8002-06-4
Rev. No. 0

FINAL DRAFT
SITE INSPECTION PRIORITIZATION
JOHN HASSALL INC.
HICKSVILLE, NASSAU COUNTY, NEW YORK

PREPARED UNDER

WORK ASSIGNMENT NO. 019-2JZZ
CONTRACT NO. 68-WP-0051

June 30, 1992

VOLUME 3 OF 3

333201

Laboratory Resources INC
363 Old Hook Road Westwood, New Jersey 07675 201/ 666-6644

LABORATORY ANALYSIS REPORT

Client: Diversified Environmental, Inc.

Contact: Mr. David Nickerson

Project: John Hassall

Lab ID No.:	Sample Reference	Matrix	Collection Date & Time	
W107324-01	FB-04-01	Aqueous	07/18/91	09:08
W107324-02	Trip Blank	Aqueous	07/18/91	--

Date Received: July 19, 1991

Date of Report: August 22, 1991

Tara A. Weiss
Tara A. Weiss
Laboratory Manager

N.J. Certification #02046
N.Y. Certification #10588

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CASE NARRATIVE

Laboratory Resources, Westwood, received a field and trip blank for Tier II deliverables on July 19, 1991. The samples were analyzed for the parameters outlined in the chain of custody.

The samples were extracted and analyzed within recommended holding times. Any parameters which were outside of their respective quality control ranges are noted in the non-conformance summaries.

Please contact us if there are any questions regarding the enclosed results.

LABORATORY DELIVERABLES

THIS FORM MUST BE COMPLETED BY THE LABORATORY OR ENVIRONMENTAL CONSULTANT AND ACCOMPANY ALL DATA SUBMISSIONS

The following laboratory deliverables shall be included in the data submission. All deviations from the accepted methodology and procedures, or performance values outside acceptable ranges shall be summarized in the Non-Conformance Summary. The document shall be bound and paginated, contain a table of contents, and all pages shall be legible. Incomplete packages may be returned or held without review until the data package is completed.

		Check if Complete
I.	Cover Page, Format, and Laboratory Certification (Include Cross Reference Table of Field I.D. # and Laboratory I.D. #)	✓
II.	Chain of Custody	✓
III.	Summary Sheets Listing Analytical Results Including QA Data Information (see Attached Form and ESPG Attachment 2.B.2.C.)	✓
IV.	Laboratory Chronicle and Methodology Summary including Sampling Holding Time Check	✓
V.	Initial Calibration and Continuing Calibration	✓
VI.	Tune Summary (MS)	✓
VII.	Blanks (Method, Field, Trip)	✓
VIII.	Surrogate Recovery Summary	✓
IX.	Chromatographs Labelled/Compound Identification	✓
X.	Non-Conformance Summary	✓

Laboratory Manager or Environmental Consultant's Signature

8/22/91
Date

GC/MS ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY FORMAT

	No	Yes
1. GC/MS Tune Specifications		
a. BFB passed		✓
b. DFTPP passed		✓
2. GC/MS Tuning Frequency - Performed every 12 hours		✓
3. GC/MS Calibration - Initial Calibration performed within 30 days before sample analysis and continuing calibration performed within 24 hours before sample analysis		✓
4. GC/MS Calibration Requirements		
a. Calibration Check Compounds		✓
b. System Performance Check Compounds		✓
5. Blank Contamination - List compounds for each fraction		
a. VOA Fraction Acetone, Methylene chloride		
b. B/N Fraction NONE		
c. Acid Fraction ↓		
6. Surrogate Recoveries Meet Criteria (If not met; list those compounds and their recoveries which fall outside the acceptable range)		✓
a. VOA Fraction		
b. B/N Fraction		
c. Acid Fraction		
7. Extraction Holding Time Met		✓
Comments:		
8. Analysis Holding Time Met		✓
Comments:		

Additional Comments:

Laboratory Manager [signature] Date: 8/22/91

Inorganic Non-Conformance Summary

There were no non-conformances encountered during the analyses of these samples.

Organic Non-Conformance Summary

There were no non-conformances encountered during the analyses of these samples.

W107324

Laboratory Resources INC

CHAIN OF CUSTODY

CUSTOMER INFORMATION

CUSTOMER: DER INC
ADDRESS: 101 Jessup Rd
TELEPHONE: 609-384-8030
PROJECT: John Hassall (JH)
PROJECT MANAGER: David Nickerson
PROJECT LOCATION: Wurtsburg STATE: NY
PO NUMBER: 7805

REPORT INFORMATION

SEND REPORT TO: DER INC
101 Jessup Rd
Thorofare NJ 08086
Attn. D. Nickerson
DATE REPORT REQUIRED: ASAP
RUSH RESULTS: FAX

PROJECT INFORMATION

TURNAROUND (INDICATE CALENDAR DAYS, CONFIRM WITH LAB): 2 5 7 14 21 OTHER:
DELIVERABLES (PLEASE CIRCLE): TIER I TIER II/ECRA
CLP RESULTS ONLY 21E TASA OTHER:
IN CASE WE HAVE ANY QUESTIONS WHEN SAMPLES ARRIVE WE SHOULD CALL:
NAME: D Nickerson
TELEPHONE: 516-334-6200 Ext 420

Tier II per DN TC 7/19/91

ANALYTICAL REQUESTS

LAB ID CODE	SAMPLE IDENTIFICATION	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE: COMPOSITE (C)	SAMPLE TYPE: GRAB (G)	SAMPLE MATRIX: SOLID (S)	SAMPLE MATRIX: LIQUID (L)	SAMPLE MATRIX: COMBINED (C)	SAMPLE MATRIX: OTHER (O)	PRESERVATIVE* H_2SO_4	HCL	HNO_3						ANALYSIS
	FB-04-01	7/18/91	0908		X		X			2								PHC
-01	FB-04-01	↓	↓								3							VOA+15
	FB-04-01											1						Metals Na, Cr, Cu, Fe, Hg, Zn
	FB-04-01												2					BNA+25
~~-02~~	~~JH-1-1~~		242		X	X								2	1	1		VOA+15, BNA+25, Metals
															1			
-02	TB															1		X
																		repeat from W107325-01
																		disregard - will
																		complete on next COC

PLEASE INDICATE NUMBER OF BOTTLES

CUSTODY

SAMPLER:	David A. Nickerson	DATE:	7/19/91
RECEIVED:		TIME:	8:30
RELINQUISHED:	David Nickerson	DATE:	7/19/91
RECEIVED:	Bob Bell	TIME:	8:35
RELINQUISHED:		DATE:	
RECEIVED:		TIME:	

COMMENTS, REQUESTS OR REMARKS (Toxic?, Flammable?, Explosive?, High Levels?)

*PRESERVATIVE: NaOH H_2SO_4 HNO_3 HCL ASCORBIC ACID

LABORATORY RESOURCES, INC. LABORATORY CHRONICLES

Sample Number W107324	FB-04-01 -01	TB -02								
Received & Refrigerated Date:	7/19/91									
Organics Extraction Date:										
Petroleum Hydrocarbons	7/23/91									
Base/Neutrals /Acid	7/20/91									
PCBs/Pesticides										
Metals Digestion	8/2/91									
Analysis Date:										
Petroleum Hydrocarbons	7/23/91									
Volatiles	7/26/91	7/26/91								
Base/Neutrals /Acid	8/1/91									
PCBs/Pesticides										
Herbicides										
Metals	8/7/91									
Total Solids										
Corrosivity										
Mercury	7/31/91									
Organic Supervisor Review & Approval	S.C 8/20/91	→								
Inorganic Supervisor Review & Approval	M.D 8/20/91									

1007

METHODS SUMMARY

PHENOLICS, TOTAL RECOVERABLE

The total phenolics analysis is performed according to USEPA Method 420.1 in Methods for Chemical Analysis of Water and Waste, EPA-600/4-79-020 March 1979. All samples are distilled prior to the manual colorimetric procedure. Phenolic material in the distillate will react with 4-aminoantipyrine and potassium ferrocyanide at a pH of 10. The absorbance of the solution is read at 510nm. The amount of color produced is a function of the concentration of phenolic material present in the sample.

PETROLEUM HYDROCARBONS (IR)

Aqueous samples are analyzed following USEPA Method 418.1 as prescribed in Methods for Chemical Analysis of Water and Waste, EPA-600/4-79-020 March 1979. Samples are extracted with freon-113 and measured via an infra-red spectrophotometer.

PETROLEUM HYDROCARBONS (SOXHLET)

The methodology for non-aqueous petroleum hydrocarbons is cited in the Sampling Plan Guide (Draft), NJDEP-ECRA, Trenton, NJ 08625, June 1986, a modification of Method 418.1 (EPA-600/4-79-0200).

TOTAL SOLIDS (TOTAL RESIDUE)

The total solids analysis is performed according to Method 209A cited in the 16th Edition of Standard Methods for the Examination of Water and Wastewater. A well mixed aliquot of the sample is quantitatively transferred to a pre-condition evaporating dish and evaporated to a constant weight at 98 C. The evaporated sample is then dried to a constant weight at 103-105 C in a drying oven. The dried residue remaining in the evaporating dish represents the total solids and is reported as a percent.

HERBICIDES

The herbicide extraction and analysis is performed according to Method 509B, cited in the 16th edition of Standard Methods. Samples are extracted, derivitized, and then analyzed via a gas chromatograph utilizing an electron capture detector (ECD).

METHODS SUMMARY

PURGEABLE HALOCARBONS/AROMATICS BY METHODS 601-8010/602-8020

Methods 601/8020 and 602/8020 are based on the gas chromatographic analysis of five milliliters of aqueous sample or approximately 5 grams of solid waste for purgeable halocarbons and purgeable aromatics, respectively. The samples are purged, trapped and desorbed onto a column using a temperature ramping program. A Hall electrolytic conductivity detector in series with a photoionization detector (PID) is used for detection of these compounds.

ORGANIC EXTRACTIONS

Routine aqueous samples are prepared using method 3510 from SW846 separatory funnel extraction. Samples with different matrices are extracted using method 3520 from SW846 continuous liquid-liquid extraction. Soil samples are also extracted using method 3550 from SW846 sonication.

METALS

The CLP metals methods are based on USEPA 200 series methods, SW-846 7000 series methods and SW-846 method 6010.

Hot dilute acid digestion is followed by either furnace or flame atomic absorption, cold vapor atomic absorption, or inductively coupled argon plasma analysis. All specified contract required detection limits are achieved.

CYANIDE

Samples for cyanide analysis are distilled and measured via the manual colorimetric procedure cited in the CLP modified USEPA Method 335.2 in Methods for Chemical Analysis of Water and Waste, EPA-600/4-79-020 March 1979. Cyanide is initially distilled and collected in sodium hydroxide as hydrocyanic acid (HCN). The distillate is treated with chloramine-T at a pH <8 and recovered HCN will react with pyridine-barbaturic acid to form a reddish dye. The absorbance of this solution is read at 578nm. The amount of color produced is a function of the concentration of the total cyanide present in the sample.

METHODS SUMMARY

VOLATILES by GC/MS

Samples requesting volatiles by GC/MS have been analyzed using the method cited in the USEPA-CLP-IFB version 2/88. The CLP volatile method is based on USEPA Method 624 (Purgeables) and SW-846 Method 8240.
The method is based on 5 milliliters of aqueous or 5 grams of non-aqueous sample spiked with a known concentration of surrogates and internal standards. The samples and standards are then purged onto a trap using the Tekmar LSC 2000 and desorbed onto a fused silica megabore column with a DB-624 phase installed in the HP 5890 GC that is coupled via a jet separator to the HP 5970 MSD. The data is then collected and reduced via the HP 1000 RTE data system.

BASE NEUTRALS / ACID EXTRACTABLES

Samples requesting semi-volatiles have been analyzed using the method cited in the USEPA-CLP-IFB version 2/88. The CLP semi-volatile method is based on USEPA Method 625 (Base/Neutrals and Acids) and SW-846 Method 8270.
Three acid and three base/neutral surrogates are added to each sample. Aqueous samples are extracted with methylene chloride; soil samples are extracted with a 1 to 1 solution of methylene chloride and acetone. The extracts are then concentrated and the internal standards are added. An SPB-5 0.32mm capillary column is used in the Hewlett Packard 5890 GC coupled to the HP 5970 MSD. The data is collected and reduced via the HP 1000 RTE data system.

PESTICIDES / PCBS

Aqueous samples are analyzed for pesticides and PCBs via USEPA Method 608. Non-aqueous samples are analyzed via Method 8080 from USEPA SW846.
These methods determine the presence of pesticides and PCB's in samples by extraction/concentration with organic solvents and subsequent qualification/quantification by gas chromatography. The gas chromatograph utilizes an electron capture detector (ECD) and MDL's meet or are less than requirements.

Laboratory Resources INC
A UNITED WATER RESOURCES COMPANY
363 Old Hook Road
Westwood, New Jersey 07675-3235
(201) 666-6644 • FAX: (201) 666-7978

NJ Certification # 02046
NY Certification # 10588

Diversified Environmental
101 Jessup Rd
Thorofare, NJ 08086

Attn: David Nickerson

Date of Report: 08/22/91
Work Order #: W1-07-324
Date Received: 07/19/91
Client #: 000297
P.O./Project #: 7805

PARAMETER	FB-04-01
CHROMIUM	<0.0100
COPPER	<0.0100
IRON	<0.100
MERCURY	<0.0002
NICKEL	0.0250
ZINC	<0.0100
PETROLEUM HYDROCARBONS W	<0.32

Sara A. Weiss
Laboratory Manager

All results expressed as mg/L unless otherwise stated
(See reverse for additional information)

LABORATORY RESOURCES, INC. - WESTWOOD 1991

QUALITY CONTROL REPORT FOR WORK ORDER: W1-07-324

PARAMETER	METHOD (1)	BLANK mg/L	BLANK SPK % REC	SPK LIMITS 75% - 125%
Aluminum	200.7			
Antimony	204.2			
Arsenic	206.2			
Barium	200.7			
Beryllium	200.7			
Boron	200.7			
Cadmium	200.7			
Calcium	200.7			
Chromium	200.7	<0.0100	94	
Cr Hex	307B(2)			
Cobalt	200.7			
Copper	200.7	<0.0100	104	
Iron	200.7	<0.100	99	
Lead	239.2			
Lead	200.7			
Magnesium	200.7			
Manganese	200.7			
Mercury	245.1	<0.0002	104	
Molybdenum	200.7			
Nickel	200.7	<0.0250	97	
Potassium	200.7			
Selenium	270.2			
Silicon	200.7			
Silver	200.7			
Sodium	273.1			
Thallium	279.2			
Tin	282.2			
Titanium	283.2			
Vanadium	200.7			
Zinc	200.7	<0.0100	103	

(1) = Water and wastewater methods approved in the Federal Register in section 40 CFR 136 and listed in EPA 600/4-79-020.

(2) = Water and wastewater methods approved in the Federal Register in section 40 CFR 136 and listed in Standard Methods for the Examination of Water and Wastewater, 14th Edition, 1976.

A = No predigested spike recovered due to high sample concentration. Analytical spike result and recovery on diluted sample is shown in parentheses.

T.V. = True value.

LABORATORY RESOURCES, INC. - WESTWOOD 1991

QUALITY CONTROL REPORT FOR WORK ORDER: W1-07-324

PARAMETER	METHOD (1)	BLANK mg/L	BLANK SPK mg/L	SPK LIMITS 75% -125%
Acidity	305.1			
Alkalinity/Acidity	310.1			
Coliform, Total MF	p.108(2)			
Coliform, Total MPN	p.114(2)			
Coliform, Fecal MF	p.124(2)			
Coliform, Strep MF	p.136(2)			
Coliform, Fecal MPN	p.132(2)			
BOD 5 day	507(3)			
BOD 20 day	507(3)			
Chloride	325.3			
Chemical Oxygen Demand	HACH			
Conductivity	120.1			
Cyanide, Total	335.2			
Surfactants	512B(3)			
Fluoride	340.2			
Hardness Total,CaCO3	130.2			
Ammonia	350.1			
Nitrate	353.1			
Nitrite	354.1			
Total Kjeldahl Nitrogen	351.2			
Oil & Grease, Gr	413.1			
Organic Carbon, Total	415.1			
Petroleum Hydro, IR	418.1	<0.25	87	
pH	150.1			
Phenolics, Total	420.1			
Phosphorous, Total	365.2			
Solids, Total	160.3			
Sulfate	375.4			
Sulfide	376.1			
Sulfite	377.1			
Turbidity	180.1			

(1) = Water and wastewater methods approved in the Federal Register in section 40 CFR 136 and listed in EPA 600/4-79-020.
(2) = Methods cited in EPA 600/8-78-017.
(3) = Methods cited in Standard Methods 16th Edition, 1986.
HACH= Method 8000, Hach Handbook of Water Analysis, 1979. Approved in the Federal Register, April 21, 1980, page 26811.
T.V.= True value.

PROJECT SUMMARY REPORT
FOR
ALL ORGANIC ANALYSIS

SAMPLES AND CONCENTRATIONS
ug/L or ug/Kg

Lab Work Order # - W107324-(Sample no.)

COMPOUNDS	FB-04-01 01	TRIP BLK 02		
BIS(2-ETHYLHEXYL)PHTHALATE	40			

B : COMPOUND ALSO PRESENT IN BLANK.

NOTE: IF NO ENTRY IS MADE THEN THE SAMPLE IS NONE DETECTED.

LABORATORY REPORT

CHEMICAL EXAMINATION OF INDUSTRIAL AND HAZARDOUS WASTES

Center for Laboratories and Research

Nassau County Department of Health

1 ☑ Routine
2 ☐ Resample
3 ☐ Special
4 ☐ Complaint
5 ☐ Other

Lab. No. Clin. 19201159
Spec.

Field No. P-96

Source Information (Please Print)

Premises: John Hassel

Address: Cantiague Rock Rd.

Town: Westbury

Collection Point: JH-4-2

	Month	Day	Year
Date Collected	7	15	9
Date Received	JUL	15	1991
Date Reported	AUG 26 1991		
Collection Time	13:15 hrs		
Collected By:	Peter F. Paul		

Sampler's Comments: Total metals only

Bureau:
1 ☑ Land Resources Management
9 ☐ Other (specify)

Sample Type:
A ☐ Water
B ☑ Soil
C ☐ Sludge
D ☐ Waste Solvent
E ☐ Oil
F ☐ Other

CHEMICAL EXAMINATION

Check	TOTAL Metals		Result	Check	Non-Metals		Result	Check	Constituent		Result
	Aluminum	mg/l		15	Chloride	mg/l		29	Chromium hex.	mg/l	
2	Arsenic	mg/l		16	Cyanide	mg/l		30			
3	Barium	mg/l		17	Fluoride	mg/l		31			
4	Cadmium	mg/l		18	MBAS	mg/l		32			
5	Chromium, Total	mg/l		19	pH			33			
6	Copper	mg/l		20	Phenols	mg/l		34			
7	Iron, Total	mg/l		21	Solids, Suspended	mg/l		35			
8	Lead	mg/l		22	Solids, Total Diss.	mg/l		36			
9	Manganese	mg/l		23	Sulfate	mg/l		37			
10	Mercury	mg/kg	0.10	24	Ammonia nitrogen	mg/l		38			
11	Nickel	mg/kg	14.0	25	Kjeldahl nitrogen	mg/l		39			
12	Selenium	mg/l		26	Nitrite nitrogen	mg/l		40			
13	Silver	mg/l		27	Nitrate nitrogen	mg/l		41			
14	Zinc	mg/l		28	Total Phos.	mg/l		42			

SPECIAL ANALYSIS

Examiner's Comments: PLEASE SIGN IN SAMPLES.

LABORATORY WORKSHEET

CHEMICAL EXAMINATION FOR TRACE ORGANIC CONSTITUENTS IN WATER, HAZARDOUS WASTES A SOLID WASTES

Center for Laboratories and Research

Nassau County Department of Health

1 ☑ Routine
2 ☐ Resample
3 ☐ Special
4 ☐ Complaint
5 ☐ Other

Lab. No. 911202

Field No. P-96

N No. (Public Water Supply Only)

Source Information (Please Print)

Premises: J. Hassell

Address: Cantiague Rock Rd

Town: Westbury

Collection Point: JH-4-P Well No.

	Month	Day	Year
Date Collected	7	15	91
Date Received	JUL	15	1991
Date Reported			
Collection Time	13:15 hrs		
Collected By:	P. Paul		

Sampler's Comments:

Samples on ice
Heavy contamination

Bureau

1 ☑ Land Resources Management
2 ☐ Public Water Supply
3 ☐ Water Pollution Control
4 ☐ Environmental Sanitation
9 ☐ Other (specify)

SAMPLE TYPE

AQUEOUS				NON-AQUEOUS	
	Community Well	6	Surface Water	1	Soil
	Non-Community Well	7	Waste Water	2	Sludge
	Private Well	8	Industrial Effluent	3	Waste Solvent
	Monitoring Well	9	Raw Supply Water	4	Oil
	Drinking Water	10	Distribution Water	5	Other (specify)

ANALYSIS TYPE

	Purgeable Organic compounds
	Other (specify)

Examiner's Comments:

NASSAU COUNTY HEALTH DEPARTMENT
CENTER FOR LABORATORIES AND RESEARCH
ENVIRONMENTAL HEALTH LABORATORIES

TRACE ORGANICS

Access Number: 911202
Source: J HASSEL, CANTIAGUE ROCK RD, WESTBURY
Matrix: SOIL
Site: JH-4-2
Date Sampled: 07/15/91
Date of Report: 07/26/91

VOLATILE HALOGENATED	MRC (ng/g)		RESUL (ng/
VINYL CHLORIDE----------(WA24)---------	1000	------- <	10
TRICHLOROFLUORMETHANE-----(WA01)---------	1000	------- <	10
1,1-DICHLOROETHYLENE------(WA15)---------	1000	------- <	10
METHYLENE CHLORIDE--------(WA02)---------	1000	------- <	10
t-1,2-DICHLOROETHYLENE----(WA16)---------	1000	------- <	10
1,1-DICHLOROETHANE--------(WA04)---------	1000	------- <	10
c-1,2-DICHLOROETHYLENE----(WA17)---------	1000	------- <	10
CHLOROFORM----------(WA05)---------	1000	------- <	10
1,1,1-TRICHLOROETHANE-----(WA06)---------	1000	------- <	10
CARBON TETRACHLORIDE------(WA07)---------	1000	------- <	10
1,2-DICHLOROETHANE--------(WA18)---------	1000	------- <	10
TRICHLOROETHYLENE---------(WA08)---------	1000	------- <	10
1,2-DICHLOROPROPANE-------(WA20)---------	1000	------- <	10
BROMODICHLOROMETHANE------(WA09)---------	1000	------- <	10
c-1,3-DICHLOROPROPENE-----(WA22)---------	1000	------- <	10
t-1,3-DICHLOROPROPENE-----(WA23)---------	1000	------- <	10
1,1,2-TRICHLOROETHANE ----(WA19)---------	1000	------- <	10
TETRACHLOROETHYLENE ------(WA13)---------	1000	------- <	10
DIBROMOCHLOROMETHANE------(WA10)---------	1000	------- <	10
BROMOFORM ----------(WA14)---------	1000	------- <	10
1,1,2,2-TETRACHLOROETHANE-(WA21)---------	1000	------- <	10

==========

MRC - MINIMUM REPORTABLE CONCENTRATION NA - NOT ANALYZED
NR - NO RESULT DUE TO TECHNICAL REASONS - RESAMPLE SUGGESTED
PPB: AIR - nl/l WATER - ug/l SOIL - ng/g

JUL 29 1991

NASSAU COUNTY HEALTH DEPARTMENT
CENTER FOR LABORATORIES AND RESEARCH
ENVIRONMENTAL HEALTH LABORATORIES

TRACE ORGANICS

Access Number: 911202
Source: J HASSEL, CANTIAGUE ROCK RD, WESTBURY
Matrix: SOIL
Site: JH-4-2
Date Sampled: 07/15/91
Date of Report: 07/26/91

VOLATILE AROMATICS	MRC (ng/g)		RESULT (ng/g)
BENZENE ----------(WC01)---------	500	------- <	500
TOLUENE ----------(WC02)---------	1000	------- <	1000
CHLOROBENZENE ----------(WC03)---------	1000	------- <	1000
ETHYLBENZENE ----------(WC04)---------	NR	-------	NR
o-XYLENE ----------(WC29)---------	1000	-------	8600
m,p-XYLENE ----------(WC30)---------	1000	-------	4300
STYRENE ----------(WC31)---------	NR	-------	NR
n-PROPYLBENZENE ----------(WC11)---------	NR	-------	NR
ISOPROPYLBENZENE ----------(WC12)---------	NR	-------	NR
BROMOBENZENE ----------(WC09)---------	1000	------- <	1000
1,2,4-TRIMETHYLBENZENE ---(WC14)---------	1000	-------	27000
1,3,5-TRIMETHYLBENZENE ---(WC15)---------	1000	-------	9600
2-CHLOROTOLUENE ----------(WC16)---------	1000	------- <	1000
4-CHLOROTOLUENE ----------(WC17)---------	1000	------- <	1000
n-BUTYLBENZENE ----------(WC18)---------	1000	-------	4600
sec-BUTYLBENZENE ----------(WC19)---------	NR	-------	NR
tert-BUTYLBENZENE ----------(WC20)---------	NR	-------	NR
p-ISOPROPYLTOLUENE ----------(WC21)---------	NR	-------	NR
o-DICHLOROBENZENE ----------(WC22)---------	1000	------- <	1000
m-DICHLOROBENZENE ----------(WC23)---------	1000	------- <	1000
p-DICHLOROBENZENE ----------(WC24)---------	1000	------- <	1000
1,2,3-TRICHLOROBENZENE ---(WC25)---------	1000	------- <	1000
1,2,4-TRICHLOROBENZENE ---(WC26)---------	1000	------- <	1000
HEXACHLOROBUTADIENE ------(WC27)---------	1000	------- <	1000
NAPHTHALENE ----------(WC28)---------	1000	-------	1500

Comment: UNIDENTIFIED HYDROCARBON AND AROMATIC COMPOUNDS
Comment: DETECTED BY GC IN HIGH CONCENTRATIONS.

==========

MRC - MINIMUM REPORTABLE CONCENTRATION NA - NOT ANALYZED
NR - NO RESULT DUE TO TECHNICAL REASONS - RESAMPLE SUGGESTED
PPB: AIR - nl/l WATER - ug/l SOIL - ng/g

LABORATORY REPORT
CHEMICAL EXAMINATION OF INDUSTRIAL AND HAZARDOUS WASTES
Center for Laboratories and Research
Nassau County Department of Health

1 ☑ Routine
2 ☐ Resample
3 ☐ Special
4 ☐ Complaint
5 ☐ Other

Lab. No. Clin. 19201160 Spec.

Field No. P-97

Source Information (Please Print)

Premises John Hassel
Address Cantiague Rock Rd
Town Westbury
Collection Point JH-6-1

	Month	Day	Year
Date Collected	7	15	91
Date Received	JUL 15 1991		
Date Reported	SEP 03 1991		

Collection Time 13:30 hrs
Collected By: P. Paul

Sampler's Comments: Total Metal only

Bureau:
1 ☑ Land Resources Management
9 ☐ Other (specify)

Sample Type:
A ☐ Water
B ☑ Soil
C ☐ Sludge
D ☐ Waste Solvent
E ☐ Oil
F ☐ Other

CHEMICAL EXAMINATION

Check	TOTAL Metals		Result	Check	Non-Metals		Result
	Aluminum	mg/l		15	Chloride	mg/l	
2	Arsenic	mg/l		16	Cyanide	mg/l	
3	Barium	mg/l		17	Fluoride	mg/l	
4	Cadmium	mg/l		18	MBAS	mg/l	
5	Chromium, Total	mg/l		19	pH		
6	Copper	mg/l		20	Phenols	mg/l	
7	Iron, Total	mg/l		21	Solids, Suspended	mg/l	
8	Lead	mg/l		22	Solids, Total Diss.	mg/l	
9	Manganese	mg/l		23	Sulfate	mg/l	
10	Mercury	mg/Kg	<0.10	24	Ammonia nitrogen	mg/l	
11	Nickel	mg/Kg	32.0	25	Kjeldahl nitrogen	mg/l	
12	Selenium	mg/l		26	Nitrite nitrogen	mg/l	
13	Silver	mg/l		27	Nitrate nitrogen	mg/l	
14	Zinc	mg/l		28	Total Phos.	mg/l	

SPECIAL ANALYSIS

Check	Constituent		Result
29	Chromium hex.	mg/l	
30			
31			
32			
33			
34			
35			
36			
37			
38			
39			
40			
41			
42			

Examiner's Comments

LABORATORY WORKSHEET

CHEMICAL EXAMINATION FOR TRACE ORGANIC CONSTITUENTS IN WATER, HAZARDOUS WASTES AND SOLID WASTES

Center for Laboratories and Research

Nassau County Department of Health

1 ☑ Routine
2 ☐ Resample
3 ☐ Special
4 ☐ Complaint
5 ☐ Other

Lab. No. 911201

D

Field No. P-97

N No. (Public Water Supply Only)

Source Information (Please Print)

Premises: Jo Hassel

Address: Cantiague Rock Rd

Town: Westbury

Collection Point: JH-6-1 Well No.

	Month	Day	Year
Date Collected	7	15	91
Date Received	JUL	15	1991
Date Reported			
Collection Time	13:30		
Collected By:	P. Paul		

Sampler's Comments:

Sample on ice
Heavy contamination

Bureau

1 ☑ Land Resources Management
2 ☐ Public Water Supply
3 ☐ Water Pollution Control
4 ☐ Environmental Sanitation
9 ☐ Other (specify)

SAMPLE TYPE

AQUEOUS				NON-AQUEOUS	
	Community Well	6	Surface Water	1	Soil
	Non-Community Well	7	Waste Water	2	Sludge
	Private Well	8	Industrial Effluent	3	Waste Solvent
	Monitoring Well	9	Raw Supply Water	4	Oil
	Drinking Water	10	Distribution Water	5	Other (specify)

ANALYSIS TYPE

	Purgeable Organic compounds
	Other (specify)

Examiner's Comments:

JUL 29 1991

NASSAU COUNTY HEALTH DEPARTMENT
CENTER FOR LABORATORIES AND RESEARCH
ENVIRONMENTAL HEALTH LABORATORIES

TRACE ORGANICS

Access Number: 911201
Source: J HASSEL, CANTIAGUE ROCK RD, WESTBURY
Matrix: SOIL
Site: JH-6-1
Date Sampled: 07/15/91
Date of Report: 07/26/91

VOLATILE HALOGENATED	MRC (ng/g)		RESULT (ng/g)
VINYL CHLORIDE----------(WA24)---------	1000	------- <	1000
TRICHLOROFLUORMETHANE-----(WA01)---------	1000	------- <	1000
1,1-DICHLOROETHYLENE------(WA15)---------	1000	------- <	1000
METHYLENE CHLORIDE--------(WA02)---------	1000	------- <	1000
t-1,2-DICHLOROETHYLENE----(WA16)---------	1000	------- <	1000
1,1-DICHLOROETHANE--------(WA04)---------	1000	------- <	1000
c-1,2-DICHLOROETHYLENE----(WA17)---------	1000	------- <	1000
CHLOROFORM----------(WA05)---------	1000	------- <	1000
1,1,1-TRICHLOROETHANE-----(WA06)---------	1000	------- <	1000
CARBON TETRACHLORIDE------(WA07)---------	1000	------- <	1000
1,2-DICHLOROETHANE--------(WA18)---------	1000	------- <	1000
TRICHLOROETHYLENE---------(WA08)---------	1000	------- <	1000
1,2-DICHLOROPROPANE-------(WA20)---------	1000	------- <	1000
BROMODICHLOROMETHANE------(WA09)---------	1000	------- <	1000
c-1,3-DICHLOROPROPENE-----(WA22)---------	1000	------- <	1000
t-1,3-DICHLOROPROPENE-----(WA23)---------	1000	------- <	1000
1,1,2-TRICHLOROETHANE ----(WA19)---------	1000	------- <	1000
TETRACHLOROETHYLENE ------(WA13)---------	1000	------- <	1000
DIBROMOCHLOROMETHANE------(WA10)---------	1000	------- <	1000
BROMOFORM ----------(WA14)---------	1000	------- <	1000
1,1,2,2-TETRACHLOROETHANE-(WA21)---------	1000	------- <	1000

==========

MRC - MINIMUM REPORTABLE CONCENTRATION NA - NOT ANALYZED
NR - NO RESULT DUE TO TECHNICAL REASONS - RESAMPLE SUGGESTED
PPB: AIR - nl/l WATER - ug/l SOIL - ng/g

JUL 29 1991

NASSAU COUNTY HEALTH DEPARTMENT
CENTER FOR LABORATORIES AND RESEARCH
ENVIRONMENTAL HEALTH LABORATORIES

TRACE ORGANICS

Access Number: 911201
Source: J HASSEL, CANTIAGUE ROCK RD, WESTBURY
Matrix: SOIL
Site: JH-6-1
Date Sampled: 07/15/91
Date of Report: 07/26/91

VOLATILE AROMATICS		MRC (ng/g)		RESULT (ng/g)
BENZENE	(WC01)	500	<	500
TOLUENE	(WC02)	1000	<	1000
CHLOROBENZENE	(WC03)	1000	<	1000
ETHYLBENZENE	(WC04)	NR		NR
o-XYLENE	(WC29)	1000		9500
m,p-XYLENE	(WC30)	1000		4600
STYRENE	(WC31)	NR		NR
n-PROPYLBENZENE	(WC11)	NR		NR
ISOPROPYLBENZENE	(WC12)	NR		NR
BROMOBENZENE	(WC09)	1000	<	1000
1,2,4-TRIMETHYLBENZENE	(WC14)	1000		39000
1,3,5-TRIMETHYLBENZENE	(WC15)	1000		12000
2-CHLOROTOLUENE	(WC16)	1000	<	1000
4-CHLOROTOLUENE	(WC17)	1000	<	1000
n-BUTYLBENZENE	(WC18)	1000		8900
sec-BUTYLBENZENE	(WC19)	NR		NR
tert-BUTYLBENZENE	(WC20)	NR		NR
p-ISOPROPYLTOLUENE	(WC21)	NR		NR
o-DICHLOROBENZENE	(WC22)	1000	<	1000
m-DICHLOROBENZENE	(WC23)	1000	<	1000
p-DICHLOROBENZENE	(WC24)	1000	<	1000
1,2,3-TRICHLOROBENZENE	(WC25)	1000	<	1000
1,2,4-TRICHLOROBENZENE	(WC26)	1000	<	1000
HEXACHLOROBUTADIENE	(WC27)	1000	<	1000
NAPHTHALENE	(WC28)	1000		1400

Comment: UNIDENTIFIED HYDROCARBON AND AROMATIC COMPOUNDS
Comment: DETECTED BY GC IN HIGH CONCENTRATIONS.

MRC - MINIMUM REPORTABLE CONCENTRATION NA - NOT ANALYZED
NR - NO RESULT DUE TO TECHNICAL REASONS - RESAMPLE SUGGESTED
PPB: AIR - nl/l WATER - ug/l SOIL - ng/g

LABORATORY REPORT
CHEMICAL EXAMINATION OF INDUSTRIAL AND HAZARDOUS WASTES
Center for Laboratories and Research
Nassau County Department of Health

1 ☑ Routine
2 ☐ Resample
3 ☐ Special
4 ☐ Complaint
5 ☐ Other

Clin. Lab Spec. 19201161

Field No. P-98

Source Information (Please Print)

Premises J. Hassel
Address Cantiague Rock Rd.
Town Westbury
Collection Point JH 6-2

	Month	Day	Year
Date Collected	7	15	9
Date Received	JUL 15		199
Date Reported	AUG 22 1991		

Collection Time 13:35 hr

Collected By:

Sampler's Comments: Total Metal only

Bureau:
1 ☑ Land Resources Management
9 ☐ Other (specify)

Sample Type:
A ☐ Water
B ☑ Soil
C ☐ Sludge
D ☐ Waste Solvent
E ☐ Oil
F ☐ Other

CHEMICAL EXAMINATION

Check	TAM Metals		Result	Check	Non-Metals		Result	Check	Constituent		Result
1	Aluminum	mg/l		15	Chloride	mg/l		29	Chromium hex.	mg/l	
2	Arsenic	mg/l		16	Cyanide	mg/l		30			
3	Barium	mg/l		17	Fluoride	mg/l		31			
4	Cadmium	mg/l		18	MBAS	mg/l		32			
5	Chromium, Total	mg/l		19	pH			33			
6	Copper	mg/l		20	Phenols	mg/l		34			
7	Iron, Total	mg/l		21	Solids, Suspended	mg/l		35			
8	Lead	mg/l		22	Solids, Total Diss.	mg/l		36			
9	Manganese	mg/l		23	Sulfate	mg/l		37			
10	Mercury	mg/Kg	<0.10	24	Ammonia nitrogen	mg/l		38			
11	Nickel	mg/Kg	93.0	25	Kjeldahl nitrogen	mg/l		39			
12	Selenium	mg/l		26	Nitrite nitrogen	mg/l		40			
13	Silver	mg/l		27	Nitrate nitrogen	mg/l		41			
14	Zinc	mg/l		28	Total Phos.	mg/l		42			

SPECIAL ANALYSIS

Examiner's Comments

LABORATORY WORKSHEET

CHEMICAL EXAMINATION FOR TRACE ORGANIC CONSTITUENTS IN WATER, HAZARDOUS WASTES AND SOLID WASTES

Center for Laboratories and Research

Nassau County Department of Health

1 ☑ Routine
2 ☐ Resample
3 ☐ Special
4 ☐ Complaint
5 ☐ Other

Lab. No. 911200

Field No. P-98

N No. (Public Water Supply Only)

Source Information (Please Print)

Premises: Jo Hassel

Address: Cantiague Rock Rd

Town: Westbury

Collection Point: JH-6-12 Well No.

	Month	Day	Year
Date Collected	7	15	91
Date Received	JUL	15	1991
Date Reported			
Collection Time	13:35		
Collected By:	P. Paul		

Sampler's Comments: Sample on ice

Bureau

1 ☑ Land Resources Management
2 ☐ Public Water Supply
3 ☐ Water Pollution Control
4 ☐ Environmental Sanitation
9 ☐ Other (specify)

SAMPLE TYPE

AQUEOUS				NON-AQUEOUS	
	Community Well	6	Surface Water	1	Soil
	Non-Community Well	7	Waste Water	2	Sludge
	Private Well	8	Industrial Effluent	3	Waste Solvent
	Monitoring Well	9	Raw Supply Water	4	Oil
	Drinking Water	10	Distribution Water	5	Other (specify)

ANALYSIS TYPE

)	Purgeable Organic compounds
	Other (specify)

Examiner's Comments:

JUL 29 1991

NASSAU COUNTY HEALTH DEPARTMENT
CENTER FOR LABORATORIES AND RESEARCH
ENVIRONMENTAL HEALTH LABORATORIES

TRACE ORGANICS

Access Number: 911200
Source: J HASSEL, CANTIAGUE ROCK RD, WESTBURY
Matrix: SOIL
Site: JH-6-2
Date Sampled: 07/15/91
Date of Report: 07/26/91

VOLATILE HALOGENATED	MRC (ng/g)		RESULT (ng/g)
VINYL CHLORIDE----------(WA24)---------	200	------- <	200
TRICHLOROFLUORMETHANE-----(WA01)---------	200	------- <	200
1,1-DICHLOROETHYLENE------(WA15)---------	200	------- <	200
METHYLENE CHLORIDE--------(WA02)---------	200	------- <	200
t-1,2-DICHLOROETHYLENE----(WA16)---------	200	------- <	200
1,1-DICHLOROETHANE--------(WA04)---------	200	------- <	200
c-1,2-DICHLOROETHYLENE----(WA17)---------	200	------- <	200
CHLOROFORM----------(WA05)---------	200	------- <	200
1,1,1-TRICHLOROETHANE-----(WA06)---------	200	------- <	200
CARBON TETRACHLORIDE------(WA07)---------	200	------- <	200
1,2-DICHLOROETHANE--------(WA18)---------	200	------- <	200
TRICHLOROETHYLENE---------(WA08)---------	200	------- <	200
1,2-DICHLOROPROPANE-------(WA20)---------	200	------- <	200
BROMODICHLOROMETHANE------(WA09)---------	200	------- <	200
c-1,3-DICHLOROPROPENE-----(WA22)---------	200	------- <	200
t-1,3-DICHLOROPROPENE-----(WA23)---------	200	------- <	200
1,1,2-TRICHLOROETHANE ----(WA19)---------	200	------- <	200
TETRACHLOROETHYLENE ------(WA13)---------	200	------- <	200
DIBROMOCHLOROMETHANE------(WA10)---------	200	------- <	200
BROMOFORM ----------(WA14)---------	200	------- <	200
1,1,2,2-TETRACHLOROETHANE-(WA21)---------	200	------- <	200

MRC - MINIMUM REPORTABLE CONCENTRATION NA - NOT ANALYZED
NR - NO RESULT DUE TO TECHNICAL REASONS - RESAMPLE SUGGESTED
PPB: AIR - nl/l WATER - ug/l SOIL - ng/g

JUL 24 1991

NASSAU COUNTY HEALTH DEPARTMENT
CENTER FOR LABORATORIES AND RESEARCH
ENVIRONMENTAL HEALTH LABORATORIES

TRACE ORGANICS

Access Number: 911200
Source: J HASSEL, CANTIAGUE ROCK RD, WESTBURY
Matrix: SOIL
Site: JH-6-2
Date Sampled: 07/15/91
Date of Report: 07/26/91

VOLATILE AROMATICS	MRC (ng/g)		RESULT (ng/g)
BENZENE ----------(WC01)---------	100	------- <	100
TOLUENE ----------(WC02)---------	200	------- <	200
CHLOROBENZENE ----------(WC03)---------	200	------- <	200
ETHYLBENZENE ----------(WC04)---------	NR	-------	NR
o-XYLENE ----------(WC29)---------	200	-------	650
m,p-XYLENE ----------(WC30)---------	200	------- <	200
STYRENE ----------(WC31)---------	NR	-------	NR
n-PROPYLBENZENE ----------(WC11)---------	NR	-------	NR
ISOPROPYLBENZENE ----------(WC12)---------	NR	-------	NR
BROMOBENZENE ----------(WC09)---------	200	------- <	200
1,2,4-TRIMETHYLBENZENE ---(WC14)---------	200	-------	3500
1,3,5-TRIMETHYLBENZENE ---(WC15)---------	200	-------	1900
2-CHLOROTOLUENE ----------(WC16)---------	200	------- <	200
4-CHLOROTOLUENE ----------(WC17)---------	200	------- <	200
n-BUTYLBENZENE ----------(WC18)---------	200	-------	1500
sec-BUTYLBENZENE ----------(WC19)---------	NR	-------	NR
tert-BUTYLBENZENE ----------(WC20)---------	NR	-------	NR
p-ISOPROPYLTOLUENE ----------(WC21)---------	NR	-------	NR
o-DICHLOROBENZENE ----------(WC22)---------	200	------- <	200
m-DICHLOROBENZENE ----------(WC23)---------	200	------- <	200
p-DICHLOROBENZENE ----------(WC24)---------	200	------- <	200
1,2,3-TRICHLOROBENZENE ---(WC25)---------	200	------- <	200
1,2,4-TRICHLOROBENZENE ---(WC26)---------	200	------- <	200
HEXACHLOROBUTADIENE ------(WC27)---------	200	------- <	200
NAPHTHALENE ----------(WC28)---------	200	-------	320

Comment: UNIDENTIFIED HYDROCARBON AND AROMATIC
Comment: COMPOUNDS DETECTED BY GC.

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MRC - MINIMUM REPORTABLE CONCENTRATION NA - NOT ANALYZED
NR - NO RESULT DUE TO TECHNICAL REASONS - RESAMPLE SUGGESTED
PPB: AIR - nl/l WATER - ug/l SOIL - ng/g

LABORATORY REPORT
CHEMICAL EXAMINATION OF INDUSTRIAL AND HAZARDOUS WASTES
Center for Laboratories and Research
N[illegible]au County Department of Health

1 ☑ Routine
2 ☐ Resample
3 ☐ Special
4 ☐ Complaint
5 ☐ Other

Lab. No. Clin. 19201162 Spec.

Field No. P-99

Source Information (Please Print)

Premises J. Hassel
Address Cantiague Rock Rd.
Town Westbury NY
Collection Point JH-6-4

	Month	Day	Year
Date Collected	7	15	9
Date Received	JUL 15		199
Date Reported	SEP 05 1991		
Collection Time	13:54 hr		
Collected By:	P. Paul		

Sampler's Comments:
Total Metal only

Bureau:
1 ☑ Land Resources Management
9 ☐ Other (specify)

Sample Type:
A ☐ Water
B ☑ Soil
C ☐ Sludge
D ☐ Waste Solvent
E ☐ Oil
F ☐ Other

CHEMICAL EXAMINATION

Check	TOTM Metals		Result	Check	Non-Metals		Result	Check	Constituent		Result
	Aluminum	mg/l		15	Chloride	mg/l		29	Chromium hex.	mg/l	
2	Arsenic	mg/l		16	Cyanide	mg/l		30			
3	Barium	mg/l		17	Fluoride	mg/l		31			
4	Cadmium	mg/l		18	MBAS	mg/l		32			
5	Chromium, Total	mg/l		19	pH			33			
6	Copper	mg/l		20	Phenols	mg/l		34			
7	Iron, Total	mg/l		21	Solids, Suspended	mg/l		35			
8	Lead	mg/l		22	Solids, Total Diss.	mg/l		36			
9	Manganese	mg/l		23	Sulfate	mg/l		37			
10	Mercury	mg/Kg	0.16	24	Ammonia nitrogen	mg/l		38			
11	Nickel	mg/Kg	18.0	25	Kjeldahl nitrogen	mg/l		39			
12	Selenium	mg/l		26	Nitrite nitrogen	mg/l		40			
13	Silver	mg/l		27	Nitrate nitrogen	mg/l		41			
14	Zinc	mg/l		28	Total Phos.	mg/l		42			

SPECIAL ANALYSIS

Examiner's Comments

LABORATORY WORKSHEET

CHEMICAL EXAMINATION FOR TRACE ORGANIC CONSTITUENTS IN WATER, HAZARDOUS WASTES AND SOLID WASTES

Center for Laboratories and Research

Nassau County Department of Health

1 ☑ Routine
2 ☐ Resample
3 ☐ Special
4 ☐ Complaint
5 ☐ Other

Lab. No. 911199

Field No. P-99

N No. (Public Water Supply Only)

Source Information (Please Print)

Premises: John Hassel

Address: Cantiague Rock Rd

Town: Westbury

Collection Point: JH-6-14 Well No.

Sampler's Comments: Sample on ice

	Month	Day	Year
Date Collected	7	15	91
Date Received	JUL	15	1991
Date Reported			
Collection Time	13:54 hrs		
Collected By:	P. Paul		

Bureau

1 ☑ Land Resources Management
2 ☐ Public Water Supply
3 ☐ Water Pollution Control
4 ☐ Environmental Sanitation
9 ☐ Other (specify)

SAMPLE TYPE

AQUEOUS				NON-AQUEOUS	
	Community Well	6	Surface Water	(1)	Soil
	Non-Community Well	7	Waste Water	2	Sludge
	Private Well	8	Industrial Effluent	3	Waste Solvent
	Monitoring Well	9	Raw Supply Water	4	Oil
	Drinking Water	10	Distribution Water	5	Other (specify)

ANALYSIS TYPE

	Purgeable Organic compounds
	Other (specify)

Examiner's Comments:

JUL 29 1991

NASSAU COUNTY HEALTH DEPARTMENT
CENTER FOR LABORATORIES AND RESEARCH
ENVIRONMENTAL HEALTH LABORATORIES

TRACE ORGANICS

Access Number: 911199
Source: J HASSEL, CANTIAGUE ROCK RD, WESTBURY
Matrix: SOIL
Site: JH-6-4
Date Sampled: 07/15/91
Date of Report: 07/26/91

VOLATILE HALOGENATED	MRC (ng/g)		RESULT (ng/g)
VINYL CHLORIDE----------(WA24)---------	200	------- <	200
TRICHLOROFLUORMETHANE-----(WA01)---------	200	------- <	200
1,1-DICHLOROETHYLENE------(WA15)---------	200	------- <	200
METHYLENE CHLORIDE--------(WA02)---------	200	------- <	200
t-1,2-DICHLOROETHYLENE----(WA16)---------	200	------- <	200
1,1-DICHLOROETHANE--------(WA04)---------	200	------- <	200
c-1,2-DICHLOROETHYLENE----(WA17)---------	200	------- <	200
CHLOROFORM----------(WA05)---------	200	------- <	200
1,1,1-TRICHLOROETHANE-----(WA06)---------	200	------- <	200
CARBON TETRACHLORIDE------(WA07)---------	200	------- <	200
1,2-DICHLOROETHANE--------(WA18)---------	200	------- <	200
TRICHLOROETHYLENE---------(WA08)---------	200	------- <	200
1,2-DICHLOROPROPANE-------(WA20)---------	200	------- <	200
BROMODICHLOROMETHANE------(WA09)---------	200	------- <	200
c-1,3-DICHLOROPROPENE-----(WA22)---------	200	------- <	200
t-1,3-DICHLOROPROPENE-----(WA23)---------	200	------- <	200
1,1,2-TRICHLOROETHANE ----(WA19)---------	200	------- <	200
TETRACHLOROETHYLENE ------(WA13)---------	200	------- <	200
DIBROMOCHLOROMETHANE------(WA10)---------	200	------- <	200
BROMOFORM ----------(WA14)---------	200	------- <	200
1,1,2,2-TETRACHLOROETHANE-(WA21)---------	200	------- <	200

MRC - MINIMUM REPORTABLE CONCENTRATION NA - NOT ANALYZED
NR - NO RESULT DUE TO TECHNICAL REASONS - RESAMPLE SUGGESTED
PPB: AIR - nl/l WATER - ug/l SOIL - ng/g

JUL 29 1991

NASSAU COUNTY HEALTH DEPARTMENT
CENTER FOR LABORATORIES AND RESEARCH
ENVIRONMENTAL HEALTH LABORATORIES

TRACE ORGANICS

Access Number: 911199
Source: J HASSEL, CANTIAGUE ROCK RD, WESTBURY
Matrix: SOIL
Site: JH-6-4
Date Sampled: 07/15/91
Date of Report: 07/26/91

VOLATILE AROMATICS		MRC (ng/g)		RESULT (ng/g)
BENZENE	(WC01)	100	------- <	100
TOLUENE	(WC02)	200	------- <	200
CHLOROBENZENE	(WC03)	200	------- <	200
ETHYLBENZENE	(WC04)	NR	-------	NR
o-XYLENE	(WC29)	200	-------	81
m,p-XYLENE	(WC30)	200	-------	49
STYRENE	(WC31)	NR	-------	NR
n-PROPYLBENZENE	(WC11)	NR	-------	NR
ISOPROPYLBENZENE	(WC12)	NR	-------	NR
BROMOBENZENE	(WC09)	200	------- <	200
1,2,4-TRIMETHYLBENZENE	(WC14)	200	-------	380
1,3,5-TRIMETHYLBENZENE	(WC15)	200	-------	120
2-CHLOROTOLUENE	(WC16)	200	------- <	200
4-CHLOROTOLUENE	(WC17)	200	------- <	200
n-BUTYLBENZENE	(WC18)	200	-------	87
sec-BUTYLBENZENE	(WC19)	NR	-------	NR
tert-BUTYLBENZENE	(WC20)	NR	-------	NR
p-ISOPROPYLTOLUENE	(WC21)	NR	-------	NR
o-DICHLOROBENZENE	(WC22)	200	------- <	200
m-DICHLOROBENZENE	(WC23)	200	------- <	200
p-DICHLOROBENZENE	(WC24)	200	------- <	200
1,2,3-TRICHLOROBENZENE	(WC25)	200	------- <	200
1,2,4-TRICHLOROBENZENE	(WC26)	200	------- <	200
HEXACHLOROBUTADIENE	(WC27)	200	------- <	200
NAPHTHALENE	(WC28)	200	-------	31

Comment: UNIDENTIFIED HYDROCARBON AND AROMATIC
Comment: COMPOUNDS DETECTED BY GC.

MRC - MINIMUM REPORTABLE CONCENTRATION NA - NOT ANALYZED
NR - NO RESULT DUE TO TECHNICAL REASONS - RESAMPLE SUGGESTED
PPB: AIR - nl/l WATER - ug/l SOIL - ng/g

LABORATORY REPORT
CHEMICAL EXAMINATION OF INDUSTRIAL AND HAZARDOUS WASTES
Center for Laboratories and Research
N d County Department of Health

1 ☑ Routine
2 ☐ Resample
3 ☐ Special
4 ☐ Complaint
5 ☐ Other

Lab. No. Clin. 19201163 Spec.

B

Field No. P-100

Source Information (Please Print)

Premises J. Hassel
Address Cantiague Rock Rd
Town Westbury
Collection Point JH-6-3

	Month	Day	Year
Date Collected	7	15	91
Date Received	JUL	15	1991
Date Reported	AUG	26	1991

Collection Time 14:40 hrs
Collected By: P. Paul

Sampler's Comments:
Total metal only

Bureau:
1 ☑ Land Resources Management
9 ☐ Other (specify)

Sample Type:
A ☐ Water
B ☑ Soil
C ☐ Sludge
D ☐ Waste Solvent
E ☐ Oil
F ☐ Other

CHEMICAL EXAMINATION

Check	Total Metals		Result	Check	Non-Metals		Result
1	Aluminum	mg/l		15	Chloride	mg/l	
2	Arsenic	mg/l		16	Cyanide	mg/l	
3	Barium	mg/l		17	Fluoride	mg/l	
4	Cadmium	mg/l		18	MBAS	mg/l	
5	Chromium, Total	mg/l		19	pH		
6	Copper	mg/l		20	Phenols	mg/l	
7	Iron, Total	mg/l		21	Solids, Suspended	mg/l	
8	Lead	mg/l		22	Solids, Total Diss.	mg/l	
9	Manganese	mg/l		23	Sulfate	mg/l	
10	Mercury	mg/kg	0.20	24	Ammonia nitrogen	mg/l	
11	Nickel	mg/kg	70.0	25	Kjeldahl nitrogen	mg/l	
12	Selenium	mg/l		26	Nitrite nitrogen	mg/l	
13	Silver	mg/l		27	Nitrate nitrogen	mg/l	
14	Zinc	mg/l		28	Total Phos.	mg/l	

SPECIAL ANALYSIS

Check	Constituent		Result
29	Chromium hex.	mg/l	
30			
31			
32			
33			
34			
35			
36			
37			
38			
39			
40			
41			
42			

Examiner's Comments

LABORATORY WORKSHEET

CHEMICAL EXAMINATION FOR TRACE ORGANIC CONSTITUENTS IN WATER, HAZARDOUS WASTES) SOLID WASTES

Center for Laboratories and Research

Nassau County Department of Health

1 ☑ Routine
2 ☐ Resample
3 ☑ Special
4 ☐ Complaint
5 ☐ Other

Lab. No. 911198

Field No. P-100

N No. (Public Water Supply Only)

Source Information (Please Print)

Premises: J. Hassell

Address: Cantiague Rock Rd

Town: Westbury

Collection Point: JH-6-3 Well No.

	Month	Day	Year
Date Collected	7	15	9
Date Received	[illegible]	15	199
Date Reported			
Collection Time	14:40hr		
Collected By:	P. Paul		

Sampler's Comments: Sample on ice.

Bureau
1 ☑ Land Resources Management
2 ☐ Public Water Supply
3 ☐ Water Pollution Control
4 ☐ Environmental Sanitation
9 ☐ Other (specify)

SAMPLE TYPE

AQUEOUS				NON-AQUEOUS	
1	Community Well	6	Surface Water	1	Soil
2	Non-Community Well	7	Waste Water	2	Sludge
3	Private Well	8	Industrial Effluent	3	Waste Solvent
4	Monitoring Well	9	Raw Supply Water	4	Oil
5	Drinking Water	10	Distribution Water	5	Other (specify)

ANALYSIS TYPE

A	Purgeable Organic compounds
B	Other (specify)

Examiner's Comments:

[illegible] 29 1991

NASSAU COUNTY HEALTH DEPARTMENT
CENTER FOR LABORATORIES AND RESEARCH
ENVIRONMENTAL HEALTH LABORATORIES

TRACE ORGANICS

Access Number: 911198
Source: J. HASSEL, CANTIAQUE ROCK RD, WESTBURY
Matrix: SOIL
Site: JH-6-3
Date Sampled: 07/15/91
Date of Report: 07/26/91

VOLATILE HALOGENATED	MRC (ng/g)		RESULT (ng/g)
VINYL CHLORIDE----------(WA24)---------	200	------- <	200
TRICHLOROFLUORMETHANE-----(WA01)---------	200	------- <	200
1,1-DICHLOROETHYLENE------(WA15)---------	200	------- <	200
METHYLENE CHLORIDE--------(WA02)---------	200	------- <	200
t-1,2-DICHLOROETHYLENE----(WA16)---------	200	------- <	200
1,1-DICHLOROETHANE--------(WA04)---------	200	------- <	200
c-1,2-DICHLOROETHYLENE----(WA17)---------	200	------- <	200
CHLOROFORM----------(WA05)---------	200	------- <	200
1,1,1-TRICHLOROETHANE-----(WA06)---------	200	-------	290
CARBON TETRACHLORIDE------(WA07)---------	200	------- <	200
1,2-DICHLOROETHANE--------(WA18)---------	200	------- <	200
TRICHLOROETHYLENE---------(WA08)---------	200	------- <	200
1,2-DICHLOROPROPANE-------(WA20)---------	200	------- <	200
BROMODICHLOROMETHANE------(WA09)---------	200	------- <	200
c-1,3-DICHLOROPROPENE-----(WA22)---------	200	------- <	200
t-1,3-DICHLOROPROPENE-----(WA23)---------	200	------- <	200
1,1,2-TRICHLOROETHANE ----(WA19)---------	200	------- <	200
TETRACHLOROETHYLENE ------(WA13)---------	200	------- <	200
DIBROMOCHLOROMETHANE------(WA10)---------	200	------- <	200
BROMOFORM ----------(WA14)---------	200	------- <	200
1,1,2,2-TETRACHLOROETHANE-(WA21)---------	200	------- <	200

==========

MRC - MINIMUM REPORTABLE CONCENTRATION NA - NOT ANALYZED
NR - NO RESULT DUE TO TECHNICAL REASONS - RESAMPLE SUGGESTED
PPB: AIR - nl/l WATER - ug/l SOIL - ng/g

JUL 29 1991

NASSAU COUNTY HEALTH DEPARTMENT
CENTER FOR LABORATORIES AND RESEARCH
ENVIRONMENTAL HEALTH LABORATORIES

TRACE ORGANICS

Access Number: 911198
Source: J. HASSEL, CANTIAQUE ROCK RD, WESTBURY
Matrix: SOIL
Site: JH-6-3
Date Sampled: 07/15/91
Date of Report: 07/26/91

VOLATILE AROMATICS		MRC (ng/g)		RESULT (ng/g)
BENZENE	(WC01)	100	<	100
TOLUENE	(WC02)	200	<	200
CHLOROBENZENE	(WC03)	200	<	200
ETHYLBENZENE	(WC04)	200	<	200
o-XYLENE	(WC29)	200	<	200
m,p-XYLENE	(WC30)	200	<	200
STYRENE	(WC31)	200	<	200
n-PROPYLBENZENE	(WC11)	200	<	200
ISOPROPYLBENZENE	(WC12)	200	<	200
BROMOBENZENE	(WC09)	200	<	200
1,2,4-TRIMETHYLBENZENE	(WC14)	400	<	400
1,3,5-TRIMETHYLBENZENE	(WC15)	200	<	200
2-CHLOROTOLUENE	(WC16)	200	<	200
4-CHLOROTOLUENE	(WC17)	200	<	200
n-BUTYLBENZENE	(WC18)	200	<	200
sec-BUTYLBENZENE	(WC19)	400	<	400
tert-BUTYLBENZENE	(WC20)	400	<	400
p-ISOPROPYLTOLUENE	(WC21)	400	<	400
o-DICHLOROBENZENE	(WC22)	200	<	200
m-DICHLOROBENZENE	(WC23)	200	<	200
p-DICHLOROBENZENE	(WC24)	200	<	200
1,2,3-TRICHLOROBENZENE	(WC25)	200	<	200
1,2,4-TRICHLOROBENZENE	(WC26)	200	<	200
HEXACHLOROBUTADIENE	(WC27)	200	<	200
NAPHTHALENE	(WC28)	200	<	200

==========

MRC - MINIMUM REPORTABLE CONCENTRATION NA - NOT ANALYZED
NR - NO RESULT DUE TO TECHNICAL REASONS - RESAMPLE SUGGESTED
PPB: AIR - nl/l WATER - ug/l SOIL - ng/g

2A
VOLATILE SURROGATE RECOVERIES

Lab Name: Laboratory Resources Inc.,

Lab Code: 020406 Case No.:---- SAS No.:---- SDG No.:----

Date Analyzed: 07/26/91

LAB SAMP NO. ($)	S1 (DCE)#	S2 (TOL)#	S3 (BFB)#	OTHER	TOT OUT
METHOD BLA W	100	100	103		0
W107324-01 W	98	100	97		0
W107324-02 W	98	99	100		0
W107324-01 WM	103	97	102		0
W107324-01 WM	103	98	101		0
W107233-02 W	97	97	99		0

EPA CLP QC Limits For:	Soil	Water
S1 (DCE) = 1,2-DICHLOROETHANE-D4	70-121	76-114
S2 (TOL) = TOLUENE-D8	81-117	88-110
S3 (BFB) = 4-BROMOFLUOROBENZENE	74-121	86-115

$ Column indicating Soil or Water matrix
# Column to be used to flag recovery values
* Values outside of CLP QC limits

========== LABORATORY RESOURCES INC. ==========

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Laboratory Resources Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Matrix Spike - Sample No.: W107324-01 DATE: 07-26-91

COMPOUNDS	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
1,1-DICHLOROETHENE	50.00	0.00	66.30	133	61-145
BENZENE	50.00	0.00	58.63	117	71-120
TRICHLOROETHENE	50.00	0.00	58.31	117	76-127
TOLUENE	50.00	0.00	55.06	110	76-125
CHLOROBENZENE	50.00	0.00	54.29	109	75-130

COMPOUNDS	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-DICHLOROETHENE	50.00	69.11	138	4	14	61-145
BENZENE	50.00	59.41	119	1	14	71-120
TRICHLOROETHENE	50.00	58.87	118	1	11	76-127
TOLUENE	50.00	54.82	110	0	13	76-125
CHLOROBENZENE	50.00	54.70	109	1	13	75-130

Column to be used to flag recovery and RPD values with an asterisk

Values outside of advisory EPA contract Lab QC limits.

RPD: 0 out of 5 outside limits

Spike Recovery: 0 out of 10 outside limits

Comments: _____

FORM III VOA-1 Rev. 7/89

4A

VOLATILE METHOD BLANK SUMMARY

Lab Name: Laboratory Resources Inc.,

Lab file ID: >C1280 Lab Sample ID: METHOD BLAN

Date Analyzed: 07/26/91 Time Analyzed: 10:23

Matrix: Water

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

LAB FILE NO.	LAB SAMPLE ID	TIME ANALYZED
>C1282	W107324-01	11:44
>C1283	W107324-02	12:25
>C1284	W107324-01 M	13:10
>C1285	W107324-01 M	13:51
>C1292	W107233-02	18:35

Comments:

5A

VOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: Laboratory Resources Inc., Contract: -----

Lab File ID: >TC077 BFB Injection date: 7/26/91

Instrument ID: 0881 BFB Injection time: 8:55

m/e	ION ABUNDANCE CRITERIA	%RELATIVE ABUNDANCE
50	15-40% of mass 95	17.0
75	30-60% of mass 95	39.7
95	Base peak, 100% relative abundance	100.
96	5.0 - 9.0% of mass 95	6.5
173	Less than 2.0% of mass 174	0.0(0.0)1
174	Greater than 50.0% of mass 95	82.1
175	5.0 - 9.0% of mass 174	5.8(7.1)1
176	Greater than 95.0%, but less than 101.0% of mass 174	82.5(100.5)1
177	5.0 - 9.0% of mass 176	5.3(6.4)2

1 - Value is % mass 174 2 - Value is % mass 176

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

	EPA SAMPLE NO	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1	----------	VSTD 50 PPB	>C1279	7/26/91	9:34
2	----------	METHOD BLANK	>C1280	7/26/91	10:23
3	----------	W107324-01	>C1282	7/26/91	11:44
4	----------	W107324-02	>C1283	7/26/91	12:25
5	----------	W107324-01 M	>C1284	7/26/91	13:10
6	----------	W107324-01 M	>C1285	7/26/91	13:51
7	----------	W107233-02	>C1292	7/26/91	18:35
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM V VOA

8A

VOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: Laboratory Resources Inc.,

Lab file ID: >C1279 Lab Sample ID: VSTD 50 PPB

Date Analyzed: 07/26/91 Time Analyzed: 09:34

	IS1(BCM) AREA #	RT	IS2(DFB) AREA #	RT	IS3(CBZ) AREA #	RT
12 HOUR STD	77725	9.46	307537	11.23	253591	16.49
UPPER LIMIT	155450		615074		507182	
LOWER LIMIT	38863		153768		126795	
LAB SAMPLE #						
METHOD BLA	77996	9.45	297533	11.22	250875	16.47
W107324-01	70576	9.61	298107	11.33	249849	16.50
W107324-02	81376	9.61	316488	11.32	262325	16.49
W107324-01M	71692	9.59	283885	11.31	241650	16.51
W107324-01M	70028	9.55	282502	11.29	240259	16.50
W107233-02	83944	9.61	315934	11.31	270899	16.51

IS1 (BCM) = Bromochlormethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

UPPER LIMIT = + 100%
of internal standard area.
LOWER LIMIT = - 50%
of internal standard area.

Column used to flag internal standard are values with an asterisk

Initial Calibration Data
HSL Compounds

Case No: _____ Instrument ID: 2637A01713

Contractor: LABORATORY RESOURCES Calibration Date: 07/26/91

Contract No: _____

Minimum $\overline{RF}$ for SPCC is .30 Maximum % RSD for CCC is 30%

Laboratory ID:	>C1276	>C1270	>C1272	>C1277	>C1278					
Compound	RF 20.00	RF 50.00	RF 100.00	RF 150.00	RF 200.00	$\overline{RRT}$	$\overline{RF}$	% RSD	CCC	SPCC
CHLOROMETHANE	.46922	.49287	.46667	.47004	.45525	.524	.47081	2.906		**
VINYL CHLORIDE	.65952	.68932	.64690	.67962	.66890	.538	.66885	2.483	*	
BROMOMETHANE	.95949	.96265	.92395	.92468	.91391	.579	.93694	2.398		
CHLOROETHANE	.30538	.31996	.31167	.30513	.30409	.597	.30925	2.164		
ACROLEIN	-	.00994	.00658	.00785	.00667	.690	.00776	20.153		
TRICHLOROFLUOROMETHANE	.96290	1.16762	1.07162	.93657	.96358	.622	1.02046	9.534		
1,1-DICHLOROETHENE	1.13373	1.35873	1.24543	1.27728	1.31836	.689	1.26671	6.766	*	
CARBON DISULFIDE	1.59027	1.54149	1.51389	.68273	.65389	.704	1.19645	40.370		
ACETONE	.20256	.14672	.13039	.07328	.06583	.721	.12376	45.505		
ACRYLONITRILE	.08066	.08518	.08300	.09543	.09845	.818	.08854	8.922		
METHYLENE CHLORIDE	.89795	.90313	.87715	.92263	.93644	.769	.90746	2.524		
TRANS-1,2-DICHLOROETHENE	1.25732	1.48627	1.40163	1.47119	1.53410	.807	1.43010	7.525		
1,1-DICHLOROETHANE	1.45927	1.71400	1.61482	1.71242	1.82722	.872	1.66555	8.266		**
CHLOROFORM	2.01921	2.45026	2.30810	2.33056	2.50121	1.024	2.32187	8.072	*	
1,2-DICHLOROETHANE	1.25884	1.46894	1.33762	1.39466	1.48624	1.108	1.38926	6.777		
1,2-DICHLOROETHANE-D4	1.32913	1.47332	1.49463	1.29318	1.32039	1.095	1.38213	6.817		(Conc=50.0,50.0,50.0,50.0
VINYL ACETATE	.53662	.50696	.46972	.58444	.34640	.763	.48883	18.413		
2-BUTANONE	.00995	.01115	.00893	.01237	.01279	.833	.01104	14.636		
1,1,1-TRICHLOROETHANE	.47251	.53001	.49458	.52243	.51837	.879	.50758	4.661		
CARBON TETRACHLORIDE	.42364	.50889	.48624	.52317	.52472	.900	.49333	8.494		
BENZENE	.50322	.57249	.53245	.60124	.61971	.931	.56582	8.492		
TRICHLOROETHENE	.37160	.43511	.39840	.44511	.44305	1.029	.41865	7.731		
1,2-DICHLOROPROPANE	.21636	.24574	.23037	.26300	.26399	1.061	.24389	8.485	*	
BROMODICHLOROMETHANE	.46587	.56926	.53187	.60304	.60335	1.112	.55468	10.407		
2-CHLOROETHYLVINYLETHER	.09639	.11248	.10195	.12794	.12982	1.171	.11371	13.207		
TRANS-1,3-DICHLOROPROPENE	.15231	.18321	.16819	.20031	.20019	1.279	.18084	11.510		
CIS-1,3-DICHLOROPROPENE	.53663	.62260	.56169	.65123	.64655	1.183	.60374	8.573		
1,1,2-TRICHLOROETHANE	.23865	.25727	.21966	.26276	.25508	1.305	.24668	7.126		
DIBROMOCHLOROMETHANE	.51169	.58288	.56735	.67575	.66117	1.365	.59977	11.381		
BROMOFORM	.41505	.42986	.45347	.57067	.56972	1.615	.48775	15.683		**

RF - Response Factor (Subscript is amount in UG/L)

$\overline{RRT}$ - Average Relative Retention Time (RT Std/RT Istd)

$\overline{RF}$ - Average Response Factor

%RSD - Percent Relative Standard Deviation

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

026

Initial Calibration Data
HSL Compounds

Case No:

Instrument ID: 2637A01713

Contractor: LABORATORY RESOURCES

Calibration Date: 07/26/91

Contract No:

Minimum $\overline{RF}$ for SPCC is .30 Maximum % RSD for CCC is 30%

Laboratory ID:	>C1276	>C1270	>C1272	>C1277	>C1278						
Compound	RF 20.00	RF 50.00	RF 100.00	RF 150.00	RF 200.00	$\overline{RRT}$	$\overline{RF}$	% RSD	CCC	SPCC	
4-METHYL-2-PENTANONE	.18852	.18784	.15677	.18989	.20254	.835	.18511	9.155			
TOLUENE-D8	1.00313	.99807	1.03738	1.02279	1.03830	.835	1.01994	1.841			(Conc=50.0,50.0,50.0,50.0
TOLUENE	.45596	.52180	.49181	.54295	.58278	.842	.51906	9.320	*		
TETRACHLOROETHENE	.50689	.57045	.53233	.57420	.59965	.901	.55671	6.609			
2-HEXANONE	.03665	.04439	.03902	.05159	.05412	.933	.04515	16.883			
CHLOROBENZENE	.76917	.84386	.80325	.89547	.95815	1.003	.85398	8.771		**	
ETHYLBENZENE	.31421	.35878	.34166	.37375	.39702	1.022	.35709	8.803	*		
M,P-XYLENE	2.20630	2.24779	2.06716	2.16221	1.29934	1.035	1.99656	19.809			
O-XYLENE	1.14214	1.14823	1.03631	1.17693	1.13136	1.085	1.12700	4.740			
STYRENE	.86620	.86739	.77025	.89299	.85391	1.089	.85015	5.513			
4-BROMOFLUOROBENZENE	.94087	.93931	.93266	.92504	.96367	1.152	.94031	1.540			(Conc=50.0,50.0,50.0,50.0
1,1,2,2-TETRACHLOROETHANE	.42446	.39903	.35429	.41445	.43596	1.184	.40564	7.827		**	
1,3-DICHLOROBENZENE	1.22680	1.13522	1.06210	1.19906	1.18361	1.291	1.16136	5.570			
1,4-DICHLOROBENZENE	1.28342	1.17715	1.06640	1.22762	1.22700	1.304	1.19632	6.836			
1,2-DICHLOROBENZENE	1.19398	1.02184	.95567	1.08291	1.03780	1.351	1.05844	8.357			
TERT-BUTYL-METHYL-ETHER	.40353	.38667	.39718	.37007	.37556	.478	.38660	3.643			(Conc=20.0,50.0,100.0,150
TERT-BUTYL-ALCOHOL	-	.02238	.02221	.02112	.02302	.496	.02218	3.559			(Conc=50.0,100.0,150.0,20
DI-ISOPROPYL-ETHER	.68247	.64940	.67735	.71248	.73982	.526	.69230	5.017			(Conc=20.0,50.0,100.0,150

RF - Response Factor (Subscript is amount in UG/L)

$\overline{RRT}$ - Average Relative Retention Time (RT Std/RT Istd)

$\overline{RF}$ - Average Response Factor

%RSD - Percent Relative Standard Deviation

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

Continuing Calibration Check
HSL Compounds

Case No:

Calibration Date: 07/26/91

Contractor: LABORATORY RESOURCES

Time: 09:34

Contract No:

Laboratory ID: >C1279

Instrument ID: 2637A01713

Initial Calibration Date: 07/26/91

Minimum $\overline{RF}$ for SPCC is .30 Maximum % Diff for CCC is 25%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC	
CHLOROMETHANE	.47081	.45463	3.44		**	
VINYL CHLORIDE	.66885	.65415	2.20	*		
BROMOMETHANE	.93694	.93860	.18			
CHLOROETHANE	.30925	.31475	1.78			
ACROLEIN	.00776	.01115	43.79			(Conc=50.00)
TRICHLOROFLUOROMETHANE	1.02046	.92069	9.78			
1,1-DICHLOROETHENE	1.26671	1.16732	7.85	*		
CARBON DISULFIDE	1.19645	1.49660	25.09			
ACETONE	.12376	.21857	76.61			
ACRYLONITRILE	.08854	.08130	8.18			(Conc=50.00)
METHYLENE CHLORIDE	.90746	.92037	1.42			
TRANS-1,2-DICHLOROETHENE	1.43010	1.36413	4.61			
1,1-DICHLOROETHANE	1.66555	1.58262	4.98		**	
CHLOROFORM	2.32187	2.19619	5.41	*		
1,2-DICHLOROETHANE	1.38926	1.29559	6.74			
1,2-DICHLOROETHANE-D4	1.38213	1.32517	4.12			
VINYL ACETATE	.48883	.51033	4.40			
2-BUTANONE	.01104	.01025	7.13			
1,1,1-TRICHLOROETHANE	.50758	.48597	4.26			
CARBON TETRACHLORIDE	.49333	.47699	3.31			
BENZENE	.56582	.55153	2.53			(Conc=50.00)
TRICHLOROETHENE	.41865	.42540	1.61			
1,2-DICHLOROPROPANE	.24389	.24112	1.14	*		
BROMODICHLOROMETHANE	.55468	.54628	1.51			
2-CHLOROETHYLVINYLETHER	.11371	.10732	5.62			
TRANS-1,3-DICHLOROPROPENE	.18084	.17295	4.37			
CIS-1,3-DICHLOROPROPENE	.60374	.60184	.31			
1,1,2-TRICHLOROETHANE	.24668	.23708	3.89			
DIBROMOCHLOROMETHANE	.59977	.60254	.46			
BROMOFORM	.48775	.49263	1.00		**	
4-METHYL-2-PENTANONE	.18511	.17878	3.42			
TOLUENE-D8	1.01994	1.02421	.42			

RF - Response Factor from daily standard file at 50.00 UG/L

$\overline{RF}$ - Average Response Factor from Initial Calibration Form VI

%Diff - % Difference from original average or curve

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

Continuing Calibration Check
HSL Compounds

Case No: | Calibration Date: 07/26/91

Contractor: LABORATORY RESOURCES | Time: 09:34

Contract No: | Laboratory ID: >C1279

Instrument ID: 2637A01713 | Initial Calibration Date: 07/26/91

Minimum $\overline{RF}$ for SPCC is .30 | Maximum % Diff for CCC is 25%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC	
TOLUENE	.51906	.53413	2.90	*		(Conc=50.00)
TETRACHLOROETHENE	.55671	.58357	4.83			
2-HEXANONE	.04515	.04445	1.56			
CHLOROBENZENE	.85398	.86600	1.41		**	(Conc=50.00)
ETHYLBENZENE	.35709	.35820	.31	*		(Conc=50.00)
M,P-XYLENE	1.99656	2.18754	9.57			(Conc=50.00)
O-XYLENE	1.12700	1.11340	1.21			(Conc=50.00)
STYRENE	.85015	.85872	1.01			
4-BROMOFLUOROBENZENE	.94031	.93156	.93			
1,1,2,2-TETRACHLOROETHANE	.40564	.37569	7.38		**	
1,3-DICHLOROBENZENE	1.16136	1.15483	.56			
1,4-DICHLOROBENZENE	1.19632	1.19477	.13			
1,2-DICHLOROBENZENE	1.05844	1.03896	1.84			
TERT-BUTYL-METHYL-ETHER	.38660	.36816	4.77			(Conc=50.00)
TERT-BUTYL-ALCOHOL	.02218	.02123	4.28			(Conc=100.00)
DI-ISOPROPYL-ETHER	.69230	.33688	51.34			(Conc=100.00)

RF - Response Factor from daily standard file at 50.00 UG/L

$\overline{RF}$ - Average Response Factor from Initial Calibration Form VI

%Diff - % Difference from original average or curve

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

LABORATORY RESOURCES, INC.
363 OLD HOOK ROAD
WESTWOOD, NJ 07675
LAB. CERTIFICATION: NJ 02046
NY 10588

DATE COLLECTED: 07/18/91
DATE RECEIVED : 07/19/91
DATE ANALYZED : 07/26/91
DILUTION FACT.: 1.0

CLIENT : DIVERSIFIED FB-04-01
LAB SAMPLE : W107324-01
ANALYST : ANDY
FILE NAME : >C1282

GC/MS VOLATILE ORGANICS REPORT

COMPOUND	UG/L	MDL	COMPOUND	UG/L	MDL
CHLOROMETHANE	ND	10	1,2-DICHLOROPROPANE	ND	5
VINYL CHLORIDE	ND	10	BROMODICHLOROMETHANE	ND	5
BROMOMETHANE	ND	10	2-CHLOROETHYLVINYLETHER	ND	5
CHLOROETHANE	ND	10	TRANS-1,3-DICHLOROPROPENE	ND	5
ACROLEIN	ND	10	CIS-1,3-DICHLOROPROPENE	ND	5
TRICHLOROFLUOROMETHANE	ND	5	1,1,2-TRICHLOROETHANE	ND	5
1,1-DICHLOROETHENE	ND	5	DIBROMOCHLOROMETHANE	ND	5
CARBON DISULFIDE	ND	5	BROMOFORM	ND	5
ACETONE	ND	10	4-METHYL-2-PENTANONE	ND	10
ACRYLONITRILE	ND	10	TOLUENE	ND	5
METHYLENE CHLORIDE	1 JB	5	TETRACHLOROETHENE	ND	5
TRANS-1,2-DICHLOROETHENE	ND	5	2-HEXANONE	ND	10
1,1-DICHLOROETHANE	ND	5	CHLOROBENZENE	ND	5
CHLOROFORM	ND	5	ETHYLBENZENE	ND	5
1,2-DICHLOROETHANE	ND	5	M,P-XYLENE	ND	5
VINYL ACETATE	ND	10	O-XYLENE	ND	5
2-BUTANONE	ND	10	STYRENE	ND	5
1,1,1-TRICHLOROETHANE	ND	5	1,1,2,2-TETRACHLOROETHANE	ND	5
CARBON TETRACHLORIDE	ND	5	1,3-DICHLOROBENZENE	ND	5
BENZENE	ND	5	1,4-DICHLOROBENZENE	ND	5
TRICHLOROETHENE	ND	5	1,2-DICHLOROBENZENE	ND	5

SURROGATE COMPOUNDS	RECOVERY	LIMITS	STATUS
1,2-DICHLOROETHANE-D4	98 %	76 - 114	OK
TOLUENE-D8	100 %	88 - 110	OK
4-BROMOFLUOROBENZENE	97 %	86 - 115	OK

J Indicates detected below MDL
ND Indicates compound not detected
B Indicates compound also present in blank

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

LAB SAMPLE NO.

FB-04-01

Lab Name: Laboratory Resources Inc., Contract:-------

Lab Code: GC/MS Case No.: ----- SAS No.: ----- SDG No.: -----

Matrix: WATER

Lab Sample ID: W107324-01

Sample wt/vol: 5.0 (g/ml) ml

Lab File ID: >C1282

Level: (low/med) LOW

Date Received: 07/19/91

% Solid: 0

Date Analyzed: 07/26/91

Column: CAP

Dilution Factor: 1

CONCENTRATION UNITS:
ug/L

Number of TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

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1/87 Rev

LABORATORY RESOURCES, INC.
363 OLD HOOK ROAD
WESTWOOD, NJ 07675
LAB. CERTIFICATION: NJ 02046
NY 10588

DATE COLLECTED: 07/18/91
DATE RECEIVED : 07/19/91
DATE ANALYZED : 07/26/91
DILUTION FACT.: 1.0

CLIENT : DIVERSIFIED TB
LAB SAMPLE : W107324-02
ANALYST : ANDY
FILE NAME : >C1283

GC/MS VOLATILE ORGANICS REPORT

COMPOUND	UG/L	MDL	COMPOUND	UG/L	MDL
CHLOROMETHANE	ND	10	1,2-DICHLOROPROPANE	ND	5
VINYL CHLORIDE	ND	10	BROMODICHLOROMETHANE	ND	5
BROMOMETHANE	ND	10	2-CHLOROETHYLVINYLETHER	ND	5
CHLOROETHANE	ND	10	TRANS-1,3-DICHLOROPROPENE	ND	5
ACROLEIN	ND	10	CIS-1,3-DICHLOROPROPENE	ND	5
TRICHLOROFLUOROMETHANE	ND	5	1,1,2-TRICHLOROETHANE	ND	5
1,1-DICHLOROETHENE	ND	5	DIBROMOCHLOROMETHANE	ND	5
CARBON DISULFIDE	ND	5	BROMOFORM	ND	5
ACETONE	ND	10	4-METHYL-2-PENTANONE	ND	10
ACRYLONITRILE	ND	10	TOLUENE	ND	5
METHYLENE CHLORIDE	1 JB	5	TETRACHLOROETHENE	ND	5
TRANS-1,2-DICHLOROETHENE	ND	5	2-HEXANONE	ND	10
1,1-DICHLOROETHANE	ND	5	CHLOROBENZENE	ND	5
CHLOROFORM	ND	5	ETHYLBENZENE	ND	5
1,2-DICHLOROETHANE	ND	5	M,P-XYLENE	ND	5
VINYL ACETATE	ND	10	O-XYLENE	ND	5
2-BUTANONE	ND	10	STYRENE	ND	5
1,1,1-TRICHLOROETHANE	3 J	5	1,1,2,2-TETRACHLOROETHANE	ND	5
CARBON TETRACHLORIDE	ND	5	1,3-DICHLOROBENZENE	ND	5
BENZENE	ND	5	1,4-DICHLOROBENZENE	ND	5
TRICHLOROETHENE	ND	5	1,2-DICHLOROBENZENE	ND	5

SURROGATE COMPOUNDS	RECOVERY	LIMITS	STATUS
1,2-DICHLOROETHANE-D4	98 %	76 - 114	OK
TOLUENE-D8	99 %	88 - 110	OK
4-BROMOFLUOROBENZENE	100 %	86 - 115	OK

J Indicates detected below MDL
ND Indicates compound not detected
B Indicates compound also present in blank

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

LAB SAMPLE NO.

