218359

SITE INVESTIGATION

HAMERSLEY MANUFACTURING COMPANY LANDFILL
WALLINGTON BOROUGH, BERGEN COUNTY
EPA ID NO. NJSFN0204214

Volume 3 of 3

New Jersey Department of Environmental Protection
Division of Publicly Funded Site Remediation
Environmental Measurements and Site Assessment Section

ATTACHMENT II

RECEIVED
MAR 1 2 1999 0002

Committed To *Your* Success

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7099-0124A
USEPA
SDG NARRATIVE

Case #26777
SDG #BXH34
Lab Name: STL-CT
Lab Code IEACT
Contract #68-D5-0014

Sample Receipt - The samples were received at STL/CT on January 21 & 26, and February 3, 1999. The samples were received under UPS Airbill# N2239191727, N2239191736, N2239191718, N2239191665, N2239191656, N2239191683, N2239191647 and N2239191692. The samples are delineated in the attached Sample Summary Table.

Miscellaneous - Sample BXJ16 was recorded in error on the chain of custody and no analysis was required.

Sample BXJ24 was received in a cracked jar. The lab was instructed to proceed with analysis of the sample.

Sample BXJ25 and BXJ28 were received by the lab but not listed on the chain of custody. The lab was instructed to analyze both of the samples.

Pesticides and Polychlorinated Biphenyls (PCB's) - Pesticide/PCB samples were extracted and analyzed by GC/ECD using USEPA CLP Protocols, USEPA OLM03.2 SOW. The instrumentation used was a Hewlett-Packard Gas Chromatograph equipped with an Electron Capture Detector (Ni^{63}).

The columns used were a Restek 30 meter, 0.53 mm id capillary column RTX-35 with a 1.0um film thickness and a D&B 30 meter, 0.53mm id capillar column DB-1701 with a 1.0um film thickness.

All samples were extracted and concentrated without any apparent problems.

beta-BHC was present below the CRQL but above half the CRQL in PIBLK8N. This instrument blank was part of the initial calibration curve on the DB-1701 column. This was not detected until data packaging because beta-BHC was on the edge of the window and did not get picked up by the data reporting system.

Samples analyzed on this curve were BYH96MS, BYH96MSD, BXH31, BXH32, PBLK28, PBLK19, BXJ25, BXH25MS, BXJ25MSD, BXJ34, and BXJ30.

The surrogate, Decachlorobiphenyl was lost in sample matrix in sample BXJ30 on the RTX-35 column.

Surrogate percent recovery for Decachlorobiphenyl was below QC limits in BXH39. This sample was run twice with similar results.

Surrogate percent recovery for Decachlorobiphenyl was above QC limits in BXJ33, BXJ29, BXJ25MS, and BXJ25MSD due to sample matrix.

Spike percent recovery for gamma-BHC was below QC limits in BYH96MSD and BXJ25MSD.

Percent RPD's for gamma-BHC, Heptachlor, Aldrin, Dieldrin, and Endrin were outside of QC limits in BYH96MS and BYH96MSD.

Manual integrations were performed if required, and any affected peaks were designated with an "FF" on the area report in the column titled "Code". Manual integrations were initialed by the analyst that performed the integration.

Semi-Volatile Organics - Semi-volatile organic samples were extracted and analyzed according to USEPA CLP OLM03.2 by capillary GC/MS. The instrumentation used was a Hewlett-Packard gas chromatograph interfaced with a mass selective detector using an RTX-5 30 meter column with 0.25 mm ID and 0.5 um film thickness.

The initial calibration on MSP run on 3/2/99 was accepted with four compounds not meeting minimum RF criteria and one compound not meeting %RSD criteria. The curve was accepted because a "bug" in the computerized QA checking program failed to flag the curve as out of criteria. The only samples affected by this problem are BXJ29, BXJ29RE, and BXJ30RE. The continuing calibration used for the quantitation of the samples met all criteria.

Samples BXH35, BXJ29 and BXJ30 exhibited internal standard area suppression. The samples were re-analyzed with similar results, confirming matrix interference. Both analyses are reported. The re-analyses are indicated by the suffix "RE".

The TIC windows used for this SDG were calculated using the continuing calibration check standards retention times and are as follows:

P2797	8.55-35.16
P2825	8.42-34.78
P2844	8.39-34.66
P2863	8.21-34.26

Due to the implementation of an electronic pressure controlled method a secondary ion (63) was used for the quantitation of Bis(2-chloroethyl)ether. A non-target compound, aniline (quant ion 93), was determined to coelute with Bis(2-chloroethyl)ether with this new method. Quantitation using the secondary ion ensures correct integration and quantitation of both compounds.

The data included in the semi-volatile portion of this report is original except one GPC carryover blank packet, and the injection and logbook copies which have the source of the original printed on the page.

The required EICP are provided for all manual integrations, the manual integrations included in the semi-volatile SDG are as follows:

PM2737	2,2'-oxybis(1-Chloropropane)
PM2738	Benzoic Acid
PM2739	Benzoic Acid
PM2740	Benzoic Acid, 4-Nitroaniline, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
PM2741	Benzoic Acid, 4-Nitroaniline, 4,6-Dinitro-2-methylphenol, Indeno(1,2,3-cd)pyrene
P2825	2,2'-oxybis(1-Chloropropane)
P2844	2,2'-oxybis(1-Chloropropane), Benzoic Acid
PM2862	2,2'-oxybis(1-Chloropropane), Anthracene
PM2863	2,2'-oxybis(1-Chloropropane), Benzoic Acid, Anthracene
PM2864	2,2'-oxybis(1-Chloropropane), Benzoic Acid, Anthracene
PM2865	Benzoic Acid, 4-Nitroaniline, N-Nitrosodiphenylamine, Anthracene, Chrysene-d12, Pyrene, Terphenyl-d14, Butylbenzylphthalate, 3,3'-Dichlorobenzidine, Benzo(a)anthracene, Chrysene, bis(2-Ethylhexyl)phthalate, Benzo(k)fluoranthene, Indeno(1,2,3-cd)pyrene
PM2866	2,2'-oxybis(1-Chloropropane), 4-Methylphenol, Benzoic Acid, 2,6-Dinitrotoluene, 4-Nitroaniline, N-Nitrosodiphenylamine, Anthracene, Chrysene-d12, Pyrene, Terphenyl-d14, Butylbenzylphthalate, 3,3'-Dichlorobenzidine, Benzo(a)anthracene, Chrysene, bis(2-Ethylhexyl)phthalate, Benzo(k)fluoranthene, Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene

I certify that this data package is in compliance with the terms of this contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Cheryl A. Cascua for March 9, 1999

Jeffrey C. Curran
Laboratory Manager

Date

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MAR 1 1 1999

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: CHEMTECH CONSULTING GROUP Contract: 68-D5-0166

Lab Code: CHEM Case No.: 26777 SAS No.: SDG No.: MBQF96

SOW No.: ILM04.0

	EPA SAMPLE NO.	Lab Sample ID.	
SW4	MBQF70	66629S	
	MBQF70D	66630S2	
	MBQF70S	66631DS	
SW3	MBQF71	66633S	
SW2	MBQF72	66636S	
SW1	MBQF73	66634S	
SW5	MBQF74	66632S	
SED1	MBQF91	66635S	
SED3	MBQF93	66625S	
	MBQF93D	66626S2	
	MBQF93S	66627DS	
SED4	MBQF94	66623S	
SED5	MBQF95	66624S	
S1	MBQF96	65550S	S1
S2	MBQF97	65549S	S2
S3	MBQF98	65553S	
S5	MBQG00	65552S	
S6	MBQG01	65551S	
S7	MBQG02	66642S	
S8	MBQG03	66643S	

Were ICP interelement corrections applied? Yes/No YES
Were ICP background corrections applied? Yes/No YES
If yes-were raw data generated before application of background corrections? Yes/No NO

Comments:
The "E" qualifier on Form I and IX for the Barium indicates a chemical or a physical interference effect, which was suspected during the Barium analysis only.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: _____ Name: PARVEEN HASAN

Date: 3/10/99 Title: QA/QC OFFICER

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: CHEMTECH CONSULTING GROUP Contract: 68-D5-0166

Lab Code: CHEM Case No.: 26777 SAS No.: SDG No.: MBQF96

SOW No.: ILM04.0

EPA SAMPLE NO.	Lab Sample ID.
59 MBQG04	65548S 59
5ED6 MBQG06	66628S

Were ICP interelement corrections applied? Yes/No YES

Were ICP background corrections applied? Yes/No YES

If yes-were raw data generated before application of background corrections? Yes/No NO

Comments:

The "E" qualifier on Form I and IX for the Barium indicates a chemical or a physical interference effect, which was suspected during the Barium analysis only.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: _____ Name: PARVEEN HASAN

Date: 3/10/99 Title: QA/QC OFFICER

SAMPLE DELIVERY GROUP (SDG)
TRAFFIC REPORT (TR) COVER SHEET

Lab Name: IEA/CT Contract No.: 68-D5.0014

Lab Code: IEACT Case No.: 26777 SAS No.: ____-____

Full Sample Analysis Price in Contract:

SDG No./First Sample in SDG: BXH34 Sample Receipt Date: 01 21 99 (MM/DD/YY)
(Lowest EPA Sample Number in first shipment of samples received under SDG)

Last Sample in SDG: BXJ25 Sample Receipt Date: 02 03 99 (MM/DD/YY)
(Highest EPA Sample Number in last shipment of samples received under SDG)

EPA Sample Numbers in the SDG (listed in alphanumeric order):

1	BXH31	11	~~BXH49~~ BXJ05
2	BXH32	12	BXJ11
3	BXH33	13	BXJ25
4	BXH34	14	BXJ29
5	BXH35	15	BXJ30
6	BXH39	16	BXJ31
7	BXH47	17	BXJ33
8	BXH52	18	BXJ34
9	BXH57	19	BXJ37
10	BXH90	20	BYH96

Note: There are a maximum of 20 field samples in an SDG.

Attach Traffic Reports to this form in alphanumeric order (i.e., the order listed on this form).

[signature] for
Sample Custodian

2/9/99
Date

7099-0124A
EPA
SAMPLE SUMMARY

CLIENT ID		LAB ID	MATRIX	DATE COLLECTED	DATE RECEIVED
BXH52		990124A-01	WATER	01/19/99	01/21/99
BXH35		990124A-02	WATER	01/19/99	01/21/99
BXH34		990124A-03	WATER	01/19/99	01/21/99
BXJ05		990124A-04	WATER	01/19/99	01/21/99
BXJ37		990124A-05	SOIL	01/21/99	01/26/99
BXJ30		990124A-06	SOIL	01/21/99	01/26/99
BXJ29		990124A-07	SOIL	01/21/99	01/26/99
BXJ34		990124A-08	SOIL	01/22/99	01/26/99
BXJ33		990124A-09	SOIL	01/22/99	01/26/99
BXJ31		990124A-10	SOIL	01/22/99	01/26/99
BXJ11	SW5	990124A-12	WATER	02/01/99	02/03/99
BXH57	GW8B	990124A-13	WATER	02/02/99	02/03/99
BXH47		990124A-14	WATER	02/01/99	02/03/99
BXH33	GW14A	990124A-15	WATER	02/02/99	02/03/99
BXH90		990124A-16	WATER	02/01/99	02/03/99
BXH39	FB8	990124A-17	WATER	02/02/99	02/03/99
BXJ25		990124A-19	SOIL	02/01/99	02/03/99
BXJ25		990124A-19MS	SOIL	02/01/99	02/03/99
BXJ25		990124A-19MSD	SOIL	02/01/99	02/03/99
BYH96		990124A-20	WATER	02/01/99	02/03/99
BYH96		990124A-20MS	WATER	02/01/99	02/03/99
BYH96		990124A-20MSD	WATER	02/01/99	02/03/99
BXH31		990124A-21	WATER	02/01/99	02/03/99
BXH32		990124A-22	WATER	02/01/99	02/03/99

RECORD OF COMMUNICATION

REGIONAL SAMPLE CONTROL CENTER

DATE: MARCH 25, 1999
SUBJECT: CLP Data Package for Quality Assurance Review
FROM: RSCC / ESAT
TO: George Karras, Hazardous Waste Support Section

30102D 0222QB0D

RECEIVED
APR 28 1999

Attached is the following ORGANIC Data Package to be reviewed for Quality Assurance

SITE HAMERSLEY MANUFACTURING Co. LF
CASE# 26777
CONTRACTOR NJDEP
#SAMPLES 44
MATRIX WATER
PHASE SI
LAB PDP
FRACTION LOW CONC VOA ONLY
TURN-AROUND-TIME 14 DAYS

REGION II RSCC DATA TRANSFER LOG

Relinquished By		Received By	
Signature	Date/Time	Signature	Date/Time
		John Bailey	2-17-99
John Bailey	3-25-99	G. Karras for HS	3/29/99
G. Karras for HS	4/28/99		

(over for instructions) revised 10/97

II9

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organic Analysis

CASE No.: 26777 SDG No.: BXH31, BXH36, BXH34 Samples: 44 Water

LABORATORY: PDP

SITE: Hamersley Manufacturing Company

DATA ASSESSMENT

The current SOP HW-13 (Revision 2) October 1996, USEPA Region II Data Validation SOP for Statement of Work OLCO 2.1. for evaluating organic data have been applied.

All data are valid and acceptable except those analytes rejected "R"(unusable). Due to the detection of QC problems, some analytes may have the "J" (estimated), "N"(presumptive evidence for the presence of the material, "U" (non-detect) or "JN" (presumptive evidence for the presence of the material at an estimated value) flag. All action is detailed on the attached sheets.

The "R" flag means that the associated value is unusable. In other words, significant data bias is evident and the reported analyte concentration is unreliable.

Reviewer's
Signature: Hanif Sheikh Date: 04/23/99

Verified By: D. Farras Date: 4/28/99

CLP DATA ASSESSMENT

1. HOLDING TIME:

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded, the data may not be valid. Those analytes detected in the samples whose holding time has been exceeded will be qualified as estimated, "J". The non-detects (sample quantitation limits) will be flagged as estimated, "J", or unusable, "R", if the holding times are grossly exceeded.

The following action was taken in the samples and analytes shown due to excessive holding time.

VOA: No problems.

2. SURROGATES

All samples are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. If the measured surrogate concentrations were outside contract specifications, qualifications were applied to the samples and analytes as shown below.

VOA: No problems.

3. LABORATORY CONTROL SAMPLE (LCS):

The LCS data is generated from a laboratory quality control sample. LCS data is intended to assess the ability of the contractor to perform the analytical method.

VOA: No problems.

4. BLANK CONTAMINATION:

Quality assurance (QA) blanks, i.e., method, trip, field, or rinse blanks are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Trip

CLP DATA ASSESSMENT

blanks measure cross-contamination of samples during shipment. Field and rinse blanks measure cross-contamination of samples during field operations. If the concentration of the analyte is less than 5 times the blank contaminant level (10 times for common contaminants), the analytes are qualified as non-detects, "U". The following analytes in the sample shown were qualified with "U" for these reasons:

A) Method blank contamination:

VOA: No problems.

B) Field or rinse blank contamination:

VOA:

SDG BXH31-
No qualification in this SDG due to the field blank contamination criteria. Only one sample, BXH33, associated with the field blank (BXH39)has no positive hit of carbon disulfide.

SDG BXH36-
Field blank BXH36 has 0.7 ug/L of chlorobenzene. Detection limit of the following samples have been raised:

BXH54 — - 0.6J -Changed to ---- 1U
BXH79 ----3 ----Changed to -----3U

(ii) Field Blank BXJ00 has 1 ug/L of carbon disulfide.

No qualification of sample results.

SDG BXH34-

No Problems

C) Trip blank contamination:

VOA: No problems.

CLP DATA ASSESSMENT

D) Storage Blank

VOA: No problems.

5. MASS SPECTROMETER TUNING:

Tuning and performance criteria are established to ensure adequate mass resolution, proper identification of compounds and to some degree, sufficient instrument sensitivity. These criteria are not sample specific. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances. The tuning standard for volatile organics is (BFB) Bromofluorobenzene and for semi-volatiles Decafluorotriphenylphosphine (DFTPP).

If the mass calibration is in error, all associated data will be classified as unusable "R".

No problem

6. CALIBRATION:

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving acceptable performance at the beginning of an experimental sequence. The continuing calibration checks document that the instrument is giving satisfactory daily performance.

A) Response Factor GC/MS:

The response factor measures the instrument's [illegible] o specific chemical compounds. The response factor [illegible] Compound List (TCL) must be ≥ 0.05 in b[illegible] ntinuing calibrations. A value < 0.05 indi[illegible] ion and quantitation problem (poor sensitivit[illegible] in the sample will be qualified as estimated[illegible] ts for that compound will be rejected "R".

CLP DATA ASSESSMENT

VOA:

SDG BXH31-
All acetone and 2-butanone non-detect resuts in this SDG were rejected in the following samples due to RRF were < 0.05 for these compounds in both initial and continuing calibrations. 1,2 - Dibromo-3-chloropropane was also rejected in all samples due to RRF < 0.05 in the 1 ppb initial calibration standard. One positive result of acetone was flagged (J) as estimated.

R --->Acetone, 2-Butanone and 1,2 -dichloro -3-chloropropane in BXH31, BXH48, BXH50, BXH71, BXH32, BXH47, BXH33, BXH90, BXH39, BXH67,BXH63, BXJ15, BXJ21, BXJ25, BXJ41, BXJ10, BXJ08, BXJ08DL, BXJ11, VBLK26, VBLK28, VBLK30, VBLK32, VHBLK01, VLCS26, VLCS28, VLCS30, VLCS32, BXH39DL, BXJ08DL2

R-------> 2-Butanone and 1,2- dichloro -3- Chloropropane in Sample BXH99

J ------> Acetone in BXH99

BXH36-
All non-detect results of acetone, 2- butanone and 1,2-dibromo-3-chloropropane were rejected due to RRF being less than 0.05 in initial and continuing calibrations:

R ------> 2-Butanone & 1,2-dibromo-3-chloropropane in BXH36, BXH43, BXH54, BXH59, BXH61, BXH66,BXH74 BXH75, BXH77, BXH79, BXH83, BXH93, BXH94, BXJ00, BXJ15, BXJ19, BXJ24, BXH43, BXH59DL, BXH61DL, BXH66DL, BXH93DL, VBLK12, VBLK13, VBLK14, VBLK15, VBLK17, VHBLK01, VLCS12, VLCS13, VLS14, VLCS15, VLCS17

R ---> Acetone —> BXH36,BXH43,BXH54,BXH59,BXH61,BXH74 BXH75, BXH79, BXH83, BXH93,BXJ15,BXJ24

CLP DATA ASSESSMENT

BXH43DL, BXH59DL, BXH61DL, BXH66DL, BXH77, BXH93DL, BXJ00, VBLK12, VBLK13, VBLK14, VBLK15, VBLK17, VHBLK01, VLCS12, VLCS13, VLCS14, VLCS15, VLCS17

The following samples had positive hits of acetone, and were flagged (J) as estimated due to RRF < 0.05:

J ------> Acetone ------> BXH66, BXH94, BXJ19

Carbon tetrachloride results in the following samples were flagged (J) as estimated due to the continuing calibration percent difference (%D) being greater than 25%:

J----->Carbon Tetrachloride-----> BXH43DL, BXH59DL, BXH66DL, BXH83, BXH94,BXH93DL, VBLK15, VLCS15

SDG BXH34-
All acetone, 2-butanone and 1,2-dibromo-3-chloropropane results were rejected due to RRF for these compounds being less than 0.05 In the initial and continuing calibrations:

R-----> Acetone, 2-butanone & 1,2-dibromo-3-chloropropane in BXH34, BXH35, BXH52, BXH58, BXH73, BXH82, BXJ05, BXJ16, VBLK09, VLCS09, VBLK10, VLCS10, VHBLK01

B) Percent Relative Standard Deviation (%RSD) and Percent Difference (%D):

Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentration. Percent D compares the response factor of the continuing calibration check to the mean response factor (RRF) from the initial calibration. Percent D is a measure of the instrument's daily performance. Percent RSD must be ≤ 30% and %D must be ±30%. A value outside of these limits indicates

CLP DATA ASSESSMENT

potential detection and quantitation errors. For these reasons, all positive results are flagged as estimated, "J" and non-detects are flagged "UJ". If %RSD and %D grossly exceed QC criteria, non-detects data may be qualified "R".

For the PEST/PCB fraction, if %RSD exceeds 20% for all analytes except for the two surrogates (which must not exceed 30% RSD), qualify all associated positive results "J" and non-detects "UJ".

The following analytes in the sample shown were qualified for %RSD and %D:

VOA:

SDG BXH31-
1,2- Dibromo -3- chloropropane has the initial calibration RSD equal to 42.1%. No action was taken as this compound is already rejected for RRF < 0.05 in 1ppb initial calibration standard.

8. INTERNAL STANDARDS PERFORMANCE GC/MS:

Internal standards (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during every experimental run. For each continuing calibration standard, the internal standard area count must not vary by more than ±40% for VOAs, or by a factor of 2 (-50% to +100%) for BNAs. The retention time of the internal standard must not vary by more than ±20 seconds from the associated continuing calibration standard. If the IS area count is outside the specified range, all of the positive results for compounds quantitated using that IS are qualified as estimated, "J", and all non-detects as "UJ", or "R" if there is a severe loss of sensitivity.

If an internal standard retention time varies by more than 20 seconds, the reviewer will use professional judgement to determine either partial or total rejection of the data for that sample

CLP DATA ASSESSMENT

fraction.

VOA: No problems.

9. COMPOUND IDENTIFICATION:

A) Volatile and Semi-Volatile Fractions:

TCL compounds are identified on the GC/MS by using the analyte's relative retention time (RRT) and by comparison to the ion spectra obtained from known standards. For the results to be a positive hit, the sample peak must be within ± 0.06 RRT units of the standard compound and have an ion spectra which has a ratio of the primary and secondary m/e intensities within 20% of that in the standard compound. For the tentatively identified compounds (TIC) the ion spectra must match accurately. In the cases where there is not an adequate ion spectrum match, the laboratory may have provided false positive identifications.

VOA: No problems.

B) Pesticide Fraction:

The retention times of reported compounds must fall within the calculated retention time windows for the two chromatographic columns and a GC/MS confirmation is required if the concentration exceeds 10ng/ml in the final sample extract.

10. CONTRACT PROBLEMS NON-COMPLIANCE:

11. FIELD DOCUMENTATION:

12. OTHER PROBLEMS:

13. This package contains reextractions, reanalyses or

dilutions. Upon reviewing the QA results, the following Form 1(s) are identified to be used:

VOA:

The dilution results of the following samples have been transfered to Form I'S and should be used for decision making. Form I's of the dilutions have been marked "Do Not Use".

BXH39, BXJ08, BXH43, BXH59, BXH61, BXH66, BXH93

TPO: []ACTION []FYI REGION__2_

ORGANIC REGIONAL DATA ASSESSMENT SUMMARY

CASE NO._26777__ LABORATORY___PDP_____

SDG NO. BXH31, BXH34, BXH36 DATA USER___EPA/Region II_____

SOW_OLC02.1 _____ REVIEW COMPLETION DATE__4/9/99

NO. OF SAMPLES___44__WATER

REVIEWER: [X] DESA [] ESAT [] OTHER, CONTRACTOR_____

QC ITEM	VOA	BNA	PEST		
HOLDING TIMES	O	O	O		
GC-MS PERFORMANCE	O	O	O		
INITIAL CALIBRATIONS	M	O	O		
CONTINUING CALIBRATIONS	M	O	O		
FIELD BLANKS(F = N/A)	O	O	O		
LABORATORY BLANKS	O	O	O		
SURROGATES	O	O	O		
MATRIX SPIKE/DUPLICATES	O	O	O		
QC SAMPLES(LCS, PVS)	O	O	O		
INTERNAL STANDARDS	O	O			
COMPOUND IDENTIFICATION	O	O	O		
COMPOUND QUANTITATION	O	O	O		
SYSTEM PERFORMANCE	O	O	O		
OVERALL ASSESSMENT	Z	O	O		

O = No problems or minor problems that do not affect data usability.
X = No more than about 5% of the data points are qualified as either estimated or unusable.
M = More than about 5% of the data points are qualified as either estimated or unusable.
Z = More than about 5% of the data points are qualified as unusable.

DPO ACTION ITEMS:
AREAS OF CONCERN:

DATA REJECTION SUMMARY

Type of Review: Organic - Low Conc. Date: 4/23/99 Case No. 26777, SDG# BXH31, BXH34, BXH36

Site Name: Hamersley Manufacturing Co. Lab Name: PDP Reviewer's Initials: HS

Number of Samples: 44 Water samples +QC + reanalyses/dilutions

Analytes Rejected Due To Exceeding Review Criteria For:

No. of Compounds/No. of Fractions(Samples)

	Surrogates	Holding Times	Calibrat-ion	Contam-ination	ID	Internal Standards	Other	Total # Sample s	Total # Rejected/ Total # in All Samples
VOA(41)	0	0	133	0	0	0	0	44	133/1804 = 7%
ACID(14)	0	0	0	0	0	0	0	0	NA
B/N(50)	0	0	0	0	0	0	0	0	NA
PEST(21)	0	0	0	0	0	0	0	0	NA
PCB(7)	0	0	0	0	0	0	0	0	NA

NOTE: ASTERISK (*) INDICATES ADDITIONAL EXCEEDANCES OF REVIEW CRITIERIA.

Analytes Estimated Due To Exceeding Review Criteria For:

No. of Compounds/No. of Fractions(Samples)

	Surrogates	Holding Times	Calibrat-ion	Contam-ination	ID	Internal Standards	Other	Total # Samples	Total # estimated/ Total # in All Samples
VOA(41)	0	0		0	0	0		44	6/1804 = 0.3%
ACID(14)	0	0	0	0	0	0	0	0	NA
B/N(50)	0	0	0	0	0	0	0	0	NA
PEST(21)	0	0	0	0	0	0	0	0	NA
PCB(7)	0	0	0	0	0	0	0	0	NA

NOTE: ASTERISK (*) INDICATES ADDITIONAL EXCEEDANCES OF REVIEW CRITIERIA.

PDP ANALYTICAL SERVICES

1680 Lake Front Circle, Suite B • The Woodlands, TX 77380 • Phone (281)363-2233

Contract No. 68-D7-0004	Case No. 26777	SDG No. BXH31

SDG NARRATIVE

2/04/99 - Received one cooler:

Cooler 1 temperature: 2°C (COC 372208) contained the following samples ~~that were not broken~~: SK 2/16/99

BXH32 - 2 - VOA Vials
BXH47- 2 - VOA Vials
BXH33 - 2 - VOA Vials
BXH90 - 2 - VOA Vials
BXH39- 2 - VOA Vials
BXJ11 - 2 - VOA Vials
BXH67 - 2 - VOA Vials
BXJ41- 2 - VOA Vials
BXJ63 - 2 - VOA Vials

No problems encountered with sample log in.

VOLATILES:

All samples were analyzed on a HP 5972 GC/MS using a 60 meters long DB-624 column having a 0.53mm ID and 3um film thickness. The trap used was a OV-1/Tenax/Silica Gel (Tekmar #6. Cat 14-1755-003) . A 20 mL purge volume was used for all samples, blanks and standards. The concentrations of the standards and spikes were maintained at the levels required by the Statement of Work (SOW).

The following field samples are analyzed for volatiles in this SDG. The pH of the samples is listed against them.

BXH31-	2	BXH50-	2	BXJ08-	2
BXH32-	2	BXH63-	2	BXJ10-	2
BXH33-	2	BXH67-	2	BXJ11-	2
BXH39-	2	BXH71-	2	BXJ15-	2
BXH47-	2	BXH90-	2	BXJ21-	2
BXH48-	2	BXH99-	2	BXJ25-	2
BXJ41-	2				

Manual integration's were performed for the following samples for the compounds listed against them.

VSTD00111 - Vinyl chloride, Chloroethane, Chloromethane, Bromomethane, 1,1-Dichloroethene, Carbon disulfide, Acetone, Methylene chloride, 2-Butanone.

VSTD00211 - Chloromethane, Bromomethane, 1,1-Dichloroethene, Carbon disulfide, Acetone, Methylene chloride, 2-Butanone.
1,2-Dibromo-3-chloropropane.

VSTD00511 - Vinyl chloride, Chloroethane, Chloromethane, Bromomethane, 1,1-Dichloroethene, Acetone, 2-Hexanone.

PDP ANALYTICAL SERVICES

1680 Lake Front Circle, Suite B • The Woodlands, TX 77380 • Phone (281)363-2233

Contract No. 68-D7-0004	Case No. 26777	SDG No. BXH31

SDG NARRATIVE

VSTD01011 - Vinyl chloride, Chloroethane, Bromomethane, 1,1-Dichloroethene, Carbon disulfide, Acetone.
VSTD02511 - Bromomethane, 1,1-Dichloroethene, Carbon disulfide.
VSTD00529- Chloromethane, Vinyl chloride, 1,1-Dichloroethene, Acetone, Carbon disulfide.
VSTD00531- Chloromethane, , Bromomethane, Acetone, Carbon disulfide.
VSTD00533- Chloromethane, 1,1-Dichloroethene, Carbon disulfide, Acetone.
VSTD00535- Vinyl chloride, Chloromethane, Chloroethane, Methylene chloride..
VLCS26-Vinyl chloride
VLCS28-Vinyl chloride

These manual integration's were necessary because the software failed to accurately integrate the entire peak. In all the above instances, the quantitation reports are flagged with "m". A hard copy printout of the manual integration's along with the scan ranges and initials of the operator is included in the data package .

Sample "BXH39" was analyzed at a 1X and 5X dilution due to high concentration of target compounds. Sample "BXJ08" was analyzed at a 1X , 10X and 25X dilution due to high concentration of target compounds. The SMO was notified about the second dilution.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the laboratory manager or his designee, as verified by the following signature:

SKudchadka / Project Mgr — 02/16/99

Signature and Title — Date of Signature

Z:\NETDATA\QA\FORMS\CLP\NARR1296.DOC

RECEIVED

FEB 17 1999

SAMPLE DELIVERY GROUP (SDG)
TRAFFIC REPORT (TR) COVER SHEET

Lab Name: **PDP Analytical Services** Contract No.: **68-D7-0004**

Lab Code: **PDP** Case No. **26777**
Full Sample Analysis Price in Contract: ___ _____

SDG No./First Sample in SDG: **BXH31** Sample Receipt Date: **02/03/99**
(Lowest EPA Sample Number in first shipment of samples received under SDG.) (MM/DD/YY)

Last Sample in SDG: **BXJ41** Sample Receipt Date: : **02/04/99**
(Highest EPA Sample Number in last shipment of samples received under SDG.) (MM/DD/YY)

EPA Sample Numbers in the SDG (listed in alphanumeric order)

1	**BXH31**	11	**BXH90**
2	**BXH32**	12	**BXH99**
3	**BXH33**	13	**BXJ08**
4	**BXH39**	14	**BXJ10**
5	**BXH47**	15	**BXJ11**
6	**BXH48**	16	**BXJ15**
7	**BXH50**	17	**BXJ21**
8	**BXH63**	18	**BXJ25**
9	**BXH67**	19	**BXJ41**
10	**BXH71**	20	-

Note: There are a maximum of 20 field samples in an SDG.

Attach Traffic Reports to this form in alphanumeric order (i.e., the order listed on this form).

Signature: [signature] Date: 02/15/99

000004

II23

PDP ANALYTICAL SERVICES

1680 Lake Front Circle, Suite B • The Woodlands, TX 77380 • Phone (281)363-2233

Contract No. 68-D7-0004	Case No. 26777	SDG No. BXH31

SDG NARRATIVE

SAMPLE RECEIPT :

02/03/99 - Received one cooler:

Cooler 1 temperature: 2°C (COC 372202/372203) contained the following samples that were not broken:

BXJ15 - 2 - VOA Vials
BXJ10- 2 - VOA Vials
BXH99 - 2 - VOA Vials
BXJ21 - 6 - VOA Vials
BXJ31- 2 - VOA Vials
BXH50 - 2 - VOA Vials
BXH71 - 2 - VOA Vials
BXH48- 2 - VOA Vials
BXJ08 - 2 - VOA Vials
BXH84 - 2 - VOA Vials

The following samples were received with the vials broken.

BXH85- 2 - VOA Vials
BXH46 - 2 - VOA Vials
BXJ18 - 2 - VOA Vials
BXH84 - 2 - VOA Vials
BXJ13 - 2 - VOA Vials
BXH76 - 2 - VOA Vials
BXH89 - 2 - VOA Vials
BXH91 - 2 - VOA Vials
BXH97- 2 - VOA Vials
BXH92- 2-VOA Vials

Sample "BXH92" was not stated on the COC.
Sample "BXH31" was stated as "BXJ31" on the COC. The SMO informed the laboratory the correct sample number is "BXH31".
Sample "BXH48" had sample tags stating location ID as SW-6and time as 1300. The COC stated location ID as GE-8B and time as 1450. The SMO was informed.

The SMO was notified about all above discrepancies.

PDP Analytical Services
1680 Lake Front Circle, Suite B, The Woodlands, TX 77380 / Phone (281) 363-2233

TELEPHONE RECORD LOG

By: Sachin

Date/Time: 02/03/99 15:15
02/04/99 08:30

Phone Contact: Nicole

With: DYNCORP

Phone/Fax No. 703-264-9280

Case/SDG No.: 26777 / Region II
(or subject)

Initiated by: ✓ PDP ___ Contact

cooler temp: 2°c

Called Nicole:
Shipment had broken vials for
2 vials - BXH85
2 vials - BXH46
2 vials - ~~BXH~~ BXJ18
2 vials - BXH84
2-vials BXJ13
frozen samples for: (cracked) vials
1-vial - BXH76
1-vial - BXH89
1-vial BXH91
leaking 2 vial for BXH97
~~for~~ Sample BXJ31 on COC, container says BXH31 ✓
BXH48 has on sample tag location ID / times
as SW-6 / 1300
COC reflects → GW-8B / 1450
BXH92 ~~on~~ not on COC, present in cooler
2 vials broken. (GW-13C) 1/29/99 1500

Please "Z out" any unused portions.

Signature: SKudchadkar

Date: 02/03/99

Z:\NETDATA\QA\FORMS\ADMIN\TRL1296.DOC

Distribution:
1)
2)
3)
4)
5)
6)

PDP Analytical Services
1680 Lake Front Circle, Suite B, The Woodlands, TX 77380 / Phone (281) 363-2233

TELEPHONE RECORD LOG

By: Sachi

Date/Time: 02/05/99 10:45

Phone Contact: Nicole

With: D-/NCOEP

Phone/Fax No. 703-264-9280

Case/SDG No.: 26777 / Region II
(or subject)

Initiated by: ✓ PDP ____ Contact

Nicole called about broken samples.

continue analysis for all unbroken samples

2/5/99

Please "Z out" any unused portions.

Signature: [illegible]

Date: 2/5/99

Z:\NETDATA\QA\FORMS\ADMIN\TRL1296.DOC

Distribution:

1) ____
2) ____
3) ____
4) ____
5) ____
6) ____

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PDP ANALYTICAL SERVICES

1680 Lake Front Circle, Suite B • The Woodlands, TX 77380 • Phone (281)363-2233

Contract No. 68-D7-0004	Case No. 26777	SDG No. BXH34

RECEIVED
FEB 0 2 1999

SDG NARRATIVE

SAMPLE RECEIPT :

11/21/99 @ 10:15A.M. - Received Shipment:

Cooler 1 temperature: 4°C (COC 372189) contained the following:

BXH34 - 2 - VOA Vials
BXH35 - 2 - VOA Vials
BXH52- 2 - VOA Vials
BXH58- 2 - VOA Vials
BXH82 - 2 - VOA Vials
BXH73 - 2 - VOA Vials
BXJ05 - 2 - VOA Vials
BXJ16 - 2 - VOA Vials

VOLATILES:

All samples were analyzed on a HP 5972 GC/MS using a 60 meters long DB-624 column having a 0.53mm ID and 3um film thickness. The trap used was a OV-1/Tenax/Silica Gel (Tekmar #6. Cat 14-1755-003) . A 20 mL purge volume was used for all samples, blanks and standards. The concentrations of the standards and spikes were maintained at the levels required by the Statement of Work (SOW).

The following field samples are analyzed for volatiles in this SDG. The pH of the samples is listed against them.

BXH10- 2.0	BXH11- 2.0	BXH12- 2.0
BXH14- 2.0	BXH15- 2.0	BXH16- 2.0
BXH17- 2.0	BXH29- 2.0	BXH30- 2.0

Manual integration's were performed for the following samples for the compounds listed against them.

VSTD00111 - Vinyl chloride, Chloroethane, Chloromethane, Bromomethane, 1,1-Dichloroethene, Carbon disulfide, Acetone, Methylene chloride, 2-Butanone.
VSTD00211 - Chloromethane, Bromomethane, 1,1-Dichloroethene, Carbon disulfide, Acetone.
VSTD00511 - Vinyl chloride, Chloroethane, Chloromethane, Bromomethane, 1,1-Dichloroethene, Acetone, Carbon disulfide, 2-Hexanone.
VSTD01011 - Vinyl chloride, Chloroethane, Bromomethane, 1,1-Dichloroethene, Carbon disulfide, Acetone.
VSTD02511 - Bromomethane, 1,1-Dichloroethene, Carbon disulfide.
VSTD00512- Chloroethane, Bromomethane, 1,1-Dichloroethene, Carbon disulfide, Acetone, Methylene chloride.

PDP ANALYTICAL SERVICES

1680 Lake Front Circle, Suite B • The Woodlands, TX 77380 • Phone (281)363-2233

Contract No. 68-D7-0004	Case No. 26777	SDG No. BXH34

SDG NARRATIVE

VSTD00513- Chloroethane, Chloromethane, Bromomethane, Acetone, 1,1-Dichloroethene, Carbon disulfide, Methylene chloride.
VLCS09-Vinyl chloride
VLCS10-Vinyl chloride

These manual integration's were necessary because the software failed to accurately integrate the entire peak. In all the above instances, the quantitation reports are flagged with "m". A hard copy printout of the manual integration's along with the scan ranges and initials of the operator is included in the data package .

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the laboratory manager or his designee, as verified by the following signature:

PKudchadka / Project-Manager
Signature and Title

01/29/99
Date of Signature

Z:\NETDATA\QA\FORMS\CLP\NARR1296.DOC

SAMPLE DELIVERY GROUP (SDG)
TRAFFIC REPORT (TR) COVER SHEET

Lab Name: **PDP Analytical Services** Contract No.: **68-D7-0004**

Lab Code: **PDP** Case No. **26777**
Full Sample Analysis Price in Contract: _____

SDG No./First Sample in SDG: **BXH34** Sample Receipt Date: **1/21/99**
(Lowest EPA Sample Number in first shipment of samples received under SDG.) (MM/DD/YY)

Last Sample in SDG: **BXJ16** Sample Receipt Date: : **1/21/99**
(Highest EPA Sample Number in last shipment of samples received under SDG.) (MM/DD/YY)

EPA Sample Numbers in the SDG (listed in alphanumeric order)

1	**BXH34**	11	-
2	**BXH35**	12	-
3	**BXH52**	13	-
4	**BXH58**	14	-
5	**BXH82**	15	-
6	**BXH73**	16	-
7	**BXJ05**	17	-
8	**BXJ16**	18	-
9	-	19	-
10	-	20	-

Note: There are a maximum of 20 field samples in an SDG.

Attach Traffic Reports to this form in alphanumeric order (i.e., the order listed on this form).

Skudchadka 1/25/99

Signature Date

PDP ANALYTICAL SERVICES

1680 Lake Front Circle, Suite B • The Woodlands, TX 77380 • Phone (281)363-2233

Contract No. 68-D7-0004	Case No. 26777	SDG No. BXH36

SDG NARRATIVE

RECEIVED
FEB 1 2 1999

SAMPLE RECEIPT :

01/28/99 - Received one cooler:

Cooler 1 temperature: 4°C (COC 372201/372205) contained the following:

BXH36 -	2 - VOA Vials
BXH43 -	2 - VOA Vials
BXH54-	2 - VOA Vials
BXH59-	2 - VOA Vials
BXH61 -	2 - VOA Vials
BXH66 -	2 - VOA Vials
BXH74 -	2 - VOA Vials
BXH75 -	2 - VOA Vials
BXH77 -	2 - VOA Vials
BXH79 -	2 - VOA Vials
BXH83-	2 - VOA Vials
BXH93-	2 - VOA Vials
BXH94 -	2 - VOA Vials
BXJ00 -	2 - VOA Vials
BXJ15 -	2 - VOA Vials
BXJ19 -	2 - VOA Vials
BXJ24 -	2 - VOA Vials

No problems encountered with sample receipt.

VOLATILES:

All samples were analyzed on a HP 5972 GC/MS using a 60 meters long DB-624 column having a 0.53mm ID and 3um film thickness. The trap used was a OV-1/Tenax/Silica Gel (Tekmar #6. Cat 14-1755-003) . A 20 mL purge volume was used for all samples, blanks and standards. The concentrations of the standards and spikes were maintained at the levels required by the Statement of Work (SOW).

The following field samples are analyzed for volatiles in this SDG. The pH of the samples is listed against them.

BXH36-	2	BXH74-	5	BXH94-	5
BXH43-	2	BXH75-	4	BXJ00-	2
BXH54-	6	BXH77-	4	BXJ15-	2
BXH59-	3	BXH79-	2	BXJ19-	7
BXH61-	7	BXH83-	4	BXJ24-	7
BXH66-	7	BXH93-	7		

PDP ANALYTICAL SERVICES

1680 Lake Front Circle, Suite B • The Woodlands, TX 77380 • Phone (281)363-2233

Contract No. 68-D7-0004	Case No. 26777	SDG No. BXH36

SDG NARRATIVE

Manual integration's were performed for the following samples for the compounds listed against them.

VSTD00111 - Vinyl chloride, Chloroethane, Chloromethane, Bromomethane, 1,1-Dichloroethene, Carbon disulfide, Acetone, Methylene chloride, 2-Butanone.

VSTD00211 - Chloromethane, Bromomethane, 1,1-Dichloroethene, Carbon disulfide, Acetone, Methylene chloride, 2-Butanone.
1,2-Dibromo-3-chloropropane.

VSTD00511 - Vinyl chloride, Chloroethane, Chloromethane, Bromomethane, 1,1-Dichloroethene, Acetone, 2-Hexanone.

VSTD01011 - Vinyl chloride, Chloroethane, Bromomethane, 1,1-Dichloroethene, Carbon disulfide, Acetone.

VSTD02511 - Bromomethane, 1,1-Dichloroethene, Carbon disulfide.

VSTD00516- Chloromethane, Chloroethane, , Bromoethane, Bromomethane, 1,1-Dichloroethene, Acetone, Methylene chloride.

VSTD00517- Chloroethane, , Bromomethane, 1,1-Dichloroethene, Carbon disulfide.

VSTD00518- Vinyl chloride, Bromomethane, 1,1-Dichloroethene, Carbon disulfide.

VSTD00519- Vinyl chloride, Chloroethane, 1,1-Dichloroethene, Carbon disulfide.

VSTD00521- Vinyl chloride, Chloromethane,Bromomethane,1,1-Dichloroethene, Carbon disulfide.

VLCS12-Vinyl chloride

VLCS14-Vinyl chloride

VLCS15-Vinyl chloride

These manual integration's were necessary because the software failed to accurately integrate the entire peak. In all the above instances, the quantitation reports are flagged with "m". A hard copy printout of the manual integration's along with the scan ranges and initials of the operator is included in the data package .

Sample "BXH61" was analyzed at a 1X and 2.5X dilution due to high concentration of target compounds.
Sample "BXH93" was analyzed at a 1X and 20X dilution due to high concentration of target compounds.
Sample "BXH66" was analyzed at a 1X and 16X dilution due to high concentration of target compounds.
Sample "BXH59" was analyzed at a 1X and 4X dilution due to high concentration of target compounds.
Sample "BXH43" was analyzed at a 1X and 10X dilution due to high concentration of target compounds.

Sample "BXH66" (run B0792) had high concentration of target compounds. To prove that there is no carryover, results from run B0793 are submitted. Since the sample belongs to a different SDG, it is labeled as "ZZZZZ".

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the laboratory manager or his designee, as verified by the following signature:

SKudchadkar / Project Mgr
Signature and Title

02/09/99
Date of Signature

SAMPLE DELIVERY GROUP (SDG)
TRAFFIC REPORT (TR) COVER SHEET

Lab Name: **PDP Analytical Services** Contract No.: **68-D7-0004**

Lab Code: **PDP** Case No. **26777**
Full Sample Analysis Price in Contract: __

SDG No./First Sample in SDG: **BXH36** Sample Receipt Date: **1/28/99**
(Lowest EPA Sample Number in first shipment of samples received under SDG.) (MM/DD/YY)

Last Sample in SDG: **BXJ24** Sample Receipt Date: : **1/28/99**
(Highest EPA Sample Number in last shipment of samples received under SDG.) (MM/DD/YY)

EPA Sample Numbers in the SDG (listed in alphanumeric order)

1	**BXH36**	11	**BXH83**
2	**BXH43**	12	**BXH93**
3	**BXH54**	13	**BXH94**
4	**BXH59**	14	**BXJ00**
5	**BXH61**	15	**BXJ15**
6	**BXH66**	16	**BXJ19**
7	**BXH74**	17	**BXJ24**
8	**BXH75**	18	-
9	**BXH77**	19	-
10	**BXH79**	20	-

Note: There are a maximum of 20 field samples in an SDG.

Attach Traffic Reports to this form in alphanumeric order (i.e., the order listed on this form).

SKudchadka
Signature

1/28/99
Date

DATA VALIDATION REPORT

for

NJDEP-DPFSR

Hamersley Manufacturing

Case No. HA011999

SDG No. 72251

Prepared By: Environmental Quality Associates, Inc.
Contract No. A83729

Environmental Quality Associates, Inc.
Specialists in Data Validation and Quality Assurance

May 14, 1999

State of New Jersey
Department of Environmental Protection
Att: Mr. Joseph Sanguiliano, Hazardous Site Mitigation Specialist
401 East State Street, 4th Floor PO Box 413
Trenton, New Jersey 08625

Re: Hamersley Manufacturing Site Data Deliverables, Case No. HA011999, SDG No. 72251

Dear Mr. Sanguiliano,

This cover letter, and the attached documents, detail the data validation findings associated with the following sample analytical results contained in the above-referenced deliverables set:

Site Name: Hamersley Manufacturing

Fractions:

TCL Volatile		Laboratory:	Severn Trent - VT
Case No.:	HA011999		
SDG No.:	72251	Matrix:	Non-Aqueous (Medium Level)

Reviewer: Chris Taylor

Prepared By: Environmental Quality Associates, Inc.

R.D.#5 Box 800 · Middletown, NY 10940 · (914) 386-4705

SECTION A
Sample Information

The above-noted sample delivery groups were analyzed by Severn Trent Laboratories, Colchester, VT.

TCL Volatile samples were analyzed per CLP SOW OLM03.2, with NJDEP methanol-extraction sample collection protocol. A summary table of samples and associated parameters is presented below.

Sample Field ID	Sample Lab ID	Sample Matrix	Date Collected	Analysis VOA
S1	376722	S	1/21/99	X
S2	376723	S	1/21/99	X
S3	376724	S	1/22/99	X
S4	376725	S	1/22/99	X
S5	376726	S	1/22/99	X
S6	376727	S	1/22/99	X
S9	376728	S	1/22/99	X
AB1	376729	S	1/22/99	X
AB2	376730	S	1/22/99	X
SED1	377493	S	2/1/99	X
SED2	377494	S	2/1/99	X
SED3	377495	S	2/1/99	X
SED4	377496	S	2/1/99	X
SED5	377497	S	2/1/99	X
SED5MS	377497MS	S	2/1/99	X
SED5MSD	377497MD	S	2/1/99	X
AB3	377498	S	2/1/99	X
TB2	377499	S	n/a	X
S7	377632	S	2/3/99	X
S8	377633	S	2/3/99	X
AB4	377634	S	2/3/99	X
TB4	377635	S	2/3/99	X

S = Non-Aqueous Matrix MS = Matrix Spike MSD = Matrix Spike Duplicate

SECTION B
General Comments

A revised deliverables packages for this SDG was submitted to EQA by Mr. Frank Sorce, NJDEP, on 5/14/99, based upon the laboratory utilizing an incorrect methanol-extraction volume in the original report's sample quantitation process. Sample qualifications and associated QC parameter non-compliances are detailed in Section C below.

SECTION C
Volatile Organic Fraction

All samples in SDG No. 72251 were incorrectly quantitated by the laboratory, as noted above. CRQL values for all SDG samples were increased by a factor of 2.5.

No target or non-target compounds were present in the Method Blanks, Trip Blanks or Ambient Blanks.

Non-detected target compounds in samples S6, SED3 and SED5 (and their re-analyses) were quantitatively qualified 'UJ', due to low System Monitor Compound (SMC) recoveries. Positive compound results in samples SED3 and SED3RE were qualified 'J', as quantitatively estimated; potential negative bias is suggested.

The re-submitted SMC recovery values were incorrect due to rounding errors and laboratory quantitation software algorithm structure. The Form 2 included with the original data package should be used (sample results were qualified on the basis of the original submittal).

SECTION D
Overall Recommendations

The results of the review and validation process for the above analytical fraction and associated samples are summarized on the attached Target and Non-target Analyte Data Summary Tables , and the accompanying standard-format NJDEP Data Validation Report Forms, in order to facilitate the end-user's' review of these data.

Very truly yours,
Environmental Quality Associates, Inc.

Chris W. Taylor
Vice President

CWT/tab

attachments
c:\dv\nj72251

TARGET AND NON-TARGET ANALYTE SUMMARY

Hamersley Manufacturing

Case No. HA011999

SDG No. 72251

Environmental Quality Associates, Inc.

II 38

TARGET & NON-TARGET ANALYTE DATA SUMMARY
VOLATILES

SITE NAME : Hamersley Manufacturing SDG No.: 72251 CASE NO.: HA011999

LAB NAME : Severn Trent - VT "SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
VOA.	AB1	No target compounds					
		No non-target compounds					
	AB2	No target compounds					
		No non-target compounds					
	AB3	No target compounds					
		No non-target compounds					
	AB4	No target compounds					
		No non-target compounds					
	S1	No target compounds					
		No non-target compounds					
	S2	Chlorobenzene		180 J	180 J	qualify	1
		TIC @ RT = 11.71		890 J	890 J	qualify	2
		12.06		1500 NJ	1500 J	qualify	2
		12.49		1100 J	1100 J	qualify	2
		12.68		1600 J	1600 J	qualify	2
		12.83		710 J	710 J	qualify	2
		12.92		860 J	860 J	qualify	2
		13.11		1700 J	1700 J	qualify	2
		13.19		1200 J	1200 J	qualify	2
		13.35		2000 J	2000 J	qualify	2
		13.45		1500 J	1500 J	qualify	2
		13.54		810 J	810 J	qualify	2
		13.68		1100 J	1100 J	qualify	2
		13.88		6200 J	6200 J	qualify	2
		14.02		2100 J	2100 J	qualify	2
		14.13		2400 J	2400 J	qualify	2
		14.28		1900 J	1900 J	qualify	2
		14.35		960 J	960 J	qualify	2
		14.42		6400 J	6400 J	qualify	2
		14.59		6400 J	6400 J	qualify	2
		14.90		3800 J	3800 J	qualify	2
		15.06		7300 J	7300 J	qualify	2
		15.34		3300 J	3300 J	qualify	2
		15.48		4900 J	4900 J	qualify	2
		15.58		3900 J	3900 J	qualify	2
	S3	No target compounds					
		TIC @ RT = 12.81		720 J	720 J	qualify	2
		14.26		970 J	970 J	qualify	2
		14.85		1000 J	1000 J	qualify	2
		14.95		1200 J	1200 J	qualify	2
	S4	Toluene		200 J	200 J	qualify	1
		TIC @ RT = 12.16		2100 J	2100 J	qualify	2
		12.79		1900 J	1900 J	qualify	2
		12.87		1600 J	1600 J	qualify	2
		13.48		6300 J	6300 J	qualify	2
		13.93		2700 J	2700 J	qualify	2
		14.83		1600 J	1600 J	qualify	2
		15.45		1700 NJ	1700 J	qualify	2

TARGET & NON-TARGET ANALYTE DATA SUMMARY
VOLATILES

SITE NAME : Hamersley Manufacturing SDG No.: 72251 CASE NO.: HA011999

LAB NAME : Severn Trent - VT "SAMPLE MATRIX: Non-Aqueous

FRACTION	FIELD SAMPLE #	ANALYTE	METHOD BLANK CONC.ug/Kg	LAB REPORTED CONC.ug/Kg	QA REPORTED CONC.ug/Kg	QA DECISION	FOOTNOTE
VOA	S5	No target compounds					
		No non-target compounds					
	S6	All target compounds		U	UJ	qualify	3
		No non-target compounds					
	S6RE	All target compounds		U	UJ	qualify	3
		No non-target compounds					
	S7	No target compounds					
		No non-target compounds					
	S8	No target compounds					
		No non-target compounds					
	S9	No target compounds					
		No non-target compounds					
	SED1	No target compounds					
		No non-target compounds					
	SED2	No target compounds					
		No non-target compounds					
	SED3	Vinyl chloride		910 J	910 J	qualify	1, 3
		Carbon disulfide		360 J	360 J	qualify	1, 3
		1,2-Dichloroethene (total)		1900 J	1900 J	qualify	1, 3
		Toluene		330 J	330 J	qualify	1, 3
	SED3RE	Vinyl chloride		880 J	880 J	qualify	1, 3
		1,2-Dichloroethene (total)		2300	2300	qualify	1, 3
		Toluene		390 J	390 J	qualify	1, 3
	SED4	No target compounds					
		No non-target compounds					
	SED5	All target compounds		U	UJ	qualify	3
		No non-target compounds					
	TB	No target compounds					
		No non-target compounds					
	TB2	No target compounds					
		No non-target compounds					

FOOTNOTES

1 The reported value is qualified 'J', because it is above the detection limit, but below the analyte's CRQL.

2 The reported value is quantitatively qualified because relative response factors are not determined for non-target compounds.

3 The reported results are qualified 'J', or 'UJ', because the recovery of one or more surrogates were below the acceptable limits. The samples were re-analyzed with similar low recovery.

DATA VALIDATION REPORT FORMS

Hamersley Manufacturing

Case No. HA011999

SDG No. 72251

Environmental Quality Associates, Inc.

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DATA DELIVERABLE REQUIREMENTS
CLP Statement of Work OLM03.2

Site Name: Hamersley Manufacturing Co.

Case: HA011999

SDG : 72251

Lead Division/Bureau: DPFSR / BEMQA

Laboratory Name: Severn Trent Laboratories - VT

Location: n/a

	Reviewer by Fraction	Date(s) of Review
Volatile:	C. Taylor	5/5/99 and 5/14/99

Check Yes or No and provide a list of deviations at bottom:

A. Permanently Bound	Yes X	No	I. Uninitialed Strikeovers	Yes	No X
B. Paginated	Yes X	No	J. Legible Xerox	Yes X	No
C. Title Page	Yes X	No	K. Consistent Dates	Yes X	No
D. Table of Contents	Yes X	No	L. GC/MS Confirmation Proofs	Yes X	No
E. Chain of Custody	Yes X	No	M. GC/MS Negative Proofs	Yes X	No
F. Internal Chain of Custody	Yes X	No	N. Labeled RICs, TICs	Yes X	No
G. Methodology Review	Yes X	No	O. Labeled GC Chromatograms	Yes X	No
H. Non Conformance Summary	Yes X	No			

Describe any deviations from the requirements below:

Site Name: Hamersley Case No. : HA011999 Fraction: Volatile

SDG No. : 72251

Sample ID Field	Matrix	VTSR	Date of Extraction	DE	Date of Analysis	DA	QA Decision
VBLK1S	S/MP	n/a	n/a	n/a	2/5/99	0	accept
SED1	S/MP	2/4/99	n/a	n/a	2/6/99	0	accept
SED2	S/MP	2/4/99	n/a	n/a	2/6/99	0	accept
SED3	S/MP	2/4/99	n/a	n/a	2/6/99	0	accept
SED4	S/MP	2/4/99	n/a	n/a	2/6/99	0	accept
SED5	S/MP	2/4/99	n/a	n/a	2/6/99	0	accept
SED5 MS	S/MP	2/4/99	n/a	n/a	2/6/99	0	accept
SED5 MSD	S/MP	2/4/99	n/a	n/a	2/6/99	0	accept
AB3	S/MP	2/4/99	n/a	n/a	2/6/99	0	accept
TB2	S/MP	2/4/99	n/a	n/a	2/6/99	0	accept
VBLK8S	S/MP	n/a	n/a	n/a	2/8/99	0	accept
SED3RE	S/MP	2/4/99	n/a	n/a	2/8/99	0	accept
VBLK3T	S/MP	n/a	n/a	n/a	2/9/99	0	accept
S-7	S/MP	2/5/99	n/a	n/a	2/9/99	0	accept
S-8	S/MP	2/5/99	n/a	n/a	2/9/99	0	accept
AB-4	S/MP	2/5/99	n/a	n/a	2/9/99	0	accept
TB	S/MP	2/5/99	n/a	n/a	2/9/99	0	accept
VHBLK01	S/MP	1/23/99	n/a	n/a	2/9/99	6	see below
VBLK2P	S/MP	n/a	n/a	n/a	1/27/99	0	accept
S1	S/MP	1/23/99	n/a	n/a	1/27/99	0	accept
S2	S/MP	1/23/99	n/a	n/a	1/27/99	0	accept
S3	S/MP	1/23/99	n/a	n/a	1/27/99	0	accept
S4	S/MP	1/23/99	n/a	n/a	1/27/99	0	accept
S5	S/MP	1/23/99	n/a	n/a	1/27/99	0	accept
S6	S/MP	1/23/99	n/a	n/a	1/27/99	0	accept
S9	S/MP	1/23/99	n/a	n/a	1/27/99	0	accept
AB1	S/MP	1/23/99	n/a	n/a	1/27/99	0	accept
AB2	S/MP	1/23/99	n/a	n/a	1/27/99	0	accept
S6RE	S/MP	1/23/99	n/a	n/a	1/27/99	0	accept

Comments: Storage Blank VHBLK01 was prepared on 1/23/99, with the first sample group receipt, and analyzed with the last group of samples on 2/9/99. The lab should prepare separate storage blanks for each group of samples, unless hold times can be met for all.

NOTE :

DE = Number of days holding time to extraction is exceeded

DA = Number of days holding time to analysis is exceeded

S = Non-aqueous matrix

S/MP = Non-aqueous / methanol preserved

A = Aqueous matrix

GC/MS INSTRUMENT PERFORMANCE CHECK
AND INITIAL CALIBRATION
VOLATILE ORGANIC FRACTION

Site Name: Hamersley Case No.: HA011999 SDG No.: 72251

Associated Samples and Blanks : VBLK2P S1 S2 S3 S4 S5 S6 S9 AB1 AB2 S6RE

A. BFB GC/MS Instrument Performance Check (IPC)

Injection Date: 1/26/99 Injection Time 22:04 Instrument ID N

Heated Purge (Y/N) : N Column: DB-624 ID (mm): 0.53 File ID: NMH001PV

1. Is the BFB GC/MS Instrument Performance Check acceptable? Yes

   If "No", REJECT the IPC and all associated Blanks, Samples and QC Samples.

   State why the IPC is rejected.

2. Were all standards, samples, blanks and QC samples analyzed within 12 hours of injection of the IPC solution? Yes

   If "No", list all affected samples and QA decision based on requirements of the SOP.

3. Did the laboratory perform separate Initial Calibrations for water and low-level soil samples '(unheated vs. heated purge) ? (n/a)

   If "No", reject allsamples not associated with the correct Initial calibration.

B. Calibration

1. Lab File IDs and Date(s) of Calibration

	LAB FILE ID	DATE OF CALIBRATION
RRF10	NMH010HV	1/27/99
RRF20	NMH020HV	1/26/99
RRF50	NMH050HV	1/26/99
RRF100	NMH100HV	1/26/99
RRF200	NMH200HV	1/26/99

2. Performance Check SDG No.: 72251 ICAL: 1/26/99

a. Does the Initial Calibration meet the criteria for the 23 volatile compounds and the System Monitoring Compound? **Yes**

COMPOUND	Minimum RRF		Maximum %RSD	
Bromomethane	0.100		20.5	
Vinyl chloride	0.100		20.5	
1,1-dichloroethene	0.100		20.5	
1,1-dichloroethane	0.200		20.5	
Chloroform	0.200		20.5	
1,2-dichloroethane	0.100		20.5	
1,1,1-trichloroethane	0.100		20.5	
Carbon tetrachloride	0.100		20.5	
Bromodichloromethane	0.200		20.5	
cis-1,3-dichloropropene	0.200		20.5	
Trichloroethene	0.300		20.5	
Dibromochloromethane	0.100		20.5	
1,1,2-trichloroethane	0.100		20.5	
Benzene	0.500		20.5	
trans-1,3-dichloropropene	0.100		20.5	
Bromoform	0.100		20.5	
Tetrachloroethene	0.200		20.5	
1,1,2,2-tetrachloroethane	0.300		20.5	
Toluene	0.400		20.5	
Chlorobenzene	0.500		20.5	
Ethylbenzene	0.100		20.5	
Styrene	0.300		20.5	
Xylenes (total)	0.300		20.5	
Bromofluorobenzene (SMC)	0.200		20.5	

If "No",

1. Circle the compounds that are outside control limits and enter value(s).
2. If three or more analytes do not meet the %RSD and/or RRF criteria noted above, reject the Initial Calibration and all associated field samples, QC samples and blanks.
3. If any RRF is less than 0.01, reject the Initial Calibration and all associated field samples, QC samples and blanks.
4. If any %RSD is greater than 40%,reject the Initial Calibration and all associated field samples, QC samples and blanks.
5. If two or fewer analytes do not meet the %RSD and/or RRF criteria noted above, no action is required.

b. Is the minimum RRF criteria of 0.010 met for the 12 compounds for which no %RSD has been established? Yes

If "No",

1. Qualify the positive results of the non-SMC compounds in the samples, blanks and QC samples.
2. For SMC compounds, no action.
3. Reject the non-detects for target compounds in samples and blanks.
4. Circle compounds below that are outside control limits and enter values.

COMPOUND	RRF	COMPOUND	RRF
Acetone		1,2-dichloropropane	
2-butanone		2-hexanone	
Carbon disulfide		Methylene chloride	
Chloroethane		4-methyl-2-pentanone	
Chloromethane		Toluene-d8	
1,2-dichloroethene (total)		1,2-dichloroethane-d4	

ORGANICS - 6a

3. CALCULATIONS

For all calculations, provide compound name, complete calculation, and report the laboratory's result and the reviewer's result.

a. Calculate one % RSD (from the list of 24 compounds).

Compound Name: Bromoform

Lab Reported value, %RSD = 3.0 %

Reviewer calculated value, %RSD = 3.0 %

RRF10	0.456
RRF20	0.474
RRF50	0.452
RRF100	0.461
RRF200	0.437

AVG RRF= 0.456
Std. Dev = 0.013
(n-1)

%RSD = (STD. DEV / AVG RRF) *100
= 0.013 / 0.456 * 100
= 3.0

b. Calculate the RRF for one compound (from the list of 12 compounds).

Compound Name: Methylene chloride

Lab Reported value = 1.242

RRF 10

Reviewer calculated value = 1.242

Int. Std. = Bromochloromethane

Lab File ID: VKM010HV

Ax = 138452 Cis = 50
Ais = 557370 Cx = 10

(Ax / Ais) = 0.2484023 (Cis / Cx) = 5

RRFx = (Ax / Ais) * (Cis / Cx)
= 0.2484023 * 5
= 1.242

C. Comments

II46

GC/MS INSTRUMENT PERFORMANCE CHECK
AND CONTINUING CALIBRATION
VOLATILE ORGANIC FRACTION

Part 1 of 4

Site Name: Hamersley Case No. : HA011999 SDG No. : 72251

Associated Samples and Blanks : VBLK2P S1 S2 S3 S4 S5 S6 S9 AB1 AB2 S6RE

A. BFB GC/MS Instrument Performance Check (IPC)

Injection Date 1/27/99 Injection Tim 8:18 Instrument N

Heated Purge (Y/N) : N Column DB-624 ID (mm): 0.53 File ID: NMH002PV

1. Is the BFB GC/MS Instrument Performance Check acceptable? Yes

   If "No", REJECT the IPC and all associated Blanks, Samples and QC Samples.

   State why the IPC is rejected. _____

2. Were all standards, samples, blanks and QC samples analyzed within 12 hours of injection of the IPC solution? Yes

   If "No", list all affected samples and QA decision based on requirements of the SOP.

3. Did the laboratory perform separate Continuing Calibrations for water and low-level soil samples (unheated vs. heated purge) ? n/a

   If "No", reject allsamples not associated with the correct Initial calibration.

B. Calibration

1. File Information

DATE OF CCAL: 1/27/99

CCAL LAB FILE ID: NMH050AHV

DATE OF ICAL: 1/26/99

II47

GC/MS INSTRUMENT PERFORMANCE CHECK
AND CONTINUING CALIBRATION
VOLATILE ORGANIC FRACTION

SDG No.: 72251

Part 2 of 4

2. Performance Check CCAL ID : VSTD050 NMH050AHV Date : 1/27/99

a. Does the Continuing Calibration meet the criteria for the 23 volatile compounds and SMC ? **Yes**

COMPOUND	Minimum RRF		Maximum %D	
Bromomethane	0.100		25.0	
Vinyl chloride	0.100		25.0	
1,1-dichloroethene	0.100		25.0	
1,1-dichloroethane	0.200		25.0	
Chloroform	0.200		25.0	
1,2-dichloroethane	0.100		25.0	
1,1,1-trichloroethane	0.100		25.0	
Carbon tetrachloride	0.100		25.0	
Bromodichloromethane	0.200		25.0	
cis-1,3-dichloropropene	0.200		25.0	
Trichloroethene	0.300		25.0	
Dibromochloromethane	0.100		25.0	
1,1,2-trichloroethane	0.100		25.0	
Benzene	0.500		25.0	
trans-1,3-dichloropropene	0.100		25.0	
Bromoform	0.100		25.0	
Tetrachloroethene	0.200		25.0	
1,1,2,2-tetrachloroethane	0.300		25.0	
Toluene	0.400		25.0	
Chlorobenzene	0.500		25.0	
Ethylbenzene	0.100		25.0	
Styrene	0.300		25.0	
Xylenes (total)	0.300		25.0	
Bromofluorobenzene (SMC)	0.200		25.0	

If "No",

1. Circle the compounds that are outside control limits and enter value(s).
2. If three or more analytes do not meet the %D and/or RRF criteria noted above, reject the Continuing Calibration and all associated field samples, QC samples and blanks.
3. If any RRF is less than 0.01, reject the Continuing Calibration and all associated field samples, QC samples and blanks.
4. If any %D is greater than 40%,reject the Continuing Calibration and all associated field samples, QC samples and blanks.
5. If two or fewer analytes do not meet the %D and/or RRF criteria noted above, no action is required.

II48

b. Is the minimum RRF criteria of 0.010 met for the 12 compounds for which no %RSD has been established? Yes

If "No",

1. Qualify the positive results of the non-SMC compounds in the samples, blanks and QC samples.
2. For SMC compounds, no action.
3. Reject the non-detects for target compounds in samples and blanks.
4. Circle compounds below that are outside control limits and enter values.

COMPOUND	RRF	COMPOUND	RRF
Acetone		1,2-dichloropropane	
2-butanone		2-hexanone	
Carbon disulfide		Methylene chloride	
Chloroethane		4-methyl-2-pentanone	
Chloromethane		Toluene-d8	
1,2-dichloroethene (total)		1,2-dichloroethane-d4	

ORGANICS - 10a

Part 4 of 4

3. CALCULATIONS

For all calculations, provide compound name, complete calculation, and report the laboratory's result and the reviewer's result.

a. Calculate one % D (from the list of 24 compounds). CCAL ID : VSTD050 NMH050AHV Date : 1/27/99

Compound Name Vinyl chloride

Lab Reported value, %D = -6.1 %

Reviewer calculated value, %D = -6.1 %

% D = (RRF - RF50) /RRF * 100

$\overline{RRF}$ = 1.276

RRF50 = 1.354

% D = -6.1

b. Calculate the RRF50 for one compound (from the list of 12 compounds).

Compound Name toluene-d8

Lab Reported value = 0.998

Int. Std. = chlorobenzene-d5

Reviewer calculated value = 0.998

Ax = 2163848 Cis = 50

Ais = 2167526 Cx = 50

RRFx = (Ax / Ais) * (Cis / Cx)
= 0.998303135 * 1
= 0.998

(Ax / Ais) = 0.9983031 (Cis/Cx) = 1

C. Comments

II49

GC/MS INSTRUMENT PERFORMANCE CHECK
AND INITIAL CALIBRATION
VOLATILE ORGANIC FRACTION

Site Name: Hamersley Case No.: HA011999 SDG No.: 72251

Associated Samples and Blanks :

VBLK1S	SED1	SED2	SED3	SED4	SED5
SED5 MS	SED5 MSD	AB3	TB2	VBLK8S	SED3RE
VBLK3T	S-7	S-8	AB-4	TB	VHBLK01

A. BFB GC/MS Instrument Performance Check (IPC)

Injection Date 2/4/99 Injection Time 19:53 Instrument ID L

Heated Purge (Y/N) : N Column: DB-624 ID (mm): 0.53 File ID: LOE001PV

1. Is the BFB GC/MS Instrument Performance Check acceptable? Yes

   If "No", REJECT the IPC and all associated Blanks, Samples and QC Samples.

   State why the IPC is rejected.

2. Were all standards, samples, blanks and QC samples analyzed within 12 hours of injection of the IPC solution? Yes

   If "No", list all affected samples and QA decision based on requirements of the SOP.

3. Did the laboratory perform separate Initial Calibrations for water and low-level soil samples (unheated vs. heated purge) ? (n/a)

   If "No", reject allsamples not associated with the correct Initial calibration.

B. Calibration

1. Lab File IDs and Date(s) of Calibration

	LAB FILE ID	DATE OF CALIBRATION
RRF10	LOE010HV	2/4/99
RRF20	LOE020HV	2/4/99
RRF50	LOE050HV	2/4/99
RRF100	LOE100HV	2/4/99
RRF200	LOE200HV	2/4/99

II 50

GC/MS INSTRUMENT PERFORMANCE CHECK
AND INITIAL CALIBRATION
VOLATILE ORGANIC FRACTION

2. Performance Check SDG No.: 72251 ICAL: 2/4/99

a. Does the Initial Calibration meet the criteria for the 23 volatile compounds and the System Monitoring Compound? **Yes**

COMPOUND	Minimum RRF		Maximum %RSD	
Bromomethane	0.100		20.5	
Vinyl chloride	0.100		20.5	
1,1-dichloroethene	0.100		20.5	
1,1-dichloroethane	0.200		20.5	
Chloroform	0.200		20.5	
1,2-dichloroethane	0.100		20.5	
1,1,1-trichloroethane	0.100		20.5	
Carbon tetrachloride	0.100		20.5	
Bromodichloromethane	0.200		20.5	
cis-1,3-dichloropropene	0.200		20.5	
Trichloroethene	0.300		20.5	
Dibromochloromethane	0.100		20.5	
1,1,2-trichloroethane	0.100		20.5	
Benzene	0.500		20.5	
trans-1,3-dichloropropene	0.100		20.5	
Bromoform	0.100		20.5	
Tetrachloroethene	0.200		20.5	
1,1,2,2-tetrachloroethane	0.300		20.5	
Toluene	0.400		20.5	
Chlorobenzene	0.500		20.5	
Ethylbenzene	0.100		20.5	
Styrene	0.300		20.5	
Xylenes (total)	0.300		20.5	
Bromofluorobenzene (SMC)	0.200		20.5	

If "No",

1. Circle the compounds that are outside control limits and enter value(s).
2. If three or more analytes do not meet the %RSD and/or RRF criteria noted above, reject the Initial Calibration and all associated field samples, QC samples and blanks.
3. If any RRF is less than 0.01, reject the Initial Calibration and all associated field samples, QC samples and blanks.
4. If any %RSD is greater than 40%,reject the Initial Calibration and all associated field samples, QC samples and blanks.
5. If two or fewer analytes do not meet the %RSD and/or RRF criteria noted above, no action is required.

b. Is the minimum RRF criteria of 0.010 met for the 12 compounds for which no %RSD has been established? Yes

If "No",

1. Qualify the positive results of the non-SMC compounds in the samples, blanks and QC samples.
2. For SMC compounds, no action.
3. Reject the non-detects for target compounds in samples and blanks.
4. Circle compounds below that are outside control limits and enter values.

