

APPENDIX C

HARZA ENVIRONMENTAL SERVICES, "ENVIRONMENTAL ASSESSMENT",  
JUNE 1986

# THE TORRINTON COMPANY

SOUTH BEND, INDIANA PLANT

# ENVIRONMENTAL ASSESSMENT

**HES HARZA**  
ENVIRONMENTAL SERVICES, INC.

JUNE 1986

June 26, 1986

The Torrington Company  
59 Field Street  
Torrington, Connecticut 06790

Attention: Mr. Robert Lewis  
Engineering Department

Gentlemen:

On behalf of our contractor, Harza Engineering Company, we are pleased to submit the Environmental Assessment Report for the Torrington Company's South Bend, Indiana Plant. This report presents the results of our assessment along with documentation of the sampling and analysis performed, in accordance with your contract with Harza Engineering Company. This report submission completes the scope of services as were specified under the said contract.

This environmental assessment of the Torrington Company's South Bend, Indiana plant was conducted primarily to verify the results of previous sampling work. In addition, efforts were made to identify previously unidentified areas of possible contamination.

Analysis of soil samples taken by Harza personnel indicated lower concentrations of contaminants than previous tests performed by other consultants. Results for groundwater samples taken from wells W-4 and S-3 are comparable to previous findings. Water samples taken from other shallow wells were also found to contain components identified during previous work; however, contaminant concentrations in the Harza samples were lower than those determined earlier.

We trust that you will find the information useful. If we can be of further assistance, please do not hesitate to contact us.

Very truly yours,

*T. J. Johnston*  
for Jitendra R. Ghia  
Project Manager

TJJ:JRG/lp  
Enc: As noted

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# ENVIRONMENTAL ASSESSMENT FOR THE TORRINGTON COMPANY'S SOUTH BEND, INDIANA PLANT

## Purpose

The primary purpose of the Torrington Plant Environmental Assessment was to verify past sampling results. The secondary purpose was to identify other areas of possible contamination. These objectives were met by a site evaluation visit, review of past waste management practices, development of a sampling and testing plan, and sampling, testing and analyzing the results. Sampling and testing was, however, limited to the verification part only.

## Review of Previous Studies and Plant Information

On December 12, 1985, Mr. James Holtz of the Torrington Company provided a tour of the South Bend plant to two Harza personnel. During this visit, information was collected on past plant processes, waste management practices, and possible areas of contamination. A data review followed the on-site inspection. This activity included reviewing General Facility Data, previous sampling and assessment reports and Material Safety Data Sheets. These sub-tasks were summarized in a project file memorandum and reported to the Torrington Company. Both of these documents are included in Appendix A.

Based on this review, a Sampling and Testing Plan, was developed to verify earlier studies' results and to identify any other sources of contamination. This document included Sampling and Testing Requirements, a three phase Sampling Plan, Change-of-Custody procedures, Quality Assurance/Quality Control procedures, Reporting Methods, Responsibilities for Sampling and Testing, and a description of the laboratory and its QA/QC Protocol. The phased sampling plan described soil, water and sediment sampling procedures, sample preservation, shipping, field notes, and waste disposal. After The Torrington Company's review and approval of the document, sampling and testing proceeded for the first two phases for the verification of previous sampling data. The Sampling and Testing Plan is included in Appendix A.

## Soil and Groundwater Sampling

Two ground locations, two ponds, five shallow wells, and two underground tanks were sampled in accordance with Phase I and II of the Sampling and Testing Plan. Sample locations are shown on Exhibit 1. This chapter summarizes the methodology, shipping, chain-of-custody, and QA/QC used for the sampling.

## Methodology

The two soil samples were collected using a stainless steel auger with a removable plastic liner. At the first site near Well W-4, a composite sample was collected from the first 12 inches of soil. The sample was thoroughly mixed before filling 2 bottles to the 3/4 full level. After cleaning the equipment, the second composite sample was collected from a location about 4 feet to the south of Well S-3 and between 5 and 6 feet below the surface. Four bottles were filled with this soil sample: 2 for volatile organic analysis, 2 for semi-volatile organic analysis. Field logs were completed at each site.

A standard soil probe was used to sample Ponds #4 and #5. A 10-inch deep core was obtained from eight locations within Pond #4. This pond contained water up to 12 inches deep. Two bottles were filled from the mixed composite of the eight cores. After cleanup, thirteen cores were collected from Pond #5 and composited before filling two sample bottles. There was no water in this pond. Field logs were completed after each sampling.

A teflon bailer was used to sample the five shallow wells. Three well volumes were first removed from each well before the two sample bottles were filled. After completing each well, the bailer was thoroughly cleaned, the sample bottles were secured in the cooler, and the field log completed before continuing to the next well. Duplicate samples were collected at Wells S-3 and W-7. All of the water removed from Well S-3 had orange particles and contained an oily substance which made the teflon cord slick. Well S-3 was the only well which did not have a locking cap.

The stoddard solvent tank and the oil tank, both underground on the east side of the plant, were sampled using the teflon bailer after all the well samples were completed. Very little material was found in the oil tank and only 1/16 of a single bottle was filled. Only a little liquid with orange sediment remains in the stoddard tank. Two bottles were filled with this material. Field logs were completed after each sampling.

The production well T-4 could not be sampled. Electricity to the well was not connected so as to pump out the water.

Sampling was performed on three days: March 24<sup>1/</sup>, April 15<sup>2/</sup>, and April 18, 1986. Field log copies are included in Appendix B.

### Shipping

Environmental Research Group, Inc. (ERG) provided the sample bottles and cooler. Prior to filling the sample bottles, all information except Time of Sampling was written on the labels. After filling and capping, the tin foil wrapping was removed, the time was written, and the samples were rewrapped in tin foil. The water samples also had plastic tape sealing the caps. The bottles were placed in Ziploc bags and placed in a styrofoam cooler. Within the cooler was a frozen ice pack. At the completion of sampling, the proper forms were placed outside of the cooler but within the box containing the cooler. Federal Express's Priority #1 mail was used to ship the samples to ERG in Ann Arbor, Michigan, for next day delivery.

### Chain-of-Custody

Upon completion of all sampling, a Chain-of-Custody Record was prepared. A Federal Express employee signed the record before enclosure in the sample bottle package. ERG personnel signed the record upon receiving the package. Also included in the package were Sample Analysis Request forms. A carbon copy of these forms was kept by the field engineer when sending the originals. A copy of these forms are included in Appendix B.

### Quality Assurance/Quality Control

Sample bottles were prepared by ERG and sent to Harza by Federal Express. Included with the bottles were two travel blanks filled with distilled water. On the sampling site, two field blanks were prepared also with distilled water and handled in the same manner as the actual samples. ERG's QA/QC Protocol was described in the appendix of the Sampling and Testing Plan. Appendix A contains the QA/QC documentation for the testing on the Torrington samples.

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- 1/ The March 24 water samples could not be analyzed due to air in the bottles.
  - 2/ The April 15 sample bottles broke in transit to the lab.

## Analytical Work

Environmental Research Group, Inc., performed the analyses on the soil and liquid samples collected at the Torrington, South Bend plant. Method 624 was used to quantify the volatile organics in the soil, pond sediment, water samples, and tank residues. Method 625 was used to identify the semi-volatile organics in the soil sample from near Well S-3 and from the residue from the underground oil tank.

## Results

The primary objective of Harza's Environmental Assessment was to verify the results from previous sampling programs. This chapter compares the Harza results to the results contained in the March 11, 1985 Environmental Assessment document.

Two firms previously investigated the South Bend site. The Torrington Company contracted EIS Environmental Engineers to perform pond water and sediment sampling for all five ponds. Canonie Engineers was engaged to perform a more comprehensive site investigation which included soil sampling near the waste oil tank, sediment samples from the five ponds, and water samples from five monitoring wells.

Tables 1 through 9 show the comparison of the Harza results with the previous sampling results. Tables 10 and 11 show the components of the materials in the underground tanks to the each at plant. Table 12 lists contaminants which can be identified, if present, in the analysis performed on the Harza samples. In additions to these, several other organic compounds can be identified by this method.

## Discussion of Results

Soil sample near well S-3: The Harza results verify the existence of contaminants found in previous results but the contaminant concentrations were considerably lower. Twenty-nine other contaminants were identified from the Harza sampling.

Soil sample near well W-4: The existence of benzene was verified but the concentration was found to be lower. Two other volatile organics were identified in small concentrations. Semi-volatile organic analyses were not performed on this sample to identify the undifferentiable hydrocarbons.

Pond #4 sediment: The existence of previously identified contaminants was confirmed but at much lower levels. An additional 8 contaminants were identified.



Pond #5 sediment: The existence of methylene chloride was verified and two other contaminants were identified from the Harza sample. The concentrations however are nominal.

Well W-2: The Harza sampling found Trichloroethane and Dichloroethane at below detection limits.

Well W-4: In this well water, Harza sampling confirms the presence of 1,1,1-Trichloroethane and 1,1-Dichloroethylene in similar concentration levels as were found previously.

