13
STABLE pH 6.6
STABLE CONDUCTIVITY 790

WATER LEVEL PRIOR TO DEVELOPMENT 7.90'(T.O.R.*) (elevation in feet)
WATER LEVEL AFTER DEVELOPMENT 9.2' (T.O.R.) (elevation in feet)
DEVELOPMENT STARTED 11:15 A
DEVELOPMENT COMPLETED 2:25 P (See notes below)
TOTAL VOLUME OF WATER REMOVED 10 GALLONS

VOLUME EVACUATED (GALLONS)	pH (STANDARD UNITS)	CONDUCTIVITY (uhmhos/cm)	TEMPERATURE (DEGREES °C)	TURBIDITY NTU
1	6.35	790	12.1	490
2	6.19	790	14.0	272
3	6.50	800	11.1	696
4	6.55	780	11.0	>1000
5	6.58	780	10.8	>1000
6	6.54	790	13.0	450
7.5	6.67	750	12.6	490

NOTES: 1 Well Volume=0.75 Gallon

Well dry at 5 gallons at 12.00 p, went to lunch and resumed developement at 12:30. Well dry at 7.5 gallons at 12:45, well dry at 10 gallons at 2:25.

*T.O.R.=Top of Riser PID= 7.5 - 10 ppm.

WELL DEVELOPMENT RECORD

PROJECT: Witmer Road Drive-In

PROJECT NUMBER: BTA-89-39B DATE: 5-30-90

LOCATION: 4287 Witmer Road, Niagara Falls, New York

WELL NUMBER: GW-2

PERSONNEL: L. Zimmerman & B. Schwartzott

DEVELOPMENT METHOD: (BAILERS) - BK PUMP - PERASTALLIC PUMP
DOWN HOLE PUMP - COMPRESSED AIR
OTHER: _____

REQUIRED DEVELOPMENT CRITERIA:

TURBIDITY	285	NTU
WELL VOLUMES	11.5	
STABLE pH	6.9	
STABLE CONDUCTIVITY	1040	

WATER LEVEL PRIOR TO DEVELOPMENT	6.31'	(elevation in feet)
WATER LEVEL AFTER DEVELOPMENT	11.82 '	(elevation in feet)
DEVELOPMENT STARTED	12:55 pm	
DEVELOPMENT COMPLETED	2:35 pm	
TOTAL VOLUME OF WATER REMOVED	10.5	GALLONS

VOLUME EVACUATED (GALLONS)	pH (STANDARD UNITS)	CONDUCTIVITY (umhos/cm)	TEMPERATURE (DEGREES °C)	TURBIDITY NTU
1	6.12	1000	14.4	116
3	6.74	1050	11.9	182
4	6.85	1050	11.8	246
5	688	1200	11.8	210
7.5	6.92	1040	12.0	285

NOTES: PID Top of Well = 5.0 ppm

1 Gal. = 1 Well Volume

Well Dry at 5.0 Gallons at 1:30

Well Dry at 7.5 Gallons at 2:35

5/31/90 = Bailed 4 additional gallons from the well to make 11.5 well volumes , well went dry.

WELL DEVELOPMENT RECORD

PROJECT: Witmer Road Drive-In

PROJECT NUMBER: BTA-89-39B DATE: 5-31-90

LOCATION: 4287 Witmer Road, Niagara Falls, New York

WELL NUMBER: GW-3

PERSONNEL: L. Zimmerman & B. Schwartzott

DEVELOPMENT METHOD: (BAILERS) - BK PUMP - PERASTALLIC PUMP
DOWN HOLE PUMP - COMPRESSED AIR
OTHER: _____

REQUIRED DEVELOPMENT CRITERIA:

TURBIDITY * NTU
WELL VOLUMES 3.25
STABLE pH *
STABLE CONDUCTIVITY *
(Riser is .21' below GS)

WATER LEVEL PRIOR TO DEVELOPMENT 2.87 ' (elevation in feet)
WATER LEVEL AFTER DEVELOPMENT 9.0' (elevation in feet)
DEVELOPMENT STARTED 11:00 am
DEVELOPMENT COMPLETED 3:30 pm
TOTAL VOLUME OF WATER REMOVED 3.25 GALLONS

VOLUME EVACUATED (GALLONS)	pH (STANDARD UNITS)	CONDUCTIVITY (umhos/cm)	TEMPERATURE (DEGREES °C)	TURBIDITY NTU
1	10.75	1010	13.8	4500
2	10.76	950	16.6	7200
3	*	*	*	*

NOTES: 1 Well Volume = 1 Gal.

PID = 4.8 ppm

* = Unable to obtain measurements due to a lack of water in the well.

Well Dry at 1.5 Gallons at 11:15
~~Well Dry at 2.0 Gallons~~
Well Dry at 2.5 Gallons
~~Well Dry at 3.25 Gallones at the end of the day.~~

WELL DEVELOPMENT RECORD

PROJECT: Witmer Road Drive-In

PROJECT NUMBER: BTA-89-39B DATE: 5-30-90

LOCATION: 4287 Witmer Road Drive-In

WELL NUMBER: GW-4

PERSONNEL: L. Zimmerman and B. Schwartzott

DEVELOPMENT METHOD: (BAILERS) - BK PUMP - PERASTALLIC PUMP
DOWN HOLE PUMP - COMPRESSED AIR
OTHER: _____

REQUIRED DEVELOPMENT CRITERIA:

TURBIDITY 2400 (See Notes) NTU
WELL VOLUMES 17
STABLE pH 6.60
STABLE CONDUCTIVITY 1310

WATER LEVEL PRIOR TO DEVELOPMENT 9.62 (Top of Riser) (elevation in feet)
WATER LEVEL AFTER DEVELOPMENT Bottom of Well 12.96 (elevation in feet)
DEVELOPMENT STARTED 1:35 pm
DEVELOPMENT COMPLETED 2:30 pm
TOTAL VOLUME OF WATER REMOVED 10 GALLONS

VOLUME EVACUATED (GALLONS)	pH (STANDARD UNITS)	CONDUCTIVITY (umhos/cm)	TEMPERATURE (DEGREES °C)	TURBIDITY NTU
1	6.56	1300	10.8	3760
3	6.38	1220	14.2	3680
4	6.53	1310	11.0	>2000
5	6.57	1310	10.6	>2000
6	6.63	1310	10.4	>2000
10	6.60	1350	10.9	2400

NOTES: PID at Top of Well = 3.8-4.0 ppm

0.6 Gallon = 1 Well Volume

Water is very turbid contains black silty clay.'

WELL DEVELOPMENT RECORD

PROJECT: Witmer Road Drive -In

PROJECT NUMBER: BTA-89-39B DATE: 5-30-90

LOCATION: 4287 Witmer Road, Niagara Falls, New York

WELL NUMBER: GW-5

PERSONNEL: L. Zimmerman & B. Schwartzott

DEVELOPMENT METHOD: (BAILERS) - BK PUMP - PERASTALLIC PUMP
~~DOWN HOLE PUMP~~ - COMPRESSED AIR
OTHER:

REQUIRED DEVELOPMENT CRITERIA:

TURBIDITY 1640 NTU
WELL VOLUMES 13.6
STABLE pH 12.69
STABLE CONDUCTIVITY 4650

WATER LEVEL PRIOR TO DEVELOPMENT 6.56' Top of Riser (elevation in feet)
WATER LEVEL AFTER DEVELOPMENT 6.56' Top of Riser (elevation in feet)
DEVELOPMENT STARTED 2:50
DEVELOPMENT COMPLETED 3:47
TOTAL VOLUME OF WATER REMOVED 15 GALLONS

VOLUME EVACUATED (GALLONS)	pH (STANDARD UNITS)	CONDUCTIVITY (umhos/cm)	TEMPERATURE (DEGREES °C)	TURBIDITY NTU
1	12.57	4890	14.0	> 2000
3	12.70	4850	13.1	> 2000
4	12.74	4550	12.4	2000
5	12.69	4810	13.3	2340
7	12.71	4550	13.1	1740
10	12.67	4600	12.9	1640
15	12.68	4700	14.3	1640

NOTES: PID = 5-5.4 ppm

1 Well Volume = 1.1 Gal.

Water is very turbid gray-white high conductivity & pH probably due to lime like material present.

ESI SAMPLING LOG

PROJECT: Witmer Road Drive-In

FILE: BTA-89-39B

SAMPLE LOCATION: GW-1

DATE: 5-31-90 TIME: 1:35 pm

GENERAL

SAMPLING EQUIPMENT USED: Polyethylene-nylon braided rope, dedicated 1" x 3' stainless steel bailer, 300 Series Lab Certified Sample bottles.

DECONTAMINATION PROCEDURE (Indicate if equipment was precleaned): Dedicated - precleaned equipment

SAMPLE COLLECTION PROCEDURES (Include purging, if appropriate): Lower stainless steel bailer slowly into well and collect water; empty into appropriate containers.

IN SITU MONITORING EQUIPMENT USED AND CALIBRATED: See field notebook for calibrations & instrument model makes and numbers.
Instruments used: pH-Temperature meter, turbidimeter, conductance meter

SAMPLE IDENTIFICATION

SAMPLE TYPE: GRAB

SAMPLE CODE: GW-1-5-31

CONTAINER	SEQUENCE NUMBER *	TEST PARAMETER	CONTAINER VOLUME	PRESERVATION
1.	GW-1	EPA-8240	2 @ 40 ml amber glass	4°C
2.	GW-1	EPA-8270	1 @ 1/2 gal. amber glass	4°C
3.	GW-1	EPA-7421	1 @ 1 L plastic	HNO_3
4.	Rinsate Blank	EPA-8240	2 @ 40 ml amber glass	4°C
5.	Rinsate Blank	EPA-8270	1 @ 1/2 gal. amber glass	4°C
6.	Rinsate Blank	EPA-7421	1 @ 1 L plastic	HNO_3
7.				
8.				

IN SITU MEASUREMENTS

INITIAL WATER LEVEL (MEASURED FROM MONITORING POINT): 7.90 - feet

WATER VOLUME REMOVED (IF APPLICABLE): See Development Sheet

pH (STANDARD UNITS):	6.45	6.49	6.56	6.63
CONDUCTANCE (μ ohms/cm):	900	900	900	910
TEMPERATURE (☒ °C, ☐ °F):	16.4	18.4	19.1	19.5

TOTAL ORGANIC VAPOR (VIA PID): 5.8-6.2 ppm

LOCATION OF PID MEASUREMENT: Top of Well

OTHER MEASUREMENTS:

1. Turbidity - 6 NTU*
2.
3.
4. Note*- Turbidity measurement was taken on the first bailer of water pulled from the well.

MISCELLANEOUS INFORMATION:

CHAIN-OF-CUSTODY COMPLETED (☒ YES, ☐ NO)

SAMPLE CONTAINERS LABELED (☒ YES, ☐ NO)

SHIPPING CONTAINERS SEALED (☒ YES, ☐ NO)

TRIP BLANK (☒ YES, ☐ NO)

RINSATE BLANK (☒ YES, ☐ NO)

REMARKS: Rinsate blank taken from bailer GW-1

* SEQUENCE NUMBER CORRESPONDS TO IDENTIFICATION USED ON CHAIN-OF-CUSTODY

EMPIRE SOILS INVESTIGATIONS INC.

Lori A. Zimmerman
SAMPLER

SAMPLER

SAMPLER

ESI SAMPLING LOG

PROJECT: Witmer Road Drive-In FILE: BTA-89-39B

SAMPLE LOCATION: GW-2

DATE: 6-1-90 TIME: 10:20 am

GENERAL

SAMPLING EQUIPMENT USED: Polyethylene-nylon braided rope, dedicated 1" x 3' stainless steel bailer, 300 Series Lab Certified sample bottles

DECONTAMINATION PROCEDURE (Indicate if equipment was precleaned): Dedicated - precleaned equipment

SAMPLE COLLECTION PROCEDURES (Include purging, if appropriate): Lower stainless steel bailer slowly into well and collect water; empty into appropriate containers.

IN SITU MONITORING EQUIPMENT USED AND CALIBRATED: See field notebook for calibrations & instruments model makes and numbers.
Instruments used: pH-Temperature meter, turbidimeter, conductance meter

SAMPLE IDENTIFICATION

SAMPLE TYPE: GRAB

SAMPLE CODE: GW-2

CONTAINER	SEQUENCE NUMBER *	TEST PARAMETER	CONTAINER VOLUME	PRESERVATION
1.	GW-2	EPA-8240	2 @ 40 ml amber glass	4°c
2.	GW-2	EPA-8270	1 @ 1/2 gal amber glass	4°c
3.	GW-2	EPA-7421	1 @ 1 L plastic	HNO3
4.				
5.				
6.				
7.				
8.				

IN SITU MEASUREMENTS

INITIAL WATER LEVEL (MEASURED FROM MONITORING POINT): 6.42 - feet

WATER VOLUME REMOVED (IF APPLICABLE): See Well Development Sheet

pH (STANDARD UNITS):	7.02	7.01	7.06	7.02	
CONDUCTANCE (μ ohms/cm):	920	980	1000	1000	
TEMPERATURE (☒ °C, ☐ °F):	16.8	17.2	19.5	19.3	

TOTAL ORGANIC VAPOR (VIA PID): Background = 2.2 ppm PID Reading = 5.0 ppm

LOCATION OF PID MEASUREMENT: Top of well

OTHER MEASUREMENTS:

1. Turbidity = 11 NTU *
2.
3.
4. Note * = Turbidity measurement was taken on the first bailer of water pulled from the well.

MISCELLANEOUS INFORMATION:

CHAIN-OF-CUSTODY COMPLETED (☒ YES, ☐ NO)

SAMPLE CONTAINERS LABELED (☒ YES, ☐ NO)

SHIPPING CONTAINERS SEALED (☒ YES, ☐ NO)

TRIP BLANK (☐ YES, ☐ NO)

RINSATE BLANK: (☒ YES, ☐ NO)

REMARKS: Water remained relatively non-turbid throughout sampling.

* SEQUENCE NUMBER CORRESPONDS TO IDENTIFICATION USED ON CHAIN-OF-CUSTODY

EMPIRE SOILS INVESTIGATIONS INC

Lori A. Zimmerman
SAMPLER

SAMPLER

SAMPLER

ESI SAMPLING LOG

PROJECT: Witmer Road Drive -In FILE: BTA-89-39B

SAMPLE LOCATION: GW-3

DATE: 6-1-90 TIME: 9:45 am

GENERAL

SAMPLING EQUIPMENT USED: Polyethylene-nylon braided rope, dedicated 1" x 3' stainless steel bailer, 300 Series Lab Certified sample bottles.

DECONTAMINATION PROCEDURE (Indicate if equipment was precleaned): Dedicated - precleaned equipment

SAMPLE COLLECTION PROCEDURES (Include purging, if appropriate): Lower stainless steel bailer slowly into well and collect water; empty into appropriate containers.

IN SITU MONITORING EQUIPMENT USED AND CALIBRATED: See field notebook for calibrations & instruments model makes and numbers.
Instruments used: pH-Temperature meter, turbidimeter, conductance meter

SAMPLE IDENTIFICATION

SAMPLE TYPE: GRAB

SAMPLE CODE: GW-3

CONTAINER	SEQUENCE NUMBER *	TEST PARAMETER	CONTAINER VOLUME	PRESERVATION
1.	GW-3	EPA-8240	2 @ 40 ml amber glass	4°c
2.	GW-3	EPA-8270	1 @ 1/2 gal amber glass	4°c
3.	GW-3	EPA-7421	1 @ 1 L plastic	4°c/HNO3
4.				
5.				
6.				
7.				
8.				

IN SITU MEASUREMENTS

INITIAL WATER LEVEL (MEASURED FROM MONITORING POINT): 3.73 -feet and well dry at sample collection.

WATER VOLUME REMOVED (IF APPLICABLE): Refer to Well Development Sheet

pH (STANDARD UNITS):		10.69	10.76	10.71	10.70
CONDUCTANCE (μ ohms/cm):		920	1030	990	1090
TEMPERATURE (☑ °C, ☐ °F):		14.5	15.7	16.7	17.2

TOTAL ORGANIC VAPOR (VIA PID): BG = 1.0 ppm PID Readings = BG (Background)

LOCATION OF PID MEASUREMENT: Top of Well

OTHER MEASUREMENTS:

1. Turbidity = 57 NTU*
2.
3.
4. Note*= Turbidity measurement was taken on the first bailer of water pulled from the well.

MISCELLANEOUS INFORMATION:

CHAIN-OF-CUSTODY COMPLETED (☑ YES, ☐ NO)
SAMPLE CONTAINERS LABELED (☑ YES, ☐ NO)
SHIPPING CONTAINERS SEALED (☑ YES, ☐ NO)
TRIP BLANK (☑ YES, ☐ NO)
FIELD BLANK (☒ YES, ☐ NO)

REMARKS: Well went dry while filling semi-volatile bottle. Water brown and turbid at completion of sampling

* SEQUENCE NUMBER CORRESPONDS TO IDENTIFICATION USED ON CHAIN-OF-CUSTODY

EMPIRE SOILS INVESTIGATIONS INC

Lori A. Zimmerman
SAMPLER

SAMPLER

SAMPLER

ESI SAMPLING LOG

PROJECT: Witmer Road Drive-In FILE: BTA-89-39B

SAMPLE LOCATION: GW-4

DATE: 5-31-90 TIME: 2:30 pm

GENERAL

SAMPLING EQUIPMENT USED: Polyethylne-nylon braided rope, dedicated 1" x 3' stainless steel bailer, 300 Series Lab Certified Sample bottles.

DECONTAMINATION PROCEDURE (indicate if equipment was precleaned): Dedicated - precleaned equipment

SAMPLE COLLECTION PROCEDURES (Include purging, if appropriate): Lower stainless steel bailer slowly into well and collect water; empty into appropriate containers.

IN SITU MONITORING EQUIPMENT USED AND CALIBRATED: See field notebook for calibrations & instruments.model makes and numbers.
Instruments used: pH-Temperature meter, turbidimeter, conductance meter.

SAMPLE IDENTIFICATION

SAMPLE TYPE: GRAB

SAMPLE CODE: GW-4-5-31

CONTAINER	SEQUENCE NUMBER *	TEST PARAMETER	CONTAINER VOLUME	PRESERVATION
1.	GW-4	EPA-8240	2 @ 40 ml amber glass	4°c
2.	GW-4	EPA-8270	1 @ 1/2 gal amber glass	4°c
3.	GW-4	EPA-7421	1 @ 1 L plastic	HNO3
4.	GW-4 Dup	EPA-8240	2 @ 40 ml amber glass	4°c
5.	GW-4 Dup	EPA-8270	1 @ 1/2 gal amber glass	4°c
6.	GW-4 Dup	EPA-7421	1 @ 1 L plastic	HNO3
7.				
8.				

IN SITU MEASUREMENTS

INITIAL WATER LEVEL (MEASURED FROM MONITORING POINT): 9.69 - feet

WATER VOLUME REMOVED (IF APPLICABLE): See Well Development sheet

pH (STANDARD UNITS):	6.47	6.53	6.53	6.66
CONDUCTANCE (μ ohms/cm):	1410	1400	1450	1500
TEMPERATURE (☑ °C , ☐ °F):	13.8°	15.6	17.4	17.5

TOTAL ORGANIC VAPOR (VIA PID): Background = 3.0 ppm PID Reading = 4.0-4.2 ppm

LOCATION OF PID MEASUREMENT: Top of Well

OTHER MEASUREMENTS:

1. Turbidity = 178 NTU *
2.
3.
4. *Note - Turbidity measurement was taken on the first bailer of water pulled from the well.

MISCELLANEOUS INFORMATION:

CHAIN-OF-CUSTODY COMPLETED (☑ YES, ☐ NO)
SAMPLE CONTAINERS LABELED (☒ YES, ☐ NO)
SHIPPING CONTAINERS SEALED (☒ YES, ☐ NO)
TRIP BLANK (☒ YES, ☐ NO)
FIELD BLANK (☑ YES, ☐ NO)

REMARKS:

* SEQUENCE NUMBER CORRESPONDS TO IDENTIFICATION USED ON CHAIN-OF-CUSTODY

EMPIRE SOILS INVESTIGATIONS INC

Lori A. Zimmerman
SAMPLER
SAMPLER
SAMPLER

ESI SAMPLING LOG

PROJECT: Witmer Road Drive-In FILE: BTA-89-39B

SAMPLE LOCATION: GW-5

DATE: 5-31-90 TIME: 3:25 pm

GENERAL

SAMPLING EQUIPMENT USED: Polyethylene-nylon braided rope, dedicated 1" x 3' stainless steel bailer, 300 Series Lab Certified sample bottles.

DECONTAMINATION PROCEDURE (Indicate if equipment was precleaned): Dedicated precleaned equipment

SAMPLE COLLECTION PROCEDURES (Include purging, if appropriate): Lower stainless steel bailer slowly into well and collect water; empty into appropriate containers.

IN SITU MONITORING EQUIPMENT USED AND CALIBRATED: See field notebook for calibrations & instruments model makes and numbers.
Instruments used: pH-Temperature meter, turbidimeter, conductance meter

SAMPLE IDENTIFICATION

SAMPLE TYPE: GRAB

SAMPLE CODE: GW-5

CONTAINER	SEQUENCE NUMBER *	TEST PARAMETER	CONTAINER VOLUME	PRESERVATION
1.	GW-5	EPA-8240	5 @ 40 ml amber glass	4°c
2.	GW-5	EPA-8270	1 gal. amber glass	4°c
3.	GW-5	EPA-87421	1 L Plastic	HNO_3
4.	GW-5 MS	EPA-8240	2 @ 40 ml amber glass	4°c
5.	GW-5 MS	EPA-8270	1 @ 1/2 gal. amber glass	4°c
6.	GW-5 MS	EPA-7421	1 L plastic	HNO_3
7.	GW-5 MD	EPA-8240	2 @ 40 ml amber glass	4°c
8.	GW-5 MD	EPA-8270	1 @ 1/2 gal. amber glass	4°c
	GW-5MD	EPA-7421	1 L. plastic	HNO_3

IN SITU MEASUREMENTS

INITIAL WATER LEVEL (MEASURED FROM MONITORING POINT): 6.62-feet

WATER VOLUME REMOVED (IF APPLICABLE): See Well Development Sheet

pH (STANDARD UNITS):	12.60	12.59	12.61	12.61	
CONDUCTANCE (μ ohms/cm):	4900	4900	4850	4850	
TEMPERATURE (☒ °C, ☐ °F):	16.1	17.2	17.1	17.6	

TOTAL ORGANIC VAPOR (VIA PID): Background =3.8 ppm PID Reading = BG (Background)

LOCATION OF PID MEASUREMENT: Top of Well

OTHER MEASUREMENTS:

1. Turbidity - 47 NTU*
2.
3.
4. Note* = Turbidity measurement was taken on the first bailer of water pulled from the well.

MISCELLANEOUS INFORMATION:

CHAIN-OF-CUSTODY COMPLETED (☒ YES, ☐ NO)
SAMPLE CONTAINERS LABELED (☒ YES, ☐ NO)
SHIPPING CONTAINERS SEALED (☒ YES, ☐ NO)
TRIP BLANK (☒ YES, ☐ NO)
RINSATE BLANK (☒ YES, ☐ NO)

REMARKS: Matrix spike and matrix spike duplicate samples were obtained from GW-5.

* SEQUENCE NUMBER CORRESPONDS TO IDENTIFICATION USED ON CHAIN-OF-CUSTODY

EMPIRE SOILS INVESTIGATIONS INC.

Lori A. Zimmerman
SAMPLER

SAMPLER

SAMPLER

EMPIRE SOILS INVESTIGATIONS, INC.
S-5167 SOUTH PARK AVENUE
HAMBURG, NEW YORK 14075

APPENDIX G

CLP DATA PACKAGE

Due to the size of Appendix G, it is in (4) independant documents. Please refer to the project file. Summary of pertinent information from the data package is included in Appendix H.

EMPIRE SOILS INVESTIGATIONS, INC.
S-5167 SOUTH PARK AVENUE
HAMBURG, NEW YORK 14075

APPENDIX H

ANALYTICAL DATA SUMMARY

HUNTINGDON ANALYTICAL SERVICES
Division of EMPIRE SOILS INVESTIGATIONS INC.
PO Box 250 Middleport New York 14105
Telephone (716) 735-3400 Telex 131246

Environmental Analytical Report for:

EMPIRE SOILS INVESTIGATIONS, INC. - HAMBURG

ASTECO (BTA-89-036)

HAS Ref. #30-215

June 26, 1989

HUNTINGDON ANALYTICAL SERVICES
ELAP #10833
ENVIRONMENTAL REPORT

HAS Reference Number: #30-215

June 26, 1989

Statement of Work Performed

I hereby declare that the work was performed under my supervision according to the procedures outlined by the following references and that this report provides a correct and faithful record of the results obtained.

- 40 CFR Part 136, "Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act," October 26, 1984 (Federal Register) U.S. Environmental Protection Agency.
- U.S. Environmental Protection Agency, "Test Methods of Evaluating Solid Waste - Physical/Chemical Methods," Office of Solid Waste and Emergency Response, SW-846, 2nd Edition and 3rd Edition.
- New York State Department of Health, Analytical Toxicology Laboratory Handbook, August 1982.

Katherine A. Syracuse
Environmental Project Leader

REPORT CODE LEGEND:

<DL = Less than detection limit
ND = Not detected
NA = Not applicable
<LQ = Response not statistically significant from laboratory background values
INP = Information not provided
MB = Method Blank

HUNTINGDON ANALYTICAL SERVICES
ENVIRONMENTAL

METHOD 8080
ORGANOCHLORINE PESTICIDES

SAMPLE IDENTIFICATION :		TP-1	TP-2	TP-3	METHOD BLANK	
HAS SAMPLE #30-215		001	002	003	---	
DATE SAMPLED		5-15-89	5-15-89	5-15-89	---	
INITIAL EXTRACTION DATE		5-22-89	5-22-89	5-22-89	5-22-89	
RE-EXTRACTION DATE		6-8-89	6-8-89	6-8-89	6-8-89	
INITIAL DATE ANALYZED		6-1-89	6-1-89	6-1-89	6-1-89	
DATE RE-ANALYZED		6-9-89	6-9-89	6-9-89	6-9-89	
COMPOUND	DETECTION LIMIT ug/g	RESULT ug/g	RESULT ug/g	RESULT ug/g	RESULT ug/g	RESULT ug/g
ALDRIN	0.01	<DL	0.017	ND	ND	
A-BHC	0.01	0.023	0.018	0.087	ND	
B-BHC	0.01	<DL	<DL	0.047	ND	
D-BHC	0.01	<DL	<DL	0.022	ND	
G-BHC	0.01	<DL	<DL	0.013	ND	
CHLORDANE	0.10	ND	ND	ND	ND	
4,4-DDD	0.02	ND	ND	ND	ND	
4,4-DDE	0.02	ND	ND	ND	ND	
4,4-DDT	0.02	ND	ND	<DL	ND	
DIELDRIN	0.02	ND	ND	ND	ND	
ENDOSULFAN I	0.01	ND	ND	ND	ND	
ENDOSULFAN II	0.02	ND	<DL	<DL	ND	
ENDOSULFAN SULFATE	0.02	ND	ND	ND	ND	
ENDRIN	0.02	ND	ND	ND	ND	
ENDRIN ALDEHYDE	0.02	ND	ND	ND	ND	
HEPTACHLOR	0.01	ND	ND	ND	ND	
HEPTACHLOR EPOXIDE	0.01	ND	ND	ND	ND	
TOXAPHENE	0.20	ND	ND	ND	ND	
ENDRIN KETONE	0.02	ND	ND	<DL	ND	
METHOXYCHLOR	0.10	ND	<DL	<DL	ND	

HUNTINGDON ANALYTICAL SERVICES
ENVIRONMENTAL

METHOD 8080
POLYCHLORINATED BIPHENYLS

SAMPLE IDENTIFICATION :		TP-1	TP-2	TP-3	METHOD BLANK	
HAS SAMPLE #30-215		001	002	003	---	
DATE SAMPLED		5-15-89	5-15-89	5-15-89	---	
INITIAL EXTRACTION DATE		5-22-89	5-22-89	5-22-89	5-22-89	
RE-EXTRACTION DATE		6-8-89	6-8-89	6-8-89	6-8-89	
INITIAL DATE ANALYZED		6-1-89	6-1-89	6-1-89	6-1-89	
DATE RE-ANALYZED		6-9-89	6-9-89	6-9-89	6-9-89	
COMPOUND	DETECTION LIMIT ug/g	RESULT ug/g	RESULT ug/g	RESULT ug/g	RESULT ug/g	RESULT ug/g
PCB-1016	0.20	ND	ND	ND	ND	
PCB-1221	0.20	ND	ND	ND	ND	
PCB-1232	0.20	ND	ND	ND	ND	
PCB-1242	0.20	ND	ND	ND	ND	
PCB-1248	0.20	<DL	<DL	0.68	ND	
PCB-1254	0.20	ND	ND	ND	ND	
PCB-1260	0.20	ND	ND	ND	ND	

QUALITY CONTROL

SURROGATE	% REC	% REC	% REC	% REC	% REC
DIBUTYL CHLORENDATE	78	47	56	81	

HUNTINGDON ANALYTICAL SERVICES
Analysis Data Sheet Method 8240
Target Compound List (TCL)

Sample Identification:	TP-1	TP-2	TP-3	Method Blk
HAS Sample #	215-001	215-002	215-003	Method Blk
Date Sampled:	05/15/89	05/15/89	05/15/89	NA
Date Analyzed:	05/17/89	05/17/89	05/17/89	05/17/89
Holding Time (days):	2	2	2	2
Matrix:	SOIL	SOIL	SOIL	SOIL
Dilution Factor:	200 *	1000 *	1 *	1 *

Compound	Detection Limit ug/kg	Results ug/kg	Results ug/kg	Results ug/kg	Results ug/kg
Chloromethane	1000.0	ND	ND	ND	ND
Bromomethane	1000.0	ND	ND	ND	ND
Vinyl Chloride	1000.0	ND	ND	ND	ND
Chloroethane	1000.0	ND	ND	ND	ND
Methylene Chloride	500.0	<DL	<DL	<LQ	<LQ
Acetone	10000.0	ND	ND	ND	ND
Carbon Disulfide	500.0	ND	ND	ND	ND
1,1-Dichloroethene	500.0	ND	ND	ND	ND
1,1-Dichloroethane	500.0	ND	ND	ND	ND
trans-1,2-Dichloroethene	500.0	ND	ND	ND	ND
Chloroform	500.0	ND	ND	ND	ND
1,2-Dichloroethane	500.0	ND	ND	ND	ND
2-Butanone	10000.0	<DL	<DL	<DL	<DL
1,1,1-Trichloroethane	500.0	ND	ND	ND	ND
Carbon Tetrachloride	500.0	ND	ND	ND	ND
Vinyl Acetate	5000.0	ND	ND	ND	ND
Bromodichloromethane	500.0	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	500.0	ND	ND	ND	ND
1,2-Dichloropropane	500.0	ND	ND	ND	ND
trans-1,3-Dichloropropene	500.0	ND	ND	ND	ND
Trichloroethene	500.0	ND	ND	950	ND
Dibromochloromethane	500.0	ND	ND	ND	ND
1,1,2-Trichloroethane	500.0	ND	ND	ND	ND
Benzene	500.0	ND	ND	ND	ND
cis-1,3-Dichloropropene	500.0	ND	ND	ND	ND
2-Chloroethyl Vinyl Ether	1000.0	ND	ND	ND	ND
Bromoform	500.0	ND	ND	ND	ND
2-Hexanone	5000.0	ND	ND	ND	ND
4-Methyl-2-pentanone	5000.0	ND	ND	ND	ND
Tetrachloroethene	500.0	ND	ND	ND	ND
Toluene	500.0	ND	<DL	1300	ND
Chlorobenzene	500.0	<DL	<DL	<DL	ND
Ethyl Benzene	500.0	<DL	1400000.0	2500.0	ND
Styrene	500.0	ND	ND	ND	ND
Total Xylene	500.0	120000.0	7200000.0	8900.0	ND
Bromofluorobenzene		96.0	95.0	82.0	145.0
1,2-Dichloroethane-d4		112.0	110.0	86.0	102.0
Toluene-d8		109.0	107.0	90.0	150.0

*Method detection limit (MDL) for sample dependent upon analyte concentration/sample matrix and increases as a direct multiple of the dilution factor.