COMPOUND	RRF	COMPOUND	RRF
Acetone		1,2-dichloropropane	
2-butanone		2-hexanone	
Carbon disulfide		Methylene chloride	
Chloroethane		4-methyl-2-pentanone	
Chloromethane		Toluene-d8	
1,2-dichloroethene (total)		1,2-dichloroethane-d4	

ORGANICS - 6b

3. CALCULATIONS

For all calculations, provide compound name, complete calculation, and report the laboratory's result and the reviewer's result.

a. Calculate one % RSD (from the list of 24 compounds).

Compound Name: Benzene

Lab Reported value, %RSD = 7.6 %

Reviewer calculated value, %RSD = 7.6 %

RRF10	0.879
RRF20	0.842
RRF50	0.815
RRF100	0.772
RRF200	0.721

AVG RRF= 0.806
Std. Dev = 0.061
(n-1)

%RSD = (STD. DEV / AVG RRF) *100
= 0.061 / 0.806 * 100
= 7.6

b. Calculate the RRF for one compound (from the list of 12 compounds).

Compound Name: Chloromethane

Lab Reported value = 1.217

RRF 10

Reviewer calculated value = 1.217

Int. Std. = Bromochloromethane

Lab File ID: VKM010HV

Ax = 126281 Cis = 50
Ais = 518856 Cx = 10

RRFx = (Ax / Ais) * (Cis / Cx)
= 0.2433835 * 5
= 1.217

(Ax / Ais) = 0.2433835 (Cis / Cx) = 5

C. Comments

II52

GC/MS INSTRUMENT PERFORMANCE CHECK
AND CONTINUING CALIBRATION
VOLATILE ORGANIC FRACTION

Part 1 of 4

Site Name: Hamersley Case No.: HA011999 SDG No.: 72251

Associated Samples and Blanks: VBLK1S SED1 SED2 SED3 SED4 SED5

SED5 MS SED5 MSD AB3 TB2

A. BFB GC/MS Instrument Performance Check (IPC)

Injection Date 2/5/99 Injection Tim 18:59 Instrument L

Heated Purge (Y/N): N Column DB-624 ID (mm): 0.53 File ID: LOE002PV

1. Is the BFB GC/MS Instrument Performance Check acceptable? Yes

   If "No", REJECT the IPC and all associated Blanks, Samples and QC Samples.

   State why the IPC is rejected.

2. Were all standards, samples, blanks and QC samples analyzed within 12 hours of injection of the IPC solution? Yes

   If "No", list all affected samples and QA decision based on requirements of the SOP.

3. Did the laboratory perform separate Continuing Calibrations for water and low-level soil samples (unheated vs. heated purge)? n/a

   If "No", reject allsamples not associated with the correct Initial calibration.

B. Calibration

1. File Information

DATE OF CCAL: 2/5/99

CCAL LAB FILE ID: LOE050AHV

DATE OF ICAL: 2/4/99

SDG No.: 72251

Part 2 of 4

2. Performance Check CCAL ID : VSTD050 LOE050AHV Date : 2/5/99

a. Does the Continuing Calibration meet the criteria for the 23 volatile compounds and SMC ? **Yes**

COMPOUND	Minimum RRF		Maximum %D	
Bromomethane	0.100		25.0	
Vinyl chloride	0.100		25.0	
1,1-dichloroethene	0.100		25.0	
1,1-dichloroethane	0.200		25.0	
Chloroform	0.200		25.0	
1,2-dichloroethane	0.100		25.0	
1,1,1-trichloroethane	0.100		25.0	
Carbon tetrachloride	0.100		25.0	
Bromodichloromethane	0.200		25.0	
cis-1,3-dichloropropene	0.200		25.0	
Trichloroethene	0.300		25.0	
Dibromochloromethane	0.100		25.0	
1,1,2-trichloroethane	0.100		25.0	
Benzene	0.500		25.0	
trans-1,3-dichloropropene	0.100		25.0	
Bromoform	0.100		25.0	
Tetrachloroethene	0.200		25.0	
1,1,2,2-tetrachloroethane	0.300		25.0	
Toluene	0.400		25.0	
Chlorobenzene	0.500		25.0	
Ethylbenzene	0.100		25.0	
Styrene	0.300		25.0	
Xylenes (total)	0.300		25.0	
Bromofluorobenzene (SMC)	0.200		25.0	

If "No",

1. Circle the compounds that are outside control limits and enter value(s).
2. If three or more analytes do not meet the %D and/or RRF criteria noted above, reject the Continuing Calibration and all associated field samples, QC samples and blanks.
3. If any RRF is less than 0.01, reject the Continuing Calibration and all associated field samples, QC samples and blanks.
4. If any %D is greater than 40%,reject the Continuing Calibration and all associated field samples, QC samples and blanks.
5. If two or fewer analytes do not meet the %D and/or RRF criteria noted above, no action is required.

b. Is the minimum RRF criteria of 0.010 met for the 12 compounds for which no %RSD has been established? Yes

If "No",

1. Qualify the positive results of the non-SMC compounds in the samples, blanks and QC samples.
2. For SMC compounds, no action.
3. Reject the non-detects for target compounds in samples and blanks.
4. Circle compounds below that are outside control limits and enter values.

COMPOUND	RRF	COMPOUND	RRF
Acetone		1,2-dichloropropane	
2-butanone		2-hexanone	
Carbon disulfide		Methylene chloride	
Chloroethane		4-methyl-2-pentanone	
Chloromethane		Toluene-d8	
1,2-dichloroethene (total)		1,2-dichloroethane-d4	

ORGANICS - 10b

Part 4 of 4

3. CALCULATIONS

For all calculations, provide compound name, complete calculation, and report the laboratory's result and the reviewer's result.

a. Calculate one % D (from the list of 24 compounds). CCAL ID : VSTD050 LOE050AHV Date : 2/5/99

Compound Name Benzene

Lab Reported value, %D = 5.3 %

Reviewer calculated value, %D = 5.3 %

% D = (RRF - RF50) /RRF * 100

$\overline{RRF}$ = 0.806

RRF50 = 0.763

% D = 5.3

b. Calculate the RRF50 for one compound (from the list of 12 compounds).

Compound Name toluene-d8

Lab Reported value = 0.994

Int. Std. = chlorobenzene-d5

Reviewer calculated value = 0.994

Ax = 2105511 Cis = 50

Ais = 2118748 Cx = 50

RRFx = (Ax / Ais) * (Cis / Cx)

= 0.993752442 * 1

= 0.994

(Ax / Ais) = 0.9937524 (Cis/Cx) = 1

C. Comments

GC/MS INSTRUMENT PERFORMANCE CHECK
AND CONTINUING CALIBRATION
VOLATILE ORGANIC FRACTION

Part 1 of 4

Site Name: Hamersley Case No. : HA011999 SDG No. : 72251

Associated Samples and Blanks : VBLK8S SED3RE

A. BFB GC/MS Instrument Performance Check (IPC)

Injection Date 2/8/99 Injection Time 10:18 Instrument L

Heated Purge (Y/N) : N Column DB-624 ID (mm): 0.53 File ID: LOE005PV

1. Is the BFB GC/MS Instrument Performance Check acceptable? Yes

   If "No", REJECT the IPC and all associated Blanks, Samples and QC Samples.

   State why the IPC is rejected.

2. Were all standards, samples, blanks and QC samples analyzed within 12 hours of injection of the IPC solution? Yes

   If "No", list all affected samples and QA decision based on requirements of the SOP.

3. Did the laboratory perform separate Continuing Calibrations for water and low-level soil samples (unheated vs. heated purge) ? n/a

   If "No", reject allsamples not associated with the correct Initial calibration.

B. Calibration

1. File Information

DATE OF CCAL: 2/8/99

CCAL LAB FILE ID: LOE050CHV

DATE OF ICAL: 2/4/99

GC/MS INSTRUMENT PERFORMANCE CHECK
AND CONTINUING CALIBRATION
VOLATILE ORGANIC FRACTION

SDG No.: 72251

Part 2 of 4

2. Performance Check CCAL ID : VSTD050 LOE050CHV Date : 2/8/99

a. Does the Continuing Calibration meet the criteria for the 23 volatile compounds and SMC ? **Yes**

COMPOUND	Minimum RRF		Maximum %D	
Bromomethane	0.100		25.0	
Vinyl chloride	0.100		25.0	
1,1-dichloroethene	0.100		25.0	
1,1-dichloroethane	0.200		25.0	
Chloroform	0.200		25.0	
1,2-dichloroethane	0.100		25.0	
1,1,1-trichloroethane	0.100		25.0	
Carbon tetrachloride	0.100		25.0	
Bromodichloromethane	0.200		25.0	
cis-1,3-dichloropropene	0.200		25.0	
Trichloroethene	0.300		25.0	
Dibromochloromethane	0.100		25.0	
1,1,2-trichloroethane	0.100		25.0	
Benzene	0.500		25.0	
trans-1,3-dichloropropene	0.100		25.0	
Bromoform	0.100		25.0	
Tetrachloroethene	0.200		25.0	
1,1,2,2-tetrachloroethane	0.300		25.0	
Toluene	0.400		25.0	
Chlorobenzene	0.500		25.0	
Ethylbenzene	0.100		25.0	
Styrene	0.300		25.0	
Xylenes (total)	0.300		25.0	
Bromofluorobenzene (SMC)	0.200		25.0	

If "No",

1. Circle the compounds that are outside control limits and enter value(s).
2. If three or more analytes do not meet the %D and/or RRF criteria noted above, reject the Continuing Calibration and all associated field samples, QC samples and blanks.
3. If any RRF is less than 0.01, reject the Continuing Calibration and all associated field samples, QC samples and blanks.
4. If any %D is greater than 40%,reject the Continuing Calibration and all associated field samples, QC samples and blanks.
5. If two or fewer analytes do not meet the %D and/or RRF criteria noted above, no action is required.

b. Is the minimum RRF criteria of 0.010 met for the 12 compounds for which no %RSD has been established? Yes

If "No",

1. Qualify the positive results of the non-SMC compounds in the samples, blanks and QC samples.
2. For SMC compounds, no action.
3. Reject the non-detects for target compounds in samples and blanks.
4. Circle compounds below that are outside control limits and enter values.

COMPOUND	RRF	COMPOUND	RRF
Acetone		1,2-dichloropropane	
2-butanone		2-hexanone	
Carbon disulfide		Methylene chloride	
Chloroethane		4-methyl-2-pentanone	
Chloromethane		Toluene-d8	
1,2-dichloroethene (total)		1,2-dichloroethane-d4	

ORGANICS - 10c

Part 4 of 4

3. CALCULATIONS

For all calculations, provide compound name, complete calculation, and report the laboratory's result and the reviewer's result.

a. Calculate one % D (from the list of 24 compounds). CCAL ID : VSTD050 LOE050CHV Date : 2/8/99

Compound Name Trichloroethene

Lab Reported value, %D = 7.5 %

Reviewer calculated value, %D = 7.5 %

% D = (RRF - RF50) /RRF * 100

$\overline{RRF}$ = 0.440

RRF50 = 0.407

% D = 7.5

b. Calculate the RRF50 for one compound (from the list of 12 compounds).

Compound Name toluene-d8

Lab Reported value = 0.977

Int. Std. = chlorobenzene-d5

Reviewer calculated value = 0.977

Ax = 2187869 Cis = 50

Ais = 2238706 Cx = 50

RRFx = (Ax / Ais) * (Cis / Cx)
= 0.977291793 * 1
= 0.977

(Ax / Ais) = 0.9772918 (Cis/Cx) = 1

C. Comments

GC/MS INSTRUMENT PERFORMANCE CHECK
AND CONTINUING CALIBRATION
VOLATILE ORGANIC FRACTION

Part 1 of 4

Site Name: Hamersley Case No.: HA011999 SDG No.: 72251

Associated Samples and Blanks: VBLK3T S-7 S-8 AB-4 TB VHBLK01

A. BFB GC/MS Instrument Performance Check (IPC)

Injection Date 2/9/99 Injection Time 7:58 Instrument L

Heated Purge (Y/N): N Column DB-624 ID (mm): 0.53 File ID: LOE006PV

1. Is the BFB GC/MS Instrument Performance Check acceptable? Yes

   If "No", REJECT the IPC and all associated Blanks, Samples and QC Samples.

   State why the IPC is rejected.

2. Were all standards, samples, blanks and QC samples analyzed within 12 hours of injection of the IPC solution? Yes

   If "No", list all affected samples and QA decision based on requirements of the SOP.

3. Did the laboratory perform separate Continuing Calibrations for water and low-level soil samples (unheated vs. heated purge) ? n/a

   If "No", reject allsamples not associated with the correct Initial calibration.

B. Calibration

1. File Information

DATE OF CCAL: 2/9/99

CCAL LAB FILE ID: LOE050DHV

DATE OF ICAL: 2/4/99

GC/MS INSTRUMENT PERFORMANCE CHECK
AND CONTINUING CALIBRATION
VOLATILE ORGANIC FRACTION

SDG No.: 72251

Part 2 of 4

2. Performance Check CCAL ID : VSTD050 LOE050DHV Date : 2/9/99

a. Does the Continuing Calibration meet the criteria for the 23 volatile compounds and SMC ? **Yes**

COMPOUND	Minimum RRF		Maximum %D	
Bromomethane	0.100		25.0	
Vinyl chloride	0.100		25.0	
1,1-dichloroethene	0.100		25.0	
1,1-dichloroethane	0.200		25.0	
Chloroform	0.200		25.0	
1,2-dichloroethane	0.100		25.0	
1,1,1-trichloroethane	0.100		25.0	
Carbon tetrachloride	0.100		25.0	
Bromodichloromethane	0.200		25.0	
cis-1,3-dichloropropene	0.200		25.0	
Trichloroethene	0.300		25.0	
Dibromochloromethane	0.100		25.0	
1,1,2-trichloroethane	0.100		25.0	
Benzene	0.500		25.0	
trans-1,3-dichloropropene	0.100		25.0	
Bromoform	0.100		25.0	
Tetrachloroethene	0.200		25.0	
1,1,2,2-tetrachloroethane	0.300		25.0	
Toluene	0.400		25.0	
Chlorobenzene	0.500		25.0	
Ethylbenzene	0.100		25.0	
Styrene	0.300		25.0	
Xylenes (total)	0.300		25.0	
Bromofluorobenzene (SMC)	0.200		25.0	

If "No",

1. Circle the compounds that are outside control limits and enter value(s).
2. If three or more analytes do not meet the %D and/or RRF criteria noted above, reject the Continuing Calibration and all associated field samples, QC samples and blanks.
3. If any RRF is less than 0.01, reject the Continuing Calibration and all associated field samples, QC samples and blanks.
4. If any %D is greater than 40%,reject the Continuing Calibration and all associated field samples, QC samples and blanks.
5. If two or fewer analytes do not meet the %D and/or RRF criteria noted above, no action is required.

b. Is the minimum RRF criteria of 0.010 met for the 12 compounds for which no %RSD has been established? Yes

If "No",

1. Qualify the positive results of the non-SMC compounds in the samples, blanks and QC samples.
2. For SMC compounds, no action.
3. Reject the non-detects for target compounds in samples and blanks.
4. Circle compounds below that are outside control limits and enter values.

COMPOUND	RRF	COMPOUND	RRF
Acetone		1,2-dichloropropane	
2-butanone		2-hexanone	
Carbon disulfide		Methylene chloride	
Chloroethane		4-methyl-2-pentanone	
Chloromethane		Toluene-d8	
1,2-dichloroethene (total)		1,2-dichloroethane-d4	

ORGANICS - 10d

Part 4 of 4

3. CALCULATIONS

For all calculations, provide compound name, complete calculation, and report the laboratory's result and the reviewer's result.

a. Calculate one % D (from the list of 24 compounds). CCAL ID : VSTD050 LOE050DHV Date : 2/9/99

Compound Name Chlorobenzene

Lab Reported value, %D = 4.6 %

Reviewer calculated value, %D = 4.7 %

% D = (RRF - RF50) /RRF * 100

$\overline{RRF}$ = 0.903

RRF50 = 0.861

% D = 4.7

b. Calculate the RRF50 for one compound (from the list of 12 compounds).

Compound Name toluene-d8

Lab Reported value = 0.985

Int. Std. = chlorobenzene-d5

Reviewer calculated value = 0.985

Ax = 2022892 Cis = 50

Ais = 2054359 Cx = 50

RRFx = (Ax / Ais) * (Cis / Cx)

= 0.984682813 * 1

= 0.985

(Ax / Ais) = 0.9846828 (Cis/Cx) = 1

C. Comments

Site Name: Hamersley Case No. : HA011999 SDG No. : 72251

CCAL ID :	NMH050AHV										
CCAL DATE:	1/27/99	Bromochloromethane		RT	1,4-difluorobenzene		RT	Chlorobenzene-d5		RT	
12 Hour Standard		577687		6.68	2544430		7.90	2167526		11.10	
Upper Limit		1155374		7.18	5088860		8.40	4335052		11.60	
Lower Limit		288844		6.18	1272215		7.40	1083763		10.60	
	Sample ID	Area	Qualifier	RT	Area	Qualifier	RT	Area	Qualifier	RT	QA Action
	VBLK2P	564476		6.67	2465085		7.88	2155674		11.09	accept
	S1	556188		6.66	2470448		7.88	2132984		11.09	accept
	S2	555887		6.66	2488030		7.88	2139823		11.09	accept
	S3	527741		6.66	2254861		7.88	1969939		11.09	accept
	S4	514087		6.66	2140396		7.88	1864244		11.09	accept
	S5	519238		6.66	2166821		7.88	1868342		11.09	accept
	S6	523361		6.66	2152910		7.88	1878802		11.09	accept
	S9	538372		6.66	2273057		7.88	1957192		11.09	accept
	AB1	533737		6.66	2253379		7.88	1939876		11.09	accept
	AB2	536362		6.66	2303511		7.88	1975323		11.09	accept
	S6RE	543393		6.66	2311921		7.88	2008457		11.09	accept

CCAL ID :	LOE050AHV										
CCAL DATE:	2/5/99	Bromochloromethane		RT	1,4-difluorobenzene		RT	Chlorobenzene-d5		RT	
12 Hour Standard		501396		6.70	2425132		7.83	2118748		10.77	
Upper Limit		1002792		7.20	4850264		8.33	4237496		11.27	
Lower Limit		250698		6.20	1212566		7.33	1059374		10.27	
	Sample ID	Area	Qualifier	RT	Area	Qualifier	RT	Area	Qualifier	RT	QA Action
	VBLK1S	477462		6.69	2322536		7.81	1994454		10.79	accept
	SED1	457540		6.69	2208874		7.81	1910717		10.78	accept
	SED2	447890		6.69	2226058		7.81	1909456		10.78	accept
	SED3	468638		6.69	2240920		7.81	1961350		10.78	accept
	SED4	538446		6.69	2575938		7.81	2205960		10.79	accept
	SED5	629220		6.69	2966174		7.81	2516995		10.79	accept
	SED5 MS	587440		6.69	2824341		7.83	2356731		10.79	accept
	SED5 MSD	619902		6.69	2941551		7.81	2425461		10.79	accept
	AB3	602381		6.69	2929837		7.83	2450867		10.79	accept
	TB2	583185		6.69	2842435		7.83	2422996		10.80	accept

CCAL ID :	LOE050CHV										
CCAL DATE:	2/8/99	Bromochloromethane		RT	1,4-difluorobenzene		RT	Chlorobenzene-d5		RT	
12 Hour Standard		512078		6.70	2502994		7.83	2238706		10.79	
Upper Limit		1024156		7.20	5005988		8.33	4477412		11.29	
Lower Limit		256039		6.20	1251497		7.33	1119353		10.29	
	Sample ID	Area	Qualifier	RT	Area	Qualifier	RT	Area	Qualifier	RT	QA Action
	VBLK8S	504195		6.70	2383334		7.82	2051861		10.80	accept
	SED3RE	484271		6.70	2272397		7.83	2036146		10.78	accept

Provide any necessary comments below: Circle any RT values outside + or - 0.500 minutes QC limits

Sample ID from above is: (Check one) Field ID [X]

* in Qualifier column indicates areas outside +100% or -50% QC limits

J in QA Action column indicates that compounds associated with particular IS compound outside QC limits are considered estimated values (J all positive compounds for >100% ; J all compounds for < 50%)

Site Name: Hamersley Case No. : HA011999 SDG No. : 72251

CCAL ID : LOE050DHV											
CCAL DATE: 2/9/99		Bromochloromethane		RT	1,4-difluorobenzene		RT	Chlorobenzene-d5		RT	
12 Hour Standard		464043		6.72	2336679		7.84	2054359		10.79	
Upper Limit		928086		7.22	4673358		8.34	4108718		11.29	
Lower Limit		232022		6.22	1168340		7.34	1027180		10.29	
	Sample ID	Area	Qualifier	RT	Area	Qualifier	RT	Area	Qualifier	RT	QA Action
	VBLK3T	485609		6.70	2383694		7.82	2008540		10.80	accept
	S-7	454925		6.73	2276901		7.86	1910521		10.80	accept
	S-8	459940		6.72	2296697		7.84	1937147		10.80	accept
	AB-4	468936		6.73	2273535		7.86	1949525		10.81	accept
	TB	461694		6.72	2267798		7.86	1927934		10.81	accept
	VHBLK01	444706		6.70	2246430		7.82	1902417		10.80	accept

Provide any necessary comments below: Circle any RT values outside + or - 0.500 minutes QC limits

Sample ID from above is: (Check one) Field ID [X]

* in Qualifier column indicates areas outside +100% or -50% QC limits

J in QA Action column indicates that compounds associated with particular IS compound outside QC limits are considered estimated values (J all positive compounds for >100% ; J all compounds for < 50%)

RECOVERY SUMMARY

Site Name: Hamersley Case No.: HA011999 SDG No.: 72251 Matrix: Soil

	Sample ID	Toluene-d8 % Rec	Toluene-d8 Qual	4-bromofluorobenzene % Rec	4-bromofluorobenzene Qual	1,2-dichloroethane-d4 % Rec	1,2-dichloroethane-d4 Qual	QA Action	
	VBLK2P	100		100		92			
	S1	92		94		89			
	S2	87		94		84			
	S3	86		85		79			
	S4	84		86		78			
	S5	88		92		80			
	S6	82	*	84		75		qualify	
	S9	90		92		78			
	AB1	92		95		82			
	AB2	94		94		79			
	S6RE	85		85		66	*	qualify	
	VBLK1S	104		100		100			
	SED1	89		88		88			
	SED2	85		82		89			
	SED3	78	*	77		78		qualify	
	SED4	86		80		80			
	SED5	77	*	72		65	*	qualify	
	SED5 MS	77	*	75		65	*	qualify	
	SED5 MSD	77	*	75		64	*	qualify	
	AB3	94		87		79			
	TB2	94		89		81			
	VBLK8S	104		100		100			
	SED3RE	82	*	77		80		qualify	
	VBLK3T	108		96		100			
	S-7	93		87		88			
	S-8	95		88		91			
	AB-4	95		90		92			
	TB	98		90		94			

Sample ID is: FIELD

* indicates non-compliant SMC recovery

	Water %R Low	Water %R High	Soil %R Low	Soil %R High
Toluene-d8	88	110	84	138
4-bromofluorobenzene	86	115	59	113
1,2-dichloroethane-d4	76	114	70	121

Comments: An error was made by the laboratory in processing the original data package, involving usage of an incorrect MeOH extraction volume for quantitation (10 mL, vs. 25 mL). The laboratory subsequently corrected for this error and submitted a revised data package. In the revision, the surrogate recoveries were incorrectly calculated. The values listed above are the correct recoveries. Please ignore the revised Form 2B, dated April 14, 1999, and use the origina

VOLATILE MATRIX SPIKE / MATRIX SPIKE DUPLICATE ANALYSIS

Site Name: Hamersley

Case No. : HA011999 SDG No.: 72251

Sample Number: SED5 Matrix: Soil Level: Med

Associated Samples and Blanks : All SDG No. 72251 samples

Provide % Recovery and RPD results below.

COMPOUND	MS % REC	Q	MSD % REC	Q	RPD	Q	COMMENTS
1,1-dichloroethene	110		106		4		
Trichloroethene	102		100		2		
Benzene	110		110		0		
Toluene	102		102		0		
Chlorobenzene	100		100		0		

* indicates non-compliant % Recovery or RPD

	Non-Aqueous Matrix Limits (Advisory)				
COMPOUND	% REC LOW		% REC HIGH		RPD
1,1-dichloroethene	59		172		22
Trichloroethene	62		137		24
Benzene	66		142		21
Toluene	59		139		21
Chlorobenzene	60		133		21

METHOD BLANK SUMMARY

Site Name: Hamersley

Case No. : HA011999 SDG No. : 72251 Fraction: Volatile

Blank ID: VBLK2P File ID: NMHB002AV

Matrix: Soil Level: Med

Extraction Date: n/a "Analysis Date: 1/27/99

Concentration Units: X ug/Kg "Analysis Time: 10:03

COMPOUND	CONC.	CRQL	ACTION
No target compounds found			
No non-target compounds found			

CRQL: Provide CRQL for the analyte.
Action: QA decision on the analyte.

Associated Samples: S1 S2 S3 S4 S5

S6 S9 AB1 AB2 S6RE

METHOD BLANK SUMMARY

Site Name: Hamersley

Case No. : HA011999 SDG No. : 72251 Fraction: Volatile

Blank ID: VBLK1S File ID: LOEB002AV

Matrix: Soil Level: Med

Extraction Date: n/a "Analysis Date: 2/5/99

Concentration Units: X ug/Kg "Analysis Time: 19:59

COMPOUND	CONC.	CRQL	ACTION
No target compounds found			
No non-target compounds found			

CRQL: Provide CRQL for the analyte.
Action: QA decision on the analyte.

Associated Samples: SED1 SED2 SED3 SED4 SED5

SED5 MS SED5 MSD AB3 TB2

METHOD BLANK SUMMARY

Site Name: Hamersley

Case No. : HA011999 SDG No. : 72251 Fraction: Volatile

Blank ID: VBLK8S File ID: LOEB002CV

Matrix: Soil Level: Med

Extraction Date: n/a "Analysis Date: 2/8/99

Concentration Units: X ug/Kg "Analysis Time: 11:34

COMPOUND	CONC.	CRQL	ACTION
No target compounds found			
No non-target compounds found			

CRQL: Provide CRQL for the analyte.
Action: QA decision on the analyte.

Associated Samples: SED3RE

METHOD BLANK SUMMARY

Site Name: Hamersley

Case No. : HA011999 SDG No. : 72251 Fraction: Volatile

Blank ID: VBLK3T File ID: LOEB002DV

Matrix: Soil Level: Med

Extraction Date: n/a "Analysis Date: 2/9/99

Concentration Units: X ug/Kg "Analysis Time: 9:05

COMPOUND	CONC.	CRQL	ACTION
No target compounds found			
No non-target compounds found			

CRQL: Provide CRQL for the analyte.
Action: QA decision on the analyte.

Associated Samples: S-7 S-8 AB-4 TB VHBLK01

Part 1 of 2

SITE NAME : Hamersley

Case No. : HA011999
SDG No. : 72251 VOA

ASSOCIATED SAMPLES:

All SDG No. 72251 samples.

1. Was all sample data reported within the calibrated range ? YES

   If "NO", list affected samples and action.

2. Was the % moisture reported for all non-aqueous samples ? YES

   If "NO", list affected samples and action.

3. Was all non-aqueous sample data reported on a dry-weight basis ? YES

   If "NO", list affected samples and action.

4. Did any GC chromatograms or GC/MS RICs exhibit interferences, off-scale peaks, or elevated baselines ? YES

   If "YES", list affected samples and action.
   Several samples exhibited elevated baselines due to a large number of non-target peaks present. No action was required.

5. Did any samples contain elevated detection limits that could not be accounted for ? NO

   If "YES", list affected samples and action.

6. Were any computational or transcription errors found ? YES

   If "YES", list affected samples and action. The laboratory referenced an incorrect volume of MeOH used for sample extraction (10 mL referenced vs. actual 25 mL used). The reported quantitation limits were low by a factor of 2.5. The laboratory was contacted on 5/6/99; the project manager noted that amended results had been sent to Mr. Frank Sorce (NJDEP). Mr. Sorce was contacted on 5/6/99, and agreed to ship the amended data package directly to EQA. Amended data were received on 5/14/99.

Part 2 of 2

SITE NAME : Hamersley

Case No. : HA011999
SDG No. : 72251

7. Verify that the concentrations reported by the laboratory were correctly calculated. Recalculate the concentration of one analyte in each fraction.

MEDIUM LEVEL
VOLATILE FRACTION

	conc.	units
Lab Value :	2300	ug/Kg

Sample No. SED3RE Analyte : 1,2-dichloroethene (IS: bromochloromethane)

Calculation Non-Aqueous Samples

	150283	250	25.0	1000	1.0	(Ax) (Is) (Vt) (1000) (Df)
ug/Kg =	484271	1.442	100	10.3	0.57	(Ais) (RRF) (Va) (Ws) (D)

ug/Kg = **2291**

LABORATORY TRANSMITTALS

Hamersley Manufacturing

Case No. HA011999

SDG No. 72251

Environmental Quality Associates, Inc.

II72

Committed To *Your* Success

SAMPLE DATA SUMMARY PACKAGE

CONTRACT: 95X 22651
CASE NO: HA 011999
SDG NO: 72251

Rev

RECEIVED
MAY 14 1999

II73

2B
SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Level:(low/med) MED

	EPA SAMPLE NO.	SMC1 (TOL) #	SMC2 (BFB) #	SMC3 (DCE) #	OTHER	TOT OUT
01	VBLK2P	100	102	94		0
02	S1	88	88	88		0
03	S2	88	94	81		0
04	S3	82*	82	76		1
05	S4	86	86	77		0
06	S5	87	87	80		0
07	S6	82*	82	76		1
08	S9	87	93	80		0
09	AB1	88	94	81		0
10	AB2	88	94	75		0
11	S6RE	82*	82	65*		2
12	VBLK1S	105	100	100		0
13	SED1	91	87	87		0
14	SED2	88	83	92		0
15	SED3	78*	78	81		1
16	SED4	88	80	80		0
17	SED5	78*	72	66*		2
18	SED5MS	81*	75	66*		2
19	SED5MSD	81*	75	66*		2
20	AB3	88	88	75		0
21	TB2	88	88	75		0
22	VBLK8S	106	100	100		0
23	SED3RE	81*	78	81		1
24	VBLK3T	110	98	102		0
25	S-7	94	88	94		0
26	S-8	100	88	94		0
27	AB-4	94	88	88		0
28	TB	94	88	88		0
29	VHBLK01	111	100	106		0
30						

		QC LIMITS
SMC1 (TOL)	= Toluene-d8	(84-138)
SMC2 (BFB)	= Bromofluorobenzene	(59-113)
SMC3 (DCE)	= 1,2-Dichloroethane-d4	(70-121)

Column to be used to flag recovery values

* Values outside of contract required QC limits

3B

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix Spike - EPA Sample No.: SED5 Level:(low/med) MED

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC. LIMITS REC.
1,1-Dichloroethene	13000	0	14000	108	59-172
Trichloroethene	13000	0	13000	100	62-137
Benzene	13000	0	14000	108	66-142
Toluene	13000	0	13000	100	59-139
Chlorobenzene	13000	0	13000	100	60-133

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	13000	13000	100	8	22	59-172
Trichloroethene	13000	13000	100	0	24	62-137
Benzene	13000	14000	108	0	21	66-142
Toluene	13000	13000	100	0	21	59-139
Chlorobenzene	13000	13000	100	0	21	60-133

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

* Values outside of QC limits

RPD: 0 out of 5 outside limits
Spike Recovery: 0 out of 10 outside limits

COMMENTS:

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AB1

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: 376729

Sample wt/vol: 10.0 (g/mL) G Lab File ID: N376729E2V

Level: (low/med) MED Date Received: 01/23/99

% Moisture: not dec. _____ Date Analyzed: 01/27/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	1200	U
74-83-9	Bromomethane	1200	U
75-01-4	Vinyl Chloride	1200	U
75-00-3	Chloroethane	1200	U
75-09-2	Methylene Chloride	1200	U
67-64-1	Acetone	1200	U
75-15-0	Carbon Disulfide	1200	U
75-35-4	1,1-Dichloroethene	1200	U
75-34-3	1,1-Dichloroethane	1200	U
540-59-0	1,2-Dichloroethene (total)	1200	U
67-66-3	Chloroform	1200	U
107-06-2	1,2-Dichloroethane	1200	U
78-93-3	2-Butanone	1200	U
71-55-6	1,1,1-Trichloroethane	1200	U
56-23-5	Carbon Tetrachloride	1200	U
75-27-4	Bromodichloromethane	1200	U
78-87-5	1,2-Dichloropropane	1200	U
10061-01-5	cis-1,3-Dichloropropene	1200	U
79-01-6	Trichloroethene	1200	U
124-48-1	Dibromochloromethane	1200	U
79-00-5	1,1,2-Trichloroethane	1200	U
71-43-2	Benzene	1200	U
10061-02-6	trans-1,3-Dichloropropene	1200	U
75-25-2	Bromoform	1200	U
108-10-1	4-Methyl-2-Pentanone	1200	U
591-78-6	2-Hexanone	1200	U
127-18-4	Tetrachloroethene	1200	U
79-34-5	1,1,2,2-Tetrachloroethane	1200	U
108-88-3	Toluene	1200	U
108-90-7	Chlorobenzene	1200	U
100-41-4	Ethylbenzene	1200	U
100-42-5	Styrene	1200	U
1330-20-7	Xylene (total)	1200	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

AB1

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: 376729

Sample wt/vol: 10.0 (g/mL) G Lab File ID: N376729E2V

Level: (low/med) MED Date Received: 01/23/99

% Moisture: not dec. _____ Date Analyzed: 01/27/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AB2

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: 376730

Sample wt/vol: 10.0 (g/mL) G Lab File ID: N376730E2V

Level: (low/med) MED Date Received: 01/23/99

% Moisture: not dec. _____ Date Analyzed: 01/27/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	1200	U
74-83-9	Bromomethane	1200	U
75-01-4	Vinyl Chloride	1200	U
75-00-3	Chloroethane	1200	U
75-09-2	Methylene Chloride	1200	U
67-64-1	Acetone	1200	U
75-15-0	Carbon Disulfide	1200	U
75-35-4	1,1-Dichloroethene	1200	U
75-34-3	1,1-Dichloroethane	1200	U
540-59-0	1,2-Dichloroethene (total)	1200	U
67-66-3	Chloroform	1200	U
107-06-2	1,2-Dichloroethane	1200	U
78-93-3	2-Butanone	1200	U
71-55-6	1,1,1-Trichloroethane	1200	U
56-23-5	Carbon Tetrachloride	1200	U
75-27-4	Bromodichloromethane	1200	U
78-87-5	1,2-Dichloropropane	1200	U
10061-01-5	cis-1,3-Dichloropropene	1200	U
79-01-6	Trichloroethene	1200	U
124-48-1	Dibromochloromethane	1200	U
79-00-5	1,1,2-Trichloroethane	1200	U
71-43-2	Benzene	1200	U
10061-02-6	trans-1,3-Dichloropropene	1200	U
75-25-2	Bromoform	1200	U
108-10-1	4-Methyl-2-Pentanone	1200	U
591-78-6	2-Hexanone	1200	U
127-18-4	Tetrachloroethene	1200	U
79-34-5	1,1,2,2-Tetrachloroethane	1200	U
108-88-3	Toluene	1200	U
108-90-7	Chlorobenzene	1200	U
100-41-4	Ethylbenzene	1200	U
100-42-5	Styrene	1200	U
1330-20-7	Xylene (total)	1200	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

AB2

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: 376730

Sample wt/vol: 10.0 (g/mL) G Lab File ID: N376730E2V

Level: (low/med) MED Date Received: 01/23/99

% Moisture: not dec. _____ Date Analyzed: 01/27/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AB3

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: 377498

Sample wt/vol: 10.0 (g/mL) G Lab File ID: L377498EV

Level: (low/med) MED Date Received: 02/04/99

% Moisture: not dec. _____ Date Analyzed: 02/06/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	1200	U
74-83-9	Bromomethane	1200	U
75-01-4	Vinyl Chloride	1200	U
75-00-3	Chloroethane	1200	U
75-09-2	Methylene Chloride	1200	U
67-64-1	Acetone	1200	U
75-15-0	Carbon Disulfide	1200	U
75-35-4	1,1-Dichloroethene	1200	U
75-34-3	1,1-Dichloroethane	1200	U
540-59-0	1,2-Dichloroethene (total)	1200	U
67-66-3	Chloroform	1200	U
107-06-2	1,2-Dichloroethane	1200	U
78-93-3	2-Butanone	1200	U
71-55-6	1,1,1-Trichloroethane	1200	U
56-23-5	Carbon Tetrachloride	1200	U
75-27-4	Bromodichloromethane	1200	U
78-87-5	1,2-Dichloropropane	1200	U
10061-01-5	cis-1,3-Dichloropropene	1200	U
79-01-6	Trichloroethene	1200	U
124-48-1	Dibromochloromethane	1200	U
79-00-5	1,1,2-Trichloroethane	1200	U
71-43-2	Benzene	1200	U
10061-02-6	trans-1,3-Dichloropropene	1200	U
75-25-2	Bromoform	1200	U
108-10-1	4-Methyl-2-Pentanone	1200	U
591-78-6	2-Hexanone	1200	U
127-18-4	Tetrachloroethene	1200	U
79-34-5	1,1,2,2-Tetrachloroethane	1200	U
108-88-3	Toluene	1200	U
108-90-7	Chlorobenzene	1200	U
100-41-4	Ethylbenzene	1200	U
100-42-5	Styrene	1200	U
1330-20-7	Xylene (total)	1200	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

AB3

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: 377498

Sample wt/vol: 10.0 (g/mL) G Lab File ID: L377498EV

Level: (low/med) MED Date Received: 02/04/99

% Moisture: not dec. _____ Date Analyzed: 02/06/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AB-4

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: 377634

Sample wt/vol: 10.0 (g/mL) G Lab File ID: L377634EV

Level: (low/med) MED Date Received: 02/05/99

% Moisture: not dec. _____ Date Analyzed: 02/09/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	1200	U
74-83-9	Bromomethane	1200	U
75-01-4	Vinyl Chloride	1200	U
75-00-3	Chloroethane	1200	U
75-09-2	Methylene Chloride	1200	U
67-64-1	Acetone	1200	U
75-15-0	Carbon Disulfide	1200	U
75-35-4	1,1-Dichloroethene	1200	U
75-34-3	1,1-Dichloroethane	1200	U
540-59-0	1,2-Dichloroethene (total)	1200	U
67-66-3	Chloroform	1200	U
107-06-2	1,2-Dichloroethane	1200	U
78-93-3	2-Butanone	1200	U
71-55-6	1,1,1-Trichloroethane	1200	U
56-23-5	Carbon Tetrachloride	1200	U
75-27-4	Bromodichloromethane	1200	U
78-87-5	1,2-Dichloropropane	1200	U
10061-01-5	cis-1,3-Dichloropropene	1200	U
79-01-6	Trichloroethene	1200	U
124-48-1	Dibromochloromethane	1200	U
79-00-5	1,1,2-Trichloroethane	1200	U
71-43-2	Benzene	1200	U
10061-02-6	trans-1,3-Dichloropropene	1200	U
75-25-2	Bromoform	1200	U
108-10-1	4-Methyl-2-Pentanone	1200	U
591-78-6	2-Hexanone	1200	U
127-18-4	Tetrachloroethene	1200	U
79-34-5	1,1,2,2-Tetrachloroethane	1200	U
108-88-3	Toluene	1200	U
108-90-7	Chlorobenzene	1200	U
100-41-4	Ethylbenzene	1200	U
100-42-5	Styrene	1200	U
1330-20-7	Xylene (total)	1200	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

AB-4

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: 377634

Sample wt/vol: 10.0 (g/mL) G Lab File ID: L377634EV

Level: (low/med) MED Date Received: 02/05/99

% Moisture: not dec. _____ Date Analyzed: 02/09/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S1

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: 376722

Sample wt/vol: 11.7 (g/mL) G Lab File ID: N376722E2V

Level: (low/med) MED Date Received: 01/23/99

% Moisture: not dec. 14 Date Analyzed: 01/27/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	1200	U
74-83-9	Bromomethane	1200	U
75-01-4	Vinyl Chloride	1200	U
75-00-3	Chloroethane	1200	U
75-09-2	Methylene Chloride	1200	U
67-64-1	Acetone	1200	U
75-15-0	Carbon Disulfide	1200	U
75-35-4	1,1-Dichloroethene	1200	U
75-34-3	1,1-Dichloroethane	1200	U
540-59-0	1,2-Dichloroethene (total)	1200	U
67-66-3	Chloroform	1200	U
107-06-2	1,2-Dichloroethane	1200	U
78-93-3	2-Butanone	1200	U
71-55-6	1,1,1-Trichloroethane	1200	U
56-23-5	Carbon Tetrachloride	1200	U
75-27-4	Bromodichloromethane	1200	U
78-87-5	1,2-Dichloropropane	1200	U
10061-01-5	cis-1,3-Dichloropropene	1200	U
79-01-6	Trichloroethene	1200	U
124-48-1	Dibromochloromethane	1200	U
79-00-5	1,1,2-Trichloroethane	1200	U
71-43-2	Benzene	1200	U
10061-02-6	trans-1,3-Dichloropropene	1200	U
75-25-2	Bromoform	1200	U
108-10-1	4-Methyl-2-Pentanone	1200	U
591-78-6	2-Hexanone	1200	U
127-18-4	Tetrachloroethene	1200	U
79-34-5	1,1,2,2-Tetrachloroethane	1200	U
108-88-3	Toluene	1200	U
108-90-7	Chlorobenzene	1200	U
100-41-4	Ethylbenzene	1200	U
100-42-5	Styrene	1200	U
1330-20-7	Xylene (total)	1200	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

S1

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: 376722

Sample wt/vol: 11.7 (g/mL) G Lab File ID: N376722E2V

Level: (low/med) MED Date Received: 01/23/99

% Moisture: not dec. 14 Date Analyzed: 01/27/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S2

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: 376723

Sample wt/vol: 11.6 (g/mL) G Lab File ID: N376723E2V

Level: (low/med) MED Date Received: 01/23/99

% Moisture: not dec. 14 Date Analyzed: 01/27/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	1200	U
74-83-9	Bromomethane	1200	U
75-01-4	Vinyl Chloride	1200	U
75-00-3	Chloroethane	1200	U
75-09-2	Methylene Chloride	1200	U
67-64-1	Acetone	1200	U
75-15-0	Carbon Disulfide	1200	U
75-35-4	1,1-Dichloroethene	1200	U
75-34-3	1,1-Dichloroethane	1200	U
540-59-0	1,2-Dichloroethene (total)	1200	U
67-66-3	Chloroform	1200	U
107-06-2	1,2-Dichloroethane	1200	U
78-93-3	2-Butanone	1200	U
71-55-6	1,1,1-Trichloroethane	1200	U
56-23-5	Carbon Tetrachloride	1200	U
75-27-4	Bromodichloromethane	1200	U
78-87-5	1,2-Dichloropropane	1200	U
10061-01-5	cis-1,3-Dichloropropene	1200	U
79-01-6	Trichloroethene	1200	U
124-48-1	Dibromochloromethane	1200	U
79-00-5	1,1,2-Trichloroethane	1200	U
71-43-2	Benzene	1200	U
10061-02-6	trans-1,3-Dichloropropene	1200	U
75-25-2	Bromoform	1200	U
108-10-1	4-Methyl-2-Pentanone	1200	U
591-78-6	2-Hexanone	1200	U
127-18-4	Tetrachloroethene	1200	U
79-34-5	1,1,2,2-Tetrachloroethane	1200	U
108-88-3	Toluene	1200	U
108-90-7	Chlorobenzene	180	J
100-41-4	Ethylbenzene	1200	U
100-42-5	Styrene	1200	U
1330-20-7	Xylene (total)	1200	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

S2

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: 376723

Sample wt/vol: 11.6 (g/mL) G Lab File ID: N376723E2V

Level: (low/med) MED Date Received: 01/23/99

% Moisture: not dec. 14 Date Analyzed: 01/27/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

Number TICs found: 24

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN ALIPHATIC ALDEHYDE	11.71	890	J
2. 104-76-7	1-HEXANOL, 2-ETHYL-	12.06	1500	NJ
3.	UNKNOWN ALKYLCYCLOHEXANE	12.49	1100	J
4.	UNKNOWN	12.68	1600	J
5.	UNKNOWN	12.83	710	J
6.	UNKNOWN	12.92	860	J
7.	UNKNOWN ALKANE	13.11	1700	J
8.	UNKNOWN	13.19	1200	J
9.	UNKNOWN	13.35	2000	J
10.	UNKNOWN	13.45	1500	J
11.	UNKNOWN	13.54	810	J
12.	UNKNOWN	13.68	1100	J
13.	UNKNOWN NAPHTHALENE DERIVATI	13.88	6200	J
14.	UNKNOWN	14.02	2100	J
15.	UNKNOWN	14.13	2400	J
16.	UNKNOWN	14.28	1900	J
17.	UNKNOWN	14.35	960	J
18.	UNKNOWN	14.42	6400	J
19.	UNKNOWN	14.59	6400	J
20.	UNKNOWN NAPHTHALENE DERIVATI	14.90	3800	J
21.	UNKNOWN NAPHTHALENE DERIVATI	15.06	7300	J
22.	UNKNOWN	15.34	3300	J
23.	UNKNOWN	15.48	4900	J
24.	UNKNOWN NAPHTHALENE DERIVATI	15.58	3900	J
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S3

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: 376724

Sample wt/vol: 11.3 (g/mL) G Lab File ID: N376724E2V

Level: (low/med) MED Date Received: 01/23/99

% Moisture: not dec. 17 Date Analyzed: 01/27/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	1300	U
74-83-9	Bromomethane	1300	U
75-01-4	Vinyl Chloride	1300	U
75-00-3	Chloroethane	1300	U
75-09-2	Methylene Chloride	1300	U
67-64-1	Acetone	1300	U
75-15-0	Carbon Disulfide	1300	U
75-35-4	1,1-Dichloroethene	1300	U
75-34-3	1,1-Dichloroethane	1300	U
540-59-0	1,2-Dichloroethene (total)	1300	U
67-66-3	Chloroform	1300	U
107-06-2	1,2-Dichloroethane	1300	U
78-93-3	2-Butanone	1300	U
71-55-6	1,1,1-Trichloroethane	1300	U
56-23-5	Carbon Tetrachloride	1300	U
75-27-4	Bromodichloromethane	1300	U
78-87-5	1,2-Dichloropropane	1300	U
10061-01-5	cis-1,3-Dichloropropene	1300	U
79-01-6	Trichloroethene	1300	U
124-48-1	Dibromochloromethane	1300	U
79-00-5	1,1,2-Trichloroethane	1300	U
71-43-2	Benzene	1300	U
10061-02-6	trans-1,3-Dichloropropene	1300	U
75-25-2	Bromoform	1300	U
108-10-1	4-Methyl-2-Pentanone	1300	U
591-78-6	2-Hexanone	1300	U
127-18-4	Tetrachloroethene	1300	U
79-34-5	1,1,2,2-Tetrachloroethane	1300	U
108-88-3	Toluene	1300	U
108-90-7	Chlorobenzene	1300	U
100-41-4	Ethylbenzene	1300	U
100-42-5	Styrene	1300	U
1330-20-7	Xylene (total)	1300	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

S3

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: 376724

Sample wt/vol: 11.3 (g/mL) G Lab File ID: N376724E2V

Level: (low/med) MED Date Received: 01/23/99

% Moisture: not dec. 17 Date Analyzed: 01/27/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

Number TICs found: 4

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	12.81	720	J
2.	UNKNOWN	14.26	970	J
3.	UNKNOWN	14.85	1000	J
4.	UNKNOWN	14.95	1200	J
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S4

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: 376725

Sample wt/vol: 10.2 (g/mL) G Lab File ID: N376725E2V

Level: (low/med) MED Date Received: 01/23/99

% Moisture: not dec. 32 Date Analyzed: 01/27/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	1700	U
74-83-9	Bromomethane	1700	U
75-01-4	Vinyl Chloride	1700	U
75-00-3	Chloroethane	1700	U
75-09-2	Methylene Chloride	1700	U
67-64-1	Acetone	1700	U
75-15-0	Carbon Disulfide	1700	U
75-35-4	1,1-Dichloroethene	1700	U
75-34-3	1,1-Dichloroethane	1700	U
540-59-0	1,2-Dichloroethene (total)	1700	U
67-66-3	Chloroform	1700	U
107-06-2	1,2-Dichloroethane	1700	U
78-93-3	2-Butanone	1700	U
71-55-6	1,1,1-Trichloroethane	1700	U
56-23-5	Carbon Tetrachloride	1700	U
75-27-4	Bromodichloromethane	1700	U
78-87-5	1,2-Dichloropropane	1700	U
10061-01-5	cis-1,3-Dichloropropene	1700	U
79-01-6	Trichloroethene	1700	U
124-48-1	Dibromochloromethane	1700	U
79-00-5	1,1,2-Trichloroethane	1700	U
71-43-2	Benzene	1700	U
10061-02-6	trans-1,3-Dichloropropene	1700	U
75-25-2	Bromoform	1700	U
108-10-1	4-Methyl-2-Pentanone	1700	U
591-78-6	2-Hexanone	1700	U
127-18-4	Tetrachloroethene	1700	U
79-34-5	1,1,2,2-Tetrachloroethane	1700	U
108-88-3	Toluene	200	J
108-90-7	Chlorobenzene	1700	U
100-41-4	Ethylbenzene	1700	U
100-42-5	Styrene	1700	U
1330-20-7	Xylene (total)	1700	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

S4

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: 376725

Sample wt/vol: 10.2 (g/mL) G Lab File ID: N376725E2V

Level: (low/med) MED Date Received: 01/23/99

% Moisture: not dec. 32 Date Analyzed: 01/27/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

Number TICs found: 7

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN TERPENE	12.16	2100	J
2.	UNKNOWN ALKANE	12.79	1900	J
3.	UNKNOWN TERPENE	12.87	1600	J
4.	UNKNOWN C4-ALKYLBENZENE	13.48	6300	J
5.	UNKNOWN ALKANE	13.93	2700	J
6.	UNKNOWN ALKANE	14.83	1600	J
7. 91-20-3	NAPHTHALENE	15.45	1700	NJ
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S5

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: 376726

Sample wt/vol: 11.8 (g/mL) G Lab File ID: N376726E2V

Level: (low/med) MED Date Received: 01/23/99

% Moisture: not dec. 10 Date Analyzed: 01/27/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	1100	U
74-83-9	Bromomethane	1100	U
75-01-4	Vinyl Chloride	1100	U
75-00-3	Chloroethane	1100	U
75-09-2	Methylene Chloride	1100	U
67-64-1	Acetone	1100	U
75-15-0	Carbon Disulfide	1100	U
75-35-4	1,1-Dichloroethene	1100	U
75-34-3	1,1-Dichloroethane	1100	U
540-59-0	1,2-Dichloroethene (total)	1100	U
67-66-3	Chloroform	1100	U
107-06-2	1,2-Dichloroethane	1100	U
78-93-3	2-Butanone	1100	U
71-55-6	1,1,1-Trichloroethane	1100	U
56-23-5	Carbon Tetrachloride	1100	U
75-27-4	Bromodichloromethane	1100	U
78-87-5	1,2-Dichloropropane	1100	U
10061-01-5	cis-1,3-Dichloropropene	1100	U
79-01-6	Trichloroethene	1100	U
124-48-1	Dibromochloromethane	1100	U
79-00-5	1,1,2-Trichloroethane	1100	U
71-43-2	Benzene	1100	U
10061-02-6	trans-1,3-Dichloropropene	1100	U
75-25-2	Bromoform	1100	U
108-10-1	4-Methyl-2-Pentanone	1100	U
591-78-6	2-Hexanone	1100	U
127-18-4	Tetrachloroethene	1100	U
79-34-5	1,1,2,2-Tetrachloroethane	1100	U
108-88-3	Toluene	1100	U
108-90-7	Chlorobenzene	1100	U
100-41-4	Ethylbenzene	1100	U
100-42-5	Styrene	1100	U
1330-20-7	Xylene (total)	1100	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

S5

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: 376726

Sample wt/vol: 11.8 (g/mL) G Lab File ID: N376726E2V

Level: (low/med) MED Date Received: 01/23/99

% Moisture: not dec. 10 Date Analyzed: 01/27/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S6

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: 376727

Sample wt/vol: 11.7 (g/mL) G Lab File ID: N376727E2V

Level: (low/med) MED Date Received: 01/23/99

% Moisture: not dec. 21 Date Analyzed: 01/27/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	1300	U
74-83-9	Bromomethane	1300	U
75-01-4	Vinyl Chloride	1300	U
75-00-3	Chloroethane	1300	U
75-09-2	Methylene Chloride	1300	U
67-64-1	Acetone	1300	U
75-15-0	Carbon Disulfide	1300	U
75-35-4	1,1-Dichloroethene	1300	U
75-34-3	1,1-Dichloroethane	1300	U
540-59-0	1,2-Dichloroethene (total)	1300	U
67-66-3	Chloroform	1300	U
107-06-2	1,2-Dichloroethane	1300	U
78-93-3	2-Butanone	1300	U
71-55-6	1,1,1-Trichloroethane	1300	U
56-23-5	Carbon Tetrachloride	1300	U
75-27-4	Bromodichloromethane	1300	U
78-87-5	1,2-Dichloropropane	1300	U
10061-01-5	cis-1,3-Dichloropropene	1300	U
79-01-6	Trichloroethene	1300	U
124-48-1	Dibromochloromethane	1300	U
79-00-5	1,1,2-Trichloroethane	1300	U
71-43-2	Benzene	1300	U
10061-02-6	trans-1,3-Dichloropropene	1300	U
75-25-2	Bromoform	1300	U
108-10-1	4-Methyl-2-Pentanone	1300	U
591-78-6	2-Hexanone	1300	U
127-18-4	Tetrachloroethene	1300	U
79-34-5	1,1,2,2-Tetrachloroethane	1300	U
108-88-3	Toluene	1300	U
108-90-7	Chlorobenzene	1300	U
100-41-4	Ethylbenzene	1300	U
100-42-5	Styrene	1300	U
1330-20-7	Xylene (total)	1300	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

S6

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: 376727

Sample wt/vol: 11.7 (g/mL) G Lab File ID: N376727E2V

Level: (low/med) MED Date Received: 01/23/99

% Moisture: not dec. 21 Date Analyzed: 01/27/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S6RE

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: 376727R1

Sample wt/vol: 11.7 (g/mL) G Lab File ID: N376727E3V

Level: (low/med) MED Date Received: 01/23/99

% Moisture: not dec. 21 Date Analyzed: 01/27/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	1300	U
74-83-9	Bromomethane	1300	U
75-01-4	Vinyl Chloride	1300	U
75-00-3	Chloroethane	1300	U
75-09-2	Methylene Chloride	1300	U
67-64-1	Acetone	1300	U
75-15-0	Carbon Disulfide	1300	U
75-35-4	1,1-Dichloroethene	1300	U
75-34-3	1,1-Dichloroethane	1300	U
540-59-0	1,2-Dichloroethene (total)	1300	U
67-66-3	Chloroform	1300	U
107-06-2	1,2-Dichloroethane	1300	U
78-93-3	2-Butanone	1300	U
71-55-6	1,1,1-Trichloroethane	1300	U
56-23-5	Carbon Tetrachloride	1300	U
75-27-4	Bromodichloromethane	1300	U
78-87-5	1,2-Dichloropropane	1300	U
10061-01-5	cis-1,3-Dichloropropene	1300	U
79-01-6	Trichloroethene	1300	U
124-48-1	Dibromochloromethane	1300	U
79-00-5	1,1,2-Trichloroethane	1300	U
71-43-2	Benzene	1300	U
10061-02-6	trans-1,3-Dichloropropene	1300	U
75-25-2	Bromoform	1300	U
108-10-1	4-Methyl-2-Pentanone	1300	U
591-78-6	2-Hexanone	1300	U
127-18-4	Tetrachloroethene	1300	U
79-34-5	1,1,2,2-Tetrachloroethane	1300	U
108-88-3	Toluene	1300	U
108-90-7	Chlorobenzene	1300	U
100-41-4	Ethylbenzene	1300	U
100-42-5	Styrene	1300	U
1330-20-7	Xylene (total)	1300	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

S6RE

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: 376727R1

Sample wt/vol: 11.7 (g/mL) G Lab File ID: N376727E3V

Level: (low/med) MED Date Received: 01/23/99

% Moisture: not dec. 21 Date Analyzed: 01/27/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S-7

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: 377632

Sample wt/vol: 10.8 (g/mL) G Lab File ID: L377632EV

Level: (low/med) MED Date Received: 02/05/99

% Moisture: not dec. 17 Date Analyzed: 02/09/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	1300	U
74-83-9	Bromomethane	1300	U
75-01-4	Vinyl Chloride	1300	U
75-00-3	Chloroethane	1300	U
75-09-2	Methylene Chloride	1300	U
67-64-1	Acetone	1300	U
75-15-0	Carbon Disulfide	1300	U
75-35-4	1,1-Dichloroethene	1300	U
75-34-3	1,1-Dichloroethane	1300	U
540-59-0	1,2-Dichloroethene (total)	1300	U
67-66-3	Chloroform	1300	U
107-06-2	1,2-Dichloroethane	1300	U
78-93-3	2-Butanone	1300	U
71-55-6	1,1,1-Trichloroethane	1300	U
56-23-5	Carbon Tetrachloride	1300	U
75-27-4	Bromodichloromethane	1300	U
78-87-5	1,2-Dichloropropane	1300	U
10061-01-5	cis-1,3-Dichloropropene	1300	U
79-01-6	Trichloroethene	1300	U
124-48-1	Dibromochloromethane	1300	U
79-00-5	1,1,2-Trichloroethane	1300	U
71-43-2	Benzene	1300	U
10061-02-6	trans-1,3-Dichloropropene	1300	U
75-25-2	Bromoform	1300	U
108-10-1	4-Methyl-2-Pentanone	1300	U
591-78-6	2-Hexanone	1300	U
127-18-4	Tetrachloroethene	1300	U
79-34-5	1,1,2,2-Tetrachloroethane	1300	U
108-88-3	Toluene	1300	U
108-90-7	Chlorobenzene	1300	U
100-41-4	Ethylbenzene	1300	U
100-42-5	Styrene	1300	U
1330-20-7	Xylene (total)	1300	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

S-7

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: 377632

Sample wt/vol: 10.8 (g/mL) G Lab File ID: L377632EV

Level: (low/med) MED Date Received: 02/05/99

% Moisture: not dec. 17 Date Analyzed: 02/09/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S-8

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: 377633

Sample wt/vol: 10.7 (g/mL) G Lab File ID: L377633EV

Level: (low/med) MED Date Received: 02/05/99

% Moisture: not dec. 12 Date Analyzed: 02/09/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	1300	U
74-83-9	Bromomethane	1300	U
75-01-4	Vinyl Chloride	1300	U
75-00-3	Chloroethane	1300	U
75-09-2	Methylene Chloride	1300	U
67-64-1	Acetone	1300	U
75-15-0	Carbon Disulfide	1300	U
75-35-4	1,1-Dichloroethene	1300	U
75-34-3	1,1-Dichloroethane	1300	U
540-59-0	1,2-Dichloroethene (total)	1300	U
67-66-3	Chloroform	1300	U
107-06-2	1,2-Dichloroethane	1300	U
78-93-3	2-Butanone	1300	U
71-55-6	1,1,1-Trichloroethane	1300	U
56-23-5	Carbon Tetrachloride	1300	U
75-27-4	Bromodichloromethane	1300	U
78-87-5	1,2-Dichloropropane	1300	U
10061-01-5	cis-1,3-Dichloropropene	1300	U
79-01-6	Trichloroethene	1300	U
124-48-1	Dibromochloromethane	1300	U
79-00-5	1,1,2-Trichloroethane	1300	U
71-43-2	Benzene	1300	U
10061-02-6	trans-1,3-Dichloropropene	1300	U
75-25-2	Bromoform	1300	U
108-10-1	4-Methyl-2-Pentanone	1300	U
591-78-6	2-Hexanone	1300	U
127-18-4	Tetrachloroethene	1300	U
79-34-5	1,1,2,2-Tetrachloroethane	1300	U
108-88-3	Toluene	1300	U
108-90-7	Chlorobenzene	1300	U
100-41-4	Ethylbenzene	1300	U
100-42-5	Styrene	1300	U
1330-20-7	Xylene (total)	1300	U

II/CC

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

S-8

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: 377633

Sample wt/vol: 10.7 (g/mL) G Lab File ID: L377633EV

Level: (low/med) MED Date Received: 02/05/99

% Moisture: not dec. 12 Date Analyzed: 02/09/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S9

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: 376728

Sample wt/vol: 11.4 (g/mL) G Lab File ID: N376728E2V

Level: (low/med) MED Date Received: 01/23/99

% Moisture: not dec. 9 Date Analyzed: 01/27/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	1200	U
74-83-9	Bromomethane	1200	U
75-01-4	Vinyl Chloride	1200	U
75-00-3	Chloroethane	1200	U
75-09-2	Methylene Chloride	1200	U
67-64-1	Acetone	1200	U
75-15-0	Carbon Disulfide	1200	U
75-35-4	1,1-Dichloroethene	1200	U
75-34-3	1,1-Dichloroethane	1200	U
540-59-0	1,2-Dichloroethene (total)	1200	U
67-66-3	Chloroform	1200	U
107-06-2	1,2-Dichloroethane	1200	U
78-93-3	2-Butanone	1200	U
71-55-6	1,1,1-Trichloroethane	1200	U
56-23-5	Carbon Tetrachloride	1200	U
75-27-4	Bromodichloromethane	1200	U
78-87-5	1,2-Dichloropropane	1200	U
10061-01-5	cis-1,3-Dichloropropene	1200	U
79-01-6	Trichloroethene	1200	U
124-48-1	Dibromochloromethane	1200	U
79-00-5	1,1,2-Trichloroethane	1200	U
71-43-2	Benzene	1200	U
10061-02-6	trans-1,3-Dichloropropene	1200	U
75-25-2	Bromoform	1200	U
108-10-1	4-Methyl-2-Pentanone	1200	U
591-78-6	2-Hexanone	1200	U
127-18-4	Tetrachloroethene	1200	U
79-34-5	1,1,2,2-Tetrachloroethane	1200	U
108-88-3	Toluene	1200	U
108-90-7	Chlorobenzene	1200	U
100-41-4	Ethylbenzene	1200	U
100-42-5	Styrene	1200	U
1330-20-7	Xylene (total)	1200	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

S9

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: 376728

Sample wt/vol: 11.4 (g/mL) G Lab File ID: N376728E2V

Level: (low/med) MED Date Received: 01/23/99

% Moisture: not dec. 9 Date Analyzed: 01/27/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED1

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: 377493

Sample wt/vol: 10.0 (g/mL) G Lab File ID: L377493EV

Level: (low/med) MED Date Received: 02/04/99

% Moisture: not dec. 33 Date Analyzed: 02/06/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	1800	U
74-83-9	Bromomethane	1800	U
75-01-4	Vinyl Chloride	1800	U
75-00-3	Chloroethane	1800	U
75-09-2	Methylene Chloride	1800	U
67-64-1	Acetone	1800	U
75-15-0	Carbon Disulfide	1800	U
75-35-4	1,1-Dichloroethene	1800	U
75-34-3	1,1-Dichloroethane	1800	U
540-59-0	1,2-Dichloroethene (total)	1800	U
67-66-3	Chloroform	1800	U
107-06-2	1,2-Dichloroethane	1800	U
78-93-3	2-Butanone	1800	U
71-55-6	1,1,1-Trichloroethane	1800	U
56-23-5	Carbon Tetrachloride	1800	U
75-27-4	Bromodichloromethane	1800	U
78-87-5	1,2-Dichloropropane	1800	U
10061-01-5	cis-1,3-Dichloropropene	1800	U
79-01-6	Trichloroethene	1800	U
124-48-1	Dibromochloromethane	1800	U
79-00-5	1,1,2-Trichloroethane	1800	U
71-43-2	Benzene	1800	U
10061-02-6	trans-1,3-Dichloropropene	1800	U
75-25-2	Bromoform	1800	U
108-10-1	4-Methyl-2-Pentanone	1800	U
591-78-6	2-Hexanone	1800	U
127-18-4	Tetrachloroethene	1800	U
79-34-5	1,1,2,2-Tetrachloroethane	1800	U
108-88-3	Toluene	1800	U
108-90-7	Chlorobenzene	1800	U
100-41-4	Ethylbenzene	1800	U
100-42-5	Styrene	1800	U
1330-20-7	Xylene (total)	1800	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SED1

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: 377493

Sample wt/vol: 10.0 (g/mL) G Lab File ID: L377493EV

Level: (low/med) MED Date Received: 02/04/99

% Moisture: not dec. 33 Date Analyzed: 02/06/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED2

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: 377494

Sample wt/vol: 10.0 (g/mL) G Lab File ID: L377494EV

Level: (low/med) MED Date Received: 02/04/99

% Moisture: not dec. 36 Date Analyzed: 02/06/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	1900	U
74-83-9	Bromomethane	1900	U
75-01-4	Vinyl Chloride	1900	U
75-00-3	Chloroethane	1900	U
75-09-2	Methylene Chloride	1900	U
67-64-1	Acetone	1900	U
75-15-0	Carbon Disulfide	1900	U
75-35-4	1,1-Dichloroethene	1900	U
75-34-3	1,1-Dichloroethane	1900	U
540-59-0	1,2-Dichloroethene (total)	1900	U
67-66-3	Chloroform	1900	U
107-06-2	1,2-Dichloroethane	1900	U
78-93-3	2-Butanone	1900	U
71-55-6	1,1,1-Trichloroethane	1900	U
56-23-5	Carbon Tetrachloride	1900	U
75-27-4	Bromodichloromethane	1900	U
78-87-5	1,2-Dichloropropane	1900	U
10061-01-5	cis-1,3-Dichloropropene	1900	U
79-01-6	Trichloroethene	1900	U
124-48-1	Dibromochloromethane	1900	U
79-00-5	1,1,2-Trichloroethane	1900	U
71-43-2	Benzene	1900	U
10061-02-6	trans-1,3-Dichloropropene	1900	U
75-25-2	Bromoform	1900	U
108-10-1	4-Methyl-2-Pentanone	1900	U
591-78-6	2-Hexanone	1900	U
127-18-4	Tetrachloroethene	1900	U
79-34-5	1,1,2,2-Tetrachloroethane	1900	U
108-88-3	Toluene	1900	U
108-90-7	Chlorobenzene	1900	U
100-41-4	Ethylbenzene	1900	U
100-42-5	Styrene	1900	U
1330-20-7	Xylene (total)	1900	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SED2

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: 377494

Sample wt/vol: 10.0 (g/mL) G Lab File ID: L377494EV

Level: (low/med) MED Date Received: 02/04/99

% Moisture: not dec. 36 Date Analyzed: 02/06/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED3

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: 377495

Sample wt/vol: 10.3 (g/mL) G Lab File ID: L377495EV

Level: (low/med) MED Date Received: 02/04/99

% Moisture: not dec. 43 Date Analyzed: 02/06/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	2000	U
74-83-9	Bromomethane	2000	U
75-01-4	Vinyl Chloride	910	J
75-00-3	Chloroethane	2000	U
75-09-2	Methylene Chloride	2000	U
67-64-1	Acetone	2000	U
75-15-0	Carbon Disulfide	360	J
75-35-4	1,1-Dichloroethene	2000	U
75-34-3	1,1-Dichloroethane	2000	U
540-59-0	1,2-Dichloroethene (total)	1900	J
67-66-3	Chloroform	2000	U
107-06-2	1,2-Dichloroethane	2000	U
78-93-3	2-Butanone	2000	U
71-55-6	1,1,1-Trichloroethane	2000	U
56-23-5	Carbon Tetrachloride	2000	U
75-27-4	Bromodichloromethane	2000	U
78-87-5	1,2-Dichloropropane	2000	U
10061-01-5	cis-1,3-Dichloropropene	2000	U
79-01-6	Trichloroethene	2000	U
124-48-1	Dibromochloromethane	2000	U
79-00-5	1,1,2-Trichloroethane	2000	U
71-43-2	Benzene	2000	U
10061-02-6	trans-1,3-Dichloropropene	2000	U
75-25-2	Bromoform	2000	U
108-10-1	4-Methyl-2-Pentanone	2000	U
591-78-6	2-Hexanone	2000	U
127-18-4	Tetrachloroethene	2000	U
79-34-5	1,1,2,2-Tetrachloroethane	2000	U
108-88-3	Toluene	330	J
108-90-7	Chlorobenzene	2000	U
100-41-4	Ethylbenzene	2000	U
100-42-5	Styrene	2000	U
1330-20-7	Xylene (total)	2000	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SED3

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: 377495

Sample wt/vol: 10.3 (g/mL) G Lab File ID: L377495EV

Level: (low/med) MED Date Received: 02/04/99

% Moisture: not dec. 43 Date Analyzed: 02/06/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED3RE

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: 377495R1

Sample wt/vol: 10.3 (g/mL) G Lab File ID: L377495E2V

Level: (low/med) MED Date Received: 02/04/99

% Moisture: not dec. 43 Date Analyzed: 02/08/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	2000	U
74-83-9	Bromomethane	2000	U
75-01-4	Vinyl Chloride	880	J
75-00-3	Chloroethane	2000	U
75-09-2	Methylene Chloride	2000	U
67-64-1	Acetone	2000	U
75-15-0	Carbon Disulfide	2000	U
75-35-4	1,1-Dichloroethene	2000	U
75-34-3	1,1-Dichloroethane	2000	U
540-59-0	1,2-Dichloroethene (total)	2300	
67-66-3	Chloroform	2000	U
107-06-2	1,2-Dichloroethane	2000	U
78-93-3	2-Butanone	2000	U
71-55-6	1,1,1-Trichloroethane	2000	U
56-23-5	Carbon Tetrachloride	2000	U
75-27-4	Bromodichloromethane	2000	U
78-87-5	1,2-Dichloropropane	2000	U
10061-01-5	cis-1,3-Dichloropropene	2000	U
79-01-6	Trichloroethene	2000	U
124-48-1	Dibromochloromethane	2000	U
79-00-5	1,1,2-Trichloroethane	2000	U
71-43-2	Benzene	2000	U
10061-02-6	trans-1,3-Dichloropropene	2000	U
75-25-2	Bromoform	2000	U
108-10-1	4-Methyl-2-Pentanone	2000	U
591-78-6	2-Hexanone	2000	U
127-18-4	Tetrachloroethene	2000	U
79-34-5	1,1,2,2-Tetrachloroethane	2000	U
108-88-3	Toluene	390	J
108-90-7	Chlorobenzene	2000	U
100-41-4	Ethylbenzene	2000	U
100-42-5	Styrene	2000	U
1330-20-7	Xylene (total)	2000	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SED3RE

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: 377495R1

Sample wt/vol: 10.3 (g/mL) G Lab File ID: L377495E2V

Level: (low/med) MED Date Received: 02/04/99

% Moisture: not dec. 43 Date Analyzed: 02/08/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED4

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: 377496

Sample wt/vol: 8.6 (g/mL) G Lab File ID: L377496EV

Level: (low/med) MED Date Received: 02/04/99

% Moisture: not dec. 28 Date Analyzed: 02/06/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	1900	U
74-83-9	Bromomethane	1900	U
75-01-4	Vinyl Chloride	1900	U
75-00-3	Chloroethane	1900	U
75-09-2	Methylene Chloride	1900	U
67-64-1	Acetone	1900	U
75-15-0	Carbon Disulfide	1900	U
75-35-4	1,1-Dichloroethene	1900	U
75-34-3	1,1-Dichloroethane	1900	U
540-59-0	1,2-Dichloroethene (total)	1900	U
67-66-3	Chloroform	1900	U
107-06-2	1,2-Dichloroethane	1900	U
78-93-3	2-Butanone	1900	U
71-55-6	1,1,1-Trichloroethane	1900	U
56-23-5	Carbon Tetrachloride	1900	U
75-27-4	Bromodichloromethane	1900	U
78-87-5	1,2-Dichloropropane	1900	U
10061-01-5	cis-1,3-Dichloropropene	1900	U
79-01-6	Trichloroethene	1900	U
124-48-1	Dibromochloromethane	1900	U
79-00-5	1,1,2-Trichloroethane	1900	U
71-43-2	Benzene	1900	U
10061-02-6	trans-1,3-Dichloropropene	1900	U
75-25-2	Bromoform	1900	U
108-10-1	4-Methyl-2-Pentanone	1900	U
591-78-6	2-Hexanone	1900	U
127-18-4	Tetrachloroethene	1900	U
79-34-5	1,1,2,2-Tetrachloroethane	1900	U
108-88-3	Toluene	1900	U
108-90-7	Chlorobenzene	1900	U
100-41-4	Ethylbenzene	1900	U
100-42-5	Styrene	1900	U
1330-20-7	Xylene (total)	1900	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SED4

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: 377496

Sample wt/vol: 8.6 (g/mL) G Lab File ID: L377496EV

Level: (low/med) MED Date Received: 02/04/99

% Moisture: not dec. 28 Date Analyzed: 02/06/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED5

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: 377497

Sample wt/vol: 10.5 (g/mL) G Lab File ID: L377497EV

Level: (low/med) MED Date Received: 02/04/99

% Moisture: not dec. 53 Date Analyzed: 02/06/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	2400	U
74-83-9	Bromomethane	2400	U
75-01-4	Vinyl Chloride	2400	U
75-00-3	Chloroethane	2400	U
75-09-2	Methylene Chloride	2400	U
67-64-1	Acetone	2400	U
75-15-0	Carbon Disulfide	2400	U
75-35-4	1,1-Dichloroethene	2400	U
75-34-3	1,1-Dichloroethane	2400	U
540-59-0	1,2-Dichloroethene (total)	2400	U
67-66-3	Chloroform	2400	U
107-06-2	1,2-Dichloroethane	2400	U
78-93-3	2-Butanone	2400	U
71-55-6	1,1,1-Trichloroethane	2400	U
56-23-5	Carbon Tetrachloride	2400	U
75-27-4	Bromodichloromethane	2400	U
78-87-5	1,2-Dichloropropane	2400	U
10061-01-5	cis-1,3-Dichloropropene	2400	U
79-01-6	Trichloroethene	2400	U
124-48-1	Dibromochloromethane	2400	U
79-00-5	1,1,2-Trichloroethane	2400	U
71-43-2	Benzene	2400	U
10061-02-6	trans-1,3-Dichloropropene	2400	U
75-25-2	Bromoform	2400	U
108-10-1	4-Methyl-2-Pentanone	2400	U
591-78-6	2-Hexanone	2400	U
127-18-4	Tetrachloroethene	2400	U
79-34-5	1,1,2,2-Tetrachloroethane	2400	U
108-88-3	Toluene	2400	U
108-90-7	Chlorobenzene	2400	U
100-41-4	Ethylbenzene	2400	U
100-42-5	Styrene	2400	U
1330-20-7	Xylene (total)	2400	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SED5

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: 377497

Sample wt/vol: 10.5 (g/mL) G Lab File ID: L377497EV

Level: (low/med) MED Date Received: 02/04/99

% Moisture: not dec. 53 Date Analyzed: 02/06/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TB

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: 377635

Sample wt/vol: 10.0 (g/mL) G Lab File ID: L377635EV

Level: (low/med) MED Date Received: 02/05/99

% Moisture: not dec. _____ Date Analyzed: 02/09/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	1200	U
74-83-9	Bromomethane	1200	U
75-01-4	Vinyl Chloride	1200	U
75-00-3	Chloroethane	1200	U
75-09-2	Methylene Chloride	1200	U
67-64-1	Acetone	1200	U
75-15-0	Carbon Disulfide	1200	U
75-35-4	1,1-Dichloroethene	1200	U
75-34-3	1,1-Dichloroethane	1200	U
540-59-0	1,2-Dichloroethene (total)	1200	U
67-66-3	Chloroform	1200	U
107-06-2	1,2-Dichloroethane	1200	U
78-93-3	2-Butanone	1200	U
71-55-6	1,1,1-Trichloroethane	1200	U
56-23-5	Carbon Tetrachloride	1200	U
75-27-4	Bromodichloromethane	1200	U
78-87-5	1,2-Dichloropropane	1200	U
10061-01-5	cis-1,3-Dichloropropene	1200	U
79-01-6	Trichloroethene	1200	U
124-48-1	Dibromochloromethane	1200	U
79-00-5	1,1,2-Trichloroethane	1200	U
71-43-2	Benzene	1200	U
10061-02-6	trans-1,3-Dichloropropene	1200	U
75-25-2	Bromoform	1200	U
108-10-1	4-Methyl-2-Pentanone	1200	U
591-78-6	2-Hexanone	1200	U
127-18-4	Tetrachloroethene	1200	U
79-34-5	1,1,2,2-Tetrachloroethane	1200	U
108-88-3	Toluene	1200	U
108-90-7	Chlorobenzene	1200	U
100-41-4	Ethylbenzene	1200	U
100-42-5	Styrene	1200	U
1330-20-7	Xylene (total)	1200	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

TB

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: 377635

Sample wt/vol: 10.0 (g/mL) G Lab File ID: L377635EV

Level: (low/med) MED Date Received: 02/05/99

% Moisture: not dec. _____ Date Analyzed: 02/09/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TB2

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: 377499

Sample wt/vol: 10.0 (g/mL) G Lab File ID: L377499EV

Level: (low/med) MED Date Received: 02/04/99

% Moisture: not dec. _____ Date Analyzed: 02/06/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	1200	U
74-83-9	Bromomethane	1200	U
75-01-4	Vinyl Chloride	1200	U
75-00-3	Chloroethane	1200	U
75-09-2	Methylene Chloride	1200	U
67-64-1	Acetone	1200	U
75-15-0	Carbon Disulfide	1200	U
75-35-4	1,1-Dichloroethene	1200	U
75-34-3	1,1-Dichloroethane	1200	U
540-59-0	1,2-Dichloroethene (total)	1200	U
67-66-3	Chloroform	1200	U
107-06-2	1,2-Dichloroethane	1200	U
78-93-3	2-Butanone	1200	U
71-55-6	1,1,1-Trichloroethane	1200	U
56-23-5	Carbon Tetrachloride	1200	U
75-27-4	Bromodichloromethane	1200	U
78-87-5	1,2-Dichloropropane	1200	U
10061-01-5	cis-1,3-Dichloropropene	1200	U
79-01-6	Trichloroethene	1200	U
124-48-1	Dibromochloromethane	1200	U
79-00-5	1,1,2-Trichloroethane	1200	U
71-43-2	Benzene	1200	U
10061-02-6	trans-1,3-Dichloropropene	1200	U
75-25-2	Bromoform	1200	U
108-10-1	4-Methyl-2-Pentanone	1200	U
591-78-6	2-Hexanone	1200	U
127-18-4	Tetrachloroethene	1200	U
79-34-5	1,1,2,2-Tetrachloroethane	1200	U
108-88-3	Toluene	1200	U
108-90-7	Chlorobenzene	1200	U
100-41-4	Ethylbenzene	1200	U
100-42-5	Styrene	1200	U
1330-20-7	Xylene (total)	1200	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

TB2

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: 377499

Sample wt/vol: 10.0 (g/mL) G Lab File ID: L377499EV

Level: (low/med) MED Date Received: 02/04/99

% Moisture: not dec. _____ Date Analyzed: 02/06/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg.