Well W-5: The Harza results confirmed the existence of two contaminants but at lower concentrations.

Well W-7: Previous results were not verified by the Harza sampling. Six other contaminants were identified with duplicate samples.

Well S-3: The existence of contaminants similar to the previous sampling was confirmed. Contaminant concentrations were comparable.

Stoddard Solvent tank: A small quantity of residue was found in the stoddard solvent tank, which contains various volatile organics.

Oil tank: Due to the high concentrations of organics in this material, the samples were highly diluted for analysis. Few hydrocarbons were specifically identified by the Base-Neutral-Acid fraction analysis.

#### Conclusions

Previous sampling results identified the major volatile fraction organics. The previous contaminant concentrations obtained for the soil sample are much greater than were found in the Harza sampling. The Harza and previous results for the ground water in wells W-4 and S-3 are within comparable range. The previous soil sample results are questionable. Harza water sample results for the other shallow wells verify previously identified component but at lower concentrations. This may be due to different sampling techniques, a decrease in groundwater contamination, and/or a difference in the laboratory analysis.

Table 1

COMPARISON OF RESULTS FOR SOIL NEAR WELL S-3  
CONCENTRATIONS IN MILLIGRAMS PER KILOGRAM (mg/kg)

Contaminant	Canonie Engineers <sup>1/</sup>	Canonie Engineers <sup>1/</sup>	Canonie Engineers <sup>1/</sup>	Harza Engineering Company
	Soil Boring for Well S-3 depth 5-6 feet	Location A-1 depth 5-6 feet	Location A-4 depth 5.5-6.5	Soil Sampling Near Well S-3 depth 5-6 feet
Indifferentiable				
Hydrocarbons	32,000	6,700	9,950	-
1,1,1 Trichloroethylene	ND	ND	ND	<0.01
1,1,1 Trichloroethane	440	100,000	15,300	7.60
1,1 Dichloroethylene	ND	ND	ND	0.160
1,1 Dichloroethane	ND	ND	1,270	0.068
Tetrachloroethane	ND	ND	ND	0.017
Benzene	ND	ND	ND	0.022
Toluene	340	520	ND	0.033
Methylene Chloride	ND	ND	ND	0.068
PCB	<5	<5	<5	-
Acetone	-	-	-	<0.020
Diethyl (2-ethylhexyl) phthalate	-	-	-	<7.600
Phenanthrene	-	-	-	<7.600
2-Methylnaphthalene	-	-	-	<7.600
1-Ethyl-3-Methylcyclopentane	-	-	-	0.280
1,1,3 Trimethylcyclohexane	-	-	-	0.240
1,2,3 Trimethylcyclohexane	-	-	-	0.540
1-Methylethylcyclohexane	-	-	-	0.320
Decene	-	-	-	0.130
Unknown Cyclohexanes	-	-	-	3.360
4-Methyloctane	-	-	-	0.180
Decane	-	-	-	2.000
Unknown Hydrocarbon C <sub>6</sub> to C <sub>16</sub>	-	-	-	7.100
2,6 Dimethyl Undecane	-	-	-	7.000
2,3,7 Trimethyl Octane	-	-	-	6.200
Unknown Methyl Naphthalene	-	-	-	4.100
Unknown Hydrocarbon C <sub>9</sub> to C <sub>19</sub>	-	-	-	6.100
Unknown Ethyl Naphthalene	-	-	-	4.900
2,7 Dimethyl Naphthalene	-	-	-	13.000
1,7 Dimethyl Naphthalene	-	-	-	13.000
Unknown Hydrocarbon C <sub>10</sub> to C <sub>20</sub>	-	-	-	8.300
2-(1-Methylethyl) Naphthalene	-	-	-	5.300
1,6,7 Trimethyl Naphthalenes	-	-	-	11.400
2,3,6 Trimethyl Naphthalene	-	-	-	6.600
Unknown Hydrocarbon C <sub>12</sub> to C <sub>22</sub>	-	-	-	1.100
Unknown Hydrocarbon C <sub>13</sub> to C <sub>23</sub>	-	-	-	8.100
Unknown Hydrocarbon C <sub>14</sub> to C <sub>24</sub>	-	-	-	6.200
Unknown Hydrocarbon C <sub>15</sub> to C <sub>25</sub>	-	-	-	12.000
Unknown Hydrocarbon C <sub>18</sub> to C <sub>28</sub>	-	-	-	6.400
Additional Unknowns - not in EPA/NIH Library	-	-	-	0.830

## Notes:

- ND = Not Tested For  
< = Not Detectable

As reported in the ENVIRONMENTAL ASSESSMENT submitted by The Torrington Company, March 11, 1985

Table 2

COMPARISON OF RESULTS FOR SOIL NEAR WELL W-4  
CONCENTRATIONS IN MILLIGRAMS PER KILOGRAM (mg/kg)

<u>Contaminant</u>	<u>Canonie Engineers<sup>1/</sup> Soil Boring for Well W-4 depth 0.0-0.25 feet</u>	<u>Canonie Engineers<sup>1/</sup> Location A-14 to depth 2.5 feet</u>	<u>Harza Engineering Company Soil Sampling Near Well W-4 depth 0 to 1 feet</u>
Undifferentiable			
Hydrocarbons	9,000	320	-
1,1 Dichloroethylene	ND	12	ND
Tetrachloroethane	ND	ND	0.005
Benzene	0.17	ND	0.012
Methylene Chloride	ND	ND	0.031
PCB	<5	<5	-

## Notes:

- = Not Tested For  
ND = Not Detectable

<sup>1/</sup> As reported in the ENVIRONMENTAL ASSESSMENT submitted  
by The Torrington Company, March 17, 1985

Table 3

COMPARISON OF RESULTS FOR POND #4 SEDIMENT  
CONCENTRATIONS IN MILLIGRAMS PER KILOGRAM (mg/kg)

<u>Contaminant</u>	<u>EIS Environmental Engineers<sup>1/</sup></u>	<u>Canonie Engineers<sup>1/</sup></u>	<u>Harza Engineering Company</u>
Undifferentiable			
Hydrocarbons	-	ND	-
1,1,1 Trichloroethane	70.0	ND	0.830
1,1 Dichloroethylene	ND	ND	0.034
1,1 Dichloroethane	1.9	ND	0.100
Benezene	ND	ND	0.047
Methylene Chloride	0.84	-	0.028
PCB	<2	<5	-
Acetone	-	-	0.027
2 Butanone	-	-	0.059
2,4,4 Trimethylpentene	-	-	0.510
1,3,5 Trimethyl Cyclohexane	-	-	0.200
1,2,3 Trimethyl Cyclohexane	-	-	0.900
1 Methyleneethyl - Cyclohexane	-	-	0.460
1,1,2 Trimethyl Cyclohexane	-	-	0.280
Unknown Cyclohexane	-	-	0.940
Unknown Hydrocarbon	-	-	0.180
Total Unknowns - not in EPA/NIH Library	-	-	0.960

## Notes:

- = Not Tested For  
ND = Not Detectable

<sup>1/</sup> As reported in the ENVIRONMENTAL ASSESSMENT submitted by The Torrington Company, March 11, 1985

Table 4

COMPARISON OF RESULTS FOR POND #5 SEDIMENT  
CONCENTRATIONS IN MILLIGRAMS PER KILOGRAM (mg/kg)

<u>Contaminant</u>	<u>EIS Environmental Engineers<sup>1/</sup></u>	<u>Canonie Engineers<sup>1/</sup></u>	<u>Harza Engineering Company</u>
Undifferentiable			
Hydrocarbons	-	0.36	-
Benezene	ND	ND	0.016
Methylene Chloride	0.56	-	0.027
Chloroform	ND	-	0.026
PCB	<2	<5	-

Notes:

- = Not Tested For  
ND = Not Detectable

<sup>1/</sup> As reported in the ENVIRONMENTAL ASSESSMENT submitted by The Torrington Company, March 11, 1985

Table 5

COMPARISON OF RESULTS FOR WELL W-2  
CONCENTRATIONS IN MILLIGRAMS PER LITER (mg/l)

<u>Contaminant</u>	<u>Canonie Engineers</u> <sup>1/</sup>	<u>Harza Engineering Company</u>
Undifferentiable		
Hydrocarbons	<0.100	-
1,1,1 Trichloroethane	0.030	<0.005
1,1 Dichloroethane	0.030	<0.005

Notes:

- = Not Tested For  
ND = Not Detectable

<sup>1/</sup> As reported in the ENVIRONMENTAL ASSESSMENT submitted by The Torrington Company, March 11, 1985

Table 6

COMPARISON OF RESULTS FOR WELL W-4  
CONCENTRATIONS IN MILLIGRAMS PER LITER (mg/l)

<u>Contaminant</u>	<u>Canonie Engineers<sup>1/</sup></u>	<u>Harza Engineering Company</u>
Undifferentiable		
Hydrocarbons	<0.100	-
1,1,1 Trichloroethane	0.285	0.470
1,1 Dichloroethylene	0.020	0.010
1,1 Dichloroethane	0.065	ND
1,2 Dichloroethane	ND	0.094
Chloroethane	ND	0.011