HUNTINGDON ANALYTICAL SERVICES
METHOD 8270 ANALYSIS DATA SHEET
SEMI-VOLATILE PRIORITY POLLUTANTS

Acid Extractables

Sample Identification:	TP-1	TP-2	TP-3
HAS Sample #	215-001	215-002	215-003
Date Sampled:	05/15/89	05/15/89	05/15/89
Date Analyzed:	05/23/89	05/23/89	05/23/89
Holding Time (days):	4	4	4
Matrix:	SOIL	SOIL	SOIL
Dilution Factor:	1	1	1

Compound	Detection Limit	Result ug/Kg	Result ug/Kg	Result ug/Kg
4-Chloro-3-Methylphenol	330	ND	ND	ND
2-Chlorophenol	330	<DL	ND	<DL
2,4-Dichlorophenol	330	<DL	<DL	ND
2,4-Dimethylphenol	330	2400.0	8700.0	330.0
2,4-Dinitrophenol	1600	ND	ND	ND
4,6-Dinitro-2-Methylphenol	1600	ND	ND	ND
2-Nitrophenol	330	ND	<DL	ND
4-Nitrophenol	1600	<DL	<DL	ND
Pentachlorophenol	1600	<DL	<DL	ND
Phenol	330	65000.0	19200.0	18000.0
2,4,6-Trichlorophenol	330	<DL	ND	<DL
Surrogates		**% Recovery**	**% Recovery**	**% Recovery**
Phenol-D5		51	41	58
2-Fluorophenol		47	44	56
2,4,6-Tribromophenol		72	90	57

Base/Neutral Extractables

Compound	Detection Limit	Result ug/Kg	Result ug/Kg	Result ug/Kg
Acenaphthene	330	<DL	<DL	<DL
Acenaphthylene	330	<DL	<DL	<DL
Anthracene	330	<DL	<DL	<DL
Benzidine	1600	ND	ND	ND
Benzo(a)Anthracene	330	<DL	<DL	<DL
Benzo(b)Fluoranthene	330	<DL	<DL	<DL
Benzo(k)Fluoranthene	330	<DL	<DL	<DL
Benzo(a)Pyrene	330	<DL	ND	<DL
Benzo(g,h,i)Perylene	330	<DL	<DL	ND
bis(2-Chloroethoxy)Methane	330	ND	ND	<DL
bis(2-Chloroethyl)Ether	330	ND	ND	<DL
bis(2-Chloroisopropyl)Ether	330	ND	<DL	ND
bis(2-Ethylhexyl)Phthalate	330	<DL	<DL	<DL

(Continued on Next Page)

HUNTINGDON ANALYTICAL SERVICES
METHOD 8270 ANALYSIS DATA SHEET
SEMI-VOLATILE PRIORITY POLLUTANTS

Base/Neutral Extractables

Compound	Detection Limit	Result ug/Kg	Result ug/Kg	Result ug/Kg
Butylbenzylphthalate	330	ND	ND	ND
4-Bromophenyl-phenylether	330	ND	ND	ND
2-Chloronaphthalene	330	ND	<DL	ND
4-Chlorophenyl-phenylether	330	<DL	<DL	ND
Chrysene	330	<DL	<DL	<DL
Dibenz(a,h)Anthracene	330	<DL	ND	ND
Di-n-Butylphthalate	330	470.0	600.0	<DL
1,2-Dichlorobenzene	330	430.0	430.0	<DL
1,3-Dichlorobenzene	330	<DL	<DL	<DL
1,4-Dichlorobenzene	330	<DL	<DL	<DL
3,3'-Dichlorobenzidine	660	ND	ND	ND
Diethylphthalate	330	<DL	<DL	<DL
Dimethyl Phthalate	330	<DL	<DL	<DL
2,4-Dinitrotoluene	330	ND	ND	ND
2,6-Dinitrotoluene	330	ND	ND	ND
Di-n-Octyl Phthalate	330	ND	ND	ND
1,2-Diphenylhydrazine	330	ND	ND	ND
Fluoranthene	330	330.0	<DL	<DL
Fluorene	330	<DL	ND	<DL
Hexachlorobenzene	330	<DL	ND	<DL
Hexachlorobutadiene	330	<DL	ND	ND
Hexachlorocyclopentadiene	330	ND	ND	ND
Hexachloroethane	330	ND	ND	ND
Indeno(1,2,3-cd)Pyrene	330	<DL	ND	<DL
Isophorone	330	ND	ND	<DL
Naphthalene	330	1200.0	2000.0	<DL
Nitrobenzene	330	<DL	<DL	ND
N-Nitrosodimethylamine	330	ND	ND	ND
N-Nitrosodiphenylamine (1)	330	<DL	<DL	<DL
N-Nitroso-Di-n-Propylamine	330	ND	<DL	ND
Phenanthrene	330	<DL	<DL	<DL
Pyrene	330	630.0	<DL	<DL
1,2,4-Trichlorobenzene	330	1200.0	970.0	<DL
Surrogates		**% Recovery**	**% Recovery**	**% Recovery**
d-5 Nitrobenzene		62	91	102
2-Fluorobiphenyl		72	90	98
Terphenyl		120	120	140

HUNTINGDON ANALYTICAL SERVICES
METHOD 625 ANALYSIS DATA SHEET (Page 1 of 2)
SEMI-VOLATILE PRIORITY POLLUTANTS

Sample Identification:	PREP-BLANK
HAS Sample #	PREP-BLANK
Date Sampled:	NA
Date Prepared:	05/24/89
Extraction Holding Time (days):	NA
Date Analyzed:	05/25/89
Analysis Holding Time (days):	1
Matrix:	WATER
Dilution Factor:	1

Acid Extractables

Compound	Detection Limit ug/l	Results ug/l
4-Chloro-3-Methylphenol	10	ND
2-Chlorophenol	10	<DL
2,4-Dichlorophenol	10	ND
2,4-Dimethylphenol	10	ND
2,4-Dinitrophenol	50	ND
4,6-Dinitro-2-Methylphenol	50	ND
2-Nitrophenol	10	ND
4-Nitrophenol	50	ND
Pentachlorophenol	50	ND
Phenol	10	ND
2,4,6-Trichlorophenol	10	ND

Surrogate	% Rec.
Phenol-D5	54
2-Fluorophenol	98
2,4,6-Tribromophenol	72

Base/Neutral Extractables

Acenaphthene	10	ND
Acenaphthylene	10	ND
Anthracene	10	ND
Benzidine	50	ND
Benzo(a)Anthracene	10	ND
Benzo(b)Fluoranthene	10	ND
Benzo(k)Fluoranthene	10	ND
Benzo(a)Pyrene	10	ND
Benzo(g,h,i)Perylene	10	ND
bis(2-Chloroethoxy)Methane	10	ND
bis(2-Chloroethyl)Ether	10	ND
bis(2-Chloroisopropyl)Ether	10	ND
bis(2-Ethylhexyl)Phthalate	10	ND

(Continued Next Page)

METHOD 625 ANALYSIS DATA SHEET (Page 2 of 2)
Sample Identification: PREP-BLANK
HAS Sample # PREP-BLANK

Base/Neutral Extractables

Compound	Detection Limit ug/l	Results ug/l
Butylbenzylphthalate	10	ND
4-Bromophenyl-phenylether	10	ND
2-Chloronaphthalene	10	ND
4-Chlorophenyl-phenylether	10	ND
Chrysene	10	ND
Dibenz(a,h)Anthracene	10	ND
Di-n-Butylphthalate	10	<DL
1,2-Dichlorobenzene	10	ND
1,3-Dichlorobenzene	10	ND
1,4-Dichlorobenzene	10	ND
3,3'-Dichlorobenzidine	20	ND
Diethylphthalate	10	ND
Dimethyl Phthalate	10	ND
2,4-Dinitrotoluene	10	ND
2,6-Dinitrotoluene	10	ND
Di-n-Octyl Phthalate	10	ND
1,2-Diphenylhydrazine	10	ND
Fluoranthene	10	ND
Fluorene	10	ND
Hexachlorobenzene	10	ND
Hexachlorobutadiene	10	ND
Hexachlorocyclopentadiene	10	ND
Hexachloroethane	10	ND
Indeno(1,2,3-cd)Pyrene	10	ND
Isophorone	10	ND
Naphthalene	10	ND
Nitrobenzene	10	ND
N-Nitrosodimethylamine	10	ND
N-Nitrosodiphenylamine (1)	10	ND
N-Nitroso-Di-n-Propylamine	10	ND
Phenanthrene	10	ND
Pyrene	10	ND
1,2,4-Trichlorobenzene	10	ND

Surrogate	% Rec.
d-5 Nitrobenzene	84
2-Fluorobiphenyl	83
Terphenyl	130

Sample ID:TP-1
HAS Sample #30-215-001
Date Sampled: 05/15/89

ANALYTE	EPA METHOD	DATE PREPARED	DATE ANALYZED	DETECTION LIMIT	RESULT mg/kg	QC
ALUMINUM	6010	06/08/89	06/14/89	131	13900	*95
ANTIMONY	6010	06/08/89	06/14/89	52.4	<DL	*95
ARSENIC	6010	06/08/89	06/14/89	36.7	76.3	*95
BARIUM	6010	06/08/89	06/14/89	10.5	754	*95
BERYLLIUM	6010	06/08/89	06/14/89	5.24	<DL	*95
CADMIUM	6010	06/08/89	06/14/89	5.24	<DL	*95
CALCIUM	6010	06/08/89	06/14/89	52.4	43000	*95
CHROMIUM	6010	06/08/89	06/14/89	10.5	65.7	*95
COBALT	6010	06/08/89	06/14/89	15.7	<DL	*95
COPPER	6010	06/08/89	06/14/89	10.5	271	*95
IRON	6010	06/08/89	06/14/89	21	57400	*95
LEAD	6010	06/08/89	06/14/89	52.4	1080	*95
MAGNESIUM	6010	06/08/89	06/14/89	31.5	16100	*95
MANGANESE	6010	06/08/89	06/14/89	10.5	739	*95
NICKEL	6010	06/08/89	06/14/89	41.9	42.5	*95
POTASSIUM	6010	06/08/89	06/14/89	5240	<DL	*95
SELENIUM	6010	06/08/89	06/14/89	52.4	<DL	*95
SILVER	6010	06/08/89	06/14/89	10.5	<DL	*95
SODIUM	6010	06/08/89	06/14/89	131	1370	*95
THALLIUM	6010	06/08/89	06/14/89	105	142	*95
VANADIUM	6010	06/08/89	06/14/89	26.2	34.3	*95
ZINC	6010	06/08/89	06/14/89	21	1070	*95

*THIS INDICATES A 95% CONFIDENCE LIMIT ACHIEVED WITH AN EPA QUALITY CONTROL SOLUTION ANALYZED ALONG WITH YOUR SAMPLE.

ALL SOIL/SLUDGE SAMPLE RESULTS ARE BASED UPON DRY WEIGHT

Sample ID:TP-2
HAS Sample #30-215-002
Date Sampled: 05/15/89

ANALYTE	EPA METHOD	DATE PREPARED	DATE ANALYZED	DETECTION LIMIT	RESULT mg/kg	QC
ALUMINUM	6010	06/08/89	06/14/89	125	24100	*95
ANTIMONY	6010	06/08/89	06/14/89	50.0	<DL	*95
ARSENIC	6010	06/08/89	06/14/89	35	79.4	*95
BARIUM	6010	06/08/89	06/14/89	10.0	963	*95
BERYLLIUM	6010	06/08/89	06/14/89	5	<DL	*95
CADMIUM	6010	06/08/89	06/14/89	5	<DL	*95
CALCIUM	6010	06/08/89	06/14/89	50.0	22400	*95
CHROMIUM	6010	06/08/89	06/14/89	10.0	45.7	*95
COBALT	6010	06/08/89	06/14/89	15	23.4	*95
COPPER	6010	06/08/89	06/14/89	10.0	119	*95
IRON	6010	06/08/89	06/14/89	20.0	40500	*95
LEAD	6010	06/08/89	06/14/89	50.0	309	*95
MAGNESIUM	6010	06/08/89	06/14/89	30.0	11600	*95
MANGANESE	6010	06/08/89	06/14/89	10.0	601	*95
NICKEL	6010	06/08/89	06/14/89	40.0	65.1	*95
POTASSIUM	6010	06/08/89	06/14/89	5000	<DL	*95
SELENIUM	6010	06/08/89	06/14/89	50.0	<DL	*95
SILVER	6010	06/08/89	06/14/89	10.0	<DL	*95
SODIUM	6010	06/08/89	06/14/89	125	1130	*95
THALLIUM	6010	06/08/89	06/14/89	100.0	149	*95
VANADIUM	6010	06/08/89	06/14/89	25	45.7	*95
ZINC	6010	06/08/89	06/14/89	20.0	405	*95

*THIS INDICATES A 95% CONFIDENCE LIMIT ACHIEVED WITH AN EPA QUALITY CONTROL SOLUTION ANALYZED ALONG WITH YOUR SAMPLE.

ALL SOIL/SLUDGE SAMPLE RESULTS ARE BASED UPON DRY WEIGHT

Sample ID:TP-3
HAS Sample #30-215-003
Date Sampled: 05/15/89

ANALYTE	EPA METHOD	DATE PREPARED	DATE ANALYZED	DETECTION LIMIT	RESULT mg/kg	QC
ALUMINUM	6010	06/08/89	06/14/89	126	19600	*95
ANTIMONY	6010	06/08/89	06/14/89	50.3	<DL	*95
ARSENIC	6010	06/08/89	06/14/89	35.2	65.2	*95
BARIUM	6010	06/08/89	06/14/89	10.1	490	*95
BERYLLIUM	6010	06/08/89	06/14/89	5.03	<DL	*95
CADMIUM	6010	06/08/89	06/14/89	5.03	<DL	*95
CALCIUM	6010	06/08/89	06/14/89	50.3	36800	*95
CHROMIUM	6010	06/08/89	06/14/89	10.1	31.9	*95
COBALT	6010	06/08/89	06/14/89	15.1	17.3	*95
COPPER	6010	06/08/89	06/14/89	10.1	132	*95
IRON	6010	06/08/89	06/14/89	20.1	37400	*95
LEAD	6010	06/08/89	06/14/89	50.3	239	*95
MAGNESIUM	6010	06/08/89	06/14/89	30.2	12800	*95
MANGANESE	6010	06/08/89	06/14/89	10.1	878	*95
NICKEL	6010	06/08/89	06/14/89	40.2	46.4	*95
POTASSIUM	6010	06/08/89	06/14/89	5030	<DL	*95
SELENIUM	6010	06/08/89	06/14/89	50.3	<DL	*95
SILVER	6010	06/08/89	06/14/89	10.1	<DL	*95
SODIUM	6010	06/08/89	06/14/89	126	1120	*95
THALLIUM	6010	06/08/89	06/14/89	101	<DL	*95
VANADIUM	6010	06/08/89	06/14/89	25.1	37.4	*95
ZINC	6010	06/08/89	06/14/89	20.1	431	*95

*THIS INDICATES A 95% CONFIDENCE LIMIT ACHIEVED WITH AN EPA QUALITY CONTROL SOLUTION ANALYZED ALONG WITH YOUR SAMPLE.

ALL SOIL/SLUDGE SAMPLE RESULTS ARE BASED UPON DRY WEIGHT

NOTE: MATRIX SPIKE RECOVERIES ARE NOT APPLICABLE DUE TO HIGH LEVEL ANALYTE CONCENTRATIONS IN THE ORIGINAL SAMPLE.

Sample ID:METHOD BLANK
HAS Sample #30-215-MB
Date Sampled: NA

ANALYTE	EPA METHOD	DATE PREPARED	DATE ANALYZED	DETECTION LIMIT	RESULT mg/l	QC
ALUMINUM	6010	06/08/89	06/12/89	0.125	<DL	*95
ANTIMONY	6010	06/08/89	06/12/89	0.05	<DL	*95
ARSENIC	6010	06/08/89	06/12/89	0.035	<DL	*95
BARIUM	6010	06/08/89	06/12/89	0.01	<DL	*95
BERYLLIUM	6010	06/08/89	06/12/89	0.005	<DL	*95
CADMIUM	6010	06/08/89	06/12/89	0.005	<DL	*95
CALCIUM	6010	06/08/89	06/12/89	0.05	1.88	*95
CHROMIUM	6010	06/08/89	06/12/89	0.01	<DL	*95
COBALT	6010	06/08/89	06/12/89	0.015	<DL	*95
COPPER	6010	06/08/89	06/12/89	0.01	<DL	*95
IRON	6010	06/08/89	06/12/89	0.02	0.06	*95
LEAD	6010	06/08/89	06/12/89	0.05	<DL	*95
MAGNESIUM	6010	06/08/89	06/12/89	0.03	0.1	*95
MANGANESE	6010	06/08/89	06/12/89	0.01	<DL	*95
NICKEL	6010	06/08/89	06/12/89	0.04	<DL	*95
POTASSIUM	6010	06/08/89	06/12/89	5.0	<DL	*95
SELENIUM	6010	06/08/89	06/12/89	0.05	0.07	*95
SILVER	6010	06/08/89	06/12/89	0.01	<DL	*95
SODIUM	6010	06/08/89	06/12/89	0.125	<DL	*95
THALLIUM	6010	06/08/89	06/12/89	0.1	<DL	*95
VANADIUM	6010	06/08/89	06/12/89	0.025	<DL	*95
ZINC	6010	06/08/89	06/12/89	0.02	0.12	*95

*THIS INDICATES A 95% CONFIDENCE LIMIT ACHIEVED WITH AN EPA QUALITY CONTROL SOLUTION ANALYZED ALONG WITH YOUR SAMPLE.

HUNTINGDON ANALYTICAL SERVICES
ENVIRONMENTAL

Inorganic Wet Chemical Analyses

Analyte: % Total Solids

EPA Method No.: 160.3

Date Sampled: 5/15/89

HAS Sample #	Client I.D.	Date Prepared	Date Analyzed	Detection Limit	Concentration	Units	QC in %
30-215-001	TP-1	6/8/89	6/9/89	0.1	73	%	--
30-215-002	TP-2	6/8/89	6/9/89	0.1	77	%	--
30-215-003	TP-3	6/8/89	6/9/89	0.1	76	%	--

HUNTINGDON ANALYTICAL SERVICES - CHAIN-OF-CUSTODY RECORD AND ANALYTICAL REQUEST FORM — due 5/24/89 — Page 1 of 1

Client Name: Empire Soils (ASTECO) — Client Contact: Dave Harty — HAS Quote #: Inner office

Address: 5-5167 Southpark Ave, Hamburg, NY 14075 — Phone: 649-8110 — P.O. #:

Project No.: BTA-89-036 — Project/Site Name: ASTECO

Samplers (Signature): Sharon Babcock/Dave Harty — HAS Ref. #30-215

Sample I.D.	Date	Time	Comp.	Grab	Sample Location	HAS Seq. #	No. of Containers	Container Size & Type: 950 ml. glass amber	Container Size & Type: 950 ml HDP	Analysis Requested/ Remarks
TP-1	5/15/89	11:37	X		TP-1	001	1	1		Target Compound list & Solids
TP-2	5/15/89	12:35	X		TP-2	002	1	1		
TP-3	5/15/89	2:15	X		TP-3	003	1	1		
TP-3 residue	5/17/89	2:15		X	TP-3	004	1		1	Insufficient sample for MJH ICP Scan for TCL Metals 5-17-89

Relinquished by:	Date/ Time:	Received by:	Relinquished by:	Date/ Time:	Received By:
S. Babcock/Dave Harty	5-17-89 4:45	Richard Gahagan	R. Gahagan	5/17/89 5:30	S O'Brien
Relinquished by:	Date/ Time:	Received by:	Relinquished by:	Date/ Time:	Received By:
Relinquished by:	Date/ Time:	Received for Lab by:	Date/ Time:	Remarks:	
		S O'Brien	5/17/89 5:30		

HUNTINGDON ANALYTICAL SERVICES
Division of EMPIRE SOILS INVESTIGATIONS INC.
PO Box 250 Middleport New York 14105
Telephone (716) 735-3400 Telex 131246

Environmental Analytical Report for:

EMPIRE SOILS INVESTIGATIONS, INC. - HAMBURG

ASTECO, INC. - Witmer Road (BTA-89-039)

HAS Ref. #30-319

June 29, 1989

HAS

HUNTINGDON ANALYTICAL SERVICES
ELAP #10833
ENVIRONMENTAL REPORT

HAS Reference Number: #30-319

June 29, 1989

Statement of Work Performed

I hereby declare that the work was performed under my supervision according to the procedures outlined by the following references and that this report provides a correct and faithful record of the results obtained.

- 40 CFR Part 136, "Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act," October 26, 1984 (Federal Register) U.S. Environmental Protection Agency.
- U.S. Environmental Protection Agency, "Test Methods of Evaluating Solid Waste - Physical/Chemical Methods," Office of Solid Waste and Emergency Response, SW-846, 2nd Edition and 3rd Edition.
- New York State Department of Health, Analytical Toxicology Laboratory Handbook, August 1982.

Katherine A. Syracuse
Environmental Project Leader

REPORT CODE LEGEND:

<DL = Less than detection limit
ND = Not detected
NA = Not applicable
<LQ = Response not statistically significant from laboratory background values
INP = Information not provided
MB = Method Blank

HUNTINGDON ANALYTICAL SERVICES
ENVIRONMENTAL

METHOD 608
ORGANOCHLORINE PESTICIDES

SAMPLE IDENTIFICATION :		SEEP	UP - STREAM	DOWN - STREAM	METHOD BLANK	
HAS SAMPLE #30-319		013	014	015	---	
DATE SAMPLED		6-19-89	6-19-89	6-19-89	---	
DATE PREPARED		6-23-89	6-23-89	6-23-89	6-23-89	
DATE ANALYZED		6-23-89	6-23-89	6-23-89	6-23-89	
DILUTION FACTOR		1.0	1.0	1.0	1.0	
COMPOUND	DETECTION LIMIT ug/l	RESULT ug/l	RESULT ug/l	RESULT ug/l	RESULT ug/l	RESULT ug/l
ALDRIN	0.05	ND	ND	ND	ND	
A-BHC	0.05	ND	ND	ND	ND	
B-BHC	0.05	ND	ND	ND	ND	
D-BHC	0.05	ND	ND	ND	ND	
G-BHC	0.05	ND	ND	ND	ND	
CHLORDANE	0.50	ND	ND	ND	ND	
4,4-DDD	0.10	ND	ND	ND	ND	
4,4-DDE	0.10	ND	ND	ND	ND	
4,4-DDT	0.10	ND	ND	ND	ND	
DIELDRIN	0.10	ND	ND	ND	ND	
ENDOSULFAN I	0.05	ND	ND	ND	ND	
ENDOSULFAN II	0.10	ND	ND	ND	ND	
ENDOSULFAN SULFATE	0.10	ND	ND	ND	ND	
ENDRIN	0.10	ND	ND	ND	ND	
ENDRIN ALDEHYDE	0.10	ND	ND	ND	ND	
HEPTACHLOR	0.05	ND	ND	ND	ND	
HEPTACHLOR EPOXIDE	0.05	ND	ND	ND	ND	
TOXAPHENE	1.00	ND	ND	ND	ND	
ENDRIN KETONE	0.10	ND	ND	ND	ND	
METHOXYCHLOR	0.50	ND	ND	ND	ND	

HUNTINGDON ANALYTICAL SERVICES
ENVIRONMENTAL

METHOD 608
POLYCHLORINATED BIPHENYLS

SAMPLE IDENTIFICATION :		SEEP	UP - STREAM	DOWN - STREAM	METHOD BLANK	
HAS SAMPLE #30-319		013	014	015	---	
DATE SAMPLED		6-19-89	6-19-89	6-19-89	---	
DATE PREPARED		6-23-89	6-23-89	6-23-89	6-23-89	
DATE ANALYZED		6-23-89	6-23-89	6-23-89	6-23-89	
DILUTION FACTOR		1.0	1.0	1.0	1.0	
COMPOUND	DETECTION LIMIT ug/l	RESULT ug/l	RESULT ug/l	RESULT ug/l	RESULT ug/l	RESULT ug/l
PCB-1016	0.5	ND	ND	ND	ND	
PCB-1221	0.5	ND	ND	ND	ND	
PCB-1232	0.5	ND	ND	ND	ND	
PCB-1242	0.5	ND	ND	ND	ND	
PCB-1248	0.5	ND	ND	ND	ND	
PCB-1254	1.0	ND	ND	ND	ND	
PCB-1260	1.0	ND	ND	ND	ND	

QUALITY CONTROL

SURROGATE	% REC	% REC	% REC	% REC	% REC
DIBUTYL CHLORENDATE	74	85	117	106	

HUNTINGDON ANALYTICAL SERVICES
Analysis Data Sheet Method 624
Target Compound List (TCL)

Sample Identification:	SEEP	UPSTREAM	DOWNSTREAM	SYSTEM BLK
HAS Sample #	319-016	319-017	319-018	SYSTEM BLK
Date Sampled:	06/19/89	06/19/89	06/19/89	NA
Date Analyzed:	06/22/89	06/22/89	06/22/89	06/22/89
Holding Time (days):	3	3	3	NA
Matrix:	WATER	WATER	WATER	WATER
Dilution Factor:	1	1	1	1

Compound	Detection Limit ug/L	Results ug/L	Results ug/L	Results ug/L	Results ug/L
Chloromethane	10.0	ND	ND	ND	ND
Bromomethane	10.0	ND	ND	ND	ND
Vinyl Chloride	10.0	ND	ND	ND	ND
Chloroethane	10.0	ND	ND	ND	ND
Methylene Chloride	5.0	ND	ND	ND	<LQ
Acetone	100.0	ND	ND	ND	ND
Carbon Disulfide	5.0	ND	ND	ND	ND
1,1-Dichloroethene	5.0	ND	ND	ND	ND
1,1-Dichloroethane	5.0	ND	ND	ND	ND
trans-1,2-Dichloroethene	5.0	ND	ND	ND	ND
Chloroform	5.0	ND	ND	ND	ND
1,2-Dichloroethane	5.0	ND	ND	ND	ND
2-Butanone	100.0	ND	ND	<DL	ND
1,1,1-Trichloroethane	5.0	ND	ND	ND	ND
Carbon Tetrachloride	5.0	ND	ND	ND	ND
Vinyl Acetate	50.0	ND	ND	ND	ND
Bromodichloromethane	5.0	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	5.0	ND	ND	ND	ND
1,2-Dichloropropane	5.0	ND	ND	ND	ND
trans-1,3-Dichloropropene	5.0	ND	ND	ND	ND
Trichloroethene	5.0	ND	ND	ND	ND
Dibromochloromethane	5.0	ND	ND	ND	ND
1,1,2-Trichloroethane	5.0	ND	ND	ND	ND
Benzene	5.0	ND	ND	ND	ND
cis-1,3-Dichloropropene	5.0	ND	ND	ND	ND
2-Chloroethyl Vinyl Ether	10.0	ND	ND	ND	ND
Bromoform	5.0	ND	ND	ND	ND
2-Hexanone	50.0	ND	ND	ND	ND
4-Methyl-2-pentanone	50.0	ND	ND	ND	ND
Tetrachloroethene	5.0	ND	ND	ND	ND
Toluene	5.0	ND	ND	ND	<DL
Chlorobenzene	5.0	ND	ND	ND	ND
Ethyl Benzene	5.0	ND	ND	ND	ND
Styrene	5.0	ND	ND	ND	ND
Total Xylene	5.0	ND	ND	ND	ND
SURROGATE		% RECOVERY	% RECOVERY	% RECOVERY	% RECOVERY
Bromofluorobenzene		96.0	96.0	94.0	97.0
1,2-Dichloroethane-d4		100.0	96.0	95.0	97.0
Toluene-d8		107.0	109.0	110.0	110.0

HUNTINGDON ANALYTICAL SERVICES
METHOD 625 ANALYSIS DATA SHEET
SEMI-VOLATILE PRIORITY POLLUTANTS

Acid Extractables

Sample Identification:	SEEP	UPSTREAM	DOWNSTREAM	PREP-BLANK
HAS Sample #	319-013	319-014	319-015	PREP-BLANK
Date Sampled:	06/19/89	06/19/89	06/19/89	NA
Date Analyzed:	06/23/89	06/23/89	06/23/89	06/23/89
Holding Time (days):	0	0	0	0
Matrix:	WATER	WATER	WATER	WATER
Dilution Factor:	1	1	1	1