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK1S

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: VBLK1S

Sample wt/vol: 10.0 (g/mL) G Lab File ID: LOEB002AV

Level: (low/med) MED Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/05/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	1200	U
74-83-9	Bromomethane	1200	U
75-01-4	Vinyl Chloride	1200	U
75-00-3	Chloroethane	1200	U
75-09-2	Methylene Chloride	1200	U
67-64-1	Acetone	1200	U
75-15-0	Carbon Disulfide	1200	U
75-35-4	1,1-Dichloroethene	1200	U
75-34-3	1,1-Dichloroethane	1200	U
540-59-0	1,2-Dichloroethene (total)	1200	U
67-66-3	Chloroform	1200	U
107-06-2	1,2-Dichloroethane	1200	U
78-93-3	2-Butanone	1200	U
71-55-6	1,1,1-Trichloroethane	1200	U
56-23-5	Carbon Tetrachloride	1200	U
75-27-4	Bromodichloromethane	1200	U
78-87-5	1,2-Dichloropropane	1200	U
10061-01-5	cis-1,3-Dichloropropene	1200	U
79-01-6	Trichloroethene	1200	U
124-48-1	Dibromochloromethane	1200	U
79-00-5	1,1,2-Trichloroethane	1200	U
71-43-2	Benzene	1200	U
10061-02-6	trans-1,3-Dichloropropene	1200	U
75-25-2	Bromoform	1200	U
108-10-1	4-Methyl-2-Pentanone	1200	U
591-78-6	2-Hexanone	1200	U
127-18-4	Tetrachloroethene	1200	U
79-34-5	1,1,2,2-Tetrachloroethane	1200	U
108-88-3	Toluene	1200	U
108-90-7	Chlorobenzene	1200	U
100-41-4	Ethylbenzene	1200	U
100-42-5	Styrene	1200	U
1330-20-7	Xylene (total)	1200	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLK1S

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: VBLK1S

Sample wt/vol: 10.0 (g/mL) G Lab File ID: LOEB002AV

Level: (low/med) MED Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/05/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK8S

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: VBLK8S

Sample wt/vol: 10.0 (g/mL) G Lab File ID: LOEB002CV

Level: (low/med) MED Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/08/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	1200	U
74-83-9	Bromomethane	1200	U
75-01-4	Vinyl Chloride	1200	U
75-00-3	Chloroethane	1200	U
75-09-2	Methylene Chloride	1200	U
67-64-1	Acetone	1200	U
75-15-0	Carbon Disulfide	1200	U
75-35-4	1,1-Dichloroethene	1200	U
75-34-3	1,1-Dichloroethane	1200	U
540-59-0	1,2-Dichloroethene (total)	1200	U
67-66-3	Chloroform	1200	U
107-06-2	1,2-Dichloroethane	1200	U
78-93-3	2-Butanone	1200	U
71-55-6	1,1,1-Trichloroethane	1200	U
56-23-5	Carbon Tetrachloride	1200	U
75-27-4	Bromodichloromethane	1200	U
78-87-5	1,2-Dichloropropane	1200	U
10061-01-5	cis-1,3-Dichloropropene	1200	U
79-01-6	Trichloroethene	1200	U
124-48-1	Dibromochloromethane	1200	U
79-00-5	1,1,2-Trichloroethane	1200	U
71-43-2	Benzene	1200	U
10061-02-6	trans-1,3-Dichloropropene	1200	U
75-25-2	Bromoform	1200	U
108-10-1	4-Methyl-2-Pentanone	1200	U
591-78-6	2-Hexanone	1200	U
127-18-4	Tetrachloroethene	1200	U
79-34-5	1,1,2,2-Tetrachloroethane	1200	U
108-88-3	Toluene	1200	U
108-90-7	Chlorobenzene	1200	U
100-41-4	Ethylbenzene	1200	U
100-42-5	Styrene	1200	U
1330-20-7	Xylene (total)	1200	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLK8S

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: VBLK8S

Sample wt/vol: 10.0 (g/mL) G Lab File ID: LOEB002CV

Level: (low/med) MED Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/08/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK3T

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: VBLK3T

Sample wt/vol: 10.0 (g/mL) G Lab File ID: LOEB002DV

Level: (low/med) MED Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/09/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	1200	U
74-83-9	Bromomethane	1200	U
75-01-4	Vinyl Chloride	1200	U
75-00-3	Chloroethane	1200	U
75-09-2	Methylene Chloride	1200	U
67-64-1	Acetone	1200	U
75-15-0	Carbon Disulfide	1200	U
75-35-4	1,1-Dichloroethene	1200	U
75-34-3	1,1-Dichloroethane	1200	U
540-59-0	1,2-Dichloroethene (total)	1200	U
67-66-3	Chloroform	1200	U
107-06-2	1,2-Dichloroethane	1200	U
78-93-3	2-Butanone	1200	U
71-55-6	1,1,1-Trichloroethane	1200	U
56-23-5	Carbon Tetrachloride	1200	U
75-27-4	Bromodichloromethane	1200	U
78-87-5	1,2-Dichloropropane	1200	U
10061-01-5	cis-1,3-Dichloropropene	1200	U
79-01-6	Trichloroethene	1200	U
124-48-1	Dibromochloromethane	1200	U
79-00-5	1,1,2-Trichloroethane	1200	U
71-43-2	Benzene	1200	U
10061-02-6	trans-1,3-Dichloropropene	1200	U
75-25-2	Bromoform	1200	U
108-10-1	4-Methyl-2-Pentanone	1200	U
591-78-6	2-Hexanone	1200	U
127-18-4	Tetrachloroethene	1200	U
79-34-5	1,1,2,2-Tetrachloroethane	1200	U
108-88-3	Toluene	1200	U
108-90-7	Chlorobenzene	1200	U
100-41-4	Ethylbenzene	1200	U
100-42-5	Styrene	1200	U
1330-20-7	Xylene (total)	1200	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLK3T

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: VBLK3T

Sample wt/vol: 10.0 (g/mL) G Lab File ID: LOEB002DV

Level: (low/med) MED Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/09/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK2P

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: VBLK2P

Sample wt/vol: 10.0 (g/mL) G Lab File ID: NMHB002AV

Level: (low/med) MED Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 01/27/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	1200	U
74-83-9	Bromomethane	1200	U
75-01-4	Vinyl Chloride	1200	U
75-00-3	Chloroethane	1200	U
75-09-2	Methylene Chloride	1200	U
67-64-1	Acetone	1200	U
75-15-0	Carbon Disulfide	1200	U
75-35-4	1,1-Dichloroethene	1200	U
75-34-3	1,1-Dichloroethane	1200	U
540-59-0	1,2-Dichloroethene (total)	1200	U
67-66-3	Chloroform	1200	U
107-06-2	1,2-Dichloroethane	1200	U
78-93-3	2-Butanone	1200	U
71-55-6	1,1,1-Trichloroethane	1200	U
56-23-5	Carbon Tetrachloride	1200	U
75-27-4	Bromodichloromethane	1200	U
78-87-5	1,2-Dichloropropane	1200	U
10061-01-5	cis-1,3-Dichloropropene	1200	U
79-01-6	Trichloroethene	1200	U
124-48-1	Dibromochloromethane	1200	U
79-00-5	1,1,2-Trichloroethane	1200	U
71-43-2	Benzene	1200	U
10061-02-6	trans-1,3-Dichloropropene	1200	U
75-25-2	Bromoform	1200	U
108-10-1	4-Methyl-2-Pentanone	1200	U
591-78-6	2-Hexanone	1200	U
127-18-4	Tetrachloroethene	1200	U
79-34-5	1,1,2,2-Tetrachloroethane	1200	U
108-88-3	Toluene	1200	U
108-90-7	Chlorobenzene	1200	U
100-41-4	Ethylbenzene	1200	U
100-42-5	Styrene	1200	U
1330-20-7	Xylene (total)	1200	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLK2P

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: VBLK2P

Sample wt/vol: 10.0 (g/mL) G Lab File ID: NMHB002AV

Level: (low/med) MED Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 01/27/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED5MS

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: 377497MS

Sample wt/vol: 10.5 (g/mL) G Lab File ID: L377497MSEV

Level: (low/med) MED Date Received: 02/04/99

% Moisture: not dec. 53 Date Analyzed: 02/06/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	2400	U
74-83-9	Bromomethane	2400	U
75-01-4	Vinyl Chloride	2400	U
75-00-3	Chloroethane	2400	U
75-09-2	Methylene Chloride	2400	U
67-64-1	Acetone	2400	U
75-15-0	Carbon Disulfide	2400	U
75-35-4	1,1-Dichloroethene	14000	
75-34-3	1,1-Dichloroethane	2400	U
540-59-0	1,2-Dichloroethene (total)	2400	U
67-66-3	Chloroform	2400	U
107-06-2	1,2-Dichloroethane	2400	U
78-93-3	2-Butanone	2400	U
71-55-6	1,1,1-Trichloroethane	2400	U
56-23-5	Carbon Tetrachloride	2400	U
75-27-4	Bromodichloromethane	2400	U
78-87-5	1,2-Dichloropropane	2400	U
10061-01-5	cis-1,3-Dichloropropene	2400	U
79-01-6	Trichloroethene	13000	
124-48-1	Dibromochloromethane	2400	U
79-00-5	1,1,2-Trichloroethane	2400	U
71-43-2	Benzene	14000	
10061-02-6	trans-1,3-Dichloropropene	2400	U
75-25-2	Bromoform	2400	U
108-10-1	4-Methyl-2-Pentanone	2400	U
591-78-6	2-Hexanone	2400	U
127-18-4	Tetrachloroethene	2400	U
79-34-5	1,1,2,2-Tetrachloroethane	2400	U
108-88-3	Toluene	13000	
108-90-7	Chlorobenzene	13000	
100-41-4	Ethylbenzene	2400	U
100-42-5	Styrene	2400	U
1330-20-7	Xylene (total)	2400	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SED5MSD

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: 377497MD

Sample wt/vol: 10.5 (g/mL) G Lab File ID: L377497MDEV

Level: (low/med) MED Date Received: 02/04/99

% Moisture: not dec. 53 Date Analyzed: 02/06/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	2400	U
74-83-9	Bromomethane	2400	U
75-01-4	Vinyl Chloride	2400	U
75-00-3	Chloroethane	2400	U
75-09-2	Methylene Chloride	2400	U
67-64-1	Acetone	2400	U
75-15-0	Carbon Disulfide	2400	U
75-35-4	1,1-Dichloroethene	13000	
75-34-3	1,1-Dichloroethane	2400	U
540-59-0	1,2-Dichloroethene (total)	2400	U
67-66-3	Chloroform	2400	U
107-06-2	1,2-Dichloroethane	2400	U
78-93-3	2-Butanone	2400	U
71-55-6	1,1,1-Trichloroethane	2400	U
56-23-5	Carbon Tetrachloride	2400	U
75-27-4	Bromodichloromethane	2400	U
78-87-5	1,2-Dichloropropane	2400	U
10061-01-5	cis-1,3-Dichloropropene	2400	U
79-01-6	Trichloroethene	13000	
124-48-1	Dibromochloromethane	2400	U
79-00-5	1,1,2-Trichloroethane	2400	U
71-43-2	Benzene	14000	
10061-02-6	trans-1,3-Dichloropropene	2400	U
75-25-2	Bromoform	2400	U
108-10-1	4-Methyl-2-Pentanone	2400	U
591-78-6	2-Hexanone	2400	U
127-18-4	Tetrachloroethene	2400	U
79-34-5	1,1,2,2-Tetrachloroethane	2400	U
108-88-3	Toluene	13000	
108-90-7	Chlorobenzene	13000	
100-41-4	Ethylbenzene	2400	U
100-42-5	Styrene	2400	U
1330-20-7	Xylene (total)	2400	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VHBLK01

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: 376731

Sample wt/vol: 10.0 (g/mL) G Lab File ID: L376731EV

Level: (low/med) MED Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/09/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	1200	U
74-83-9	Bromomethane	1200	U
75-01-4	Vinyl Chloride	1200	U
75-00-3	Chloroethane	1200	U
75-09-2	Methylene Chloride	1200	U
67-64-1	Acetone	1200	U
75-15-0	Carbon Disulfide	1200	U
75-35-4	1,1-Dichloroethene	1200	U
75-34-3	1,1-Dichloroethane	1200	U
540-59-0	1,2-Dichloroethene (total)	1200	U
67-66-3	Chloroform	1200	U
107-06-2	1,2-Dichloroethane	1200	U
78-93-3	2-Butanone	1200	U
71-55-6	1,1,1-Trichloroethane	1200	U
56-23-5	Carbon Tetrachloride	1200	U
75-27-4	Bromodichloromethane	1200	U
78-87-5	1,2-Dichloropropane	1200	U
10061-01-5	cis-1,3-Dichloropropene	1200	U
79-01-6	Trichloroethene	1200	U
124-48-1	Dibromochloromethane	1200	U
79-00-5	1,1,2-Trichloroethane	1200	U
71-43-2	Benzene	1200	U
10061-02-6	trans-1,3-Dichloropropene	1200	U
75-25-2	Bromoform	1200	U
108-10-1	4-Methyl-2-Pentanone	1200	U
591-78-6	2-Hexanone	1200	U
127-18-4	Tetrachloroethene	1200	U
79-34-5	1,1,2,2-Tetrachloroethane	1200	U
108-88-3	Toluene	1200	U
108-90-7	Chlorobenzene	1200	U
100-41-4	Ethylbenzene	1200	U
100-42-5	Styrene	1200	U
1330-20-7	Xylene (total)	1200	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VHBLK01

Lab Name: SEVERN TRENT LABORATORIES Contract: 95X22651

Lab Code: INCHVT Case No.: HA011999 SAS No.: SDG No.: 72251

Matrix: (soil/water) SOIL Lab Sample ID: 376731

Sample wt/vol: 10.0 (g/mL) G Lab File ID: L376731EV

Level: (low/med) MED Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/09/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000(uL) Soil Aliquot Volume: 100(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
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EPA United States Environmental Protection Agency
Contract Laboratory Program

Organic Traffic Report & Chain of Custody Record
(For Organic CLP Analysis)

Case No. 26777

1. Project Code	Account Code	2. Region No. 2	Sampling Co.	4. Date Shipped	Carrier VPS
Regional Information		Sampler (Name)		Airbill Number N223-919-166-5	
Non-Superfund Program		Sampler Signature		5. Ship To IEA 200 Monroe TPKE Monroe CT 06468 ATTN: Paul Hobart	
Site Name Hamersley		3. Purpose* Lead: [ ] SF [ ] PRP [ ] ST [ ] FED; Early Action: [ ] CLEM [ ] PA [ ] REM [ ] RI [X] SI [ ] ESI; Long-Term Action: [ ] FS [ ] RD [ ] RA [ ] O&M [ ] NPLD			
City, State	Site Spill ID				

6. Matrix (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Field QC
5. Soil/Sediment
6. Oil (High only)
7. Waste (High only)
8. Other (Specify in Column A)

7. Preservative (Enter in Column D)
1. HCl
2. HNO3
3. NaHSO4
4. H2SO4
5. Ice only
6. Other (Specify in Column D)
N. Not preserved

CLP Sample Numbers (from labels)	A Matrix (from Box 6) Other:	B Conc.: Low Med High	C Sample Type: Comp./Grab	D Preservative (from Box 7) Other:	E RAS Analysis VOA	BNA	Pest/PCB	High only ARO/TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Corresponding CLP Inorganic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank S = Spike D = Duplicate R = Rinsate PE = Perform. Eval. — = Not a QC Sample)
BXJ11	1	L	G	N/A		✓	✓		BXJ11	SW-5	2/1/99 1745	MBQF74	NS	—
BXH57	1	L	G	N/A		✓	✓		BXH57	GW-8B	2/2/99 1030	NA	NS	—
BXH47	1	L	G	N/A		✓	✓		BXH47	SW-1	2/1/99 1702	MBQF73	NS	—
BXH33	1	L	G	N/A		✓	✓		BXH33	GW-4A	2/2/99 1300	NA	NS	—
BXH90	1	L	G	N/A		✓	✓		BXH90	SW-2	2/1/99 1610	MBQF72	NS	—
BXH39	4	L	G	N/A		✓	✓		BXH39	FB-8	2/2/99 1330	N/A	NS	B
BXJ24	1	L	G	N/A		✓	✓		BXJ31	SED-1	2/1/99 1702	MBQF91	NS	—

Shipment for Case Complete? (Y/N)	Page 1 of 1	Sample(s) to be Used for Laboratory QC	Additional Sampler Signatures	Chain of Custody Seal Number(s)

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Paul M Zamolli	1659 2/2/99				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

DISTRIBUTION: Blue - Region Copy; White - Lab Copy for Return to Region; Pink - CLASS Copy; Yellow - Lab Copy for Return to CLASS

EPA Form 9110-2

SEE REVERSE FOR ADDITIONAL STANDARD INSTRUCTIONS
*SEE REVERSE FOR PURPOSE CODE DEFINITIONS

A21-012-15 REV.

11 152

EPA United States Environmental Protection Agency
Contract Laboratory Program

Organic Traffic Report & Chain of Custody Record
(For Organic CLP Analysis)

Case No. 26777

1. Project Code	Account Code	2. Region No.	Sampling Co.	4. Date Shipped	Carrier
		2	NJDEP		UPS

Regional Information

Sampler (Name)

Airbill Number: N223-919-173-6

Non-Superfund Program

Sampler Signature

Site Name: HAMERSLEY

City, State: WALLINGTON, NJ

Site Spill ID

3. Purpose*: Lead [ ] SF [ ] PRP [ ] ST [ ] FED; Early Action [ ] CLEM [ ] PA [ ] REM [ ] RI [X] SI [ ] ESI; Long-Term Action [ ] FS [ ] RD [ ] RA [ ] O&M [ ] NPLD

5. Ship To: Industrial Enviro Analysts Co
200 Monroe Turn Pike
Monroe CT, 06468
ATTN: Paul Hobart

6. Matrix (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Field QC
5. Soil/Sediment
6. Oil (High only)
7. Waste (High only)
8. Other (Specify in Column A)

7. Preservative (Enter in Column D)
1. HCl
2. HNO3
3. NaHSO4
4. H2SO4
5. Ice only
6. Other (Specify in Column D)
N. Not preserved

CLP Sample Numbers (from labels)	A Matrix (from Box 6) Other:	B Conc.: Low Med High	C Sample Type: Comp./Grab	D Preservative (from Box 7) Other:	E RAS Analysis VOA	BNA	Pest/PCB	High only ARO/TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Corresponding CLP Inorganic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank S = Spike D = Duplicate R = Rinsate PE = Perform. Eval. — = Not a QC Sample)
BXH52	2	L	G	N		✓	✓		BXH52	GW-1A	1/19/99 1158	N/A	FS	~~N~~ —
BXH35	2	L	G	N		✓	✓		BXH35	GW-13A	1/19/99 1448	N/A	FS	—
BXH34	2	L	G	N		✓	✓		BXH34	GW-3A	1/19/99 1705	N/A	FS	—
BXJ05	4	L	G	N		✓	✓		BXJ05	FB-1	1/19/99 1015	N/A	FS	B
~~BXJ16~~	~~4~~	~~L~~	~~G~~	~~N~~		~~✓~~	~~✓~~		~~BXJ16~~	~~FB-2~~	~~1/20/99 1100~~	~~N/A~~	~~FS~~	~~B~~
~~BXH33~~	~~2~~	~~L~~	~~G~~	~~N~~		~~✓~~	~~✓~~		~~BXH33~~ PMB	~~GW~~	~~1/20/99~~	~~N/A~~	~~FS~~	—

Shipment for Case Complete? (Y/N) Y

Page 1 of 1

Sample(s) to be Used for Laboratory QC

Additional Sampler Signatures

Chain of Custody Seal Number(s)

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Paul M Zanello	1/20/99 1650				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

DISTRIBUTION: Blue - Region Copy; White - Lab Copy for Return to Region; Pink - CLASS Copy; Yellow - Lab Copy for Return to CLASS

EPA Form 9110-2

SEE REVERSE FOR ADDITIONAL STANDARD INSTRUCTIONS
*SEE REVERSE FOR PURPOSE CODE DEFINITIONS

A21-012-15 REV.

II/33

EPA United States Environmental Protection Agency
Contract Laboratory Program

Organic Traffic Report & Chain of Custody Record
(For Organic CLP Analysis)

Case No. 26777

1. Project Code:
Account Code:
2. Region No. 2
Sampling Co.:
4. Date Shipped:
Carrier: UPS

Regional Information:
Sampler (Name):
Airbill Number: N223-919-158-5

Non-Superfund Program:
Sampler Signature:
5. Ship To: PDP ANALYTICAL SERVICES, 1680 LAKE FRONT CIRCLE, The Woodlands, TX 77380
ATTN: SACHIN KUDCHADKAR

Site Name: HAMERSLEY
3. Purpose*: Lead [ ] SF [ ] PRP [ ] ST [ ] FED; Early Action [ ] CLEM [ ] PA [ ] REM [ ] RI [X] SI [ ] ESI; Long-Term Action [ ] FS [ ] RD [ ] RA [ ] O&M [ ] NPLD

City, State:
Site Spill ID:

6. Matrix (Enter in Column A): 1. Surface Water 2. Ground Water 3. Leachate 4. Field QC 5. Soil/Sediment 6. Oil (High only) 7. Waste (High only) 8. Other (Specify in Column A)

7. Preservative (Enter in Column D): 1. HCl 2. HNO3 3. NaHSO4 4. H2SO4 5. Ice only 6. Other (Specify in Column D) N. Not preserved

CLP Sample Numbers (from labels)	A Matrix (from Box 6) Other:	B Conc. Low Med High	C Sample Type: Comp./ Grab	D Preservative (from Box 7) Other:	E RAS Analysis VOA	BNA	Pest/PCB	High only ARO/TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/ Year/Time Sample Collection	I Corresponding CLP Inorganic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank S = Spike D = Duplicate R = Rinsate PE = Perform. Eval. — = Not a QC Sample)
BXH32	1	L	G	1	✓				BXH32	SW-5	2/1/99 1745	MBQF74	NS	—
BXH47	1	L	G	1	✓				BXH47	SW-3	2/1/99 1410	MBQF71	NS	—
BXH33	1	L	G	1	✓				BXH33	GW-14A	2/2/99 1300	NA	NS	—
BXH90	1	L	G	1	✓				BXH90	SW-2	2/1/99 1600	MBQF72	NS	—
BXH39	4	L	G	1	✓				BXH39	FB-8	2/2/99 1330	NA	NS	B
BXJ11	1	L	G	1	✓				BXJ11	SW-1	2/1/99 1702	MBQF73	NS	—
BXH67	1	L	G	1	✓				BXJ67	GW-10A	2/3/99 1306	N/A	NS	—
BXJ41	4	L	N/A	1	✓				BXJ41	TB-4	2/3/98 N/A	N/A	NS	B
BXH63	4	L	G	1	✓				BXH63	FB-9	2/3/98 1455	N/A	PZ	B

Shipment for Case Complete? (Y/N):
Page 1 of 1
Sample(s) to be Used for Laboratory QC:
Additional Sampler Signatures:
Chain of Custody Seal Number(s):

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Paul M Zanelli	2/3/99				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks: Is custody seal intact? Y/N/none	

DISTRIBUTION: Blue - Region Copy; White - Lab Copy for Return to Region; Pink - CLASS Copy; Yellow - Lab Copy for Return to CLASS

EPA Form 9110-2

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*SEE REVERSE FOR PURPOSE CODE DEFINITIONS

A21-012-15 REV.

IT134

EPA United States Environmental Protection Agency
Contract Laboratory Program

Organic Traffic Report & Chain of Custody Record
(For Organic CLP Analysis)

Case No. 26777

1. Project Code	Account Code	2. Region No.	Sampling Co.	4. Date Shipped	Carrier
		2			UPS

Regional Information

Sampler (Name)

Airbill Number: N223-919-163-8

Non-Superfund Program

Sampler Signature

Site Name: Hamersley

City, State

Site Spill ID

3. Purpose*: Lead: SF, PRP, ST, FED; Early Action: CLEM, PA, REM, RI, SI, ESI; Long-Term Action: FS, RD, RA, O&M, NPLD

5. Ship To: PDP ANALYTICAL SERVICES, 1680 LAKE FRONT CIRCLE, The WOODLANDS, TX 77380
ATTN: SACHIN KUDCHADKAR

6. Matrix (Enter in Column A): 1. Surface Water 2. Ground Water 3. Leachate * 4. Field QC 5. Soil/Sediment 6. Oil (High only) 7. Waste (High only) 8. Other (Specify in Column A)

7. Preservative (Enter in Column D): 1. HCl 2. HNO3 3. NaHSO4 4. H2SO4 5. Ice only 6. Other (Specify in Column D) N. Not preserved

CLP Sample Numbers (from labels)	A Matrix (from Box 6) Other:	B Conc.: Low Med High	C Sample Type: Comp./Grab	D Preservative (from Box 7) Other:	E RAS Analysis: VOA	BNA	Pest/PCB	High only ARO/TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Corresponding CLP Inorganic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank S = Spike D = Duplicate R = Rinsate PE = Perform. Eval. — = Not a QC Sample)
BXH91	2	L	G	1	✓				BXH91	GW-13B	1/29/99 1415	N/A	NS	—
BXJ15	4	L	G	1	✓				BXJ15	FB-8	1/29/99 1517	N/A	NS	—
BXJ10	4	L	G	1	✓				BXJ10	FB-9	2/1/99 0947	N/A	NS	—
BXH97	2	L	G	1	✓				BXH97	GW 13-D	2/1/99 1050	N/A	PZ	—
BXH99	2	L	G	1	✓				BXH99	GW-8A	2/1/99 1130	N/A	NS	—
BXJ21	2	L	G	1	✓				BXJ21	SW-4	2/1/99 1140	MBQF94	NS	—
BXJ21	4	L	G	1	✓				BJX21 MS/MSD	SW-4	2/1/99 1140	MBQF94	NS	S, D
BXJ31	2	L	G	1	✓				BXJ31	SW-6	2/1/99 1300	MBQF71	NS	—
BXH48	2	L	G	1	✓				BXH48	GW-8B	2/1/99 1450	N/A	JS	—
BXH50	2	L	G	1	✓				BXH50	GW-8C	2/1/99 1555	N/A	JS	—

Shipment for Case Complete? (Y/N)	Page	Sample(s) to be Used for Laboratory QC	Additional Sampler Signatures	Chain of Custody Seal Number(s)
	2 of 2			

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	2/1/99 1700				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

DISTRIBUTION: Blue - Region Copy; White - Lab Copy for Return to Region; Pink - CLASS Copy; Yellow - Lab Copy for Return to CLASS

EPA Form 9110-2

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A21-012-15 REV.

II/35

272202

EPA United States Environmental Protection Agency
Contract Laboratory Program

Organic Traffic Report & Chain of Custody Record
(For Organic CLP Analysis)

Case No. 26777

1. Project Code	Account Code	2. Region No.	Sampling Co.	4. Date Shipped	Carrier
		2			

Regional Information

Sampler (Name): NJDEP / Frank Sorce

Airbill Number: J015-248948-4

Non-Superfund Program

Sampler Signature

5. Ship To: Industrial Enviro Analysts, 200 Monroe Turnpike, Monroe, CT 06468
ATTN: Paul Hobart

Site Name: Hamersly LF

City, State

Site Spill ID

3. Purpose*
Lead: [ ] SF [ ] PRP [ ] ST [ ] FED
Early Action: [ ] CLEM [ ] PA [ ] REM [ ] RI [X] SI [ ] ESI
Long-Term Action: [ ] FS [ ] RD [ ] RA [ ] O&M [ ] NPLD

6. Matrix (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Field QC
5. Soil/Sediment
6. Oil (High only)
7. Waste (High only)
8. Other (Specify in Column A)

7. Preservative (Enter in Column D)
1. HCl
2. HNO3
3. NaHSO4
4. H2SO4
5. Ice only
6. Other (Specify in Column D)
N. Not preserved

CLP Sample Numbers (from labels)	A Matrix (from Box 6) Other:	B Conc.: Low Med High	C Sample Type: Comp./ Grab	D Preservative (from Box 7) Other:	E RAS Analysis VOA	BNA	Pest/PCB	High only ARO/TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/ Year/Time Sample Collection	I Corresponding CLP Inorganic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank S = Spike D = Duplicate R = Rinsate PE = Perform. Eval. — = Not a QC Sample)
BXJ37	5	L	G	5		✓	✓		BXJ37	S-9	1/21/99 1038	MBQG04	NS	—
BXJ30	5	L	G	5		✓	✓		BXJ30	S-2	1/21/99 1251	MBQF97	NS	—
BXJ29	5	L	G	5		✓	✓		BXJ29	S-1	1/21/99 1538	MBQF96	NS	—
BXJ34	5	L	G	5		✓	✓		BXJ34	S-6	1/22/99 1645	MBQG01	NS	—
BXJ33	5	L	G	5		✓	✓		BXJ33	S-5	1/22/99 1404	MBQG00	NS	—
BXJ31	5	L	G	5		✓	✓		BXJ31	S-3	1/22/99 1533	MBQF98	NS	—
BXJ32	5	L	G	5		✓	✓		BXJ32	S-4	1/22/99 1156	~~MBQ~~ NA	NS	—

Shipment for Case Complete? (Y/N)	Page	Sample(s) to be Used for Laboratory QC	Additional Sampler Signatures	Chain of Custody Seal Number(s)
Y	1 of 1	N/A	—	N A

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Paul Mizanello	1/25/99 1700				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

IT 136

DISTRIBUTION: Blue - Region Copy; White - Lab Copy for Return to Region; Pink - CLASS Copy; Yellow - Lab Copy for Return to CLASS

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A21-012-15 REV.

270200

EPA United States Environmental Protection Agency
Contract Laboratory Program

Organic Traffic Report & Chain of Custody Record
(For Organic CLP Analysis)

Case No. 26777

1. Project Code	Account Code	2. Region No. 2	Sampling Co.	4. Date Shipped 2/3/99	Carrier UPS
Regional Information		Sampler (Name)		Airbill Number N223-919-157-6	
Non-Superfund Program		Sampler Signature		5. Ship To Industrial Environmental Analysts 200 Monroe Turnpike Monroe, CT 06468 ATTN: Paul Hobart	
Site Name HAMERSLEY		3. Purpose* Lead: [ ] SF [ ] PRP [ ] ST [ ] FED; Early Action: [ ] CLEM [ ] PA [ ] REM [ ] RI [X] SI [ ] ESI; Long-Term Action: [ ] FS [ ] RD [ ] RA [ ] O&M [ ] NPLD			
City, State	Site Spill ID				

6. Matrix (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Field QC
5. Soil/Sediment
6. Oil (High only)
7. Waste (High only)
8. Other (Specify in Column A)

7. Preservative (Enter in Column D)
1. HCl
2. HNO3
3. NaHSO4
4. H2SO4
5. Ice only
6. Other (Specify in Column D)
N. Not preserved

CLP Sample Numbers (from labels)	A Matrix (from Box 6) Other:	B Conc.: Low Med High	C Sample Type: Comp./ Grab	D Preservative (from Box 7) Other:	E RAS Analysis VOA	BNA	Pest/PCB	High only ARO/TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/ Year/Time Sample Collection	I Corresponding CLP Inorganic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank S = Spike D = Duplicate R = Rinsate PE = Perform. Eval. — = Not a QC Sample)
BJX35	5	L	G	N		✓	✓		BJX35	S-7	2/3/99 1500	MBQG02	NS	—
BJX36	5	L	G	N		✓	✓		BJX36	S-8	2/3/99 1530	MBQ~~G~~03	NS	—

Shipment for Case Complete? (Y/N) Y

Page 1 of 1

Sample(s) to be Used for Laboratory QC

Additional Sampler Signatures

Chain of Custody Seal Number(s)

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Paul M Zanillo	2/3/99 1630				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact?. Y/N/none	

DISTRIBUTION: Blue - Region Copy; White - Lab Copy for Return to Region; Pink - CLASS Copy; Yellow - Lab Copy for Return to CLASS

EPA Form 9110-2

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*SEE REVERSE FOR PURPOSE CODE DEFINITIONS

A21-012-15 REV.

II157

EPA United States Environmental Protection Agency
Contract Laboratory Program

Organic Traffic Report & Chain of Custody Record
(For Organic CLP Analysis)

Case No. 26777

1. Project Code	Account Code	2. Region No.	Sampling Co.	4. Date Shipped	Carrier
		2			

Regional Information

Sampler (Name): NJDEP / Frank Sorce

Airbill Number: J015-248 948-4

Non-Superfund Program

Sampler Signature

Site Name: HAMERSLY LF

City, State

Site Spill ID

3. Purpose*: Lead: SF, PRP, ST, FED; Early Action: CLEM, PA, REM, RI, [X] SI, ESI; Long-Term Action: FS, RD, RA, O&M, NPLD

5. Ship To: Industrial Enviro Analysis, 200 Monroe Turnpike, Monroe, CT 06468

ATTN: Paul Hobart

6. Matrix (Enter in Column A): 1. Surface Water 2. Ground Water 3. Leachate 4. Field QC 5. Soil/Sediment 6. Oil (High only) 7. Waste (High only) 8. Other (Specify in Column A)

7. Preservative (Enter in Column D): 1. HCl 2. HNO3 3. NaHSO4 4. H2SO4 5. Ice only 6. Other (Specify in Column D) N. Not preserved

CLP Sample Numbers (from labels)	A Matrix (from Box 6) Other:	B Conc.: Low Med High	C Sample Type: Comp./Grab	D Preservative (from Box 7) Other:	E RAS Analysis: VOA	BNA	Pest/PCB	High only ARO/TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Corresponding CLP Inorganic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank S = Spike D = Duplicate R = Rinsate PE = Perform. Eval. — = Not a QC Sample)
BXJ37	5	L	G	5		✓	✓		BXJ37	S-9	1/21/99 1038	MBQG04	NS	—
BXJ30	5	L	G	5		✓	✓		BXJ30	S-2	1/21/99 1251	MBQF97	NS	—
BXJ29	5	L	G	5		✓	✓		BXJ29	S-1	1/21/99 1538	MBQF96	NS	—
BXJ34	5	L	G	5		✓	✓		BXJ34	S-6	1/22/99 1645	MBQG01	NS	—
BXJ33	5	L	G	5		✓	✓		BXJ33	S-5	1/22/99 1404	MBQG00	NS	—
BXJ31	5	L	G	5		✓	✓		BXJ31	S-3	1/22/99 1533	MBQF98	NS	—
BXJ32	5	L	G	5		✓	✓		BXJ32	S-4	1/22/99 1156	~~MBQ~~ NA	NS	—

Shipment for Case Complete? (Y/N)	Page	Sample(s) to be Used for Laboratory QC	Additional Sampler Signatures	Chain of Custody Seal Number(s)
	1 of 1	N/A	—	N/A

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Paul Mazarello	1/25/99 1700				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

DISTRIBUTION: Blue - Region Copy; White - Lab Copy for Return to Region; Pink - CLASS Copy; Yellow - Lab Copy for Return to CLASS

EPA Form 9110-2

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A21-012-15 REV.

372200

II 138

EPA United States Environmental Protection Agency
Contract Laboratory Program

Inorganic Traffic Report & Chain of Custody Record
(For Inorganic CLP Analysis)

Case No. 26777

1. Project Code	Account Code	2. Region No.	Sampling Co.	4. Date Shipped	Carrier
		2		1/25/99	UPS

Regional Information

Sampler (Name)

Airbill Number: N223-919-170-9

Non-Superfund Program

Sampler Signature

5. Ship To: CHEMTECH CONSULTING GROUP, 110 Route 4, ENGLEWOOD, NJ 07631
ATTN: AKKU PATEL

Site Name: HAMERSLY

City, State

Site Spill ID

3. Purpose*
Lead: SF, PRP, ST, FED
Early Action: CLEM, PA, REM, RI, X SI, ESI
Long-Term Action: FS, RD, RA, O&M, NPLD

6. Matrix (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Field QC
5. Soil/Sediment
6. Oil (High only)
7. Waste (High only)
8. Other (specify in Column A)

7. Preservative (Enter in Column D)
1. HCl
2. HNO3
3. NaOH
4. H_2SO_4
5. $K_2CR_2O_7$
6. Ice only
7. Other (specify in Column D)
N. Not preserved

CLP Sample Numbers (from labels)	A Matrix (from Box 6) Other:	B Conc. Low Med High	C Sample Type: Comp./Grab	D Preservative (from Box 7) Other:	E – RAS Analysis: Diss. Metals	Total Metals	Cyanide	Low only: NO_2/NO_3	Fluoride	High only: pH	Conduct.	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Corresponding CLP Organic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank, S = Spike, D = Duplicate, R = Rinsate, PE = Perform. Eval., — = Not a QC Sample)
MBQG04	5	L	G	N/A5		✓	✓					MBQ G04	S-9	1/21/99 1038	BXJ37	NS	—
MBQF97	5	L	G	N/A5		✓	✓					MBQF97	S-2	1/21/99 1252	BXJ30	NS	—
MBQF96	5	L	G	N/A5		✓	✓					MBQF96	S-1	1/21/99 1538	BXJ29	NS	—
MBQG01	5	L	G	N/A5		✓	✓					MBQG01	S-6	1/22/99 1645	BXJ34	NS	—
MBQG00	5	L	G	5		✓	✓					MBQ G00	S-5	1/22/99 1404	BXJ33	NS	—
MBQF98	5	L	G	5		✓	✓					MBQF98	S-3	1/22/99 1533	BXJ31	NS	—
													~~S-4~~ PMZ	~~1/22/99 1156~~	PMZ	~~NS~~	—

Shipment for Case Complete? (Y/N) Y

Page 1 of 1

Sample(s) to be Used for Laboratory QC: N-A

Additional Sampler Signatures

Chain of Custody Seal Number(s): —

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Paul M Zumello	1/25/99 1700				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks: Is custody seal intact? Y/N/none	

DISTRIBUTION: Green - Region Copy; White - Lab Copy for Return to Region; Pink - CLASS Copy; Yellow - Lab Copy for Return to CLASS

EPA Form 9110-1

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A21-012-13 REV.

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VO

EPA United States Environmental Protection Agency
Contract Laboratory Program

Organic Traffic Report & Chain of Custody Record
(For Organic CLP Analysis)

Case No. 26777

1. Project Code	Account Code	2. Region No.	Sampling Co.	4. Date Shipped	Carrier
		2	NJDEP		UPS

Regional Information

Sampler (Name): P Zamillo

Airbill Number: N223-919-174-5

Non-Superfund Program

Sampler Signature: Paul M Zamillo

5. Ship To: PDP ANALYTICAL SERVICES, 1680 LAKE FRONT CIRCLE, SUITE B, THE WOODLANDS, TX 77380
ATTN: SACHIN Kudchalkar

Site Name: HAMMERSLEY

City, State: WALLINGTON NJ

Site Spill ID: ZZ

3. Purpose*
Lead: [ ] SF [ ] PRP [ ] ST [ ] FED
Early Action: [ ] CLEM [ ] PA [ ] REM [ ] RI [X] SI [ ] ESI
Long-Term Action: [ ] FS [ ] RD [ ] RA [ ] O&M [ ] NPLD

6. Matrix (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Field QC
5. Soil/Sediment
6. Oil (High only)
7. Waste (High only)
8. Other (Specify in Column A)

7. Preservative (Enter in Column D)
1. HCl
2. HNO3
3. NaHSO4
4. H2SO4
5. Ice only
6. Other (Specify in Column D)
N. Not preserved

CLP Sample Numbers (from labels)	A Matrix (from Box 6) Other:	B Conc.: Low Med High	C Sample Type: Comp./Grab	D Preservative (from Box 7) Other:	E RAS Analysis: VOA	BNA	Pest/PCB	High only ARO/TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Corresponding CLP Inorganic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank S = Spike D = Duplicate R = Rinsate PE = Perform. Eval. — = Not a QC Sample)
BXH52	2	L	G	1	✓				BXH52	GW-1A	1/19/99 1158	N/A	FS	—
BXH35	2	L	G	1	✓				BXH35	GW-13A	1/19/99 1448	N/A	FS	—
BXH34	2	L	G	1	✓				BXH34 3A→	GW-3A	1/19/99 1705	N/A	FS	—
* BXJ05	4	L	G	1	✓				BXJ05 FB-1	FIELD BLANK	1/19/99 1015	N/A	FS	B
* BXJ16	4	L	G	1	✓				BXJ16 FB-2	FIELD BLANK	1/20/99 1100	N/A	FS	B
BXH73	2	L	G	1	✓				BXH73	GW-1B	1/20/99 1115	N/A	FS	—
BXH82	2	L	G	1	✓				BXH82	GW-1C	1/20/99 1155	N/A	FS	—
BXH58	2	L	G	1	✓				BXH58	GW-1D	1/20/99 1320	N/A	FS	—
~~BXH33~~	~~2~~	~~L~~	~~G~~	~~1~~	~~✓~~				~~BXH33~~	~~GW~~	~~1/20/99~~	~~N/A~~	~~FS~~	~~—~~

Shipment for Case Complete? (Y/N): Y

Page 1 of 1

Sample(s) to be Used for Laboratory QC:

Additional Sampler Signatures: *SAMPLES IN SEPARATE COOLER

Chain of Custody Seal Number(s): N/A

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Paul M Zamillo	1/20/99 1700				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

A21-012-15 REV.

DISTRIBUTION: Blue - Region Copy; White - Lab Copy for Return to Region; Pink - CLASS Copy; Yellow - Lab Copy for Return to CLASS

EPA Form 9110-2

SEE REVERSE FOR ADDITIONAL STANDARD INSTRUCTIONS
*SEE REVERSE FOR PURPOSE CODE DEFINITIONS

270190

ITHC

EPA United States Environmental Protection Agency
Contract Laboratory Program

Organic Traffic Report & Chain of Custody Record
(For Organic CLP Analysis)

Case No. 26777

1. Project Code	Account Code	2. Region No. 2	Sampling Co.
4. Date Shipped 1/27/99	Carrier UPS		
Regional Information	Sampler (Name) Nick Sodano	Airbill Number N223-919-169-2	
Non-Superfund Program	Sampler Signature	5. Ship To PDP ANALYTICAL SERVICES, 1680 LAKEFRONT Circle, WOODLANDS, TX 77380 ATTN: SACHIN KUDCHADKAR	
Site Name HAMERSLEY LF	3. Purpose* Lead: [ ] SF [ ] PRP [ ] ST [ ] FED; Early Action: [ ] CLEM [ ] PA [ ] REM [X] RI [ ] SI [ ] ESI; Long-Term Action: [ ] FS [ ] RD [ ] RA [ ] O&M [ ] NPLD		
City, State	Site Spill ID		

6. Matrix (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Field QC
5. Soil/Sediment
6. Oil (High only)
7. Waste (High only)
8. Other (Specify in Column A)

7. Preservative (Enter in Column D)
1. HCl
2. HNO3
3. NaHSO4
4. H2SO4
5. Ice only
6. Other (Specify in Column D)
N. Not preserved

CLP Sample Numbers (from labels)	A Matrix (from Box 6) Other:	B Conc.: Low Med High	C Sample Type: Comp./Grab	D Preservative (from Box 7) Other:	E RAS Analysis VOA	BNA	Pest/PCB	High only ARO/TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Corresponding CLP Inorganic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank S = Spike D = Duplicate R = Rinsate PE = Perform. Eval. — = Not a QC Sample)
BXH54	2	L	G	1	✓				BXH54	GW-7A	1/25/99 1010	N/A	NS	—
BXH79	2	L	G	1	✓				BXH79	GW-7B	1/25/99 1430	N/A	NS	—
BXH77	2	L	G	1	✓				BXH77	GW-7C	1/25/99 1605	N/A	NS	—
BXH36	4	L	G	1	✓				BXH36 (Field Blank)	FB-4	1/25/99 1635	N/A	PE	B
BXJ19	2	L	G	1	✓				BXJ19	GW-7D	1/26/99 1100	N/A	NS	—
BXH61	2	L	G	N	✓				BXH61 (unpreserved)	GW-7DU	1/26/99 1200	N/A	NS	—
BXH75	2	L	G	1	✓				BXH75	GW-2A	1/26/99 1408	N/A	NS	—
BXH74	2	L	G	1	✓				BXH74	GW-2B	1/26/99 1520	N/A	NS	—
BXJ00	4	L	G	1	✓				BXJ00 (Field Blank)	FB-5	1/26/99 1500	N/A	NS	B
BXJ15	4	L	G	1	✓				BXJ15 (TRIP BLANK)	TB-2	1/26/99 —	N/A	—	B

Shipment for Case Complete? (Y/N)	Page 1 of 2	Sample(s) to be Used for Laboratory QC	Additional Sampler Signatures	Chain of Custody Seal Number(s)

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Paul M Zamlo	1/27/99 1600				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

141 II

A21-012-15 REV.

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EPA Form 9110-2

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*SEE REVERSE FOR PURPOSE CODE DEFINITIONS

272205

EPA

United States Environmental Protection Agency
Contract Laboratory Program

Inorganic Traffic Report & Chain of Custody Record
(For Inorganic CLP Analysis)

Case No. 26777

1. Matrix (Enter in Column A): 1. Surface Water 2. Ground Water 3. Leachate 4. Field QC 5. Soil/Sediment 6. Oil (High only) 7. Waste (High only) 8. Other (specify in Column A)

2. Preservative (Enter in Column D): 1. HCl 2. HNO3 3. NaOH 4. H_2SO_4 5. $K_2CR_2O_7$ 6. Ice only 7. Other (specify in Column D) N. Not preserved

2. Region No. 2 | Sampling Co.

Sampler (Name)

Sampler Signature

3. Purpose: Lead: SF, RRP, ST, FED; Early Action: CLEM, PA, REM, RI, SI, FSI; Long-Term Action: FS, RD, RA, O&M, NPLD

4. Date Shipped | Carrier: UPS

Airbill Number: N223-919-166-6

5. Ship To: CHEMTECH Consulting, 110 Route 4, Englewood, Edgewood, NJ 07631

ATTN: AKKU PATEL

6. Date Received | Received by:

Laboratory Contract Number | Unit Price

7. Transfer to | Date Received

Received by

Contract Number | Price

CLP Sample Numbers (from labels)	A Matrix (from Box 1) Other	B Conc. Low Med High	C Sample Type: Comp/Grab	D Preservative (from Box 2) Other	E RAS Analysis: Diss. Metals	Total Metals	Cyanide	Low only NO3/NO2	Fluoride	High only Ni	Cd/Cu	F Regional Specific Tracking Number or Tag Number	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Corresponding CLP Organic Sample No.	J Sampler (Initials)	K High Phases		
MBQF94	5	L	G	N		✓	✓					MBQF94	SED-4	2/1/99 1115	BXJ21	NS			
MBQF70	1	L	G	2		✓	✓					MBQF70	SW-4	2/1/99 1140	BXJ21	NS			
MBQF70	4	L	G	2		✓	✓					MBQF70 (MS/MSD)	SW-4	2/1/99 1200	BXJ21	NS			
MBQF71	1	L	G	2		✓	✓					MBQF71	SW-6	2/1/99 1300	BXH3	NS			
MBQF74	1	L	G	2		✓	✓					MBQF74	SW-5	2/1/99	BXH32	NS			
MBQF95	5	L	G	N		✓	✓					MBQF95	SED-5	2/1/99 1745	BXJ25	NS			
MBQF71	1	L	G	2		✓	✓					MBQF71	SW-3	2/1/99 1400	BXJ11	NS			
MBQF93	5	L	G	N		✓	✓					MBQF93	SED-3	2/1/99 1410	BXJ26	NS			
MBQG07	5	L	G	N		✓	✓					MBQG07 SAME as SED-3	MS/MSD	2/1/99 1440	BXH32	NS			
MBQG06	5	L	G	N		✓	✓					MBQG06	SED-6	2/1/99 1500	BXJ31	NS			

Shipment for Case Complete? (Y/N) | Page 1 of 2 | Sample(s) to be Used for Laboratory QC | Additional Sampler Signatures | Chain of Custody Seal Number(s)

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	2/2/99 1640				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	Is custody seal intact? Y/N/none

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374083

II 142

EPA United States Environmental Protection Agency
Contract Laboratory Program

Organic Traffic Report & Chain of Custody Record
(For Organic CLP Analysis)

Case No. 26777

1. Project Code	Account Code	2. Region No. 2	Sampling Co.	4. Date Shipped 1/27/99	Carrier UPS
Regional Information		Sampler (Name) Nick Sodano		Airbill Number N223-919-169-2	
Non-Superfund Program		Sampler Signature		5. Ship To PDP ANALYTICAL SERVICES 1680 LAKEFRONT CIRCLE WOODLANDS, TX 77380 ATTN: SACHIN KUDCHADKAR	
Site Name HAMERSLY CF		3. Purpose* Lead: SF, PRP, ST, FED; Early Action: CLEM, PA, REM, RI, [X] SI, ESI; Long-Term Action: FS, RD, RA, O&M, NPLD			
City, State	Site Spill ID				

6. Matrix (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Field QC
5. Soil/Sediment
6. Oil (High only)
7. Waste (High only)
8. Other (Specify in Column A)

7. Preservative (Enter in Column D)
1. HCl
2. HNO3
3. NaHSO4
4. H2SO4
5. Ice only
6. Other (Specify in Column D)
N. Not preserved

CLP Sample Numbers (from labels)	A Matrix (from Box 6) Other:	B Conc.: Low Med High	C Sample Type: Comp./Grab	D Preservative (from Box 7) Other:	E RAS Analysis VOA	BNA	Pest/PCB	High only ARO/TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Corresponding CLP Inorganic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank S = Spike D = Duplicate R = Rinsate PE = Perform. Eval. — = Not a QC Sample)
BXH93	2	L	G	1	✓	✓			BXH93	GW-2C	1/26/99 1556	N/A	NS	—
BXH66	2	L	G	1	✓	✓			BXH66	GW-2D	1/26/99 1705	N/A	NS	—
BXH83	2	L	G	1	✓	✓			BXH83	GW-3B	1/27/99 1220	N/A	NS	—
BXH94	2	L	G	1	✓	✓			BXH94	GW-16B	1/27/99 1300	N/A	NS	—
PMZ BXH24	2	L	G	1	✓	✓			BXH24 (FIELD BLANK)	FB-6	1/27/99 1408	N/A	PZ	B
BXH59	2	L	G	1	✓	✓			BXH59	GW-3C	1/27/99 1412	N/A	NS	—
BXH43	2	L	G	1	✓	✓			BXH43	GW-3D	1/27/99 1510	N/A	NS	—

Shipment for Case Complete? (Y/N)	Page 2 of 2	Sample(s) to be Used for Laboratory QC	Additional Sampler Signatures	Chain of Custody Seal Number(s)

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Paul M Zamble	1/27/99 1600				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

II143

A21-012-15 REV.

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EPA Form 9110-2

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372201

EPA United States Environmental Protection Agency
Contract Laboratory Program

Organic Traffic Report & Chain of Custody Record
(For Organic CLP Analysis)

Case No. 26777

1. Project Code	Account Code	2. Region No. 2	Sampling Co.	4. Date Shipped	Carrier UPS
Regional Information		Sampler (Name)		Airbill Number N223-919-168-3	
Non-Superfund Program		Sampler Signature		5. Ship To INDUSTRIAL ENVI ANALYSTS 200 MONROE TPKE MONROE, CT 06468 ATTN: PAUL Hobart	
Site Name Hamersley		3. Purpose* Lead: SF, PRP, ST, FED; Early Action: CLEM, PA, REM, RI, [X] SI, ESI; Long-Term Action: FS, RD, RA, O&M, NPLD			
City, State	Site Spill ID				

6. Matrix (Enter in Column A): 1. Surface Water 2. Ground Water 3. Leachate 4. Field QC 5. Soil/Sediment 6. Oil (High only) 7. Waste (High only) 8. Other (Specify in Column A)

7. Preservative (Enter in Column D): 1. HCl 2. HNO3 3. NaHSO4 4. H2SO4 5. Ice only 6. Other (Specify in Column D) N. Not preserved

CLP Sample Numbers (from labels)	A Matrix (from Box 6) Other:	B Conc.: Low Med High	C Sample Type: Comp./ Grab	D Preservative (from Box 7) Other:	E RAS Analysis VOA	BNA	Pest/PCB	High only ARO/TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/ Year/Time Sample Collection	I Corresponding CLP Inorganic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank S = Spike D = Duplicate R = Rinsate PE = Perform. Eval. — = Not a QC Sample)
BXJ21	5	L	G	N		✓	✓		BXJ21	SED-4	2/1/99 1205	MBQF70	NS	—
BXJ31	1	L	G	N		✓	✓		BXJ31	SW-6	2/1/99 1300	MBQF71	NS	—
BXJ21	4	L	G	N		✓	✓		MS/MSD	SW-4	2/1/99 1205	MBQF70	NS	—
PMZ BXH32	1	L	G	N		✓	✓		BXH32	SW-3	2/1/99 1420	MBQF71	NS	—
BXH90	1	L	G	N		✓	✓		BXH90	SW-2	2/1/99 1545	MBQF72	NS	—
BXJ26	1	L	G	N		✓	✓		BXJ26	SED-3	2/1/99 1520	MBQF93	NS	—
BXJ40	4	L	G	N		✓	✓		BXJ40 SW4	MS/MSD	2/1/99 1305	MBQF71	NS	D
BXJ39	4	L	G	N		✓	✓		BXJ39 DUP of BXJ26	DUP	2/1/99 1535	MBQF93	NS	D
										~~SED-1~~ PMZ	~~2/1/99 1702~~ PZ		~~NS~~	—
										~~SW-7~~ PMZ	~~2/1/99 1710~~ PMZ		~~NS~~ PMZ	—

Shipment for Case Complete? (Y/N)	Page 1 of 1	Sample(s) to be Used for Laboratory QC	Additional Sampler Signatures	Chain of Custody Seal Number(s)

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Paul M Zamb	2/1/99 1720				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

DISTRIBUTION: Blue - Region Copy; White - Lab Copy for Return to Region; Pink - CLASS Copy; Yellow - Lab Copy for Return to CLASS

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A21-012-15 REV.

II 149

EPA United States Environmental Protection Agency
Contract Laboratory Program

Organic Traffic Report & Chain of Custody Record
(For Organic CLP Analysis)

Case No. 26777

1. Project Code:
Account Code:
2. Region No. 2
Sampling Co.:
4. Date Shipped:
Carrier: UPS

Regional Information:
Sampler (Name):
Airbill Number: N223-919-163-8

Non-Superfund Program:
Sampler Signature:
5. Ship To: PDP ANALYTICAL SERVICES, 1680 LAKE FRONT CIRCLE, THE WOODLANDS, TX 77380
ATTN: SACHIN KUDCHADKAR

Site Name: HAMERSLEY LF
City, State: WALLINGTON, NJ
Site Spill ID:

3. Purpose*
Lead: SF, PRP, ST, FED
Early Action: CLEM, PA, REM, RI, [X] SI, ESI
Long-Term Action: FS, RD, RA, O&M, NPLD

6. Matrix (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Field QC
5. Soil/Sediment
6. Oil (High only)
7. Waste (High only)
8. Other (Specify in Column A)

7. Preservative (Enter in Column D)
1. HCl
2. HNO3
3. NaHSO4
4. H2SO4
5. Ice only
6. Other (Specify in Column D)
N. Not preserved

CLP Sample Numbers (from labels)	A Matrix (from Box 6) Other:	B Conc.: Low Med High	C Sample Type: Comp./Grab	D Preservative (from Box 7) Other:	E RAS Analysis VOA	BNA	Pest/PCB	High only ARO/TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Corresponding CLP Inorganic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank, S = Spike, D = Duplicate, R = Rinsate, PE = Perform. Eval., — = Not a QC Sample)
BXH71	4	L	G	1	✓				BXH71 (FIELD BLANK)	FB-7	1/28/99 1050	N/A	PZ	B
BXH85	2	L	G	1	✓				BXH85	GW-4A	1/28/99 1123	N/A	NS	—
BXJ25	4	L	G	1	✓				BXJ25 (TRIP BLANK)	TB-3	1/28/99 N/A	N/A	—	B
BXH46	2	L	G	1	✓				BXH46	GW-4B	1/28/99 1210	N/A	NS	—
BXH76	2	L	G	1	✓				BXH76	GW-4C	1/28/99 1255	N/A	NS	—
BXJ08	2	L	G	1	✓				BXJ08	GW-4D	1/28/99 1430	N/A	NS	—
BXJ18	2	L	G	1	✓				BXJ18	GW-5A	1/28/99 1610	N/A	NS	—
BXH89	2	L	G	1	✓				BXH89	GW-5B	1/29/99 0905	N/A	NS	—
BXH84	2	L	G	1	✓				BXH84	GW-5C	1/29/99 1082	N/A	NS	—
BXJ13	2	L	G	1	✓				BXJ13	GW-5D	1/29/99 1200	N/A	NS	—

Shipment for Case Complete? (Y/N):
Page 1 of 2
Sample(s) to be Used for Laboratory QC:
Additional Sampler Signatures:
Chain of Custody Seal Number(s):

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Paul M Zavilla	2/1/99 1700				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks: Is custody seal intact? Y/N/none	

DISTRIBUTION: Blue - Region Copy; White - Lab Copy for Return to Region; Pink - CLASS Copy; Yellow - Lab Copy for Return to CLASS

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*SEE REVERSE FOR PURPOSE CODE DEFINITIONS

A21-012-15 REV.

1145

EPA United States Environmental Protection Agency
Contract Laboratory Program

Organic Traffic Report & Chain of Custody Record
(For Organic CLP Analysis)

Case No. 26777

1. Project Code:
Account Code:
2. Region No.: 2
Sampling Co.:
4. Date Shipped: 1/27/99
Carrier: UPS
Airbill Number: N223-919-169-2
Regional Information:
Sampler (Name): Nick Sodano
Sampler Signature:
5. Ship To: PDP ANALYTICAL SERVICES, 1680 LAKEFRONT Circle, WOODLANDS, TX 77380
ATTN: SACHIN KUDCHADKAR
Non-Superfund Program:
Site Name: HAMERSLEY LF
City, State:
Site Spill ID:

3. Purpose*
Lead: SF, PRP, ST, FED
Early Action: CLEM, PA, REM, [X] RI, SI, ESI
Long-Term Action: FS, RD, RA, O&M, NPLD

6. Matrix (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Field QC
5. Soil/Sediment
6. Oil (High only)
7. Waste (High only)
8. Other (Specify in Column A)

7. Preservative (Enter in Column D)
1. HCl
2. HNO3
3. NaHSO4
4. H2SO4
5. Ice only
6. Other (Specify in Column D)
N. Not preserved

CLP Sample Numbers (from labels)	A Matrix (from Box 6) Other:	B Conc. Low Med High	C Sample Type: Comp. Grab	D Preservative (from Box 7) Other:	E RAS Analysis VOA	BNA	Pest/PCB	High only ARO/TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Corresponding CLP Inorganic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank S = Spike D = Duplicate R = Rinsate PE = Perform. Eval. — = Not a QC Sample)
BXH54	2	L	G	1	✓				BXH54	GW-7A	1/25/99 1040	N/A	NS	—
BXH79	2	L	G	1	✓				BXH79	GW-7B	1/25/99 1430	N/A	NS	—
BXH77	2	L	G	1	✓				BXH77	GW-7C	1/25/99 1605	N/A	NS	—
BXH36	4	L	G	1	✓				BXH36 (Field Blank)	FB-4	1/25/99 1635	N/A	PE	B
BXJ19	2	L	G	1	✓				BXJ19	GW-7D	1/26/99 1100	N/A	NS	—
BXH61	2	L	G	N	✓				BXH61 (unpreserved)	GW-7DV	1/26/99 1200	N/A	NS	—
BXH75	2	L	G	1	✓				BXH75	GW-2A	1/26/99 1408	N/A	NS	—
BXH74	2	L	G	1	✓				BXH74	GW-2B	1/26/99 1520	N/A	NS	B
BXJ00	4	L	G	1	✓				BXJ00 (Field Blank)	FB-5	1/26/99 1500	N/A	—	B
BXJ15	4	L	G	1	✓				BXJ15 (TRIP BLANK)	TB-2	1/26/99 —	N/A		

Shipment for Case Complete? (Y/N):
Page 1 of 2
Sample(s) to be Used for Laboratory QC:
Additional Sampler Signatures:
Chain of Custody Seal Number(s):

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Paul M Zamlch	1/27/99 1600				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

SEE REVERSE FOR ADDITIONAL STANDARD INSTRUCTIONS
*SEE REVERSE FOR PURPOSE CODE DEFINITIONS

EPA Form 9110-2

Pink - CLASS Copy
Copy for Return to CLASS

372205

IT150

EPA United States Environmental Protection Agency Contract Laboratory Program

Organic Traffic Report & Chain of Custody Record
(For Organic CLP Analysis)

Case No. 26777

1. Project Code	Account Code	2. Region No.	Sampling Co.	4. Date Shipped	Carrier
		2		1/27/99	UPS

Regional Information

Sampler (Name): Nick Sodano

Airbill Number: N223-919-169-2

Non-Superfund Program

Sampler Signature

Site Name: HAMERSLY LF

City, State

Site Spill ID

3. Purpose*: Lead [ ] SF [ ] PRP [ ] ST [ ] FED; Early Action [ ] CLEM [ ] PA [ ] REM [ ] RI [X] SI [ ] ESI; Long-Term Action [ ] FS [ ] RD [ ] RA [ ] O&M [ ] NPLD

5. Ship To: PDP ANALYTICAL SERVICES, 1680 LAKEFRONT CIRCLE, WOODLANDS, TX 77380
ATTN: SACHIN KUDCHADKAR

6. Matrix (Enter in Column A): 1. Surface Water 2. Ground Water 3. Leachate 4. Field QC 5. Soil/Sediment 6. Oil (High only) 7. Waste (High only) 8. Other (Specify in Column A)

7. Preservative (Enter in Column D): 1. HCl 2. HNO3 3. NaHSO4 4. H2SO4 5. Ice only 6. Other (Specify in Column D) N. Not preserved

CLP Sample Numbers (from labels)	A Matrix (from Box 6) Other:	B Conc.: Low Med High	C Sample Type: Comp./Grab	D Preservative (from Box 7) Other:	E RAS Analysis: VOA	BNA	Pest/PCB	High only ARO/TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Corresponding CLP Inorganic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank S = Spike D = Duplicate R = Rinsate PE = Perform. Eval. — = Not a QC Sample)
BXH93	2	L	G	1	✓				BXH93	GW-2C	1/26/99 1556	N/A	NS	—
BXH66	2	L	G	1	✓				BXH66	GW-2D	1/26/99 1705	N/A	NS	—
BXH83	2	L	G	1	✓				BXH83	GW-3B	1/27/99 1220	N/A	NS	—
BXH94	2	L	G	1	✓				BXH94	GW-16B	1/27/99 1300	N/A	NS	—
PMZ BXJ24	A	L	G	1	✓				PMZ BXJ24 (FIELD BLANK)	FB-6	1/27/99 1408	N/A	PZ	B
BXH59	2	L	G	1	✓				BXH59	GW-3C	1/27/99 1412	N/A	NS	—
BXH43	2	L	G	1	✓				BXH43	GW-3D	1/27/99 1510	N/A	NS	—

Shipment for Case Complete? (Y/N)	Page	Sample(s) to be Used for Laboratory QC	Additional Sampler Signatures	Chain of Custody Seal Number(s)
	2 of 2			

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Paul M Zamello	1/27/99 1600				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

DISTRIBUTION: Blue - Region Copy; White - Lab Copy for Return to Region; Pink - CLASS Copy; Yellow - Lab Copy for Return to CLASS

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*SEE REVERSE FOR PURPOSE CODE DEFINITIONS

A21-012-15 REV.