TB

Lab Name: Laboratory Resources Inc., Contract:-------

Lab Code: GC/MS Case No.: ----- SAS No.: ----- SDG No.: -----

Matrix: WATER

Lab Sample ID: W107324-02

Sample wt/vol: 5.0 (g/ml) ml

Lab File ID: >C1283

Level: (low/med) LOW

Date Received: 07/19/91

% Solid: 0

Date Analyzed: 07/26/91

Column: CAP

Dilution Factor: 1

Number of TICs found: 0

CONCENTRATION UNITS: ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

FORM I VOA-TIC

1/87 Rev

QUANT REPORT

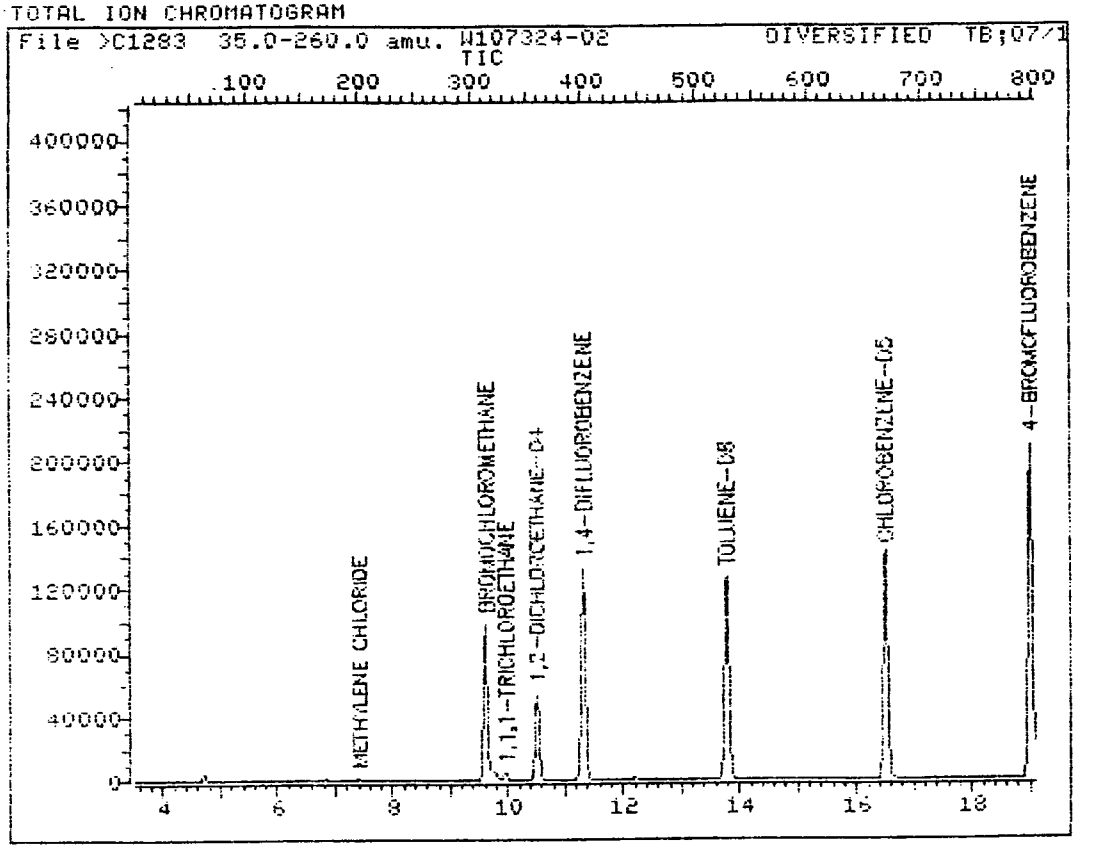
Operator ID: ANDY Quant Rev: 7 Quant Time: 910726 13:00
Output File: ^C1283::C1 Injected at: 910726 12:25
Data File: >C1283::C2 Dilution Factor: 1.00000
Name: W107324-02 Instrument ID: MSD 3
Misc: DIVERSIFIED TB;07/18/91;07/19/91

ID File: IDDVOC::SC
Title: LABORATORY RESOURCES ID FILE FOR VOLATILES ORGANICS GC/MS
Last Calibration: 910726 07:53 Last Qcal Time: 910726 09:34

	Compound	R.T.	Q ion	Area	Conc	Units	q
1)	*BROMOCHLOROMETHANE	9.61	128.0	81376	50.00	UG/L	91
12)	METHYLENE CHLORIDE	7.41	84.0	1851	1.24	UG/L	90
17)	1,2-DICHLOROETHANE-D4	10.50	65.0	105414	48.88	UG/L	94
18)	*1,4-DIFLUOROBENZENE	11.32	114.0	316488	50.00	UG/L	94
21)	1,1,1-TRICHLOROETHANE	9.96	97.0	9858	3.20	UG/L	97
33)	*CHLOROBENZENE-D5	16.49	117.0	262325	50.00	UG/L	86
35)	TOLUENE-D8	13.77	98.0	266954	49.68	UG/L	92
44)	4-BROMOFLUOROBENZENE	19.00	95.0	244149	49.95	UG/L	92

* Compound is ISTD

TOTAL ION CHROMATOGRAM



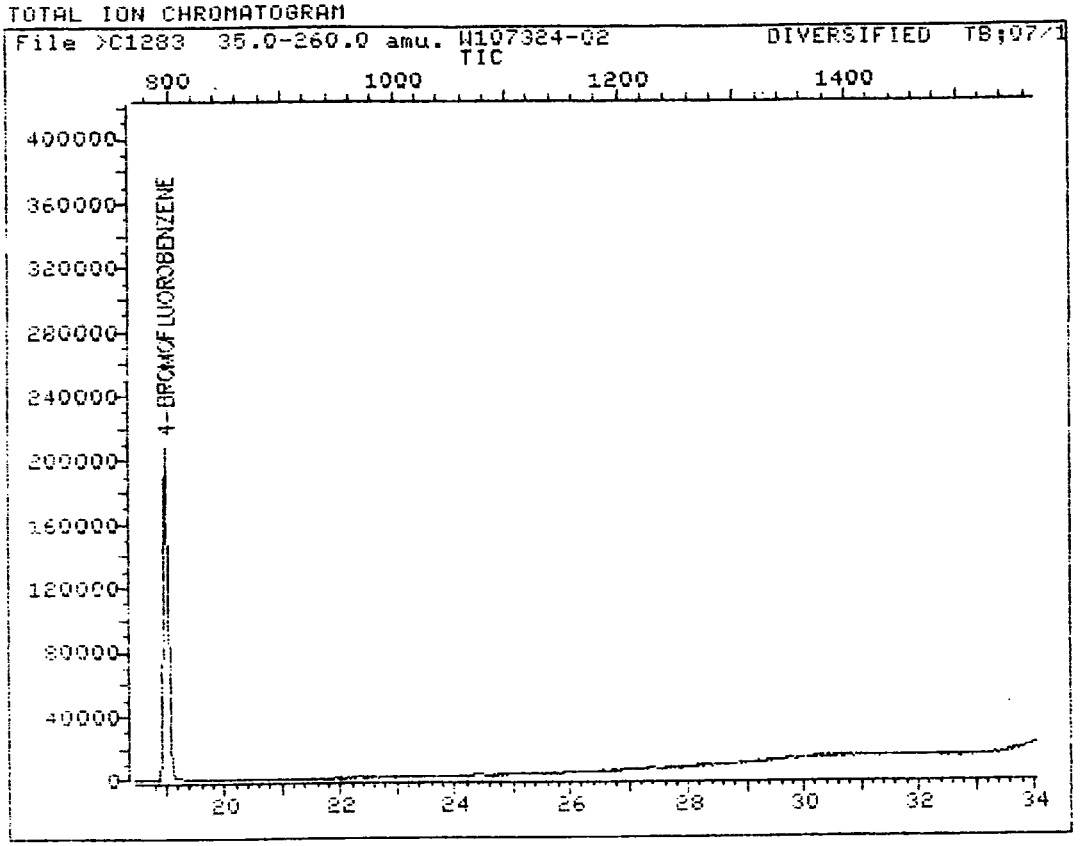
Data File: >C1283::C2 Quant Output File: ^C1283::C1
Name: W107324-02 Instrument ID: MSD 3
Misc: DIVERSIFIED TB;07/18/91;07/19/91

Id File: IDDVOC::SC
Title: LABORATORY RESOURCES ID FILE FOR VOLATILES ORGANICS GC/MS
Last Calibration: 910726 07:53 Last Qcal Time: 910726 09:34

Operator ID: ANDY
Quant Time : 910726 13:00
Injected at: 910726 12:25

Page 1 of 2

TOTAL ION CHROMATOGRAM



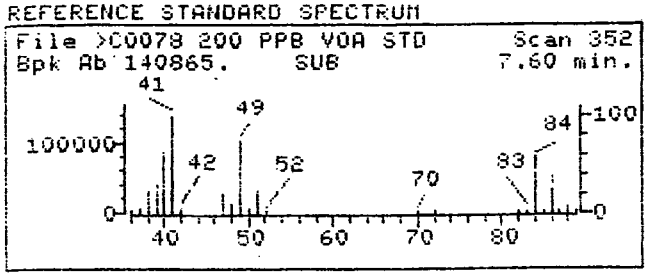
Data File: >C1283::C2 Quant Output File: ^C1283::C1
Name: W107324-02 Instrument ID: MSD 3
Misc: DIVERSIFIED TB;07/18/91;07/19/91

Id File: IDDVOC::SC
Title: LABORATORY RESOURCES ID FILE FOR VOLATILES ORGANICS GC/MS
Last Calibration: 910726 07:53 Last Qcal Time: 910726 09:34

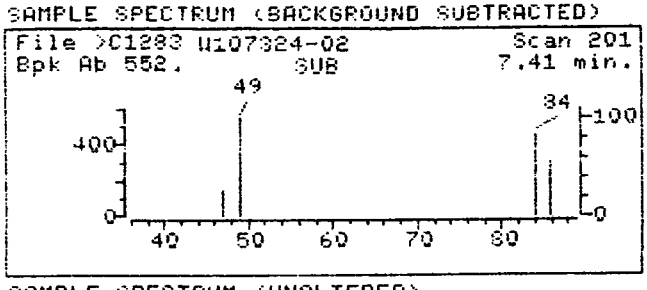
Operator ID: ANDY
Quant Time : 910726 13:00
Injected at: 910726 12:25

Page 2 of 2

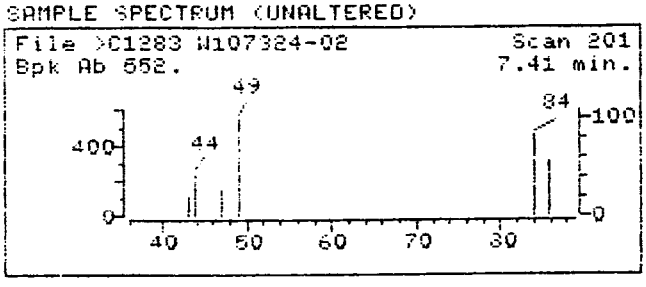
REFERENCE STANDARD SPECTRUM

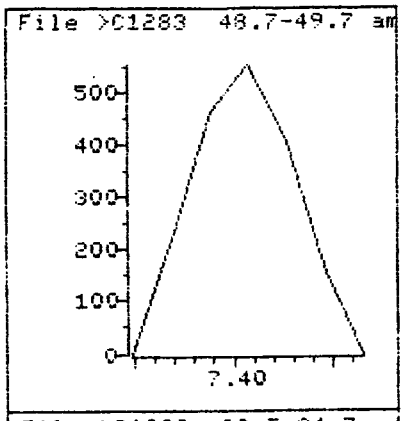


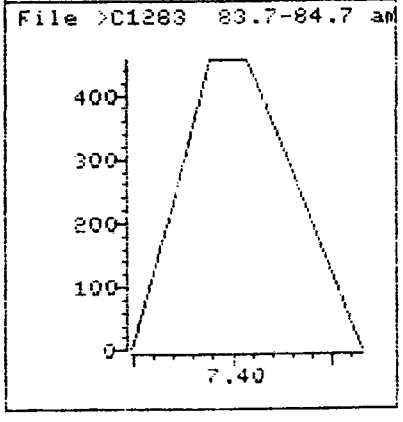
SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



SAMPLE SPECTRUM (UNALTERED)



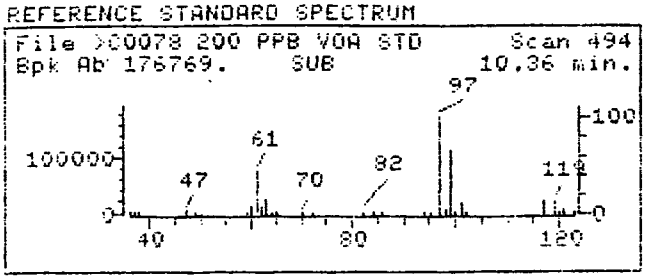




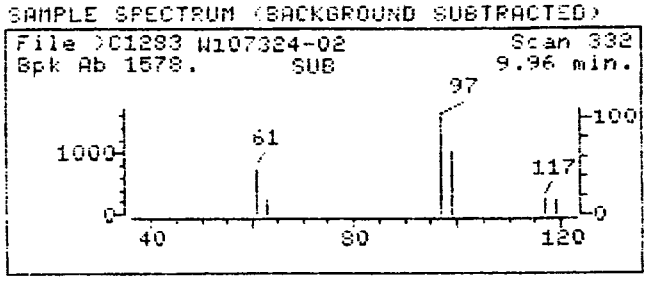
Data File: >C1283::C2 Quant Output File: ^C1283::C1
Name: W107324-02 Instrument ID: MSD 3
Misc: DIVERSIFIED TB;07/18/91;07/19/91
Quant Time: 910726 13:00 Quant ID File: IDDVOC::SC
Injected at: 910726 12:25 Last Calibration: 910726 07:53
Last Qcal Time: 910726 09:34

Compound No : 12
Compound Name : METHYLENE CHLORIDE
Scan Number : 201
Retention Time: 7.41 min.
Quant Ion : 84.0
Area : 1851
Concentration : 1.24 UG/L
q-value : 90

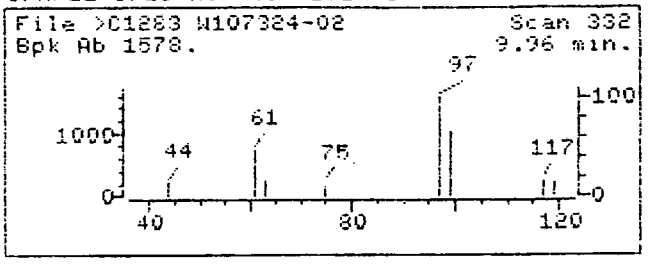
REFERENCE STANDARD SPECTRUM

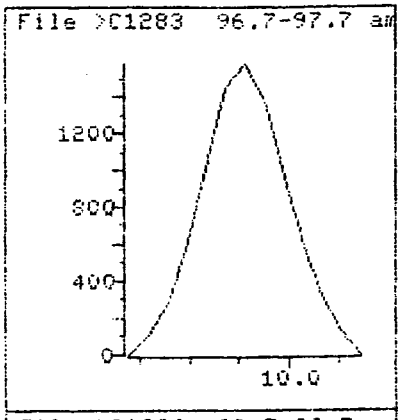


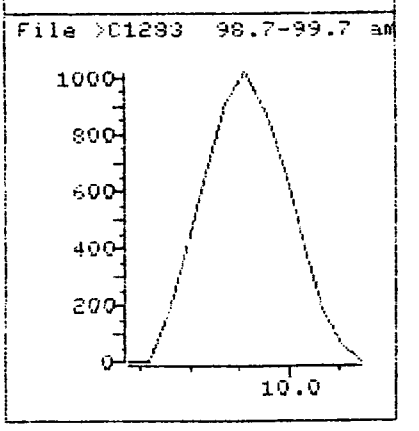
SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



SAMPLE SPECTRUM (UNALTERED)







Data File: >C1283::C2 Quant Output File: ^C1283::C1
Name: W107324-02 Instrument ID: MSD 3
Misc: DIVERSIFIED TB;07/18/91;07/19/91
Quant Time: 910726 13:00 Quant ID File: IDDVOC::SC
Injected at: 910726 12:25 Last Calibration: 910726 07:53
Last Qcal Time: 910726 09:34

Compound No : 21
Compound Name : 1,1,1-TRICHLOROETHANE
Scan Number : 332
Retention Time: 9.96 min.
Quant Ion : 97.0
Area : 9858
Concentration : 3.20 UG/L
q-value : 97

LABORATORY RESOURCES, INC.
363 OLD HOOK ROAD
WESTWOOD, NJ 07675
LAB. CERTIFICATION: NJ 02046
NY 10588

DATE COLLECTED:
DATE RECEIVED :
DATE ANALYZED : 07/26/91
DILUTION FACT.: 1.0

CLIENT : DIVERSIFIED
LAB SAMPLE : METHOD BLANK
ANALYST : ANDY
FILE NAME : >C1280

GC/MS VOLATILE ORGANICS REPORT

COMPOUND	UG/L	MDL	COMPOUND	UG/L	MDL
CHLOROMETHANE	ND	10	1,2-DICHLOROPROPANE	ND	5
VINYL CHLORIDE	ND	10	BROMODICHLOROMETHANE	ND	5
BROMOMETHANE	ND	10	2-CHLOROETHYLVINYLETHER	ND	5
CHLOROETHANE	ND	10	TRANS-1,3-DICHLOROPROPENE	ND	5
ACROLEIN	ND	10	CIS-1,3-DICHLOROPROPENE	ND	5
TRICHLOROFLUOROMETHANE	ND	5	1,1,2-TRICHLOROETHANE	ND	5
1,1-DICHLOROETHENE	ND	5	DIBROMOCHLOROMETHANE	ND	5
CARBON DISULFIDE	ND	5	BROMOFORM	ND	5
ACETONE	13	10	4-METHYL-2-PENTANONE	ND	10
ACRYLONITRILE	ND	10	TOLUENE	ND	5
METHYLENE CHLORIDE	9	5	TETRACHLOROETHENE	ND	5
TRANS-1,2-DICHLOROETHENE	ND	5	2-HEXANONE	ND	10
1,1-DICHLOROETHANE	ND	5	CHLOROBENZENE	ND	5
CHLOROFORM	ND	5	ETHYLBENZENE	ND	5
1,2-DICHLOROETHANE	ND	5	M,P-XYLENE	ND	5
VINYL ACETATE	ND	10	O-XYLENE	ND	5
2-BUTANONE	ND	10	STYRENE	ND	5
1,1,1-TRICHLOROETHANE	ND	5	1,1,2,2-TETRACHLOROETHANE	ND	5
CARBON TETRACHLORIDE	ND	5	1,3-DICHLOROBENZENE	ND	5
BENZENE	ND	5	1,4-DICHLOROBENZENE	ND	5
TRICHLOROETHENE	ND	5	1,2-DICHLOROBENZENE	ND	5

SURROGATE COMPOUNDS	RECOVERY	LIMITS	STATUS
1,2-DICHLOROETHANE-D4	100 %	76 - 114	OK
TOLUENE-D8	100 %	88 - 110	OK
4-BROMOFLUOROBENZENE	103 %	86 - 115	OK

J Indicates detected below MDL
ND Indicates compound not detected
B Indicates compound also present in blank

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

LAB SAMPLE NO.

METHOD BLANK

Lab Name: Laboratory Resources Inc., Contract:-------

Lab Code: GC/MS Case No.: ----- SAS No.: ----- SDG No.: -----

Matrix: WATER

Lab Sample ID: METHOD BLANK

Sample wt/vol: 5.0 (g/ml) ml

Lab File ID: >C1280

Level: (low/med) LOW

Date Received:

% Solid: 0

Date Analyzed: 07/26/91

Column: CAP

Dilution Factor: 1

CONCENTRATION UNITS: ug/L

Number of TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

FORM I VOA-TIC

1/87 Rev

QUANT REPORT

Operator ID: ANDY
Output File: ^C1280::C1
Data File: >C1280::C2
Name: METHOD BLANK
Misc:

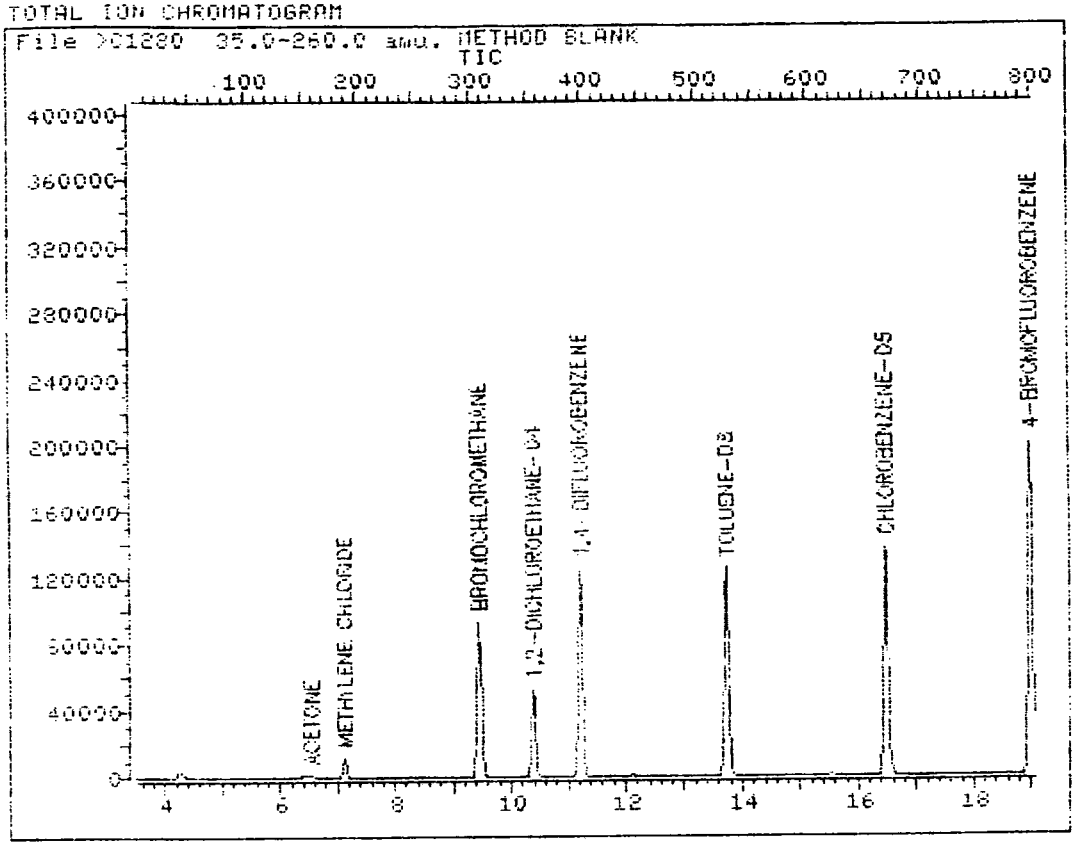
Quant Rev: 7
Quant Time: 910726 11:00
Injected at: 910726 10:23
Dilution Factor: 1.00000
Instrument ID: MSD 3

ID File: IDDVOC::SC
Title: LABORATORY RESOURCES ID FILE FOR VOLATILES ORGANICS GC/MS
Last Calibration: 910726 07:53
Last Qcal Time: 910726 09:34

	Compound	R.T.	Q ion	Area	Conc	Units	q
1)	*BROMOCHLOROMETHANE	9.45	128.0	77996	50.00	UG/L	94
10)	ACETONE	6.53	43.0	4401	12.91	UG/L	92
12)	METHYLENE CHLORIDE	7.11	84.0	13255	9.23	UG/L	90
17)	1,2-DICHLOROETHANE-D4	10.38	65.0	103569	50.10	UG/L	95
18)	*1,4-DIFLUOROBENZENE	11.22	114.0	297533	50.00	UG/L	92
33)	*CHLOROBENZENE-D5	16.47	117.0	250875	50.00	UG/L	87
35)	TOLUENE-D8	13.73	98.0	255855	49.79	UG/L	92
44)	4-BROMOFLUOROBENZENE	19.00	95.0	240070	51.36	UG/L	94

* Compound is ISTD

TOTAL ION CHROMATOGRAM



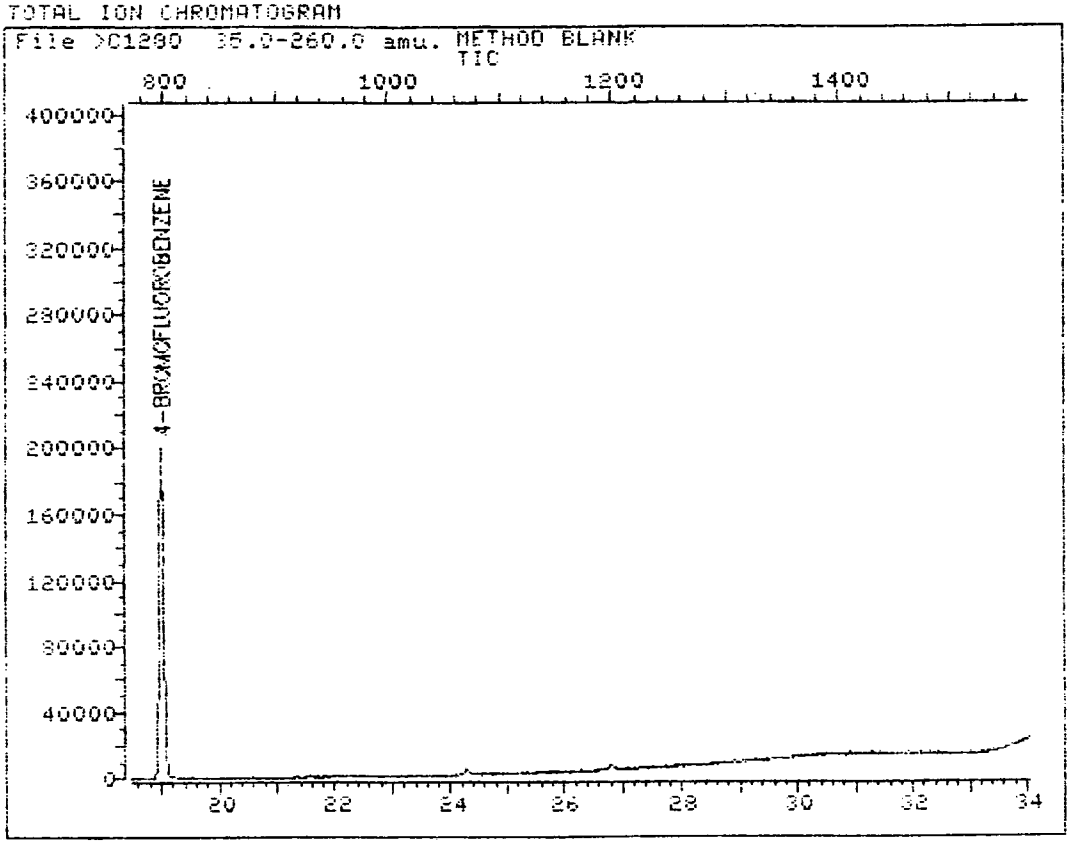
Data File: >C1280::C2 Quant Output File: ^C1280::C1
Name: METHOD BLANK Instrument ID: MSD 3
Misc:

Id File: IDDVOC::SC
Title: LABORATORY RESOURCES ID FILE FOR VOLATILES ORGANICS GC/MS
Last Calibration: 910726 07:53 Last Qcal Time: 910726 09:34

Operator ID: ANDY
Quant Time : 910726 11:00
Injected at: 910726 10:23

Page 1 of 2

TOTAL ION CHROMATOGRAM



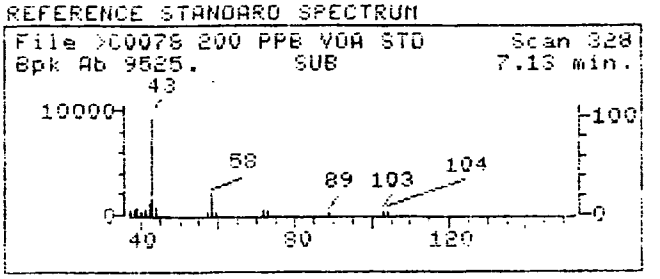
Data File: >C1280::C2 Quant Output File: >C1280::C1
Name: METHOD BLANK Instrument ID: MSD 3
Misc:

Id File: IDOVOC::SC
Title: LABORATORY RESOURCES ID FILE FOR VOLATILES ORGANICS GC/MS
Last Calibration: 910726 07:53 Last Qcal Time: 910726 09:34

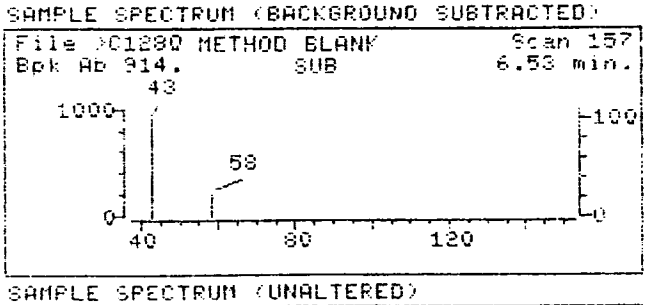
Operator ID: ANDY
Quant Time : 910726 11:00
Injected at: 910726 10:23

Page 2 of 2

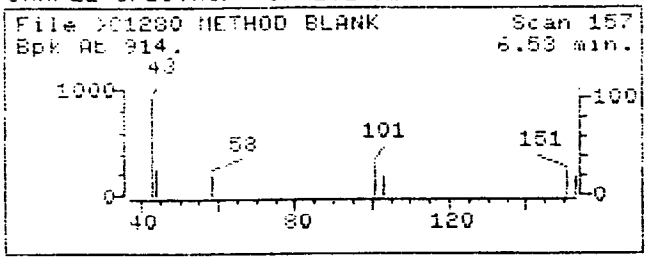
REFERENCE STANDARD SPECTRUM

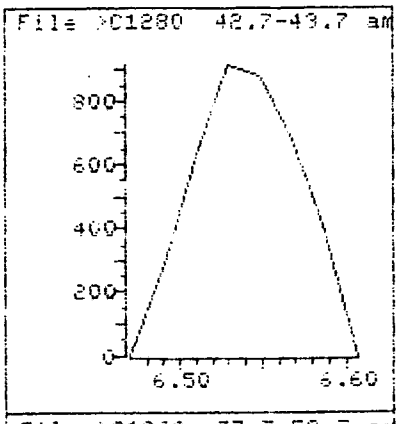


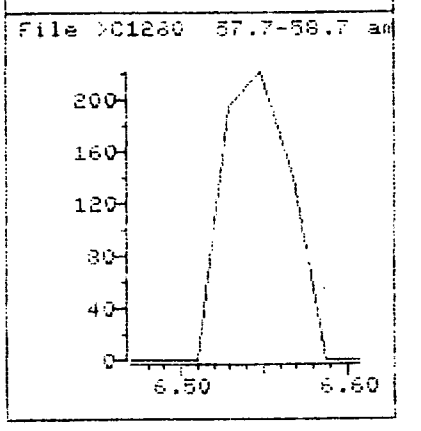
SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



SAMPLE SPECTRUM (UNALTERED)







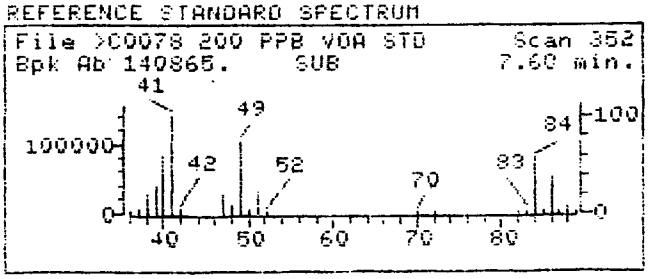
Data File: >C1280::C2
Name: METHOD BLANK
Misc:
Quant Time: 910726 11:00
Injected at: 910726 10:23
Last Qcal Time: 910726 09:34

Quant Output File: >C1280::C1
Instrument ID: MSD 3

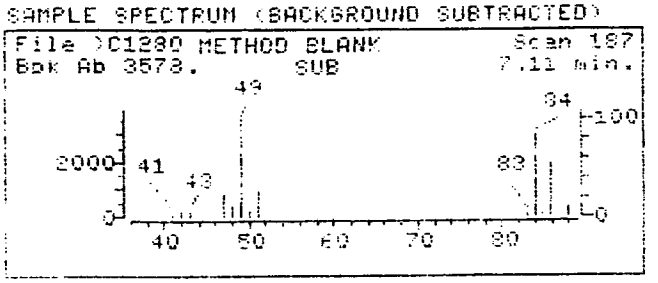
Quant ID File: IDVOC::SC
Last Calibration: 910726 07:53

Compound No : 10
Compound Name : ACETONE
Scan Number : 157
Retention Time: 6.53 min.
Quant Ion : 43.0
Area : 4401
Concentration : 12.91 UG/L
q-value : 92

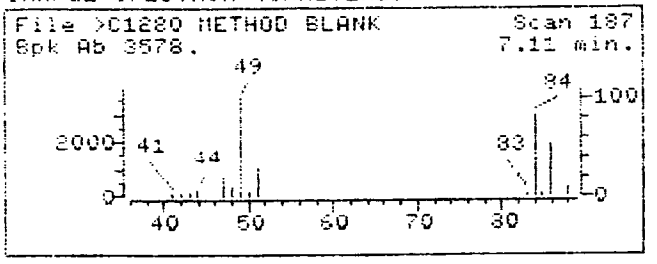
REFERENCE STANDARD SPECTRUM

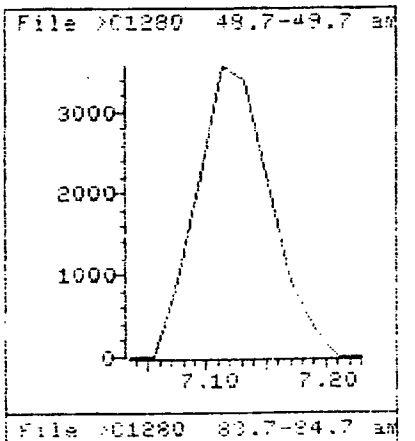


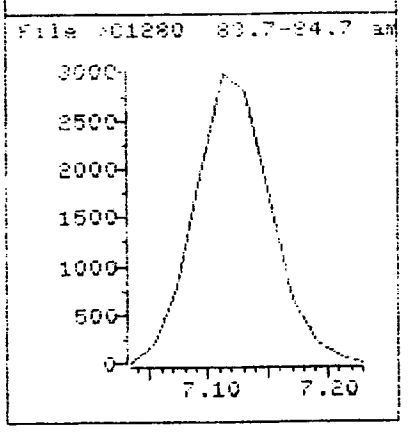
SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



SAMPLE SPECTRUM (UNALTERED)







Data File: >C1280::C2
Name: METHOD BLANK
Misc:
Quant Time: 910726 11:00
Injected at: 910726 10:23
Last Qcal Time: 910726 09:34

Quant Output File: ^C1280::C1
Instrument ID: MSD 3

Quant ID File: IDDVOC::SC
Last Calibration: 910726 07:53

Compound No : 12
Compound Name : METHYLENE CHLORIDE
Scan Number : 187
Retention Time: 7.11 min.
Quant Ion : 84.0
Area : 13255
Concentration : 9.23 UG/L
q-value : 90

1S data file header from : >C1280::C2

ımple: METHOD BLANK Operator: ANDY REG. GRP. 7/26/91 10:23
Misc :
ıvs. #: 1 MS model: 70 SW/HW rev.: LF ALS # : 0 Equip ID: MSD 3
Method file: GCVOAC Tuning file: MTBFBC No. of extra records: 2
Source temp.: N/A Analyzer temp.: N/A Transfer line temp. : 0

Chromatographic temperatures :	10.	160.	220.	0.	0.
Chromatographic times, min. :	5.0	3.0	10.0	0.0	0.0
Chromatographic rate, deg/min:	6.0	20.0	0.0	.1	0.0

No peaks found.

Summary of Unknowns PBM Library Search and Quantitation

Standard	Concentration	Area	Retention Time	Unknown Window
1	50.0	450261.	9.45	3.49 - 10.33
2	50.0	665954.	11.22	10.33 - 13.85
3	50.0	740702.	16.47	13.85 - 34.04

Dilution Factor = 1.00 This sample was 1000.00 g or mL

Correction Factor = 1.00

$$\text{Unknown Concentration} = \frac{\text{Conc Int Std} * \text{Area Unknown}}{\text{Area Int Std}} * \text{Correction Factor}$$

4:53 PM THU., 1 AUG., 1991

QUANT REPORT

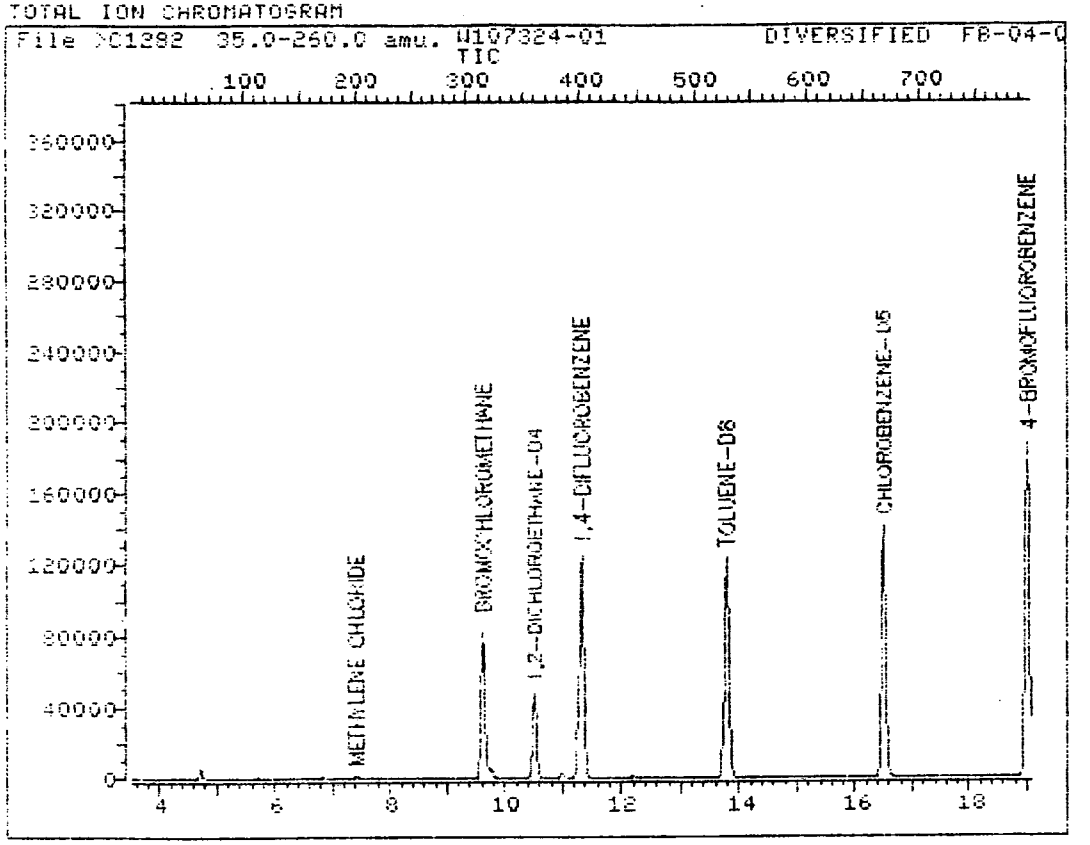
Operator ID: ANDY
Quant Rev: 7
Quant Time: 910726 12:19
Output File: ^C1282::C1
Injected at: 910726 11:44
Data File: >C1282::C2
Dilution Factor: 1.00000
Name: W107324-01
Instrument ID: MSD 3
Misc: DIVERSIFIED FB-04-01;07/18/91;07/19/91

ID File: IDDVOC::SC
Title: LABORATORY RESOURCES ID FILE FOR VOLATILES ORGANICS GC/MS
Last Calibration: 910726 07:53
Last Qcal Time: 910726 09:34

	Compound	R.T.	Q ion	Area	Conc	Units	q
1)	*BROMOCHLOROMETHANE	9.61	128.0	70576	50.00	UG/L	94
12)	METHYLENE CHLORIDE	7.41	84.0	1870	1.44	UG/L	84
17)	1,2-DICHLOROETHANE-D4	10.51	65.0	91550	48.94	UG/L	94
18)	*1,4-DIFLUOROBENZENE	11.33	114.0	298107	50.00	UG/L	91
33)	*CHLOROBENZENE-D5	16.50	117.0	249849	50.00	UG/L	87
35)	TOLUENE-D8	13.78	98.0	256007	50.02	UG/L	97
44)	4-BROMOFLUOROBENZENE	19.02	95.0	226898	48.74	UG/L	92

* Compound is ISTD

TOTAL ION CHROMATOGRAM



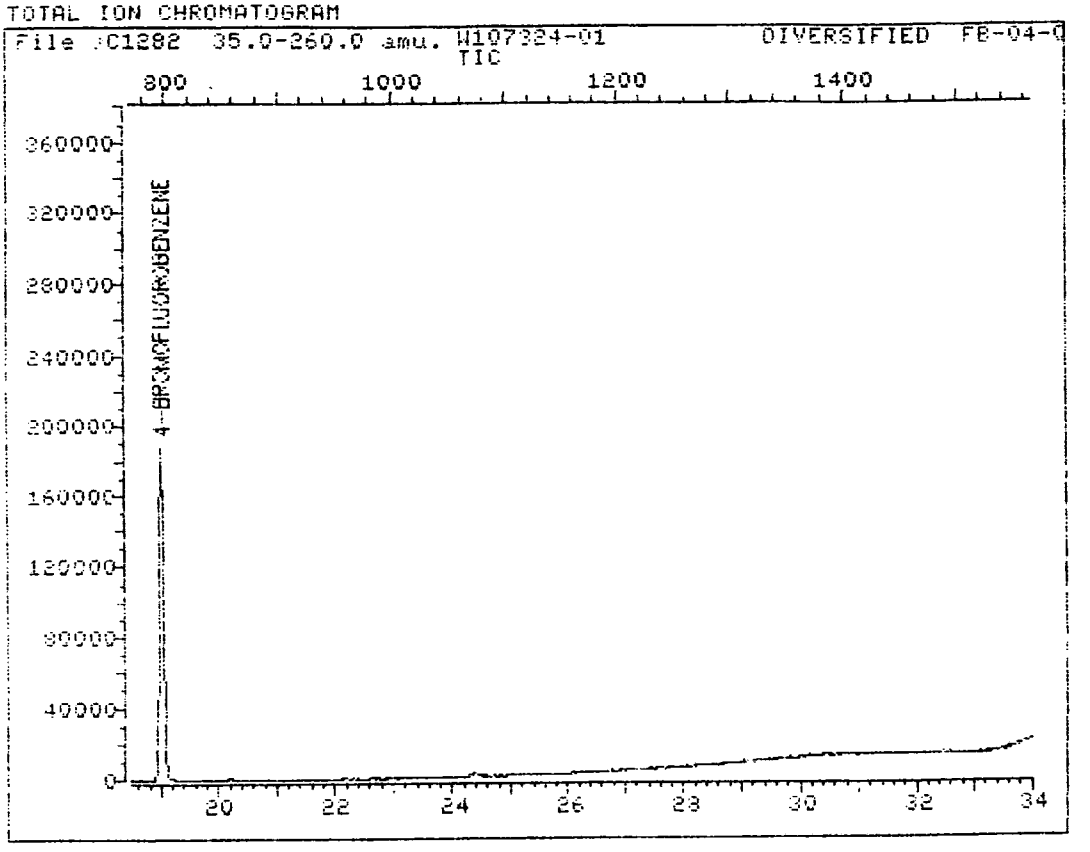
Data File: >C1282::C2 Quant Output File: ^C1282::C1
Name: W107324-01 Instrument ID: MSD 3
Misc: DIVERSIFIED FB-04-01;07/18/91;07/19/91

Id File: IDDVOC::SC
Title: LABORATORY RESOURCES ID FILE FOR VOLATILES ORGANICS GC/MS
Last Calibration: 910726 07:53 Last Qcal Time: 910726 09:34

Operator ID: ANDY
Quant Time : 910726 12:19
Injected at: 910726 11:44

Page 1 of 2

TOTAL ION CHROMATOGRAM



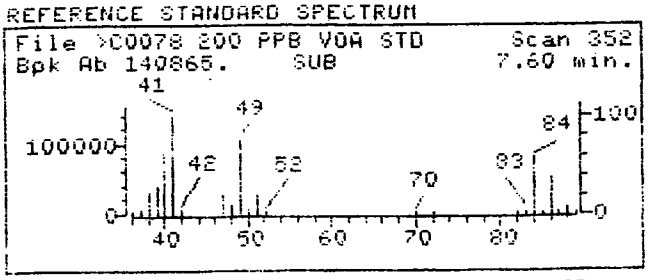
Data File: :C1282::C2 Quant Output File: ^C1282::C1
Name: W107324-01 Instrument ID: MSD 3
Misc: DIVERSIFIED FB-04-01;07/18/91;07/19/91

Id File: IDDVOC::SC
Title: LABORATORY RESOURCES ID FILE FOR VOLATILES ORGANICS GC/MS
Last Calibration: 910726 07:53 Last Qcal Time: 910726 09:34

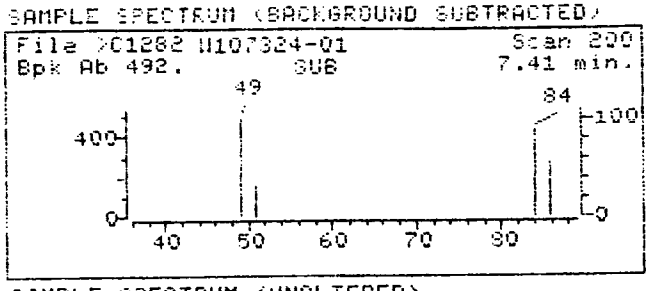
Operator ID: ANDY
Quant Time : 910726 12:19
Injected at: 910726 11:44

Page 2 of 2

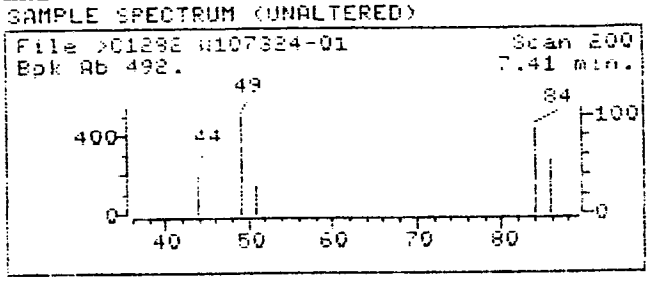
REFERENCE STANDARD SPECTRUM

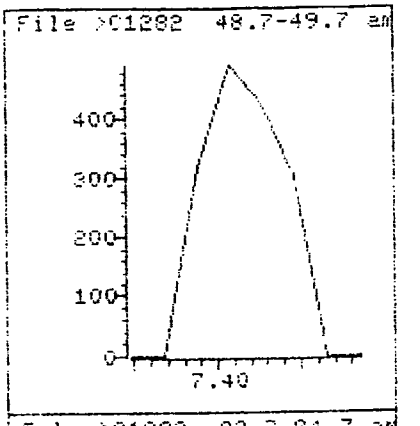


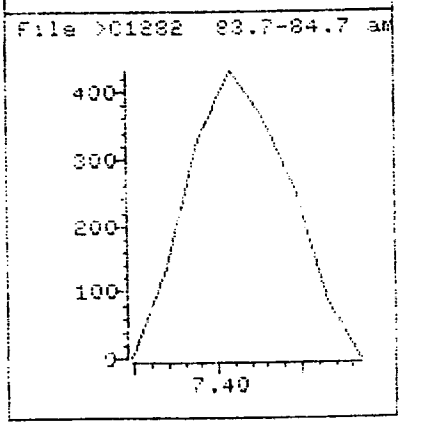
SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



SAMPLE SPECTRUM (UNALTERED)







Data File: >C1282::C2
Name: W107324-01
Misc: DIVERSIFIED FB-04-01;07/18/91;07/19/91
Quant Time: 910726 12:19
Injected at: 910726 11:44
Last Qcal Time: 910726 09:34

Quant Output File: >C1282::C1
Instrument ID: MSD 3
Quant ID File: IDDVOC::SC
Last Calibration: 910726 07:53

Compound No : 12
Compound Name : METHYLENE CHLORIDE
Scan Number : 200
Retention Time: 7.41 min.
Quant Ion : 84.0
Area : 1870
Concentration : 1.44 UG/L
q-value : 84

MS data file header from : >C1282::C2

Sample: W107324-01 Operator: ANDY REG. GRP. 7/26/91 11:44
Misc : DIVERSIFIED FB-04-01;07/18/91;07/19/91
Sys. #: 1 MS model: 70 SW/HW rev.: LF ALS # : 0 Equip ID: MSD 3
Method file: GCVOAC Tuning file: MTBFBC No. of extra records: 2
Source temp.: N/A Analyzer temp.: N/A Transfer line temp. : 0

Chromatographic temperatures :	10.	160.	220.	0.	0.
Chromatographic times, min. :	5.0	3.0	10.0	0.0	0.0
Chromatographic rate, deg/min:	6.0	20.0	0.0	.1	0.0

No peaks found.

Summary of Unknowns PBM Library Search and Quantitation

Standard	Concentration	Area	Retention Time	Unknown Window
1	50.0	440050.	9.61	3.53 - 10.47
2	50.0	663603.	11.33	10.47 - 13.92
3	50.0	737619.	16.50	13.92 - 34.02

Dilution Factor = 1.00 This sample was 1000.00 g or mL

Correction Factor = 1.00

$$\text{Unknown Concentration} = \frac{\text{Conc Int Std} * \text{Area Unknown}}{\text{Area Int Std}} * \text{Correction Factor}$$

7:04 PM FRI., 2 AUG., 1991

2B
SEMIVOLATILE SURROGATE RECOVERIES

Lab Name: Laboratory Resources Inc.,

Lab Code: 020406 Case No.:---- SAS No.:---- SDG No.:----

Date Analyzed: 07/30/91

LAB SMP NO. ($)	S1 (NBZ)#	S2 (FBP)#	S3 (TPH)#	S4 (PHL)#	S5 (2FP)#	S6 (TBP)#	DF	TOT OUT
07259-01 W	51	42*	86	25	33	55	1	1
07278-06 W	46	49	89	21	30	54	1	0
07258-08 S	33	72	98	N/A	N/A	N/A	5	0
07150-15 S	155*	70	81	N/A	N/A	N/A	50	1
07150-02 S	DO	DO	DO	N/A	N/A	N/A	400	0
07150-05 S	DO	DO	DO	N/A	N/A	N/A	450	0
07150-11 S	DO	DO	215*	N/A	N/A	N/A	165	1
07150-14 S	DO	DO	268*	N/A	N/A	N/A	165	1
O BLANK W	70	53	76	32	44	46	1	0
07278-01 W	55	44	72	33	43	39	1	0
07278-02 W	53	48	72	28	38	45	1	0
07278-03 W	81	61	114	51	53	49	5	0
07278-04 W	58	51	81	33	50	55	1	0

EPA CLP QC Limits For:	Soil	Water
S1 (NBZ) = NITROBENZENE-D5	23-120	35-114
S2 (FBP) = 2-FLUOROBIPHENYL	30-115	43-116
S3 (TPH) = 4-TERPHENYL-D14	18-137	33-141
S4 (PHL) = PHENOL-D6	24-113	10- 94
S5 (2FP) = 2-FLUOROPHENOL	25-121	21-100
S6 (TBP) = 2,4,6-TRIBROMOPHENOL	19-122	10-123

$ Column indicating Soil or Water matrix
# Column to be used to flag recovery values
* Values outside of CLP QC limits
N/A Not applicable
DF Column indicating dilution factor of final extract
DO Surrogates diluted out, no recovery data available
D Surrogates diluted, recovery estimated

2B
SEMIVOLATILE SURROGATE RECOVERIES

.ab Name: Laboratory Resources Inc.,

Lab Code: 020406 Case No.:---- SAS No.:---- SDG No.:----

Dates Analyzed: 08/01/91 thru 08/02/91

LAB AMP NO. ($)	S1 (NBZ)#	S2 (FBP)#	S3 (TPH)#	S4 (PHL)#	S5 (2FP)#	S6 (TBP)#	DF	TOT OUT
07278-05 W	58	62	89	26	27	54	1	0
07324-01 W	49	50	87	39	61	92	1	0
1677 MS W	67	62	80	31	43	100	1	0
1678 MSD W	54	59	82	28	42	96	1	0
J BLANK S	64	71	79	69	73	90	1	0
07227-01 S	54	86	101	77	78	55	5	0

EPA CLP QC Limits For:	Soil	Water
S1 (NBZ) = NITROBENZENE-D5	23-120	35-114
S2 (FBP) = 2-FLUOROBIPHENYL	30-115	43-116
S3 (TPH) = 4-TERPHENYL-D14	18-137	33-141
S4 (PHL) = PHENOL-D6	24-113	10- 94
S5 (2FP) = 2-FLUOROPHENOL	25-121	21-100
S6 (TBP) = 2,4,6-TRIBROMOPHENOL	19-122	10-123

$ Column indicating Soil or Water matrix
# Column to be used to flag recovery values
* Values outside of CLP QC limits
N/A Not applicable
DF Column indicating dilution factor of final extract
DO Surrogates diluted out, no recovery data available
D Surrogates diluted, recovery estimated

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

b Name:Laboratory Resources, Inc Contract:----

Code: 020406 Case No.: ---- SAS No.: ----- SDG No.: -----

trix Spike - LAB Sample No.: S91677, S91678

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
Phenol	200.00	0.00	49.00	24	12- 89
-Chlorophenol	200.00	0.00	93.00	46	27-123
,4-Dichlorobenzene	100.00	0.00	38.00	37	36- 97
N-Nitroso-di-n-prop.(1)	100.00	0.00	47.00	46	41-116
,2,4-Trichlorobenzene	100.00	0.00	41.00	41	39- 98
-Chloro-3-methylphenol	200.00	0.00	100.00	51	23- 97
Acenaphthene	100.00	0.00	66.00	65	46-118
-Nitrophenol	200.00	0.00	49.00	24	10- 80
,4-Dinitrotoluene	100.00	0.00	74.00	74	24- 96
Pentachlorophenol	200.00	0.00	140.00	71	9-103
Pyrene	100.00	0.00	72.00	72	26-127

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Phenol	200.00	50.00	25	4	42	12- 89
2-Chlorophenol	200.00	85.00	42	9	40	27-123
,4-Dichlorobenzene	100.00	44.00	43	15	28	36- 97
N-Nitroso-di-n-prop.(1)	100.00	48.00	48	4	38	41-116
1,2,4-Trichlorobenzene	100.00	48.00	48	15	28	39- 98
4-Chloro-3-methylphenol	200.00	110.00	56	9	42	23- 97
Acenaphthene	100.00	69.00	68	4	31	46-118
4-Nitrophenol	200.00	55.00	27	11	50	10- 80
2,4-Dinitrotoluene	100.00	74.00	74	0	38	24- 96
Pentachlorophenol	200.00	150.00	75	5	50	9-103
Pyrene	100.00	77.00	77	6	31	26-127

1 N-Nitroso-di-n-propylamine

Column to be used to flag recovery and RPD values with an asterisk
Values outside of qc limits

D: 0 out of 11 outside limits
ike Recovery: 0 out of 22 outside limits

OMMENTS:

4B

SEMIVOLATILE METHOD BLANK SUMMARY

Lab Name: Laboratory Resources Inc.,

Lab File ID: >A1146 Lab Sample ID: PRO BLANK

Date Extracted: 07/20/91 Extraction: Sept

Date Analyzed: 07/31/91 Time Analyzed: 17:30

Matrix: WATER

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

LAB FILE NO.	LAB SAMPLE ID	DATE ANALYZED
>A1157	W107324-01	08/01/91
>A1158	S91677 MS	08/01/91
>A1159	S91678 MSD	08/01/91

Comments:

5B

SEMIVOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Name: Laboratory Resources Inc., Contract: -----

File ID: >TA401 DFTPP Injection date: 7/30/91

rument ID: 0881 DFTPP Injection time: 9:07

/e	ION ABUNDANCE CRITERIA	%RELATIVE ABUNDANCE
1	30.0 - 60.0% of mass 198	45.6
8	Less than 2.0% of mass 69	0.0(0.0)1
	Mass 69 relative abundance	58.3
	Less than 2.0% of mass 69	.5(.8)1
27	40.0 - 60.0% of mass 198	43.2
7	Less than 1.0% of mass 198	0.0
8	Base Peak, 100% Relative abundance	100.
99	5.0 - 9.0% of mass 198	6.8
75	10.0 - 30.0% of mass 198	23.2
5	Greater than 1.00% of mass 198	2.55
41	Present, but less than mass 443	8.8
42	Greater than 40.0% of mass 198	69.7
3	17.0 - 23.0% of mass 442	14.3(20.5)2

1 - Value is % mass 69 2 - Value is % mass 442

: TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

	EPA SAMPLE NO	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1	----------	50 PPM BNA S	>A1136	7/30/91	9:23
2	----------	W107259-01	>A1137	7/30/91	10:15
3	----------	W107278-06	>A1138	7/30/91	11:03
4	----------	W107258-08	>A1139	7/30/91	11:51
5	----------	W107150-15	>A1140	7/30/91	12:39
6	----------	W107150-02	>A1141	7/30/91	13:27
7	----------	W107150-05	>A1142	7/30/91	14:15
8	----------	W107150-11	>A1143	7/30/91	15:03
9	----------	W107150-14	>A1144	7/30/91	15:52
10	----------	PRO BLANK	>A1146	7/30/91	17:30
11	----------	W107278-01	>A1147	7/30/91	18:20
12	----------	W107278-02	>A1148	7/30/91	19:09
13	----------	W107278-03	>A1149	7/30/91	19:58
14	----------	W107278-04	>A1150	7/30/91	20:47
15					
16					
17					
18					
19					
20					
21					
22					

FORM V SV

5B

SEMIVOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Name: Laboratory Resources Inc., Contract: -----

File ID: >TA402 DFTPP Injection date: 8/01/91

rument ID: 0881 DFTPP Injection time: 13:13

e	ION ABUNDANCE CRITERIA	%RELATIVE ABUNDANCE
1	30.0 - 60.0% of mass 198	55.2
8	Less than 2.0% of mass 69	0.0(0.0)1
	Mass 69 relative abundance	62.2
	Less than 2.0% of mass 69	0.0(0.0)1
27	40.0 - 60.0% of mass 198	50.6
7	Less than 1.0% of mass 198	0.0
8	Base Peak, 100% Relative abundance	100.
99	5.0 - 9.0% of mass 198	5.7
5	10.0 - 30.0% of mass 198	23.3
5	Greater than 1.00% of mass 198	4.48
41	Present, but less than mass 443	12.6
42	Greater than 40.0% of mass 198	81.3
.3	17.0 - 23.0% of mass 442	16.6(20.5)2

1 - Value is % mass 69 2 - Value is % mass 442

S TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

	EPA SAMPLE NO	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1	----------	50 PPM BNA S	>A1152	8/01/91	14:13
2	----------	W107278-05	>A1153	8/01/91	15:04
3	----------	W107324-01	>A1157	8/01/91	18:24
4	----------	S91677 MS	>A1158	8/01/91	19:14
5	----------	S91678 MSD	>A1159	8/01/91	20:04
6	----------	PRO BLANK	>A1164	8/02/91	0:08
7	----------	W107227-01	>A1165	8/02/91	0:56
8					
9					
10					
11					
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FORM V SV

8B

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: Laboratory Resources Inc.,

Lab file ID: >A1136 Lab Sample ID: 50 PPM BNA

Date Analyzed: 07/30/91 Time Analyzed: 09:23

	IS1(DCB) AREA #	RT	IS2(NPT) AREA #	RT	IS3(ANT) AREA #	RT	IS4(PHN) AREA #	RT	IS5(CRY) AREA #	RT	IS6(PRY) AREA #	RT
12 HOUR STD	23430	10.22	59180	13.33	43195	17.76	101817	21.46	127107	28.24	143724	31.70
UPPER LIMIT	46860		118360		86390		203634		254214		287448	
LOWER LIMIT	11715		29590		21598		50909		63554		71862	
LAB SAMPLE #												
W107259-01	23544	10.20	64302	13.31	44128	17.73	90751	21.43	115373	28.21	129962	31.66
W107278-06	24656	10.20	65803	13.29	44674	17.73	86601	21.41	108096	28.19	120252	31.64
W107258-08	28802	10.20	73493	13.28	46450	17.74	90136	21.43	114590	28.18	129513	31.63
W107150-15	30217	10.18	80054	13.30	47999	17.76	90111	21.44	111949	28.19	126159	31.63
W107150-02	28427	10.19	73414	13.30	46017	17.74	85971	21.43	102702	28.20	116265	31.64
W107150-05	30350	10.20	76223	13.28	45181	17.74	81653	21.46	101519	28.19	112553	31.66
W107150-11	24847	10.19	68447	13.29	42568	17.73	80375	21.43	91733	28.18	105642	31.65
W107150-14	25335	10.19	65818	13.30	41461	17.76	77178	21.46	90564	28.19	109382	31.65
PRO BLANK	23933	10.17	64700	13.28	41453	17.71	81467	21.40	92431	28.17	99044	31.61
W107278-01	24942	10.18	77402	13.28	47190	17.71	90651	21.39	107039	28.18	114653	31.61
W107278-02	25617	10.18	69722	13.27	45164	17.70	91336	21.40	104424	28.16	104870	31.62
W107278-03	23679	10.17	62095	13.28	44025	17.71	84825	21.41	95091	28.19	104040	31.64
W107278-04	24938	10.19	71244	13.29	45950	17.72	97562	21.42	109294	28.19	120753	31.64

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Napthalene-d8
IS3 (ANT) = Acenapthene-d10
IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

UPPER LIMIT = + 100% of internal standard LOWER LIMIT = - 50% of internal standard area

Column used to flag internal standard are values with an asterisk

8B

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: Laboratory Resources Inc.,

Lab file ID: >A1152 Lab Sample ID: 50 PPM BNA

Date Analyzed: 08/01/91 Time Analyzed: 14:13

	IS1(DCB) AREA #	RT	IS2(NPT) AREA #	RT	IS3(ANT) AREA #	RT	IS4(PHN) AREA #	RT	IS5(CRY) AREA #	RT	IS6(PRY) AREA #	RT
12 HOUR STD	26407	10.11	63323	13.22	45910	17.63	108662	21.33	142796	28.10	168387	31.51
UPPER LIMIT	52814		126646		91820		217324		285592		336774	
LOWER LIMIT	13203		31661		22955		54331		71398		84193	
LAB SAMPLE #												
W107278-05	28598	10.11	76571	13.19	50014	17.62	104557	21.30	141511	28.07	159294	31.51
W107324-01	27672	10.12	70841	13.20	52141	17.63	109419	21.31	153715	28.06	189706	31.50
S91677 MS	32166	10.13	77640	13.22	55343	17.63	121190	21.33	186787	28.08	210813	31.49
S91678 MSD	33632	10.13	78944	13.22	56505	17.63	122418	21.33	190092	28.07	230278	31.51
PRO BLANK	30752	10.14	78742	13.22	61982	17.63	148896	21.33	249896	28.08	299943	31.51
W107227-01	29105	10.12	80918	13.20	62330	17.63	148962	21.33	225329	28.10	278014	31.53

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Napthalene-d8
IS3 (ANT) = Acenapthene-d10
IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

UPPER LIMIT = + 100% of internal standard LOWER LIMIT = - 50% of internal standard area

Column used to flag internal standard are values with an asterisk

Initial Calibration Data
HSL Compounds

se No: Instrument ID: #7637A01697

Contractor: LABORATORY RESOURCES Calibration Date: 07/25/91

Contract No:

Minimum $\overline{RF}$ for SPCC is .050 Maximum % RSD for CCC is 30%

Compound	Laboratory ID: >A1092 RF 20.00	>A1091 RF 50.00	>A1093 RF 80.00	>A1094 RF 120.00	>A1095 RF 160.00	$\overline{RRT}$	$\overline{RF}$	% RSD	CCC	SPCC
RIDINE	.33154	.31371	.33365	.25551	.20285	.386	.28745	19.790		
N-NITROSODIMETHYLAMINE	.21493	.29358	.34939	.30037	.27839	.398	.28733	16.856		
2-FLUOROPHENOL	.51153	.62463	.75322	.66629	.59344	.732	.62982	14.180		
HENOL-D6	.71113	.96673	.84512	.74025	.60562	.960	.77377	17.773		
HENOL	.91101	1.19038	1.14218	.99877	.87224	.963	1.02292	13.658	*	
2-CHLOROPHENOL	.75155	.99293	.88370	.72222	.63555	.963	.79719	17.699		
IS(2-CHLOROETHYL)ETHER	.70968	.92786	1.00660	.75348	.70238	.966	.82000	16.907		
,3-DICHLOROBENZENE	.84896	.91757	.92626	.79279	.66041	.990	.82920	13.133		
1,4-DICHLOROBENZENE	.88481	.93647	.92642	.78167	.72422	1.004	.85072	10.998		
BENZYL ALCOHOL	.62357	.87457	.87189	.78808	.69075	1.059	.76977	14.432		
,2-DICHLOROBENZENE	.86317	.92049	.86849	.77018	.72471	1.045	.82941	9.614		
-METHYLPHENOL	.62967	.87190	.78434	.68962	.62858	1.093	.72082	14.658		
BIS(2-CHLOROISOPROPYL)ETHER	.54869	.66369	.80035	.72635	.70181	1.088	.68818	13.453		
-NITROSO-DI-N-PROPYLAMINE	.62454	.76122	.82899	.77286	.63822	1.135	.72517	12.342		**
-METHYLPHENOL	1.34988	1.76156	1.72552	1.54985	1.33631	1.134	1.54462	12.994		
HEXACHLOROETHANE	.42750	.45040	.48846	.40967	.32332	1.114	.41987	14.644		
-METHYLPHENOL	1.51891	2.01464	1.62755	1.75434	1.51127	1.134	1.68534	12.394		
ITROBENZENE-D5	.32335	.42721	.43634	.43133	.41333	.879	.40631	11.607		
NITROBENZENE	.37221	.39395	.47254	.44526	.41758	.883	.42031	9.492		
ISOPHORONE	.80180	.87507	.98240	.04764	.94300	.930	.72998	53.096		
-NITROPHENOL	.19883	.29043	.30046	.29758	.27062	.939	.27158	15.576	*	
,4-DIMETHYLPHENOL	.35984	.51262	.50257	.47279	.47753	.962	.46507	13.147		
BIS(2-CHLOROETHOXY)METHANE	.40324	.53305	.59288	.48691	.44762	.977	.49274	14.959		
,4-DICHLOROPHENOL	.28593	.43325	.42381	.38473	.35428	.986	.37640	15.843	*	
-N/DOC ACID	.17208	.31190	.39784	.40186	.37128	1.015	.33099	28.952		
1,2,4-TRICHLOROBENZENE	.36596	.39487	.44694	.40971	.37798	.994	.39909	7.888		
APHTHALENE	.85026	1.10230	1.28188	1.03700	1.08679	1.004	1.07165	14.474		
-CHLOROANILINE	.42916	.59705	.54614	.45365	.44363	1.026	.49392	14.915		
HEXACHLOROBUTADIENE	.21060	.22642	.24045	.21562	.19390	1.040	.21740	8.015	*	
-METHYLNAPHTHALENE	.66422	.88152	.82091	.70032	.64227	1.132	.74185	14.045		

RF - Response Factor (Subscript is amount in UG/L)

$\overline{RRT}$ - Average Relative Retention Time (RT Std/RT Istd)

$\overline{RF}$ - Average Response Factor

%RSD - Percent Relative Standard Deviation

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

Initial Calibration Data
HSL Compounds

Case No: _____ Instrument ID: #763/A01697

Contractor: LABORATORY RESOURCES Calibration Date: 07/25/91

Contract No: _____

Minimum $\overline{RF}$ for SPCC is .050 Maximum % RSD for CCC is 30%

Compound	Laboratory ID: >A1092 RF 20.00	>A1091 RF 50.00	>A1093 RF 80.00	>A1094 RF 120.00	>A1095 RF 160.00	$\overline{RRT}$	$\overline{RF}$	% RSD	CCC	SPCC
4-CHLORO-3-METHYLPHENOL	.34504	.50995	.50721	.42949	.43788	1.124	.44597	15.196	*	
HEXACHLOROCYCLOPENTADIENE	.29676	.37415	.39048	.35868	.31192	.884	.34640	11.652		**
2,4,5-TRICHLOROPHENOL	.37804	.54994	.48531	.41442	.38003	.904	.44155	16.879		
2,4,6-TRICHLOROPHENOL	.40653	.57275	.55910	.49162	.46207	.901	.49841	13.834	*	
2-FLUOROBIPHENYL	1.15000	1.44553	1.25066	1.15756	1.06302	.911	1.21335	12.016		
2-CHLORONAPHTHALENE	1.18742	1.27697	1.43249	1.18108	1.19136	.920	1.25386	8.558		
2-NITROANILINE	.45321	.61589	.63926	.59697	.55197	.946	.57146	12.854		
ACENAPHTHYLENE	1.53823	2.09630	2.09789	1.72773	1.64433	.978	1.82090	14.329		
DIMETHYLPHTHALATE	1.46347	1.82053	1.82121	1.61375	1.56093	.981	1.65598	9.655		
2,6-DINITROTOLUENE	.39671	.44096	.45385	.41857	.39763	.990	.42154	6.069		
3-NITROANILINE	.49018	.63562	.67223	.60456	.57932	1.007	.59638	11.534		
ACENAPHTHENE	.96743	1.32421	1.24486	1.17478	1.03199	1.005	1.14865	12.855	*	
2,4-DINITROPHENOL	.09765	.28351	.32744	.32688	.32456	1.020	.27201	36.476		**
DIBENZOFURAN	1.64849	2.32453	2.13885	1.87268	1.78187	1.028	1.95329	14.045		
4-NITROPHENOL	.36412	.54121	.53904	.52674	.48511	1.039	.49124	15.179		**
2,4-DINITROTOLUENE	.61539	.68624	.81631	.70972	.73514	1.044	.71256	10.269		
FLUORENE	1.22996	1.71198	1.61713	1.42276	1.20995	1.077	1.43836	15.649		
4-NITROANILINE	.41796	.63394	.63311	.48517	.40054	1.099	.51414	22.069		
DIETHYLPHTHALATE	1.65582	1.95854	2.07304	1.76807	1.62882	1.083	1.81686	10.636		
4-CHLOROPHENYL-PHENYLETHER	.65257	.83115	.73269	.61833	.61087	1.081	.68912	13.484		
2,4,6-TRIBROMOPHENOL	.23191	.34460	.34422	.35046	.32151	1.114	.31854	15.595		
4,6-DINITRO-2-METHYLPHENOL	.14423	.24243	.20170	.16951	.15173	.912	.18192	22.226		
N-NITROSODIPHENYLAMINE	.23640	.27320	.24863	.17811	.17401	.913	.22207	19.844	*	
AZOBENZENE	.81764	1.22220	1.09811	.98976	.99809	.915	1.02516	14.567		
4-BROMOPHENYL-PHENYLETHER	.21984	.25560	.24776	.21901	.20971	.951	.23038	8.698		
HEXACHLOROBENZENE	.32230	.33651	.34016	.29335	.27513	.965	.31349	9.017		
PENTACHLOROPHENOL	.19428	.26767	.27855	.26932	.25208	.989	.25238	13.410	*	
PHENANTHRENE	1.00799	1.15239	1.22425	1.10081	1.06814	1.003	1.11071	7.409		
ANTHRACENE	1.04024	1.29080	1.27686	1.00511	.91438	1.009	1.10548	15.309		
DI-N-BUTYLPHTHALATE	1.25346	2.08602	2.09868	1.72042	1.50756	1.087	1.83323	13.894		

RF - Response Factor (Subscript is amount in UG/L)

$\overline{RRT}$ - Average Relative Retention Time (RT Std/RT Istd)

$\overline{RF}$ - Average Response Factor

%RSD - Percent Relative Standard Deviation

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

Initial Calibration Data
BSI Compounds

se No: _____ Instrument ID: #7637A01697

ntractor: LABORATORY RESOURCES Calibration Date: 07/25/91

ontract No: _____

Minimum $\overline{RF}$ for SPCC is .050 Maximum % RSD for CCC is 30%

Laboratory ID:	>A1092	>A1091	>A1093	>A1094	>A1095					
	RF	RF	RF	RF	RF					
Compound	20.00	50.00	80.00	120.00	160.00	$\overline{RRT}$	$\overline{RF}$	% RSD	CCC	SPCC
UORANTHENE	1.12903	1.36662	1.45853	1.20687	1.15594	1.143	1.26340	11.300	*	
BEN/IDINE	.30079	.48361	.38052	.33696	.31190	.886	.36276	20.450		
PYRENE	1.00889	1.22800	1.35410	1.24429	1.15910	.889	1.19887	10.607		
-TERPHENYL-D14	.75202	.85360	.83461	.77691	.78582	.908	.80059	5.265		
TYLBEN/YLPHTHALATE	.78780	.96950	.97894	.87272	.82246	.960	.88629	9.684		
BEN/U(A)ANTHRACENE	.92932	1.18422	1.32088	1.19124	1.15128	.998	1.15539	12.288		
,3'-DICHLORUBEN/IDINE	.34780	.42429	.39462	.34503	.33900	.988	.37015	10.137		
HRYSENE	.95214	1.15899	1.13847	1.06168	1.02007	1.003	1.06627	7.984		
BIS(2-ETHYLHEXYL)PHTHALATE	1.10170	1.27640	1.17988	1.05315	.94077	1.015	1.11038	11.437		
DI-N-OCTYLPHTHALATE	1.87927	2.11160	1.99481	1.84887	1.56768	.952	1.88045	10.812	*	
-N/U(B)FLUORANTHENE	.81604	1.26892	1.34085	1.25795	1.17751	.973	1.17226	17.691		
BEN/U(K)FLUORANTHENE	.87131	.84416	.94231	.69725	.65534	.974	.80208	15.110		
BEN/U(A)PYRENE	.85188	1.08715	1.14476	1.03642	.99038	.996	1.02212	10.879	*	
NDENO(1,2,3-CD)PYRENE	.60419	1.13633	1.16067	.85578	1.06923	1.096	.96524	24.331		
IBEN/U(A,H)ANTHRACENE	.70069	1.00362	1.00720	.76636	.96070	1.099	.88771	16.202		
BEN/U(G,H,I)PERYLENE	.87224	1.01915	.89868	.58229	.80483	1.123	.83544	19.312		

RF - Response Factor (Subscript is amount in UG/L)

$\overline{RRT}$ - Average Relative Retention Time (RT Std/RT Istd)

$\overline{RF}$ - Average Response Factor

%RSD - Percent Relative Standard Deviation

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

Continuing Calibration Check
HSL Compounds

Case No: Calibration Date: 07/30/91

Contractor: LABORATORY RESOURCES Time: 09:25

Contract No: Laboratory ID: >A1136

Instrument ID: $263/A011697 Initial Calibration Date: 07/25/91

Minimum $\overline{RF}$ for SPCC is .050 Maximum % Diff for CCC is 25%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC
PYRIDINE	.78745	.74188	15.85		
N-NITROSODIMETHYLAMINE	.78755	.77527	4.91		
2-FLUOROPHENOL	.62987	.41516	34.08		
PHENOL-D6	.77577	.69526	10.40		
PHENOL	1.02792	.98967	3.25	*	
2-CHLOROPHENOL	.79719	.77971	2.26		
BIS(2-CHLOROETHYL)ETHER	.82000	.75617	7.79		
1,3-DICHLOROBENZENE	.82920	.68425	17.48		
1,4-DICHLOROBENZENE	.85002	.76729	9.81		
BENZYL ALCOHOL	.76977	.72358	6.05		
1,2-DICHLOROBENZENE	.82941	.74906	9.69		
2-METHYLPHENOL	.72082	.61682	14.45		
BIS(2-CHLOROISOPROPYL)ETHER	.68818	.50602	26.47		
N-NITROSO-DI-N-PROPYLAMINE	.72517	.57967	20.06		**
3-METHYLPHENOL	1.54467	1.34286	13.06		
HEXACHLOROETHANE	.41987	.37710	10.38		
4-METHYLPHENOL	1.68554	1.54390	8.39		
NITROBENZENE-D5	.40651	.34752	14.52		
ISOPHORONE	.72998	.67577	7.40		
2-NITROPHENOL	.27158	.21265	21.71	*	
2,4-DIMETHYLPHENOL	.46507	.42471	8.68		
BIS(2-CHLOROETHOXY)METHANE	.49274	.35570	27.81		
2,4-DICHLOROPHENOL	.37640	.32745	13.00	*	
BENZOIC ACID	.55099	.26842	18.91		
1,2,4-TRICHLOROBENZENE	.59909	.51667	20.65		
NAPHTHALENE	1.02765	.82887	22.66		
4-CHLOROANILINE	.49592	.46595	6.02		
HEXACHLOROBUTADIENE	.21740	.22470	3.36	*	
2-METHYLNAPHTHALENE	.74185	.67546	9.22		
4-CHLORO-3-METHYLPHENOL	.44597	.45073	3.41	*	
HEXACHLOROCYCLOPENTADIENE	.54640	.55591	2.25		**

RF - Response Factor from daily standard file at 50.00 ng/l

$\overline{RF}$ - Average Response Factor from Initial Calibration Form VI

%Diff - % Difference from original average or curve

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

Continuing Calibration Check
HSL Compounds

ase No: Calibration Date: 11/30/91

Contractor: LABORATORY RESOURCES Time: 09:23

Contract No: Laboratory ID: DA1136

nstrument ID: $263/A011697 Initial Calibration Date: 11/25/91

Minimum $\overline{RF}$ for SPCC is .050 Maximum % Diff for CCC is 25%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC
2,4,5-TRICHLOROPHENOL	.44155	.40614	8.02		
2,4,6-TRICHLOROPHENOL	.49841	.43722	12.27	*	
2-FLUOROBIPHENYL	1.21355	1.05792	12.81		
2-CHLORONAPHTHALENE	1.25586	.98280	21.22		
2-NITROANILINE	.52146	.43405	24.05		
ACENAPHTHYLENE	1.82090	1.58494	12.96		
DIMETHYLPHTHALATE	1.65598	1.43631	13.26		
2,6-DINITROTOLUENE	.42154	.33882	19.61		
3-NITROANILINE	.59658	.50850	14.74		
ACENAPHTHENE	1.14865	1.00204	12.76	*	
2,4-DINITROPHENOL	.22201	.26136	5.91		**
DIBENZOFURAN	1.95329	1.93791	.79		
4-NITROPHENOL	.49124	.44801	8.78		**
2,4-DINITROTOLUENE	.21256	.60514	15.36		
FLUORENE	1.43836	1.36647	5.00		
4-NITROANILINE	.51414	.42102	18.10		
DIETHYLPHTHALATE	1.81686	1.82919	.68		
4-CHLOROPHENYL-PHENYLETHER	.68912	.75121	6.18		
2,4,6-TRIBROMOPHENOL	.51854	.54245	7.50		
4,6-DINITRO-2-METHYLPHENOL	.18192	.21942	15.15		
N-NITROSODIPHENYLAMINE	.22202	.21515	3.11	*	
AZOBENZENE	1.02516	.93829	8.47		
4-BROMOPHENYL-PHENYLETHER	.23858	.22744	1.28		
HEXACHLOROBENZENE	.31349	.27421	12.53		
PENTACHLOROPHENOL	.25238	.24059	4.67	*	
PHENANTHRENE	1.11021	.98565	11.44		
ANTHRACENE	1.10548	.92617	16.22		
DI-N-BUTYLPHTHALATE	1.83525	1.62514	11.35		
FLUORANTHENE	1.26540	1.11004	12.14	*	
BENZIDINE	.36226	.34479	4.95		
PYRENE	1.19882	.93183	22.22		
4-TERPHENYL-D14	.80059	.66469	16.97		

$\overline{RF}$ - Response Factor from daily standard file at 50.000 ng/l

$\overline{RF}$ - Average Response Factor from Initial Calibration Form VI

%Diff - % Difference from original average or curve

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

Continuing Calibration Check
HSL Compounds

ase No: _____ Calibration Date: 07/30/91

ontractor: LABORATORY RESOURCES Time: 09:23

Contract No: _____ Laboratory ID: >A1136

nstrument ID: #2637A01697 Initial Calibration Date: 07/25/91

Minimum $\overline{RF}$ for SPCC is .050 Maximum % Diff for CCC is 25%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC
BUTYLBEN/YLPHTHALATE	.88629	.69784	21.83		
BEN/U(A)ANTHRACENE	1.15539	.93925	18.71		
3,3'-DICHLORUBEN/IDINE	.37015	.33373	9.84		
CHRYSENE	1.06627	.70857	33.55		
BIS(2-ETHYLHEXYL)PHTHALATE	1.11038	.96978	12.66		
DI-N-OCTYLPHTHALATE	1.88045	1.65925	11.76	*	
BEN/U(B)FLUORANTHENE	1.17226	1.03035	12.11		
BEN/U(K)FLUORANTHENE	.80208	.69593	13.23		
BEN/U(A)PYRENE	1.02212	.86996	14.89	*	
INDENO(1,2,3-CD)PYRENE	.96524	.95585	.97		
DIBEN/U(A,H)ANTHRACENE	.88771	.78989	11.02		
BEN/U(G,H,I)PERYLENE	.83544	.89349	6.95		