Compound	Detection Limit	Result ug/l	Result ug/l	Result ug/l	Result ug/l
4-Chloro-3-Methylphenol	10	ND	ND	<DL	ND
2-Chlorophenol	10	<DL	<DL	<DL	<DL
2,4-Dichlorophenol	10	ND	ND	ND	ND
2,4-Dimethylphenol	10	ND	<DL	ND	ND
2,4-Dinitrophenol	50	ND	ND	ND	ND
4,6-Dinitro-2-Methylphenol	50	ND	ND	ND	ND
2-Nitrophenol	10	ND	ND	ND	ND
4-Nitrophenol	50	ND	ND	ND	ND
Pentachlorophenol	50	ND	ND	ND	ND
Phenol	10	<DL	<DL	<DL	ND
2,4,6-Trichlorophenol	10	ND	ND	ND	<DL
Surrogates		% Recovery	% Recovery	% Recovery	% Recovery
Phenol-D5		46	46	46	45
2-Fluorophenol		73	73	74	70
2,4,6-Tribromophenol		76	81	63	63

Base/Neutral Extractables

Compound	Detection Limit	Result ug/l	Result ug/l	Result ug/l	Result ug/l
Acenaphthene	10	ND	ND	ND	<DL
Acenaphthylene	10	ND	ND	ND	ND
Anthracene	10	ND	ND	ND	ND
Benzidine	50	ND	ND	ND	ND
Benzo(a)Anthracene	10	<DL	<DL	ND	ND
Benzo(b)Fluoranthene	10	ND	ND	<DL	ND
Benzo(k)Fluoranthene	10	ND	ND	ND	ND
Benzo(a)Pyrene	10	ND	ND	ND	ND
Benzo(g,h,i)Perylene	10	ND	ND	ND	ND
bis(2-Chloroethoxy)Methane	10	ND	ND	<DL	ND
bis(2-Chloroethyl)Ether	10	ND	ND	ND	ND
bis(2-Chloroisopropyl)Ether	10	<DL	<DL	<DL	<DL
bis(2-Ethylhexyl)Phthalate	10	<DL	ND	<DL	<DL

(Continued on Next Page)

HUNTINGDON ANALYTICAL SERVICES
METHOD 625 ANALYSIS DATA SHEET
SEMI-VOLATILE PRIORITY POLLUTANTS

Base/Neutral Extractables

Compound	Detection Limit	Result ug/l	Result ug/l	Result ug/l	Result ug/l
Butylbenzylphthalate	10	<DL	ND	ND	ND
4-Bromophenyl-phenylether	10	ND	ND	ND	ND
2-Chloronaphthalene	10	ND	ND	ND	ND
4-Chlorophenyl-phenylether	10	ND	ND	ND	ND
Chrysene	10	<DL	ND	ND	ND
Dibenz(a,h)Anthracene	10	<DL	ND	ND	ND
Di-n-Butylphthalate	10	<DL	<DL	<DL	<DL
1,2-Dichlorobenzene	10	ND	ND	ND	ND
1,3-Dichlorobenzene	10	ND	ND	ND	ND
1,4-Dichlorobenzene	10	ND	<DL	<DL	<DL
3,3'-Dichlorobenzidine	20	ND	ND	ND	ND
Diethylphthalate	10	ND	ND	ND	ND
Dimethyl Phthalate	10	<DL	ND	ND	ND
2,4-Dinitrotoluene	10	ND	ND	ND	ND
2,6-Dinitrotoluene	10	ND	ND	ND	ND
Di-n-Octyl Phthalate	10	ND	<DL	<DL	<DL
1,2-Diphenylhydrazine	10	ND	ND	ND	ND
Fluoranthene	10	<DL	ND	ND	ND
Fluorene	10	ND	ND	ND	ND
Hexachlorobenzene	10	ND	ND	ND	ND
Hexachlorobutadiene	10	ND	ND	ND	ND
Hexachlorocyclopentadiene	10	ND	ND	ND	ND
Hexachloroethane	10	ND	ND	ND	ND
Indeno(1,2,3-cd)Pyrene	10	<DL	ND	ND	ND
Isophorone	10	ND	ND	<DL	ND
Naphthalene	10	ND	ND	ND	<DL
Nitrobenzene	10	ND	ND	ND	ND
N-Nitrosodimethylamine	10	ND	ND	ND	ND
N-Nitrosodiphenylamine (1)	10	ND	ND	ND	ND
N-Nitroso-Di-n-Propylamine	10	<DL	ND	ND	ND
Phenanthrene	10	<DL	ND	ND	<DL
Pyrene	10	<DL	ND	ND	ND
1,2,4-Trichlorobenzene	10	ND	ND	ND	ND
Surrogates		% Recovery	% Recovery	% Recovery	% Recovery
d-5 Nitrobenzene		119	117	108	85
2-Fluorobiphenyl		86	89	81	60
Terphenyl		88	111	106	105

Sample ID:SEEP
HAS Sample #30-319-010
Date Sampled: 06/19/89

ANALYTE	EPA METHOD	DATE PREPARED	DATE ANALYZED	DETECTION LIMIT	RESULT mg/l	QC
ALUMINUM	6010	06/22/89	06/25/89	0.125	10.9	*95
ANTIMONY	6010	06/22/89	06/25/89	0.05	<DL	*95
ARSENIC	7060	06/22/89	06/24/89	0.01	<DL	*95
BARIUM	6010	06/22/89	06/25/89	0.01	0.47	*95
BERYLLIUM	6010	06/22/89	06/25/89	0.005	<DL	*95
CADMIUM	6010	06/22/89	06/25/89	0.005	0.006	*95
CALCIUM	6010	06/22/89	06/25/89	0.05	409	*95
CHROMIUM	6010	06/22/89	06/25/89	0.01	0.02	*95
COBALT	6010	06/22/89	06/25/89	0.015	0.020	*95
COPPER	6010	06/22/89	06/25/89	0.01	0.05	*95
IRON	6010	06/22/89	06/25/89	0.02	6.78	*95
LEAD	7421	06/22/89	06/25/89	0.005	0.084	*95
MAGNESIUM	6010	06/22/89	06/25/89	0.03	59.7	*95
MANGANESE	6010	06/22/89	06/25/89	0.01	2.98	*95
MERCURY	7470	06/22/89	06/22/89	0.0002	0.0003	*95
NICKEL	6010	06/22/89	06/25/89	0.04	<DL	*95
POTASSIUM	6010	06/22/89	06/25/89	5.0	7.3	*95
SELENIUM	7740	06/22/89	06/25/89	0.005	<DL	*95
SILVER	6010	06/22/89	06/25/89	0.01	<DL	*95
SODIUM	6010	06/22/89	06/25/89	0.125	41.6	*95
THALLIUM	7841	06/22/89	06/25/89	0.01	<DL	*95
VANADIUM	6010	06/22/89	06/25/89	0.025	<DL	*95
ZINC	6010	06/22/89	06/25/89	0.02	0.35	*95

*THIS INDICATES A 95% CONFIDENCE LIMIT ACHIEVED WITH AN EPA QUALITY CONTROL SOLUTION ANALYZED ALONG WITH YOUR SAMPLE.

Sample ID: UPSTREAM
HAS Sample #30-319-011
Date Sampled: 06/19/89

ANALYTE	EPA METHOD	DATE PREPARED	DATE ANALYZED	DETECTION LIMIT	RESULT mg/l	QC
ALUMINUM	6010	06/22/89	06/25/89	0.125	0.29	*95
ANTIMONY	6010	06/22/89	06/25/89	0.05	<DL	*95
ARSENIC	7060	06/22/89	06/24/89	0.01	<DL	*95
BARIUM	6010	06/22/89	06/25/89	0.01	0.05	*95
BERYLLIUM	6010	06/22/89	06/25/89	0.005	<DL	*95
CADMIUM	6010	06/22/89	06/25/89	0.005	<DL	*95
CALCIUM	6010	06/22/89	06/25/89	0.05	74.8	*95
CHROMIUM	6010	06/22/89	06/25/89	0.01	<DL	*95
COBALT	6010	06/22/89	06/25/89	0.015	<DL	*95
COPPER	6010	06/22/89	06/25/89	0.01	<DL	*95
IRON	6010	06/22/89	06/25/89	0.02	0.45	*95
LEAD	7421	06/22/89	06/25/89	0.005	<DL	*95
MAGNESIUM	6010	06/22/89	06/25/89	0.03	26.1	*95
MANGANESE	6010	06/22/89	06/25/89	0.01	0.05	*95
MERCURY	7470	06/22/89	06/22/89	0.0002	0.0003	*95
NICKEL	6010	06/22/89	06/25/89	0.04	<DL	*95
POTASSIUM	6010	06/22/89	06/25/89	5.0	5.7	*95
SELENIUM	7740	06/22/89	06/25/89	0.005	0.006	*95
SILVER	6010	06/22/89	06/25/89	0.01	<DL	*95
SODIUM	6010	06/22/89	06/25/89	0.125	26.7	*95
THALLIUM	7841	06/22/89	06/25/89	0.01	<DL	*95
VANADIUM	6010	06/22/89	06/25/89	0.025	<DL	*95
ZINC	6010	06/22/89	06/25/89	0.02	0.06	*95

*THIS INDICATES A 95% CONFIDENCE LIMIT ACHIEVED WITH AN EPA QUALITY CONTROL SOLUTION ANALYZED ALONG WITH YOUR SAMPLE.

Sample ID:DOWNSTREAM
HAS Sample #30-319-012
Date Sampled: 06/19/89

ANALYTE	EPA METHOD	DATE PREPARED	DATE ANALYZED	DETECTION LIMIT	RESULT mg/l	MS %REC	MSD %REC	RPD
ALUMINUM	6010	06/22/89	06/25/89	0.25	0.39	90.3	91.7	1.5
ANTIMONY	6010	06/22/89	06/25/89	0.1	<DL	86.4	91.9	6.2
ARSENIC	7060	06/22/89	06/24/89	0.01	<DL	*95		
BARIUM	6010	06/22/89	06/25/89	0.02	0.06	91.2	92.5	1.3
BERYLLIUM	6010	06/22/89	06/25/89	0.01	<DL	94.2	95.2	1.0
CADMIUM	6010	06/22/89	06/25/89	0.01	<DL	87.8	89.8	2.3
CALCIUM	6010	06/22/89	06/25/89	0.1	79.8	85.6	84.0	<1.0
CHROMIUM	6010	06/22/89	06/25/89	0.02	<DL	91.0	92.3	1.4
COBALT	6010	06/22/89	06/25/89	0.03	<DL	90.8	93.0	2.4
COPPER	6010	06/22/89	06/25/89	0.02	<DL	90.6	90.7	<1.0
IRON	6010	06/22/89	06/25/89	0.04	0.84	90.1	91.2	1.1
LEAD	7421	06/22/89	06/25/89	0.005	0.015	*95		
MAGNESIUM	6010	06/22/89	06/25/89	0.06	27.4	88.2	88.9	<1.0
MANGANESE	6010	06/22/89	06/25/89	0.02	0.05	90.5	90.4	<1.0
MERCURY	7470	06/22/89	06/22/89	0.0002	0.0003	*95		
NICKEL	6010	06/22/89	06/25/89	0.08	<DL	90.1	92.9	3.1
POTASSIUM	6010	06/22/89	06/25/89	10	11	78.9	80.8	2.1
SELENIUM	7740	06/22/89	06/25/89	0.005	<DL	*95		
SILVER	6010	06/22/89	06/25/89	0.02	<DL	86.1	87.4	1.5
SODIUM	6010	06/22/89	06/25/89	0.25	25.7	89.3	90.4	<1.0
THALLIUM	7841	06/22/89	06/25/89	0.01	<DL	*95		
VANADIUM	6010	06/22/89	06/25/89	0.05	<DL	90.6	91.9	1.5
ZINC	6010	06/22/89	06/25/89	0.04	0.10	91.6	91.8	<1.0

*THIS INDICATES A 95% CONFIDENCE LIMIT ACHIEVED WITH AN EPA QUALITY CONTROL SOLUTION ANALYZED ALONG WITH YOUR SAMPLE.

Sample ID: METHOD BLANK
HAS Sample #30-319-MB
Date Sampled: N/A

ANALYTE	EPA METHOD	DATE PREPARED	DATE ANALYZED	DETECTION LIMIT	RESULT mg/l	QC
ALUMINUM	6010	06/22/89	06/25/89	0.125	<DL	*95
ANTIMONY	6010	06/22/89	06/25/89	0.05	<DL	*95
ARSENIC	7060	06/22/89	06/24/89	0.01	<DL	*95
BARIUM	6010	06/22/89	06/25/89	0.01	<DL	*95
BERYLLIUM	6010	06/22/89	06/25/89	0.005	<DL	*95
CADMIUM	6010	06/22/89	06/25/89	0.005	<DL	*95
CALCIUM	6010	06/22/89	06/25/89	0.05	0.19	*95
CHROMIUM	6010	06/22/89	06/25/89	0.01	<DL	*95
COBALT	6010	06/22/89	06/25/89	0.015	<DL	*95
COPPER	6010	06/22/89	06/25/89	0.01	0.01	*95
IRON	6010	06/22/89	06/25/89	0.02	0.06	*95
LEAD	7421	06/22/89	06/25/89	0.005	<DL	*95
MAGNESIUM	6010	06/22/89	06/25/89	0.03	0.05	*95
MANGANESE	6010	06/22/89	06/25/89	0.01	<DL	*95
MERCURY	7470	06/22/89	06/22/89	0.0002	<DL	*95
NICKEL	6010	06/22/89	06/25/89	0.04	<DL	*95
POTASSIUM	6010	06/22/89	06/25/89	5.0	<DL	*95
SELENIUM	7740	06/22/89	06/25/89	0.005	<DL	*95
SILVER	6010	06/22/89	06/25/89	0.01	<DL	*95
SODIUM	6010	06/22/89	06/25/89	0.125	<DL	*95
THALLIUM	7841	06/22/89	06/25/89	0.01	<DL	*95
VANADIUM	6010	06/22/89	06/25/89	0.025	<DL	*95
ZINC	6010	06/22/89	06/25/89	0.02	<DL	*95

*THIS INDICATES A 95% CONFIDENCE LIMIT ACHIEVED WITH AN EPA QUALITY CONTROL SOLUTION ANALYZED ALONG WITH YOUR SAMPLE.

HUNTINGDON ANALYTICAL SERVICES, INC.
ENVIRONMENTAL

Inorganic Wet Chemical Analyses

Sample Identification: Seep

HAS Sample #30-319-007, 004, 001

Date Sampled: 6/19/89

Date Received: 6/20/89

Analyte	EPA Method	Date Prepared	Date Analyzed	Detection Limit	Concentration	Units	QC in %
Total Cyanide	335.2	6/23/89	6/26/89	0.02	<DL	mg/l	*99
Phenol	420.1	6/23/89	6/27/89	0.005	<DL	mg/l	*97
Oil & Grease	413.1	6/26/89	6/26/89	1.0	<DL	mg/l	*82

*A known standard of the analyte of interest was analyzed along with this sample with the percent recovery indicated above.

HUNTINGDON ANALYTICAL SERVICES, INC.
ENVIRONMENTAL

Inorganic Wet Chemical Analyses

Sample Identification: Upstream

HAS Sample #30-319-008, 005, 002

Date Sampled: 6/19/89

Date Received: 6/20/89

Analyte	EPA Method	Date Prepared	Date Analyzed	Detection Limit	Concentration	Units	QC in %
Total Cyanide	335.2	6/23/89	6/26/89	0.02	<DL	mg/l	*99
Phenol	420.1	6/23/89	6/27/89	0.005	<DL	mg/l	*97
Oil & Grease	413.1	6/26/89	6/26/89	1.0	1.1	mg/l	*82

*A known standard of the analyte of interest was analyzed along with this sample with the percent recovery indicated above.

HUNTINGDON ANALYTICAL SERVICES, INC.
ENVIRONMENTAL

Inorganic Wet Chemical Analyses

Sample Identification: Downstream

HAS Sample #30-319-009, 006, 003

Date Sampled: 6/19/89

Date Received: 6/20/89

Analyte	EPA Method	Date Prepared	Date Analyzed	Detection Limit	Concentration	Units	QC in %
Total Cyanide	335.2	6/23/89	6/26/89	0.02	<DL	mg/l	*99 **105
Phenol	420.1	6/23/89	6/27/89	0.005	0.007	mg/l	*97
Oil & Grease	413.1	6/26/89	6/26/89	1.0	1.1	mg/l	*82

*A known standard of the analyte of interest was analyzed along with this sample with the percent recovery indicated above.

**A matrix spike of this sample was analyzed with the percent recovery indicated above.

JUN. 2 1 1989

HUNTINGDON ANALYTICAL SERVICES - CHAIN-OF-CUSTODY RECORD AND ANALYTICAL REQUEST FORM — Page 1 of 1

Client Name: Asteco — Client Contact: Fral Smith — HAS Quote #: —

Address: W. Tmer Rd. — Phone: — P.O. #: —

Project No.: BTA-89-034 — Project/Site Name: W. Tmer Rd

Samplers (Signature): David M Hall — HAS # 319 #30-

Sample I.D.	Date	Time	Comp.	Grab	Sample Location	HAS Seq. #	No. of Containers	Container Size & Type: 1 1/2 gallon glass	2 VOA vials	500ml plastic	2 amber 1 liter	1 liter plastic	Analysis Requested / Remarks
Seep	6/19/89	*		X	Seep		7	✓	✓	✓	✓	✓	GTCL - (Base/Neutral
Upstream	6/19/89	*		X	Upstream		7	✓	/	/	/	/	Acid/Phenol/Pest/PCB) 013
Downstream	6/19/89	*		X	Downstream		7	✓	/	/	/	/	TCL - Metals 010-012
													CN(T) 007-009
		* See bottle label											Phenolics (4AAP) 004-006
													Oil + Grease 001-003
													624
													016-018 - 624
													019-020 - sample - unpres.
													on hold.

Relinquished by:	Date/ Time:	Received by:	Relinquished by:	Date/ Time:	Received By:
David M Hall		D. Bailey			
Relinquished by:	Date/ Time:	Received by:	Relinquished by:	Date/ Time:	Received By:
Relinquished by:	Date/ Time:	Received for Lab by:	Date/ Time:	Remarks:	
D. Bailey	6/21/89 3:00	D. O'Brien			

HUNTINGDON ANALYTICAL SERVICES
Division of EMPIRE SOILS INVESTIGATIONS INC.
PO Box 250 Middleport New York 14105
Telephone (716) 735-3400 Telex 131246

Environmental Analytical Report for:

EMPIRE SOILS INVESTIGATIONS, INC. - HAMBURG

ASTECO - Witmer Road (BTA-89-39a)

HAS Ref. #30-389

August 1, 1989

HAS

HUNTINGDON ANALYTICAL SERVICES
ELAP #10833
ENVIRONMENTAL REPORT

HAS Reference Number: #30-389

August 1, 1989

Statement of Work Performed

I hereby declare that the work was performed under my supervision according to the procedures outlined by the following references and that this report provides a correct and faithful record of the results obtained.

- 40 CFR Part 136, "Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act," October 26, 1984 (Federal Register) U.S. Environmental Protection Agency.
- U.S. Environmental Protection Agency, "Test Methods of Evaluating Solid Waste - Physical/Chemical Methods," Office of Solid Waste and Emergency Response, SW-846, 2nd Edition and 3rd Edition.
- New York State Department of Health, Analytical Toxicology Laboratory Handbook, August 1982.

Katherine A. Syracuse
Assistant Lab Director, Environmental

REPORT CODE LEGEND:

<DL = Less than detection limit
ND = Not detected
NA = Not applicable
<LQ = Response not statistically significant from laboratory background values
INP = Information not provided
MB = Method Blank

HUNTINGDON ANALYTICAL SERVICES
ENVIRONMENTAL

METHOD 509A
EP TOX PESTICIDES

SAMPLE IDENTIFICATION :	SS-2-7-13	METHOD BLANK
HAS SAMPLE #30-389	001	---

COMPOUND	RESULT mg/l	RESULT mg/l
LINDANE	0.00005	<0.00005
ENDRIN	<0.00005	<0.00005
METHOXYCHLOR	<0.00005	<0.00005
TOXAPHENE	<0.0010	<0.0010

HUNTINGDON ANALYTICAL SERVICES
ENVIRONMENTAL

METHOD 509B
EP TOX HERBICIDES

SAMPLE IDENTIFICATION :	SS-2-7-13	METHOD BLANK
HAS SAMPLE #30-389	001	---

COMPOUND	RESULT mg/l	RESULT mg/l
2,4-D	<0.00005	<0.00005
SILVEX (2,4,5-TP)	<0.00005	<0.00005

SAMPLE #001 CONTAINS 0.00051 mg/l 2,4,5-T, A NON-EP TOX HERBICIDE.

METALS ANALYSIS-EP TOX DATA SHEET

Sample ID: SS-2-7-13
HAS Sample #30-389-001
Date Sampled: 7-13-89

ANALYTE	EPA METHOD	EPA LIMITS	DATE ANALYZED	DETECTION LIMIT	RESULT mg/l	QC
ARSENIC	6010	5.0 mg/l	7-25-89	0.05	<DL	*95
BARIUM	6010	100 mg/l	7-25-89	0.005	0.69	*95
CADMIUM	6010	1.0 mg/l	7-25-89	0.005	0.02	*95
CHROMIUM	6010	5.0 mg/l	7-25-89	0.01	0.02	*95
LEAD	6010	5.0 mg/l	7-25-89	0.05	8.1	*95
MERCURY	7470	0.2 mg/l	7-24-89	0.002	<DL	*95
SELENIUM	6010	1.0 mg/l	7-25-89	0.05	<DL	*95
SILVER	6010	5.0 mg/l	7-25-89	0.01	0.03	*95

*THIS INDICATES A 95% CONFIDENCE LIMIT ACHIEVED WITH AN EPA QUALITY CONTROL SOLUTION ANALYZED ALONG WITH YOUR SAMPLE.

THIS SAMPLE WAS EXTRACTED AND ANALYZED ACCORDING TO METHODS CONTANINED IN "TEST METHODS FOR EVALUATING SOLID WASTE: PHYSICAL/CHEMICAL METHODS" SW-846, 3RD EDITION.

METALS ANALYSIS-EP TOX DATA SHEET

Sample ID: METHOD BLANK
HAS Sample #30-389-MB
Date Sampled: NA

ANALYTE	EPA METHOD	EPA LIMITS	DATE ANALYZED	DETECTION LIMIT	RESULT mg/l	QC
ARSENIC	6010	5.0 mg/l	7-25-89	0.05	<DL	*95
BARIUM	6010	100 mg/l	7-25-89	0.005	0.01	*95
CADMIUM	6010	1.0 mg/l	7-25-89	0.005	<DL	*95
CHROMIUM	6010	5.0 mg/l	7-25-89	0.01	<DL	*95
LEAD	6010	5.0 mg/l	7-25-89	0.05	<DL	*95
MERCURY	7470	0.2 mg/l	7-24-89	0.002	<DL	*95
SELENIUM	6010	1.0 mg/l	7-25-89	0.05	<DL	*95
SILVER	6010	5.0 mg/l	7-25-89	0.01	<DL	*95

*THIS INDICATES A 95% CONFIDENCE LIMIT ACHIEVED WITH AN EPA QUALITY CONTROL SOLUTION ANALYZED ALONG WITH YOUR SAMPLE.

THIS SAMPLE WAS EXTRACTED AND ANALYZED ACCORDING TO METHODS CONTANINED IN "TEST METHODS FOR EVALUATING SOLID WASTE: PHYSICAL/CHEMICAL METHODS" SW-846, 3RD EDITION.

HUNTINGDON ANALYTICAL SERVICES, INC.
ENVIRONMENTAL

Inorganic Wet Chemical Analyses

Sample Identification: SS-2-7-13

HAS Sample #30-389-001

Date Sampled: 7/13/89

Analyte	EPA Method	Date Prepared	Date Analyzed	Detection Limit	Concentration	Units	QC in %
Corrosivity as Leachable pH	SW-846 9045	7/21/89	7/21/89	0.1	7.4	pH units	*95
Reactivity as:							
Total Releaseable Hydrogen Sulfide	SW-846 9030	7/18/89	7/18/89	50	<DL	†mg/kg	**92
Total Releaseable Hydrogen Cyanide	SW-846 9010	7/18/89	7/18/89	50	<DL	†mg/kg	**59
Ignitability	SW-846 1010	--	7/31/89	--	††145	°F	--
% Solid	160.3	--	7/21/89	1.0	88	%	--

†Results are based on dry weight of material as listed elsewhere in this report.

††There was insufficient sample available to perform analysis properly. Preliminary testing indicates that flash point is very close to the threshold limit of 140°F.

*This indicates a 95% confidence limit was achieved with an EPA Quality Control Check analyzed with this sample.

**A known standard of the analyte of interest was analyzed along with this sample with the percent recovery indicated above.

dec 7/25/89

HUNTINGDON ANALYTICAL SERVICES - CHAIN-OF-CUSTODY RECORD AND ANALYTICAL REQUEST FORM

Page 1 of 1

Client Name: Fsteco

Client Contact: David Hardy - ESI

HAS Quote #: —

Address:

Phone: 649-8110

P.O. #: —

Project No.: BTA-89-39-

Project/Site Name: Witmer Rd.

Samplers (Signature): Jerry Jones

HAS Ref. #30-389

Sample I.D.	Date	Time	Comp.	Grab	Sample Location	HAS Seq. #	No. of Containers	Container Size & Type: 500ml Glass	Analysis Requested/ Remarks
SS-2-2-13	7/13	4:00		x	2-3'	001	1	X	See request sheet
									Hazardous Criteria
									Ignitability
									Corrosivity
									EP Tox (Metals + Pesticides)
									Reactivity

Relinquished by:	Date/ Time:	Received by:	Relinquished by:	Date/ Time:	Received By:
Jerry Jones	7/14/89 1-30	R. Klusewicz	R. Klusewicz	7/18/89 7/18/89 3:05	A O'Brien
Relinquished by:	Date/ Time:	Received by:	Relinquished by:	Date/ Time:	Received By:
Relinquished by:	Date/ Time:	Received for Lab by: A O'Brien	Date/ Time:	Remarks:	

HUNTINGDON ANALYTICAL SERVICES
Division of EMPIRE SOILS INVESTIGATIONS INC.
PO Box 250 Middleport New York 14105
Telephone (716) 735-3400 Telex 131246

Environmental Analytical Report for:

EMPIRE SOILS INVESTIGATIONS, INC. - HAMBURG

ASTECO

HAS Ref. #30-407

August 9, 1989

RECEIVED
AUG 14 1989
EMPIRE-ITH ...MSEN
BUFFALO, NY

HUNTINGDON ANALYTICAL SERVICES
ELAP #10833
ENVIRONMENTAL REPORT

HAS Reference Number: #30-407

August 9, 1989

Statement of Work Performed

I hereby declare that the work was performed under my supervision according to the procedures outlined by the following references and that this report provides a correct and faithful record of the results obtained.

- 40 CFR Part 136, "Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act," October 26, 1984 (Federal Register) U.S. Environmental Protection Agency.
- U.S. Environmental Protection Agency, "Test Methods of Evaluating Solid Waste - Physical/Chemical Methods," Office of Solid Waste and Emergency Response, SW-846, 2nd Edition and 3rd Edition.
- New York State Department of Health, Analytical Toxicology Laboratory Handbook, August 1982.

Katherine A. Syracuse
Assistant Lab Director, Environmental

REPORT CODE LEGEND:

<DL = Less than detection limit
ND = Not detected
NA = Not applicable
<LQ = Response not statistically significant from laboratory background values
INP = Information not provided
MB = Method Blank

HUNTINGDON ANALYTICAL SERVICES
ENVIRONMENTAL

METHOD 509A
EP TOX PESTICIDES

SAMPLE IDENTIFICATION :	S-3	S-4	METHOD BLANK
HAS SAMPLE #30-407	001	002	---
COMPOUND	RESULT mg/l	RESULT mg/l	RESULT mg/l
LINDANE	0.00013	<0.00005	<0.00005
ENDRIN	<0.00005	<0.00005	<0.00005
METHOXYCHLOR	<0.00005	<0.00005	<0.00005
TOXAPHENE	<0.0010	<0.0010	<0.0010

HUNTINGDON ANALYTICAL SERVICES
ENVIRONMENTAL

METHOD 509B
EP TOX HERBICIDES

SAMPLE IDENTIFICATION :	S-3	S-4	METHOD BLANK
HAS SAMPLE #30-407	001	002	---
COMPOUND	RESULT mg/l	RESULT mg/l	RESULT mg/l
2,4-D ----------	<0.00005	<0.00010	<0.00005
SILVEX (2,4,5-TP) ------	<0.00005	<0.00005	<0.00005

HUNTINGDON ANALYTICAL SERVICES, INC.

METALS ANALYSIS-EP TOX DATA SHEET

Sample Identification: S-3 7-21
HAS Sample #30-407-001
Date Sampled: 7-21-89

ANALYTE	EPA METHOD	EPA LIMITS	DATE ANALYZED	DETECTION LIMIT	RESULT mg/l	QC *
ARSENIC	6010	5.0 mg/l	8-08-89	0.035	0.038	95
BARIUM	6010	100 mg/l	8-08-89	0.01	3.1	95
CADMIUM	6010	1.0 mg/l	8-08-89	0.005	<DL	95
CHROMIUM	6010	5.0 mg/l	8-08-89	0.01	<DL	95
LEAD	6010	5.0 mg/l	8-08-89	0.05	0.38	95
MERCURY	7470	0.2 mg/l	8-03-89	0.002	<DL	95
SELENIUM	6010	1.0 mg/l	8-08-89	0.05	<DL	95
SILVER	6010	5.0 mg/l	8-08-89	0.01	<DL	95

*THIS INDICATES A 95% CONFIDENCE LIMIT ACHIEVED WITH AN EPA QUALITY CONTROL SOLUTION ANALYZED ALONG WITH YOUR SAMPLE.

THIS SAMPLE WAS EXTRACTED AND ANALYZED ACCORDING TO METHODS CONTAINED IN "TEST METHODS FOR EVALUATING SOLIDS WASTE: "PHYSICAL/CHEMICAL METHODS" SW-846, 3RD EDITION.

HUNTINGDON ANALYTICAL SERVICES, INC.