II/151

VO

EPA United States Environmental Protection Agency
Contract Laboratory Program

Organic Traffic Report & Chain of Custody Record
(For Organic CLP Analysis)

Case No. 26777

1. Project Code	Account Code	2. Region No.	Sampling Co.	4. Date Shipped	Carrier
		2	NJDEP		UPS

Regional Information

Sampler (Name): P Zarillo

Airbill Number: N223-919-174-5

Non-Superfund Program

Sampler Signature: Paul M Zarillo

5. Ship To: PDP ANALYTICAL SERVICES, 1680 LAKE FRONT CIRCLE, SUITE B, THE WOODLANDS, TX 77380
ATTN: SACHIN Kudchalkar

Site Name: HAMERSLEY

City, State: WILLINGTON NJ

Site Spill ID: ZZ

3. Purpose

Lead	Early Action	Long-Term Action
SF	CLEM	FS
PRP	PA	RD
ST	REM	RA
FED	RI	O&M
	SI	NPLD
	ESI	

6. Matrix (Enter in Column A): 1. Surface Water 2. Ground Water 3. Leachate 4. Field QC 5. Soil/Sediment 6. Oil (High only) 7. Waste (High only) 8. Other (Specify in Column A)

7. Preservative (Enter in Column D): 1. HCl 2. HNO3 3. NaHSO4 4. H2SO4 5. Ice only 6. Other (Specify in Column D) N. Not preserved

CLP Sample Numbers (from labels)	A Matrix (from Box 6) Other:	B Conc.: Low Med High	C Sample Type: Comp./Grab	D Preservative (from Box 7) Other:	E RAS Analysis VOA	BNA	Pest/PCB	High only ARO/TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Corresponding CLP Inorganic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank S = Spike D = Duplicate R = Rinsate PE = Perform. Eval. — = Not a QC Sample)
BXH52	2	L	G	1	✓				BXH52	GW-1A	1/19/99 1158	N/A	FS	—
BXH35	2	L	G	1	✓				BXH35	GW-13A	1/19/99 1448	N/A	FS	—
BXH34	2	L	G	1	✓				BXH34 3A→	GW-13A	1/19/99 1705	N/A	FS	—
BXJ05	4	L	G	1	✓				BXJ05 FB-1	FIELD BLANK	1/19/99 1015	N/A	FS	B
BXJ16	4	L	G	1	✓				BXJ16 FB-2	FIELD BLANK	1/20/99 1100	N/A	FS	B
BXH73	2	L	G	1	✓				BXH73	GW-1B	1/20/99 1115	N/A	FS	—
BXH82	2	L	G	1	✓				BXH82	GW-1C	1/20/99 1155	N/A	FS	—
BXH58	2	L	G	1	✓				BXH58	GW-1D	1/20/99 1320	N/A	FS	—
~~BXH33~~	~~2~~	~~L~~	~~G~~	~~1~~	~~✓~~				~~BXH33~~	~~GW~~	~~1/20/99~~	~~N/A~~	~~FS~~	~~—~~

Shipment for Case Complete? (Y/N): Y

Page 1 of 1

Sample(s) to be Used for Laboratory QC:

Additional Sampler Signatures: *SAMPLES IN SEPARATE COOLER

Chain of Custody Seal Number(s): N/A

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Paul M Zarillo	1/20/99 1700				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

DISTRIBUTION: Blue - Region Copy; White - Lab Copy for Return to Region; Pink - CLASS Copy; Yellow - Lab Copy for Return to CLASS

EPA Form 9110-2

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*SEE REVERSE FOR PURPOSE CODE DEFINITIONS

A21-012-15 REV.

IT152

EPA United States Environmental Protection Agency
Contract Laboratory Program

Inorganic Traffic Report & Chain of Custody Record
(For Inorganic CLP Analysis)

Case No. 26717

1. Project Code	Account Code	2. Region No.	Sampling Co.	4. Date Shipped	Carrier
		2			UPS

Regional Information

Sampler (Name)

Airbill Number: N223-919-165-6

Non-Superfund Program

Sampler Signature

Site Name: TIAMERSLEY

City, State

Site Spill ID

3. Purpose*
Lead: SF, PRP, ST, FED
Early Action: CLEM, PA, REM, RI, SI (X), ESI
Long-Term Action: FS, RD, RA, O&M, NPLD

5. Ship To: CHEMTEC Consulting, 110 Route 4, Englewood, NJ 07631
ATTN: AKRU PATEL

6. Matrix (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Field QC
5. Soil/Sediment
6. Oil (High only)
7. Waste (High only)
8. Other (specify in Column A)

7. Preservative (Enter in Column D)
1. HCl
2. HNO3
3. NaOH
4. H_2SO_4
5. $K_2CR_2O_7$
6. Ice only
7. Other (specify in Column D)
N. Not preserved

CLP Sample Numbers (from labels)	A Matrix (from Box 6) Other:	B Conc. Low Med High	C Sample Type: Comp./ Grab	D Preservative (from Box 7) Other:	E – RAS Analysis: Diss. Metals	Total Metals	Cyanide	Low only: NO_2/NO_3	Fluoride	High only: pH	Conduct.	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/ Year/Time Sample Collection	I Corresponding CLP Organic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank, S = Spike, D = Duplicate, R = Rinsate, PE = Perform. Eval., — = Not a QC Sample)
MBQF73	1	L	G	2,3		✓	✓					MBQF73	SW-1	2/1/99 1702	BXJ11	NS	—
MBQF91	1	L	G	N/A		✓	✓					MBQF91 PMZ	SED-1	2/1/99 1702	BXJ24	NS	—
MBQF72	1	L	G	2,3		✓	✓					MBQF72	SW-2	2/1/99 1610	BXH90	NS	—

Shipment for Case Complete? (Y/N)

Page 2 of 2

Sample(s) to be Used for Laboratory QC

Additional Sampler Signatures

Chain of Custody Seal Number(s)

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Paul M Zamll	2/2/99 1640				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

DISTRIBUTION: Green - Region Copy; White - Lab Copy for Return to Region; Pink - CLASS Copy; Yellow - Lab Copy for Return to CLASS

EPA Form 9110-1

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*SEE REVERSE FOR PURPOSE CODE DEFINITIONS

A21-012-13 REV.

TI153

274070

EPA United States Environmental Protection Agency
Contract Laboratory Program

Inorganic Traffic Report & Chain of Custody Record
(For Inorganic CLP Analysis)

Case No. 26777

1. Project Code	Account Code	2. Region No.	Sampling Co.	4. Date Shipped	Carrier
		2			UPS

Regional Information

Sampler (Name)

Airbill Number N223-919-165-6

Non-Superfund Program

Sampler Signature

5. Ship To CHENTECH Consulting
110 Route 4 ENGLEWOOD
ENGLEWOOD, NJ 07631
ATTN: AKKU PATEL

Site Name HAMERSLEY

City, State

Site Spill ID

3. Purpose*
Lead: [ ] SF [ ] PRP [ ] ST [ ] FED
Early Action: [ ] CLEM [ ] PA [ ] REM [ ] RI [X] SI [ ] ESI
Long-Term Action: [ ] FS [ ] RD [ ] RA [ ] O&M [ ] NPLD

6. Matrix (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Field QC
5. Soil/Sediment
6. Oil (High only)
7. Waste (High only)
8. Other (specify in Column A)

7. Preservative (Enter in Column D)
1. HCl
2. HNO3
3. NaOH
4. H_2SO_4
5. $K_2CR_2O_7$
6. Ice only
7. Other (specify in Column D)
N. Not preserved

CLP Sample Numbers (from labels)	A Matrix (from Box 6) Other:	B Conc. Low Med High	C Sample Type: Comp./ Grab	D Preservative (from Box 7) Other:	E – RAS Analysis: Diss. Metals	Total Metals	Cyanide	Low only: NO_2/NO_3	Fluoride	High only: pH	Conduct.	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/ Year/Time Sample Collection	I Corresponding CLP Organic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank S = Spike D = Duplicate R = Rinsate PE = Perform. Eval. — = Not a QC Sample)
MBQF94	5	L	G	N		✓	✓					MBQF94	SED-4	2/1/99 1145	BXJ21	NS	—
MBQF70	1	L	G	2		✓	✓					MBQF70	SW-4	2/1/99 1140	BXJ21	NS	—
MBQF70	4	L	G	2		✓	✓					MBQF70 (MS/MSD)	SW-4	2/1/99 1200	BXJ21	NS	—
changed → MBQF78	1	L	G	2		✓	✓					MBQF71	SW-6	2/1/99 1300	BXH31	NS	—
MBQF74	1	L	G	2		✓	✓					MBQF74	SW-5	2/1/99	BXH32	NS	—
MBQF95	5	L	G	N		✓	✓					MBQF95	SED-5	2/1/99 1745	BXJ28	NS	—
MBQF71	1	L	G	2		✓	✓					MBQF71	SW-3	2/1/99 1440	BXJ11	NS	—
MBQF93	5	L	G	N		✓	✓					MBQF93	SED-3	2/1/99 1410	BXJ26	NS	—
MBQG07	5	L	G	N		✓	✓					MBQG07 SAME AS SED-3	MS/MSD	2/1/99 1440	BXH32	NS	—
MBQG06	5	L	G	N		✓	✓					MBQG06	SED-6	2/1/99 1500	BXJ31	NS	—

Shipment for Case Complete? (Y/N)	Page	Sample(s) to be Used for Laboratory QC	Additional Sampler Signatures	Chain of Custody Seal Number(s)
	1 of 2			

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Paul M Zamille	2/2/99 1640				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

A21-012-13 REV.

DISTRIBUTION: Green - Region Copy; White - Lab Copy for Return to Region; Pink - CLASS Copy; Yellow - Lab Copy for Return to CLASS

EPA Form 9110-1

SEE REVERSE FOR ADDITIONAL STANDARD INSTRUCTIONS
*SEE REVERSE FOR PURPOSE CODE DEFINITIONS

II154

371083

EPA United States Environmental Protection Agency
Contract Laboratory Program

Inorganic Traffic Report & Chain of Custody Record
(For Inorganic CLP Analysis)

Case No. 26777

1. Project Code	Account Code	2. Region No. 2	Sampling Co.	4. Date Shipped 1/25/99	Carrier UPS
Regional Information		Sampler (Name)		Airbill Number N223-919-170-9	
Non-Superfund Program		Sampler Signature		5. Ship To CHEMTECH CONSULTING GROUP 110 Route 4 ENGLEWOOD, NJ 07631 ATTN: AKKU PATEL	
Site Name HAMERSLY		3. Purpose* Lead: SF, PRP, ST, FED; Early Action: CLEM, PA, REM, RI, SI, ESI; Long-Term Action: FS, RD, RA, O&M, NPLD			
City, State	Site Spill ID				

6. Matrix (Enter in Column A): 1. Surface Water 2. Ground Water 3. Leachate 4. Field QC 5. Soil/Sediment 6. Oil (High only) 7. Waste (High only) 8. Other (specify in Column A)

7. Preservative (Enter in Column D): 1. HCl 2. HNO3 3. NaOH 4. H_2SO_4 5. $K_2CR_2O_7$ 6. Ice only 7. Other (specify in Column D) N. Not preserved

CLP Sample Numbers (from labels)	A Matrix (from Box 6) Other:	B Conc. Low Med High	C Sample Type: Comp./Grab	D Preservative (from Box 7) Other:	E – RAS Analysis: Diss. Metals	Total Metals	Cyanide	Low only: NO_2/NO_3	Fluoride	High only: pH	Conduct.	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Corresponding CLP Organic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank S = Spike D = Duplicate R = Rinsate PE = Perform. Eval. — = Not a QC Sample)
MBQG04	5	L	G	N/A5		✓	✓					MBQ G04	S-9	1/21/99 1038	BXJ37	NS	—
MBQF97	5	L	G	N/A5		✓	✓					MBQF97	S-2	1/21/99 1252	BXJ30	NS	—
MBQF96	5	L	G	N/A5		✓	✓					MBQF96	S-1	1/21/99 1538	BXJ29	NS	—
MBQG01	5	L	G	N/A5		✓	✓					MBQG01	S-6	1/22/99 1645	BXJ34	NS	—
MBQG00	5	L	G	5		✓	✓					MBQ G00	S-5	1/22/99 1404	BXJ33	NS	—
MBQF98	5	L	G	5		✓	✓					MBQF98	S-3	1/22/99 1533	BXJ31	NS	—
													~~S-4~~ PMZ	~~1/22/99 1156~~ PMZ		~~NS~~	—

Shipment for Case Complete? (Y/N) Y	Page 1 of 1	Sample(s) to be Used for Laboratory QC N-A	Additional Sampler Signatures	Chain of Custody Seal Number(s) —

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Paul M Zamilla	1/25/99 1700				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

DISTRIBUTION: Green - Region Copy; White - Lab Copy for Return to Region; Pink - CLASS Copy; Yellow - Lab Copy for Return to CLASS

EPA Form 9110-1

SEE REVERSE FOR ADDITIONAL STANDARD INSTRUCTIONS
*SEE REVERSE FOR PURPOSE CODE DEFINITIONS

A21-012-13 REV.

374081

IT155

EPA United States Environmental Protection Agency
Contract Laboratory Program

Inorganic Traffic Report & Chain of Custody Record
(For Inorganic CLP Analysis)

Case No. 26777

1. Project Code	Account Code	2. Region No. 2	Sampling Co.	4. Date Shipped 2/3/99	Carrier UPS
Regional Information		Sampler (Name)		Airbill Number N223-919-156-7	
Non-Superfund Program		Sampler Signature		5. Ship To CHEMTECH CONSULTING GROUP 110 Route 4 ENGLEWOOD, NJ 07631 ATTN: AKKU PATEL	
Site Name HAMERSLEY		3. Purpose* Lead: SF, PRP, ST, FED; Early Action: CLEM, PA, REM, RI, X SI, ESI; Long-Term Action: FS, RD, RA, O&M, NPLD			
City, State	Site Spill ID				

6. Matrix (Enter in Column A): 1. Surface Water 2. Ground Water 3. Leachate 4. Field QC 5. Soil/Sediment 6. Oil (High only) 7. Waste (High only) 8. Other (specify in Column A)

7. Preservative (Enter in Column D): 1. HCl 2. HNO3 3. NaOH 4. H_2SO_4 5. $K_2CR_2O_7$ 6. Ice only 7. Other (specify in Column D) N. Not preserved

CLP Sample Numbers (from labels)	A Matrix (from Box 6) Other:	B Conc. Low Med High	C Sample Type: Comp./ Grab	D Preservative (from Box 7) Other:	E – RAS Analysis: Diss. Metals	Total Metals	Cyanide	Low only: NO_2/NO_3	Fluoride	High only: pH	Conduct.	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/ Year/Time Sample Collection	I Corresponding CLP Organic Sample No. PMZ	J Sampler Initials	K Field QC Qualifier (B = Blank S = Spike D = Duplicate R = Rinsate PE = Perform. Eval. — = Not a QC Sample)
MBQG02	5	L	G	N		/	/					MBQG02	S-7	2/3/99 1500	BXJ35	NS	—
MBQG03	5	L	G	N		/	/					MBQG03	S-8	2/3/99 1530	BXJ36	NS	—
															BXJ35		
															BXJ36		

Shipment for Case Complete? (Y/N) Y | Page 1 of 1 | Sample(s) to be Used for Laboratory QC | Additional Sampler Signatures | Chain of Custody Seal Number(s)

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Paul M Zanillo	2/3/99 1630				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

I1156

A21-012-13 REV.

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EPA Form 9110-1

SEE REVERSE FOR ADDITIONAL STANDARD INSTRUCTIONS
*SEE REVERSE FOR PURPOSE CODE DEFINITIONS

374080

LSI II

U.S. EPA REGION II RSCC
LABORATORY BOOKING AND JOB TRACKING

DATE: January 4, 1999 RSCC TASK MONITOR:_____ CASE:_____

SENT TO CLASS:_____ LAB:_____

SENT TO CONTRACTOR:_____ PROPOSED SAMPLING PERIOD: January 19 thru February 5, 1999

SITE: Hamersley Manufacturing Company Landfill CERCLIS ID #: _____

LOCATION: Wallington Borough, Bergen County CONTRACTOR/CODE: NJDEP

SITE SPILL #: ZZ PHASE: SI OPERABLE UNIT: _____

SITE MGR./PHONE #: Frank Sorce 609-584-4287

CANCELLED:_____

UNIQUE ID	NUMBER	MATRIX	ANALYSIS	LABORATORY	
	85	Aqueous	Low Conc VOs		
	16	Aqueous	Semi-VOs, Pest/PCBs		
	6	Aqueous	TAL Metals		
	20	Non-Aqueous	Semi-VOs, Pest/PCBs		
	20	Non-Aqueous	TAL Metals		

ACTUAL SAMPLING & LAST SHIP DATES:_____

DATA ENTRY 1:_____ PAPERWORK RECEIVED:_____

DATA PACKAGE REC'D: (1)_____ (2)_____ (3)_____ FROM LABORATORY

NUMBER CT1 CT2 MATRIX

_____ ROC PREP'D:_____

_____ SENT TO DCR:_____

_____ DATA ENTRY 2:_____

DATA PACKAGE REC'D:_____ FOLLOWING REVIEW

PHOTOCOPY/HIGHLIGHT:_____

2-WAY TRANSMITTAL:_____

TEAM MANAGER(or designee)_____
FINAL APPROVAL

BOX NO.:_____ DATA ENTRY 3:_____

U.S. Environmental Protection Agency
Region 2
2890 Woodbridge Ave
Edison, New Jersey 08873

TO: Frank Sorce

OFFICE: NJDEP

PHONE: (609) 584-4287

FAX: (609) 584-4298

FROM: Jennifer Feranda, TPO/RSCC

OFFICE: USEPA Region II

PHONE: (732) 321-6687

FAX: (732) 321-6622

DATE: 02/04/99

SUBJECT: Problems with Case 26777

Number of Pages (including cover sheet): 3

Record of Communication
Hi Frank - Here are some more issues with Case 26777, these from the inorganic lab, Chemtech.

As I mentioned I will be out of the office tomorrow. Please call Shari Stevens tomorrow at (732) 906-6994 with your resolutions. If Deni is in tomorrow, Shari will direct your call to her, or she will handle the issues herself.

Thanks - Jennifer

Project Reference _____

Call Initiated By: ✓ Chemtech ____ Client

In reference to the following: _____

Questions/ Issues MBQF70 is listed twice on the first line it shows as a sample & on the 2nd line its marked for MS/MSD. MBQF71 is also marked twice. (SW-6) MBQF71 on the first line is marked for metals, bottle received is for CN-. MBQF71 (SW-3) is OK

Resolution _____

Signature _____ Date _____

Since 1967

II 160

CHEMTECH
110 Route 4
Englewood, New Jersey 07631
Phone: (201) 567-6868 Fax: (201) 567-1333

612 Route 9
Forked River, New Jersey 08731
Phone: (609) 593-2111 Fax: (609) 571-9300

RECORD OF COMMUNICATION
VERBAL/ TELEPHONE COMMUNICATION LOG

Date 2/4/99

Client USEPA CLPS MO

Chain of Custody No. 374083

Chemtech Project No.:

Client Contact NICOLE

Chemtech Contact AKKU PATEL

Project Reference 26777

Call Initiated By: X Chemtech ___ Client

In reference to the following:

Questions/ Issues MBQF70 is listed twice on the first line it shows as a straight sample & on the 2nd line its marked for MS/MSD. MBQF71 is also marked twice. (SW-6) MBQF71 on the first line is marked for metals, bottle received is for CN-. MBQF71 (SW-3) is OK

Resolution

Signature

Date

Since 1967

II 161

U.S. Environmental Protection Agency
Region 2
2890 Woodbridge Ave
Edison, New Jersey 08873

TO: Frank Sorce

OFFICE: NJDEP

PHONE: (609) 584-4287

FAX: (609) 584-4298

FROM: Shari Stevens ~~Jennifer Feranda~~, ~~TPO/RSCC~~

OFFICE: USEPA Region II

PHONE: (732) ~~321-6887~~ 906-6994

FAX: (732) 321-6622

DATE: ~~02/04/99~~ 2/5/99

SUBJECT: MORE Problems with Case 26777

Number of Pages (including cover sheet): ~~2~~ 4

Record of Communication

~~Hi Frank - Here are some more issues with Case 26777, these from the inorganic lab, Chemtech.~~

~~As I mentioned I will be out of the office tomorrow. Please call Shari Stevens tomorrow at (732) 906-6994 with your resolutions. If Deni is in tomorrow, Shari will direct your call to her, or she will handle the issues herself.~~

Thanks - Jennifer

Also, re: yesterday's transmittal - BxJ25 is SED-2
BxJ28 is SED-5

SED-3 is QC for 2nd SDG, what sample to use for QC for 1st SDG? BxH34 MS/MSD

II 162

To: Sherri Stevens
From: Nicole Coene

STL
Committed To Your Success

Severn Trent Laboratories
200 Monroe Turnpike
Monroe CT 06468
Tel: (203) 261-4458
Fax: (203) 268-5346

February 5, 1999

Called 2/3/99
for 2/2/99 Shipment
Spoke w/ Nicole
Coene 11:15 hrs
PMB

To: Nicole Coene, Reg
USEPA Region II

From: Paul Hobart, Project Manager
Severn Trent Laboratories-CT (IEACT)

Subj.: Case 26777

Several additional discrepancies were noted for the samples recieved by IEACT on February 3, 1999:

1) Sample BXJ31 is labeled BXH31 on the sample bottle.
H

2) Sample BXH90 appears on two chain of custody records: ~~#372204~~ and #372207. The sample collection times are: 2/1/99 1545 and 2/1/99 1610 respectively.

3) Sediment samples BXJ26 and BXJ24 are listed on the chain of custody record as surface water samples. ~~NET~~ 5 MATRIX

4) Sample BXJ28 (SED5) is labeled BXJ38 on the sample tag. ?

5) Samples BJX35 and BJX36 are labeled BXJ35 and BXJ36 respectively on the sample bottles.

If you require any additional information, please do not hesitate to contact me at 203-452-3264. Thank you.

EPA United States Environmental Protection Agency Contract Laboratory Program

Organic Traffic Report & Chain of Custody Record
(For Organic CLP Analysis)

Case No. 26777

1. Matrix (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Field QC
5. Soil/Sediment
6. Oil (High only)
7. Waste (High only)
8. Other (Specify in Column A)

2. Preservative (Enter in Column D)
1. HCl
2. HNO3
3. NaHSO4
4. H2SO4
5. Ice only
6. Other (Specify in Column D)
N. Not preserved

2. Region No. 2 | Sampling Co.

Sampler (Name)

Sampler Signature

3. Purpose* Lead: SF, PRP, ST, FEO | Early Action: CLEM, PA, REM, RI, SI, ESI | Long-Term Action: FS, RD, RA, O&M, NPLD

4. Date Shipped | Carrier: UPS

Airbill Number: N223-919-166-5

5. Ship To: IEA, 200 Monroe TPKE, Monroe, CT 06468, ATTN: Paul Hebert

6. Date Received -- Received by: 2/3/99 Darlyn Colon

Laboratory Contract Number | Unit Price

7. Transfer to: | Date Received

Received by

Contract Number | Price

CLP Sample Numbers (from labels)	A Matrix (from Box 1) Other	B Conc. Low Med High	C Sample Type: Comp./Grab	D Preservative (from Box 2) Other	E RAS Analysis: VOA	BNA	Pest/PCB	High only ARO/TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Corresponding CLP Inorganic Sample No.	J Sample Initials	K High Phases: Solids	Water-Miscible Liq.	Water-Immis. Liq.
BXJ11	1	L	G	N/A		✓	✓		BXJ11	SW-5	2/1/99 1785	MBQF74	NS			
BX1157	1	L	G	N/A		✓	✓		BX1157	GW-8B	2/2/99 1000	NA	NS			
BX1147	1	L	G	N/A		✓	✓		BX1147	SW-1	2/1/99 1707	MBQF73	NS			
BX1133	1	L	G	N/A		✓	✓		BX1133	GW NA	2/2/99 1300	NA	NS			
BX1190	1	L	G	NA		✓	✓		BX1190	SW-2	2/1/99 1600	MBQF72	NS			
BX1139	1	L	G	N/A		✓	✓		BX1139	FB-8	2/2/99 1330	N/A	NS			
BXJ31	1	L	G	N/A		✓	✓		BX131	SED-1	2/1/99 1702	MBQF91	NS			

Shipment for Case Complete? (Y/N) | Page 1 of 1 | Sample(s) to be Used for Laboratory QC | Additional Sampler Signatures | Chain of Custody Seal Number(s)

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	1652 2/2/99				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature) Darlyn Colon	Date / Time 2/3/99 1002	Remarks: Is custody seal intact? Y/N/none. Passed Rad Screen DC 2/3/99 42	

DISTRIBUTION: Blue - Region Copy; Pink - CLASS Copy; Yellow - Lab Copy for Return to CLASS

EPA Form 8110-2

SEE REVERSE FOR ADDITIONAL STANDARD INSTRUCTIONS
*SEE REVERSE FOR PURPOSE CODE DEFINITIONS

A21-012-18 REV.

II 164

EPA United States Environmental Protection Agency Contract Laboratory Program

Organic Traffic Report & Chain of Custody Record
(For Organic CLP Analysis)

Case No. [illegible]

1. Matrix (Enter in Column A): 1. Surface Water 2. Ground Water 3. Leachate 4. Field QC 5. Soil/Sediment 6. Oil (High only) 7. Waste (High only) 8. Other (Specify in Column A)

2. Preservative (Enter in Column D): 1. HCl 2. HNO3 3. NaHSO4 4. H2SO4 5. Ice only 6. Other (Specify in Column D) N. Not preserved

2. Region No. 2 | Sampling Co.

Sampler (Name)

Sampler Signature

3. Purpose: Land: SF, PRP, ST, FED; Body Action: CLEM, PA, REM, RI, SI, ESI; Long-Term Action: FS, RD, RA, OSM, NPLD

4. Date Shipped | Carrier: UPS

Airbill Number: N223-919-168-3

5. Ship To: Industrial Envi Analysis, 266 Monroe Tpke, Monroe, CT 06468

ATTN: Paul Hobart

6. Date Received -- Received by: 2/3/99 Darlyn Colon

Laboratory Contract Number | Unit Price

7. Transfer to: | Date Received

Received by

Contract Number | Price

CLP Sample Numbers (from labels)	A Matrix (from Box 1) Other	B Conc: Low Med High	C Sample Type: Comp. Grab	D Preservative (from Box 2) Other	E RAS Analysis: VOA	BNA	Pest/PCB	High only ARO/TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Corresponding CLP Inorganic Sample No.	J Sampler Initials	K High Phases: Solids	Water-Miscible Liq.	Water-Immis. Liq.
BXJ21	5	L	G	N		✓	✓		BXJ21	SED-4	2/1/99 1205	MBQF70	NS			
BXJ31	1	L	G	N		✓	✓		BXJ31	SW-6	2/1/99 1300	MBQF71	NS			
BXJ21	4	L	G	N		✓	✓		MS/MSD	SW-4	2/1/99 1205	MBQF70	NS			
BXH32	1	L	G	N		✓	✓		BXH32	SW-3	2/1/99 1420	MBQF71	NS			
BXH90	1	L	G	N		✓	✓		BXH90	SW-2	2/1/99 [illegible]	MBQF72	NS			
BXJ26	1	L	G	N		✓	✓		BXJ26	SED-3	2/1/99 1520	MBQF73	NS			
BXJ40	4	L	G	N		✓	✓		BXJ40 Swp	MS/MSD	2/1/99 [illegible]	MBQF[illegible]	NS			
BXJ35	4	L	G	N		✓	✓		BXJ35 [illegible]	DUP	2/1/99 1520	[illegible]	NS			
										SED-1	2/1/99 [illegible]	[illegible]	NSPA			
										SW-1	2/1/99 [illegible]	[illegible]				

Shipment for Case Complete? (Y/N) | Page 1 of 1 | Sample(s) to be Used for Laboratory QC | Additional Sampler Signatures | Chain of Custody Seal Number(s)

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	2/1/99 1730				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature) [signature]	Date / Time 2/3/99 1000	Remarks: Is custody seal intact? Y/N/none	Passed Rad Screen DC 2/3/99 42

Pink - CLP Copy for Return to CLASS

EPA Form 9110-2

SEE REVERSE FOR ADDITIONAL STANDARD INSTRUCTIONS
*SEE REVERSE FOR PURPOSE CODE DEFINITIONS

372204

A21-612-16 REV.

II165

TOTAL P.04

RECORD OF COMMUNICATION

REGIONAL SAMPLE CONTROL CENTER

RECEIVED
MAY 21 1999

DATE: MARCH 25, 1999
SUBJECT: CLP Data Package for Quality Assurance Review
FROM: RSCC / ESAT
TO: George Karras, Hazardous Waste Support Section

Attached is the following ORGANIC Data Package to be reviewed for Quality Assurance

SITE HAMERSLEY MANUFACTURING CO. LF
CASE# 26777

CONTRACTOR NJDEP

#SAMPLES	MATRIX
16	SOIL
13	WATER

PHASE SI

LAB IEACT

FRACTION BNA & PEST

TURN-AROUND-TIME 35 DAYS

REGION II RSCC DATA TRANSFER LOG

Relinquished By		Received By	
Signature	Date/Time	Signature	Date/Time
		John Bulich	3-12-99
John Bulich	3-25-99	M. Hammell	4/29/99
M. Hammell	5/18/99	J. Trutter	5/18/99
J. Trutter	5/19/99	G. Karras	5/19/99
G. Karras	5/21/99	J. Trutter	5/21/99

(over for instructions) revised 10/97

II166

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organic Analysis

CASE No.: 26777 SDG No.:BXH34, BXJ32
LABORATORY: IEACT SITE: Hamersley Manufacturing Co. LF

DATA ASSESSMENT

The current SOP HW-6 (Revision 11) June 1996, USEPA Region II Data Validation SOP for Statement of Work OLMO 3.2. for evaluating organic data have been applied.

All data are valid and acceptable except those analytes rejected "R"(unusable). Due to the detection of QC problems, some analytes may have the "J" (estimated), "N"(presumptive evidence for the presence of the material, "U" (non-detect) or "JN" (presumptive evidence for the presence of the material at an estimated value) flag. All action is detailed on the attached sheets.

The "R" flag means that the associated value is unusable. In other words, significant data bias is evident and the reported analyte concentration is unreliable.

Reviewer's Signature: Maureen Hammill Date: May 17, 1999

Verified By: B. Karras Date: 5/20/1999

CLP DATA ASSESSMENT

BXH34

1. HOLDING TIME:

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded, the data may not be valid. Those analytes detected in the samples whose holding time has been exceeded will be qualified as estimated, "J". The non-detects (sample quantitation limits) will be flagged as estimated, "J", or unusable, "R", if the holding times are grossly exceeded.

The following action was taken in the samples and analytes shown due to excessive holding time.
See Attached CADRE Holding Time Report for list of samples/analytes that were qualified for technical holding time.
Contractual holding times were met for all samples in all fractions.

2. SURROGATES

All samples are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. If the measured surrogate concentrations were outside contract specifications, qualifications were applied to the samples and analytes as shown below.
See Attached CADRE Surrogate Report for list of samples/analytes that were qualified for surrogate recovery exceedance.

Pest: J30: There is severe matrix interference in the sample. This interference prevents the elution of DCB separately from the matrix on the primary column. The surrogate was quantitated from the second column. Professional judgement not to qualify the analytes as "J" for detects and "R" for non-detects.

3. MATRIX SPIKE/SPIKE DUPLICATE, MS/MSD:

The MS/MSD data are generated to determine the long term precision and accuracy of the analytical method in various matrices. The MS/MSD may be used in conjunction with other QC criteria for additional qualification of data.
No qualification based on MS/MSD data.

See note under OTHER PROBLEMS.

Holding Time Report

SDG NO: BXH34 LABORATORY: STL-CT

CASE NO: 26777 AGENCY INPUT FILE: BXH34.ASF

HOLDING TIME CRITERIA

Semivolatile

	--- Extraction ---		---- Analysis ----	
	Primary	Expanded	Primary	Expanded
Water	7	28	40	60
Soil	7	28	40	60

Pesticide

	--- Extraction ---		---- Analysis ----	
	Primary	Expanded	Primary	Expanded
Water	7	28	40	60
Soil	7	28	40	60

✓ DC-106: The following semivolatile soil samples are outside primary extraction holding time criteria.
Hits are qualified "J" and non-detects are qualified "UJ".

BXJ25, BXJ25MS, BXJ25MSD

✓ DC-163: The following pesticide soil samples are outside primary extraction holding time criteria.
Hits are qualified "J" and non-detects are qualified "UJ".

BXJ25

II169

SMC/Surrogate Report

SDG NO: BXH34 LABORATORY: STL-CT

CASE NO: 26777 AGENCY INPUT FILE: BXH34.ASF

SMC/SURROGATE CRITERIA

Semivolatile

Percent Recovery Limits

	--- Water ---		---- Soil ---	
	Lower	Upper	Lower	Upper
Nitrobenzene-d5	35.0	114.0	23.0	120.0
2-Fluorobiphenyl	43.0	116.0	30.0	115.0
Terphenyl-d14	33.0	141.0	18.0	137.0
Phenol-d5	10.0	110.0	24.0	113.0
2-Fluorophenol	21.0	110.0	25.0	121.0
2,4,6-Tribromophenol	10.0	123.0	19.0	122.0
2-Chlorophenol-d4	33.0	110.0	20.0	130.0
1,2-Dichlorobenzene-d4	16.0	110.0	20.0	130.0

Pesticide

Percent Recovery Limits

	--- Water ---		---- Soil ---	
	Lower	Upper	Lower	Upper
Tetrachloro-m-xylene	30.0	150.0	30.0	150.0
Decachlorobiphenyl	30.0	150.0	30.0	150.0

DC-173: The following pesticide samples have surrogate RT's outside the RT window established during the initial calibration. Professional judgement is recommended. Hits and non-detects are not flagged.

~~BXJ30~~

DC-174: The following pesticide samples have surrogate percent recoveries which exceed the upper limit of the criteria window. If %R for both surrogates on both columns are > contract limit, hits are flagged "J".

~~BXJ25MS, BXJ25MSD, BXJ29, BXJ33~~ no action

II170

SMC/Surrogate Report

SDG NO: BXH34 LABORATORY: STL-CT

CASE NO: 26777 AGENCY INPUT FILE: BXH34.ASF

DC-175: The following undiluted pesticide samples have surrogate percent recoveries of less than 10%.
Hits are qualified "J" and non-detects are qualified "R".

BXJ30

matrix int. on 1st col., 2nd col present within criteria.

professional judgement.

DC-177: The following pesticide samples have surrogate percent recoveries outside the lower limit of the criteria window, but > 10%. Hits & non-detects are qualified "J" only for same surr. on both columns with no interference. Use professional judgement when interference is detected. Remove "J" when 1 surr. on 1 column is out.

BXH39

Matrix Spike Report

SDG NO: BXH34 LABORATORY: STL-CT

CASE NO: 26777 AGENCY INPUT FILE: BXH34.ASF

MATRIX SPIKE CRITERIA

Semivolatile

Percent Recovery Limits & RPD

	Water			Soil		
	Lower	Upper	RPD	Lower	Upper	RPD
Phenol	12.0	110.0	42.0	26.0	90.0	35.0
2-Chlorophenol	27.0	123.0	40.0	25.0	102.0	50.0
1,4-Dichlorobenzene	36.0	97.0	28.0	28.0	104.0	27.0
N-Nitroso-di-n-propylamine	41.0	116.0	38.0	41.0	126.0	38.0
1,2,4-Trichlorobenzene	39.0	98.0	28.0	38.0	107.0	23.0
4-Chloro-3-methylphenol	23.0	97.0	42.0	26.0	103.0	33.0
Acenaphthene	46.0	118.0	31.0	31.0	137.0	19.0
4-Nitrophenol	10.0	80.0	50.0	11.0	114.0	50.0
2,4-Dinitrotoluene	24.0	96.0	38.0	28.0	89.0	47.0
Pentachlorophenol	9.0	103.0	50.0	17.0	109.0	47.0
Pyrene	26.0	127.0	31.0	35.0	142.0	36.0

Pesticide

Percent Recovery Limits & RPD

	Water			Soil		
	Lower	Upper	RPD	Lower	Upper	RPD
gamma-BHC (Lindane)	56.0	123.0	15.0	46.0	127.0	50.0
Heptachlor	40.0	131.0	20.0	35.0	130.0	31.0
Aldrin	40.0	120.0	22.0	34.0	132.0	43.0
Dieldrin	52.0	126.0	18.0	31.0	134.0	38.0
Endrin	56.0	121.0	21.0	42.0	139.0	45.0
4,4'-DDT	38.0	127.0	27.0	23.0	134.0	50.0

DC-48: The relative percent difference (RPD) between the following semivolatile matrix spike and matrix spike duplicate recoveries is outside criteria.
Hits and non-detects are not flagged.

BXJ25MS
Acenaphthene, Pyrene

BXJ25MSD

Acenaphthene, Pyrene

DC-51: The following semivolatile matrix spike/matrix spike duplicate samples have percent recovery outside criteria.
Hits and non-detects in the unspiked sample are qualified based on professional judgement.

BXJ25MSD

Pyrene

DC-69: Semivolatile matrix spike and/or matrix spike duplicate data is missing for this SDG.
Visual inspection of data is recommended.

BXH31, BXH32, BXH33, BXH34, BXH35, BXH35RE
BXH47, BXH52, BXH57, BXH90, BXJ11

DC-170: The following pesticide matrix spike/matrix spike duplicate samples have percent recovery outside criteria.
Use professional judgement to qualify the data.

BXJ25MSD

gamma-BHC (Lindane)

DC-417: Pesticide matrix spike and/or matrix spike duplicate data is missing for this SDG.
Hits and non-detects are flagged "M".

BXH31, BXH32, BXH33, BXH34, BXH35, BXH47
BXH52, BXH57, BXH90, BXJ11

CLP DATA ASSESSMENT

4. BLANK CONTAMINATION:

Quality assurance (QA) blanks, i.e., method, trip, field, or rinse blanks are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure cross-contamination of samples during shipment. Field and rinse blanks measure cross-contamination of samples during field operations. If the concentration of the analyte is less than 5 times the blank contaminant level (10 times for common contaminants), the analytes are qualified as non-detects, "U". The following analytes in the sample shown were qualified with "U" for these reasons:

A) Method blank contamination:
See attached CADRE Laboratory Blanks Report for list of samples/analytes that were qualified "U".

B) Field or rinse blank contamination:
See attached CADRE Field QC Report for list of samples/analytes that were qualified for "U".

Also see note under Field Documentaion.

C) Trip blank contamination for VOA aqueous samples:
Not applicable.

D) Storage Blank associated with VOA samples only
Not applicable.

E) Tics "R" rejected
2-(2-butoxyethoxy)-ethanol: H52, H35, H35RE, H34
unknown: H52, H35, J37, J34, J33, J31, J11, H57, H47, H33, H90, H96, H31, H32, H35RE, H34, J25, J29, J29RE
siloxane: J25

F) Instrument Blanks associated with Pesticide samples
See attached CADRE Laboratory Blank Report.

5. MASS SPECTROMETER TUNING:

Tuning and performance criteria are established to ensure adequate mass resolution, proper identification of compounds and to some degree, sufficient instrument sensitivity. These criteria are not

SDG NO: BXH34 LABORATORY: STL-CT
CASE NO: 26777 AGENCY INPUT FILE: BXH34.ASF

LABORATORY BLANKS CRITERIA

Semivolatile

Method Blank Contamination Threshold Multipliers

	First	Expanded
Common contaminant compounds	10.00	10.00
Other compounds	5.00	5.00

Pesticide

Method Blank Contamination Threshold Multipliers

	First	Expanded
All compounds	5.00	5.00

DC-206: The following semivolatile samples have analyte concentrations reported below the CRQL and less than or equal to ten times (10X) the associated method blank concentration. Reported sample concentrations have been elevated to the CRQL.
Hits are qualified "U" and non-detects are not flagged.

BXH32
Di-n-butylphthalate

BXH33
Di-n-butylphthalate

BXH34
Diethylphthalate, Di-n-butylphthalate

BXH35
Di-n-butylphthalate

BXH35RE
Di-n-butylphthalate

BXH39
Di-n-butylphthalate

BXH47
Di-n-butylphthalate

BXH52
Diethylphthalate, Di-n-butylphthalate, bis(2-Ethylhexyl)phthalate

BXH57
Di-n-butylphthalate

BXH90
Di-n-butylphthalate

BXJ05
Diethylphthalate, Di-n-butylphthalate, bis(2-Ethylhexyl)phthalate

BXJ11
Di-n-butylphthalate

BXJ25
bis(2-Ethylhexyl)phthalate

BXJ25MS
Di-n-butylphthalate, bis(2-Ethylhexyl)phthalate

BXJ25MSD
Diethylphthalate, Di-n-butylphthalate, bis(2-Ethylhexyl)phthalate

BXJ29
Di-n-butylphthalate, bis(2-Ethylhexyl)phthalate

BXJ29RE
Di-n-butylphthalate, bis(2-Ethylhexyl)phthalate

BXJ31
Di-n-butylphthalate, bis(2-Ethylhexyl)phthalate

BXJ33
Di-n-butylphthalate, bis(2-Ethylhexyl)phthalate

BXJ34
Di-n-butylphthalate, bis(2-Ethylhexyl)phthalate

BXJ37
Di-n-butylphthalate, bis(2-Ethylhexyl)phthalate

BYH96

Di-n-butylphthalate

BYH96MS
Di-n-butylphthalate

BYH96MSD
Di-n-butylphthalate

DC-236: The following pesticide samples have analyte concentrations reported below the CRQL and less than or equal to five times (5X) the associated method blank concentration. Reported sample concentrations are elevated to the CRQL and qualified "U."

✓ BXH31
gamma-BHC (Lindane)

✓ BXH32
gamma-BHC (Lindane)

✓ BXJ25
Endosulfan sulfate

✓ BXJ31
delta-BHC, Methoxychlor, alpha-Chlordane

✓ BXJ33
delta-BHC, Methoxychlor, alpha-Chlordane

✓ BXJ34
delta-BHC

✓ BXJ37
delta-BHC, Methoxychlor, alpha-Chlordane

✓ BYH96MS
alpha-BHC

DC-246: The following pesticide samples have analyte concentrations reported below the CRQL and less than or equal to five times (5X) the associated initial instrument blank concentration. Reported sample concentrations are elevated to the CRQL and qualified "U."

✓ BXH35
Endosulfan II

BXH47

Endrin ketone

BXH57

Endosulfan II

BXH90

Endrin ketone

BXJ34

Endosulfan II

DC-251: The following pesticide samples have analyte concentrations reported below the CRQL and less than or equal to five times (5X) the associated instrument blank concentration. Reported sample concentrations are elevated to the CRQL and qualified "U."

BXH32

beta-BHC

BXH35

Endrin ketone

BXH47

Endosulfan I

BXH90

Endosulfan I

BXJ11

Endosulfan I

BXJ31

Endosulfan II

BXJ33

Endosulfan II

Field QC Report

SDG NO: BXH34 LABORATORY: STL-CT

CASE NO: 26777 AGENCY INPUT FILE: BXH34.ASF

DC-146: The following semivolatile samples are affected by contamination in their corresponding field blank for the indicated analytes. Visual inspection of the data is required to verify the "5X rule." Hits are qualified "U" if sample analyte result is < 5X field blank amount.

Phenol
BXH33, BXH34, BXH35, BXH35RE, BXH52, BXH57
BXJ25, BXJ25MS, BXJ25MSD

2-Chlorophenol
BXJ25MS, BXJ25MSD

1,4-Dichlorobenzene
BXJ25MS, BXJ25MSD

N-Nitroso-di-n-propylamine
BXJ25MS, BXJ25MSD

1,2,4-Trichlorobenzene
BXJ25MS, BXJ25MSD

Naphthalene
BXH33, BXH57, ~~BXJ25, BXJ25MS, BXJ29, BXJ29RE~~
~~BXJ34~~

4-Chloro-3-methylphenol
BXJ25MS, BXJ25MSD

Acenaphthylene
BXJ25, BXJ25MS, BXJ25MSD, BXJ29, BXJ29RE

Acenaphthene
BXH57, BXJ25, BXJ25MS, BXJ25MSD, BXJ29, BXJ29RE
BXJ30, BXJ30RE

4-Nitrophenol
BXJ25MS, BXJ25MSD

2,4-Dinitrotoluene
BXJ25MS, BXJ25MSD

Diethylphthalate
BXH31, BXH32, BXH33, BXH34, BXH47, BXH52
BXH57, BXH90, BXJ25MSD

Pentachlorophenol

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BXJ25MS, BXJ25MSD

Di-n-butylphthalate
BXH31, BXH32, BXH33, BXH34, BXH35, BXH35RE
BXH47, BXH52, BXH57, BXH90, BXJ11, BXJ25MS
BXJ25MSD, BXJ29, BXJ29RE, BXJ31, BXJ33, BXJ34
BXJ37

Pyrene
BXH33, BXH57, BXJ25, BXJ25MS, BXJ25MSD, BXJ29
BXJ29RE, BXJ31, BXJ34

bis(2-Ethylhexyl)phthalate
BXH31, BXH32, BXH33, BXH52, BXH90, BXJ11
BXJ25, BXJ25MS, BXJ25MSD, BXJ29, BXJ29RE, BXJ31
BXJ33, BXJ34, BXJ37

Di-n-octylphthalate
BXH31

DC-355: The following pesticide samples are affected by contamination in their corresponding field blank for the indicated analytes. Hits are qualified "U" and non-detects are not flagged.

FB-JOS
H39 are clean

BXH31
gamma-BHC (Lindane), Heptachlor epoxide, Endosulfan I, Dieldrin
alpha-Chlordane, gamma-Chlordane

BXH32
gamma-BHC (Lindane), Heptachlor epoxide, Endosulfan I, Dieldrin
alpha-Chlordane, gamma-Chlordane

BXH33
4,4'-DDE, Endrin, 4,4'-DDT, Endrin ketone

BXH35
Endrin ketone

BXH47
Heptachlor epoxide, Endosulfan I, Dieldrin, Endrin ketone
alpha-Chlordane, gamma-Chlordane

BXH52
Dieldrin

BXH57

wrong sample MS/MSD added as FB

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4,4'-DDE, Endrin, 4,4'-DDD, Endrin ketone
alpha-Chlordane

BXH90
Heptachlor epoxide, Endosulfan I, 4,4'-DDE, Endrin ketone
alpha-Chlordane, gamma-Chlordane

BXJ11
Heptachlor epoxide, Endosulfan I, alpha-Chlordane

BXJ25
Heptachlor epoxide, Dieldrin, Endrin, 4,4'-DDT

BXJ25MS
gamma-BHC (Lindane), Heptachlor, Aldrin, Dieldrin
Endrin, 4,4'-DDT

BXJ25MSD
gamma-BHC (Lindane), Heptachlor, Aldrin, Dieldrin
4,4'-DDE, Endrin, 4,4'-DDT

BXJ29
Heptachlor epoxide

BXJ30
Aldrin, Endrin

BXJ31
Heptachlor epoxide, 4,4'-DDE, 4,4'-DDD, Methoxychlor
alpha-Chlordane, gamma-Chlordane

BXJ33
Endosulfan I, Methoxychlor, alpha-Chlordane, gamma-Chlordane

BXJ34
Heptachlor epoxide, Dieldrin, gamma-Chlordane

BXJ37
Methoxychlor, alpha-Chlordane

CLP DATA ASSESSMENT

sample specific. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances. The tuning standard for volatile organics is (BFB) Bromofluorobenzene and for semi-volatiles Decafluorotriphenylphosphine (DFTPP).

If the mass calibration is in error, all associated data will be classified as unusable "R".
No problems.

6. CALIBRATION:

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving acceptable performance at the beginning of an experimental sequence. The continuing calibration checks document that the instrument is giving satisfactory daily performance.

A) Response Factor GC/MS:

The response factor measures the instrument's response to specific chemical compounds. The response factor for the Target Compound List (TCL) must be ≥ 0.05 in both initial and continuing calibrations. A value < 0.05 indicates a serious detection and quantitation problem (poor sensitivity). Analytes detected in the sample will be qualified as estimated, "J". All non-detects for that compound will be rejected "R".

B) Percent Relative Standard Deviation (%RSD) and Percent Difference (%D):

Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentration. Percent D compares the response factor of the continuing calibration check to the mean response factor (RRF) from the initial calibration. Percent D is a measure of the instrument's daily performance. Percent RSD must be < 30% and %D must be < 25%. A value outside of these limits indicates potential detection and quantitation errors. For these reasons, all positive results are flagged as estimated, "J" and non-detects are flagged "UJ". If %RSD and %D grossly exceed QC criteria, non-detects data may be qualified "R".

For the PEST/PCB fraction, if %RSD exceeds 20% for all analytes except for the two surrogates (which must not exceed 30% RSD),

Instrument Performance Check Report

SDG NO: BXH34 LABORATORY: STL-CT

CASE NO: 26777 AGENCY INPUT FILE: BXH34.ASF

The complete primary criteria for DFTPP are as follows:

Decafluorotriphenylphosphine (DFTPP)

m/z	ION ABUNDANCE CRITERIA (Semivolatile)
51	30.0 - 80.0% of m/z 198
68	less than 2.0% of m/z 69
69	present
70	less than 2.0% of m/z 69
127	25.0 - 75.0% of m/z 198
197	less than 1.0% of m/z 198
198	base peak, 100.0% relative abundance
199	5.0 - 9.0% of m/z 198
275	10.0 - 30.0% of m/z 198
365	greater than 0.75% of m/z 198
441	present, but less than m/z 443
442	40.0 - 110.0% of m/z 198
443	15.0 - 24.0% of m/z 442

No problems found for this qualification.

CLP DATA ASSESSMENT

qualify all associated positive results "J" and non-detects "UJ".

The following analytes in the sample shown were qualified for %RSD and %D:
See attached CADRE Calibration Report for list of samples/analytes qualified for %RSD and/or %D criteria.
Pest: The lab does not utilize split injections. The primary analysis for all samples were over 3 different initial calibrations. The confirmation analysis for the samples were over 2 different initial calibrations. Times was spent to associate each sample with the correct analyses and the appropriate qualifications for each sample due to calibration criteria.

Qualified "J" and "UJ"
DDD: PBLK78, H52, H35, H34, J05, PBLK87, J37, J30, J33
beta BHC: J30, H96MS, H96MSD, H31, H32, PBLK19, PBLK28, J25, J25MS, J25MSD, J34
Methoxychlor: J25MSD, J34, PBLK18, J11, H57, H47, H33, H90, H39, H96, H96MS, H96MSD, H31, H32, PBLK19, PBLK28, J25, J25MS

8. INTERNAL STANDARDS PERFORMANCE GC/MS:

Internal standards (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during every experimental run. The internal standard area count must not vary by more than a factor of 2 (-50% to +100%) from the associated continuing calibration standard. The retention time of the internal standard must not vary more than ±30 seconds from the associated continuing calibration standard. If the area count is outside the (-50% to +100%) range of the associated standard, all of the positive results for compounds quantitated using that IS are qualified as estimated, "J", and all non-detects as "UJ", or "R" if there is a severe loss of sensitivity.

If an internal standard retention time varies by more than 30 seconds, the reviewer will use professional judgement to determine either partial or total rejection of the data for that sample fraction.
See attached CADRE Internal Standard Report for list of samples/analytes that were qualified for exceeding internal standard criteria.

9. COMPOUND IDENTIFICATION:

A) Volatile and Semi-Volatile Fractions:

Calibration Report

SDG NO: BXH34 LABORATORY: STL-CT

CASE NO: 26777 AGENCY INPUT FILE: BXH34.ASF

CALIBRATION CRITERIA

Semivolatile

	Primary	Expanded
Minimum RRF	0.05	0.05
Maximum %RSD (initial calibration)	30	90
Maximum %D (continuing calibration)	25	90
Calibration time period	12	

Pesticide

Maximum %RSD (initial calibration)	- TCL analytes	20
	- surrogates	30
Maximum RPD (continuing calibration)		25
INDA/INDB percent resolution		90
Continuing calibration sequence time		12

DC-100: The following semivolatile samples are associated with a continuing calibration percent difference (%D) outside primary criteria.
Hits are qualified "J" and non-detects are qualified "UJ".

BXH31
2,4-Dinitrophenol, 4-Nitrophenol, Benzo(a)anthracene, Indeno(1,2,3-cd)pyrene
Dibenz(a,h)anthracene, Benzo(g,h,i)perylene

BXH32
2,4-Dinitrophenol, 4-Nitrophenol, Benzo(a)anthracene, Indeno(1,2,3-cd)pyrene
Dibenz(a,h)anthracene, Benzo(g,h,i)perylene

BXH33
Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene, Benzo(g,h,i)perylene

BXH34
2,4-Dinitrophenol, 4-Nitrophenol, Benzo(a)anthracene, Indeno(1,2,3-cd)pyrene
Dibenz(a,h)anthracene, Benzo(g,h,i)perylene

BXH35RE
2,4-Dinitrophenol, 4-Nitrophenol, Benzo(a)anthracene, Indeno(1,2,3-cd)pyrene
Dibenz(a,h)anthracene, Benzo(g,h,i)perylene

BXH39

2,4-Dinitrophenol, 4-Nitrophenol, Benzo(a)anthracene, Indeno(1,2,3-cd)pyrene
Dibenz(a,h)anthracene, Benzo(g,h,i)perylene

BXH47
Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene, Benzo(g,h,i)perylene

BXH57
Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene, Benzo(g,h,i)perylene

BXH90
Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene, Benzo(g,h,i)perylene

BXJ11
Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene, Benzo(g,h,i)perylene

BXJ25
2,4-Dinitrophenol, 4-Nitrophenol, Benzo(a)anthracene, Indeno(1,2,3-cd)pyrene
Dibenz(a,h)anthracene, Benzo(g,h,i)perylene

BXJ25MS
2,4-Dinitrophenol, 4-Nitrophenol, Benzo(a)anthracene, Indeno(1,2,3-cd)pyrene
Dibenz(a,h)anthracene, Benzo(g,h,i)perylene

BXJ25MSD
2,4-Dinitrophenol, 4-Nitrophenol, Benzo(a)anthracene, Indeno(1,2,3-cd)pyrene
Dibenz(a,h)anthracene, Benzo(g,h,i)perylene

BXJ30
2,4-Dinitrophenol, 4-Nitrophenol, Benzo(a)anthracene, Indeno(1,2,3-cd)pyrene
Dibenz(a,h)anthracene, Benzo(g,h,i)perylene

BXJ31
Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene, Benzo(g,h,i)perylene

BXJ33
Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene, Benzo(g,h,i)perylene

BXJ34
Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene, Benzo(g,h,i)perylene

BXJ37
Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene, Benzo(g,h,i)perylene

BYH96
2,4-Dinitrophenol, 4-Nitrophenol, Benzo(a)anthracene, Indeno(1,2,3-cd)pyrene
Dibenz(a,h)anthracene, Benzo(g,h,i)perylene

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BYH96MS

2,4-Dinitrophenol, 4-Nitrophenol, Benzo(a)anthracene, Indeno(1,2,3-cd)pyrene
Dibenz(a,h)anthracene, Benzo(g,h,i)perylene

BYH96MSD

2,4-Dinitrophenol, 4-Nitrophenol, Benzo(a)anthracene, Indeno(1,2,3-cd)pyrene
Dibenz(a,h)anthracene, Benzo(g,h,i)perylene

SBLKAP

Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene, Benzo(g,h,i)perylene

SBLKLP

Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene, Benzo(g,h,i)perylene

SBLKPP

2,4-Dinitrophenol, 4-Nitrophenol, Benzo(a)anthracene, Indeno(1,2,3-cd)pyrene
Dibenz(a,h)anthracene, Benzo(g,h,i)perylene

DC-197: The following pesticide samples are not qualified because of missing calibration verification information. Visual inspection of the data is required.

BXH31, BXH32, BXH33, BXH34, BXH35, BXH39
BXH47, BXH52, BXH57, BXH90, BXJ05, BXJ11
BXJ25, BXJ25MS, BXJ25MSD, BXJ29, BXJ30, BXJ31
BXJ33, BXJ34, BXJ37, BYH96, BYH96MS, BYH96MSD
PBLK18, PBLK19, PBLK28, PBLK78, PBLK87

Rest. - qualified 'J' & 'UJ'
Calibration criteria
DDD - p78, H52, H35, H34, J05, p87, J37, J30, J33
Beta BHC - J30, H96MS, H96MSD, H31, H32, p19, p28, J25, J25ms, J25MSD, J34,
methoxychlor - J25MSD, J34, p18, J11, H57, H47, H33, H90, H39, H96, H96ms, H96msd, H31, H32, p19, p28, J25, J25ms

II187

Internal Standards Report

SDG NO: BXH34 LABORATORY: STL-CT

CASE NO: 26777 AGENCY INPUT FILE: BXH34.ASF

INTERNAL STANDARD CRITERIA

Semivolatile

Retention Time & Area Count Limits

	-- Primary --		- Expanded --	
	Lower	Upper	Lower	Upper
Retention time	- 0.5	+ 0.5	- 0.5	+ 0.5
Area count	/ 2	* 2	/ 4	* 4

DC-77: The following semivolatile samples have internal standard area counts that are outside the lower limit of primary criteria. Hits are qualified "J" and non-detects are qualified "UJ".

BXH35

4,6-Dinitro-2-methylphenol, N-Nitrosodiphenylamine (1), 4-Bromophenyl-phenylether, Hexachlorobenzene
Pentachlorophenol, Phenanthrene, Anthracene, Carbazole
Di-n-butylphthalate, Fluoranthene, Pyrene, Butylbenzylphthalate
3,3'-Dichlorobenzidine, Benzo(a)anthracene, Chrysene, bis(2-Ethylhexyl)phthalate
Di-n-octylphthalate, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene
Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene, Benzo(g,h,i)perylene

BXH35RE

Pyrene, Butylbenzylphthalate, 3,3'-Dichlorobenzidine, Benzo(a)anthracene
Chrysene, bis(2-Ethylhexyl)phthalate

BXJ25

4,6-Dinitro-2-methylphenol, N-Nitrosodiphenylamine (1), 4-Bromophenyl-phenylether, Hexachlorobenzene
Pentachlorophenol, Phenanthrene, Anthracene, Carbazole
Di-n-butylphthalate, Fluoranthene, Pyrene, Butylbenzylphthalate
3,3'-Dichlorobenzidine, Benzo(a)anthracene, Chrysene, bis(2-Ethylhexyl)phthalate

BXJ25MS

4,6-Dinitro-2-methylphenol, N-Nitrosodiphenylamine (1), 4-Bromophenyl-phenylether, Hexachlorobenzene
Pentachlorophenol, Phenanthrene, Anthracene, Carbazole
Di-n-butylphthalate, Fluoranthene, Pyrene, Butylbenzylphthalate
3,3'-Dichlorobenzidine, Benzo(a)anthracene, Chrysene, bis(2-Ethylhexyl)phthalate

BXJ25MSD

4,6-Dinitro-2-methylphenol, N-Nitrosodiphenylamine (1), 4-Bromophenyl-phenylether, Hexachlorobenzene
Pentachlorophenol, Phenanthrene, Anthracene, Carbazole
Di-n-butylphthalate, Fluoranthene, Pyrene, Butylbenzylphthalate

3,3'-Dichlorobenzidine, Benzo(a)anthracene, Chrysene, bis(2-Ethylhexyl)phthalate

BXJ29

4,6-Dinitro-2-methylphenol, N-Nitrosodiphenylamine (1), 4-Bromophenyl-phenylether, Hexachlorobenzene
Pentachlorophenol, Phenanthrene, Anthracene, Carbazole
Di-n-butylphthalate, Fluoranthene, Pyrene, Butylbenzylphthalate
3,3'-Dichlorobenzidine, Benzo(a)anthracene, Chrysene, bis(2-Ethylhexyl)phthalate

BXJ29RE

4,6-Dinitro-2-methylphenol, N-Nitrosodiphenylamine (1), 4-Bromophenyl-phenylether, Hexachlorobenzene
Pentachlorophenol, Phenanthrene, Anthracene, Carbazole
Di-n-butylphthalate, Fluoranthene, Pyrene, Butylbenzylphthalate
3,3'-Dichlorobenzidine, Benzo(a)anthracene, Chrysene, bis(2-Ethylhexyl)phthalate

BXJ30

4,6-Dinitro-2-methylphenol, N-Nitrosodiphenylamine (1), 4-Bromophenyl-phenylether, Hexachlorobenzene
Pentachlorophenol, Phenanthrene, Anthracene, Carbazole
Di-n-butylphthalate, Fluoranthene, Pyrene, Butylbenzylphthalate
3,3'-Dichlorobenzidine, Benzo(a)anthracene, Chrysene, bis(2-Ethylhexyl)phthalate

BXJ30RE

4,6-Dinitro-2-methylphenol, N-Nitrosodiphenylamine (1), 4-Bromophenyl-phenylether, Hexachlorobenzene
Pentachlorophenol, Phenanthrene, Anthracene, Carbazole
Di-n-butylphthalate, Fluoranthene, Pyrene, Butylbenzylphthalate
3,3'-Dichlorobenzidine, Benzo(a)anthracene, Chrysene, bis(2-Ethylhexyl)phthalate

CLP DATA ASSESSMENT

TCL compounds are identified on the GC/MS by using the analyte's relative retention time (RRT) and by comparison to the ion spectra obtained from known standards. For the results to be a positive hit, the sample peak must be within ± 0.06 RRT units of the standard compound and have an ion spectra which has a ratio of the primary and secondary m/e intensities within 20% of that in the standard compound. For the tentatively identified compounds (TIC) the ion spectra must match accurately. In the cases where there is not an adequate ion spectrum match, the laboratory may have provided false positive identifications.

B) Pesticide Fraction:

The retention times of reported compounds must fall within the calculated retention time windows for the two chromatographic columns and a GC/MS confirmation is required if the concentration exceeds 10ng/ml in the final sample extract.
See attached CADRE Quantitation Limit Report for list of samples/analytes that were qualified for %Difference between columns.

The GC analyst did not verify the pattern for the PCBs. It looks like the software identified the aroclor if 3 of the peaks were present. It is my professional judgement that aroclor 1248 is not present in the samples. The values were changed to the CRQL and qualified as "U" for aroclor 1248 in the following samples: J34, J25, J25MS, J25MSD.
The aroclor 1254 is present but has matrix interference and weathering. It is the validator's professional judgement that aroclor 1254 is present in the samples. Rather than "R" the values due to %Differences between columns, the following actions were taken on the following samples: J25MS- JN; J25MSD- J.

Sample J31 has aroclor 1254 present but below the CRQL. The aroclor was qualified as "U" for % Difference between columns. No other action needed.

10. CONTRACT PROBLEMS NON-COMPLIANCE:
PEST: The chromatograms are missing the scaling factors. Original and rescaled chromatograms must have sow required scaling values.

The package sections are not assembled correctly. The lab should reread the section on Form 10.

Beta BHC in instrument blank PIB8N did not meet SOW requirements.

Quantitation Limit Report

SDG NO: BXH34 LABORATORY: STL-CT

CASE NO: 26777 AGENCY INPUT FILE: BXH34.ASF

CONTRACT REQUIRED SAMPLE QUANTITY

	Water	Low Soil	Med Soil
BNA	1000.0 (ML)	30.0 (G)	1.0 (G)
PES	1000.0 (ML)	30.0 (G)	

DC-110: The following semivolatile samples have analyte concentrations below the quantitation limit (CRQL). All results below the CRQL are qualified "J".

BXH31
Diethylphthalate, Di-n-butylphthalate, bis(2-Ethylhexyl)phthalate, Di-n-octylphthalate

BXH32
Diethylphthalate, Di-n-butylphthalate, bis(2-Ethylhexyl)phthalate

BXH33
Phenol, Naphthalene, Diethylphthalate, Phenanthrene
Di-n-butylphthalate, Fluoranthene, Pyrene, bis(2-Ethylhexyl)phthalate

BXH34
Phenol, Diethylphthalate, Di-n-butylphthalate

BXH35
Phenol, Di-n-butylphthalate

BXH35RE
Phenol, Di-n-butylphthalate

BXH39
Naphthalene, Diethylphthalate, Di-n-butylphthalate, bis(2-Ethylhexyl)phthalate

BXH47
Diethylphthalate, Di-n-butylphthalate

BXH52
Phenol, Diethylphthalate, Di-n-butylphthalate, bis(2-Ethylhexyl)phthalate

BXH57
Phenol, Naphthalene, 2-Methylnaphthalene, Acenaphthene
Dibenzofuran, Diethylphthalate, Fluorene, N-Nitrosodiphenylamine (1)
Phenanthrene, Anthracene, Carbazole, Di-n-butylphthalate
Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene
Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene

BXH90

Diethylphthalate, Di-n-butylphthalate, bis(2-Ethylhexyl)phthalate

BXJ05

Diethylphthalate, Di-n-butylphthalate, bis(2-Ethylhexyl)phthalate

BXJ11

Phenanthrene, Di-n-butylphthalate, Fluoranthene, bis(2-Ethylhexyl)phthalate
Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene

BXJ25

Phenol, 4-Methylphenol, Naphthalene, 2-Methylnaphthalene
Acenaphthylene, Acenaphthene, Dibenzofuran, Fluorene
Anthracene, Carbazole, Benzo(a)anthracene, bis(2-Ethylhexyl)phthalate
Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene
Dibenz(a,h)anthracene, Benzo(g,h,i)perylene

BXJ25MS

4-Methylphenol, Naphthalene, 2-Methylnaphthalene, Acenaphthylene
Dibenzofuran, Fluorene, Anthracene, Carbazole
Di-n-butylphthalate, bis(2-Ethylhexyl)phthalate, Benzo(b)fluoranthene, Dibenz(a,h)anthracene

BXJ25MSD

4-Methylphenol, Naphthalene, 2-Methylnaphthalene, Acenaphthylene
Diethylphthalate, Di-n-butylphthalate, bis(2-Ethylhexyl)phthalate

BXJ29

Naphthalene, 2-Methylnaphthalene, Acenaphthylene, Acenaphthene
Dibenzofuran, Fluorene, Anthracene, Carbazole
Di-n-butylphthalate, bis(2-Ethylhexyl)phthalate, Benzo(b)fluoranthene, Indeno(1,2,3-cd)pyrene
Dibenz(a,h)anthracene, Benzo(g,h,i)perylene

BXJ29RE

Naphthalene, 2-Methylnaphthalene, Acenaphthylene, Acenaphthene
Dibenzofuran, Fluorene, Anthracene, Carbazole
Di-n-butylphthalate, bis(2-Ethylhexyl)phthalate, Benzo(b)fluoranthene, Indeno(1,2,3-cd)pyrene
Dibenz(a,h)anthracene, Benzo(g,h,i)perylene

BXJ30

Naphthalene, 2-Methylnaphthalene, Acenaphthylene, Acenaphthene
Dibenzofuran, Carbazole, Dibenz(a,h)anthracene

BXJ30RE

Naphthalene, 2-Methylnaphthalene, Acenaphthylene, Acenaphthene
Dibenzofuran, Carbazole, Dibenz(a,h)anthracene

BXJ31

Phenanthrene, Di-n-butylphthalate, Fluoranthene, Pyrene
bis(2-Ethylhexyl)phthalate

BXJ33

Di-n-butylphthalate, bis(2-Ethylhexyl)phthalate

BXJ34

Naphthalene, 2-Methylnaphthalene, Phenanthrene, Anthracene
Di-n-butylphthalate, Fluoranthene, Pyrene, Benzo(a)anthracene
Chrysene, bis(2-Ethylhexyl)phthalate, Benzo(b)fluoranthene, Benzo(k)fluoranthene
Benzo(a)pyrene

BXJ37

Di-n-butylphthalate, bis(2-Ethylhexyl)phthalate

BYH96

Diethylphthalate, Di-n-butylphthalate, bis(2-Ethylhexyl)phthalate, Di-n-octylphthalate

BYH96MS

2-Nitrophenol, Acenaphthylene, Di-n-butylphthalate, bis(2-Ethylhexyl)phthalate

BYH96MSD

Acenaphthylene, Diethylphthalate, Di-n-butylphthalate, bis(2-Ethylhexyl)phthalate

SBLKAP

Di-n-butylphthalate, bis(2-Ethylhexyl)phthalate, Di-n-octylphthalate

SBLKLP

Di-n-butylphthalate

SBLKPP

Diethylphthalate, Di-n-butylphthalate, bis(2-Ethylhexyl)phthalate

SBLKVP

Diethylphthalate, Di-n-butylphthalate, bis(2-Ethylhexyl)phthalate

DC-158: The following pesticide samples have analyte concentrations below the quantitation limit (CRQL). All results below the CRQL are qualified "J".

BXH31

gamma-BHC (Lindane), Heptachlor epoxide, Endosulfan I, Dieldrin
alpha-Chlordane, gamma-Chlordane

BXH32

II/93

beta-BHC, delta-BHC, gamma-BHC (Lindane), Heptachlor epoxide
Endosulfan I, Dieldrin, alpha-Chlordane, gamma-Chlordane

BXH33
beta-BHC, delta-BHC, 4,4'-DDE, Endrin
4,4'-DDT, Endrin ketone

BXH34
Endosulfan sulfate

BXH35
Endosulfan II, Endosulfan sulfate, Endrin ketone

BXH47
Heptachlor epoxide, Endosulfan I, Dieldrin, Endrin ketone
alpha-Chlordane, gamma-Chlordane

BXH52
Dieldrin

BXH57
4,4'-DDE, Endrin, Endosulfan II, 4,4'-DDD
Endosulfan sulfate, Endrin ketone, Endrin aldehyde, alpha-Chlordane

BXH90
delta-BHC, Heptachlor epoxide, Endosulfan I, 4,4'-DDE
Endrin ketone, alpha-Chlordane, gamma-Chlordane

BXJ11
Heptachlor epoxide, Endosulfan I, alpha-Chlordane

BXJ25
Heptachlor epoxide, Dieldrin, Endrin, 4,4'-DDD
Endosulfan sulfate, 4,4'-DDT, Aroclor-1248

BXJ25MS
Endosulfan sulfate, Aroclor-1248

BXJ25MSD
Heptachlor epoxide, 4,4'-DDD

BXJ29
Heptachlor epoxide, 4,4'-DDD, Endosulfan sulfate, alpha-Chlordane
gamma-Chlordane

BXJ30
Endrin aldehyde

BXJ31
delta-BHC, Heptachlor epoxide, 4,4'-DDE, Endosulfan II
4,4'-DDD, Methoxychlor, alpha-Chlordane, gamma-Chlordane
Aroclor-1248

BXJ33
delta-BHC, Endosulfan I, Endosulfan II, Endosulfan sulfate
Methoxychlor, alpha-Chlordane, gamma-Chlordane

BXJ34
delta-BHC, Heptachlor epoxide, Dieldrin, Endosulfan II
Endosulfan sulfate, gamma-Chlordane, Aroclor-1248, Aroclor-1254

BXJ37
delta-BHC, Methoxychlor, alpha-Chlordane

BYH96
Heptachlor epoxide, Dieldrin, 4,4'-DDE, Endrin ketone

BYH96MS
alpha-BHC, Heptachlor epoxide, Endosulfan I, 4,4'-DDE
4,4'-DDD, Methoxychlor, Endrin ketone, alpha-Chlordane
gamma-Chlordane

BYH96MSD
Heptachlor epoxide, Endosulfan I, 4,4'-DDE, 4,4'-DDD
Methoxychlor, Endrin ketone, alpha-Chlordane, gamma-Chlordane

PBLK18
alpha-BHC, delta-BHC, gamma-BHC (Lindane)

PBLK19
gamma-BHC (Lindane)

PBLK28
delta-BHC, Endosulfan I, Endosulfan sulfate, gamma-Chlordane

PBLK87
delta-BHC, gamma-BHC (Lindane), Methoxychlor, alpha-Chlordane

DC-422: The following pesticide samples have analytes for which the percent difference between column results exceeds primary criteria. Hits > CRQL are flagged "J." Or: if %D is > 50% and value is < CRQL, sample result is elevated to the CRQL and qualified "U."