RF - Response Factor from daily standard file at 50.00 UG/L

$\overline{RF}$ - Average Response Factor from Initial Calibration Form VI

%Diff - % Difference from original average or curve

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

Continuing Calibration Check
HSL Compounds

se No: Calibration Date: 08/01/91

ntractor: LABORATORY RESOURCES Time: 14:15

ontract No: Laboratory ID: 3A1152

strument ID: $265/A01697 Initial Calibration Date: 02/25/91

Minimum $\overline{RF}$ for SPCC is .050 Maximum % Diff for CCC is 25%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC
RIDINE	.28245	.25514	11.24		
N-NITROSODIMETHYLAMINE	.28255	.26325	8.21		
2-FLUOROPHENOL	.62982	.43513	30.91		
HENOL-D6	.77377	.70032	9.52		
HENOL	1.02292	.83598	18.28	*	
2-CHLOROPHENOL	.79219	.72358	7.96		
IS(2-CHLOROETHYL)ETHER	.82000	.69952	14.69		
,3-DICHLOROBENZENE	.82920	.66964	19.24		
1,4-DICHLOROBENZENE	.85022	.70200	17.48		
HENYL ALCOHOL	.76922	.62429	18.90		
,2-DICHLOROBENZENE	.82941	.66213	20.12		
2-METHYLPHENOL	.72082	.61684	14.43		
BIS(2-CHLOROISOPROPYL)ETHER	.68818	.51011	25.88		
-NITROSO-DI-N-PROPYLAMINE	.72517	.51568	28.89		**
-METHYLPHENOL	1.54462	1.43450	7.13		
HEXACHLOROETHANE	.41982	.33679	19.79		
-METHYLPHENOL	1.68554	1.60960	4.49		
ITROBENZENE-D5	.40651	.31904	21.48		
NITROBENZENE	.42031	.32952	21.59		
SOPHORONE	.72998	.65000	10.85		
-NITROPHENOL	.72158	.73131	14.83	*	
,4-DIMETHYLPHENOL	.46502	.39828	14.25		
BIS(2-CHLOROETHOXY)METHANE	.49224	.38049	22.78		
,4-DICHLOROPHENOL	.52640	.32362	14.02	*	
ENZOIC ACID	.33099	.28043	15.28		
1,2,4-TRICHLOROBENZENE	.39909	.31861	20.12		
APHTHALENE	1.02765	.83405	22.12		
-CHLOROANILINE	.49592	.46583	6.09		
HEXACHLOROBUTADIENE	.72740	.72820	.32	*	
-METHYLNAPHTHALENE	.74185	.66544	10.52		
-CHLORO-3-METHYLPHENOL	.44592	.39809	10.73	*	
EXACHLOROCYCLOPENTADIENE	.34640	.38622	11.66		**

$\overline{RF}$ - Response Factor from daily standard file at 50.000 ng/l

$\overline{RF}$ - Average Response Factor from Initial Calibration Form VI

%Diff - % Difference from original average or curve

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

Continuing Calibration Check
HSL Compounds

ase No: | Calibration Date: 08/01/91

ontractor: LABORATORY RESOURCES | Time: 14:15

Contract No: | Laboratory ID: >A1157

nstrument ID: #7657A01697 | Initial Calibration Date: 07/25/91

Minimum $\overline{RF}$ for SPCC is .050 | Maximum % Diff for CCC is 25%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC
2,4,5-TRICHLOROPHENOL	.44155	.44715	1.27		
2,4,6-TRICHLOROPHENOL	.49841	.40735	18.27	*	
2-FLUOROBIPHENYL	1.21335	1.01364	16.46		
2-CHLORONAPHTHALENE	1.25386	.96469	23.06		
2-NITROANILINE	.57146	.42969	24.81		
ACENAPHTHYLENE	1.82090	1.52554	16.22		
DIMETHYLPHTHALATE	1.65598	1.45810	11.95		
2,6-DINITROTOLUENE	.42154	.31442	25.41		
3-NITROANILINE	.59638	.48950	17.92		
ACENAPHTHENE	1.14865	.98635	14.13	*	
2,4-DINITROPHENOL	.22201	.29093	6.96		**
DIBEN/OFORAN	1.95329	1.80238	7.73		
4-NITROPHENOL	.49124	.43846	10.75		**
2,4-DINITROTOLUENE	.71256	.53620	24.75		
FLUORENE	1.43836	1.33527	7.17		
4-NITROANILINE	.51414	.45832	10.86		
DIETHYLPHTHALATE	1.81686	1.74939	3.71		
4-CHLOROPHENYL-PHENYLETHER	.68912	.70951	2.96		
2,4,6-TRIBROMOPHENOL	.31854	.33769	6.01		
4,6-DINITRO-2-METHYLPHENOL	.18192	.20400	12.14		
N-NITROSODIPHENYLAMINE	.22207	.21535	3.03	*	
A/OBEN/ENE	1.02516	.76344	25.53		
4-BROMOPHENYL-PHENYLETHER	.23038	.22451	2.55		
HEXACHLOROBEN/ENE	.31349	.29489	5.93		
PENTACHLOROPHENOL	.25238	.24383	3.39	*	
PHENANTHRENE	1.11071	.93040	16.23		
ANTHRACENE	1.10548	.94997	14.07		
DI-N-BUTYLPHTHALATE	1.83323	1.56044	14.88		
FLUORANTHENE	1.26340	1.11784	11.52	*	
BEN/IDINE	.36276	.30112	16.99		
PYRENE	1.19887	.88165	26.46		
4-TERPHENYL-D14	.80059	.67086	16.20		

RF - Response Factor from daily standard file at 50.00 UG/L

$\overline{RF}$ - Average Response Factor from Initial Calibration Form VI

%Diff - % Difference from original average or curve

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

Continuing Calibration Check
BSL Compounds

se No: Calibration Date: 08/01/91

ntractor: LABORATORY RESOURCES Time: 14:15

ontract No: Laboratory ID: >A1152

strument ID: #7657A01697 Initial Calibration Date: 07/25/91

Minimum $\overline{RF}$ for SPCC is .050 Maximum % Diff for CCC is 25%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC
TYLBEN/YLPHTHALATE	.88629	.65373	26.24		
BEN/H(A)ANTHRACENE	1.15539	.95061	17.77		
3,3'-DICHLORBEN/IDINE	.37015	.32666	11.75		
RYSENE	1.06627	.81524	23.54		
S(2-ETHYLHEXYL)PHTHALATE	1.11038	.94914	14.57		
DI-N-OCTYLPHTHALATE	1.88045	1.47876	21.36	*	
N/H(B)FLUORANTHENE	1.17776	.93179	20.51		
N/H(K)FLUORANTHENE	.80208	.71197	11.23		
BEN/H(A)PYRENE	1.02717	.83368	18.44	*	
DENO(1,2,3-CD)PYRENE	.96524	.80795	16.30		
BEN/H(A,H)ANTHRACENE	.88771	.80757	9.59		
BEN/H(G,H,I)PERYLENE	.83544	.88088	5.44		

RF - Response Factor from daily standard file at 50.00 UG/L

$\overline{RF}$ - Average Response Factor from Initial Calibration Form VI

%Diff - % Difference from original average or curve

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

LABORATORY RESOURCES, INC.
363 OLD HOOK ROAD
WESTWOOD, NJ 07675
LAB. CERTIFICATION: NJ 02146
NY 10588

DATE COLLECTED:
DATE EXTRACTED: 07/20/91
DATE ANALYZED : 07/30/91
DILUTION FACT.: 1.0

CLIENT : DIVERSIFIED ENVIRONMENTAL
LAB SAMPLE : PROCEDURE BLANK
ANALYST : GREG
FILE NAME : >A1146

GC/MS BASE NEUTRALS ACIDS REPORT

COMPOUND	UG/L	MDL	COMPOUND	UG/L	MDL
N-NITROSODIMETHYLAMINE	ND	10	3-NITROANILINE	ND	50
ANILINE	ND	10	ACENAPHTHENE	ND	10
PHENOL	ND	10	2,4-DINITROPHENOL	ND	50
2-CHLOROPHENOL	ND	10	DIBENZOFURAN	ND	10
BIS(2-CHLOROETHYL)ETHER	ND	10	4-NITROPHENOL	ND	50
1,3-DICHLOROBENZENE	ND	10	2,4-DINITROTOLUENE	ND	10
1,4-DICHLOROBENZENE	ND	10	FLUORENE	ND	10
BENZYL ALCOHOL	ND	10	4-NITROANILINE	ND	50
1,2-DICHLOROBENZENE	ND	10	DIETHYLPHTHALATE	ND	10
2-METHYLPHENOL	ND	10	4-CHLOROPHENYL-PHENYLETHER	ND	10
BIS(2-CHLOROISOPROPYL)ETHER	ND	10	4,6-DINITRO-2-METHYLPHENOL	ND	50
N-NITROSO-DI-N-PROPYLAMINE	ND	10	N-NITROSODIPHENYLAMINE	ND	10
HEXACHLOROETHANE	ND	10	AZOBENZENE	ND	10
4-METHYLPHENOL	ND	10	4-BROMOPHENYL-PHENYLETHER	ND	10
NITROBENZENE	ND	10	HEXACHLOROBENZENE	ND	10
ISOPHORONE	ND	10	PENTACHLOROPHENOL	ND	50
2-NITROPHENOL	ND	10	PHENANTHRENE	ND	10
2,4-DIMETHYLPHENOL	ND	10	ANTHRACENE	ND	10
BIS(2-CHLOROETHOXY)METHANE	ND	10	DI-N-BUTYLPHTHALATE	ND	10
2,4-DICHLOROPHENOL	ND	10	FLUORANTHENE	ND	10
BENZOIC ACID	ND	50	BENZIDINE	ND	10
1,2,4-TRICHLOROBENZENE	ND	10	PYRENE	ND	10
NAPHTHALENE	ND	10	BUTYLBENZYLPHTHALATE	ND	10
4-CHLOROANILINE	ND	10	BENZO(A)ANTHRACENE	ND	10
HEXACHLOROBUTADIENE	ND	10	3,3'-DICHLOROBENZIDINE	ND	20
2-METHYLNAPHTHALENE	ND	10	CHRYSENE	ND	10
4-CHLORO-3-METHYLPHENOL	ND	10	BIS(2-ETHYLHEXYL)PHTHALATE	ND	10
HEXACHLOROCYCLOPENTADIENE	ND	10	DI-N-OCTYLPHTHALATE	ND	10
2,4,5-TRICHLOROPHENOL	ND	50	BENZO(B)FLUORANTHENE	ND	10
2,4,6-TRICHLOROPHENOL	ND	10	BENZO(K)FLUORANTHENE	ND	10
2-CHLORONAPHTHALENE	ND	10	BENZO(A)PYRENE	ND	10
2-NITROANILINE	ND	50	INDENO(1,2,3-CD)PYRENE	ND	10
ACENAPHTHYLENE	ND	10	DIBENZO(A,H)ANTHRACENE	ND	10
DIMETHYLPHTHALATE	ND	10	BENZO(G,H,I)PERYLENE	ND	10
2,6-DINITROTOLUENE	ND	10			

SURROGATE COMPOUNDS	RECOVERY	LIMITS	STATUS
NITROBENZENE-D5	70 %	35 - 114	OK
2-FLUOROBIPHENYL	53 %	43 - 116	OK
4-TERPHENYL-D14	76 %	33 - 141	OK
PHENOL-D6	52 %	10 - 94	OK
2-FLUOROPHENOL	44 %	21 - 100	OK
2,4,6-TRIBROMOPHENOL	46 %	10 - 123	OK

J Indicates detected below MDL
ND Indicates compound not detected
B Indicates compound also present in blank

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

LAB SAMPLE NO.
PROCEDURE BLANK

ab Name: Laboratory Resources Inc., Contract:-------

ab Code: GC/MS Case No.: ----- SAS No.: ----- SDG No.: -----

Matrix: WATER Lab Sample ID: PRO BLANK

Sample wt/vol: 1000 (g/ml) ml Lab File ID: >A1146

Level: (low/med) LOW Date Received:

% Solid: 0 Date Extracted: 07/20/91

Extraction: (Sepf/Cont/Sonc) SEPF Date Analyzed: 07/30/91

GPC Cleanup: (Y/N) N Dilution Factor: 1

CONCENTRATION UNITS: ug/L

Number of TICs found: 2

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1	Unknown phthalate	28.64	2	
2	Unknown	30.47	2	

FORM I SV-TIC 1/87 Rev

QUANT REPORT

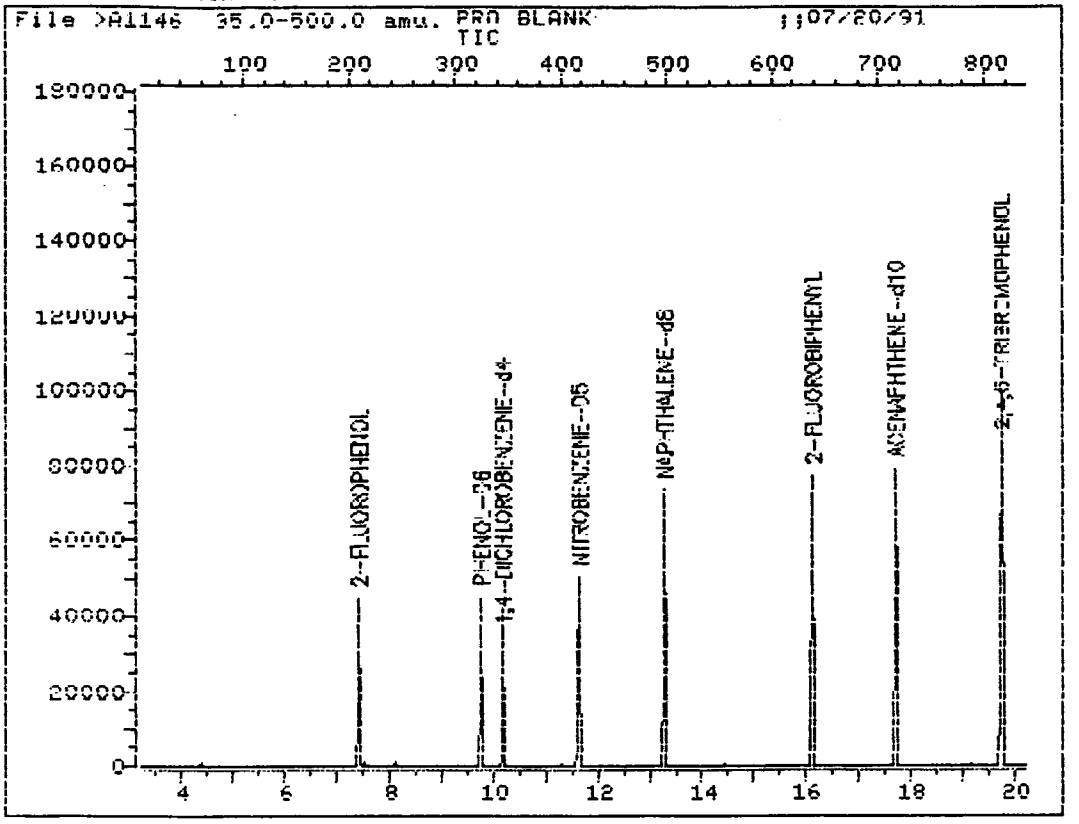
perator ID: GREG Quant Rev: 6 Quant Time: 910730 18:10
utput File: ^A1146::QT Injected at: 910730 17:30
ta File: >A1146::A3 Dilution Factor: 1.00000
ame: PRO BLANK
isc: ;;07/20/91 BTL#10

File: ID_D25::SC
itle: LABORATORY RESOURCES AQUARIUS ID FILE FOR SEMIVOLATILES
st Calibration: 910730 10:19

	Compound	R.T.	Q ion	Area	Conc	Units	q
)	*1,4-DICHLOROBENZENE-d4	10.17	149.9	23933	40.00	UG/L	91
)	2-FLUOROPHENOL	7.43	112.0	21750	87.56	UG/L	91
5)	PHENOL-D6	9.77	99.1	26400	63.65	UG/L	93
)	*NAPHTHALENE-d8	13.28	136.0	64700	40.00	UG/L	98
)	NITROBENZENE-D5	11.63	82.0	39086	69.57	UG/L	95
4)	*ACENAPHTHENE-d10	17.71	164.1	41453	40.00	UG/L	96
)	2-FLUOROBIPHENYL	16.12	172.0	58372	53.24	UG/L	97
)	2,4,6-TRIBROMOPHENOL	19.74	329.7	32973	92.92	UG/L	96
5)	*PHENANTHRENE-d10	21.40	188.1	81467	40.00	UG/L	97
6)	*CHRYSENE-d12	28.17	240.1	92431	40.00	UG/L	99
)	4-TERPHENYL-D14	25.63	244.1	117121	76.25	UG/L	97
)	*PERYLENE-d12	31.61	264.1	99044	40.00	UG/L	97

Compound is ISTD

TOTAL ION CHROMATOGRAM



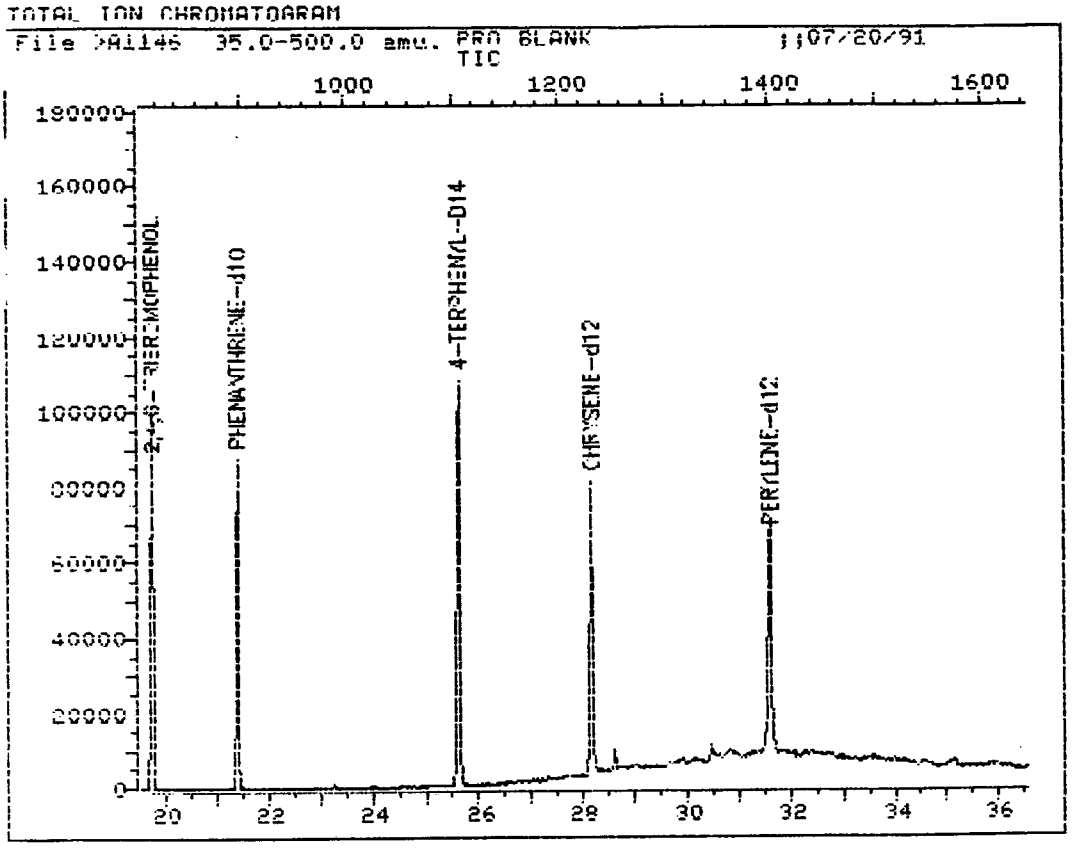
Data File: >A1146::A5 Quant Output File: ^A1146::QT
Name: PRO BLANK
Misc: ;;07/20/91 BIL#10

Id File: ID_D25::SC
Title: LABORATORY RESOURCES AQUARIUS ID FILE FOR SEMIVOLATILES
Last Calibration: 910730 10:19

Operator ID: GREG
Quant Time: 910730 18:10
Injected at: 910730 17:30

TIC page 1 of 2

TOTAL ION CHROMATOGRAM



Data File: >A1146::A3 Quant Output File: ^A1146::Q1
Name: PRO BLANK
Misc: ;;07/20/91 BTL#10

Id File: ID_D25::SC
Title: LABORATORY RESOURCES AQUARIUS ID FILE FOR SEMIVOLATILES
Last Calibration: 910730 10:19

Operator ID: GREG
Quant Time: 910730 18:10
Injected at: 910730 17:30

TIC page 2 of 2

MS data file header from : >A1146

ample: PRO BLANK Operator: GREG MS 7/30/91 17:30
Misc : ;;07/20/91 BTL#10
ys. #: 1 MS model: 70 SW/HW rev.: IA ALS # : 0
Method file: M_625 Tuning file: MTDFT1 No. of extra records: 2
Source temp.: 0 Analyzer temp.: 280 Transfer line temp. : 0

Chromatographic temperatures :	31.	300.	0.	0.	0.
Chromatographic times, min. :	4.0	10.0	0.0	0.0	0.0
Chromatographic rate, deg/min:	10.0	0.0	0.0	0.0	0.0

A1146 PRO BLANK ;;07/20/91
35.01 500.0 CLP ADC TIC
pslope: .20 Area Reject: 9649. Max Peaks: 2 Bunching: 1
nslope: 0.00 Results File IA1146 Sorted by Area/Area INT

Peak #	R.T. min.	first scan	max scan	last scan	peak height	raw area	corr. area	corr. % max.	% of total
1	30.47	1341	1344	1346	4034	55495	14019	100.00	53.898
2	28.64	1251	1254	1256	5319	39241	11991	85.53	46.102

Sum of corrected areas: 26010.

Summary of Unknowns PBM Library Search and Quantitation

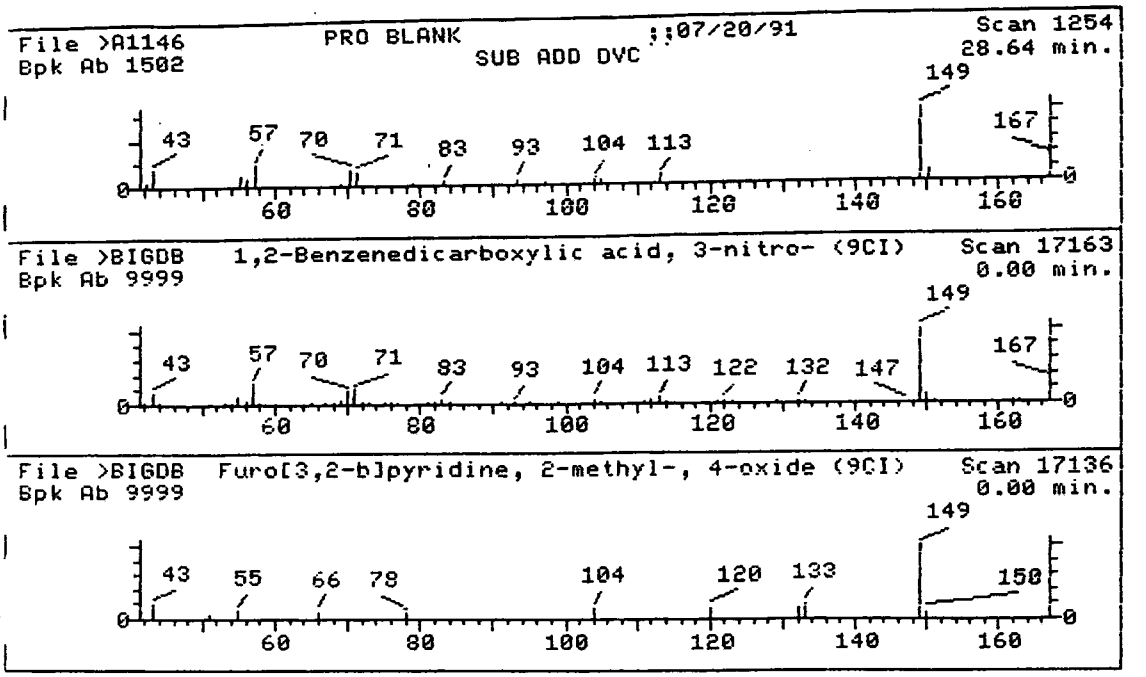
Standard	Concentration	Area	Retention Time	Unknown Low		
1	40.0	96490.	10.17	3.19	-	11.73
2	40.0	140425.	[illegible]	[illegible]	-	15.49
3	40.0	191170.	17.71	15.49	-	19.56
4	40.0	224103.	21.40	19.56	-	24.79
5	40.0	264025.	28.17	24.79	-	29.89
6	40.0	269582.	31.61	29.89	-	36.57

Rec Dil Factor (RDF) = 1.0000 Fractional Solids (FS) = 1.00
Dilution Factor (DF) = 1.00 Percent Solids (PS) = 0.00

Correction Factor = 1.00 = 1 / (RDF * FS)

$$\text{Unknown Concentration} = \frac{\text{Conc Int Std}}{\text{Area Int Std}} * \text{Area Unk} * \text{Correction Factor}$$

2:13 AM FRI., 2 AUG., 1991



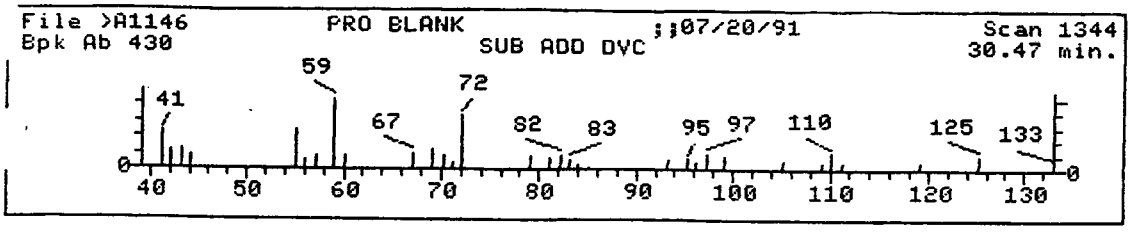
A-57

. Unknown #,1
Area = 11991.00 Tentative Concentration is 2.00

1. 1,2-Benzenedicarboxylic acid, 3-nitro- (9CI) 211 C8H5NO6
2. Furo[3,2-b]pyridine, 2-methyl-, 4-oxide (9CI) 149 C8H7NO2

Sample file: >A1146 Spectrum #: 1254
Search speed: 1 Tilting option: N No. of ion ranges searched: 45

	Prob.	CAS #	CON #	ROOT	K	DK	#FLG	TILT	%	CON	C_I	R_IV
1.	70	603112	17163	"BIGDB	62	46	2	0	98	10	42	13
2.	25*	69022839	17136	"BIGDB	25	54	3	0	100	47	7	13



Unknown #,2
Area = 14019.00 Tentative Concentration is 2.00

Sample file: >A1146 Spectrum #: 1344

No data base entries were retrieved.

LABORATORY RESOURCES, INC.
363 TOO HOOK ROAD
WESTWOOD, NJ 07675
LAB. CERTIFICATION: NJ 02046
NY 10588

DATE COLLECTED: 07/18/91
DATE EXTRACTED: 07/20/91
DATE ANALYZED : 08/01/91
DILUTION FACT.: 1.0

CLIENT : DIVERSIFIED ENV. FB-04-01
LAB SAMPLE : W10/324-01
ANALYST : GREG
FILE NAME : >A1157

GC/MS BASE NEUTRALS ACIDS REPORT

COMPOUND	UG/L	MDL
N-NITROSODIMETHYLAMINE	ND	10
ANILINE	ND	10
PHENOL	ND	10
2-CHLOROPHENOL	ND	10
BIS(2-CHLOROETHYL)ETHER	ND	10
1,3-DICHLOROBENZENE	ND	10
1,4-DICHLOROBENZENE	ND	10
BENZYL ALCOHOL	ND	10
1,2-DICHLOROBENZENE	ND	10
2-METHYLPHENOL	ND	10
BIS(2-CHLOROISOPROPYL)ETHER	ND	10
N-NITROSO-DI-N-PROPYLAMINE	ND	10
HEXACHLOROETHANE	ND	10
4-METHYLPHENOL	ND	10
NITROBENZENE	ND	10
ISOPHORONE	ND	10
2-NITROPHENOL	ND	10
2,4-DIMETHYLPHENOL	ND	10
BIS(2-CHLOROETHOXY)METHANE	ND	10
2,4-DICHLOROPHENOL	ND	10
BENZOIC ACID	ND	50
1,2,4-TRICHLOROBENZENE	ND	10
NAPHTHALENE	ND	10
4-CHLOROANILINE	ND	10
HEXACHLOROBUTADIENE	ND	10
2-METHYLNAPHTHALENE	ND	10
4-CHLORO-3-METHYLPHENOL	ND	10
HEXACHLOROCYCLOPENTADIENE	ND	10
2,4,5-TRICHLOROPHENOL	ND	50
2,4,6-TRICHLOROPHENOL	ND	10
2-CHLORONAPHTHALENE	ND	10
2-NITROANILINE	ND	50
ACENAPHTHYLENE	ND	10
DIMETHYLPHTHALATE	ND	10
2,6-DINITROTOLUENE	ND	10

COMPOUND	UG/L	MDL
3-NITROANILINE	ND	50
ACENAPHTHENE	ND	10
2,4-DINITROPHENOL	ND	50
DIBENZOFURAN	ND	10
4-NITROPHENOL	ND	50
2,4-DINITROTOLUENE	ND	10
FLUORENE	ND	10
4-NITROANILINE	ND	50
DIETHYLPHTHALATE	ND	10
4-CHLOROPHENYL-PHENYLETHER	ND	10
4,6-DINITRO-2-METHYLPHENOL	ND	50
N-NITROSODIPHENYLAMINE	ND	10
AZOBENZENE	ND	10
4-BROMOPHENYL-PHENYLETHER	ND	10
HEXACHLOROBENZENE	ND	10
PENTACHLOROPHENOL	ND	50
PHENANTHRENE	ND	10
ANTHRACENE	ND	10
DI-N-BUTYLPHTHALATE	1 J	10
FLUORANTHENE	ND	10
BENZIDINE	ND	10
PYRENE	ND	10
BUTYLBENZYLPHTHALATE	6 J	10
BENZO(A)ANTHRACENE	ND	10
3,3'-DICHLOROBENZIDINE	ND	20
CHRYSENE	ND	10
BIS(2-ETHYLHEXYL)PHTHALATE	41	10
DI-N-OCTYLPHTHALATE	ND	10
BENZO(B)FLUORANTHENE	ND	10
BENZO(K)FLUORANTHENE	ND	10
BENZO(A)PYRENE	ND	10
INDENO(1,2,3-CD)PYRENE	ND	10
DIBENZO(A,H)ANTHRACENE	ND	10
BENZO(G,H,I)PERYLENE	ND	10

SURROGATE COMPOUNDS	RECOVERY	LIMITS	STATUS
NITROBENZENE-D5	49 %	35 - 114	OK
2-FLUOROBIPHENYL	51 %	43 - 116	OK
4-TERPHENYL-D14	87 %	33 - 141	OK
PHENOL-D6	59 %	10 - 94	OK
2-FLUOROPHENOL	61 %	21 - 100	OK
2,4,6-TRIBROMOPHENOL	92 %	10 - 123	OK

J Indicates detected below MDL
ND Indicates compound not detected
B Indicates compound also present in blank

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

LAB SAMPLE NO.: FB-04-01

Lab Name: Laboratory Resources Inc., Contract:-------

Lab Code: GC/MS Case No.: ----- SAS No.: ----- SDG No.: -----

Matrix: WATER Lab Sample ID: W107324-01

Sample wt/vol: 1000 (g/ml) ml Lab File ID: >A1157

Level: (low/med) LOW Date Received: 07/19/91

Solid: N Date Extracted: 07/20/91

Extraction: (Sept/Cont/Sonc) SEPF Date Analyzed: 08/01/91

GPC Cleanup: (Y/N) N Dilution Factor: 1

Number of TICs found: 4

CONCENTRATION UNITS: ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown carboxylic acid	23.10	5	
2. 57114	Octadecanoic acid (9CI)	25.11	7	96
3.	Unknown phthalate	28.14	2	
4.	Unknown	30.36	2	

FORM I SV-TIC 1/87 Rev

QUANT REPORT

Operator ID: GREG Quant Rev: 6 Quant Time: 910801 19:06
Output File: >A1157::Q1 Injected at: 910801 18:24
Data File: >A1157::A3 Dilution Factor: 1.00000
Name: W107324-01
Misc: DIVERSIFIED ENV. FB-04-01;07/18/91;07/20/91 BTL# 5

ID File: ID_D25::SC
Title: LABORATORY RESOURCES AQUARIUS ID FILE FOR SEMIVOLATILES
Last Calibration: 910801 15:39

	Compound	R.T.	Q ion	Area	Conc	Units	q
1)	*1,4-DICHLOROBENZENE-d4	10.12	149.9	27672	40.00	UG/L	89
4)	2-FLUOROPHENOL	7.39	112.0	36882	122.52	UG/L	98
5)	PHENOL-D6	9.73	99.1	37579	77.59	UG/L	92
9)	*NAPHTHALENE-d8	13.20	136.0	70841	40.00	UG/L	97
11)	NITROBENZENE-D5	11.56	82.0	27681	48.99	UG/L	91
14)	*ACENAPHTHENE-d10	17.63	164.1	52141	40.00	UG/L	96
18)	2-FLUOROBIPHENYL	16.03	172.0	65777	49.78	UG/L	99
4)	2,4,6-TRIBROMOPHENOL	19.67	329.7	81215	184.50	UG/L	90
55)	*PHENANTHRENE-d10	21.31	188.1	109419	40.00	UG/L	98
14)	DI-N-BUTYLPHTHALATE	23.18	149.0	4561	1.07	UG/L	98
6)	*CHRYSENE-d12	28.06	240.1	153715	40.00	UG/L	97
9)	4-TERPHENYL-D14	25.52	244.1	223165	86.56	UG/L	96
10)	BUTYLBENZYLPHTHALATE	26.94	149.0	14966	5.96	UG/L	97
14)	BIS(2-ETHYLHEXYL)PHTHALATE	28.57	149.0	145289	39.83	UG/L	95
15)	*PERYLENE-d12	31.50	264.1	189706	40.00	UG/L	99

* Compound is ISTD

LABORATORY REPORT

CHEMICAL EXAMINATION OF INDUSTRIAL AND HAZARDOUS WASTES

Center for Laboratories and Research

R[illegible]au County Department of Health

1 ☑ Routine
2 ☐ Resample
3 ☐ Special
4 ☐ Complaint
5 ☐ Other

Lab. No. Clin. 19201162 Spec.

Field No. P-99

Source Information (Please Print)

Premises J. Hassel

Address Cantiague Rock Rd.

Town Westbury NY

Collection Point JH-6-4

	Month	Day	Y
Date Collected	7	15	9
Date Received	JUL	15	19
Date Reported	SEP 05 1991		
Collection Time	13:54 hr		
Collected By:	P. Paul		

Sampler's Comments:

Total Metal only

Bureau:
1 ☑ Land Resources Management
9 ☐ Other (specify)

Sample Type:
A ☐ Water
B ☑ Soil
C ☐ Sludge
D ☐ Waste Solvent
E ☐ Oil
F ☐ Other

CHEMICAL EXAMINATION

Check	TOTAL Metals		Result	Check	Non-Metals		Result	Check	Constituent		Result
	Aluminum	mg/l		15	Chloride	mg/l		29	Chromium hex.	mg/l	
2	Arsenic	mg/l		16	Cyanide	mg/l		30			
3	Barium	mg/l		17	Fluoride	mg/l		31			
4	Cadmium	mg/l		18	MBAS	mg/l		32			
5	Chromium, Total	mg/l		19	pH			33			
6	Copper	mg/l		20	Phenols	mg/l		34			
7	Iron, Total	mg/l		21	Solids, Suspended	mg/l		35			
8	Lead	mg/l		22	Solids, Total Diss.	mg/l		36			
9	Manganese	mg/l		23	Sulfate	mg/l		37			
10	Mercury	mg/Kg	0.16	24	Ammonia nitrogen	mg/l		38			
11	Nickel	mg/Kg	18.0	25	Kjeldahl nitrogen	mg/l		39			
12	Selenium	mg/l		26	Nitrite nitrogen	mg/l		40			
13	Silver	mg/l		27	Nitrate nitrogen	mg/l		41			
14	Zinc	mg/l		28	Total Phos.	mg/l		42			

SPECIAL ANALYSIS

Examiner's Comments

LABORATORY WORKSHEET

CHEMICAL EXAMINATION FOR TRACE ORGANIC CONSTITUENTS IN WATER, HAZARDOUS WASTES AN OLID WASTES

Center for Laboratories and Research

Nassau County Department of Health

1 ☑ Routine
2 ☐ Resample
3 ☐ Special
4 ☐ Complaint
5 ☐ Other

Lab. No. 911199

Field No. P-99

N No. (Public Water Supply Only)

Source Information (Please Print)

Premises: John Hassell

Address: Cantiague Rock Rd

Town: Westbury

Collection Point: JH-6-14 Well No.

Sampler's Comments: Sample on ice

	Month	Day	Year
Date Collected	7	15	9
Date Received	JUL	15	1991
Date Reported			
Collection Time	13:54 hrs		
Collected By:	P. Paul		

Bureau

1 ☑ Land Resources Management
2 ☐ Public Water Supply
3 ☐ Water Pollution Control
4 ☐ Environmental Sanitation
9 ☐ Other (specify)

SAMPLE TYPE

	AQUEOUS				NON-AQUEOUS
	Community Well	6	Surface Water	(1)	Soil
	Non-Community Well	7	Waste Water	2	Sludge
	Private Well	8	Industrial Effluent	3	Waste Solvent
	Monitoring Well	9	Raw Supply Water	4	Oil
	Drinking Water	10	Distribution Water	5	Other (specify)

ANALYSIS TYPE

1)	Purgeable Organic compounds
	Other (specify)

Examiner's Comments:

JUL 29 1991

NASSAU COUNTY HEALTH DEPARTMENT
CENTER FOR LABORATORIES AND RESEARCH
ENVIRONMENTAL HEALTH LABORATORIES

TRACE ORGANICS

Access Number: 911199
Source: J HASSEL, CANTIAGUE ROCK RD, WESTBURY
Matrix: SOIL
Site: JH-6-4
Date Sampled: 07/15/91
Date of Report: 07/26/91

VOLATILE HALOGENATED	MRC (ng/g)		RESULT (ng/g)
VINYL CHLORIDE----------(WA24)---------	200	------- <	200
TRICHLOROFLUORMETHANE-----(WA01)---------	200	------- <	200
1,1-DICHLOROETHYLENE------(WA15)---------	200	------- <	200
METHYLENE CHLORIDE--------(WA02)---------	200	------- <	200
t-1,2-DICHLOROETHYLENE----(WA16)---------	200	------- <	200
1,1-DICHLOROETHANE--------(WA04)---------	200	------- <	200
c-1,2-DICHLOROETHYLENE----(WA17)---------	200	------- <	200
CHLOROFORM----------(WA05)---------	200	------- <	200
1,1,1-TRICHLOROETHANE-----(WA06)---------	200	------- <	200
CARBON TETRACHLORIDE------(WA07)---------	200	------- <	200
1,2-DICHLOROETHANE--------(WA18)---------	200	------- <	200
TRICHLOROETHYLENE---------(WA08)---------	200	------- <	200
1,2-DICHLOROPROPANE-------(WA20)---------	200	------- <	200
BROMODICHLOROMETHANE------(WA09)---------	200	------- <	200
c-1,3-DICHLOROPROPENE-----(WA22)---------	200	------- <	200
t-1,3-DICHLOROPROPENE-----(WA23)---------	200	------- <	200
1,1,2-TRICHLOROETHANE ----(WA19)---------	200	------- <	200
TETRACHLOROETHYLENE ------(WA13)---------	200	------- <	200
DIBROMOCHLOROMETHANE------(WA10)---------	200	------- <	200
BROMOFORM ----------(WA14)---------	200	------- <	200
1,1,2,2-TETRACHLOROETHANE-(WA21)---------	200	------- <	200

==========

MRC - MINIMUM REPORTABLE CONCENTRATION NA - NOT ANALYZED
NR - NO RESULT DUE TO TECHNICAL REASONS - RESAMPLE SUGGESTED
PPB: AIR - nl/l WATER - ug/l SOIL - ng/g

JUL 29 1991

NASSAU COUNTY HEALTH DEPARTMENT
CENTER FOR LABORATORIES AND RESEARCH
ENVIRONMENTAL HEALTH LABORATORIES

TRACE ORGANICS

Access Number: 911199
Source: J HASSEL, CANTIAGUE ROCK RD, WESTBURY
Matrix: SOIL
Site: JH-6-4
Date Sampled: 07/15/91
Date of Report: 07/26/91

VOLATILE AROMATICS	MRC (ng/g)		RESUL (ng/g
BENZENE ----------(WC01)---------	100	------- <	10
TOLUENE ----------(WC02)---------	200	------- <	20
CHLOROBENZENE ----------(WC03)---------	200	------- <	20
ETHYLBENZENE ----------(WC04)---------	NR	-------	NR
o-XYLENE ----------(WC29)---------	200	-------	8
m,p-XYLENE ----------(WC30)---------	200	-------	4
STYRENE ----------(WC31)---------	NR	-------	NR
n-PROPYLBENZENE ----------(WC11)---------	NR	-------	NR
ISOPROPYLBENZENE ----------(WC12)---------	NR	-------	NR
BROMOBENZENE ----------(WC09)---------	200	------- <	20
1,2,4-TRIMETHYLBENZENE ---(WC14)---------	200	-------	38
1,3,5-TRIMETHYLBENZENE ---(WC15)---------	200	-------	12
2-CHLOROTOLUENE ----------(WC16)---------	200	------- <	20
4-CHLOROTOLUENE ----------(WC17)---------	200	------- <	20
n-BUTYLBENZENE ----------(WC18)---------	200	-------	87
sec-BUTYLBENZENE ----------(WC19)---------	NR	-------	NR
tert-BUTYLBENZENE ----------(WC20)---------	NR	-------	NR
p-ISOPROPYLTOLUENE ----------(WC21)---------	NR	-------	NR
o-DICHLOROBENZENE ----------(WC22)---------	200	------- <	200
m-DICHLOROBENZENE ----------(WC23)---------	200	------- <	200
p-DICHLOROBENZENE ----------(WC24)---------	200	------- <	200
1,2,3-TRICHLOROBENZENE ---(WC25)---------	200	------- <	200
1,2,4-TRICHLOROBENZENE ---(WC26)---------	200	------- <	200
HEXACHLOROBUTADIENE ------(WC27)---------	200	------- <	200
NAPHTHALENE ----------(WC28)---------	200	-------	31

Comment: UNIDENTIFIED HYDROCARBON AND AROMATIC
Comment: COMPOUNDS DETECTED BY GC.

==========

MRC - MINIMUM REPORTABLE CONCENTRATION NA - NOT ANALYZED
NR - NO RESULT DUE TO TECHNICAL REASONS - RESAMPLE SUGGESTED .
PPB: AIR - nl/l WATER - ug/l SOIL - ng/g

LABORATORY REPORT
CHEMICAL EXAMINATION OF INDUSTRIAL AND HAZARDOUS WASTES
Center for Laboratories and Research
N d County Department of Health

1 ☑ Routine
2 ☐ Resample
3 ☐ Special
4 ☐ Complaint
5 ☐ Other

Lab. No. Clin. 19201163 Spec.

Field No. P-100

Source Information (Please Print)

Premises J. Hassel
Address Cantiague Rock Rd
Town Westbury
Collection Point JH-6-3

	Month	Day	Ye
Date Collected	7	15	9
Date Received	JUL	15	199
Date Reported	AUG 26 1991		
Collection Time	14:40 hr		
Collected By:	P. Paul		

Sampler's Comments:

Total metal only

Bureau:
1 ☑ Land Resources Management
9 ☐ Other (specify)

Sample Type:
A ☐ Water
B ☑ Soil
C ☐ Sludge
D ☐ Waste Solvent
E ☐ Oil
F ☐ Other

CHEMICAL EXAMINATION

Check	Total Metals		Result	Check	Non-Metals		Result	Check	Constituent		Result
1	Aluminum	mg/l		15	Chloride	mg/l		29	Chromium hex.	mg/l	
2	Arsenic	mg/l		16	Cyanide	mg/l		30			
3	Barium	mg/l		17	Fluoride	mg/l		31			
4	Cadmium	mg/l		18	MBAS	mg/l		32			
5	Chromium, Total	mg/l		19	pH			33			
6	Copper	mg/l		20	Phenols	mg/l		34			
7	Iron, Total	mg/l		21	Solids, Suspended	mg/l		35			
8	Lead	mg/l		22	Solids, Total Diss.	mg/l		36			
9	Manganese	mg/l		23	Sulfate	mg/l		37			
10	Mercury	mg/kg	0.20	24	Ammonia nitrogen	mg/l		38			
11	Nickel	mg/kg	70.0	25	Kjeldahl nitrogen	mg/l		39			
12	Selenium	mg/l		26	Nitrite nitrogen	mg/l		40			
13	Silver	mg/l		27	Nitrate nitrogen	mg/l		41			
14	Zinc	mg/l		28	Total Phos.	mg/l		42			

SPECIAL ANALYSIS

Examiner's Comments

LABORATORY WORKSHEET

CHEMICAL EXAMINATION FOR TRACE ORGANIC CONSTITUENTS IN WATER, HAZARDOUS WASTES AND SOLID WASTES

Center for Laboratories and Research

Nassau County Department of Health

1 ☑ Routine
2 ☐ Resample
3 ☑ Special
4 ☐ Complaint
5 ☐ Other

Lab. No. 911198

Field No. P-100

N No. (Public Water Supply Only)

Source Information (Please Print)

Premises: J. Hassell

Address: Cantiague Rock Rd

Town: Westbury

Collection Point: JH-6-3 Well No.

	Month	Day	Y
Date Collected	7	15	
Date Received	[illegible]	15	19
Date Reported			
Collection Time	14:40hr		
Collected By:	P. Paul		

Sampler's Comments: Sample on ice.

Bureau
1 ☑ Land Resources Management
2 ☐ Public Water Supply
3 ☐ Water Pollution Control
4 ☐ Environmental Sanitation
9 ☐ Other (specify)

SAMPLE TYPE

AQUEOUS				NON-AQUEOUS	
1	Community Well	6	Surface Water	1	Soil
2	Non-Community Well	7	Waste Water	2	Sludge
3	Private Well	8	Industrial Effluent	3	Waste Solvent
4	Monitoring Well	9	Raw Supply Water	4	Oil
5	Drinking Water	10	Distribution Water	5	Other (specify)

ANALYSIS TYPE

A	Purgeable Organic compounds
B	Other (specify)

Examiner's Comments:

JUL 29 1991

NASSAU COUNTY HEALTH DEPARTMENT
CENTER FOR LABORATORIES AND RESEARCH
ENVIRONMENTAL HEALTH LABORATORIES

TRACE ORGANICS

Access Number: 911198
Source: J. HASSEL, CANTIAGUE ROCK RD, WESTBURY
Matrix: SOIL
Site: JH-6-3
Date Sampled: 07/15/91
Date of Report: 07/26/91

VOLATILE HALOGENATED	MRC (ng/g)		RESULT (ng/g)
VINYL CHLORIDE----------(WA24)---------	200	------- <	200
TRICHLOROFLUORMETHANE-----(WA01)---------	200	------- <	200
1,1-DICHLOROETHYLENE------(WA15)---------	200	------- <	200
METHYLENE CHLORIDE--------(WA02)---------	200	------- <	200
t-1,2-DICHLOROETHYLENE----(WA16)---------	200	------- <	200
1,1-DICHLOROETHANE--------(WA04)---------	200	------- <	200
c-1,2-DICHLOROETHYLENE----(WA17)---------	200	------- <	200
CHLOROFORM----------(WA05)---------	200	------- <	200
1,1,1-TRICHLOROETHANE-----(WA06)---------	200	-------	290
CARBON TETRACHLORIDE------(WA07)---------	200	------- <	200
1,2-DICHLOROETHANE--------(WA18)---------	200	------- <	200
TRICHLOROETHYLENE---------(WA08)---------	200	------- <	200
1,2-DICHLOROPROPANE-------(WA20)---------	200	------- <	200
BROMODICHLOROMETHANE------(WA09)---------	200	------- <	200
c-1,3-DICHLOROPROPENE-----(WA22)---------	200	------- <	200
t-1,3-DICHLOROPROPENE-----(WA23)---------	200	------- <	200
1,1,2-TRICHLOROETHANE ----(WA19)---------	200	------- <	200
TETRACHLOROETHYLENE ------(WA13)---------	200	------- <	200
DIBROMOCHLOROMETHANE------(WA10)---------	200	------- <	200
BROMOFORM ----------(WA14)---------	200	------- <	200
1,1,2,2-TETRACHLOROETHANE-(WA21)---------	200	------- <	200

MRC - MINIMUM REPORTABLE CONCENTRATION NA - NOT ANALYZED
NR - NO RESULT DUE TO TECHNICAL REASONS - RESAMPLE SUGGESTED
PPB: AIR - nl/l WATER - ug/l SOIL - ng/g

JUL 29 1991

NASSAU COUNTY HEALTH DEPARTMENT
CENTER FOR LABORATORIES AND RESEARCH
ENVIRONMENTAL HEALTH LABORATORIES

TRACE ORGANICS

Access Number: 911198
Source: J. HASSEL, CANTIAQUE ROCK RD, WESTBURY
Matrix: SOIL
Site: JH-6-3
Date Sampled: 07/15/91
Date of Report: 07/26/91

VOLATILE AROMATICS		MRC (ng/g)		RESULT (ng/g)
BENZENE	(WC01)	100	<	100
TOLUENE	(WC02)	200	<	200
CHLOROBENZENE	(WC03)	200	<	200
ETHYLBENZENE	(WC04)	200	<	200
o-XYLENE	(WC29)	200	<	200
m,p-XYLENE	(WC30)	200	<	200
STYRENE	(WC31)	200	<	200
n-PROPYLBENZENE	(WC11)	200	<	200
ISOPROPYLBENZENE	(WC12)	200	<	200
BROMOBENZENE	(WC09)	200	<	200
1,2,4-TRIMETHYLBENZENE	(WC14)	400	<	400
1,3,5-TRIMETHYLBENZENE	(WC15)	200	<	200
2-CHLOROTOLUENE	(WC16)	200	<	200
4-CHLOROTOLUENE	(WC17)	200	<	200
n-BUTYLBENZENE	(WC18)	200	<	200
sec-BUTYLBENZENE	(WC19)	400	<	400
tert-BUTYLBENZENE	(WC20)	400	<	400
p-ISOPROPYLTOLUENE	(WC21)	400	<	400
o-DICHLOROBENZENE	(WC22)	200	<	200
m-DICHLOROBENZENE	(WC23)	200	<	200
p-DICHLOROBENZENE	(WC24)	200	<	200
1,2,3-TRICHLOROBENZENE	(WC25)	200	<	200
1,2,4-TRICHLOROBENZENE	(WC26)	200	<	200
HEXACHLOROBUTADIENE	(WC27)	200	<	200
NAPHTHALENE	(WC28)	200	<	200

MRC - MINIMUM REPORTABLE CONCENTRATION NA - NOT ANALYZED
NR - NO RESULT DUE TO TECHNICAL REASONS - RESAMPLE SUGGESTED
PPB: AIR - nl/l WATER - ug/l SOIL - ng/g

2A
VOLATILE SURROGATE RECOVERIES

Lab Name: Laboratory Resources Inc.,

Lab Code: 020406 Case No.:---- SAS No.:---- SDG No.:----

Date Analyzed: 07/26/91

LAB SAMP NO. ($)	S1 (DCE)#	S2 (TOL)#	S3 (BFB)#	OTHER	TOT OUT
METHOD BLA W	100	100	103		0
W107324-01 W	98	100	97		0
W107324-02 W	98	99	100		0
W107324-01 WM	103	97	102		0
W107324-01 WM	103	98	101		0
W107233-02 W	97	97	99		0

EPA CLP QC Limits For:	Soil	Water
S1 (DCE) = 1,2-DICHLOROETHANE-D4	70-121	76-114
S2 (TOL) = TOLUENE-D8	81-117	88-110
S3 (BFB) = 4-BROMOFLUOROBENZENE	74-121	86-115

$ Column indicating Soil or Water matrix
# Column to be used to flag recovery values
* Values outside of CLP QC limits

========== LABORATORY RESOURCES INC. ==========

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

_b Name: Laboratory Resources Contract:

b Code: Case No.: SAS No.: SDG No.:

'atrix Spike - Sample No.: W107324-01 DATE: 07-26-91

COMPOUNDS	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
1,1-DICHLOROETHENE	50.00	0.00	66.30	133	61-145
BENZENE	50.00	0.00	58.63	117	71-120
TRICHLOROETHENE	50.00	0.00	58.31	117	76-127
TOLUENE	50.00	0.00	55.06	110	76-125
CHLOROBENZENE	50.00	0.00	54.29	109	75-130

COMPOUNDS	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-DICHLOROETHENE	50.00	69.11	138	4	14	61-145
BENZENE	50.00	59.41	119	1	14	71-120
TRICHLOROETHENE	50.00	58.87	118	1	11	76-127
TOLUENE	50.00	54.82	110	0	13	76-125
CHLOROBENZENE	50.00	54.70	109	1	13	75-130

- Column to be used to flag recovery and RPD values with an asterisk

Values outside of advisory EPA contract Lab QC limits.

PD: 0 out of 5 outside limits

pike Recovery: 0 out of 10 outside limits

omments: _____

FORM III VOA-1 Rev. 7/89

4A
VOLATILE METHOD BLANK SUMMARY

Lab Name: Laboratory Resources Inc.,

Lab file ID: >C1280 Lab Sample ID: METHOD BLAN

Date Analyzed: 07/26/91 Time Analyzed: 10:23

Matrix: Water

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

LAB FILE NO.	LAB SAMPLE ID	TIME ANALYZED
>C1282	W107324-01	11:44
>C1283	W107324-02	12:25
>C1284	W107324-01 M	13:10
>C1285	W107324-01 M	13:51
>C1292	W107233-02	18:35

Comments:

5A

VOLATILE ORGANIC GC/MS TUNING AND MASS
CALIBRATION - BROMOFLUOROBENZENE (BFB)

..b Name: Laboratory Resources Inc., Contract: -----

b File ID: >TC077 BFB Injection date: 7/26/91

nstrument ID: 0881 BFB Injection time: 8:55

m/e	ION ABUNDANCE CRITERIA	%RELATIVE ABUNDANCE
50	15-40% of mass 95	17.0
75	30-60% of mass 95	39.7
95	Base peak, 100% relative abundance	100.
96	5.0 - 9.0% of mass 95	6.5
173	Less than 2.0% of mass 174	0.0(0.0)1
174	Greater than 50.0% of mass 95	82.1
175	5.0 - 9.0% of mass 174	5.8(7.1)1
176	Greater than 95.0%, but less than 101.0% of mass 174	82.5(100.5)1
177	5.0 - 9.0% of mass 176	5.3(6.4)2

1 - Value is % mass 174 2 - Value is % mass 176

HIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

	EPA SAMPLE NO	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1	----------	VSTD 50 PPB	>C1279	7/26/91	9:34
2	----------	METHOD BLANK	>C1280	7/26/91	10:23
3	----------	W107324-01	>C1282	7/26/91	11:44
4	----------	W107324-02	>C1283	7/26/91	12:25
5	----------	W107324-01 M	>C1284	7/26/91	13:10
6	----------	W107324-01 M	>C1285	7/26/91	13:51
7	----------	W107233-02	>C1292	7/26/91	18:35
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

8A
VOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: Laboratory Resources Inc.,

Lab file ID: >C1279 Lab Sample ID: VSTD 50 PPB

Date Analyzed: 07/26/91 Time Analyzed: 09:34

	IS1(BCM) AREA #	RT	IS2(DFB) AREA #	RT	IS3(CBZ) AREA #	RT
12 HOUR STD	77725	9.46	307537	11.23	253591	16.49
UPPER LIMIT	155450		615074		507182	
LOWER LIMIT	38863		153768		126795	
LAB SAMPLE #						
METHOD BLA	77996	9.45	297533	11.22	250875	16.47
W107324-01	70576	9.61	298107	11.33	249849	16.50
W107324-02	81376	9.61	316488	11.32	262325	16.49
W107324-01M	71692	9.59	283885	11.31	241650	16.51
W107324-01M	70028	9.55	282502	11.29	240259	16.50
W107233-02	83944	9.61	315934	11.31	270899	16.51

IS1 (BCM) = Bromochlormethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

UPPER LIMIT = + 100%
of internal standard area.
LOWER LIMIT = - 50%
of internal standard area.

Column used to flag internal standard are values with an asterisk

Initial Calibration Data
HSL Compounds

Case No:

Instrument ID: 2637A01713

Contractor: LABORATORY RESOURCES

Calibration Date: 07/26/91

Contract No:

Minimum $\overline{RF}$ for SPCC is .30 Maximum % RSD for CCC is 30%

Laboratory ID:	>C1276	>C1270	>C1272	>C1277	>C1278					
Compound	RF 20.00	RF 50.00	RF 100.00	RF 150.00	RF 200.00	$\overline{RRT}$	$\overline{RF}$	% RSD	CCC	SPCC
CHLOROMETHANE	.46922	.49287	.46667	.47004	.45525	.524	.47081	2.906		**
VINYL CHLORIDE	.65952	.68932	.64690	.67962	.66890	.538	.66885	2.483	*	
BROMOMETHANE	.95949	.96265	.92395	.92468	.91391	.579	.93694	2.398		
CHLOROETHANE	.30538	.31996	.31167	.30513	.30409	.597	.30925	2.164		
ACROLEIN	-	.00994	.00658	.00785	.00667	.690	.00776	20.153		
TRICHLOROFLUOROMETHANE	.96290	1.16762	1.07162	.93657	.96358	.622	1.02046	9.534		
1,1-DICHLOROETHENE	1.13373	1.35873	1.24543	1.27728	1.31836	.689	1.26671	6.766	*	
CARBON DISULFIDE	1.59027	1.54149	1.51389	.68273	.69389	.704	1.19645	40.370		
ACETONE	.20256	.14672	.13039	.07328	.06583	.721	.12376	45.505		
ACRYLONITRILE	.08066	.08518	.08300	.09543	.09845	.818	.08854	8.922		
METHYLENE CHLORIDE	.89795	.90313	.87715	.92263	.93644	.769	.90746	2.524		
TRANS-1,2-DICHLOROETHENE	1.25732	1.48627	1.40163	1.47119	1.53410	.807	1.43010	7.525		
1,1-DICHLOROETHANE	1.45927	1.71400	1.61482	1.71242	1.82722	.872	1.66555	8.266		**
CHLOROFORM	2.01921	2.45026	2.30810	2.33056	2.50121	1.024	2.32187	8.072	*	
1,2-DICHLOROETHANE	1.25884	1.46894	1.33762	1.39466	1.48624	1.108	1.38926	6.777		
1,2-DICHLOROETHANE-D4	1.32913	1.47332	1.49463	1.29318	1.32039	1.095	1.38213	6.817		(Conc=50.0,50.0,50.0,50.(
VINYL ACETATE	.53662	.50696	.46972	.58444	.34640	.763	.48883	18.413		
2-BUTANONE	.00995	.01115	.00893	.01237	.01279	.833	.01104	14.636		
1,1,1-TRICHLOROETHANE	.47251	.53001	.49458	.52243	.51837	.879	.50758	4.661		
CARBON TETRACHLORIDE	.42364	.50889	.48624	.52317	.52472	.900	.49333	8.494		
BENZENE	.50322	.57249	.53245	.60124	.61971	.931	.56582	8.492		
TRICHLOROETHENE	.37160	.43511	.39840	.44511	.44305	1.029	.41865	7.731		
1,2-DICHLOROPROPANE	.21636	.24574	.23037	.26300	.26399	1.061	.24389	8.485	*	
BROMODICHLOROMETHANE	.46587	.56926	.53187	.60304	.60335	1.112	.55468	10.407		
2-CHLOROETHYLVINYLETHER	.09639	.11248	.10195	.12794	.12982	1.171	.11371	13.207		
TRANS-1,3-DICHLOROPROPENE	.15231	.18321	.16819	.20031	.20019	1.279	.18084	11.510		
CIS-1,3-DICHLOROPROPENE	.53663	.62260	.56169	.65123	.64655	1.183	.60374	8.573		
1,1,2-TRICHLOROETHANE	.23865	.25727	.21966	.26276	.25508	1.305	.24668	7.126		
DIBROMOCHLOROMETHANE	.51169	.58288	.56735	.67575	.66117	1.365	.59977	11.381		
BROMOFORM	.41505	.42986	.45347	.57067	.56972	1.615	.48775	15.683		**

RF - Response Factor (Subscript is amount in UG/L)

$\overline{RRT}$ - Average Relative Retention Time (RT Std/RT Istd)

$\overline{RF}$ - Average Response Factor

%RSD - Percent Relative Standard Deviation

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

Initial Calibration Data
HSL Compounds

Case No:

Instrument ID: 2637A01713

Contractor: LABORATORY RESOURCES

Calibration Date: 07/26/91

Contract No:

Minimum $\overline{RF}$ for SPCC is .30 Maximum % RSD for CCC is 30%

Laboratory ID:	>C1276	>C1270	>C1272	>C1277	>C1278					
Compound	RF 20.00	RF 50.00	RF 100.00	RF 150.00	RF 200.00	$\overline{RRT}$	$\overline{RF}$	% RSD	CCC	SPCC
4-METHYL-2-PENTANONE	.18852	.18784	.15677	.18989	.20254	.835	.18511	9.155		
TOLUENE-D8	1.00313	.99807	1.03738	1.02279	1.03830	.835	1.01994	1.841		(Conc=50.0,50.0,50.0,50.0
TOLUENE	.45596	.52180	.49181	.54295	.58278	.842	.51906	9.320	*	
TETRACHLOROETHENE	.50689	.57045	.53233	.57420	.59965	.901	.55671	6.609		
2-HEXANONE	.03665	.04439	.03902	.05159	.05412	.933	.04515	16.883		
CHLOROBENZENE	.76917	.84386	.80325	.89547	.95815	1.003	.85398	8.771		**
ETHYLBENZENE	.31421	.35878	.34166	.37375	.39702	1.022	.35709	8.803	*	
M,P-XYLENE	2.20630	2.24779	2.06716	2.16221	1.29934	1.035	1.99656	19.809		
O-XYLENE	1.14214	1.14823	1.03631	1.17693	1.13136	1.085	1.12700	4.740		
STYRENE	.86620	.86739	.77025	.89299	.85391	1.089	.85015	5.513		
4-BROMOFLUOROBENZENE	.94087	.93931	.93266	.92504	.96367	1.152	.94031	1.540		(Conc=50.0,50.0,50.0,50.0
1,1,2,2-TETRACHLOROETHANE	.42446	.39903	.35429	.41445	.43596	1.184	.40564	7.827		**
1,3-DICHLOROBENZENE	1.22680	1.13522	1.06210	1.19906	1.18361	1.291	1.16136	5.570		
1,4-DICHLOROBENZENE	1.28342	1.17715	1.06640	1.22762	1.22700	1.304	1.19632	6.836		
1,2-DICHLOROBENZENE	1.19398	1.02184	.95567	1.08291	1.03780	1.351	1.05844	8.357		
TERT-BUTYL-METHYL-ETHER	.40353	.38667	.39718	.37007	.37556	.478	.38660	3.643		(Conc=20.0,50.0,100.0,150
TERT-BUTYL-ALCOHOL	-	.02238	.02221	.02112	.02302	.496	.02218	3.559		(Conc=50.0,100.0,150.0,20
DI-ISOPROPYL-ETHER	.68247	.64940	.67735	.71248	.73982	.526	.69230	5.017		(Conc=20.0,50.0,100.0,150

RF - Response Factor (Subscript is amount in UG/L)

$\overline{RRT}$ - Average Relative Retention Time (RT Std/RT Istd)

$\overline{RF}$ - Average Response Factor

%RSD - Percent Relative Standard Deviation

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

Continuing Calibration Check
HSL Compounds

Case No:

Contractor: LABORATORY RESOURCES

Contract No:

Instrument ID: 2637A01713

Calibration Date: 07/26/91

Time: 09:34

Laboratory ID: >C1279

Initial Calibration Date: 07/26/91

Minimum $\overline{RF}$ for SPCC is .30 Maximum % Diff for CCC is 25%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC	
CHLOROMETHANE	.47081	.45463	3.44		**	
VINYL CHLORIDE	.66885	.65415	2.20	*		
BROMOMETHANE	.93694	.93860	.18			
CHLOROETHANE	.30925	.31475	1.78			
ACROLEIN	.00776	.01115	43.79			(Conc=50.00)
TRICHLOROFLUOROMETHANE	1.02046	.92069	9.78			
1,1-DICHLOROETHENE	1.26671	1.16732	7.85	*		
CARBON DISULFIDE	1.19645	1.49660	25.09			
ACETONE	.12376	.21857	76.61			
ACRYLONITRILE	.08854	.08130	8.18			(Conc=50.00)
METHYLENE CHLORIDE	.90746	.92037	1.42			
TRANS-1,2-DICHLOROETHENE	1.43010	1.36413	4.61			
1,1-DICHLOROETHANE	1.66555	1.58262	4.98		**	
CHLOROFORM	2.32187	2.19619	5.41	*		
1,2-DICHLOROETHANE	1.38926	1.29559	6.74			
1,2-DICHLOROETHANE-D4	1.38213	1.32517	4.12			
VINYL ACETATE	.48883	.51033	4.40			
2-BUTANONE	.01104	.01025	7.13			
1,1,1-TRICHLOROETHANE	.50758	.48597	4.26			
CARBON TETRACHLORIDE	.49333	.47699	3.31			
BENZENE	.56582	.55153	2.53			(Conc=50.00)
TRICHLOROETHENE	.41865	.42540	1.61			
1,2-DICHLOROPROPANE	.24389	.24112	1.14	*		
BROMODICHLOROMETHANE	.55468	.54628	1.51			
2-CHLOROETHYLVINYLETHER	.11371	.10732	5.62			
TRANS-1,3-DICHLOROPROPENE	.18084	.17295	4.37			
CIS-1,3-DICHLOROPROPENE	.60374	.60184	.31			
1,1,2-TRICHLOROETHANE	.24668	.23708	3.89			
DIBROMOCHLOROMETHANE	.59977	.60254	.46			
BROMOFORM	.48775	.49263	1.00		**	
4-METHYL-2-PENTANONE	.18511	.17878	3.42			
TOLUENE-D8	1.01994	1.02421	.42			

RF - Response Factor from daily standard file at 50.00 UG/L

$\overline{RF}$ - Average Response Factor from Initial Calibration Form VI

%Diff - % Difference from original average or curve

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

Continuing Calibration Check
HSL Compounds

Case No: | Calibration Date: 07/26/91

ontractor: LABORATORY RESOURCES | Time: 09:34

Contract No: | Laboratory ID: >C1279

nstrument ID: 2637A01713 | Initial Calibration Date: 07/26/91

Minimum $\overline{RF}$ for SPCC is .30 | Maximum % Diff for CCC is 25%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC	
OLUENE	.51906	.53413	2.90	*		(Conc=50.00)
TETRACHLOROETHENE	.55671	.58357	4.83			
-HEXANONE	.04515	.04445	1.56			
HLOROBENZENE	.85398	.86600	1.41		**	(Conc=50.00)
ETHYLBENZENE	.35709	.35820	.31	*		(Conc=50.00)
M,P-XYLENE	1.99656	2.18754	9.57			(Conc=50.00)
-XYLENE	1.12700	1.11340	1.21			(Conc=50.00)
TYRENE	.85015	.85872	1.01			
4-BROMOFLUOROBENZENE	.94031	.93156	.93			
,1,2,2-TETRACHLOROETHANE	.40564	.37569	7.38		**	
,3-DICHLOROBENZENE	1.16136	1.15483	.56			
1,4-DICHLOROBENZENE	1.19632	1.19477	.13			
,2-DICHLOROBENZENE	1.05844	1.03896	1.84			
ERT-BUTYL-METHYL-ETHER	.38660	.36816	4.77			(Conc=50.00)
ERT-BUTYL-ALCOHOL	.02218	.02123	4.28			(Conc=100.00)
DI-ISOPROPYL-ETHER	.69230	.33688	51.34			(Conc=100.00)

RF - Response Factor from daily standard file at 50.00 UG/L

$\overline{RF}$ - Average Response Factor from Initial Calibration Form VI

%Diff - % Difference from original average or curve

CC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

LABORATORY RESOURCES, INC.
363 OLD HOOK ROAD
WESTWOOD, NJ 07675
LAB. CERTIFICATION: NJ 02046
NY 10588

DATE COLLECTED: 07/18/91
DATE RECEIVED : 07/19/91
DATE ANALYZED : 07/26/91
DILUTION FACT.: 1.0

CLIENT : DIVERSIFIED FB-04-01
LAB SAMPLE : W107324-01
ANALYST : ANDY
FILE NAME : >C1282

GC/MS VOLATILE ORGANICS REPORT

COMPOUND	UG/L	MDL	COMPOUND	UG/L	MDL
CHLOROMETHANE	ND	10	1,2-DICHLOROPROPANE	ND	5
VINYL CHLORIDE	ND	10	BROMODICHLOROMETHANE	ND	5
BROMOMETHANE	ND	10	2-CHLOROETHYLVINYLETHER	ND	5
CHLOROETHANE	ND	10	TRANS-1,3-DICHLOROPROPENE	ND	5
ACROLEIN	ND	10	CIS-1,3-DICHLOROPROPENE	ND	5
TRICHLOROFLUOROMETHANE	ND	5	1,1,2-TRICHLOROETHANE	ND	5
1,1-DICHLOROETHENE	ND	5	DIBROMOCHLOROMETHANE	ND	5
CARBON DISULFIDE	ND	5	BROMOFORM	ND	5
ACETONE	ND	10	4-METHYL-2-PENTANONE	ND	10
ACRYLONITRILE	ND	10	TOLUENE	ND	5
METHYLENE CHLORIDE	1 JB	5	TETRACHLOROETHENE	ND	5
TRANS-1,2-DICHLOROETHENE	ND	5	2-HEXANONE	ND	10
1,1-DICHLOROETHANE	ND	5	CHLOROBENZENE	ND	5
CHLOROFORM	ND	5	ETHYLBENZENE	ND	5
1,2-DICHLOROETHANE	ND	5	M,P-XYLENE	ND	5
VINYL ACETATE	ND	10	O-XYLENE	ND	5
2-BUTANONE	ND	10	STYRENE	ND	5
1,1,1-TRICHLOROETHANE	ND	5	1,1,2,2-TETRACHLOROETHANE	ND	5
CARBON TETRACHLORIDE	ND	5	1,3-DICHLOROBENZENE	ND	5
BENZENE	ND	5	1,4-DICHLOROBENZENE	ND	5
TRICHLOROETHENE	ND	5	1,2-DICHLOROBENZENE	ND	5

SURROGATE COMPOUNDS	RECOVERY	LIMITS	STATUS
1,2-DICHLOROETHANE-D4	98 %	76 - 114	OK
TOLUENE-D8	100 %	88 - 110	OK
4-BROMOFLUOROBENZENE	97 %	86 - 115	OK

J Indicates detected below MDL
ND Indicates compound not detected
B Indicates compound also present in blank

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

LAB SAMPLE NO.

FB-04-01

Lab Name: Laboratory Resources Inc., Contract:-------

Lab Code: GC/MS Case No.: ----- SAS No.: ----- SDG No.: -----

Matrix: WATER

Lab Sample ID: W107324-01

Sample wt/vol: 5.0 (g/ml) ml

Lab File ID: >C1282

Level: (low/med) LOW

Date Received: 07/19/91

% Solid: 0

Date Analyzed: 07/26/91

Column: CAP

Dilution Factor: 1

Number of TICs found: 0

CONCENTRATION UNITS:
ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

FORM I VOA-TIC

1/87 Rev

LABORATORY RESOURCES, INC.
363 OLD HOOK ROAD
WESTWOOD, NJ 07675
LAB. CERTIFICATION: NJ 02046
NY 10588

DATE COLLECTED: 07/18/91
DATE RECEIVED : 07/19/91
DATE ANALYZED : 07/26/91
DILUTION FACT.: 1.0

CLIENT : DIVERSIFIED TB
LAB SAMPLE : W107324-02
ANALYST : ANDY
FILE NAME : >C1283

GC/MS VOLATILE ORGANICS REPORT

COMPOUND	UG/L	MDL	COMPOUND	UG/L	MDL
CHLOROMETHANE	ND	10	1,2-DICHLOROPROPANE	ND	5
VINYL CHLORIDE	ND	10	BROMODICHLOROMETHANE	ND	5
BROMOMETHANE	ND	10	2-CHLOROETHYLVINYLETHER	ND	5
CHLOROETHANE	ND	10	TRANS-1,3-DICHLOROPROPENE	ND	5
ACROLEIN	ND	10	CIS-1,3-DICHLOROPROPENE	ND	5
TRICHLOROFLUOROMETHANE	ND	5	1,1,2-TRICHLOROETHANE	ND	5
1,1-DICHLOROETHENE	ND	5	DIBROMOCHLOROMETHANE	ND	5
CARBON DISULFIDE	ND	5	BROMOFORM	ND	5
ACETONE	ND	10	4-METHYL-2-PENTANONE	ND	10
ACRYLONITRILE	ND	10	TOLUENE	ND	5
METHYLENE CHLORIDE	1 JB	5	TETRACHLOROETHENE	ND	5
TRANS-1,2-DICHLOROETHENE	ND	5	2-HEXANONE	ND	10
1,1-DICHLOROETHANE	ND	5	CHLOROBENZENE	ND	5
CHLOROFORM	ND	5	ETHYLBENZENE	ND	5
1,2-DICHLOROETHANE	ND	5	M,P-XYLENE	ND	5
VINYL ACETATE	ND	10	O-XYLENE	ND	5
2-BUTANONE	ND	10	STYRENE	ND	5
1,1,1-TRICHLOROETHANE	3 J	5	1,1,2,2-TETRACHLOROETHANE	ND	5
CARBON TETRACHLORIDE	ND	5	1,3-DICHLOROBENZENE	ND	5
BENZENE	ND	5	1,4-DICHLOROBENZENE	ND	5
TRICHLOROETHENE	ND	5	1,2-DICHLOROBENZENE	ND	5

SURROGATE COMPOUNDS	RECOVERY	LIMITS	STATUS
1,2-DICHLOROETHANE-D4	98 %	76 - 114	OK
TOLUENE-D8	99 %	88 - 110	OK
4-BROMOFLUOROBENZENE	100 %	86 - 115	OK

J Indicates detected below MDL
ND Indicates compound not detected
B Indicates compound also present in blank

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

LAB SAMPLE NO.

TB

Lab Name: Laboratory Resources Inc., Contract:-------

Lab Code: GC/MS Case No.: ----- SAS No.: ----- SDG No.: -----

Matrix: WATER Lab Sample ID: W107324-02

Sample wt/vol: 5.0 (g/ml) ml Lab File ID: >C1283

Level: (low/med) LOW Date Received: 07/19/91

% Solid: 0 Date Analyzed: 07/26/91

Column: CAP Dilution Factor: 1

Number of TICs found: 0

CONCENTRATION UNITS: ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

FORM I VOA-TIC 1/87 Rev

QUANT REPORT

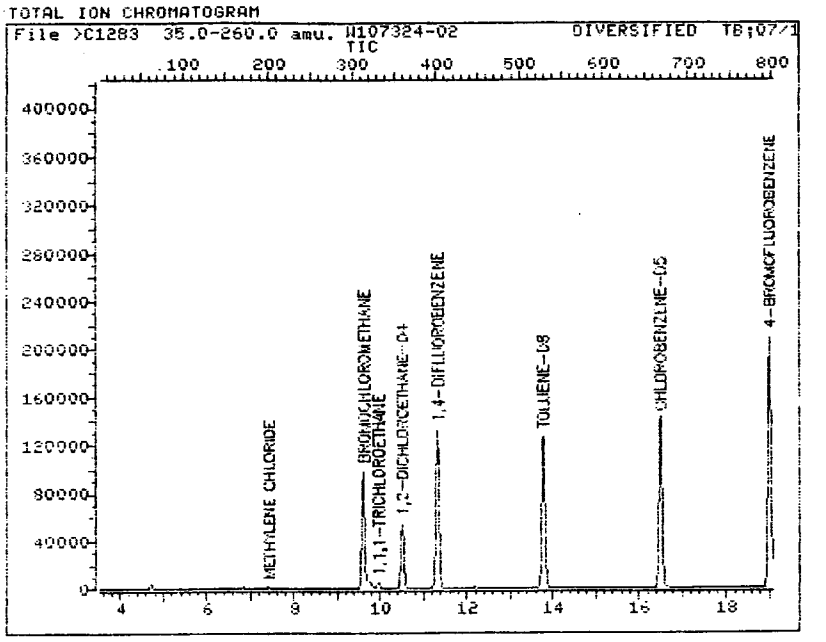
Operator ID: ANDY
Quant Rev: 7
Quant Time: 910726 13:00
Output File: ^C1283::C1
Injected at: 910726 12:25
Data File: >C1283::C2
Dilution Factor: 1.00000
Name: W107324-02
Instrument ID: MSD 3
Misc: DIVERSIFIED TB;07/18/91;07/19/91

ID File: IDDVOC::SC
Title: LABORATORY RESOURCES ID FILE FOR VOLATILES ORGANICS GC/MS
Last Calibration: 910726 07:53
Last Qcal Time: 910726 09:34

	Compound	R.T.	Q ion	Area	Conc	Units	q
1)	*BROMOCHLOROMETHANE	9.61	128.0	81376	50.00	UG/L	91
12)	METHYLENE CHLORIDE	7.41	84.0	1851	1.24	UG/L	90
17)	1,2-DICHLOROETHANE-D4	10.50	65.0	105414	48.88	UG/L	94
18)	*1,4-DIFLUOROBENZENE	11.32	114.0	316488	50.00	UG/L	94
21)	1,1,1-TRICHLOROETHANE	9.96	97.0	9858	3.20	UG/L	97
33)	*CHLOROBENZENE-D5	16.49	117.0	262325	50.00	UG/L	86
35)	TOLUENE-D8	13.77	98.0	266954	49.68	UG/L	92
44)	4-BROMOFLUOROBENZENE	19.00	95.0	244149	49.95	UG/L	92

* Compound is ISTD

TOTAL ION CHROMATOGRAM



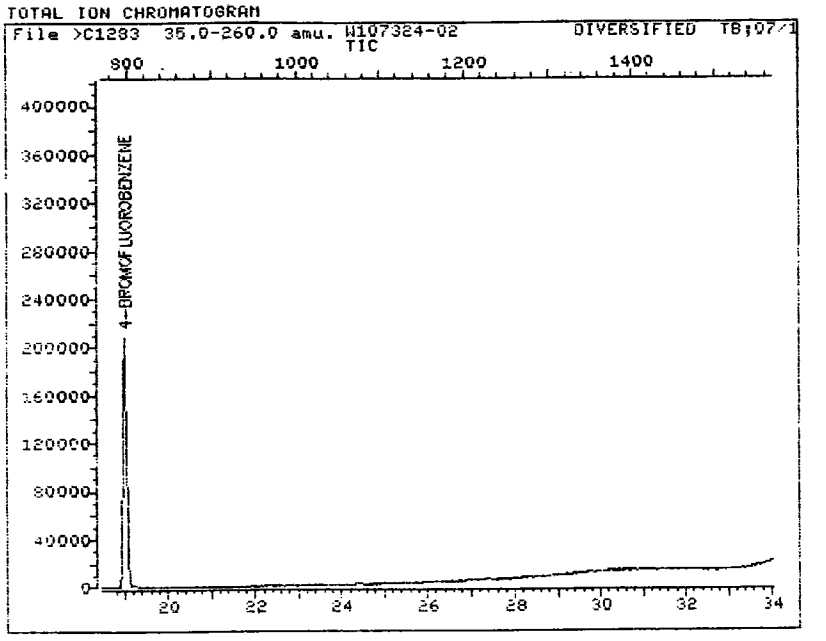
Data File: ^C1283::C2 Quant Output File: ^C1283::C1
Name: W107324-02 Instrument ID: MSD 3
Misc: DIVERSIFIED TB;07/18/91;07/19/91

Id File: IDDVOC::SC
Title: LABORATORY RESOURCES ID FILE FOR VOLATILES ORGANICS GC/MS
Last Calibration: 910726 07:53 Last Qcal Time: 910726 09:34

Operator ID: ANDY
Quant Time : 910726 13:00
Injected at: 910726 12:25

Page 1 of 2

TOTAL ION CHROMATOGRAM

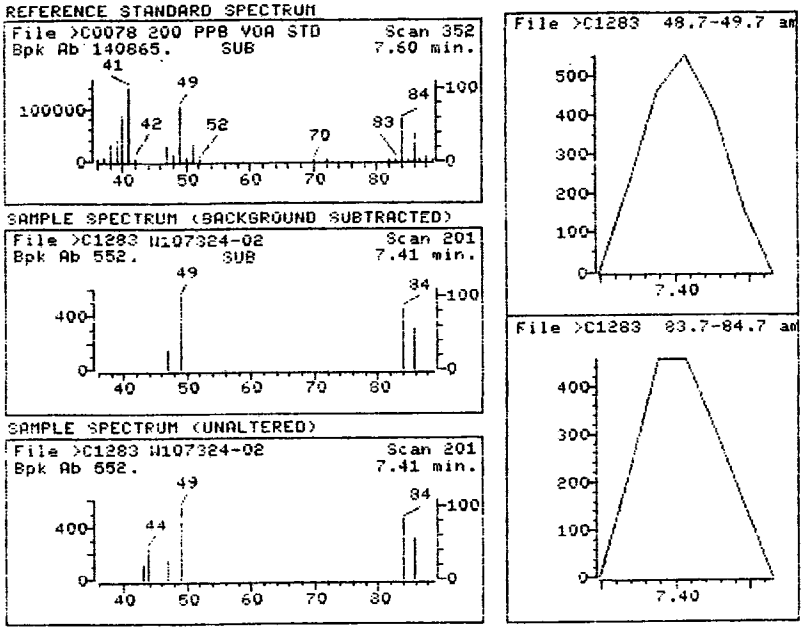


Data File: >C1283::C2 Quant Output File: >C1283::C1
Name: W107324-02 Instrument ID: MSD 3
Misc: DIVERSIFIED TB;07/18/91;07/19/91

Id File: IDDVOC::SC
Title: LABORATORY RESOURCES ID FILE FOR VOLATILES ORGANICS GC/MS
Last Calibration: 910726 07:53 Last Qcal Time: 910726 09:34

Operator ID: ANDY
Quant Time : 910726 13:00
Injected at: 910726 12:25

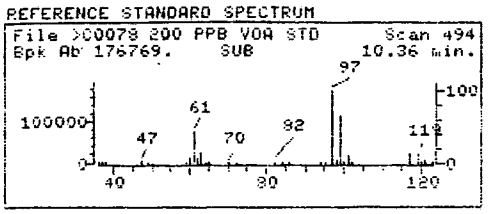
Page 2 of 2



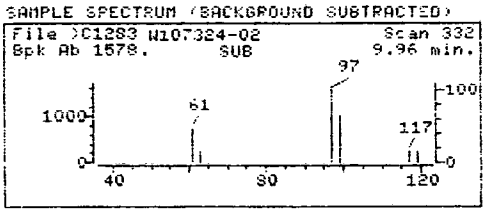
Data File: >C1283::C2 Quant Output File: ^C1283::C1
Name: W107324-02 Instrument ID: MSD 3
Misc: DIVERSIFIED TB;07/18/91;07/19/91
Quant Time: 910726 13:00 Quant ID File: IDDVOC::SC
Injected at: 910726 12:25 Last Calibration: 910726 07:53
Last Qcal Time: 910726 09:34

Compound No : 12
Compound Name : METHYLENE CHLORIDE
Scan Number : 201
Retention Time: 7.41 min.
Quant Ion : 84.0
Area : 1851
Concentration : 1.24 UG/L
q-value : 90

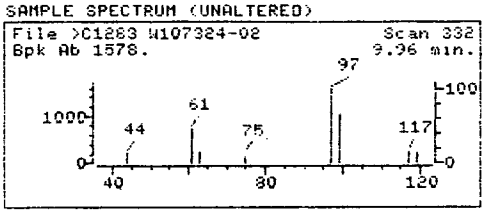
REFERENCE STANDARD SPECTRUM

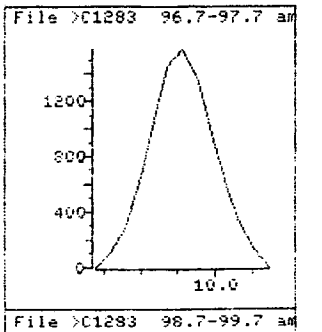


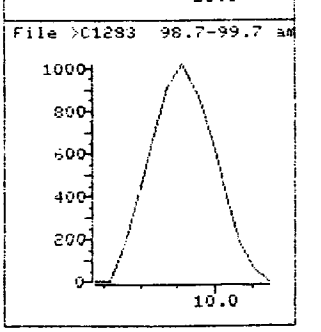
SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



SAMPLE SPECTRUM (UNALTERED)







Data File: >C1283::C2 Quant Output File: >C1283::C1
Name: W107324-02 Instrument ID: MSD 3
Misc: DIVERSIFIED TB;07/18/91;07/19/91
Quant Time: 910726 13:00 Quant ID File: IDDVOC::SC
Injected at: 910726 12:25 Last Calibration: 910726 07:53
Last Qcal Time: 910726 09:34

Compound No : 21
Compound Name : 1,1,1-TRICHLOROETHANE
Scan Number : 332
Retention Time: 9.96 min.
Quant Ion : 97.0
Area : 9858
Concentration : 3.20 UG/L
q-value : 97

LABORATORY RESOURCES, INC.
363 OLD HOOK ROAD
WESTWOOD, NJ 07675
LAB. CERTIFICATION: NJ 02046
NY 10588

DATE COLLECTED:
DATE RECEIVED :
DATE ANALYZED : 07/26/91
DILUTION FACT.: 1.0

CLIENT : DIVERSIFIED
LAB SAMPLE : METHOD BLANK
ANALYST : ANDY
FILE NAME : >C1280

GC/MS VOLATILE ORGANICS REPORT

COMPOUND	UG/L	MDL	COMPOUND	UG/L	MDL
CHLOROMETHANE	ND	10	1,2-DICHLOROPROPANE	ND	5
VINYL CHLORIDE	ND	10	BROMODICHLOROMETHANE	ND	5
BROMOMETHANE	ND	10	2-CHLOROETHYLVINYLETHER	ND	5
CHLOROETHANE	ND	10	TRANS-1,3-DICHLOROPROPENE	ND	5
ACROLEIN	ND	10	CIS-1,3-DICHLOROPROPENE	ND	5
TRICHLOROFLUOROMETHANE	ND	5	1,1,2-TRICHLOROETHANE	ND	5
1,1-DICHLOROETHENE	ND	5	DIBROMOCHLOROMETHANE	ND	5
CARBON DISULFIDE	ND	5	BROMOFORM	ND	5
ACETONE	13	10	4-METHYL-2-PENTANONE	ND	10
ACRYLONITRILE	ND	10	TOLUENE	ND	5
METHYLENE CHLORIDE	9	5	TETRACHLOROETHENE	ND	5
TRANS-1,2-DICHLOROETHENE	ND	5	2-HEXANONE	ND	10
1,1-DICHLOROETHANE	ND	5	CHLOROBENZENE	ND	5
CHLOROFORM	ND	5	ETHYLBENZENE	ND	5
1,2-DICHLOROETHANE	ND	5	M,P-XYLENE	ND	5
VINYL ACETATE	ND	10	O-XYLENE	ND	5
2-BUTANONE	ND	10	STYRENE	ND	5
1,1,1-TRICHLOROETHANE	ND	5	1,1,2,2-TETRACHLOROETHANE	ND	5
CARBON TETRACHLORIDE	ND	5	1,3-DICHLOROBENZENE	ND	5
BENZENE	ND	5	1,4-DICHLOROBENZENE	ND	5
TRICHLOROETHENE	ND	5	1,2-DICHLOROBENZENE	ND	5

SURROGATE COMPOUNDS	RECOVERY	LIMITS	STATUS
1,2-DICHLOROETHANE-D4	100 %	76 - 114	OK
TOLUENE-D8	100 %	88 - 110	OK
4-BROMOFLUOROBENZENE	103 %	86 - 115	OK

J Indicates detected below MDL
ND Indicates compound not detected
B Indicates compound also present in blank

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

LAB SAMPLE NO.