METALS ANALYSIS-EP TOX DATA SHEET

Sample Identification: S-4 7-21
HAS Sample #30-407-002
Date Sampled: 7-21-89

ANALYTE	EPA METHOD	EPA LIMITS	DATE ANALYZED	DETECTION LIMIT	RESULT mg/l	QC *
ARSENIC	6010	5.0 mg/l	8-08-89	0.035	0.048	95
BARIUM	6010	100 mg/l	8-08-89	0.01	1.4	95
CADMIUM	6010	1.0 mg/l	8-08-89	0.005	<DL	95
CHROMIUM	6010	5.0 mg/l	8-08-89	0.01	<DL	95
LEAD	6010	5.0 mg/l	8-08-89	0.05	0.08	95
MERCURY	7470	0.2 mg/l	8-03-89	0.002	<DL	95
SELENIUM	6010	1.0 mg/l	8-08-89	0.05	<DL	95
SILVER	6010	5.0 mg/l	8-08-89	0.01	<DL	95

*THIS INDICATES A 95% CONFIDENCE LIMIT ACHIEVED WITH AN EPA QUALITY CONTROL SOLUTION ANALYZED ALONG WITH YOUR SAMPLE.

THIS SAMPLE WAS EXTRACTED AND ANALYZED ACCORDING TO METHODS CONTAINED IN "TEST METHODS FOR EVALUATING SOLIDS WASTE: "PHYSICAL/CHEMICAL METHODS" SW-846, 3RD EDITION.

HUNTINGDON ANALYTICAL SERVICES, INC.

METALS ANALYSIS-EP TOX DATA SHEET

Sample Identification: S-4 7-21
HAS Sample #30-407-002 DUP
Date Sampled: 7-21-89

ANALYTE	EPA METHOD	EPA LIMITS	DATE ANALYZED	DETECTION LIMIT	RESULT mg/l	QC *
ARSENIC	6010	5.0 mg/l	8-08-89	0.035	0.048	95
BARIUM	6010	100 mg/l	8-08-89	0.01	0.38	95
CADMIUM	6010	1.0 mg/l	8-08-89	0.005	<DL	95
CHROMIUM	6010	5.0 mg/l	8-08-89	0.01	<DL	95
LEAD	6010	5.0 mg/l	8-08-89	0.05	<DL	95
MERCURY	7470	0.2 mg/l	8-03-89	0.002	<DL	95
SELENIUM	6010	1.0 mg/l	8-08-89	0.05	<DL	95
SILVER	6010	5.0 mg/l	8-08-89	0.01	<DL	95

*THIS INDICATES A 95% CONFIDENCE LIMIT ACHIEVED WITH AN EPA QUALITY CONTROL SOLUTION ANALYZED ALONG WITH YOUR SAMPLE.

THIS SAMPLE WAS EXTRACTED AND ANALYZED ACCORDING TO METHODS CONTAINED IN "TEST METHODS FOR EVALUATING SOLIDS WASTE: "PHYSICAL/CHEMICAL METHODS" SW-846, 3RD EDITION.

HUNTINGDON ANALYTICAL SERVICES, INC.

METALS ANALYSIS-EP TOX DATA SHEET

Sample Identification: METHOD BLANK
HAS Sample #30-407-MB
Date Sampled: NA

ANALYTE	EPA METHOD	EPA LIMITS	DATE ANALYZED	DETECTION LIMIT	RESULT mg/l	QC *
ARSENIC	6010	5.0 mg/l	8-08-89	0.035	<DL	95
BARIUM	6010	100 mg/l	8-08-89	0.01	0.02	95
CADMIUM	6010	1.0 mg/l	8-08-89	0.005	0.006	95
CHROMIUM	6010	5.0 mg/l	8-08-89	0.01	<DL	95
LEAD	6010	5.0 mg/l	8-08-89	0.05	<DL	95
MERCURY	7470	0.2 mg/l	8-03-89	0.002	<DL	95
SELENIUM	6010	1.0 mg/l	8-08-89	0.05	<DL	95
SILVER	6010	5.0 mg/l	8-08-89	0.01	<DL	95

*THIS INDICATES A 95% CONFIDENCE LIMIT ACHIEVED WITH AN EPA QUALITY CONTROL SOLUTION ANALYZED ALONG WITH YOUR SAMPLE.

THIS SAMPLE WAS EXTRACTED AND ANALYZED ACCORDING TO METHODS CONTAINED IN "TEST METHODS FOR EVALUATING SOLIDS WASTE: "PHYSICAL/CHEMICAL METHODS" SW-846, 3RD EDITION.

HUNTINGDON ANALYTICAL SERVICES, INC.
ENVIRONMENTAL

Inorganic Wet Chemical Analyses

Sample Identification: S-3

HAS Sample #30-407-001

Date Sampled: 7/21/89

Date Received: 7/21/89

Analyte	EPA Method	Date Prepared	Date Analyzed	Detection Limit	Concentration	Units	QC in %
Ignitability as Flash Point	SW-846 1010	--	7/26/89	--	>160	°F	--
Corrosivity as Leachable pH	SW-846 9045	7/24/89	7/24/89	--	7.8	pH units	*100
Reactivity:							
Total Releaseable H_2S	SW-846 9030	7/24/89	7/24/89	65	**<DL	mg/kg H_2S	--
Total Releaseable HCN	SW-846 9010	7/24/89	7/24/89	65	**<DL	mg/kg HCN	--
% Solid	160.3	7/27/89	7/28/89	1.0	76	%	--

*A known standard of the analyte of interest was analyzed along with this sample with the percent recovery indicated above.

**Results are based on dry weight of material as listed elsewhere in this report.

HUNTINGDON ANALYTICAL SERVICES, INC.
ENVIRONMENTAL

Inorganic Wet Chemical Analyses

Sample Identification: S-4

HAS Sample #30-407-002

Date Sampled: 7/21/89

Date Received: 7/21/89

Analyte	EPA Method	Date Prepared	Date Analyzed	Detection Limit	Concentration	Units	QC in %
Ignitability as Flash Point	SW-846 1010	--	7/26/89	--	>160	°F	--
Corrosivity as Leachable pH	SW-846 9045	7/24/89	7/24/89	--	8.2	pH units	*100
Reactivity:							
Total Releaseable H_2S	SW-846 9030	7/24/89	7/24/89	53	**<DL	mg/kg H_2S	--
Total Releaseable HCN	SW-846 9010	7/24/89	7/24/89	53	**<DL	mg/kg HCN	--
% Solid	160.3	7/27/89	7/28/89	1.0	83	%	--

*A known standard of the analyte of interest was analyzed along with this sample with the percent recovery indicated above.

**Results are based on dry weight of material as listed elsewhere in this report.

HUNTINGDON ANALYTICAL SERVICES - CHAIN-OF-CUSTODY RECORD AND ANALYTICAL REQUEST FORM

Page ___ of ___

Client Name: ASTECO
Address: 4287 W. Tonawanda St. NIAGARA FALLS, N.Y.
Client Contact: D. Hasty
Phone: 649-8110
HAS Quote #:
P.O. #:

Project No.:
Project/Site Name:
Samplers (Signature): Dennis Doss
HAS Ref. #30-407

Sample I.D.	Date	Time	Comp.	Grab	Sample Location	HAS Seq. #	No. of Containers	Container Size & Type: 1 QUART 1 30 TAKE 1 8 OUNCE	Analysis Requested/ Remarks
S-3	7/21				4'-6'	001	1	X	Hazardous Waste Char.
S-4	7/21				6' 8'	002	1	X	Ignitability
									Corrosivity
									Reactivity
									EP Tox Metals & Organics
									(% Solids)

Relinquished by:	Date/ Time:	Received by:	Relinquished by:	Date/ Time:	Received By:
Dennis Doss	7/21/89 8.15			7/21/89 1.15	
Relinquished by:	Date/ Time:	Received by:	Relinquished by:	Date/ Time:	Received By:
Relinquished by:	Date/ Time:	Received for Lab by:	Date/ Time:	Remarks:	

REPORT OF CHEMICAL ANALYSES

Reported to:

Empire Soils Investigations, Inc.
Attn: Mr. David Harty
P.O. Box 0913
Hamburg, NY 14075

By:

Twin City Testing Corporation
Organic Chemistry Department
662 Cromwell Avenue
St. Paul, MN 55114

****
TWIN CITY TESTING CORPORATION
* PCDF/PCDD ANALYSIS RESULTS *
****
Client....EMPIRE

Sample ID (Client's#)....759-001
Sample ID (TCT#).....204611
Analysis Date.....7/30/90
Filename.....V00730M
Analyst.....BB
Sample Amount..... 1.00 L
ICAL Date.....6-15-90
CCAL Filename.....V00730B

NATIVE ISOMERS	CONC. ng/L	DL ng/L
2378-TCDF	0.0043	-----
TOTAL TCDF	0.0043	-----
2378-TCDD	nd	0.0031
TOTAL TCDD	0.0069	-----
12378-PeCDF	nd	0.0046
23478-PeCDF	nd	0.0025
TOTAL PeCDF	nd	-----
12378-PeCDD	nd	0.0028
TOTAL PeCDD	nd	-----
123478-HxCDF	0.0021	-----
123678-HxCDF	nd	0.0018
123789-HxCDF	0.0038	-----
234678-HxCDF	nd	0.0045
TOTAL HxCDF	0.0079	-----
123478-HxCDD	nd	0.0030
123678-HxCDD	nd	0.0060
123789-HxCDD	nd	0.0031
TOTAL HxCDD	nd	-----
1234678-HpCDF	nd	0.0057
1234789-HpCDF	0.0031	-----
TOTAL HpCDF	0.0031	-----
1234678-HpCDD	0.0170	-----
TOTAL HpCDD	0.0240	-----
OCDF	0.0069	-----
OCDD	0.0710	-----

INTERNAL STANDARDS	ng's ADDED	PERCENT RECOVERY
2378-TCDF-C13....	2.00	68
2378-TCDD-C13....	2.00	67
12378-PeCDF-C13..	2.00	60
23478-PeCDF-C13..	2.00	70
12378-PeCDD-C13..	2.00	59
123478-HxCDF-C13.	2.00	62
123678-HxCDF-C13.	2.00	58
123789-HxCDF-C13.	2.00	68
234678-HxCDF-C13.	2.00	66
123478-HxCDD-C13.	2.00	68
123678-HxCDD-C13.	2.00	69
1234678-HpCDF-C13	2.00	64
1234789-HpCDF-C13	2.00	67
1234678-HpCDD-C13	2.00	53
OCDD-C13.....	4.00	53
1234-TCDD-C13....	2.00	na
123789-HxCDD-C13.	2.00	na
2378-TCDD-C137...	0.80	89

Total 2378-TCDD
Equivalence = 0.0006 ng/L
(Using EPA 8290 Factors)

CONC= Concentrations, calculated as described in EPA method 8290.

DL= Detection limits, calculated as described in EPA method 8290.

na= not applicable

nd= not detected

TCT Invoice Number....4410 90-6204

****
TWIN CITY TESTING CORPORATION
* PCDF/PCDD ANALYSIS RESULTS *
****

Client....EMPIRE

Sample ID (Client's#)....759-008
Sample ID (TCT#).....204612
Analysis Date.....7/30/90
Filename.....V00730N
Analyst.....BB
Sample Amount..... 1.00 L
ICAL Date.....6-15-90
CCAL Filename.....V00730B

NATIVE ISOMERS	CONC. ng/L	DL ng/L
2378-TCDF	0.0078	-----
TOTAL TCDF	0.0400	-----
2378-TCDD	0.0320	-----
TOTAL TCDD	0.0460	-----
12378-PeCDF	nd	0.0071
23478-PeCDF	0.0050	-----
TOTAL PeCDF	0.0720	-----
12378-PeCDD	nd	0.0070
TOTAL PeCDD	0.0290	-----
123478-HxCDF	0.0140	-----
123678-HxCDF	0.0089	-----
123789-HxCDF	0.0033	-----
234678-HxCDF	0.0032	-----
TOTAL HxCDF	0.0790	-----
123478-HxCDD	0.0077	-----
123678-HxCDD	0.0390	-----
123789-HxCDD	0.0240	-----
TOTAL HxCDD	0.1900	-----
1234678-HpCDF	0.0230	-----
1234789-HpCDF	0.0036	-----
TOTAL HpCDF	0.0270	-----
1234678-HpCDD	0.1900	-----
TOTAL HpCDD	0.3200	-----
OCDF	0.0830	-----
OCDD	0.5500	-----

INTERNAL STANDARDS	ng's ADDED	PERCENT RECOVERY
2378-TCDF-C13....	2.00	61
2378-TCDD-C13....	2.00	68
12378-PeCDF-C13..	2.00	50
23478-PeCDF-C13..	2.00	58
12378-PeCDD-C13..	2.00	53
123478-HxCDF-C13.	2.00	60
123678-HxCDF-C13.	2.00	46
123789-HxCDF-C13.	2.00	59
234678-HxCDF-C13.	2.00	63
123478-HxCDD-C13.	2.00	61
123678-HxCDD-C13.	2.00	54
1234678-HpCDF-C13	2.00	48
1234789-HpCDF-C13	2.00	52
1234678-HpCDD-C13	2.00	41
OCDD-C13.....	4.00	36
1234-TCDD-C13....	2.00	na
123789-HxCDD-C13.	2.00	na
2378-TCDD-C137...	0.80	88

Total 2378-TCDD Equivalence = 0.0371 ng/L
(Using EPA 8290 Factors)

CONC= Concentrations, calculated as described in EPA method 8290.

DL= Detection limits, calculated as described in EPA method 8290.

na= not applicable

nd= not detected

TCT Invoice Number....4410 90-6204

****
TWIN CITY TESTING CORPORATION
* PCDF/PCDD ANALYSIS RESULTS *
****

Client....EMPIRE SOILS

Sample ID (TCT#).....SPIKE 7/9/90
Analysis Date.....7/20/90
Filename.....V00720F
Analyst.....DJD
Sample Amount..... 1.00 L
ICAL Date.....6/15/90
CCAL Filename.....V00720A

NATIVE ISOMERS	Qs (NG)	Qm (NG)	% REC.	INTERNAL STANDARD	ng's ADDED	PERCENT RECOVERY
2378-TCDF	0.80	1.00	125	2378-TCDF-C13....	2.00	23
TOTAL TCDF	0.80	1.00	125	2378-TCDD-C13....	2.00	25
				12378-PeCDF-C13..	2.00	40
2378-TCDD	0.80	1.10	138	23478-PeCDF-C13..	2.00	49
TOTAL TCDD	0.80	1.10	138	12378-PeCDD-C13..	2.00	48
				123478-HxCDF-C13.	2.00	70
12378-PeCDF	4.00	4.30	108	123678-HxCDF-C13.	2.00	58
23478-PeCDF	4.00	4.40	110	123789-HxCDF-C13.	2.00	66
TOTAL PeCDF	8.00	8.70	109	234678-HxCDF-C13.	2.00	54
				123478-HxCDD-C13.	2.00	80
12378-PeCDD	4.00	4.40	110	123678-HxCDD-C13.	2.00	62
TOTAL PeCDD	4.00	4.40	110	1234678-HpCDF-C13	2.00	53
				1234789-HpCDF-C13	2.00	52
123478-HxCDF	4.00	4.40	110	1234678-HpCDD-C13	2.00	50
123678-HxCDF	4.00	4.10	103	OCDD-C13.....	4.00	28
123789-HxCDF	4.00	4.30	108			
234678-HxCDF	4.00	4.40	110	1234-TCDD-C13....	2.00	XX
TOTAL HxCDF	16.00	17.00	106	123789-HxCDD-C13.	2.00	XX
123478-HxCDD	4.00	4.10	103	2378-TCDD-Cl37...	0.80	34
123678-HxCDD	4.00	5.00	125			
123789-HxCDD	4.00	3.80	95			
TOTAL HxCDD	12.00	13.00	108			
1234678-HpCDF	4.00	4.10	103			
1234789-HpCDF	4.00	4.50	113			
TOTAL HpCDF	8.00	8.60	108			
1234678-HpCDD	4.00	4.30	108			
TOTAL HpCDD	4.00	4.30	108			
OCDF	8.00	13.00	163			
OCDD	8.00	9.30	116			

Qs= Quantity spiked.
Qm= Quantity measured.
%REC.= Percent recovered.

TCT Invoice Number....4410 90-6204

twin city testing corporation
662 CROMWELL AVENUE
ST. PAUL, MN 55114
PHONE 612/645-3601

REPORT OF: CHEMICAL ANALYSES

PROJECT: EMPIRE SOILS

DATE: August 1, 1990

ISSUED TO: Empire Soils Investigations, Inc.
Attn: Mr. David Harty
P.O. Box 0913
Hamburg, NY 14075

INVOICE NO: 4410 90-6204

INTRODUCTION

This report summarizes the results from the analyses performed on two samples which were submitted by a representative of Empire Soils Investigations, Inc. The samples were analyzed for the presence or absence of polychlorinated dibenzo-p-dioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs) using a modified version of USEPA Method 8290.

SAMPLE IDENTIFICATION

Client ID	Sample Type	TCT ID
759-001	Water	204611
759-008	Water	204612

METHODOLOGY

PCDD/PCDF Extraction

Each sample was spiked with $^{13}C_{12}$-labeled PCDD/PCDF internal standards (Table 1) and filtered. The filtrate was transferred to a separatory funnel and extracted with methylene chloride. The particulate and filter were continuously extracted with benzene for 18 hours in a Soxhlet extractor. The extracts were combined and quantitatively transferred to a Kuderna Danish concentrator, concentrated, and solvent exchanged to hexane. Each hexane extract was then spiked with 2,3,7,8-TCDD-$^{37}Cl_4$ enrichment efficiency standard (Table 1) and processed through the analyte enrichment procedures described below.

Analyte Enrichment for PCDD/PCDF Analyses

The extraction procedure often removes a variety of compounds, in addition to the PCDDs and PCDFs, from the sample matrix. Some of these compounds can directly interfere with the analyses while others can overload the capillary column causing degradation in chromatographic resolution or sensitivity. The analyte enrichment steps described below were used to remove interferences from the extracts.

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Analyte Enrichment for PCDD/PCDF Analyses (Cont.)

Each sample extract was dissolved in 100 mL of hexane, transferred to a separatory funnel and washed with 1N sodium hydroxide, concentrated sulfuric acid and distilled water. Each hexane layer was concentrated to 1 ml and quantitatively transferred to a liquid chromatography column containing alternating layers of silica gel, 44% concentrated sulfuric acid on silica gel, and 33% 1N sodium hydroxide on silica gel. The column was eluted with 60 mL of hexane and the entire eluate was collected and concentrated, under a gentle stream of dry nitrogen, to a volume of 1 ml.

Each extract was then fractionated on a liquid chromatography column containing 4 g of activated alumina. The column was eluted with 10 ml of hexane followed by 7 ml of 2.0% methylene chloride/hexane and 25 ml of 60% methylene chloride/hexane. The 60% methylene chloride/hexane fraction was concentrated to 1 ml under a stream of dry nitrogen and applied to the top of a chromatography column containing 1 g of 5% AX-21 activated carbon on silica gel. The column was eluted with cyclohexane/methylene chloride (50:50 V/V) and cyclohexane/methanol/benzene (75:20:5 V/V) in the forward direction, and then with benzene in the reverse direction. The benzene fraction was collected, spiked with recovery standards (1,2,3,4-TCDD-$^{13}C_{12}$) and concentrated to a final volume of 20 uL.

PCDD/PCDF Analyses

The extracts were analyzed for the presence of PCDDs and PCDFs using combined capillary column gas chromatography/high resolution mass spectrometry (HRGC/HRMS). The instrumentation consisted of a Hewlett Packard Model 5890 gas chromatograph and a VG Model 70SE high resolution mass spectrometer. The capillary column was interfaced directly into the ion source of the mass spectrometer, thus providing the highest possible sensitivity while minimizing degradation of the chromatographic resolution.

The mass spectrometer was operated in the electron impact ionization mode at a mass resolution of 10,000-11,000 (M/ΔM, 10 percent valley definition). This resolution is sufficient to resolve most interferences, such as PCBs, thus providing the highest level of confidence that the detected levels of PCDD/PCDF are not false positives resulting from interferences. Typical operating parameters for the HRGC/HRMS analyses are summarized in Table 2.

The data were acquired by selected-ion-recording (SIR) monitoring of the groups of ion masses described in EPA method 8290. The five groups corresponded to the tetrachlorinated through octachlorinated congener classes. Each group contained three ion masses for the PCDDs (with the

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PCDD/PCDF Analyses (Cont.)

exception of TCDD which contained two ion masses), two ion masses for the PCDFs, the corresponding ion masses from the two isotopically labeled internal standards, and the ion mass characteristic of the polychlorinated diphenylether (PCDPE) which, if present, could cause false responses in the dibenzofuran channels. The third PCDD ion mass monitored in the pentachloro through octachlorodibenzo-p-dioxin groups prevented the possibility of misinterpretation of a polychlorinated biphenylene isomer as a PCDD. The two ion masses monitored for TCDD also fulfilled this purpose.

Each group of ion masses also contained a lock mass which was monitored during the analyses to detect suppressive interferences. It is particularly important to detect this type of interference since it can cause the quantification of congener class levels to be artificially high if it occurs during the elution of an internal standard or low if it occurs during the elution of the native analytes.

The lock mass was also used by the data system to automatically correct the mass focus of the instrument. The data system determined the centroid of the lock mass during each data acquisition cycle and corrected the mass focus of the analyte and internal standard ion masses to assure that the centers of the mass peaks were being monitored.

The criteria used to judge positive responses for the PCDD/PCDF isomer included:

- Simultaneous response at both ion masses of the PCDD or PCDF
- Signal to noise ratio equal to or greater than 2.5:1.0 for both ion masses
- Chlorine isotope ratio within 15% of the theoretical value
- Chromatographic retention time within -1 to +3 seconds of the authentic standards (where applicable)
- Chromatographic retention times within elution windows determined from analyses of standard mixtures
- Absence of simultaneous response in the furan and diphenylether ion traces

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PCDD/PCDF Analyses (Cont.)

A list of the exact ion masses monitored for the determination of PCDD/PCDF isomers and the PCDPE interferences is presented in Table 3. Also included are the theoretical chlorine isotope ratios for the ten congener classes.

Quantification and Calculations

The PCDD/PCDF isomers were quantified by comparison of their responses to the responses of the labeled internal standards as described in the draft version of EPA Method 8290. Relative response factors were calculated from analyses of standard mixtures containing representatives of each of the PCDD/PCDF congener classes at five concentration levels, and each of the internal standards at one concentration level, as shown in Table 4. The PCDD/PCDF response factors were calculated by comparing the sum of the responses from the two ion masses monitored for each chlorine congener class to the sum of the responses from the two ion masses of the corresponding isotopically labeled internal standard. Table 5 shows the response factor at each of the calibration levels as well as the average response factors and the relative percent deviation for each. The formula for the response factor calculation is:

$$Rf = \frac{An \times Qis}{Ais \times Qn}$$

where:

Rf = Response factor
An = Sum of integrated areas for native isomer
Qis = Quantity of labeled internal standard
Ais = Sum of integrated areas for labeled internal standard
Qn = Quantity of native isomer

The levels of PCDD/PCDF in the sample were quantified using the following equation:

$$C = \frac{An \times Qis}{Ais \times W \times Rf}$$

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Quantification and Calculations (Cont.)

where:

C = Concentration of target isomer or congener class
An = Sum of integrated area for the target isomer or congener class
Qis = Amount of labeled internal standard added to the sample
Ais = Sum of integrated areas for the labeled internal standard
W = Sample weight, volume or area
Rf = Response factor

Each pair of ion mass peaks in the selected-ion-current chromatograms was evaluated manually to determine if it met the criteria for a PCDD or PCDF isomer. Areas of all peaks exhibiting correct ion ratios and having retention times within the correct windows were then summed for calculations of total congener concentrations. A summary of the high resolution initial calibration chlorine isotope ratios is presented in Table 6. The toxic equivalency factors used to calculate the 2,3,7,8-TCDD equivalency are listed in Table 7.

A limit of detection (LOD) based on producing a signal that is 2.5 times the noise level, was calculated for each undetected 2,3,7,8-substituted isomer of any tetra through octa chlorinated congener class. The noise heights used to calculate the detection limits were measured at the retention time of the specific isomer. The formula used for calculating the LOD is:

$$LOD = \frac{Hn \times Qis \times 2.5}{His \times W \times Rf}$$

where:

LOD = Single isomer limit of detection
Hn = Sum of noise heights at native isomer retention time
Qis = Quantity of labeled internal standard
His = Sum of peak heights for labeled internal standard
W = Sample weight, volume or surface area
Rf = Response factor

The recovery of the enrichment efficiency standard and each $^{13}C_{12}$-labeled internal standard, relative to either 1,2,3,4-TCDD-$^{13}C_{12}$ or 1,2,3,7,8,9-HxCDD-$^{13}C_{12}$, was calculated using the following equation:

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Quantification and Calculations (Cont.)

$$\%R = \frac{Ais \times Wrs \times 100\%}{Rfr \times Ars \times Wis}$$

where:

%R = Percent recovery of labeled internal standard
Ais = Sum of integrated areas of internal standard
Wrs = ng of recovery standard
Ars = Sum of integrated areas of recovery standard
Rfr = Response factor of the specific labeled internal standard relative to the recovery standard
Wis = ng of the labeled internal standard added to the sample prior to extraction

RESULTS

The results from the PCDD/PCDF analyses are included in Appendix A.

DISCUSSION

The recoveries of the isotopically-labeled internal standards in the water samples were generally in the range from 50-70%, indicating a level of efficiency through the extraction and enrichment steps that is considered typical for this sample matrix type. Since the analytical method is based on isotope dilution and each 2,3,7,8-substituted isomer is quantified against its corresponding $^{13}C_{12}$ labeled analog, the quantifications are automatically corrected for variations in recovery and accurate measurements are obtained for the 2,3,7,8-substituted native isomers in the samples.

A laboratory method blank was prepared and processed along with the sample extraction batch as part of our routine quality control/quality assurance procedures. The data sheet, included at the beginning of Appendix A, shows the blank to be free of the PCDD/PCDF analytes at the instrument detection limits with the exception of a low level (70 parts-per-quadrillion) of OCDD.

A laboratory quality control matrix spike sample was also prepared and analyzed with the sample batch. The data sheet, included at the end of Appendix A, shows native PCDD/PCDF recoveries that range typically from 95-125%. This indicates a high degree of accuracy for these determinations.

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REPORT OF: CHEMICAL ANALYSES

PROJECT: EMPIRE SOILS

DATE: August 1, 1990

PAGE: 7

INVOICE NO: 4410 90-6204

REMARKS

The sample extracts will be retained for a period of 60 days from the date of this report and then discarded unless other arrangements are made. The raw mass spectral data will be archived on magnetic tape for a period of not less than one year.