BXH31
J - alpha-Chlordane, gamma-Chlordane - M

BXH32
J - Dieldrin, alpha-Chlordane M

BXH33
Endrin ketone J

BXH35
Endosulfan sulfate, Endrin ketone } M

BXH47
alpha-Chlordane M

BXH57
M - Endosulfan sulfate, alpha-Chlordane - J

BXJ25
NJ - gamma-Chlordane, *Aroclor-1248, Aroclor-1254 - J
M

* professional judgement see D.A.

BXJ25MS
J gamma-BHC (Lindane), Heptachlor, Aldrin } J

BXJ25MSD
gamma-BHC (Lindane), Heptachlor, Aldrin, Dieldrin
alpha-Chlordane, Aroclor-1254 } J

BXJ29
4,4'-DDD, gamma-Chlordane } M

BXJ31
4,4'-DDE, gamma-Chlordane } J

BXJ33
J delta-BHC, alpha-Chlordane M

BXJ34
gamma-Chlordane, Aroclor-1254 } J.

BXJ37
M Methoxychlor, alpha-Chlordane J

BYH96MS
4,4'-DDE J

BYH96MSD
Heptachlor, Aldrin, Dieldrin, Endrin
4,4'-DDT, alpha-Chlordane } J

PBLK87
Methoxychlor, alpha-Chlordane } J

DC-423: The following pesticide samples have analytes for which the percent difference between column results exceeds expanded criteria. Hits > CRQL are flagged "NJ;" or "R" when %D > 100; or "NJ" when %D is between 100 - 200 (interference detected). Hits < CRQL are elevated to the CRQL and qualified "U."

BXH31
gamma-BHC (Lindane), Heptachlor epoxide } NJ

BXH32
beta-BHC, delta-BHC, gamma-BHC (Lindane), Heptachlor epoxide
Endosulfan I } NJ

BXH33
beta-BHC, delta-BHC, 4,4'-DDT } NJ

BXH34
Endosulfan sulfate NJ

BXH35
Endosulfan II NJ

BXH47
Heptachlor epoxide, Endosulfan I, Endrin ketone, gamma-Chlordane } NJ

BXH52
Dieldrin NJ

BXH57
4,4'-DDE, Endrin, Endosulfan II, 4,4'-DDD
Endrin ketone, Endrin aldehyde } NJ

BXH90
delta-BHC, Heptachlor epoxide, Endrin ketone, gamma-Chlordane } NJ

BXJ11
Heptachlor epoxide, Endosulfan I, alpha-Chlordane } NJ

BXJ25

Heptachlor epoxide, Dieldrin, Endrin, Endosulfan sulfate
4,4'-DDT, alpha-Chlordane

BXJ25MS
Dieldrin, Endrin, Endosulfan sulfate, 4,4'-DDT
alpha-Chlordane, Aroclor-1248, Aroclor-1254

BXJ25MSD
Heptachlor epoxide, 4,4'-DDE, 4,4'-DDD, 4,4'-DDT
Aroclor-1248

BXJ29
Heptachlor epoxide, Endosulfan sulfate, alpha-Chlordane

BXJ30
Aldrin, Heptachlor epoxide, Endrin, Endosulfan sulfate
Endrin aldehyde, alpha-Chlordane

BXJ31
delta-BHC, Heptachlor epoxide, Endosulfan II, 4,4'-DDD
Methoxychlor

BXJ33
Endosulfan II, Endosulfan sulfate, Methoxychlor, gamma-Chlordane

BXJ34
delta-BHC, Heptachlor epoxide, Dieldrin, Endosulfan II
Endosulfan sulfate, Aroclor-1248

BXJ37
delta-BHC

BYH96
Heptachlor epoxide, 4,4'-DDE

BYH96MS
alpha-BHC, Heptachlor epoxide, Endosulfan I, 4,4'-DDD
Methoxychlor, Endrin ketone, gamma-Chlordane

BYH96MSD
Endosulfan I, 4,4'-DDD, Methoxychlor, Endrin ketone
gamma-Chlordane

PBLK18
alpha-BHC, delta-BHC, gamma-BHC (Lindane)

PBLK19

II195

gamma-BHC (Lindane) NJ

PBLK28

delta-BHC, Endosulfan I, Endosulfan sulfate, gamma-Chlordane 3 NJ

PBLK87

delta-BHC, gamma-BHC (Lindane) 3 NJ

II194

CLP DATA ASSESSMENT

The reported value was greater then half the CRQL. The lab documented the discrepancy in the case narrative. See note under OTHER problems.

BNA: Sample H34 did not SMC requirement, the sample was not reanalyzed as required by the SOW.

Minimum SOW RRF requirement was not met for analyte acenaphthene analyzed at 0934. The lab mentioned in the case narrative other analytes that did not meet SOW requirements.

11. FIELD DOCUMENTATION:
The major problems encountered with this case were the results of the sampling event.
1. There is no sampling trip report to verify dates, location and time. The Field blanks in this SDG were associated with all of the samples from this SDG. The validator could not determine which Field blanks were associated with samples.
2. Also dup on the tags does not indicate which location/sample it should be identified with. Therefore no comparison or judgement was made for this criteria.
3. The COC was not filled out correctly. Dup samples should not be identified as field QC (4) which are usually water samples. This mistake was not handled appropriately by CLASS when generating the CADRE reports. Which resulted in extensive time to correct the reports and spreadsheets since certain CADRE reports were wrong.
4. The samples were not labeled correctly. Transposed sample ID between tags and COC, missing dates, samples not listed on the COC. These mistakes made the lab's job difficult. Extensive time was needed by the validator to match and verify all of the problems and subsequent corrections made by the lab to the identifications and COC.

12. OTHER PROBLEMS
See attached Percent Moisture Report for list of soil samples that were qualified for percent moisture greater than 50%. There is a big difference between the % moisture reported for sample J25. The BNA fraction reported a % moisture of 30 and the Pest % moisture is 47. No action taken since this is not covered in the guidelines. This is a comment to let the data user be aware of the problem.

Pest: while the values were below the required levels, almost every instrument blank had low level hits. Generally, instruments blanks are clean with no hits. Since there were a lot of instrument blanks, each had to be checked and associate the correct samples. Samples were affected by the instrument blank values and were

Percent Moisture Report

SDG NO: BXH34 LABORATORY: STL-CT

CASE NO: 26777 AGENCY INPUT FILE: BXH34.ASF

PERCENT MOISTURE LIMITS

	Primary	Expanded
BNA	50%	90%
PES	49%	89%

No problems found for this qualification.

II 20!

CLP DATA ASSESSMENT

qualified accordingly.

13. This package contains reextractions, reanalyses or dilutions. Upon reviewing the QA results, the following Form 1(s) are identified not to be used.
BNA: H35, J30, J29RE

14. CADRE PROBLEMS:
1. See note #4 under Field Documentation. The problems mentioned above could have been avoided or minimized in the CADRE reports with some common sense. A field QC (which are usually either FB, TB, RB) can not have a sample location. CLASS should have verified the samples were soil samples before entering them as field blanks.
2. Also if the sample is listed as a ms/msd sample, CLASS should not have entered the ms/msd samples as Field blanks. The CADRE associated all of the spiked analytes with all of the sample hits. This is bad enough but the CADRE program changed the value to the CRQL. The original spiked values are much higher than the CRQLs. All of the samples had to be changed.
3. Pesticide values were changed to M by the program. Region 2 flags file should not have any M listed. The validators went through a lot of trouble to remove all M and V's from our version in order to minimize this problem. The samples were flagged M due to "missing" ms/msd data.
4.This CADRE problem is due to the lab's mistake. The lab did not report the correct CRQL values for BNA Method blanks. The values reported were half the CRQL/correct values. This is a lab problem. I'm surprised CLASS did not pick up on this, since the reported CRQL values are not correct.

I have included in the package the original spreadsheets with all of the corrections that had to be made. A lot of time was needed to make all of the changes.

CLP DATA ASSESSMENT

BXJ32

1. HOLDING TIME:

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded, the data may not be valid. Those analytes detected in the samples whose holding time has been exceeded will be qualified as estimated, "J". The non-detects (sample quantitation limits) will be flagged as estimated, "J", or unusable, "R", if the holding times are grossly exceeded.

The following action was taken in the samples and analytes shown due to excessive holding time.
See Attached CADRE Holding Time Report for list of samples/analytes that were qualified for technical holding time.

2. SURROGATES

All samples are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. If the measured surrogate concentrations were outside contract specifications, qualifications were applied to the samples and analytes as shown below.
See Attached CADRE Surrogate Report for list of samples/analytes that were qualified for surrogate recovery exceedance.

BNA: Sample J32, SMC was not reported, but the peak is present in the chromatogram. The analyst/software should have integrated the peak and reported the value.

Pest: J32, J32dl: surrogate eluted with matrix interference, but present on the second column. Professional judgement not to qualify analytes as "R". No other action taken.

3. MATRIX SPIKE/SPIKE DUPLICATE, MS/MSD:

The MS/MSD data are generated to determine the long term precision and accuracy of the analytical method in various matrices. The MS/MSD may be used in conjunction with other QC criteria for additional qualification of data.
No qualification based on MS/MSD data.

See note under OTHER PROBLEMS.

Holding Time Report

SDG NO: BXJ32 LABORATORY: STL-CT
CASE NO: 26777 AGENCY INPUT FILE: BXJ32.ASF

HOLDING TIME CRITERIA

Semivolatile

	--- Extraction ---		---- Analysis ----	
	Primary	Expanded	Primary	Expanded
Water	7	28	40	60
Soil	7	28	40	60

Pesticide

	--- Extraction ---		---- Analysis ----	
	Primary	Expanded	Primary	Expanded
Water	7	28	40	60
Soil	7	28	40	60

DC-73: The sampling date was not found for the following semivolatile samples. This information is located on the Traffic Report and must be entered manually by the user. All holding times have been calculated using validated time of sample receipt (VTSR). Holding times are technical. No flags for hits and non-detects.

BXJ28

DC-106: The following semivolatile soil samples are outside primary extraction holding time criteria.
Hits are qualified "J" and non-detects are qualified "UJ".

BXJ21, BXJ24, BXJ24RE, BXJ26, BXJ39, BXJ40, BXJ28
BXJ40MS, BXJ40MSD

DC-160: The sampling date was not found for the following pesticide samples. This information is located on the Traffic Report and must be entered manually by the user. All holding times have been calculated using validated time of sample receipt (VTSR). All holding times are technical. No flags for hits and non-detects.

BXJ28

II204

SMC/Surrogate Report

SDG NO: BXJ32
CASE NO: 26777

LABORATORY: STL-CT
AGENCY INPUT FILE: BXJ32.ASF

SMC/SURROGATE CRITERIA

Semivolatile

Percent Recovery Limits

	--- Water ---		---- Soil ---	
	Lower	Upper	Lower	Upper
Nitrobenzene-d5	35.0	114.0	23.0	120.0
2-Fluorobiphenyl	43.0	116.0	30.0	115.0
Terphenyl-d14	33.0	141.0	18.0	137.0
Phenol-d5	10.0	110.0	24.0	113.0
2-Fluorophenol	21.0	110.0	25.0	121.0
2,4,6-Tribromophenol	10.0	123.0	19.0	122.0
2-Chlorophenol-d4	33.0	110.0	20.0	130.0
1,2-Dichlorobenzene-d4	16.0	110.0	20.0	130.0

Pesticide

Percent Recovery Limits

	--- Water ---		---- Soil ---	
	Lower	Upper	Lower	Upper
Tetrachloro-m-xylene	30.0	150.0	30.0	150.0
Decachlorobiphenyl	30.0	150.0	30.0	150.0

DC-82: The following semivolatile samples have surrogate recoveries of less than 10% and a dilution factor which exceeds criteria. Visual inspection of the data is required to determine if any action is required.

dilution.

BXJ32

DC-173: The following pesticide samples have surrogate RT's outside the RT window established during the initial calibration. Professional judgement is recommended. Hits and non-detects are not flagged.

BXJ32, BXJ32DL

II205

SMC/Surrogate Report

SDG NO: BXJ32 LABORATORY: STL-CT

CASE NO: 26777 AGENCY INPUT FILE: BXJ32.ASF

DC-174: The following pesticide samples have surrogate percent recoveries which exceed the upper limit of the criteria window.
If %R for both surrogates on both columns are > contract limit, hits are flagged "J".

~~BXJ24, BXJ26, BXJ28, BXJ35, BXJ36, BXJ40~~

DC-175: The following undiluted pesticide samples have surrogate percent recoveries of less than 10%.
Hits are qualified "J" and non-detects are qualified "R".

BXJ32 PJ No action severe matrix problem on 1 col. 2nd col. SMC is present.

DC-176: The following diluted pesticide samples have surrogate percent recoveries of less than 10%. Professional judgement is recommended.
Hits and non-detects are not flagged.

BXJ32DL

II266

Matrix Spike Report

SDG NO: BXJ32 LABORATORY: STL-CT

CASE NO: 26777 AGENCY INPUT FILE: BXJ32.ASF

MATRIX SPIKE CRITERIA

Semivolatile

Percent Recovery Limits & RPD

	Water			Soil		
	Lower	Upper	RPD	Lower	Upper	RPD
Phenol	12.0	110.0	42.0	26.0	90.0	35.0
2-Chlorophenol	27.0	123.0	40.0	25.0	102.0	50.0
1,4-Dichlorobenzene	36.0	97.0	28.0	28.0	104.0	27.0
N-Nitroso-di-n-propylamine	41.0	116.0	38.0	41.0	126.0	38.0
1,2,4-Trichlorobenzene	39.0	98.0	28.0	38.0	107.0	23.0
4-Chloro-3-methylphenol	23.0	97.0	42.0	26.0	103.0	33.0
Acenaphthene	46.0	118.0	31.0	31.0	137.0	19.0
4-Nitrophenol	10.0	80.0	50.0	11.0	114.0	50.0
2,4-Dinitrotoluene	24.0	96.0	38.0	28.0	89.0	47.0
Pentachlorophenol	9.0	103.0	50.0	17.0	109.0	47.0
Pyrene	26.0	127.0	31.0	35.0	142.0	36.0

Pesticide

Percent Recovery Limits & RPD

	Water			Soil		
	Lower	Upper	RPD	Lower	Upper	RPD
gamma-BHC (Lindane)	56.0	123.0	15.0	46.0	127.0	50.0
Heptachlor	40.0	131.0	20.0	35.0	130.0	31.0
Aldrin	40.0	120.0	22.0	34.0	132.0	43.0
Dieldrin	52.0	126.0	18.0	31.0	134.0	38.0
Endrin	56.0	121.0	21.0	42.0	139.0	45.0
4,4'-DDT	38.0	127.0	27.0	23.0	134.0	50.0

DC-69: Semivolatile matrix spike and/or matrix spike duplicate data is missing for this SDG.
Visual inspection of data is recommended.

BXJ21, BXJ24, BXJ24RE, BXJ26, BXJ28, BXJ32
BXJ35, BXJ36, BXJ36RE

present J40 MS, J40 msd

II 207

Matrix Spike Report

SDG NO: BXJ32 LABORATORY: STL-CT

CASE NO: 26777 AGENCY INPUT FILE: BXJ32.ASF

DC-417: Pesticide matrix spike and/or matrix spike duplicate data is missing for this SDG.
Hits and non-detects are flagged "M".

BXJ21, BXJ24, BXJ26, BXJ28, BXJ32, BXJ32DL
BXJ35, BXJ36

II208

CLP DATA ASSESSMENT

4. BLANK CONTAMINATION:

Quality assurance (QA) blanks, i.e., method, trip, field, or rinse blanks are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure cross-contamination of samples during shipment. Field and rinse blanks measure cross-contamination of samples during field operations. If the concentration of the analyte is less than 5 times the blank contaminant level (10 times for common contaminants), the analytes are qualified as non-detects, "U". The following analytes in the sample shown were qualified with "U" for these reasons:

A) Method blank contamination:
See attached CADRE Laboratory Blanks Report for list of samples/analytes that were qualified "U".

B) Field or rinse blank contamination:
See attached CADRE Field QC Report for list of samples/analytes that were qualified for "U".

See note under Field Documentation.

C) Trip blank contamination for VOA aqueous samples:
Not applicable.

D) Storage Blank associated with VOA samples only
Not applicable.

E) Tics "R" rejected
unknown: J36, J24, J21, J26, J39, J36RE, J24RE
siloxane: J24, J21, J24RE

F) Instrument Blanks associated with Pesticide samples
See attached CADRE Laboratory Blank Report.

5. MASS SPECTROMETER TUNING:

Tuning and performance criteria are established to ensure adequate mass resolution, proper identification of compounds and to some degree, sufficient instrument sensitivity. These criteria are not sample specific. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances. The tuning standard for volatile organics is (BFB) Bromofluorobenzene and for semi-volatiles Decafluorotriphenyl-

Laboratory Blanks Report

SDG NO: BXJ32
CASE NO: 26777

LABORATORY: STL-CT
AGENCY INPUT FILE: BXJ32.ASF

LABORATORY BLANKS CRITERIA

Semivolatile

Method Blank Contamination Threshold Multipliers

	First	Expanded
Common contaminant compounds	10.00	10.00
Other compounds	5.00	5.00

Pesticide

Method Blank Contamination Threshold Multipliers

	First	Expanded
All compounds	5.00	5.00

DC-202: The following semivolatile samples have analyte concentrations reported above the CRQL and less than or equal to ten times (10X) the associated method blank concentration.
Hits are qualified "U" and non-detects are not flagged.

✓ BXJ24
bis(2-Ethylhexyl)phthalate

✓ BXJ32
bis(2-Ethylhexyl)phthalate

DC-206: The following semivolatile samples have analyte concentrations reported below the CRQL and less than or equal to ten times (10X) the associated method blank concentration. Reported sample concentrations have been elevated to the CRQL.
Hits are qualified "U" and non-detects are not flagged.

✓ BXJ21
Diethylphthalate, Di-n-butylphthalate

✓ BXJ24
Diethylphthalate, Di-n-butylphthalate

I I 2 1 C

BXJ24RE
Diethylphthalate, Di-n-butylphthalate

BXJ26
Di-n-butylphthalate, bis(2-Ethylhexyl)phthalate

BXJ28
Di-n-butylphthalate

BXJ35
bis(2-Ethylhexyl)phthalate

BXJ36
Di-n-butylphthalate, bis(2-Ethylhexyl)phthalate

BXJ36RE
Di-n-butylphthalate, bis(2-Ethylhexyl)phthalate

BXJ39
Diethylphthalate, Di-n-butylphthalate, bis(2-Ethylhexyl)phthalate

BXJ40
Di-n-butylphthalate, bis(2-Ethylhexyl)phthalate

BXJ40MS
Diethylphthalate, Di-n-butylphthalate, bis(2-Ethylhexyl)phthalate

BXJ40MSD
Di-n-butylphthalate, bis(2-Ethylhexyl)phthalate

DC-236: The following pesticide samples have analyte concentrations reported below the CRQL and less than or equal to five times (5X) the associated method blank concentration. Reported sample concentrations are elevated to the CRQL and qualified "U."

BXJ21
Endosulfan I

BXJ26
Endosulfan I

BXJ28
Endosulfan I

BXJ39

Endosulfan I

✓BXJ40

Endosulfan I

DC-251: The following pesticide samples have analyte concentrations reported below the CRQL and less than or equal to five times (5X) the associated instrument blank concentration. Reported sample concentrations are elevated to the CRQL and qualified "U."

✓BXJ40MS

beta-BHC

✓BXJ40MSD

beta-BHC

II212

Field QC Report

SDG NO: BXJ32 LABORATORY: STL-CT

CASE NO: 26777 AGENCY INPUT FILE: BXJ32.ASF

DC-146: The following semivolatile samples are affected by contamination in their corresponding field blank for the indicated analytes. Visual inspection of the data is required to verify the "5X rule." Hits are qualified "U" if sample analyte result is < 5X field blank amount.

J40 is not a FB. J39 is not a FB

Phenol
BXJ21, BXJ24, BXJ24RE, BXJ26, BXJ28, BXJ36RE

Naphthalene
BXJ24, BXJ24RE

Acenaphthylene
BXJ24, BXJ36

Acenaphthene
BXJ24, BXJ24RE, BXJ36, BXJ36RE

Diethylphthalate
BXJ21, BXJ24, BXJ24RE

Di-n-butylphthalate
BXJ24RE, BXJ26, BXJ36, BXJ36RE

DC-355: The following pesticide samples are affected by contamination in their corresponding field blank for the indicated analytes. Hits are qualified "U" and non-detects are not flagged.

J39 + J40 are not FB

BXJ21
4,4'-DDT

BXJ24
4,4'-DDT

BXJ26
Heptachlor, Aldrin

BXJ28
Heptachlor

BXJ32
Heptachlor

BXJ35
Dieldrin, 4,4'-DDT

BXJ36

gamma-BHC (Lindane), Heptachlor

II214

CLP DATA ASSESSMENT

phosphine (DFTPP).

If the mass calibration is in error, all associated data will be classified as unusable "R".
No problems.

6. CALIBRATION:

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving acceptable performance at the beginning of an experimental sequence. The continuing calibration checks document that the instrument is giving satisfactory daily performance.

A) Response Factor GC/MS:

The response factor measures the instrument's response to specific chemical compounds. The response factor for the Target Compound List (TCL) must be ≥ 0.05 in both initial and continuing calibrations. A value < 0.05 indicates a serious detection and quantitation problem (poor sensitivity). Analytes detected in the sample will be qualified as estimated, "J". All non-detects for that compound will be rejected "R".

B) Percent Relative Standard Deviation (%RSD) and Percent Difference (%D):

Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentration. Percent D compares the response factor of the continuing calibration check to the mean response factor (RRF) from the initial calibration. Percent D is a measure of the instrument's daily performance. Percent RSD must be < 30% and %D must be < 25%. A value outside of these limits indicates potential detection and quantitation errors. For these reasons, all positive results are flagged as estimated, "J" and non-detects are flagged "UJ". If %RSD and %D grossly exceed QC criteria, non-detects data may be qualified "R".

For the PEST/PCB fraction, if %RSD exceeds 20% for all analytes except for the two surrogates (which must not exceed 30% RSD), qualify all associated positive results "J" and non-detects "UJ".

The following analytes in the sample shown were qualified for %RSD and %D:

Instrument Performance Check Report

SDG NO: BXJ32 LABORATORY: STL-CT

CASE NO: 26777 AGENCY INPUT FILE: BXJ32.ASF

The complete primary criteria for DFTPP are as follows:

Decafluorotriphenylphosphine (DFTPP)

m/z	ION ABUNDANCE CRITERIA (Semivolatile)
51	30.0 - 80.0% of m/z 198
68	less than 2.0% of m/z 69
69	present
70	less than 2.0% of m/z 69
127	25.0 - 75.0% of m/z 198
197	less than 1.0% of m/z 198
198	base peak, 100.0% relative abundance
199	5.0 - 9.0% of m/z 198
275	10.0 - 30.0% of m/z 198
365	greater than 0.75% of m/z 198
441	present, but less than m/z 443
442	40.0 - 110.0% of m/z 198
443	15.0 - 24.0% of m/z 442

No problems found for this qualification.

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CLP DATA ASSESSMENT

See attached CADRE Calibration Report for list of samples/analytes qualified for %RSD and/or %D criteria.

Pest: The lab does not utilize split injections. The primary analysis for all samples were over 3 different initial calibrations. The confirmation analysis for the samples were over 2 different initial calibrations. Times was spent to associate each sample with the correct analyses and the appropriate qualifications for each sample due to calibration criteria.

Qualified "J" and "UJ"
DDD: PBLK87, J32
DDT: PBLK17, J39, J24, J21, J26, J40, J28
METHOXYCHLOR: J40MS, J40MSD, J35, J36, J32DL, PBLK87, J32, PBLK17, J39, J24, J21, J26, J40, J28
BETA BHC: J32, PBLK17, J39, J24, J21, J26, J40, J28, J40MS, J40MSD, J35, J36, J32DL

8. INTERNAL STANDARDS PERFORMANCE GC/MS:

Internal standards (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during every experimental run. The internal standard area count must not vary by more than a factor of 2 (-50% to +100%) from the associated continuing calibration standard. The retention time of the internal standard must not vary more than ±30 seconds from the associated continuing calibration standard. If the area count is outside the (-50% to +100%) range of the associated standard, all of the positive results for compounds quantitated using that IS are qualified as estimated, "J", and all non-detects as "UJ", or "R" if there is a severe loss of sensitivity.

If an internal standard retention time varies by more than 30 seconds, the reviewer will use professional judgement to determine either partial or total rejection of the data for that sample fraction.
See attached CADRE Internal Standard Report for list of samples/analytes that were qualified for exceeding internal standard criteria.

9. COMPOUND IDENTIFICATION:

A) Volatile and Semi-Volatile Fractions:

TCL compounds are identified on the GC/MS by using the analyte's relative retention time (RRT) and by comparison to the ion spectra

Calibration Report

SDG NO: BXJ32 LABORATORY: STL-CT

CASE NO: 26777 AGENCY INPUT FILE: BXJ32.ASF

CALIBRATION CRITERIA

Semivolatile

	Primary	Expanded
Minimum RRF	0.05	0.05
Maximum %RSD (initial calibration)	30	90
Maximum %D (continuing calibration)	25	90
Calibration time period	12	

Pesticide

Maximum %RSD (initial calibration)	- TCL analytes	20
	- surrogates	30
Maximum RPD (continuing calibration)		25
INDA/INDB percent resolution		90
Continuing calibration sequence time		12

✓ DC-100: The following semivolatile samples are associated with a continuing calibration percent difference (%D) outside primary criteria.
Hits are qualified "J" and non-detects are qualified "UJ".

BXJ24
2,4-Dinitrophenol, Di-n-octylphthalate

BXJ36
2,4-Dinitrophenol, Di-n-octylphthalate

SBLKAQ
2,4-Dinitrophenol, Di-n-octylphthalate

SBLKPQ
2,4-Dinitrophenol, Di-n-octylphthalate

DC-197: The following pesticide samples are not qualified because of missing calibration verification information. Visual inspection of the data is required.

BXJ21, BXJ24, BXJ26, BXJ28, BXJ32, BXJ32DL
BXJ35, BXJ36, BXJ39, BXJ40, BXJ40MS, BXJ40MSD
PBLK17, PBLK87

Initial Calibration
1° cal -
DDD - PbLK87, J32
DDT - PbLK17, J39, J24, J21, J26, J40, J28,
Meth - J40ms, J40msd, J35, J36, J32dl.

2° Cal - Beta BHC - J32, PbLK17, J39, J24, J21, J26, J40, J28, J40ms, J-40msd, J35 J36, J32dl.
methoxychlor - PbLK87, J32, PbLK17, J39, J24, J21, J26, J40, J28

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Internal Standards Report

SDG NO: BXJ32 LABORATORY: STL-CT

CASE NO: 26777 AGENCY INPUT FILE: BXJ32.ASF

INTERNAL STANDARD CRITERIA

Semivolatile

Retention Time & Area Count Limits

	-- Primary --		- Expanded --	
	Lower	Upper	Lower	Upper
Retention time	- 0.5	+ 0.5	- 0.5	+ 0.5
Area count	/ 2	* 2	/ 4	* 4

DC-77: The following semivolatile samples have internal standard area counts that are outside the lower limit of primary criteria. Hits are qualified "J" and non-detects are qualified "UJ".

BXJ24

4,6-Dinitro-2-methylphenol, N-Nitrosodiphenylamine (1), 4-Bromophenyl-phenylether, Hexachlorobenzene
Pentachlorophenol, Phenanthrene, Anthracene, Carbazole
Di-n-butylphthalate, Fluoranthene

BXJ24RE

Pyrene, Butylbenzylphthalate, 3,3'-Dichlorobenzidine, Benzo(a)anthracene
Chrysene, bis(2-Ethylhexyl)phthalate, Di-n-octylphthalate, Benzo(b)fluoranthene
Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene
Benzo(g,h,i)perylene

BXJ36

4,6-Dinitro-2-methylphenol, N-Nitrosodiphenylamine (1), 4-Bromophenyl-phenylether, Hexachlorobenzene
Pentachlorophenol, Phenanthrene, Anthracene, Carbazole
Di-n-butylphthalate, Fluoranthene

BXJ36RE

Di-n-octylphthalate, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene
Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene, Benzo(g,h,i)perylene

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CLP DATA ASSESSMENT

obtained from known standards. For the results to be a positive hit, the sample peak must be within ± 0.06 RRT units of the standard compound and have an ion spectra which has a ratio of the primary and secondary m/e intensities within 20% of that in the standard compound. For the tentatively identified compounds (TIC) the ion spectra must match accurately. In the cases where there is not an adequate ion spectrum match, the laboratory may have provided false positive identifications.

B) Pesticide Fraction:

The retention times of reported compounds must fall within the calculated retention time windows for the two chromatographic columns and a GC/MS confirmation is required if the concentration exceeds 10ng/ml in the final sample extract.
See attached CADRE Quantitation Limit Report for list of samples/analytes that were qualified for %Difference between columns.

The GC analyst did not verify the pattern for the PCBs. It looks like the software identified the aroclor if 3 of the peaks were present. It is my professional judgement that aroclor 1260 is not present in the samples. The values were changed to the CRQL and qualified as "U" for aroclor 1260 in the following samples: J21, J24, J28, J39.

10. CONTRACT PROBLEMS NON-COMPLIANCE:
PEST: The chromatograms are missing the scaling factors. Original and rescaled chromatograms must have sow required scaling values.

The package sections are not assembled correctly. The lab should reread the section on Form 10.

Beta BHC in instrument blank PIB8N did not meet SOW requirements. The reported value was greater then half the CRQL. The lab documented the discrepancy in the case narrative. See note under OTHER problems.

AROCLOR 1232 standard was not analyzed with 72 hours of sample J32. The lab documented the problem in the case narrative.

11. FIELD DOCUMENTATION:
The major problems encountered with this case were the results of the sampling event.
1. There is no sampling trip report to verify dates, location and

Quantitation Limit Report

SDG NO: BXJ32 LABORATORY: STL-CT

CASE NO: 26777 AGENCY INPUT FILE: BXJ32.ASF

CONTRACT REQUIRED SAMPLE QUANTITY

	Water	Low Soil	Med Soil
BNA	1000.0 (ML)	30.0 (G)	1.0 (G)
PES	1000.0 (ML)	30.0 (G)	

DC-110: The following semivolatile samples have analyte concentrations below the quantitation limit (CRQL). All results below the CRQL are qualified "J".

BXJ21

Phenol, Naphthalene, 2-Methylnaphthalene, Acenaphthylene
Acenaphthene, Dibenzofuran, Diethylphthalate, Fluorene
N-Nitrosodiphenylamine (1), Carbazole, Di-n-butylphthalate, Butylbenzylphthalate
Di-n-octylphthalate, Dibenz(a,h)anthracene

BXJ24

Phenol, Naphthalene, 2-Methylnaphthalene, Acenaphthylene
Acenaphthene, Dibenzofuran, Diethylphthalate, Fluorene
Anthracene, Carbazole, Di-n-butylphthalate, Butylbenzylphthalate
Dibenz(a,h)anthracene

BXJ24RE

Phenol, Naphthalene, 2-Methylnaphthalene, Acenaphthylene
Acenaphthene, Dibenzofuran, Diethylphthalate, Fluorene
Anthracene, Carbazole, Di-n-butylphthalate, Butylbenzylphthalate
Di-n-octylphthalate, Dibenz(a,h)anthracene

BXJ26

Phenol, 1,2-Dichlorobenzene, 4-Methylphenol, 2,4-Dimethylphenol
Naphthalene, 2-Methylnaphthalene, Acenaphthylene, Acenaphthene
Dibenzofuran, Fluorene, N-Nitrosodiphenylamine (1), Carbazole
Di-n-butylphthalate, bis(2-Ethylhexyl)phthalate, Dibenz(a,h)anthracene

BXJ28

Phenol, Naphthalene, 4-Chloroaniline, 2-Methylnaphthalene
Acenaphthylene, Acenaphthene, Dibenzofuran, Fluorene
Anthracene, Carbazole, Di-n-butylphthalate, Butylbenzylphthalate
Dibenz(a,h)anthracene

BXJ32

Naphthalene, 2-Methylnaphthalene, Acenaphthylene, Acenaphthene
Dibenzofuran, Carbazole, Di-n-octylphthalate, Dibenz(a,h)anthracene
Benzo(g,h,i)perylene

BXJ35

Naphthalene, 2-Methylnaphthalene, Acenaphthylene, Acenaphthene
Dibenzofuran, Fluorene, Carbazole, Butylbenzylphthalate
bis(2-Ethylhexyl)phthalate, Dibenz(a,h)anthracene

BXJ36

Naphthalene, 2-Methylnaphthalene, Acenaphthylene, Acenapnthene
Dibenzofuran, Fluorene, Anthracene, Carbazole
Di-n-butylphthalate, bis(2-Ethylhexyl)phthalate, Dibenz(a,h)anthracene

BXJ36RE

Phenol, Naphthalene, 2-Methylnaphthalene, Acenaphthylene
Acenaphthene, Dibenzofuran, Fluorene, N-Nitrosodiphenylamine (1)
Anthracene, Carbazole, Di-n-butylphthalate, bis(2-Ethylhexyl)phthalate
Dibenz(a,h)anthracene

BXJ39

Phenol, 1,2-Dichlorobenzene, 4-Methylphenol, 2,4-Dimethylphenol
Naphthalene, 4-Chloroaniline, 2-Methylnaphthalene, Acenaphthylene
Acenaphthene, Dibenzofuran, Diethylphthalate, Fluorene
N-Nitrosodiphenylamine (1), Anthracene, Carbazole, Di-n-butylphthalate
bis(2-Ethylhexyl)phthalate, Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene

BXJ40

4-Methylphenol, Naphthalene, 4-Chloroaniline, 2-Methylnaphthalene
Acenaphthylene, Acenaphthene, Dibenzofuran, Fluorene
N-Nitrosodiphenylamine (1), Anthracene, Carbazole, Di-n-butylphthalate
bis(2-Ethylhexyl)phthalate, Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene

BXJ40MS

4-Methylphenol, 2,4-Dimethylphenol, Naphthalene, 4-Chloroaniline
2-Methylnaphthalene, Acenaphthylene, Dibenzofuran, Diethylphthalate
Fluorene, Anthracene, Carbazole, Di-n-butylphthalate
Benzo(a)anthracene, bis(2-Ethylhexyl)phthalate, Benzo(b)fluoranthene, Benzo(k)fluoranthene
Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene

BXJ40MSD

4-Methylphenol, Naphthalene, 4-Chloroaniline, 2-Methylnaphthalene
Acenaphthylene, Dibenzofuran, Fluorene, Anthracene
Carbazole, Di-n-butylphthalate, Benzo(a)anthracene, bis(2-Ethylhexyl)phthalate
Benzo(b)fluoranthene, Benzo(k)fluoranthene, Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene

SBLKAQ

Diethylphthalate, Di-n-butylphthalate, bis(2-Ethylhexyl)phthalate

SBLKPQ

22222

Diethylphthalate, Di-n-butylphthalate, bis(2-Ethylhexyl)phthalate

DC-158: The following pesticide samples have analyte concentrations below the quantitation limit (CRQL). All results below the CRQL are qualified "J".

BXJ21
Endosulfan I, Dieldrin, Endosulfan sulfate, 4,4'-DDT

BXJ24
Heptachlor epoxide, Dieldrin, Endosulfan sulfate, 4,4'-DDT

BXJ26
Heptachlor, Aldrin, Heptachlor epoxide, Endosulfan I
Endosulfan sulfate, gamma-Chlordane, Aroclor-1242, Aroclor-1254

BXJ28
Heptachlor, Endosulfan I, 4,4'-DDT

BXJ32
Heptachlor, Heptachlor epoxide

BXJ32DL
Heptachlor epoxide, Endosulfan II, 4,4'-DDD, Endosulfan sulfate
alpha-Chlordane, gamma-Chlordane, Aroclor-1254

BXJ35
delta-BHC, Heptachlor epoxide, Dieldrin, Endosulfan II
4,4'-DDT

BXJ36
gamma-BHC (Lindane), Heptachlor, Endrin, Endosulfan sulfate

BXJ39
delta-BHC, Heptachlor, Aldrin, Heptachlor epoxide
Endosulfan I, Endosulfan sulfate, Aroclor-1254, Aroclor-1260

BXJ40
Heptachlor, Aldrin, Heptachlor epoxide, Endosulfan I
Endosulfan sulfate, Aroclor-1254

BXJ40MS
beta-BHC, delta-BHC, Heptachlor epoxide, Endosulfan sulfate
Methoxychlor, Aroclor-1254

BXJ40MSD

beta-BHC, delta-BHC, Heptachlor epoxide, Endosulfan sulfate
Methoxychlor, Aroclor-1254

PBLK17
Endosulfan I, Endrin aldehyde, alpha-Chlordane, gamma-Chlordane

PBLK87
delta-BHC, gamma-BHC (Lindane), Methoxychlor, alpha-Chlordane

DC-422: The following pesticide samples have analytes for which the percent difference between column results exceeds primary criteria. Hits > CRQL are flagged "J." Or: if %D is > 50% and value is < CRQL, sample result is elevated to the CRQL and qualified "U."

BXJ21
Endrin ketone, Aroclor-1242, Aroclor-1254 } J

BXJ28
4,4'-DDD, Aroclor-1254 } J

BXJ32
gamma-Chlordane, * Aroclor-1232, Aroclor-1254 } J

BXJ32DL
Aroclor-1254 J

BXJ35
Aroclor-1254 J

BXJ36
Dieldrin J

BXJ39
J = Aldrin, Endosulfan sulfate =4

BXJ40
Aroclor-1254 J

BXJ40MS
gamma-BHC (Lindane), Heptachlor, Aldrin, 4,4'-DDT } J

BXJ40MSD
gamma-BHC (Lindane), Aldrin, gamma-Chlordane } J

PBLK17

* the value + qualifier on form was transferred from dilution analysis. this may be different than the original qualifier

II-24

Endrin aldehyde, alpha-Chlordane, gamma-Chlordane } J

PBLK87

Methoxychlor, alpha-Chlordane } J

DC-423: The following pesticide samples have analytes for which the percent difference between column results exceeds expanded criteria. Hits > CRQL are flagged "NJ;" or "R" when %D > 100; or "NJ" when %D is between 100 - 200 (interference detected). Hits < CRQL are elevated to the CRQL and qualified "U."

** professional judgement Aroclor is not present.

BXJ21

U – Endosulfan I, Dieldrin (U), Endrin (NJ), Endosulfan sulfate – U

U – 4,4'-DDT, alpha-Chlordane (R), gamma-Chlordane (NJ), Aroclor-1260 – U **

BXJ24

R – delta-BHC, Heptachlor epoxide (U), Dieldrin (U), Endrin NJ

U – Endosulfan sulfate, 4,4'-DDT (U), alpha-Chlordane, gamma-Chlordane – NJ

✓ J – Aroclor-1254, Aroclor-1260 – U ** NJ

✓ professional judgement Aroclor is present + qualified J instead of NJ or R.

BXJ26

Heptachlor, Aldrin, Heptachlor epoxide, Endosulfan I } U

NJ – 4,4'-DDD, alpha-Chlordane (R), gamma-Chlordane (U), Aroclor-1242 – U

Aroclor-1254 – U

BXJ28

U – Heptachlor, Endosulfan I (U), Endosulfan sulfate (NJ), 4,4'-DDT – U

NJ. alpha-Chlordane, gamma-Chlordane (NJ), Aroclor-1260 – U **

BXJ32

U – Heptachlor, Heptachlor epoxide (U), Endosulfan II (NJ), Endosulfan sulfate – (R) *

alpha-Chlordane – (R) *

BXJ32DL

Heptachlor epoxide, 4,4'-DDD, Endosulfan sulfate, alpha-Chlordane } U

gamma-Chlordane

BXJ35

delta-BHC, Heptachlor epoxide, Dieldrin, Endosulfan II } U

R – Endosulfan sulfate, 4,4'-DDT (U), alpha-Chlordane – R

BXJ36

U – gamma-BHC (Lindane), Heptachlor (U), Heptachlor epoxide (R), Endrin – U

U – Endosulfan sulfate, 4,4'-DDT – R

BXJ39

delta-BHC, Heptachlor, Heptachlor epoxide, Endosulfan I } U

NJ 4,4'-DDD, alpha-Chlordane, Aroclor-1260 - U

NJ

BXJ40

U - Heptachlor, Heptachlor epoxide, Endosulfan I, 4,4'-DDD - NJ

U Endosulfan sulfate, alpha-Chlordane - R

BXJ40MS

U - beta-BHC, delta-BHC, Heptachlor epoxide, Dieldrin - NJ

NJ { 4,4'-DDE, Endrin, 4,4'-DDD, Endosulfan sulfate - U

Methoxychlor, alpha-Chlordane, Aroclor-1254 } NJ

BXJ40MSD

U - beta-BHC, delta-BHC, Heptachlor, Heptachlor epoxide - U

Dieldrin, 4,4'-DDE, Endrin, 4,4'-DDD } NJ

U - Endosulfan sulfate, 4,4'-DDT, alpha-Chlordane, Aroclor-1254 - NJ

NJ NJ

PBLK17

Endosulfan I NJ

PBLK87

delta-BHC, gamma-BHC (Lindane) } NJ

I I 2 2 2

CLP DATA ASSESSMENT

time. The Field blanks in this SDG were associated with all of the samples from this SDG. The validator could not determine which Field blanks were associated with samples. Therefore neither of the Field blanks located in SDG BXH32 were associated with samples in this SDG.
2. Also dup on the tags does not indicate which location/sample it should be identified with. Therefore no comparison or judgement was made for this criteria.
3. The COC was not filled out correctly. Dup samples should not be identified as field QC (4) which are usually water samples. This mistake was not handled appropriately by CLASS when generating the CADRE reports. Which resulted in extensive time to correct the reports and spreadsheets since certain CADRE reports were wrong.
4. The samples were not labeled correctly. Transposed sample ID between tags and COC, missing dates, samples not listed on the COC. These mistakes made the lab's job difficult. Extensive time was needed by the validator to match and verify all of the problems and subsequent corrections made by the lab to the identifications and COC.

12. OTHER PROBLEMS
See attached Percent Moisture Report for list of soil samples that were qualified for percent moisture greater than 50%.

Pest: While the values were below the required levels, almost every instrument blank had low level hits. Generally, instruments blanks are clean with no hits. Since there were a lot of instrument blanks, each had to be checked and associate the correct samples. Samples were affected by the instrument blank values and were qualified accordingly.

13. This package contains reextractions, reanalyses or dilutions. Upon reviewing the QA results, the following Form 1(s) are identified not to be used.
BNA: J24RE, J36RE
PEST: J32DL

14. CADRE PROBLEMS:
1. See note #4 under Field Documentation. The problems mentioned above could have been avoided or minimized in the CADRE reports with some common sense. A field QC (which are usually either FB, TB, RB) can not have a sample location. CLASS should have verified the samples were soil samples before entering them as field blanks.
2. Also if the sample is listed as a ms/msd sample, CLASS should not have entered the ms/msd samples as Field blanks. The CADRE

Percent Moisture Report

SDG NO: BXJ32 LABORATORY: STL-CT

CASE NO: 26777 AGENCY INPUT FILE: BXJ32.ASF

PERCENT MOISTURE LIMITS

	Primary	Expanded
BNA	50%	90%
PES	49%	89%

DC-128: Percent moisture content of the following semivolatile soil samples exceeds primary criteria. Hits are qualified "J" and non-detects are qualified "UJ".

BXJ28

DC-184: Percent moisture content of the following pesticide soil samples exceeds primary criteria.
Hits are qualified "J" and non-detects are qualified "UJ".

BXJ28

II228

CLP DATA ASSESSMENT

associated all of the spiked analytes with all of the sample hits. This is bad enough but the CADRE program changed the value to the CRQL. The original spiked values are much higher than the CRQLs. All of the samples had to be changed.

3. Pesticide values were changed to M by the program. Region 2 flags file should not have any M listed. The validators went through a lot of trouble to remove all M and V's from our version in order to minimize this problem. The samples were flagged M due to "missing" ms/msd data.

4. This CADRE problem is due to the lab's mistake. The lab did not report the correct CRQL values for BNA Method blanks. The values reported were half the CRQL/correct values. This is a lab problem. I'm surprised CLASS did not pick up on this, since the reported CRQL values are not correct.

I have included in the package the original spreadsheets with all of the corrections that had to be made. A lot of time was needed to make all of the changes.

DPO: []ACTION []FYI REGION__2_

ORGANIC REGIONAL DATA ASSESSMENT SUMMARY

CASE NO._26777__ LABORATORY__IEACT_____

SDG NO. BXH34, BXJ32 DATA USER___EPA/Region II_____

SOW_OLM03.2 _____ REVIEW COMPLETION DATE_May 17, 1999___

NO. OF SAMPLES__13____WATER ___16____SOIL _____OTHER

REVIEWER: [] ESD [x] ESAT [] OTHER, CONTRACTOR_____

QC ITEM		BNA	PEST		
HOLDING TIMES		X	O		
GC-MS PERFORMANCE		O	O		
INITIAL CALIBRATIONS		O	X		
CONTINUING CALIBRATIONS		X	O		
FIELD BLANKS(F = N/A)		O	O		
LABORATORY BLANKS		O	O		
SURROGATES		O	X		
MATRIX SPIKE/DUPLICATES		O	O		
QC SAMPLES(LCS, PVS)		O	O		
INTERNAL STANDARDS		X	F		
COMPOUND IDENTIFICATION		O	M		
COMPOUND QUANTITATION		O	O		
SYSTEM PERFORMANCE		O	O		
OVERALL ASSESSMENT		O	O		

O = No problems or minor problems that do not affect data usability.
X = No more than about 5% of the data points are qualified as either estimated or unusable.
M = More than about 5% of the data points are qualified as either estimated or unusable.
Z = More than about 5% of the data points are qualified as unusable.

DPO ACTION ITEMS:
AREAS OF CONCERN: See attachments of problems.

II 23C

DATA REJECTION SUMMARY

Type of Review: Organic Date : May 17, 1999 Case : 26777
Site Name: Hammersley Manufacturing Co., LF Lab Name: IEACT Reviewer"s Initial : MH
Number of Samples: 13 Waters, 16 Soils, + QC +Dilutions/Reanalyses

Analytes Rejected Due To Exceeding Review Criteria For: Number of Compounds /Number of Fractions (Samples)

	Surrogates	Holding Times	Calibration	Contamination	ID	Internal Standard	Other	Total # Samples	Total # **REJECTED**/ Total Analytes in samples Percent		
AE(14)	0	0	0	0	0	0	0	46	0	644	0
BN(50)	0	0	0	0	0	0	0	46	0	2300	0
PEST(21)	0	0	0	0	16	0	0	43	16	903	2
PCB(7)	0	0	0	0	0	0	0	43	0	301	0

Analytes Estimated Due To Exceeding Review Criteria For: Number of Compounds /Number of Fractions (Samples)

	Surrogates	Holding Times	Calibration	Contamination	ID	Internal Standard	Other* % Moisture	Total # Samples	Total # **ESTIMATED**/ Total Analytes in samples Percent		
AE(14)	0	151	32	0	0	20	0	46	203	644	32
BN(50)	0	531	79	0	0	161	0	46	771	2300	34
PEST(21)	0	16	74	0	88	0	14	43	192	903	21
PCB(7)	0	6	0	0	16	0	5	43	27	301	9

Note: Asterisk (*) indicates additional Exceedances of Review Criteria

YES NO N/A

PACKAGE COMPLETENESS AND DELIVERABLES

CASE NUMBER: 26777 LABORATORY: IBACT

SITE NAME: Hamersley Manufacturing Co-LF SDG Number(s): BXH34, BXJ32

1.0 Chain of Custody and Sampling Trip Reports

1.1 Are the Traffic Reports/Chain-of-Custody Records present for all samples? [X] ___ ___

ACTION: If no, contact RSCC, or contact the WAM to obtain replacement of missing or illegible copies from the lab.

1.2 Is the Sampling Trip Report present for all samples and all fractions? [ ] X ___

ACTION: If no, contact either RSCC or ask the WAM to obtain this information from the prime contractor.

2.0 Data Completeness and Deliverables

2.1 Have any missing deliverables been received and added to the data package? X ___

NOTE: The lab is required to submit data for only two analyses, for each fraction. (i.e., the original sample and one dilution, or the most concentrated dilution analyzed and one further dilution.)

ACTION: Contact the WAM to obtain an explanation or resubmittal of any missing deliverables from the lab. If lab cannot provide them, note the effect on the review of the package in the Contract Problems/Non-compliance section of the Data Assessment and the Organic Regional Data Assessment Summary form.

2.2 Was CLASS CCS checklist included with package? [X] ___ ___

2.3 Are there any discrepancies between the Traffic Reports/Chain-of-Custody Records, Sampling Report and Sample Tags? X [ ] ___

	YES	NO	
ACTION: If yes, contact the WAM to obtain an explanation or resubmittal of any missing deliverables from the laboratory.			
3.0 Cover Letter SDG Narrative			
3.1 Is the Narrative or Cover Letter Present?	X		
3.2 Are case number, SDG number and contract number contained in the SDG Narrative or cover letter (see SOW, Exhibit B, section 2.6.1)?	X		
3.3 Does the narrative contain the following information:			
VOA: description of trap and columns used during sample analyses?			X
BNA: description of columns used during sample analyses?	X		
Pest: description of columns used during sample analyses?	X		
NOTE: As per section 6.23.3.1 SOW/p. D-11/Pest, Packed columns are not permitted.			
3.4 Does the narrative, VOA and BNA sections, contain a list of all TICs identified as alkanes and their estimated concentrations?	X		
3.5 Does the narrative contain a record of all cooler temperatures? If the temperature of a cooler was exceeded, > 10° C, the lab must list by fraction and sample number, all affected samples.	X		
3.6 Does the narrative contain a list of the pH values determined for each water sample submitted for volatile analysis (SOW Exhibit B, section 2.6.1.2)?			X
3.7 Does the Case Narrative contain the statement, "verbatim", as required in Section B of the SOW?			
ACTION: If "No", to any question in this section, contact the WAM to obtain all necessary resubmittals. If information is not available, document in the Data Assessment under Contract Problems/Non-Compliance section.			

	YES	NO	N/A
4.0 Data Validation Checklist			
4.1 Check the package for the following discrepancies:			
a. Is the package paginated in ascending order starting from the SDG narrative?	X		
b. Are all forms and copies legible?	X		
c. Is each fraction assembled in the order set forth in the SOW?		X	
d. Is a Sample Data Summary Package submitted immediately preceding the Sample Data Package?		X	

The following checklist is divided into three parts. Part A is for any VOA analyses, Part B is for BNAs and Part C is Pesticide/PCBs.

Does this package contain:

VOA Data?		X	
BNA Data?	X		
Pesticide/PCB data?	X		

ACTION: Complete corresponding parts of checklist.

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YES NO N/A

PART B: BNA ANALYSES

1.0 Sample Conditions/Problems

1.1 Do the Traffic Reports/Chain-of-Custody records or laboratory SDG Narrative indicate any problems with sample receipt, condition of samples, analytical problems or special notations affecting the quality of the data? X [ ] ___

ACTION: If any sample analyzed as a soil, other than TCLP, contains 50% - 90% water, all data should be flagged as estimated "J". If a soil sample, other than TCLP, contains more than 90% water, all data should be qualified as unusable "R".

ACTION: If samples were not iced or if the ice was melted upon arrival at the laboratory and the temperature of the cooler was elevated (> 10° C), flag all positive results "J" and all non-detects "UJ".

2.0 Holding Times

2.1 Have any BNA technical holding times, determined from date of collection to date of extraction, been exceeded? X [ ] ___

Technical Holding Time: Continuous extraction of water samples for BNA analysis must be started within seven days of the date of collection. Soil/sediment samples must be extracted within 7 days of collection. Extracts must be analyzed within 40 days of the date of extraction.

Table of Holding Time Violations
(See Chain-of-Custody Records)

Sample Analyzed	Sample Matrix	Date Sampled	Date Lab Received	Date Extracted	Date Analyzed
J24 J28	SO12	0201	0203	0209	0226
21, J26,					
J40ms, J40msd					
J39 J24, 40, J25					
J25ms, J25msd					

YES NO N/A

ACTION: If technical holding times were exceeded, flag all positive results as estimated (J) and sample quantitation limits as estimated (UJ), and document in the narrative that holding times were exceeded. If analyses were done more than 14 days beyond holding time, either on the first analysis or upon reanalysis, the reviewer must use professional judgement to determine the reliability of the data and the effects of additional storage on sample results. At a minimum, all results should be qualified "J", but the reviewer may determine that non-detect data are unusable "R". If holding times were exceeded by more than 28 days, all non-detect data must be qualified "R", unusable.

NOTE: Contractual Holding Times: Extraction of water samples must be started within 5 days VTSR. Soil/sediment samples must be extracted within 10 days of VTSR. This requirement does not apply to Performance Evaluation (PE) samples. Water and soil/sediment extracts must be analyzed within 40 days following extraction.

ACTION: If contractual holding times are exceeded, document in the Data Assessment and on the Organic Regional Data Assessment Summary form.

NOTE: The data reviewer must note in the Data Assessment whether or not technical and contractual holding times were met.

3.0 Surrogate Recovery (Form II)

3.1 Are BNA Surrogate Recovery Summaries (Form II) present for each of the following matrices:

a. Low Water? [X] ___ ___

b. Low Soil? [X] ___ ___

c. Med Soil? [ ] ___ X

3.2 Are all the BNA samples listed on the appropriate Surrogate Recovery Summaries for each of the following matrices:

a. Low Water? [X] ___ ___

b. Low Soil? [X] ___ ___

	YES	NO	N/A
c. Med Soil?	[ ]		X

ACTION: Contact the WAM to request an explanation or resubmittal of any missing deliverables from the laboratory. If missing deliverables are unavailable, document the effect in the Data Assessment.

3.3 Were outliers marked correctly with an asterisk?	[✓]		

ACTION: Circle all outliers with red pencil.

3.4 Were two or more base-neutral OR acid surrogate recoveries out of specification for any sample or method blank?		[X]	
If yes, were samples reanalyzed?	[ ]	X	
Were method blanks reanalyzed?	[ ]	✓	

ACTION: If all BNA surrogate recoveries are ≥ 10%, but two within the base-neutral or acid fraction do not meet SOW specifications, for the affected fraction only (i.e. acid or base-neutral compounds):

1. Flag all positive results as estimated (J).

2. Flag all non-detects as estimated detection limits ("UJ") when recoveries are less than the lower acceptance limit.

3. Do not qualify non-detects if recoveries are greater than the upper acceptance limit.

If any base-neutral or acid surrogate has a recovery of < 10%:

1. Qualify positive results for that fraction as estimated (J).

2. Qualify non-detects for that fraction as unusable (R).

Professional judgement should be used to qualify data that have method blank surrogate recoveries out of specification in both original and reanalyses. Check the internal standard areas.

	YES	NO	N/A

NOTE: Contractual requirements state that if any surrogate fails acceptance criteria, the sample must be re-analyzed. If sample was not re-analyzed, document in the Data Assessment under Contract Problems/Non-Compliance.

NOTE: The laboratory must submit the following data:

1. If surrogate recoveries and internal standard responses meet the acceptance criteria in the re-analyzed sample, then the laboratory must submit only the re-analysis.

2. If surrogate recoveries and/or internal standard responses fail to meet the acceptance criteria upon re-analysis, then submit data from both analyses.

3.5 Are there any transcription/calculation errors between raw data and Form II?	___	[X]	___

ACTION: If large errors exist, contact the WAM to request an explanation or resubmittal of corrected deliverables from the laboratory. Make necessary corrections and note errors in the Data Assessment.

4.0 Matrix Spikes (Form III)

4.1 Is the Matrix Spike/Matrix Spike Duplicate Recovery Form (Form III) present?	[X]	___	___
4.2 Were matrix spikes analyzed at the required frequency for each of the following matrices:			
a. Low Water?	[ ]	X FB	___
b. Low Soil?	[X]	___	___
c. Med Soil?	[ ]	___	X

ACTION: If any matrix spike data are missing, take the action specified in 3.2 above.

4.3 How many BNA spike recoveries are outside QC limits?

Water	Soils
____ out of 22	0, 2 out of 22

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YES NO N/A

4.4 How many RPDs for matrix spike and matrix spike duplicate recoveries are outside QC limits?

Water	Soils
_____ out of 11	0 0 out of 11

ACTION: No action is taken based upon MS/MSD data alone. However, using informed professional judgement, the data reviewer may use the matrix spike and matrix spike duplicate results in conjunction with other QC criteria and determine the need for some qualification of the data.

ACTION: Circle all outliers with red pencil.

5.0 Blanks (Form IV)

5.1 Is the Method Blank Summary (Form IV) present? [X] ___ ___

5.2 Frequency of Analysis: Has a reagent/method blank analysis been reported per 20 samples of similar matrix, or concentration level, and for each extraction batch? [X] ___ ___

5.3 Has a BNA method blank been analyzed for each GC/MS system used? (See SOW pg. D-54/SVOA, Section 12.1.2.) [X] ___ ___

ACTION: If any method blank data are missing, contact the WAM to obtain an explanation/resubmittal from the lab. If resubmittals are unavailable, use professional judgement to determine if the associated sample data should be qualified.

5.4 The validator should verify that the correct identification scheme for the EPA Blank samples were used. See page B-33, sec. 3.3.7.3 of the SOW for further information.

Was the correct identification scheme used for all BNA blanks? [X] ___ ___

ACTION: Contact the WAM to obtain resubmittals from the lab or make the required corrections on the forms. Document all corrections made by the validator in the Data Assessment under Contract Problems/Non-Compliance.

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	YES	NO	N/
5.5 Chromatography: review the blank raw data - chromatograms (RICs), quant. reports or data system printouts and spectra. Is the chromatographic performance (baseline stability) acceptable for each instrument?	[X]	___	___

ACTION: Use professional judgement to determine the effect on the data.

5.6 Are all detected hits for target compounds less than the CRQL for that analyte in all method blanks?	[X]	___	___

Exception: Phthalate esters must be less than five times (5x) the CRQL.

6.0 Contamination

NOTE: "Water blanks", "drill blanks" and "distilled water blanks" are validated like any other sample and are not used to qualify data. Do not confuse them with the other QC blanks discussed below.

6.1 Do any method/reagent blanks have positive results (TCL and/or TIC)?	X	[ ]	___

NOTE: Water: When applied as directed in the table below (page 29), the contaminant concentration in method/instrument/reagent blanks is multiplied by the sample dilution factor, where necessary.

Soil: If the lab has not already done so, the contaminant concentration in soil blanks is multiplied by 33 times the sample dilution factor and corrected for %moisture (fraction of solid) where necessary. 30 grams of sodium sulfate (1 gram for medium level soils) are used to prepare the soil reagent/method blank as instructed on page D-54/SVOA, section 12.1.3. Contact the WAM to obtain resubmittals if the soil blanks are not reported in soil units (µg/kg).

6.2 Do any field/rinse blanks have positive BNA results (TCL and/or TIC)?	X	[ ]	___

ACTION: Prepare a list of samples associated with each contaminated blank. (Attach a separate sheet.)

NOTE: All field blank results associated to a particular group of samples (may exceed one per case) must be

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YES NO N/A

used to qualify sample data. Do not convert field blank results to account for the difference in soil CRQLs. Blanks may not be qualified because of contamination in another blank. Field blanks must be qualified for surrogate, spectral, instrument performance or calibration QC problems.

ACTION: Follow the directions in the table below to qualify TCL results due to contamination. Use the largest value from all the associated blanks. If gross contamination exists, all data in the associated samples should be qualified as unusable "R".

For:	Flag sample result with a "U" when:	Report CRQL & qualify "U" when:	No qualification is needed when:
Common Phthalate-Esters	Sample conc. is > CRQL, but ≤ 10x blank value.	Sample conc. is < CRQL and ≤ 10x blank value.	Sample conc. is > CRQL and > 10x blank value.
Other Contaminants	Sample conc. is > CRQL, but ≤ 5x blank value.	Sample conc. is < CRQL and ≤ 5x blank value.	Sample conc. is > CRQL and > 5x blank value.

NOTE: Analytes qualified "U" for blank contamination are still treated as "hits" when qualifying for calibration criteria.

ACTION: For TIC compounds, if the concentration in the sample is less than five times the concentration in the most contaminated associated blank, flag the sample data "R" (unusable).

6.3 Are there field/rinse/equipment blanks associated with every sample? [ ] can not be determined

ACTION: For low level samples, note in the Data Assessment that there is no associated field/rinse/equipment blank. For analytes with high concentration, use professional judgement on qualification of these values and make a note in the Data Assessment.

Exception: samples taken from a drinking water tap do not have associated field blanks.

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	YES	NO	N/
7.0 GC/MS Instrument Performance Check			
7.1 Are the GC/MS Instrument Performance Check Forms (Form V) present for Decafluorotriphenylphosphine (DFTPP)?	X		
7.2 Are the enhanced bar graph spectrum and mass/charge (m/z) listing for the DFTPP provided for each twelve hour shift?	X		
7.3 Has an instrument performance check solution been analyzed for every twelve hours of sample analysis per instrument?	X		

ACTION: List date, time, instrument ID, and sample number for which no associated GC/MS tuning data are valid.

SAMPLE NUMBERS	DATE	TIME	INSTRUMENT ID

ACTION: If the WAM cannot obtain missing data from the lab, reject "R" all data generated outside an acceptable twelve hour calibration interval.

7.4 Have the ion abundances been normalized to m/z 198 (see SOW, page D-61/SVOA)?	X		

NOTE: All ion abundance ratios must be normalized to m/z 198, the nominal base peak, even though the ion abundance of m/z 442 may up to 110% that of m/z 198.

ACTION: If mass assignment is in error, flag all associated sample data as unusable "R".

7.5 Have the ion abundance criteria been met for each instrument used?	X		

ACTION: List all data which do not meet ion abundance criteria (attach a separate sheet).

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	YES	NO	N/A
ACTION: If ion abundance criteria are not met, the Region II TPO must be notified.			
7.6 Are there any transcription/calculation errors between mass lists and Form Vs? (Check at least two values, but if errors are found check more.)		X	
7.7 Is the number of significant figures for the reported relative abundances consistent with the number given for each ion in the ion abundance criteria column?	X		
ACTION: If large errors exist, take action as specified in section 3.5 above.			
7.8 Are the spectra of the mass calibration compound acceptable?	X		
ACTION: Use professional judgement to determine whether associated data should be accepted, qualified, or rejected.			

8.0 Target Compound List (TCL) Analytes (FORM I SV)

	YES	NO	N/A
8.1 Are the Organic Analysis Data Sheets (Form I SV) present with required header information on each page, for each of the following:			
a. Samples and/or fractions as appropriate?	X		
b. Matrix spikes and matrix spike duplicates?	X		
c. Blanks?	X		
8.2 Has GPC cleanup been performed on all soil/sediment sample extracts?	X		
ACTION: If data suggests that GPC was not performed, use professional judgement. Make note in Contract Problems/Non-Compliance section of the Data Assessment and the Organic Regional Data Assessment Summary.			
8.3 Are the BNA Reconstructed Ion Chromatograms, the mass spectra for the identified compounds, and the data system printouts (quant. reports) included in the sample package for each of the following:			
a. Samples and/or fractions as appropriate?	X		

	YES	NO	N/
b. Matrix spikes and matrix spike duplicates (mass spectra not required)?	X		
c. Blanks?	X		

ACTION: If any data are missing, take action specified in 3.2 above.

8.4 Are the response factors shown in the quant. report?	X		
8.5 Is chromatographic performance acceptable with respect to:			
Baseline stability?	X		
Resolution?	X		
Peak shape?	X		
Full-scale graph (attenuation)?	X		
Other: _____?	X		

ACTION: Use professional judgement to determine the acceptability of the data.

8.6 Are lab-generated standard mass spectra of identified BNA compounds present for each sample?	X		

ACTION: If any mass spectra are missing, take action specified in 3.2 above. Note under Contract Non-compliance if lab does not generate their own standard spectra. If spectra are missing, reject all positive data.

8.7 Is the RRT of each reported compound within 0.06 RRT units of the standard RRT in the continuing calibration?	X		
8.8 Are all ions present in the standard mass spectrum at a relative intensity greater than 10% also present in the sample mass spectrum?	X		
8.9 Do sample and standard relative ion intensities agree within ±20%?	X		

ACTION: Use professional judgement to determine acceptability of data. If it is determined that incorrect identifications were made, all

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	YES	NO	N/A

such data should be rejected "R", flagged "N" (presumptive evidence of the presence of the compound) or changed to not detected "U" at the calculated detection limit. In order to be positively identified, the data must comply with the criteria listed in 8.7, 8.8, and 8.9.

ACTION: When sample carry-over is a possibility, professional judgement should be used to determine if instrument cross-contamination has affected any positive compound identification.

9.0 Tentatively Identified Compounds (TIC)

9.1 Are all Tentatively Identified Compound Forms (Form I, Part B) present; and do listed TICs include scan number or retention time, estimated concentration and "JN" qualifier? [X] ___ ___

9.2 Are the mass spectra for the tentatively identified compounds and associated "best match" spectra included in the sample package for each of the following:

a. Samples and/or fractions as appropriate? [X] ___ ___

b. Blanks? [X] ___ ___

c. Alkanes listed for each sample? [X] ___ ___

ACTION: If any TIC data are missing, take action specified in 3.2 above.

ACTION: Add "N" qualifier to all chemically named TICs, if missing.

9.3 Are any TCL compounds (from any fraction) listed as TIC compounds? (Example: 1,2-dimethylbenzene is xylene - a VOA TCL - and should not be reported as a TIC.) ___ [X] ___

ACTION: Flag with "R" any TCL compound listed as a TIC.

9.4 Are all ions present in the reference mass spectrum with a relative intensity greater than 10% also present in the sample mass spectrum? [X] ___ ___

9.5 Do TIC and "best match" standard relative ion intensities agree within ±20%? [X] ___ ___

YES NO N/

ACTION: Use professional judgement to determine the acceptability of TIC identifications. If it is determined that an incorrect identification was made, change the identification to "unknown," or to some less specific identification (example: "C3 substituted benzene") as appropriate. Also, when a compound is not found in any blank, but is a suspected artifact of a common laboratory contaminant, the result should be qualified as unusable, "R".

9.6 Are any TICs with responses < 10% of the internal standard (as determined by inspection of the peak areas or height) reported? ___ [X] ___

ACTION: If yes, cross out questionable TIC(s).

10.0 Compound Quantitation and Reported Detection Limits

10.1 Are there any transcription/calculation errors in Form I results? (Check at least two positive values. Verify that the correct internal standard, quantitation ion, and RRF were used to calculate Form I result.) ___ [X] ___

10.2 Are the CRQLs adjusted to reflect sample dilutions and, for soils, sample moisture? [X] ___ ___

ACTION: If errors are large, take action as specified in section 3.5 above.

ACTION: When a sample is analyzed at more than one dilution, the lowest CRQLs are used (unless a QC exceedance dictates the use of the higher CRQL data from the diluted sample analysis). Replace concentrations that exceed the calibration range in the original analysis by crossing out the "E" and its associated value on the original Form I and substituting the data from the analysis of the diluted sample. Specify which Form I is to be used, then draw a red "X" across the entire page of all Form Is that should not be used, including any in the summary package.

11.0 Standards Data (GC/MS)

11.1 Are the Reconstructed Ion Chromatograms, and data system printouts (quant. reports) present for initial and continuing calibration? [X] II246 ___

YES NO N/A

ACTION: If any calibration standard data are missing, take action specified in 3.2 above.

12.0 GC/MS Initial Calibration (Form VI)

12.1 Are the Initial Calibration Forms (Form VI) present and complete for the BNA fraction? [X] ___ ___

ACTION: If any calibration standard forms are missing, take action specified in 3.2 above.

12.2 Are the % relative standard deviation (%RSD) values for BNAs ≤ 30% over the concentration range of the calibration? [X] ___ ___

ACTION: Circle all outliers with red pencil.

NOTE: Although 21 BNA compounds have a contractual minimum RRF and no maximum %RSD, the technical criteria are the same for all analytes.

NOTE: Eight BNA compounds do not require a 20ng standard. Refer to SOW section 7.2.4.5.1, page D-15/SVOA for a list of required compounds and contractual criteria.

ACTION: If the %RSD is > 30.0%, qualify positive results for that analyte "J" and non-detects using professional judgement. When %RSD is > 90%, flag all non-detect results for that analyte "R" (unusable) and all positive results "J" (estimated).

NOTE: Analytes previously qualified "U" due to blank contamination are still considered as "hits" when qualifying for calibration criteria.

12.3 Are any average RRFs < 0.05? ___ [X] ___

ACTION: Circle all outliers with red pencil.

ACTION: If the average RRF is < 0.05 then:

1. "R" all non-detects.

2. "J" all positive results.

12.4 Are there any transcription/calculation errors in the reporting of RRFs and/or %RSDs? (Check at least two values; if errors are found check more.) ___ [X] ___

YES NO N/

ACTION: Circle errors with red pencil.

ACTION: If errors are large, take action as specified in section 3.5 above.

NOTE: Contract Requirement: The SOW allows up to four of the required analytes to fail contractual %RSD or RRF criteria provided the %RSD is ≤ 40% or RRF is ≥ 0.010. (See Table 5, page D-66/SVOA and analytes marked with a "." on Form VI for a list of required analytes and contractual criteria.) Technical criteria, however, are the same for all analytes.

ACTION: If more than four analytes fail %RSD or RRF criteria, document in the Data Assessment under Contract Problems/Non-Compliance and on the Organic Regional Data Assessment Summary form.

13.0 GC/MS Continuing Calibration (Form VII)

13.1 Are the Continuing Calibration Forms (Form VII) present and complete for the BNA fraction? [X] ___ ___

13.2 Has a continuing calibration standard been analyzed for every twelve hours of sample analysis per instrument? [X] ___ ___

ACTION: List below all sample analyses that were not analyzed within twelve hours of a continuing calibration standard for each instrument used.

_____

_____

_____

ACTION: If any forms are missing, or no continuing calibration standard has been analyzed within twelve hours of every sample analysis, contact the WAM to obtain an explanation/resubmittal from the lab. If continuing calibration data are unavailable, flag all associated sample data as unusable "R".