Notes:

- = Not Tested For  
ND = Not Detectable

<sup>1/</sup> As reported in the ENVIRONMENTAL ASSESSMENT submitted by The Torrington Company, March 11, 1985

Table 7

COMPARISON OF RESULTS FOR WELL W-5  
 CONCENTRATIONS IN MILLIGRAMS PER LITER (mg/l)

<u>Contaminant</u>	<u>Canonie Engineers<sup>1/</sup></u>	<u>Harza Engineering Company</u>
Undifferentiable		
Hydrocarbons	<0.100	-
1,1,1 Trichloroethane	0.055	<0.005
1,1 Dichloroethane	0.014	<0.005

Notes:

- = Not Tested For  
 ND = Not Detectable

<sup>1/</sup> As reported in the ENVIRONMENTAL ASSESSMENT submitted by The  
 Torrington Company, March 11, 1985



Table 8

COMPARISON OF RESULTS FOR WELL W-7  
 CONCENTRATIONS IN MILLIGRAMS PER LITER (mg/l)

<u>Contaminant</u>	<u>Canonie Engineers<sup>1/</sup></u>	<u>Harza Engineering Company</u>	<u>Harza Engineering Company</u>
1,1,1 Trichloroethane	ND	0.033	0.026
1,1 Dichloroethylene	0.001	ND	ND
1,1 Dichloroethane	0.016	ND	ND
1,2 Dichloroethane	ND	0.005	<0.005
Toluene	-	<0.005	<0.005
Trans 1,2 Dichloroethene	-	<0.005	ND
Acetone	-	0.092	0.062
1,4 Dimethyl Trans Cyclooctane	-	0.003	0.003

## Notes:

- = Not Tested For  
 ND = Not Detectable

<sup>1/</sup> As reported in the ENVIRONMENTAL ASSESSMENT submitted by The Torrington Company, March 11, 1985

Table 9

COMPARISON OF RESULTS FOR WELL S-3  
 CONCENTRATIONS IN MILLIGRAMS PER LITER (mg/l)

<u>Contaminant</u>	<u>Canonie Engineers<sup>1/</sup></u>	<u>Harza Engineering Company</u>	<u>Harza Engineering Company</u>
1,1,1 Trichloroethylene	0.002	ND	ND
1,1,1 Trichloroethane	1.30	0.510	0.580
1,1 Dichloroethylene	0.025	<0.050	<0.050
1,1 Dichloroethane	0.940	ND	ND
1,2 Dichloroethane	ND	1.000	1.200
Chloroethane	0.075	<0.100	<0.100
Vinyl Chloride	<0.010	ND	ND
Trans 1,2 Dichloroethene	-	0.220	0.260

## Notes:

- = Not Tested For  
 ND = Not Detectable

<sup>1/</sup> As reported in the ENVIRONMENTAL ASSESSMENT submitted by The Torrington Company, March 11, 1985.

Table 10

STODDARD SOLVENT TANK RESIDUE  
CONCENTRATIONS IN MILLIGRAMS PER LITER (mg/l)

<u>Contaminant</u>	<u>Harza Sample Concentration</u>
Total Xylenes	<5.000
1,2,3 Trimethyl Cyclohexane	11.000
(1 Methyleneethyl) Cyclohexane	9.500
1-Ethyl 4-Methyl Trans Cyclohexane	22.000
1,2,4 Trimethyl Cyclohexane	14.000
Nonane	9.500
Butyl Cyclohexane	4.500
Total Unknowns - Not in EPA/NIH Library	16.300

Table 11

OIL TANK RESIDUE  
 BASE-NEUTRAL-ACID FRACTION ANALYSIS ONLY  
 CONCENTRATIONS IN MILLIGRAMS PER KILOGRAM  
 (mg/kg)

<u>Contaminant</u>	<u>Harza Sample Concentration</u>
Unknown Hydrocarbon C <sub>13</sub> to C <sub>23</sub>	4,500
Unknown Hydrocarbon C <sub>14</sub> to C <sub>24</sub>	11,000
Unknown Hydrocarbon C <sub>15</sub> to C <sub>25</sub>	18,000
Unknown Hydrocarbon C <sub>15</sub> to C <sub>25</sub>	28,000
Unknown Hydrocarbon C <sub>15</sub> to C <sub>25</sub>	34,000
Unknown Hydrocarbon C <sub>16</sub> to C <sub>26</sub>	21,000
Unknown Hydrocarbon C <sub>19</sub> to C <sub>29</sub>	38,000
Unknown Hydrocarbon C <sub>19</sub> to C <sub>29</sub>	35,000
Unknown Aldehyde Hydrocarbon	24,000
Unknown Heptanone	8,600
Unknown Hydrocarbon	8,500

Table 12

IDENTIFIABLE CONTAMINANTS

ACID FRACTION

2,4,6-Trichlorophenol  
p-Chloro-m-cresol  
2, Chlorophenol  
  
2,4-Dichlorophenol  
2,4-Dimethylphenol  
2-Nitrophenol  
  
4-Nitrophenol  
4,6-Dinitro-2-Methylphenol  
Pentachlorophenol  
  
Phenol  
Benzoic Acid  
2-Methylphenol  
  
4-Methylphenol  
2,4,5-Trichlorophenol

BASE-NEUTRAL FRACTION

Acenaphthene  
  
1,2,4 Trichlorobenzene  
Hexachlorobenzene  
Hexachloroethane  
  
Bis (2-chloroethyl) Ether  
2-Chloronaphthalene  
1,2-Dichlorobenzene  
  
1,3-Dichlorobenzene  
1,4-Dichlorobenzene  
3,3-Dichlorobenzene  
  
2,4-Dinitrotoluene  
2,6-Dinitrotoluene  
1,2-Diphenylhydrazine  
  
Fluoranthene  
4-Chlorophenyl Phenyl Ether  
4-Bromophenyl Phenyl Ether

Table 12 (Cont'd)

IDENTIFIABLE CONTAMINANTS

Bis (2-Chloroisopropyl) Ether  
Bis (2-Chloroethoxy) methane  
Hexachlorobutadiene

Hexachlorocyclopentadiene  
Isophorone  
Naphthalene

Nitrobenzene  
N-Nitrosodiphenylamine  
N-Nitrosodisopropylamine

Bis (2-ethylhexyl) phthalate  
Butylbenzophthalate  
Di-n-butylphthalate

Di-n-octylphthalate  
Diethylphthalate  
Dimethylphthalate

Benzo(a)anthracene  
Benzo(a)pyrene  
Benzo(b)fluoranthene

Benzo(k)fluoranthene  
Chrysene  
Acenaphthylene

Anthracene  
Benzo(ghi)perylene  
Fluorene

Phenanthrene  
Dibenzo(a,h)anthracene  
Indeno(1,2,3-cd)pyrene

Pyrene  
Benzyl Alcohol  
4-Chloroaniline

Dibenzofuran  
2-Methylnaphthalene  
2-Nitroaniline

3-Nitroaniline  
4-Nitroaniline

Table 12 (Cont'd)

IDENTIFIABLE CONTAMINANTS

VOLATILE FRACTION

- Benzene
- Carbon Tetrachloride
- Chlorobenzene
  
- 1,2-Dichloroethane
- 1,1,1-Trichloroethane
- 1,1-Dichloroethane
  
- 1,1,2-Trichloroethane
- 1,1,2,2-Tetrachloroethane
- Chloroethane
  
- 2-Chloroethylvinyl Ether
- Chloroform
- 1,1-Dichloroethene
  
- Trans-1,2-dichloroethene
- 1,2-Dichloroethene
- Trans-1,3-dichloropropene
  
- Cis-1,3-Dichloropropene
- Ethylbenzene
- Methylene Chloride
  
- Chloromethane
- Bromomethane
  
- Bromoform
- Bromodichloromethane
  
- Chlorodibromomethane
- Tetrachloroethane
- Toluene
  
- Trichloroethene
- Vinyl Chloride
- Acetone
  
- 2 Butanone ?
- Carbon Disulfide
- 2-Hexanone

Table 12 (cont'd)

IDENTIFIABLE CONTAMINANTS

- 4-Methyl-2-pentanone
- Styrene
- Vinyl Acetate
- Total Xylenes

Note: Several other organic compounds are identifiable by chromatograms





# ANALYTICAL REPORT

ENVIRONMENTAL RESEARCH GROUP, INC.