TWIN CITY TESTING CORPORATION

Steven W. Hannan, Scientist
Mass Spectrometry Section

Charles V. Sueper, Supervisor
High Resolution Mass Spectrometry

SWH/CVS/tls

Approved by:

Fred L. DeRoos, Ph.D.
Vice President
Chemistry

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TABLE 1

Spike Levels of PCDD/PCDF Standards

Internal Standards	Spike Level (ng)
2,3,7,8-TCDF-$^{13}C_{12}$	2.0
2,3,7,8-TCDD-$^{13}C_{12}$	2.0
1,2,3,7,8-PeCDF-$^{13}C_{12}$	2.0
2,3,4,7,8-PeCDF-$^{13}C_{12}$	2.0
1,2,3,4,7,8-PeCDD-$^{13}C_{12}$	2.0
1,2,3,4,7,8-HxCDF-$^{13}C_{12}$	2.0
1,2,3,6,7,8-HxCDF-$^{13}C_{12}$	2.0
1,2,3,7,8,9-HxCDF-$^{13}C_{12}$	2.0
2,3,4,6,7,8-HxCDF-$^{13}C_{12}$	2.0
1,2,3,4,7,8-HxCDD-$^{13}C_{12}$	2.0
1,2,3,6,7,8-HxCDD-$^{13}C_{12}$	2.0
1,2,3,4,6,7,8-HpCDF-$^{13}C_{12}$	2.0
1,2,3,4,7,8,9-HpCDF-$^{13}C_{12}$	2.0
1,2,3,4,6,7,8-HpCDD-$^{13}C_{12}$	2.0
OCDD-$^{13}C_{12}$	4.0
Recovery Standards	
1,2,3,4-TCDD-$^{13}C_{12}$	2.0
1,2,3,7,8,9-HxCDD-$^{13}C_{12}$	2.0
Enrichment Efficiency Standard	
2,3,7,8-TCDD-$^{37}Cl_4$	0.8

TABLE 2

High Resolution PCDD/PCDF Analyses
HRGC/HRMS Operating Parameters

Mass Resolution	10,000-11,000 (M/ΔM, 10% valley)
Electron Energy	32 electron volts
Accelerating Voltage	8,000 volts
Source Temperature	275°C
Preamplifier Gain	10^{-6} amp/volt
Multiplier Gain	~10^{5}
Chromatographic Column	60 M DB-5
Transfer Line Temperature	300°C
Injection Mode	Splitless
Carrier Gas	Helium
Carrier Flow Velocity	~30 cm/sec

TABLE 3

Exact Ion Masses Monitored for the Determination of PCDDs, PCDFs, and PCDPEs

Compound	Accurate Mass Mass 1	Mass 2	Mass 3	Theoretical Ratio Mass 2/Mass 3
Tetra-CDDs		319.8965	321.8936	0.77
Tetra-CDFs		303.9016	305.8987	0.77
Hexa-CDPEs	375.8364			
Penta-CDDs	353.8576	355.8546	357.8517	1.54
Penta-CDFs		339.8597	341.8567	1.54
Hepta-CDPEs	409.7974			
Hexa-CDDs	387.8187	389.8156	391.8127	1.23
Hexa-CDFs		373.8207	375.8178	1.23
Octa-CDPEs	445.7555			
Hepta-CDDs	421.7798	423.7766	425.7737	1.03
Hepta-CDFs		407.7817	409.7788	1.03
Nona-CDPEs	479.7165			
Octa-CDD	455.7409	457.7377	459.7347	0.88
Octa-CDF		441.7428	443.7398	0.88
Deca-CDPE	513.6775			

CDDs = Chlorinated Dibenzo-p-dioxins
CDFs = Chlorinated Dibenzofurans
CDPEs = Chlorinated Diphenylethers

TABLE 4

High Resolution Calibration Solutions

Native CDDs/CDFs	Concentration (pg/uL) CS1	CS2	CS3	CS4	CS5
2,3,7,8-TCDD	0.5	2	10	40	200
2,3,7,8 TCDF	0.5	2	10	40	200
1,2,3,7,8-PeCDD	2.5	10	50	200	1000
1,2,3,7,8-PeCDF	2.5	10	50	200	1000
2,3,4,7,8-PeCDF	2.5	10	50	200	1000
1,2,3,4,7,8-HxCDD	2.5	10	50	200	1000
1,2,3,6,7,8-HxCDD	2.5	10	50	200	1000
1,2,3,7,8,9-HxCDD	2.5	10	50	200	1000
1,2,3,4,7,8-HxCDF	2.5	10	50	200	1000
1,2,3,6,7,8-HxCDF	2.5	10	50	200	1000
1,2,3,7,8,9-HxCDF	2.5	10	50	200	1000
2,3,4,6,7,8-HxCDF	2.5	10	50	200	1000
1,2,3,4,6,7,8-HpCDD	2.5	10	50	200	1000
1,2,3,4,6,7,8-HpCDF	2.5	10	50	200	1000
1,2,3,4,7,8,9-HpCDF	2.5	10	50	200	1000
OCDD	5.0	20	100	400	2000
OCDF	5.0	20	100	400	2000
Internal Standards					
2,3,7,8-TCDD-$^{13}C_{12}$	100	100	100	100	100
2,3,7,8-TCDF-$^{13}C_{12}$	100	100	100	100	100
1,2,3,7,8-PeCDD-$^{13}C_{12}$	100	100	100	100	100
1,2,3,7,8-PeCDF-$^{13}C_{12}$	100	100	100	100	100
2,3,4,7,8-PeCDF-$^{13}C_{12}$	100	100	100	100	100
1,2,3,4,7,8-HxCDD-$^{13}C_{12}$	100	100	100	100	100
1,2,3,6,7,8-HxCDD-$^{13}C_{12}$	100	100	100	100	100
1,2,3,4,7,8-HxCDF-$^{13}C_{12}$	100	100	100	100	100
1,2,3,6,7,8-HxCDF-$^{13}C_{12}$	100	100	100	100	100
1,2,3,7,8,9-HxCDF-$^{13}C_{12}$	100	100	100	100	100
2,3,4,6,7,8-HxCDF-$^{13}C_{12}$	100	100	100	100	100
1,2,3,4,6,7,8-HpCDD-$^{13}C_{12}$	100	100	100	100	100
1,2,3,4,6,7,8-HpCDF-$^{13}C_{12}$	100	100	100	100	100
1,2,3,4,7,8,9-HpCDF-$^{13}C_{12}$	100	100	100	100	100
OCDD-$^{13}C_{12}$	200	200	200	200	200
Recovery Standards					
1,2,3,4-TCDD-$^{13}C_{12}$	100	100	100	100	100
1,2,3,7,8,9-HxCDD-$^{13}C_{12}$	100	100	100	100	100
Enrichment Efficiency Standard					
2,3,7,8-TCDD-$^{37}Cl_4$	0.5	2	10	40	200

TABLE #5
HRGC/HRMS Analyses VG70-VSE
HRGC/HRMS Initial Calibration (6-15-90) Summary of Response Factors

Isomer TCT Std #	LOW CS-1	CS-2	CS-3	CS-4	HIGH CS-5	Average RF	Percent RSD
2,3,7,8-TCDF	0.8512	0.7905	0.7791	0.8291	0.9110	0.8322	5.67
2,3,7,8-TCDD	0.9079	0.7612	0.8082	0.8821	1.0663	0.8851	11.81
1,2,3,7,8-PnCDF	1.1318	1.1261	1.1415	1.2097	1.3334	1.1885	6.60
2,3,4,7,8-PnCDF	0.9936	0.9680	0.9865	1.0839	1.1383	1.0341	6.36
1,2,3,7,8-PnCDD	1.0155	1.0384	1.0851	0.9842	1.0711	1.0389	3.53
1,2,3,4,7,8-HxCDF	1.0802	1.2021	1.2316	1.2171	1.2284	1.1919	4.76
1,2,3,6,7,8-HxCDF	1.2605	1.0971	1.1477	1.1587	1.3661	1.2060	7.96
1,2,3,7,8,9-HxCDF	1.1978	1.1528	1.1860	1.1149	1.2755	1.1854	4.51
2,3,4,6,7,8-HxCDF	1.1065	1.0972	1.1808	1.1092	1.2987	1.1585	6.58
1,2,3,4,7,8-HxCDD	0.8610	1.0173	0.8382	1.0514	0.8904	0.9317	9.25
1,2,3,6,7,8-HxCDD	1.0689	0.8530	1.0632	0.8973	1.1187	1.0002	10.49
1,2,3,7,8,9-HxCDD	1.0443	0.8786	1.0384	0.8764	1.1218	0.9919	9.87
1,2,3,4,6,7,8-HpCDF	1.6097	1.7573	1.5866	1.7777	1.7038	1.6870	4.55
1,2,3,4,7,7,8-HpCDF	1.2529	1.1841	1.3123	1.3446	1.3923	1.2973	5.59
1,2,3,4,6,7,8-HpCDD	0.9837	0.8759	1.0003	0.9304	0.9668	0.9514	4.66
OCDF	1.3699	1.3148	1.5137	1.3246	1.5707	1.4187	7.34
OCDD	1.2985	1.1809	1.2177	1.1642	1.2571	1.2237	4.02
TOTAL PeCDFs	1.0627	1.0470	1.0640	1.1468	1.2359	1.1113	6.43
TOTAL HxCDFs	1.1613	1.1373	1.1865	1.1500	1.2922	1.1855	4.71
TOTAL HxCDDs	0.9914	0.9163	0.9799	0.9417	1.0436	0.9746	4.49
TOTAL HpCDFs	1.4313	1.4707	1.4495	1.5611	1.5480	1.4921	3.53
2,3,7,8-TCDF*	1.6638	1.7749	1.6897	1.6448	1.6454	1.6837	2.88
2,3,7,8-TCDD*	0.8877	0.7410	0.9815	0.8150	0.9972	0.8845	11.03
2,3,7,8,-TCDD-Cl37	0.8751	0.5819	0.8490	0.7633	1.0381	0.8215	18.16
1,2,3,7,8-PnCDF*	1.2188	1.3538	1.4780	1.4759	1.4034	1.3860	6.91
2,3,4,7,8-PnCDF*	1.4044	1.4531	1.8385	1.5826	1.7053	1.5968	10.02
1,2,3,7,8-PnCDD*	0.7710	0.7495	0.9640	0.9238	1.0418	0.8900	12.67
1,2,3,4,7,8-HxCDF*	1.1790	1.1159	1.1003	1.0862	1.0589	1.1081	3.62
1,2,3,6,7,8-HxCDF*	1.3427	1.4614	1.2090	1.4145	1.1153	1.3086	9.85
1,2,3,7,8,9-HxCDF*	1.1862	1.1709	1.1048	1.1740	1.0352	1.1342	5.03
2,3,4,6,7,8-HxCDF*	0.9055	0.8687	0.9746	0.9615	0.9271	0.9275	4.12
1,2,3,4,7,8-HxCDD*	0.7922	0.7255	0.7439	0.7144	0.8132	0.7578	5.07
1,2,3,6,7,8-HxCDD*	0.8049	0.9477	0.7992	0.9291	0.7882	0.8538	8.14
1,2,3,4,6,7,8-HpCDF*	0.7349	0.6943	0.7589	0.7609	0.6806	0.7259	4.55
1,2,3,4,7,8,9-HpCDF*	0.7003	0.6495	0.7423	0.6875	0.6909	0.6941	4.28
1,2,3,4,6,7,8-HpCDD*	0.6962	0.6898	0.6959	0.7274	0.6728	0.6964	2.54
OCDD*	0.5547	0.5315	0.5582	0.6210	0.5573	0.5645	5.30

* = C13 Labeled Isomer

TABLE #6
HRGC/HRMS Analyses VG70-VSE
HRGC/HRMS Initial Calibration (6-15-90) Summary of Isotope Ratios

Isomer TCT Std #	LOW CS-1	CS-2	CS-3	CS-4	HIGH CS-5	Limits
2,3,7,8-TCDF	0.81	0.83	0.78	0.79	0.82	0.65-0.89
2,3,7,8-TCDD	0.84	0.74	0.81	0.78	0.75	0.65-0.89
1,2,3,7,8-PnCDF	1.67	1.56	1.61	1.65	1.56	1.32-1.78
2,3,4,7,8-PnCDF	1.68	1.57	1.59	1.61	1.55	1.32-1.78
1,2,3,7,8-PnCDD	1.66	1.64	1.53	1.50	1.53	1.32-1.78
1,2,3,4,7,8-HxCDF	1.24	1.23	1.28	1.22	1.21	1.05-1.43
1,2,3,6,7,8-HxCDF	1.16	1.15	1.34	1.21	1.20	1.05-1.43
1,2,3,7,8,9-HxCDF	1.18	1.13	1.31	1.16	1.23	1.05-1.43
2,3,4,6,7,8-HxCDF	1.13	1.18	1.27	1.20	1.19	1.05-1.43
1,2,3,4,7,8-HxCDD	1.27	1.33	1.27	1.26	1.27	1.05-1.43
1,2,3,6,7,8-HxCDD	1.32	1.37	1.32	1.31	1.31	1.05-1.43
1,2,3,7,8,9-HxCDD	1.25	1.35	1.28	1.29	1.28	1.05-1.43
1,2,3,4,6,7,8-HpCDF	1.07	1.01	1.06	1.05	1.03	0.88-1.20
1,2,3,4,7,7,8-HpCDF	1.04	1.01	1.06	1.06	1.02	0.88-1.20
1,2,3,4,6,7,8-HpCDD	1.09	1.00	1.07	1.05	1.04	0.88-1.20
OCDF	0.93	0.95	0.90	0.95	0.90	0.76-1.02
OCDD	0.91	0.91	0.90	0.90	0.89	0.76-1.02
1234-TCDD-REC	0.80	0.82	0.80	0.79	0.79	0.65-0.89
123789-HxCDD-REC	1.31	1.29	1.20	1.31	1.32	1.05-1.43
2,3,7,8-TCDF*	0.81	0.80	0.82	0.77	0.77	0.65-0.89
2,3,7,8-TCDD*	0.78	0.79	0.78	0.79	0.78	0.65-0.89
2,3,7,8,-TCDD-Cl37	****	****	****	****	****	*********
1,2,3,7,8-PnCDF*	1.63	1.59	1.66	1.70	1.54	1.32-1.78
2,3,4,7,8-PnCDF*	1.60	1.60	1.64	1.73	1.53	1.32-1.78
1,2,3,7,8-PnCDD*	1.56	1.58	1.61	1.59	1.60	1.32-1.78
1,2,3,4,7,8-HxCDF*	0.57	0.53	0.57	0.51	0.59	0.43-0.59
1,2,3,6,7,8-HxCDF*	0.57	0.53	0.59	0.53	0.59	0.43-0.59
1,2,3,7,8,9-HxCDF*	0.55	0.52	0.58	0.52	0.59	0.43-0.59
2,3,4,6,7,8-HxCDF*	0.57	0.52	0.57	0.53	0.58	0.43-0.59
1,2,3,4,7,8-HxCDD*	1.26	1.27	1.20	1.31	1.28	1.05-1.43
1,2,3,6,7,8-HxCDD*	1.31	1.33	1.23	1.31	1.33	1.05-1.43
1,2,3,4,6,7,8-HpCDF*	0.46	0.46	0.45	0.46	0.45	0.37-0.51
1,2,3,4,7,8,9-HpCDF*	0.45	0.45	0.46	0.45	0.45	0.37-0.51
1,2,3,4,6,7,8-HpCDD*	1.05	1.05	1.07	1.06	1.04	0.88-1.20
OCDD*	0.90	0.92	0.93	0.91	0.92	0.76-1.02

* = C13 Labeled Isomer

TABLE 7

2,3,7,8-TCDD Equivalent Factors (TEFs) for the Polychlorinated Dibenzodioxins and Dibenzofurans

Number	Compound(s)	TEF
1	2,3,7,8-TCDD	1.00
2	1,2,3,7,8-PeCDD	0.50
3	1,2,3,6,7,8-HxCDD	0.04
4	1,2,3,7,8,9-HxCDD	0.04
5	1,2,3,4,7,8-HxCDD	0.04
6	1,2,3,4,6,7,8-HpCDD	0.001
7	* Total -TCDD	0.01
8	* Total - PeCDD	0.005
9	* Total - HxCDD	0.0004
10	* Total - HpCDD	0.00001
11	2,3,7,8-TCDF	0.10
12	1,2,3,7,8-PeCDF	0.10
13	2,3,4,7,8-PeCDF	0.10
14	1,2,3,6,7,8-HxCDF	0.01
15	1,2,3,7,8,9-HxCDF	0.01
16	1,2,3,4,7,8-HpCDF	0.01
17	2,3,4,6,7,8-HxCDF	0.01
18	1,2,3,4,6,7,8-HpCDF	0.001
19	1,2,3,4,7,8,9-HpCDF	0.001
20	* Total - TCDF	0.001
21	* Total - PeCDF	0.001
22	* Total - HxCDF	0.0001
23	* Total - HpCDF	0.00001

*Excluding the 2,3,7,8-substituted congeners.

Reference: USEPA Method 8290, Draft Version, May 24, 1987.

APPENDIX A

****
TWIN CITY TESTING CORPORATION
* PCDF/PCDD ANALYSIS RESULTS *
****
Client....EMPIRE

Sample ID (TCT#).....BLANK 7/9/90
Analysis Date.....7/17/90
Filename.....V00717K
Analyst.....BB
Sample Amount..... 1.00 L
ICAL Date.....6-15-90
CCAL Filename.....V00717C

NATIVE ISOMERS	CONC. ng/L	DL ng/L	INTERNAL STANDARDS	ng's ADDED	PERCENT RECOVERY
2378-TCDF	nd	0.0310	2378-TCDF-C13....	2.00	20
TOTAL TCDF	nd	-----	2378-TCDD-C13....	2.00	30
			12378-PeCDF-C13..	2.00	36
2378-TCDD	nd	0.0260	23478-PeCDF-C13..	2.00	50
TOTAL TCDD	nd	-----	12378-PeCDD-C13..	2.00	56
			123478-HxCDF-C13.	2.00	53
12378-PeCDF	nd	0.0039	123678-HxCDF-C13.	2.00	36
23478-PeCDF	nd	0.0031	123789-HxCDF-C13.	2.00	56
TOTAL PeCDF	nd	-----	234678-HxCDF-C13.	2.00	64
			123478-HxCDD-C13.	2.00	64
12378-PeCDD	nd	0.0024	123678-HxCDD-C13.	2.00	67
TOTAL PeCDD	nd	-----	1234678-HpCDF-C13	2.00	51
			1234789-HpCDF-C13	2.00	55
123478-HxCDF	nd	0.0019	1234678-HpCDD-C13	2.00	55
123678-HxCDF	nd	0.0028	OCDD-C13.....	4.00	43
123789-HxCDF	nd	0.0060			
234678-HxCDF	nd	0.0024	1234-TCDD-C13....	2.00	na
TOTAL HxCDF	nd	-----	123789-HxCDD-C13.	2.00	na
123478-HxCDD	nd	0.0060	2378-TCDD-C137...	0.80	38
123678-HxCDD	nd	0.0042			
123789-HxCDD	nd	0.0038			
TOTAL HxCDD	nd	-----			
1234678-HpCDF	nd	0.0049			
1234789-HpCDF	nd	0.0039			
TOTAL HpCDF	nd	-----			
1234678-HpCDD	nd	0.0090			
TOTAL HpCDD	nd	-----			
OCDF	nd	0.0250	Total 2378-TCDD Equivalence = 0.0000 ng/L (Using EPA 8290 Factors)		
OCDD	0.070	-----			

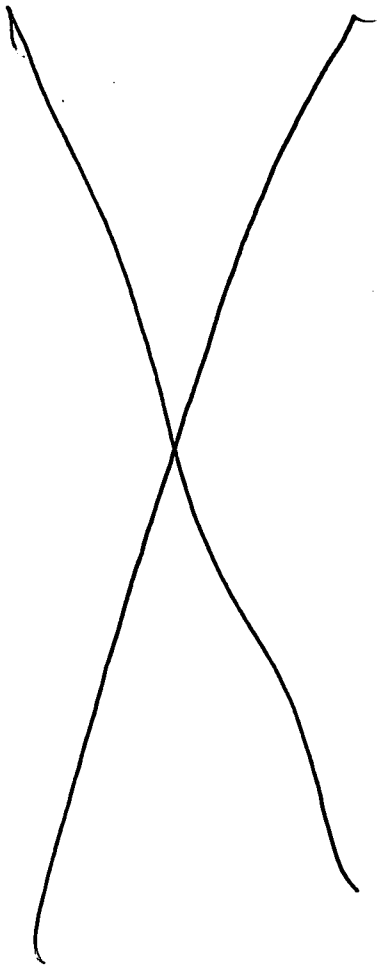
CONC= Concentrations, calculated as described in EPA method 8290.

DL= Detection limits, calculated as described in EPA method 8290.

na= not applicable

nd= not detected

TCT Invoice Number....4410 90-6204



CERTIFICATES FOR
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I-CHEM RESEARCH

CERTIFICATE OF ANALYSIS

Analysis of Lot X0081013 April 09, 1990

Lot X0081013 has been cleaned to I-CHEM's Protocol A. Randomly selected samples from this lot were analyzed for pesticides by GC/Electron Capture Detector following EPA Method 608.

Compound	Concentration (ug/L)	Compound	Concentration (ug/L)
Aldrin	< 0.025	Dieldrin	< 0.05
Alpha-BHC	< 0.025	Endosulfan I	< 0.025
Beta-BHC	< 0.025	Endosulfan II	< 0.05
Delta-BHC	< 0.025	Endosulfan sulfate	< 0.05
Gamma-BHC	< 0.025	Endrin	< 0.05
4,4'-DDD	< 0.05	Endrin aldehyde	< 0.05
4,4'-DDE	< 0.05	Heptachlor	< 0.025
4,4'-DDT	< 0.05	Heptachlor epoxide	< 0.025

Randomly selected samples from this lot were also analyzed for extractables by GC/Mass Spectroscopy following EPA Method 625.

Compound	Concentration (ug/L)	Compound	Concentration (ug/L)	Compound	Concentration (ug/L)
Acenaphtene	< 5	Acenaphthylene	< 5	Anthracene	< 5
Benzo(a)anthracene	< 5	Benzo(a)pyrene	< 5	Benzo(b)fluoranthene	< 5
Benzo(k)fluoranthene	< 5	Benzo(g,h,i)perylene	< 5	Benzoic Acid	< 20
Benzyl alcohol	< 5	4-Bromophenyl-phenylether	< 5	Butylbenzylphthalate	< 5
Di-n-butylphalate	< 5	4-Chloroaniline	< 5	4-Chloro-3-methylphenol	< 5
bis-(2-Chloroethoxy)methane	< 5	bis-(2-Chloroethyl)ether	< 5	Azobenxene	< 5
2-Chloronaphthalene	< 5	2-Chlorophenol	< 5	4-Chlorophenyl-phenylether	< 5
Chrysene	< 5	Dibenzo(a,h)anthracene	< 5	Dibenzofuran	< 5
1,4-Dichlorobenzene	< 5	3,3'-Dichlorobenzidine	< 5	2,4-Dichlorophenol	< 5
Diethylphthalate	< 5	2,4-Dimethylphenol	< 5	Dimethylphthalate	< 5
4,6-Dinitro-2-methylphenol	< 20	2,4-Dinitrophenol	< 20	2,4-Dinitrotoluene	< 5
2,6-Dinitrotoluene	< 5	bis-(2-Ethlhexyl)phthalate	< 5	Fluroanthene	< 5
Fluorene	< 5	Hexachlorobenzene	< 5	Hexachlorobutadiene	< 5
Hexachlorocyclopentadiene	< 5	Hexachloroethane	< 5	Indeno(1,2,3-cd)pyrene	< 5
Isophorone	< 5	2-Methylnaphthalene	< 5	2-Methyphenol	< 5
4-Methyphenol	< 5	Naphthalene	< 5	2-Nitroaniline	< 20
3-Nitroaniline	< 20	4-Nitroaniline	< 20	Nitrobenzene	< 5
2-Nitrophenol	< 5	4-Nitrophenol	< 20	N-Nitrosodiphenylamine	< 5
N-Nitroso-di-n-dipropylamine	< 5	Di-n-octylphthalate	< 5	Pentachlorophenol	< 20
Phenanthrene	< 5	Phenol	< 5	Pyrene	< 5
1,2,4-Trichlorobenzene	< 5	2,4,5-Trichlorophenol	< 20	2,4,6-Trichlorophenol	< 5
1,2-Dichlorobenzene	< 5	1,3-Dichlorobenzene	< 5	Bis(2-chloro-3-propyl)ether	< 5
N-nitrosodimethylamine	< 5				

Contact our Technical Service Department if additional information is required.

Please keep this certificate for your records and to facilitate any necessary correspondence regarding lot # X0081013

Randy E. Benson
Laboratory Manager

Hayward, California 94545 (415) 782-3905 New Castle, Delaware 19720 (302) 322-3808

I-CHEM RESEARCH

CERTIFICATE OF ANALYSIS

Analysis of Lot X0075023 April 02, 1990

Lot X0075023 has been cleaned to I-CHEM's Protocol A. Randomly selected samples from this lot were analyzed for pesticides by GC/Electron Capture Detector following EPA Method 608.

Compound	Concentration (ug/L)	Compound	Concentration (ug/L)
Aldrin	< 0.025	Dieldrin	< 0.05
Alpha-BHC	< 0.025	Endosulfan I	< 0.025
Beta-BHC	< 0.025	Endosulfan II	< 0.05
Delta-BHC	< 0.025	Endosulfan sulfate	< 0.05
Gamma-BHC	< 0.025	Endrin	< 0.05
4,4'-DDD	< 0.05	Endrin aldehyde	< 0.05
4,4'-DDE	< 0.05	Heptachlor	< 0.025
4,4'-DDT	< 0.05	Heptachlor epoxide	< 0.025

Randomly selected samples from this lot were also analyzed for extractables by GC/Mass Spectroscopy following EPA Method 625.

Compound	Concentration (ug/L)	Compound	Concentration (ug/L)	Compound	Concentration (ug/L)
Acenaphtene	< 5	Acenaphthylene	< 5	Anthracene	< 5
Benzo(a)anthracene	< 5	Benzo(a)pyrene	< 5	Benzo(b)fluoranthene	< 5
Benzo(k)fluoranthene	< 5	Benzo(g,h,i)perylene	< 5	Benzoic Acid	< 20
Benzyl alcohol	< 5	4-Bromophenyl-phenylether	< 5	Butylbenzylphthalate	< 5
Di-n-butylphalate	< 5	4-Chloroaniline	< 5	4-Chloro-3-methylphenol	< 5
bis-(2-Chloroethoxy)methane	< 5	bis-(2-Chloroethyl)ether	< 5	Azobenxene	< 5
2-Chloronaphthalene	< 5	2-Chlorophenol	< 5	4-Chlorophenyl-phenylether	< 5
Chrysene	< 5	Dibenzo(a,h)anthracene	< 5	Dibenzofuran	< 5
1,4-Dichlorobenzene	< 5	3,3'-Dichlorobenzidine	< 5	2,4-Dichlorophenol	< 5
Diethylphthalate	< 5	2,4-Dimethylphenol	< 5	Dimethylphthalate	< 5
4,6-Dinitro-2-methylphenol	< 20	2,4-Dinitrophenol	< 20	2,4-Dinitrotoluene	< 5
2,6-Dinitrotoluene	< 5	bis-(2-Ethlhexyl)phthalate	< 5	Fluroanthene	< 5
Fluorene	< 5	Hexachlorobenzene	< 5	Hexachlorobutadiene	< 5
Hexachlorocyclopentadiene	< 5	Hexachloroethane	< 5	Indeno(1,2,3-cd)pyrene	< 5
Isophorone	< 5	2-Methylnaphthalene	< 5	2-Methyphenol	< 5
4-Methyphenol	< 5	Naphthalene	< 5	2-Nitroaniline	< 20
3-Nitroaniline	< 20	4-Nitroaniline	< 20	Nitrobenzene	< 5
2-Nitrophenol	< 5	4-Nitrophenol	< 20	N-Nitrosodiphenylamine	< 5
N-Nitroso-di-n-dipropylamine	< 5	Di-n-octylphthalate	< 5	Pentachlorophenol	< 20
Phenanthrene	< 5	Phenol	< 5	Pyrene	< 5
1,2,4-Trichlorobenzene	< 5	2,4,5-Trichlorophenol	< 20	2,4,6-Trichlorophenol	< 5
1,2-Dichlorobenzene	< 5	1,3-Dichlorobenzene	< 5	Bis(2-chloro-3-propyl)ether	< 5
N-nitrosodimethylamine	< 5				

Contact our Technical Service Department if additional information is required.

Please keep this certificate for your records and to facilitate any necessary correspondence regarding lot # X0075023

Randy E. Benson
Laboratory Manager

Hayward, California 94545 (415) 782-3905 New Castle, Delaware 19720 (302) 322-3808

I-CHEM

Chemists in the Container Business™

I-CHEM RESEARCH

CERTIFICATE OF ANALYSIS

Analysis of Lot Number B9321043

Lot B9321043 has been cleaned to I-CHEM'S PROTOCOL B.
The following compounds were analyzed for but not detected, or detected at a concentration of less than 5 micrograms/liter:

Chloromethane	Bromomethane	Vinyl Chloride
Chloroethane	Methylene Chloride	Acetone
Carbon Disulfide	1,1-Dichloroethane	1,1-Dichloroethene
Chloroform	1,2-Dichloroethane	trans-1,2-Dichloroethene
2-Butanone	1,1,1-Trichloroethane	Carbon tetrachloride
Vinyl acetate	Bromodichloromethane	1,2-Dichloropropane
Trichloroethene	Dibromochloromethane	1,1,2-Trichloroethane
Benzene	Bromoform	cis-1,1-Dichloromethane
2-Hexanone	4-Methyl-2-pentanone	Tetrachloroethene
Toluene	Chlorobenzene	Ethylbenzene
Styrene	Xylenes	1,2-Dichlorobenzene
1,3-Dichlorobenzene	1,4-Dichlorobenzene	trans-1,3-Dichloropropane
1,1,2,2-Tetrachloroethane	2-Chloroethyl vinyl ether	

Please retain for your records and to aid in any correspondence with I-CHEM regarding lot B9321043.

Certified
Anita Rudd
President

Hayward, California 94545 (415) 782-3905 New Castle, Delaware 19720 (302) 322-3808

CHEM *Chemists in the Container Business™*

I-CHEM RESEARCH

CERTIFICATE OF ANALYSIS

Analysis of Lot 0099023 April 16, 1990

Lot 0099023 has been cleaned to I-CHEM's Protocol C. Randomly selected samples from this lot were analyzed using ICP/Mass Spectroscopy, ICP/Atomic Emission Spectroscopy, Furnace Atomic Absorption, Flame Atomic Absorption, and Cold Vapor Atomic Absorption. The following analytical results were obtained.

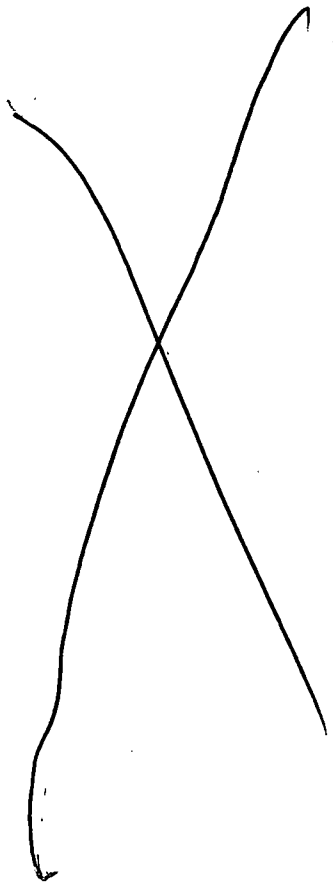
Element	Concentration (ug/L)
Aluminum	< 80
Antimony	< 5
Arsenic	< 5
Barium	< 20
Beryllium	< 0.5
Calcium	< 100
Cadmium	< 1
Chromium	< 10
Cobalt	< 10
Copper	< 10
Iron	< 50
Lead	< 2
Magnesium	< 100
Manganese	< 10
Mercury	< 0.2
Nickel	< 20
Potassium	< 100
Selenium	< 2
Silver	< 5
Sodium	< 100
Thallium	< 5
Vanadium	< 10
Zinc	< 10

Contact our Technical Service Department if additional information is required.

Please keep this certificate for your records and to facilitate any necessary correspondence regarding lot # 0099023

Randy E. Benson
Laboratory Manager

Hayward, California 94545 (415) 782-3905 New Castle, Delaware 19720 (302) 322-3808



PHASE II
ENVIRONMENTAL SITE ASSESSMENT
CASE NARRATIVE

HAS

CASE NARRATIVE: ASTECO WITMER ROAD

DATE: JULY 31, 1990

This data was analyzed in accordance with 3rd Edition SW 846. These procedures are vague concerning detection limits and deliverables format. For this reason CLP SOW 1988 was followed as closely as possible.

The volatiles analyses experienced several inconsistencies. Sample GW-5 surrogate recovery for toluene-d8 was 112%. The upper control limit is 110% -- the sample was not re-analyzed. There was a large ghosting peak present for sample GW-4 dup. The analysis was not affected. The continuing calibration on June 8, 1990 response factor for bromoform was less than 0.250.

The semi-volatile analysis difficulties include the following: Sample GW-1 had internal standards (IS) #5 and #6 beyond the lower control limit. The sample was re-analyzed (GW-1RE) on the second clock and IS #5 was still low. Sample GW-2DL had IS #4, #5 and #6 out of lower control limit. Sample GW-5MS bumped during the micro KD step. This resulted in low recoveries. The sample was re-analyzed (GW-5MSRE) and had similar recoveries. The continuing calibration for June 25, 1990 had a fluoranthene response factor >25% RSD from initial calibration. All samples contained an extraction laboratory artifact that eluted at approximately 2505 scans.

The ICAP serial dilution was performed on the previous sample batch (710). Most analytes would have been <CRDL except for the minerals and iron. An MS/MD for arsenic, selenium and thallium was not performed. All furnace data is Zeeman background corrected and has an integration time of 5.0 seconds. Seep (Total) sample aluminum spike recovery exceeded the upper control limit. The lead post-spike recovery for samples GW #1, GW #2 and seep (Dissolved) exceeded the upper control limits.