13.3 Does any BNA compound have a percent difference (%D) between the initial and continuing calibration RRFs which exceeds the ±25.0% criteria? X [ ] ___ II248

YES NO N/A

ACTION: Circle all outliers with red pencil.

ACTION: Qualify both positive results and non-detects for the outlier compound(s) as estimated "J". When %D is > 90%, reject all non-detects for that analyte, "R", and qualify positive results "J" (estimated).

13.4 Are any continuing RRFs < 0.05? ___ [X] ___

ACTION: Circle all outliers with red pencil.

ACTION: If the RRF is < 0.05, qualify as unusable (R) associated non-detects and "J" associated positive values.

NOTE: Contract Requirement: The SOW allows up to four of the required analytes to fail contractual %D and RRF criteria, provided that the %D is ≤ 40% and the RRF is ≥ 0.010. (See Table 5 page D-66/SVOA or analytes marked with a "." on Form VI for a list of the required analytes.) Technical criteria, however, are the same for all analytes.

ACTION: If more than four analytes failed %D and RRF criteria, document in the Data Assessment under Contract Problems/Non-Compliance and on the Organic Regional Data Summary Form.

13.5 Are there any transcription/calculation errors in the reporting of average relative response factors (RRF) or %difference (%D) between initial and continuing RRFs? (Check at least two values, but if errors are found, check more.) ___ [X] ___

ACTION: Circle errors with red pencil.

ACTION: If errors are large, take action as specified in section 3.5 above.

14.0 Internal Standards (Form VIII)

14.1 Are the internal standard areas (Form VIII) of every sample and blank within the upper and lower limits (-50% to +100%) for each continuing calibration? [ ] [X] ___

If no, was sample re-analyzed? [X] ___ ___

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YES NO N/A

ACTION: 1. Circle all outliers with red pencil.

2. List all the outliers below.

ACTION: If sample was not reanalyzed, document in Data Assessment in Contract Problems/Non-Compliance.

Sample #	Internal Std.	Area	Lower/Upper Limit
			/
			/
			/
			/

See attachment

(Attach additional sheets if necessary.)
(or attach copies of Form VIIIs)

ACTION: 1. If the internal standard area count is outside the "upper" or "lower" limit, flag with "J" all positive results and non-detects quantitated with this internal standard.

2. Do not qualify non-detects associated with IS area > 100%.

3. If the IS area in the sample is < 50%, qualify all analytes associated with that IS estimated (J). If area counts are extremely low (< 25% of the area in the 12 hour standard), or if performance exhibits a major abrupt drop-off, flag all associated non-detects as unusable (R) and positive hits estimated (J).

14.2 Are the retention times of the internal standards within 30 seconds of the associated calibration standard? ☒ ___ ___

ACTION: Professional judgement should be used to qualify data if the retention times differ by more than 30 seconds.

NOTE: Contractual requirements state that if any internal standard fails the acceptance criteria, the sample must be re-analyzed. If the affected sample was not re-analyzed, document in the Data Assessment under Contract Problems/Non-Compliance.

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	YES	NO	N/A

NOTE: See Notes in section 3.4, page 24 for a description of sample data the laboratory must submit.

15.0 Field Duplicates

15.1 Were any field duplicates submitted for BNA analysis?

ACTION: Compare the reported results for field duplicates and calculate the relative percent difference. [ ] ___ ___

ACTION: Any gross variation between field duplicate results must be addressed in the reviewer narrative. However, if large differences exist, identification of field duplicates should be confirmed by contacting the sampler.

Can not be compared - cannot determine which samples are associated w/ dup sample

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

0033

Lab Name: STL/CT Contract: 68-D5-0014

Lab Code: IEACT Case No.: 26777 SAS No.: _____ SDG No.: BXH34

Lab File ID: (Standard): >PM2797 Date Analyzed: 02/24/99

Instrument ID: HP5971P Time Analyzed: 1012

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	593155	19.76	287961	25.24	198266	28.25
	UPPER LIMIT	1186310	20.26	575922	25.74	396532	28.75
	LOWER LIMIT	296578	19.26	143980	24.74	99133	27.75
	EPA SAMPLE NO.						
01	SBLKVP	452096	19.76	204004	25.23	120534	28.25
02	BXH52	390250	19.76	206380	25.23	124200	28.25
03	BXH35	J 293105 *	19.76	J 107169 *	25.24	J 79873 *	28.25
04	BXJ05	446677	19.76	154805	25.23	101026	28.25
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

FORM VIII SV-2 OLM03.2

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8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

0039

Lab Name: STL/CT Contract: 68-D5-0014

Lab Code: IEACT Case No.: 26777 SAS No.: _____ SDG No.: BXH34

Lab File ID: (Standard): >PM2863 Date Analyzed: 03/02/99

Instrument ID: HP5971P Time Analyzed: 1301

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #	
	12 HOUR STD	752125	19.38	318272	24.82	191191	27.70	
	UPPER LIMIT	1504250	19.88	636544	25.32	382382	28.20	
	LOWER LIMIT	376062	18.88	159136	24.32	95596	27.20	
	EPA SAMPLE NO.							
01	BXJ30RE	J 314234 *	19.37	J 108465 *	24.82	105891	27.71	<
02	BXJ29	J 298184 *	19.36	J 113534 *	24.82	118681	27.72	<
03	BXJ29RE	J 287728 *	19.36	J 110969 *	24.82	124662	27.71	<
04								
05								
06								
07								
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20								
21								
22								

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

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8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

0037

Lab Name: STL/CT Contract: 68-D5-0014

Lab Code: IEACT Case No.: 26777 SAS No.: _____ SDG No.: BXH34

Lab File ID: (Standard): >P2844 Date Analyzed:03/01/99

Instrument ID: HP5971P Time Analyzed:0945

		IS4(PHN) AREA #	RT #	IS5(CRY) AREA #	RT #	IS6(PRY) AREA #	RT #	
	12 HOUR STD	693568	19.56	217407	25.02	119346	27.95	
	UPPER LIMIT	1387136	20.06	434814	25.52	238692	28.45	
	LOWER LIMIT	346784	19.06	108704	24.52	59673	27.45	
	EPA SAMPLE NO.							
01	SBLKPP	655199	19.57	363910	25.02	176719	27.95	
02	BXH39	680355	19.55	312167	25.00	152554	27.94	
03	BYH96	576284	19.56	250058	25.00	123462	27.94	
04	BYH96MS	539699	19.55	246702	25.01	117843	27.93	
05	BYH96MSD	590157	19.56	240493	25.00	122044	27.93	
06	BXH31	494978	19.54	204768	25.00	103760	27.92	
07	BXH32	465479	19.54	184786	25.00	102620	27.92	
08	BXH35RE	360456	19.55	J 94894 *	25.01	77763	27.94	<
09	BXH34	396750	19.55	149104	25.00	77877	27.94	
10	BXJ30	J 256670 *	19.55	J 92501 *	25.01	80689	27.94	<
11	BXJ25	289331 *	19.55	96029 *	25.00	82826	27.94	<
12	BXJ25MS	266814 *	19.55	83585 *	25.01	70666	27.94	<
13	BXJ25MSD	280808 *	19.56	84927 *	25.01	71167	27.95	<
14								
15								
16								
17								
18								
19								
20								
21								
22								

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

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8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: STL/CT Contract: 68-D5-0014

Lab Code: IEACT Case No.: 26777 SAS No.: _____ SDG No.: BXJ32

Lab File ID: (Standard): >Q2390 Date Analyzed: 02/26/99

Instrument ID: HP5971Q Time Analyzed: 0857

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #	
	12 HOUR STD	759259	19.69	180813	25.11	77205	28.07	
	UPPER LIMIT	1518518	20.19	361626	25.61	154410	28.57	
	LOWER LIMIT	379630	19.19	90406	24.61	38602	27.57	
	EPA SAMPLE NO.							
01	SBLKPQ	643360	19.68	185046	25.11	76491	28.05	
02	SBLKAQ	545211	19.67	199723	25.10	87201	28.06	
03	BXJ36	329052 *	19.68	127927	25.11	82166	28.08	<
04	BXJ24	294121 *	19.67	111103	25.11	78439	28.07	<
05								
06								
07								
08								
09								
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19								
20								
21								
22								

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

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8C
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: STL/CT Contract: 68-D5-0014

Lab Code: IEACT Case No.: 26777 SAS No.: _____ SDG No.: BXJ32

Lab File ID: (Standard): >Q2415 Date Analyzed: 03/02/99

Instrument ID: HP5971Q Time Analyzed: 0922

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #	
	12 HOUR STD	845102	19.66	582121	25.10	515588	28.04	
	UPPER LIMIT	1690204	20.16	1164242	25.60	1031176	28.54	
	LOWER LIMIT	422551	19.16	291060	24.60	257794	27.54	
	EPA SAMPLE NO.							
01	BXJ32	876408	19.65	543074	25.09	364753	28.04	
02	BXJ35	864436	19.65	539712	25.09	331881	28.04	
03	BXJ28	727168	19.65	374927	25.09	296632	28.06	
04	BXJ21	720824	19.65	364114	25.10	284119	28.06	
05	BXJ26	543104	19.66	357421	25.14	316027	28.14	
06	BXJ40MS	634083	19.65	352932	25.11	301624	28.09	
07	BXJ40MSD	624887	19.65	344772	25.11	288156	28.08	
08	BXJ39	584898	19.67	401102	25.14	345760	28.14	
09	BXJ36RE	682634	19.65	294221	25.10	237663 *	28.05	<
10	BXJ24RE	653117	19.65	281904 *	25.09	203771 *	28.05	<
11	BXJ40	533511	19.65	316103	25.11	267532	28.10	
12								
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19								
20								
21								
22								

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

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YES NO N/A

PART C: PESTICIDE/PCB ANALYSIS

1.0 Sample Conditions/Problems

1.1 Do the Traffic Reports/Chain-of-Custody Records or SDG Narrative indicate any problems with sample receipt, condition of the samples, analytical problems or special circumstances affecting the quality of the data? X [ ] ___

ACTION: If any sample analyzed as a soil, other than TCLP, contains 50% - 90% water, all data should be qualified as estimated "J". If a soil sample, other than TCLP, contains more than 90% water, all data should be qualified as unusable "R".

ACTION: If samples were not iced, or if the ice was melted upon arrival at the laboratory, and the temperature of the cooler was elevated > 10° C, flag all positive results "J" and all non-detects "UJ".

ACTION: Check aqueous extraction log for sample pH, if adjustment was needed, it should have been noted in the SDG Narrative. If more information is needed, notify the WAM to contact the lab.

2.0 Holding Times

2.1 Have any PEST/PCB technical holding times, determined from date of collection to date of extraction, been exceeded? X [ ] ___

NOTE: Technical Holding Times: Water and soil samples for PEST/PCB analysis must be extracted within 7 days of the date of collection. Extracts must be analyzed within 40 days of the date extraction.

ACTION: If technical holding times are exceeded, flag all positive results as estimated "J" and sample quantitation limits "UJ" and document in the narrative that holding times were exceeded. If analyses were done more than 14 days beyond holding time, either on the first analysis or upon re-analysis, the reviewer must use professional judgement to determine the

	YES	NO	N/A
a. Low Water?	X		
b. Soil?	X		

ACTION: Contact the WAM to obtain an explanation or resubmittal of any missing deliverables from the laboratory. If missing deliverables are unavailable, document the effect in the Data Assessment.

3.3 Were outliers marked correctly with an asterisk?	X		

ACTION: Circle all outliers with red pencil.

3.4 Were surrogate recoveries of TCX or DCB outside of the contract specification for any sample, method blank or sulfur clean-up blank (30-150%)?	X		

ACTION: In the absence of matrix interference, qualification of the data is not required in the following three situations:

1. When surrogates on both columns are diluted out.

2. When one surrogate on one column was outside (either above or below) the contract limits but above 10%.

3. When the same surrogate on both columns is above the contract limit.

If the same surrogate on both columns is below the contract limit but above 10%, check chromatograms for interference. The reviewer may use professional judgement, and qualify only those analytes which elute in the region of the GC chromatogram where interference was observed.

If the same surrogate on both columns is below the contract limit but above 10% (with no interference), qualify non-detects and positive hits "J" (estimated).

If recoveries for both surrogates on both columns are below the contract limit but above 10%, flag positive results and non-detects for that sample "J".

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YES NO N/

If recoveries are above the contract limit for both surrogates on both columns, then qualify positive values "J".

If both surrogates on one column are below the contract limit but above 10%, then use the data from the other column, providing both surrogates on that column are within contract limits. The validator must check from which column the concentration is reported for each analyte. If the value is reported from the failed column, then cross it out and use the value from the other column. Document this change in the Data Assessment.

If recovery is below 10% for either surrogate on any column, qualify positive results "J" and flag non-detects "R".

3.5 Were surrogate retention times (RT) within the windows established during the initial 3-point analysis of Individual Standard Mixture A (see Form VI Pest-1)? [X] ___ ___

ACTION: If the RT limits are not met, positive results and non-detects for that sample may be qualified unusable, "R", based on professional judgement.

3.6 Are there any transcription/calculation errors between raw data and Form II? ___ [X] ___

ACTION: If large errors exist, contact the WAM to obtain an explanation or resubmittal of corrected deliverables from the laboratory. Make any necessary corrections and document the effect in the Data Assessment.

4.0 Matrix Spikes (Form III)

4.1 Is the Matrix Spike/Matrix Spike Duplicate Recovery Form (Form III) present? [X] ___ ___

4.2 Were matrix spikes analyzed at the required frequency for each of the following matrices (one MS/MSD must be performed for every 20 samples of similar matrix or concentration level):

a. Low Water?

YES NO N/

reliability of the data and the effects of additional storage on the sample results. At a minimum, all the data should at least be qualified "J", but the reviewer may determine that non-detects are unusable "R".

Table of Holding Time Violations
(See Chain-of-Custody Records)

Sample Analyzed	Sample Matrix	Date Sampled	Date Lab Received	Date Extracted	Date Analyzed
125	soil	0201	0203	0210	0226

NOTE: Contractual Holding Times: Extraction of water samples must be completed within 5 days VTSR. Soil/sediment samples must be extracted within 10 days of VTSR. This requirement does not apply to Performance Evaluation (PE) samples. Extracts of water and soil/sediment samples must be analyzed within 40 days following start of extraction.

ACTION: If contractual holding times are exceeded, document in the Data Assessment and Organic Regional Data Assessment Summary form.

NOTE: The data reviewer must note in the Data Assessment whether or not technical and contractual holding times were met.

3.0 Surrogate Recovery (Form II)

3.1 Are the PEST/PCB Surrogate Recovery Summaries (Form II) present for each of the following matrices:

a. Low Water? ✓ ___ ___

b. Soil? ✓ ___ ___

3.2 Are all the PEST/PCB samples listed on the appropriate Surrogate Recovery Summary for each of the following matrices:

	YES	NO	N/A
b. Soil?	N/A		

ACTION: If any matrix spike data are missing, take the action specified in 3.2 above.

ACTION: Circle all outliers with red pencil.

4.3 How many PEST/PCB spike recoveries are outside QC limits?

Water	Soil
1 out of 12	2, 1 out of 12

4.4 How many RPDs for matrix spike and matrix spike duplicate recoveries are outside QC limits?

Water	Soil
5 out of 6	0, 0 out of 6

ACTION: No action is taken on MS/MSD data alone. However, using informed professional judgement, the data reviewer may use the matrix spike and matrix spike duplicate results in conjunction with other QC criteria and determine the need for some qualification of the data.

5.0 Blanks (Form IV)

5.1 Is the Method Blank Summary (Form IV) present? N/A

5.2 Frequency of Analysis: Has a reagent/method blank been analyzed for each SDG, every 20 samples of similar matrix and concentration level or each extraction batch, whichever is more frequent? N/A

ACTION: If any blank data are missing, take action as specified above in section 3.2. If blank data is not available, reject "R" all associated positive data. However, using professional judgement, the data reviewer may substitute field blank data for missing method blank data.

5.3 A separate Form IV should be present if part of an extraction batch required sulfur removal. In such cases some samples will be listed on two blank summary forms - once under the method

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	YES	NO	N/.
blank, and once under the sulfur clean-up blank (PCBLK). Was this additional blank raw data and Form IV submitted when required?	[X]		
ACTION: If sulfur clean-up blank data and Form IV are missing, take action as specified in 3.2 above.			
5.4 Has a PEST/PCB instrument blank been analyzed at the beginning of every 12 hr. period following the initial calibration sequence (minimum contract requirement)?	[X]		
ACTION: If any blank data are missing, take action as specified in section 3.2 above.			
5.5 Was the correct identification scheme used for all Pest/PCB blanks? (See page 3-33, sec. 3.3.7.3 of the SOW for further information.)	[X]		
ACTION: Contact the WAM to obtain resubmittals or make the required corrections on the forms. Document in the Data Assessment under Contract Problems/Non-Compliance all corrections made by the validator.			
5.6 Chromatography: review the blank raw data - chromatograms, quant. reports and data system printouts. Is the chromatographic performance (baseline stability) for each instrument acceptable?	[X]		
ACTION: Use professional judgement to determine the effect on the data.			

6.0 Contamination

NOTE: "Water blanks", "distilled water blanks" and "drilling water blanks" are validated like any other sample and are not used to qualify the data. Do not confuse them with the other QC blanks discussed below.

	YES	NO	N/.
6.1 Do any method/reagent, instrument, or cleanup blanks show positive hits for pest/PCBs?	X	[ ]	
6.2 If any method blanks and/or sulfur clean-up blanks contain "hits" for target compounds, are these hits greater than the CRQL for that			

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	YES	NO	N/A
analyte?		✓	
6.3 In any instrument blanks, is the concentration of any target hit > 0.5 times CRQL for that analyte (see SOW, section 12.1.4.4.2, page D-77/PEST)?	✗		

NOTE: Most labs will report 0.5 times CRQLs on the instrument blank Form I instead of the actual method CRQLs. If the lab reported the actual CRQLs, then check if any detected hits are above 0.5 times the CRQLs reported on the Form I.

ACTION: If yes to any of the above questions: note in the Data Assessment under Contract Problems/Non-Compliance if any method or clean-up blanks contain hits > the CRQL, or of instrument blank contained hits > 0.5 times CRQL for that analyte.

6.4 Do any field/rinse blanks have positive pest/PCB results?		✓	

ACTION: Prepare a list of the samples associated with each contaminated blank. (Attach a separate sheet)

NOTE: All field blank results associated to a particular group of samples (may exceed one per case or one per day) may be used to qualify data. Do not convert <u>field blank</u> results to account for the difference in soil CRQLs. Blanks may not be qualified because of contamination in another blank. Field blanks must be qualified for surrogate, and/or calibration QC problems.

ACTION: Follow the directions in the table below to qualify TCL results due to contamination. Use the largest value from all the associated blanks.

NOTE: When applied as directed in the table below, the contaminant concentration in method/instrument/reagent/cleanup blanks is multiplied by the sample dilution factor, where necessary.

If the laboratory has not already done so, the contaminant concentration in <u>soil</u> blanks is multiplied by 33 times the sample dilution factor and corrected for %moisture (fraction of solid) where necessary. 30 grams of sodium sulfate are used to prepare each soil reagent/method blank as instructed on page D-72/PEST, section 12.1.2.3.1. Ask the WAM

IIIC

YES NO N/

to contact the laboratory if the soil blanks are not reported in soil units (µg/kg).

Flag sample result with a "U":	Report CRQL & qualify "U":	No qualification is needed:
Sample conc. > CRQL, but ≤ 5x blank.	Sample conc. < CRQL & is ≤ 5x blank value.	Sample conc. > CRQL & > 5x blank value.

NOTE: If gross blank contamination exists, all data in the associated samples should be qualified as "R", unusable.

6.5 Are there field/rinse/equipment blanks associated with every sample? [ ] ___

can not be determined lack of info

ACTION: For low level samples, note in the Data Assessment that there is no associated field/rinse/equipment blank. For analytes with high concentrations, use professional judgement to qualify these values and document in the Data Assessment.

Exception: samples taken from a drinking water tap do not have associated field blanks.

7.0 Calibration and GC Performance

7.1 Are the following Gas Chromatograms and Data Systems Printouts for both columns present for all samples, blanks and MS/MSD:

a. Peak resolution check? [ ] ___ ___

b. Performance evaluation mixtures? [ ] ___ ___

c. Aroclor 1016/1260? [ ] ___ ___

d. Aroclors 1221, 1232, 1242, 1248, 1254? [ ] ___ ___

e. Toxaphene? [ ] ___ ___

f. Low points individual mixtures A & B? [ ] ___ ___

g. Med points individual mixtures A & B? [ ] ___ ___

h. High points individual mixtures A & B? [ ] ___ ___

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	YES	NO	N/A
i. Instrument blanks?	X		
j. Were the appropriate GC columns used as specified on pg. D-11/PEST, sections 6.23.3.1 to 6.23.3.7, in the SOW?	X		
7.2 Do the chromatograms for all Individual Standard Mixtures and PEM analyses display single component analytes at > 10% but < 100% of full scale (see sections 9.3.5.8.1 thru 9.3.5.8.4, pages D-32 & 33/PEST)?	X		
Have chromatograms for Individual Standard Mixtures and PEM analyses been replotted, showing scaling factor(s), to meet the above requirements when necessary?		X	

NOTE: All standard chromatograms must clearly display all peaks at > 10% but < 100% of full scale, and replotted if necessary to accommodate peaks not properly scaled in the initial chromatogram(s). Both the initial and replotted chromatograms must be submitted with the data package.

ACTION: If all single component peaks are not clearly displayed on chromatograms for all Individual Standard Mixtures and PEM analyses, notify the WAM to obtain resubmittal of the necessary data.

	YES	NO	N/A
7.3 Are Forms VI PEST 1-7 present and complete for each column and each analytical sequence?	X		

ACTION: If no, take action as specified in 3.2 above.

	YES	NO	N/A
7.4 Are there any transcription/ calculation errors between raw data and Forms VI?		X	

ACTION: If large errors exist, take action as specified in section 3.6 above.

	YES	NO	N/A
7.5 Do all standard retention times, including each pesticide in each level of Individual Mixtures A & B, fall within the windows established during the Initial Calibration (see Form VI PEST-1)?	X		

ACTION: If no, all samples in the entire analytical sequence are potentially affected. Check to see if the chromatograms contain peaks within an expanded window surrounding the expected

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YES NO N/A

retention times. If no peaks are found and the surrogates are visible, non-detects are valid. If peaks are present and cannot be identified through pattern recognition or using a revised RT window, qualify all positive results "JN" and non-detects as unusable (R). For aroclors, the RT may be outside the window, but the aroclor may still be identified from its distinctive pattern.

7.6 Are the linearity criteria for the initial analyses of Individual Standards A & B within limits for both columns? (%RSD must be ≤ 25.0 for alpha and delta BHC, ≤ 30.0 for the two surrogates and ≤ 20% for all other analytes.) [ ] X

NOTE: Contractual requirements allow up to two single component TCL compounds, but not surrogates, on each column to exceed the criteria provided the %RSD is ≤ 30%. (See page D-28/Pest, sec. 9.2.5.7 in the SOW.) Technical criteria, however, are the same for all analytes.

ACTION: If technical criteria were not met, qualify all associated positive results generated during the entire analytical sequence "J" and all non-detects "UJ". When %RSD > 90%, flag all non-detect results for that analyte "R" (unusable).

ACTION: If more than two analytes failed %RSD, document in the Data Assessment Contract Problems/Non-Compliance section and Organic Regional Data Assessment Summary form.

7.7 Is the resolution between each pair of adjacent peaks in the Resolution Check Mixture ≥ 60.0% for both columns? (See Form VI PEST-4.) [ ] X

ACTION: If no, qualify positive results for compounds that were not adequately resolved "J". Use professional judgement to determine if non-detects which elute in areas affected by co-eluting peaks should be qualified "N" as presumptive evidence of presence or unusable (R).

7.8 Is Form VI PEST-5 present and complete for each Performance Evaluation Mixture (PEM) standard used for <u>both initial and continuing</u> calibrations (see SOW section 3.12.4.4, page B-52)? [ ] X

	YES	NO	N/A
ACTION: If no, take action as specified in section 3.2 above.			
7.9 For each PEM standard, was the resolution between each pair of adjacent peaks ≥ 90.0% on both columns?	r X		
ACTION: Qualify positive results for compounds not adequately resolved estimated (J). Qualify non-detects based on professional judgement.			
7.10 Have Forms VI PEST-6 & PEST-7 been completed for all midpoint Individual Standards A and B used for initial calibration?	r X		
For each standard, was the resolution between each pair of adjacent peaks ≥ 90.0% on both columns?	r X		
ACTION: If no, qualify positive results for compounds that were not adequately resolved estimated (J). Use professional judgement to determine if non-detects which elute in areas affected by co-eluting peaks should be qualified "N" as presumptive evidence of presence or unusable "R".			
7.11 Is Form VII Pest-1 present and complete for each PEM standard analyzed during the analytical sequence for both columns?	r X		
Was the %Breakdown of DDT and Endrin calculated using the equations given on page D-26/PEST, sec. 9.2.4.8 in the SOW?	r X		
Were all pesticides and surrogates in each PEM standard within the RT windows established during the Initial Calibration?	r X		
ACTION: If no, take action as specified in 3.2 above.			
7.12 Has the individual percent breakdown for DDT/Endrin exceeded 20.0% in any PEM on either column? (See Form VII PEST-1.)			
- for 4,4'-DDT?		r X	
- for Endrin?		r X	
Has the combined percent breakdown for DDT/Endrin			

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YES NO N/

exceeded 30.0% in any PEM on either column (required for all PEM analyses)? ___ ___

ACTION: 1. If any percent breakdown has failed the QC criteria in either PEM in steps 2 and 17 in the initial calibration sequence (page D-28/Pest, sec. 9.2.5.6 in the SOW), qualify all samples in the entire analytical sequence as described in sections 2.a, b and c below.

2. If any percent breakdown failed the QC criteria in a PEM calibration verification analysis, review data beginning with the samples which followed the last in-control standard until the next acceptable PEM and qualify the data as described below.

a. 4,4'-DDT Breakdown: If DDT breakdown was > 20.0%:

i. Qualify all positive results for DDT with "J". If DDT was not detected, but DDD and DDE are positive, then qualify the quantitation limit for DDT unusable, "R".

ii. Qualify positive results for DDD and/or DDE as presumptively present at an approximated quantity "JN".

b. Endrin Breakdown: If endrin breakdown was > 20.0%:

i. Qualify all positive results for endrin with "J". If endrin was not detected, but endrin aldehyde and endrin ketone are positive, then qualify the quantitation limit for Endrin as unusable "R".

ii. Qualify positive results for endrin ketone and endrin aldehyde as presumptively present at an approximated quantity "JN".

c. Combined Breakdown: If the combined 4,4'-DDT and endrin breakdown is greater than 30.0%:

i. Qualify all positive results for DDT and Endrin with "J". If endrin was not detected, but endrin aldehyde and endrin ketone are positive, then qualify the quantitation limit for endrin as unusable

YES NO N/A

"R". If DDT was not detected, but DDD and DDE are positive, then qualify the quantitation limit for DDT as unusable "R".

ii. Qualify positive results for endrin ketone and endrin aldehyde as presumptively present at an approximated quantity "JN". Qualify positive results for DDD and/or DDE as presumptively present at an approximated quantity "JN".

7.13 Are all percent difference (%D) values for PEM analytes and surrogates on both columns ≥ -25% and ≤ +25.0%? (See Form VII PEST-1.) ☒ ___ ___

ACTION: If no, qualify all associated positive results generated during the analytical sequence "J" and sample quantitation limits "UJ".

NOTE: If the failing PEM is part of the initial calibration, all samples are potentially affected. If the offending standard is a calibration verification, the associated samples are those which followed the last in-control standard until the next passing standard.

7.14 Is Form VII Pest-2 present and complete for each INDA and INDB calibration verification analyzed? ☒ ___ ___

ACTION: If no, take action specified in 3.2 above.

7.15 Are there any transcription/calculation errors between raw data and Form VII Pest-2? ___ ☒ ___

ACTION: If large errors exists, take action as specified in section 3.6 above.

7.16 Do all standard retention times for each INDA and INDB calibration verification fall within the RT windows established during the initial calibration sequence? (See Form VII PEST-2.) ☒ ___ ___

ACTION: If no, beginning with the samples which followed the <u>last in-control standard</u>, check to see if the chromatograms contain peaks within an expanded window surrounding the expected retention times. If no peaks are found and the surrogates are visible, non-detects are valid. If peaks are present and cannot be identified through pattern recognition or using a revised

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YES NO N/A

RT window, qualify all positive results and non-detects as unusable (R).

7.17 Are all %D values for INDA and INDB calibration verification compounds ≥ -25.0% and ≤ +25.0%? ✓ ___ ___

ACTION: If the %D is outside the ±25.0% range for any compound(s), qualify associated positive results for that compound "J" and non-detects "UJ". The "associated samples" are those which followed the last in-control standard up to the next passing standard containing the analyte(s) in question. If the %D is > 90%, flag all non-detects for that analyte "R" (unusable).

8.0 Analytical Sequence Check (Form VIII-PEST)

8.1 Is Form VIII present and complete for each column and each period of analyses? ✓ ___ ___

ACTION: If no, take action specified in 3.2 above.

8.2 Was the proper analytical sequence followed for each initial calibration and subsequent analyses, and all standards analyzed at the required frequency for each GC/EC instrument used.? (See SOW pages D-23 & D-58/PEST.) ✓ ___ ___

ACTION: If no, use professional judgement to determine the severity of the effect on the data and qualify accordingly. Generally, the effect is negligible unless the sequence was grossly altered and/or the calibration was out of QC limits.

8.3 Were all samples analyzed within a 12 hour time period beginning with the injection of an instrument blank and bracketed by acceptable analyses of the proper standards? ✓ ✗ ___

ACTION: If no, use professional judgement to determine the severity of the effect on the data and qualify accordingly. Document in the Data Assessment under Contract Problems/Non-Compliance and Organic Regional Data Assessment Summary.

8.4 If a multi-component analyte was detected in a sample, was a matching multi-component standard analyzed within 72 hours of the injection of the

II269

	YES	NO	N/A
sample and within a valid 12 hour sequence?		X	

NOTE: This additional standard is for identification purposes only. Positive results for Aroclors and Toxaphene are quantitated from the initial calibration.

ACTION: If no, document in the Data Assessment under Contract Problems/Non-Compliance and on the Organic Regional Data Assessment Summary form.

9.0 Cleanup Efficiency Verification (Form IX)

	YES	NO	N/A
9.1 Is Form IX PEST-1 present and complete for each lot of Florisil Cartridges used? (Florisil Cleanup is required for all Pest/PCB extracts.)	X		
Are all samples listed on the Pesticide Florisil Cartridge Check Form?	X		

ACTION: If no, take action specified in 3.2 above. If data suggests florisil clean-up was not performed, document in the Data Assessment under the Contract Non-compliance section.

	YES	NO	N/A
9.2 Are percent recoveries (%REC) of the pesticide and surrogate compounds used to check the efficiency of the florisil clean-up procedure within QC limits of 80 - 120%?	X		

ACTION: Qualify only the analyte(s) which failed the recovery criteria as follows:

If %REC is < 80%, qualify positive results "J" and non-detects "UJ".

If any pesticide %REC was zero, flag non-detects "R" for that compound.

Use professional judgement to qualify positive results if any recoveries are > 120%.

NOTE: Sample data should be evaluated for potential interferences if recovery of 2,4,5-trichlorophenol was > 5% in the Florisil Cartridge Performance Check analysis. Document any problems found in the Data Assessment under the Contract Problems/Non-Compliance section.

II 270

	YES	NO	N/A
9.3 If GPC Cleanup was performed (mandatory for all soil sample extracts), is Form IX Pest-2 present?	✓		
Are all soil samples listed on Form IX Pest-2?	✓		

ACTION: If no, take action specified in 3.2 above. If data suggests GPC clean-up was not performed when required, document in the Data Assessment under the Contract Problems/Non-Compliance section and Organic Regional Data Assessment Summary.

Are the %REC values for all pesticides in the GPC calibration solution between 80 - 110%?	✓		

ACTION: Qualify only those analytes which failed the recovery criteria as follows:

If %REC are < 80%, qualify positive results "J" and non-detects "UJ".

If any pesticide %REC was zero, flag non-detects "R" for that compound.

Use professional judgement to qualify positive results if any recoveries are > 110%.

NOTE: An Aroclor mixture containing Aroclors 1016 and 1260 is also analyzed during GPC calibration; however, Aroclor data is not listed on Form IX PEST-2. The raw GPC data for Aroclors 1016/1260 must be evaluated for pattern similarity with previously analyzed Aroclor standards.

9.4 The validator should verify that the correct identification scheme for the EPA Blank samples were used. See page B-35, sec. 3.3.7.8 and 3.3.7.9 of the SOW for further information.

Was the correct identification scheme used for GPC and Florisil blanks?	✓		

10.0 Pesticide/PCB Identification

10.1 Is Form X complete for every sample in which a pesticide or PCB was detected?	✓		

ACTION: If no, take action specified in 3.2 above.

II271

	YES	NO	N/A
10.2 Are all sample chromatograms properly scaled, attenuated, etc. as required for proper identification of single and multi-component analytes? (Refer to SOW sections 11.3.7.1 thru 11.3.7.8, page D-70/Pest for specific details.)	[ ]	X	

NOTE: Proper verification of Pest/PCB results depends on clear, legible presentation of the raw data. Single component pesticides and all peaks chosen for quantitation of multi-component analytes must appear at less than full scale. Toxaphene and PCB patterns must be clearly visible to enable comparison with standard chromatograms.

ACTION: If retention times or apex of peaks cannot be verified, or if multi-component peak patterns cannot be discerned, contact the WAM to obtain rescaled chromatograms from the lab.

10.3 Are there any transcription/calculation errors between raw data and Forms 10A and 10B?		X	

ACTION: If large errors exist, take action as specified in section 3.6 above.

10.4 Are RTs of sample compounds within the established RT windows for analyses on both columns?	X		
Was GC/MS confirmation provided when required (when compound concentration is > 10 ug/mℓ in the final extract)?	[ ]		X

ACTION: Use professional judgement to qualify positive results which were not confirmed by GC/MS analysis. Qualify as unusable (R) all positive results which were not confirmed on a second GC column. Also qualify as unusable (R) all positive results which do not meet RT window criteria, unless associated standard compounds are similarly biased. Use professional judgement to assign an appropriate quantitation limit.

10.5 Is the percent difference (%D) calculated for the positive sample results on both columns > 25.0%?	X	[ ]	

ACTION: If the reviewer finds neither column shows interference for the positive hits, the data should be flagged as follows:

YES NO N/A

% Difference	Qualifier
0 - 25%	None
25 - 70%	"J"
70 - 100%	"JN"
> 100%	"R"
100 - 200% (Interference detected)*	"JN"
> 50% (Pesticide value is < CRQL)**	"U"

* When the reported %D is 100 - 200%, but interference is detected on either column, qualify the data with "J".

** When the reported pesticide value is lower than the CRQL, and the %D is > 50%, raise the value to the CRQL and qualify "U", undetected.

NOTE: For Aroclors, if the %D is > 50%, but the pattern of GC peaks on both columns indicates a specific Aroclor is present, qualify that Aroclor "J".

NOTE: The lower of the two values is reported on Form I. If using professional judgement, the reviewer determines that the higher result was more acceptable, the reviewer should replace the value and indicate the reason for the change in the Data Assessment.

10.6 Check chromatograms for false negatives, especially the multiple-peak compounds (Toxaphene and the PCBs). Were there any false negatives? X [ ] ___

ACTION: Use professional judgement to decide if the compound should be reported. If the appropriate PCB standards were not analyzed within 72 hrs. of the sample(s) in question, qualify the data unusable "R".

Also note in Data Assessment under Contract Problems/Non-Compliance if the lab failed to analyze Aroclor standards when required.

11.0 Target Compound List (TCL) Analytes

11.1 Are the Organic Analysis Data Sheets (Form I Pest) present with required header information on each page, for each of the following:

a. Samples and/or fractions as appropriate? [X] ___ ___

b. Matrix spikes and matrix spike duplicates? [X] ___ ___

	YES	NO	N/A
c. Blanks?	[X]		
d. Instrument Blanks (per column & analysis)?	[X]		
11.2 Are the Pest chromatograms and quant. reports included in the sample data package for each of the following:			
a. Samples and/or fractions as appropriate?	[X]		
b. Matrix spikes and matrix spike duplicates?	[X]		
c. Blanks?	[X]		
d. Instrument Blanks (per column & analysis)?	[X]		

ACTION: If any data are missing, take action specified in 3.2 above.

11.3 Are the calibration factors shown in the quant. reports?	[X]		
11.4 Is chromatographic performance acceptable with respect to:			
a. Baseline stability?	[X]		
b. Resolution?	[X]		
c. Peak shape?	[X]		
d. Full-scale graph attenuation?	[X]		
e. Other: _____?	[X]		
11.5 Were any electropositive displacement (negative peaks) or unusual peaks seen?		[X]	

ACTION: Use professional judgement to determine the acceptability of the data. Address comments under System Performance section of the Data Assessment.

12.0 Compound Quantitation and Reported Detection Limits

12.1 Are there any transcription/calculation errors in Form I results? Check at least two positive results. Were any errors found?		[X]	

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YES NO N/A

NOTE: Single-peak pesticide results can be checked for rough agreement between quantitative results obtained on the two GC columns. Use professional judgement to decide whether a large discrepancy indicates the presence of an interfering compound. If an interfering compound is visible on the chromatogram, the lower of the two values should be reported and qualified as presumptively present at an approximated quantity "JN". This necessitates a determination of an estimated concentration on the confirmation column. The narrative should indicate that the presence of interferences has interfered with the evaluation of the second column confirmation.

12.2 Are the CRQLs adjusted to reflect sample dilutions? ✓ ___ ___

ACTION: If large errors exist, take action as specified in section 3.6 above.

ACTION: When a sample is analyzed at more than one dilution, the lowest CRQLs are used (unless a QC exceedance dictates the use of the higher CRQLs from the diluted sample). Replace concentrations which exceed the calibration range in the original analysis by crossing out the "E" value on the original Form I and substituting it with the result from the diluted sample. Specify which Form I is to be used, then draw a red "X" across the entire page of all Form I's that should not be used, including those in the data summary package.

ACTION: Quantitation limits affected by large, off-scale peaks should be qualified as unusable (R). If the interference is on-scale, the reviewer may offer an approximated quantitation limit (UJ) for each affected compound.

NOTE: If a sample required greater than a 10 times dilution, then a 10 times more concentrated analysis must also be performed and submitted (see SOW, page D-60/PEST, section 10.2.3.5).

ACTION: If a more concentrated analysis is unavailable, document in the Contract Problems/Non-Compliance section of the Data Assessment. Use professional judgement to qualify non-detects and positive hits below the CRQL.

II275

	YES	NO	N/A
13.0 Field Duplicates			
13.1 Were any field duplicates submitted?	~~✓~~	___	___

ACTION: Compare the reported results for field duplicates and calculate the relative percent difference.

ACTION: Any gross variation between field duplicate results must be addressed in the reviewer narrative. However, if large differences exist, identification of field duplicates should be confirmed by contacting the sampler.

can not be determine due to lack of infor.

RECEIVED

MAR 1 2 1999

1A

Committed To *Your* Success

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200 Monroe Turnpike
Monroe CT 06468

Tel: (203) 261-4458
Fax: (203) 268-5346

7099-0124B
USEPA
SDG NARRATIVE

Case #26777
SDG #BXJ32
Lab Name: STL-CT
Lab Code IEACT
Contract #68-D5-0014

Sample Receipt - The samples were received at STL/CT on February 3 & 4, 1999. The samples were received under UPS Airbill# N2239191718, N2239191665, N2239191656, N2239191683, N2239191647 and N2239191576. The samples are delineated in the attached Sample Summary Table.

Pesticides and Polychlorinated Biphenyls (PCB's) - Pesticide/PCB samples were extracted and analyzed by GC/ECD using USEPA CLP Protocols, USEPA OLM03.2 SOW. The instrumentation used was a Hewlett-Packard Gas Chromatograph equipped with an Electron Capture Detector (Ni^{63}).

The columns used were a Restek 30 meter, 0.53 mm id capillary column RTX-35 with a 1.0um film thickness and a D&B 30 meter, 0.53mm id capillar column DB-1701 with a 1.0um film thickness.

All samples were extracted and concentrated without any apparent problems.

beta-BHC was present below the CRQL but above half the CRQL in PIBLK8N. This instrument blank was part of the initial calibration curve on the DB-1701 column. This was not detected until data packaging because beta-BHC was on the edge of the window and did not get picked up by the data reporting system. Samples analyzed on this curve were PBLK17, BXJ39, BXJ35, BXJ36, BXJ40MS, BXJ40MSD, BXJ24, BXJ21, BXJ26, BXJ40, BXJ28, BXJ32, and BXJ32DL.

Although sample BXJ32 did not have any compounds present above the curve, the detector was saturated on the RTX-35 column so that the presence of some compounds could not be determined. Therefore, sample BXJ32 was analyzed at a 1:5 dilution in order to see these compounds.

The surrogate, Decachlorobiphenyl was lost in sample matrix in sample BXJ32 on the RTX-35 column.

Surrogate percent recovery for Decachlorobiphenyl was below QC limits in BXH39. This sample was run twice with similar results.

Surrogate percent recovery for Decachlorobiphenyl was above QC limits in BXJ35, BXJ36, BXJ24, BXJ26, BXJ40, and BXJ28 due to sample matrix.

The surrogate was diluted out of sample BXJ32DL.

Spike percent recovery for gamma-BHC was below QC limits in BXJ40MS and BXJ40MSD.

One peak of Aroclor-1254 was outside of retention time windows in samples BXJ40MS and BXJ40MSD on the DB-1701 column due to sample matrix. In the analyst's opinion, this compound was present.

An Aroclor-1232 standard was not analyzed within 72 hours of sample BXJ32 on the RTX-35 column. This standard is analyzed for pattern recognition only. However an Aroclor-1232 standard was analyzed within 72 hours of BXJ32DL on the RTX-35 and both BXJ32 and BXJ32DL on the DB-1701 column.

Manual integrations were performed if required, and any affected peaks were designated with an "FF" on the area report in the column titled "Code". Manual integrations were initialed by the analyst that performed the integration.

Semi-Volatile Organics - Semi-volatile organic samples were extracted and analyzed according to USEPA CLP OLM03.2 by capillary GC/MS. The instrumentation used was a Hewlett-Packard gas chromatograph interfaced with a mass selective detector using an RTX-5 30 meter column with 0.25 mm ID and 0.5 um film thickness.

Samples BXJ36 and BXJ24 exhibited internal standard area suppression. The samples were re-analyzed with similar results, confirming matrix interference. Both analyses are reported. The re-analyses are indicated by the suffix "RE".

The TIC windows used for this SDG were calculated using the continuing calibration check standards retention times and are as follows:

Q2390	8.56-34.87
Q2415	8.52-34.85

Due to the implementation of an electronic pressure controlled method a secondary ion (63) was used for the quantitation of Bis(2-chloroethyl)ether. A non-target compound, aniline (quant ion 93), was determined to coelute with Bis(2-chloroethyl)ether with this new method. Quantitation using the secondary ion ensures correct integration and quantitation of both compounds.

The data included in the semi-volatile portion of this report is original except one calibration

curve, one continuing calibration, the GPC carryover blank packet, and the injection and logbook copies which have the source of the original printed on the page.

The required EICP are provided for all manual integrations, the manual integrations included in the semi-volatile SDG are as follows:

QM2368	2,2'-oxybis(1-Chloropropane)
QM2369	2,2'-oxybis(1-Chloropropane)
QM2370	2,2'-oxybis(1-Chloropropane)
Q2390	2,2'-oxybis(1-Chloropropane)
Q2410	2,2'-oxybis(1-Chloropropane), Benzoic Acid
Q2411	Benzoic Acid
Q2412	Benzoic Acid
Q2413	Benzoic Acid
Q2415	Benzoic Acid

I certify that this data package is in compliance with the terms of this contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Jeffrey C. Curran

March 10, 1999

Jeffrey C. Curran
Laboratory Manager

Date

In Reference to Case No(s): 26777

Contract Laboratory Program
REGIONAL/LABORATORY COMMUNICATION SYSTEM
Telephone Record Log

Date of Call: 2/5/99

Laboratory Name: IEACT
Lab Contact: Paul Hobart

Region: II
Regional Contact: Nicole Coene

Call Initiated By: X Laboratory ____ Region

In reference to data for the following sample number(s):
BXJ31, BXH90, BXJ26, BXJ24, BXJ28, BJX35, BJX36, BXJ40, BXJ39

Summary of Questions/Issues Discussed:
1) Sample BXJ31 is labeled BXH31 on the sample bottle
2) Sample BXH90 appears on 2 COCs. The collection times differ (2/1/99 1545 + 2/1/99 1610)
3) Sediment samples BXJ26, BXJ24, BXJ40 and BXJ39 are listed on the COC as surface water.
4) Sample BXJ28 is labeled BXJ38 on the sample tag
5) Samples BJX35 + BJX36 are labeled BXJ35 + BXJ36 on the sample bottles.

Summary of Resolution:
1) The correct ID is BXH31
2) Sample BXH90 was collected on 2/1/99 at 1610
3) The sediment samples should be analyzed as solid matrix samples
4) The correct ID is BXJ28
5) The correct IDs are BXJ35 and BXJ36

Paul Hobart
Signature

2/5/99
Date

Distribution: (1) Lab Copy, (2) Region Copy, (3) SMO Copy

In Reference to Case No(s):
26777

Contract Laboratory Program
REGIONAL/LABORATORY COMMUNICATION SYSTEM
Telephone Record Log

Date of Call: 2/4/99

Laboratory Name: IEACT
Lab Contact: Paul Hobart
Region: II
Regional Contact: Nicole Coene

Call Initiated By: ✓ Laboratory ___ Region

In reference to data for the following sample number(s):
BXJ24, BXJ25, BXJ28, BXJ21

Summary of Questions/Issues Discussed:
1) BXJ24 - the sample was received in a cracked jar. The laboratory rejected the sample
2) Samples BXJ25 and BXJ28 were not listed on the chain of custody record
3) Sample BXJ24 has a Regional Specific Tracking # of BXJ31
4) A water and sediment sample were received with an ID of BXJ21
5) To date, an MSD/MS sample has not been selected for soils.

Summary of Resolution:
1) Proceed with the analysis of BXJ24 - Note issue in case narrative.
2) Proceed with the analysis of BXJ25 and BXJ28. Note issue in case narrative
3) The correct sample ID is BXJ24
4) The water sample should be labeled BYH96
5) Analyze BXJ25 for the MS/MSD

Paul Hobart
Signature

2/5/99
Date

Distribution: (1) Lab Copy, (2) Region Copy, (3) SMO Copy

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RECORD OF COMMUNICATION

REGIONAL SAMPLE CONTROL CENTER

DATE: MARCH 25, 1999
SUBJECT: CLP Data Package for Quality Assurance Review
FROM: RSCC / ESAT
TO: Hanif Sheikh, Hazardous Waste Support Section

RECEIVED
MAY 04 1999

Attached is the following INORGANIC Data Package to be reviewed for Quality Assurance

SITE HAMERSLEY MANUFACTURING CO. LF
CASE# 26777
CONTRACTOR NJDEP
PHASE SI
LAB CHEM
TURN-AROUND-TIME 35 DAYS

#SAMPLES	MATRIX
13	SOIL
5	WATER

FRACTION TAL & CN

REGION II RSCC DATA TRANSFER LOG

Relinquished By		Received By	
Signature	Date/Time	Signature	Date/Time
		John Balicki	3-11-99
John Balicki	3-25-99	C M Alm	4/18/99
C M Alm	4/21/99	J. Trotter	4/21/99
J. Trotter	5/3/99	Hanif Sheikh	5/3/99
Hanif Sheikh	5/4/99	DCR J.T	5/4/99

(over for instructions) revised 10/97

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Title: Evaluation of Metals Data for the Contract Laboratory Program
Appendix A.2: Data Assessment Narrative

Date: Jan. 1992
Number: HW-2
Revision: 11

Case #	26777	Site:	Hamersley Manufacturing Co LF	Soil:	13
SDG #	MBQF96	Lab:	Chemtech Consulting Group	Water:	05
Contractor:	NJDEP/SI	Reviewer:	C. M. Alaimo/ESAT	Other:	0

A.2.1. Validation flags- The following flags have been applied in red by the data validator and must be considered by the data user.

J - This flag indicates the result qualified as estimated.

Red-Line - A red-line drawn through a sample result indicates unusable value. The red-lined data are known to contain significant errors based on documented information and must not be used by the data user.

Fully Usable Data- The results that do not carry "J" or "red-line" are fully usable.

Contractual Qualifiers- The legend of contractual qualifiers applied by the lab on Form I's is found on page B-20 of SOW ILM01.0

A.2.2. The data assessment is given below and on the attached sheets.

This package consists of thirteen (13) soil and five (05) aqueous samples collected from the Hamersley Manuf Co LF site between 01/21/99 and 02/03/99 for TAL metals and CN analysis. QC was performed on samples MBQF70 and MBQF93. All holding times were met.

CRDL

For Hg, the CRA % recovery fell between 121-150% requiring estimation of positive results within the effected range. For Sb, Ni & Pb, the CRI_4 % recovery fell between 121-150% requiring estimation of positive results within the effected range.

J—>Hg in MBQF94 & MBQF95
J—>Pb in MBQF70—>74

MATRIX SPIKE RECOVERY

For Se, the soil matrix spike recovery fell between 126-200% requiring estimaiton of all positive associated data.

J—>Se in MBQG01 & MBQG02

ICP SERIAL DILUTION

WATER

For Cu, the %D was >10% but less than 100% when the initial sample value was ≥ 10xIDL therefore the associated data ≥ CRDL (or 10xIDL when 10xIDL ≥ CRDL) were estimated.

J—>Cu in MBQF70—>73

SOIL

For As, the %D was >10% but less than 100% when the initial sample value was ≥ 10xIDL therefore the associated data ≥ CRDL (or 10xIDL when 10xIDL ≥ CRDL) were estimated.

J—>As in MBQF93, MBQG02 & MBQG06.

A.2.3. Contract-Problems/Non-Compliance
NONE

MMB Reviewer:_____ Date:_____
Signature

Contractor Reviewer: C M Daine Date: 4/20/99
Signature

Verified by:_____ Date:_____
Signature

Title: Evaluation of Metals Data for the Contract Laboratory Program
Appendix A.3: Contract Non-Compliance (SMO Report)

Date: Jan. 1992
Number: HW-2
Revision: 11

CONTRACT NON-COMPLIANCE
(SMO REPORT)

Regional Review of Uncontrolled Hazardous Waste
Site Contract Laboratory Data Package

CASE NO. 26777

The hardcopied (laboratory name)_____
Inorganic data package received at Region II has been reviewed and the quality assurance and performance data summarized. The data reviewed included:
SMO Sample No.:_____

Conc. & Matrix:_____

Contract No. (_____) requires that specific analytical work be done and that associated reports be provided by the contractor to the Regions, EMSL-LV, and SMO. The general criteria used to determine the performance were based on an examination of:

- Data Completeness
- Matrix Spike Results
- Calibration Standards Results
- Duplicate Analysis Results
- Blank Analysis Results
- MSA Results

Items of non-compliance with the above contract are described below.

Comments:_____

CMA
Reviewer's Initial

4/20/99
Date

DPO MAILING LIST FOR DATA REVIEWERS

1. USEPA Region I (ESD)
60 Westview Street
Lexington, MA 02173
Deb Szaro
(617) 861-4312
CT, ME, MA, NH, RI, VT
CAA, Resource Analysts, York,
E3I, Skinner, TMA

2. USEPA Region II ESD
Woodbridge Avenue
Edison, NJ 08837
Lisa Gatton Vidulich
(201) 321-6676
NJ, NY, PR, VI
Century, Chemtech, US Test, Nanco
ETC, Gadson, EMS, Gaison, ICM

3. USEPA Region III (CRL)
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DE, MD, PA, VA, WV, DC
Centec, Hitman, JTC, MACK, VERSAR,
ITAS, Weston, MMES, EA Engineering,
Subject Tech., KEYPA

4. USEPA Region IV (ESD)
Analytical Support Branch
College Station Road
Athens, GA 30613
Tom Bennett, Jr.
(404) 546-3112
AL, FL, GA, KY, MS, NC, SC, TN
CompuChem, EPS, ESE, PBS&J,
Triangle Labs

5. USEPA Region V (ESD)
536 South Clark Street
Tenth Floor, CRL
Chicago, IL 60605
Pat Churilla
(312) 353-9087
IL, IN, MI, MN, OH, WI
NLE, TAI/ENG

6. USEPA Region VI (ESD)
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Houston, TX 77074
David Stockton
(713) 953-3425
AR, LA, NM, TX, OK
ANACON, RADIAN, SPECS, EIS, Glochem
Research, Inc., SPL Inc., SWRI,
Allied, KEYTX, EIRA

7. USEPA Region VII Laboratory
25 Funston Road
Kansas City, KS 66115
Debra Morey
(913) 236-3881
IO, KS, NB, MO
Wilson, Kansas City Scientific
Enterprises, Eagle Picher

8. USEPA Region VIII Laboratory
Box 25366
Denver Federal Center
Lakewood, CO 80225
Eva Hoffman
(303) 236-7371
CO, ND, SD, UT, WY, MT
ACCU, CSMRI, RMAL, Data Chem., Centef

9. USEPA Region XI (ESD)
QA Management Section
215 Fremont Street
San Francisco, CA 94105
Kent Kitchingman
(415) 974-0924
AZ, CA, HI, NV, American Samoa,
Guam Trust Territories of Pacific
Islands, Wake Island
ALI, CAL Weston, S-Cubed, IT_CA,
Vegas

10. USEPA Region X Laboratory
P.O. Box 549
Manchester, WA 98353
Gerald Muth
(206) 442-0370
AK, ID, OR, WA
Laucks Testing Labs, Century Testing
Labs (For VOA Only), Weyerhauser Co.,
Columbia Testing, Silver Valley

11. Carla Dempsey - (OS-230)
USEPA
401 "M" Street S.W.
Washington, DC 20460
FTS 382-5746

12. Edward Kantor
USEPA
EMSL-LV
944 E. Harmon Avenue
Box 93478
Las Vegas, NV 89119

13. Sample Management Office
Viar and Company
P.O. Box 818
Alexandria, VA 22313

STANDARD OPERATING PROCEDURE

Title: Evaluation of Metals Data for the Contract Laboratory Program
Appendix A.6: CLP Data Assessment Checklist

Inorganic Analysis

Date: Jan. 1992
Number: HW-2
Revision: 11

INORGANIC REGIONAL DATA ASSESSMENT

Region II

CASE NO. 26777

SITE Hamersley Manuf Co LF

NO. OF SAMPLES/ MATRIX 13s / 5 w

LABORATORY Chemtech

SDG# MDQF96

REVIEWER (IF NOT ESD)

SOW# ILM04.0

REVIEWER'S NAME CMAlaimo

DPO: ACTION FYI

COMPLETION DATE

DATA ASSESSMENT SUMMARY

		ICP	AA	Hg	CYANIDE
1.	HOLDING TIMES	O	N/A	O	O
2.	CALIBRATIONS	↓	↓	↓	↓
3.	BLANKS	↓	↓	↓	↓
4.	ICS	↓			
5.	LCS	↓			
6.	DUPLICATE ANALYSIS	↓	↓	↓	↓
7.	MATRIX SPIKE	↓	↓	↓	↓
8.	MSA		↓		
9.	SERIAL DILUTION	↓			
10.	SAMPLE VERIFICATION	↓	↓	↓	↓
11.	OTHER QC	↓	↓	↓	↓
12.	OVERALL ASSESSMENT	↓	↓	↓	↓

O = Data has no problems/or qualified due to minor problems.
M = Data qualified due to major problems.
Z = Data unacceptable.
X = Problems, but do not affect data.

ACTION ITEMS:

AREAS OF CONCERN:

NOTABLE PERFORMANCE:

Title: Evaluation of Metals Data for the Contract Laboratory Program
Appendix A.6: CLP Data Assessment Summary Form (Inorganics)

Date: Feb. 1990
Number: HW-2
Revision: 10

CLP DATA ASSESSMENT SUMMARY FORM (INORGANICS)

Type of Review: TAL+CN Date: 4/20/89 Case #: 26777

Site: Hamersley Manf C&LF Lab Name: Chentech

Reviewer's Initials: CMA Number of Samples: 133/5 W

Analytes Rejected Due to Exceeding Review Criteria:*

	Holding Times	Calibration	Prep Blank	Field Blank	Inter-ferences	Spike Recovery	Duplicates Lab	Duplicates Field	Detection Limits	LCS	Serial Dilution	MSA	Total Analytes	Rejection
ICP													396	0
Flame AA														
Furnace AA														
Mercury													18	0
Total													432	0
Other CN													18	0

Analytes Flagged as Estimated (J) Due to Exceeding Criteria For:*

		CRI												
ICP		5				2					7		396	14
Flame AA														
Furnace AA														
Mercury		2											18	2
Total		7				2					7		432	16
Other CN													18	0

Note:
Asterisk (*) Indicates additional exceedances of review criteria.

State of New Jersey
Department of Environmental Protection
Site Remediation Program
Publicly Funded Site Remediation
BEMQA\EMSA

Robert C. Shinn, Jr.
Commissioner

Anthony J. Farro
Director

To: Jennifer Feranda, TPO/RSCC Coordinator
USEPA Region II

From: Frank Sorce, Sampling Manager
NJDEP

Subject: Hamersley Landfill
Case #: 26777

Wednesday, January 20, 1999

4 aqueous samples were sent to Industrial Environmental Analysts of Monroe, Connecticut utilizing UPS airbill # N2239191736 and analyzed for semi-volatiles and pesticides/PCBS.

Wednesday, January 20, 1999

8 aqueous samples were sent to PDP Analytical Services of The Woodlands, Texas utilizing UPS airbill # N2239191745 and analyzed for low concentration volatiles.

Monday, January 25, 1999

7 soil samples were sent to Industrial Environmental Analysts of Monroe, Connecticut utilizing UPS airbill # J0152489484 and analyzed for semi-volatiles and pesticides/PCBS.

Monday, January 25, 1999

6 soil samples were sent to Chemtech Consulting Group of Englewood, New Jersey utilizing UPS airbill # N2239191709 and analyzed for TAL metals and cyanide.

Wednesday, January 27, 1999

17 aqueous samples were sent to PDP Analytical Services of The Woodlands, Texas utilizing UPS airbill # N2239191692 and analyzed for low concentration volatiles.

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Monday, February 1, 1999

19 aqueous samples were sent to PDP Analytical Services of The Woodlands, Texas utilizing UPS airbill # N2239191638 and analyzed for low concentration volatiles.

Monday, February 1, 1999

4 aqueous 3 sediments samples were sent to Industrial Environmental Analysts of Monroe, Connecticut utilizing UPS airbill # N2239191683 and analyzed for semi-volatiles and pesticides/PCBS.

Tuesday, February 2, 1999

7 aqueous samples were sent to Industrial Environmental Analysts of Monroe, Connecticut utilizing UPS airbill # N2239191665 and analyzed for semi-volatiles and pesticides/PCBS.

Tuesday, February 2, 1999

6 aqueous and 5 sediment samples were sent to Chemtech Consulting Group of Englewood, New Jersey utilizing UPS airbill # N2239191656 and analyzed for TAL metals and cyanide.

Wednesday, February 3, 1999

9 aqueous samples were sent to PDP Analytical Services of The Woodlands, Texas utilizing UPS airbill # N2239191585 and analyzed for low concentration volatiles.

Wednesday, February 3, 1999

2 soil samples were sent to Industrial Environmental Analysts of Monroe, Connecticut utilizing UPS airbill # N2239191576 and analyzed for semi-volatiles and pesticides/PCBS.

Wednesday, February 3, 1999

2 soil samples were sent to Chemtech Consulting Group of Englewood, New Jersey utilizing UPS airbill # N2239191656 and analyzed for TAL metals and cyanide.

CASE# 26777

SDG: MBQF96

Evaluation of Metals Data for the Contract Laboratory Program (CLP)

based on

SOW. 3/90

(SOP Revision XI)

PREPARED BY: _____ DATE: 1-30-92
Hanif Sheikh, Quality Assurance Chemist
Toxic and Hazardous Waste Section

APPROVED BY: _____ DATE: 1-30-92
Kevin Kubik, Chief
Toxic and Hazardous Waste Section

APPROVED BY: _____ DATE: 1/30/92
Robert Runyon, Chief
Monitoring Management Branch

STANDARD OPERATING PROCEDURE

Title: Evaluation of Metals Data for the Contract Laboratory Program

Date: Jan. 1992
Number: HW-2
Revision: 11

1.0 Scope

1.1 This procedure is applicable to inorganic data obtained from contractor laboratories working for Hazardous Waste Site Contract Laboratory Program (CLP).

1.2 The data validation is based upon analytical and quality assurance requirements specified in Statement of Work (SOW) 3/90 .

2.0 Responsibilities - Data reviewers will complete the following tasks as assigned by the Data Review Coordinator:

2.1. For a total review:

2.1.1 Data Assessment - "Total Review-Inorganics" Checklist Appendix (A.1). The reviewer must answer every question on the checklist.

2.1.2 Data Assessment - Data Assessment Narrative (Appendix A.2) The answer on the checklist must match the action in the narrative (appendix A.2) and on Form I's. Do not use pencil to write the narrative.

2.1.3 Contract Non-Compliance - SMO Report (Appendix A.3) This report is to be completed only when a serious contract violation is encountered, or upon the request of the Data Validation Task Monitor, or Technical Project Officer (TPO). Forward 5 copies: one each for internal files, appropriate Regional TPO, Sample Management Office (SMO) and last two addresses of Mailing List for Data Reviewers (Appendix A.4). In other cases, all contract violations should be appended to the end of the Data Assessment Narrative (Sec. A.2.2).

2.1.4 CLP Data Assessment Summary Forms

2.1.4.1 Appendix A.5 Fill in the total number of analytes analyzed by different analyses and the number of analytes rejected or flagged as estimated due to corresponding quality control criteria. Place an "X" in boxes where analyses were not performed, or criteria do not apply.

2.1.4.2 Appendix A.6 Data reviewer is also required to fill out Inorganic Regional Data Assessment form (Appendix A.7) provided by EPA Headquarters. Codes listed on the form will be used to describe the Data Assessment Summary.

2.1.5 Data Review Log: It is recommended that each data reviewer should maintain a log of the reviews completed to include: a. date of start of case review

b. date of completion of case review
c. site
d. case number
e. contract laboratory
f. number of samples
g. matrix
h. hours worked
i. reviewer's initials

2.1.6 Telephone Record Log - the data reviewer should enter the bare facts of inquiry, before initiating any phone conversation with CLP laboratory. After the case review has been completed, mail white copy of Telephone Record Log to the laboratory and pink copy to SMO. File yellow copy in the Telephone Record Log folder, and attach a xerox copy of the Telephone Record Log to the completed Data Assessment Narrative (Appendix A.2).

2.1.7 Forwarded Paperwork

2.1.7.1 Upon completion of review, the following are to be forwarded to the Regional Sample Control Center (RSCC) located in the Surveillance and Monitoring Branch:
a. data package
b. completed data assessment checklist (Appendix A.1,original)
c. SMO Contract Compliance Screening (CCS)
d. Record of Communication (copy)
e. CLP Reanalysis Request/Approval Record (original + 3 copies)
f. Appendix A.6 (original).

2.1.7.2 Forward 2 copies of completed Data Assessment Narrative (Appendix A.2) along with 2 copies of the Inorganic Data Assessment Form (Appendix A.6) and Telephone Record Log , if any,: one each for appropriate Regional TPO, and the other one to EPA EMSL office in Las Vegas. The addresses of TPOs and EPA office in Las Vegas are given in Appendix A-4.

2.1.8 Filed Paperwork - Upon completion of review, the following are to be filed within MMB files:
a. Two copies of completed Data Assessment Narrative (Appendix A.2) each carrying Appendix A.6.
b. Telephone Record Log (copy)
c. SMO Report (copy Appendix A-3)
d. CLP Reanalysis Request/Approval Record (copy)

3.0 Data Completeness
Each data package is checked by a Regional Sample Control Coordinator (RSSC) for completeness. A data package is assumed to be complete when all the deliverables required under the contract are present. If a data package is incomplete, the RSSC would call the laboratory for missing document(s). If the laboratory does not respond within a week, SMO and MMB coordinator of Region II will be notified.

4.0 Rejection of Data - All values determined to be unacceptable on the Inorganic Analysis Data Sheet (Form I) must be lined over with a red pencil. As soon as any review criteria causes data to be rejected, that data can be eliminated from any further review or consideration.

5.0 Acceptance Criteria - In order that reviews be consistent among reviewers, acceptance criteria as stated in Appendix A.1 (pages 4-25) should be used. Additional guidance can be found in the National Inorganic Functional Guidelines of October 1, 1989.

6.0 SMO Contract Compliance Screening (CCS) - This is intended to aid reviewer in locating any problems, both corrected and uncorrected. However, the validation should be carried out even if CCS is not present. Resubmittals received from laboratory in response to CCS must be used by the reviewer.

7.0 Request for Reanalysis - Data reviewers must note all items of contract non-compliance within Data Assessment Narrative. If holding times and sample storage times have not been exceeded, TPO may request reanalysis if items of non-compliance are critical to data assessment. Requests are to be made on "CLP Re-Analysis Request/Approval Record".

8.0 Record of Communication - Provided by the Regional Sample Control Center (RSCC) to indicate which data packages have been received and are ready to be reviewed.

9.0 Rounding off numbers - The data reviewer will follow the standard practice.

	YES	NO	N/A
A.1.1 Contract Compliance Screening Report (CCS) - Present?	[✓]		
ACTION: If no, contact RSCC.			
A.1.2 Record of Communication (from RSCC) - Present?	[✓]		
ACTION: If no, request from RSCC.			
A.1.3 Trip Report - Present and complete?	[✓]		
ACTION: If no, contact RSCC for trip report.			
A.1.4 Sample Traffic Report - Present?	[✓]		
Legible?	[✓]		
ACTION: If no, request from Regional Sample Control Center (RSCC).			
A.1.5 Cover Page - Present?	[✓]		
Is cover page properly filled in and signed by the lab manager or the manager's designee?	[✓]		
ACTION: If no, prepare Telephone Record Log, and contact laboratory.			
Do numbers of samples correspond to numbers on Record of Communication?	[✓]		
Do sample numbers on cover page agree with sample numbers on: (a) Traffic Report Sheet?	[✓]		
(b) Form I's?	[✓]		
ACTION: If no for any of the above, contact RSCC for clarification.			

		Yes	No	N/A
A.1.6	Form I to IX			
A.1.6.1	Are all the Form I through Form IX labeled with:			
	Laboratory name?	[✓]	—	—
	Case/SAS number?	[✓]	—	—
	EPA sample No.?	[✓]	—	—
	SDG No.?	[✓]	—	—
	Contract No.?	[✓]	—	—
	Correct units?	[✓]	—	—
	Matrix?	[✓]	—	—

ACTION: If no for any of the above, note under Contract Problem/Non-Compliance section of the "Data Assessment Narrative".

A.1.6.2	Do any computation/transcription errors exceed 10% of reported values on Forms I-IX for:			
	(NOTE: Check all forms against raw data.)			
	(a) all analytes analyzed by ICP?	[✓]	—	—
	(b) all analytes analyzed by GFAA?	[✓]	—	—
	(c) all analytes analyzed by AA Flame?	[✓]	—	—
	(d) Mercury?	[✓]	—	—
	(e) Cyanide?	[✓]	—	—

ACTION: If yes, prepare Telephone Log, contact laboratory for corrected data and correct errors with red pencil and initial.

Title: Evaluation of Metals Data for the Contract Laboratory Program
Appendix A.1: Data Assessment - Contract Compliance (Total Review)

Date: Jan. 1992
Number: HW-2
Revision: 11

		YES	NO	N/A
A.1.7	Raw Data			
A.1.7.1	Digestion Log* for flame AA/ICP (Form XIII) present?	[✓]		
	Digestion Log for furnace AA Form XIII present?	[ ]		✓
	Distillation Log for mercury Form XIII present?	[✓]		
	Distillation Log for cyanides Form XIII present?	[✓]		
	Are pH values (pH<2 for all metals, pH>12 for cyanide) present?	[✓]		
	*Weights, dilutions and volumes used to obtain values.			
	Percent solids calculation present for soils/sediments?	[✓]		
	Are preparation dates present on sample preparation logs/bench sheets?	[✓]		
A.1.7.2	Measurement read out record present? ICP	[✓]		
	Flame AA	[ ]		✓
	Furnace AA	[ ]		✓
	Mercury	[✓]		
	Cyanides	[✓]		
A.1.7.3	Are all raw data to support all sample analyses and QC operations present?	[✓]		
	Legible?	[✓]		
	Properly Labeled?	[✓]		

ACTION: If no for any of the above questions in sections A.1.7.1 through A.1.7.3, write Telephone Record Log and contact laboratory for resubmittals.

		YES	NO	N/A
A.1.8	**Holding Times** - (aqueous and soil samples)			
	(Examine sample traffic reports and digestion/distillation logs.)			
	Mercury analysis (28 days). . . . . exceeded?	___	[✓]	___
	Cyanide distillation (14 days). . . . . exceeded?	___	[✓]	___
	Other Metals analysis (6 months). . . . . exceeded?	___	[✓]	___

NOTE: Prepare a list of all samples and analytes for which holding times have been exceeded. Specify the number of days from date of collection to the date of preparation (from raw data). Attach to checklist.

ACTION: If yes, reject (red-line) values less than Instrument Detection Limit (IDL) and flag as estimated (J) the values above IDL even though sample(s) was preserved properly.

A.1.8.2	Is pH of aqueous samples for: Metals Analysis >2?	___	[✓]	___
	Cyanides Analysis <12?	___	[✓]	___

Action: If yes, flag the associated metals and cyanides data as estimated.

A.1.9	**Form I (Final Data)**			
A.1.9.1	Are all Form I's present and complete?	[✓]	___	___

ACTION: If no, prepare telephone record log and contact laboratory for submittal.

A.1.9.2	Are correct units (ug/l for waters and mg/kg for soils) indicated on Form I's?	[✓]	___	___
	Are soil sample results for each parameter corrected for percent solids?	[✓]	___	___
	Are all "less than IDL" values properly coded with "U"?	[✓]	___	___

		YES	NO	N/A
	Are the correct concentration qualifiers used with final data?	[✓]		
	ACTION: If no for any of the above, prepare Telephone Record Log, and contact laboratory for corrected data.			
A.1.9.3	Are EPA sample # s and corresponding laboratory sample ID # s the same as on the Cover Page, Form I's and in the raw data?	[✓]		
	Was a brief physical description of samples given on Form I's?	[✓]		
	Was the dilution of any sample diluted beyond the requirements of the contract noted on Form I or Form XIV?		[✓]	
	ACTION: If no for any of the above, note under Contract-Problem/Non-Compliance of the "Data Assessment Narrative".			
A.1.10	Calibration			
A.1.10.1	Is record of at least 2 point calibration present for ICP analysis?	[✓]		
	Is record of 5 point calibration present for Hg analysis?	[✓]		
	Is record of 4 point calibration present for:			
	Flame AA?	[ ]		✓
	Furnace AA?	[ ]		✓
	Cyanides?	[✓]		
	Is one calibration standard at the CRDL level for all AA and cyanides analyses?	[✓]		
	ACTION: If no for any of the above, write in the Contract Problem/Non-Compliance section of the "Data Assessment Narrative".			