117 N. FIRST  
ANN ARBOR, MICHIGAN 48104 (313) 662-3104

Project: A4151  
Report Date: 05-05-86

Client F.O.  
Report: 18418

Samples Recvd: 03-26-86  
Refer Questions To:  
ROBYN WOOLEY

Client:  
HARZA ENGINEERING  
150 S. WACKER  
ROOM 1140  
CHICAGO, IL 60606  
Attention: DAVID POTT

Approved: *Joseph A. Houtow*

\*\*\*  
Residual Samples Will Be Held  
TWO WEEKS  
\*\*\*

S-1L SAMPLE NEAR W-4

Client I.D.: 1  
ERO Sample No.: 03/149057  
Matrix: SOLID

Parameter	Result	Units
VOLITILE FRACTION (RAS PROTOCOL)		
<u>Benzene</u>	12	ug/Kg
Carbon Tetrachloride	ND (5)	ug/Kg
Chlorobenzene	ND (5)	ug/Kg
1, 2-Dichloroethane	ND (5)	ug/Kg
1, 1, 1-Trichloroethane	ND (5)	ug/Kg
1, 1-Dichloroethane	ND (5)	ug/Kg
1, 1, 2-Trichloroethane	ND (5)	ug/Kg
1, 1, 2, 2-Tetrachloroethane	ND (10)	ug/Kg
Chloroethane	NO (10)	ug/Kg
2-Chloroethylvinylether	ND (5)	ug/Kg
Chloroform	ND (5)	ug/Kg
1, 1-Dichloroethene	ND (5)	ug/Kg
Trans-1, 2-dichloroethene	ND (5)	ug/Kg
1, 2-Dichloroethene	ND (5)	ug/Kg
Trans-1, 3-dichloropropene	ND (5)	ug/Kg
Cis-1, 3-dichloropropene	ND (5)	ug/Kg
Ethylbenzene	ND (5)	ug/Kg
<u>Methulene Chloride</u>	31	ug/Kg
Chloromethane	ND (10)	ug/Kg
Bromomethane	ND (5)	ug/Kg
Bromoform	ND (5)	ug/Kg
Bromodichloromethane	ND (5)	ug/Kg
Chlorodibromomethane	ND (5)	ug/Kg
<u>Tetrachloroethane</u>	5	ug/Kg
Toluene	ND (5)	ug/Kg
Trichloroethene	ND (5)	ug/Kg
Vinyl Chloride	NO (10)	ug/Kg
Acetone	ND (10)	ug/Kg
2-Butanone	ND (10)	ug/Kg
Carbon Disulfide	ND (5)	ug/Kg
2-Hexanone	ND (10)	ug/Kg
4-Methyl-2-pentanone	ND (10)	ug/Kg
Styrene	ND (5)	ug/Kg



# ANALYTICAL REPORT

ENVIRONMENTAL RESEARCH GROUP, INC.

Project: A4151  
Report Date: 05-05-86

Client I.D.: 1  
ERG Sample No.: 03/149057  
Matrix: SOLID

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Vinyl Acetate	ND (10)	ug/Kg
Total Xylenes	ND (5)	ug/Kg

Client I.D.: 2  
ERG Sample No.: 03/149058  
Matrix: SOLID

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
ACID FRACTION (RAS PROTOCOL)		
2,4,6-Trichlorophenol	ND (7600)	ug/Kg
p-Chloro-o-cresol	ND (7600)	ug/Kg
2-Chlorophenol	ND (7600)	ug/Kg
2,4-Dichlorophenol	ND (7600)	ug/Kg
2,4-Dimethylphenol	ND (7600)	ug/Kg
2-Nitrophenol	ND (7600)	ug/Kg
4-Nitrophenol	ND (37000)	ug/Kg
4,6-Dinitro-2-methylphenol	ND (37000)	ug/Kg
Pentachlorophenol	ND (37000)	ug/Kg
Phenol	ND (7600)	ug/Kg
Benzoic Acid	ND (37000)	ug/Kg
2-Methylphenol	ND (7600)	ug/Kg
4-Methylphenol	ND (7600)	ug/Kg
2,4,5-Trichlorophenol	ND (37000)	ug/Kg
BASE-NEUTRAL FRACTION (RAS PROTOCOL)		
Acenaphthene	ND (7600)	ug/Kg
1,2,4-Trichlorobenzene	ND (7600)	ug/Kg
Hexachlorobenzene	ND (7600)	ug/Kg
Hexachloroethane	ND (7600)	ug/Kg
Bis(2-chloroethyl)ether	ND (7600)	ug/Kg
2-Chloronaphthalene	ND (7600)	ug/Kg
1,2-Dichlorobenzene	ND (7600)	ug/Kg
1,3-Dichlorobenzene	ND (7600)	ug/Kg
1,4-Dichlorobenzene	ND (7600)	ug/Kg
3,3'-Dichlorobenzene	ND (15000)	ug/Kg
2,4-Dinitrotoluene	ND (7600)	ug/Kg
2,6-Dinitrotoluene	ND (7600)	ug/Kg
1,2-Diphenylhydrazine	ND (7600)	ug/Kg
Fluoranthene	ND (7600)	ug/Kg
4-Chlorophenyl Phenyl Ether	ND (7600)	ug/Kg
4-Bromophenyl Phenyl Ether	ND (7600)	ug/Kg
Bis(2-chloroisopropyl) Ether	ND (7600)	ug/Kg
Bis(2-chloroethoxy)methane	ND (7600)	ug/Kg
Hexachlorobutadiene	ND (7600)	ug/Kg
Hexachlorocyclopentadiene	ND (7600)	ug/Kg
Isophorone	ND (7600)	ug/Kg
Naphthalene	ND (7600)	ug/Kg



# ANALYTICAL REPORT

ENVIRONMENTAL RESEARCH GROUP, INC.

Project: A4151  
Report Date: 05-05-86

SOIL SAMPLE NEAR S-3

Client I.D.: 2  
ERO Sample No.: 03/149058  
Matrix: SOLID

Parameter	Result	Units
Nitrobenzene	ND (7600)	ug/Kg
N-Nitrosodiphenylamine	ND (7600)	ug/Kg
N-Nitrosodisopropylamine	ND (7600)	ug/Kg
Bis(2-ethylhexyl)phthalate	<7600	ug/Kg
Butylbenzylphthalate	ND (7600)	ug/Kg
Di-n-butylphthalate	ND (7600)	ug/Kg
Di-n-octylphthalate	ND (7600)	ug/Kg
Diethylphthalate	ND (7600)	ug/Kg
Dimethylphthalate	ND (7600)	ug/Kg
Benzo(a)anthracene	ND (7600)	ug/Kg
Benzo(a)pyrene	ND (7600)	ug/Kg
Benzo(b)fluoranthene	ND (7600)	ug/Kg
Benzo(k)fluoranthene	ND (7600)	ug/Kg
Chrysene	ND (7600)	ug/Kg
Acenaphthylene	ND (7600)	ug/Kg
Anthracene	ND (7600)	ug/Kg
Benzo(ghi)perylene	ND (7600)	ug/Kg
Fluorene	ND (7600)	ug/Kg
Phenanthrene	<7600	ug/Kg
Dibenzo(a,h)anthracene	ND (7600)	ug/Kg
Indeno(1,2,3-cd)pyrene	ND (7600)	ug/Kg
Pyrene	ND (7600)	ug/Kg
Benzyl Alcohol	ND (7600)	ug/Kg
4-Chloroaniline	ND (7600)	ug/Kg
Dibenzofuran	ND (7600)	ug/Kg
2-Methylnaphthalene	<7600	ug/Kg
2-Nitroaniline	ND (37000)	ug/Kg
3-Nitroaniline	ND (37000)	ug/Kg
4-Nitroaniline	ND (37000)	ug/Kg
VOLATILE FRACTION (RAS PROTOCOL)		
Benzene	22	
Carbon Tetrachloride	ND (10)	ug/Kg
Chlorobenzene	ND (10)	ug/Kg
1,2-Dichloroethane	ND (10)	ug/Kg
1,1,1-Trichloroethane	7500	ug/Kg
1,1-Dichloroethane	28	ug/Kg
1,1,2-Trichloroethane	ND (10)	ug/Kg
1,1,2,2-Tetrachloroethane	ND (20)	ug/Kg
Chloroethane	ND (20)	ug/Kg
2-Chloroethylvinylether	ND (10)	ug/Kg
Chloroform	ND (10)	ug/Kg
1,1-Dichloroethene	160	ug/Kg
Trans-1,2-dichloroethene	ND (10)	ug/Kg
1,2-Dichloroethene	ND (10)	ug/Kg
Trans-1,3-dichloropropene	ND (10)	ug/Kg
Cis-1,3-dichloropropene	ND (10)	ug/Kg



# ANALYTICAL REPORT

ENVIRONMENTAL RESEARCH GROUP, INC.