METHOD BLANK

Lab Name: Laboratory Resources Inc., Contract:-------

Lab Code: GC/MS Case No.: ----- SAS No.: ----- SDG No.: -----

Matrix: WATER

Lab Sample ID: METHOD BLANK

Sample wt/vol: 5.0 (g/ml) ml

Lab File ID: >C1280

Level: (low/med) LOW

Date Received:

% Solid: 0

Date Analyzed: 07/26/91

Column: CAP

Dilution Factor: 1

Number of TICs found: 0

CONCENTRATION UNITS:
ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

FORM I VOA-TIC 1/87 Rev

QUANT REPORT

Operator ID: ANDY
Output File: ^C1280::C1
Data File: >C1280::C2
Name: METHOD BLANK
Misc:

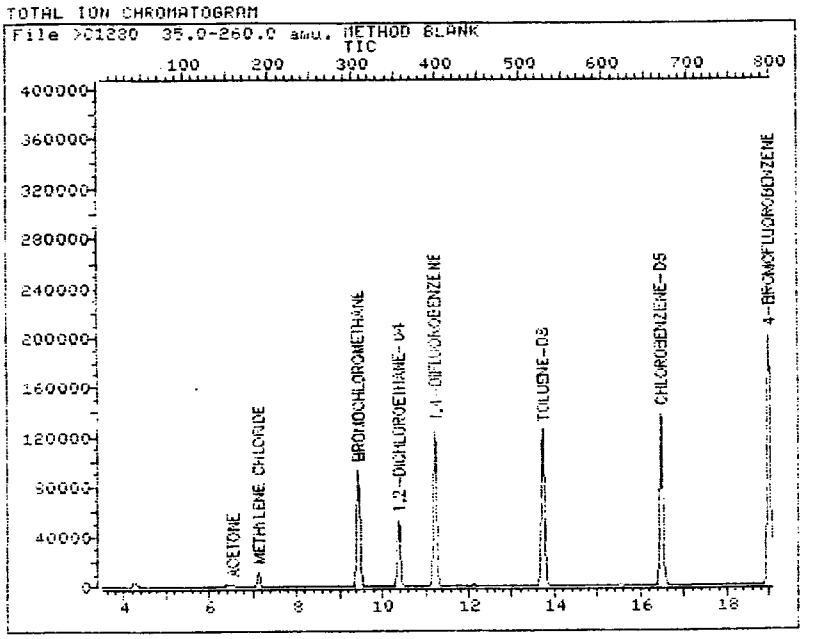
Quant Rev: 7
Quant Time: 910726 11:00
Injected at: 910726 10:23
Dilution Factor: 1.00000
Instrument ID: MSD 3

ID File: IODVOC::SC
Title: LABORATORY RESOURCES ID FILE FOR VOLATILES ORGANICS GC/MS
Last Calibration: 910726 07:53
Last Qcal Time: 910726 09:34

	Compound	R.T.	Q ion	Area	Conc	Units	q
1)	*BROMOCHLOROMETHANE	9.45	128.0	77996	50.00	UG/L	94
10)	ACETONE	6.53	43.0	4401	12.91	UG/L	92
12)	METHYLENE CHLORIDE	7.11	84.0	13255	9.23	UG/L	90
17)	1,2-DICHLOROETHANE-D4	10.38	65.0	103569	50.10	UG/L	95
18)	*1,4-DIFLUOROBENZENE	11.22	114.0	297533	50.00	UG/L	92
33)	*CHLOROBENZENE-D5	16.47	117.0	250875	50.00	UG/L	87
35)	TOLUENE-D8	13.73	98.0	255855	49.79	UG/L	92
44)	4-BROMOFLUOROBENZENE	19.00	95.0	240070	51.36	UG/L	94

* Compound is ISTD

TOTAL ION CHROMATOGRAM



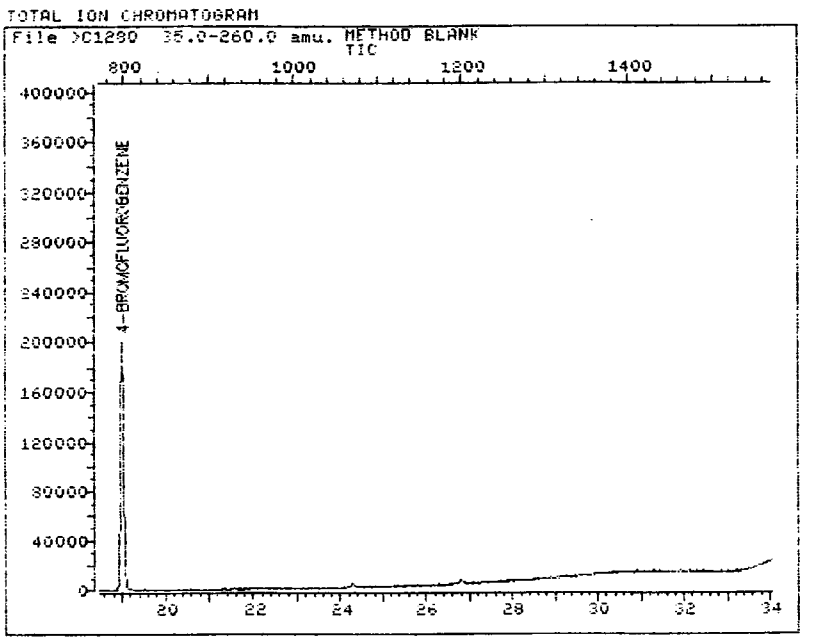
Data File: >C1280::C2 Quant Output File: >C1280::C1
Name: METHOD BLANK Instrument ID: MSD 3
Misc:

Id File: IDDVOC::SC
Title: LABORATORY RESOURCES ID FILE FOR VOLATILES ORGANICS GC/MS
Last Calibration: 910726 07:53 Last Qcal Time: 910726 09:34

Operator ID: ANDY
Quant Time : 910726 11:00
Injected at: 910726 10:23

Page 1 of 2

TOTAL ION CHROMATOGRAM



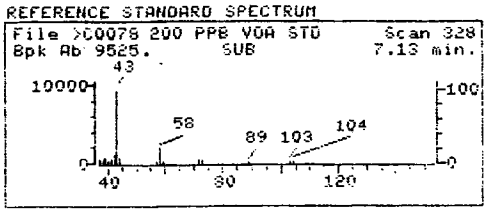
Data File: >C1280::C2 Quant Output File: C1280::C1
Name: METHOD BLANK Instrument ID: MSD 3
Misc:

Id File: IDOVOC::SC
Title: LABORATORY RESOURCES ID FILE FOR VOLATILES ORGANICS GC/MS
Last Calibration: 910726 07:53 Last Qcal Time: 910726 09:34

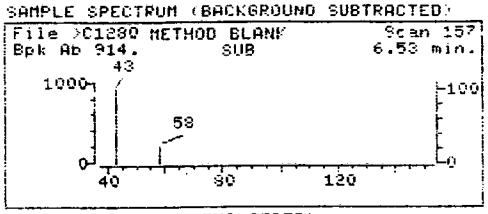
Operator ID: ANDY
Quant Time : 910726 11:00
Injected at: 910726 10:23

Page 2 of 2

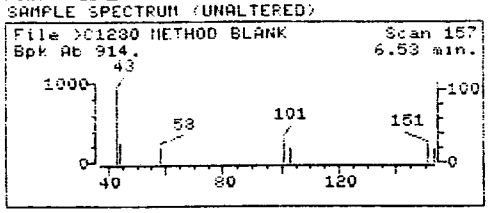
REFERENCE STANDARD SPECTRUM

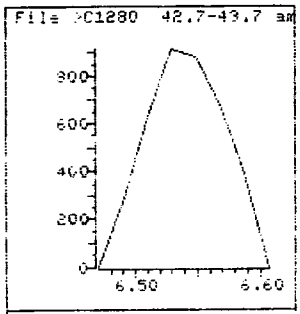


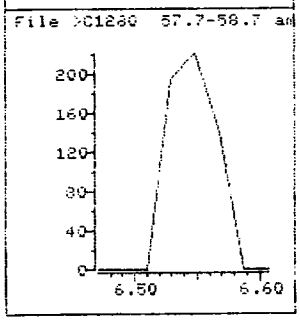
SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



SAMPLE SPECTRUM (UNALTERED)





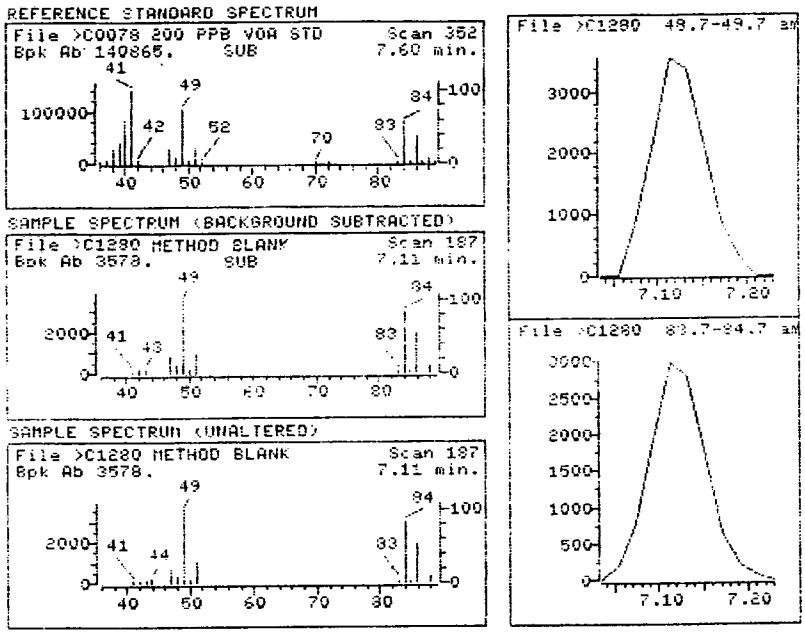


Data File: >C1280::C2
Name: METHOD BLANK
Misc:
Quant Time: 910726 11:00
Injected at: 910726 10:23
Last Qcal Time: 910726 09:34

Quant Output File: >C1280::C1
Instrument ID: MSD 3

Quant ID File: IDDVOC::SC
Last Calibration: 910726 07:53

Compound No : 10
Compound Name : ACETONE
Scan Number : 157
Retention Time: 6.53 min.
Quant Ion : 43.0
Area : 4401
Concentration : 12.91 UG/L
q-value : 92



Data File: >C1280::C2
Name: METHOD BLANK
Misc:
Quant Time: 910726 11:00
Injected at: 910726 10:23
Last Qcal Time: 910726 09:34

Quant Output File: ^C1280::C1
Instrument ID: MSD 3

Quant ID File: IDDVOC::SC
Last Calibration: 910726 07:53

Compound No : 12
Compound Name : METHYLENE CHLORIDE
Scan Number : 187
Retention Time: 7.11 min.
Quant Ion : 84.0
Area : 13255
Concentration : 9.23 UG/L
q-value : 90

1S data file header from : >C1280::C2

ımple: METHOD BLANK Operator: ANDY REG. GRP. 7/26/91 10:23
ıisc :
ıvs. #: 1 MS model: 70 SW/HW rev.: LF ALS # : 0 Equip ID: MSD 3
Method file: GCVOAC Tuning file: MTBFBC No. of extra records: 2
Source temp.: N/A Analyzer temp.: N/A Transfer line temp. : 0

Chromatographic temperatures :	10.	160.	220.	0.	0.
Chromatographic times, min. :	5.0	3.0	10.0	0.0	0.0
Chromatographic rate, deg/min:	6.0	20.0	0.0	.1	0.0

No peaks found.

Summary of Unknowns PBM Library Search and Quantitation

Standard	Concentration	Area	Retention Time	Unknown Window
1	50.0	450261.	9.45	3.49 - 10.33
2	50.0	665954.	11.22	10.33 - 13.85
3	50.0	740702.	16.47	13.85 - 34.04

Dilution Factor = 1.00 This sample was 1000.00 g or mL

Correction Factor = 1.00

$$\text{Unknown Concentration} = \frac{\text{Conc Int Std} * \text{Area Unknown}}{\text{Area Int Std}} * \text{Correction Factor}$$

4:53 PM THU., 1 AUG., 1991

QUANT REPORT

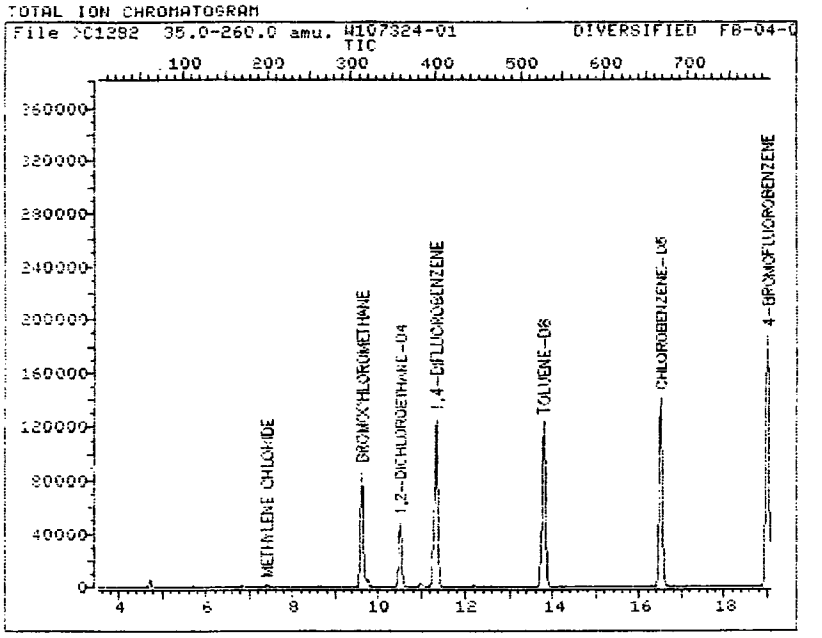
Operator ID: ANDY
Quant Rev: 7
Quant Time: 910726 12:19
Output File: ^C1282::C1
Injected at: 910726 11:44
Data File: >C1282::C2
Dilution Factor: 1.00000
Name: W107324-01
Instrument ID: MSD 3
Misc: DIVERSIFIED FB-04-01:07/18/91;07/19/91

ID File: IDDVOC::SC
Title: LABORATORY RESOURCES ID FILE FOR VOLATILES ORGANICS GC/MS
Last Calibration: 910726 07:53
Last Qcal Time: 910726 09:34

	Compound	R.T.	Q ion	Area	Conc	Units	q
1)	*BROMOCHLOROMETHANE	9.61	128.0	70576	50.00	UG/L	94
12)	METHYLENE CHLORIDE	7.41	84.0	1870	1.44	UG/L	84
17)	1,2-DICHLOROETHANE-D4	10.51	65.0	91550	48.94	UG/L	94
18)	*1,4-DIFLUOROBENZENE	11.33	114.0	298107	50.00	UG/L	91
33)	*CHLOROBENZENE-D5	16.50	117.0	249349	50.00	UG/L	87
35)	TOLUENE-D8	13.78	98.0	256007	50.02	UG/L	97
44)	4-BROMOFLUOROBENZENE	19.02	95.0	226898	48.74	UG/L	92

* Compound is ISTD

TOTAL ION CHROMATOGRAM



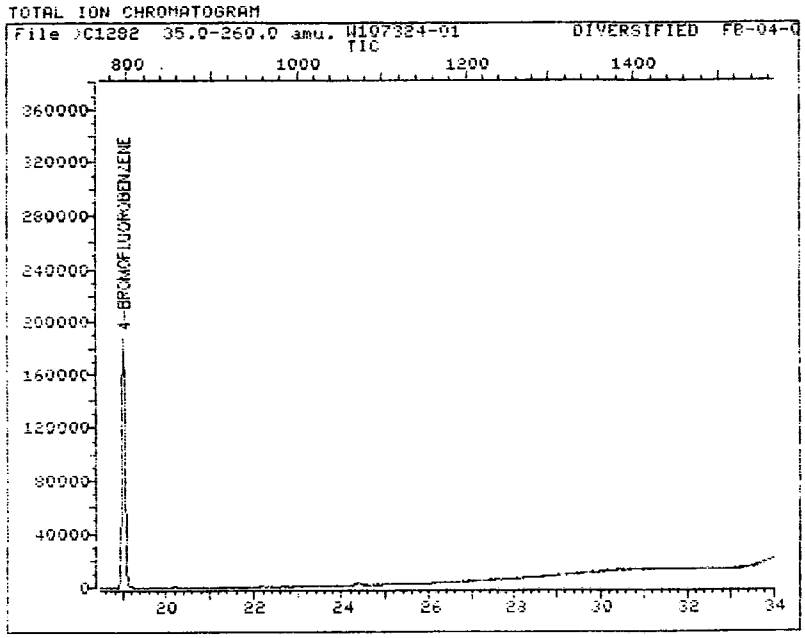
Data File: ^C1282::C2 Quant Output File: ^C1282::C1
Name: W107324-01 Instrument ID: MSD 3
Misc: DIVERSIFIED FB-04-01;07/18/91:07/19/91

Id File: IDDVOC::SC
Title: LABORATORY RESOURCES ID FILE FOR VOLATILES ORGANICS GC/MS
Last Calibration: 910726 07:53 Last Qcal Time: 910726 09:34

Operator ID: ANDY
Quant Time : 910726 12:19
Injected at: 910726 11:44

Page 1 of 2

TOTAL ION CHROMATOGRAM

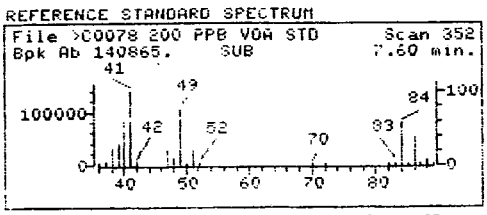


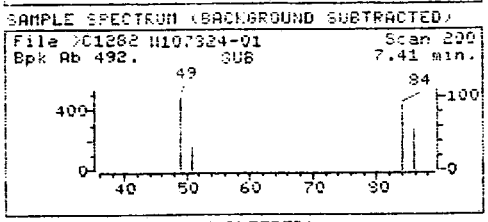
Data File:)C1282::C2 Quant Output File:)C1282::C1
Name: W107324-01 Instrument ID: MSD 3
Misc: DIVERSIFIED FB-04-01;07/18/91;07/19/91

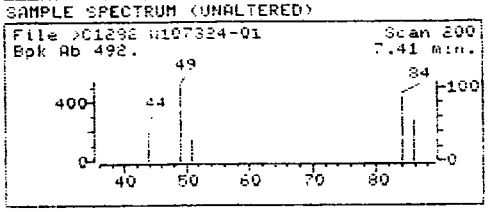
Id File: IDDVOC::SC
Title: LABORATORY RESOURCES ID FILE FOR VOLATILES ORGANICS GC/MS
Last Calibration: 910726 07:53 Last Qcal Time: 910726 09:34

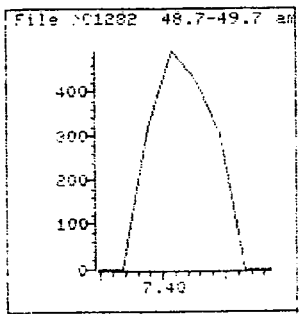
Operator ID: ANDY
Quant Time : 910726 12:19
Injected at: 910726 11:44

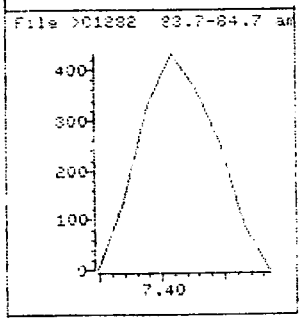
Page 2 of 2











Data File: >C1282::C2 Quant Output File: >C1282::C1
Name: W107324-01 Instrument ID: MSD 3
Misc: DIVERSIFIED FB-04-01;07/18/91;07/19/91
Quant Time: 910726 12:19 Quant ID File: IDOVOC::SC
Injected at: 910726 11:44 Last Calibration: 910726 07:53
Last Qcal Time: 910726 09:34

Compound No : 12
Compound Name : METHYLENE CHLORIDE
Scan Number : 200
Retention Time: 7.41 min.
Quant Ion : 84.0
Area : 1870
Concentration : 1.44 UG/L
q-value : 84

MS data file header from : >C1282::C2

Sample: W107324-01 Operator: ANDY REG. GRP. 7/26/91 11:44
Misc : DIVERSIFIED FB-04-01;07/18/91;07/19/91
Sys. #: 1 MS model: 70 SW/HW rev.: LF ALS # : 0 Equip ID: MSD 3
Method file: GCVOAC Tuning file: MTBFBC No. of extra records: 2
Source temp.: N/A Analyzer temp.: N/A Transfer line temp. : 0

Chromatographic temperatures :	10.	160.	220.	0.	0.
Chromatographic times, min. :	5.0	3.0	10.0	0.0	0.0
Chromatographic rate, deg/min:	6.0	20.0	0.0	.1	0.0

No peaks found.

Summary of Unknowns PBM Library Search and Quantitation

Standard	Concentration	Area	Retention Time	Unknown Window
1	50.0	440050.	9.61	3.53 - 10.47
2	50.0	663603.	11.33	10.47 - 13.92
3	50.0	737619.	16.50	13.92 - 34.02

Dilution Factor = 1.00 This sample was 1000.00 g or mL

Correction Factor = 1.00

$$\text{Unknown Concentration} = \frac{\text{Conc Int Std} * \text{Area Unknown}}{\text{Area Int Std}} * \text{Correction Factor}$$

7:04 PM FRI., 2 AUG., 1991

2B
SEMIVOLATILE SURROGATE RECOVERIES

Lab Name: Laboratory Resources Inc.,

Lab Code: 020406 Case No.:---- SAS No.:---- SDG No.:----

Date Analyzed: 07/30/91

LAB SAMP NO. ($)	S1 (NBZ)#	S2 (FBP)#	S3 (TPH)#	S4 (PHL)#	S5 (2FP)#	S6 (TBP)#	DF	TOT OUT
07259-01 W	51	42*	86	25	33	55	1	1
07278-06 W	46	49	89	21	30	54	1	0
07258-08 S	33	72	98	N/A	N/A	N/A	5	0
07150-15 S	155*	70	81	N/A	N/A	N/A	50	1
07150-02 S	DO	DO	DO	N/A	N/A	N/A	400	0
07150-05 S	DO	DO	DO	N/A	N/A	N/A	450	0
07150-11 S	DO	DO	215*	N/A	N/A	N/A	165	1
07150-14 S	DO	DO	268*	N/A	N/A	N/A	165	1
0 BLANK W	70	53	76	32	44	46	1	0
07278-01 W	55	44	72	33	43	39	1	0
07278-02 W	53	48	72	28	38	45	1	0
07278-03 W	81	61	114	51	53	49	5	0
07278-04 W	58	51	81	33	50	55	1	0

EPA CLP QC Limits For:	Soil	Water
S1 (NBZ) = NITROBENZENE-D5	23-120	35-114
S2 (FBP) = 2-FLUOROBIPHENYL	30-115	43-116
S3 (TPH) = 4-TERPHENYL-D14	18-137	33-141
S4 (PHL) = PHENOL-D6	24-113	10- 94
S5 (2FP) = 2-FLUOROPHENOL	25-121	21-100
S6 (TBP) = 2,4,6-TRIBROMOPHENOL	19-122	10-123

$ Column indicating Soil or Water matrix
# Column to be used to flag recovery values
* Values outside of CLP QC limits
N/A Not applicable
DF Column indicating dilution factor of final extract
DO Surrogates diluted out, no recovery data available
D Surrogates diluted, recovery estimated

2B
SEMIVOLATILE SURROGATE RECOVERIES

.ab Name: Laboratory Resources Inc.,

Lab Code: 020406 Case No.:---- SAS No.:---- SDG No.:----

Dates Analyzed: 08/01/91 thru 08/02/91

LAB AMP NO.	($)	S1 (NBZ)#	S2 (FBP)#	S3 (TPH)#	S4 (PHL)#	S5 (2FP)#	S6 (TBP)#	DF	TOT OUT
07278-05	W	58	62	89	26	27	54	1	0
07324-01	W	49	50	87	39	61	92	1	0
.1677 MS	W	67	62	80	31	43	100	1	0
1678 MSD	W	54	59	82	28	42	96	1	0
J BLANK	S	64	71	79	69	73	90	1	0
07227-01	S	54	86	101	77	78	55	5	0

EPA CLP QC Limits For:	Soil	Water
S1 (NBZ) = NITROBENZENE-D5	23-120	35-114
S2 (FBP) = 2-FLUOROBIPHENYL	30-115	43-116
S3 (TPH) = 4-TERPHENYL-D14	18-137	33-141
S4 (PHL) = PHENOL-D6	24-113	10- 94
S5 (2FP) = 2-FLUOROPHENOL	25-121	21-100
S6 (TBP) = 2,4,6-TRIBROMOPHENOL	19-122	10-123

$ Column indicating Soil or Water matrix
# Column to be used to flag recovery values
* Values outside of CLP QC limits
N/A Not applicable
DF Column indicating dilution factor of final extract
DO Surrogates diluted out, no recovery data available
D Surrogates diluted, recovery estimated

3D

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

b Name:Laboratory Resources, Inc Contract:----

Code: 0210416 Case No.: ---- SAS No.: ----- SDG No.: -----

trix Spike - LAB Sample No.: S91677, S91678

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
Phenol	200.00	0.00	49.00	24	12- 89
-Chlorophenol	200.00	0.00	93.00	46	27-123
,4-Dichlorobenzene	100.00	0.00	38.00	37	36- 97
N-Nitroso-di-n-prop.(1)	100.00	0.00	47.00	46	41-116
,2,4-Trichlorobenzene	100.00	0.00	41.00	41	39- 98
-Chloro-3-methylphenol	200.00	0.00	100.00	51	23- 97
Acenaphthene	100.00	0.00	66.00	65	46-118
-Nitrophenol	200.00	0.00	49.00	24	10- 80
,4-Dinitrotoluene	100.00	0.00	74.00	74	24- 96
Pentachlorophenol	200.00	0.00	140.00	71	9-103
Pyrene	100.00	0.00	72.00	72	26-127

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Phenol	200.00	50.00	25	4	42	12- 89
2-Chlorophenol	200.00	85.00	42	9	40	27-123
,4-Dichlorobenzene	100.00	44.00	43	15	28	36- 97
N-Nitroso-di-n-prop.(1)	100.00	48.00	48	4	38	41-116
1,2,4-Trichlorobenzene	100.00	48.00	48	15	28	39- 98
-Chloro-3-methylphenol	200.00	110.00	56	9	42	23- 97
Acenaphthene	100.00	69.00	68	4	31	46-118
4-Nitrophenol	200.00	55.00	27	11	50	10- 80
2,4-Dinitrotoluene	100.00	74.00	74	0	38	24- 96
Pentachlorophenol	200.00	150.00	75	5	50	9-103
Pyrene	100.00	77.00	77	6	31	26-127

1 N-Nitroso-di-n-propylamine

Column to be used to flag recovery and RPD values with an asterisk
Values outside of qc limits

D: 0 out of 11 outside limits
ike Recovery: 0 out of 22 outside limits

OMMENTS: _____

FORM III SV-1 1/87 Rev.

4B

SEMIVOLATILE METHOD BLANK SUMMARY

Lab Name: Laboratory Resources Inc.,

Lab File ID: >A1146 Lab Sample ID: PRU BLANK

Date Extracted: 07/20/91 Extraction: Sepf

Date Analyzed: 07/31/91 Time Analyzed: 17:30

Matrix: WATER

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

LAB FILE NO.	LAB SAMPLE ID	DATE ANALYZED
>A1157	W107324-01	08/01/91
>A1158	S91677 MS	08/01/91
>A1159	S91678 MSD	08/01/91

Comments:

5B

SEMIVOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Name: Laboratory Resources Inc., Contract: -----

File ID: >TA401 DFTPP Injection date: 7/30/91

rument ID: 0881 DFTPP Injection time: 9:07

e	ION ABUNDANCE CRITERIA	%RELATIVE ABUNDANCE
1	30.0 - 60.0% of mass 198	45.6
8	Less than 2.0% of mass 69	0.0(0.0)1
	Mass 69 relative abundance	58.3
-	Less than 2.0% of mass 69	.5(.8)1
27	40.0 - 60.0% of mass 198	43.2
7	Less than 1.0% of mass 198	0.0
8	Base Peak, 100% Relative abundance	100.
99	5.0 - 9.0% of mass 198	6.8
75	10.0 - 30.0% of mass 198	23.2
5	Greater than 1.00% of mass 198	2.55
41	Present, but less than mass 443	8.8
42	Greater than 40.0% of mass 198	69.7
3	17.0 - 23.0% of mass 442	14.3(20.5)2

1 - Value is % mass 69 2 - Value is % mass 442

TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

	EPA SAMPLE NO	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1	----------	50 PPM BNA S	>A1136	7/30/91	9:23
2	----------	W107259-01	>A1137	7/30/91	10:15
3	----------	W107278-06	>A1138	7/30/91	11:03
4	----------	W107258-08	>A1139	7/30/91	11:51
5	----------	W107150-15	>A1140	7/30/91	12:39
6	----------	W107150-02	>A1141	7/30/91	13:27
7	----------	W107150-05	>A1142	7/30/91	14:15
8	----------	W107150-11	>A1143	7/30/91	15:03
9	----------	W107150-14	>A1144	7/30/91	15:52
10	----------	PRO BLANK	>A1146	7/30/91	17:30
11	----------	W107278-01	>A1147	7/30/91	18:20
12	----------	W107278-02	>A1148	7/30/91	19:09
13	----------	W107278-03	>A1149	7/30/91	19:58
14	----------	W107278-04	>A1150	7/30/91	20:47
15					
16					
17					
18					
19					
20					
21					
22					

5B

SEMIVOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Name: Laboratory Resources Inc., Contract: -----

File ID: >TA402 DFTPP Injection date: 8/01/91

rument ID: 0881 DFTPP Injection time: 13:13

e	ION ABUNDANCE CRITERIA	%RELATIVE ABUNDANCE
1	30.0 - 60.0% of mass 198	55.2
8	Less than 2.0% of mass 69	0.0(0.0)1
	Mass 69 relative abundance	62.2
	Less than 2.0% of mass 69	0.0(0.0)1
27	40.0 - 60.0% of mass 198	50.6
7	Less than 1.0% of mass 198	0.0
8	Base Peak, 100% Relative abundance	100.
99	5.0 - 9.0% of mass 198	5.7
5	10.0 - 30.0% of mass 198	23.3
5	Greater than 1.00% of mass 198	4.48
41	Present, but less than mass 443	12.6
42	Greater than 40.0% of mass 198	81.3
3	17.0 - 23.0% of mass 442	16.6(20.5)2

1 - Value is % mass 69 2 - Value is % mass 442

S TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

	EPA SAMPLE NO	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1	----------	50 PPM BNA S	>A1152	8/01/91	14:13
2	----------	W107278-05	>A1153	8/01/91	15:04
3	----------	W107324-01	>A1157	8/01/91	18:24
4	----------	S91677 MS	>A1158	8/01/91	19:14
5	----------	S91678 MSD	>A1159	8/01/91	20:04
6	----------	PRO BLANK	>A1164	8/02/91	0:08
7	----------	W107227-01	>A1165	8/02/91	0:56
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

1056

FORM V SV

8B

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: Laboratory Resources Inc.,

Lab file ID: >A1136 Lab Sample ID: 50 PPM BNA

Date Analyzed: 07/30/91 Time Analyzed: 09:23

	IS1(DCB)		IS2(NPT)		IS3(ANT)		IS4(PHN)		IS5(CRY)		IS6(PRY)	
	AREA #	RT	AREA #	RT	AREA #	RT	AREA #	RT	AREA #	RT	AREA #	RT
12 HOUR STD	23430	10.22	59180	13.33	43195	17.76	101817	21.46	127107	28.24	143724	31.70
UPPER LIMIT	46860		118360		86390		203634		254214		287448	
LOWER LIMIT	11715		29590		21598		50909		63554		71862	
LAB SAMPLE #												
W107259-01	23544	10.20	64302	13.31	44128	17.73	90751	21.43	115373	28.21	129962	31.66
W107278-06	24656	10.20	65803	13.29	44674	17.73	86601	21.41	108096	28.19	120252	31.64
W107258-08	28802	10.20	73493	13.28	46450	17.74	90136	21.43	114590	28.18	129513	31.63
W107150-15	30217	10.18	80054	13.30	47999	17.76	90111	21.44	111949	28.19	126159	31.63
W107150-02	28427	10.19	73414	13.30	46017	17.74	85971	21.43	102702	28.20	116265	31.64
W107150-05	30350	10.20	76223	13.28	45181	17.74	81653	21.46	101519	28.19	112553	31.66
W107150-11	24847	10.19	68447	13.29	42568	17.73	80375	21.43	91733	28.18	105642	31.65
W107150-14	25335	10.19	65818	13.30	41461	17.76	77178	21.46	90564	28.19	109382	31.65
PRO BLANK	23933	10.17	64700	13.28	41453	17.71	81467	21.40	92431	28.17	99044	31.61
W107278-01	24942	10.18	77402	13.28	47190	17.71	90651	21.39	107039	28.18	114653	31.61
W107278-02	25617	10.18	69722	13.27	45164	17.70	91336	21.40	104424	28.16	104870	31.62
W107278-03	23679	10.17	62095	13.28	44025	17.71	84825	21.41	95091	28.19	104040	31.64
W107278-04	24938	10.19	71244	13.29	45950	17.72	97562	21.42	109294	28.19	120753	31.64

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Napthalene-d8
IS3 (ANT) = Acenapthene-d10
IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

UPPER LIMIT = + 100% of internal standard LOWER LIMIT = - 50% of internal standard area

Column used to flag internal standard are values with an asterisk

REFERENCE NO. 25

ARCS II CONTRACT 68-W9-0051
MALCOLM PIRNIE, INC.
RECORD OF TELEPHONE CONVERSATION/AGREEMENT

File No. 8002-06-4

Date: JUNE 5, 1992 Time: 1300 [ ] AM [X] PM

[ ] Incoming Call From: _____ Telephone No.

Affiliation: _____

[X] Outgoing Call To: TOM SMITH 516-535-5844 Telephone No.

Affiliation: WESTBURY TOWNSHIP PLANNING BOARD

Malcolm Pirnie Staff: RICKEY T. KAMPFER 609-860-0100
(Receiving or Calling) Name Telephone No.

Summary of [X] Conversation [ ] Agreement:

- MR SMITH STATED THAT THERE ARE CURRENTLY NO FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) MAPS FOR THE WESTBURY AREA OF CANTIAGUE ROCK ROAD.
- MR SMITH DID RELATE THAT THE AREA OF CANTIAGUE ROCK ROAD AND SPECIFICALY, THE JOHN HASSALL INC SITE IS AN AREA OF MINIMAL FLOODING.
- MR SMITH FURTHER RELATED THIS AREA TO A TYPE 'C' FLOODPLAIN AS DEFINED BY FEMA.
- A TYPE "C" FLOODPLAIN IS CLASSIFIED AS AN AREA OF MINIMAL FLOODING OUTSIDE OF THE 500 YEAR FLOOD

f:\rectele.jan(1)

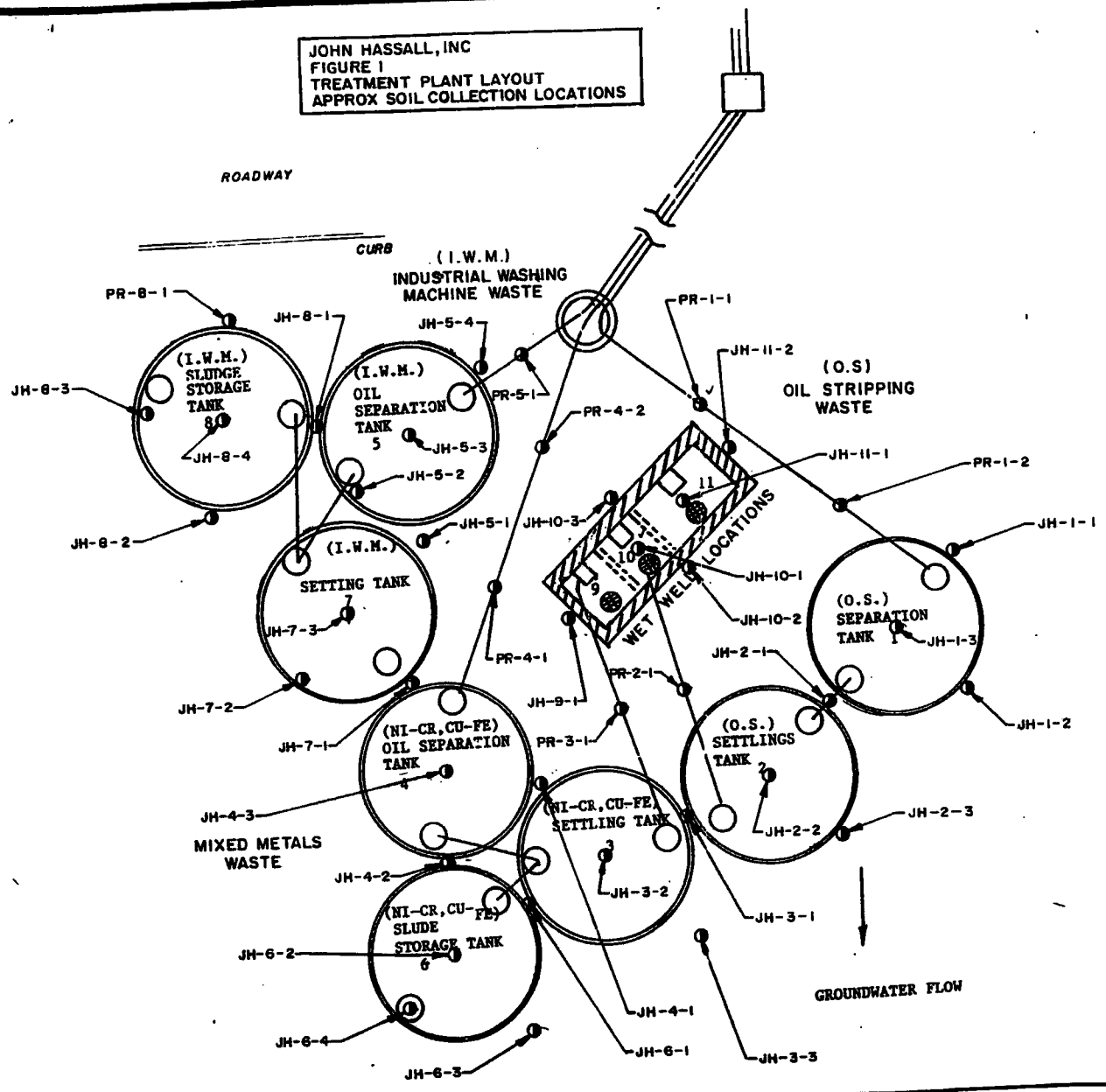
REFERENCE NO. 26

MALCOLM PIRNIE, INC. **PROJECT NOTES**

To: JOHN HASSALL INC. FILE
Date: JUNE 5, 1992
From: RICKEY T. KAMPFER
Project Number: 8002-06-4
Subject: TANK TESTING/REMOVAL
Site Name: JOHN HASSALL INC.

AS OF JUNE 1992, THE FINAL 'TANK REMOVAL REPORT' HAS NOT BEEN COMPLETED BY DIVERSIFIED ENVIRONMENTAL RESOURCES, HOWEVER THE SAMPLING LOCATION MAP AND DATA HAVE BEEN PROVIDED BY THE NASSAU COUNTY DEPARTMENT OF HEALTH SERVICES

JOHN HASSALL, INC
FIGURE 1
TREATMENT PLANT LAYOUT
APPROX SOIL COLLECTION LOCATIONS



BORING NO.	REQURIED ANALYSIS	OPTIONAL ANALYSIS
JH-1-1	TPHC	B/N + 25, VOA + 15
JH-1-2	TPHC	B/N + 25, VOA + 15
JH-1-3	TPHC	B/N + 25, VOA + 15
PR-1-1	TPHC	B/N + 25, VOA + 15
PR-1-2	TPHC	B/N + 25, VOA + 15
JH-2-1	TPHC	B/N + 25, VOA + 15
JH-2-2	TPHC	B/N + 25, VOA + 15
JH-2-3	TPHC	B/N + 25, VOA + 15
PR-2-1	TPHC	B/N + 25, VOA + 15
JH-3-1	TPHC, Ni, Cr, Cu, Fe, Hg, Zn	B/N + 25, VOA + 15
JH-3-2	TPHC, Ni, Cr, Cu, Fe, Hg, Zn	B/N + 25, VOA + 15
JH-3-3	TPHC, Ni, Cr, Cu, Fe, Hg, Zn	B/N + 25, VOA + 15
PR-3-1	TPHC	B/N + 25, VOA + 15
JH-4-1	TPHC, Ni, Cr, Cu, Fe, Hg, Zn	B/N + 25, VOA + 15
PR-4-2	TPHC, Ni, Cr, Cu, Fe, Hg, Zn	B/N + 25, VOA + 15
JH-5-1	TPHC, Ni, Cr, Cu, Fe, Hg, Zn	B/N + 25, VOA + 15
JH-5-2	TPHC	B/N + 25, VOA + 15
JH-5-3	TPHC	B/N + 25, VOA + 15
JH-5-4	TPHC	B/N + 25, VOA + 15
PR-5-1	TPHC	B/N + 25, VOA + 15
JH-6-1	TPHC, Ni, Cr, Cu, Fe, Hg, Zn	B/N + 25, VOA + 15
JH-6-2	TPHC, Ni, Cr, Cu, Fe, Hg, Zn	B/N + 25, VOA + 15
JH-6-3	TPHC, Ni, Cr, Cu, Fe, Hg, Zn	B/N + 25, VOA + 15
JH-6-4	TPHC, Ni, Cr, Cu, Fe, Hg, Zn	B/N + 25, VOA + 15
JH-7-1	TPHC	B/N + 25, VOA + 15
JH-7-2	TPHC	B/N + 25, VOA + 15
JH-7-3	TPHC	B/N + 25, VOA + 15
JH-8-1	TPHC	B/N + 25, VOA + 15
JH-8-2	TPHC	B/N + 25, VOA + 15
JH-8-3	TPHC	B/N + 25, VOA + 15
JH-8-4	TPHC	B/N + 25, VOA + 15
PR-8-1	TPHC	B/N + 25, VOA + 15
JH-9-1	TPHC	B/N + 25, VOA + 15
JH-10-1	TPHC	B/N + 25, VOA + 15
JH-10-2	TPHC	B/N + 25, VOA + 15
JH-10-3	TPHC	B/N + 25, VOA + 15
JH-11-1	TPHC	B/N + 25, VOA + 15
JH-11-2	TPHC	B/N + 25, VOA + 15

Diversified Environmental Resources, Inc.
P.O. Box 516
101 Jessup Road
Thorofare, N.J. 08086

Scale: NONE	Job No. 09-0684	Drawn By R.L.R.	Approved By D.N.	Project Title JOHN HASSALL, INC.	Title WASTE TREATMENT FACILITY	No. 1 OF 1

Date Drawn: 6/27/91

REFERENCE NO. 27

ARCS II CONTRACT 68-W9-0051
MALCOLM PIRNIE, INC.
RECORD OF TELEPHONE CONVERSATION/AGREEMENT

File No. 8002-062

Date: 6/18/92 Time: 9:28 [ ] AM [ ] PM

[ ] Incoming Call From: _____ Telephone No.

Affiliation: _____

[X] Outgoing Call To: Kevin Roberts (518)-457-6674 Telephone No.

Affiliation: NYSDEC Division of Water, groundwater management

Malcolm Pirnie Staff: Lisa Szegedi (609)-860-0100
(Receiving or Calling) Name Telephone No.

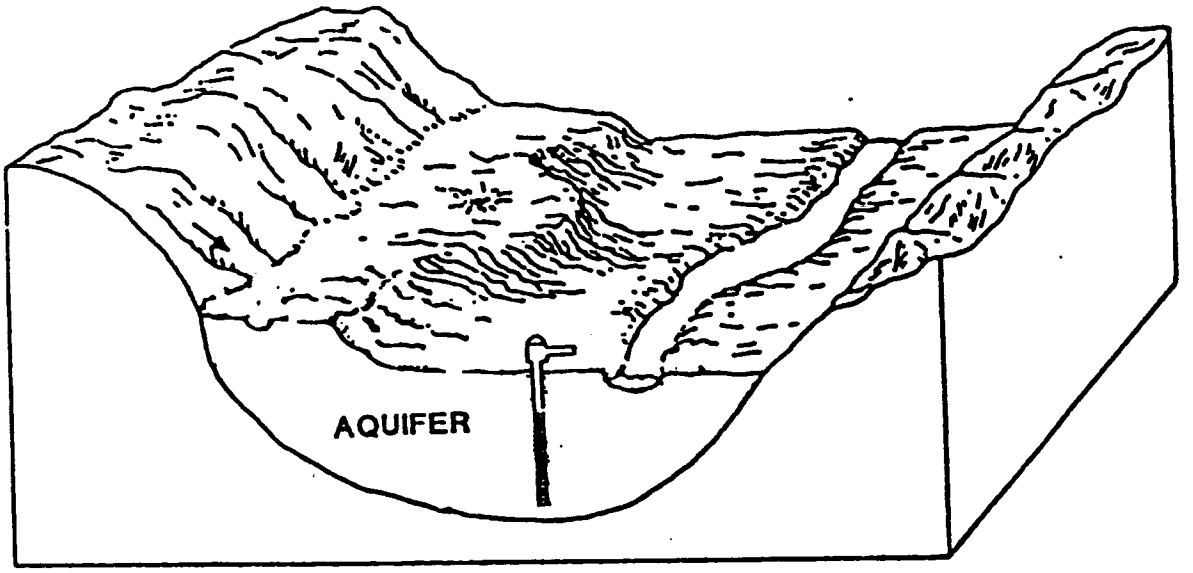
Summary of [X] Conversation [ ] Agreement:

The Sept 1990 NYS wellhead protection program document is a finalized document

f:\rectele.jan(1)

Department of Environmental Conservation

NEW YORK STATE WELLHEAD PROTECTION PROGRAM



Submittal
to
United States Environmental Protection Agency

New York State Department of Environmental Conservation
MARIO M. CUOMO, *Governor* THOMAS C. JORLING, *Commissioner*

September 1990

2 of 1

NEW YORK STATE WELLHEAD PROTECTION PROGRAM

SUBMITTAL
TO
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
IN
APPLICATION FOR IMPLEMENTATION FUNDS

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF WATER
ALBANY, NY

SEPTEMBER 1990

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PREFACE

This report represents a revision of the Proposed New York State Wellhead Protection Program, submitted to the U.S. Environmental Protection Agency on June 19, 1989. Following the June 1989 submittal, there was an additional review by the New York State Wellhead Protection Advisory Committee (see ACKNOWLEDGEMENTS) and by key program managers and regional staff of the NYS Department of Environmental Conservation. The initial comments of the USEPA concerning the submittal were received by New York in January 1990. In March 1990, the USEPA, in accordance with the provisions of the Safe Drinking Water Act amendments, notified the state that the submittal was incomplete. A public hearing was held in August, 1990 to complete the process. Comments received were used in revising this document, and are also discussed in an attachment to this Submittal. The revisions contained in this document primarily include many clarifications of statements made in the original document, but also include additional items to complete the original submittal (e.g., public participation summary) and items to address the adequacy concerns of USEPA.

The wellhead protection activities of the Department of Environmental Conservation in the intervening period have included further development of new source management programs (e.g., chemical bulk storage), incorporation of wellhead protection in existing programs (e.g., water supply permit program), assistance to regional planning agencies in wellhead protection activities (e.g., 205(j) projects on source identification), regional and statewide outreach and education efforts, and providing geologic information and unconsolidated aquifer delineation information.

Most importantly, the interest of county agencies and municipal governments in New York in wellhead protection has grown considerably since the June 1989 submittal, with significant activity by key counties and municipalities in Upstate New York, by the Long Island Regional Planning Board concerning Long Island's Special Groundwater Protection Areas, and by Long Island's major water suppliers. Substantial interest in training (including delineation models and management tools), and in developing protection ordinances has been expressed.

Agencies and local government associations apart from the Department of Environmental Conservation have initiated public discussion and training activities concerning wellhead protection and groundwater management.

These activities demonstrate the desired evolution of local wellhead protection programs that the New York State Wellhead Protection Program is designed to foster.

ACKNOWLEDGEMENTS

The New York State Department of Environmental Conservation gratefully acknowledges the assistance and recommendations of the members of the Wellhead Protection Advisory Committee. To date, these members have included the following:

- Aldo Andreoli, Suffolk County Dept. of Health Services
- Donald Beavers, Temporary Commission on Tug Hill
- Donald Bingham, U.S. Geological Survey
- Jessica Breiten, Herkimer-Oneida Planning Dept.
- James Coon, NYS Dept. of State;
- Robert Denz, Broome County Health Dept
- Hope Donovan, League of Women Voters
- John Edwards, Long Island Water Conference
- James Feuss, Cortland Co. Dept. of Health
- Robert Fickles, NYS Geological Survey
- William Gollnitz, Chautauqua Co. Health Dept.
- Bernard Gorman, Long Island Water Conference
- Nancy Jarvis, Cortland Co. Planning Dept.
- Richard Kasprowicz, NYS Dept. of Health
- Margaret Kavanaugh, Schenectady Co. Planning Dept.
- John Kent, Herkimer-Oneida Planning Dept.
- William Lee, American Water Resources Association
- Sarah Meyland, Suffolk Co. Water Authority
- Todd Miller, U.S. Geological Survey
- Jacqueline Moody, NYS Dept. of Agriculture & Markets
- James Napoli, Dutchess Co. Health Dept.
- Donald O'Dell, NYS Dept. of State
- Francis Padar, Nassau Co. Dept. of Health
- Kenneth Pokalsky, Business Council of NYS
- Keith Porter, NYS Water Resources Institute-Cornell University
- George Prolos, NYS Legislative Comm. on Water Resource Needs of L.I.
- Thomas Reamon, NYS Dept. of Health
- Joseph Salvato, American Water Works Association
- Ronald Slotkin, Broome Co. Health Dept.
- David Stern, NYS Legislative Comm. on Water Resource Needs of L.I.
- John Stonebanks, Suffolk Co. Water Authority
- Edith Tannenbaum, Long Island Regional Planning Board
- Mark Walker, NYS Water Resources Institute-Cornell University
- Patricia Walsh, Association of Towns of the State of New York
- John Williams, U.S. Geological Survey
- Donald Zizzi, Schenectady Co. Planning Dept

The original submittal (June 19, 1989) was prepared by Allan Tedrow, Kevin Roberts and James Lister of the NYS Department of Environmental Conservation, Division of Water, Groundwater Management Section. The revised document (September, 1990) was prepared by Kevin Roberts and Allan Tedrow.

The typing of this document by Barbara J. Crier, of the Department of Environmental Conservation, is also gratefully acknowledged.

CHAPTER 3

WELLHEAD PROTECTION AREA DELINEATION

3.1. Introduction and Institutional Processes

3.1.1. Introduction

The comprehensive New York State Groundwater Management Program, developed in the early 1980's and published in revised and final documents in 1986 (for Long Island) and 1987 (for Upstate), recommended key policies and program initiatives endorsing geographic targeting and critical area protection. These concepts were forerunners of the Safe Drinking Water Act's Wellhead Protection Program. Significant progress has been made in different aspects of geographic targeting of programs and in different parts of New York State. New York acknowledges these accomplishments as an integral part of its overall Wellhead Protection Program.

Delineation determines geographic areas for which different levels of groundwater protection activities are to be instituted. The Wellhead Protection Program in New York State is intended to accomplish a wider recognition of targeting objectives by all levels of government, by citizens in general, and to begin an evolutionary process toward improved targeting and protective program implementation.

The basic wellhead protection delineation approach in New York State recognizes aquifers as the fundamental geographic unit for targeting management efforts. This approach must be modified where aquifers are broad regional systems (DEC considers this case to occur only on Long Island), or where aquifers are not well characterized (considered to be the case for bedrock aquifers, in general). Elsewhere, the unconsolidated aquifers of New York tend to be of limited areal extent and they generally include the important recharge areas within their boundaries. These unconsolidated aquifers also are the source of the large majority of groundwater-derived public water supply systems.

The New York State Wellhead Protection Program proposes that unconsolidated aquifer boundaries (the land surface overlying the aquifer) serve as the baseline definition for the overall wellhead protection area (WHPA). For the baseline definition, both confined and unconfined unconsolidated aquifers are grouped together. Revisions are allowable based on site-specific evaluations. This aquifer boundary approach is proposed to be modified on Long Island and for wells in bedrock aquifers as described in Section 3.2. For all public water supply wells, specific proposed WHPA delineation policies are described in Section 3.2.

The aquifer boundary approach for the overall WHPA has several distinct advantages. It takes advantage of considerable recent and ongoing work in mapping and detailed assessments of aquifer boundaries. Incorporating this work directly into the Wellhead Protection Program provides a practical way for more effective targeting to move forward rapidly rather than being constrained by the need to perform modeling to delineate protection areas.

The aquifer approach also encompasses other non-public wells and potential future well sites, and places major focus on the high-yielding groundwater resources which are most important and most vulnerable. This last aspect is considered very important in the education component of wellhead protection, both for local officials and for the general public.

Wellhead protection area delineation is an evolutionary process. The first need for refinement is the further subdivision of the total wellhead protection area, as required for differentiated management objectives. A second area for potential refinement is delineation of the overall WHPA in the Glacial Aquifer on Long Island and in bedrock aquifers. Issues related to these topics are reviewed in both Sections 3.2 and 3.3. Flexibility for refinement or revision is very important due to the wide variability in

hydrogeologic settings, data availability, and local degree of contamination threat in New York State.

3.1.2. Institutional Processes for Overall Delineation Policies

Advisory committee and work group input into the original comprehensive Groundwater Management Program was substantial. The basic concept of geographic targeting was set forth in that program. The groups included:

- Federal Agencies (EPA, USGS)
- State Agencies (DEC, DOH, DOT, Agriculture & Markets, Energy Office, Geological Survey)
- Cornell University
- County Agencies (Health, Planning)
- Associations (Conference of Mayors, American Water Works Association, Business Council)
- Citizen Groups (NRDC, League of Women Voters)

DEC reconvened most of the original contributors into an advisory committee to assist in guiding the Wellhead Protection Program, with particular emphasis on delineation issues. Added to the original group have been:

- State Agencies (Department of State)
- County Agencies (a wider range of county participants)
- Regional Agencies and Commissions (additional planning and legislative commissions)
- Associations (Association of Towns, American Water Resources Association)

The new group, the Wellhead Protection Advisory Committee, has also included additional participation from the U.S. Geological Survey and DEC geological staff.

The delineation approach proposed in this submittal was recommended by the DEC Groundwater Management Section (responsible for developing the program) and agreed to by the Wellhead Protection Advisory Committee (members listed in front of submittal). The delineation approach directly conforms with the policies in the formally adopted Upstate New York Groundwater Management Program and Long Island Groundwater Management Program.

The DEC has also established a Memorandum of Understanding (MOU) with the DOH concerning the development of the Wellhead Protection Program. Additional MOU's will be developed as needed to institutionalize interagency working arrangements.

To support the technical needs of DEC and of local governments in carrying out and refining delineations, DEC plans to convene an ongoing Delineation Technical Workgroup consisting of geologists and groundwater management staff of DEC, DOH, State Geological Survey, USGS, and local governments. This group would consider revisions or improvements in the overall delineation approach, and would essentially be concerned with hydrogeologic aspects of the program rather than administration or contamination source control. The mission of this group is to provide recommendations to the DEC staff responsible for the overall Wellhead Protection Program. It will be convened upon EPA approval of New York State's submittal and will meet on at least a semi-annual basis or as needed.

Local authorities involved in wellhead protection may vary, as discussed elsewhere in this submittal. Therefore, uniform institutional processes at the local level will not be proposed across the entire state. Local agencies may act according to their own needs and authority. However, in all cases where Watershed Rules and Regulations are utilized as the local wellhead protection approach, the existing requirements of the New York State Department of Health (DOH) will be followed. Similarly, for all new wells, the institutional requirements of the New York State Department of Environmental Conservation's (DEC) Water Supply Permit Program will apply.

The proposed responsibility for initiating refinements of the baseline delineations described in this submittal will depend upon the regulatory approach adopted. Delineation refinements to be incorporated in Watershed Rules and Regulations approaches will be initiated and performed by water purveyors. Delineation refinements to be incorporated in county, town, village or city ordinances (including local public health ordinances) will be initiated and performed by the corresponding political authority. Delineation refinements to be incorporated in state-level regulatory programs will be performed by DEC.

In practice, most local activities will involve coordination with the State DEC and DOH. Each Department routinely reviews local activities to ensure that there are no conflicts with respect to policies and procedures and advises on the availability of technical information for delineation purposes. The overall coordination for aspects specifically related to the WHPP is the responsibility of DEC.

Other institutions, particularly the U.S. Geological Survey and Cornell and other universities, may be involved in special projects or case studies, as coordinated by DEC.

3.2. Delineation Criteria, Thresholds and Methods

3.2.1. Background - Existing Geographic Targeting

The existing, and still evolving, geographic targeting framework for groundwater protection provides a priority system for managing risks to groundwater. Following is a brief summary:

- Groundwater Classification - 6 NYCRR Part 703

  Ambient water quality standards and guidelines apply to all Class GA (fresh) groundwaters. Class GA groundwaters are defined as having best use as a source of drinking water and must meet New York State's drinking water standards in addition to the ambient standards. State management programs use this framework for protection of all fresh groundwaters in New York State.

- Unconsolidated Aquifers

  Mapping of unconsolidated aquifers has progressed significantly including State-defined primary and principal aquifers which are subsets of the unconsolidated aquifers. Site-specific detailed mapping is still in progress.

  Primary and principal aquifers are generally similar geologically (both are highly productive unconsolidated deposits); primary aquifers are those which have large populations using them as drinking water sources. Primary aquifers have high priority for mapping additional hydrogeologic data through the DEC/USGS cooperative program, and in special Long Island programs.

  These delineations are used in the process for siting new waste disposal facilities.

- Long Island Hydrogeologic Zones

  Eight hydrogeologic zones have been delineated, covering all of Long Island. Three of these together comprise the Deep Flow Recharge Area. Management program initiatives (e.g., hazardous substance storage) are based on this Deep Flow Recharge Area.

- Special Groundwater Protection Areas

  Nine Special Groundwater Protection Areas have been delineated within the Deep Flow Recharge Area in both Nassau and Suffolk Counties and are currently the subject of a planning project by the Long Island Regional Planning Board.

- Other Geographic Targeting Approaches

  Suffolk County has specifically defined "Water Supply Sensitive Areas" which include zones 500 feet downgradient to 1,500

feet upgradient of public wells in the Upper Glacial Aquifer.

Watershed Rules and Regulations are promulgated by the NYS Department of Health upon initiation by local water purveyors. These include delineations of protection management zones for public water supply wells. The WRR delineations do not conflict with the wellhead protection area delineation policies proposed in this submittal.

The NYS Solid Waste Management Program, in 6 NYCRR Part 360, has defined "public water supply wellhead area" as the surface and subsurface area between a public water supply well or wellfield and the 99% theoretical maximum extent of the stabilized cone of depression of that well or wellfield considering all flow system boundaries and seasonal fluctuations. New landfills are banned in these areas, in addition to all primary and principal aquifers in the Upstate area. Special provisions are defined in law for Long Island siting. As with the Watershed Rules and Regulations, there is no conflict in terminology between the Part 360 public water supply wellhead area and the overall wellhead protection area proposed in this submittal. The overall protection area includes, and is larger than, the Part 360 wellhead itself. For landfill siting, Part 360 regulations will prevail. Part 360 determinations are made only for proposed landfill siting cases.

Other setback requirements have been utilized in various state or local management programs. When used, such as for pesticides (e.g., aldicarb) or septic tanks, the setbacks apply to all wells, public or private. As with the other targeting approaches, such setbacks do not conflict with the proposed wellhead protection area policies.

- Well Construction Specifications

Direct protection of the wellhead itself is achieved through adoption of construction specifications and standards. These are administered by the New York State Department of Health and follow the "Recommended Standards for Water Works" (NYS Health Department Bulletin #42, 1982). They apply to public water supply wells.

3.2.2. Wellhead Protection Area Delineation Objectives

The USEPA guidance for development of wellhead protection programs (Guidance for Applicants for State Wellhead Protection Program Assistance Funds under the Safe Drinking Water Act, EPA 440/6-87-011) contains the expectation that proposed programs will be designed to provide protection from three types of threats: direct introduction of contaminants in the immediate well area, microbial contaminants, and chemical contaminants. The first is dealt with through well construction and completion standards to be applied at the wellhead itself. The second is managed by delineating a zone to keep potential sources sufficiently distant from the well to allow die-off of the microorganisms. Establishing a minimum distance by measurement or by time-of-travel is the most common procedure for delineating areas for protection against microbial contamination.

To achieve protection against chemical contamination, EPA suggests three delineation approaches: delineation of wellfield management areas, contamination attenuation zones, or remedial action zones. Since chemicals can travel long distances, all or part of the recharge area for a well becomes the zone to be delineated for protection efforts.

The overall goals of New York State's delineation approach are essentially a combination of the wellfield management and remedial action zone goals described by EPA.

Wellfield management is used to define areas where heightened levels of protection will be

emphasized. A number of different zones may be delineated for a single water supply to provide different levels of management. The management options may range from selected land use prohibitions to specialized design specifications, enhanced facility inspections, or increased monitoring and education.

The remedial action area approach excludes high risk activities from a specifically defined zone but still allows them in more distant recharge areas. This may be refined by varying exclusions in different zones according to risk or the importance of the activity. The remedial action area concept is best applied to new or changing land uses, whereas wellfield management may be applied to existing or new land uses.

The contamination attenuation zone approach described by EPA is difficult to strictly apply due to limited capabilities to accurately predict chemical migration and persistence. In addition, the New York State groundwater standards apply to all fresh groundwaters, reducing the utility of an attenuation zone approach.

3.2.3. Delineation Policy

The underlying objective of delineation is to use different degrees of management to control risks to water supplies. The significant diversity in geological conditions, aquifer use, and in local government capabilities across New York State indicates that the approach to delineation can not be uniform and rigid for all locations.

The ideal technical goal of wellhead delineation is to have sufficient knowledge of the hydrogeology of each public water supply well or wellfield to allow precise determination of the catchment area along with accurate times-of-travel for the entire flow system. Such information is not uniformly available across the state. New information will become available unevenly as funding from various local, state and federal sources is applied to specific priority areas.

In this setting, the New York State Wellhead Protection Program proposes general recognition of high-yielding aquifers (both confined and unconfined) as the fundamental wellhead protection area units. As described in Section 3.2.4., this policy recognizes that more targeted delineations will be necessary on Long Island because it is entirely an aquifer. Also, bedrock aquifers are not adequately characterized now to allow this approach; however, most of the major, high-yielding aquifers in New York are in unconsolidated deposits. Within the wellhead protection area, delineation of an area designated as the remedial action area is proposed, as described in Sectin 3.2.5.

This policy is intended to reinforce public and management program recognition of the need to protect high-yielding aquifers. It takes advantage of considerable past and ongoing work on aquifer mapping and delineation and will permit further progress in communities which have already delineated aquifer boundaries and protection areas. These communities may directly proceed to management implementation or may utilize available funds on more advanced hydrogeologic evaluations within the WHPA, depending on local needs and goals.

Within this framework, utilization of alternative delineation approaches (such as time-of-travel) is allowed and encouraged. In most cases, such alternative approaches would be applied to subdividing the WHPA within the unconsolidated aquifer boundaries for applying different levels of management. The WHPA itself would remain the area defined by aquifer boundaries. In some cases, such as for bedrock aquifers, the alternative approaches may be used to redefine the WHPA itself. The Department of Environmental Conservation will be responsible for providing guidance for such alternative approaches.

3.2.4. Wellhead Protection Area Delineations

The wellhead protection area delineation approach is summarized in Table 3.1. It recognizes that the aquifer system on Long Island and bedrock aquifers in Upstate New York must be treated differently than the unconsolidated aquifers in Upstate. The unconsolidated aquifer boundaries for the wellhead protection areas are those delineated on a series of maps titled

TABLE 3.1.
WELLHEAD PROTECTION AREA
DELINEATION SUMMARY

Geographic Region	Aquifer Area	Wellhead Protection Area Baseline Delineation
Long Island	Magothy & Lloyd Aquifers	Deep Flow Recharge Area
	Glacial Aquifer	Simplified Variable Shape: 1,500 ft. radius upgradient 500 ft. radius downgradient
Upstate	Unconsolidated Aquifers	Aquifer Boundaries (land surface)
	Bedrock Aquifers	Fixed Radius: 1,500 ft. radius

"Potential Yields of Wells in Unconsolidated Aquifers in Upstate New York" by the U.S. Geological Survey. Specifically, these maps, distributed for sale by the U.S. Geological Survey, are as follows:

1. Bugliosi, E.F., et al., 1988. Potential Yields of Wells in Unconsolidated Aquifers in Upstate New York - Lower Hudson Sheet. Water Resources Investigations Report 87-4274. U.S. Department of the Interior, Geological Survey, Albany, NY.

2. Bugliosi, E.F., et al., 1988. Potential Yields of Wells in Unconsolidated Aquifers in Upstate New York - Hudson Mohawk Sheet. Water Resources Investigations Report 87-4275, U.S. Department of the Interior, Geological Survey, Albany, NY.

3. Bugliosi, E.F., et al., 1988. Potential Yields of Wells in Unconsolidated Aquifers in Upstate New York - Adirondack Sheet. Water Resources Investigations Report 87-4276, U.S. Department of the Interior, Geological Survey, Albany, NY.

4. Miller, T.S., 1988. Unconsolidated Aquifers in Upstate New York - Finger Lakes Sheet. Water Resources Investigations Report 87-4122, U.S. Department of the Interior, Geological Survey, Albany, NY.

5. Miller, T.S., 1988. Potential Yields of Wells in Unconsolidated Aquifers in Upstate New York - Niagara Sheet. Water Resources Investigations Report 88-4076. U.S. Department of the Interior, Geological Survey, Albany, NY.

The boundaries illustrated on these maps serve as the total wellhead protection areas for public water supplies utilizing those aquifers. In certain cases, more detailed aquifer boundary maps or determinations for primary or principal aquifers (subsets of the full range of unconsolidated aquifers) have been or will be made by the U.S. Geological Survey or NYS Department of Environmental Conservation. These more detailed boundary determinations will generally supersede boundaries illustrated on the above referenced maps as "revised" delineations of wellhead protection areas.

Both unconfined and confined unconsolidated aquifers are included on these maps and both are included in this definition of the overall wellhead protection area.

For all public water supplies utilizing groundwater, the overall wellhead protection area (WHPA) delineation will be subdivided into two parts. The innermost zone is referred to as the Remedial Action Area. The remainder of the WHPA is referred to as the Wellfield Management Area. The terminology is derived from the EPA guidance referenced earlier. Depending on local management objectives for groundwater protection, local hydrogeology, and data availability and resource availability, the Wellfield Management Area may be further subdivided. This further subdivision of the Wellfield Management Area would be considered a refinement of the "baseline" delineation. Methodologies, criteria and thresholds used for such revisions are flexible. Approaches proposed by local water purveyors will be evaluated and approved or disapproved upon submittal to the New York State Department of Environmental Conservation.

The term "baseline" delineation, as used in this submittal, is intended to represent the initial WHPA delineation advocated by the Department of Environmental Conservation. The delineation may be directly utilized in implementing management activities for groundwater protection. However, if site-specific conditions suggest that alternative delineations are appropriate (including the further subdivision of the Wellfield Management Area already cited), those delineations may be accepted by the Department of Environmental Conservation. The evolution of improved delineation techniques, the growing availability of hydrogeologic information, and the longer-term enhancements of groundwater protection programs may lead to a redefinition of the baseline delineations by the Department of Environmental Conservation.

These baseline delineations apply to public water supply wells. Applicants for new public water supply wells may be required to perform

alternative site-specific delineations according to conditions stipulated through the Water Supply Permit Program (refer to Chapter 7).

The proposed WHPA delineations are described according to the following geographic and hydrogeologic settings. They are also summarized in Table 3.1.

- Unconsolidated Aquifers - Upstate New York

1. WHPA Definition:

The boundaries of wellhead protection areas for public water supplies in unconsolidated aquifers in Upstate New York are the land surface boundaries of the aquifers as illustrated on the five-aquifer sheet maps for Upstate published and distributed by the U.S. Geological Survey (see earlier reference). These boundaries may be revised in accordance with more detailed primary and principal aquifer maps and boundary determinations as approved by the Department of Environmental Conservation. The maps provide definition for both unconfined and confined aquifers. Revisions of these boundaries may be made, pending approval by the Department of Environmental Conservation.

2. Rationale:

The delineations proposed above are hydrogeologically-based and are consistent with the policies and goals of the Upstate Groundwater Management Program already adopted and certified by the Governor of New York as an element of the New York State Water Quality Management Plan.

3. Mapping and Case Studies:

Mapping of these areas is already completed and published. Case studies are not considered appropriate, as the maps have been reviewed and approved by the U.S. Geological Survey and the Department of Environmental Conservation as part of the publication process.

4. Public Water Supply Significance:

The large majority of public water supplies using groundwater, particularly for municipal and community systems, are located in unconsolidated aquifers. It is expected that a significant proportion of additional future supplies will also tap these systems.

- Bedrock Aquifers - Upstate New York

1. WHPA Definition:

The baseline boundaries of wellhead protection areas for public water supplies in bedrock aquifers are fixed radius areas with a radius of 1,500 feet from the wellhead. Revisions based on site-specific information are desirable, with the goals being to identify and delineate principal recharge areas. Revisions may be developed, pending approval by the Department of Environmental Conservation.

2. Rationale:

The fixed radius approach for the initial WHPA is not based on estimated times-of-travel or drawdown. It provides a substantial increase in protection over more commonly existing protection zones (typically 100 feet or 200 feet). The principal rationale is that the baseline delineation gives a basis for immediate action on wellfield management without requiring expensive site-specific delineations. Revisions based on local conditions are encouraged, particularly for municipal community systems, of which there are relatively few in the State. The geographic targeting benefits of uniformly delineating substantially larger fixed radius areas for all bedrock wells are very questionable. Many of the bedrock public water supply wells are among the approximately 10,000 non-community public wells (e.g., isolated public buildings, roadside rest areas, etc.). There will be little geographic targeting advantage for groundwater protection programs if

numerous 3 to 12 square mile WHPA's (1-2 mile radius) for non-community wells intersect or nearly intersect across the State. It must be recognized that all fresh groundwaters in bedrock aquifers are classified as GA groundwaters and thus are already protected by substantial statewide protection programs which use rigorous ambient water quality standards in their design.

3. Mapping and Case Studies:

Mapping will be performed according to the phasing priorities described in Section 3.3. Case studies of fixed radius approaches are not considered to be of significant benefit. As proposals for revisions based on alternative approaches are submitted to the Department of Environmental Conservation, they will be evaluated for potential use as models for comparable hydrogeologic conditions.

4. Public Water Supply Significance:

Relatively few municipal community systems utilize bedrock aquifers in New York State and those that do are generally with low population dependence. Public water supplies in bedrock aquifers are typically non-community wells serving small numbers of people.

◄ Magothy and Lloyd Aquifers - Long Island

1. WHPA Definition:

The boundaries of the wellhead protection area for public water supplies using the Magothy and Lloyd aquifers are the boundaries of the Deep Flow Recharge Area as recognized by the Department of Environmental Conservation. Refinements within the overall WHPA may include further definition of Wellfield Management Areas, pending approval by the Department of Environmental Conservation.

2. Rationale:

The Deep Flow Recharge Area was determined to be the most important overall groundwater protection area for wells in the Magothy and Lloyd aquifers in the Long Island Groundwater Management Program already adopted and certified by the Governor of New York as an element of the New York State Water Quality Management Program. The delineations have also been adopted in the Suffolk County Sanitary Code.

3. Mapping and Case Studies:

Mapping of the Deep Flow Recharge Area is already completed. Additional case studies are not considered appropriate.

4. Public Water Supply Significance:

Most public water in Nassau County is withdrawn from the Magothy aquifer. The majority of public water supplies in Suffolk County are also withdrawn from the Magothy aquifer. Of those public water supplies in Suffolk County utilizing the Glacial aquifer, approximately half are located within the Deep Flow Recharge Area. Thus, these wells are included within the overall wellhead protection area for the deeper aquifers.

◄ Glacial Aquifer - Long Island

1. WHPA Definition:

The boundaries of the wellhead protection area for public water supplies using the Glacial aquifer are defined as a fixed variable shape zone with a fixed radius in the upgradient groundwater flow direction of 1,500 feet and a fixed radius in the downgradient direction of 500 feet. Revisions may be made, pending approval by the Department of Environmental Conservation.

2. Rationale:

Fixed-shape zones are not based on calculated time-of-travel or drawdown. The proposed definition is consistent with Water Supply Sensitive Areas already delineated by Suffolk County (which contains nearly all of the Glacial wells on Long Island) and for which enhanced protection programs have already been implemented in the Suffolk County Sanitary Code. Approximately half of the Glacial wells are within the Deep Flow Recharge Area and are thus protected within a larger overall WHPA. Significant expansion of the WHPA for all Glacial wells may not provide any reasonable geographic targeting benefits, as most of the WHPA's would intersect or nearly intersect. All fresh groundwaters in the Glacial aquifer are already covered by substantial protection programs which utilize a rigorous set of ambient water quality standards.

3. Mapping and Case Studies:

Mapping of the WHPA's for Glacial wells in Suffolk County has been completed through the Water Supply Sensitive Area delineations. For the relatively few Glacial wells in Nassau County, mapping will be completed according to the phasing priorities described in Section 3.3. Case studies of fixed-shape delineations are not considered to be of significant benefit. As proposals for revisions based on alternative approaches are submitted to the Department of Environmental Conservation, they will be evaluated for potential use as models for other Glacial well delineations.

4. Public Water Supply Significance:

As stated previously, approximately one-fourth of the public water supplies in Suffolk County are based in Glacial wells that are outside of the Deep Flow Recharge Area. If Nassau County is included, only about one-eighth of the water supply dependency is from Glacial wells outside of the Deep Flow Recharge Area.

3.2.5. Remedial Action Areas

For all community public water supply wells, regardless of setting, a remedial action area will be delineated within the WHPA. For those supply wells, the proposed baseline delineation of this area will be a fixed radius zone of 200 feet radius from the well. Revisions may be made after evaluation by the Department of Environmental Conservation. For non-community public water supply wells (e.g., isolated public buildings, etc.), the existing New York State Department of Health standards for well separations (e.g., from waste disposal facilities) are to be followed.

The rationale for this baseline delineation is based upon general observations in the past that such a zone has been adequate for protection against microbiological contamination. An alternative time-of-travel basis for delineating revised remedial action area boundaries would be to use a time-of-travel from a minimum of 60-days up to one year. The 60-day period has been used in New York State and in many European countries (USEPA, EPA 440/6-87-010, Guidelines for Delineation of Wellhead Protection Areas). A one-year period is considered conservative. In certain cases, the site-specific hydrogeology (e.g., confined aquifer conditions or long times-of-travel) and the nature of existing land uses and management options may allow remedial action areas smaller than 200 feet radius.

3.2.6. Potential Refinements and Summary

Table 3.1 summarizes the baseline delineations for wellhead protection areas.

Refinements may include:

- Subdivision of the Wellfield Management Area portion of the WHPA, to allow application of different levels of management within the WHPA.
- Revision of the Remedial Action Area portion of the WHPA, according to alternative methods, including time-of-travel or drawdown analysis.