		YES	NO	N/A
A.1.10.2	Is correlation coefficient less than 0.995 for:			
	Mercury Analysis?	___	[✓]	___
	Cyanide Analysis?	___	[✓]	___
	Atomic Absorption Analysis?	___	[ ]	✓

ACTION: If yes, flag the associated data as estimated.

NOTE: The data validator shall calculate the correlation coefficient using concentrations of the standards and the corresponding instrument response (e.g. absorbance, peak area, peak height, etc.).

A.1.10.3	In the instance where less than 4 standards are measured in absorbance (or peak area, peak height,etc.) mode, are the remaining standards analyzed in concentration mode immediately after calibration within ±10% of the true values?	[ ]	___	✓

ACTION: If no, flag the associated data as estimated if standards are not within ±10% of true values. Do not flag the data as estimated in linear range indicated by good recovery of standard(s).

A.1.11	Form II A (Initial and Continuing Calibration Verification)-			
A.1.11.1	Present and complete for every metal and cyanide?	[✓]	___	___
	Present and complete for AA and ICP when both are used for the same analyte?	[✓]	___	___

ACTION: If no for any of the above, prepare Telephone Record Log and contact laboratory.

A.1.11.2	Circle on each Form IIA all percent recoveries that are outside the contract windows. Are all calibration standards (initial and continuing) within control limits:			
	Metals- 90-110%R?	[✓]	___	___
	Hg - 80-120%R?	[✓]	___	___
	Cyanides- 85-115%R?	[✓]	___	___

	YES	NO	N/A
ACTION: Flag as estimated (J) all positive data (not flagged with a "U") analyzed between a calibration standard with %R between 75-89% (65-79% for Hg; 70-84% for CN) or 111-125% (121-135% for Hg; 116-130% for CN) recovery and nearest good calibration standard. Qualify results <IDL as estimated (UJ) if the ICV or CCV %R is 75-89% (CN, 70-84% ; HG, 65-79%). Reject (red-line) as unacceptable data if recovery of the ICV or CCV is outside the range 75-125% (CN, 70-130%; Hg, 65-135%). Qualify five samples on either side of verification standard out of control limits.			
A.1.11.3 Was continuing calibration performed every 10 samples or every 2 hours?	[✓]	___	___
Was ICV for cyanides distilled?	[✓]	___	___
ACTION: If no for any of the above, write in the Contract-Problem/Non-Compliance section of the "Data Assessment Narrative".			
A.1.12 Form II B (CRDL Standards for AA and ICP) -			
A.1.12.1 Was a CRDL standard (CRA) analyzed after initial calibration for all AA metals?	[✓]	___	___
Was a mid-range calib. verification standard distilled and analyzed for cyanide analysis?	[✓]	___	___
Was a 2xCRDL (or 2xIDL when IDL>CRDL) analyzed (CRI) for each ICP run? (Note: CRI for AL,Ba,Ca,Fe,Mg,Na,or K is not required.)	[✓]	___	___

ACTION: If no for any of the above, flag as estimated all data falling within the affected ranges.
The affected ranges are:
AA Analysis - **True Value ± CRDL
ICP Analysis - **True Value ± 2CRDL
CN Analysis - **True Value ± 0.5 x True Value.

**True value of CRA, CRI or mid-range standard. Substitute IDL for CRDL when IDL > CRDL. Compute the concentration of the missing mid-range standard from the calibration range.

		YES	NO	N/A
A.1.12.2	Was CRI analyzed after ICV/ICB and before the final CCV/CCB, and twice every eight hours of ICP run?	[✓]	—	—
	ACTION: If no, write in Contract Problem/Non-Compliance Section of the "Data Assessment Narrative".			
A.1.12.3	Circle on each Form IIB all the percent recoveries that are outside the acceptance windows.			
	Are CRA and CRI standards within control limits:			
	Metals 80 - 120%R?	[ ]	✓	—
	Is mid-range standard within control limits:			
	Cyanide 80 - 120%R?	[✓]	—	—
	ACTION: Flag as estimated all sample results within the affected range if the recovery of the standard is between 50-79%; flag only positive data within the affected range if the recovery is between 121-150%; reject all data within the affected range if the recovery is less than 50%; reject only positive data within the affected range if the recovery is greater than 150%. Qualify 50% of the samples on either side of CRI standard outside the control limits.			
	Note: Flag or reject the final results only when sample raw data are within the affected ranges and the CRDL standards are outside the acceptance windows.			
A.1.13	Form III (Initial and Continuing Calibration Blanks)	[✓]	—	—
A.1.13.1	Present and complete?	[✓]	—	—
	For both AA and ICP when both are used for the same analyte?	[✓]	—	—
	Was an initial calibration blank analyzed?	[✓]	—	—
	Was a continuing calibration blank analyzed after every 10 samples or every 2 hours (which ever is more frequent)?	[✓]	—	—

		YES	NO	N/A
	ACTION: If no, prepare Telephone Record Log, contact laboratory and write in the Contract-Problems/ Non-Compliance section of the "Data Assessment Narrative".			
A.1.13.2	Circle on each Form III all calibration blank values that are above CRDL (or 2 x IDL when IDL > CRDL).			
	Are all calibration blanks (when IDL<CRDL) less than or equal to the Contract Required Detection Limits (CRDLs)?	[✓]	—	—
	Are all calibration blanks less than two times Instrument Detection Limit (when IDL>CRDL)?	[✓]	—	—
	ACTION: If no for any of the above, flag as estimated (J) positive sample results when raw sample value is less than or equal to calibration blank value analyzed between calibration blank with value over CRDL (or 2xIDL) and nearest good calibration blank. Flag five samples on either side of the calibration blank outside the control limits.			
A.1.14	FORM III (Preparation Blank) - (Note: The preparation blank for mercury is the same as the calibration blank.)			
A.1.14.1	Was one prep. blank analyzed for:			
	each Sample Delivery Group (SDG)?	[✓]	—	—
	each batch of digested samples?	[✓]	—	—
	each matrix type?	[✓]	—	—
	both AA and ICP when both are used for the same analyte?	[ ]	—	✓
	ACTION: If no for any of the above, flag as estimated (J) all the associated positive data <10 x IDLs for which prep. blank was not analyzed.			
	NOTE: If only one blank was analyzed for more than 20 samples, then first 20 samples analyzed do not have to be flagged as estimated (J).			

		YES	NO	N/A
A.1.14.2	Is concentration of prep. blank value greater than the CRDL when IDL is less than or equal to CRDL?	___	[✓]	___
	If yes, is the concentration of the sample with the least concentrated analyte less than 10 times the prep.blank?	___	[___]	✓
	ACTION: If yes, reject (red-line) all associated data greater than CRDL concentration but less than ten times the prep. blank value.			
A.1.14.3	Is concentration of prep. blank value (Form III) less than two times IDL, when IDL is greater than CRDL?	[✓]	___	___
	ACTION: If no, reject (red-line) all positive sample results when sample raw data are less than 10 times the prep. blank value.			
A.1.14.4	Is concentration of prep. blank below the negative CRDL?	___	[✓]	___
	ACTION: If yes, reject (red-line) all associated sample results less than 10xCRDL.			
A.1.15	**Form IV (ICP Interference Check Sample)**	[✓]	___	___
A.1.15.1	Present and complete?			
	(NOTE: Not required for furnace AA, flame AA, mercury, cyanide and Ca, Mg, K and Na.)			
	Was ICS analyzed at beginning and end of run (or at least twice every 8 hours)?	[✓]	___	___
	ACTION: If no, flag as estimated (J) all the samples for which AL, Ca, Fe, or Mg is higher than in ICS.			
A.1.15.2	Circle all values on each Form IV that are more than ± 20% of true or established mean value.			
	Are all Interference Check Sample results inside the control limits (± 20%)?	[✓]	___	___
	If no, is concentration of Al, Ca, Fe, or Mg lower than the respective concentration in ICS?	[___]	___	___

		YES	NO	N/A
	ACTION: If no, flag as estimated (J) those positive results for which ICS recovery is between 121-150%; flag all sample results as estimated if ICS recovery falls within 50-79%; reject (red-line) those sample results for which ICS recovery is less than 50%; if ICS recovery is above 150%, reject positive results only (not flagged with a "U").			
A.1.16	Form V A (Spiked Sample Recovery - Pre-Digestion/Pre-Distillation)- (Note: Not required for Ca, Mg, K, and Na (both matrices), Al, and Fe (soil only.)			
A.1.16.1	Present and complete for: each SDG?	[✓]	—	—
	each matrix type?	[✓]	—	—
	each conc. range (i.e. low, med., high)?	[✓]	—	—
	For both AA and ICP when both are used for the same analyte?	[ ]	—	✓
	ACTION: If no for any of the above, flag as estimated (J) all the positive data less than four times the spiking levels specified in SOW for which spiked sample was not analyzed.			
	NOTE: If one spiked sample was analyzed for more than 20 samples, then first 20 samples analyzed do not have to be flagged as estimated (J).			
A.1.16.2	Was field blank used for spiked sample?	—	[✓]	—
	ACTION: If yes, flag all positive data less than 4 x spike added as estimated (J) for which field blank was used as spiked sample.			
A.1.16.3	Circle on each Form VA all spike recoveries that are outside control limits (75% to 125%).			
	Are all recoveries within control limits?	[ ]	✓	—
	If no, is sample concentration greater than or equal to four times spike concentration?	[ ]	✓	—

	YES	NO	N/A
ACTION: If yes, disregard spike recoveries for analytes whose concentrations are greater than or equal to four times spike added. If no, circle those analytes on Form V for which sample concentration is less than four times the spike concentration.			
Are results outside the control limits (75-125%) flagged with "N" on Form I's and Form VA?	[✓]		
ACTION: If no, write in the Contract - Problem/Non - Compliance section of "Data Assessment Narrative".			
A.1.16.4 Aqueous Are any spike recoveries: (a) less than 30%?		[✓]	
(b) between 30-74%?		[✓]	
(c) between 126-150%?		[ ]	
(d) greater than 150%?		[✓]	
ACTION: If less than 30%, reject all associated aqueous data; if between 30-74%, flag all associated aqueous data as estimated (J); if between 126-150%, flag as estimated (J) all associated aqueous data not flagged with a "U"; if greater than 150%, reject (red-line) all associated aqueous data not flagged with a "U".			
A.1.16.5 Soil/Sediment Are any spike recoveries: (a) less than 10%?		[✓]	
(b) between 10-74%?	✓	[✓]	
(c) between 126-200%?		[ ]	
(d) greater than 200%?		[✓]	

		YES	NO	N/A
	ACTION: If less than 10%, reject all associated data; if between 10-74%, flag all associated data as estimated; if between 126-200%, flag as estimated all associated data was not flagged with a "U"; if greater than 200%, reject all associated data not flagged with a "U".			
A.1.17	**Form VI (Lab Duplicates)**			
A.1.17.1	Present and complete for: each SDG?	[✓]		
	each matrix type?	[✓]		
	each concentration range (i.e. low, med., high)?	[✓]		
	both AA and ICP when both are used for the same analyte?	[ ]		✓
	ACTION: If no for any the above, flag as estimated (J) all the data ≥CRDL* for which duplicate sample was not analyzed.			
	Note: 1. If one duplicate sample was analyzed for more than 20 samples, then first 20 samples do not have to be flagged as estimated. 2. If percent solids for soil sample and its duplicate differ by more than 1%, prepare a Form VI for each duplicate pair, report concentrations in ug/L on wet weight basis and calculate RPD or Difference for each analyte.			
A.1.17.2	Was field blank used for duplicate analysis?		[✓]	
	ACTION: If yes, flag all data ≥CRDL* as estimated (J) for which field blank was used as duplicate.			
A.1.17.3	Are all values within control limits (RPD 20% or difference ≤ ±CRDL)?	[✓]		
	If no, are all results outside the control limits flagged with an * on Form I's and VI?	[✓]		✓
	ACTION: If no, write in the Contract - Problems/Non-Compliance section of "Data Assessment Narrative".			

* Substitute IDL for CRDL when IDL > CRDL.

	YES	NO	N/A

NOTE: 1. RPD is not calculable for an analyte of the sample - duplicate pair when both values are less than IDL.
2. If the result of lab duplicate analyzed by GFAA is rejectable due to coefficient of correlation of MSA, analytical spike recovery, or duplicate injections criteria, do not apply precision criteria to metals analyzed by GFAA.

A.1.17.4 Aqueous

Circle on each Form VI all values that are:

RPD > 50%, or
Difference > CRDL*

Is any RPD greater than 50% where sample and duplicate are both greater than or equal to 5 times *CRDL?	___	[✓]	___
Is any difference** between sample and duplicate greater than *CRDL where sample and/or duplicate is less than 5 times *CRDL?	___	[✓]	___

ACTION: If yes, flag the associated data as estimated.

A.1.17.5 Soil/Sediment

Circle on each Form VI all values that are:

RPD > 100%, or

Difference > 2 x CRDL*

Is any RPD (where sample and duplicate are both greater than or equal to 5 times *CRDL) : > 100%?	___	[✓]	___
Is any **difference between sample and duplicate (where sample and/or duplicate is less than 5x*CRDL) : > 2x*CRDL?	___	[✓]	___

* Substitute IDL for CRDL when IDL > CRDL.
** Use absolute values of sample and duplicate to calculate the difference.

		YES	NO	N/A
	ACTION: If yes, flag the associated data as estimated.			
A.1.18	Field Duplicates	[__]	✓	
A.1.18.1	Were field duplicates analyzed?			

ACTION: If yes, prepare a Form VI for each aqueous field duplicate pair. Prepare a Form VI for each soil duplicate pair, if percent solids for sample and its duplicate differ by more than 1%; report concentrations of soils in ug/l on wet weight basis and calculate RPDs or Difference for each analyte.

NOTE: 1. Do not calculate RPD when both values are less than IDL.
2. Flag all associated data only for field duplicate pair.

A.1.18.2 Aqueous

Circle all values on self prepared Form VI for field duplicates that are:

RPD > 50%, or
Difference > CRDL*

	YES	NO	N/A
Is any RPD greater than 50% where sample and duplicate are both greater than or equal to 5 times *CRDL?	___	[__]	✓
Is any **difference between sample and duplicate greater than *CRDL where sample and/or duplicate is less than 5 times *CRDL?	___	[__]	✓

ACTION: If yes, flag the associated data as estimated.

* Substitute IDL for CRDL when IDL > CRDL.
** Use absolute values of sample and duplicate to calculate the difference.

		YES	NO	N/A
A.1.18.3	Soil/Sediment			
	Circle all values on self prepared Form VI for field duplicates that are: RPD >100%, or Difference > 2 x CRDL*			
	Is any RPD (where sample and duplicate are both greater than 5 times *CRDL) : >100%?	___	[___]	✓
	Is any **difference between sample and duplicate (where sample and/or duplicate is less than 5x *CRDL): >2x *CRDL?	___	[___]	✓
	ACTION: If yes, flag the associated data as estimated.			
A.1.19	Form VII (Laboratory Control Sample) (Note: LCS - not required for aqueous Hg and cyanide analyses.)			
A.1.19.1	Was one LCS prepared and analyzed for: each SDG?	[✓]	___	___
	each batch samples digested/distilled?	[✓]	___	___
	both AA and ICP when both are used for the same analyte?	[___]	___	✓
	ACTION: If no for any of the above, prepare Telephone Record Log and contact laboratory for submittal of results of LCS. Flag as estimated (J) all the data for which LCS was not analyzed.			
	NOTE: If only one LCS was analyzed for more than 20 samples, then first 20 samples close to LCS do not have to be flagged as estimated.			

* Substitute IDL for CRDL when IDL > CRDL.
** Use absolute values of sample and duplicate to calculate the difference.

		YES	NO	N/A
A.1.19.2	**Aqueous LCS**			
	Circle on each Form VII the LCS percent recoveries outside control limits (80 - 120%) except for aqueous Ag and Sb.			
	Is any LCS recovery: less than 50%?	___	✓	___
	between 50% and 79%?	___	✓	___
	between 121% and 150%?	___	✓	___
	greater than 150%?	___	✓	___
	ACTION: Less than 50%, reject (red-line) all data; between 50% and 79%, flag all associated data as estimated (J); between 121% and 150%, flag all positive (not flagged with a "U") results as estimated; greater than 150%, reject all positive results.			
A.1.19.3	**Solid LCS**			
	NOTE: 1. If "Found" value of LCS is rejectable due to duplicate injections or analytical spike recovery criteria, regardless of LCS recovery, flag the associated data as estimated (J). 2. If IDL of an analyte is equal to or greater than true value of LCS, disregard the "Action" below even though LCS is out of control limits.			
	Is LCS "Found" value higher than the control limits on Form VII?	___	✓	___
	ACTION: If yes, qualify all associated positive data as estimated.			
	Is LCS "Found" value lower than the Control limits on Form VII?	___	✓	___
	ACTION: If yes, qualify all associated data as estimated.			

		YES	NO	N/A
A.1.20	Form IX (ICP Serial Dilution) -			
	NOTE: Serial dilution analysis is required only for initial concentrations equal to or greater than 10 x IDL.			
A.1.20.1	Was Serial Dilution analysis performed for: each SDG?	[✓]	___	___
	each matrix type?	[✓]	___	___
	each concentration range (i.e. low, med.)?	[✓]	___	___
	ACTION: If no for any of the above, flag as estimated all the positive data ≥ 10xIDLs or ≥ CRDL when 10xIDL ≤ CRDL for which Serial Dilution Analysis was not performed.			
A.1.20.2	Was field blank(s) used for Serial Dilution Analysis?	___	[✓]	___
	ACTION: If yes, flag all associated data ≥ 10 x IDL as estimated (J). If 10xIDL ≤ CRDL, flag all data ≥ CRDL.			
A.1.20.3	Are results outside control limit flagged with an "E" on Form I's and Form IX when initial concentration on Form IX is equal to 50 times IDL or greater.	[✓]	___	___
	ACTION: If no, write in the Contract-Problem/Non-Compliance section of the "Data Assessment Narrative".			
A.1.20.4	Circle on each Form IX all percent difference that are outside the control limits for initial concentrations equal to or greater than 10 x IDLs only.			
	Are any % difference values:			
	> 10%?	✓	[✓]	___
	≥ 100%?	___	[✓]	___

		YES	NO	N/A
	ACTION: Flag as estimated (J) all the associated sample data ≥ 10xIDLs (or ≥ CRDL when 10xIDL ≤ CRDL) for which percent difference is greater than 10% but less than 100%. Reject (red-line) all the associated sample results equal to or greater than 10xIDLs (or ≥ CRDL when 10xIDL ≤ CRDL) for which PD is greater than or equal to 100%.			
	Note: Flag or reject on Form I's only the sample results whose associated raw data are ≥ 10xIDL (or ≥ CRDL when 10xIDL≤ CRDL)			
A.1.21	**Furnace Atomic Absorbtion (AA) QC Analysis**			
A.1.21.1	Are duplicate injections present in furnace raw data (except during full Method of Standard Addition) for each sample analyzed by GFAA?	[ ]		
	ACTION: If no, reject the data on Form I's for which duplicate injections were not performed.			
A.1.21.2	Do the duplicate injection readings agree within 20% Relative Standard Deviation (RSD) or Coefficient of Variation (CV) for concentration greater than CRDL?	[ ]		
	Was a dilution analyzed for sample with analytical spike recovery less than 40%?	[ ]		
	ACTION: If no for any of the above, flag all the associated data as estimated.			
A.1.21.3	Is *analytical spike recovery outside the control limits (85-115%) for any sample?		[ ]	
	ACTION: If yes, flag as estimated the affected sample results if the recovery is between 10-84%; if the recovery is between 115-200%, flag the associated positive sample results as estimated; reject the associated sample results if the recovery is less than 10%; reject positive sample results if the recovery is greater than 200%.			

* Analytical spike is not required on the pre-digestion spiked sample.

		YES	NO	N/A
	NOTE: Reject or flag the data only when the affected sample(s) was not subsequently analyzed by Method of Standard Addition.			
A.1.22	Form VIII (Method of Standard Addition Results)			
A.1.22.1	Present?	[__]	__	/
	If no, is any Form I result coded with "S" or a "+"?	__	[__]	/
	ACTION: If yes, write request on Telephone Record Log and contact laboratory for submittal of Form VIII.			
A.1.22.2	Is coefficient of correlation for MSA less than 0.990 for any sample?	__	[__]	/
	ACTION: If yes, reject (red-line) the affected data.			
A.1.22.3	Was *MSA required for any sample but not performed?	__	[__]	/
	Is coefficient of correlation for MSA less than 0.995?	__	[__]	/
	Are MSA calculations outside the linear range of the calibration curve generated at the beginning of the analytical run?	__	[__]	/
	ACTION: If yes for any of the above, flag all the associated data as estimated (J).			
A.1.22.4	Was proper quantitation procedure followed correctly as outlined in the SOW on page B-23?	[__]	__	/
	ACTION: If no, note exception under Contract Problem/ Non-Compliance section of the "Data Assessment Narrative", and prepare a separate list.			

* MSA is not required on LCS and prep. blank.

		YES	NO	N/A
A.1.23	Dissolved/Total or Inorganic/Total Analytes -			
A.1.23.1	Were any analyses performed for dissolved as well as total analytes on the same sample(s).	___	[✓]	___
	Were any analyses performed for inorganic as well as total (organic + inorganic) analytes on the same sample(s)?	___	[✓]	___
	NOTE: 1. If yes, prepare a list comparing differences between all dissolved (or inorganic) and total analytes. Compute the differences as a percent of the total analyte only when dissolved concentration is greater than CRDL as well as total concentration. 2. Apply the following questions only if inorganic (or dissolved) results are (i) above CRDL, and (ii) greater than total constituents. 3. At least one preparation blank, ICS, and LCS should be analyzed in each analytical run.			
A.1.23.2	Is the concentration of any dissolved (or inorganic) analyte greater than its total concentration by more than 10%?	___	[___]	✓
A.1.23.3	Is the concentration of any dissolved (or inorganic) analyte greater than its total concentration by more than 50%?	___	[___]	✓
	ACTION: If more than 10%, flag both dissolved (or inorganic) and total values as estimated (J); if more than 50%, reject (red-line) the data for both values.			
A.1.24	Form I (Field Blank) -			
	Note: Designate "Field Blank" as such on Form I.)			
A.1.24.1	Circle all field blank values on Form I that are greater than CRDL, (or 2 x IDL when IDL > CRDL).			
	Is field blank concentration less than CRDL (or 2 x IDL when IDL > CRDL) for all parameters of associated aqueous and soil samples?	[___]	___	✓

STANDARD OPERATING PROCEDURE

Date: Jan. 1992
Number: HW-2
Revision: 11

Title: Evaluation of Metals Data for the Contract Laboratory Program
Appendix A.1: Data Assessment - Contract Compliance (Total Review)

	YES	NO	N/A
If no, was field blank value already rejected due to other QC criteria?	[ ]		/

ACTION: If no, reject (except field blank results) all associated positive sample data less than or equal to five times the field blank value. Reject on Form I's the soil sample results that when converted to ug/L on wet basis are less than or equal to five times the field blank value in ug/L.

A.1.25 Form X, XI, XII (Verification of Instrumental Parameters).

A.1.25.1 Is verification report present for:

	YES	NO	N/A
Instrument Detection Limits (quarterly)?	[/]		
ICP Interelement Correction Factors (annually)?	[/]		
ICP Linear Ranges (quarterly)?	[/]		

ACTION: If no, contact TPO of the lab.

A.1.25.2 Form X (Instrument Detection Limits) - (Note: IDL is not required for Cyanide.)

A.1.25.2.1 Are IDLs present for:

	YES	NO	N/A
all the analytes?	[/]		
all the instruments used?	[/]		
For both AA and ICP when both are used for the same analyte?	[ ]		/

ACTION: If no for any of the above, prepare Telephone Record Log and contact laboratory.

	YES	NO	N/A
A.1.25.2.2 Is IDL greater than CRDL for any analyte?		[/]	
If yes, is the concentration on Form I of the sample analyzed on the instrument whose IDL exceeds CRDL, greater than 5 x IDL.	[ ]		/

	YES	NO	N/A
Action : If no, flag as estimated all values less than five times IDL of the instrument whose IDL exceeds CRDL.			
A.1.25.3 **Form XI (Linear Ranges)**			
A.1.25.3.1 Was any sample result higher than high linear range of ICP.		✓	
Was any sample result higher than the highest calibration standard for non-ICP parameters?		✓	
If yes for any of the above, was the sample diluted to obtain the result on Form I?			✓
ACTION: If no, flag the result reported on Form I as estimated(J).			
A.1.26 **Percent Solids of Sediments**			
A.1.26.1 Are percent solids in sediment(s): < 50%?		✓	
< 10%?		✓	
ACTION: If yes, qualify as estimated all the results of a sample that has per cent solids between 10%-50% (i.e. moisture content between 50%-90%). Reject all the results of a sample that has per cent solids less than 10% (i.e. moisture content greater than 90%).			
NOTE: Reject or flag(J) only the sample results that were not previously rejected or flaged due to other QC criteria.			

SAMPLE DELIVERY GROUP (SDG)
TRAFFIC REPORT (TR) COVER SHEET

Lab Name: Chemtech Contract No.: 68-D5-0166

Lab Code: Chem Case No.: 26777 SAS No.: _____

Full Sample Analysis Price in Contract: $ _____

SDG No./First Sample in SDG: MBQF96 Sample Receipt Date: 01/26/99
(Lowest EPA Sample Number in first shipment of samples received under SDG.) (MM/DD/YY)

Last Sample in SDG: MBQG03 Sample Receipt Date: 02/4/99
(Highest EPA Sample Number in last shipment of samples received under SDG.) (MM/DD/YY)

EPA Sample Numbers in the SDG (listed in alphanumeric order)

1	MBQF70	11	MBQF97
2	71	12	98
3	72	13	MBQG00
4	73	14	01
5	74	15	02
6	91	16	03
7	93	17	04
8	94	18	06
9	95	19	
10	96	20	

Note: There are a maximum of 20 field samples in an SDG.

Attach Traffic Reports to this form in alphanumeric order (i.e., the order listed on this form).

A Dubey. 02/04/99

Signature Date

000323

II 315

CHEMTECH 110 Route 4 Engle[redacted]ew Je[redacted]631 [redacted] Phone: (201) 587-[redacted] Fax: (201) 587-1333
512 Route 9 [redacted]rked P[redacted]w Jers[redacted]31 [redacted] Phone: (609) 893-21[redacted] Fax: (609) 971-9300

RECORD OF COMMUNICATION
VERBAL/ TELEPHONE COMMUNICATION LOG

Date 2/5/99 Client _____

Chemtech Project No. _____ Chain of Custody No. _____

Chemtech Contact A Patil Client Contact Nicole

Project Reference 26777

Call Initiated By: X Chemtech ___ Client

In reference to the following: (Extra bottle.) Sample MBQF70

Questions/ Issues MBQF70 is listed twice on TR. MBQF71 is also listed twice but has 2 diff locations SW-6 & SW-3 SW-6 has been marked for metals on TR but the bottle received is for CN- also as two different matrix as 1 & 4.

Resolution MBQF70 use it as a straight sample & also as QC (matrix 1 & 4) MBQF71 - use location SW-3 and hold on to the sample bottle of SW-6

Signature A Patil Date 2/5/99

000324

II 314

CHEMTECH
110 Route 4
Engle[redacted]ew Je[redacted]631 [redacted]
Phone: (201) 567-8858 Fax: (201) 567-1333
512 Route 9
[redacted]-ked P[redacted]w Jer[redacted]31 [redacted]
Phone: (609) 693-2111 Fax: (609) 971-9300

RECORD OF COMMUNICATION
VERBAL/ TELEPHONE COMMUNICATION LOG

Date 02/08/99 Client _____

Chemtech Project No. _____ Chain of Custody No. 376083

Chemtech Contact Aubey Client Contact _____

Project Reference 26777

Call Initiated By: ___ Chemtech X Client

In reference to the following: Sample no. MBQG07 ~~does not~~ is changed to MBQF93 & is assigned for sample to be used as MS/MSD

Questions/ Issues Take the tag of MBQG07 & change it to MBQF93

Resolution (1) MBQG07 Change to MBQF93
(2) Also Do QC for MBQF93

Signature Aubey Date 02/08/99

000325

Since 1967

II 320

CHEMTECH 110 Route 4 Engle[redacted] New Je[redacted]631 [redacted] Phone: (201) 587-8858 Fax: (201) 587-1333
[redacted] 512 Route 9 [redacted]rked F[redacted]ew Jer[redacted]31 [redacted] Phone: (609) 693-2111 Fax: (609) 971-9300

RECORD OF COMMUNICATION
VERBAL/ TELEPHONE COMMUNICATION LOG

Date 02/08/99 Client _____

Chemtech Project No. _____ Chain of Custody No. 374086

Chemtech Contact DDubey Client Contact Nicole

Project Reference 26777

Call Initiated By: ✓ Chemtech ____ Client

In reference to the following: Case 26777 is open or closed.

Questions/ Issues Case 26777 is open or closed.

Resolution The case is closed.

Signature DDubey Date 02/08/99

000326

Since 1967

II321

Chemtech
10 Ro[redacted] Englewood, New Jersey [redacted]1
Phone: (201) 567-6868 Fax: (201) 567-1333
512 Route 9
[redacted]d River, New Jersey [redacted]
Phone: (609) [redacted]2111 [redacted] (609) [redacted]00

RECORD OF COMMUNICATION
VERBAL/ TELEPHONE COMMUNICATION LOG

Date 02/08/99

Client _____

Chemtech Project No. _____

Chain of Custody No. 374072

Chemtech Contact _____

Client Contact Nicole

Project Reference _____

Call Initiated By: X Chemtech ____ Client

In reference to the following: (1) Matrix for MBQF91
(2) Air Bill (Sticker) (#N223-919-165-6)

Questions/ Issues (1) Sample MBQF91 is sediment but listed in TR as 1 ie surface water sample.
(2) Air Bill came as a sticker which were stuck w/ the cooler. (Stickn# N223-919-165-6, Recvd @ 2/3/99

Resolution (1) Sample MBQF91 is sediment.
(2) NO Air bill's for the ~~Bi~~ Rebuge shipment @ 2/3/99 (Stickn# N223-919-165-6)

Signature [signature] Date 2/8/99

000327

Since 1967

I I 322

Reference to Case No(s): 26777

2859

Contract Laboratory Program
REGIONAL/LABORATORY COMMUNICATION SYSTEM
Telephone Record Log

Date of Call: 1/21/99

Laboratory Name: IEACT

Lab Contact: Paul Hobart

Region: II

Regional Contact: Nicole Coene

Call Initiated By: ✓ Laboratory ___ Region

In reference to data for the following sample number(s):

BXJ16

Summary of Questions/Issues Discussed:

The sample was listed on the chain of custody record but was not received.

Summary of Resolution:

The sample was recorded on the chain of custody record in error. No analysis is required for sample BXJ16.

Signature

1/22/99
Date

Distribution: (1) Lab Copy, (2) Region Copy, (3) SMO Copy

II323

Contract Laboratory Analytical Services Support (CLASS) Record of Communication

Name: Nicole Coene

Date/Time of Contact: 2/4/99 12:26 PM

Contact Recv'd Via: ☐ Phone ☒ Fax ☐ Vmail ☐ Memo ☐ Other

Contact/Org./Phone # Paul Hobart/ Industrial Environmental Analysts/Conn/ (203) 261-4458

Initiated By: ☐ EPA ☐ CLASS ☐ Engr. Contr. ☒ Lab ☐ Region ☐ SCC ☐ Other

Type of Inquiry: Shipping Issue

[redacted] Contract #: 68-D5-0014 Case #: 26777 SDG: Region: 2

SOW: Affected Samples: BXJ24, BXJ25, BXJ28, BXJ24, BXJ31, BXJ21, BYH96 Invoice #:

Discussion/Issue:

2/4/99 12:26 PM Paul Hobart, IEACT, reported to CLASS that sample BXJ24 was received in a cracked jar. Sample BXJ25 and BXJ28 were received by the lab but not listed on the TR/COC. Sample number BXJ21 was used twice, once for a sediment sample and the second time for a water sample. Also, there was a discrepancy between the sample number listed on the TR/COC, BXJ24, and the regional specific tracking number. And finally there was not an MS/MSD designated for the second SDG.

2/4/99 12:40 PM CLASS faxed the communication to Jennifer Feranda, RSCC.

Resolution:

2/4/99 4:00 PM Jennifer Feranda notified CLASS that the lab should note the cracked jar for sample BXJ24 in the case narrative and proceed with analysis of the sample. The lab should also note and analyze both of the samples that were not listed on the TR/COC, BXJ25 and 28, and use BXJ25 for the MS/MSD of the second SDG. For the sample discrepancy, the correct sample number is BXJ24. And finally CLASS should assign a new sample number for the water sample BXJ21.

2/5/99 12:00 PM CLASS relayed all of the above resolutions to Paul Hobart and assigned sample number BYH96 to the water sample BXJ21.

CLPAS Notification: Yes Completed Date/Time: 2/17/99 3:00 PM

Related ROCs:

Distribution: [redacted] ◉ Region ◉ CLASS ◯ AOC ◯ Work Assign. Man. Date/Time: W.A.#: ST&R

Contract Laboratory Analytical Services Support (CLASS) Record of Communication

Name: Nicole Coene

Contact Recv'd Via: ☐ Phone ☒ Fax ☐ Vmail ☐ Memo ☐ Other

Date/Time of Contact: 2/5/99 12:45 AM

Contact/Org./Phone # Paul Hobart/ Industrial Environmental Analysts/Conn/ (203) 261-4458

Initiated By: ☐ EPA ☐ CLASS ☐ Engr. Contr. ☒ Lab ☐ Region ☐ SCC ☐ Other

Type of Inquiry: Shipping Issue

[redacted] Contract #: 68-D5-0014 Case #: 26777 SDG: Region: 2

SOW: Affected Samples: BXJ31, BXH31, BXH90, BXJ26, BXJ24, BXJ28, BXJ38, BXJ35, BXJ36 Invoice #:

Discussion/Issue:

2/5/99 12:45 PM Paul Hobart, IEACT, notified CLASS of sample number discrepancies between the TR/COC, BXJ31, BJX35, and BJX36 and the labels, BXH31, BXJ35, and BXJ36. Also, there was a discrepancy between the sample number listed on the TR/COC, BXJ28, and the sample number listed on the tag, BXJ38. Sample number BXH90 appears on two TR/COCs, #372204 and #372207. And lastly samples BXJ26 and 24 are sediment samples that are listed as surface waters on the TR/COC.

2/5/99 1:06 PM CLASS faxed the communication to Sherri Stevens, RSCC back-up.

Resolution:

2/5/99 3:30 PM Sherri Stevens notified CLASS that for the TR/COC label discrepancies the correct sample numbers are on the labels, BXH31, BXJ35, and BXJ36. For the TR/COC tag discrepancy the correct sample number is on the TR/COC, BXJ28. The correct TR/COC for sample BXH90 is #372207. And samples BXJ24 and 26 are sediment samples not waters.

2/5/99 3:35 PM CLASS relayed the above resolutions to Paul Hobart.

CLPAS Notification: Yes Completed Date/Time: 2/19/99 3:43 PM

Related ROCs: Date/Time: W.A.#: ST&R

Distribution: [redacted] Region ◉ CLASS ◯ AOC ◯ Work Assign. Man.

2860

Contract Laboratory Analytical Services Support (CLASS) Record of Communication

Name: Nicole Coene

Date/Time of Contact: 1/21/99 2:40 PM

Contact/Org./Phone # Paul Hobart/ Industrial Environmental Analysts, Inc.-New Jersey/ (201) 428-8181

Type of Inquiry: Shipping Issue

Contact Recv'd Via: ☒ Phone ☐ Fax ☐ Vmail ☐ Memo ☐ Other

Initiated By: ☐ EPA ☐ CLASS ☐ Engr. Contr. ☒ Lab ☐ Region ☐ SCC ☐ Other

~~Contract #: 68-D5-0014~~ ~~Case #: 26777~~ ~~SDG:~~ ~~Region: 2~~

SOW: Affected Samples: BXJ16 Invoice #:

Discussion/Issue:

/21/99 2:40 PM Paul Hobart, IEACT, notified CLASS that they did not receive sample BXJ16 which was listed on the TR/COC.

1/21/99 2:50 PM CLASS relayed the above issue to Jennifer Feranda, RSCC.

Resolution:

1/22/99 3:15 PM Deni Taveras, RSCC back-up, notified CLASS that the sample BXJ16 should not have been listed on the TR/COC nd should be canceled with IEACT. The sample was sent to the low conc organic lab PDP.

1/22/99 3:17 PM CLASS notified Paul Hobart that sample BXJ16 was canceled.

LPAS Notification: Yes Completed Date/Time: 2/1/99 10:18 AM

Related ROCs: Date/Time: W.A.#: ST&R

Distribution: ◉ Lab ◉ Region ◉ CLASS ○ AOC ○ Work Assign. Man.

CLASS is operated by DynCorp under Contract #68-D4-0104 to the U.S. Environmental Protection Agency REC #: 11741

II 326

ATTACHMENT JJ

FARER FERSKO

A PROFESSIONAL ASSOCIATION ATTORNEYS AT LAW

600 SOUTH AVENUE
P.O. BOX 580
WESTFIELD, NJ 07091-0580

908.789.8550
FAX 908.789.8660

EMAIL ff@FARERLAW.COM
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HENRY FARER
JACK FERSKO
DAVID B. FARER
RICHARD J. ERICSSON
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JAY A. JAFFE
EDWARD J. BOCCHER

LAWRENCE F. JACOBS
SUSAN C. KARP
ROBERT H. CRESPI
SUSAN L. GORDON
CATHERINE A. MULDOON
JILL H. BLUMBERG

June 17, 1999

Via Federal Express

Nick Sodano, HSMS 2
New Jersey Department of Environmental Protection
Bureau of Environmental Measurements
& Quality Assurance
Division of Publicly Funded Site Remediation
300 Horizon Center
Robbinsville, NJ 08691

Re: **Due Diligence Sampling Results**
Premises: Property Behind 551 Main Avenue
Borough of Wallington, New Jersey
Our File No.: 230302

Dear Mr. Sodano:

Here are the sampling results from the due diligence investigation performed by Jordan, Jones & Goulding, the purchaser's environmental consultant from Atlanta, Georgia. This information was provided to us as raw data along with some sketches and some field notes. No other narrative was provided with this information.

In talking with Andrew Lydick from Jordan Jones & Goulding, he indicated that the contaminant distribution underlying the site seems to indicate that the chlorinated groundwater contamination is emanating from the Curtiss Wright facility.

If you have any questions or comments concerning this information, please contact us immediately.

Regards,

Lawrence F. Jacobs
LFJ:dja
Enclosure
cc: Farmland Dairies

Andy Lydick said there were well:
3 sets.., so shallow <25'
~50'
"FM" = Farmland "D" = ~75' or top of bedr

JJ1

Jordan Jones & Goulding

2000 Clearview Avenue
Atlanta, Georgia 30340
Phone: 770/455-8555
Fax: 770/455-7391

FAX TRANSMITTAL

DATE: July 22, 1999 **TOTAL PAGES:** 2

TO: Mr. Nick Sodano

Company: New Jersey Department of Environmental Protection

Fax No: 609.584.4298

Phone No: 609.584.4275

Re: Former Hammersly site, Wallington, NJ

FROM: Leo Gentile, PG

In response to your request, attached is a diagram (not to scale) of the former Hammersly site, Wallington, New Jersey, including locations of the temporary wells installed on behalf of a third party.

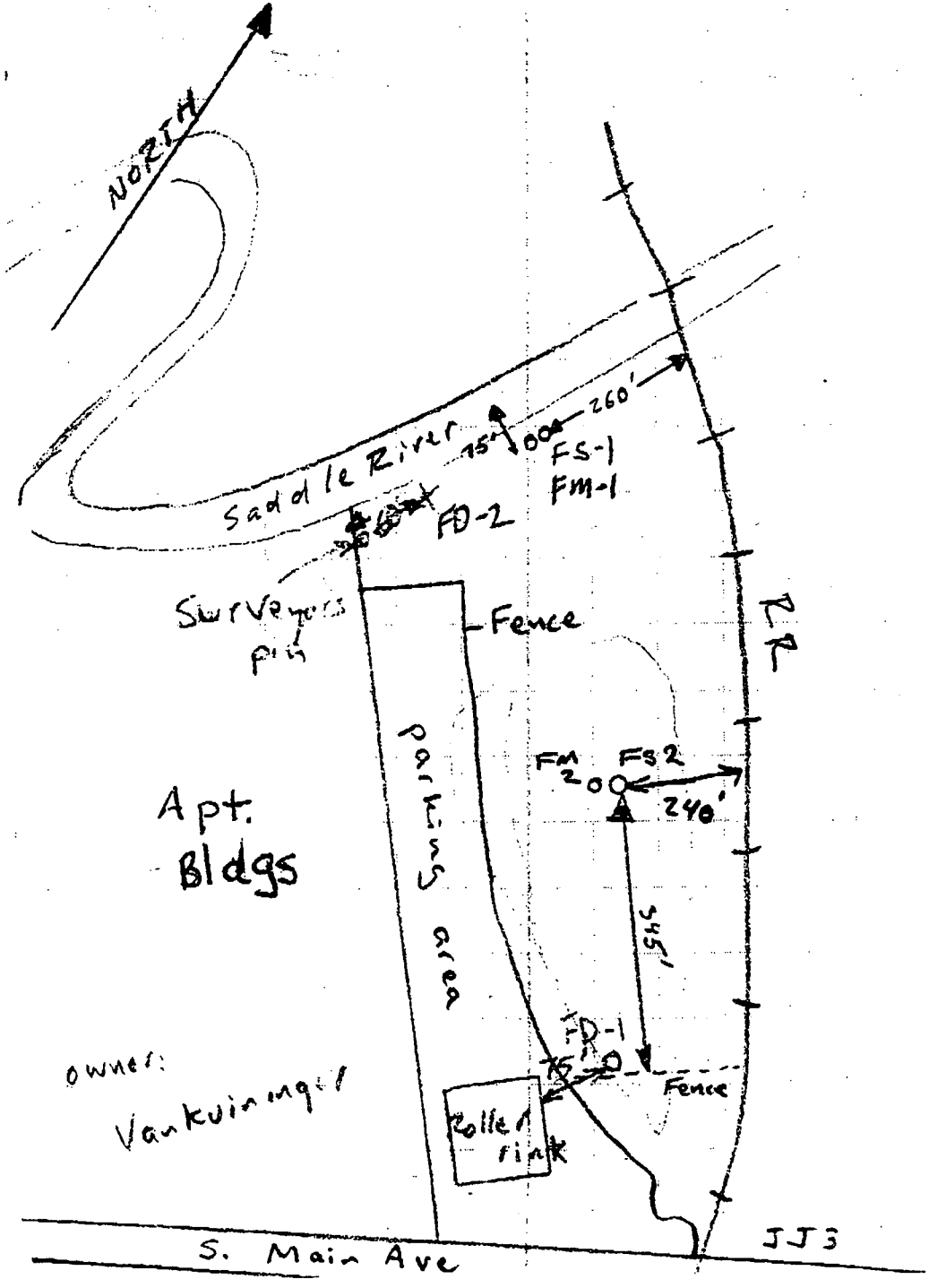
There were a total of six temporary wells installed: two shallow (FS-1 and FS-2: screened 15-25 deep), two intermediate (FM-1and FM-2: screened 40- 50 feet deep); and two deep (FD-1 and FD-2: screened 60 –70 feet deep). Their locations are shown on the attached map.

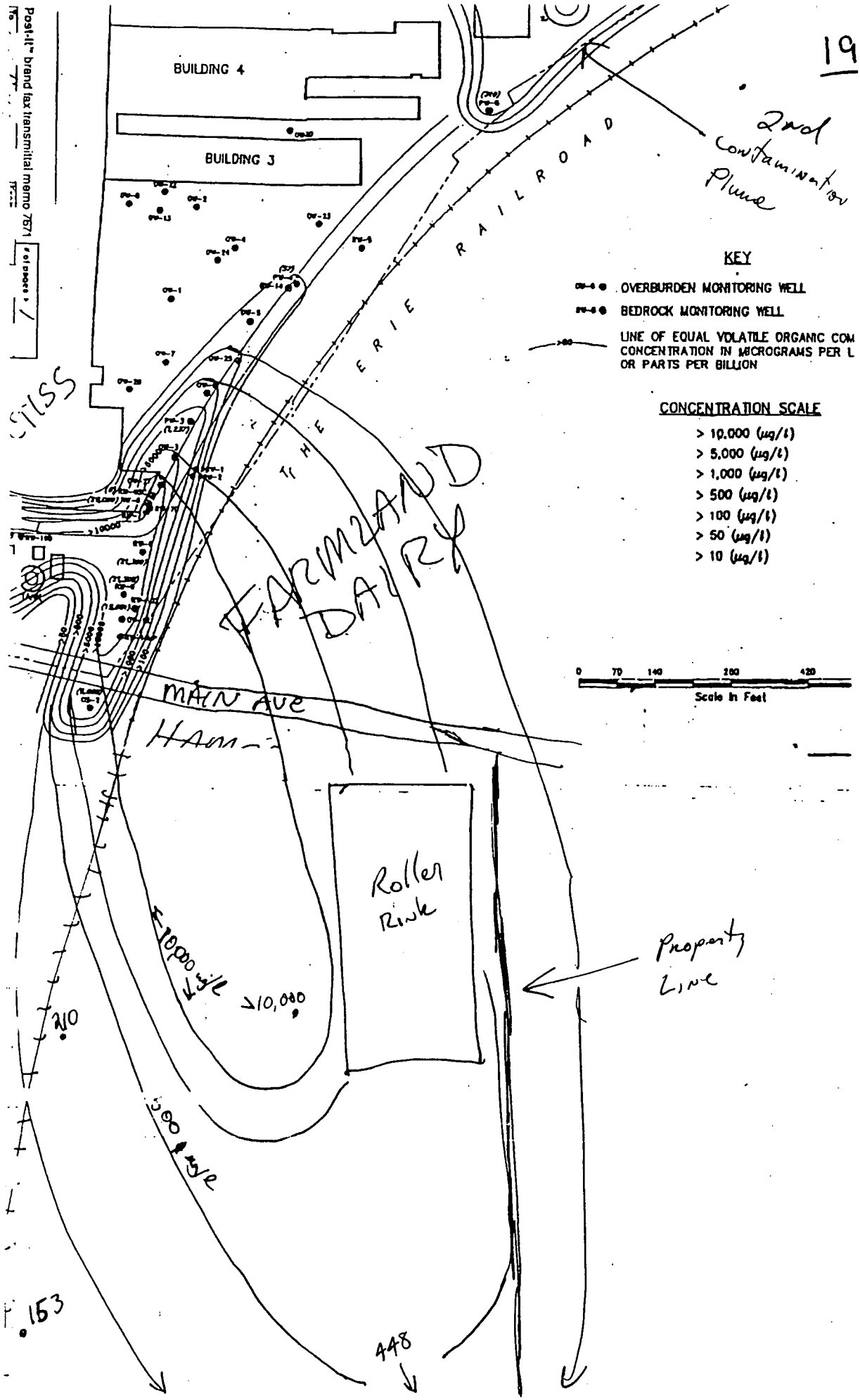
Please call me with questions you may have.

Thank you.

BORE HOLE LOCATIONS

2/18/99





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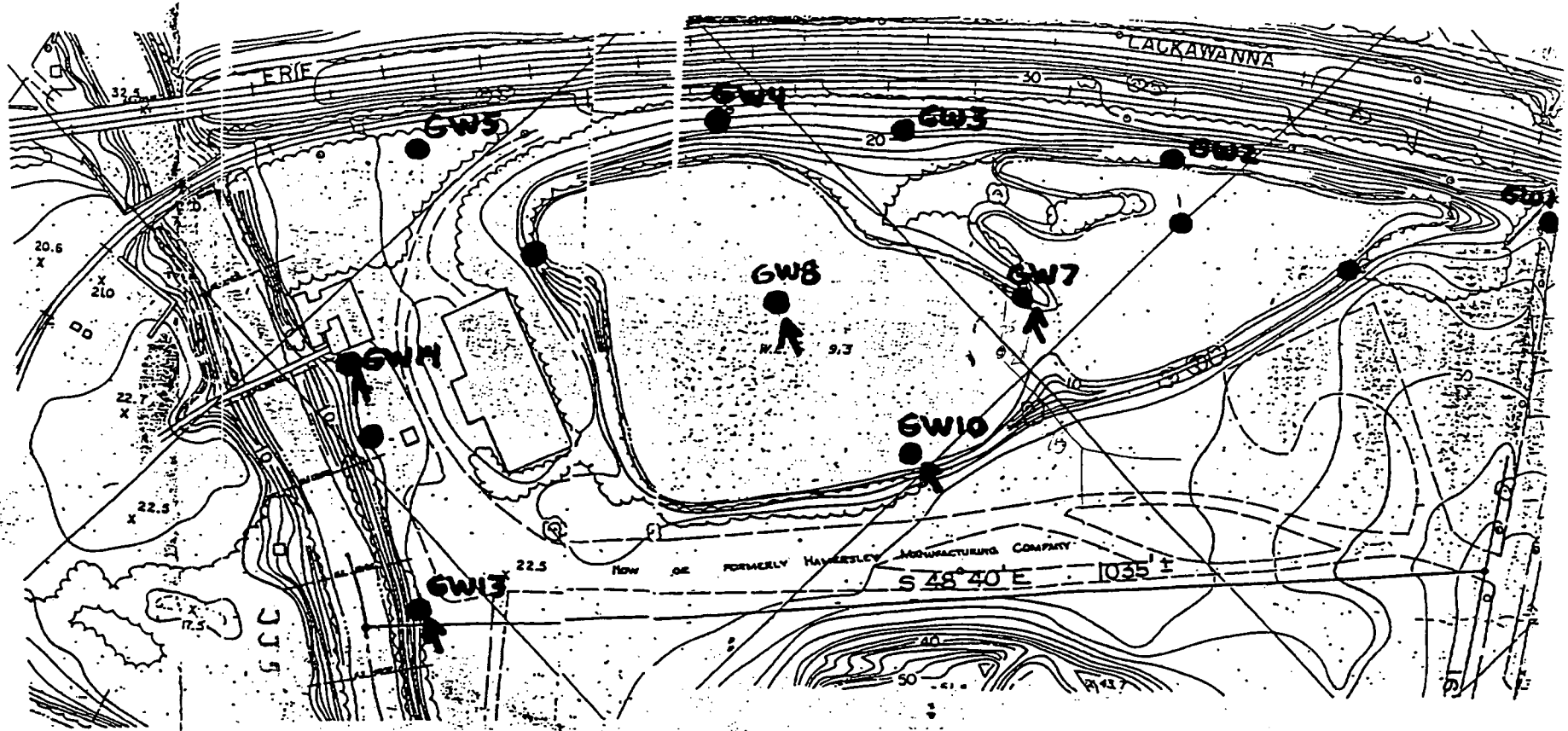
JJ4

I:agram of site as it was circa 1460



March 9, 1999
Report No. 104988-1

Groundwater, FD-2, 02/23/99, received 02/24/99

FD2

RESULTS

Volatile Organics (EPA 8260B)	Result (ug/l)	Detection Limit (ug/l)
Acetone	BDL	100
Acrolein	BDL	50
Acrylonitrile	BDL	50
Benzene	10	2
Bromobenzene	BDL	10
Bromochloromethane	BDL	10
Bromodichloromethane	BDL	10
Bromoform	BDL	10
Bromomethane	BDL	10
2-Butanone	BDL	100
n-Butylbenzene	BDL	10
sec-Butylbenzene	BDL	10
tert-Butylbenzene	BDL	10
Carbon disulfide	BDL	10
Carbon tetrachloride	BDL	2
Chlorobenzene	BDL	10
Chloroethane	BDL	5
Chloroform	BDL	2
Chloromethane	BDL	10
2-Chlorotoluene	BDL	10
4-Chlorotoluene	BDL	10
2-Chloroethylvinyl ether	BDL	10
Dibromochloromethane	BDL	10
1,2-Dibromo-3-chloropropane	BDL	10
1,2-Dibromoethane	BDL	10
Dibromomethane	BDL	10
1,2-Dichlorobenzene	BDL	10
1,3-Dichlorobenzene	BDL	10
1,4-Dichlorobenzene	BDL	10
Dichlorodifluoromethane	BDL	10
1,1-Dichloroethane	35	2
1,2-Dichloroethane	BDL	2
1,1-Dichloroethene	BDL	2
cis-1,2-Dichloroethene	230	2
trans-1,2-Dichloroethene	3	2
1,2-Dichloropropane	BDL	2
1,3-Dichloropropane	BDL	2
2,2-Dichloropropane	BDL	10
1,1-Dichloropropene	BDL	10

BDL - Below Detection Limit

March 9, 1999
Report No. 104988-1

Groundwater, FD-2, 02/23/99, received 02/24/99

RESULTS

Volatile Organics (EPA 8260B)	Result (ug/l)	Detection Limit (ug/l)
cis-1,3-Dichloropropene	BDL	2
trans-1,3-Dichloropropene	BDL	2
Ethylbenzene	BDL	2
Hexachlorobutadiene	BDL	10
2-Hexanone	BDL	10
Isopropylbenzene	BDL	10
p-Isopropyltoluene	BDL	10
Methylene chloride	BDL	5
4-Methyl-2-pentanone	BDL	10
Naphthalene	BDL	10
n-Propylbenzene	BDL	10
Styrene	BDL	5
1,1,1,2-Tetrachloroethane	BDL	2
1,1,2,2-Tetrachloroethane	BDL	2
Tetrachloroethene	BDL	2
Toluene	BDL	2
1,2,3-Trichlorobenzene	BDL	10
1,2,4-Trichlorobenzene	BDL	10
1,1,1-Trichloroethane	BDL	2
1,1,2-Trichloroethane	BDL	2
Trichloroethene	30	2
Trichlorofluoromethane	BDL	10
1,2,3-Trichloropropane	BDL	10
1,2,4-Trimethylbenzene	BDL	10
1,3,5-Trimethylbenzene	BDL	10
Vinyl acetate	BDL	10
Vinyl chloride	150	10
m+p-Xylene	BDL	5
o-Xylene	BDL	5
Xylenes (total)	BDL	5

BDL - Below Detection Limit

March 9, 1999
Report No. 104988-1

Groundwater, FD-2, 02/23/99, received 02/24/99

RESULTS

Pesticides (EPA 8081A)	Result (ug/l)	Detection Limit (ug/l)
Aldrin	BDL	0.1
BHC-alpha	BDL	0.1
BHC-beta	BDL	0.1
BHC-delta	BDL	0.1
BHC-gamma (Lindane)	BDL	0.1
Chlordane	BDL	0.5
4,4'-DDD	BDL	0.2
4,4'-DDE	BDL	0.2
4,4'-DDT	BDL	0.2
Dieldrin	BDL	0.1
Endosulfan I	BDL	0.5
Endosulfan II	BDL	0.5
Endosulfan sulfate	BDL	0.5
Endrin	BDL	0.2
Endrin aldehyde	BDL	0.2
Heptachlor	BDL	0.1
Heptachlor epoxide	BDL	0.1
Methoxychlor	BDL	0.3
Toxaphene	BDL	2.0
PCB's (EPA 8082)	**(ug/l)**	**(ug/l)**
PCB 1016	BDL	1.0
PCB 1221	BDL	1.0
PCB 1232	BDL	1.0
PCB 1242	BDL	1.0
PCB 1248	BDL	1.0
PCB 1254	BDL	1.0
PCB 1260	BDL	1.0

BDL - Below Detection Limit

JJ8

March 9, 1999
Report No. 104988-1

Groundwater, FD-2, 02/23/99, received 02/24/99

RESULTS

Hydrocarbons (EPA 8015M)	Result (mg/l)	Detection Limit (mg/l)
Hydrocarbons (as Kerosene)	BDL	1
Hydrocarbons (as Diesel Fuel)	BDL	1
Hydrocarbons (as Mineral Spirits)	BDL	1
Hydrocarbons (as Fuel Oil #2)	BDL	1
Hydrocarbons (as Fuel Oil #4)	BDL	1
Hydrocarbons (as Fuel Oil #6)	BDL	1

BDL - Below Detection Limit

Respectfully submitted,

Bonnie G. Hoque
Project Manager

Quality Assurance

ASI

ANALYTICAL SERVICES, INC.

ENVIRONMENTAL MONITORING & LABORATORY ANALYSIS

110 TECHNOLOGY PARKWAY • NORCROSS, GA 30092
(770) 734-4200 • FAX (770) 734-4201

LABORATORY REPORT

Jordan Jones & Goulding
2000 Clearview Avenue NE
Suite 200
Atlanta, GA 30340

March 9, 1999

Attention: Mr. Andy Lydick

Report No. 104988-1

Sample Description

Groundwater, FD-2, 02/23/99, received 02/24/99

RESULTS

	Result	Detection Limit
Gasoline Range Organics (mg/l)(EPA 8260B)....	0.47	0.1
Diesel Range Organics (mg/l)(EPA 8015B).....	BDL	0.20
Metals	(mg/l)	(mg/l)
Total Arsenic (As)(EPA 7060).....	BDL	0.03
Total Barium (Ba)(EPA 6010).....	0.49	0.01
Total Cadmium (Cd)(EPA 6010).....	BDL	0.01
Total Chromium (Cr)(EPA 6010).....	0.03	0.01
Total Lead (Pb)(EPA 6010).....	BDL	0.025
Total Mercury (Hg)(EPA 7470).....	BDL	0.0005
Total Selenium (Se)(EPA 7740).....	BDL	0.04
Total Silver (Ag)(EPA 6010).....	BDL	0.01

BDL - Below Detection Limit

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LABORATORY REPORT

Jordan Jones & Goulding
2000 Clearview Avenue NE
Suite 200
Atlanta, GA 30340

March 16, 1999 FM1

Attention: Mr. Andy Lydick

Report No. 104902-4

Sample Description

Groundwater, Foxtrot, Project #1285.002, FM-1, 02/20/99, received 02/22/99

RESULTS

	Result	Detection Limit
Gasoline Range Organics (mg/l)(EPA 8260B)....	0.26	0.10
Diesel Range Organics (mg/l)(EPA 8015B).....	BDL	0.20
Metals	(mg/l)	(mg/l)
Total Arsenic (As)(EPA 7060).....	BDL	0.03
Total Barium (Ba)(EPA 6010).....	0.33	0.01
Total Cadmium (Cd)(EPA 6010).....	BDL	0.01
Total Chromium (Cr)(EPA 6010).....	0.02	0.01
Total Lead (Pb)(EPA 6010).....	BDL	0.025
Total Mercury (Hg)(EPA 7470).....	BDL	0.0005
Total Selenium (Se)(EPA 7740).....	BDL	0.04
Total Silver (Ag)(EPA 6010).....	BDL	0.01

BDL - Below Detection Limit

March 16, 1999
Report No. 104902-4

Groundwater, Foxtrot, Project #1285.002, FM-1, 02/20/99, received 02/22/99

RESULTS

Volatile Organics (EPA 8260B)	Result (ug/l)	Detection Limit (ug/l)
Acetone	BDL	100
Acrolein	BDL	50
Acrylonitrile	BDL	50
Benzene	BDL	2
Bromobenzene	BDL	10
Bromochloromethane	BDL	10
Bromodichloromethane	BDL	10
Bromoform	BDL	10
Bromomethane	BDL	10
2-Butanone	BDL	100
n-Butylbenzene	BDL	10
sec-Butylbenzene	BDL	10
tert-Butylbenzene	BDL	10
Carbon disulfide	BDL	10
Carbon tetrachloride	BDL	2
Chlorobenzene	BDL	10
Chloroethane	BDL	5
Chloroform	BDL	2
Chloromethane	BDL	10
2-Chlorotoluene	BDL	10
4-Chlorotoluene	BDL	10
2-Chloroethylvinyl ether	BDL	10
Dibromochloromethane	BDL	10
1,2-Dibromo-3-chloropropane	BDL	10
1,2-Dibromoethane	BDL	10
Dibromomethane	BDL	10
1,2-Dichlorobenzene	11	10
1,3-Dichlorobenzene	BDL	10
1,4-Dichlorobenzene	BDL	10
Dichlorodifluoromethane	BDL	10
1,1-Dichloroethane	17	2
1,2-Dichloroethane	BDL	2
1,1-Dichloroethene	BDL	2
cis-1,2-Dichloroethene	120	2
trans-1,2-Dichloroethene	BDL	2
1,2-Dichloropropane	BDL	2
1,3-Dichloropropane	BDL	2
2,2-Dichloropropane	BDL	10
1,1-Dichloropropene	BDL	10

BDL - Below Detection Limit

March 16, 1999
Report No. 104902-4

Groundwater, Foxtrot, Project #1285.002, FM-1, 02/20/99, received 02/22/99

RESULTS

Volatile Organics (EPA 8260B)	Result (ug/l)	Detection Limit (ug/l)
cis-1,3-Dichloropropene	BDL	2
trans-1,3-Dichloropropene	BDL	2
Ethylbenzene	BDL	2
Hexachlorobutadiene	BDL	10
2-Hexanone	BDL	10
Isopropylbenzene	BDL	10
p-Isopropyltoluene	BDL	10
Methylene chloride	BDL	5
4-Methyl-2-pentanone	BDL	10
Naphthalene	BDL	10
n-Propylbenzene	BDL	10
Styrene	BDL	5
1,1,1,2-Tetrachloroethane	BDL	2
1,1,2,2-Tetrachloroethane	BDL	2
Tetrachloroethene	BDL	2
Toluene	BDL	2
1,2,3-Trichlorobenzene	BDL	10
1,2,4-Trichlorobenzene	BDL	10
1,1,1-Trichloroethane	BDL	2
1,1,2-Trichloroethane	BDL	2
Trichloroethene	13	2
Trichlorofluoromethane	BDL	10
1,2,3-Trichloropropane	BDL	10
1,2,4-Trimethylbenzene	BDL	10
1,3,5-Trimethylbenzene	BDL	10
Vinyl acetate	BDL	10
Vinyl chloride	19	10
m+p-Xylene	BDL	5
o-Xylene	BDL	5
Xylenes (total)	BDL	5

BDL - Below Detection Limit

March 16, 1999
Report No. 104902-4

Groundwater, Foxtrot, Project #1285.002, FM-1, 02/20/99, received 02/22/99

RESULTS

Pesticides (EPA 8081A)	Result (ug/l)	Detection Limit (ug/l)
Aldrin	BDL	0.1
BHC-alpha	BDL	0.1
BHC-beta	BDL	0.1
BHC-delta	BDL	0.1
BHC-gamma (Lindane)	BDL	0.1
Chlordane	BDL	0.5
4,4'-DDD	BDL	0.2
4,4'-DDE	BDL	0.2
4,4'-DDT	BDL	0.2
Dieldrin	BDL	0.1
Endosulfan I	BDL	0.5
Endosulfan II	BDL	0.5
Endosulfan sulfate	BDL	0.5
Endrin	BDL	0.2
Endrin aldehyde	BDL	0.2
Heptachlor	BDL	0.1
Heptachlor epoxide	BDL	0.1
Methoxychlor	BDL	0.3
Toxaphene	BDL	2.0
PCB's (EPA 8082)	**(ug/l)**	**(ug/l)**
PCB 1016	BDL	1.0
PCB 1221	BDL	1.0
PCB 1232	BDL	1.0
PCB 1242	BDL	1.0
PCB 1248	BDL	1.0
PCB 1254	BDL	1.0
PCB 1260	BDL	1.0

BDL - Below Detection Limit

JJ14

March 16, 1999
Report No. 104902-4

Groundwater, Foxtrot, Project #1285.002, FM-1, 02/20/99, received 02/22/99

RESULTS

Hydrocarbons (EPA 8015M)	Result (mg/l)	Detection Limit (mg/l)
Hydrocarbons (as Kerosene).....	BDL	1
Hydrocarbons (as Diesel Fuel).....	BDL	1
Hydrocarbons (as Mineral Spirits).....	BDL	1
Hydrocarbons (as Fuel Oil #2).....	BDL	1
Hydrocarbons (as Fuel Oil #4).....	BDL	1
Hydrocarbons (as Fuel Oil #6).....	BDL	1

BDL - Below Detection Limit

Respectfully submitted,

Bonnie O'Hogue
Project Manager

Carrie Bonnf
Quality Assurance

ASI

ANALYTICAL SERVICES, INC.

ENVIRONMENTAL MONITORING & LABORATORY ANALYSIS

110 TECHNOLOGY PARKWAY • NORCROSS, GA 30092
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RECEIVED
MAR 09 1999

LABORATORY REPORT

Project #

Jordan Jones & Goulding
2000 Clearview Avenue NE
Suite 200
Atlanta, GA 30340

March 3, 1999

FS1

Attention: Mr. Andy Lydick

Report No. 104767-1

Sample Description

Groundwater, Foxtrot, Project #1285.002, FS-1, 02/17/99, 09:23, received 02/18/99

RESULTS

	Result	Detection Limit
Gasoline Range Organics (mg/l)(EPA 8260B)....	BDL	0.10
Diesel Range Organics (mg/l)(EPA 8015B).....	BDL	0.20
Metals	(mg/l)	(mg/l)
Total Arsenic (As)(EPA 7060).....	BDL	0.03
Total Barium (Ba)(EPA 6010).....	0.06	0.01
Total Cadmium (Cd)(EPA 6010).....	BDL	0.01
Total Chromium (Cr)(EPA 6010).....	BDL	0.01
Total Lead (Pb)(EPA 6010).....	BDL	0.025
Total Mercury (Hg)(EPA 7470).....	BDL	0.0005
Total Selenium (Se)(EPA 7740).....	BDL	0.04
Total Silver (Ag)(EPA 6010).....	BDL	0.01

BDL - Below Detection Limit

JJ16

Groundwater, Foxtrot, Project #1285.002, FS-1, 02/17/99, 09:23, received 02/18/99

RESULTS

Volatile Organics (EPA 8260B)	Result (ug/l)	Detection Limit (ug/l)
Acetone	BDL	100
Acrolein	BDL	50
Acrylonitrile	BDL	50
Benzene	BDL	2
Bromobenzene	BDL	10
Bromochloromethane	BDL	10
Bromodichloromethane	BDL	10
Bromoform	BDL	10
Bromomethane	BDL	10
2-Butanone	BDL	100
n-Butylbenzene	BDL	10
sec-Butylbenzene	BDL	10
tert-Butylbenzene	BDL	10
Carbon disulfide	BDL	10
Carbon tetrachloride	BDL	2
Chlorobenzene	BDL	10
Chloroethane	BDL	5
Chloroform	BDL	2
Chloromethane	BDL	10
2-Chlorotoluene	BDL	10
4-Chlorotoluene	BDL	10
2-Chloroethylvinyl ether	BDL	10
Dibromochloromethane	BDL	10
1,2-Dibromo-3-chloropropane	BDL	10
1,2-Dibromoethane	BDL	10
Dibromomethane	BDL	10
1,2-Dichlorobenzene	BDL	10
1,3-Dichlorobenzene	BDL	10
1,4-Dichlorobenzene	BDL	10
Dichlorodifluoromethane	BDL	10
1,1-Dichloroethane	BDL	2
1,2-Dichloroethane	BDL	2
1,1-Dichloroethene	BDL	2
cis-1,2-Dichloroethene	BDL	2
trans-1,2-Dichloroethene	BDL	2
1,2-Dichloropropane	BDL	2
1,3-Dichloropropane	BDL	2
2,2-Dichloropropane	BDL	10

BDL - Below Detection Limit

March 3, 1999
Report No. 104767-1

Groundwater, Foxtrot, Project #1285.002, FS-1, 02/17/99, 09:23, received 02/18/99

RESULTS

Volatile Organics (EPA 8260B)	Result (ug/l)	Detection Limit (ug/l)
1,1-Dichloropropene	BDL	10
cis-1,3-Dichloropropene	BDL	2
trans-1,3-Dichloropropene	BDL	2
Ethylbenzene	BDL	2
Hexachlorobutadiene	BDL	10
2-Hexanone	BDL	10
Isopropylbenzene	BDL	10
p-Isopropyltoluene	BDL	10
Methylene chloride	BDL	5
4-Methyl-2-pentanone	BDL	10
Naphthalene	BDL	10
n-Propylbenzene	BDL	10
Styrene	BDL	5
1,1,1,2-Tetrachloroethane	BDL	2
1,1,2,2-Tetrachloroethane	BDL	2
Tetrachloroethene	BDL	2
Toluene	BDL	2
1,2,3-Trichlorobenzene	BDL	10
1,2,4-Trichlorobenzene	BDL	10
1,1,1-Trichloroethane	BDL	2
1,1,2-Trichloroethane	BDL	2
Trichloroethene	BDL	2
Trichlorofluoromethane	BDL	10
1,2,3-Trichloropropane	BDL	10
1,2,4-Trimethylbenzene	BDL	10
1,3,5-Trimethylbenzene	BDL	10
Vinyl acetate	BDL	10
Vinyl chloride	BDL	10
m+p-Xylene	BDL	5
o-Xylene	BDL	5
Xylenes (total)	BDL	5

BDL - Below Detection Limit

JJ18

March 3, 1999
Report No. 104767-1

Groundwater, Foxtrot, Project #1285.002, FS-1, 02/17/99, 09:23, received 02/18/99

RESULTS

Pesticides (EPA 8081A)	Result (ug/l)	Detection Limit (ug/l)
Aldrin	BDL	0.1
BHC-alpha	BDL	0.1
BHC-beta	BDL	0.1
BHC-delta	BDL	0.1
BHC-gamma (Lindane)	BDL	0.1
Chlordane	BDL	0.5
4,4'-DDD	BDL	0.2
4,4'-DDE	BDL	0.2
4,4'-DDT	BDL	0.2
Dieldrin	BDL	0.1
Endosulfan I	BDL	0.5
Endosulfan II	BDL	0.5
Endosulfan sulfate	BDL	0.5
Endrin	BDL	0.2
Endrin aldehyde	BDL	0.2
Heptachlor	BDL	0.1
Heptachlor epoxide	BDL	0.1
Methoxychlor	BDL	0.3
Toxaphene	BDL	2.0
PCB's (EPA 8082)	**(ug/l)**	**(ug/l)**
PCB 1016	BDL	1.0
PCB 1221	BDL	1.0
PCB 1232	BDL	1.0
PCB 1242	BDL	1.0
PCB 1248	BDL	1.0
PCB 1254	BDL	1.0
PCB 1260	BDL	1.0

BDL - Below Detection Limit

March 3, 1999
Report No. 104767-1

Groundwater, Foxtrot, Project #1285.002, FS-1, 02/17/99, 09:23, received 02/18/99

RESULTS

Hydrocarbons (EPA 8015M)	Result (mg/l)	Detection Limit (mg/l)
Hydrocarbons (as Kerosene)	BDL	1
Hydrocarbons (as Diesel Fuel)	BDL	1
Hydrocarbons (as Mineral Spirits)	BDL	1
Hydrocarbons (as Fuel Oil #2)	BDL	1
Hydrocarbons (as Fuel Oil #4)	BDL	1
Hydrocarbons (as Fuel Oil #6)	BDL	1

BDL - Below Detection Limit

Respectfully submitted,

Bonnie G Hogue
Project Manager

Quality Assurance

JJ20

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ANALYTICAL SERVICES, INC.