Project: A4151  
Report Date: 05-05-86

Client I.D.: 2  
ERG Sample No.: 03/149058  
Matrix: SOLID

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Ethylbenzene	ND (10)	ug/Kg
Methylene Chloride	(48)	ug/Kg
Chloromethane	ND (20)	ug/Kg
Bromomethane	ND (10)	ug/Kg
Bromoform	ND (10)	ug/Kg
Bromodichloromethane	ND (10)	ug/Kg
Chlorodibromomethane	ND (10)	ug/Kg
Tetrachloroethane	(17)	ug/Kg
<u>Toluene</u>	(33)	ug/Kg
<u>Trichloroethene</u>	(10)	ug/Kg
Vinyl Chloride	ND (20)	ug/Kg
<u>Acetone</u>	(20)	ug/Kg
2-Butanone	ND (20)	ug/Kg
Carbon Disulfide	ND (10)	ug/Kg
2-Hexanone	ND (20)	ug/Kg
4-Methyl-2-pentanone	ND (20)	ug/Kg
Styrene	ND (10)	ug/Kg
Vinyl Acetate	ND (20)	ug/Kg
Total Xylenes	ND (10)	ug/Kg

Client I.D.: 3  
ERG Sample No.: 03/149059  
Matrix: SOLID

POND 4 SEDIMENT

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
VOLATILE FRACTION (RAS PROTOCOL)		
Benzene	(47)	ug/Kg
Carbon Tetrachloride	ND (5)	ug/Kg
Chlorobenzene	ND (5)	ug/Kg
1,2-Dichloroethane	ND (5)	ug/Kg
<u>1,1,1-Trichloroethane</u>	(80)	ug/Kg
<u>1,1-Dichloroethane</u>	(100)	ug/Kg
1,1,2-Trichloroethane	ND (5)	ug/Kg
1,1,2,2-Tetrachloroethane	ND (10)	ug/Kg
Chloroethane	ND (10)	ug/Kg
2-Chloroethylvinylether	ND (5)	ug/Kg
Chloroform	ND (5)	ug/Kg
<u>1,1-Dichloroethene</u>	(34)	ug/Kg
Trans-1,2-dichloroethene	ND (5)	ug/Kg
1,2-Dichloroethane	ND (5)	ug/Kg
Trans-1,2-dichloropropene	ND (5)	ug/Kg
Cis-1,3-dichloropropene	ND (5)	ug/Kg
Ethylbenzene	ND (5)	ug/Kg
<u>Methylene Chloride</u>	(28)	ug/Kg
Chloromethane	ND (10)	ug/Kg
Bromomethane	ND (5)	ug/Kg



# ANALYTICAL REPORT

ENVIRONMENTAL RESEARCH GROUP, INC.

Project: A4151  
Report Date: 05-05-86

Client I.D.: 3  
ERG Sample No.: 03/149059  
Matrix: SOLID

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Bromoform	ND (5)	ug/Kg
Bromodichloromethane	ND (5)	ug/Kg
Chlorodibromomethane	ND (5)	ug/Kg
Tetrachloroethane	ND (5)	ug/Kg
Toluene	ND (5)	ug/Kg
Trichloroethane	ND (5)	ug/Kg
Vinyl Chloride	ND (10)	ug/Kg
<u>Acetone</u>	<u>27</u>	ug/Kg
<u>2-Butanone</u>	<u>55</u>	ug/Kg
Carbon Disulfide	ND (5)	ug/Kg
2-Hexanone	ND (10)	ug/Kg
4-Methyl-2-pentanone	ND (10)	ug/Kg
Styrene	ND (5)	ug/Kg
Vinyl Acetate	ND (10)	ug/Kg
Total Xylenes	ND (5)	ug/Kg

Client I.D.: 4  
ERG Sample No.: 03/149060  
Matrix: SOLID

POND 5 SEDIMENT

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
VOLITILE FRACTION (RAS PROTOCOL)		
<u>Benzene</u>	<u>16</u>	ug/Kg
Carbon Tetrachloride	ND (5)	ug/Kg
Chlorobenzene	ND (5)	ug/Kg
1,2-Dichloroethane	ND (5)	ug/Kg
1,1,1-Trichloroethane	ND (5)	ug/Kg
1,1-Dichloroethane	ND (5)	ug/Kg
1,1,2-Trichloroethane	ND (5)	ug/Kg
1,1,2,2-Tetrachloroethane	ND (10)	ug/Kg
Chloroethane	ND (10)	ug/Kg
2-Chloroethylvinylether	ND (5)	ug/Kg
<u>Chloroform</u>	<u>26</u>	ug/Kg
1,1-Dichloroethene	ND (5)	ug/Kg
Trans-1,2-dichloroethene	ND (5)	ug/Kg
1,2-Dichloroethene	ND (5)	ug/Kg
Trans-1,3-dichloropropene	ND (5)	ug/Kg
Cis-1,3-dichloropropene	ND (5)	ug/Kg
Ethylbenzene	ND (5)	ug/Kg
<u>Methylene Chloride</u>	<u>27</u>	ug/Kg
Chloromethane	ND (10)	ug/Kg
Bromomethane	ND (5)	ug/Kg
Bromoform	ND (5)	ug/Kg
Bromodichloromethane	ND (5)	ug/Kg
Chlorodibromomethane	ND (5)	ug/Kg
Tetrachloroethane	ND (5)	ug/Kg



# ANALYTICAL REPORT

ENVIRONMENTAL RESEARCH GROUP, INC.

Project: A4151  
Report Date: 05-05-86

Client I.D.: 4  
ERG Sample No.: 03/149060  
Matrix: SOLID

Parameter	Result	Units
Toluene	ND (5)	ug/Kg
Trichloroethene	ND (5)	ug/Kg
Vinyl Chloride	ND (10)	ug/Kg
Acetone	ND (10)	ug/Kg
2-Butanone	ND (10)	ug/Kg
Carbon Disulfide	ND (5)	ug/Kg
2-Hexanone	ND (10)	ug/Kg
4-Methyl-2-pentanone	ND (10)	ug/Kg
Styrene	ND (5)	ug/Kg
Vinyl Acetate	ND (10)	ug/Kg
Total Xylenes	ND (5)	ug/Kg

Client I.D.: 15  
ERG Sample No.: 03/149071  
Matrix: WATER

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Parameter	Result	Units
ACID FRACTION (RAS PROTOCOL)		
2, 4, 6-Trichlorophenol	ND (1300000)	ug/L
p-Chloro-m-cresol	ND (1300000)	ug/L
2, Chlorophenol	ND (1300000)	ug/L
2, 4-Dichlorophenol	ND (1300000)	ug/L
2, 4-Dimethylphenol	ND (1300000)	ug/L
2-Nitrophenol	ND (1300000)	ug/L
4-nitrophenol	ND (6100000)	ug/L
4, 6-Dinitro-2-methylphenol	ND (6100000)	ug/L
Pentachlorophenol	ND (6100000)	ug/L
Phenol	ND (1300000)	ug/L
Benzoic Acid	ND (6100000)	ug/L
2-Methylphenol	ND (1300000)	ug/L
4-Methylphenol	ND (1300000)	ug/L
2, 4, 5-Trichlorophenol	ND (6100000)	ug/L
BASE-NEUTRAL FRACTION (RAS PROTOCOL)		
Acenaphthene	ND (1300000)	ug/L
1, 2, 4-Trichlorobenzene	ND (1300000)	ug/L
Hexachlorobenzene	ND (1300000)	ug/L
Hexachloroethane	ND (1300000)	ug/L
Bis(2-chloroethyl)ether	ND (1300000)	ug/L
2-Chloronaphthalene	ND (1300000)	ug/L
1, 2-Dichlorobenzene	ND (1300000)	ug/L
1, 3-Dichlorobenzene	ND (1300000)	ug/L
1, 4-Dichlorobenzene	ND (1300000)	ug/L
3, 3'-Dichlorobenzene	ND (2500000)	ug/L
2, 4-Dinitrotoluene	ND (1300000)	ug/L
2, 6-Dinitrotoluene	ND (1300000)	ug/L
1, 2-Diphenylhydrazine	ND (1300000)	ug/L



# ANALYTICAL REPORT

ENVIRONMENTAL RESEARCH GROUP, INC.

Project: A4151  
Report Date: 05-05-86

Client I.D.: 15  
ERG Sample No.: 03/149071  
Matrix: WATER

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Fluoranthene	ND (1300000)	ug/L
4-Chlorophenyl Phenyl Ether	ND (1300000)	ug/L
4-Bromophenyl Phenyl Ether	ND (1300000)	ug/L
Bis(2-chloroisopropyl) Ether	ND (1300000)	ug/L
Bis(2-chloroethoxy)methane	ND (1300000)	ug/L
Hexachlorobutadiene	ND (1300000)	ug/L
Hexachlorocyclopentadiene	ND (1300000)	ug/L
Isophorone	ND (1300000)	ug/L
Naphthalene	ND (1300000)	ug/L
Nitrobenzene	ND (1300000)	ug/L
N-Nitrosodiphenylamine	ND (1300000)	ug/L
N-Nitrosodisopropylamine	ND (1300000)	ug/L
Bis(2-ethylhexyl)phthalate	ND (1300000)	ug/L
Butylbenzylphthalate	ND (1300000)	ug/L
Di-n-butylphthalate	ND (1300000)	ug/L
Di-n-octylphthalate	ND (1300000)	ug/L
Diethylphthalate	ND (1300000)	ug/L
Dimethylphthalate	ND (1300000)	ug/L
Benzo(a)anthracene	ND (1300000)	ug/L
Benzo(a)pyrene	ND (1300000)	ug/L
Benzo(b)fluoranthene	ND (1300000)	ug/L
Benzo(k)fluoranthene	ND (1300000)	ug/L
Chrysene	ND (1300000)	ug/L
Acenaphthylene	ND (1300000)	ug/L
Anthracene	ND (1300000)	ug/L
Benzo(ghi)perylene	ND (1300000)	ug/L
Fluorene	ND (1300000)	ug/L
Phenanthrene	ND (1300000)	ug/L
Dibenzo(a,h)anthracene	ND (1300000)	ug/L
Indeno(1,2,3-cd)pyrene	ND (1300000)	ug/L
Pyrene	ND (1300000)	ug/L
Benzyl Alcohol	ND (1300000)	ug/L
4-Chloroaniline	ND (1300000)	ug/L
Dibenzofuran	ND (1300000)	ug/L
2-Methylnaphthalene	ND (1300000)	ug/L
2-Nitroaniline	ND (6100000)	ug/L
3-Nitroaniline	ND (6100000)	ug/L
4-Nitroaniline	ND (6100000)	ug/L

D-Sample damaged  
FR-See field report for result  
SR-See attached report  
NA-Result not applicable to test

ND-Nondetected, Detection limit in ()  
C-Positive result at an unquantifiable concentration below indicated level



# ANALYTICAL REPORT

ENVIRONMENTAL RESEARCH GROUP, INC.