The reported instrument detection limits (IDLs) for cadmium, chromium and nickel are higher than CRDL. Third quarter IDL analysis is in progress.

The following flags and qualifiers were used in reporting the data:

- C (Concentration) qualifier -- Enter "B" if the reported value was obtained from a reading that was less than the Contract Required Detection Limit (CRDL) but greater than or equal to the Instrument Detection Limit (IDL). If the analyte was analyzed for but not detected, a "U" must be entered.

- Q qualifier -- Specified entries and their meanings are as follows:

  E - The reported value is estimated because of the presence of interference. An explanatory note must be included under Comments on the Cover Page (if the problem applies to all samples) or on the specific FORM I-IN (if it is an isolated problem).

  M - Duplicate injection precision not met.

  N - Spiked sample recovery not within control limits.

  S - The reported value was determined by the Method of Standard Additions (MSA).

  W - Post-digestion spike for Furnace AA analysis is out of control limits (85-115%), while sample absorbence is less than 50% of spike absorbence.

  * - Duplicate analysis not within control limits.

  + - Correlation coefficient for the MSA is less than 0.995.

  Entering "S", "W", or "+" is mutually exclusive. No combination of these qualifiers can appear in the same field for an analyte.

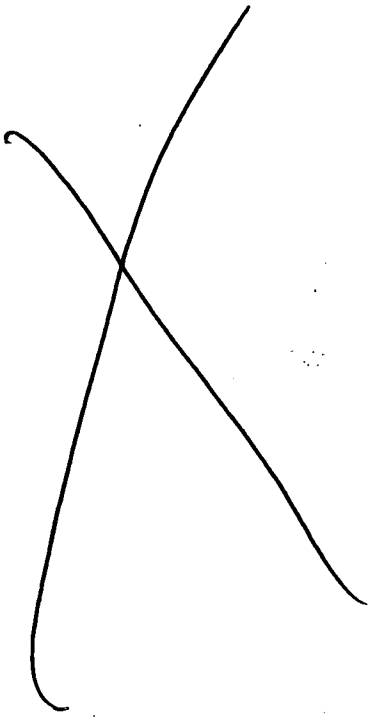
- M (Method) qualifier -- Enter:

  - "P" for ICP
  - "A" for Flame AA
  - "F" for Furnace AA
  - "CV" for Manual Cold Vapor AA
  - "AV" for Automated Cold Vapor AA
  - "AS" for Semi-Automated Spectrophotometric
  - "C" for Manual Spectrophotometric
  - "T" for Titrimetric
  - "NR" if the analyte is not required to be analyzed

All data is considered to be reliable and accurate.

Katherine A. Syracuse
Director, Environmental Laboratory

Asteco.kas



PHASE II
ENVIRONMENTAL INVESTIGATION
VOLATILE RESULTS
FOR
GROUND WATER SAMPLES

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-1

Lab Name: HAS Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: 90-759-001

Sample wt/vol: 0.5 (g/mL) ML Lab File ID: D1372061

Level: (low/med) LOW Date Received: 6/1/90

% Moisture: not dec. NA Date Analyzed: 6/8/90

Column: (pack/cap) PACK Dilution Factor: 10

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	100	U
74-83-9	Bromomethane	100	U
75-01-4	Vinyl Chloride	100	U
75-00-3	Chloroethane	100	U
75-09-2	Methylene Chloride	50	U
67-64-1	Acetone	1000	U
75-15-0	Carbon Disulfide	1000	U
75-35-4	1,1-Dichloroethene	50	U
75-34-3	1,1-Dichloroethane	50	U
540-59-0	1,2-Dichloroethene (total)	50	U
67-66-3	Chloroform	50	U
107-06-2	1,2-Dichloroethane	50	U
78-93-3	2-Butanone	1000	U
71-55-6	1,1,1-Trichloroethane	50	U
56-23-5	Carbon Tetrachloride	50	U
108-05-4	Vinyl Acetate	500	U
75-27-4	Bromodichloromethane	50	U
78-87-5	1,2-Dichloropropane	50	U
10061-01-5	cis-1,3-Dichloropropene	50	U
79-01-6	Trichloroethene	50	U
124-48-1	Dibromochloromethane	50	U
79-00-5	1,1,2-Trichloroethane	50	U
71-43-2	Benzene	50	U
10061-02-6	trans-1,3-Dichloropropene	50	U
75-25-2	Bromoform	50	U
108-10-1	4-Methyl-2-Pentanone	500	U
591-78-6	2-Hexanone	500	U
127-18-4	Tetrachloroethene	50	U
79-34-5	1,1,2,2-Tetrachloroethane	50	U
108-88-3	Toluene	100	
108-90-7	Chlorobenzene	50	U
100-41-4	Ethylbenzene	710	
100-42-5	Styrene	50	U
1330-20-7	Xylene (total)	5500	

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.: GW-2

Lab Name: HAS Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: 90-759-008

Sample wt/vol: 0.025 (g/mL) ML Lab File ID: D1372071

Level: (low/med) LOW Date Received: 6/1/90

% Moisture: not dec. NA Date Analyzed: 6/8/90

Column: (pack/cap) PACK Dilution Factor: 200

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	2000	U
74-83-9	Bromomethane	2000	U
75-01-4	Vinyl Chloride	2000	U
75-00-3	Chloroethane	2000	U
75-09-2	Methylene Chloride	1000	U
67-64-1	Acetone	20000	U
75-15-0	Carbon Disulfide	20000	U
75-35-4	1,1-Dichloroethene	1000	U
75-34-3	1,1-Dichloroethane	1000	U
540-59-0	1,2-Dichloroethene (total)	1000	U
67-66-3	Chloroform	1000	U
107-06-2	1,2-Dichloroethane	1000	U
78-93-3	2-Butanone	20000	U
71-55-6	1,1,1-Trichloroethane	1000	U
56-23-5	Carbon Tetrachloride	1000	U
108-05-4	Vinyl Acetate	10000	U
75-27-4	Bromodichloromethane	1000	U
78-87-5	1,2-Dichloropropane	1000	U
10061-01-5	cis-1,3-Dichloropropene	1000	U
79-01-6	Trichloroethene	1000	U
124-48-1	Dibromochloromethane	1000	U
79-00-5	1,1,2-Trichloroethane	1000	U
71-43-2	Benzene	1000	U
10061-02-6	trans-1,3-Dichloropropene	1000	U
75-25-2	Bromoform	1000	U
108-10-1	4-Methyl-2-Pentanone	10000	U
591-78-6	2-Hexanone	10000	U
127-18-4	Tetrachloroethene	1000	U
79-34-5	1,1,2,2-Tetrachloroethane	1000	U
108-88-3	Toluene	1000	U
108-90-7	Chlorobenzene	1000	U
100-41-4	Ethylbenzene	5500	
100-42-5	Styrene	1000	U
1330-20-7	Xylene (total)	40000	

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-3

Lab Name: HAS Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: 90-759-007

Sample wt/vol: 5 (g/mL) ML Lab File ID: D1364021

Level: (low/med) LOW Date Received: 6/1/90

% Moisture: not dec. NA Date Analyzed: 6/5/90

Column: (pack/cap) PACK Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5	U
67-64-1	Acetone	100	U
75-15-0	Carbon Disulfide	100	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	100	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	50	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	50	U
591-78-6	2-Hexanone	50	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	12	

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-4

Lab Name: HAS Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: 90-759-003

Sample wt/vol: 5 (g/mL) ML Lab File ID: D1363031

Level: (low/med) LOW Date Received: 6/1/90

% Moisture: not dec. NA Date Analyzed: 6/5/90

Column: (pack/cap) PACK Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5	U
67-64-1	Acetone	100	U
75-15-0	Carbon Disulfide	100	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	100	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	50	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	50	U
591-78-6	2-Hexanone	50	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
GW-4 Dup.

Lab Name: HAS Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: 90-759

Sample wt/vol: 5 (g/mL) ML Lab File ID: D1364041

Level: (low/med) LOW Date Received: 6/11/90

% Moisture: not dec. NA Date Analyzed: 6/5/90

Column: (pack/cap) PACK Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5	U
67-64-1	Acetone	100	U
75-15-0	Carbon Disulfide	100	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	100	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	50	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	50	U
591-78-6	2-Hexanone	50	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	1	J
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	34	

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-5

Lab Name: HAS Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: 90-759-004

Sample wt/vol: 5 (g/mL) ML Lab File ID: D1363041

Level: (low/med) LOW Date Received: 6/1/90

% Moisture: not dec. NA Date Analyzed: 6/5/90

Column: (pack/cap) PACK Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5	U
67-64-1	Acetone	100	U
75-15-0	Carbon Disulfide	100	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	100	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	50	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	50	U
591-78-6	2-Hexanone	50	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	14	
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	18	

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

RINSATE BLK

Lab Name: HAS Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: 90-759-002

Sample wt/vol: 5 (g/mL) ML Lab File ID: D1363021

Level: (low/med) LOW Date Received: 6/1/90

% Moisture: not dec. NA Date Analyzed: 6/5/90

Column: (pack/cap) PACK Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5	U
67-64-1	Acetone	100	U
75-15-0	Carbon Disulfide	100	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	100	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	50	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	50	U
591-78-6	2-Hexanone	50	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	9	
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	75	

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

RINSATE-BLK RE

Lab Name: HAS Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: 90-759-002

Sample wt/vol: 5 (g/mL) ML Lab File ID: D1372051

Level: (low/med) LOW Date Received: 6/1/90

% Moisture: not dec. NA Date Analyzed: 6/8/90

Column: (pack/cap) PACK Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5	U
67-64-1	Acetone	100	U
75-15-0	Carbon Disulfide	100	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	100	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	50	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	50	U
591-78-6	2-Hexanone	50	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	6	
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	61	

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TRIP - BLANK

Lab Name: HAS Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: 90-759-009

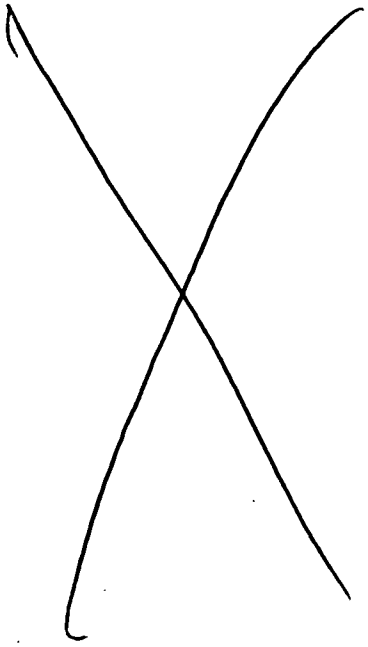
Sample wt/vol: 5 (g/mL) ML Lab File ID: D1362

Level: (low/med) LOW Date Received: 6/1/90

% Moisture: not dec. NA Date Analyzed: 6/5/90

Column: (pack/cap) PACK Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5	U
67-64-1	Acetone	100	U
75-15-0	Carbon Disulfide	100	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	100	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	50	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	50	U
591-78-6	2-Hexanone	50	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U



PHASE II
ENVIRONMENTAL INVESTIGATION
SEMI-VOLATILE RESULTS
FOR
GROUND WATER SAMPLES

1B

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

GW-1

Lab Name: HAS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: N/A

Matrix: (soil/water) Water Lab Sample ID: 90-759-001

Sample wt/vol: 1000 (g/mL) ml Lab File ID: 1729009

Level: (low/med) LOW Date Received: 6-1-90

% Moisture: not dec. N/A dec. N/A Date Extracted: 6-5-90

Extraction: (SepF/Cont/Sonc) SepF Date Analyzed: 6-21-90

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 50

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
108-95-2	Phenol	9,400	
111-44-4	bis(2-Chloroethyl)ether	500	U
95-57-8	2-Chlorophenol	500	U
541-73-1	1,3-Dichlorobenzene	500	U
106-46-7	1,4-Dichlorobenzene	500	U
100-51-6	Benzyl alcohol	500	U
95-50-1	1,2-Dichlorobenzene	500	U
95-48-7	2-Methylphenol	2,100	
108-60-1	bis(2-Chloroisopropyl)ether	500	U
106-44-5	4-Methylphenol	500	U
621-64-7	N-Nitroso-di-n-propylamine	500	U
67-72-1	Hexachloroethane	500	U
98-95-3	Nitrobenzene	500	U
78-59-1	Isophorone	500	U
88-75-5	2-Nitrophenol	500	U
105-67-9	2,4-Dimethylphenol	500	U
65-85-0	Benzoic acid	2500	U
111-91-1	bis(2-Chloroethoxy)methane	500	U
120-83-2	2,4-Dichlorophenol	500	U
120-82-1	1,2,4-Trichlorobenzene	500	U
91-20-3	Naphthalene	500	U
106-47-8	4-Chloroaniline	500	U
87-68-3	Hexachlorobutadiene	500	U
59-50-7	4-Chloro-3-methylphenol	500	U
91-57-6	2-Methylnaphthalene	500	U
77-47-4	Hexachlorocyclopentadiene	500	U
88-06-2	2,4,6-Trichlorophenol	500	U
95-95-4	2,4,5-Trichlorophenol	2500	U
91-58-7	2-Chloronaphthalene	500	U
88-74-4	2-Nitroaniline	2500	U
131-11-3	Dimethylphthalate	500	U
208-96-8	Acenaphthylene	500	U
606-20-2	2,6-Dinitrotoluene	500	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-1

Lab Name: HAS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: N/A

Matrix: (soil/water) Water Lab Sample ID: 90-759-001

Sample wt/vol: 1000 (g/mL) ml Lab File ID: 1729009

Level: (low/med) LOW Date Received: 6-1-90

% Moisture: not dec. N/A dec. N/A Date Extracted: 6-5-90

Extraction: (SepF/Cont/Sonc) SepF Date Analyzed: 6-21-90

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 50

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

CAS NO.	COMPOUND		Q
99-09-2	3-Nitroaniline	2500	U
83-32-9	Acenaphthene	500	U
51-28-5	2,4-Dinitrophenol	2500	U
100-02-7	4-Nitrophenol	2500	U
132-64-9	Dibenzofuran	500	U
121-14-2	2,4-Dinitrotoluene	500	U
84-66-2	Diethylphthalate	500	U
7005-72-3	4-Chlorophenyl-phenylether	500	U
86-73-7	Fluorene	500	U
100-01-6	4-Nitroaniline	2500	U
534-52-1	4,6-Dinitro-2-methylphenol	2500	U
86-30-6	N-Nitrosodiphenylamine (1)	500	U
101-55-3	4-Bromophenyl-phenylether	500	U
118-74-1	Hexachlorobenzene	500	U
87-86-5	Pentachlorophenol	2500	U
85-01-8	Phenanthrene	500	U
120-12-7	Anthracene	500	U
84-74-2	Di-n-butylphthalate	500	U
206-44-0	Fluoranthene	500	U
129-00-0	Pyrene	500	U
85-68-7	Butylbenzylphthalate	500	U
91-94-1	3,3'-Dichlorobenzidine	1000	U
56-55-3	Benzo(a)anthracene	500	U
218-01-9	Chrysene	500	U
117-81-7	bis(2-Ethylhexyl)phthalate	500	U
117-84-0	Di-n-octylphthalate	500	U
205-99-2	Benzo(b)fluoranthene	500	U
207-08-9	Benzo(k)fluoranthene	500	U
50-32-8	Benzo(a)pyrene	500	U
193-39-5	Indeno(1,2,3-cd)pyrene	500	U
53-70-3	Dibenz(a,h)anthracene	500	U
191-24-2	Benzo(g,h,i)perylene	500	U

(1) - Cannot be separated from Diphenylamine

1F

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

GW-1

Lab Name: HAS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: N/A

Matrix: (soil/water) Water Lab Sample ID: 90759-001

Sample wt/vol: 1000 (g/mL) ml Lab File ID: 1729009

Level: (low/med) LOW Date Received: 6-1-90

% Moisture: not dec. N/A dec. N/A Date Extracted: 6-5-90

Extraction: (SepF/Cont/Sonc) SepF Date Analyzed: 6-21-90

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 50

Number TICs found: 5 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	SCAN RT	EST. CONC.	Q
1.	100-41-4	Ethyl Benzene	719	400	J
2.		Xylenes	739	2600	J
3.		Xylenes	797	770	J
4.		UNKNOWN #1	1326	4000	J
5.	585-34-2	3-(1,1-Dimethylethyl) Phenol	1548	2000	J
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-1RE

Lab Name: HAS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: N/A

Matrix: (soil/water) Water Lab Sample ID: 90-759-001RE

Sample wt/vol: 1000 (g/mL) ml Lab File ID: 1769005

Level: (low/med) LOW Date Received: 6-1-90

% Moisture: not dec. N/A dec. N/A Date Extracted: 6-5-90

Extraction: (SepF/Cont/Sonc) SepF Date Analyzed: 6-25-90

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 50

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
108-95-2	Phenol	8,500	
111-44-4	bis(2-Chloroethyl)ether	500	U
95-57-8	2-Chlorophenol	500	U
541-73-1	1,3-Dichlorobenzene	500	U
106-46-7	1,4-Dichlorobenzene	500	U
100-51-6	Benzyl alcohol	500	U
95-50-1	1,2-Dichlorobenzene	500	U
95-48-7	2-Methylphenol	1,800	
108-60-1	bis(2-Chloroisopropyl)ether	500	U
106-44-5	4-Methylphenol	500	U
621-64-7	N-Nitroso-di-n-propylamine	500	U
67-72-1	Hexachloroethane	500	U
98-95-3	Nitrobenzene	500	U
78-59-1	Isophorone	500	U
88-75-5	2-Nitrophenol	500	U
105-67-9	2,4-Dimethylphenol	500	U
65-85-0	Benzoic acid	2500	U
111-91-1	bis(2-Chloroethoxy)methane	500	U
120-83-2	2,4-Dichlorophenol	500	U
120-82-1	1,2,4-Trichlorobenzene	500	U
91-20-3	Naphthalene	500	U
106-47-8	4-Chloroaniline	500	U
87-68-3	Hexachlorobutadiene	500	U
59-50-7	4-Chloro-3-methylphenol	500	U
91-57-6	2-Methylnaphthalene	500	U
77-47-4	Hexachlorocyclopentadiene	500	U
88-06-2	2,4,6-Trichlorophenol	500	U
95-95-4	2,4,5-Trichlorophenol	2500	U
91-58-7	2-Chloronaphthalene	500	U
88-74-4	2-Nitroaniline	2500	U
131-11-3	Dimethylphthalate	500	U
208-96-8	Acenaphthylene	500	U
606-20-2	2,6-Dinitrotoluene	500	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-1RE

Lab Name: HAS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: N/A

Matrix: (soil/water) Water Lab Sample ID: 90-759-001RE

Sample wt/vol: 1000 (g/mL) ml Lab File ID: 1769005

Level: (low/med) LOW Date Received: 6-1-90

% Moisture: not dec. N/A dec. N/A Date Extracted: 6-5-90

Extraction: (SepF/Cont/Sonc) SepF Date Analyzed: 6-25-90

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 50

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

CAS NO.	COMPOUND		Q
99-09-2	3-Nitroaniline	2500	U
83-32-9	Acenaphthene	500	U
51-28-5	2,4-Dinitrophenol	2500	U
100-02-7	4-Nitrophenol	2500	U
132-64-9	Dibenzofuran	500	U
121-14-2	2,4-Dinitrotoluene	500	U
84-66-2	Diethylphthalate	500	U
7005-72-3	4-Chlorophenyl-phenylether	500	U
86-73-7	Fluorene	500	U
100-01-6	4-Nitroaniline	2500	U
534-52-1	4,6-Dinitro-2-methylphenol	2500	U
86-30-6	N-Nitrosodiphenylamine (1)	500	U
101-55-3	4-Bromophenyl-phenylether	500	U
118-74-1	Hexachlorobenzene	500	U
87-86-5	Pentachlorophenol	2500	U
85-01-8	Phenanthrene	500	U
120-12-7	Anthracene	500	U
84-74-2	Di-n-butylphthalate	500	U
206-44-0	Fluoranthene	500	U
129-00-0	Pyrene	500	U
85-68-7	Butylbenzylphthalate	500	U
91-94-1	3,3'-Dichlorobenzidine	1000	U
56-55-3	Benzo(a)anthracene	500	U
218-01-9	Chrysene	500	U
117-81-7	bis(2-Ethylhexyl)phthalate	500	U
117-84-0	Di-n-octylphthalate	500	U
205-99-2	Benzo(b)fluoranthene	500	U
207-08-9	Benzo(k)fluoranthene	500	U
50-32-8	Benzo(a)pyrene	500	U
193-39-5	Indeno(1,2,3-cd)pyrene	500	U
53-70-3	Dibenz(a,h)anthracene	500	U
191-24-2	Benzo(g,h,i)perylene	500	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.: GW-1RE

Lab Name: HAS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: N/A

Matrix: (soil/water) Water Lab Sample ID: 90-759-001RE

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 1769005

Level: (low/med) LOW Date Received: 6-1-90

% Moisture: not dec. N/A dec. N/A Date Extracted: 6-5-90

Extraction: (SepF/Cont/Sonc) SepF Date Analyzed: 6-25-90

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 50

Number TICs found: 5 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	SCAN RT	EST. CONC.	Q
1.	100-41-4	Ethyl Benzene	711	460	J
2.		Xylene	731	3200	J
3.		Xylene	789	930	J
4.		Unknown #1	1310	4200	J
5.	585-34-2	3-(1,1-Dimethylethyl) Phenol	1541	990	J
6.					
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9.					
10.					
11.					
12.					
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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-2

Lab Name: HAS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: N/A

Matrix: (soil/water) Water Lab Sample ID: 90-259-008

Sample wt/vol: 1000 (g/mL) ml Lab File ID: 1729010

Level: (low/med) LOW Date Received: 6-1-90

% Moisture: not dec. N/A dec. N/A Date Extracted: 6-5-90

Extraction: (SepF/Cont/Sonc) SepF Date Analyzed: 6-21-90

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 125

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

CAS NO.	COMPOUND		Q
108-95-2	Phenol	86,000	E
111-44-4	bis(2-Chloroethyl)ether	1250	U
95-57-8	2-Chlorophenol	1250	U
541-73-1	1,3-Dichlorobenzene	1250	U
106-46-7	1,4-Dichlorobenzene	1250	U
100-51-6	Benzyl alcohol	1250	U
95-50-1	1,2-Dichlorobenzene	1250	U
95-48-7	2-Methylphenol	21,000	
108-60-1	bis(2-Chloroisopropyl)ether	1250	U
106-44-5	4-Methylphenol	2,200	
621-64-7	N-Nitroso-di-n-propylamine	1250	U
67-72-1	Hexachloroethane	1250	U
98-95-3	Nitrobenzene	1250	U
78-59-1	Isophorone	1250	U
88-75-5	2-Nitrophenol	1250	U
105-67-9	2,4-Dimethylphenol	6,000	
65-85-0	Benzoic acid	6250	U
111-91-1	bis(2-Chloroethoxy)methane	1250	U
120-83-2	2,4-Dichlorophenol	1250	U
120-82-1	1,2,4-Trichlorobenzene	1250	U
91-20-3	Naphthalene	1250	U
106-47-8	4-Chloroaniline	1250	U
87-68-3	Hexachlorobutadiene	1250	U
59-50-7	4-Chloro-3-methylphenol	1250	U
91-57-6	2-Methylnaphthalene	1250	U
77-47-4	Hexachlorocyclopentadiene	1250	U
88-06-2	2,4,6-Trichlorophenol	1250	U
95-95-4	2,4,5-Trichlorophenol	6250	U
91-58-7	2-Chloronaphthalene	1250	U
88-74-4	2-Nitroaniline	6250	U
131-11-3	Dimethylphthalate	1250	U
208-96-8	Acenaphthylene	1250	U
606-20-2	2,6-Dinitrotoluene	1250	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-2

Lab Name: HAS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: N/A

Matrix: (soil/water) WATER Lab Sample ID: 90-759-008

Sample wt/vol: 1000 (g/mL) ml Lab File ID: 1729010

Level: (low/med) LOW Date Received: 6-1-90

% Moisture: not dec. N/A dec. N/A Date Extracted: 6-5-90

Extraction: (SepF/Cont/Sonc) SepF Date Analyzed: 6-21-90

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 125

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
99-09-2	3-Nitroaniline	6250	U
83-32-9	Acenaphthene	1250	U
51-28-5	2,4-Dinitrophenol	6250	U
100-02-7	4-Nitrophenol	6250	U
132-64-9	Dibenzofuran	1250	U
121-14-2	2,4-Dinitrotoluene	1250	U
84-66-2	Diethylphthalate	1250	U
7005-72-3	4-Chlorophenyl-phenylether	1250	U
86-73-7	Fluorene	1250	U
100-01-6	4-Nitroaniline	6250	U
534-52-1	4,6-Dinitro-2-methylphenol	6250	U
86-30-6	N-Nitrosodiphenylamine (1)	1250	U
101-55-3	4-Bromophenyl-phenylether	1250	U
118-74-1	Hexachlorobenzene	1250	U
87-86-5	Pentachlorophenol	6250	U
85-01-8	Phenanthrene	1250	U
120-12-7	Anthracene	1250	U
84-74-2	Di-n-butylphthalate	1250	U
206-44-0	Fluoranthene	1250	U
129-00-0	Pyrene	1250	U
85-68-7	Butylbenzylphthalate	1250	U
91-94-1	3,3'-Dichlorobenzidine	2500	U
56-55-3	Benzo(a)anthracene	1250	U
218-01-9	Chrysene	1250	U
117-81-7	bis(2-Ethylhexyl)phthalate	1250	U
117-84-0	Di-n-octylphthalate	1250	U
205-99-2	Benzo(b)fluoranthene	1250	U
207-08-9	Benzo(k)fluoranthene	1250	U
50-32-8	Benzo(a)pyrene	1250	U
193-39-5	Indeno(1,2,3-cd)pyrene	1250	U
53-70-3	Dibenz(a,h)anthracene	1250	U
191-24-2	Benzo(g,h,i)perylene	1250	U

(1) - Cannot be separated from Diphenylamine

1F

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

GW-2

Lab Name: HAS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: N/A

Matrix: (soil/water) Water Lab Sample ID: 90-759-008

Sample wt/vol: 1000 (g/mL) ml Lab File ID: 1729010

Level: (low/med) LOW Date Received: 6-1-90

% Moisture: not dec. N/A dec. N/A Date Extracted: 6-5-90

Extraction: (SepF/Cont/Sonc) SepF Date Analyzed: 6-21-90

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 125

Number TICs found: 11

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	SCAN ~~RT~~	EST. CONC.	Q
1.	100-41-4	Ethyl Benzene	719	3000	J
2.		Xylene	739	1500	J
3.		Xylene	797	5800	J
4.		Unknown #1	1154	1500	J
5.	526-75-0	2,3-Dimethyl Phenol	1239	1100	J
6.		Unknown #2	1327	3800	J
7.	90-00-6	2-Ethyl Phenol	1337	4000	J
8.		Unknown #3	1437	2400	J
9.	1687-61-2	2-Ethyl-5-Methyl Phenol	1460	2100	J
10.	585-34-2	3-(1,1-Dimethyl) Phenol	1549	1900	J
11.		Unknown #4	1708	1000	J
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-2DL

Lab Name: HAS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: N/A

Matrix: (soil/water) Water Lab Sample ID: 90-759-008DL

Sample wt/vol: 1000 (g/mL) ml Lab File ID: 1769006

Level: (low/med) LOW Date Received: 6-1-90

% Moisture: not dec. N/A dec. N/A Date Extracted: 6-5-90

Extraction: (SepF/Cont/Sonc) SepF Date Analyzed: 6-25-90

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 500

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
108-95-2	Phenol	130,000	
111-44-4	bis(2-Chloroethyl)ether	5000	U
95-57-8	2-Chlorophenol	5000	U
541-73-1	1,3-Dichlorobenzene	5000	U
106-46-7	1,4-Dichlorobenzene	5000	U
100-51-6	Benzyl alcohol	5000	U
95-50-1	1,2-Dichlorobenzene	5000	U
95-48-7	2-Methylphenol	29,000	
108-60-1	bis(2-Chloroisopropyl)ether	5000	U
106-44-5	4-Methylphenol	5000	U
621-64-7	N-Nitroso-di-n-propylamine	5000	U
67-72-1	Hexachloroethane	5000	U
98-95-3	Nitrobenzene	5000	U
78-59-1	Isophorone	5000	U
88-75-5	2-Nitrophenol	5000	U
105-67-9	2,4-Dimethylphenol	7,500	
65-85-0	Benzoic acid	25,000	U
111-91-1	bis(2-Chloroethoxy)methane	5000	U
120-83-2	2,4-Dichlorophenol	5000	U
120-82-1	1,2,4-Trichlorobenzene	5000	U
91-20-3	Naphthalene	5000	U
106-47-8	4-Chloroaniline	5000	U
87-68-3	Hexachlorobutadiene	5000	U
59-50-7	4-Chloro-3-methylphenol	5000	U
91-57-6	2-Methylnaphthalene	5000	U
77-47-4	Hexachlorocyclopentadiene	5000	U
88-06-2	2,4,6-Trichlorophenol	5000	U
95-95-4	2,4,5-Trichlorophenol	25,000	U
91-58-7	2-Chloronaphthalene	5000	U
88-74-4	2-Nitroaniline	25000	U
131-11-3	Dimethylphthalate	5000	U
208-96-8	Acenaphthylene	5000	U
606-20-2	2,6-Dinitrotoluene	5000	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-20L

Lab Name: HAS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: N/A

Matrix: (soil/water) Water Lab Sample ID: 90-759-008DL

Sample wt/vol: 1000 (g/mL) ml Lab File ID: 1769006

Level: (low/med) LOW Date Received: 6-1-90

% Moisture: not dec. N/A dec. N/A Date Extracted: 6-5-90

Extraction: (SepF/Cont/Sonc) SepF Date Analyzed: 6-25-90

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 500

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
99-09-2	3-Nitroaniline	25000	U
83-32-9	Acenaphthene	5000	U
51-28-5	2,4-Dinitrophenol	25000	U
100-02-7	4-Nitrophenol	25000	U
132-64-9	Dibenzofuran	5000	U
121-14-2	2,4-Dinitrotoluene	5000	U
84-66-2	Diethylphthalate	5000	U
7005-72-3	4-Chlorophenyl-phenylether	5000	U
86-73-7	Fluorene	5000	U
100-01-6	4-Nitroaniline	25000	U
534-52-1	4,6-Dinitro-2-methylphenol	25000	U
86-30-6	N-Nitrosodiphenylamine (1)	5000	U
101-55-3	4-Bromophenyl-phenylether	5000	U
118-74-1	Hexachlorobenzene	5000	U
87-86-5	Pentachlorophenol	25000	U
85-01-8	Phenanthrene	5000	U
120-12-7	Anthracene	5000	U
84-74-2	Di-n-butylphthalate	5000	U
206-44-0	Fluoranthene	5000	U
129-00-0	Pyrene	5000	U
85-68-7	Butylbenzylphthalate	5000	U
91-94-1	3,3'-Dichlorobenzidine	10000	U
56-55-3	Benzo(a)anthracene	5000	U
218-01-9	Chrysene	5000	U
117-81-7	bis(2-Ethylhexyl)phthalate	5000	U
117-84-0	Di-n-octylphthalate	5000	U
205-99-2	Benzo(b)fluoranthene	5000	U
207-08-9	Benzo(k)fluoranthene	5000	U
50-32-8	Benzo(a)pyrene	5000	U
193-39-5	Indeno(1,2,3-cd)pyrene	5000	U
53-70-3	Dibenz(a,h)anthracene	5000	U
191-24-2	Benzo(g,h,i)perylene	5000	U

(1) - Cannot be separated from Diphenylamine

1F

EPA SAMPLE NO.