- Revised boundary determinations of the unconsolidated aquifers in Upstate, including primary and principal aquifers, or of the Deep Flow Recharge Area on Long Island.

- Alternative hydrogeologic determinations of appropriate WHPA's in bedrock aquifers or for wells in the Glacial aquifer on Long Island.

3.3. Phasing Considerations

The published unconsolidated aquifer maps cited in the previous section complete the baseline WHPA delineations for all public water supply wells within those aquifers. The completed delineation of the Deep Flow Recharge Area on Long Island has been defined according to road boundaries. That delineation defines the WHPA for all public water supply wells in the Magothy and Lloyd aquifers. The baseline WHPA boundaries for public water supply wells using the Glacial aquifer in Suffolk County have been determined by the Suffolk County Department of Health Services through its Water Supply Sensitive Area designations.

The remaining baseline WHPA boundary determinations that are needed consist of a relatively small set of Glacial aquifer wells and public water supply wells in bedrock aquifers. The phasing priorities for these groups are, in order:

1. Municipal community wells

2. Non-municipal community wells

3. Non-community public wells

Within each priority group additional phasing may be generally ordered by population dependency with modifications made if there are significant known or suspected threats to the wells.

It is emphasized that the baseline WHPA delineations for the very large majority of public water supply wells (by population served) are completed. The delineations for the remaining bedrock wells and Glacial wells will be performed as resources permit.

3.4. Summary

The baseline wellhead protection area delineations are considered to be completed through the published aquifer maps cited in this chapter. These cover both confined and unconfined aquifers and low- and high-yielding aquifers. The Deep Flow Recharge Area on Long Island has also been delineated. It is noted that the Deep Flow Recharge Area on Long Island also includes many wells using the shallow Glacial aquifer, and thus provides an added layer of protection.

Refinements (i.e., delineation of additional sub-zones of the overall WHPA) have been completed in many areas. However, such refinements are optional. Their evaluation and delineation will be a goal of future efforts in wellhead protection

REFERENCE NO. 28

02-8802-07-SI
REV. NO. 1

FINAL DRAFT
SITE INSPECTION REPORT
JOHN HASSALL
WESTBURY, NEW YORK

PREPARED UNDER

TECHNICAL DIRECTIVE DOCUMENT NOS. 02-8802-07, 02-8901-25
CONTRACT NO. 68-01-7346

FOR THE

ENVIRONMENTAL SERVICES DIVISION
U.S. ENVIRONMENTAL PROTECTION AGENCY

FEBRUARY 17, 1989

NUS CORPORATION
SUPERFUND DIVISION

SUBMITTED BY

JOSEPH MAYO
PROJECT MANAGER

EDWARD L. LEONARD
SITE MANAGER

REVIEWED/APPROVED BY

RONALD M. NAMAN
FIT OFFICE MANAGER

SITE NAME:	John Hassall	**EPA ID NO:**	NYD002045417
ADDRESS:	Cantiague Rock Road Westbury, New York 11590	**LATITUDE:** **LONGITUDE:**	40° 46' 30" N 73° 33' 10" W

1.0 SITE SUMMARY

John Hassall is located in the village of Westbury, Nassau County, New York. The facility is an active specialty nail and fastener manufacturer, operating at the present site since 1953. There are five buildings and a recharge basin on approximately 7.5 acres. The buildings include the main production building, the spec-com building, the treatment building, the warehouse, and a shed. Most of the warehouse is leased to Canon Inc.; only a small portion of the southern end is used for storage by John Hassall. The site is situated between the Long Island Expressway and the Northern State Parkway, in a small industrial/commercial area.

The site is on the western edge of Oyster Bay Township; North Hempstead Township is 0.5 mile to the west, and Hempstead Township is 1.4 miles to the south. This is a densely populated suburban area with approximately 12,721 people within 1 mile, 45,886 people within 2 miles, and 109,534 people within 3 miles of the site.

There are two areas of concern. The first is the recharge basin, which was utilized to discharge untreated and treated industrial wastewater to the surficial aquifer, from approximately 1959 to 1982. This wastewater contained metals, cyanides, solvents, and oil and grease. The other is the area around the underground holding tanks, where an oil and grease spill occurred in December 1987.

The following enforcement/regulatory actions have been taken against John Hassall:

- Prehearing Conference on May 15, 1980 with the New York State Department of Environmental Conservation (NYSDEC) and Nassau County Health Department. John Hassall will voluntarily comply with the compliance schedule for upgrading and modifying its wastewater treatment system.

- Consent Agreement and Consent Order (II RCRA- 83-0249) issued January 22, 1984 by the U.S. EPA. John Hassall must submit documentation to establish financial assurance for closure, and where appropriate, postclosure monitoring. In addition, John Hassall must establish financial responsibility for bodily injury and property damage to third parties caused by sudden accidental occurrences arising from the operation of the facility. A $2,000.00 civil penalty was imposed.

- Reclassification of hazardous waste facility issued August 26, 1985 by the NYSDEC. John Hassall was reclassified from an interim status hazardous waste treatment, storage, or disposal facility to a generator only status.

On March 9, 1988, Region 2 FIT conducted a site inspection. One soil sample was collected from the spill area, and seven sediment samples were collected from the recharge basin. Analytical results indicate the presences of volatiles, semivolatiles, pesticides, polychlorinated biphenyls (PCBs), metals, and cyanide.

Ref. Nos. 1, 2, 3, 4, 5, 8, 10, 12, 24, 25, 27

2.0 SITE INSPECTION NARRATIVE

2.1 EXISTING ANALYTICAL DATA

Since 1975, John Hassall has monitored its own treated wastewater, through a New York State approved laboratory. From 1975 to 1982, the treated wastewater was monitored prior to recharge basin discharge, as required by its SPDES Permit (NY0026287). During this period, the treated wastewater routinely violated SPDES discharge limitations for total chromium, copper, nickel, iron, and oil and grease. Since 1982, the treated wastewater has been monitored per batch, to meet Nassau County Sewer Ordinance, prior to being discharged into the Nassau County Sewer System. At present, John Hassall is required to analyze for aluminum, hexavalent chromium, total chromium, chloride, copper, iron, silver, sulfide, fluoride, chemical oxygen demand, NH_3-nitrogen, total dissolved solids, oil and grease, and pH.

In August 1988, the Nassau County Health Department (NCHD) collected soil samples from the area of the December 1987 spill. The analyses did not detect volatiles; however, several unidentifiable compounds were detected.

Ref. Nos. 3, 6, 7, 11, 26

2.2 WASTE SOURCE DESCRIPTION

A recharge basin is located in the southwest corner of the site. This 51,000-cubic-foot basin (approximately 60 by 85 by 10 feet) received industrial wastewater for groundwater discharge, from about 1959 to 1982. The wastewater consisted of process solutions and rinse water from the deburring, burnishing, and cleaning operations. These solutions and waters contained metals, cyanide, solvents, and oil and grease. In 1974 cyanide use was discontinued, and a treatment system was installed to pretreat wastewater prior to groundwater discharge. Presently, the recharge basin is unused for wastewater discharge, but it may still be used for storm water runoff from on-site storm drains and roof gutters.

In December 1987 a spill occurred from an underground holding tank, associated with the wastewater treatment system. Approximately 50 to 100 gallons of oil and grease contaminated the soil in the immediate vicinity, and possibly flowed into the northeast corner of the recharge basin. The soil in the immediate vicinity was removed, and replaced with fresh fill. Presently, John Hassall is conducting an investigation into the condition of the underground tanks, under the guidance of the NCHD. Leak testing was performed, but the results were inconclusive. However, the tanks are assumed to be in unsound condition. Approximately four of the tanks are currently out of service. Further testing will be conducted to determined the condition of all tanks, and if required, an extent of contamination study will be conducted.

Ref. Nos. 8, 9, 10, 12, 13, 24, 26

2.3 GROUNDWATER ROUTE

Groundwater samples were not collected during the site inspection conducted on March 9, 1988; therefore, an observed release cannot be evaluated. However, the potential exists that groundwater contamination has occurred. For over 20 years John Hassall discharged both untreated and treated wastewater to the groundwater via an on-site recharge basin. In addition, the underground holding tanks are assumed to be in unsound condition.

Three sole source aquifers underlie the site: the Lloyd aquifer, the Magothy aquifer, and the upper glacial aquifer. The Magothy aquifer and the upper glacial aquifer are hydraulically connected and form the aquifer of concern. The Magothy aquifer consists of beds and lenses of light gray, fine to coarse sand with some interstitial clay. The upper glacial aquifer consists mainly of stratified beds of fine to coarse sand and of sand and gravel, but also contains thin beds of silt and clay interbedded with coarse-grained material. The deposits of the upper glacial aquifer are highly permeable ($> 10^{-3}$ cm/sec) and form the unsaturated zone. Depth to groundwater is approximately 68 feet; groundwater flows in a south/southeasterly direction.

Potable water in the area is supplied by municipal wells drawing from the aquifer of concern. At least five water districts are located within 3 miles of the site, utilizing 42 wells and serving approximately 152,200 people. The closest well is located approximately 900 feet northeast of the site, and is owned by the Jericho Water District. The water districts within 3 miles of the site are as follows:

- The Town of Hempstead, Department of Water serves approximately 12,000 people, utilizing two wells within 3 miles of the site. The wells are located in the Magothy aquifer, and are 535 feet and 598 feet deep.

- The Hicksville Water District serves approximately 50,000 people, utilizing 19 wells within 3 miles of the site. The wells are located in the Magothy aquifer, and range in depth from 419 feet to 637 feet.

- The Village of Old Westbury, Department of Public Works serves approximately 3,200 people, utilizing three wells within 3 miles of the site. The wells are located in the Magothy aquifer, and range in depth from 478 feet to 610 feet.

- The Westbury Water District serves approximately 24,000 people, utilizing 10 wells within 3 miles of the site. The wells are located in the Magothy aquifer, and range in depth from 260 feet to 600 feet.

- The Jericho Water District serves approximately 63,000 people, utilizing eight wells within 3 miles of the site. The wells are located in the Magothy aquifer, and range in depth from 453 feet to 615 feet.

The net mean annual precipitation for this area is approximately 14.5 inches.

Ref. Nos. 14, 15, 16, 17, 18, 19, 20, 22, 23, 25, 26, 27

2.4 SURFACE WATER ROUTE

The site is relatively flat and is located in a small industrial/commercial area. Site elevation is approximately 157 feet above mean sea level. The surrounding topography gradually slopes from northeast to southwest. There are several perennial ponds located approximately 1 to 2 miles northwest of the site. However, there is no surface water migration route between the site and these bodies of water. Surface water runoff drains from the site via storm drains, and enters a recharge basin where it infiltrates to the surficial aquifer.

Ref. Nos. 8, 21

2.5 AIR ROUTE

No readings above background were detected in the ambient air on the OVA or HNu prior to disturbance of the waste source during the site inspection on March 9, 1988. However, readings up to 17 ppm and 15 ppm were noted in the sediment and soil, while samples NYEF-S7 and NYEF-S8, respectively, were collected.

It is not known if there are historic landmarks within view of the site.

Ref. No. 8

2.6 ACTUAL HAZARDOUS CONDITIONS

Analytical results of sediment and soil samples collected during the site inspection conducted on March 9, 1988, indicated the presence of contaminants which are directly attributable to the facility. Section 4.0 provides a discussion of the site inspection sampling results.

The potential exists that groundwater contamination has occurred. John Hassall discharged industrial wastewater to the groundwater via an on-site recharge basin. This wastewater contained metals, cyanide, solvents, and oil and grease. From approximately 1959 to 1975, untreated wastewater was discharged to the groundwater. From 1975 to 1982, treated wastewater was discharged to the groundwater. This treated wastewater routinely violated SPDES discharge limitations for total chromium, copper, iron, nickel, and oil and grease. In addition, the underground holding tanks are assumed to be in unsound condition.

No other actual hazardous conditions pertaining to human or environmental contamination have been documented. Specifically:

- Contamination has not been documented either in organisms in a food chain leading to humans or in organisms directly consumed by humans.
- There have been no documented observed incidents of direct physical contact with hazardous substances at the facility involving a human being (not including occupational exposure) or a domestic animal.
- There have been no documented incidents of damage to flora or to fauna that can be attributed to the hazardous material at the facility.
- There is no documented contamination of a sewer or storm drain.
- A fire marshall has not certified that the site poses a significant threat of fire or explosion.

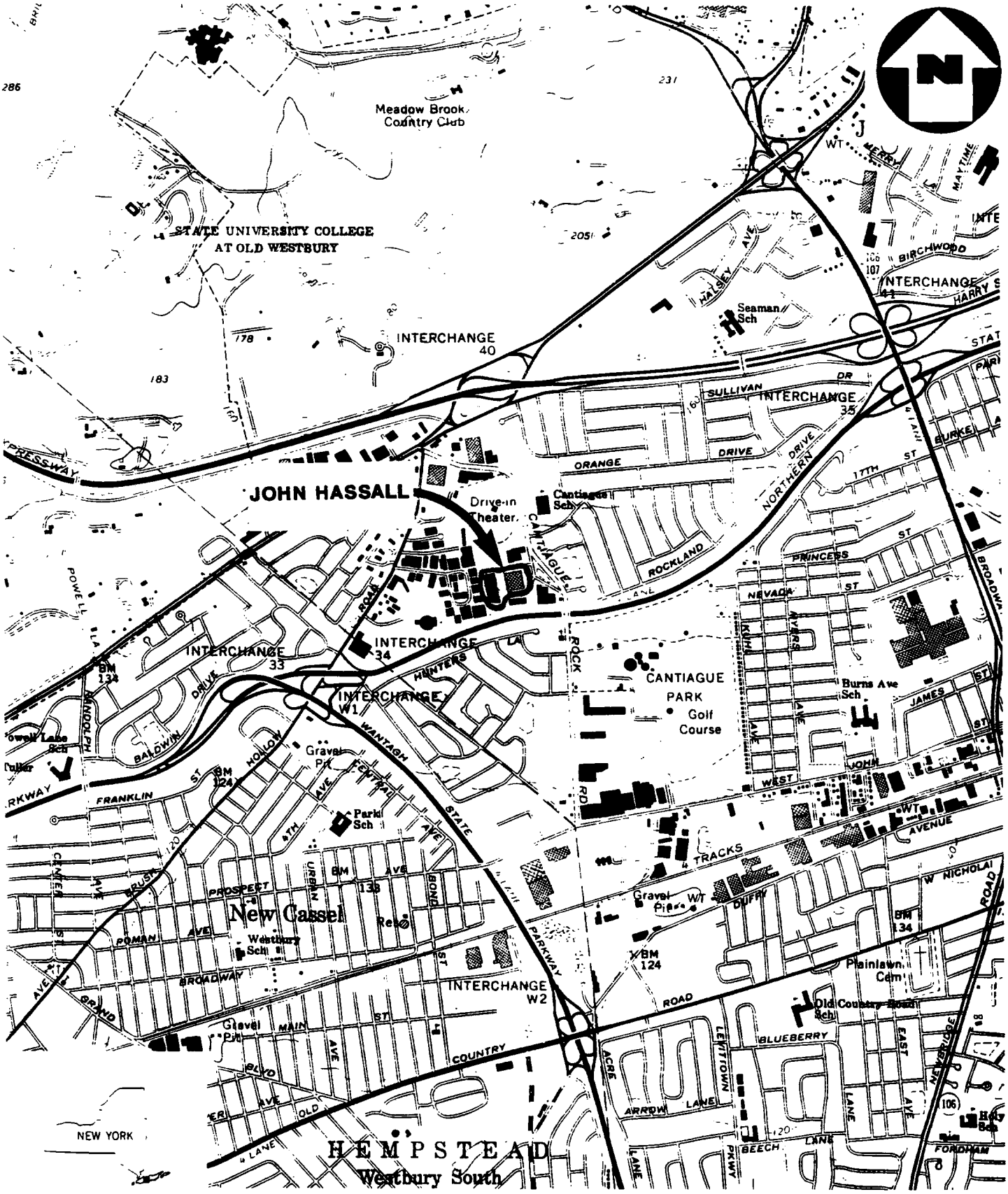
Ref. Nos. 9, 10, 11, 24, 25, 26

3.0 MAPS AND PHOTOS

JOHN HASSALL
WESTBURY, NEW YORK

CONTENTS

Figure 1: Site Location Map
Figure 2: Site Map
Figure 3: Sample Location Map
Exhibit A: Photograph Log



(QUAD) HICKSVILLE, N.Y.

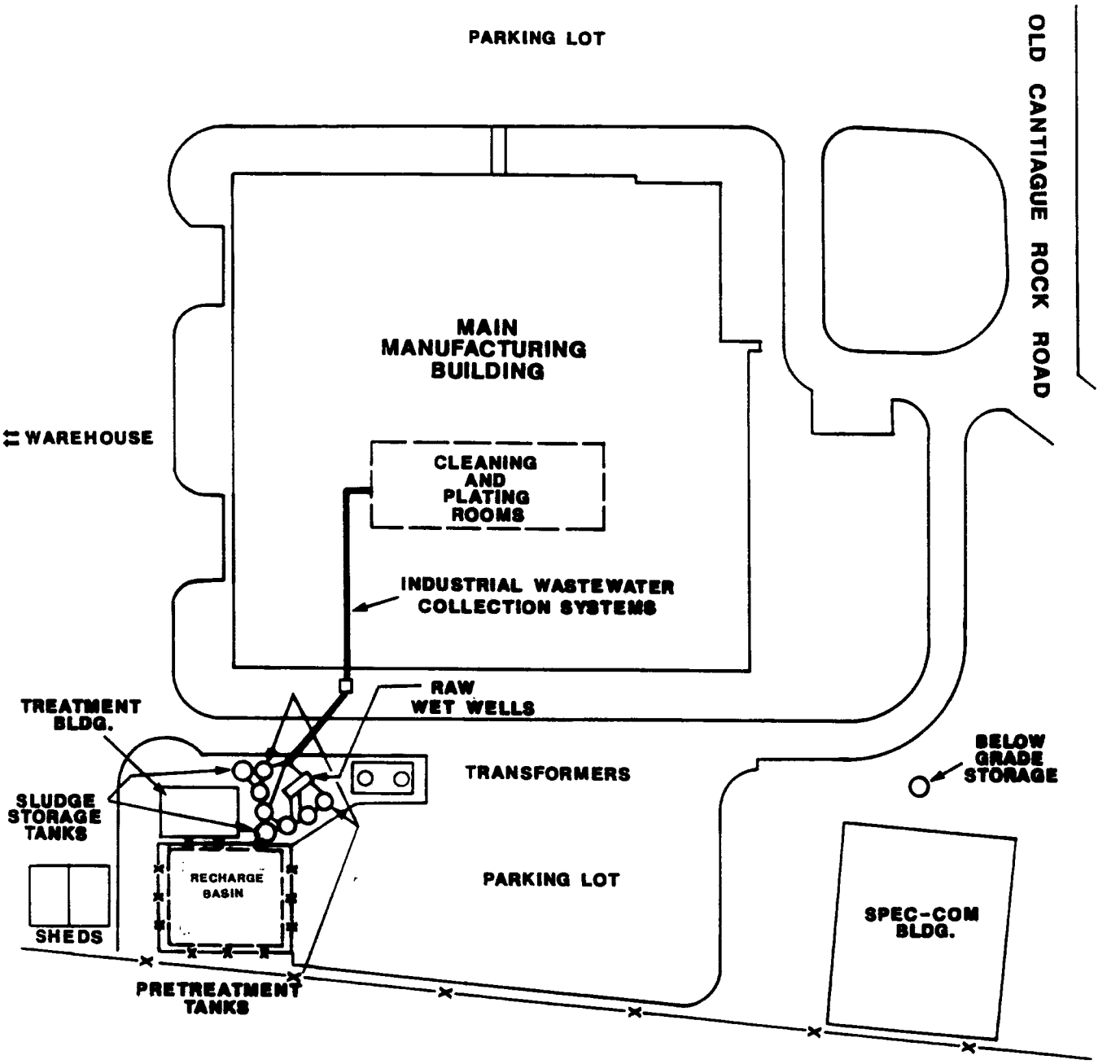
FIGURE 1

SITE LOCATION MAP

JOHN HASSALL, WESTBURY, N.Y.

SCALE: 1" = 2000'

NUS CORPORATION



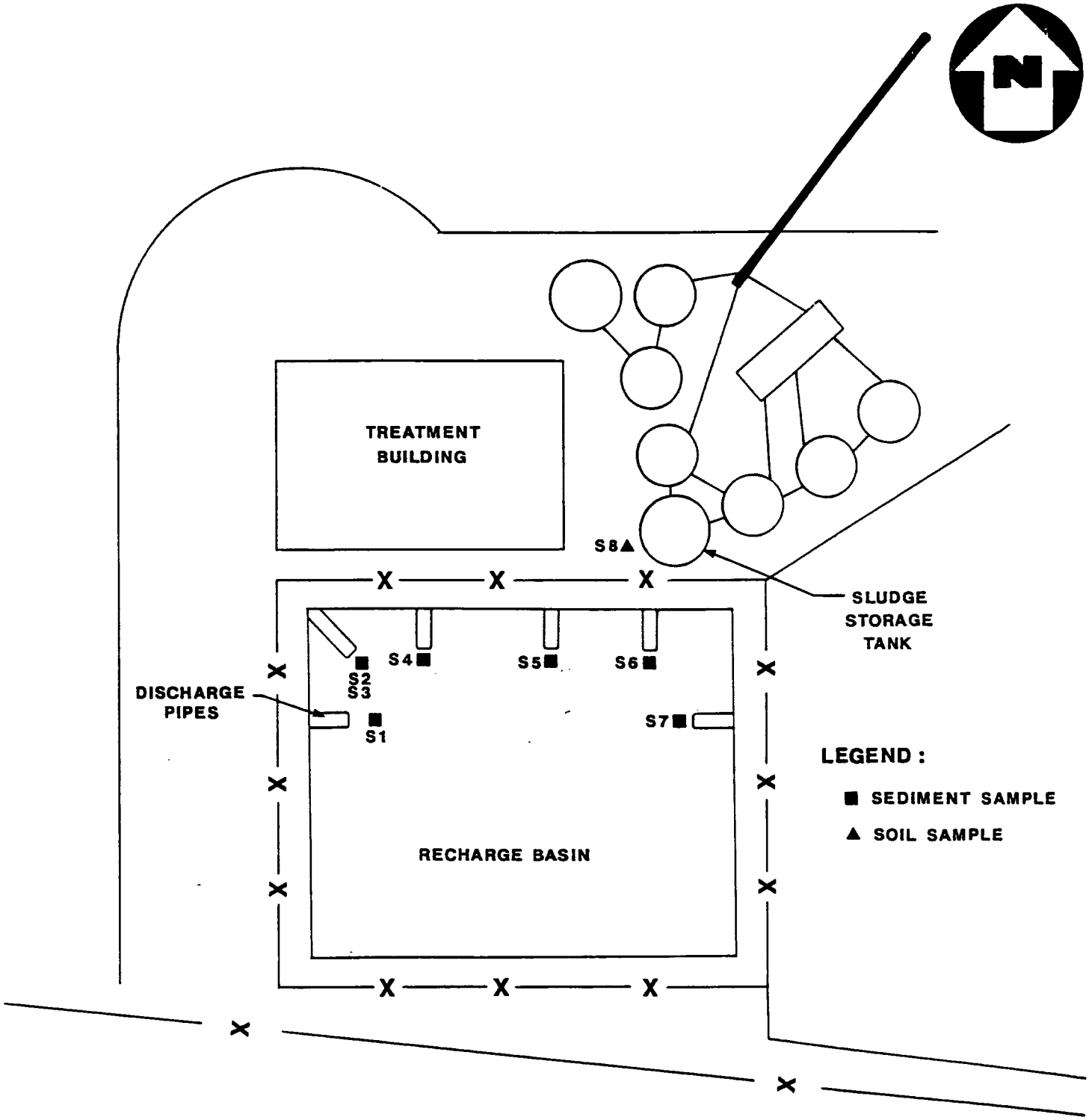
SITE MAP

JOHN HASSALL, WESTBURY, N.Y.

(NOT TO SCALE)

FIGURE 2

NUS CORPORATION



NOTE: ALL SAMPLE NUMBERS ARE PRECEDED BY NYEF.

FIGURE 3

SAMPLE LOCATION MAP

JOHN HASSALL, WESTBURY, N.Y.

(NOT TO SCALE)

NUS CORPORATION

EXHIBIT A

PHOTOGRAPH LOG

JOHN HASSALL
WESTBURY, NEW YORK

MARCH 9, 1988

Shortline Bus

02-8811-06

On-Site Reconnaissance Photo Log.

All photos by Stan Shulte

DATE + time	Roll No	Picture ID No.	Description
11-22-88 1214	1	1P 1S	Area formerly used for waste drum storage facing east
11-22-88 1216	1	2P 2S	Area behind former drum storage area facing north.
11-22-88 1218	1	3P 3S	Drainage ditch which may accept wastes from drum storage area facing north west
11-22-88 1219	1	4P 4S	Area showing ~~loc~~ of past alleged grease dumping. facing south east

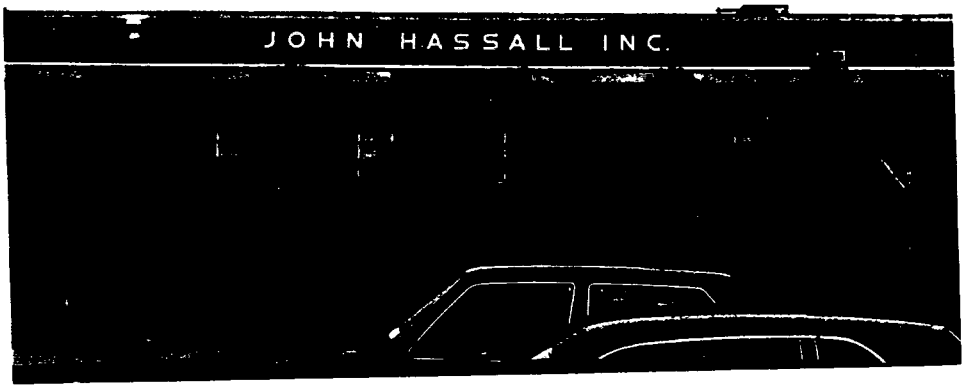
Stanley B. Shulte 11/29/88

JWright 11-29-88

JOHN HASSALL
WESTBURY, NEW YORK
MARCH 9, 1988
PHOTOGRAPH INDEX

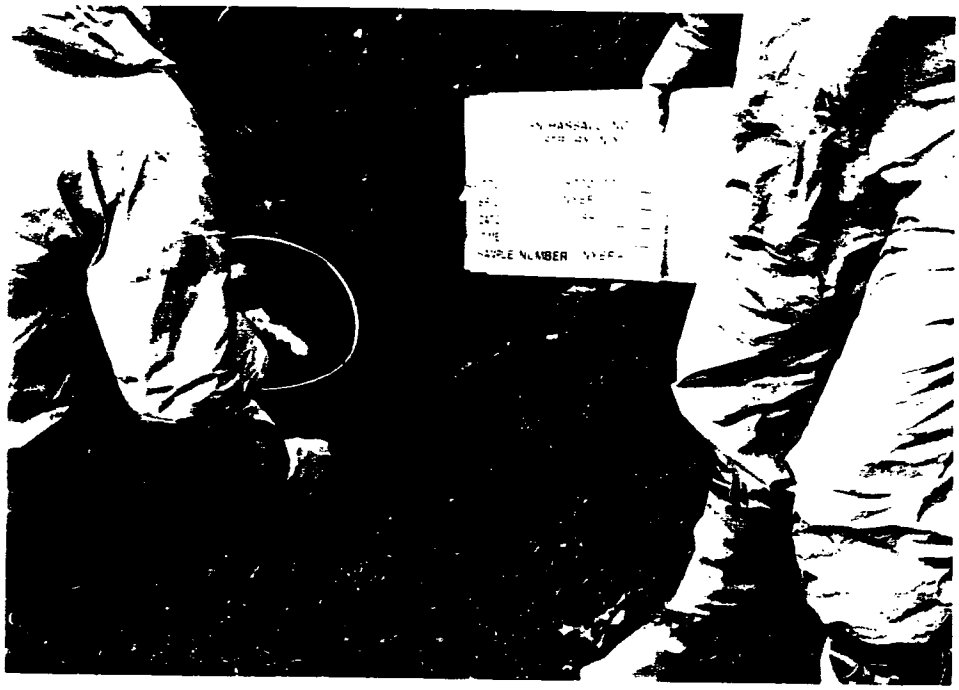
Photo Number	Description	Time
1P-12	Company sign on main manufacturing building	1037
1P-1	P. Solinski obtaining sediment sample NYEF-S1.	0838
1P-2	P. Solinski obtaining sediment sample NYEF-S2.	0854
1P-3	P. Solinski obtaining sediment sample NYEF-S3.	0858
1P-4	S. Lenczyk obtaining sediment sample NYEF-S4.	0908
1P-5	P. Solinski obtaining sediment sample NYEF-S5.	0920
1P-6	P. Solinski obtaining sediment sample NYEF-S6.	0932
1P-8	P. Solinski obtaining sediment sample NYEF-S7.	1027
1P-7	P. Solinski obtaining soil sample NYEF-S8.	1015
1P-9	Looking west at recharge basin	1034
1P-10	Looking north at recharge basin.	1035

All photographs taken by E.L. Leonard.

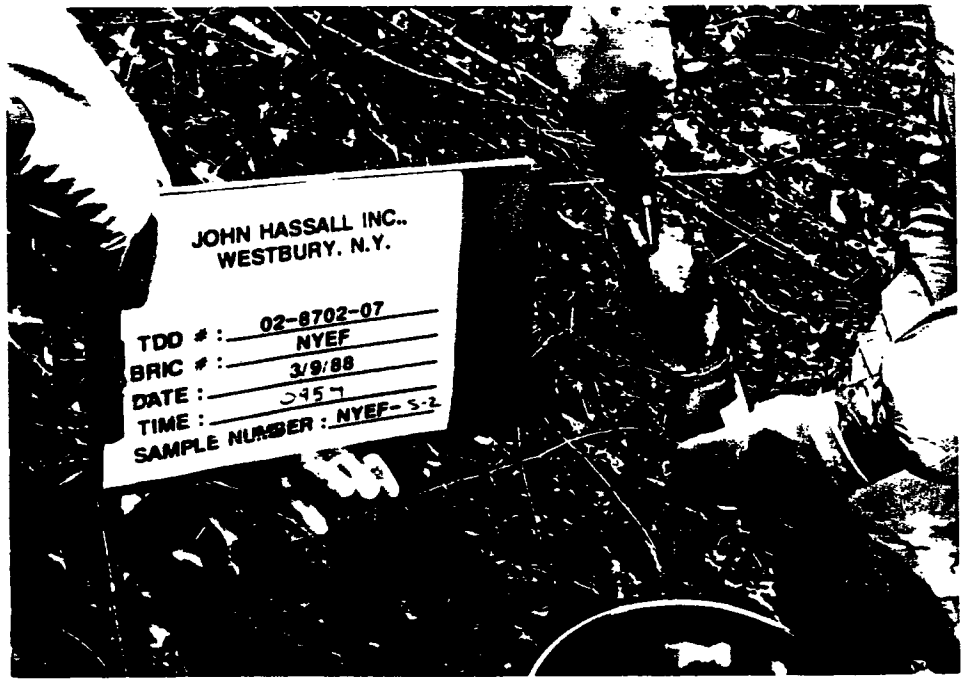


JP-12 March 9, 1988 1037
Company sign on main manufacturing building.

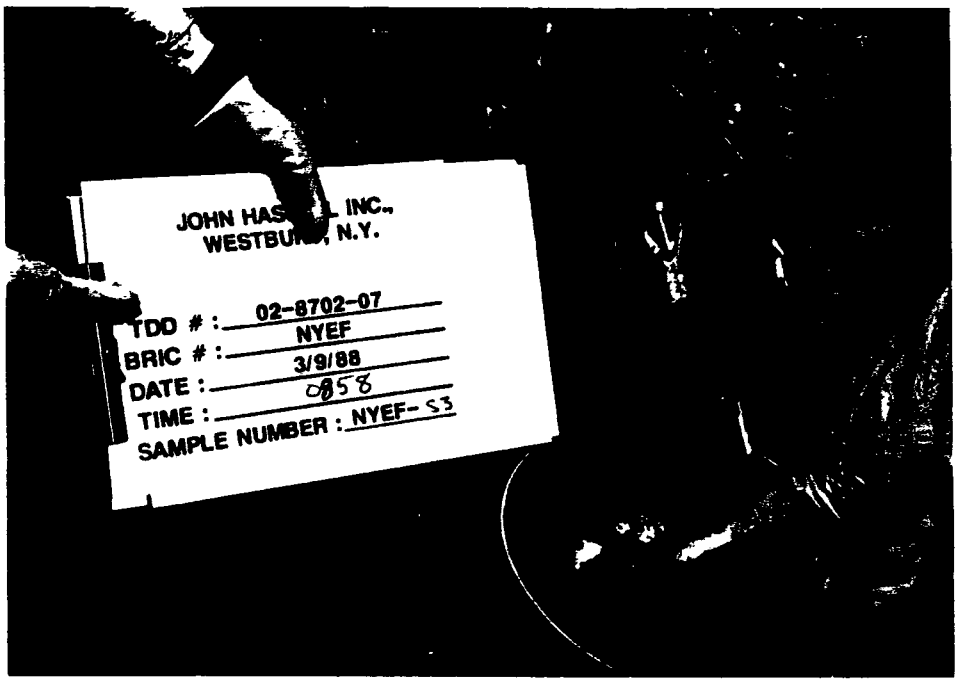
JOHN HASSALL, WESTBURY, NEW YORK



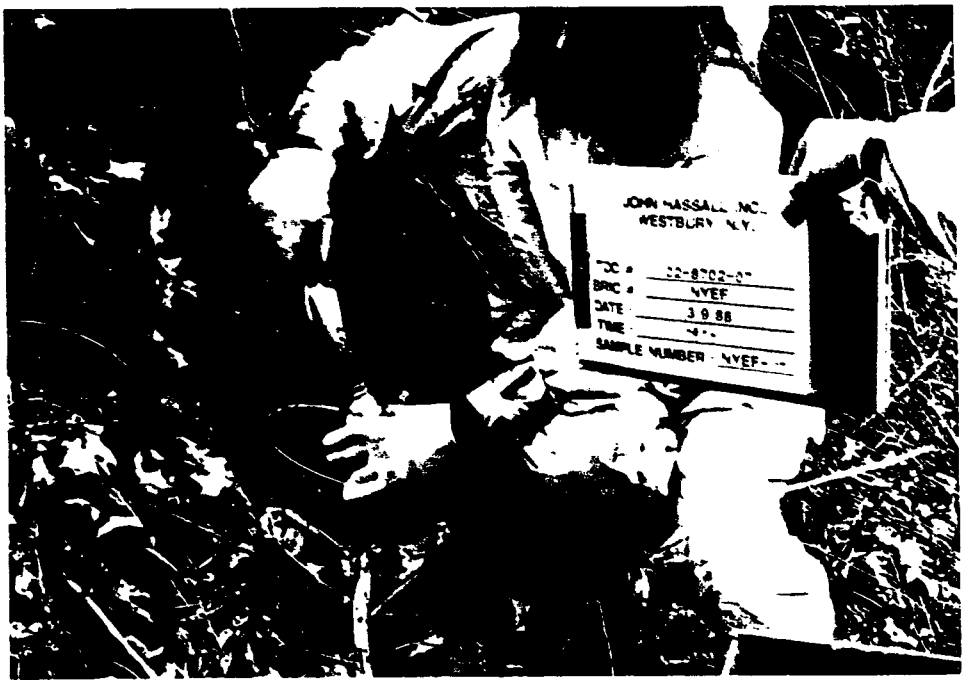
1P-1 March 9, 1988 0838
P. Solinski obtaining sediment sample NYEF-S1.



1P-2 March 9, 1988 0854
P. Solinski obtaining sediment sample NYEF-S2.



1P-3 March 9, 1988 0858
P. Solinski obtaining sediment sample NYEF-S3.



1P-4 March 9, 1988 0908
S. Lenczyk obtaining sediment sample NYEF-S4.

1P-5 March 9, 1988 0920
P. Solinski obtaining sediment sample NYEF-S5.

1P-6 March 9, 1988 0932
P. Solinski obtaining sediment sample NYEF-S6.

JOHN HASSALL, WESTBURY, NEW YORK

1P-8 March 9, 1988 1027
P. Solinski obtaining sediment sample NYEF-S7.

1P-7 March 9, 1988 1015
P. Solinski obtaining soil sample NYEF-S8.

JOHN HASSALL, WESTBURY, NEW YORK

IP-9 March 9, 1988 1034
Looking west at recharge basin.

IP-10 March 9, 1988 1035
Looking north at recharge basin.

4.0 SITE INSPECTION SAMPLING RESULTS

On March 9, 1988, Region 2 FIT conducted a site inspection. One soil sample was collected from the spill area, and seven sediment samples were collected from the recharge basin. All samples were analyzed for Target Compound List (TCL) substances. Sample locations are presented in Figure 3, Section 3.0.

Organic analytical results of soil sample NYEF-S8 indicate that no volatiles, semivolatiles, or PCBs are present above the contract-required quantitation limits (CRQLs). However, pesticides are present at estimated values, and include 4,4'-DDE, 4,4'-DDD, and 4,4'-DDT at concentrations of 550, 450, and 1,500 ug/kg, respectively. Organic analytical results of the sediment samples indicate the presence of volatiles, semivolatiles, pesticides, and PCBs. Volatiles are present above the CRQLs in samples NYEF-S3, NYEF-S5, and NYEF-S6, and include trichloroethene and toluene at concentrations up to 15 and 21 ug/kg, respectively. Semivolatiles were detected in all sediment samples; however, only in samples NYEF-S1, NYEF-S2, NYEF-S3, and NYEF-S7 were they detected above the CRQLs. Benzoic acid was detected in sample NYEF-S2 at a concentration of 6,000 ug/kg. Eleven polycyclic aromatic hydrocarbons were detected in these samples at a range of 440-2,800 ug/kg. Pesticides were detected in all the sediment samples, and include 4,4'DDE, 4,4'-DDT, and chlordane at concentrations up to 29, 120, and 260 ug/kg, respectively. PCBs were detected in three sediment samples: Aroclor-1254 in NYEF-S5 at a concentration of 210 ug/kg, and Aroclor-1260 in NYEF-S2 and NYEF-S3 at concentrations of 1,100 and 1,300 ug/kg, respectively.

Inorganic results indicate above-background levels of several metals and cyanide in sediment samples NYEF-S1, NYEF-S2, NYEF-S3, NYEF-S4, and NYEF-S7. The compounds detected include aluminum, chromium, copper, lead, nickel, zinc, and cyanide at concentrations up to 16,700, 151 (estimated value), 250, 145, 206, 167 and 0.63 mg/kg, respectively. Aluminum was the only inorganic compound detected above background levels in soil sample NYEF-S8 at a concentration of 14,800 mg/kg.

5.0 CONCLUSIONS AND RECOMMENDATIONS

After review of all information gathered during the site inspection, John Hassall is recommended for further action as a high priority. The only route of concern is the groundwater migration route. The site overlies three sole source aquifers, which are the only source of potable water for the area. Municipal wells within 3 miles of the site serve approximately 152,200 people, with the closest well about 900 feet northeast. As background information indicates and analytical data support, contaminants are present on site, and a strong potential exists that groundwater contamination has occurred.

6.0 REFERENCES

1. General Sciences Corporation, Graphical Exposure Modeling Systems (GEMS). Landover, Maryland, 1986.

2. NCHD memorandum from J. Schechter (NCHD) to L. Sama (NYSDEC), Subject: Prehearing Conference. May 15, 1980.

3. Telecon Note: Conversation between J. Schechter (NCHD) and E. Leonard (NUS Corporation), April 26, 1988.

4. U.S. Environmental Protection Agency, Region 2, Consent Agreement and Consent Order (Docket No. II RCRA-83-0249) issued against John Hassall, Inc. January 22, 1984.

5. Letter from J.L. Middlekoop (NYSDEC) to V. Palese (John Hassall, Inc.). August 26, 1985.

6. NYSDEC, February 3, 1975, New York State Department of Environmental Conservation State Pollutant Discharge Elimination System Discharge Permit, Permit No. NY0076287 for John Hassall, Inc.

7. Letter from M.F. Foster (County of Nassau, Department of Public Works) to R.S. Iyer (Holzmacher, McLendon & Murrell). August 15, 1983.

8. Field Notebook No. 0189, John Hassall, TDD No. 02-8802-07, Site Inspection, NUS Corporation Region 2 FIT, Edison, New Jersey. March 9, 1988.

9. Telecon Note: Conversation between J. Schechter (NCHD) and R. Feinberg (NUS Corporation). February 19, 1988.

10. Palese, V. Report on the Hazardous and Nonhazardous Industrial Waste Generated, Treated, and/or Stored by John Hassall, Inc. Date unknown.

11. Holzmacher, Mclendon and Murrell. Monthly SPDES Industrial Discharge Monitoring Reports for John Hassall, Inc. 1975 to 1982.

12. Telecon Note: Conversation between V. Palese (John Hassall, Inc.) and E. Leonard (NUS Corporation). March 17, 1988.

13. Telecon Note: Conversation between J. Schechter (NCHD) and E. Leonard (NUS Corporation). March 17, 1988.

14. Telecon Note: Conversation between J. McCrosson (Hicksville Water District) and R. Feinberg (NUS Corp.). February 18, 1988.

15. Federal Register, Vo. 43, No. 120, p. 26611. June 21, 1978.

16. Kilburn, C. and R.K. Krulikas. Hydrogeology and Groundwater Quality of the Northern Part of the Town of Oyster Bay, Nassau County, New York in 1980. Water-Resources Investigations Report 85-4051. U.S. Geological Survey and Nassau County Department of Public Works. 1987.

17. Letter from H.V. Morgan (Town of Hempstead, Department of Water) to E. Leonard (NUS Corporation). April 6, 1988.

6.0 REFERENCES (Cont'd)

18. Letter from J.J. McCrosson (Hicksville Water District) to E. Leonard (NUS Corporation). March 22, 1988.

19. Letter from A.J. Lindon (Village of Old Westbury, Department of Public Works) to E. Leonard (NUS Corporation). April 4, 1988.

20. Letter from I.J. Vacchio (Westbury Water District) to E. Leonard (NUS Corporation). March 21, 1988.

21. Telecon Note: Conversation between Staff Engineer (Nassau County, Department of Public Works) and E. Leonard (NUS Corporation). April 22, 1988.

22. Letter from W. Evers (Jericho Water District) to E. Leonard (NUS Corporation). May 9, 1988.

23. Uncontrolled hazardous waste site ranking system, A user's manual, 40 CFR, Part 300, Appendix A, 1986.

24. Letter from unknown (John Hassall, Inc.) to E.A. Regna (U.S. EPA, Region 2). February 10, 1984.

25. U.S. EPA Contract Laboratory Program, Hittman-Ebasco Assoc. Inc. and CSMRI Analytical Inc., Case No. 9116, Laboratory Analysis from NUS Corp. Region 2 FIT Site Inspection, conducted on March 9, 1988.

26. Telecon Note: Conversation between J. Schechter (Nassau County Health Department) and E. Leonard (NUS Corp.). February 1, 1989.

27. Three-Mile Vicinity Map, based on U.S. Geological Survey Map, 15-minute Quadrangles for Amityville, NY, 1969 (Photorevised 1979), Freeport, NY, 1969 (Photorevised 1979), Hicksville, NY, 1967 (Photorevised 1979), Huntington, NY, 1967 (Photorevised 1979).

REFERENCE 1

-150

02-8802-07

NYEF E11

JOHN HASSALL, INC.

Lat: 40°46'30"N Long: 73°33'10"W

Data List of Dataset: NYEF Number of Records = 6

REC #	POP	HOUSE	DISTANCE	SECTOR
1	0	0	0.400000	
2	2187	664	0.810000	
3	10534	2984	1.60000	
4	33165	10514	3.20000	
5	63648	19481	4.80000	
6	72437	20451	6.40000	

DISTANCE MILES	TOTAL POPULATION	TOTAL HOUSES
1	12721	3648
2	45886	14162
3	109534	33643
4	181971	54094

REFERENCE 2

ENVIRONMENTAL HEALTH
Continuation Sheet
Nassau County Health Department

Owner or Agent :
Address:

Inspector

DATE | COMMENTS

TO: L. SAWA
FROM: J. SCHECHTER
Subject: Pre Hearing Conference
John Hassall Inc.
Cantiague Rock Rd.
Westbury, N.Y.

On 5/15/80 at 2:00pm a pre-hearing conference was held at NYSDEC regional office in Stonybrook concerning the continuing violations of John Hassalls Westbury, N.Y. Those attending included:

Joan Scherb, regional attorney, NYSDEC
Gerald Robin, senior sanitary engineer
Karl Horlitz, plant manager, John Hassall
John Molloy, H2M, consulting ENGR. for John Hassall
Joseph Schechter, Senior Sanitarian, NCDH

Since the last pre-hearing conference held on 10/18/78, H2M has attempted to meet permit limitations by improving the treatment system - including manufacturing process changes, chemical usage + optimization of the treatment system. In addition, discharge of pre-treated wastes to the Nassau County Sewer has also been investigated. However, discharge of wastewater continues to violate groundwater discharge standards

EH 109a 1/68
DH-1198. 9/71

ENVIRONMENTAL HEALTH
Continuation Sheet
Nassau County Health Department

Owner or Agent :
Address:

Inspector

DATE	COMMENTS
	for total chromium, iron, nickel + oil + grease, although evidence of improvement can be noted in self monitoring reports + Nassau County samples.
	In order to meet effluent standards + reduce the amount of sludge + filter cake presently produced, H&M intends to design an evaporative system + go to a no discharge condition by June 1981.
	Presently, on site there are:
	250 drums - filter cake
	66 " - industrial wash sludge (oil sludge
	63 " - mixed metal sludge
	A compliance schedule was established as follows:
	By 8/4/80 - submit engineering report for means of meeting groundwater discharge standards (will include discussion of present treatment system)
	By 11/4/80 - submit final plans + specs
	By 11/10/80 - order equipment
	By 3/20/81 - Begin construction
	By 6/20/81 - Attain operational level
	By 6/30/81 - submit final report indicating discontinu of discharge

EH 109a 1/68
DH-1198, 9/71

ENVIRONMENTAL HEALTH
Continuation Sheet
Nassau County Health Department

Owner or Agent :
Address:

Inspector

DATE	COMMENTS
	The consent order was typed after the meeting and handed to Mr. Horlitz to deliver to a corporate officer for signature.
	In addition, it was agreed, that since the current permit expired 2/5/80 and an application has not been submitted, to resolve legal problems, Mr. Molloy will send ~~an application~~ a letter of explanation to George Hansen including a copy of the compliance schedule to be included in the renewal permit. The letter will request an application package.
	No civil penalty was imposed.
	J Schechter

REFERENCE 3

NUS CORPORATION AND SUBSIDIARIES — **TELECON NOTE**

CONTROL NO:	DATE: 4/26/88	TIME: 1120 HRS

DISTRIBUTION:
JOHN HASSALL
02-8802-07

BETWEEN: JOE SCHECHTER	OF: NCHD	PHONE: (516) 535-2286

AND: E. LEONARD (NUS)

DISCUSSION:
RE: BACKGROUND

1) CONSENT ORDER ISSUED IN MAY 1980, BUT NOT SIGNED. HASSALL AGREED TO FOLLOW COMPLIANCE SCHEDULE ESTABLISH, DURING PRE HEARING CONF. 5/15/80. ON 7/1/81 NCHD FORCED HASSALL TO STOP DISCHARGING TO RECHARGE BASIN + COLLECT WASTE WATER. WATER WASTE SHIPPED CHEMICAL WASTE MANAGEMENT FROM JULY TO SEPT FOR DISPOSAL, UNTILL ALLOWED TO DISCHARGE TO NASSAU CO. SEWER SYSTEM IN SEPT 1981

ACTION ITEMS:
2) SPDES PERMIT DELETED IN 1981.

3) HASSALLS ANALYTICAL LAB WAS SUPPOSE TO BE AN APPROVED ANALATICAL LAB BY NY FOR DRINKING WATER ANALYSIS N 2YRS AGO LABS WERE APPROVED FOR WASTE WATER ANALYSIS.

NUS 067 REVISED 0685

NUS CORPORATION AND SUBSIDIARIES — TELECON NOTE

CONTROL NO:	DATE: 4/26/88	TIME: 1140 HRS

DISTRIBUTION:

JOHN HASSELL
02-8802-07

BETWEEN:	OF:	PHONE:
J. SCHECTER	NCHD	(516) 535 2286

AND: E. LEONARD (NUS)

DISCUSSION: RE: BACKGROUND

4) DEC 1987 SPILL. NCHD HAS VISUALLY INSPECTED THE SPILL AT HASSELL. ~ NEXT 2 WEEK THEY WILL SAMPLE. MR. SCHECTER WILL SEND REPORT & RESULTS WHEN COMPLETED.

E. Leonard 4/26/88

ACTION ITEMS:

NUS 067 REVISED 0685

REFERENCE 4

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION II

In the Matter of JOHN HASSALL, INC. NYD002045417 Westbury, New York 11590 Respondent. Proceeding Under Section 3008 of the Solid Waste Disposal Act, as amended.	CONSENT AGREEMENT AND CONSENT ORDER Docket No. II RCRA-83-0249

PRELIMINARY STATEMENT

This administrative proceeding was instituted pursuant to Section 3008 of the Solid Waste Disposal Act, as amended, 42 U.S.C. §6901 et seq. (the Act). [Note: Among the statutes amending the Act is the Resource Conservation and Recovery Act, 90 Stat. 2795, P.L. 94-580 (1976).]

The Director of the Air and Waste Management Division of the U.S. Environmental Protection Agency (EPA), Region II, Complainant in this proceeding, issued a Complaint, Compliance Order, and Notice of Opportunity for Hearing to Respondent, JOHN HASSALL, INC. Said document charged Respondent with certain violations of Section 3004 of the Act, 42 U.S.C. §6924, and the regulations promulgated thereunder, as follows:

1. Respondent owns and operates a facility located at:

Cantiague Rock Road

Westbury, New York 11590

2. By notification dated August 12, 1980, Respondent informed EPA that it conducts activities at the facility involving "hazardous waste," as that term is defined in Section 1004(5) of the Act, 42 U.S.C. §6903(5) and in 40 CFR §261.3.

By application dated November 19, 1980, Respondent requested a permit to conduct its hazardous waste activities.

3. EPA regulations for hazardous waste treatment, storage, and disposal facilities are found at 40 CFR Part 265 (published in 45 Fed. Reg. 33063 et seq., May 19, 1980 and as later amended), promulgated pursuant to Subtitle C of the Act, 42 U.S.C. §6921 et seq.

4. 40 CFR Part 265 sets interim status standards for hazardous waste treatment, storage, and disposal facilities. These standards apply until final administrative disposition of permit applications with respect to these facilities has been made. No such final disposition has been made with respect to your facility, and thus the standards of Part 265 apply thereto.

5. 40 CFR §265.143 (amended on April 7, 1982) requires that by the effective date of the regulation, (July 6, 1982) an owner or operator of a hazardous waste facility must establish financial assurance for closure of the facility, as well as, where appropriate, post-closure monitoring. As of September 1, 1983, information available to EPA indicates that Respondent's facility had not submitted the documents necessary to comply with this requirement. Respondent was therefore in violation of 40 CFR §265.143.

6. 40 CFR §265.147 (amended on April 17, 1982) requires that by the effective date of the regulation (July 17, 1982) an owner or operator of a hazardous waste facility must establish financial responsibility for bodily injury and property damage to third parties caused by sudden accidental occurrences arising from the operation of the facility. As of September 1, 1983, information available to EPA indicates that Respondent's facility had not submitted the documents necessary to comply with this requirement. Respondent was therefore in violation of 40 CFR §265.147.

CONSENT AGREEMENT

Based upon the foregoing, and pursuant to Section 3008 of the Act, and Section 22.18 of the Consolidated Rules of Practices Governing the Administrative Assessment of Civil Penalties and the Revocation or Suspension of Permits, 40 CFR §22.18, it is hereby agreed that Respondent shall hereinafter comply with all relevant regulations at 40 CFR Parts 261 through 265 and the following terms:

1. Respondent shall, within thirty (30) days of the effective date of this Compliance Order, submit to EPA documents sufficient to establish financial assurance for closure and, where appropriate, post-closure monitoring, as required by 40 CFR §265.143.

2. Respondent shall, within thirty (30) days of the effective date of this Compliance Order, submit to EPA documents sufficient to establish financial responsibility for bodily injury and property damage to third parties caused by sudden accidental occurences arising from the operation of the facility, as required by 40 CFR §265.147.

Within sixty (60) days of receipt of a signed and executed copy of this Consent Agreement and Final Order, Respondent shall pay by cashier's or certified check a civil penalty for the violations cited herein in the amount of $2,000.00, payable to the Treasurer, United States of America. Such payment shall be remitted to the Regional Hearing Clerk, EPA, Region II, 26 Federal Plaza, New York, New York, 10278. Failure to remit such payment in full will result in the referral of this matter to the United States Attorney for collection. This Consent Agreement is being entered into by the parties in full settlement of all liabilities which might have attached as a result of the proceedings.

Respondent admits the jurisdictional allegations of the Complaint. Furthermore, Respondent has read the Agreement and admits the facts stipulated therein. Respondent consents to the assessment of the civil penalty set forth in the Agreement and explicitly waives its right to request a hearing on the Complaint, this Agreement, or the attached Consent Order.

RESPONDENT: BY: Karl W. Horlitz P.E.

DATE: December 2, 1983

COMPLAINANT:

CONRAD SIMON
Director
Air and Waste Management Division

DATE: January 20, 1984

CONSENT ORDER

The Regional Administrator of EPA, Region II, concurs in the foregoing Consent Agreement. The Agreement entered into by the parties is hereby approved and issued, effective immediately.

Jacqueline E. Schafer

JACQUELINE E. SCHAFER
Regional Administrator
U.S. Environmental Protection Agency
26 Federal Plaza
New York, New York 10278

DATE: Jan. 22 1984

REFERENCE 5

New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233-0001

1985 N.Y.S. Forest Preserve Centennial 100

PIF
C1105=5
Com 09
851031 cp

Henry G. Williams
Commissioner

AUG 26 1985

Mr. Victor Palese
John Hassal, Inc.
Contiague Road
Westbury, NY 11590

Dear Mr. Palese:

Re: Reclassification of NYD002045417
to Generator-Only Status

The New York State Department of Environmental Conservation (DEC) is now fully responsible for administration of the Resource Conservation and Recovery Act (RCRA) regulatory program for hazardous waste facilities operating under interim status with Part A RCRA Permits.

In order to qualify as an interim status hazardous waste treatment, storage or disposal (TSD) facility pursuant to Section 3005(e) of RCRA and 6NYCRR Part 373, a facility was required to be in existence on November 19, 1980, and to be conducting a hazardous waste activity requiring a RCRA and/or Part 373 Permit. Based on information submitted by your company, it appears that your facility has never qualified for interim status pursuant to Section 3005(e) of RCRA and/or 6NYCRR Part 373, insofar as it never conducted a RCRA or 373 permittable activity. Therefore, DEC considers your facility to never have operated with interim status under a Part A Permit.

If you have any information which would otherwise indicate that your facility had or does qualify for interim status under RCRA or Part 373, it must be submitted within 14 calendar days of the date of this letter. If you do not respond to this letter within the time provided, your facility will be removed from the list of active TSD facilities.

Please be advised that withdrawal of your Part A Permit application terminates your privilege to operate with interim status in the future. Should you decide to conduct any activity not exempt from the permit requirements of 6NYCRR Part 373 and/or 40 CFR Parts 264, 265 and 270, you must first obtain full Part 373 and RCRA Permits. Failure to obtain the proper permits will subject you to enforcement actions pursuant to Section 3008 of RCRA and Article 27, Titles 7 and 9 of the Environmental Conservation Law.

Should you have any questions concerning this matter, please contact Mr. George Heitzman, of my staff, at (518) 457-3274.

Sincerely,

for John L. Middelkoop, P.E.
Supervisor, Permits Section
Bureau of Hazardous Waste Technology
Division of Solid and Hazardous Waste

cc: Richard A. Baker (EPA Region II - Permits Administration Branch)
James M. Reidy (EPA Region II - Solid Waste Branch)
David Mafrici (NYSDEC - Bureau of Hazardous Waste Operations)
T. Sanford (Regional Solid Waste Engineer, NYSDEC - Region 1)

REFERENCE 6

Final Effluent Limitations

During the period beginning EDP (2/3/75) and lasting
(Give Date)

until the date of expiration of this permit, discharges from outfalls 001
(Specify Outfall Numb

shall be limited and monitored by the permittee as specified below:

(a) The following shall be limited and monitored by the permittee as specified:

Outfall Number	Effluent Characteristic	Discharge Limitation in kg/day (lbs./day) Daily Average	Daily Maximum	Other Limitations (Specify Units) Average	Maximum	Monitoring Requirements Measurement Frequency	Samp Type
001	Flow				n/a	Total each	Batc
	Chromium (Hexavalent)				.1 mg/1	Each	Batc
	Chromium (Total)				1.0 ~~.25~~ mg/1	"	
	Copper				.4 mg/1	"	
	Iron				.6 mg/1	"	
	Nickel				1.0 mg/1	"	
	Oil			10 mg/1	15 mg/1	"	

For the purposes of this subsection, the daily average discharge is the total discharge by weight during a calendar month divided by the number of days in the month that the production or commercial facility was operating.

For the purposes of this subsection, the daily maximum discharge means the total discharge by weight during any calendar day.

(b) The pH shall not be less than 6.0 nor greater than 8.5.
The pH shall be monitored as follows: Each Batch

REFERENCE 7

FRANCIS T. PURCELL
COUNTY EXECUTIVE

LUDWIG C. HASL, P
COMMISSIONER

COUNTY OF NASSAU
DEPARTMENT OF PUBLIC WORKS
MINEOLA, NEW YORK 11501

August 15, 1983

Raman S. Iyer
Holzmacher, McLendon & Murrell
125 Baylis Road
Suite 140
Melville, N. Y. 11747

Dear Raman:

We have completed our review of the weekly laboratory reports on John Hassall waste water discharges and have found them satisfactory. In light of this record, we recommend that the frequency of self monitoring by John Hassall be reduced from weekly to once a month. The following parameters are required to be monitored.

Aluminum
Hexavalent Chromium
Total Chromium
Chloride
Copper
Iron
Silver
Sulfide
Fluoride
Chemical Oxygen Demand
NH_3 - Nitrogen
Total Dissolved Solids
Oil and Grease
pH

Please note that chloride was added to the list of parameters requested in your letter of July 29, 1983. The monthly analysis results of the self monitoring are to be sent to my attention. To be included with the report would be the weekly flowmeter readings for that month.

Very truly yours,

Matthew F. Foster
Asst. Superintendent of Sanitary Engineering

MFF:ab
cc: F. J. Flood
M. Osman
Karl Horlitz, John Hassall

John Hassall has been treating the industrial effluent generated by the various processes and cleaning procedures that are utilized in our special cleaning and finishing department since 1974.

The sluges resulting from the cleaning effluents from manufacturing these special fasteners are the by-products of degreasing and cleaning these parts after they have been headed or upset on the machinery In order to facilitate the feeding of these parts through secondary operations, these parts have to be clean, brite and dry, so as to negotiate the tracks and feeding devices designed to enhance automatic handling or indexing through the equipment.

A small percentage of our products are nickel plated in our electroplating equipment. This equipment consists of two 175 gallon plating tanks. Considering an average of 242,500 lbs of product manufactured per month, only 700 lbs of these were plated in our equipment. All other plating requirements are handled through outside vendors. Our plating is utilized for emergency measures only, where delivery time is the dominant factor.

Waste Treatment

Our waste treatment process consist of three (3) segregated waste water streams. (Industrial washing machines, oil stripping and mixed metals waste waters), in three (3) below grade pre-cast concrete-fiberglass lined oil separation tanks, each @ 9000 gallons, then pre-settling in three (3) below grade pre-cast concrete fiber glass lined settling tanks each @ 9000 gallons, and fitted with air and CO2 defusers for mixing and PH adjustment.

Waste waters after pre-treatment by oil separation and pre-settling are pumped from three (3) separated concrete wet wells, each fitted with a 100 GPM vertical centrifical pump which delivers each of the waste waters to one of the three interior steel treatment tanks, each with a cpapcity of 10,000 gallons. Each treatment tank contains a vertical paddle wheel flocculator, air and CO2 diffusers and oil skimming over flow weirs, and variable take off effluent drains.

The first treatment consists of the addition to the effluent as follo Calcium Hydroxide ($Ca(OH)_2$), Sodium Sulfide (Na_2S), Calcium Chloride (CaCl2 Carbon Dioxide (Co2) and cationic and non ionic poly electrolyte. Th effluent is flocculated and allowed to settle overnight.

The following day, this pre-treated effluent is transferred by pump into tank #2 for the second treatment.

The second treatment consists of the addition to the pre-treated effl as follows:
Activated carbon, Aluminum Sulfate (Al_2 (So4) 3 and an ionic poly electrolyte. This is Flocculated for thorough mixing and allowed to settle overnight. The following day this treated effluent is pumped through the plate and frame shriver filter (this filter was previousl prepared and charged with Diatomicious earth, super cell and sorbo-ce

WASTE ANALYSIS PLAN

The constituents of all hazardous waste generated by John Hassall, Inc.; be it waste water or sludge resulting from treatment to this water, or oily waste, which is contained in drums (for off site disposal) remains the same although quantities of these known substances will differ.

Samples are taken on a "grab" basis and are considered mast representatives of the materials in question. Thorough and continous mixing is achieved by the use of large paddle wheel flocculators within these treatment tanks. Samples are taken off side ports. This sample is then placed into properly labeled sample jars, which have been previously prepared by an Independent Laboratory (H2M) for forwarding to them for analysis. A test method sheet has been enclosed.

All raw waste water and sludges are currantly and routinly being sent for E.P. Toxicity analysis on a semi-annual basis.

Oily waste is currantly being analyzed on an annual basis.

OUR HAZARDOUS WASTES

1- Spent Stoddard Solvent combined with both cutting and lubricating oils
(these oils may contain sulfur, parraffin base oils, combined chlorine and phosphorous.)

2- Degreasing Solvents

1. chlorinated safety solvents
2. spent freon
3. VG 1.1.1

3- Salt Solutions
From electro chemical grinding. May contain Sodium Nitrite, Sodium Nitrate, and Rochelle Salts.

4- Spent Diatomite - (filter aid) containing small amounts of carbon, oil or grease and trace metals. (Fe, Ni, Cr, Cu, Zn

REFERENCE 8

0019-F
02-8802-

NUS CORPORATION

II

0189

50

JOHN HASALL
02-8802-07
SITE MANAGER - E. LEONARD
LOGBOOK # 0189
MARCH 8, 1988

GUIDANCE FOR PROPER USE OF LOG BOOKS

Purpose

51

JOHN HASALL / WESTBURY, NY TDD # 02-8807-02

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JOHN HASSEL / WESTBURY, NY 3/9/88

TDD# 02-8802-07

Hassall

VICTOR J. PALESE
FACILITY MANAGER

JOHN HASSALL, INC.
WESTBURY · LONG ISLAND
NEW YORK 11590

516-334-620
TELEX 14458
FAX 516-222-

EQUIPMENT ONSITE

- CAMERA SLIDE 30
  PRINT 469

- MINIRAD EPA # 4050

- OVA-D EPA # 428 696 SB 3/7/88

- HNU-B EPA # ~~30 7158~~ 307139 SB 3/7/88

- DRAGER ~~TUBE~~ ELL PUMP - A EPA # 192105

~~PERSONEL ONSITE~~ ELL - SCBA'S 307186 P. SOLINSKI
629756 S. LONCZYK
192084 P. VONSCHENDORF

- ESCAPE PACKS 192335 ELL
192386 P.V.S.

PERSONEL ONSITE

E. LEONARD - SITE MANAGER
P. VONSCHENDORF - SSO
M. GENTILS - S.M.O
P. SOLINSKI - SAMPLER
S. LONCZYK - SAMPLER

WEATHER: PARTLY CLOUDY TEMP 38-50°F
WINDS SLIGHT (<5 MPH) FROM NORT

E. Leonard 3/11/88 P. Solinski 3/11/88

JOHN HASALL / WESTBURY, NY 3/9/88
TDD # 02-8802-07

0640 HRS ARRIVE AT JOHN HASALL, WAITING FOR V. PALESE

0645 HRS MEET WITH V. PALESE. ~~[illegible]~~ CAN SET UP DECON AREA BY ENTRANCE TO RECHARGE BASIN. START SETTING UP DECON AREA

0650 HRS P. VON SCHONDORF HOLDS TAILGATE SAFTY MEETING. SAMPLERS SUIT UP.

0715 HRS ALL GEARED UP, WAITING ON V. PALESE TO START LEVEL-B RECON

0726 HRS P. SOLINSKI + S. LEVCZYK ON AIR AND INTO RECHARGE, TO RECON

0728 HRS NO READINGS ABOVE BACK GROUND ON OVA OR H AT WEST END OF RECHARGE BASIN FROM GROUND OR THREE PIPES ENTERING. ~~FIVE~~ SIX ~~[illegible]~~ PIPE TOTAL ENTERING NO LONGER ANY DISCHARGE. POSSIBLE THAT STORM DRAINS & ROOF DRIAN MIGHT STILL ENTER BUT UNKNOWN. APPROX 200 EPLOYEES ON SITE. RECHARGE BASIN FENCED BUT GATE NO LOCKED. SITE NOT TOTALLY FENCED. UNDERGROUND STORAGE TANKS NOT FENCED.

E. Leonard 3/11/88 P. Solinski 3/16/88

JOHN HASALL / WESTBURY, NY 3/9/88
TDD # 02-8802-07

0731 HRS NO READINGS ABOVE BACKGROUND AT OTHER ~~THREE~~ THREE INLET PIPES ON OVA + HNU. EH

0736 HRS NO CYANIDE READINGS ON DRAEGER TUBE. ~~OUT OF~~ EH EXIT RECHARGE BASIN.

0740 HRS AROUND OUTSIDE OF FENCE. NO READINGS ABOVE BACKGROUND ON HNU ON SOUTHSIDE OF RECHARGE BASIN. OVA PUMP NOT WORKING, WILL USE ONLY HNU FOR REMAIN RECON

0744 HRS NO READING ABOVE BACKGROUND ON HNU BY MANCOVER TO UNDER STORAGE TANKS. NO READINGS ABOVE BACKGROUND ON HNU BY AREA OF GREASE + OIL SPILL ~ DEC 1987. TANKS ~ 10 YEARS OLD WILL BE LEAK TESTED IN ~ 30 DAYS ~~SOUTHERN STOR~~ EH SLUDGE STORAGE ~~TANK~~ EH

0745 HRS P. SOLINSKI + S. LENCZYK OFF AIR.

0805 HRS P. VONSCHONDORF, E. LEONARD + V. PRESE WALK THE REST OF THE SITE. SITE IS 15-ACRES

E. Leonard 3/11/88 P. Solinski 3/16/88

JOHN HASALL / WESTBURY, NY 3/9/88
TOD # 02-8802.07

0821 HRS BACK FROM RECON ON THE PARKLOT. NO READING ABOVE BACKGROUND ON HNU. SAMPLING WILL BE CONDUCTED IN THE RECHARGE BASIN + BY THE UNDERGROUND STORAGE TANKS. DUA KEEPS GOING ~~ON~~ OUT, PUMP ON NO IGNATION. SAMPLING WILL BE CONDUCTED WITH HNU MONITORING ONLY.

0831 HRS INTO RECHARGE BASIN TO START SAMPLING. NO RESP. WILL BE USED, SOIL MOIST NO DUST.

0834 HRS CLEAR AREA UNDER PIPE #1 (SEE MAP) ~~FILL WEST.~~ NO READINGS ABOVE BACKGROUND ON HNU. START OBTAINING SAMPLE S-1 (MS/MSD). ROOT + ORGANIC 0-3" SANDY BROWN. SAMPLE DEPTH 0-6".

0847 HRS P. SOLINSKI FINISH OBTAINING S-1.

0849 HRS 6' DOWN FROM PIPE #2 NO READINGS ABOVE BACKGROUND ON HNU. DARK ORGANIC SAND. P. SOLINSKI STARTS OBTAINING S-2 + S-3 (ENV. DUP.). BELOW 3" LIGHT SAND. SAMPLE DEPTH 0-6"

E K Leonard 3/11/88 P. Solinski 3/11/88

JOHN HASAK / WESTBURY, NY 3/9/88
TDD # 02-8802-07

0900 P. SOLINSKI FINISH OBTAINING S-2 + S-3.

0905 HRS S. ŁONCZYK STARTS OBTAINING S-4. ~~AT~~ AT PIPE #3. NO READINGS ABOVE BACKGROUND ON HNU. SOIL SANDY, BROWN + ORGANIC. DEPTH 0-6". BELOW 3" LIGHT COLORED SAND.

0911 HRS. S. ŁONCZYK FINISH OBTAINING S-4

0917 HRS P. SOLINSKI STARTS OBTAINING S-5. AT PIPE #4. NO READINGS ABOVE BACKGROUND ON HNU. SOIL ORGANIC + BROWN + SANDY SAMPLE DEPTH 0-6". SPLIT SAMPLE WITH SITE REP FILLED 1 BOTTLE N 20 OZ WITH SOIL. BELOW 3" SAND LIGHT COLORED

0924 HRS P. SOLINSKI FINISH OBTAINING S-5

0925 HRS P. SOLINSKI STARTS OBTAINING S-6. NO READINGS ABOVE BACKGROUND ON HNU. SOIL DARK, ORGANIC + SANDY WITH GRAVEL, 0-6" DEEP. SAMPLE OBTAINED AT PIPE #5. BELOW 3" SAND LIGHT COLORED

E R Leonard 3/11/88 P. Solinski 3/11

JOHN HASALL / WESTBURY, NY 3/9/88
TDD # 02-8802-07

0936 HRS P. SOLINSKI FINISH OB TAKING S-4

0940 HRS S. LENCZYK STARTS OBTAINING S-7 AT PIPE #6. HNU READINGS AT SOIL SURFACE AT 17PPM. BACK OFF WILL SAMPLE ON LEVEL B. READINGS AT SOIL LEVEL, NOTHING IN BREATHING ZONE

0947 HRS BACK AT DRUM AREA PREP FOR SAMPLE S-8.

0954 HRS S. LENCZYK STARTS OBTAINING SAMPLE S-8. READING ABOVE BACKGROUND ON HNU ~12 ppm. BACK OFF. SMALL STAIN AT EDGE OF MANHOLE. THIS IS MANHOLE THAT OVERFLOWED IN DEC 1987. NO READING IN BREATHING ZONE.

1009 HRS P. SOLINSKI ON AIR. STARTS OBTAINING S-8. READING AT SOIL 15ppm. DARK ORGANIC SOIL. 50ppm in soil in MIXING BOWL NO READINGS IN BREATHING ZONE. 0-6 in sampling depth. S. LENCZYK BACK UP. SOIL DARK & ORGANIC, U. PALESE STATED THAT CONTAMINATION WAS REMOVED + THIS WAS F

E.H. Leonard 3/11/88 P. Solinski 3/11/88

JOHN HASALL/WESTBURY, NY 3/9/88
TDD# 02-8802-07

1019 HRS. P. SOLINKSI FINISH SAMPLING
S-8 + OFF AIR.

1021 HRS. BACK AT DECON AREA.

1023 HRS AT PIPE #6 TO OBTAIN
S-7. 5ppm AN HNU.

1024 HRS P. SOLINSKI ON AIR.
STARTS SAMPLING S-730
PPM ON HNU IN SOIL
NOTHING IN BREATHING ZONE
SAMPLING DEPTH 0-6". SANDY + DAR
ORGANIC 0-3", >3" ~~BH~~ LIGHT COLORED SAND

1030 HRS P. SOLINSKI FINISH OBTAING
S-7.

1032 HRS BACK AT DECON AREA P. SOLINSK
OFF AIR.

1040 HRS CLEANING UP + PACKING
SAMPLES.

1055 HRS S-7 VOA 1 BOTTLE BROKEN,
MUST RESAMPLE AT PIPE #6.

C Leonard 3/11/88 D. Solinski 3/16/88

JOHN HASALL / WESTBURY, NY 3/9/88
TOD # 02-8802-07

1101 HRS BACK INTO RECHARGE BASIN TO OBTAIN UOA FROM S-7 PIPE

1103 HRS P. SOLINSKI ON AIR.

1105 HRS FINISHING OBTAINING S-7.
P. SOLINSKI OFF AIR.

1110 HRS DISCHARGE PIPE DIA.

#1	~~3.5"~~	0.35'
#2	~~5.0"~~	0.5'
#3	~~4.0"~~	0.4'
#4	~~0.7'~~	0.35'
#5		0.7'
#6		0.35'

RECHARGE BASIN APPROX. 10-12' DEEP
APPROX. 60' X 85'.

1120 HRS CLEANING UP & PACKING SAMPLES.

1140 HRS TRY TO FIND V. PALOSE TO DROP SAMPLE RECEIPT.

1146 HRS COULD NOT CONTACT V. PALOSE
LEFT ORIGINAL RECEIPT AT FRONT DESK FOR V. PALOSE.
V. PALOSE DID NOT SIGN RECEIPT.

C. Leonard 3/11/88 P. Solinski 3/10/88

JOHN HASALL/WESTBURY, NY 3/9/88
TOD # 02-8802-07

1152 HRS LEFT SITE HEAD TO FED EX.

1159 AT FED EX TO DROP OFF SAMPLES. ~~LEF~~ ~~EH~~

1204 LEFT FED EX.

F2 H

E L Leonard 3/11/88 P. Solu 3/11/88

JOHN HASALL/WESTBURY, NY TDD# 02-8802.07 3/9/88

DATE	TIME	PHOT	R/F	DESCRIPTION
3/9/88	0838	Ell	IS-1 IP-1	P. SOLINSKI OBTAINING SAMPLE S-1.
3/9/88	0854	Ell	IS-2 IP-2	P. SOLINSKI OBTAINING SAMPLE S-2. (PHOTO TIME IS 0954).
3/9/88	0858	Ell	IS-3 IP-3	P. SOLINSKI OBTAINING SAMPLE S-3.
3/9/88	0908	Ell	IS-4 IP-4	S. ~~LENCZYK~~ LENCZYK Ell OBTAINING SAMPLE S-4.
3/9/88	0920	Ell	IS-5 IP-5	P. SOLINSKI OBTAINING SAMPLE S-5.
3/9/88	0932	Ell	IS-6 ~~IS-6~~ Ell IP-6	P. SOLINSKI OBTAINING SAMPLE S-6
3/9/88	1015	Ell	IS-7 ~~IP-6~~ Ell IP-7	P SOLINSKI OBTAINING SAMPLE S-8

[illegible] 3/11/88 [illegible] 3/16/88

JOHN HASALL / WESTBURY, NY TOD# 02-8802-07 3/9/88

DATE	TIME	PHOTO.	R/F	DESCRIPTION
3/9/88	1027	EH	1S-8 1P-8	P. SOLINSKI OBTAINING SAMPLE ~~S-8~~. S-7. EH
3/9/88	1034	EH	1S-9 1P-9	LOOK WEST AT RECHARGE BASIN. ~~FIVE INLET~~ FIVE DISCHARGE PIPES. EH
3/9/88	1035	EH	1S-10 1P-10	LOOKING NORTH AT RECHARGE BASIN ONE DISCHARGE PIPE. (SOIL UNDER DISCHARGE PIPE HIGH HNU READING)
3/9/88	1036	EH	1S-11 1P-11	LOOKING N W AT TREATMENT BUILDING AND UNDERGROUND STORAGE TANKS. (SOIL AT EDGE OF GREEN MANHOLE ~~TO RIGHT~~ EH HIGH HNU READINGS) ~~SECOND YELLOW~~ EH MANWAY IN FRONT.
3/9/88	1037	EH	1S-12 1P-12	JOHN ~~HASALL~~ EH HASSALL SIGN ON MAIN MAFN BUILDING

3/16/88

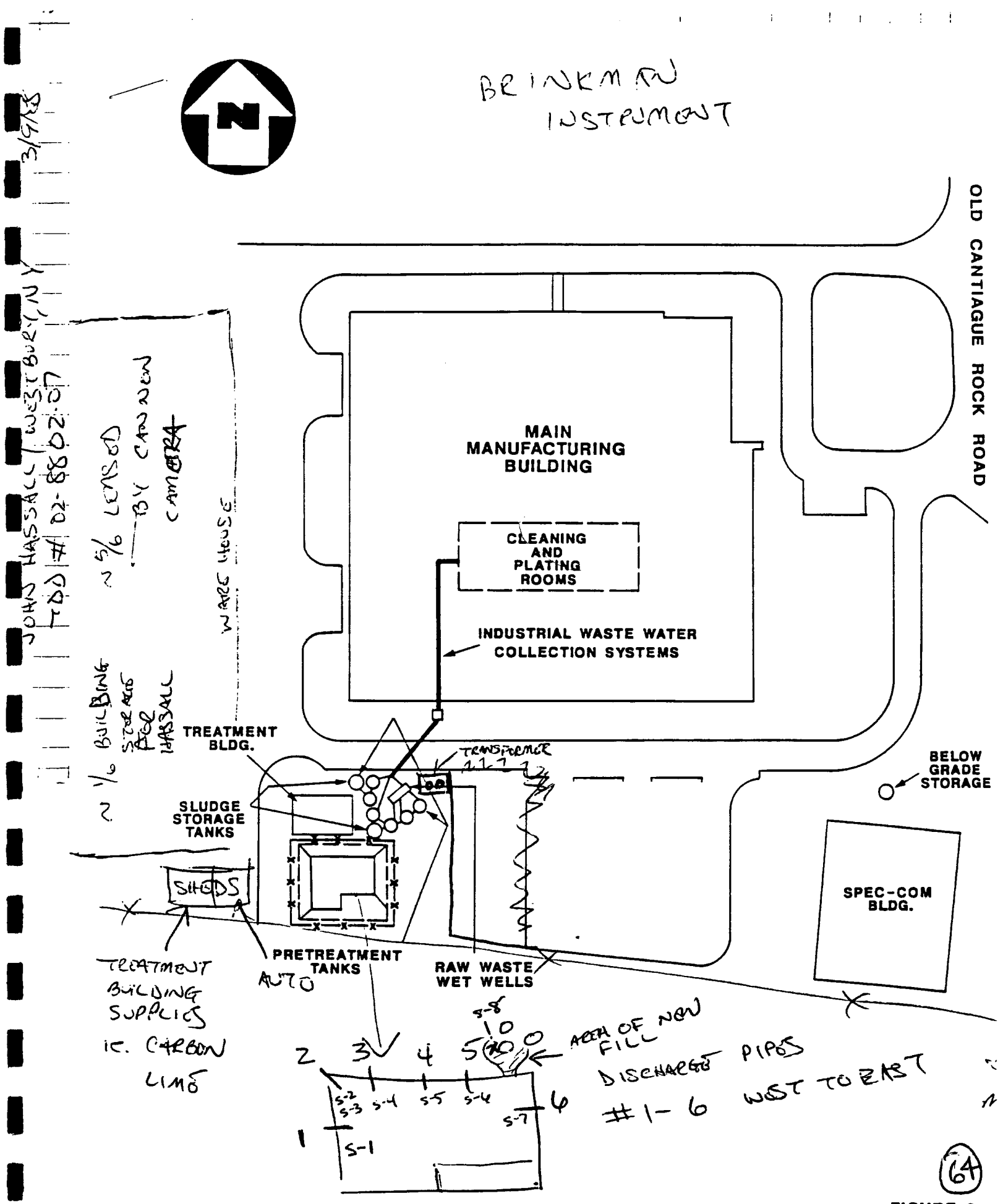

FIGURE 2

SITE MAP

JOHN HASSALL INC., WESTBURY, N.Y.

(NOT TO SCALE)

NU CORPORAT

JOHN MARSHALL / WESTBURY, NY 3/9/88

TDD # 02-8502.07

SAMPLE #	ORGANIC CLP #	INORGANIC CLP #
S1	BR 268	MBP 664
S2	BR 269	MBP 665
S3	BR 270	MBP 666
S4	BR 271	MBP 667
S5	BR 272	MBP 668
S6	BR 273	MBP 669
S7	BR 274	MBP 670
S8	BR 277	MBP 672
TBLK1	BR 275	N/A
RIN1	BR 266	MBP 671

TDD # 02-8502.07
BRICS # NYEF
CASE # 9116

ORGAINIC

LAB: HITTMAN - EBASCO ASSOC INC
9551 RUMSEY ROAD
COLUMBIA, MD 21045
ATT: ~~BETSY~~ BETSY PICURAL

AIRBILL # 7195199561

INORGANIC

LAB: CSMRI ANALYTICAL INC
5930 MCINTYRE STREET
GOLDEN, CO 80403
ATTN: AUDREY BYRNES
AIRBILL # 7195199572

3/11/88
3/16/88

REFERENCE 9

02-8802-

NUS CORPORATION AND SUBSIDIARIES — **TELECON NOTE**

CONTROL NO:	DATE:	TIME:
02-8802-07	2/19/88	RF Ø 1455

DISTRIBUTION:

File

BETWEEN:	OF:	PHONE:
Joe Schechter	Nassau County Health Dept.	(516) 535-3410

AND: Richard Feinberg

DISCUSSION: RE: JOHN HASSALL

The discharge basin was used before ~~1985~~ 1975 and up to the time they switched to county sewerage system. Effluent was being monitored and ~~spdes~~ SPDES Permit was set up in 1975. He doesn't believe that the recharge basin was backfilled but is not positive of this. He indicated that they were discharging wastewater since 1959 in to discharge basin. No spills have been recorded at the facility to his knowledge.

ACTION ITEMS:

67

NUS 087 REVISED 0685

REFERENCE 10

SPECIAL NAILS RIVETS SCREWS
Hassall
ESTABLISHED 1850
HN HASSALL, INC. · WESTBURY · LONG ISLAND · N.Y. · 11590
Tel. 516 · 334-6200 · Telex No. 144585

STATEMENT OF PURPOSE

This comprehensive report provides information on both hazardous and non hazardous industrial waste generated, treated and or stored by John Hassall, Inc.

It is intended to make known to all interested parties the full scope of the risks and related management of those risks.

We recognize the burden of responsibility placed upon us relating to the proper methods of handling the byproduct of our manufacturing process.