Project: A4151.1  
Report Date: 05-05-86

117 N. FIRST  
ANN ARBOR, MICHIGAN 48104 (313) 662-3104

Client P. O.  
Report: 18419

Samples Recvd: 04-19-86  
Refer Questions To:  
ROBYN WOOLEY

Client:  
HARZA ENGINEERING  
150 S. WACKER  
ROOM 1140  
CHICAGO, IL 60606  
Attention: PATRICK PHERSON

Approved: \_\_\_\_\_

Residual Samples Will Be Held  
TWO WEEKS  
\*\*\*

Client I.D.: WELL W-2  
ERG Sample No.: 04/150727  
Matrix: WATER  
Date Sampled: 04-18-86  
Time Sampled: 8:30AM

Parameter	Result	Units
<b>VOLITILE FRACTION (RAS PROTOCOL)</b>		
Benzene	ND (5)	ug/L
Carbon Tetrachloride	ND (5)	ug/L
Chlorobenzene	ND (5)	ug/L
1, 2-Dichloroethane	ND (5)	ug/L
1, 1, 1-Trichloroethane	ND (5)	ug/L
1, 1-Dichloroethane	ND (5)	ug/L
1, 1, 2-Trichloroethane	ND (5)	ug/L
1, 1, 2, 2-Tetrachloroethene	ND (5)	ug/L
Chloroethane	ND (10)	ug/L
2-Chloroethylvinylether	ND (10)	ug/L
Chloroform	ND (5)	ug/L
1, 1-Dichloroethane	ND (5)	ug/L
Trans-1, 2-dichloroethene	ND (5)	ug/L
1, 2-Dichloroethene	ND (5)	ug/L
Trans-1, 3-dichlorpropene	ND (5)	ug/L
Cis-1, 3-dichlorpropene	ND (5)	ug/L
Ethylbenzene	ND (5)	ug/L
Methylene Chloride	ND (5)	ug/L
Chloromethane	ND (10)	ug/L
Bromomethane	ND (10)	ug/L
Bromoform	ND (5)	ug/L
Bromodichloromethane	ND (5)	ug/L
Chlorodibromomethane	ND (5)	ug/L
Tetrachloroethene	ND (5)	ug/L
Toluene	ND (5)	ug/L
Trichloroethene	ND (5)	ug/L
Vinyl Chloride	ND (10)	ug/L
Acetone	ND (10)	ug/L
2-Butanone	ND (10)	ug/L
Carbon Disulfide	ND (5)	ug/L
2-Hexanone	ND (10)	ug/L
4-Methyl-2-pentanone	ND (10)	ug/L





# ANALYTICAL REPORT

ENVIRONMENTAL RESEARCH GROUP, INC.

Project: A4151.1  
Report Date: 05-05-86

Client I.D.: WELL W-2  
ERO Sample No.: 04/150727  
Matrix: WATER  
Date Sampled: 04-18-86  
Time Sampled: 8:30AM

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Styrene	ND (5)	ug/L
Vinyl Acetate	ND (10)	ug/L
Total Xylenes	ND (5)	ug/L

Client I.D.: WELL W-5  
ERO Sample No.: 04/150728  
Matrix: WATER  
Date Sampled: 04-18-86  
Time Sampled: 10:00AM

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
<b>VOLITILE FRACTION (RAS PROTOCOL)</b>		
Benzene	ND (5)	ug/L
Carbon Tetrachloride	ND (5)	ug/L
Chlorobenzene	ND (5)	ug/L
1,2-Dichloroethane	ND (5)	ug/L
1,1,1-Trichloroethane	(5)	ug/L
1,1-Dichloroethane	(5)	ug/L
1,1,2-Trichloroethane	ND (5)	ug/L
1,1,2,2-Tetrachloroethane	ND (5)	ug/L
Chloroethane	ND (10)	ug/L
2-Chloroethylvinylether	ND (10)	ug/L
Chloroform	ND (5)	ug/L
1,1-Dichloroethene	ND (5)	ug/L
Trans-1,2-dichloroethene	ND (5)	ug/L
1,2-Dichloroethane	ND (5)	ug/L
Trans-1,3-dichloropropene	ND (5)	ug/L
Cis-1,3-dichloropropene	ND (5)	ug/L
Ethylbenzene	ND (5)	ug/L
Methylene Chloride	ND (5)	ug/L
Chloromethane	ND (10)	ug/L
Bromomethane	ND (10)	ug/L
Bromoform	ND (5)	ug/L
Bromodichloromethane	ND (5)	ug/L
Chlorodibromomethane	ND (5)	ug/L
Tetrachloroethene	ND (5)	ug/L
Toluene	ND (5)	ug/L
Trichloroethene	ND (5)	ug/L
Vinyl Chloride	ND (10)	ug/L
Acetone	ND (10)	ug/L
2-Butanone	ND (10)	ug/L
Carbon Disulfide	ND (5)	ug/L
2-Hexanone	ND (10)	ug/L
4-Methyl-2-pentanone	ND (10)	ug/L
Styrene	ND (5)	ug/L



# ANALYTICAL REPORT

ENVIRONMENTAL RESEARCH GROUP, INC.

Project: A4151.1  
Report Date: 05-05-86

Client I.D.: TRAVEL BLANK  
ERG Sample No.: 04/150736  
Matrix: WATER

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
VOLITILE FRACTION (RAS PROTOCOL)		
Benzene	ND (5)	ug/L
Carbon Tetrachloride	ND (5)	ug/L
Chlorobenzene	ND (5)	ug/L
1, 2-Dichloroethane	ND (5)	ug/L
1, 1, 1-Trichloroethane	ND (5)	ug/L
1, 1-Dichloroethane	ND (5)	ug/L
1, 1, 2-Trichloroethane	ND (5)	ug/L
1, 1, 2, 2-Tetrachloroethane	ND (10)	ug/L
Chloroethane	ND (10)	ug/L
2-Chloroethylvinylether	ND (5)	ug/L
Chloroform	ND (5)	ug/L
1, 1-Dichloroethene	ND (5)	ug/L
Trans-1, 2-dichloroethene	ND (5)	ug/L
1, 2-Dichloroethene	ND (5)	ug/L
Trans-1, 3-dichloropropene	ND (5)	ug/L
Cis-1, 3-dichloropropene	ND (5)	ug/L
Ethylbenzene	ND (5)	ug/L
Methylene Chloride	ND (10)	ug/L
Chloromethane	ND (10)	ug/L
Bromomethane	ND (5)	ug/L
Bromoform	ND (5)	ug/L
Bromodichloromethane	ND (5)	ug/L
Chlorodibromomethane	ND (5)	ug/L
Tetrachloroethene	ND (5)	ug/L
Toluene	ND (5)	ug/L
Trichloroethane	ND (5)	ug/L
Vinyl Chloride	NO (10)	ug/L
Acetone	ND (10)	ug/L
2-Butanone	ND (10)	ug/L
Carbon Disulfide	ND (5)	ug/L
2-Hexanone	ND (10)	ug/L
4-Methyl-2-pentanone	ND (10)	ug/L
Styrene	ND (5)	ug/L
Vinyl Acetate	ND (10)	ug/L
Total Xylenes	ND (5)	ug/L

-S Sample damaged  
TR-See field report for result  
OR-See attached report  
NA-Result not applicable to test

NO-Nondetected, Detection limit in ( )  
C-Positive result at an unquantifiable concentration below indicated level

Thank you for your business.

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# ANALYTICAL REPORT

ENVIRONMENTAL RESEARCH GROUP, INC.