GW-2DL

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: HAS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: N/A

Matrix: (soil/water) Water Lab Sample ID: 90-759-008DL

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 1769006

Level: (low/med) LOW Date Received: 6-1-90

% Moisture: not dec. N/A dec. N/A Date Extracted: 6-5-90

Extraction: (SepF/Cont/Sonc) SepF Date Analyzed: 6-25-90

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 500

Number TICs found: 5 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	SCAN RT	EST. CONC.	Q
1.		XYLENE	730	15,000	J
2.		XYLENE	789	5000	J
3.		UNKNOWN #1	1318	35,000	J
4.	90-00-6	2-ETHYL PHENOL	1331	4700	
5.	585-34-2	3-(1,1-DIMETHYLETHYL)-PHENOL	1541	22,000	J
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EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

GW-3

Lab Name: HAS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: N/A

Matrix: (soil/water) Water Lab Sample ID: 90-759-007

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 1729005

Level: (low/med) LOW Date Received: 6-1-90

% Moisture: not dec. N/A dec. N/A Date Extracted: 6-5-90

Extraction: (SepF/Cont/Sonc) SepF Date Analyzed: 6-21-90

GPC Cleanup: (Y/N) N pH: 10 Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
108-95-2	Phenol	22	
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	bis(2-Chloroisopropyl)ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic acid	50	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-3

Lab Name: HAS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: N/A

Matrix: (soil/water) Water Lab Sample ID: 90-759-007

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 1729005

Level: (low/med) LOW Date Received: 6-1-90

% Moisture: not dec. N/A dec. N/A Date Extracted: 6-5-90

Extraction: (SepF/Cont/Sonc) SepF Date Analyzed: 6-21-90

GPC Cleanup: (Y/N) N pH: 10 Dilution Factor: 1

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

CAS NO.	COMPOUND		Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.: GW-3

Lab Name: HAS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: N/A

Matrix: (soil/water) Water Lab Sample ID: 90-759-007

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 1729005

Level: (low/med) LOW Date Received: 6-1-90

% Moisture: not dec. N/A dec. N/A Date Extracted: 6-5-90

Extraction: (SepF/Cont/Sonc) SepF Date Analyzed: 6-21-90

GPC Cleanup: (Y/N) N pH: 10 Dilution Factor: 1

Number TICs found: 7 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	SCAN ~~RT~~	EST. CONC.	Q
1.	595-46-0	Dimethyl Propanedioic Acid	439	12	J
2.		Unknown #1	662	18	J
3.		Unknown #2	687	45	J
4.		Unknown #3	715	26	J
5.	142-62-1	Hexanoic Acid	777	15	J
6.		Unknown #4	1472	14	J
7.		Unknown Artifact	2506	74	B
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-4

Lab Name: HAS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: N/A

Matrix: (soil/water) Water Lab Sample ID: 90-759-003

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 1729011

Level: (low/med) Low Date Received: 6-1-90

% Moisture: not dec. N/A dec. N/A Date Extracted: 6-5-90

Extraction: (SepF/Cont/Sonc) SepF Date Analyzed: 6-22-90

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	bis(2-Chloroisopropyl)ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic acid	50	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-4

Lab Name: HAS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: N/A

Matrix: (soil/water) Water Lab Sample ID: 90-759-003

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 1729011

Level: (low/med) LOW Date Received: 6-1-90

% Moisture: not dec. N/A dec. N/A Date Extracted: 6-5-90

Extraction: (SepF/Cont/Sonc) SepF Date Analyzed: 6-22-90

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

CAS NO.	COMPOUND		Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

1F

EPA SAMPLE NO.

GW-4

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: HAS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: N/A

Matrix: (soil/water) Water Lab Sample ID: 90-759-003

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 1729011

Level: (low/med) LOW Date Received: 6-1-90

% Moisture: not dec. N/A dec. N/A Date Extracted: 6-5-90

Extraction: (SepF/Cont/Sonc) SepF Date Analyzed: 6-22-90

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1

Number TICs found: 13 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	766-15-4	4,4-DiMethyl-1,3-Dioxane	654	35	J
2.		Unknown #1	795	17	J
3.		Unknown #2	873	23	J
4.	626-75-0	2,3-DiMethyl Phenol	1340	16	J
5.		Unknown #3	1334	1700	J
6.	527-54-8	3,4,5-TriMethyl Phenol	1410	19	J
7.	1687-64-5	2-Ethyl-6-Methyl Phenol	1460	7	J
8.		Unknown #4	1488	24	J
9.	88-18-6	2-(1,1-DiMethylEthyl) Phenol	1512	24	J
10.	585-34-2	3-(1,1-DiMethylEthyl) Phenol	1554	1000	J
11.		Unknown Phenol #1	1708	110	J
12.		Unknown #5	1840	20	J
13.		Unknown (Artifact)	2507	38	B
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-4Dup

Lab Name: HAS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: N/A

Matrix: (soil/water) Water Lab Sample ID: 90-759-004Dup

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 1729012

Level: (low/med) LOW Date Received: 6-1-90

% Moisture: not dec. N/A dec. N/A Date Extracted: 6-5-90

Extraction: (SepF/Cont/Sonc) SepF Date Analyzed: 6-22-90

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	bis(2-Chloroisopropyl)ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic acid	50	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-4Dup

Lab Name: HAS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: N/A

Matrix: (soil/water) Water Lab Sample ID: 90-759-004 Dup

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 1729012

Level: (low/med) LOW Date Received: 6-1-90

% Moisture: not dec. N/A dec. N/A Date Extracted: 6-5-90

Extraction: (SepF/Cont/Sonc) SepF Date Analyzed: 6-22-90

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

CAS NO.	COMPOUND		Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

1F

EPA SAMPLE NO.

GW-4 Dup

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: HAS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: N/A

Matrix: (soil/water) Water Lab Sample ID: 90-759-004 Dup

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 1729012

Level: (low/med) LOW Date Received: 6-1-90

% Moisture: not dec. N/A dec. N/A Date Extracted: 6-5-90

Extraction: (SepF/Cont/Sonc) SepF Date Analyzed: 6-22-90

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1

Number TICs found: 12 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	SCAN RT	EST. CONC.	Q
1.	766-15-4	4,4-Dimethyl-1,3-Dioxane	653	39	J
2.		Unknown #1	795	19	J
3.		Unknown #2	872	27	J
4.	526-75-0	2,3-Dimethyl Phenol	1240	20	J
5.		Unknown #3	1335	2100	J
6.	527-54-9	3,4,5-Trimethyl Phenol	1410	24	J
7.		Unknown #4	1488	28	J
8.	88-18-6	2-(1,1-Dimethylethyl) Phenol	1512	29	J
9.	585-34-2	3-(1,1-Dimethylethyl) Phenol	1555	1000	J
10.		Unknown Phenol #1	1708	110	J
11.		Unknown #5	1839	24	J
12.		Unknown (Artifact)	2505	120	B
13.					
14.					
15.					
16.					
17.					
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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-5

Lab Name: HAS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: N/A

Matrix: (soil/water) Water Lab Sample ID: 90-759-004

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 1729006

Level: (low/med) LOW Date Received: 6-1-90

% Moisture: not dec. N/A dec. N/A Date Extracted: 6-5-90

Extraction: (SepF/Cont/Sonc) SepF Date Analyzed: 6-21-90

GPC Cleanup: (Y/N) N pH: 12 Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	bis(2-Chloroisopropyl)ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic acid	50	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-5

Lab Name: HAS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: N/A

Matrix: (soil/water) Water Lab Sample ID: 90-759-004

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 1729006

Level: (low/med) LOW Date Received: 6-1-90

% Moisture: not dec. N/A dec. N/A Date Extracted: 6-5-90

Extraction: (SepF/Cont/Sonc) SepF Date Analyzed: 6-21-90

GPC Cleanup: (Y/N) N pH: 12 Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.: GW-5

Lab Name: HAS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: N/A

Matrix: (soil/water) Water Lab Sample ID: 90-759-004

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 1729006

Level: (low/med) LOW Date Received: 6-1-90

% Moisture: not dec. N/A dec. N/A Date Extracted: 6-5-90

Extraction: (SepF/Cont/Sonc) SepF Date Analyzed: 6-21-90

GPC Cleanup: (Y/N) N pH: 12 Dilution Factor: 1

Number TICs found: 4 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	SCAN RT	EST. CONC.	Q
1.	544-25-2	1,3,5-CycloHeptatriene	466	8	J
2.		Xylenes	739	10	J
3.		Unknown Artifact	2504	59	B
4.	603-11-2	3-Nitro-1,2-Benzene Dicarboxylic Acid	2963	9	J
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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-SMSRE

Lab Name: HAS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: N/A

Matrix: (soil/water) Water Lab Sample ID: 90-759-004MS

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 1769004

Level: (low/med) LOW Date Received: 6-1-90

% Moisture: not dec. N/A dec. N/A Date Extracted: 6-5-90

Extraction: (SepF/Cont/Sonc) SepF Date Analyzed: 6-25-90

GPC Cleanup: (Y/N) N pH: 12 Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
108-95-2	Phenol	26	S
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	53	S
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	51	S
100-51-6	Benzyl alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	bis(2-Chloroisopropyl)ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	77	S
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic acid	50	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	53	S
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	57	S
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

S = Spiked Compound

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-SMSRE

Lab Name: HAS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: N/A

Matrix: (soil/water) Water Lab Sample ID: 90-759-004MS

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 1769004

Level: (low/med) LOW Date Received: 6-1-90

% Moisture: not dec. N/A dec. N/A Date Extracted: 6-5-90

Extraction: (SepF/Cont/Sonc) SepF Date Analyzed: 6-25-90

GPC Cleanup: (Y/N) N pH: 12 Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	64	S
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	12	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	98	S
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	35	S
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	110	S
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

S = SPIKED COMPOUND

FORM I SV-2

1/87 Rev.

612

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

RINSATE BIK

Lab Name: HAS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: N/A

Matrix: (soil/water) Water Lab Sample ID: 90-759-002

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 1729003

Level: (low/med) LOW Date Received: 6-1-90

% Moisture: not dec. N/A dec. N/A Date Extracted: 6-5-90

Extraction: (SepF/Cont/Sonc) SepF Date Analyzed: 6-21-90

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

CAS NO.	COMPOUND		Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

RINSATEBLK

Lab Name: HAS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: N/A

Matrix: (soil/water) Water Lab Sample ID: 90-759-002

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 1729003

Level: (low/med) LOW Date Received: 6-1-90

% Moisture: not dec. N/A dec. N/A Date Extracted: 6-5-90

Extraction: (SepF/Cont/Sonc) SepF Date Analyzed: 6-21-90

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	bis(2-Chloroisopropyl)ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic acid	50	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

RINSATE BLK

Lab Name: HAS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: N/A

Matrix: (soil/water) Water Lab Sample ID: 90-759-002

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 1729003

Level: (low/med) LOW Date Received: 6-1-90

% Moisture: not dec. N/A dec. N/A Date Extracted: 6-5-90

Extraction: (SepF/Cont/Sonc) SepF Date Analyzed: 6-21-90

GPC Cleanup: (Y/N) N pH: 7 Dilution Factor: 1

Number TICs found: 1 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	SCAN RT	EST. CONC.	Q
1.		UNKNOWN HYDROCARBON #1 (ARTIFACT)	2504	120	B
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

1B

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

TRIP BIK

Lab Name: HAS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: N/A

Matrix: (soil/water) Water Lab Sample ID: 90-759-009

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 1729004

Level: (low/med) LOW Date Received: 6-1-90

% Moisture: not dec. N/A dec. N/A Date Extracted: 6-5-90

Extraction: (SepF/Cont/Sonc) SepF Date Analyzed: 6-21-90

GPC Cleanup: (Y/N) N pH: 6 Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	bis(2-Chloroisopropyl)ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic acid	50	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TRIP BLK

Lab Name: HAS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: N/A

Matrix: (soil/water) Water Lab Sample ID: 90-759-009

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 1729004

Level: (low/med) LOW Date Received: 6-1-90

% Moisture: not dec. N/A dec. N/A Date Extracted: 6-5-90

Extraction: (SepF/Cont/Sonc) SepF Date Analyzed: 6-21-90

GPC Cleanup: (Y/N) N pH: 6 Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

TRIP-BIK

Lab Name: HAS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: N/A

Matrix: (soil/water) Water Lab Sample ID: 90-759-009

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 1729004

Level: (low/med) LOW Date Received: 6-1-90

% Moisture: not dec. N/A dec. N/A Date Extracted: 6-5-90

Extraction: (SepF/Cont/Sonc) SepF Date Analyzed: 6-21-90

GPC Cleanup: (Y/N) N pH: 6 Dilution Factor: 1

Number TICs found: 2 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	SCAN RT	EST. CONC.	Q
1.		UNKNOWN Hydrocarbon #1	662	8	J
2.		UNKNOWN Hydrocarbon #2 (ARTIFACT)	2504	110	B
3.					
4.					
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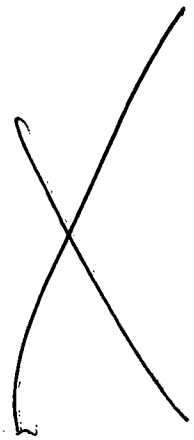
30.					



PHASE II
ENVIRONMENTAL INVESTIGATION
METAL RESULTS
FOR
GROUND WATER SAMPLES

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.: GW-1

Lab Name: HUNTINGDON ANALYTICAL SERVICES Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: NA

Matrix (soil/water): WATER Lab Sample ID: 259-001

Level (low/med): LOW Date Received: 6/1/90

% Solids: _____

Concentration Units (ug/L or mg/kg dry weight): ug/L

CAS No.	Analyte	Concentration	C	M	Q
7429-90-5	Aluminum	NR		P	
7440-36-0	Antimony	NR		P	
7440-38-2	Arsenic	NR		F	
7440-39-3	Barium	NR		P	
7440-41-7	Beryllium	NR		P	
7440-43-9	Cadmium	NR		P	
7440-70-2	Calcium	NR		P	
7440-47-3	Chromium	NR		P	
7440-48-4	Cobalt	NR		P	
7440-50-8	Copper	NR		P	
7439-89-6	Iron	NR		P	
7439-92-1	Lead	5.0	U	F	W
7439-95-4	Magnesium	NR		P	
7439-96-5	Manganese	NR		P	
7439-97-6	Mercury	NR		CV	
7440-02-0	Nickel	NR		P	
7440-09-7	Potassium	NR		P	
7782-49-2	Selenium	NR		F	
7440-22-4	Silver	NR		P	
7440-23-5	Sodium	NR		P	
7440-28-0	Thallium	NR		F	
7440-62-2	Vanadium	NR		P	
7440-66-6	Zinc	NR		P	
_____	Cyanide	NR			
_____	_____				

Color Before: Colorless Clarity Before: Clear Texture: NA

Color After: Colorless Clarity After: Clear Artifacts: NA

Comments:

NR Not requested

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-2

Lab Name: HUNTINGDON ANALYTICAL SERVICES Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: NA

Matrix (soil/water): WATER Lab Sample ID: 759-008

Level (low/med): LOW Date Received: 6/1/90

% Solids:

Concentration Units (ug/L or mg/kg dry weight): ug/L

CAS No.	Analyte	Concentration	C	M	Q
7429-90-5	Aluminum	NR		P	
7440-36-0	Antimony	NR		P	
7440-38-2	Arsenic	NR		F	
7440-39-3	Barium	NR		P	
7440-41-7	Beryllium	NR		P	
7440-43-9	Cadmium	NR		P	
7440-70-2	Calcium	NR		P	
7440-47-3	Chromium	NR		P	
7440-48-4	Cobalt	NR		P	
7440-50-8	Copper	NR		P	
7439-89-6	Iron	NR		P	
7439-92-1	Lead	5.0	W	F	W
7439-95-4	Magnesium	NR		P	
7439-96-5	Manganese	NR		P	
7439-97-6	Mercury	NR		CV	
7440-02-0	Nickel	NR		P	
7440-09-7	Potassium	NR		P	
7782-49-2	Selenium	NR		F	
7440-22-4	Silver	NR		P	
7440-23-5	Sodium	NR		P	
7440-28-0	Thallium	NR		F	
7440-62-2	Vanadium	NR		P	
7440-66-6	Zinc	NR		P	
	Cyanide	NR			

Color Before: Colorless Clarity Before: Clear Texture: NA

Color After: Colorless Clarity After: Clear Artifacts: NA

Comments:

NR Not requested

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.: GW-3

Lab Name: HUNTINGDON ANALYTICAL SERVICES Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: NA

Matrix (soil/water): WATER Lab Sample ID: 759-007

Level (low/med): LOW Date Received: 6/1/90

% Solids: _____

Concentration Units (ug/L or mg/kg dry weight): ug/L

CAS No.	Analyte	Concentration	C	M	Q
7429-90-5	Aluminum	NR		P	
7440-36-0	Antimony	NR		P	
7440-38-2	Arsenic	NR		F	
7440-39-3	Barium	NR		P	
7440-41-7	Beryllium	NR		P	
7440-43-9	Cadmium	NR		P	
7440-70-2	Calcium	NR		P	
7440-47-3	Chromium	NR		P	
7440-48-4	Cobalt	NR		P	
7440-50-8	Copper	NR		P	
7439-89-6	Iron	NR		P	
7439-92-1	Lead	239		F	
7439-95-4	Magnesium	NR		P	
7439-96-5	Manganese	NR		P	
7439-97-6	Mercury	NR		CV	
7440-02-0	Nickel	NR		P	
7440-09-7	Potassium	NR		P	
7782-49-2	Selenium	NR		F	
7440-22-4	Silver	NR		P	
7440-23-5	Sodium	NR		P	
7440-28-0	Thallium	NR		F	
7440-62-2	Vanadium	NR		P	
7440-66-6	Zinc	NR		P	
	Cyanide	NR			

Color Before: Brown Clarity Before: Cloudy Texture: NA

Color After: Colorless Clarity After: Clear Artifacts: NA

Comments:

NR Not requested

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-4

Lab Name: HUNTINGDON ANALYTICAL SERVICES Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: NA

Matrix (soil/water): WATER Lab Sample ID: 759-003

Level (low/med): LOW Date Received: 6/1/90

% Solids: _____

Concentration Units (ug/L or mg/kg dry weight): ug/L

CAS No.	Analyte	Concentration	C	M	Q
7429-90-5	Aluminum	NR		P	
7440-36-0	Antimony	NR		P	
7440-38-2	Arsenic	NR		F	
7440-39-3	Barium	NR		P	
7440-41-7	Beryllium	NR		P	
7440-43-9	Cadmium	NR		P	
7440-70-2	Calcium	NR		P	
7440-47-3	Chromium	NR		P	
7440-48-4	Cobalt	NR		P	
7440-50-8	Copper	NR		P	
7439-89-6	Iron	NR		P	
7439-92-1	Lead	43.7		F	
7439-95-4	Magnesium	NR		P	
7439-96-5	Manganese	NR		P	
7439-97-6	Mercury	NR		CV	
7440-02-0	Nickel	NR		P	
7440-09-7	Potassium	NR		P	
7782-49-2	Selenium	NR		F	
7440-22-4	Silver	NR		P	
7440-23-5	Sodium	NR		P	
7440-28-0	Thallium	NR		F	
7440-62-2	Vanadium	NR		P	
7440-66-6	Zinc	NR		P	
	Cyanide	NR			

Color Before: BROWN Clarity Before: Cloudy Texture: NA

Color After: Colorless Clarity After: Clear Artifacts: NA

Comments:

NR Not requested

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-4 dup

Lab Name: HUNTINGDON ANALYTICAL SERVICES Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: NA

Matrix (soil/water): WATER Lab Sample ID: 759-005

Level (low/med): LOW Date Received: 6/1/90

% Solids: _____

Concentration Units (ug/L or mg/kg dry weight): ug/L

CAS No.	Analyte	Concentration	C	M	Q
7429-90-5	Aluminum	NR		P	
7440-36-0	Antimony	NR		P	
7440-38-2	Arsenic	NR		F	
7440-39-3	Barium	NR		P	
7440-41-7	Beryllium	NR		P	
7440-43-9	Cadmium	NR		P	
7440-70-2	Calcium	NR		P	
7440-47-3	Chromium	NR		P	
7440-48-4	Cobalt	NR		P	
7440-50-8	Copper	NR		P	
7439-89-6	Iron	NR		P	
7439-92-1	Lead	51.7		F	
7439-95-4	Magnesium	NR		P	
7439-96-5	Manganese	NR		P	
7439-97-6	Mercury	NR		CV	
7440-02-0	Nickel	NR		P	
7440-09-7	Potassium	NR		P	
7782-49-2	Selenium	NR		F	
7440-22-4	Silver	NR		P	
7440-23-5	Sodium	NR		P	
7440-28-0	Thallium	NR		F	
7440-62-2	Vanadium	NR		P	
7440-66-6	Zinc	NR		P	
	Cyanide	NR			

Color Before: Brown Clarity Before: cloudy Texture: NA

Color After: Colorless Clarity After: Clear Artifacts: NA

Comments:

NR Not requested

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.: GW-5

Lab Name: HUNTINGDON ANALYTICAL SERVICES Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: NA

Matrix (soil/water): WATER Lab Sample ID: 759-004

Level (low/med): LOW Date Received: 6/1/90

% Solids: _____

Concentration Units (ug/L or mg/kg dry weight): ug/L

CAS No.	Analyte	Concentration	C	M	Q
7429-90-5	Aluminum	NR		P	
7440-36-0	Antimony	NR		P	
7440-38-2	Arsenic	NR		F	
7440-39-3	Barium	NR		P	
7440-41-7	Beryllium	NR		P	
7440-43-9	Cadmium	NR		P	
7440-70-2	Calcium	NR		P	
7440-47-3	Chromium	NR		P	
7440-48-4	Cobalt	NR		P	
7440-50-8	Copper	NR		P	
7439-89-6	Iron	NR		P	
7439-92-1	Lead	9.7		F	
7439-95-4	Magnesium	NR		P	
7439-96-5	Manganese	NR		P	
7439-97-6	Mercury	NR		CV	
7440-02-0	Nickel	NR		P	
7440-09-7	Potassium	NR		P	
7782-49-2	Selenium	NR		F	
7440-22-4	Silver	NR		P	
7440-23-5	Sodium	NR		P	
7440-28-0	Thallium	NR		F	
7440-62-2	Vanadium	NR		P	
7440-66-6	Zinc	NR		P	
	Cyanide	NR			

Color Before: Brown Clarity Before: cloudy Texture: NA

Color After: Colorless Clarity After: clear Artifacts: NA

Comments:

NR Not requested

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.: Rinsate Blank

Lab Name: HUNTINGDON ANALYTICAL SERVICES Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: NA

Matrix (soil/water): WATER Lab Sample ID: 759-002

Level (low/med): LOW Date Received: 6/1/90

% Solids: _____

Concentration Units (ug/L or mg/kg dry weight): ug/L

CAS No.	Analyte	Concentration	C	M	Q
7429-90-5	Aluminum	NR		P	
7440-36-0	Antimony	NR		P	
7440-38-2	Arsenic	NR		F	
7440-39-3	Barium	NR		P	
7440-41-7	Beryllium	NR		P	
7440-43-9	Cadmium	NR		P	
7440-70-2	Calcium	NR		P	
7440-47-3	Chromium	NR		P	
7440-48-4	Cobalt	NR		P	
7440-50-8	Copper	NR		P	
7439-89-6	Iron	NR		P	
7439-92-1	Lead	5.0	U	F	
7439-95-4	Magnesium	NR		P	
7439-96-5	Manganese	NR		P	
7439-97-6	Mercury	NR		CV	
7440-02-0	Nickel	NR		P	
7440-09-7	Potassium	NR		P	
7782-49-2	Selenium	NR		F	
7440-22-4	Silver	NR		P	
7440-23-5	Sodium	NR		P	
7440-28-0	Thallium	NR		F	
7440-62-2	Vanadium	NR		P	
7440-66-6	Zinc	NR		P	
	Cyanide	NR			

Color Before: Colorless Clarity Before: Clear Texture: NA

Color After: Colorless Clarity After: Clear Artifacts: NA

Comments:

NR Not requested

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.: Seep (dissolved)

Lab Name: HUNTINGDON ANALYTICAL SERVICES Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: NA

Matrix (soil/water): WATER Lab Sample ID: 759-010D

Level (low/med): LOW Date Received: 6/1/90

% Solids: _____

Concentration Units (ug/L or mg/kg dry weight): ug/L

CAS No.	Analyte	Concentration	C	M	Q
7429-90-5	Aluminum	289		P	
7440-36-0	Antimony	60.0	U	P	
7440-38-2	Arsenic	10.0	U	F	
7440-39-3	Barium	89.6	B	P	
7440-41-7	Beryllium	12.0	U	P	
7440-43-9	Cadmium	24.0	U	P	
7440-70-2	Calcium	11400		P	
7440-47-3	Chromium	19.0	U	P	
7440-48-4	Cobalt	50.0	U	P	
7440-50-8	Copper	24.1	J	P	
7439-89-6	Iron	240		P	
7439-92-1	Lead	5.0	U	F	W
7439-95-4	Magnesium	15700		P	
7439-96-5	Manganese	113		P	
7439-97-6	Mercury	0.2	U	CV	
7440-02-0	Nickel	41.0	U	P	
7440-09-7	Potassium	5000	U	P	
7782-49-2	Selenium	5.0	U	F	
7440-22-4	Silver	10.0	U	P	
7440-23-5	Sodium	66400		P	
7440-28-0	Thallium	10.0	U	F	
7440-62-2	Vanadium	50.0	U	P	
7440-66-6	Zinc	20.0	U	P	
	Cyanide				

Color Before: colorless Clarity Before: clear Texture: NA

Color After: colorless Clarity After: clear Artifacts: NA

Comments:

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

Seep (Total)

Lab Name: HUNTINGDON ANALYTICAL SERVICES Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: NA

Matrix (soil/water): WATER Lab Sample ID: 759-010

Level (low/med): LOW Date Received: 6/1/90

% Solids:

Concentration Units (ug/L or mg/kg dry weight): ug/L

CAS No.	Analyte	Concentration	C	M	Q
7429-90-5	Aluminum	5990		P	N
7440-36-0	Antimony	60.0	U	P	
7440-38-2	Arsenic	10.0	U	F	
7440-39-3	Barium	122	B	P	
7440-41-7	Beryllium	12.0	U	P	
7440-43-9	Cadmium	24.0	U	P	
7440-70-2	Calcium	112000		P	
7440-47-3	Chromium	19.0	U	P	
7440-48-4	Cobalt	50.0	U	P	
7440-50-8	Copper	43.2		P	*
7439-89-6	Iron	4940		P	
7439-92-1	Lead	14.1		F	
7439-95-4	Magnesium	16700		P	
7439-96-5	Manganese	253		P	
7439-97-6	Mercury	0.2	U	CV	
7440-02-0	Nickel	41.0	U	P	
7440-09-7	Potassium	6280		P	
7782-49-2	Selenium	5.0	U	F	
7440-22-4	Silver	10.0	U	P	
7440-23-5	Sodium	64700		P	
7440-28-0	Thallium	10.0	U	F	
7440-62-2	Vanadium	50.0	U	P	
7440-66-6	Zinc	20.0	U	P	
	Cyanide				

Color Before: Colorless Clarity Before: clear Texture: NA

Color After: Colorless Clarity After: clear Artifacts: NA

Comments:

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

TRIP BLANK

Lab Name: HUNTINGDON ANALYTICAL SERVICES Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: NA

Matrix (soil/water): WATER Lab Sample ID: 759-009

Level (low/med): LOW Date Received: 6/1/90

% Solids: _____

Concentration Units (ug/L or mg/kg dry weight): ug/L

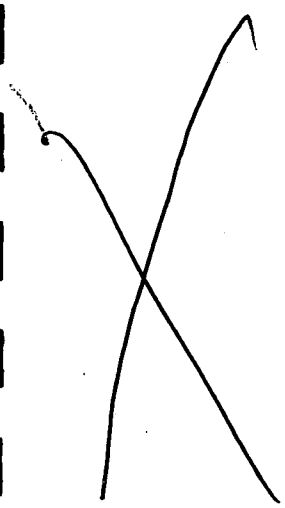
CAS No.	Analyte	Concentration	C	M	Q
7429-90-5	Aluminum	NR		P	
7440-36-0	Antimony	NR		P	
7440-38-2	Arsenic	NR		F	
7440-39-3	Barium	NR		P	
7440-41-7	Beryllium	NR		P	
7440-43-9	Cadmium	NR		P	
7440-70-2	Calcium	NR		P	
7440-47-3	Chromium	NR		P	
7440-48-4	Cobalt	NR		P	
7440-50-8	Copper	NR		P	
7439-89-6	Iron	NR		P	
7439-92-1	Lead	21.5		F	
7439-95-4	Magnesium	NR		P	
7439-96-5	Manganese	NR		P	
7439-97-6	Mercury	NR		CV	
7440-02-0	Nickel	NR		P	
7440-09-7	Potassium	NR		P	
7782-49-2	Selenium	NR		F	
7440-22-4	Silver	NR		P	
7440-23-5	Sodium	NR		P	
7440-28-0	Thallium	NR		F	
7440-62-2	Vanadium	NR		P	
7440-66-6	Zinc	NR		P	
	Cyanide	NR			

Color Before: colorless Clarity Before: clear Texture: NA

Color After: colorless Clarity After: clear Artifacts: NA

Comments:

NR



PHASE II
ENVIRONMENTAL INVESTIGATION
OIL AND GREASE
RESULTS FOR
SEED SAMPLE

HUNTINGDON ANALYTICAL SERVICES
ENVIRONMENTAL

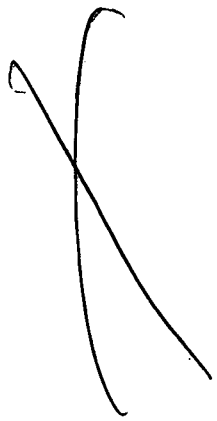
Inorganic Wet Chemical Analyses

Analyte: Total Recoverable Oil and Grease

EPA Method No.: 413.1

Sample Date	HAS Sample #90-	Client I.D.	Date Prepared	Date Analyzed	Method Detection Limit	Result	Units	QC in %
06/01/90	759-010A	Seep	06/04/90	06/04/90	5.0	8.3	mg/l	--
06/01/90	759-010B	Seep - MS†	06/04/90	06/04/90	5.0	112.7	mg/l	100% Recovery
06/01/90	759-010C	Seep - MSD†	06/04/90	06/04/90	5.0	105.1	mg/l	93% Recovery, 7 RPD
06/01/90	Blank	--	06/04/90	06/04/90	5.0	<5	mg/l	--
06/01/90	436 mg/l Reference Std	--	06/04/90	06/04/90	5.0	412.7	mg/l	95% Recovery

† Spiking level was 104.5 mg/l of a mixture of #2 Fuel Oil an Wesson Oil.