Information contained herein is known to be accurate.

Victor Palese
Compliance Officer

N HASSALL, INC. · WESTBURY · LONG ISLAND · N.Y. · 115

Tel. 516-334-6200 · Telex No. 144595

PRESENT PLANT OPERATIONS

John Hassall, Inc., is a long-time established company engaged in the manufacture of specialized or "Job Designed" fasteners, nails, screws and rivets.

The present company was established in 1888 to produce nail machines, hardware, nails and screws. The Company was located in New York City until 1953 when it moved to the present location in Westbury, Nassau, County, New York.

Present plant operations include the handling of various metallic wires from which the fasteners are made, cold heading or the forming of the required shape of the fastener and various other secondary operations such as threading, fluting, knurling, slotting, drilling, tapping, turning, grinding and trimming of fasteners. The above mentioned operations result in no appreciable amounts of industrial waste water and are limited to mostly solid wastes consisting of metallic filing or chips. These wastes generally do not present any disposal problem as they are collected in containers and disposed of by a solid waste removal service. (Metal scrap pick-up).

Industrial waste waters originate from deburring, burnishing and cleaning. The expended process solutions ~~and rinse waters from~~ these operations comprise the industrial waste waters mentioned in this report.

EXISTING OPERATIONS AND WASTE SOURCES

The waste waters are composed of primarily expended cleaning solutions and wash wa~~ters from the cl~~eaning operations.

Freon TMC and III Trichloroethane are used on a limited basis to ~~degrease certain parts which need to~~ be specifically handled for one reason or another. It is these solvents which comprise our hazardous waste activity. At this time generation of no more than four 55 gallon drums per calendar month seems a reasonable estimate.

WASHING OF FASTENERS

High speed manufacturing of fasteners requires a petroleum base lubricant on the wires to aid the feeding of the wire through the dies of the forming machines. After the forming operations, many of the fasteners receive a final washing and coating with a rust inhibitor. Presently, this washing and protective coating is performed in a large industrial washing machine. This washing machine operates as two closed systems, where all wash and rinse waters are recycled to holding reservoirs for re-use. The wash reservoir has an approximate capacity of 500 gallons, whereas the rinse reservoir has a 350 gallon capacity.

CLEANING OF FASTENERS

Small fasteners cannot be cleaned in the industrial washing machine, and are cleaned instead in barrel tumblers to remove oils and soils.

POLISHING OF STAINLESS STEEL

Many stainless steel fasteners receive heat treatment after the forming operations. Heat treating leaves metallic scales on the fasteners which must be removed. This removal is accomplished by barrel tumbling.

LIMITED - NICKEL PLATING

A number of fasteners are nickel plated. Fasteners are first cleaned in the industrial washing machine or barrel tumblers. Fasteners are placed in rotating barrels or baskets and immersed in nickel sulfate solutions in the nickel plating tanks. Presently, no dragout, static or running rinse tanks exist.

All nickel waste if any is segregated from the general waste water treatment system. It will be shipped offsite under F006 for disposal.

Our Manufacturing processes result in approximately 3 to 4 55 gallon drums per month of Hazardous waste. At the present time we are storing these drums, on pallets, in our warehouse. These drums are not accumulated, they are shipped off site as soon as possible (monthly).

The warehouse storage facility is secured and locked. Access is only thru Department necessity and authorized personnel. It is a total area of 20,000 square feet. Its main purpose is to store raw material (wire) and prepackaged finished goods (nails, rivets, screws) in bulk. These are stored in cartons, packed on a pallet, and placed on a storage rack four (4) to five (5) tiers high. A special area has been designated for the hazardous waste storage. The area is totally sprinklered. The containment of a leak or spill would be done thru Floor-Dri pick up. Fire extinguishers are also available.

The containers in which this Hazardous Waste is stored (are when necessary), lined with a plastic insert of 3 mils thickness, and secured with the proper drum cover, sealed and labeled, numbered and coded for identification in accordance with Department of Transportation Regulation 49CFR, Part 172.

The drums will be stacked no more than two (2) high (if this should ever become necessary). They will stand a minimum of five (5) inches off the floor and placed two (2) on each pallet, sized (36"X42"X5-1/2"). They shall stand clearly visible to the eye, so as to be easily inspected for leak detection or drum rupture.

The solid waste storage area is marked with a sign "DANGER - UNAUTHORIZED PERSONNEL KEEP OUT". Access to our warehouse is with key only to authorized personnel.

The solid waste storage area, our Industrial Waste Treatment building and the Laboratory are inspected for possible equipment deterioration or failure, and a report is forwarded to the Plant manager.

The Solid Waste Management Facility is located on a reinforced concrete floor, inside a brick building. This building is also the raw material and finsihed goods storage area. A specific area, marked, outlined and designated as the solid waste storage or hold area is located in this warehouse. The waste is stored in 55 gallon drums, on pallets and located beneath a fully fire sprinklered area. Fire extinguishers are also located nearby. The amounts of stored drums would be no more than a month's collection, or three to four drums. These drums are constantly being monitored by our Compliance Officer, Victor Palese, and the warehouseman. Any spills, leaks or ruptures would be contained by applying floor dry in abundant amount which can encircle the leak like a dam, and also soak up the spillage. There is no leachate danger present to outside grounds and none of the stored solid waste is subject to salvage on our site.

The roadway and driveway that encircle our Industrial Complex are always kept in the best repair, and kept free of ice and snow, or any road hazard.

MATERIAL FLOW

Raw materials, in the form of coils of wire, and consisting of varied metals are delivered to the raw material (wire) storage. (A) From this storage area, the wire is delivered to the various machines, as requested by the Nail and Rivet Manufacturing Departments.

At the machines, the wire is cut to length, and upset to the customers specifications. These parts are inspected and the finished parts dumped into a fiber glass collection pan, and weighed at 50 lbs. The orders are stacked on pallets, which through lift truck operations, are delivered to the Cleaning Department.

From the Cleaning Department the work may be scheduled for secondary operations, heat treating, plating or shipping.

Upon reaching the Shipping Department, parts are final inspected, packed stacked and racked for storage or made ready for shipment to the customer.

SPECIAL NAILS RIVETS SCREWS
Hassall
ESTABLISHED 1850
N HASSALL, INC. · WESTBURY · LONG ISLAND · N.Y. · 11590
Tel. 516 · 334-6200 · Telex No. 144595

NERAL INFORMATION ON NON-HAZARDOUS WASTE GENERATION AND DISPOSAL

n Hassall has been treating the industrial effluent generated by various processes and cleaning procedures that are utilized in special cleaning and finishing department since 1974.

sludges resulting from the cleaning effluents from manufacturing se special fasteners are the by-products of degreasing and cleaning se parts after they have been headed or upset on the machinery. In er to facilitate the feeding of these parts through secondary operations, se parts have to be clean, brite and dry, so as to negotiate the tracks feeding devices designed to enhance automatic handling or indexing ough the equipment.

ste Treatment

waste treatment process consists of three (3) segregated waste er streams. (Industrial washing machines, oil stripping and mixed als waste waters), in three (3) below grade pre-cast concrete-erglass lined oil separation tanks, each @ 9,000 gallons, then pre-tling in three (3) below grade pre-cast concrete fibreglass lined tling tanks each @ 9,000 gallons, and fitted with air and CO2 de-ers for mixing and PH adjustment.

te waters after pre-treatment by oil separation and pre-settling pumped from three (3) separated concrete wet wells, each fitted h a 100 GPM vertical centrifical pump which delivers each of the te waters to one of the three interior steel treatment tanks, each h a capacity of 10,000 gallons. Each treatment tank contains a tical paddle wheel flocculator, air and CO2 diffusers and oil skimming flow weirs, and variable take off effluent drains.

first treatment consists of the addition to the effluent as follows: cium Hydroxide ($Ca(OH)_2$, Sodium Sulfide (Na_2S) Calcium Chloride (CaCl2), bon Dioxide (Co2) and cationic and non ionic poly electrolyte. The luent is flocculated and allowed to settle overnight.

following day, this pre-treated effluent is transferred by pump tank #2 for the second treatment.

he second treatment consists of the addition to the pre-treated effluent s follows:

ctivated carbon, Aluminum Sulfate (Al_2 (So4) 3 and an ionic poly lectrolyte. This is flocculated for thorough mixing and allowed to ettle overnight. The following day this treated effluent is pumped hrough the plate and frame shriver filter (this filter was previously repared and charged with Diatomicious earth, super cell and sorbo-cell)

his will filter out the remaining suspended solids, oil and grease. he effluent is then treated with (H2O2) Hydrogen peroxide for sulfide estruction and pumped into the below grade holding tank, equipped with eration devices to prevent an anaerobic state from occurring.

he effluent is now tested thru the atomic absorbtion system, and if ewer discharge limitations are met for all parameters, this effluent s pumped into the sewer system. All discharges are recorded on a amper proof flow meter, monitored and tested by the Nassau County epartment of Public Works Cedar Creek Laboratory and evaluated against n Independent Laboratory Analysis by H2M.

HOW WE HANDLE OUR SOLID WASTE

fter our effluent has been treated and discharged, the treatment lant operator opens the filter press and removes the spent diatomite rom the curtained frames. Approximately 200 lbs. of Filter aid are sed. This solid waste is directly placed into 55 gallon steel drums hich have been lined with a 3 mil liner, and placed in a holding area ithin our warehouse. Other solid waste includes our Metal Hydroxide ludges; a by product of our treatment process. These sludges consist of arbon-lime-sulfide and precipitated metals (Fe, Ni, Cr, Cu, Zn).

hese sludges are directly routed from our treatment tanks to a below rade, non-leaching (final settling) Tanks via sealed pipeline engineered or this purpose.

rom here, RGM (carrier #18A033) EPA I.D. No. NY0050592807 972 Nicolls oad, Farmingdale, N.Y. utilizes a vacuum truck, purchased from Super roducts Registered (DIA-REO) capable of holding 15 cubic yards of olid waste.

or the present and past years, the John Hassall, Inc. Waste Treatment d Solid Waste Storage Facility has been maintained in excellent operating rder. All required paper work for the varied agencies, be they County, tate or Government have been forwarded to the proper office, recorded n the correct manner, and the copies provided to wherever necessary. he facility does not endanger wildlife, fish, land or water resources, lood planes or human life.

he facilities shall be maintained and operated so as to function in ccordnace with the permit when issued, and the designed and intended e of the facility. All equipment in use in this facility shall be aintained to operate effectively.

contingency plan approved by the Department of Environmental Con- rvation for any and all emergency situations shall be implemented accordance with the plan's terms as outlined here in.

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OUR HAZARDOUS WASTES

Degreasing Solvents

1. Chlorinated Safety Solvents
2. Spent Freon
3. VG 1.1.1

OUR INDUSTRIAL WASTES

Spent Stoddard Solvent combined with both cutting and lubricating oils
(these oils may contain sulfur, parraffin base oils, combined chlorine and phosphorous.)

Spent Diatomite - (filter aid) containing small amounts of carbon, oil or grease and trace metals. (Fe, Ni, Cr, Cu, Zn)

Carbon/Lime Slurry - by product of Industrial Waste Water Pre-treatment plant

CLOSURE AND POST CLOSURE

The closure plan as herein defined is in reference to the present hazardous waste storage facility. As determined, the waste would most likely consist of spent trichloroethane and freon T.M.C.,on occasion minimum amounts of spent nickel solution. In the event of closure the halogenated waste could be routed to Baron Blakeslee or Pride Solvent for recovery. The Ni (if any) would be disposed through Chemical Management for precipitation of said wastes (approx. cost - less than $1,000).

In addition to our hazardous waste, John Hassall generates the following industrial wastes:

(1) hydraulic,lube, cutting oils and mineral spirits (miscible with oils).

(2) Waste water containing Cu, Cr, Ni, Fe, oil and grease - not exhibiting listed or characteristic hazardous waste.

(3) Associated waste water sludges.

The spent oils would be pumped into a certified waste oil recovery truck (usually at no cost - these products can be salvaged for resale).

The industrial waste water and associated sludges would be pumped out - treated - dewatered and placed in a secure landfill. The below grade tanks would be cleaned and loaded with clean fill.

manifest are recorded, filed and mailed to the proper authorities.

LIST OF PERMIT NUMBERS

John Hassall, Inc. 516-334-6200
Cantiague Rock Road
Westbury, N.Y. 11590

EPA Permit No. NY 000 2045417

Certified Waste Oil-Jim Hack 516-352-6194
320 Courthouse Road
Franklin Square, L.I., N.Y. 11010

DEC NY Permit No. IA-052
Vehicle License No. 56626 GB

RGM Liquid Waste Removal Corp. 516-586-0002
972 Nicolls Road
Deer Park, N.Y. 11729

EPA Permit No. NYD 050592807
DEC NY Permit No. 1A-033

Callia Bros. 1-212-387-8300
363 Maspeth Avenue
Brooklyn, N.Y. 55211

EPA Permit No. NYD 980647283

Chemical Management Inc. 516-454-6766
340 Eastern Parkway
Farmingdale, N.Y. 11735

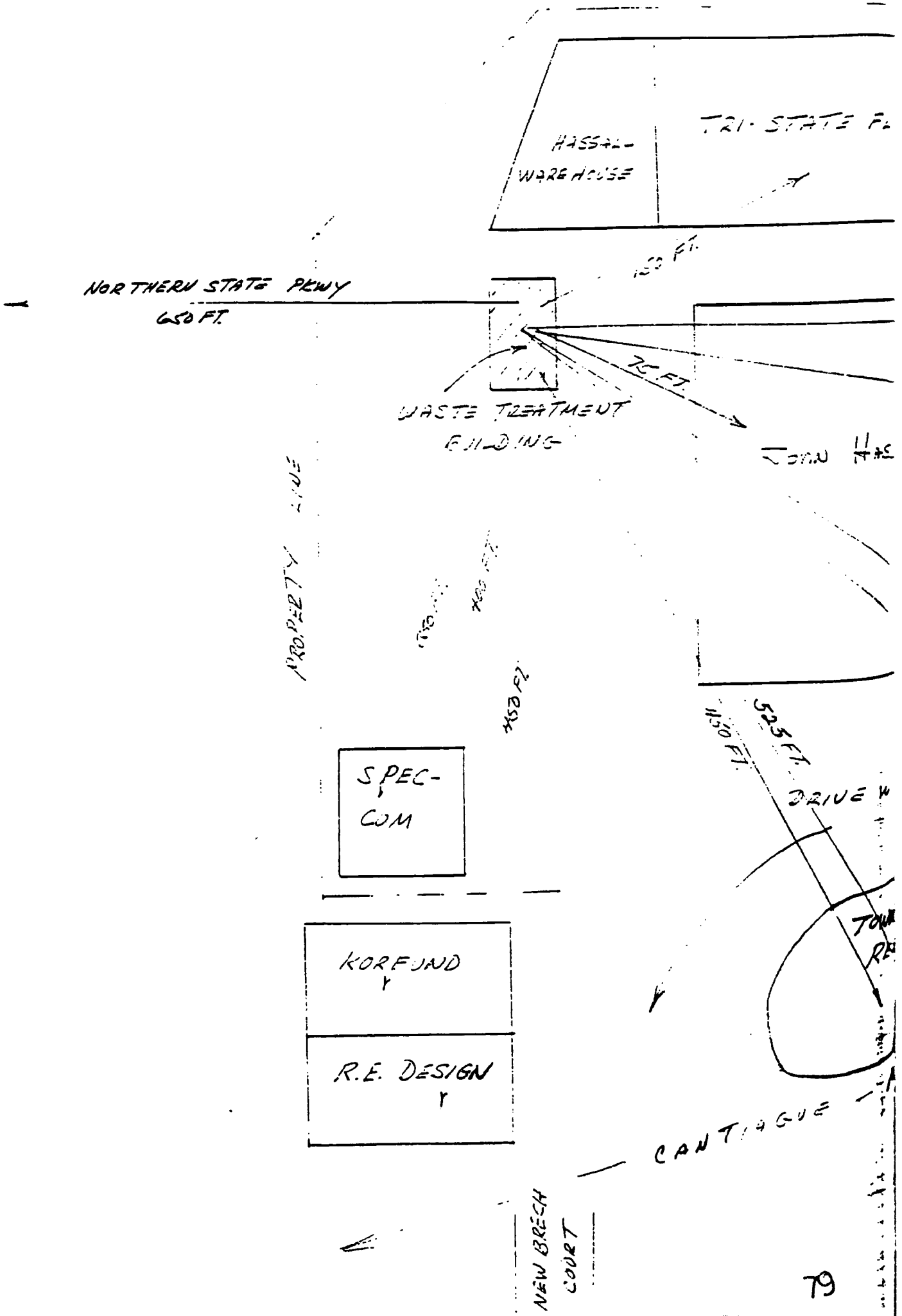
EPA Permit No. NYD 000691949

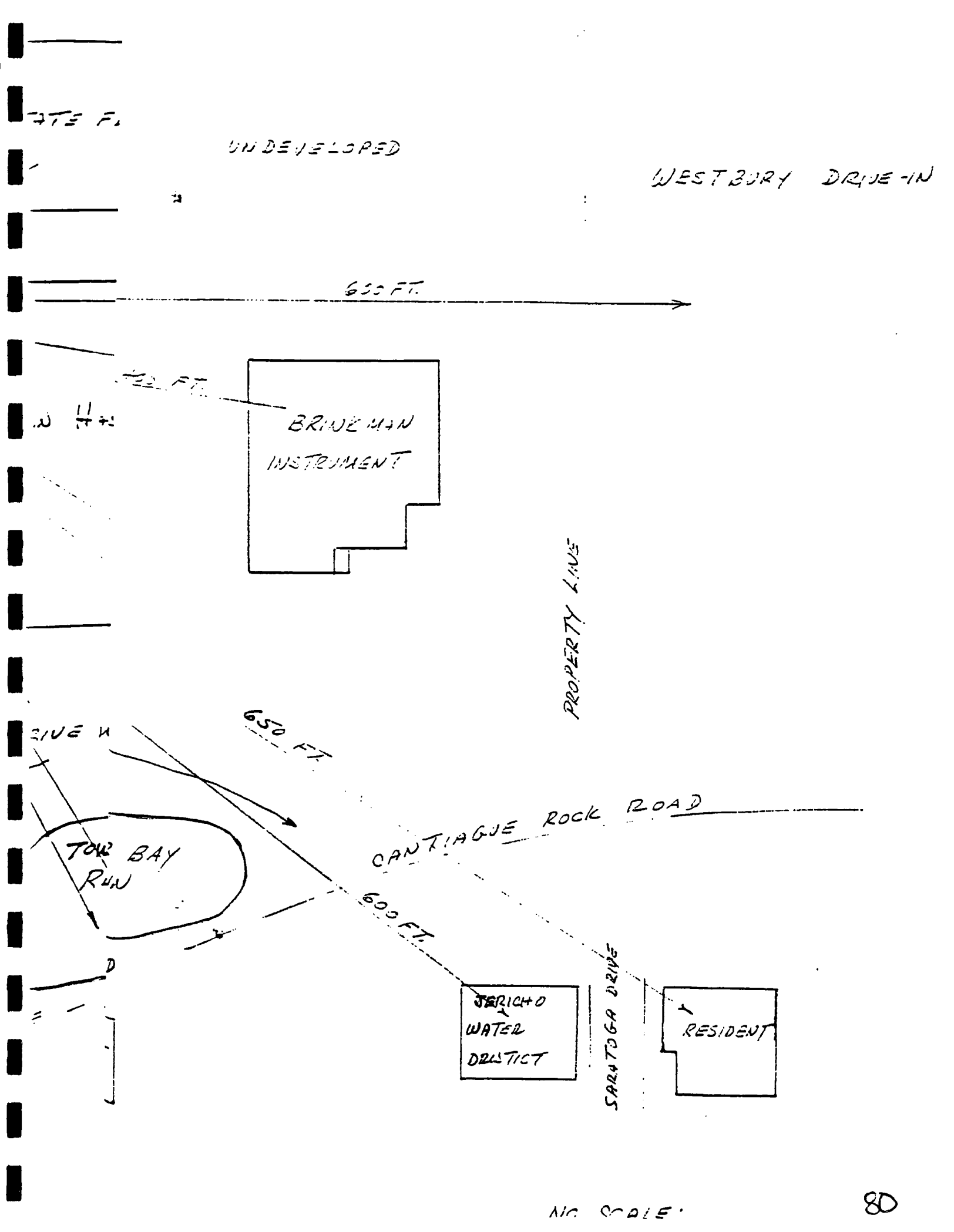
Baron Blakeslee 201-687-7383
49 Central Ave.
S. Kearney, N.J.

EPA Permit No. NJD 048810279

Pride Solvents Inc. 516-643-4800
72-88 Lamar St.
West Babylon, N.Y. 11704

EPA Permit No. NYD 057722258


HASSALL WAREHOUSE
TRI-STATE
NORTHERN STATE PKWY
650 FT.
150 FT.
WASTE TREATMENT BUILDING
PROPERTY LINE
450 FT.
525 FT.
150 FT.
DRIVE
SPEC-COM
KORFUND
R.E. DESIGN
CANTIAGUE
NEW BRECH COURT


UNDEVELOPED
WESTBURY DRIVE-IN
650 FT.
BRINEMAN INSTRUMENT
PROPERTY LINE
650 FT.
CANTIAGUE ROCK ROAD
TOW BAY RUN
600 FT.
JERICHO WATER DISTRICT
SARATOGA DRIVE
RESIDENT
NO SCALE

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WASTE ANALYSIS PLAN

Hazardous waste generated by John Hassall, Inc. is routinely checked to assure proper substance identification, analysis is performed on site prior to shipping.

The constituents of industrial waste water and associated sludges remain qualitatively the same although quantities will differ.

Samples are taken on a "grab" basis and are considered most representative of the materials in question. Thorough and continuous mixing is achieved by the use of large paddle wheel flocculators within these treatment tanks. Samples are taken off side ports. This sample is then placed into properly labeled sample jars, which have been previously prepared by an Independent Laboratory (H2M) for forwarding to them for analysis. A test method sheet has been enclosed.

All raw waste water and sludges are currently and routinely being sent for E.P. Toxicity analysis on a semi-annual basis.

Oily waste is currently being analyzed on an annual basis.

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REPAIR AND INSPECTION OF DRUMS

All drums of hazardous waste are to be maintained in accordance with applicable regulations. All drums used are to be free of any leaks whatsoever and sealed tightly at the bung openings. Hazardous waste labels bearing all applicable information are to be fastened to the drum for proper identification and correspond to a hazardous waste manifest.

Drums are to be stored in the hazardous waste storage area located within our fully enclosed warehouse. They are to be clean, dry and free of dirt. Furthermore, they are to be placed on pallets, not exceeding two drums in height and inspected at least once a week for signs of leaks. If a drum is found to be leaking immediate action must be taken to arrest any contaminants that may have escaped - Hi dry (clay) will be used to absorb any such leak and the spent Hi dry itself placed into a Hazardous Waste Drum bearing all necessary information.

Any remaining hazardous waste will be pumped out of the drum exhibiting the leak and placed into a drum which is leak free. Once again, proper steps to insure labeling and handling will be followed. The damaged drum will be triple rinsed and dispose of with the general scrap.

REFERENCE 11

H2M CORP.

ROBERT G. HOLZMACHER, P.E., P.P., L.S.
SAMUEL C. McLENDON, P.E.
HUGO D. FREUDENTHAL, Ph.D.
NORMAN E. MURRELL, P.E.
ELIAS S. KALOGERAS, P.E.
HAROLD A. DOMBECK, P.E.
ROBERT H. ALBANESE, P.E.

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August 28, 1975

Nassau County Department of Health
240 Old Country Road
Mineola, New York 11501

Re: John Hassall, Inc.
SPDES No. NY0076287
Ref. No. 28-0077

Attention: Mr. John Welsch

Gentlemen:

Enclosed herewith, please find the SPDES Monitoring Report for the above referenced facility for the month of August 1975. Please note that the third column under "FLOW (GPD)" has been modified to include pH readings.

As you will note, the values for total chromium, total iron, total nickel and oil and grease are all above those specified in John Hassall's SPDES permit. Based upon the suggested interim standards presented in your correspondence of August 9, 1975, the value for total chromium of 27.0 mg/l exceeds the interim requirement of 17.5 mg/l and the total iron value of 66.0 mg/l exceeds the interim requirement of 15.0 mg/l. These values appear high, we believe, due to not wasting sludge from the precipitation step frequently enough. After this was done, the value for iron went down to 8.8 mg/l on the first batch for August.

The performance of the system is limited at the present time, since we do not yet have a polishing filter. When the filter is installed, performance will be at the required permanent effluent limitation level.

There is only one batch reported for July, since there was a plant shutdown of approximately two weeks during the month and only one batch was discharged.

If you have any questions regarding this report, please call or write our office.

Very truly yours,

H2M CORP.

John J. Molloy
Project Engineer

JJM/mb
enc.
CC: Mr. Karl Horlitz
Mr. Dennis Moran
Mr. Russell Mt. Pleasant, P. E.

ROBERT G. HOLZMACHER, P.E.
SAMUEL C. McLENDON, P.E.
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(516) 694-3040

September 15, 1975

Nassau County Dept. of Health
240 Old Country Road
Mineola, New York 11501

Re: John Hassall, Inc.
SPDES No. NY0076287

Attention: Mr. John Welsch

Gentlemen:

Enclosed please find the SPDES Monitoring Report for the above referenced facility for the month of August 1975.

Please be advised that all reported values for the August samples are within the proposed interim standards. The value for oil and grease (20.4 mg/l), however, is above the final permit condition of 10 mg/l. Until such time as the effluent polishing filter is installed, we will occasionally experience constituent values which exceed the interim and final standards. When the polishing filter is installed, permit conditions for all parameters should be met consistently.

Our previous submission to youwas for the month of July, not August, as indicated in the transmittal letter.

If there are any questions in regard to the above, please call or write our office.

Very truly yours,

HOLZMACHER, McLENDON & MURRELL, P. C.

John J. Molloy
Project Engineer

JJM/mb
enc.

CC: Mr. Karl Horlitz
Mr. Dennis Moran
Mr. Russell Mt. Pleasant, P.E.

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November 11, 1975

Nassau County Health Department
240 Old Country Road
Mineola, New York 11501

Re: John Hassall, Inc.
SPDES No. NY0076287

Attention: Mr. John Welsch

Gentlemen:

Enclosed please find the SPDES monitoring report for the above referenced facility for the month of October, 1975.

The poor performance during the month of October is attributed to metals carry over from the below grade settling tanks. Over the past year's operation, sludge buildup in these tanks had reached the point where solids carry over into the treatment plant was noted. The situation was corrected by having all below grade settling tanks pumped out by scavenger service. Increased effeciencies should be noted in next month's performance.

Please note that the final effluent polishing filter should arrive on schedule in early December. Once the filter is installed and process modifications are implemented, final effluent standards will be met. Our original schedule of February 1, 1976 for full compliance still appears very favorable.

If you have any questions concerning the enclosed, please contact the writer at your convenience.

Very truly yours,

HOLZMACHER, McLENDON & MURRELL, P. C

John J. Molloy

JJM/mb
enc.
CC: Mr. Russell Mt. Pleasant, P. E.
Mr. Dennis Moran
Mr. Karl Horlitz

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ROBERT G. HOLZMACHER P.E., L.S.
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(516) 694-3040

December 12, 1975

Nassau County Health Department
240 Old Country Road
Mineola, New York 11501

Re: John Hassall, Inc.
SPDES No. NY0076287

Attention: Mr. John Welsch

Gentlemen:

Enclosed please find the SPDES monitoring report for the above referenced facility for the month of November 1975.

For this reporting period, the iron, oil and grease and chromium (total) have exceeded the permit conditions. Despite their non-compliance, the treatment plant has shown limited improvement from last month's performance. We are attributing the improved performance to the pump down of the below grade tanks.

The polishing filter has arrived and been mounted in place. We now await delivery of the precoat tank and some valves before the construction will be completed. The overall timing still appears to be as originally laid out with the installation to be completed by mid January 1976 and starting operations to be completed by February 1976.

If you have any questions, please do not hesitate to contact our office.

Very truly yours,

HOLZMACHER, McLENDON & MURRELL, P. C

John J. Molloy

JJM/mb
enc.

CC: Mr. Russell Mt. Pleasant, P.E.
Mr. Dennis Moran
Mr. Karl Horlitz

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CARL E. BECKER, P.E.
CHRISTOPHER POWERS, P.E.
CHARLES E. BANKS, P.E.
FRANK N. COPPA, P.E.

H2M CORP.

HOLZMACHER, McLENDON and MURRELL, P.C
Consulting Engineers, Environmental Scientists & Planne
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February 24, 1976

Nassau County Health Department
240 Old Country Road
Mineola, New York 11501

Re: John Hassall, Inc.
SPDES Permit No.
NY0076287

Attention: Mr. John Welsch

Gentlemen:

Enclosed please find the SPDES Industrial Discharge Monitoring Report for the above referenced Facility for the month of January 1976. With the exception of the Oil & Grease, all parameters are within the interim permit limitations.

With respect to the installation of the final effluent and polishing filter, please be advised that construction has been completed and that startup operations are proceeding. There have been no batches discharged for the month of February for which we would have to meet final effluent limitations.

We will keep your office appraised of our progress in this regard. If you have any questions or comments, please call or write this office.

Very truly yours,

HOLZMACHER, McLENDON & MURRELL, P.C.

John J. Malloy
Project Engineer

JJM:jj
Enc.

cc: Mr. Russell Mt. Pleasant, P.E., Albany
Mr. Dennis Moran, NYSDEC, Stony Brook
Mr. Karl Horlitz, John Hassall

88

ROBERT G. HOLZMACHER, P.E., P.P., L.S.
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April 20, 1976

Nassau County Health Dept.
240 Old Country Road
Mineola, New York 11501

Re: John Hassall, Inc.
SPDES Permit No. NY0076287
EVLI75-3

Attention: Mr. John Welsch

Gentlemen:

Enclosed please find the SPDES Industrial Discharge Monitoring Report for the above referenced facility for the month of March, 1976.

Effluent data for the month indicates that average values for total chromium, iron, and nickel exceeded permit conditions. Average effluent values for hexavalent chromium, copper and oil and grease were within permit conditions. Data for March 31 indicates that the copper value for that batch exceeded permit conditions.

As you will recall from our previous monthly report, nickel was of particular concern and the data for March indicates steady improvement of the effluent value for nickel. The final batch met the standard for nickel. However, attempts at resolving nickel problems has apparently caused a deterioration in both iron and chromium values.

Since we have been attempting various process changes (principally pH control and chemical addition rate) during the last two months, we felt that some contamination has occured in the final clarifier. In order to rectify this situation, the clarifier was washed down and cleaned after the first batch in April. We still await further processing to determine whether the situation has improved. If further attempts at treatment plant optimization fail to yield satisfactory results,

we will attempt to further isolate waste streams

[illegible] P.E.
[illegible]AN E. MURRELL, P.E.
HUGO D. FREUDENTHAL, Ph.D.
HAROLD A. DOMBECK, P.E.
ROBERT H. ALBANESE, P.E.

ISRAEL WILENITZ, Ph.D., P.E.
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H2M CORP.

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May 4, 1976

Mr. Karl Horlitz, Plant Manager
John Hassall, Incorporated
Cantiague Rock Road
P.O. Box 366
Westbury, New York 11590

Re: Wastewater Treatment
MI73-11

Dear Karl:

We have been providing ongoing engineering services to bring your wastewater treatment plant within ground water effluent limitations. This work has led us to conclude that this process, as currently operated, cannot meet these objectives.

Our work since early February, 1976 has been directed at starting up the polishing filter and gaining operational experience with it. This work has been successful, but we have not been able to achieve SPDES limitations for three of the required constituents: nickel, iron, and total chromium. We have been able to adequately and consistently treat for copper, hexavalent chromium and oil and grease.

As you are well aware, the problems we have experienced with your grossly polluted wastewater have been substantial. The very high oil and solvent content, the high dissolved solids levels, and the mixed metal nature of your wastewater leaves little flexibility in processing with what has been recognized as the best available technology.

The treatment process we have been employing is based upon employing calcium chloride to break the oil in water emulsion and sodium sulfide to reduce hexavalent chromium and precipitate the

heavy metals as sulfides. Sorbocell (an alum activated diatomaceous earth) is used to absorb residual oils and serves as a body feed during filtration. Powdered activated carbon is also employed and serves to lower the chemical oxygen demand (COD) of your wastewater, while also removing color and odor.

We have to a large extent been successful in treating your wastewater, but have not been able to completely meet objectives. The effluent data since February, 1976, when the polishing filter became operational, indicates:

CONSTITUTENT	UNTREATED mg/l	EFFLUENT mg/l	SPDES LIMIT mg/l
Copper	65	0.12	0.4
Iron	80	2.8	0.6
Nickel	50	3.9	1.0
Chromium	65	3.9	1.0
Hexavalent Chromium	5	0.03	0.1
Oil and Grease	-	10	10

Although we have closely approached effluent limitations, we do not appear to be able to increase performance beyond these levels with present process chemistry. We have attempted, both on a laboratory and full scale basis, all reasonable possibilities on pH adjustment, chemical addition rate, order of reactions and frequency of filtration without satisfactory results.

Since we feel that the remaining metals are neither suspended or tied-up organically, they must be complexed inorganically or the limits of co-precipitation with this process chemistry has been reached. In order to limit the potential for soluble chloride complex formation and to test the limits of hydroxide co-precipitation, we recommend that a full scale evaluation of lime treatment be made. Lime will not only enable us to employ hydroxide precipitation, but also should provide the emulsion breaking characteristics of calcium chloride. The sodium sulfide feed rate will be lowered and held to only that which is required to accomplish hexavalent chromium reduction under alkaline conditions.

Treatment plant processing will be patterned directly from the existing and will include lime precipitation, followed by recarbona-

tion, Sorbocell body feed, filtration, and carbon contracting. We feel that eight weeks will be required to fully evaluate these process modifications. Initial results for the modified process should become apparent after the week of May 10, 1976.

If you have any questions, please call or write this office.

Yours very truly,

HOLZMACHER, McLENDON AND MURRELL, P.C.

John J. Molloy
Project Engineer

JJM/sh
cc: Mr. John Welsch

ROBERT C. HOLZMACHER, P.E., P.P., L.S.
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H2M CORP.

HOLZMACHER, McLENDON and MURRELL, P.C
Consulting Engineers, Environmental Scientists & Planner
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June 16, 1976

Mr. John Welsch
Nassau County Health Department
240 Old Country Road
Mineola, New York 11501

Re: John Hassall, Inc.
SPDES Permit No. NY 0076287
MI73-11

Dear John:

As you are aware from our previous correspondence for the above referenced facility, we are experiencing problems in attaining final effluent limitations.

Our attempts since February, 1976, when all planned construction was completed, have been directed at achieving compliance with ground water standards with a sulfide-calcium chloride system followed by activated carbon adsorption and filtration. We were unsuccessful in achieving compliance employing this system. Therefore, we switched into a lime-sulfide system in late May, 1976. Currently we are attempting to optimize this system and cannot yet meet ground water standards.

We will require additional time to fully evaluate this revised processing format and explore the feasibility of further segregation within the manufacturing area. If our attempts in this regard are still unable to achieve objectives, we will have to develop definitive plans for upgrading the system to achieve operational levels.

The need for further time to evaluate the lime-sulfide system and to develop contingency plans in the event of failure to achieve compliance, necessitates our requesting a modification to the compliance schedule for John Hassall, Inc. Therefore, we hereby request that a modified compliance schedule be added to the John Hassall permit. We request that the schedule be amended so that achievement of operational levels be delayed until November, 1976.

Mr. John Welsch
Nassau County Health Dept.

June 16, 1976

Considering all the time and effort expended to date on this project, we feel that the additional time requested can be readily justified. If you have any questions, or require more information, please call or write this office.

Very truly yours,

HOLZMACHER, McLENDON & MURRELL, P.C.

John J. Molloy
Project Engineer

JJM/jj

cc: Mr. Karl Horlitz

ROBERT G. HOLZMACHER, P.E., P.P., LS
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August 20, 1976

Nassau County Department of Health
240 Old Country Road
Mineola, New York 11501

Re: John Hassall, Inc.
SPDES Permit No. NY0076287
EVLI 75-3

Attention: Mr. John F. Welsch

Gentlemen:

Enclosed please find the SPDES Industrial Discharge Monitoring Report for the above-referenced facility for the month of July 1976.

Effluent data for the month indicates that average values for total chromium, iron and nickel exceeded permit limitations. Average and individual effluent values for copper, hexavalent chromium and oil and grease were within permit conditions.

The effluent data for the month reflects the process changes we have implemented in order to resolve the control problems for nickel, iron and chromium. The data presented is based on our modified lime-sulfide process and the results continue to be encouraging. We are currently attempting to optimize the modified process to achieve our permit limitations. We will keep you appraised of our progress in this regard.

If you have any questions or comments, please call or write our office.

Very truly yours,

H2M CORP.

John J. Molloy
Project Engineer

SCW/abc
CC: Russell Mt. Pleasant, P.E.
Dennis Moran, NYSDEC
Karl Horlitz

HOLZMACHER, P.E., P.P., L.S.
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September 29, 1976

Nassau County Department of Health
240 Old Country Road
Mineola, New York 11501

Re: John Hassall, Inc.
SPDES Permit No. NY0076287
EVLI 75-3

Attention: Mr. John F. Welsch

Gentlemen:

Enclosed please find the SPDES Industrial Discharge Monitoring Report for the above referenced facility for the month of August 1976.

Effluent data for the month indicates that average values for total chromium, iron and nickel exceeded permit limitations. Average and individual effluent values for copper, hexavalent chromium and oil and grease were within permit conditions.

The effluent data for the month reflects the process changes we have implemented in order to resolve the control problems for nickel, iron and chromium. The data presented is based on our modified lime-sulfide process and the results continue to be encouraging. We are currently attempting to optimize the modified process to achieve our permit limitations. We will keep you appraised of our progress in this regard.

If you have any questions or comments, please call or write our office.

Very truly yours,

H2M CORP.

John J. Molloy
Project Engineer

JJM/jj
Enc.
cc: Russell Mt. Pleasant, P.E.
Dennis Moran, NYSDEC
Karl Horlitz

96

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40 PARK PLACE, NEWTON, N.J. 07806 (201) 383-3544

October 22, 1976

Nassau County Department of Health
240 Old Country Road
Mineola, New York 11501

Re: John Hassall, Inc.
SPDES Permit No. NY0076287
EVLI 75-3

Attention: Mr. John F. Welsch

Gentlemen:

Enclosed please find the SPDES Industrial Discharge Monitoring Report for the above-referenced facility for the month of September 1976.

Effluent data for the month indicates that average values for total chromium, copper, iron and nickel exceeded permit limitations. Average effluent values for hexavalent chromium and oil and grease were within permit conditions.

The effluent data for the month reflects the process changes we have implemented in order to resolve the control problems for nickel, iron and chromium. The changes recently implemented have resulted in poorer system performance. Therefore, we have reverted back to our lime-sulfide system, which gave us good performance in earlier reports. After we get the system back under control, we will attempt to increase performance by process optimization.

If you have any questions or comments, please call or write our office.

Very truly yours,

H2M CORP.

John J. Molloy
Project Engineer

JJM/abc
Enclosure
CC: Russell Mt. Pleasant, P.E.
Dennis Moran, NYSDEC
Karl Horlitz

ROBERT G. HOLZMACHER, P.E., P.P., L.S.
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January 25, 1977

Nassau County Department of Health
340 Old Country Road
Mineola, New York 11501

Re: John Hassall, Inc.
SPDES Permit No. NY0076287
EVLI 75-3

Attention: Mr. John F. Welsch

Gentlemen:

Enclosed please find the SPDES Industrial Discharge Monitoring Report for the above referenced facility for the month of December, 1976.

Effluent data for the month indicates that average values for total chromium, copper, iron and nickel exceeded permit limitations. Average effluent values for hexavalent chromium were within permit conditions.

The effluent data for the month reflects the process changes we have implemented in order to resolve the control problems for nickel, iron and chromium. The changes recently implemented have resulted in poorer system performances. Therefore, we have reverted back to our lime-sulfide system, which gave us good performance in earlier reports. After we get the system back under control, we will attempt to increase performance by process optimization.

If you have any questions or comments, please call or write our office.

Very truly yours,

H 2 M CORP.

John J. Molloy
Project Engineer

JJM:sh

CC: Russell Mt. Pleasant, P.E.
Dennis Moran, NYSDEC
Karl Horlitz

98

[illegible]
[illegible] McLENDON P.E.
[illegible]MAN E. MURRELL P.E.
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February 25, 1977

Nassau County
Department of Health
240 Old Country Road
Mineola, New York 11501

Re: John Hassall, Inc.
SPDES Permit NO. NY0076287
EVLI 75-3

Attention: Mr. John F. Welsch

Gentlemen:

Enclosed please find the SPDES Industrial Discharge Monitoring Report for the above-referenced facility for the month of January, 1977.

Effluent data for the month indicates that average values for total chromium, iron and nickel exceeded permit limitations. Average effluent values for hexavalent chromium and copper were within permit conditions.

The effluent data for the month reflects the continued difficulty in resolving the control problems for nickel, iron and chromium. The changes recently implemented have resulted in somewhat better performance. However, even after reverting back to our lime-sulfide system, we are still unable to meet final effluent limitations. In this regard, we are currently having waste water from the industrial washing machine evaluated for emulsified oil removal by ultra-filtration. We are also evaluating the feasibility of employing ultra-filtration as a final polish for our filter effluent. We will keep your office advised concerning our progress in these matters.

If you have any questions or comments, please call or write our office.

Very truly yours,

HOLZMACHER, McLENDON & MURRELL, P.C.

John J. Molloy
Project Engineer

JJM:abc
CC: R. Mt. Pleasant, P.E.
T. Snyder (NYSDEC)
K. Horlitz

99

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40 PARK PLACE, NEWTON, N.J. 07860 (201) 383-3544

March 25, 1977

Nassau County
Department of Health
240 Old Country Road
Mineola, New York 11501

Re: John Hassall, Inc.
SPDES Permit No. NY0076287
EVLI 75-3

Attention: Mr. John F. Welsch

Gentlemen:

Enclosed please find the SPDES Industrial Discharge Monitoring Report for the above-referenced facility for the month of February 1977.

Effluent data for the month indicates that average values for total chromium, iron and nickel exceeded permit limitations. Average effluent values for hexavalent chromium, oil and grease, and copper were within permit conditions.

The effluent data for the month reflects the continued difficulty in resolving the control problems for nickel, iron and chromium. The changes recently implemented have resulted in somewhat better performance. However, even after reverting back to our lime-sulfide system, we are still unable to meet final effluent limitations. In this regard, we are currently having wastewater from the industrial washing machine evaluated for emulsified oil removal by ultra-filtration. We are also evaluating the feasibility of employing ultra-filtration as a final polish for our filter effluent. We will keep your office advised concerning our progress in these matters.

100

[illegible] HOLZMACHER P.E. P.P. L.S.
[illegible] McLENDON P.E.
NORMAN E. MURRELL P.E.
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40 PARK PLACE, NEWTON, N.J. 07860 (201) 383-3544

November 21, 1977

Nassau County Department
of Health
240 Old Country Road
Mineola, New York 11501

Re: John Hassall, Inc.
SPDES Permit No. NY0076287
EVLI 75-3

Attention: Mr. John F. Welsch

Gentlemen:

Enclosed please find the SPDES Industrial Discharge Monitoring Report for the above referenced facility for the month of October, 1977.

Effluent values for oil and grease, total chrome, nickel, and iron exceeded permit conditions. Maximum effluent values for hexavalent chrome and copper were within permit limitations.

The effluent data reflects continued difficulty in resolving the control problems for nickel and chromium. We will keep your office advised concerning our progress in regard to correcting these problems.

If you have any questions or comments, please call or write this office.

Very truly yours,

HOLZMACHER, McLENDON & MURRELL, P.C.

John J. Molloy, P.E.

JJM/jj
Enc.
cc: R. Mt. Pleasant, P.E.
T. Snyder (NYSDEC)
K. Horlitz

WATER RESOURCES • WATER SUPPLY • TREATMENT • [illegible]
ENVIRONMENTAL STUDIES • [illegible] PAL ENGINEERING [illegible]
SOLID WASTE DISPOSAL • [illegible]

ROBERT G. HOLZMACHER, P.E.
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40 PARK PLACE, NEWTON, N.J. 07860 (201) 383-3544

November 11, 1977

Nassau County
Department of Health
240 Old Country Road
Mineola, New York 11501

Re: John Hassall, Inc.
SPDES Permit No. NY0076287

Attn: Mr. John F. Welsch

Gentlemen:

Enclosed please find the SPDES Industrial Discharge Monitoring Report for the above referenced facility for the month of September, 1977.

Effluent data for the month indicates that maximum values for total chromium, nickel, iron, and oil exceeded permit limitations. Average effluent values for hexavalent chromium and copper were within permit conditions.

The effluent data reflects continued difficulty in resolving the control problems for nickel and chromium. Problems with respect to oil and iron during the month were apparently due to mechanical difficulties with process equipment. This is presently being corrected. We will keep your office advised concerning our progress in regard to correcting these problems.

If you have any questions or comments, please call or write this office.

Very truly yours,

HOLZMACHER, McLENDON & MURRELL, P.C.

John J. Molloy, P.E.

JJM:sdh
Encl.
cc: R. Mt. Pleasant, P.E.
T. Snyder (NYSDEC)
K. Horlitz

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H2M Corp.
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ROBERT H. ALBANESE, P.E.
CARL E. BECKER, P.E.
CHRISTOPHER POWERS, P.E.
FRANK N. COPPA, P.E.
JOHN J. MOLLOY, P.E.
CHARLES E. BANKS, P.E.
DONALD A. SIOSS, P.E.
JOHN W. TOWERS, P.E.

June 26, 1978

Nassau County Department of Health
240 Old Country Road
Mineola, New York 11501

Re: John Hassall, Inc.
SPDES Permit No. NY0076257
EVLI 75-03

Attention: Mr. John F. Welsch

Gentlemen:

Enclosed please find the SPDES Industrial Discharge Monitoring Report for the above referenced facility for the month of May 1978.

Effluent data for the month indicates that maximum values for total chromium, iron, nickel, and oil and grease exceeded permit limitations. All other effluent values were within permit limitations.

The effluent data reflects continued difficulty in resolving the control problems for nickel and chromium. We will keep your office advised concerning our progress in regard to correcting these problems.

If you have any questions or comments, please call or write this office.

Very truly yours,

HOLZMACHER, McLENDON & MURRELL, P.C.

John J. Molloy, P.E.

RMS/jj
Enc.
cc: Mr. R. Mt. Pleasant, P.E.
Mr. Ted Snyder (NYSDEC)
Mr. Karl Horlitz

103

H2M Corp.
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560 BROAD HOLLOW ROAD MELVILLE NY 11747 516 752 9060
[illegible] FULTON STREET FARMINGDALE NY 11735 516 694 3410
[illegible] WEST MAIN STREET RIVERHEAD NY [illegible]
[illegible] PARK PLACE NEWTON NJ [illegible]
[illegible]

ROBERT G HOLZMACHER P E P P L S
SAMUEL C McLENDON P E
NORMAN E MURRELL P E
HAROLD A DOMBECK P E
HUGO D FREUDENTHAL, Ph D
CARL E BECKER, P E
JOHN J MOLLOY, P E
DONALD A SIOSS P E
GARY E LOESCH P E
BRIJ M SHRIVASTAVA P E
CHARLES E BANKS P E

January 28, 1981

Nassau County Department of Health
240 Old Country Road
Mineola, NY 11501

Re: John Hassall, Inc.
SPDES Permit No. NY0076287

Attention: Mr. Joseph Schechter

Gentlemen:

Enclosed please find the SPDES Industrial Discharge Monitoring Report for the month of December, 1980.

Effluent data for the month indicates violation of permit conditions for total iron and total chromium. Data for pH, copper, nickel, oil, and hexavalent chromium met permit conditions.

As you are aware, we are currently working under a compliance order to modify waste treatment practices at the plant and move to a "zero discharge" system.

If you have any questions, please call or write this office.

Yours very truly,

HOLZMACHER, McLENDON, & MURRELL, P.C.

Gary J. Miller

PAGE 1 OF 1
SPDES NO. NY0076287
SCAVENGER PICKUP
Registration No.
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ORIZED AGENT

104

H2M Corp.
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209 WEST MAIN STREET RIVERHEAD NY 11901 (516) 727 3480
40 PARK PLACE NEWTON NJ 07860 (201) 383 3544
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HAROLD A DOMBECK P E
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CARL E BECKER, P E
JOHN J MOLLOY P E
DONALD A SIOSS, P E
GARY E LOESCH P E
BRIJ M SHRIVASTAVA P E
CHARLES E BANKS, P E

February 26, 1981

Nassau County Department
of Health
240 Old Country Road
Mineola, NY 11501

Re: John Hassall, Inc.
SPDES Permit No. NY0076287

Attention: Mr. Joseph Schecter

Gentlemen:

Enclosed please find the SPDES Industrial Discharge Monitoring Report for the month of January, 1981.

Effluent data for the month indicates violation of permit conditions for total chromium and total iron. Data for pH, copper, nickel, oil and hexavalent chromium met permit conditions.

As you are aware, we are currently working under a compliance order to modify waste treatment practices at the plant and move to a "zero discharge" system.

If you have any questions regarding this matter, please call or write this office.

Very truly yours,

HOLZMACHER, McLENDON & MURRELL, P.C.

Brian A. Shields

Brian A. Shields

BAS/lml
Enc.

cc: Mr. R. Mt. Pleasant, P.E.
Mr. Ted Snyder
Mr. Karl Horlitz

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H2M Corp.
HOLZMACHER, McLENDON and MURRELL, P.C.
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125 BAYLIS ROAD MELVILLE NY 11747 516-752 9060
375 FULTON STREET FARMINGDALE NY 11735 516-694 3412
209 WEST MAIN STREET RIVERHEAD NY 11901 516-727 3480
TELECOPIER 24hr 4100 516 752 9067

ROBERT G HOLZMACHER P.E.
SAMUEL C McLENDON P.E.
NORMAN E MURRELL P.E.
HAROLD A DOMBECK P.E.
HUGO D FREUDENTHAL Ph D
CARL E BECKER P.E.
JOHN J MOLLOY P.E.
DONALD A SIOSS P.E.
GARY E LOESCH P.E.
BRIJ M SHRIVASTAVA P.E.
CHARLES E BANKS P.E.

March 24, 1981

Nassau County Department of Health
240 Old Country Road
Mineola, NY 11501

Re: John Hassall, Inc.
SPDES Permit No. NY0076287

Attention: Mr. Joseph Schechter

Gentlemen:

Enclosed please find the SPDES Industrial Discharge Monitoring Report for the month of February, 1981.

Effluent data for the month indicates violation of permit conditions for total chromium, total nickel and total iron. Data for pH, copper, oil and hexavalent chromium met permit conditions.

As you are aware, we are currently working under a compliance order to modify waste treatment practices at the plant and move to a "zero discharge" system.

If you have any questions regarding this matter, please call or write this office.

Very truly yours,

HOLZMACHER, McLENDON & MURRELL, P.C.

Brian A. Shields

Brian A. Shields

BAS/lml
Enclosures

cc: Mr. R. Mt. Pleasant, P.E.
Mr. Ted Snyder
Mr. Karl Horlitz

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H2M

HOLZMACHER, McLENDON and MURRELL, P.C. • CONSULTING ENGINEERS, ENVIRONMENTAL SCIENTISTS and PLANNERS

125 BAYLIS ROAD, MELVILLE, N Y 11747 • 516-752-9060

April 28, 1981

Nassau County Department of Health
240 Old Country Road
Mineola, NY 11501

Re: John Hassall, Inc.
SPDES No. NY0076237

Attention: Mr. Joseph Schechter

Gentlemen:

Enclosed please find the SPDES Industrial Discharge Monitoring Report for the month of March, 1981.

Effluent data for the month indicates violation of permit conditions for total chromium. Data for all other parameters met permit conditions.

As you are aware, we are currently working under a compliance order to modify waste treatment practices at the plant and move to a "zero discharge" system.

If you have any questions regarding this matter, please call or write this office.

Very truly yours,

HOLZMACHER, McLENDON & MURRELL, P.C.

Brian A. Shields

Brian A. Shields

BAS/lml
Enclosures

cc: Mr. R. Mt. Pleasant, P.E.
Mr. Ted Snyder
Mr. Karl Horlitz, P.E.

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H2M

HOLZMACHER, McLENDON and MURRELL, P.C. • CONSULTING ENGINEERS, ENVIRONMENTAL SCIENTISTS and PLANNERS

125 BAYLIS ROAD, MELVILLE, N.Y. 11747 • 516-752-9060

June 1, 1981

Nassau County Department of Health
240 Old Country Road
Mineola, NY 11501

Re: John Hassall, Inc.
SPDES No. NY 0076287

Attention: Mr. Joseph Schechter

Gentlemen:

Enclosed please find the SPDES Industrial Discharge Monitoring Report for the month of April, 1981.

Effluent data for the month indicates violation of permit conditions for oil, total chromium, nickel and iron. Data for all other parameters met permit conditions.

As you are aware, we are currently working under a compliance order to modify waste treatment practices at the plant and move to a "zero discharge" system.

If you have any questions regarding this matter, please call or write this office.

Very truly yours,

HOLZMACHER, McLENDON & MURRELL, P.C.

Brian A. Shields

Brian A. Shields

BAS/lml
Enclosures

cc: Mr. R. Mt. Pleasant, P.E.
Mr. Ted Snyder
Mr. Karl Horlitz, P.E.

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H2M

HOLZMACHER, McLENDON and MURRELL, P.C. • CONSULTING ENGINEERS, ENVIRONMENTAL SCIENTISTS and PLANNERS

125 BAYLIS ROAD, MELVILLE, N.Y. 11747 • 516-752-9060

June 25, 1981

Nassau County Department of Health
240 Old Country Road
Mineola, New York 11501

Re: John Hassall, Inc.
SPDES Permit No. NY0076287

Attention: Mr. Joseph Schechter

Gentlemen:

Enclosed please find the SPDES Industrial Discharge Monitoring Report for the month of May, 1981.

Effluent data for the month indicates violation of permit conditions for total chromium, total nickel and total iron. Data for all other parameters met permit conditions.

As you are aware, we are currently working under a compliance order to modify waste treatment practices at the plant and move to a "zero discharge" system.

If you have any questions regarding this matter, please call or write this office.

Very truly yours,

HOLZMACHER, McLENDON & MURRELL, P.C.

Brian A. Shields

Brian A. Shields

BAS/lml
Enclosures

cc: Mr. R. Mt. Pleasant, P.E.
Mr. Ted Snyder
Mr. Karl Horlitz, P.E.

H2M
HOLZMACHER, McLENDON and MURRELL, P.C. • CONSULTING ENGINEERS, ENVIRONMENTAL SCIENTISTS and PLANNERS
125 BAYLIS ROAD MELVILLE N Y 11747 • 516-752-9060

September 1, 1981

Nassau County Dept. of Health
240 Old Country Road
Mineola, New York 11501

Re: John Hassall, Inc.
SPDES Permit No. NY0076287

Attention: Mr. Joseph Schecter

Gentlemen:

Enclosed please find the SPDES Industrial Discharge Monitoring Report for the month of July, 1981.

Effluent data for the month indicates violation of permit conditions for copper and iron. Consequently, no batches were discharged during the month of July, 1981. Data for all other parameters met permit conditions.

As you are aware, since the County sewers are now available for hookup, we are proceeding with documenting waste characteristics with respect to the sewer use ordinance. Plans for the sewers have been prepared and submitted to the County. Bidding has commenced on the sewers with bids due by September 7, 1981. Please note that all parameters, therefore, met permit conditions for the month of June, 1981.

If you have any questions regarding this matter, please call or write this office.

Very truly yours,

HOLZMACHER, McLENDON & MURRELL, P.C.

Brian A. Shields

Brian A. Shields

BAS/jj
Enclosure
cc: Mr. Russell Mt. Pleasant, P.E.
Mr. Ted Snyder
Mr. Karl Horlitz, P.E.

110

H2M
HOLZMACHER, McLENDON and MURRELL, P.C. • CONSULTING ENGINEERS, ENVIRONMENTAL SCIENTISTS and PLANNERS
125 BAYLIS ROAD, MELVILLE, N.Y. 11747 • 516-752-9060

October 6, 1981

Nassau County Department of Health
240 Old Country Road
Mineola, New York 11501

Re: John Hassall, Inc.
SPDES Permit No. NY0076287

Attention: Mr. Joseph Schechter

Gentlemen:

Enclosed please find the SPDES Industrial Discharge Monitoring Report for the month of August, 1981.

Effluent data for the month indicates violation of permit conditions for pH and iron. Data for all other parameters met permit conditions.

As you are aware, all future batches not meeting permit conditions will be held for scavenger pickup.

If you have any questions regarding this matter, please call or write this office.

Very truly yours,

HOLZMACHER, McLENDON & MURRELL, P.C.

Brian A. Shields

Brian A. Shields

BAS/lml
Enclosures

cc: Mr. R. Mt. Pleasant, P.E.
Mr. Ted Snyder
Mr. Karl Horlitz

HOLZMACHER, McLENDON and MURRELL, P.C. • CONSULTING ENGINEERS, ENVIRONMENTAL SCIENTISTS and PLANNERS
125 BAYLIS ROAD, MELVILLE, N.Y. 11747 • 516-752-9060

October 29, 1981

Nassau County Department of Health
240 Old Country Road
Mineola, New York 11501

Re: John Hassall, Inc.
SPDES Permit No. NY0076287

Attention: Mr. Joseph Schechter

Gentlemen:

Enclosed please find the SPDES Industrial Discharge Monitoring Report for the month of September 1981.

Effluent data for the month indicates violation of permit conditions for pH, chromium and iron. Data for all other parameters met permit conditions.

As you are aware, all future batches not meeting permit conditions will be held for scavenger pickup.

If you have any questions regarding this matter, please call or write this office.

Very truly yours,

HOLZMACHER, McLENDON & MURRELL, P.C.

Brian A. Shields

Brian A. Shields

BAS/lml
Enclosures

cc: Mr. R. Mt. Pleasant, P.E.
Mr. Ted Snyder
Mr. Karl Horlitz

112

H2M
HOLZMACHER, McLENDON and MURRELL, P.C. • CONSULTING ENGINEERS, ENVIRONMENTAL SCIENTISTS and PLANNERS
125 BAYLIS ROAD MELVILLE N.Y. 11747 • 516-752-9060

December 2, 1981

Nassau County Department of Health
240 Old Country Road
Mineola, New York 11501

Re: John Hassall, Inc.
SPDES Permit No. NY 0076287

Attention: Mr. Joseph Schechter

Gentlemen:

Enclosed please find the SPDES Industrial Discharge Monitoring Report for the month of October, 1981.

Effluent data for the month indicates violation of permit conditions for pH, chromium and iron. Data for all other parameters met permit conditions.

As you are aware, all batches not meeting permit conditions will be held for scavenger pickup.

If you have any questions regarding this matter, please call or write this office.

Very truly yours,

HOLZMACHER, McLENDON & MURRELL, P.C.

Brian A. Shields

Brian A. Shields

BAS/lml
Enclosures

cc: Mr. R.C. Mt. Pleasant, P.E.
Mr. Ted Snyder
Mr. Karl Horlitz

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HOLZMACHER, McLENDON and MURRELL, P.C. • CONSULTING ENGINEERS, ENVIRONMENTAL SCIENTISTS and PLANNERS
125 BAYLIS ROAD, SUITE 140, MELVILLE, N.Y. 11747 • 516-752-9060

October 25, 1982

Nassau County Department of Health
240 Old Country Road
Mineola, New York 11501

Re: John Hassal, Inc.

Attention: Mr. Joseph Schechter

Gentlemen:

Enclosed please find the SPDES Discharge Monitoring Report and the SPDES Industrial Discharge Monitoring Report from John Hassal, Inc. for the months of August and September, 1982.

In this regard, note that John Hassal Inc. (JHI) discharged their first batch of treated wastewater in the Nassau County Sewer System on August 25, 1982. Also, during September, 1982, all the treated wastewater batches from JHI was discharged in the sewers.

If you have any questions, please contact this office.

Very truly yours,

HOLZMACHER, McLENDON & MURRELL, P.C.

Raman S. Iyer

RSI/mf

Enc.

cc: Mr. George Hansen
Mr. Ted Snyder
Mr. Karl Horlitz
Mr. Mathew Foster

J. HASSALL, INC.

INDUSTRIAL WASTE TREATMENT

AND DISPOSAL FACILITIES

ANALYSIS OF UNTREATED WASTE WATERS

Constituent	Average	Maximum
Hexavalent Chromium (CR+6)	10. mg/l	20 mg/l
Chromium (Cr)	12. mg/l	30 mg/l
Copper (Cu)	25. mg/l	130 mg/l
Nickel (Ni)	9. mg/l	2[illegible] mg/l
Cyanide (Cn)	10. mg/l	30 mg/l
Iron (Fe)	10. mg/l	250 mg/l
Oil & Grease	approx. 3%	approx. 10%
pH	3 to 8	2 to 11

REFERENCE 12

02-5802-0

NUS CORPORATION AND SUBSIDIARIES — **TELECON NOTE**

CONTROL NO:	DATE: 3/17/88	TIME: 1150

DISTRIBUTION:

JOHN HASSALL
02-5802.07

BETWEEN: V. PALOSE	OF: JOHN HASSALL	PHONE: (516) 334-6200

AND: E. LEONARD (NUS)

DISCUSSION: RE: SPILL AT HASSALL

- VOLUME OF SPILL ~50-100 GALLONS
- OCCURED IN DECEMBER 1987
- HOLDING TANK FOR TREATED WATER OVERFLOWED. OIL LAYER ON TOP WAS DISCHARGED ONTO GROUND
- DUE TO PUMP SWITCH MALFUNCTION
- NOT REPORT TO COUNTY OR STATE

OTHER BACKGROUND

- NO ONSITE WELLS
- SITE ~15 ACRES 1/2 JOHN HASSALL OTHER HALF RENTED.

ACTION ITEMS: E. Leonard 3/17/88

NUS 067 REVISED 0685

REFERENCE 13

02-8802-

NUS CORPORATION AND SUBSIDIARIES — **TELECON NOTE**

CONTROL NO:	DATE: 3/17/88	TIME: 1132 HRS

DISTRIBUTION:

JOHN HASSALL
02-8802-07

BETWEEN:	OF:	PHONE:
J. SCHECTER	NASSAU CO. HEALTH DEPT.	EXT 2256 (516) 535-3410

AND: R. LEONARD (NUS)

DISCUSSION:

RE: SPILL AT HASSALL

REQUESTED REPORT ON OIL/GREASE AT HASSALL IN DEC 1987.

MR SCHECTER STATE THAT HE DID NOT KNOW ABOUT SPILL, AND THERE WERE NO KNOWN REPORTS, TO EITHER NCHD OR NYSDEC.

R Leonard 3/17/88

ACTION ITEMS:

NUS 067 REVISED 0685

REFERENCE 14

02-8802-07

NUS CORPORATION AND SUBSIDIARIES — **TELECON NOTE**

CONTROL NO:	DATE:	TIME:
02-8802-07	2/18/88	1105

DISTRIBUTION:

File

BETWEEN:	OF:	PHONE:
Jack McCrosson	Hicksville Water District	(516) 931-0184

AND: Rich Feinberg (NUS)

DISCUSSION:

Mr McCrosson gave me locations of many water supply wells in the Hicksville/Westbury area. He also said that there were ~ 50,000 people using the water from these wells.

ACTION ITEMS:

See Map in Note's file for well locations

NUS 067 REVISED 0685

REFERENCE 15

[6560-01]

[FRL 910-3]

AQUIFERS UNDERLYING NASSAU AND SUFFOLK COUNTIES, NEW YORK

Determination

Notice is hereby given that pursuant to Section 1424(e) of the Safe Drinking Water Act (42 U.S.C. 300f, 300h-3(e); 88 Stat. 1660 et seq.; Pub. L. 93-523) the Administrator of the Environmental Protection Agency has determined that the aquifer system underlying Nassau and Suffolk Counties, Long Island, New York, is the principal source of drinking water for these counties and that, if the aquifer system were contaminated, it would create a significant hazard to public health.

BACKGROUND

The Safe Drinking Water Act was enacted on December 16, 1974. Section 1424(e) of the Act states: "If the Administrator determines, on his own initiative or upon petition, that an area has an aquifer which is the sole of principal drinking water source for the area and which, if contaminated, would create a significant hazard to public health, he shall publish notice of that determination in the FEDERAL REGISTER. After the publication of any such notice, no commitment for Federal financial assistance (through a grant, contract, loan guarantee, or otherwise) may be entered into for any project which the Administrator determines may contaminate such aquifer through a recharge zone so as to create a significant hazard to public health but a commitment for Federal financial assistance may, if authorized under another provision of law, be entered into to plan or design the project to assure that it will not so contaminate the aquifer."

On January 21, 1975, the Environmental Defense Fund petitioned the Administrator to designate the aquifers underlying Nassau and Suffolk Counties, Long Island, New York, as a sole source aquifer under the provisions of the Act. A notice of receipt of this petition, together with a request for comments, was published in the FEDERAL REGISTER, Thursday, June 12, 1975. Written comments were submitted by the Environmental Defense Fund (EDF) on August 7, 1975, supporting their petition. A letter from the Director of the Nassau-Suffolk Regional Planning Board, dated October 1, 1976, requested that designation be delayed until after the completion of the areawide waste management (208) planning process for Long Island.

Because of the limited response to the FEDERAL REGISTER notice, EPA issued a press release and mailed an information sheet to elected officials and environmental groups on Long Island in March 1977. In addition, a presentation was made to the Citizens Advisory Committee (CAC) of the 208 planning agency and to the executive committee of the Long Island Water Conference. In response to these activities EPA received three comments: a letter from EDF questioning why project review would exclude direct Federal projects, a letter from a member of the East Hampton Planning Board expressing support for the designation, and a letter from the CAC requesting that designation be delayed until after the completion and approval of the Long Island 208 plan.

In considering the comments received, we could not agree with the letters requesting further delay since we do not believe that the review process under Section 1424(e) will constrain the options of 208 planning.

On the basis of the information which is available to this Agency, the Administrator has made the following findings, which are the basis for the determination noted above:

(1) The aquifers underlying Nassau and Suffolk Counties are the sole or principal drinking water source for the area. They supply good quality water for about 2.5 million people. Current water supply treatment practice for public supplies is generally limited to disinfection for drinking purposes, with some plants capable of nitrate removal. There are also numerous private sources. There is no alternative source of drinking water supply which could economically replace this aquifer system.

(2) The aquifer system is vulnerable to contamination through its recharge zone. Since contamination of a ground-water aquifer can be difficult or impossible to reverse, contamination of the the aquifer system underlying Nassau and Suffolk Counties, New York, would pose a significant hazard to those people dependent on the aquifer system for drinking purposes.

Among the determinations which the Administrator must make in connection with the designation of an area under Section 1424(e) is that the area's sole or principal source aquifer or aquifers, "if contaminated, would create a significant hazard to public health * * *" Obviously, threats to the quality of the drinking water supply for such a large population could create a significant hazard to public health. The EPA does not construe this provision to require a determination that projects planned or likely to be constructed will in fact create such a hazard; it is sufficient to demonstrate that approximately 2.5 million people depend on the aquifer system underlying Nassau and Suffolk Counties as their principal source of drinking water, and that the aquifer system is vulnerable to contamination through its recharge zone.

Section 1424(e) of the Act requires that a Federal agency may not commit funds to a project which may contaminate the aquifer system through a recharge zone so as to create a significant hazard to public health. The recharge zone is that area through which water enters into the aquifer system. Because of groundwater movement within these aquifers, the recharge zone is considered to be the entire area of Nassau and Suffolk Counties. However, both horizontal and vertical boundaries of the recharge zone are discussed in the background document under the section entitled "Area of Consideration."

The data upon which these findings are based are available to the public and may be inspected during normal business hours at the office of the Environmental Protection Agency, Region II, 26 Federal Plaza, New York, New York 10007. It includes a support document for designation of the aquifers underlying Nassau and Suffolk Counties, New York, and maps of the area within which projects will be subject to review.

A copy of the above documentation is also available at the U.S. Waterside Mall, Environmental Protection Agency, Public Information and Reference Unit, Room 2922, 401 M Street S.W., Washington, D.C. 20460.

The EPA has issued proposed regulations for the selective review of Federal financially assisted projects which may contaminate the aquifer system underlying Nassau and Suffolk Counties, New York, through the recharge zone so as to create a significant hazard to public health. These proposed regulations were published in the FEDERAL REGISTER issue of September 29, 1977, and public comments were requested. They will be used as interim guidance for project review until their promulgation during 1978.

EPA, Region II, is working with the Federal agencies which may in the near future fund projects in the area of concern to EPA to develop interagency procedures whereby EPA will be notified of proposed commitments for projects which could contaminate the bicounty area's sole source aquifer system. Although the project review process cannot be delegated, the Regional Administrator in Region II will rely to the maximum extent possible upon any existing or future State and local control mechanisms in protecting the ground-water quality of the aquifer system underlying Nassau and Suffolk Counties, New York. Included in the review of any Federal financially assisted project will be coordination with the State and local agencies. Their determinations will be given full consideration and the Federal review process will function so as to complement and support State and local mechanisms.

Dated: June 12, 1978.

DOUGLAS M. COSTLE,
Administrator.

[FR Doc. 78-17067 Filed 6-20-78; 8:45 am]

REFERENCE 16

HYDROGEOLOGY AND GROUND-WATER QUALITY OF THE NORTHERN PART OF THE TOWN OF OYSTER BAY, NASSAU COUNTY, NEW YORK, IN 1980

By Chabot Kilburn and Richard K. Krulikas

U.S. GEOLOGICAL SURVEY

Water-Resources Investigations
Report 85-4051

Prepared in cooperation with the

NASSAU COUNTY DEPARTMENT OF PUBLIC WORKS

Syosset, New York

1987

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HYDROGEOLOGY

The ground-water reservoir underlying the northern part of the Town of Oyster Bay consists of unconsolidated glacial deposits of Pleistocene age and coastal-plain deposits of continental and marine origin of Late Cretaceous age. These unconsolidated deposits consist of gravel, sand, silt, and clay and are underlain by bedrock of early Paleozoic and (or) Precambrian age. The bedrock, which is relatively impermeable, forms the base of the ground-water reservoir.

The thickness, character, and water-bearing properties of the aquifer and the relationships between hydrogeologic and geologic units underlying the study area are depicted in table 1. The correlations should be considered direct relationships as implied in the tables. The upper and lower boundaries of the hydrogeologic units are determined mainly from gross lithologic differences between units rather the age of the deposits, which forms the basis for geologic correlations. For example, the upper and lower limits of the confining units (Port Washington confining unit and Raritan clay) are placed at intervals where the lithologic sequence changes from predominantly clay to sand or sand and gravel, and these positions may have no time-stratigraphic significance. For this reason, and because differentiation between sediments of Pleistocene and Cretaceous age is difficult and uncertain, it is possible that some deposits of Pleistocene age have been included in the upper part of the Magothy aquifer, which, by present definition, is approximately equivalent to the Magothy Formation-Matawan Group, undifferentiated, of Late Cretaceous age. The three hydrogeologic sections (pl. 1B) show the inferred extent, lateral and vertical relationships, and the variations in depth, thickness, lithology, and structure of these units.

Description of Hydrogeologic Units

Bedrock

Bedrock of early Paleozoic and(or) Precambrian age underlies all of western Long Island (Fisher and others, 1962). The bedrock generally consists of metamorphic and igneous crystalline rocks--schist, gneiss, and granite--and lies at depths ranging from about 350 ft below sea level along the north shore to about 950 ft below sea level in the southeast part of the study area (pl. 2A, and hydrogeologic sections, pl. 1B).

Bedrock is generally regarded as the base of the ground-water reservoir on Long Island because of its density and low permeability. No wells in the Town of Oyster Bay are known to obtain water from bedrock.

Lloyd Aquifer

The Lloyd aquifer is the equivalent of the Lloyd Sand Member of the Raritan Formation of Late Cretaceous age (Cohen and others, 1968, p. 18). It consists of discontinuous layers of gravel, sand, sandy clay, silt, and clay, and lies roughly parallel to the bedrock surface at depths ranging from about

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200 ft below sea level along the north shore to about 700 ft below sea level in the southeast part of the study area (pl. 2B). Its thickness ranges from 0 to 250 ft from northwest to southeast, respectively.

The Lloyd aquifer is a major aquifer in the Town of Oyster Bay. It is probably hydraulically continuous with the adjacent Port Washington aquifer and upper glacial aquifer in the northern part of the study area. Water in the Lloyd aquifer is confined under artesian pressure beneath the Raritan clay.

Well yields during test pumping of large-capacity public-supply wells screened in the Lloyd aquifer have ranged from 500 gal/min to as much as 1600 gal/min.

Raritan Clay

The Raritan clay is a distinct hydrogeologic unit that extends throughout much of the Town of Oyster Bay (pl. 3A). In this area, the Raritan clay may be equivalent to the unnamed clay member of the Raritan Formation of Late Cretaceous age. The Raritan clay consists mainly of light to dark gray, red, white, or yellow clay and variable amounts of silt, and clayey silty fine sand. Sandy beds of varying thickness are common. The top of the Raritan clay is roughly parallel to that of the underlying Lloyd sand member. The upper-surface altitude of the Raritan clay ranges from 150 ft below sea level along the north shore to about 550 ft below sea level in the southeastern part of the study area. Its thickness ranges from 0 to 200 ft from northwest to southeast, respectively.

The Raritan clay is a significant hydrogeologic unit because it confines water in the underlying Lloyd aquifer. Although its hydraulic conductivity is very low, it does not entirely prevent movement of water between the Magothy and Lloyd aquifers. Some public-supply and other wells obtain part of their water supply from the sandy zones in the upper part of the Raritan clay.

Magothy Aquifer

The Magothy aquifer is the equivalent of the Matawan Group-Magothy Formation undifferentiated of upper Cretaceous age. Deposits in this unit consist of beds and lenses of light-gray, fine to coarse sand with some interstitial clay. Detailed lithologic descriptions are given in Soren (1978); Ku and others (1975); and Jensen and Soren (1974).

The top of the Magothy aquifer is not planar, unlike the surfaces of the underlying units. The Magothy surface was deeply eroded during Tertiary time and probably was considerably eroded in Pleistocene time. The upper surface altitude of the Magothy ranges from as high as 200 ft above sea level in the center of the study area to 200 ft below sea level along the northeast edge of the study area (pl. 3B). Its thickness ranges from 0 to 650 ft from northwest to southeast, respectively.

The Magothy aquifer is the principal aquifer underlying Long Island and is the island's main source of water for public supply. The sand beds within the aquifer are moderately to highly permeable. The reported yields during

pumping tests of several public-supply wells screened in the Magothy aquifer in the Town of Oyster Bay ranged from 300 gal/min to as much as 1,500 gal/min. The average yield was about 1,000 gal/min.

The large amount of clay in the upper half of the aquifer causes the water to become increasingly confined with depth. Along the north shore, the Magothy aquifer is probably in hydraulic continuity with the adjacent Port Washington aquifer. The Magothy also has a generally high degree of hydraulic continuity with the overlying upper glacial aquifer, but the degree of continuity may vary considerably from place to place.

Port Washington Aquifer

Two previously unrecognized hydrogeologic units in the northern part of the Town of Oyster Bay are defined as the Port Washington aquifer and Port Washington confining unit. The units were first recognized in the northern part of the Town of North Hempstead (Kilburn, 1979). The inferred limits of the units are shown in plates 4A and 4B, and their relationships to the other hydrologic units are shown on the hydrogeologic sections on plate 1B.

The Port Washington aquifer is a sequence of deposits of Pleistocene and (or) Late Cretaceous age that underlie the north-shore area of the Town of Oyster Bay. The deposits form a distinct hydrogeologic unit that rests upon bedrock and is overlain by a thick sequence of confining clay. The south edge of the deposits overlap and abut the adjacent Cretaceous units. The sediments of the Port Washington aquifer form part of the valley fill in the channels cut into the Cretaceous deposits. These deposits consist largely of sand or sand and gravel and varying amounts of interbedded clay, silt, and sandy clay.

The altitude of the top of the Port Washington aquifer ranges from 150 ft below sea level along the north shore to 450 ft below sea level along the south shore (pl. 4A). Its thickness ranges from 0 to more than 150 ft in the central parts of the study area.

The Port Washington aquifer is moderately to highly permeable and is a major aquifer in the northern parts of the Town of Oyster Bay. The reported yields during pumping tests of public-supply wells screened in the aquifer range from 300 gal/min to 1,200 gal/min. Water in the aquifer is confined beneath the Port Washington confining unit. The hydrogeologic relationships between the Port Washington aquifer and the abutting Lloyd, Magothy, and upper glacial aquifers, as shown in the hydrogeologic sections on plate 1B, suggest that these deposits could be in lateral hydraulic continuity. Potentiometric studies of the head in the Lloyd aquifer made by Swarzenski (1963), Kimmel (1973), and Kilburn (1979) tend to verify a lateral hydraulic continuity between the Port Washington and Lloyd aquifers.

Port Washington Confining Unit

The Port Washington confining unit is a sequence of deposits of Pleistocene or Late Cretaceous to Holocene(?) age that locally underlies the north shore. The unit consists mainly of clay and silt, with scattered lenses

of sand or sand and gravel. (See Kilburn, 1979, for a more detailed description.) The deposits that form the Port Washington confining unit overlie the Port Washington aquifer or overlap the adjacent Cretaceous units and may form part of the valley fill that occupies channels cut into the other Cretaceous deposits. The unit may locally include or consist of erosional remnants of the clay member of the Raritan Formation.

The altitude of the top of the Port Washington confining unit ranges from 100 ft above sea level in the central part of the study area to 300 ft below sea level along the northeastern part (pl. 4B). Its thickness ranges from 0 to more than 150 ft in the central part of the study area.

Upper Glacial Aquifer

The upper glacial aquifer consists of deposits of late Pleistocene and Holocene age that overlie the Magothy aquifer and the Port Washington confining unit and locally abut against or overlie the Port Washington aquifer. The extent and relationships of these deposits to the adjacent hydrogeologic units are shown on plate 1B.

The upper deposits consist mainly of stratified beds of fine to coarse sand and of sand and gravel but also contain thin beds of silt and clay interbedded with coarse-grained material. The outwash that constitutes the bulk of the upper Pleistocene deposits is yellow and brown or, in some places, gray. (See Perlmutter, 1949, and Kilburn, 1979, for further descriptions.)

The upper glacial aquifer, which contains the water table in most of the area, transmits all recharge to the underlying aquifers. Precipitation filtering downward to the water table is the principal source of ground-water recharge. In the past, the upper glacial aquifer was tapped as a water supply by many public-supply wells. Because it has become contaminated by cesspool effluents, fertilizers, and other substances, however, its use for public supply has decreased. Wells tapping the aquifer are now used mainly to supply water for domestic use, irrigation, and commercial and industrial purposes.

The sand and gravel deposits in the upper glacial aquifer are highly permeable and yield large amounts of water to properly constructed wells. The yields of large-capacity public-supply wells screened in the aquifer have been reported to range from 400 gal/min to 1,400 gal/min.

The recent deposits of Holocene age along beaches, streams, swamps, and the bottoms of bays and lakes have not been differentiated from the upper glacial aquifer because they are too thin.

Correlation of Units

The differentiation between deposits of Pleistocene and Cretaceous age throughout most of the northern part of the Town of Oyster Bay is uncertain. On Long Island, the contact between Pleistocene and Cretaceous deposits is an erosional unconformity that is commonly marked by an abrupt lithologic and

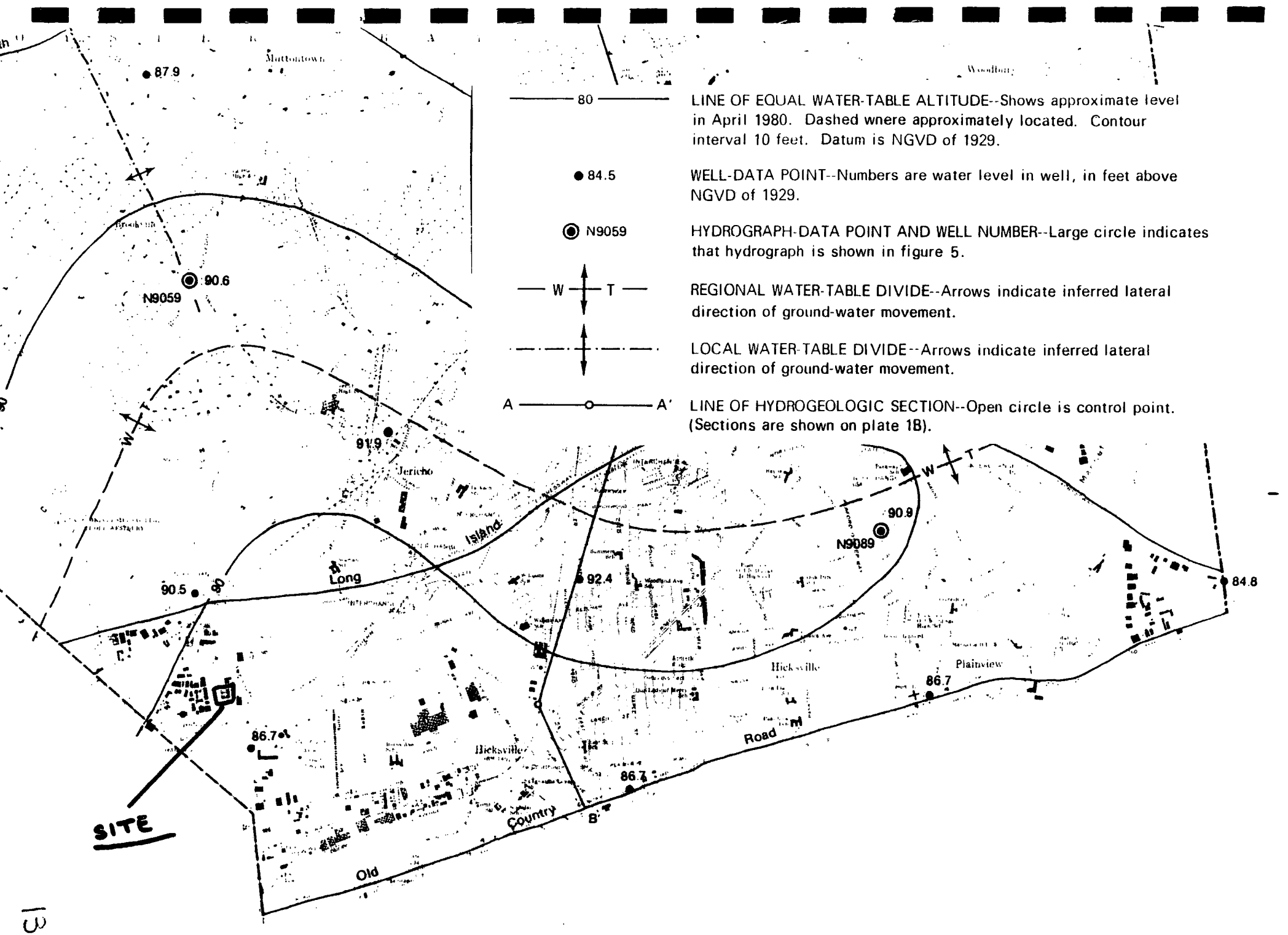


PLATE 6A. WATER-TABLE CONFIGURATION IN 1980

0 ½ 1 2 MILES

0 ½ 1 2 KILOMETERS

REFERENCE 17

0035-C
02-8802-0

JOSEPH N. MONDELLO
Presiding Supervisor

GREGORY P. PETERSON
Supervisor

Council Members
EUGENE L. WEISBEIN
JOSEPH G. CAIRO, JR.
MARTIN B. BERNSTEIN
RICHARD V. GUARDINO, JR.
ANGIE M. CULLIN
PATRICK A. ZAGARINO

DANIEL M. FISHER, JR.
Town Clerk

ROBERT D. LIVINGSTON, JR.
Receiver of Taxes

Town of Hempstead
Department of Water

1995 PROSPECT AVENUE, EAST MEADOW, N.Y. 11554
(516) 794-8300

DANIEL DAVIS, I
Commissioner

April 6, 1988

Mr. Edward L. Leonard
NUS Corporation
1090 King Georges Post Road
Suite 1103
Edison, NJ 08837

Dear Mr. Leonard:

Below is the information requested in your letter of March 30, 1988. There are two wells located on Iris Place in the Bowling Green Estates Water District. Both wells are located in the magothy range and serves a population of approximately 12,000. Well #1, N-8956 is 535 feet deep; Well #2, N-8957 is 598 feet deep.