Project: A4151.1  
Report Date: 05-05-86

Client I.D.: WELL W-5  
ERG Sample No.: 04/150728  
Matrix: WATER  
Date Sampled: 04-18-86  
Time Sampled: 10:00AM

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Vinyl Acetate	ND (10)	ug/L
Total Xylenes	ND (5)	ug/L

Client I.D.: WELL W-4  
ERG Sample No.: 04/150729  
Matrix: WATER  
Date Sampled: 04-18-86  
Time Sampled: 11:30AM

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
<u>VOLITILE FRACTION (RAS PROTOCOL)</u>		
Benzene	ND (5)	ug/L
Carbon Tetrachloride	ND (5)	ug/L
Chlorobenzene	ND (5)	ug/L
<u>1,2-Dichloroethane</u>	94	ug/L
<u>1,1,1-Trichloroethane</u>	470	ug/L
<u>1,1-Dichloroethane</u>	ND (5)	ug/L
<u>1,1,2-Trichloroethane</u>	ND (5)	ug/L
<u>1,1,2,2-Tetrachloroethane</u>	ND (10)	ug/L
<u>Chloroethane</u>	11	ug/L
<u>2-Chloroethylvinylether</u>	ND (5)	ug/L
<u>Chloroform</u>	ND (5)	ug/L
<u>1,1-Dichloroethene</u>	10	ug/L
<u>Trans-1,2-dichloroethene</u>	ND (5)	ug/L
<u>1,2-Dichloroethene</u>	ND (5)	ug/L
<u>Trans-1,3-dichloropropene</u>	ND (5)	ug/L
<u>Cis-1,3-dichloropropene</u>	ND (5)	ug/L
<u>Ethylbenzene</u>	ND (5)	ug/L
<u>Methylene Chloride</u>	ND (10)	ug/L
<u>Chloromethane</u>	ND (10)	ug/L
<u>Bromomethane</u>	ND (5)	ug/L
<u>Bromoform</u>	ND (5)	ug/L
<u>Bromodichloromethane</u>	ND (5)	ug/L
<u>Chlorodibromomethane</u>	ND (5)	ug/L
<u>Tetrachloroethene</u>	ND (5)	ug/L
<u>Toluene</u>	ND (5)	ug/L
<u>Trichloroethene</u>	ND (5)	ug/L
<u>Vinyl Chloride</u>	ND (10)	ug/L
<u>Acetone</u>	ND (10)	ug/L
<u>2-Butanone</u>	ND (10)	ug/L
<u>Carbon Disulfide</u>	ND (5)	ug/L
<u>2-Hexanone</u>	ND (10)	ug/L
<u>4-Methyl-2-pentanone</u>	ND (10)	ug/L
<u>Styrene</u>	ND (5)	ug/L
<u>Vinyl Acetate</u>	ND (10)	ug/L



# ANALYTICAL REPORT

ENVIRONMENTAL RESEARCH GROUP, INC.

Project: A4151.1  
Report Date: 05-05-86

Client I.D.: WELL W-4  
ERG Sample No.: 04/150729  
Matrix: WATER  
Date Sampled: 04-18-86  
Time Sampled: 11:30AM

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Total Xylenes	ND (5)	ug/L

Client I.D.: S.W. CORNER OF BLDG. *FIELD BLANK*  
ERG Sample No.: 04/150730  
Matrix: WATER  
Date Sampled: 04-18-86  
Time Sampled: 12:00PM

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
<u>VOLATILE FRACTION (RAS PROTOCOL)</u>		
Benzene	ND (5)	ug/L
Carbon Tetrachloride	ND (5)	ug/L
Chlorobenzene	ND (5)	ug/L
1,2-Dichloroethane	ND (5)	ug/L
1,1,1-Trichloroethane	ND (5)	ug/L
1,1-Dichloroethane	ND (5)	ug/L
1,1,2-Trichloroethane	ND (5)	ug/L
1,1,2,2-Tetrachloroethane	NO (10)	ug/L
Chloroethane	ND (10)	ug/L
2-Chloroethylvinylether	ND (5)	ug/L
Chloroform	ND (5)	ug/L
1,1-Dichloroethene	ND (5)	ug/L
Trans-1,2-dichloroethene	ND (5)	ug/L
1,2-Dichloroethene	ND (5)	ug/L
Trans-1,3-dichloropropene	ND (5)	ug/L
Cis-1,3-dichloropropene	ND (5)	ug/L
Ethylbenzene	NO (10)	ug/L
Methylene Chloride	ND (10)	ug/L
Chloromethane	ND (5)	ug/L
Bromomethane	ND (5)	ug/L
Bromoform	ND (5)	ug/L
Bromodichloromethane	ND (5)	ug/L
Chlorodibromomethane	ND (5)	ug/L
Tetrachloroethene	ND (5)	ug/L
Toluene	ND (5)	ug/L
Trichloroethane	ND (5)	ug/L
Vinyl Chloride	ND (10)	ug/L
Acetone	ND (10)	ug/L
2-Butanone	ND (10)	ug/L
Carbon Disulfide	ND (5)	ug/L
2-Hexanone	ND (10)	ug/L
4-Methyl-2-pentanone	ND (10)	ug/L
Styrene	ND (5)	ug/L
Vinyl Acetate	ND (10)	ug/L
Total Xylenes	ND (5)	ug/L



# ANALYTICAL REPORT

ENVIRONMENTAL RESEARCH GROUP, INC.

Project: A4151.1  
Report Date: 05-05-86

Client I.D.: WELL 5-3  
ERG Sample No.: 04/150731  
Matrix: WATER  
Date Sampled: 04-18-86  
Time Sampled: 12:45PM

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
VOLATILE FRACTION (RAS PROTOCOL)		
Benzene	ND (50)	ug/L
Carbon Tetrachloride	ND (50)	ug/L
Chlorobenzene	ND (50)	ug/L
<u>1,2-Dichloroethane</u>	<u>1000</u>	ug/L
<u>1,1,1-Trichloroethane</u>	<u>510</u>	ug/L
<u>1,1-Dichloroethane</u>	ND (50)	ug/L
<u>1,1,2-Trichloroethane</u>	ND (50)	ug/L
<u>1,1,2,2-Tetrachloroethane</u>	ND (100)	ug/L
<u>Chloroethane</u>	<u>&lt;100</u>	ug/L
<u>2-Chloroethylvinylether</u>	ND (50)	ug/L
<u>Chloroform</u>	ND (50)	ug/L
<u>1,1-Dichloroethene</u>	<u>&lt;50</u>	ug/L
<u>Trans-1,2-dichloroethane</u>	<u>220</u>	ug/L
<u>1,2-Dichloroethene</u>	ND (50)	ug/L
<u>Trans-1,3-dichloropropene</u>	ND (50)	ug/L
<u>Cis-1,3-dichloropropene</u>	ND (50)	ug/L
<u>Ethylbenzene</u>	ND (50)	ug/L
<u>Methylene Chloride</u>	ND (100)	ug/L
<u>Chloromethane</u>	ND (100)	ug/L
<u>Bromomethane</u>	ND (50)	ug/L
<u>Bromoform</u>	ND (50)	ug/L
<u>Bromodichloromethane</u>	ND (50)	ug/L
<u>Chlorodibromomethane</u>	ND (50)	ug/L
<u>Tetrachloroethene</u>	ND (50)	ug/L
<u>Toluene</u>	ND (50)	ug/L
<u>Trichloroethane</u>	ND (50)	ug/L
<u>Vinyl Chloride</u>	ND (100)	ug/L
<u>Acetone</u>	ND (100)	ug/L
<u>2-Butanone</u>	ND (100)	ug/L
<u>Carbon Disulfide</u>	ND (50)	ug/L
<u>2-Hexanone</u>	ND (100)	ug/L
<u>4-Methyl-2-pentanone</u>	ND (100)	ug/L
<u>Styrene</u>	ND (50)	ug/L
<u>Vinyl Acetate</u>	ND (100)	ug/L
<u>Total Xylenes</u>	ND (50)	ug/L

Client I.D.: WELL 5-3  
ERG Sample No.: 04/150732  
Matrix: WATER  
Date Sampled: 04-18-86  
Time Sampled: 12:50PM

Parameter Result Units



# ANALYTICAL REPORT

ENVIRONMENTAL RESEARCH GROUP, INC.