PHASE II
ENVIRONMENTAL INVESTIGATION
EP TOXICITY TEST
RESULTS FOR SOIL
SAMPLES

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SB-3-5-21

Lab Name: HUNTINGDON ANALYTICAL SERVICES Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: NA

Matrix (soil/water): SOIL* Lab Sample ID: 90-710-001

Level (low/med): LOW Date Received: 5/23/90

% Solids:

Concentration Units (ug/L or mg/kg dry weight): ug/L

CAS No.	Analyte	Concentration	C	M	Q
7429-90-5	Aluminum	NR			
7440-36-0	Antimony	NR			
7440-38-2	Arsenic	NR			
7440-39-3	Barium	NR			
7440-41-7	Beryllium	NR			
7440-43-9	Cadmium	NR			
7440-70-2	Calcium	NR			
7440-47-3	Chromium	NR			
7440-48-4	Cobalt	NR			
7440-50-8	Copper	NR			
7439-89-6	Iron	NR			
7439-92-1	Lead	1270		F	W
7439-95-4	Magnesium	NR			
7439-96-5	Manganese	NR			
7439-97-6	Mercury	NR			
7440-02-0	Nickel	NR			
7440-09-7	Potassium	NR			
7782-49-2	Selenium	NR			
7440-22-4	Silver	NR			
7440-23-5	Sodium	NR			
7440-28-0	Thallium	NR			
7440-62-2	Vanadium	NR			
7440-66-6	Zinc	NR			
	Cyanide	NR			

Color Before: NA Clarity Before: NA Texture: coarse

Color After: NA Clarity After: NA Artifacts: none

Comments:

* ANALYSIS OF EP TOXICITY METALS ONLY

NA: NOT APPLICABLE
NR: NOT REQUESTED

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SB-4-5-21

Lab Name: HUNTINGDON ANALYTICAL SERVICES Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: NA

Matrix (soil/water): SOIL* Lab Sample ID: 90-710-002

Level (low/med): LOW Date Received: 5/23/90

% Solids:

Concentration Units (ug/L or mg/kg dry weight): ug/L

CAS No.	Analyte	Concentration	C	M	Q
7429-90-5	Aluminum	NR			
7440-36-0	Antimony	NR			
7440-38-2	Arsenic	NR			
7440-39-3	Barium	NR			
7440-41-7	Beryllium	NR			
7440-43-9	Cadmium	NR			
7440-70-2	Calcium	NR			
7440-47-3	Chromium	NR			
7440-48-4	Cobalt	NR			
7440-50-8	Copper	NR			
7439-89-6	Iron	NR			
7439-92-1	Lead	634		F	
7439-95-4	Magnesium	NR			
7439-96-5	Manganese	NR			
7439-97-6	Mercury	NR			
7440-02-0	Nickel	NR			
7440-09-7	Potassium	NR			
7782-49-2	Selenium	NR			
7440-22-4	Silver	NR			
7440-23-5	Sodium	NR			
7440-28-0	Thallium	NR			
7440-62-2	Vanadium	NR			
7440-66-6	Zinc	NR			
	Cyanide	NR			

Color Before: NA Clarity Before: NA Texture: Coarse

Color After: NA Clarity After: NA Artifacts: none

Comments:

* ANALYSIS OF EP TOXICITY METALS ONLY

NA: NOT APPLICABLE
NR: NOT REQUESTED

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SB-5-5-21

Lab Name: HUNTINGDON ANALYTICAL SERVICES Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: NA

Matrix (soil/water): SOIL* Lab Sample ID: 90-710-003

Level (low/med): LOW Date Received: 5/23/90

% Solids: _____

Concentration Units (ug/L or mg/kg dry weight): ug/L

CAS No.	Analyte	Concentration	C	M	Q
7429-90-5	Aluminum	NR			
7440-36-0	Antimony	NR			
7440-38-2	Arsenic	NR			
7440-39-3	Barium	NR			
7440-41-7	Beryllium	NR			
7440-43-9	Cadmium	NR			
7440-70-2	Calcium	NR			
7440-47-3	Chromium	NR			
7440-48-4	Cobalt	NR			
7440-50-8	Copper	NR			
7439-89-6	Iron	NR			
7439-92-1	Lead	1720		F	
7439-95-4	Magnesium	NR			
7439-96-5	Manganese	NR			
7439-97-6	Mercury	NR			
7440-02-0	Nickel	NR			
7440-09-7	Potassium	NR			
7782-49-2	Selenium	NR			
7440-22-4	Silver	NR			
7440-23-5	Sodium	NR			
7440-28-0	Thallium	NR			
7440-62-2	Vanadium	NR			
7440-66-6	Zinc	NR			
	Cyanide	NR			

Color Before: NA Clarity Before: NA Texture: Coarse

Color After: NA Clarity After: NA Artifacts: None

Comments:

* ANALYSIS OF EP TOXICITY METALS ONLY

NA: NOT APPLICABLE

NR: NOT REQUESTED

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SB-7-5-21

Lab Name: HUNTINGDON ANALYTICAL SERVICES Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: NA

Matrix (soil/water): SOIL* Lab Sample ID: 90-710-004

Level (low/med): LOW Date Received: 5/23/90

% Solids:

Concentration Units (ug/L or mg/kg dry weight): ug/L

CAS No.	Analyte	Concentration	C	M	Q
7429-90-5	Aluminum	NR			
7440-36-0	Antimony	NR			
7440-38-2	Arsenic	NR			
7440-39-3	Barium	NR			
7440-41-7	Beryllium	NR			
7440-43-9	Cadmium	NR			
7440-70-2	Calcium	NR			
7440-47-3	Chromium	NR			
7440-48-4	Cobalt	NR			
7440-50-8	Copper	NR			
7439-89-6	Iron	NR			
7439-92-1	Lead	5.0	U	F	
7439-95-4	Magnesium	NR			
7439-96-5	Manganese	NR			
7439-97-6	Mercury	NR			
7440-02-0	Nickel	NR			
7440-09-7	Potassium	NR			
7782-49-2	Selenium	NR			
7440-22-4	Silver	NR			
7440-23-5	Sodium	NR			
7440-28-0	Thallium	NR			
7440-62-2	Vanadium	NR			
7440-66-6	Zinc	NR			
	Cyanide	NR			

Color Before: NA Clarity Before: NA Texture: medium

Color After: NA Clarity After: NA Artifacts: none

Comments:

* ANALYSIS OF EP TOXICITY METALS ONLY

NA: NOT APPLICABLE

NR: NOT REQUESTED

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SB-8-5-21

Lab Name: HUNTINGDON ANALYTICAL SERVICES Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: NA

Matrix (soil/water): SOIL* Lab Sample ID: 90-710-005

Level (low/med): LOW Date Received: 5/23/90

% Solids: _____

Concentration Units (ug/L or mg/kg dry weight): ug/L

CAS No.	Analyte	Concentration	C	M	Q
7429-90-5	Aluminum	NR			
7440-36-0	Antimony	NR			
7440-38-2	Arsenic	NR			
7440-39-3	Barium	NR			
7440-41-7	Beryllium	NR			
7440-43-9	Cadmium	NR			
7440-70-2	Calcium	NR			
7440-47-3	Chromium	NR			
7440-48-4	Cobalt	NR			
7440-50-8	Copper	NR			
7439-89-6	Iron	NR			
7439-92-1	Lead	5.0	U	F	W
7439-95-4	Magnesium	NR			
7439-96-5	Manganese	NR			
7439-97-6	Mercury	NR			
7440-02-0	Nickel	NR			
7440-09-7	Potassium	NR			
7782-49-2	Selenium	NR			
7440-22-4	Silver	NR			
7440-23-5	Sodium	NR			
7440-28-0	Thallium	NR			
7440-62-2	Vanadium	NR			
7440-66-6	Zinc	NR			
	Cyanide	NR			

Color Before: NA Clarity Before: NA Texture: Coarse

Color After: NA Clarity After: NA Artifacts: none

Comments:

* ANALYSIS OF EP TOXICITY METALS ONLY

NA: NOT APPLICABLE

NR: NOT REQUESTED

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

RESIN-5-22

Lab Name: HUNTINGDON ANALYTICAL SERVICES Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: NA

Matrix (soil/water): SOIL* Lab Sample ID: 90-710-006

Level (low/med): LOW Date Received: 5/23/90

% Solids: _____

Concentration Units (ug/L or mg/kg dry weight): ug/L

CAS No.	Analyte	Concentration	C	M	Q
7429-90-5	Aluminum	NR			
7440-36-0	Antimony	NR			
7440-38-2	Arsenic	67.0	U	P	
7440-39-3	Barium	860		P	
7440-41-7	Beryllium	NR			
7440-43-9	Cadmium	17.3	B	P	~~X~~ E
7440-70-2	Calcium	NR			
7440-47-3	Chromium	19.0	U	P	
7440-48-4	Cobalt	NR			
7440-50-8	Copper	NR			
7439-89-6	Iron	NR			
7439-92-1	Lead	179		F	
7439-95-4	Magnesium	NR			
7439-96-5	Manganese	NR			
7439-97-6	Mercury	0.8	U	CV	
7440-02-0	Nickel	NR			
7440-09-7	Potassium	NR			
7782-49-2	Selenium	68.0	U	P	
7440-22-4	Silver	10.0	U	P	
7440-23-5	Sodium	NR			
7440-28-0	Thallium	NR			
7440-62-2	Vanadium	NR			
7440-66-6	Zinc	NR			
	Cyanide	NR			

Color Before: NA Clarity Before: NA Texture: Coarse

Color After: NA Clarity After: NA Artifacts: none

Comments:

* ANALYSIS OF EP TOXICITY METALS ONLY

NA: NOT APPLICABLE

NR: NOT REQUESTED

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SB-1-5-22

Lab Name: HUNTINGDON ANALYTICAL SERVICES Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: NA

Matrix (soil/water): SOIL* Lab Sample ID: 90-710-007

Level (low/med): LOW Date Received: 5/23/90

% Solids:

Concentration Units (ug/L or mg/kg dry weight): ug/L

CAS No.	Analyte	Concentration	C	M	Q
7429-90-5	Aluminum	NR			
7440-36-0	Antimony	NR			
7440-38-2	Arsenic	NR			
7440-39-3	Barium	NR			
7440-41-7	Beryllium	NR			
7440-43-9	Cadmium	NR			
7440-70-2	Calcium	NR			
7440-47-3	Chromium	NR			
7440-48-4	Cobalt	NR			
7440-50-8	Copper	NR			
7439-89-6	Iron	NR			
7439-92-1	Lead	657		F	X
7439-95-4	Magnesium	NR			
7439-96-5	Manganese	NR			
7439-97-6	Mercury	NR			
7440-02-0	Nickel	NR			
7440-09-7	Potassium	NR			
7782-49-2	Selenium	NR			
7440-22-4	Silver	NR			
7440-23-5	Sodium	NR			
7440-28-0	Thallium	NR			
7440-62-2	Vanadium	NR			
7440-66-6	Zinc	NR			
	Cyanide	NR			

Color Before: NA Clarity Before: NA Texture: medium

Color After: NA Clarity After: NA Artifacts: Yes

Comments:

* ANALYSIS OF EP TOXICITY METALS ONLY

NA: NOT APPLICABLE
NR: NOT REQUESTED

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SB-6-5-22

Lab Name: HUNTINGDON ANALYTICAL SERVICES Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: NA

Matrix (soil/water): SOIL* Lab Sample ID: 90-710-008

Level (low/med): LOW Date Received: 5/23/90

% Solids:

Concentration Units (ug/L or mg/kg dry weight): ug/L

CAS No.	Analyte	Concentration	C	M	Q
7429-90-5	Aluminum	NR			
7440-36-0	Antimony	NR			
7440-38-2	Arsenic	NR			
7440-39-3	Barium	NR			
7440-41-7	Beryllium	NR			
7440-43-9	Cadmium	NR			
7440-70-2	Calcium	NR			
7440-47-3	Chromium	NR			
7440-48-4	Cobalt	NR			
7440-50-8	Copper	NR			
7439-89-6	Iron	NR			
7439-92-1	Lead	294		F	
7439-95-4	Magnesium	NR			
7439-96-5	Manganese	NR			
7439-97-6	Mercury	NR			
7440-02-0	Nickel	NR			
7440-09-7	Potassium	NR			
7782-49-2	Selenium	NR			
7440-22-4	Silver	NR			
7440-23-5	Sodium	NR			
7440-28-0	Thallium	NR			
7440-62-2	Vanadium	NR			
7440-66-6	Zinc	NR			
	Cyanide	NR			

Color Before: NA Clarity Before: NA Texture: Coarse

Color After: NA Clarity After: NA Artifacts: None

Comments:

* ANALYSIS OF EP TOXICITY METALS ONLY

NA: NOT APPLICABLE

NR: NOT REQUESTED

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SB-2-5-22

Lab Name: HUNTINGDON ANALYTICAL SERVICES Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: NA

Matrix (soil/water): SOIL* Lab Sample ID: 90-710-009

Level (low/med): LOW Date Received: 5/23/90

% Solids: _____

Concentration Units (ug/L or mg/kg dry weight): ug/L

CAS No.	Analyte	Concentration	C	M	Q
7429-90-5	Aluminum	NR			
7440-36-0	Antimony	NR			
7440-38-2	Arsenic	NR			
7440-39-3	Barium	NR			
7440-41-7	Beryllium	NR			
7440-43-9	Cadmium	NR			
7440-70-2	Calcium	NR			
7440-47-3	Chromium	NR			
7440-48-4	Cobalt	NR			
7440-50-8	Copper	NR			
7439-89-6	Iron	NR			
7439-92-1	Lead	417		F	
7439-95-4	Magnesium	NR			
7439-96-5	Manganese	NR			
7439-97-6	Mercury	NR			
7440-02-0	Nickel	NR			
7440-09-7	Potassium	NR			
7782-49-2	Selenium	NR			
7440-22-4	Silver	NR			
7440-23-5	Sodium	NR			
7440-28-0	Thallium	NR			
7440-62-2	Vanadium	NR			
7440-66-6	Zinc	NR			
	Cyanide	NR			

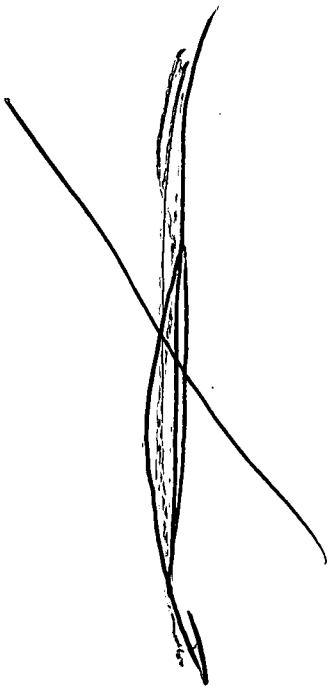
Color Before: NA Clarity Before: NA Texture: Coarse

Color After: NA Clarity After: NA Artifacts: none

Comments:

* ANALYSIS OF EP TOXICITY METALS ONLY

NA: NOT APPLICABLE
NR: NOT REQUESTED



PHASE II
ENVIRONMENTAL SITE INVESTIGATIONS
CHAIN-OF-CUSTODY RECORDS

HUNTINGDON ANALYTICAL SERVICES · CHAIN-OF-CUSTODY RECORD AND ANALYTICAL REQUEST FORM

Page of

Client Name: (OCCIDENTAL) Witmer Road
Address: Niagara Falls, N.Y.

Client Contact: Dave Hardy
Phone: (716) 649-8110

HAS Quote #:
P.O. #:

Project No.: BTA-89-39B
Project/Site Name: WITMER ROAD
Samplers (Signature): Lou A Zimmerman
HAS Rel. No.: 90-759

Sample I.D.	Date	Time	Comp.	Grab	Sample Location	HAS Seq. #	No. of Containers	Container Size & Type: 40 ml Amber Glass	1/2 Gal Amber Glass	1 Liter Plastic	1 Liter Amber Glass	Analysis Requested/ Remarks
GW-1	5-31-90	1:35		X	monitor well #1	001	4	2	1	1		VOLATILES (8240) LEAD (7421 Semi-Volatiles (8270)
Rinsate Blank	5-31-90	1:35		X	bailer of MW #1	002	4	2	1	1		
GW-4	5-31-90	2:30		X	monitor well #4	003/005	4	2	2			
GW-5	5-31-90	3:25		X	monitor well #5	004	8	5	2	1		
GW-5MS	5-31-90	3:25		X	"	005	4	2	1	1		
GW-5MD	5-31-90	3:25		X	"	006	4	2	1	1		
GW-3	6-1-90	9:45		X	monitor well #3	007	4	2	1	1		
GW-2	6-1-90	10:20		X	monitor well #2	008	4	2	1	1		
TRIP BLANK	5-31-90	1:10		X	LAB	009	4	2	1	1		
SEEP	6-1-90	11:30		X	*	010	5			2	3	TCL Dissolved Metals, TCL Total Metals, Cyanide

* SEE BBL NOTES FOR SEEP SAMPLE LOCATION

SAMPLE 759-005 IS GW-4 DUP KRS 6/1/90

THERE IS NO 759-006 KRS 6/1/90

Relinquished by:	Date/Time:	Received by:	Relinquished by:	Date/Time:	Received by:
Lou A Zimmerman	6-1-90 2:00	Mary Beaudoin			
Relinquished by:	Date/Time:	Received by:	Relinquished by:	Date/Time:	Received by:
Relinquished by:	Date/Time:	Received for Lab by: Mary Beaudoin 6/1/90 12:10	Remarks: Lou + Dave - Duplicate GW-4 cc - DW, DA, TC, PM, JR, MF, TB		

605-

HUNTINGDON ANALYTICAL SERVICES - CHAIN-OF-CUSTODY RECORD AND ANALYTICAL REQUEST FORM

Page of

Client Name: Aztec (NYSDEC) Witmer Rd Niagara Falls, N.Y.

Client Contact: Dave Harty

HAS Quote #:

Address:

Phone: (716) 649-8110

P.O. #:

Project No.:

Project/Site Name:

Samplers (Signature):

HAS Ref. #90-760

Sample I.D.	Date	Time	Comp.	Grab	Sample Location	HAS Seq. #	Matrix	# of Containers	40 ml Amber	1 L Plastic	1/2 2.5 L Amber	Analysis Requested / Remarks
Dup. GW-4	5-31-90	2:30		X	Monitor well #4	001	L	4	2	1	1	volatiles 8240, Lead (7421), semi-volatile (8,27
Dup GW-5	5-31-90	3:25		X	monitor well #5	002	L	4	3		1	volatiles (8240), semi-volatile 827

VOA

Relinquished by: | Date/Time: | Received by: Mary Brandstrom

Relinquished by: | Date/Time: | Received by:

Relinquished by: | Date/Time: | Received for Lab by:

Relinquished by: | Date/Time: | Received By:

Relinquished by: | Date/Time: | Received By:

Relinquished by: | Date/Time: | Remarks:

910

HUNTINGDON ANALYTICAL SERVICES · CHAIN-OF-CUSTODY RECORD AND ANALYTICAL REQUEST FORM — Page of

Client Name: ASTERA — Client Contact: DAVE HARTY — HAS Quote #:
Address: WITMER ROAD, NIAGARA FALLS, N.Y. — Phone: (716) 649-8110 — P.O. #:

Project No.: BTA-89-39B — Project/Site Name: WITMER RD
Sampler's (Signature): Lori A. Zimmerman — HAS Ref. No.: 90-710

Sample I.D.	Date	Time	Comp.	Grab	Sample Location	HAS Seq. #	No. of Containers	Container Size & Type: 1000 ml amber glass	Analysis Requested / Remarks
SB-3-5-21		2:15	X		*	001	1	1	EP TOX (LEAD ONLY)
SB-4-5-21		1:15	X			002	1	1	[ ]
SB-5-5-21		2:35	X			003	1	1	[ ]
SB-7-5-21		AM	X			004	1	1	[ ]
SB-8-5-21		3:25	X			005	1	1	[ ]
Resin-5-22		12:45	X			006	1	1	EP TOXICITY METALS EP TOXICITY ORGANICS
SB-1-5-22		9:45	X			007	1	1	EP TOX (LEAD ONLY)
SB-6-5-22		10:30	X			008	1	1	[ ]
SB-2-5-22		1:25	X			009	1	1	[ ]
						MEB			

* See ESI notes for sample locations

Relinquished by:	Date/Time:	Received by:	Relinquished by:	Date/Time:	Received by:
Lori A. Zimmerman	5-22-90 5:30				Mary Beaudoin
Relinquished by:	Date/Time:	Received by:	Relinquished by:	Date/Time:	Received by:
Relinquished by:	Date/Time:	Received for Lab by: Mary Beaudoin	Date/Time: 5/23/90 12:00	Remarks: CC - JW, MA, PW, DA, TC	

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COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Name: HAS_____ Contract: _____

Code: _____ Case No.: _____ SAS No.: _____ SDG No.: GW-3__

No.: _7/68

EPA Sample No.	Lab Sample ID
_W-3_SOL_____	__1340-001____
_GW-3_SS_____	__1340-001_M__
_GW-3_SS_____	__1340-001_M__
_W-3_TOT_____	__1340-002_1__

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NOV 6 1990
EMPIRE-THOMSEN
BUFFALO, NY

e ICP interelement corrections applied ? Yes/No NO_

ere ICP background corrections applied ? Yes/No NO_
If yes - were raw data generated before application of background corrections ? Yes/No

mments:
SS: Indicates a Sample Spike M: Indicates an MS or MSD

certify that this data package is in compliance with the terms and nditions of the contract, both technically and for completeness, for her than the conditions detailed above. Release of the data contained n this hardcopy data package ~~and in the computer-readable data submitted on floppy diskette~~ has been authorized by the Laboratory Manager or the nager's designee, as verified by the following signature. KAS 11/2/90

ignature: Katherine A. Syracuse Name: Katherine A. Syracuse

te: November 2, 1990 Title: Director, Environmental

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1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

GW-3 SOL

Name: HAS_____ Contract: _____

Code: _____ Case No.: _____ SAS No.: _____ SDG No.: GW-3__

Matrix (soil/water): WATER Lab Sample ID: 1340-001__

Level (low/med): LOW__ Date Received: 09/28/90

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead	6.0			F
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide				NR

Color Before: OPAQUE___ Clarity Before: CLEAR_ Texture: _____

Color After: OPAQUE___ Clarity After: CLEAR_ Artifacts: _____

Comments:

_____

_____

_____

_____

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INORGANIC ANALYSES DATA SHEET

1

EPA SAMPLE NO.

GW-3 TOT

Lab Name: HAS_____ Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: GW-3__

Matrix (soil/water): WATER Lab Sample ID: 1340-002 1

Level (low/med): LOW__ Date Received: 10/26/90

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead	3190			F
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
_____	Cyanide				NR

Color Before: BROWN____ Clarity Before: POOR__ Texture: _____

Color After: OPAQUE___ Clarity After: CLEAR_ Artifacts: _____

Comments:

_____

_____

_____

_____

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2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Name: HAS_____ Contract: _____

Lab Code: ____ Case No.: _____ SAS No.: _____ SDG No.: GW-3__

Initial Calibration Source: EPA_____

Continuing Calibration Source: EPA_____

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum									NR
Antimony									NR
Arsenic									NR
Barium									NR
Beryllium									NR
Cadmium									NR
Calcium									NR
Chromium									NR
Cobalt									NR
Copper									NR
Iron									NR
Lead	72.0	73.80	102.5	72.0	76.80	106.7			P
Magnesium									NR
Manganese									NR
Mercury									NR
Nickel									NR
Potassium									NR
Selenium									NR
Silver									NR
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc									NR
Cyanide									NR

1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

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2B
CRDL STANDARD FOR AA AND ICP

Lab Name: HAS Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: GW-3

AA CRDL Standard Source: EM Science

ICP CRDL Standard Source: _____

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
	True	Found	%R	True	Initial Found	%R	Final Found	%R
Aluminum								
Antimony								
Arsenic								
Barium								
Beryllium								
Cadmium								
Calcium								
Chromium								
Cobalt								
Copper								
Iron								
Lead	5.0	6.3	126					
Magnesium								
Manganese								
Mercury								
Nickel								
Potassium								
Selenium								
Silver								
Sodium								
Thallium								
Vanadium								
Zinc								

U.S. EPA - CLP

3
BLANKS

Name: HAS_____ Contract: _____

Lab Code: ____ Case No.: _____ SAS No.: _____ SDG No.: SW-3__

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L_

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											NR
Antimony											NR
Arsenic											NR
Barium											NR
Beryllium											NR
Cadmium											NR
Calcium											NR
Chromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead	5.0	U	5.0	U					5.0	U	F
Magnesium											NR
Manganese											NR
Mercury											NR
Nickel											NR
Potassium											NR
Selenium											NR
Silver											NR
Sodium											NR
Thallium											NR
Vanadium											NR
Zinc											NR
Cyanide											NR

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5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

Lab Name: HAS	Contract:
Lab Code:	Case No.: SAS No.: SDG No.: SW-3
Matrix: WATER	Level (low/med): LOW
Solids for Sample: 0.0	

GW-3 SS

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Soiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony									NR
Arsenic									NR
Barium									NR
Beryllium									NR
Cadmium									NR
Calcium									NR
Chromium									NR
Cobalt									NR
Copper									NR
Iron									NR
Lead	75-125	30.7000		6.0000		25.00	98.8		F
Magnesium									NR
Manganese									NR
Mercury									NR
Nickel									NR
Potassium									NR
Selenium									NR
Silver									NR
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc									NR
Cyanide									

Comments:

Matrix Spike

FORM V (Part 1) - IN

7/88

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SA
SPIKE SAMPLE RECOVERY

SPA SAMPLE NO.

GW-3 SS

Lab Name: HAS_____ Contract:_____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: GW-3__

Matrix: __WATER_____ Level (low/med): _LOW____

Solids for Sample: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony									NR
Arsenic									NR
Barium									NR
Beryllium									NR
Cadmium									NR
Calcium									NR
Chromium									NR
Cobalt									NR
Copper									NR
Iron									NR
Lead	75-125	30.4000		6.0000		25.00	97.6	F	
Magnesium									NR
Manganese									NR
Mercury									NR
Nickel									NR
Potassium									NR
Selenium									NR
Silver									NR
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc									NR
Cyanide									NR

Comments:

Matrix Spike Duplicate

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6
DUPLICATES

EPA SAMPLE NO.

GW-3SS

Lab Name: HAS Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: GW-3

Matrix (soil/water): water Level (low/med): low

% Solids for Sample: _____ % Solids for Duplicate: _____

Concentration Units (ug/L or mg/kg dry weight): ug/L

Analyte	Control Limit	Matrix Spike Sample (S)	C	Matrix Spike Duplicate (D)	C	RPD	Q	M
Aluminum								
Antimony								
Arsenic								
Barium								
Beryllium								
Cadmium								
Calcium								
Chromium								
Cobalt								
Copper								
Iron								
Lead		30.7		30.4		<1.0		F
Magnesium								
Manganese								
Mercury								
Nickel								
Potassium								
Selenium								
Silver								
Sodium								
Thallium								
Vanadium								
Zinc								
Cyanide								

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7

LABORATORY CONTROL SAMPLE

Lab Name: HAS Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: GW-3

Solid LCS Source: _____

Aqueous LCS Source: Spex

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead	25.0	29.8	119						
Magnesium									
Manganese									
Mercury									
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Thallium									
Vanadium									
Zinc									
Cyanide									

ENVIRONMENTAL ANALYTICAL SERVICES - CHAIN-OF-CUSTODY RECORD AND ANALYTICAL REQUEST FORM Page of

Client Name: Asteco — Client Contact: DAVE HARTT — NAS Quote #:

Address: Wittner Rd. Niagara Falls N.Y. — Phone: 649-8110 — P.O. #:

Project No.: — Project/Site Name: Asteco - Wittner Road

Samplers (Signature): — NAS Ref. #90-1340

Sample I.D.	Date	Time	Comp.	Grab	Sample Location	NAS Sample Seq. #	MATRIX	# of Containers	Container Size & Type: 1000 mL Plastic	Analysis Requested/ Remarks
GW-3	9/28/90	12:45		X	GW-3	001		1	1	Pb (D) *
GW-3	9/28/90	12:40		X	GW-3	002 MSP		1	1	Pb (T) *

* No Preservative Added

TOTAL = 2

Relinquished by:	Date/Time	Received by:	Relinquished by:	Date/Time	Received By:
	9/28/90 1:15				
	9/28 2:21	Mary Beaudoin			
Relinquished by:	Date/Time	Received for Lab by:	Date/Time	Remarks:	
				TW, MP	

EMPIRE SOILS INVESTIGATIONS, INC.
S-5167 SOUTH PARK AVENUE
HAMBURG, NEW YORK 14075

APPENDIX I

REFERENCES

REFERENCES

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