I am returning your map with the locations of the above wells marked in red.

If you should require any further assistance, please do not hesitate to contact me at (516) 794-8300, Ext. 204.

Very truly yours,

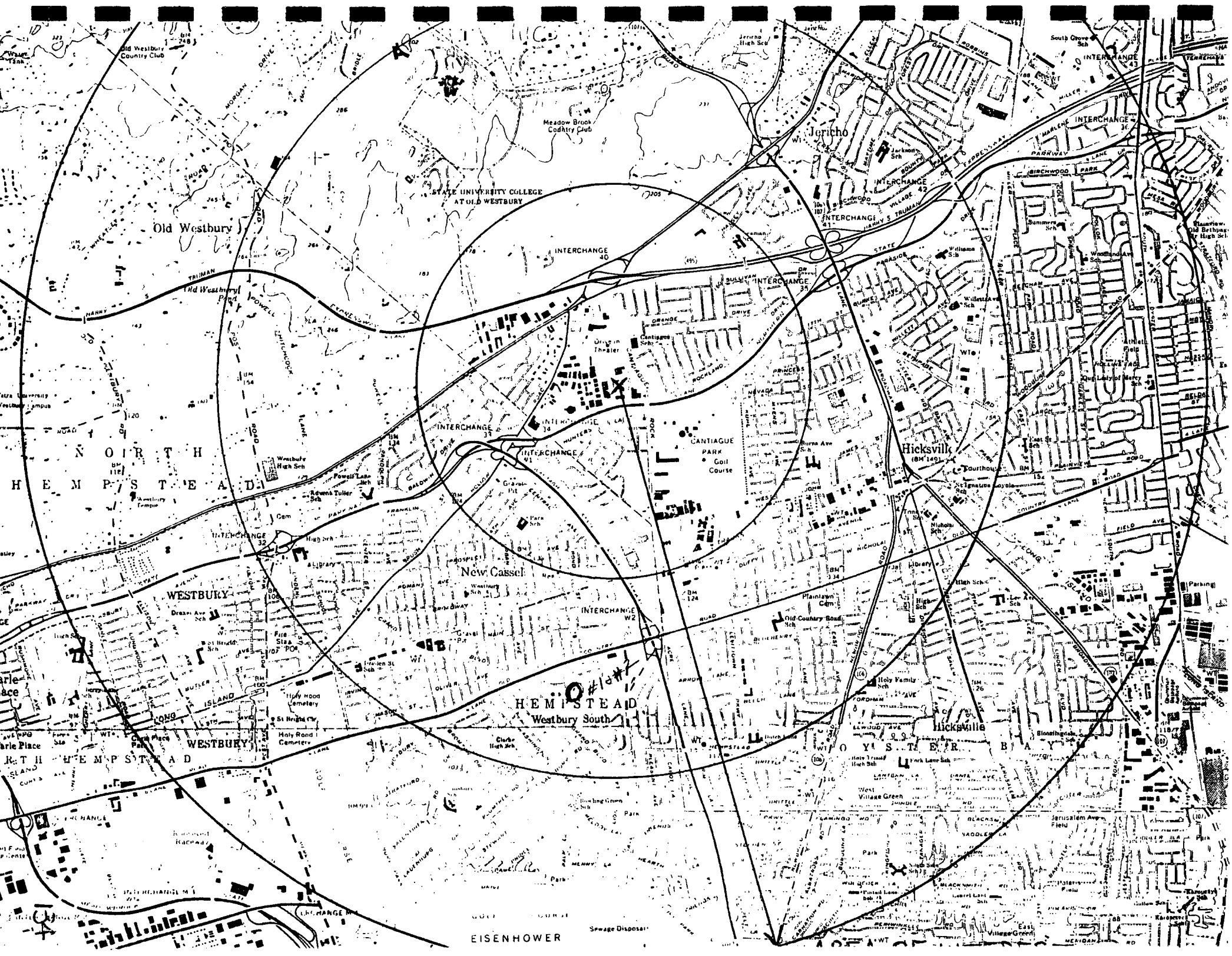
Harold V. Morgan
Harold V. Morgan
Administrative Assistant

HVM:th

enc. (2)

RECEIVED
APR 08 1988
NUS CORPORATION
REGION II
SENT TO

133



Old Westbury
Old Westbury Country Club
Meadow Brook Country Club
STATE UNIVERSITY COLLEGE AT OLD WESTBURY
Jericho
INTERCHANGE 40
INTERCHANGE 41
INTERCHANGE 42
INTERCHANGE 43
INTERCHANGE 35
INTERCHANGE 34
INTERCHANGE 33
INTERCHANGE 32
INTERCHANGE W2
Old Westbury Pond
Drive-in Theater
CANTIAGUE PARK
Golf Course
Hicksville
Westbury High Sch
Powell Lane Sch
Advent Tuller Sch
Westbury Temple
New Cassel
WESTBURY
Drexel Ave Sch
Holy Rood Cemetery
St Brigid Ch
HEMPSTEAD
Westbury South
Plaintown Cem
Old Country Road Sch
Holy Family Sch
Hicksville
Bloomingdale Sch
West Village Green
Jerusalem Ave Field
Sewage Disposal
EISENHOWER

REFERENCE 18

HICKSVILLE WATER DISTRICT

4 DEAN STREET
HICKSVILLE, N. Y. 11802

PHONE
(516) 931-0184

RECEIVED

March 22, 1988

NUS Corporation
1090 King Georges Post Road
Suite 1103
Edison, New Jersey

Att: Mr. E.L. Leonard

Dear Mr. Leonard:

Enclosing please find the list you requested containing well numbers, depth and aquifers used by the nineteen (19) wells operated by the Hicksville Water District.

If I may be of any further assistance please feel free to contact me at the above number.

Very truly yours,

HICKSVILLE WATER DISTRICT

John J. McCrosson
Assistant Superintendent

Enc

JJM/jps

136

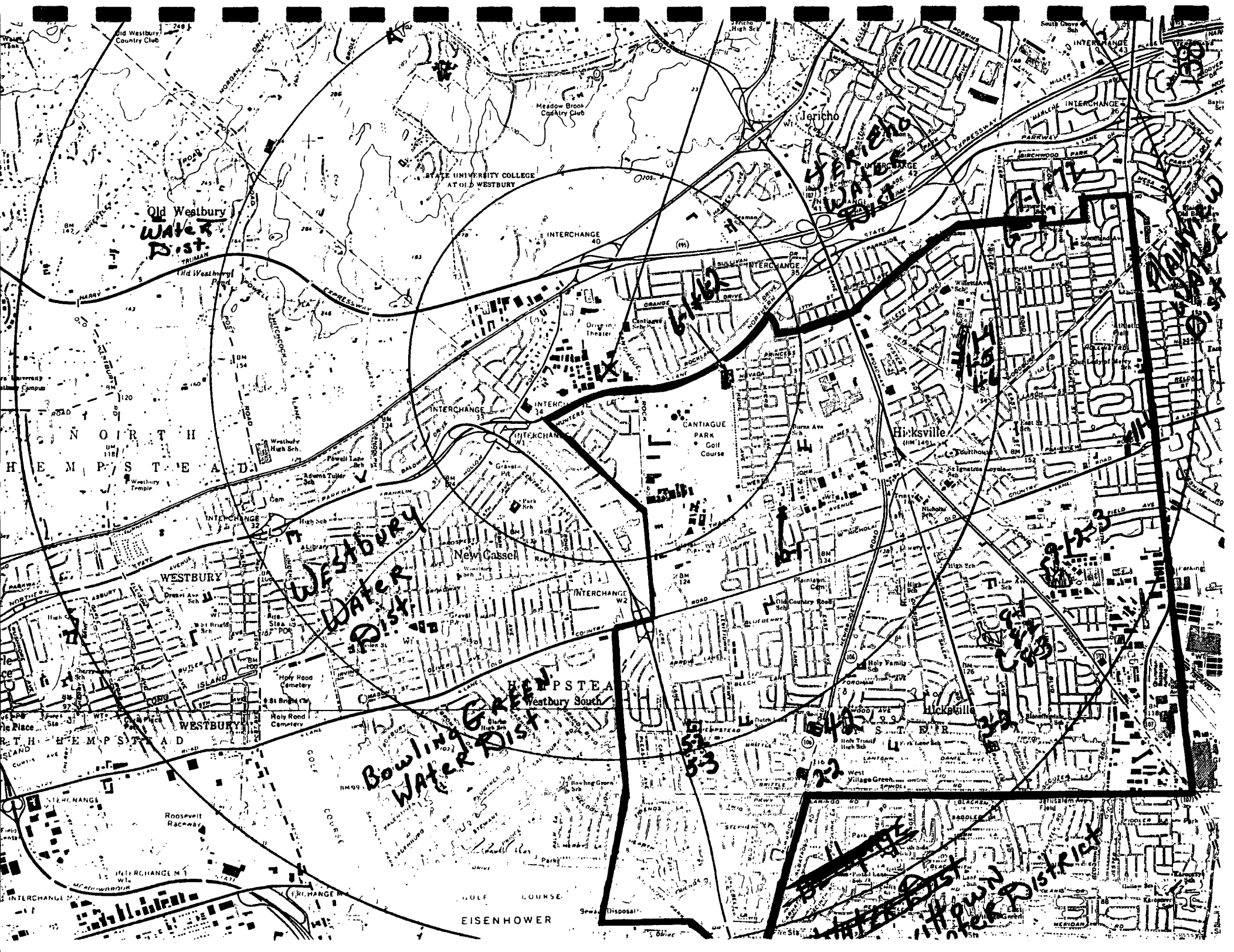
HICKSVILLE WATER DISTRICT

4 DEAN STREET
HICKSVILLE, N. Y. 11802

PHONE
(516) 931-0184

March 22, 1988

H.W.D. WELL #	COUNTY WELL #	DEPTH	AQUIFER
1-4	N-7562	545 feet	Magthoy
1-5	N-8249	495 feet	Magthoy
1-6	N-9488	583 feet	Magthoy
2-2	N-5336	545 feet	Magthoy
3-2	N-8525	505 feet	Magthoy
4-2	N-8526	601 feet	Magthoy
5-2	N-7561	551 feet	Magthoy
5-3	N-9212	610 feet	Magthoy
6-1	N-3953	419 feet	Magthoy
6-2	N-3878	428 feet	Magthoy
7-1	N-6190	605 feet	Magthoy
7-2	N-6191	555 feet	Magthoy
8-1	N-6192	632 feet	Magthoy
8-2	N-6193	472 feet	Magthoy
8-3	N-9180	637 feet	Magthoy
9-1	N-8778	590 feet	Magthoy
9-2	N-8779	585 feet	Magthoy
9-3	N-10208	600 feet	Magthoy
10-1	N-9463	625 feet	Magthoy
**11-1	Under construction will not be in operation until early 1989.		


Old Westbury
Water Dist.
Jericho
Jericho Water Dist.
Plainview Water Dist.
Westbury Water Dist.
Bowling Green Water Dist.
Hicksville
New Cassel
WESTBURY
NORTH HEMPSTEAD
HEMPSTEAD
Westbury South
STATE UNIVERSITY COLLEGE AT OLD WESTBURY
CANTIAGUE PARK
Golf Course
Roosevelt Raceway
EISENHOWER
GOLF COURSE
INTERCHANGE 40
INTERCHANGE 35
INTERCHANGE 34
INTERCHANGE 33
INTERCHANGE 32
INTERCHANGE W2
INTERCHANGE 42
INTERCHANGE 43
INTERCHANGE 36
Meadow Brook Country Club
Old Westbury Country Club
Holy Rood Cemetery
Westbury High Sch.
Westbury Temple
Drive-in Theater
Plainview Country Club
Holy Family Sch
West Village Green
Sewage Disposal

REFERENCE 19

0031-C
02-8fc2-07

Village of Old Westbury

INCORPORATED MAY 10, 1924
1 STORE HILL ROAD
P.O. BOX 290
OLD WESTBURY, N.Y. 11568
(516) 626-0800

MAYOR
GILBERT M. COLOMBO, JR.
TRUSTEES
E. A. SIMPSON
R. GACHOT
S. WEINSTEIN
H. BLAU

VILLAGE CLERK-TREASURER
R. BUSCARELLO
SUPT. PUBLIC WORKS
A. J. LINDON
VILLAGE JUSTICE
W. F. RUEGER

RECEIVED
APR 05 REC'D
NUS CORPORATION
REGION II
SENT TO _____

April 4, 1988

Edward L. Leonard
Nus Corporation
1090 King Georges Post Road
Suite 1103
Edison, New Jersey 08837

Dear Mr. Leonard:

As requested, enclosed please find your area of interest map showing location and number of our wells and the outline of our water district within the area.

The following is the additional information on well depth and formation.

Well #1 N152
Depth of screen 478'
Formation magothy

Well #4 N7549
Depth of screen 499'
Formation magothy

Well #5 N8658
Depth of screen 610'
Formation magothy

Village population served by these three wells is approximately 3200.

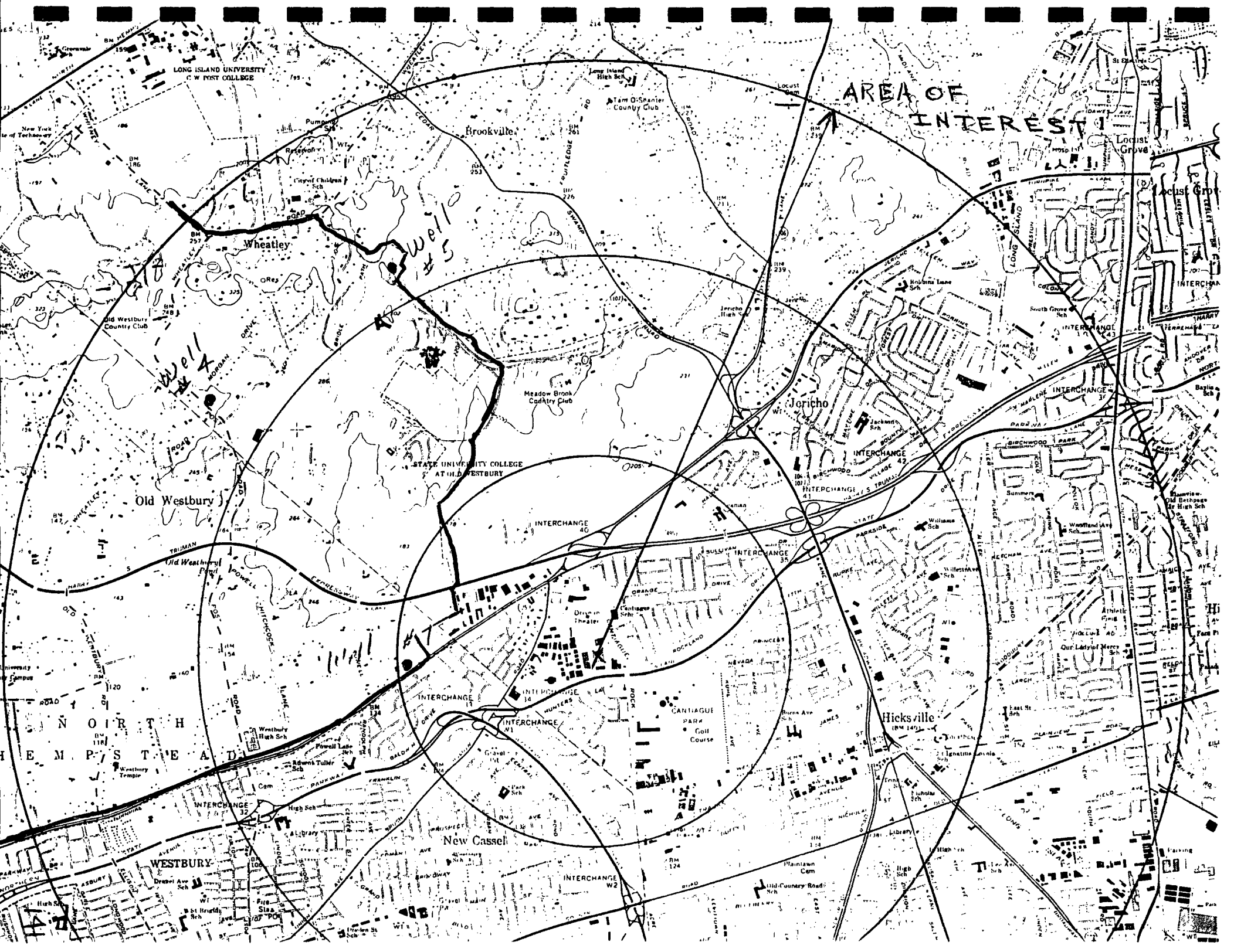
Blue lines on attached map indicates the boundary line of our water district within your area of interest.

Very truly yours,

Arthur J. Lindon
Supt. Public Works

AJL:hs
Att.

140


AREA OF INTEREST
Well #5
Well #4
Well #7
LONG ISLAND UNIVERSITY
C.W. POST COLLEGE
Brookville
Wheatley
Old Westbury
STATE UNIVERSITY COLLEGE AT OLD WESTBURY
Meadow Brook Country Club
Old Westbury Country Club
Tam O'Shanter Country Club
Jericho
Locust Grove
Hicksville
New Cassel
WESTBURY
NORTH HEMPSTEAD
CANTIAGUE PARK
Golf Course
INTERCHANGE 40
INTERCHANGE 41
INTERCHANGE 42
INTERCHANGE 35
INTERCHANGE 13
INTERCHANGE 14
INTERCHANGE 32
INTERCHANGE W2
Old Westbury Pond
TRUMAN EXPRESSWAY
LONG ISLAND EXPRESSWAY

REFERENCE 20

02-8802-07

Westbury Water District

160 Drexel Avenue Westbury, L.I., N.Y. 11590
516-333-0427

DONALD A. CROUCHLEY, Chairman
FRANK J. IADEVIA, Secretary
ALFRED ARDIS, Treasurer
ITALO J. VACCHIO, Superintendent

March 21, 1988

NUS Corporation
1090 King Georges Post Road
Suite 1103
Edison, New Jersey 08837

Attention: E. L. Leonard

Dear Mr. Leonard:

In response to your letter of March 17, 1988, (copy attached), please find below the requested information:

1. See attached map.

2.

STATE WELL NO.	W.W.D. WELL NO.	DEPTH	AQUIFERS
N-101	6	341'	Magothy
N-7785	7	400'	Magothy
N-2602	9	805'	Lloyd
N-5007	10	560'	Magothy
N-5654	11	561'	Magothy
N-5655	12	260'	Magothy
N-6819	12A	270'	Magothy
N-7353	14	390'	Magothy
N-8007	15	564'	Magothy
N-8497	16	544'	Magothy
N-104510	17	600'	Magothy

4. Population estimated to be 24,000. All wells are interconnected.

5. None known.

6.
   1. Carle Place Water District
   2. Town of Hempstead Water District
   3. Inc. Village of Old Westbury
   4. Hicksville Water District
   5. Jericho Water District

Westbury Water District

Should you require any other information, please contact me at the above address.

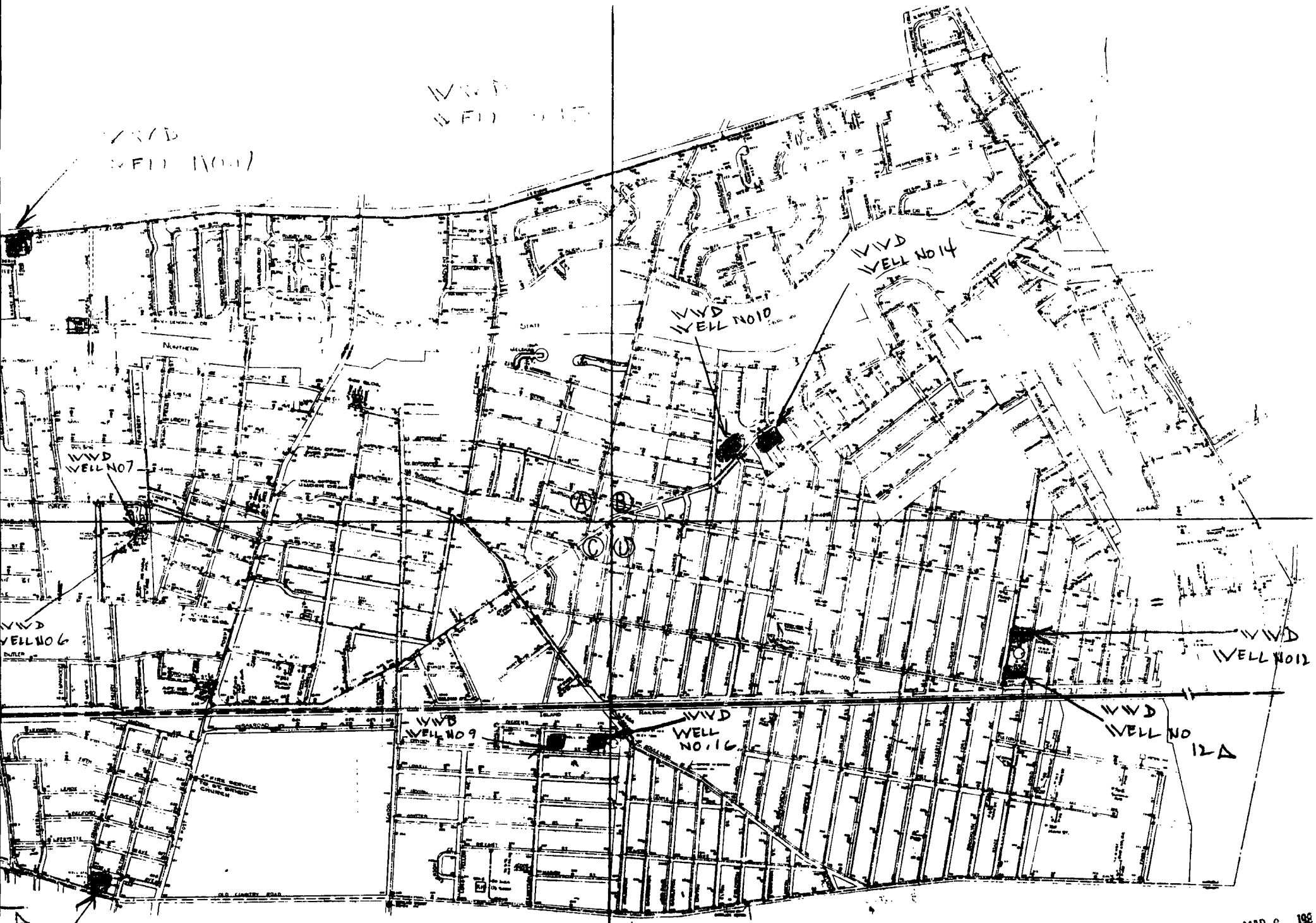
Very truly yours,

WESTBURY WATER DISTRICT

Italo Vacchio

Italo J. Vacchio
Superintendent

IJV/mh
Enc.



DISTRIBUTION SYSTEM
of the
WESTBURY WATER DISTRICT

MAR 6 198

REFERENCE 21

02-8802-07

NUS CORPORATION AND SUBSIDIARIES — TELECON NOT.

CONTROL NO:	DATE: 4/22/88	TIME: 1400 HRS

DISTRIBUTION: JOHN HASSALL
02-8802-07

BETWEEN: STAFF ENGINEER	OF: NASSAU CO. PUBLIC WORKS (BUILDING/DRAINAGE)	PHONE: (516) 535-4322

AND: E. LEONARD (NUS)

DISCUSSION: RE: STORM WATER RUNOFF

STORM WATER RUNOFF IN NASSAU CO. DOES NOT ENTER A POTW. IT ENTERS EITHER A RECHARGE BASIN OR A SMALL BROOK/STREAM (RARE). IF A BASIN IS ON SITE, MOST LIKELY RUNOFF WILL ENTER IT.

C. Leonard 4/22/88

ACTION ITEMS:

NUS 067 REVISED 0685

REFERENCE 22

0052-C
02-5802-07

JERICHO WATER DISTRICT

EDWARD P. BRACKEN, JR., CHAIRMAN
NICHOLAS J. BARTILUCCI, TREASURER
KENNETH J. DUNNE, SECRETARY

WILLIAM EVERS, SUPERINTENDENT
GREG G. HENDRICKSON, OFFICE MANAGER

125 CONVENT ROAD
SYOSSET, NEW YORK 11791
TEL. 921-8280

May 9, 1988

Mr. Edward Leonard
NUS Corporation
1090 King Georges Post Road
Suite 1103
Edison, New Jersey 08837

Dear Mr. Leonard:

Please find enclosed your "Marked-up" map which shows Jericho Water District boundaries in yellow. I have listed J.W.D. wells in red, with the number at each location. The wells are all interconnected with the rest of our wells, which total 20. We serve approximately 63,000 people.

The eight wells in this area are all in the magothy aquifer and their depths are as follows:

# 6	514'
# 7	484'
# 9	565'
#10	453'
#14	615'
#15	535'
#16	490'
#22	459

Other water utilities have been marked on map with notation. If you have any further questions, please do not hesitate to call me.

Very truly yours,

Board of Commissioners
Jericho Water District

William Evers
District Superintendent

WE/ar

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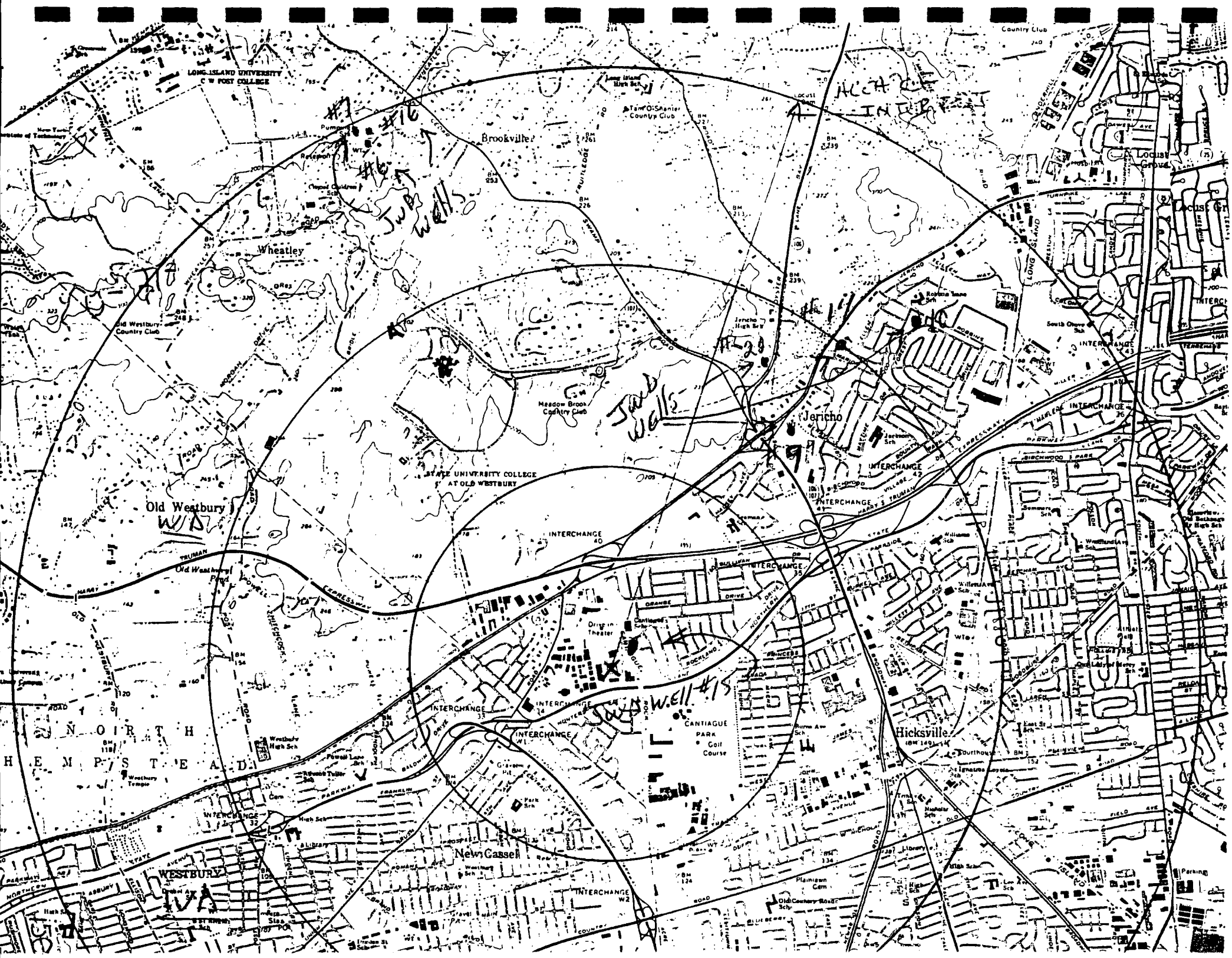


LONG ISLAND UNIVERSITY
C W POST COLLEGE
Brookville
Wheatley
Old Westbury
Old Westbury Country Club
Meadow Brook Country Club
STATE UNIVERSITY COLLEGE AT OLD WESTBURY
Jericho
Jericho High Sch
Locust Grove
Hicksville
CANTIAGUE PARK
Golf Course
New Cassel
WESTBURY
NORTH HEMPSTEAD
INTERCHANGE 40
INTERCHANGE 42
INTERCHANGE 43
INTERCHANGE 33
INTERCHANGE 32
INTERCHANGE W1
INTERCHANGE W2
Drive-in Theater
Westbury High Sch
Westbury Temple
Old Westbury Pond
Tam O'Shanter Country Club
Country Club
#7
#16
#6
JWB Wells
#20
JWB Wells
JWB Well #15

REFERENCE 23

Uncontrolled Hazardous Waste Site Ranking System

A Users Manual
(HW-10)

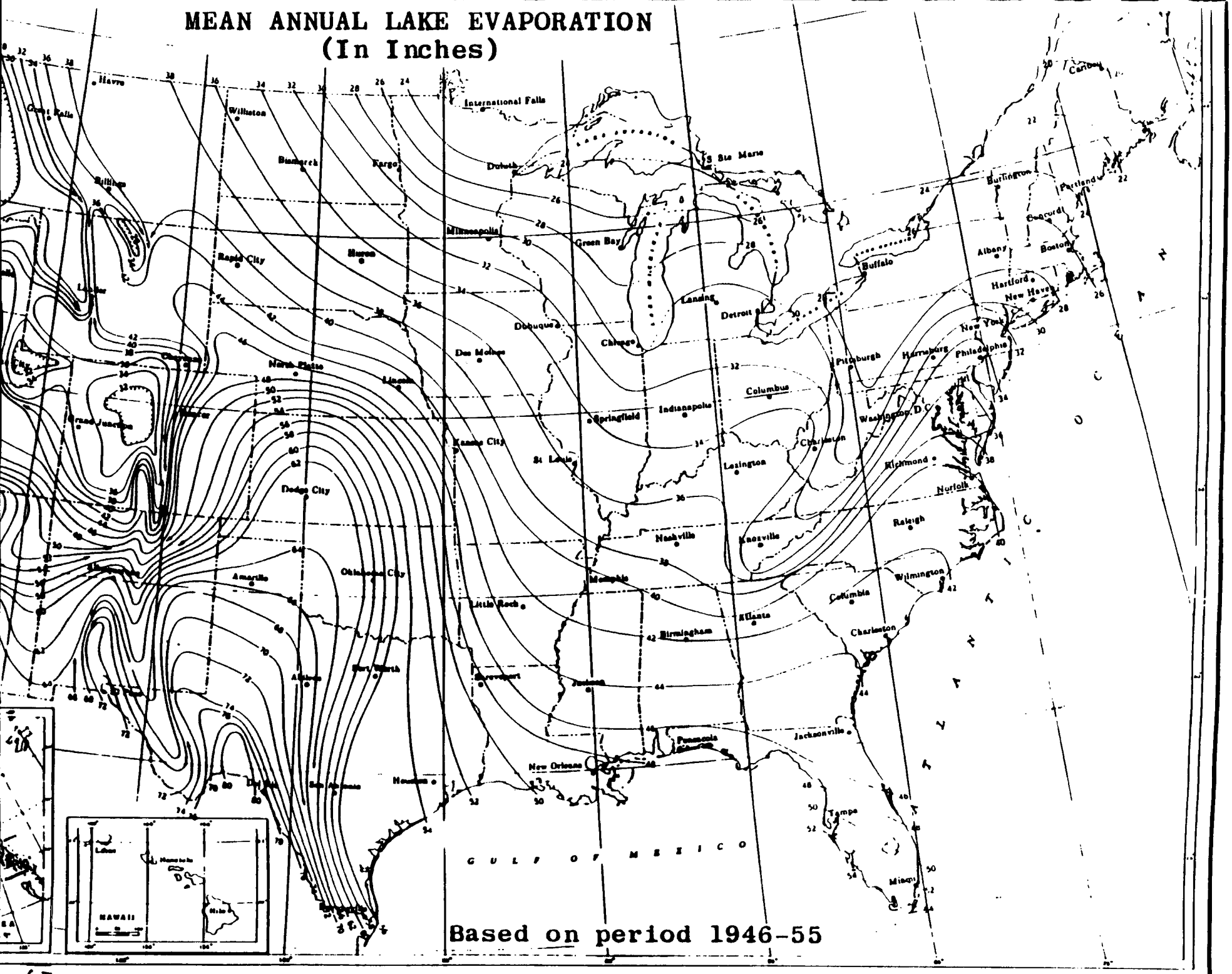
Originally Published in
the July 16, 1982, *Federal Register*

United States
Environmental Protection
Agency

1984

152

MEAN ANNUAL LAKE EVAPORATION
(In Inches)



Based on period 1946-55

NORMAL ANNUAL TOTAL PRECIPITATION (Inches)

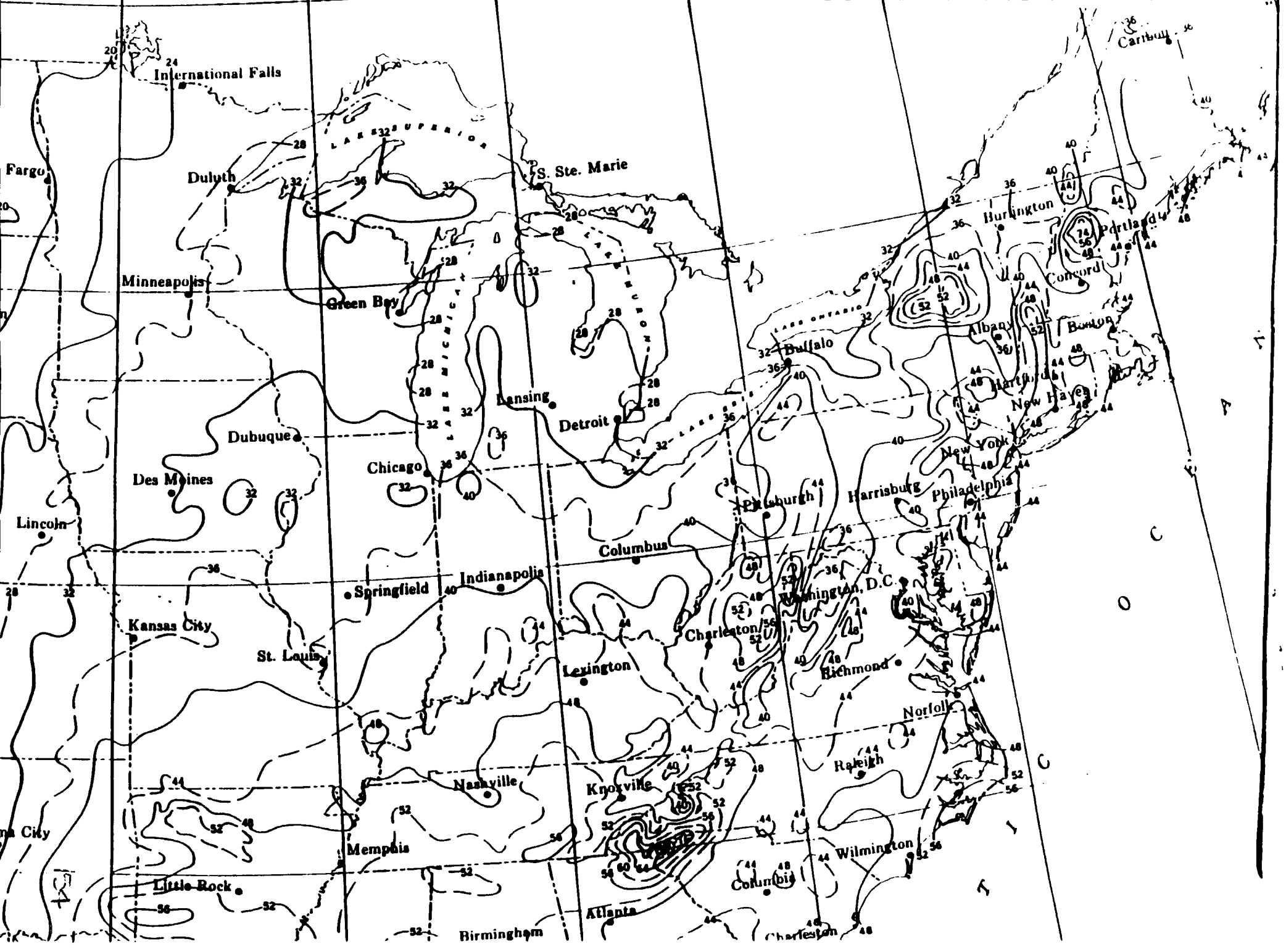


TABLE 2

PERMEABILITY OF GEOLOGIC MATERIALS*

Type of Material	Approximate Range of Hydraulic Conductivity	Assigned Value
Clay, compact till, shale; unfractured metamorphic and igneous rocks	$<10^{-7}$ cm/sec	0
Silt, loess, silty clays, silty loams, clay loams; less permeable limestone, dolomites, and sandstone; moderately permeable till	$10^{-5} - 10^{-7}$ cm/sec	1
Fine sand and silty sand; sandy loams; loamy sands; moderately permeable limestone, dolomites, and sandstone (no karst); moderately fractured igneous and metamorphic rocks, some coarse till	$10^{-3} - 10^{-5}$ cm/sec	2
Gravel, sand; highly fractured igneous and metamorphic rocks; permeable basalt and lavas; karst limestone and dolomite	$>10^{-3}$ cm/sec	3

*Derived from:

Davis, S. N., Porosity and Permeability of Natural Materials in Flow-Through Porous Media, R.J.M. DeWest ed., Academic Press, New York, 1969

Freeze, R.A. and J.A. Cherry, Groundwater, Prentice-Hall, Inc., New York, 1979

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REFERENCE 24

Hassall
ESTABLISHED 1850
JOHN HASSALL, INC. · WESTBURY · LONG ISLAND · N.Y. · 11
Tel. 516-334-6200 · Telex No. 144585

February 10, 1984

Mr. Ernest A. Regna
E.P.A. - Solid Waste Branch
E.P.A. - Region II
26 Federal Plaza
New York, N.Y. 10278

Re: E.P.A. Identification Number NYD002045417
(Withdrawal of Part A Interim Status 40CFR265)

Dear Mr. Regna:

John Hassall, Inc. in accordance with 40CFR Section 270.11 is hereby submitting a formal request for the withdrawal of its Part A RCRA permit application. The original application dated August 12, 1980 listed the descriptions of hazardous waste under the following categories:

(A) Non-Specific Sources F 001
F 007
F 008
F 009
F 010
F 012

(C) Commercial Chemical Product Hazardous Waste K 029

The original application should not have included F 007, F 008, F 00
F 010, F 012 and K 029. It should have only contained F 001 listed under category C.

History of Cyanide Usage at John Hassall, Inc.

Cyanide usage was limited to the following two specific operations.

(#1) Case Hardening of Steel:

The process involved a heat treat operation which forged steel in a furnace and inserted it into Na Cn powder. The steel was once again forged and quenched in a water bath releasing small amounts of Na Cn into the water (most of the Cn was absorbed into the metal). The water was directed into our Waste Water Treatment Facility for proper disposal. When this system was employed it was rarely in use.

In 1972 it was discontinued for case hardening applications and replaced by "Hard-N-Tuff", which is a safe non-toxic compound produced by American Chemical and Flux Products. The extent of our case hardening past and present is reflected by our purchases of the Cyanide replacement "Hard-N-Tuff" since 1972 (Purchase Orders enclosed).

Purchases:

November 17, 1972	1	3 lb. can
November 30, 1976	1	3 lb. can
April 30, 1981	1	3 lb. can

(#2) Stripping of Zinc Plated Parts:

Prior to 1974 Sodium Cyanide (Na Cn) was only used to remove Zinc Plate from small quantities of stocked parts to facilitate immediate shipment to customers requiring a non-zinc finish (this was the exception, not the rule). Any stripping solution was directed to our Waste Water Treatment Facility for proper disposal.

Since 1974 John Hassall, Inc. has discontinued this practice of in-house stripping, subsequently Cyanide is no longer used anywhere in any operation at our facility.

F 001

In the form of III Trichlorethane is presently in use, however, it is used in degreasing operations and collecte in 55 gallon drums for off site manifested disposal. It is store no longer than ninety days in compliance with all regulations.

K 029

Is not applicable to our operation in any manner. John Hassall, Inc. does not now and never has produced any solve of any type.

Based upon the preceding information and bringing to your attention CFR 264.1,G,5 wherein our Waste Water Treatment Plant is exempt due to its totally enclosed status, we request formal withdrawal of our Part A RCRA application.

Very truly yours,

REFERENCE 25

SITE NAME: JOHN HASSALL
TDD#: 02-8802-07
SAMPLING DATE: 3/9/88
EPA CASE NO.: 9116 LAB: HITTMAN-EBASCO ASSOC., INC.

VOLATILES										
Sample ID No.	NYEF-S1(MS/MSD)	NYEF-S2	NYEF-S3(DUP)	NYEF-S4	NYEF-S5	NYEF-S6	NYEF-S7	NYEF-S8	NYEF-RIN1(MS/MSD)	NYEF-TBLK1
Traffic Report No.	BR268	BR269	BR270	BR271	BR272	BR273	BR274	BR277	BR266	BR275
Matrix	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SOIL	WATER	WATER
Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/L	ug/L
Dilution Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Moisture	11	15	22	31	9	10	13	15	--	--
Chloromethane										
Bromomethane										
Vinyl Chloride										
Chloroethane										
Methylene Chloride									B	B
Acetone									B	B
Carbon Disulfide										
1,1-Dichloroethene										
1,1-Dichloroethane										
Trans-1,2-Dichloroethene (total)										
Chloroform										
1,2-Dichloroethane										
2-Butanone		R	R	J		R	R	R	R	R	R
1,1,1-Trichloroethane										
Carbon Tetrachloride										
Vinyl Acetate										
Bromodichloromethane										
1,2-Dichloropropane										
cis-1,3-Dichloropropene										
Trichloroethene		J	J	11	J	8	15			
Dibromochloromethane										
1,1,2-Trichloroethane										
Benzene										
cis-1,3-Dichloropropene										
Bromoform										
4-Methyl-2-Pentanone										
2-Hexanone										
Tetrachloroethene										
1,1,2,2-Tetrachloroethane										
Toluene		J		10		8	21			
Chlorobenzene										
Ethylbenzene										
Styrene										
Xylenes (Total)										

NOTES:
Blank space - compound analyzed for but not detected
B - compound found in lab blank as well as sample, indicates possible/probable blank contamination
E - estimated value
J - estimated value, compound present below CRQL but above IDL
R - analysis did not pass EPA QA/QC
N - Presumptive evidence of the presence of a compound, but can't be identified
NR - analysis not required
Detection limits elevated if Dilution Factor >1 and/or percent moisture >0%

SITE NAME: JOHN HASSALL
TDD#: 02-8802-07
SAMPLING DATE: 3/9/88
EPA CASE NO.: 9116 LAB: HITTMAN-EBASCO ASSOC., INC.

SEMI-VOLATILES										
Sample ID No.	NYEF-S1(MS/MSD)	NYEF-S2	NYEF-S3(DUP)	NYEF-S4	NYEF-S5	NYEF-S6	NYEF-S7	NYEF-S8	NYEF RIN1(MS/MSD)	NYEF-TBLK1
Traffic Report No.	BR268	BR269	BR270	BR271	BR272	BR273	BR274	BR277	BR266	BR275
Matrix	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SOIL	WATER	WATER
Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/L	ug/L
Dilution Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	10.00	1.00	N/A
Percent Moisture	11	15	22	31	9	10	13	15	--	N/A
Phenol			J							NR
bis(2-Chloroethyl)ether										NR
2-Chlorophenol										NR
1,3-Dichlorobenzene										NR
1,4-Dichlorobenzene										NR
Benzyl alcohol										NR
1,2-Dichlorobenzene										NR
2-Methylphenol										NR
bis(2-Chloroisopropyl)ether										NR
4-Methylphenol										NR
N-Nitroso-Di-n-Propylamine										NR
Hexachloroethane										NR
Nitrobenzene										NR
Isophorone										NR
2-Nitrophenol										NR
2,4-Dimethylphenol										NR
Benzoic acid	J	6000	J	J	J	J				NR
bis(2-Chloroethoxy)methane										NR
2,4-Dichlorophenol										NR
1,2,4-Trichlorobenzene										NR
Naphthalene	J	J							J	NR
4-Chloroaniline										NR
Hexachlorobutadiene										NR
4-Chloro-3-Methylphenol										NR
2-Methylnaphthalene	J	J						J	J	NR
Hexachlorocyclopentadiene										NR
2,4,6-Trichlorophenol										NR
2,4,5-Trichlorophenol										NR
2-Chloronaphthalene										NR
2-Nitroaniline										NR
Dimethylphthalate										NR
Acenaphthylene		J								NR
3-Nitroaniline										NR
Acenaphthene	J	J								NR
2,4-Dinitrophenol										NR
4-Nitrophenol										NR
Dibenzofuran	J	J								NR
2,4-Dinitrotoluene										NR
2,6-Dinitrotoluene										NR
Diethylphthalate										NR
4-Chlorophenyl-phenyl ether										NR
Fluorene	J	J								NR
4-Nitroaniline										NR
4,6-Dinitro-2-methylphenol										NR
N-nitrosodiphenylamine										NR
4-Bromophenyl-phenyl ether										NR
Hexachlorobenzene										NR

SITE NAME: JOHN HASSALL
TDD#: 02-8802-07
SAMPLING DATE: 3/9/88
EPA CASE NO.: 9116 LAB: HITTMAN-EBASCO ASSOC., INC.

SEMI-VOLATILES										
Sample ID No.	HYEF-S1(MS/MSD)	HYEF-S2	HYEF-S3(DUP)	HYEF-S4	HYEF-S5	HYEF-S6	HYEF-S7	HYEF-S8	HYEF-RIN1(MS/MSD)	HYEF-TBLK1
Traffic Report No.	BR268	BR269	BR270	BR271	BR272	BR273	BR274	BR277	BR266	BR275
Matrix	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SOIL	WATER	WATER
Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/L	ug/L
Dilution Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	10.00	1.00	N/A
Percent Moisture	11	15	22	31	9	10	13	15	--	N/A
Pentachlorophenol										NR
Phenanthrene	1800	1800	510	J	J	J	J			NR
Anthracene	J	530	J							NR
Di-n-butylphthalate		J								NR
Fluoranthene	790	1600	440	J	J	J	J			NR
Pyrene	750 E	1200	J	J	J	J	J			NR
Butylbenzylphthalate		J	J				J			NR
3,3'-Dichlorobenzidine										NR
Benzo(a)anthracene	680	2000	J	J	J	J				NR
bis(2-Ethylhexyl)phthalate	J	550	540	J	J	J	440	J		NR
Chrysene	820	2800	780	J	J	J				NR
Di-n-Octyl Pthalate										NR
Benzo(b)fluoranthene	1500	3900	1600		J	J		J		NR
Benzo(k)fluoranthene				J				J		NR
Benzo(a)pyrene	730	2500	590	J	J	J		J		NR
Indeno(1,2,3-cd)pyrene	780	2000	800	J	J	J	J			NR
Dibenz(a,h)anthracene	J	J	J	J						NR
Benzo(g,h,i)perylene	690	1730	650	J	J	J	J			NR

NOTES:
Blank space - compound analyzed for but not detected
B - compound found in lab blank as well as sample, indicates possible/probable blank contamination
E - estimated value
J - estimated value, compound present below CRQL but above IDL
R - analysis did not pass EPA QA/QC
N - Presumptive evidence of the presence of a compound, but can't be identified
NR - analysis not required
Detection limits elevated if Dilution Factor >1 and/or percent moisture >0%

SITE NAME: JOHN HASSALL
TDD#: 02-8802-07
SAMPLING DATE: 3/9/88
EPA CASE NO.: 9116 LAB: HITTMAN-EBASCO ASSOC., INC.

PESTICIDES										
Sample ID No.	NYEF-S1(MS/MSD)	NYEF-S2	NYEF-S3(DUP)	NYEF-S4	NYEF-S5	NYEF-S6	NYEF-S7	NYEF-S8	NYEF-RIN1(MS/MSD)	NYEF-TBLK1
Traffic Report No.	BR268	BR269	BR270	BR271	BR272	BR273	BR274	BR277	BR266	BR275
Matrix	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SOIL	WATER	WATER
Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/L	ug/L
Dilution Factor	1.00	1.00	1.00	1.00	1.00	1.00	10.00	10.00	1.00	N/A
Percent Moisture	11	15	22	31	9	10	13	15	--	N/A
alpha-BHC										NR
beta-BHC										NR
delta-BHC										NR
gamma-BHC (Lindane)										NR
Heptachlor										NR
Aldrin										NR
Heptachlor epoxide										NR
Endosulfan I										NR
Dieldrin										NR
4,4'-DDE				24		29		550 E		NR
Endrin										NR
Endosulfan II										NR
4,4'-DDD								450 E		NR
Endosulfan sulfate										NR
4,4'-DDT	150 E			100	57	120	520 E	1500 E		NR
Methoxychlor										NR
Endrin ketone										NR
Chlordane		200 A	260 A							NR
Toxaphene										NR
Aroclor-1016										NR
Aroclor-1221										NR
Aroclor-1232										NR
Aroclor-1242										NR
Aroclor-1248										NR
Aroclor-1254					210					NR
Aroclor-1260		1100	1300							NR

NOTES:
Blank space - compound analyzed for but not detected
B - compound found in lab blank as well as sample, indicates possible/probable blank contamination
E - estimated value
J - estimated value, compound present below CRQL but above IDL
R - analysis did not pass EPA QA/QC
N - Presumptive evidence of the presence of a compound, but can't be identified
NR - analysis not required
A - the sum of alpha and gamma chlordane
Detection limits elevated if Dilution Factor >1 and/or percent moisture >0%

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SITE NAME: JOHN HASSALL
TDD#: 02-8802-07
SAMPLING DATE: 3/9/88
EPA CASE NO.: 9116
LAB NAME: CSMRI

INORGANICS										
Sample ID No.	NYEF-S1(MS/MSD)	NYEF-S2	NYEF-S3(DUP)	NYEF-S4	NYEF-S5	NYEF-S6	NYEF-S7	NYEF-S8	NYEF-RIN1(MS/MSD)	NYEF-TBLK1
Traffic Report No.	MBP664	MBP665	MBP666	MBP667	MBP668	MBP669	MBP670	MBP672	MBP671	N/A
Matrix	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SOIL	WATER	N/A
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	ug/L	ug/L
Dilution Factor										
Aluminum	2360	3570	3930	16700	3180	2510	3070	14800	J	NR
Antimony										NR
Arsenic		2.7 E		8.8 E				12 E		NR
Barium	J	J	J	J	J	J	J	J		NR
Beryllium				J				J		NR
Cadmium							1.2	1.4		NR
Calcium	1880	J	J	J	3780	1340	J	4940		NR
Chromium	64 E	151 E	146 E	19 E	39 E	17 E	90 E	51 E		NR
Cobalt	J		J	J	J			J		NR
Copper	33	25	25	17	30	20	250	64		NR
Iron	5080	7230	6320	16800	4890	3930	9190	15200	J	NR
Lead	92	145	127	36	21	13	40	43		NR
Magnesium	J	J	J	2160	J	J	J	1870	J	NR
Manganese	78	51	51	155	104	84	88	173		NR
Mercury								0.22		NR
Nickel	48	21	20	13	45	20	206	49		NR
Potassium	J	J	J	J	J	J	J	J		NR
Selenium										NR
Silver	4			3.2	2.9	2.2				NR
Sodium			J	J						NR
Thallium										NR
Vanadium	J	28	29	31	J	J	J	28		NR
Zinc	167	57	59	58	75	37	154	78	J	NR
Cyanide		0.63								NR

NOTES:
Blank space - compound analyzed for but not detected
E - estimated value
J - estimated value, compound present below CRDL but above IDL
R - analysis did not pass EPA QA/QC
NR - analysis not required

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Date: Nov. 6, 1987
Number: HW-4
Revision: 3

Title: Attachment 2 - CLP Data Assessment Checklist (GC and GC/MS Analysis).
PART II: MMB Review - TOTAL REVIEW

CASE # 9116 LAB Hittman SITE John Hassell

19.0 Conclusions: (NOTE: Reviewers must red-line unacceptable data on sample data (FORM I) sheets; red-line data does not imply the compound is not present). Only the MMB reviewer has the authority to red-line unacceptable data. The letter J indicates an estimated value. In addition to the two definitions stated in the contract it also implies that the analyte is present but the quantitative value contains an unspecified degree of error. If an accurate quantity is desired, resampling/analysis is recommended.

19.1 Data Assessment 1- Method blanks measure laboratory contamination. Method blanks contaminations can be caused by dirty glassware, impure solvents, etc. In order to be valid, the concentration of an analyte in a sample must be at least 5 times (10 times for the common contaminants) the concentration of that analyte in the method blank. For method blank contamination, the following samples had Acetone qualified with "U" BR 277. The following samples had Methylene chloride qualified with "U" BR268, BR270, BR272, BR273. The following samples had Di-n-octylphthalate qualified with "U" BR268, BR269, BR271, BR273, BR274, BR277
2- Rinse blanks consist of pouring analyte free water over the cleaned piece of sampling equipment into a sample container.

19.2 Contract Problems/Non-compliance 1- The laboratory did not reextract and reanalyze samples which exhibited surrogate recoveries outside contract specifications 2- Several analytes exhibited %RSD and %D outside contract specifications. 3- No SDG Number

Reviewer's Signature: Mohammad S. Hami Date: 8-10-88

Verified By: G. Karras Date: 9/9/88

The Same validity principal as in No#1. Because of rinse blank contamination the following samples had Acetone qualified with "U" BR268, BR269, BR270, BR271, BR272 and BR273.

3- Trip blanks consist of analyte free water sealed in 40.0ml vials. that are taken into the field during sampling. A field blank contamination is caused by contaminating the samples in shipping, storage or in the field. The same validity principal apply as in No#1. Because of trip blank contamination, the following samples had Methylene chloride qualified with "U" ~~BR268~~, BR269, BR271, BR274, BR274DL, BR277, BR277DL.

4- All samples are spiked with surrogate compounds prior to sample preperation in order to evaluate the efficiency of the technique and laboratory performance. If one in the VOA or two or more in BN/A Analysis was outside of QC contract specifications for any samples, Re-analysis of these samples are required. In the VOA sample No BR277, BR277DL, BR274 yielded surrogate recovery outside contract specification. The Lab did not reanalyze the samples according to the contract. Because of this reason all non detects were qualified with "UJ". No positive hits observed.

In the BN/A Analysis sample No BR277 yielded surrogate recovery outside contract specification. The same sample BR277DL yielded recovery outside QC specifications. because of ~~these~~ this reason all non detects were qualified with "UJ". Nophthalene and 2-methylnaphthalene with "J". 2-Fluorophenol yielded recovery outside QC limits in sample No BR274 - No action was taken.

In the pesticide analysis, Dibutylchlorendate was Diluted out in Sample No BR 277 "0% Recovery". because of this reason all nondetects qualified with "UJ" and all positive with "J" 4,4' DDE, 4,4' DDD and 4,4' DDT qualified with "J" in Sample No BR 277.

5- In order to measure the Concentration of an analyte in a sample, an initial and Continuing Calibration are performed. One of the measured parameter is the analyte's response factor (RF). The response factor measures the instrument response. An analytes Response factor either in the initial or Continuing Calibration must be ≥.05. A value <.05 indicates potential Detection and Quantitation errors. For this reason 2-Butanone was qualified with "R" in the following samples BR275, BR266, BR268, BR26[illegible] BR271, BR272, BR273, BR274, BR277.
and qualified with "J" in sample No BR270.
Another measured parameters are (%RSD) percent relative standard deviation which measure the stability of the response factor over increasing Concentration and (%D) percent differences, which Compar the daily response factor with the average response factor $\overline{RRF}$ From the initial Calibration. %D reflects instrument daily performances. %RSD must be <30% and %D <25%. In the pesticide fraction %D must be <15% in the primary Column.
The following analytes exhibited %RSD >30% in the following Associated samples:

Acetone in : BR 275, BR266, BR268 to BR274, BR277

2-Butanone in : BR275, BR266, BR268 to BR274, BR277

2-Hexanone in : BR274 and BR277

The following analyte exhibited %D > 25% in the following samples : (associated samples)

Bromomethane	BR 275, BR 266, BR 268, BR 270, BR 272, BR 273
Acetone	BR 275, BR 266, BR 268 to BR 274, BR 277, BR 274DL, 277DL
2-Hexanone	BR 275, BR 266, BR 268 to BR 274, BR 277.
Methylene chloride	BR 268, BR 270, BR 272, BR 273
Carbon disulfide	BR 269, BR 271
2-Butanone	BR 269, BR 271
1,1,2 Trichloroethane	BR 269, BR 271
2-chloroethylvinylether	BR 269, BR 271, BR 274DL, BR 277DL
Bromoform	BR 269, BR 271
4-Methyl-2-pentanone	BR 269, BR 271, BR 274DL, BR 277DL
1,1,2,2 tetrachloroethane	BR 269, BR 271
1,2 Dichloroethane	BR 269, BR 271, BR 274DL, BR 277DL
Carbon tetrachloride	BR 274, BR 277
Vinyl acetate	BR 274, BR 277, BR 274DL, BR 277DL
Bromodichloromethane	BR 274DL, BR 277DL
Trans 1,3-dichloropropene	BR 274DL, BR 277DL
Cis 1,3-dichloropropene	BR 274DL, BR 277DL
Benzyl alcohol	BR 266, BR 270 to BR 274, BR 277, BR 268
pyrene	BR 266, BR 270 to BR 274, BR 277, BR 268
Butyl benzyl phthalate	BR 266, BR 270 to BR 274, BR 277, BR 268
bis (2-chloroisopropyl) ether	BR 269, BR 277DL
2,4 Dinitrophenol	" "
2,4 Dinitrotoluene	" "
Diethyl phthalate	" "
4-nitroaniline	" "
4,4 DDT	BR 268

DDT qualified with "J" in BR268 Because %D sibited >15% in the primary column for 4,4' DDT. sample No BR274 had 4,4' DDT qualified with "J" Because of high background due to interferences from the sample Matrix which could cause inaccurate integration of 4,4' DDT peak.

* Qualifier "A" are the sum of the alpha and gamma chlordan

6- Matrix spike / Matrix spike Duplicate data are generated to determine long Term precision and accuracy of the analytical Methods on various matrices. In the BN/A and pesticide/PCP Fractions, The spiked Compounds either they diluted out or yielded recoveries outside Contract specifications. Most propably because of sample Matrix interferences. No action was taken.

M.H 8-10-88

SECTION I

CASE NARRATIVE

Laboratory: Hittman Ebasco Associates
CASE: 9116
Contract Number: 68-01-7280

The problems and solutions encountered during the analysis of samples BR-266, BR-268 through BR-275,and BR-275. Samples were received on 3/10/88.

1) Internal Standards and Quantitation Dilution Factor.

The internal standards are present at a concentration of forty ng/ul for Base-Neutral/Acids. To convert to micrograms/kilograms for soils requires an additional dilution factor for use by the program. As an example, a thirty gram sample requires a dilution factor of 33.3 to convert to micrograms per kilogram and does not mean that the actual sample was diluted. This is why the dilution factor on the quantitation report may not match the dilution factor on the form I's. This also holds true for medium level volatile soils which has the internal standard at a concentration of 50ng/mL.

2) Concentration Listed on Quant Report and Spectral Sheets.

The concentration values on the Quant report may not agree with the values on the Individual Compound sheets. The Quant reports are sometimes updated after generation of the full report. The spectra are not effected, just the reported concentration. The spectra are present only for comparison with the reference spectra, thus the concentration listed on the spectral sheets, generated for every hit, may not agree with the quant report, from which the concentrations used on the Form I originate.

3) TIC's with Probabilities Less than One are not Reported.

The library searches on tentitively identified compounds will report only those compounds that have a calculated probability match greater than one percent. Therefore some peaks will have less than three "hits" from the computer and may not have any at all. At the present time the library search program can not be made to list at least three "hits" regardless of the percent probability.

4) TIC's are Time Stamped with the Time of the Library Search.

The time stamped on the TIC's is not the time of sample injection or quantitation, but the time of the actual search.

5) Matrix Concentrations for Soils Reported on Form III.

The matrix spike concentration listed on our soil matrix spike Form III, reflects the actual aqueous spike concentration multiplied by the dilution factor. This dilution factor takes into account the sample weight, percent

solids and the 0.5ml used for pesticide analysis. The resulting concentration is reported ug/Kg on Form III.

6) Correction factor for Base Neutral Acids.

A correction factor to take into account the the pesticide faction during extraction. During extraction of a 10 milliliter sample, half a milliliter (0.5) is used for the pesticides, leaving 9.5 milliters for the base nuetral acid fraction. The half a milliliter has a correction factor of 1.05 for the pesticide extract in the dilution factor for base nuetral acids, located on the quanitation report.

7) Matrix Spike and Matrix Spike Duplicate for BNA soils.

Sample BR-277 was used for the matrix spike and matrix spike duplicate. The sample was diluted 1:10 and the MS and MSD were performed on the diluted sample.

8) Trace Levels of Contaminants in VOA Blanks.

There was a trace amount of methylene chloride and acetone found in the volatiles blank, but neither exceeded five times the CRDL. There were also trace levels of non-target compounds.

9) Trace amount of contaminant found in the Semivolatile Soil Blank.

There was a trace amount of Di-n-octyl phthalate found in the semi-volatile blank, but at less than the CRDL. There were also trace levels of non-target compounds.

10) Sample BR-275 was analyzed for volatiles only.

11) Samples Analyzed At Medium Level.

Samples BR-277, BR-274, and the MS/MSD for BR-274 were analyzed at medium level for the volatiles.

12) Surrogates Out Of Criteria For Volatile Analysis.

Samples BR-277 ,BR-274, and the MS/MSD for BR-274 had several surrogates out of criteria. Both of these samples however had high levels of non-target compounds which required the samples to be run at medium level. Sample BR-271 had Toluene-d8 out of criteria for the original analysis. The MS/MSD which served as the reanalysis was within criteria for all surrogates.

13) Sample diluted for Semivolatile Analysis.

Sample BR-277 was diluted 1:10 for the Semivolatile Analysis due to high levels of non-target compounds.

14) Surrogates Out Of Control For Semivolatile Analysis.

Sample BR-277 had Nitrobenzene-d5 out of Control for both the original sample and the MS/MSD which served as the reanalysis.Sample BR-274 had one

surrogate, 2-fluorophenol out of control.

14) Pesticide Calculations Used.

CF = Area(or Height) / Concentration / Volume injected

CF = Calibration Factor

Mass Injected = Area(or Height) / CF

Sample conc = (Mass Injected)(Volume Injected)(DF)

DF = (Ve)/{(Ws)(D)}

Where Ve = (Vie/Vc)x(Vf)x(1000)

Vie = Volume of initial extract, generally 10.0mLs
Vc = Volume of extract removed for cleanup, generally 0.5mLs
Vf = Final volume of extract for Pesticide analysis taking into account any dilutions
D = % Solid
Ws = Weight of sample used

15) Retention Time Window for Pesticides.

The retention time window for the pesticides was set at one percent of the retention time since that calculated by the twenty four hour method results in unrealistically narrow windows.

16) Naming Convention for Pesticides/PCBs.

We are naming the pesticides and PCBs following the naming convention to be used in the 10/86 IFB. These are as follows:

Name	EPA Sample Number
Evaluation Mix A	EVALA
Evaluation Mix B	EVALB
Evaluation Mix C	EVALC
Individual Mix A	INDA
Individual Mix B	INDB
Toxaphene	TOXAPH
Arochlor 1016	AR1016
Arochlor 1221	AR1221
Arochlor 1232	AR1232
Arochlor 1242	AR1242
Arochlor 1248	AR1248
Arochlor 1254	AR1254
Arochlor 1260	AR1260
Arochlor 1016/1260 Mix	AR1660

This data is released by:

Julie Dixon
Data Review Supervisor
4/18/88

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CASE NARRATIVE EPA cs.9116

The 3%SP2100 column was used for confirmation. The ending standards exceeded criteria. No samples were run after the standards that exceeded criteria.

The 1.5%SP2250/1.95%SP2410 column was used for quantitation of all compounds except for the DDT series and methoxychlor. Degradation was 23% in the EvalB at 20:22, the dilutions of BR274, BR277, and the MS and MSD were analyzed following this standard. Methoxychlor elutes very closely with DBC, the result is poor integration. The percent difference on the Form IX is flagged C coelutes with DBC. This column was used to confirm DDT, no methoxychlor was found in the samples.

Both Aroclor 1260 and 1254 were detected in the samples for this case. The pattern was not initially recognized and an ending aroclor standard was not analyzed.

Samples BR277, BR277MS, and BR277MSD had to be analyzed at a 1:10 dilution. Even after diluting the samples were still very dirty. A rising baseline and undefined peaks may be preventing proper integration. The lowest concentration of the DDT series was reported on the Form I even though this was not from the column called quant.

Sample BR274 has the same type of matrix interference as

mentioned above. It is more severe in this sample and any quantitation is impossible. There is a retention time that is in the DDT retention time window on both columns, however, the chromatogram does not show a clear peak. Because quantitation is impossible, DDT was flagged D on the Form I. This sample was not listed on the Form X.

Because of the above mentioned matrix interference of sample BR277 the matrix spike and MSD needed to be diluted. All of the spiked compounds were diluted below the detection limit. They were flagged DL on the soil Form III. BR 274 was also analyzed at a dilution, the surrogate recovery for all of these samples was flagged DL.

Both alpha and gamma chlordane were detected in BR269 and BR270. The early technical chlordane peaks were not present. The concentration on the Form I's are flagged A and are the sum of the alpha and gamma chlordane based on the concentrations in the INDB mix. These samples also have peaks that match the retention times in Aroclor 1260. The pattern is not clear, probably because of matrix interference. The calculations were done based on the peaks that matched retention times.

Sample Number
BR-268
HEAI #865

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: Hittman Ebasco Assoc. Inc.
Case No: 9116
Lab Sample ID No: >AC047
QC Report No: 58
Sample Matrix: Soil
Contract No: 68-01-7280
Data Release Authorized By: [signature]
Date Sample Received: 3/10/88

Volatile Compounds

Concentration: Low Medium (Circle One)
Date Extracted/Prepared: 3-14-88
Date Analyzed: 3-14-88
Conc/Dil Factor: 1 pH 7.2
Percent Moisture. (Not Decanted) 11%

CAS Number		ug/l or ug/Kg (Circle One)	
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	120	BU
67-64-1	Acetone	69	U
75-15-0	Carbon Disulfide	6	U
75-35-4	1, 1-Dichloroethene	6	U
75-34-3	1, 1-Dichloroethane	6	U
156-60-5	Trans-1, 2-Dichloroethene	6	U
67-66-3	Chloroform	6	U
107-06-2	1, 2-Dichloroethane	6	U
78-93-3	2-Butanone R	11	U
71-55-6	1, 1, 1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	11	U
75-27-4	Bromodichloromethane	6	U

CAS Number		ug/l or ug/Kg (Circle One)	
78-87-5	1, 2-Dichloropropane	6	U
10061-02-6	Trans-1, 3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1, 1, 2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-01-5	cis-1, 3-Dichloropropene	6	U
110-75-8	2-Chloroethylvinylether	11	U
75-25-2	Bromoform	6	U
108-10-1	4-Methyl-2-Pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1, 1, 2, 2-Tetrachloroethane	6	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
	Total Xylenes	11	U

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

Value If the result is a value greater than or equal to the detection limit report the value.

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g., 10U) based on necessary concentration/dilution action. (This is not necessarily the instrument detection limit.) The footnote should read: U Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection is 10 ug/l and a concentration of 3 ug/l is calculated, report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report.

302001

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Sample Number
BR-269
HEAI #866

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: Hittman Ebasco Assoc. Inc.
Case No: 9116
Lab Sample ID No: 2AC063
QC Report No: JD4-12-84 N/A 38
Sample Matrix: Soil
Contract No: 68-01-7280
Data Release Authorized By: Julie Dixon
Date Sample Received: 3/10/88

Volatile Compounds

Concentration: Low Medium (Circle One)
Date Extracted/Prepared: 3-16-88
Date Analyzed: 3-16-88
Conc/Dil Factor: 1 pH 4.4
Percent Moisture. (Not Decanted) 15%

CAS Number		ug/l or ug/Kg (Circle One)
74-87-3	Chloromethane	12 U
74-83-9	Bromomethane	12 U
75-01-4	Vinyl Chloride	12 U
75-00-3	Chloroethane	12 U
75-09-2	Methylene Chloride	11 BU
67-64-1	Acetone	51 U
75-15-0	Carbon Disulfide	6 U
75-35-4	1, 1-Dichloroethene	6 U
75-34-3	1, 1-Dichloroethane	6 U
156-60-5	Trans-1, 2-Dichloroethene	6 U
67-66-3	Chloroform	6 U
107-06-2	1, 2-Dichloroethane	6 U
78-93-3	2-Butanone R	12 U
71-55-6	1, 1, 1-Trichloroethane	6 U
56-23-5	Carbon Tetrachloride	6 U
108-05-4	Vinyl Acetate	12 U
75-27-4	Bromodichloromethane	6 U

CAS Number		ug/l or ug/Kg (Circle One)
78-87-5	1, 2-Dichloropropane	6 U
10061-02-6	Trans-1, 3-Dichloropropene	6 U
79-01-6	Trichloroethene	3 J
124-48-1	Dibromochloromethane	6 U
79-00-5	1, 1, 2-Trichloroethane	6 U
71-43-2	Benzene	6 U
10061-01-5	cis-1, 3-Dichloropropene	6 U
110-75-8	2-Chloroethylvinylether	12 U
75-25-2	Bromoform	6 U
108-10-1	4-Methyl-2-Pentanone	12 U
591-78-6	2-Hexanone	~~4 JB~~
127-18-4	Tetrachloroethene	6 U
79-34-5	1, 1, 2, 2-Tetrachloroethane	6 U
108-88-3	Toluene	6 U
108-90-7	Chlorobenzene	6 U
100-41-4	Ethylbenzene	6 U
100-42-5	Styrene	6 U
	Total Xylenes	12 U

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

Value If the result is a value greater than or equal to the detection limit, report the value.

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g., 10U) based on necessary concentration/dilution action. (This is not necessarily the instrument detection limit.) The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report.

303001

177

Sample Number
BR-270
NEAI # 867

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: Hittman Ebasco Assoc. Inc.
Lab Sample ID No: ZAC049
Sample Matrix: Soil
Data Release Authorized By: [signature]

Case No: 9116
QC Report No: 38
Contract No: 68-01-7280
Date Sample Received: 3-10-88

Volatile Compounds

Concentration: (Low) Medium (Circle One)
Date Extracted/Prepared: 3-14-88
Date Analyzed: 3-14-88
Conc/Dil Factor: 1 pH 4.2
Percent Moisture. (Not Decanted) 22%

CAS Number		ug/l or ug/Kg (Circle One)	
74-87-3	Chloromethane	13	U
74-83-9	Bromomethane	13	U
75-01-4	Vinyl Chloride	13	U
75-00-3	Chloroethane	13	U
75-09-2	Methylene Chloride	110	BU
67-64-1	Acetone	81	U
75-15-0	Carbon Disulfide	6	U
75-35-4	1, 1-Dichloroethene	6	U
75-34-3	1, 1-Dichloroethane	6	U
156-60-5	Trans-1, 2-Dichloroethene	6	U
67-66-3	Chloroform	6	U
107-06-2	1, 2-Dichloroethane	6	U
78-93-3	2-Butanone	6	JI
71-55-6	1, 1, 1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	13	U
75-27-4	Bromodichloromethane	6	U

CAS Number		ug/l or ug/Kg (Circle One)	
78-87-5	1, 2-Dichloropropane	6	U
10061-02-6	Trans-1, 3-Dichloropropene	6	U
79-01-6	Trichloroethene	11	
124-48-1	Dibromochloromethane	6	U
79-00-5	1, 1, 2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-01-5	cis-1, 3-Dichloropropene	6	U
110-75-8	2-Chloroethylvinylether	13	U
75-25-2	Bromoform	6	U
108-10-1	4-Methyl-2-Pentanone	13	U
591-78-6	2-Hexanone	13	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1, 1, 2, 2-Tetrachloroethane	6	U
108-88-3	Toluene	10	
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
	Total Xylenes	13	U

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

Value If the result is a value greater than or equal to the detection limit report the value.

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g., 10U) based on necessary concentration/dilution action. (This is not necessarily the instrument detection limit.) The footnote should read: U Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥10 ng/µl in the final extract should be confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report.

304001

178

Sample Number
BR-271
HEAI #868

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: Hittman Elason Assoc. Inc.
Lab Sample ID No: >AC064
Sample Matrix: Soil
Data Release Authorized By: Julie Dixon

Case No: 9116
QC Report No: 3X
Contract No: 68-01-7280
Date Sample Received: 3/10/88

Volatile Compounds

Concentration: Low Medium (Circle One)
Date Extracted/Prepared: 3/16/88
Date Analyzed: 3/16/88
Conc/Dil Factor: 1 pH 5.1
Percent Moisture. (Not Decanted) 3%

CAS Number		ug/l or ug/Kg (Circle One)	
74-87-3	Chloromethane	14	U
74-83-9	Bromomethane	14	U
75-01-4	Vinyl Chloride	14	U
75-00-3	Chloroethane	14	U
75-09-2	Methylene Chloride	52	B
67-64-1	Acetone	62	U
75-15-0	Carbon Disulfide	7	U
75-35-4	1, 1-Dichloroethene	7	U
75-34-3	1, 1-Dichloroethane	7	U
156-60-5	Trans-1, 2-Dichloroethene	7	U
67-66-3	Chloroform	7	U
107-06-2	1, 2-Dichloroethane	7	U
78-93-3	2-Butanone	14	U
71-55-6	1, 1, 1-Trichloroethane	7	U
56-23-5	Carbon Tetrachloride	7	U
108-05-4	Vinyl Acetate	14	U
75-27-4	Bromodichloromethane	7	U

CAS Number		ug/l or ug/Kg (Circle One)	
78-87-5	1, 2-Dichloropropane	7	U
10061-02-6	Trans-1, 3-Dichloropropene	7	U
79-01-6	Trichloroethene	7	J
124-48-1	Dibromochloromethane	7	U
79-00-5	1, 1, 2-Trichloroethane	7	U
71-43-2	Benzene	7	U
10061-01-5	cis-1, 3-Dichloropropene	7	U
110-75-8	2-Chloroethylvinylether	14	U
75-25-2	Bromoform	7	U
108-10-1	4-Methyl-2-Pentanone	14	U
591-78-6	2-Hexanone	14	U
127-18-4	Tetrachloroethene	7	U
79-34-5	1, 1, 2, 2-Tetrachloroethane	7	U
108-88-3	Toluene	7	U
108-90-7	Chlorobenzene	7	U
100-41-4	Ethylbenzene	7	U
100-42-5	Styrene	7	U
	Total Xylenes	14	U

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

Value If the result is a value greater than or equal to the detection limit report the value

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g., 10U) based on necessary concentration/dilution action. (This is not necessarily the instrument detection limit.) The footnote should read: U Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥10 ng/µl in the final extract should be confirmed by GC/MS

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report

305001

179

11/85

Form I

BR-272
HEAI # 569

Organics Analysis Data Sheet
(Page 1)

atory Name Hittman Ebasco Assoc. Inc.
Sample ID No: >AC052
ample Matrix Soil
Data Release Authorized By: [signature]

Case No: 9116
QC Report No: 38
Contract No: 68-01-7280
Date Sample Received 3-10-88

Volatile Compounds

Concentration: Low Medium (Circle One)
Date Extracted/Prepared 3-14-88
Date Analyzed: 3-14-88
Conc/Dil Factor: 1 pH 6.6
Percent Moisture. (Not Decanted) 9%

CAS Number		ug/l or ug/Kg (Circle One)
74-87-3	Chloromethane	11 U
74-83-9	Bromomethane	11 U
75-01-4	Vinyl Chloride	11 U
75-00-3	Chloroethane	11 U
75-09-2	Methylene Chloride	110 ~~U~~
67-64-1	Acetone	36 U
75-15-0	Carbon Disulfide	6 U
75-35-4	1, 1-Dichloroethene	6 U
75-34-3	1, 1-Dichloroethane	6 U
156-60-5	Trans-1, 2-Dichloroethene	6 U
67-66-3	Chloroform	6 U
107-06-2	1, 2-Dichloroethane	6 U
78-93-3	2-Butanone R	11 U
71-55-6	1, 1, 1-Trichloroethane	6 U
56-23-5	Carbon Tetrachloride	6 U
108-05-4	Vinyl Acetate	11 U
75-27-4	Bromodichloromethane	6 U

CAS Number		ug/l or ug/Kg (Circle One)
78-87-5	1, 2-Dichloropropane	6 U
10061-02-6	Trans-1, 3-Dichloropropene	6 U
79-01-6	Trichloroethene	8
124-48-1	Dibromochloromethane	6 U
79-00-5	1, 1, 2-Trichloroethane	6 U
71-43-2	Benzene	6 U
10061-01-5	cis-1, 3-Dichloropropene	6 U
110-75-8	2-Chloroethylvinylether	11 U
75-25-2	Bromoform	6 U
108-10-1	4-Methyl-2-Pentanone	11 U
591-78-6	2-Hexanone JD-3 11u	~~10 J~~
127-18-4	Tetrachloroethene	6 U
79-34-5	1, 1, 2, 2-Tetrachloroethane	6 U
108-88-3	Toluene	8
108-90-7	Chlorobenzene	6 U
100-41-4	Ethylbenzene	6 U
100-42-5	Styrene	6 U
	Total Xylenes	11 U

Data Reporting Qualifiers

For reporting results to EPA the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

Value If the result is a value greater than or equal to the detection limit report the value.

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g., 10U) based on necessary concentration/dilution action. (This is not necessarily the instrument detection limit.) The footnote should read: U Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report.

306001

180

11/85

Form I

Sample Number
BR-273.
HEAI = 870

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: Hittman Ebasco Assoc. Inc.
Case No: 9116
Lab Sample ID No: >AC053
QC Report No: 38
Sample Matrix: Soil
Contract No: 68-01-7280
Data Release Authorized By: [signature]
Date Sample Received: 3-10-88

Volatile Compounds

Concentration: Low Medium (Circle One)
Date Extracted/Prepared: 3-14-88
Date Analyzed: 3-14-88
Conc/Dil Factor: 1 pH 6.4
Percent Moisture. (Not Decanted) 10%

CAS Number		ug/l or ug/Kg (Circle One)	
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	130	KU
67-64-1	Acetone	39	U
75-15-0	Carbon Disulfide	6	U
75-35-4	1, 1-Dichloroethene	6	U
75-34-3	1, 1-Dichloroethane	6	U
156-60-5	Trans-1, 2-Dichloroethene	6	U
67-66-3	Chloroform	6	U
107-06-2	1, 2-Dichloroethane	6	U
78-93-3	2-Butanone R	11	U
71-55-6	1, 1, 1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	11	U
75-27-4	Bromodichloromethane	6	U

CAS Number		ug/l or ug/Kg (Circle One)	
78-87-5	1, 2-Dichloropropane	6	U
10061-02-6	Trans-1, 3-Dichloropropene	6	U
79-01-6	Trichloroethene	15	
124-48-1	Dibromochloromethane	6	U
79-00-5	1, 1, 2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-01-5	cis-1, 3-Dichloropropene	6	U
110-75-8	2-Chloroethylvinylether	11	U
75-25-2	Bromoform	6	U
108-10-1	4-Methyl-2-Pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1, 1, 2, 2-Tetrachloroethane	6	U
108-88-3	Toluene	21	
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
	Total Xylenes	11	U

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

Value If the result is a value greater than or equal to the detection limit report the value

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g., 10U) based on necessary concentration/dilution action. (This is not necessarily the instrument detection limit.) The footnote should read: U Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection is 10 ug/l and a concentration of 3 ug/l is calculated, report as 3J

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥10 ng/ul in the final extract should be confirmed by GC/MS

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report

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307001

Sample Number
Br 274.