Project: A4151.1  
Report Date: 05-05-86

Client I.D.: WELL 5-3  
ERG Sample No.: 04/150732  
Matrix: WATER  
Date Sampled: 04-18-86  
Time Sampled: 12:50PM

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
<b>VOLITILE FRACTION (RAS PROTOCOL)</b>		
Benzene	ND (50)	ug/L
Carbon Tetrachloride	ND (50)	ug/L
Chlorobenzene	ND (50)	ug/L
<u>1,2-Dichloroethane</u>	1200	ug/L
<u>1,1,1-Trichloroethane</u>	550	ug/L
<u>1,1-Dichloroethane</u>	ND (50)	ug/L
<u>1,1,2-Trichloroethane</u>	ND (50)	ug/L
<u>1,1,2,2-Tetrachloroethane</u>	ND (100)	ug/L
<u>Chloroethane</u>	<100	ug/L
<u>2-Chloroethylvinylether</u>	ND (50)	ug/L
<u>Chloroform</u>	ND (50)	ug/L
<u>1,1-Dichloroethene</u>	<50	ug/L
<u>Trans-1,2-dichloroethene</u>	260	ug/L
<u>1,2-Dichloroethane</u>	ND (50)	ug/L
<u>Trans-1,3-dichloropropene</u>	ND (50)	ug/L
<u>Cis-1,3-dichloropropene</u>	ND (50)	ug/L
<u>Ethylbenzene</u>	ND (50)	ug/L
<u>Methylene Chloride</u>	ND (100)	ug/L
<u>Chloromethane</u>	ND (100)	ug/L
<u>Bromomethane</u>	ND (50)	ug/L
<u>Bromoform</u>	ND (50)	ug/L
<u>Bromodichloromethane</u>	ND (50)	ug/L
<u>Chlorodibromomethane</u>	ND (50)	ug/L
<u>Tetrachloroethene</u>	ND (50)	ug/L
<u>Toluene</u>	ND (50)	ug/L
<u>Trichloroethene</u>	ND (50)	ug/L
<u>Vinyl Chloride</u>	ND (100)	ug/L
<u>Acetone</u>	ND (100)	ug/L
<u>2-Butanone</u>	ND (100)	ug/L
<u>Carbon Disulfide</u>	ND (50)	ug/L
<u>2-Hexanone</u>	ND (100)	ug/L
<u>4-Methyl-2-pentanone</u>	ND (100)	ug/L
<u>Styrene</u>	ND (50)	ug/L
<u>Vinyl Acetate</u>	ND (100)	ug/L
<u>Total Xylenes</u>	ND (50)	ug/L

Client I.D.: WELL W-7  
ERG Sample No.: 04/150733  
Matrix: WATER  
Date Sampled: 04-18-86  
Time Sampled: 2:15PM

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
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# ANALYTICAL REPORT

ENVIRONMENTAL RESEARCH GROUP, INC.

Project: A4151.1  
Report Date: 05-05-86

Client I.D.: WELL W-7  
ERG Sample No.: 04/150733  
Matrix: WATER  
Date Sampled: 04-18-86  
Time Sampled: 2:15PM

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
<b>VOLITILE FRACTION (RAS PROTOCOL)</b>		
Benzene	ND (5)	ug/L
Carbon Tetrachloride	ND (5)	ug/L
Chlorobenzene	ND (5)	ug/L
<u>1,2-Dichloroethane</u>	(5)	ug/L
<u>1,1,1-Trichloroethane</u>	(33)	ug/L
<u>1,1-Dichloroethane</u>	ND (5)	ug/L
1,1,2-Trichloroethane	ND (5)	ug/L
1,1,2,2-Tetrachloroethene	ND (10)	ug/L
Chloroethane	ND (10)	ug/L
2-Chloroethylvinylether	ND (5)	ug/L
Chloroform	ND (5)	ug/L
1,1-Dichloroethene	ND (5)	ug/L
<u>Trans-1,2-dichloroethene</u>	(5)	ug/L
<u>1,2-Dichloroethene</u>	ND (5)	ug/L
<u>Trans-1,3-dichloropropene</u>	ND (5)	ug/L
<u>Cis-1,3-dichloropropene</u>	ND (5)	ug/L
Ethylbenzene	ND (5)	ug/L
Methylene Chloride	ND (10)	ug/L
Chloromethane	ND (10)	ug/L
Bromomethane	ND (5)	ug/L
Bromoform	ND (5)	ug/L
Bromodichloromethane	ND (5)	ug/L
Chlorodibromomethane	ND (5)	ug/L
Tetrachloroethene	ND (5)	ug/L
<u>Toluene</u>	(5)	ug/L
<u>Trichloroethene</u>	ND (5)	ug/L
<u>Vinyl Chloride</u>	ND (10)	ug/L
<u>Acetone</u>	(92)	ug/L
<u>2-Butanone</u>	ND (10)	ug/L
<u>Carbon Disulfide</u>	ND (5)	ug/L
2-Hexanone	ND (10)	ug/L
4-Methyl-2-pentanone	ND (10)	ug/L
Styrene	ND (5)	ug/L
Vinyl Acetate	ND (10)	ug/L
Total Xylenes	ND (5)	ug/L

Client I.D.: WELL W-7  
ERG Sample No.: 04/150734  
Matrix: WATER  
Date Sampled: 04-18-86  
Time Sampled: 2:25PM

Parameter Result Units



# ANALYTICAL REPORT

ENVIRONMENTAL RESEARCH GROUP, INC.

Project: A4151.1  
Report Date: 05-05-86

Client I.D.: WELL W-7  
ERG Sample No.: 04/150734  
Matrix: WATER  
Date Sampled: 04-18-86  
Time Sampled: 2:25PM

Parameter	Result	Units
<b>VOLATILE FRACTION (RAS PROTOCOL)</b>		
Benzene	ND (5)	ug/L
Carbon Tetrachloride	ND (5)	ug/L
Chlorobenzene	ND (5)	ug/L
1,2-Dichloroethane	<5	ug/L
<del>1,1,1-Trichloroethane</del>	28	ug/L
1,1-Dichloroethane	ND (5)	ug/L
1,1,2-Trichloroethane	ND (5)	ug/L
1,1,2,2-Tetrachloroethane	ND (10)	ug/L
Chloroethane	ND (10)	ug/L
2-Chloroethylvinylether	ND (5)	ug/L
Chloroform	ND (5)	ug/L
1,1-Dichloroethene	ND (5)	ug/L
Trans-1,2-dichloroethene	ND (5)	ug/L
1,2-Dichloroethene	ND (5)	ug/L
Trans-1,3-dichloropropene	ND (5)	ug/L
Cis-1,3-dichloropropene	ND (5)	ug/L
Ethylbenzene	ND (5)	ug/L
Methylene Chloride	ND (10)	ug/L
Chloromethane	ND (10)	ug/L
Bromomethane	ND (5)	ug/L
Bromoform	ND (5)	ug/L
Bromodichloromethane	ND (5)	ug/L
Chlorodibromomethane	ND (5)	ug/L
Tetrachloroethene	ND (5)	ug/L
<u>Toluene</u>	<5	ug/L
Trichloroethene	ND (5)	ug/L
Vinyl Chloride	ND (10)	ug/L
<u>Acetone</u>	<2	ug/L
2-Butanone	ND (10)	ug/L
Carbon Disulfide	ND (5)	ug/L
2-Hexanone	ND (10)	ug/L
4-Methyl-2-pentanone	ND (10)	ug/L
Styrene	ND (5)	ug/L
Vinyl Acetate	ND (10)	ug/L
Total Xylenes	ND (5)	ug/L

Client I.D.: SOLVENT TANK  
ERG Sample No.: 04/150735  
Matrix: WATER  
Date Sampled: 04-18-86  
Time Sampled: 3:15PM

Parameter Result Units





# ANALYTICAL REPORT

ENVIRONMENTAL RESEARCH GROUP, INC.

Project: A4151.1  
Report Date: 05-05-86

Client I.D.: SOLVENT TANK  
ERG Sample No.: 04/150735  
Matrix: WATER  
Date Sampled: 04-18-86  
Time Sampled: 3:15PM

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
VOLITILE FRACTION (RAS PROTOCOL)		
Benzene	ND (5000)	ug/L
Carbon Tetrachloride	ND (5000)	ug/L
Chlorobenzene	ND (5000)	ug/L
1,2-Dichloroethane	ND (5000)	ug/L
1,1,1-Trichloroethane	ND (5000)	ug/L
1,1-Dichloroethane	ND (5000)	ug/L
1,1,2-Trichloroethane	ND (5000)	ug/L
1,1,2,2-Tetrachloroethane	ND (10000)	ug/L
Chloroethane	ND (10000)	ug/L
2-Chloroethylvinylether	ND (5000)	ug/L
Chloroform	ND (5000)	ug/L
1,1-Dichloroethene	ND (5000)	ug/L
Trans-1,2-dichloroethene	ND (5000)	ug/L
1,2-Dichloroethene	ND (5000)	ug/L
trans-1,3-dichloropropene	ND (5000)	ug/L
Cis-1,3-dichloropropene	ND (5000)	ug/L
Ethylbenzene	ND (5000)	ug/L
Methylen Chloride	ND (10000)	ug/L
Chloromethane	ND (10000)	ug/L
Bromomethane	ND (5000)	ug/L
Bromoform	ND (5000)	ug/L
Bromodichloromethane	ND (5000)	ug/L
Chlorodibromomethane	ND (5000)	ug/L
Tetrachloroethene	ND (5000)	ug/L
Toluene	ND (5000)	ug/L
Trichloroethene	ND (5000)	ug/L
Vinyl Chloride	ND (10000)	ug/L
Acetone	ND (10000)	ug/L
2-Butanone	ND (10000)	ug/L
Carbon Disulfide	ND (5000)	ug/L
2-Hexanone	ND (10000)	ug/L
4-Methyl-2-pentanone	ND (10000)	ug/L
Styrene	ND (5000)	ug/L
Vinyl Acetate	ND (10000)	ug/L
Total Xylenes	<5000	ug/L

Client I.D.: TRAVEL BLANK  
ERG Sample No.: 04/150736  
Matrix: WATER

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
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