HENI # 871

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: Hittman Ebasco Assoc. Inc.
Lab Sample ID No: 7CC036
Sample Matrix: Soil
Data Release Authorized By: [signature]

Case No: 9116
QC Report No: 38
Contract No: 68-01-7280
Date Sample Received: 3-10-88

Volatile Compounds

Concentration: Low Medium (Circle One)
Date Extracted/Prepared: 3-17-88
Date Analyzed: 3-17-88
Conc/Dil Factor: 1 pH 6.8
Percent Moisture: (Not Decanted) 13%

CAS Number		ug/l or ug/Kg (Circle One)	
74-87-3	Chloromethane	1400 u	UJ
74-83-9	Bromomethane	1400 u	
75-01-4	Vinyl Chloride	1400 u	
75-00-3	Chloroethane	1400 u	
75-09-2	Methylene Chloride	820 BU	
67-64-1	Acetone	1400 u	UJ
75-15-0	Carbon Disulfide	720 u	
75-35-4	1, 1-Dichloroethene	720 u	
75-34-3	1, 1-Dichloroethane	720 u	
156-60-5	Trans-1, 2-Dichloroethene	720 u	
67-66-3	Chloroform	720 u	
107-06-2	1, 2-Dichloroethane	720 u	
78-93-3	2-Butanone R	1400 u	
71-55-6	1, 1, 1-Trichloroethane	720 u	UJ
56-23-5	Carbon Tetrachloride	720 u	
108-05-4	Vinyl Acetate	1400 u	
75-27-4	Bromodichloromethane	720 u	

CAS Number		ug/l or ug/Kg (Circle One)	
78-87-5	1, 2-Dichloropropane	720 u	U
10061-02-6	Trans-1, 3-Dichloropropene	720 u	
79-01-6	Trichloroethene	720 u	
124-48-1	Dibromochloromethane	720 u	
79-00-5	1, 1, 2-Trichloroethane	720 u	
71-43-2	Benzene	720 u	
10061-01-5	cis-1, 3-Dichloropropene	720 u	
110-75-8	2-Chloroethylvinylether	1400 u	
75-25-2	Bromoform	720 u	
108-10-1	4-Methyl-2-Pentanone	1400 u	
591-78-6	2-Hexanone	1400 u	
127-18-4	Tetrachloroethene	720 u	
79-34-5	1, 1, 2, 2-Tetrachloroethane	720 u	
108-88-3	Toluene	720 u	
108-90-7	Chlorobenzene	720 u	
100-41-4	Ethylbenzene	720 u	
100-42-5	Styrene	720 u	
	Total Xylenes	1400 u	

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

Value If the result is a value greater than or equal to the detection limit report the value.

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g., 10U) based on necessary concentration/dilution action. (This is not necessarily the instrument detection limit.) The footnote should read: U Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report.

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308001

Sample Number
BR-277
HEAI #873

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: Hittman Ebasco Assoc. Inc.
Lab Sample ID No: >CC030
Sample Matrix: Soil
Data Release Authorized By: [signature]

Case No: 9116
QC Report No: 38
Contract No: 68-01-7280
Date Sample Received: 3/10/88

Volatile Compounds

Concentration: Low **Medium** (Circle One)
Date Extracted/Prepared: 3-17-88
Date Analyzed: 3-17-88
Conc/Dil Factor: 1 pH 6.7
Percent Moisture. (Not Decanted) 15%

CAS Number		ug/l or ug/Kg (Circle One)	
74-87-3	Chloromethane	1500 U	UJ
74-83-9	Bromomethane	1500 U	
75-01-4	Vinyl Chloride	1500 U	
75-00-3	Chloroethane	1500 U	
75-09-2	Methylene Chloride	780 BU	
67-64-1	Acetone	1500 U	UJ
75-15-0	Carbon Disulfide	740 U	
75-35-4	1, 1-Dichloroethene	740 U	
75-34-3	1, 1-Dichloroethane	740 U	
156-60-5	Trans-1, 2-Dichloroethene	740 U	
67-66-3	Chloroform	740 U	
107-06-2	1, 2-Dichloroethane	740 U	
78-93-3	2-Butanone R	1500 U	UJ
71-55-6	1, 1, 1-Trichloroethane	740 U	
56-23-5	Carbon Tetrachloride	740 U	
108-05-4	Vinyl Acetate	1500 U	
75-27-4	Bromodichloromethane	740 U	

CAS Number		ug/l or ug/Kg (Circle One)	
78-87-5	1, 2-Dichloropropane	740 U	UJ
10061-02-6	Trans-1, 3-Dichloropropene	740 U	
79-01-6	Trichloroethene	740 U	
124-48-1	Dibromochloromethane	740 U	
79-00-5	1, 1, 2-Trichloroethane	740 U	
71-43-2	Benzene	740 U	
10061-01-5	cis-1, 3-Dichloropropene	740 U	
110-75-8	2-Chloroethylvinylether	1500 U	
75-25-2	Bromoform	740 U	
108-10-1	4-Methyl-2-Pentanone	1500 U	
591-78-6	2-Hexanone	1500 U	
127-18-4	Tetrachloroethene	740 U	
79-34-5	1, 1, 2, 2-Tetrachloroethane	740 U	
108-88-3	Toluene	740 U	
108-90-7	Chlorobenzene	740 U	
100-41-4	Ethylbenzene	740 U	
100-42-5	Styrene	740 U	
	Total Xylenes	1500 U	

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

Value If the result is a value greater than or equal to the detection limit report the value.

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g., 10U) based on necessary concentration/dilution action. (This is not necessarily the instrument detection limit.) The footnote should read: U Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥10 ng/µl in the final extract should be confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report.

183

301001

Sample Number
BR-26b
HEAI# 864

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: Hittman Ebasco Assoc. Inc.
Case No: 91116
Lab Sample ID No: ACO41
QC Report No: 38
Sample Matrix: Water
Contract No: 68-01-7280
Data Release Authorized By: John Dixon
Date Sample Received: 3/10/88

Volatile Compounds

Concentration: Low Medium (Circle One)
Date Extracted/Prepared: 3-11-88
Date Analyzed: 3-11-88
Conc/Dil Factor: 1 pH 7
Percent Moisture: (Not Decanted) N/A

CAS Number		ug/l or ug/Kg (Circle One)	
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	11	B
67-64-1	Acetone	13	B
75-15-0	Carbon Disulfide	5	U
75-35-4	1, 1-Dichloroethene	5	U
75-34-3	1, 1-Dichloroethane	5	U
156-60-5	Trans-1, 2-Dichloroethene	5	U
67-66-3	Chloroform	5	U
107-06-2	1, 2-Dichloroethane	5	U
78-93-3	2-Butanone R	10	U
71-55-6	1, 1, 1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U

CAS Number		ug/l or ug/Kg (Circle One)	
78-87-5	1, 2-Dichloropropane	5	U
10061-02-6	Trans-1, 3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1, 1, 2-Trichloroethane	2	J
71-43-2	Benzene	5	U
10061-01-5	cis-1, 3-Dichloropropene	5	U
110-75-8	2-Chloroethylvinylether	10	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	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
	Total Xylenes	10	U

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

Value If the result is a value greater than or equal to the detection limit report the value.

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration/dilution action. (This is not necessarily the instrument detection limit.) The footnote should read: U Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection is 10 ug/l and a concentration of 3 ug/l is calculated, report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report.

184

301001

Sample Number
BR-275
HEAI # 872

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: Hittman Ebasco Assoc. Inc.
Case No: 9116
Lab Sample ID No: >AC040
QC Report No: 38
Sample Matrix: Water
Contract No: 68-01-7280
Data Release Authorized By: [signature]
Date Sample Received: 3/10/88

Volatile Compounds

Concentration: Low Medium (Circle One)
Date Extracted/Prepared: 3-11-88
Date Analyzed: 3-11-88
Conc/Dil Factor: 1 pH 6.5
Percent Moisture. (Not Decanted) N/A

CAS Number		ug/l or ug/Kg (Circle One)	
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	13	B
67-64-1	Acetone	9	J
75-15-0	Carbon Disulfide	5	U
75-35-4	1, 1-Dichloroethene	5	U
75-34-3	1, 1-Dichloroethane	5	U
156-60-5	Trans-1, 2-Dichloroethene	5	U
67-66-3	Chloroform	5	U
107-06-2	1, 2-Dichloroethane	5	U
78-93-3	2-Butanone R	10	U
71-55-6	1, 1, 1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U

CAS Number		ug/l or ug/Kg (Circle One)	
78-87-5	1, 2-Dichloropropane	5	U
10061-02-6	Trans-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
10061-01-5	cis-1, 3-Dichloropropene	5	U
110-75-8	2-Chloroethylvinylether	10	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	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
	Total Xylenes	10	U

Data Reporting Qualifiers

For reporting results to EPA the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

Value If the result is a value greater than or equal to the detection limit report the value.

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration/dilution action. (This is not necessarily the instrument detection limit.) The footnote should read: U Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g. 10J). If limit of detection is 10 ug/l and a concentration of 3 ug/l is calculated, report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report.

309001

185

Laboratory Name Hittman Ebasco Assoc. Inc.

Case No 9116

Sample Number BR-268

HEAI #874
>BC037

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared 3-14-88

Date Analyzed 3-17-88

Conc/Dil Factor: 1

Percent Moisture (Decanted) 11%

GPC Cleanup ☐Yes ☐No

Separatory Funnel Extraction ☐Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)
108-95-2	Phenol	390 U
111-44-4	bis(-2-Chloroethyl)Ether	390 U
95-57-8	2-Chlorophenol	390 U
541-73-1	1 3-Dichlorobenzene	390 U
106-46-7	1 4-Dichlorobenzene	390 U
100-51-6	Benzyl Alcohol	390 U
95-50-1	1 2-Dichlorobenzene	390 U
95-48-7	2-Methylphenol	390 U
39638-32-9	bis(2-chloroisopropyl)Ether	390 U
106-44-5	4-Methylphenol	390 U
621-64-7	N-Nitroso-Di-n-Propylamine	390 U
67-72-1	Hexachloroethane	390 U
98-95-3	Nitrobenzene	390 U
78-59-1	Isophorone	390 U
88-75-5	2-Nitrophenol	390 U
105-67-9	2, 4-Dimethylphenol	390 U
65-85-0	Benzoic Acid	92 J
111-91-1	bis(-2-Chloroethoxy)Methane	390 U
120-83-2	2 4-Dichlorophenol	390 U
120-82-1	1, 2, 4-Trichlorobenzene	390 U
91-20-3	Naphthalene	110 J
106-47-8	4-Chloroaniline	390 U
87-68-3	Hexachlorobutadiene	390 U
59-50-7	4-Chloro-3-Methylphenol	390 U
91-57-6	2-Methylnaphthalene	73 J
77-47-4	Hexachlorocyclopentadiene	390 U
88-06-2	2, 4, 6-Trichlorophenol	390 U
95-95-4	2, 4, 5-Trichlorophenol	2000 U
91-58-7	2-Chloronaphthalene	390 U
88-74-4	2-Nitroaniline	2000 U
131-11-3	Dimethyl Phthalate	390 U
208-96-8	Acenaphthylene	390 U
99-09-2	3-Nitroaniline	2000 U

CAS Number		ug/l or ug/Kg (Circle One)
83-32-9	Acenaphthene	180 J
51-28-5	2, 4-Dinitrophenol	2000 U
100-02-7	4-Nitrophenol	2000 U
132-64-9	Dibenzofuran	130 J
121-14-2	2, 4-Dinitrotoluene	390 U
606-20-2	2, 6-Dinitrotoluene	390 U
84-66-2	Diethylphthalate	390 U
7005-72-3	4-Chlorophenyl-phenylether	390 U
86-73-7	Fluorene	240 J
100-01-6	4-Nitroaniline	2000 U
534-52-1	4, 6-Dinitro-2-Methylphenol	390 U
86-30-6	N-Nitrosodiphenylamine (1)	390 U
101-55-3	4-Bromophenyl-phenylether	390 U
118-74-1	Hexachlorobenzene	390 U
87-86-5	Pentachlorophenol	2000 U
85-01-8	Phenanthrene	1800
120-12-7	Anthracene	380 J
84-74-2	Di-n-Butylphthalate	390 U
206-44-0	Fluoranthene	790
129-00-0	Pyrene	750 J
85-68-7	Butylbenzylphthalate	390 U
91-94-1	3, 3'-Dichlorobenzidine	780 U
56-55-3	Benzo(a)Anthracene	680
117-81-7	bis(2-Ethylhexyl)Phthalate	250 J
218-01-9	Chrysene	820
117-84-0	Di-n-Octyl Phthalate	250 ~~J~~ U
205-99-2	Benzo(b)Fluoranthene	1500
207-08-9	Benzo(k)Fluoranthene	390 U
50-32-8	Benzo(a)Pyrene	730
193-39-5	Indeno(1, 2, 3-cd)Pyrene	780
53-70-3	Dibenz(a, h)Anthracene	130 J
191-24-2	Benzo(g, h, i)Perylene	690

(1)-Cannot be separated from diphenylamine

302002

186

ory Name Hittman Ebasco Assoc. Inc.

No 9116

Sample Number
BR-269
HEAI# 875
>BD010

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared 3-14-88

Date Analyzed 4-4-88

Conc/Dil Factor: 1

Percent Moisture (Decanted) 15%

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☐Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)
108-95-2	Phenol	51 J
111-44-4	bis(-2-Chloroethyl)Ether	400 U
95-57-8	2-Chlorophenol	400 U
541-73-1	1 3-Dichlorobenzene	400 U
106-46-7	1 4-Dichlorobenzene	400 U
100-51-6	Benzyl Alcohol	400 U
95-50-1	1 2-Dichlorobenzene	400 U
95-48-7	2-Methylphenol	400 U
39638-32-9	bis(2-chloroisopropyl)Ether	400 U
106-44-5	4-Methylphenol	400 U
621-64-7	N-Nitroso-Di-n-Propylamine	400 U
67-72-1	Hexachloroethane	400 U
98-95-3	Nitrobenzene	400 U
78-59-1	Isophorone	400 U
88-75-5	2-Nitrophenol	400 U
105-67-9	2, 4-Dimethylphenol	400 U
65-85-0	Benzoic Acid	6000
111-91-1	bis(-2-Chloroethoxy)Methane	400 U
120-83-2	2 4-Dichlorophenol	400 U
120-82-1	1, 2, 4-Trichlorobenzene	400 U
91-20-3	Naphthalene	42 J
106-47-8	4-Chloroaniline	400 U
87-68-3	Hexachlorobutadiene	400 U
59-50-7	4-Chloro-3-Methylphenol	400 U
91-57-6	2-Methylnaphthalene	43 J
77-47-4	Hexachlorocyclopentadiene	400 U
88-06-2	2, 4, 6-Trichlorophenol	400 U
95-95-4	2, 4, 5-Trichlorophenol	2000 U
91-58-7	2-Chloronaphthalene	400 U
88-74-4	2-Nitroaniline	2000 U
131-11-3	Dimethyl Phthalate	400 U
208-96-8	Acenaphthylene	28 J
99-09-2	3-Nitroaniline	2000 U

CAS Number		ug/l or ug/Kg (Circle One)
83-32-9	Acenaphthene	67 J
51-28-5	2, 4-Dinitrophenol	2000 U
100-02-7	4-Nitrophenol	400 U
132-64-9	Dibenzofuran	47 J
121-14-2	2, 4-Dinitrotoluene	400 U
606-20-2	2, 6-Dinitrotoluene	~~500~~ 400
84-66-2	Diethylphthalate	400 U
7005-72-3	4-Chlorophenyl-phenylether	400 U
86-73-7	Fluorene	140 J
100-01-6	4-Nitroaniline	2000 U
534-52-1	4, 6-Dinitro-2-Methylphenol	2000 U
86-30-6	N-Nitrosodiphenylamine (1)	400 U
101-55-3	4-Bromophenyl-phenylether	400 U
118-74-1	Hexachlorobenzene	400 U
87-86-5	Pentachlorophenol	2000 U
85-01-8	Phenanthrene	1800
120-12-7	Anthracene	530
84-74-2	Di-n-Butylphthalate	29 J
206-44-0	Fluoranthene	1600
129-00-0	Pyrene	1200
85-68-7	Butylbenzylphthalate	93 J
91-94-1	3, 3'-Dichlorobenzidine	810 U
56-55-3	Benzo(a)Anthracene	2000
117-81-7	bis(2-Ethylhexyl)Phthalate	560
218-01-9	Chrysene	2800
117-84-0	Di-n-Octyl Phthalate	330 U
205-99-2	Benzo(b)Fluoranthene	3900
207-08-9	Benzo(k)Fluoranthene	810 U
50-32-8	Benzo(a)Pyrene	2500
193-39-5	Indeno(1, 2, 3-cd)Pyrene	2000
53-70-3	Dibenzo(a,h)Anthracene	360 J
191-24-2	Benzo(g,h,i)Perylene	1730

(1)-Cannot be separated from diphenylamine

303002

Form I

7/85

y Name Hittman Ebasco Assoc. Inc.

ID 9116

Sample Number
BR-270

>BC038
HEAS #876

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: Low - Medium (Circle One)

Date Extracted/Prepared 3-14-88

Date Analyzed 3-17-88

Conc/Dil Factor: 1

Percent Moisture (Decanted) 22

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☐Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)
108-95-2	Phenol	430 U
111-44-4	bis(-2-Chloroethyl)Ether	430 U
95-57-8	2-Chlorophenol	430 U
541-73-1	1 3-Dichlorobenzene	430 U
106-46-7	1, 4-Dichlorobenzene	430 U
100-51-6	Benzyl Alcohol	430 U
95-50-1	1, 2-Dichlorobenzene	430 U
95-48-7	2-Methylphenol	430 U
39638-32-9	bis(2-chloroisopropyl)Ether	430 U
106-44-5	4-Methylphenol	430 U
621-64-7	N-Nitroso-Di-n-Propylamine	430 U
67-72-1	Hexachloroethane	430 U
98-95-3	Nitrobenzene	430 U
78-59-1	Isophorone	430 U
88-75-5	2-Nitrophenol	430 U
105-67-9	2, 4-Dimethylphenol	430 U
65-85-0	Benzoic Acid	780 J
111-91-1	bis(-2-Chloroethoxy)Methane	430 U
120-83-2	2, 4-Dichlorophenol	430 U
120-82-1	1, 2, 4-Trichlorobenzene	430 U
91-20-3	Naphthalene	430 U
106-47-8	4-Chloroaniline	430 U
87-68-3	Hexachlorobutadiene	430 U
59-50-7	4-Chloro-3-Methylphenol	430 U
91-57-6	2-Methylnaphthalene	430 U
77-47-4	Hexachlorocyclopentadiene	430 U
88-06-2	2, 4, 6-Trichlorophenol	430 U
95-95-4	2, 4, 5-Trichlorophenol	2200 U
91-58-7	2-Chloronaphthalene	430 U
88-74-4	2-Nitroaniline	2200 U
131-11-3	Dimethyl Phthalate	430 U
208-96-8	Acenaphthylene	430 U
99-09-2	3-Nitroaniline	2200 U

CAS Number		ug/l or ug/Kg (Circle One)
83-32-9	Acenaphthene	430 U
51-28-5	2, 4-Dinitrophenol	2200 U
100-02-7	4-Nitrophenol	2200 U
132-64-9	Dibenzofuran	430 U
121-14-2	2 4-Dinitrotoluene	430 U
606-20-2	2, 6-Dinitrotoluene	430 U
84-66-2	Diethylphthalate	430 U
7005-72-3	4-Chlorophenyl-phenylether	430 U
86-73-7	Fluorene	430 U
100-01-6	4-Nitroaniline	2200 U
534-52-1	4, 6-Dinitro-2-Methylphenol	2200 U
86-30-6	N-Nitrosodiphenylamine (1)	430 U
101-55-3	4-Bromophenyl-phenylether	430 U
118-74-1	Hexachlorobenzene	430 U
87-86-5	Pentachlorophenol	2200 U
85-01-8	Phenanthrene	510
120-12-7	Anthracene	50 J
84-74-2	Di-n-Butylphthalate	430 U
206-44-0	Fluoranthene	440
129-00-0	Pyrene	390 J
85-68-7	Butylbenzylphthalate	88 J
91-94-1	3, 3'-Dichlorobenzidine	860 U
56-55-3	Benzo(a)Anthracene	350 J
117-81-7	bis(2-Ethylhexyl)Phthalate	540
218-01-9	Chrysene	780
117-84-0	Di-n-Octyl Phthalate	430 U
205-99-2	Benzo(b)Fluoranthene	1600
207-08-9	Benzo(k)Fluoranthene	430 U
50-32-8	Benzo(a)Pyrene	590
193-39-5	Indeno(1, 2, 3-cd)Pyrene	800
53-70-3	Dibenz(a h)Anthracene	110 J
191-24-2	Benzo(g h i)Perylene	650

(1)-Cannot be separated from diphenylamine

304002

Sample Number
BR-271

>BD074

...ry Name Hittman Ebasco Assoc. Inc.

...ase No 9116

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared 3-14-88

Date Analyzed 3-17-88

Conc/Dil Factor: 1

Percent Moisture (Decanted) 31

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☐Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)
108 95-2	Phenol	490 U
111-44-4	bis(-2-Chloroethyl)Ether	490 U
95-57-8	2-Chlorophenol	490 U
541-73-1	1 3-Dichlorobenzene	490 U
106-46-7	1, 4-Dichlorobenzene	490 U
100-51-6	Benzyl Alcohol	490 U
95-50-1	1, 2-Dichlorobenzene	490 U
95-48-7	2-Methylphenol	490 U
39638-32-9	bis(2-chloroisopropyl)Ether	490 U
106-44-5	4-Methylphenol	490 U
621-64-7	N-Nitroso-Di-n-Propylamine	490 U
67-72-1	Hexachloroethane	490 U
98 95-3	Nitrobenzene	490 U
78-59-1	Isophorone	490 U
88-75-5	2-Nitrophenol	490 U
105-67-9	2, 4-Dimethylphenol	490 U
65-85-0	Benzoic Acid	290 J
111-91-1	bis(-2-Chloroethoxy)Methane	490 U
120-83-2	2, 4-Dichlorophenol	490 U
120-82-1	1, 2, 4-Trichlorobenzene	490 U
91-20-3	Naphthalene	490 U
106-47-8	4-Chloroaniline	490 U
87-68-3	Hexachlorobutadiene	490 U
59 50-7	4-Chloro-3-Methylphenol	490 U
91-57-6	2-Methylnaphthalene	490 U
77-47-4	Hexachlorocyclopentadiene	490 U
88-06-2	2, 4, 6-Trichlorophenol	490 U
95-95-4	2, 4, 5-Trichlorophenol	2400 U
91-58-7	2-Chloronaphthalene	490 U
88-74-4	2-Nitroaniline	2400 U
131-11-3	Dimethyl Phthalate	490 U
208 96-8	Acenaphthylene	490 U
99-09-2	3-Nitroaniline	2400 U

CAS Number		ug/l or ug/Kg (Circle One)
83-32-9	Acenaphthene	490 U
51-28-5	2, 4-Dinitrophenol	2400 U
100-02-7	4-Nitrophenol	2400 U
132-64-9	Dibenzofuran	490 U
121-14-2	2 4-Dinitrotoluene	490 U
606-20-2	2, 6-Dinitrotoluene	490 U
84-66-2	Diethylphthalate	490 U
7005-72-3	4-Chlorophenyl-phenylether	490 U
86-73-7	Fluorene	490 U
100-01-6	4-Nitroaniline	2400 U
534-52-1	4, 6-Dinitro-2-Methylphenol	2400 U
86-30-6	N-Nitrosodiphenylamine (1)	490 U
101-55-3	4-Bromophenyl-phenylether	490 U
118-74-1	Hexachlorobenzene	490 U
87-86-5	Pentachlorophenol	2400 U
85-01-8	Phenanthrene	190 J
120-12-7	Anthracene	490 U
84-74-2	Di-n-Butylphthalate	490 U
206-44-0	Fluoranthene	190 J
129-00-0	Pyrene	200 J
85-68-7	Butylbenzylphthalate	490 U
91-94-1	3, 3'-Dichlorobenzidine	980 U
56-55-3	Benzo(a)Anthracene	200 J
117-81-7	bis(2-Ethylhexyl)Phthalate	240 J
218-01-9	Chrysene	320 J
117-84-0	Di-n-Octyl Phthalate	320 J ~~[illegible]~~ U
205-99-2	Benzo(b)Fluoranthene	490 U
207-08-9	Benzo(k)Fluoranthene	430 J
50-32-8	Benzo(a)Pyrene	310 J
193-39-5	Indeno(1, 2, 3-cd)Pyrene	290 J
53-70-3	Dibenz(a h)Anthracene	140 J
191-24-2	Benzo(g h i)Perylene	290 J

(1)-Cannot be separated from diphenylamine

305002

7 85

Form I

189

116

DK-α/α
EAI # 878

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared 3-14-88

Date Analyzed 3-24-88

Conc/Dil Factor: 1

Percent Moisture (Decanted) 9%

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☐Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)
108-95-2	Phenol	370 U
111-44-4	bis(-2-Chloroethyl)Ether	370 U
95-57-8	2-Chlorophenol	370 U
541-73-1	1,3-Dichlorobenzene	370 U
106-46-7	1,4-Dichlorobenzene	370 U
100-51-6	Benzyl Alcohol	370 U
95-50-1	1,2-Dichlorobenzene	370 U
95-48-7	2-Methylphenol	370 U
39638-32-9	bis(2-chloroisopropyl)Ether	370 U
106-44-5	4-Methylphenol	370 U
621-64-7	N-Nitroso-Di-n-Propylamine	370 U
67-72-1	Hexachloroethane	370 U
98-95-3	Nitrobenzene	370 U
78-59-1	Isophorone	370 U
88-75-5	2-Nitrophenol	370 U
105-67-9	2,4-Dimethylphenol	370 U
65-85-0	Benzoic Acid	53 J
111-91-1	bis(-2-Chloroethoxy)Methane	370 U
120-83-2	2,4-Dichlorophenol	370 U
120-82-1	1,2,4-Trichlorobenzene	370 U
91-20-3	Naphthalene	370 U
106-47-8	4-Chloroaniline	370 U
87-68-3	Hexachlorobutadiene	370 U
59-50-7	4-Chloro-3-Methylphenol	370 U
91-57-6	2-Methylnaphthalene	370 U
77-47-4	Hexachlorocyclopentadiene	370 U
88-06-2	2,4,6-Trichlorophenol	370 U
95-95-4	2,4,5-Trichlorophenol	1800 U
91-58-7	2-Chloronaphthalene	370 U
88-74-4	2-Nitroaniline	1800 U
131-11-3	Dimethyl Phthalate	370 U
208-96-8	Acenaphthylene	370 U
99-09-2	3-Nitroaniline	1800 U

CAS Number		ug/l or ug/Kg (Circle One)
83-32-9	Acenaphthene	370 U
51-28-5	2,4-Dinitrophenol	1800 U
100-02-7	4-Nitrophenol	1800 U
132-64-9	Dibenzofuran	370 U
121-14-2	2,4-Dinitrotoluene	370 U
606-20-2	2,6-Dinitrotoluene	370 U
84-66-2	Diethylphthalate	370 U
7005-72-3	4-Chlorophenyl-phenylether	370 U
86-73-7	Fluorene	370 U
100-01-6	4-Nitroaniline	1800 U
534-52-1	4,6-Dinitro-2-Methylphenol	1800 U
86-30-6	N-Nitrosodiphenylamine (1)	370 U
101-55-3	4-Bromophenyl-phenylether	370 U
118-74-1	Hexachlorobenzene	370 U
87-86-5	Pentachlorophenol	1800 U
85-01-8	Phenanthrene	74 J
120-12-7	Anthracene	370 U
84-74-2	Di-n-Butylphthalate	370 U
206-44-0	Fluoranthene	150 J
129-00-0	Pyrene	140 J
85-68-7	Butylbenzylphthalate	370 U
91-94-1	3,3'-Dichlorobenzidine	740 U
56-55-3	Benzo(a)Anthracene	86 J
117-81-7	bis(2-Ethylhexyl)Phthalate	200 J
218-01-9	Chrysene	150 J
117-84-0	Di-n-Octyl Phthalate	370 U
205-99-2	Benzo(b)Fluoranthene	270 J
207-08-9	Benzo(k)Fluoranthene	370 U
50-32-8	Benzo(a)Pyrene	140 J
193-39-5	Indeno(1,2,3-cd)Pyrene	140 J
53-70-3	Dibenzo(a,h)Anthracene	370 U
191-24-2	Benzo(g,h,i)Perylene	150 J

(1)-Cannot be separated from diphenylamine

306002

DR-01 D
HEAI = 874
78C032

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

.tration: Low Medium (Circle One)

Extracted/Prepared 3-14-88

te Analyzed 3-17-88

nc/Dil Factor: 1

rcent Moisture (Decanted) 10%

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☐Yes

Continuous Liquid - Liquid Extraction ☐Yes

AS umber		ug/l or ug/Kg (Circle One)
08 95-2	Phenol	380 U
11-44-4	bis(-2-Chloroethyl)Ether	380 U
5-57-8	2-Chlorophenol	380 U
41-73-1	1 3-Dichlorobenzene	380 U
06-46-7	1. 4-Dichlorobenzene	380 U
00-51-6	Benzyl Alcohol	380 U
5-50-1	1. 2-Dichlorobenzene	380 U
5-48-7	2-Methylphenol	380 U
39638-32-9	bis(2-chloroisopropyl)Ether	380 U
106-44-5	4-Methylphenol	380 U
621-64-7	N-Nitroso-Di-n-Propylamine	380 U
67-72-1	Hexachloroethane	380 U
98 95-3	Nitrobenzene	380 U
78-59-1	Isophorone	380 U
88-75-5	2-Nitrophenol	380 U
105-67-9	2. 4-Dimethylphenol	380 U
65-85-0	Benzoic Acid	50 J
111-91-1	bis(-2-Chloroethoxy)Methane	380 U
120-83-2	2. 4-Dichlorophenol	380 U
120-82-1	1. 2. 4-Trichlorobenzene	380 U
91-20-3	Naphthalene	380 U
106-47-8	4-Chloroaniline	380 U
87-68-3	Hexachlorobutadiene	380 U
59-50-7	4-Chloro-3-Methylphenol	380 U
91-57-6	2-Methylnaphthalene	380 U
77-47-4	Hexachlorocyclopentadiene	380 U
88-06-2	2. 4. 6-Trichlorophenol	380 U
95-95-4	2. 4. 5-Trichlorophenol	1900 U
91-58-7	2-Chloronaphthalene	380 U
88-74-4	2-Nitroaniline	1900 U
131-11-3	Dimethyl Phthalate	380 U
208 96-8	Acenaphthylene	380 U
99-09-2	3-Nitroaniline	1900 U

CAS Number		ug/l or ug/Kg (Circle One)
83-32-9	Acenaphthene	380 U
51-28-5	2, 4-Dinitrophenol	1900 U
100-02-7	4-Nitrophenol	1900 U
132-64-9	Dibenzofuran	380 U
121-14-2	2 4-Dinitrotoluene	380 U
606-20-2	2. 6-Dinitrotoluene	380 U
84-66-2	Diethylphthalate	380 U
7005-72-3	4-Chlorophenyl-phenylether	380 U
86-73-7	Fluorene	380 U
100-01-6	4-Nitroaniline	1900 U
534-52-1	4. 6-Dinitro-2-Methylphenol	1900 U
86-30-6	N-Nitrosodiphenylamine (1)	380 U
101-55-3	4-Bromophenyl-phenylether	380 U
118-74-1	Hexachlorobenzene	380 U
87-86-5	Pentachlorophenol	1900 U
85-01-8	Phenanthrene	110 J
120-12-7	Anthracene	380 U
84-74-2	Di-n-Butylphthalate	380 U
206-44-0	Fluoranthene	140 J
129-00-0	Pyrene	140 J
85-68-7	Butylbenzylphthalate	380 U
91-94-1	3. 3 -Dichlorobenzidine	760 U
56-55-3	Benzo(a)Anthracene	110 J
117-81-7	bis(2-Ethylhexyl)Phthalate	150 J
218-01-9	Chrysene	150 J
117-84-0	Di-n-Octyl Phthalate	280 ~~J~~ U
205-99-2	Benzo(b)Fluoranthene	280 J
207-08-9	Benzo(k)Fluoranthene	380 U
50-32-8	Benzo(a)Pyrene	130 J
193-39-5	Indeno(1. 2. 3-cd)Pyrene	120 J
53-70-3	Dibenz(a h)Anthracene	~~38 J~~ 380 U
191-24-2	Benzo(g h i)Perylene	100 J

MP 4-12-88

(1)-Cannot be separated from diphenylamine

307002 B5

Form I

191

Name Hittman Ebasco Assoc. Inc.
9116

Sample Number
BR-274
#SAI #880
>BC033

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: Low Medium (Circle One)
Date Extracted/Prepared 3-14-88
Date Analyzed 3-17-88
Conc/Dil Factor: 1
Percent Moisture (Decanted) 13%

GPC Cleanup ☐Yes ☑No
Separatory Funnel Extraction ☐Yes
Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)
108 95 2	Phenol	390 U
111-44-4	bis(-2-Chloroethyl)Ether	390 U
95-57-8	2-Chlorophenol	390 U
541-73-1	1 3-Dichlorobenzene	390 U
106-46-7	1, 4-Dichlorobenzene	390 U
100-51-6	Benzyl Alcohol	390 U
95-50-1	1, 2-Dichlorobenzene	390 U
95-48-7	2-Methylphenol	390 U
39638-32-9	bis(2-chloroisopropyl)Ether	390 U
106-44-5	4-Methylphenol	390 U
621-64-7	N-Nitroso-Di-n-Propylamine	390 U
67-72-1	Hexachloroethane	390 U
98 95-3	Nitrobenzene	390 U
78-59-1	Isophorone	390 U
88-75-5	2-Nitrophenol	390 U
105-67-9	2, 4-Dimethylphenol	390 U
65-85-0	Benzoic Acid	1900 U
111-91-1	bis(-2-Chloroethoxy)Methane	390 U
120-83-2	2, 4-Dichlorophenol	390 U
120-82-1	1, 2, 4-Trichlorobenzene	390 U
91-20-3	Naphthalene	390 U
106-47-8	4-Chloroaniline	390 U
87-68-3	Hexachlorobutadiene	390 U
59 50-7	4-Chloro-3-Methylphenol	390 U
91-57-6	2-Methylnaphthalene	220 J
77-47-4	Hexachlorocyclopentadiene	390 U
88-06-2	2, 4, 6-Trichlorophenol	390 U
95-95-4	2, 4, 5-Trichlorophenol	1900 U
91-58-7	2-Chloronaphthalene	390 U
88-74-4	2-Nitroaniline	1900 U
131-11-3	Dimethyl Phthalate	390 U
208 96-8	Acenaphthylene	390 U
99-09-2	3-Nitroaniline	1900 U

CAS Number		ug/l or ug/Kg (Circle One)
83-32-9	Acenaphthene	390 U
51-28-5	2, 4-Dinitrophenol	1900 U
100-02-7	4-Nitrophenol	1900 U
132-64-9	Dibenzofuran	390 U
121-14-2	2 4-Dinitrotoluene	390 U
606-20-2	2, 6-Dinitrotoluene	390 U
84-66-2	Diethylphthalate	390 U
7005-72-3	4-Chlorophenyl-phenylether	390 U
86-73-7	Fluorene	390 U
100-01-6	4-Nitroaniline	1900 U
534-52-1	4, 6-Dinitro-2-Methylphenol	1900 U
86-30-6	N-Nitrosodiphenylamine (1)	390 U
101-55-3	4-Bromophenyl-phenylether	390 U
118-74-1	Hexachlorobenzene	390 U
87-86-5	Pentachlorophenol	1900 U
85-01-8	Phenanthrene	140 J
120-12-7	Anthracene	390 U
84-74-2	Di-n-Butylphthalate	390 U
206-44-0	Fluoranthene	51 J
129-00-0	Pyrene	45 J
85-68-7	Butylbenzylphthalate	100 J
91-94-1	3, 3 -Dichlorobenzidine	780 U
56-55-3	Benzo(a)Anthracene	390 U
117-81-7	bis(2-Ethylhexyl)Phthalate	440
218-01-9	Chrysene	390 U
117-84-0	Di-n-Octyl Phthalate	140 ~~J~~ U
205-99-2	Benzo(b)Fluoranthene	390 U
207-08-9	Benzo(k)Fluoranthene	390 U
50-32-8	Benzo(a)Pyrene	390 U
193-39-5	Indeno(1, 2, 3-cd)Pyrene	80 J
53-70-3	Dibenz(a h)Anthracene	390 U
191-24-2	Benzo(g h i)Perylene	59 J

(1)-Cannot be separated from diphenylamine

308004

192

Name Hittman Ebasco Assoc. Inc.
9116

Sample Number
BR-277(DL)

NEAI #
7B0006

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: 3-14-88

Date Analyzed: 4-4-88

Conc/Dil Factor: 10

Percent Moisture (Decanted) 15%

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☐Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)	
108-95-2	Phenol	3900 U	UJ
111-44-4	bis(-2-Chloroethyl)Ether	3900 U	
95-57-8	2-Chlorophenol	3900 U	
541-73-1	1 3-Dichlorobenzene	3900 U	
106-46-7	1 4-Dichlorobenzene	3900 U	
100-51-6	Benzyl Alcohol	3900 U	
95-50-1	1 2-Dichlorobenzene	3900 U	
95-48-7	2-Methylphenol	3900 U	
39638-32-9	bis(2-chloroisopropyl)Ether	3900 U	
106-44-5	4-Methylphenol	3900 U	
621-64-7	N-Nitroso-Di-n-Propylamine	~~24000~~	3900 U
67-72-1	Hexachloroethane	3900 U	
98-95-3	Nitrobenzene	3900 U	
78-59-1	Isophorone	3900 U	
88-75-5	2-Nitrophenol	3900 U	
105-67-9	2, 4-Dimethylphenol	3900 U	
65-85-0	Benzoic Acid	19000 U	
111-91-1	bis(-2-Chloroethoxy)Methane	3900 U	
120-83-2	2 4-Dichlorophenol	3900 U	
120-82-1	1, 2, 4-Trichlorobenzene	3900 U	
91-20-3	Naphthalene	1100 J	
106-47-8	4-Chloroaniline	3900 U	UJ
87-68-3	Hexachlorobutadiene	3900 U	UJ
59-50-7	4-Chloro-3-Methylphenol	3900 U	UJ
91-57-6	2-Methylnaphthalene	480 J	
77-47-4	Hexachlorocyclopentadiene	3900 U	UJ
88-06-2	2, 4, 6-Trichlorophenol	3900 U	
95-95-4	2, 4, 5-Trichlorophenol	19000 U	
91-58-7	2-Chloronaphthalene	3900 U	
88-74-4	2-Nitroaniline	19000 U	
131-11-3	Dimethyl Phthalate	3900 U	
208-96-8	Acenaphthylene	3900 U	
99-09-2	3-Nitroaniline	19000 U	

CAS Number		ug/l or ug/Kg (Circle One)	
83-32-9	Acenaphthene	3900 U	UJ
51-28-5	2, 4-Dinitrophenol	19000 U	
100-02-7	4-Nitrophenol	19000 U	
132-64-9	Dibenzofuran	3900 U	
121-14-2	2, 4-Dinitrotoluene	3900 U	
606-20-2	2, 6-Dinitrotoluene	3900 U	
84-66-2	Diethylphthalate	3900 U	
7005-72-3	4-Chlorophenyl-phenylether	3900 U	
86-73-7	Fluorene	3900 U	
100-01-6	4-Nitroaniline	19000 U	
534-52-1	4, 6-Dinitro-2-Methylphenol	19000 U	
86-30-6	N-Nitrosodiphenylamine (1)	3900 U	
101-55-3	4-Bromophenyl-phenylether	3900 U	
118-74-1	Hexachlorobenzene	3900 U	
87-86-5	Pentachlorophenol	19000 U	
85-01-8	Phenanthrene	3900 U	
120-12-7	Anthracene	3900 U	
84-74-2	Di-n-Butylphthalate	3900 U	
206-44-0	Fluoranthene	3900 U	
129-00-0	Pyrene	3900 U	
85-68-7	Butylbenzylphthalate	3900 U	
91-94-1	3, 3'-Dichlorobenzidine	7800 U	
56-55-3	Benzo(a)Anthracene	3900 U	
117-81-7	bis(2-Ethylhexyl)Phthalate	470 J	
218-01-9	Chrysene	3900 U	UJ
117-84-0	Di-n-Octyl Phthalate	790 ~~J~~	U
205-99-2	Benzo(b)Fluoranthene	530 J	
207-08-9	Benzo(k)Fluoranthene	610 J	
50-32-8	Benzo(a)Pyrene	680 J	
193-39-5	Indeno(1, 2, 3-cd)Pyrene	3900 U	UJ
53-70-3	Dibenz(a h)Anthracene	3900 U	
191-24-2	Benzo(g h i)Perylene	3900 U	

(1)-Cannot be separated from diphenylamine

301006

7/85

Form I

19

Laboratory Name Hittman Ebasco Assoc. Inc.

Case No 9116

Sample Number BR-266

HEAI # 836

7BC025

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared 3-11-88

Date Analyzed 3-11-88

Conc/Dil Factor: 1

Percent Moisture (Decanted) N/A

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)
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
39638-32-9	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	Dimethyl Phthalate	10 U
208-96-8	Acenaphthylene	10 U
99-09-2	3-Nitroaniline	50 U

CAS Number		ug/l or ug/Kg (Circle One)
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
606-20-2	2,6-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
117-81-7	bis(2-Ethylhexyl)Phthalate	10 U
218-01-9	Chrysene	10 U
117-84-0	Di-n-Octyl Phthalate	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	Dibenzo(a,h)Anthracene	10 U
191-24-2	Benzo(g,h,i)Perylene	10 U

(1)-Cannot be separated from diphenylamine

.ory Name __Hittman Ebasco Associates Inc.__
. No_____9116

Sample Number
BR268

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration Low Medium (Circle One)

GPC Cleanup_____Yes _X _No

Date Extracted/Prepared _____3/14/88

Separatory Funnel Extraction_____Yes

Date Analyzed _____3/18/88

Continuous Liquid-Liquid Extraction_____ Yes

Conc/Dil Factor _____ 1.00

Percent Moisture (decanted)_____ 11

CAS Number		ug/L or ug/Kg (Circle One)
319-84-67	Alpha-BHC	8.9 U
319-85-7	Beta-BHC	8.9 U
319-86-8	Delta-BHC	8.9 U
58-89-9	Gamma-BHC(Lindane)	8.9 U
76-44-8	Heptachlor	8.9 U
309-00-2	Aldrin	8.9 U
1024-57-3	Heptachlor Epoxide	8.9 U
959-98-8	Endosulfan I	8.9 U
60-57-1	Dieldrin	18 U
72-55-9	4'4'-DDE	18 U
72-20-8	Endrin	18 U
33213-65-9	Endosulfan II	18 U
72-54-8	4'4'-DDD	18 U
1031-07-8	Endosulfan Sulfate	18 U
50-29-3	4'4'-DDT	150 J
72-43-5	Methoxychlor	89 U
53494-70-5	Endrin Ketone	18 U
57-74-9	Chlordane	89 U
8001-35-2	Toxaphene	180 U
12674-11-2	Aroclor - 1016	89 U
11104-28-2	Aroclor - 1221	89 U
11141-16-5	Aroclor - 1232	89 U
53469-21-9	Aroclor - 1242	89 U
12672-29-6	Aroclor - 1248	89 U
11097-69-1	Aroclor - 1254	180 U
11096-82-5	Aroclor - 1260	180 U

Vi = Volume of extract injected (ul)
Vs = Volume of water extracted (ml)
Ws = Weight of sample extracted (g)
Vt = Volume of total extract (ul)

Vs_____ or Ws _ 30.07 _____Vt_____ ~~2000~~.00 ___Vi_____ 1.00 _____

Form 1

20,000

2WS

302003

195

/ Name __Hittman Ebasco Associates Inc.__
_____9116

Sample Number
BR269

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration Low Medium (Circle One)

GPC Cleanup_____Yes _X _No

Date Extracted/Prepared _____3/14/88

Separatory Funnel Extraction_____Yes

Date Analyzed _____3/18/88

Continuous Liquid-Liquid Extraction_____ Yes

Conc/Dil Factor _____ 1.00

Percent Moisture (decanted)_____ 15

CAS Number		ug/L or ug/Kg (Circle One)
319-84-67	Alpha-BHC	9.2 U
319-85-7	Beta-BHC	9.2 U
319-86-8	Delta-BHC	9.2 U
58-89-9	Gamma-BHC(Lindane)	9.2 U
76-44-8	Heptachlor	9.2 U
309-00-2	Aldrin	9.2 U
1024-57-3	Heptachlor Epoxide	9.2 U
959-98-8	Endosulfan I	9.2 U
60-57-1	Dieldrin	18 U
72-55-9	4'4'-DDE	18 U
72-20-8	Endrin	18 U
33213-65-9	Endosulfan II	18 U
72-54-8	4'4'-DDD	18 U
1031-07-8	Endosulfan Sulfate	18 U
50-29-3	4'4'-DDT	18 U
72-43-5	Methoxychlor	92 U
53494-70-5	Endrin Ketone	18 U
57-74-9	Chlordane	200 A
8001-35-2	Toxaphene	180 U
12674-11-2	Aroclor - 1016	92 U
11104-28-2	Aroclor - 1221	92 U
11141-16-5	Aroclor - 1232	92 U
53469-21-9	Aroclor - 1242	92 U
12672-29-6	Aroclor - 1248	92 U
11097-69-1	Aroclor - 1254	180 U
11096-82-5	Aroclor - 1260	~~750~~ 1100

A = sum of the alpha & gamma chlordane

Vi = Volume of extract injected (ul)
Vs = Volume of water extracted (ml)
Ws = Weight of sample extracted (g)
Vt = Volume of total extract (ul)

Vs_____ or Ws _ 30.48 _____Vt_____ 2000.00 ___Vi_____ 1.00 _____

Form 1

303003

LWB 196

/ Name _Hittman Ebasco Associates Inc._
_____9116

Sample Number
BR270

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

ncentration Low Medium (Circle One)

GPC Cleanup_____Yes _X _No

ite Extracted/Prepared _____3/14/88

Separatory Funnel Extraction_____Yes

ite Analyzed _____3/18/88

Continuous Liquid-Liquid Extraction_____ Yes

nc/Dil Factor _____ 1.00

rcent Moisture (decanted)_____ 22

CAS Number		ug/L or ug/Kg (Circle One)
319-84-67	Alpha-BHC	9.8 U
319-85-7	Beta-BHC	9.8 U
319-86-8	Delta-BHC	9.8 U
58-89-9	Gamma-BHC(Lindane)	9.8 U
76-44-8	Heptachlor	9.8 U
309-00-2	Aldrin	9.8 U
1024-57-3	Heptachlor Epoxide	9.8 U
959-98-8	Endosulfan I	9.8 U
60-57-1	Dieldrin	20 U
72-55-9	4'4'-DDE	20 U
72-20-8	Endrin	20 U
33213-65-9	Endosulfan II	20 U
72-54-8	4'4'-DDD	20 U
1031-07-8	Endosulfan Sulfate	20 U
50-29-3	4'4'-DDT	20 U
72-43-5	Methoxychlor	98 U
53494-70-5	Endrin Ketone	20 U
57-74-9	Chlordane	260 A
8001-35-2	Toxaphene	200 U
12674-11-2	Aroclor - 1016	98 U
11104-28-2	Aroclor - 1221	98 U
11141-16-5	Aroclor - 1232	98 U
53469-21-9	Aroclor - 1242	98 U
12672-29-6	Aroclor - 1248	98 U
11097-69-1	Aroclor - 1254	200 U
11096-82-5	Aroclor - 1260	~~1000~~ 1300

Vi = Volume of extract injected (ul)
Vs = Volume of water extracted (ml)
Ws = Weight of sample extracted (g)
Vt = Volume of total extract (ul)

/s_____ or Ws _ 31.40 _____Vt_____ 2000.00 ___Vi_____ 1.00 _____

Form 1

304003

197

y Name Hittman Ebasco Associates Inc.
9116

Sample Number
BR271

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

GPC Cleanup _____ Yes _X _No

Concentration Low Medium (Circle One)

Separatory Funnel Extraction _____ Yes

Date Extracted/Prepared 3/14/88

Continuous Liquid-Liquid Extraction _____ Yes

Date Analyzed 3/18/88

Conc/Dil Factor 1.00

Percent Moisture (decanted) 31

ug/L or ug/Kg (Circle One)

CAS Number		
319-84-67	Alpha-BHC	11 U
319-85-7	Beta-BHC	11 U
319-86-8	Delta-BHC	11 U
58-89-9	Gamma-BHC(Lindane)	11 U
76-44-8	Heptachlor	11 U
309-00-2	Aldrin	11 U
1024-57-3	Heptachlor Epoxide	11 U
959-98-8	Endosulfan I	23 U
60-57-1	Dieldrin	24
72-55-9	4'4'-DDE	23 U
72-20-8	Endrin	23 U
33213-65-9	Endosulfan II	17 U
72-54-8	4'4'-DDD	23 U
1031-07-8	Endosulfan Sulfate	100
50-29-3	4'4'-DDT	110 U
72-43-5	Methoxychlor	23 U
53494-70-5	Endrin Ketone	110 U
57-74-9	Chlordane	230 U
8001-35-2	Toxaphene	110 U
12674-11-2	Aroclor - 1016	110 U
11104-28-2	Aroclor - 1221	110 U
11141-16-5	Aroclor - 1232	110 U
53469-21-9	Aroclor - 1242	110 U
12672-29-6	Aroclor - 1248	230 U
11097-69-1	Aroclor - 1254	230 U
11096-82-5	Aroclor - 1260	230 U

Vi = Volume of extract injected (ul)
Vs = Volume of water extracted (ml)
Ws = Weight of sample extracted (g)
Vt = Volume of total extract (ul)

Vs _____ or Ws 30.73 Vt 2000.00 Vi 1.00

Form 1

305003

AW

198

.ttman Ebasco Associates Inc.__
_9116

Sample Number
BR272

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

.ration (Low) Medium (Circle One)

GPC Cleanup_____Yes _X _No

Extracted/Prepared _____3/14/88

Separatory Funnel Extraction_____Yes

Date Analyzed _____3/18/88

Continuous Liquid-Liquid Extraction_____ Yes

Conc/Dil Factor _____ 1.00

Percent Moisture (decanted)_____ 9

CAS Number		ug/L or ug/Kg (Circle One)	
319-84-67	Alpha-BHC	8.5 U	
319-85-7	Beta-BHC	8.5 U	
319-86-8	Delta-BHC	8.5 U	
58-89-9	Gamma-BHC(Lindane)	8.5 U	
76-44-8	Heptachlor	8.5 U	
309-00-2	Aldrin	8.5 U	
1024-57-3	Heptachlor Epoxide	8.5 U	
959-98-8	Endosulfan I	8.5 U	
60-57-1	Dieldrin	17 U	
72-55-9	4'4'-DDE	17 U	
72-20-8	Endrin	17 U	
33213-65-9	Endosulfan II	17 U	
72-54-8	4'4'-DDD	17 U	
1031-07-8	Endosulfan Sulfate	17 U	
50-29-3	4'4'-DDT	~~28~~	57
72-43-5	Methoxychlor	85 U	
53494-70-5	Endrin Ketone	17 U	
57-74-9	Chlordane	85 U	
8001-35-2	Toxaphene	170 U	
12674-11-2	Aroclor - 1016	85 U	
11104-28-2	Aroclor - 1221	85 U	
11141-16-5	Aroclor - 1232	85 U	
53469-21-9	Aroclor - 1242	85 U	
12672-29-6	Aroclor - 1248	85 U	
11097-69-1	Aroclor - 1254	210	
11096-82-5	Aroclor - 1260	170 U	

Vi = Volume of extract injected (ul)
Vs = Volume of water extracted (ml)
Ws = Weight of sample extracted (g)
Vt = Volume of total extract (ul)

Vs_____ or Ws _ 31.03 _____Vt_____ 2000.00 ___Vi_____ 1.00 _____

Form 1

306003

AWS

199

Wittman Ebasco Associates Inc.
9116

Sample Number
BR273

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

ncentration Low Medium (Circle One)

GPC Cleanup_____Yes _X _No

te Extracted/Prepared _____3/14/88

Separatory Funnel Extraction_____Yes

te Analyzed _____3/18/88

Continuous Liquid-Liquid Extraction_____ Yes

c/Dil Factor _____ 1.00

rcent Moisture (decanted)_____ 10

CAS Number		ug/L or ug/Kg (Circle One)
319-84-67	Alpha-BHC	8.7 U
319-85-7	Beta-BHC	8.7 U
319-86-8	Delta-BHC	8.7 U
58-89-9	Gamma-BHC(Lindane)	8.7 U
76-44-8	Heptachlor	8.7 U
309-00-2	Aldrin	8.7 U
1024-57-3	Heptachlor Epoxide	8.7 U
959-98-8	Endosulfan I	8.7 U
60-57-1	Dieldrin	17 U
72-55-9	4'4'-DDE	29
72-20-8	Endrin	17 U
33213-65-9	Endosulfan II	17 U
72-54-8	4'4'-DDD	17 U
1031-07-8	Endosulfan Sulfate	17 U
50-29-3	4'4'-DDT	120
72-43-5	Methoxychlor	87 U
53494-70-5	Endrin Ketone	17 U
57-74-9	Chlordane	87 U
8001-35-2	Toxaphene	170 U
12674-11-2	Aroclor - 1016	87 U
11104-28-2	Aroclor - 1221	87 U
11141-16-5	Aroclor - 1232	87 U
53469-21-9	Aroclor - 1242	87 U
12672-29-6	Aroclor - 1248	87 U
11097-69-1	Aroclor - 1254	170 U
11096-82-5	Aroclor - 1260	170 U

Vi = Volume of extract injected (ul)
Vs = Volume of water extracted (ml)
Ws = Weight of sample extracted (g)
Vt = Volume of total extract (ul)

s_____ or Ws _ 30.67 _____Vt_____ 2000.00 ___Vi_____ 1.00 _____

Form 1

307003

200

Hittman Ebasco Associates Inc.
9116

Sample Number
BR274

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

tration Low Medium (Circle One)

GPC Cleanup _____ Yes _X _No

xtracted/Prepared _____ 3/14/88

Separatory Funnel Extraction _____ Yes

nalyzed _____ 3/18/88

Continuous Liquid-Liquid Extraction _____ Yes

il Factor _____ 10.00

nt Moisture (decanted) _____ 13

CAS Number		ug/L or ug/Kg (Circle One)
319-84-67	Alpha-BHC	89 U
319-85-7	Beta-BHC	89 U
319-86-8	Delta-BHC	89 U
58-89-9	Gamma-BHC(Lindane)	89 U
76-44-8	Heptachlor	89 U
309-00-2	Aldrin	89 U
1024-57-3	Heptachlor Epoxide	89 U
959-98-8	Endosulfan I	89 U
60-57-1	Dieldrin	180 U
72-55-9	4'4'-DDE	180 U
72-20-8	Endrin	180 U
33213-65-9	Endosulfan II	180 U
72-54-8	4'4'-DDD	180 U
1031-07-8	Endosulfan Sulfate	180 U
50-29-3	4'4'-DDT	520 ~~U~~ J
72-43-5	Methoxychlor	890 U
53494-70-5	Endrin Ketone	180 U
57-74-9	Chlordane	890 U
8001-35-2	Toxaphene	1800 U
12674-11-2	Aroclor - 1016	890 U
11104-28-2	Aroclor - 1221	890 U
11141-16-5	Aroclor - 1232	890 U
53469-21-9	Aroclor - 1242	890 U
12672-29-6	Aroclor - 1248	890 U
11097-69-1	Aroclor - 1254	1800 U
11096-82-5	Aroclor - 1260	1800 U

Vi = Volume of extract injected (ul)
Vs = Volume of water extracted (ml)
Ws = Weight of sample extracted (g)
Vt = Volume of total extract (ul)

_____ or Ws _ 31.14 _____ Vt _____ 2000.00 ___ Vi _____ 1.00 _____

Form 1

AWS 201

Bittman Ebasco Associates Inc.
9116

Sample Number
BR277

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

/ntration Low Medium (Circle One)

GPC Cleanup_____Yes _X _No

, Extracted/Prepared _____3/14/88

Separatory Funnel Extraction_____Yes

, Analyzed _____3/18/88

Continuous Liquid-Liquid Extraction_____ Yes

:/Dil Factor _____ 10.00

:ent Moisture (decanted)_____ 15

CAS Number		ug/L or ug/Kg (Circle One)
319-84-67	Alpha-BHC	89 UJ
319-85-7	Beta-BHC	89 U
319-86-8	Delta-BHC	89 U
58-89-9	Gamma-BHC(Lindane)	89 U
76-44-8	Heptachlor	89 U
309-00-2	Aldrin	89 U
1024-57-3	Heptachlor Epoxide	89 U
959-98-8	Endosulfan I	89 U
60-57-1	Dieldrin	180 U
72-55-9	4'4'-DDE	550 J
72-20-8	Endrin	180 UJ
33213-65-9	Endosulfan II	180 UJ
72-54-8	4'4'-DDD	450 J
1031-07-8	Endosulfan Sulfate	180 UJ
50-29-3	4'4'-DDT	1500 J
72-43-5	Methoxychlor	890 UJ
53494-70-5	Endrin Ketone	180 U
57-74-9	Chlordane	890 U
8001-35-2	Toxaphene	1800 U
12674-11-2	Aroclor - 1016	890 U
11104-28-2	Aroclor - 1221	890 U
11141-16-5	Aroclor - 1232	890 U
53469-21-9	Aroclor - 1242	890 U
12672-29-6	Aroclor - 1248	890 U
11097-69-1	Aroclor - 1254	1800 U
11096-82-5	Aroclor - 1260	1800 U

Vi = Volume of extract injected (ul)
Vs = Volume of water extracted (ml)
Ws = Weight of sample extracted (g)
Vt = Volume of total extract (ul)

s_____ or Ws _ 31.81 _____Vt_____ 2000.00 ____Vi_____ 1.00 _____

Form 1

252

301007

atory Name __Hittman Ebasco Associates Inc.__

ase No_____9116

Sample Number
8R266

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration (Low) Medium (Circle One)

GPC Cleanup_____Yes _X _No

Date Extracted/Prepared _____3/10/88

Separatory Funnel Extraction____X__Yes

Date Analyzed _____3/17/88

Continuous Liquid-Liquid Extraction_____ Yes

Conc/Dil Factor _____ 1.00

Percent Moisture (decanted)_____

CAS Number		(ug/l) or ug/Kg (Circle One)
319-84-67	Alpha-BHC	0.05 U
319-85-7	Beta-BHC	0.05 U
319-86-8	Delta-BHC	0.05 U
58-89-9	Gamma-BHC(Lindane)	0.05 U
76-44-8	Heptachlor	0.05 U
309-00-2	Aldrin	0.05 U
1024-57-3	Heptachlor Epoxide	0.05 U
959-98-8	Endosulfan I	0.05 U
60-57-1	Dieldrin	0.1 U
72-55-9	4'4'-DDE	0.1 U
72-20-8	Endrin	0.1 U
33213-65-9	Endosulfan II	0.1 U
72-54-8	4'4'-DDD	0.1 U
1031-07-8	Endosulfan Sulfate	0.1 U
50-29-3	4'4'-DDT	0.1 U
72-43-5	Methoxychlor	0.5 U
53494-70-5	Endrin Ketone	0.1 U
57-74-9	Chlordane	0.5 U
8001-35-2	Toxaphene	1.0 U
12674-11-2	Aroclor - 1016	0.5 U
11104-28-2	Aroclor - 1221	0.5 U
11141-16-5	Aroclor - 1232	0.5 U
53469-21-9	Aroclor - 1242	0.5 U
12672-29-6	Aroclor - 1248	0.5 U
11097-69-1	Aroclor - 1254	1.0 U
11096-82-5	Aroclor - 1260	1.0 U

Vi = Volume of extract injected (ul)
Vs = Volume of water extracted (ml)
Ws = Weight of sample extracted (g)
Vt = Volume of total extract (ul)

Vs __ 1000.00 _____ or Ws _____Vt_____10000.00 ___Vi_____ 1.00 _____

Form 1

301003 20

fwB

Title: Evaluation of Metals Data for the Contract Laboratory Program
Appendix A.2: Data Acceptability Narrative
Inorganics

Date: Feb. 1988
Number: HW-2
Revision: 7

Case# 9116 Site John Hassell Matrix: Soil 8

Lab CSMRT Water 1

Other —

A.2.1 Are all data of acceptable quality? Yes ____ No ✓

If no, list exceptions with reason(s) for rejection or qualification as estimated value (J).

i) Spike Sample analysis is designed to Provide information on the effect of Sample matrix on the digestion Procedure and instrument Performance.
The following analytes were qualified as estimated (flagged with 'J' because spike recoveries are less than 75 %.
Sb ; As, Cr → All Soil Samples.

A.2.1 (continuation)

A.2.2 Contract Problems/Non-compliance

MMB Reviewer: _____ Date: _____
Signature

Contractor Reviewer: Smita Sumbaly Date: 04-06-88
Signature

Verified by: [illegible] Date: 4-8-88

ANALYTICA INCORPORATED

CASE NARRATIVE

LGN: 4278

Case: 9116

Page: 1 of 1

Date: 3-23-88

Comments: WHEN SAMPLES WERE RECEIVED AT LAB, THE COOLER CONTAINED NO ~~LARGE~~ ICE.
PER MS DIANE CULTER OF SMD, LAB ANALYZED SAMPLES.

Lab Manager: [signature]

Form I

U. S. EPA Contract Laboratory Program
Sample Management Office
P. O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No. MBP 664

Date 3-28-88

INORGANIC ANALYSIS DATA SHEET

LAB NAME ANALYTICA INCORPORATED

CASE NO. 9116

SOW NO. 785

Lab Receipt Date 3-11-88

LAB SAMPLE ID. NO. —

QC REPORT NO. 4279

Elements Identified and Measured

Concentration: Low X Medium ____

Matrix: Water ____ Soil X Sludge ____ Other ____

ug/L or mg/kg dry weight (Circle One)

1. Aluminum	2360	P	13. Magnesium	[881]	P
2. Antimony	13U JN	F	14. Manganese	78	P
3. Arsenic	2.2U JN	F	15. Mercury	0.11U	CV
4. Barium	[19]	P	16. Nickel	48	P
5. Beryllium	0.22U	P	17. Potassium	[227]	P
6. Cadmium	1.1U	P	18. Selenium	1.1U	F
7. Calcium	1880	P	19. Silver	4.0	P
8. Chromium	64 JN	P	20. Sodium	436U	P
9. Cobalt	[2.5]	P	21. Thallium	2.2U	F
10. Copper	33	P	22. Vanadium	[7.6]	P
11. Iron	5080	P	23. Zinc	167	P
12. Lead	92 S	F	Percent Solids (%)	89	

Cyanide 0.56U

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: SAMPLE DESCRIPTION: SOIL, BROWN, MEDIUM
Pb DILUTED 20X TO MEET LINEAR RANGE.

Lab Manager Steven D. Hratt

IFB Amend. One

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Form I

U. S. EPA Contract Laboratory Program
Sample Management Office
P. O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No. MBP 665

Date 3-28-88

INORGANIC ANALYSIS DATA SHEET

LAB NAME ANALYTICA INCORPORATED

CASE NO. 9116

SOW NO. 785

Lab Receipt Date 3-11-88

LAB SAMPLE ID. NO. —

QC REPORT NO. 4279

Elements Identified and Measured

Concentration: Low X Medium ____

Matrix: Water ____ Soil X Sludge ____ Other ____

ug/L or mg/kg dry weight (Circle One)

1. Aluminum	3570	P	13. Magnesium	[855]	P
2. Antimony	14U JN	F	14. Manganese	51	P
3. Arsenic	2.7 JsN	F	15. Mercury	0.12U	CV
4. Barium	[7.7]	P	16. Nickel	21	P
5. Beryllium	0.24U	P	17. Potassium	[233]	P
6. Cadmium	1.2U	P	18. Selenium	1.2U	F
7. Calcium	[251]	P	19. Silver	2.4U	P
8. Chromium	151 JN	P	20. Sodium	467U	P
9. Cobalt	2.4U	P	21. Thallium	2.4U	F
10. Copper	25	P	22. Vanadium	28	P
11. Iron	7230	P	23. Zinc	57	P
12. Lead	145	F	Percent Solids (%)	83	

Cyanide 0.63

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: SAMPLE DESCRIPTION: SOIL, BROWN, MEDIUM
Pb DETERMINED AT 20X DILUTION.

Manager Steven D. Hatt

IFB Amend. One

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Form I

U. S. EPA Contract Laboratory Program
Sample Management Office
P. O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No. MBP 666

Date 3-28-88

INORGANIC ANALYSIS DATA SHEET

LAB NAME ANALYTICA INCORPORATED

SOW NO. 785

LAB SAMPLE ID. NO. —

CASE NO. 9116

Lab Receipt Date 3-11-88

QC REPORT NO. 4279

Elements Identified and Measured

Concentration: Low X Medium ____

Matrix: Water ____ Soil X Sludge ____ Other ____

ug/L or mg/kg dry weight (Circle One)

1. Aluminum	3930	P	13. Magnesium	[780]	P
2. Antimony	15U JN	F	14. Manganese	51	P
3. Arsenic	2.4U J N	F	15. Mercury	0.12U	CV
4. Barium	[7.6]	P	16. Nickel	20 ~~8~~ MPC	P
5. Beryllium	0.24U	P	17. Potassium	[341]	P
6. Cadmium	1.2U	P	18. Selenium	1.2U	F
7. Calcium	[390]	P	19. Silver	2.4U	P
8. Chromium	146 JN	P	20. Sodium	[612]	P
9. Cobalt	[2.4]	P	21. Thallium	24U ~~2.2~~ MPC	F
10. Copper	25	P	22. Vanadium	29	P
11. Iron	6320	P	23. Zinc	59	P
12. Lead	127	F	Percent Solids (%)	82	

Cyanide 0.61U

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: SAMPLE DESCRIPTION: SOIL, BROWN, MEDIUM
Pb DETERMINED AT 20X DILUTION.

Lab Manager Steven D. Hratt

IFB Amend. One

Form I

U. S. EPA Contract Laboratory Program
Sample Management Office
P. O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No. MBP 667

Date 3-28-88

INORGANIC ANALYSIS DATA SHEET

LAB NAME ANALYTICA INCORPORATED

SOW NO. 785

LAB SAMPLE ID. NO. —

CASE NO. 9116

Lab Receipt Date 3-11-88

QC REPORT NO. 4279

Elements Identified and Measured

Concentration: Low X Medium ____

Matrix: Water ____ Soil X Sludge ____ Other ____

ug/L or mg/kg dry weight (Circle One)

1. Aluminum	16700	P	13. Magnesium	2160	P
2. Antimony	16U JN	F	14. Manganese	155	P
3. Arsenic	8.8 JsN	F	15. Mercury	0.13U	CV
4. Barium	[28]	P	16. Nickel	13	P
5. Beryllium	[0.26]	P	17. Potassium	[892]	P
6. Cadmium	1.3U	P	18. Selenium	1.3U	F
7. Calcium	[984]	P	19. Silver	3.2	P
8. Chromium	19 JN	P	20. Sodium	[655]	P
9. Cobalt	[4.7]	P	21. Thallium	2.6U	F
10. Copper	17	P	22. Vanadium	31	P
11. Iron	16800	P	23. Zinc	58	P
12. Lead	36	F	Percent Solids (%)	76	

Cyanide 0.66U

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: SAMPLE DESCRIPTION: SOIL, BROWN, MEDIUM
Pb DETERMINED AT 5X DILUTION.

Lab Manager Steven D. Hatt

IFB Amend. One

Form I

U. S. EPA Contract Laboratory Program
Sample Management Office
P. O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No. MBP 668

Date 3-28-88

INORGANIC ANALYSIS DATA SHEET

LAB NAME ANALYTICA INCORPORATED

CASE NO. 9116

SOW NO. 785

Lab Receipt Date 3-11-88

LAB SAMPLE ID. NO. —

QC REPORT NO. 4279

Elements Identified and Measured

Concentration: Low X Medium ____

Matrix: Water ____ Soil X Sludge ____ Other ____

ug/L or mg/kg dry weight (Circle One)

1. Aluminum	3180	P	13. Magnesium	[818]	P
2. Antimony	13U JN	F	14. Manganese	104	P
3. Arsenic	2.2U JN	F	15. Mercury	0.11U	CV
4. Barium	[15]	P	16. Nickel	45	P
5. Beryllium	0.22U	P	17. Potassium	[569]	P
6. Cadmium	1.1U	P	18. Selenium	1.1U	F
7. Calcium	3780	P	19. Silver	2.9	P
8. Chromium	39 JN	P	20. Sodium	431U	P
9. Cobalt	[2.2]	P	21. Thallium	2.2U	F
10. Copper	30	P	22. Vanadium	[7.3]	P
11. Iron	4890	P	23. Zinc	75	P
12. Lead	21	F	Percent Solids (%)	90	

Cyanide 0.56U

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: SAMPLE DESCRIPTION: SOIL, BROWN, MEDIUM
Pb DETERMINED AT 2X DILUTION.

Lab Manager Steven D. Hatt

IFB Amend. One

Form I

U. S. EPA Contract Laboratory Program
Sample Management Office
P. O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No.
MBP 669

Date 3-28-88

INORGANIC ANALYSIS DATA SHEET

LAB NAME ANALYTICA INCORPORATED

CASE NO. 9116

SOW NO. 735

Lab Receipt Date 3-11-88

LAB SAMPLE ID. NO. —

QC REPORT NO. 4279

Elements Identified and Measured

Concentration: Low X Medium

Matrix: Water Soil X Sludge Other

ug/L or mg/kg dry weight (Circle One)

1. Aluminum	2510	P	13. Magnesium	[640]	P
2. Antimony	13U JN	F	14. Manganese	84	P
3. Arsenic	2.2U J N	F	15. Mercury	0.11U	CV
4. Barium	[11]	P	16. Nickel	20	P
5. Beryllium	0.22U	P	17. Potassium	[491]	P
6. Cadmium	1.1U	P	18. Selenium	1.1U	F
7. Calcium	1340	P	19. Silver	2.2	P
8. Chromium	17 JN	P	20. Sodium	431U	P
9. Cobalt	2.2U	P	21. Thallium	2.2U	F
10. Copper	20	P	22. Vanadium	[7.1]	P
11. Iron	3930	P	23. Zinc	37	P
12. Lead	13	S F	Percent Solids (%)	90	

Cyanide 0.56U

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: SAMPLE DESCRIPTION: SOIL, BROWN, MEDIUM
Pb DETERMINED AT 2X DILUTION.

Lab Manager Steven D. Hratt

IFB Amend. One

Form I

U. S. EPA Contract Laboratory Program
Sample Management Office
P. O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No.
MBP 670

Date 3-28-88

INORGANIC ANALYSIS DATA SHEET

LAB NAME ANALYTICA INCORPORATED

SOW NO. 785

LAB SAMPLE ID. NO. —

CASE NO. 9116

Lab Receipt Date 3-11-88

QC REPORT NO. 4279

Elements Identified and Measured

Concentration: Low X Medium ____

Matrix: Water ____ Soil X Sludge ____ Other ____

ug/L or mg/kg dry weight (Circle One)

1. Aluminum	3070	P	13. Magnesium	[640]	P
2. Antimony	14U JN	F	14. Manganese	88	P
3. Arsenic	2.4U J N	F	15. Mercury	0.12U	CV
4. Barium	[9.8]	P	16. Nickel	206	P
5. Beryllium	0.24U	P	17. Potassium	[436]	P
6. Cadmium	1.2	P	18. Selenium	1.2U	F
7. Calcium	[948]	P	19. Silver	2.4U	P
8. Chromium	90 JN	P	20. Sodium	462U	P
9. Cobalt	2.4U	P	21. Thallium	2.4U	F
10. Copper	250	P	22. Vanadium	[8.1]	P
11. Iron	9190	P	23. Zinc	154	P
12. Lead	40	F	Percent Solids (%)	84	

Cyanide 0.60U

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: SAMPLE DESCRIPTION: SOIL, BROWN, MEDIUM
Pb DETERMINED AT 10X DILUTION.

Lab Manager Steven D. Hall

Form I

U. S. EPA Contract Laboratory Program
Sample Management Office
P. O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No.
MBP 672

Date 3-28-88

INORGANIC ANALYSIS DATA SHEET

LAB NAME ANALYTICA INCORPORATED

CASE NO. 9116

SOW NO. 785

Lab Receipt Date 3-11-88

LAB SAMPLE ID. NO. —

QC REPORT NO. 4279

Elements Identified and Measured

Concentration: Low X Medium ____

Matrix: Water ____ Soil X Sludge ____ Other ____

ug/L or mg/kg dry weight (Circle One)

1. Aluminum	14800	P	13. Magnesium	1870	P
2. Antimony	14U J N	F	14. Manganese	173	P
3. Arsenic	12 JsN	F	15. Mercury	0.22	CV
4. Barium	[34]	P	16. Nickel	49	P
5. Beryllium	[0.24]	P	17. Potassium	[983]	P
6. Cadmium	1.4	P	18. Selenium	1.2U	F
7. Calcium	4940	P	19. Silver	2.4U	P
8. Chromium	51 JN	P	20. Sodium	467U	P
9. Cobalt	[5.5]	P	21. Thallium	2.4U	F
10. Copper	64	P	22. Vanadium	28	P
11. Iron	15200	P	23. Zinc	78	P
12. Lead	43	F	Percent Solids (%)	83	

Cyanide 0.60U

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: SAMPLE DESCRIPTION: SOIL, BROWN, MEDIUM
Pb DETERMINED AT 10X DILUTION

Lab Manager Steven D. Hiatt

IFB Amend. One

Form I

U. S. EPA Contract Laboratory Program
Sample Management Office
P. O. Bos 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No.
MBP 671

Date 3-23-88

INORGANIC ANALYSIS DATA SHEET

LAB NAME ANALYTICA INCORPORATED

CASE NO. 9116

SOW NO. 785

Lab Receipt Date ~~42~~ 3-11-88

LAB SAMPLE ID. NO. —

QC REPORT NO. 4278

Elements Identified and Measured

Concentration: Low X Medium

Matrix: Water X Soil Sludge Other

ug/L or mg/kg dry weight (Circle One)

1. Aluminum	[127]	P	13. Magnesium	[114]	P
2. Antimony	60U	F	14. Manganese	3U	P
3. Arsenic	10U	F	15. Mercury	0.2U	CV
4. Barium	9U	P	16. Nickel	9U	P
5. Beryllium	1U	P	17. Potassium	797U	P
6. Cadmium	5U	P	18. Selenium	5U	F
7. Calcium	296U	P	19. Silver	10U	P
8. Chromium	10U	P	20. Sodium	1940U	P
9. Cobalt	10U	P	21. Thallium	10U	F
10. Copper	13U	P	22. Vanadium	8U	P
11. Iron	[26]	P	23. Zinc	[19]	P
12. Lead	5U	F	Percent Solids (%)	NR	

Cyanide 10U

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: SAMPLE DESCRIPTION: WATER, CLEAR & COLORLESS RINSATE BLANK

Lab Manager [signature]

IFB Amend. One

REFERENCE 26

NUS CORPORATION AND SUBSIDIARIES — **TELECON NOTE**

CONTROL NO:	DATE: 2/1/89	TIME: 1350 HRS

DISTRIBUTION:

JOHN HASSALL ~~KEIL~~

TDD # 02-8901-25

BETWEEN:	OF:	PHONE:
J. SCHECHTER	NASSAU CO. HEALTH DEPT.	(516) 535-2406

AND: E. LEONARD (NUS CORP.)

DISCUSSION: RE: DECEMBER 1987 SPILL

- MARCH 21, 1988 VISUAL INSPECTION TO VERIFY SPILL

- AUGUST 11, 1988 SAMPLING
  - OLD SOIL ~5 FEET FROM TANK & ~6 INCHES DEEP. NON-DETECT ON VOLATILES
  - NEW SOIL ~6 INCHES DEEP. NON-DETECT ON VOLATILES. SEVERAL UNIDENTIFIED PEAKS
  - DURING SAMPLING OVERFLOW OF TANK NO. 11, IT WAS OILY WATER.

ACTION ITEMS:

- ALL UNDERGROUND TANKS (CONCRETE) FROM WASTE WATER TREATMENT SYSTEM WERE LEAK TESTED IN 1988. TEST WERE INCONCLUSIVE, AND TANK ASSUMED TO BE UNSOUND.

NUS 067 REVISED 0685

NUS CORPORATION AND SUBSIDIARIES — **TELECON NOTE**

CONTROL NO:	DATE: 2/1/89	TIME: 1350 HRS

DISTRIBUTION: JOHN HASSALL
TDD # 02-8901-25

BETWEEN: J. SCHERHTER	OF: NASSAU CO. HEALTH DEPT	PHONE: (516) 535-2406

AND: E. LEONARD (NUS CORP.)

DISCUSSION: RE: DECEMBER 1987 SPILL

- APPROXIMATELY FOUR TANKS ARE PRESENTLY OUT OF SERVICE. THE REMAINING TANKS ARE STILLED BEING TESTED. IF THEY ARE DETERMINED TO BE LEAKING, FURTHER INVESTIGATIONS WILL BE PREFORMED (SOIL BORINGS).

- ALL TANK EVENTUALLY TO BE CERTIFIED AS NOT LEAKING, OR REPLACED WITH DOUBLE WALLED TANKS.

E. Leonard 2/1/89

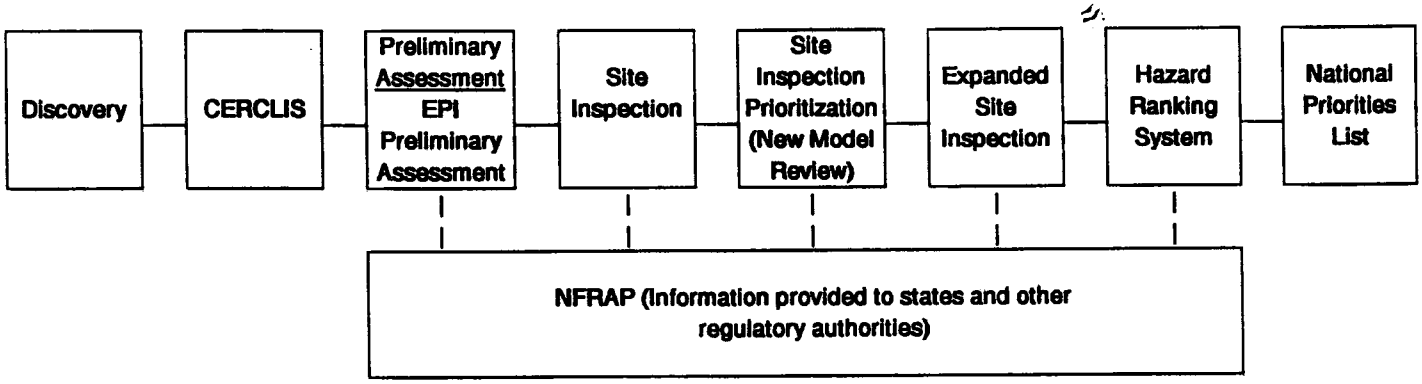
ACTION ITEMS:

NUS 067 REVISED 0685

REFERENCE 27

ATTACHMENT 2

SUPERFUND SITE ASSESSMENT PROGRAM



SITE ASSESSMENT REPORTS

1. PRELIMINARY ASSESSMENT
   - Quick Review of Readily Accessible Records and Reports
   - Undertaken to Determine the Existence of a Problem and the Need for Further Action at a Site by Characterizing:
     - Magnitude of the Hazard
     - Source and Nature of the Release or Potential Release
     - Identification of Targets
   - Does Not Include Sample Collection
2. SITE INSPECTION
   - The Purpose of the Site Inspection is to:
     - Further Define and Characterize the Problem
     - Provide Data for the Hazard Ranking System (HRS) Scoring and Compute Initial Score
     - Identification of Targets
     - Determine the Necessity of Further Action
   - The Site Inspection Involves an On-Site Visit and Sampling (10+/- Samples)
   - A Site Inspection is not an Extent of Contamination Study
3. SITE INSPECTION PRIORITIZATION
   - Quick Review of Readily Accessible Records and Reports
   - Undertaken to Determine the Validity and Update Background Conditions Under the New HRS Model, and the Need for Further Action at a Site by Characterizing:
     - Magnitude of the Hazard
     - Source and Nature of the Release or Potential Release
   - Included On-Site Visits or Sample Collection as needed
     - Analyze Samples/Limited Analytical Resources
     - Account for Significant Safety Hazards On-Site
4. EXPANDED SITE INSPECTION

   A Follow-Up Inspection May Be Recommended After the SI To:
   - Gather Additional Data Necessary to Strengthen or Substantiate the Initial HRS Score
     - Geophysical Surveys
     - Installation of Groundwater Monitoring Wells
     - Additional Sampling

Review of Analytical Data

If previous analytical data are available, they should be reviewed for information which supports the design of the sampling and analysis program, tests site hypotheses, and documents the site score. The SI investigator should review all previous analytical data. While analytical data collected for other purposes may not meet SI objectives, site-specific analytical data are generally helpful in better understanding the nature of the problem at the site, regardless of data sources or data quality. The depth of the review depends on the overall quality and quantity of data, the intended use of the data, and whether they are representative of current site conditions and comparable to SI data. Determining whether available data can be applied as SI-generated data requires the professional judgement of an experienced reviewer. Both validated and non-validated analytical data may be available. Previous SI data will be validated and of CLP-quality. Non-validated data may contain false positives and false negatives, as well as quantitation, transcription, and calculation errors. If data of unknown or questionable quality are used for decision-making, the investigator should review all available information to assess the level of certainty associated with the data. If these data are used for HRS documentation, data validation will be necessary. The investigator should be able to determine the general quality of the data set by reviewing QC data for evaluation under the Superfund Program.