ENVIRONMENTAL MONITORING & LABORATORY ANALYSIS

110 TECHNOLOGY PARKWAY • NORCROSS, GA 30092
(770) 734-4200 • FAX (770) 734-4201

FM2

LABORATORY REPORT

Jordan Jones & Goulding
2000 Clearview Avenue NE
Suite 200
Atlanta, GA 30340

March 16, 1999

Attention: Mr. Andy Lydick

Report No. 104902-2

Sample Description

Groundwater, Foxtrot, Project #1285.002, FM-2, 02/20/99, received 02/22/99

RESULTS

	Result	Detection Limit
Gasoline Range Organics (mg/l)(EPA 8260B)....	0.11	0.10
Diesel Range Organics (mg/l)(EPA 8015B).....	0.28	0.20
Metals	(mg/l)	(mg/l)
Total Arsenic (As)(EPA 7060).....	BDL	0.03
Total Barium (Ba)(EPA 6010).....	0.78	0.01
Total Cadmium (Cd)(EPA 6010).....	BDL	0.01
Total Chromium (Cr)(EPA 6010).....	BDL	0.01
Total Lead (Pb)(EPA 6010).....	BDL	0.025
Total Mercury (Hg)(EPA 7470).....	BDL	0.0005
Total Selenium (Se)(EPA 7740).....	BDL	0.04
Total Silver (Ag)(EPA 6010).....	BDL	0.01

BDL - Below Detection Limit

March 16, 1999
Report No. 104902-2

Groundwater, Foxtrot, Project #1285.002, FM-2, 02/20/99, received 02/22/99

FM2

RESULTS

Volatile Organics (EPA 8260B)	Result (ug/l)	Detection Limit (ug/l)
Acetone	BDL	100
Acrolein	BDL	50
Acrylonitrile	BDL	50
Benzene	BDL	2
Bromobenzene	BDL	10
Bromochloromethane	BDL	10
Bromodichloromethane	BDL	10
Bromoform	BDL	10
Bromomethane	BDL	10
2-Butanone	BDL	100
n-Butylbenzene	BDL	10
sec-Butylbenzene	BDL	10
tert-Butylbenzene	BDL	10
Carbon disulfide	BDL	10
Carbon tetrachloride	BDL	2
Chlorobenzene	BDL	10
Chloroethane	BDL	5
Chloroform	BDL	2
Chloromethane	BDL	10
2-Chlorotoluene	BDL	10
4-Chlorotoluene	BDL	10
2-Chloroethylvinyl ether	BDL	10
Dibromochloromethane	BDL	10
1,2-Dibromo-3-chloropropane	BDL	10
1,2-Dibromoethane	BDL	10
Dibromomethane	BDL	10
1,2-Dichlorobenzene	BDL	10
1,3-Dichlorobenzene	BDL	10
1,4-Dichlorobenzene	BDL	10
Dichlorodifluoromethane	BDL	10
1,1-Dichloroethane	BDL	2
1,2-Dichloroethane	BDL	2
1,1-Dichloroethene	BDL	2
cis-1,2-Dichloroethene	BDL	2
trans-1,2-Dichloroethene	BDL	2
1,2-Dichloropropane	BDL	2
1,3-Dichloropropane	BDL	2
2,2-Dichloropropane	BDL	10
1,1-Dichloropropene	BDL	10

BDL - Below Detection Limit

JJ22

March 16, 1999
Report No. 104902-2

Groundwater, Foxtrot, Project #1285.002, FM-2, 02/20/99, received 02/22/99

RESULTS

FM2

Volatile Organics (EPA 8260B)	Result (ug/l)	Detection Limit (ug/l)
cis-1,3-Dichloropropene	BDL	2
trans-1,3-Dichloropropene	BDL	2
Ethylbenzene	BDL	2
Hexachlorobutadiene	BDL	10
2-Hexanone	BDL	10
Isopropylbenzene	BDL	10
p-Isopropyltoluene	BDL	10
Methylene chloride	BDL	5
4-Methyl-2-pentanone	BDL	10
Naphthalene	BDL	10
n-Propylbenzene	BDL	10
Styrene	BDL	5
1,1,1,2-Tetrachloroethane	BDL	2
1,1,2,2-Tetrachloroethane	BDL	2
Tetrachloroethene	BDL	2
Toluene	BDL	2
1,2,3-Trichlorobenzene	BDL	10
1,2,4-Trichlorobenzene	BDL	10
1,1,1-Trichloroethane	BDL	2
1,1,2-Trichloroethane	BDL	2
Trichloroethene	BDL	2
Trichlorofluoromethane	BDL	10
1,2,3-Trichloropropane	BDL	10
1,2,4-Trimethylbenzene	BDL	10
1,3,5-Trimethylbenzene	BDL	10
Vinyl acetate	BDL	10
Vinyl chloride	BDL	10
m+p-Xylene	BDL	5
o-Xylene	BDL	5
Xylenes (total)	BDL	5

BDL - Below Detection Limit

March 16, 1999
Report No. 104902-2

Groundwater, Foxtrot, Project #1285.002, FM-2, 02/20/99, received 02/22/99

FM2

RESULTS

Pesticides (EPA 8081A)	Result (ug/l)	Detection Limit (ug/l)
Aldrin	BDL	0.1
BHC-alpha	BDL	0.1
BHC-beta	BDL	0.1
BHC-delta	BDL	0.1
BHC-gamma (Lindane)	BDL	0.1
Chlordane	BDL	0.5
4,4'-DDD	BDL	0.2
4,4'-DDE	BDL	0.2
4,4'-DDT	BDL	0.2
Dieldrin	BDL	0.1
Endosulfan I	BDL	0.5
Endosulfan II	BDL	0.5
Endosulfan sulfate	BDL	0.5
Endrin	BDL	0.2
Endrin aldehyde	BDL	0.2
Heptachlor	BDL	0.1
Heptachlor epoxide	BDL	0.1
Methoxychlor	BDL	0.3
Toxaphene	BDL	2.0
PCB's (EPA 8082)	**(ug/l)**	**(ug/l)**
PCB 1016	BDL	1.0
PCB 1221	BDL	1.0
PCB 1232	BDL	1.0
PCB 1242	BDL	1.0
PCB 1248	BDL	1.0
PCB 1254	BDL	1.0
PCB 1260	BDL	1.0

BDL - Below Detection Limit

March 16, 1999
Report No. 104902-2

Groundwater, Foxtrot, Project #1285.002, FM-2, 02/20/99, received 02/22/99

FM2

RESULTS

Hydrocarbons (EPA 8015M)	Result (mg/l)	Detection Limit (mg/l)
Hydrocarbons (as Kerosene).....	BDL	1
Hydrocarbons (as Diesel Fuel).....	BDL	1
Hydrocarbons (as Mineral Spirits).....	BDL	1
Hydrocarbons (as Fuel Oil #2).....	BDL	1
Hydrocarbons (as Fuel Oil #4).....	BDL	1
Hydrocarbons (as Fuel Oil #6).....	BDL	1

BDL - Below Detection Limit

Respectfully submitted,

Bonnie J Hogue
Project Manager

Carrie Brown
Quality Assurance

JJ25

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ANALYTICAL SERVICES, INC.

ENVIRONMENTAL MONITORING & LABORATORY ANALYSIS

110 TECHNOLOGY PARKWAY • NORCROSS, GA 30092
(770) 734-4200 • FAX (770) 734-4201

FS2

LABORATORY REPORT

Jordan Jones & Goulding
2000 Clearview Avenue NE
Suite 200
Atlanta, GA 30340

March 3, 1999

Attention: Mr. Andy Lydick

Report No. 104767-2

Sample Description

Groundwater, Foxtrot, Project #1285.002, FS-2, 02/17/99, 11:20, received 02/18/99

RESULTS

	Result	Detection Limit
Gasoline Range Organics (mg/l)(EPA 8260B)....	0.11	0.10
Diesel Range Organics (mg/kg)(EPA 8015B).....	0.31	0.20
Metals	(mg/l)	(mg/l)
Total Arsenic (As)(EPA 7060).....	BDL	0.03
Total Barium (Ba)(EPA 6010).....	2.3	0.01
Total Cadmium (Cd)(EPA 6010).....	BDL	0.01
Total Chromium (Cr)(EPA 6010).....	BDL	0.01
Total Lead (Pb)(EPA 6010).....	0.18	0.025
Total Mercury (Hg)(EPA 7470).....	BDL	0.0005
Total Selenium (Se)(EPA 7740).....	BDL	0.04
Total Silver (Ag)(EPA 6010).....	BDL	0.01

BDL - Below Detection Limit

March 3, 1999
Report No. 104767-2

Groundwater, Foxtrot, Project #1285.002, FS-2, 02/17/99, 11:20, received 02/18/99

RESULTS

Volatile Organics (EPA 8260B)	Result (ug/l)	Detection Limit (ug/l)
Acetone	BDL	100
Acrolein	BDL	50
Acrylonitrile	BDL	50
Benzene	BDL	2
Bromobenzene	BDL	10
Bromochloromethane	BDL	10
Bromodichloromethane	BDL	10
Bromoform	BDL	10
Bromomethane	BDL	10
2-Butanone	BDL	100
n-Butylbenzene	BDL	10
sec-Butylbenzene	BDL	10
tert-Butylbenzene	BDL	10
Carbon disulfide	BDL	10
Carbon tetrachloride	BDL	2
Chlorobenzene	BDL	10
Chloroethane	BDL	5
Chloroform	BDL	2
Chloromethane	BDL	10
2-Chlorotoluene	BDL	10
4-Chlorotoluene	BDL	10
2-Chloroethylvinyl ether	BDL	10
Dibromochloromethane	BDL	10
1,2-Dibromo-3-chloropropane	BDL	10
1,2-Dibromoethane	BDL	10
Dibromomethane	BDL	10
1,2-Dichlorobenzene	BDL	10
1,3-Dichlorobenzene	BDL	10
1,4-Dichlorobenzene	BDL	10
Dichlorodifluoromethane	BDL	10
1,1-Dichloroethane	BDL	2
1,2-Dichloroethane	BDL	2
1,1-Dichloroethene	BDL	2
cis-1,2-Dichloroethene	BDL	2
trans-1,2-Dichloroethene	BDL	2
1,2-Dichloropropane	BDL	2
1,3-Dichloropropane	BDL	2
2,2-Dichloropropane	BDL	10

BDL - Below Detection Limit

March 3, 1999
Report No. 104767-2

Groundwater, Foxtrot, Project #1285.002, FS-2, 02/17/99, 11:20, received 02/18/99

RESULTS

Volatile Organics (EPA 8260B)	Result (ug/l)	Detection Limit (ug/l)
1,1-Dichloropropene	BDL	10
cis-1,3-Dichloropropene	BDL	2
trans-1,3-Dichloropropene	BDL	2
Ethylbenzene	BDL	2
Hexachlorobutadiene	BDL	10
2-Hexanone	BDL	10
Isopropylbenzene	BDL	10
p-Isopropyltoluene	BDL	10
Methylene chloride	BDL	5
4-Methyl-2-pentanone	BDL	10
Naphthalene	BDL	10
n-Propylbenzene	BDL	10
Styrene	BDL	5
1,1,1,2-Tetrachloroethane	BDL	2
1,1,2,2-Tetrachloroethane	BDL	2
Tetrachloroethene	BDL	2
Toluene	7	2
1,2,3-Trichlorobenzene	BDL	10
1,2,4-Trichlorobenzene	BDL	10
1,1,1-Trichloroethane	BDL	2
1,1,2-Trichloroethane	BDL	2
Trichloroethene	BDL	2
Trichlorofluoromethane	BDL	10
1,2,3-Trichloropropane	BDL	10
1,2,4-Trimethylbenzene	BDL	10
1,3,5-Trimethylbenzene	BDL	10
Vinyl acetate	BDL	10
Vinyl chloride	BDL	10
m+p-Xylene	BDL	5
o-Xylene	BDL	5
Xylenes (total)	BDL	5

BDL - Below Detection Limit

March 3, 1999
Report No. 104767-2

Groundwater, Foxtrot, Project #1285.002, FS-2, 02/17/99, 11:20, received 02/18/99

RESULTS

Pesticides (EPA 8081A)	Result (ug/l)	Detection Limit (ug/l)
Aldrin	BDL	0.1
BHC-alpha	BDL	0.1
BHC-beta	BDL	0.1
BHC-delta	BDL	0.1
BHC-gamma (Lindane)	BDL	0.1
Chlordane	BDL	0.5
4,4'-DDD	BDL	0.2
4,4'-DDE	BDL	0.2
4,4'-DDT	BDL	0.2
Dieldrin	BDL	0.1
Endosulfan I	BDL	0.5
Endosulfan II	BDL	0.5
Endosulfan sulfate	BDL	0.5
Endrin	BDL	0.2
Endrin aldehyde	BDL	0.2
Heptachlor	BDL	0.1
Heptachlor epoxide	BDL	0.1
Methoxychlor	BDL	0.3
Toxaphene	BDL	2.0

PCB's (EPA 8082)	(ug/l)	(ug/l)
PCB 1016	BDL	1.0
PCB 1221	BDL	1.0
PCB 1232	BDL	1.0
PCB 1242	BDL	1.0
PCB 1248	BDL	1.0
PCB 1254	BDL	1.0
PCB 1260	BDL	1.0

BDL - Below Detection Limit

March 3, 1999
Report No. 104767-2

Groundwater, Foxtrot, Project #1285.002, FS-2, 02/17/99, 11:20, received 02/18/99

RESULTS

Hydrocarbons (EPA 8015M)	Result (mg/l)	Detection Limit (mg/l)
Hydrocarbons (as Kerosene)	BDL	1
Hydrocarbons (as Diesel Fuel)	BDL	1
Hydrocarbons (as Mineral Spirits)	BDL	1
Hydrocarbons (as Fuel Oil #2)	BDL	1
Hydrocarbons (as Fuel Oil #4)	BDL	1
Hydrocarbons (as Fuel Oil #6)	BDL	1

BDL - Below Detection Limit

Respectfully submitted,

Bonnie G. Hogue
Project Manager

Quality Assurance

ASI

ANALYTICAL SERVICES, INC.

ENVIRONMENTAL MONITORING & LABORATORY ANALYSIS

110 TECHNOLOGY PARKWAY • NORCROSS, GA 30092
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LABORATORY REPORT

Jordan Jones & Goulding
2000 Clearview Avenue NE
Suite 200
Atlanta, GA 30340

March 16, 1999

FDI

Attention: Mr. Andy Lydick

Report No. 104902-3

Sample Description

Groundwater, Foxtrot, Project #1285.002, FD-1, 02/20/99, received 02/22/99

RESULTS

	Result	Detection Limit
Gasoline Range Organics (mg/l)(EPA 8260B)....	24	0.10
Diesel Range Organics (mg/l)(EPA 8015B).....	BDL	0.20
Metals	(mg/l)	(mg/l)
Total Arsenic (As)(EPA 7060).....	BDL	0.03
Total Barium (Ba)(EPA 6010).....	0.34	0.01
Total Cadmium (Cd)(EPA 6010).....	BDL	0.01
Total Chromium (Cr)(EPA 6010).....	0.14	0.01
Total Lead (Pb)(EPA 6010).....	BDL	0.025
Total Mercury (Hg)(EPA 7470).....	BDL	0.0005
Total Selenium (Se)(EPA 7740).....	BDL	0.04
Total Silver (Ag)(EPA 6010).....	BDL	0.01

BDL - Below Detection Limit

March 16, 1999
Report No. 104902-3

Groundwater, Foxtrot, Project #1285.002, FD-1, 02/20/99, received 02/22/99

RESULTS

FD1

Volatile Organics (EPA 8260B)	Result (ug/l)	Detection Limit (ug/l)
Acetone	BDL	100
Acrolein	BDL	50
Acrylonitrile	BDL	50
Benzene	9	2
Bromobenzene	BDL	10
Bromochloromethane	BDL	10
Bromodichloromethane	BDL	10
Bromoform	BDL	10
Bromomethane	BDL	10
2-Butanone	BDL	100
n-Butylbenzene	BDL	10
sec-Butylbenzene	BDL	10
tert-Butylbenzene	BDL	10
Carbon disulfide	BDL	10
Carbon tetrachloride	BDL	2
Chlorobenzene	BDL	10
Chloroethane	BDL	5
Chloroform	18	2
Chloromethane	BDL	10
2-Chlorotoluene	BDL	10
4-Chlorotoluene	BDL	10
2-Chloroethylvinyl ether	BDL	10
Dibromochloromethane	BDL	10
1,2-Dibromo-3-chloropropane	BDL	10
1,2-Dibromoethane	BDL	10
Dibromomethane	BDL	10
1,2-Dichlorobenzene	BDL	10
1,3-Dichlorobenzene	BDL	10
1,4-Dichlorobenzene	BDL	10
Dichlorodifluoromethane	BDL	10
1,1-Dichloroethane	31	2
1,2-Dichloroethane	14	2
1,1-Dichloroethene	65	2
cis-1,2-Dichloroethene	4700	2
trans-1,2-Dichloroethene	18	2
1,2-Dichloropropane	BDL	2
1,3-Dichloropropane	BDL	2
2,2-Dichloropropane	BDL	10
1,1-Dichloropropene	BDL	10

BDL - Below Detection Limit

March 16, 1999
Report No. 104902-3

Groundwater, Foxtrot, Project #1285.002, FD-1, 02/20/99, received 02/22/99

RESULTS

Volatile Organics (EPA 8260B)	Result (ug/l)	Detection Limit (ug/l)
cis-1,3-Dichloropropene	BDL	2
trans-1,3-Dichloropropene	BDL	2
Ethylbenzene	BDL	2
Hexachlorobutadiene	BDL	10
2-Hexanone	BDL	10
Isopropylbenzene	BDL	10
p-Isopropyltoluene	BDL	10
Methylene chloride	BDL	5
4-Methyl-2-pentanone	BDL	10
Naphthalene	BDL	10
n-Propylbenzene	BDL	10
Styrene	BDL	5
1,1,1,2-Tetrachloroethane	BDL	2
1,1,2,2-Tetrachloroethane	BDL	2
Tetrachloroethene	190	2
Toluene	BDL	2
1,2,3-Trichlorobenzene	BDL	10
1,2,4-Trichlorobenzene	BDL	10
1,1,1-Trichloroethane	7	2
1,1,2-Trichloroethane	13	2
Trichloroethene	10000	2
Trichlorofluoromethane	BDL	10
1,2,3-Trichloropropane	BDL	10
1,2,4-Trimethylbenzene	BDL	10
1,3,5-Trimethylbenzene	BDL	10
Vinyl acetate	BDL	10
Vinyl chloride	150	10
m+p-Xylene	BDL	5
o-Xylene	BDL	5
Xylenes (total)	BDL	5

BDL - Below Detection Limit

March 16, 1999
Report No. 104902-3

Groundwater, Foxtrot, Project #1285.002, FD-1, 02/20/99, received 02/22/99

RESULTS

Pesticides (EPA 8081A)	Result (ug/l)	Detection Limit (ug/l)
Aldrin	BDL	0.1
BHC-alpha	BDL	0.1
BHC-beta	BDL	0.1
BHC-delta	BDL	0.1
BHC-gamma (Lindane)	BDL	0.1
Chlordane	BDL	0.5
4,4'-DDD	BDL	0.2
4,4'-DDE	BDL	0.2
4,4'-DDT	BDL	0.2
Dieldrin	BDL	0.1
Endosulfan I	BDL	0.5
Endosulfan II	BDL	0.5
Endosulfan sulfate	BDL	0.5
Endrin	BDL	0.2
Endrin aldehyde	BDL	0.2
Heptachlor	BDL	0.1
Heptachlor epoxide	BDL	0.1
Methoxychlor	BDL	0.3
Toxaphene	BDL	2.0
PCB's (EPA 8082)	**(ug/l)**	**(ug/l)**
PCB 1016	BDL	1.0
PCB 1221	BDL	1.0
PCB 1232	BDL	1.0
PCB 1242	BDL	1.0
PCB 1248	BDL	1.0
PCB 1254	BDL	1.0
PCB 1260	BDL	1.0

BDL - Below Detection Limit

March 16, 1999
Report No. 104902-3

Groundwater, Foxtrot, Project #1285.002, FD-1, 02/20/99, received 02/22/99

RESULTS

Hydrocarbons (EPA 8015M)	Result (mg/l)	Detection Limit (mg/l)
Hydrocarbons (as Kerosene)	BDL	1
Hydrocarbons (as Diesel Fuel)	BDL	1
Hydrocarbons (as Mineral Spirits)	BDL	1
Hydrocarbons (as Fuel Oil #2)	BDL	1
Hydrocarbons (as Fuel Oil #4)	BDL	1
Hydrocarbons (as Fuel Oil #6)	BDL	1

BDL - Below Detection Limit

Respectfully submitted,

Bonnie G. Hogue
Project Manager

Quality Assurance

ASI ANALYTICAL SERVICES, INC.

ENVIRONMENTAL MONITORING & LABORATORY ANALYSIS
110 TECHNOLOGY PARKWAY • NORCROSS, GA 30092
(770) 734-4200 • FAX (770) 734-4201

CHAIN OF CUSTODY RECORD

COCs

V Q5 2 J3

CLIENT NAME: Jordan Jones & Goulding

CLIENT ADDRESS AND PHONE NUMBER: 2000 Clearview Ave, Atlanta, GA 30340 — 770 455-8555

PROJECT MANAGER: A. Lyaick

COPY TO (if applicable):

REQUESTED COMPLETION DATE: 2/23/99

SAMPLING REQUIREMENTS: SDWA ☐ NPDES ☐ RCRA ☐ OTHER ____

PROJECT NAME: FOXTROT

PROJECT NUMBER: 1285.002

PURCHASE ORDER NO.:

FOR LAB USE ONLY
LAB #: 104902
PROJECT NO.:
ACK: | VERIFIED:
QUOTE #: | BS:
NO. OF SAMP: | PG: | OF:

ANALYSES REQUESTED

SAMPLE ID	DATE	TIME	COMP	GRAB	SOIL	SAMPLE DESCRIPTIONS	# OF CONTAINERS	VOCs 8260 (g,b,c)	RCRA metals (f)	Hg G	PCBs/Pesticides (e)	DRO Hydrocarbon scan (d)						LAB ID	REMARKS/ADDITIONAL INFORMATION
TB	2/20/99					travel blank	3	✓										-1	lab supplied blank
FM-2	2/20/99					groundwater	7	✓	✓	✓	✓	✓						-2	
FD-1	2/20/99					groundwater	7	✓	✓	✓	✓	✓						-3	Slight turbidity due to well const.
FM-1	2/20/99					groundwater	7	✓	✓	✓	✓	✓						-4	

add GRO per BJH
[illegible] 2/22

SAMPLED BY AND TITLE: L. Gentile	DATE/TIME: 2/20/99	RELINQUISHED BY: [signature]	DATE/TIME: 2/20/99 5pm
RECEIVED BY:	DATE/TIME:	RELINQUISHED BY:	DATE/TIME:
RECEIVED BY:	DATE/TIME:	RELINQUISHED BY:	DATE/TIME:
RECEIVED BY LAB: S. Jackson	DATE/TIME: 2-22-99 8:55AM	SAMPLE SHIPPED VIA: UPS BUS FED-EX HAND OTHER ____	AIR BILL #: 807993750436

HAZWRAP/NEESA Y N
QC LEVEL 1 2 3
COC ✓ | ICE ✓
ANA REQ | TEMP 3°C (90.0 am)
CUST SEAL No | PH 1 (MEF)
SAMPLE COND. good

REMARKS: 24 ct.

ENTERED INTO LIMS ____ COC REVIEWD ____

2

V T3 X4

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110 TECHNOLOGY PARKWAY • NORCROSS, GA 30092
(770) 734-4200 • FAX (770) 734-4201

CHAIN OF CUSTODY RECORD

CLIENT NAME: Jordan Jones & Goulding

CLIENT ADDRESS AND PHONE NUMBER: 2000 Clearview Ave. Atlanta, GA 30340

PROJECT MANAGER: A. Lydick

COPY TO (if applicable):

REQUESTED COMPLETION DATE: 2/23/99

SAMPLING REQUIREMENTS: SDWA ☐ NPDES ☐ RCRA ☐ OTHER ____

PROJECT NAME:

PROJECT NUMBER:

PURCHASE ORDER NO.

FOR LAB USE ONLY

LAB # 104988

PROJECT NO.

ACK | VERIFIED

QUOTE # | BS

NO. OF SAMP 2 | PG 1 | OF 1

ANALYSES REQUESTED

SAMPLE ID	DATE	TIME	COMP	GRAB	SOIL	SAMPLE DESCRIPTIONS	# OF CONTAINERS	VOCs A-C	RCRA metals D	Mercury E	Pest/PCBs F	DRO/Hydrocarbon Scan G	LAB ID	REMARKS/ADDITIONAL INFORMATION
FD-2	2/23/99					groundwater	7	✓	✓	✓	✓	✓	-1	
TB						travel blank	3	✓					-2	
														GRO added per quote RGS 2/24

@ 6°C

SAMPLED BY AND TITLE: L. Gentile	DATE/TIME: 2/23/99	RELINQUISHED BY: [signature]	DATE/TIME: 2/24/99 7:00
RECEIVED BY: [signature]	DATE/TIME: 0646 / 2/24/99	RELINQUISHED BY:	DATE/TIME:
RECEIVED BY:	DATE/TIME:	RELINQUISHED BY:	DATE/TIME:
RECEIVED BY LAB: [signature]	DATE/TIME: 2/24/99 0730	SAMPLE SHIPPED VIA: UPS BUS FED-EX HAND OTHER ____	AIR BILL # 807993745540

HAZWRAP/NEESA Y N

QC LEVEL 1 2 3

COC ✓ | ICE YES

ANA REQ | TEMP 6°C (0646)

CUST SEAL no | PH 1 (met)

SAMPLE COND. good

REMARKS: 10 cont

ENTERED INTO LIMS ____ COC REVIEWD ____

JJ37

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3
T3 V W4

CHAIN OF CUSTODY RECORD

CLIENT NAME: Jordan Jones & Goulding

CLIENT ADDRESS AND PHONE NUMBER: 2000 Clearview Ave, Atlanta, GA 30340

PROJECT MANAGER: A. Lydick

COPY TO (if applicable):

REQUESTED COMPLETION DATE: 2/22/99

SAMPLING REQUIREMENTS: SDWA ☐ NPDES ☐ RCRA ☐ OTHER ____

PROJECT NAME: FOXTROT

PROJECT NUMBER: 1285.002

PURCHASE ORDER NO.:

FOR LAB USE ONLY

LAB #: 104767

PROJECT NO.:

ACK: VERIFIED:

QUOTE #: BS:

NO. OF SAMP: 3 PG 1 OF 1

ANALYSES REQUESTED

SAMPLE ID	DATE	TIME	COMP	GRAB	SOIL	SAMPLE DESCRIPTIONS	# OF CONTAINERS	VOCs	RCRA metals	Hg	Pest/PCB	DRO/Hydrocarbon	LAB ID
FS-1	2/17/99	0923				groundwater	7	✓	✓	✓	✓	✓	-1
FS-2	2/17/99	1120				groundwater	7	✓	✓	✓	✓	✓	-2
TB'	2/17/99	—				travel blank	3	✓					-3

REMARKS/ADDITIONAL INFORMATION:

travel blank: lab supplied

A-C (VOA)
D- met
E - Hg
F - DRO/Hydrocarbons
G - Pest/PCB

-metals pres at ASI by RJ 2/18/99
-GRO added per BH OJ 2/18

SAMPLED BY AND TITLE: Leo Gentile	DATE/TIME: 2/17/99	RELINQUISHED BY: Leo Gentile	DATE/TIME: 1800hrs 2/17/99
RECEIVED BY:	DATE/TIME:	RELINQUISHED BY:	DATE/TIME:
RECEIVED BY:	DATE/TIME:	RELINQUISHED BY:	DATE/TIME:
RECEIVED BY LAB: Tracee L.	DATE/TIME: 2/18/99 0915	SAMPLE SHIPPED VIA: UPS BUS FED-EX HAND OTHER ____	AIR BILL #: 8101 0021 0274

HAZWRAP/NEESA Y N
QC LEVEL 1 2 3
COC ✓ ICE ✓
ANA REQ TEMP 5°C (1050)
CUST SEAL ✓ PH 1 (met)
SAMPLE COND. good

REMARKS: 17 cont.

ENTERED INTO LIMS ____ COC REVIEWD ____

4
4
5

"Rite in the Rain"®

All-Weather
FIELD NOTEBOOK
No. 351

4 5/8" x 7" with 48 Numbered Pages

JJ34

"Rite in the Rain"®
ALL-WEATHER WRITING PAPER

Name Jordan Jones & Goulding

Address

Phone 770 458 8556

Project "FOXTROT"
WALLINGTON, NEW JERSEY

Yellow Polyethylene Protective Slipcovers (Item #31) are available for this style of notebook. Helps protect your notebook from wear & tear. Contact your dealer or the J. L. Darling Corporation.

INCHES

CONTENTS

PAGE	REFERENCE	DATE

2-16-99

0800 Onsite L. Gentile JJ&G
Check locations staked on 2/15/99
0905 SBI drilling onsite
Eric Ellefson - driller
Bob Hough - helper
H&S briefing
0930 Set up on FS-1
- along saddle R. near former VSTs
1001 Drill to 25 ft
set temp. well.
1020 TD gw at 15 ft, no odors,
move to FS-2
- center of former lagoon
1058 drill ahead
fill to 25 ft wood, bricks, glass, debris
no odors
1135 TD. set temp piezo.
1200 Break for lunch. + SBI demob for day
live site to pickup equip at hotel
1330 return to site
wait on equip. delivery for sampling
missing parts
1745 leave site. close gate

0730 Onsite: fog cold 38°F 2-17-99

DS-2
746: DTW 17.2
1 casing volume = 25-17.2 = 7.8
x 1.5 gal/ft = 10.1 gal
x 3 = 30 gal

806 Purge

	Temp °C		pH	color	Cond mS/cm	DO mg/L
807	16	start	6.97	gray	2.31	12.0
812	15.6	2 gal	7.02		2.18	9
820	15.4	4 gal	7.0		2.15	8.8
830	15.4	5 gal	6.95		2.14	8.2
835	15.10	6.5	6.97	light gray	2.12	9.1
850	15.0	8.5	6.95		2.11	9.1
858	14.5	10.0	6.92		2.15	9.1
906	15.1	11.5	6.91		2.08	9.1
917	14.2	13	6.93	almost clear	2.05	9.0
923	glove change collect samples					9
930	13.9	15	6.9		2.07	9.0

placed samples in cooler w/ ice
Temp of water jug (ambient air) 7.0 °C

move to FS-1
driller set up on FM-2, steam / clean
drive casing; waiting a permit.

JJ41

0957 2-17-99

FS-1 DTW 19.4 ft 25-19.2 = 5.8 x 1.3 = 7.5 gal

Time	gal	temp °C	DO	pH	cond
1040	0.5	12.4	10.4	6.6	0.5
1050	2	12.7	10.5	6.5	0.5
1059	4	13.5	9.8	6.4	0.5
1109	5	12.7	10.2	6.4	0.5
1120	7	12.7	11.1	6.4	0.5

collect samples - glove change

1134 7.5 13.2 10.[illegible] 6.3 0.4

placed samples in cooler w/ ice

OVA well head 60-70 ppm

FS-1 Soil - composite ([illegible]) TPH

FS-2 Soil - composite ([illegible]) TPH

1330

Plug and abandon boreholes FS-1, FS-2

FS-1 4.5 sacks portland cement

FS-2 [illegible] sacks portland cement

1530 Leave site SBI + JJ&G

1545 Go to hotel, pick up travel blanks

1830 pack samples on ice, ship via fedex

2-18-99

[illegible] onsite

0825 SBI on site, warm up rig

[illegible] FM-2 temp well

Weather: rain 43°F

complete well inside driven casing

41-46' Screen 2" PVC x 5 ft

0-41 Casing 2" PVC

36-46 Sand 2 @ 10 (lb) Unimin Filter S1

31-36 Seal (grout) 10 gal

very hard rain

9:45 Pull driven casing & steam clean

Steam clean drilling tools

1029 DTW @ completion 20.9 rising

DTW @ 1600 hrs 18.75

1048 Move to FD-1; set up on hole

1101 Begin drilling

1245 Obstruction, hard drilling 16 ft

Casing would not advance

1300 Break for lunch

JJ42

12/18/99

1330 move over 5ft redrill
drill to 60 ft.

1400 Drive casing to 80 ft
Drillout, set well, casing plugged at 60

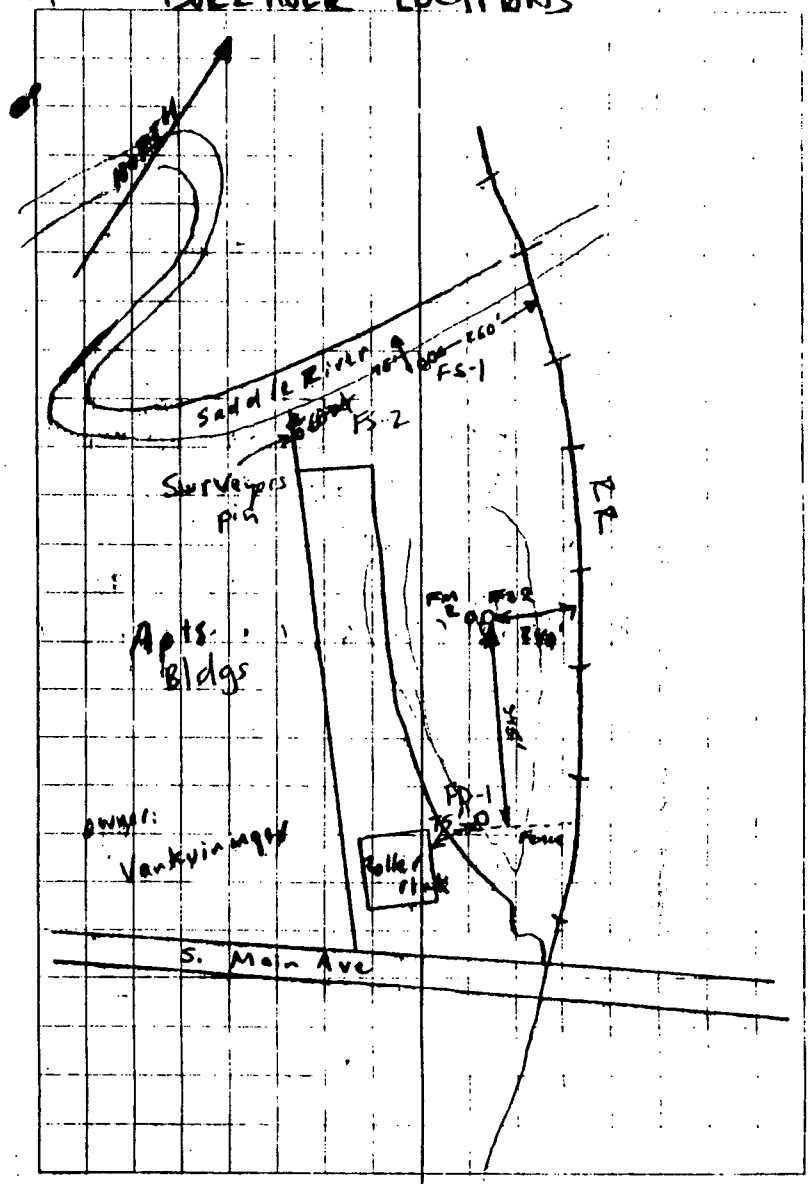
1447 Drill out casing, drive to 88 ft

1550 Set temporary well
2 x 100# Filter Sil sand to 58 ft
1 x 5' 2" x 5' well screen
7 x 10' PVC 2" x 10' riser
2 x 94# Portland cement
flushed sand in with potable water

1710 Pull steel casing, tough joints to break

1800 Leave site.

BORE HOLE LOCATIONS



JJ43

2/19/99

0730 Onsite
well head OVA FM-2 25-30 ppm
weather: 33° clear turning cloudy.

0848 Purge well

gal	DO	Temp	Cond	pH
0	11.7	11.5	1.16	7.0
2	13.0	14.3	1.2	7.1

well drawdown - needle pump
lift capacity - switch to other pump

Driller clean tools/rig

1000 Set up on FM-1
drill ahead to 50 ft.

1030 Drive casing

1125 clean out casing

1145 Set temporary well
Formation filled casing to 40 ft.
pull 10' casing and drive to 60 ft

2/19/99

1225 New pump (submersible) delivered

1230 Cleanout casing to 58 ft.

1300 Break for lunch

screen 45-50
riser 0-45
sand 42-50
seal 36-42

Pull steel casing

2/20/99

0720 Onsite weather overcast 29°C 35°F
set up DTW [illegible] BGS ft TD 47 ft
petroleum odor Begin sampling FM-2, install new hose

	gal	DO	temp	pH	cond
808	0	9.7	13.2	6.8	1.98
812	5	9.7	15.1	6.7	2.24
816	10	9.7	13.3	6.7	2.13
824	15	8.57	15.5	6.7	2.01
835	20	8.97	15.4	6.9	2.0[illegible]
845	25	8.0	16.3	6.7	[illegible]
855	collect samples, glove change				
905	28	8.7	15.9	6.7	[illegible]

Decon sounder
Decon pump w/ alconox [illegible]
water move to FD-1

DTW 19.2 BGS

	gal	DO	Temp	pH	cond
1028	0	8.1	15.1	8.0	0.5
105	5	9.9	15.0	7.8	0.5
1110	10	9.7	15.1	7.8	0.5
1150	15	9.4	15.0	7.6	0.5
1225	20	9.8	16.0	7.5	0.6
1257	25	9.6	16.4	7.6	0.6

collect samples, slightly turbid due to natural formation sandpack near well screen

1348	28	9.8	16.0	7.4	0.6

2/20/99

1340 Decon pump, water level tape

1352 Set up on FM-1
DTW = 19.4 ft BGS, TD 51.5 BGS
OVA = 7 ppm wellhead.
Install new hose

1400 Begin purge

	gal	DO	Temp	pH	Cond
1402	0	10.3	14.2	7.1	0.6
1406	5	9.4	15.6	12.06	4.4
1412	10	9.7	15.3	11.8	2.3
1417	15	10.1	15.2	10.0	1.22
1421	20	9.7	15.2	9.1	1.3
1428	25	9.7	15.2	9.0	1.3
1431	30	9.9	15.4	8.8	1.3
1433	35	8.9	15.6	8.5	1.3
1435	40	8.9	14.9	8.5	0.9
1455	45	8.7	15.1	8.0	0.9

collect sample; slight turbidity due to natural gravel pack

1523	42	8.9	16.2	7.8	1.3

put samples on ice, decon equip.
1630 Drop sample cooler at FedEx.
1700 hrs end of day [illegible]

2/22/99

0800 Onsite: weather sunny, windy 18-28°F

0840 SBI: onsite,
unload equipment,
set up on FD-2, northwest corner of site
near Saddle River

0920 Begin drilling.
to 40 ft.
thaw 6-in bit (frozen)

0950 Drive 7" steel casing to 20 ft

1020 Drive casing to 40 ft.

1040 Drive casing to 60 ft

1100 clean out casing

1115 Drive casing to 80 ft. Refusal @ 62'

1130 Rig shut down fuel out / filter clog?
called support services

1420 Resume drilling, clear casing, drive to
depth of 67 ft. BGS

1510 clean out casing to 67 ft

1540 Rig lost hydraulics, air lines frozen
using torches to thaw, no air pressure

1725 Pulled rods

1730 Install temp well
Sch 40 screen 5' x 4", 65 ft riser
sand to 56 ft.

2/22/99

1740 Pull steel casing to 60 ft.

1730 Sound sand 56 ft.

1800 grout seal

830 Rig down

900 Leave site

2/23/99

0730 Onsite, clear, light breeze 14-20°F
setup to purge and sample FD-2
Northwest corner of site near Saddle R.

OVA = 20-30 ppm at wellhead
DTW = 16.6 BGS

	gal	DO	Temp	pH	cond
0800	0	12.7	15.3	8.6	1.5
0807	10	8.6	15.4	8.3	1.2
0810	15	8.5	15.3	8.3	1.2
0813	20	8.3	15.1	8.2	1.2
0825	25	8.0	15.1	8.0	1.2
0830	30	8.8	15.0	7.4	1.1
0835	35	7.0	15.0	7.4	0.8
0840	40	6.7	15.1	7.4	0.8
0849	45	7.0	15.0	7.3	0.8
0855	collect sample, glove change				
0905	52	7.0	15.0	7.3	0.8

0910 ice down samples
decon equipment, bag trash
label drums leave site
1045 Return equipment.
Fed Ex supplies

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RECYCLABLE

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www.[illegible].com

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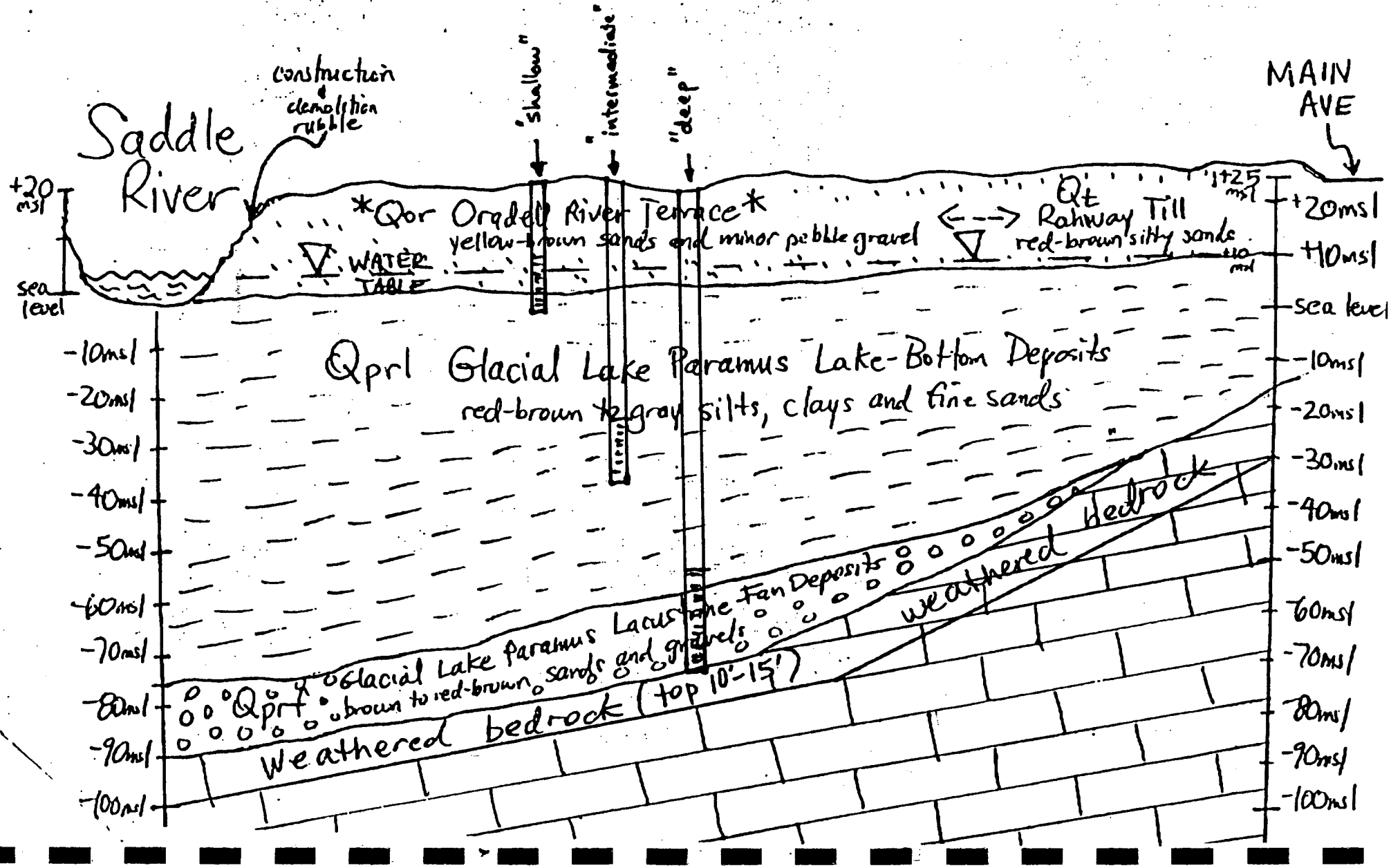
JJ48

FIGURE 6: Conceptual east-west cross section across the former Hamersley site

*= Qor deposits partially to largely mined on site



DWR-138 M
11/96

New Jersey Department of Environmental Protection
Bureau of Water Allocation

MONITORING WELL RECORD

Well Permit No. 26 53076

Atlas Sheet Coordinates 26 03 737

OWNER IDENTIFICATION - Owner FARMLAND DAIRIES INC
Address 520 MAIN AVE
City WALLINGTON State NJ Zip Code

WELL LOCATION - If not the same as owner please give address. Owner's Well No. B-3
County BERGEN Municipality WALLINGTON BORO Lot No. 35 Block No. 71
Address 551 MAIN AVE

TYPE OF WELL (as per Well Permit Categories) BORING
Regulatory Program Requiring Well OWNER INVESTIGATION Case I.D.#

DATE WELL STARTED 2 / 18 / 99
DATE WELL COMPETED 2 / 18 / 99

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) Jordan, Jones, & Gaulding Tele. #

WELL CONSTRUCTION

Total depth drilled 46 ft.
Well finished to 46 ft.

Borehole diameter:
Top 6 in.
Bottom 6 in.

Well was finished: ☐ above grade
☐ flush mounted

If finished above grade, casing height (stick up) above land surface ___ ft.

Was steel protective casing installed? ☐ Yes ☐ No

Static water level after drilling ___ ft.

Water level was measured using

Well was developed for ___ hours at ___ gpm

Method of development

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity ___ gpm

Pump type:

Drilling Fluid TH60

Health and Safety Plan [redacted]

Level of Protection [redacted] C B A

Note: Measure all depths from land surface	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt./Rating (lbs/sch no.)
Single/Inner Casing					
Middle Casing (for triple cased wells only)					
Outer Casing (largest diameter)					
Open Hole or Screen (No. Used)					
Blank Casings (No. Used)					
Tail Piece					
Gravel Pack					
Grout	0	46'		Neat Cement Bentonite	940 lbs. 60 lbs.

Grouting Method pump & tremie
Drilling Method air rotary

GEOLOGIC LOG
Note each depth where water was encountered in consolidated formations.

0 - 20' brown medium sand with wood & Brick
20' - 46' brown medium silty sand

I certify that I have [redacted] in accordance with all well permit requirements and applicable State rules and regulations.

Drilling Company SBI ENVIRONMENTAL INC

Well Driller (Print) William Kilafsen

Driller's Signature

Registration No. JD1173 Date 3 / 29 / 99

COPIES: White - DEP Canary - Driller Pink - Owner Goldenrod - Health Dept.

JJ50

WR-138 M
/96

New Jersey Department of Environmental Protection
Bureau of Water Allocation

MONITORING WELL RECORD

Well Permit No. 26 53076

Atlas Sheet Coordinates 26 03 737

OWNER IDENTIFICATION - Owner FARMLAND DAIRIES INC
ddress 520 MAIN AVE
ity WALLINGTON State NJ Zip Code

'ELL LOCATION - If not the same as owner please give address. Owner's Well No. B-4
ounty BERGEN Municipality WALLINGTON BORO Lot No. 35 Block No. 71
Address 551 MAIN AVE

DATE WELL STARTED 2 / 18 / 99
DATE WELL COMPETED 2 / 18 / 99

YPE OF WELL (as per Well Permit Categories) BORING
Regulatory Program Requiring Well OWNER INVESTIGATION Case I.D.#

ONSULTING FIRM/FIELD SUPERVISOR (if applicable) Jordan, Jones, & Goulding Tele. #

WELL CONSTRUCTION

Total depth drilled 77 ft.
ell finished to 77 ft.

Borehole diameter:
Top 6" in.
Bottom 6" in.

Well was finished: ☐ above grade
☐ flush mounted

f finished above grade, casing height (stick up) above land surface ____ ft.

as steel protective casing installed?
☐ Yes ☐ No

Static water level after drilling ____ ft.

ater level was measured using

Well was developed for ____ hours
at ____ gpm

Note: Measure all depths from land surface	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt./Rating (lbs/sch no.)
Single/Inner Casing					
Middle Casing (for triple cased wells only)					
Outer Casing (largest diameter)					
Open Hole or Screen (No. Used)					
Blank Casings (No. Used)					
Tail Piece					
Gravel Pack					
Grout	0	77'		Neat Cement Bentonite	1410 lbs. 90 lbs.

Grouting Method pump & tremie
Drilling Method air rotary

lethod of development

Was permanent pumping equipment installed? ☐ Yes ☐ No

ump capacity ____ gpm

ump type:

rilling Fluid Type of Rig TH60

Health and Safety Plan submitted? ☒ Yes ☐ No

evel of Protection used on site (circle one) None (D) C B A

I certify that I have constructed the above referenced well in accordance with all well permit requirements and applicable State rules and regulations.

rilling Company SBI ENVIRONMENTAL INC.

ell Driller (Print) William Ellefsen

Driller's Signature

egistration No. JD1173 Date 3 / 29 / 99

GEOLOGIC LOG

Note each depth where water was encountered in consolidated formations.

0 - 20' brown medium sand with wood & bricks and concrete
20' - 50' brown medium silty sand
50' - 77' red medium to coarse sand and gravel

COPIES: White - DEP Canary - Driller Pink - Owner Goldenrod - Health Dept.

JJ51

DWR-138 M
:1/98

New Jersey Department of Environmental Protection
Bureau of Water Allocation

MONITORING WELL RECORD

Well Permit No. 26 530076

Atlas Sheet Coordinates 26 03 737

OWNER IDENTIFICATION - Owner FARMLAND DAIRIES INC
Address 520 MAIN AVE
City WALLINGTON State NJ Zip Code

WELL LOCATION - If not the same as owner please give address. Owner's Well No. B-5
County BERGEN Municipality WALLINGTON BORO Lot No. 35 Block No. 71
Address 551 MAIN AVE

DATE WELL STARTED 2 / 19 / 99
DATE WELL COMPETED 2 / 19 / 99

TYPE OF WELL (as per Well Permit Categories) BORING
Regulatory Program Requiring Well OWNER INVESTIGATION Case I.D.#

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) Jordan, Jone, & Goulding Tele. #

WELL CONSTRUCTION

Total depth drilled 53 ft.
Well finished to 53 ft.

Borehole diameter:
Top 6 in.
Bottom 6 in.

Well was finished: ☐ above grade
☐ flush mounted

If finished above grade, casing height (stick up) above land surface ____ ft.

Was steel protective casing installed? ☐ Yes ☐ No

Static water level after drilling ____ ft.

Water level was measured using

Well was developed for ____ hours at ____ gpm

Method of development

Note: Measure all depths from land surface	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt./Rating (lbs/sch no.)
Single/Inner Casing					
Middle Casing (for triple cased wells only)					
Outer Casing (largest diameter)					
Open Hole or Screen (No. Used)					
Blank Casings (No. Used)					
Tail Piece					
Gravel Pack					
Grout	0	53'		Neat Cement Bentonite	1128 lbs. 72 lbs.

Grouting Method pump & tremie
Drilling Method air rotary

Was permanent pumping equipment installed? ☐ Yes ☐ No

Pump capacity ____ gpm

Pump type:

Drilling Fluid Type of Rig

Health and Safety Plan submitted? ☐ Yes ☐ No

Level of Protection used on site (circle one) None D C B A

I certify that I have constructed the above referenced well in accordance with all well permit requirements and applicable State rules and regulations.

Drilling Company SBI ENVIRONMENTAL INC.

Well Driller (Print)

Driller's Signature

Registration No. Date / /

GEOLOGIC LOG

Note each depth where water was encountered in consolidated formations.

0 - 20' brown medium sand
20' - 45' brown medium silty sand
45' - 53' red coarse sand and gravel

COPIES: White - DEP Canary - Driller Pink - Owner Goldenrod - Health Dept.

JJ52

WR-138 M
/96

New Jersey Department of Environmental Protection
Bureau of Water Allocation

MONITORING WELL RECORD

Well Permit No. 26 53076

Atlas Sheet Coordinates 26 03 737

OWNER IDENTIFICATION - Owner FARMLAND DAIRIES INC
ddress 520 MAIN AVE
ity WALLINGTON State NJ Zip Code

'/ELL LOCATION - If not the same as owner please give address. Owner's Well No. B-6
ounty BERGEN Municipality WALLINGTON BORO Lot No. 35 Block No. 71
Address 551 MAIN AVE

DATE WELL STARTED 2 / 22 / 99
DATE WELL COMPETED 2 / 22 / 99

YPE OF WELL (as per Well Permit Categories) BORING
egulatory Program Requiring Well OWNER INVESTIGATION Case I.D.#

ONSULTING FIRM/FIELD SUPERVISOR (if applicable) Jordan, Jones, & Goulding Tele. #

WELL CONSTRUCTION

Total depth drilled 67 ft.
'ell finished to 67 ft.

Borehole diameter:
Top 6 in.
Bottom 6 in.

Well was finished: ☐ above grade
☐ flush mounted

f finished above grade, casing height (stick up) above land surface ____ ft.

Was steel protective casing installed? ☐ Yes ☐ No

Static water level after drilling ____ ft.

Water level was measured using

Well was developed for ____ hours at ____ gpm

Method of development

Was permanent pumping equipment installed? ☐ Yes ☐ No

Pump capacity ____ gpm

Pump type:

Drilling Fluid Type of Rig

Health and Safety Plan submitted? ☐ Yes ☐ No

Level of Protection used on site (circle one) None D C B A

Note: Measure all depths from land surface	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt./Rating (lbs/sch no.)
Single/Inner Casing					
Middle Casing (for triple cased wells only)					
Outer Casing (largest diameter)					
Open Hole or Screen (No. Used)					
Blank Casings (No. Used)					
Tail Piece					
Gravel Pack					
Grout	0	67		Neat Cement Bentonite	1410 lbs. 90 lbs.

Grouting Method pump & tremie
Drilling Method air rotary

GEOLOGIC LOG

Note each depth where water was encountered in consolidated formations.

0 - 20' brown medium sand and gravel
10' - 48' brown medium silty sand
48' - 67' red medium to coarse sand and gravel

I certify that I have constructed the above referenced well in accordance with all well permit requirements and applicable State rules and regulations.

Drilling Company SBI ENVIRONMENTAL INC.

Well Driller (Print)

Driller's Signature

Registration No. Date / /

COPIES: White - DEP Canary - Driller Pink - Owner Goldenrod - Health Dept.

JJ53

MODE = MEMORY TRANSMISSION START=FEB-24 10:52 END=FEB-24 10:52

FILE NO.= 103

NO.	COM	ABBR/NTWK	STATION NAME/ TELEPHONE NO.	PAGES	PRG.NO.	PROGRAM NAME
001	OK	&	919733050510	001/001		

-JJG ATLANTA -

********** - - ***** - 770 452 9093- *********

Jordan Jones & Goulding

2000 Clearview Avenue
Atlanta, Georgia 30340
Phone: 770/455-8555
Fax: 770/455-7391

FAX TRANSMITTAL

DATE: February 23, 1999 **TOTAL PAGES:** 1

TO: Harry Norman

Company: SBI Environmental, Inc.

Fax No: 973.305.0510

Phone No:

Re: Wallington, NJ site

FROM: Leo Gentile

Jordan, Jones & Goulding has completed sampling of the six temporary wells installed by SBI Environmental Inc. at the Wallington, NJ site. SBI may plug and abandon the temporary wells in accordance with NJDEP requirements.

Thank you.

document2

FIELD BOREHOLE LOG

JORDAN, JONES & GOULDING, INC.

Driller: SBI Environmental		Borehole Size: 8 in	Borehole No.: FD-1
Drilling Equipment: I/R TH-60		Borehole Inclination and direction: vertical	Sheet No.: 1 of 2
Drilling Tools: Air hammer/casing driver		Depth to Bedrock: ± 80 ft	Total Borehole Depth: —
Date Started: 2/18/99	Logged by: L. Gentile	Total Borehole Depth: 80 ft	Number of Core Runs: —
Date Completed: 2/18/99	Checked by:	Final Ground-Water Depth: 19.2 BGS	Open Hole Depth Interval: —

Client: Confidential
Project: Farmland Dairies Site
Location: Wallington, NJ
Well Casing Material: PVC
Number of Core Boxes: —

LITHOLOGIC RECORD		DRILLING RECORD				
Depth Below Ground Surface (ft)	General Lithologic Description	SPT (Blows/6 in.)	Groundwater level	Well Completion	Samples	Remarks
5	Fill: med reddish brown very coarse sand w/ very coarse gravel, bricks					Begin 1101
10						1105
15	Med. brown coarse sand w/bricks and wood fragments. med to dark gray med to coarse gravelly sand					1110
20			▼ 19.2			1112 hard drilling 16.-16.5 wood debris
25	Same as above					1140
30						1143
35						1148
40						1150
45						Redrilled new hole 5 ft north due to casing refusal
50						1400

JJ55

fieldlog.xls

	Sheet No. 2 of 2	Borehole No.: FD-1
LITHOLOGIC RECORD	DRILLING RECORD	

Depth Below Ground Surface (ft)	General Lithologic Description	Remarks
	Med. brown very coarse sand with fine to med. gravel (SP)	1425
55		
60	Med to slightly reddish brown silty sand. Trace gravel (SM)	1500
65	Reddish brown silty sand fine sand with very coarse gravel and small cobbles (SW)	1520 Good water production. 10-50 gallons
70	Red brown fine sand silty gravelly. (SM) clayey	1530
75	Weathered bed rock red sandstone	Tough drilling. 1540
80		

JJ56

FIELD BOREHOLE LOG

Jordan Jones & Goulding — JORDAN, JONES & GOULDING, INC.

Driller: SBI Environmental well Drillg.			Borehole Size: 6-in	Borehole No.: FS-1 B-
Drilling Equipment: I/R TH-60 Eric Ellefsen driller Bob Hough			Borehole Inclination and direction: vertical	Sheet No.: 1 of 1
Client: Confidential	Drilling Tools: Air rotary		Depth to Bedrock: —	Total Borehole Depth: —
Project: Farmland Dairies Site	Date Started: 2-16-99	Logged by: L. Gentile	Total Borehole Depth: 25 ft	Number of Core Runs: —	Number of Core Boxes: —
Location: Wallington, NJ	Date Completed: 2-16-99	Checked by:	Final Ground-Water Depth: 19.1	Open Hole Depth Interval: —	Well Casing Material: PVC

LITHOLOGIC RECORD		DRILLING RECORD				
Depth Below Ground Surface (ft)	General Lithologic Description	SPT (Blows/6 in.)	Groundwater level	Well Completion	Samples	Remarks
	Fill					Clear sunny 35-50° Begin drilling 1001 hrs Artificial fill clayey sand w/ boulders
5	Dark gray gravelly sand damp, no odor (SP)					no odors. OVA 3ppm headspace
10	Black gavelly sand no odor, damp (SP)					OVA 5ppm headspace
15	Black gravelly very coarse sand. Damp no odor (SP)		▼ 19.1			OVA 3ppm headspace
20	medium brown med to coarse sand. 1% gravel wet no odor (SP)					OVA no deflection
25	medium brown med to coarse sand. wet. (SP) n					OVA no deflection. TD 1020 hrs
						Screen 15-25 riser 0-15 sand 14-25
						bentonite pellets 11.5-14

JJ57

FIELD BOREHOLE LOG

JORDAN, JONES & GOULDING, INC.

Driller: SBI-Environmental Well Drilling Inc	Borehole Size: 6-in	Borehole No.: FS-2 B-	
Drilling Equipment: Ingersol-Rand TH-60	Borehole Inclination and direction: vertical	Sheet No.: 1 of 1	
Drilling Tools: Air rotary - downhole hammer	Depth to Bedrock: —	Total Borehole Depth: —	
Date Started: 2-16-99	Logged by: L. Gentile	Total Borehole Depth: 25	Number of Core Runs: -
Date Completed: 2-16-99	Checked by:	Final Ground-Water Depth: 17.2	Open Hole Depth Interval: —
Number of Core Boxes: —	Well Casing Material: PVC		

Client: Confidential

Project: Farmland Dairies Site

Location: Wallington, NJ

Depth Below Ground Surface (ft)	General Lithologic Description (LITHOLOGIC RECORD)	SPT (Blows/6 in.)	Groundwater level	Well Completion	Samples	Remarks
	Fill					Begin drilling 1058
5	Dark brown fine to medium sand (SP) Damp fill?					No odor. OVA <5ppm headspace
10	Dark brown med to coarse sand, wood fragments, brick (SP) Fill?					No odor, OVA 70 ppm headspace
15	Dark brown coarse sand with gravel, wood, brick		▼ 17.2			No odor. OVA 3ppm headspace
20	wet.					No sample
25	Very dark brown to black sandy, wood, brick fill with glass fragments.					No odor OVA 6ppm headspace TD 1135
						Screen 15-25 Riser 0-15 sand 7.5-15 pellets 6-7.5

JJS8

fieldlog.xls

FIELD BOREHOLE LOG

JORDAN, JONES & GOULDING, INC.

Driller: SBI - Environmental	Borehole Size: 8 in	Borehole No.: B-FM-2	
Drilling Equipment: I/R TH-60	Borehole Inclination and direction: vertical	Sheet No.: 1 of 1	
Drilling Fluid: Air hammer - driven casing	Depth to Bedrock: —	Total Borehole Depth: —	
Date Started: 2-17-99	Logged by: L. Gentile	Total Borehole Depth: 50 ft	Number of Core Runs: —
Date Completed: 2-18-99	Checked by:	Final Ground-Water Depth:	Open Hole Depth Interval: —
Client: Confidential	Project: Farmland Dairies Site	Location: Wallington, NJ	Well Casing Material: PVC

Depth Below Ground Surface (ft)	General Lithologic Description	SPT (Blows/6 in.)	Groundwater level	Well Completion	Samples	Remarks
5	Dark brown gravelly sand. Bricks. Coarse gravel, med to coarse sand (SW)					Begin drilling 1000 hrs - steam clean casing Fill
10						
15	Dark Brown sand, fill mostly wood fiber. Fine wood fiber Same as above					
20	very dark brown to black Coarse wood fiber and bricks.		▽			white foam forming on produced water
25	Same as above					Groundwater DTW 20.9 @ completion
30						
35	very dark brown to black gravelly woody sand fill. Brick fragments					strong petroleum odor
40	med gray fine to coarse sand, trace gravel SP					Strong petroleum odor sheen visible on produced water
45	Same as above					
50	Gray very coarse gravelly sand (SW)					strong petroleum odor

FIELD BOREHOLE LOG

JORDAN, JONES & GOULDING, INC.

Driller: SBI - Environmental Well Drilg.	Borehole Size: 8-in	Borehole No.: B-FM-1	
Drilling Equipment: I/R TH-60	Borehole Inclination and direction: vertical	Sheet No.: 1 of 1	
Drilling Tools: air rotary /casing hamer	Depth to Bedrock: --	Total Borehole Depth: --	
Date Started: 2-19-99	Logged by: L. Gentile	Total Borehole Depth: 50 ft.	Number of Core Runs: --
Number of Core Boxes: --	Date Completed: 2-19-99	Checked by:	Final Ground-Water Depth: 19.4 BG
Open Hole Depth Interval: --	Well Casing Material: PVC		

Client: Confidential

Project: Farmland Dairies Site

Location: Wallington, NJ

Depth Below Ground Surface (ft)	General Lithologic Description	SPT (Blows/6 in.)	Groundwater level	Well Completion	Samples	Remarks
5	Fill. Reddish brown gravelly sand. Brick and rock fragments, moist.					Start drilling 1000 hrs location 15 ft SW of FS-1
10	Dark brown to black gravelly coarse sand. moist. (SP-SW)					1005
15	Black medium to coarse sand, moist (SP)					1007
20	medium brown med to coarse sand (SP) wet		▼ 19.4			1015
25	Light to slightly reddish brown med to fine sand. wet.					1030
30	Medium brown silty med. to fine sand. Trace coarse gravel (SP) wet.					Hammer casing to 40 ft.
35	Same					
40	Same					
45	med to light brown coarse sand trace fine gravel wet (SP)					1114 Drive casing to 50 ft
50	med. brown silty coarse to very coarse sand w/ 10-20 percent gravel wet. (SW)					Total depth 50 ft 1148

JJG

fieldlog.xls

FIELD BOREHOLE LOG

Jordan Jones & Goulding — JORDAN, JONES & GOULDING, INC.

Driller: SBI Environmental Well Drilling		Borehole Size: 8-in	Borehole No.: FD-2
Drilling Equipment: Ingersol Rand TH-60		Borehole Inclination and direction: vertical	Sheet No.: 1 of 2
Client: Confidential	Drilling Tools: Air rotary / casing hammer	Depth to Bedrock: 71 ft	Total Borehole Depth: --
Project: Farmland Dairies Site	Date Started: 2-22-99 / Logged by: L. Gentile / Total Borehole Depth: 71 ft	Number of Core Runs: --	Number of Core Boxes: --
Location: Wallington, NJ	Date Completed: 2-22-99 / Checked by: / Final Ground-Water Depth: 16.6 ft BGS	Open Hole Depth Interval: --	Well Casing Material: --

LITHOLOGIC RECORD		DRILLING RECORD				
Depth Below Ground Surface (ft)	General Lithologic Description	SPT (Blows/6 in.)	Groundwater level	Well Completion	Samples	Remarks
5	Black gravelly sand (SP SW)					(0920) Begin drilling. Poor cuttings returns
10						(0921) No cuttings returns
15						(0925)
20	Dark brown very coarse sand <5 percent gravel. moist (SP SW)					Good returns (0927)
25	Med to light brown gravelly coarse sand (SW) wet					(0930) In ground water.
30						No returns (0935)
35	Med-brown coarse sand trace gravel. wet					(0945)
40	Med brown very coarse to coarse gravelly sand - wet.					(0947)
45	Med. brown coarse gravely sand					
50	As above					

3361

		Sheet No. 2 of 2	Borehole No.: FD-2
LITHOLOGIC RECORD		DRILLING RECORD	
Depth Below Ground Surface (ft)	General Lithologic Description		Remarks
55	Reddish brown silty med to coarse sand. slightly clayey		(1050)
60	Reddish brown silty med to coarse sand. Gravel up to 1-inch clasts 10% red sandstone rock clasts		(1100)
65	Reddish brown sandy gravel. Subrounded gravel to 2-inches. (GW)		(1110) very slow casing drive Rig shut down due to fuel/filter failure Resume (1420)
70	Same as above		Casing refusal @ 71 ft
75			
80			
85			
90			
95			
100			

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ANALYTICAL SERVICES, INC.

ENVIRONMENTAL MONITORING & LABORATORY ANALYSIS

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Blank

LABORATORY REPORT

Jordan Jones & Goulding
2000 Clearview Avenue NE
Suite 200
Atlanta, GA 30340

March 9, 1999

Attention: Mr. Andy Lydick

Report No. 104988-2

Sample Description

Water, Travel Blank, received 02/24/99

RESULTS

Volatile Organics (EPA 8260B)	Result (ug/l)	Detection Limit (ug/l)
Acetone	BDL	100
Acrolein	BDL	50
Acrylonitrile	BDL	50
Benzene	BDL	2
Bromobenzene	BDL	10
Bromochloromethane	BDL	10
Bromodichloromethane	BDL	10
Bromoform	BDL	10
Bromomethane	BDL	10
2-Butanone	BDL	100
n-Butylbenzene	BDL	10
sec-Butylbenzene	BDL	10
tert-Butylbenzene	BDL	10
Carbon disulfide	BDL	10
Carbon tetrachloride	BDL	2
Chlorobenzene	BDL	10
Chloroethane	BDL	5
Chloroform	BDL	2
Chloromethane	BDL	10
2-Chlorotoluene	BDL	10
4-Chlorotoluene	BDL	10
2-Chloroethylvinyl ether	BDL	10
Dibromochloromethane	BDL	10

BDL - Below Detection Limit

March 9, 1999
Report No. 104988-2

Water, Travel Blank, received 02/24/99

RESULTS

Volatile Organics (EPA 8260B)	Result (ug/l)	Detection Limit (ug/l)
1,2-Dibromo-3-chloropropane	BDL	10
1,2-Dibromoethane	BDL	10
Dibromomethane	BDL	10
1,2-Dichlorobenzene	BDL	10
1,3-Dichlorobenzene	BDL	10
1,4-Dichlorobenzene	BDL	10
Dichlorodifluoromethane	BDL	10
1,1-Dichloroethane	BDL	2
1,2-Dichloroethane	BDL	2
1,1-Dichloroethene	BDL	2
cis-1,2-Dichloroethene	BDL	2
trans-1,2-Dichloroethene	BDL	2
1,2-Dichloropropane	BDL	2
1,3-Dichloropropane	BDL	2
2,2-Dichloropropane	BDL	10
1,1-Dichloropropene	BDL	10
cis-1,3-Dichloropropene	BDL	2
trans-1,3-Dichloropropene	BDL	2
Ethylbenzene	BDL	2
Hexachlorobutadiene	BDL	10
2-Hexanone	BDL	10
Isopropylbenzene	BDL	10
p-Isopropyltoluene	BDL	10
Methylene chloride	BDL	5
4-Methyl-2-pentanone	BDL	10
Naphthalene	BDL	10
n-Propylbenzene	BDL	10
Styrene	BDL	5
1,1,1,2-Tetrachloroethane	BDL	2
1,1,2,2-Tetrachloroethane	BDL	2
Tetrachloroethene	BDL	2
Toluene	BDL	2
1,2,3-Trichlorobenzene	BDL	10
1,2,4-Trichlorobenzene	BDL	10
1,1,1-Trichloroethane	BDL	2
1,1,2-Trichloroethane	BDL	2
Trichloroethene	BDL	2
Trichlorofluoromethane	BDL	10
1,2,3-Trichloropropane	BDL	10

BDL - Below Detection Limit

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March 9, 1999
Report No. 104988-2

Water, Travel Blank, received 02/24/99

RESULTS

Volatile Organics (EPA 8260B)	Result (ug/l)	Detection Limit (ug/l)
1,2,4-Trimethylbenzene	BDL	10
1,3,5-Trimethylbenzene	BDL	10
Vinyl acetate	BDL	10
Vinyl chloride	BDL	10
m+p-Xylene	BDL	5
o-Xylene	BDL	5
Xylenes (total)	BDL	5

BDL - Below Detection Limit

Respectfully submitted,

Bonnie J. Hogue
Project Manager

Callie Bond
Quality Assurance

JJ65

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ANALYTICAL SERVICES, INC.

ENVIRONMENTAL MONITORING & LABORATORY ANALYSIS

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LABORATORY REPORT

Jordan Jones & Goulding
2000 Clearview Avenue NE
Suite 200
Atlanta, GA 30340

March 3, 1999

TB

Attention: Mr. Andy Lydick

Report No. 104767-3

Sample Description

Water, Foxtrot, Project #1285.002, Trip Blank, 02/17/99, received 02/18/99

RESULTS

Volatile Organics (EPA 8260B)	Result (ug/l)	Detection Limit (ug/l)
Acetone	BDL	100
Acrolein	BDL	50
Acrylonitrile	BDL	50
Benzene	BDL	2
Bromobenzene	BDL	10
Bromochloromethane	BDL	10
Bromodichloromethane	BDL	10
Bromoform	BDL	10
Bromomethane	BDL	10
2-Butanone	BDL	100
n-Butylbenzene	BDL	10
sec-Butylbenzene	BDL	10
tert-Butylbenzene	BDL	10
Carbon disulfide	BDL	10
Carbon tetrachloride	BDL	2
Chlorobenzene	BDL	10
Chloroethane	BDL	5
Chloroform	BDL	2
Chloromethane	BDL	10
2-Chlorotoluene	BDL	10
4-Chlorotoluene	BDL	10
2-Chloroethylvinyl ether	BDL	10
Dibromochloromethane	BDL	10

BDL - Below Detection Limit

JJGG

March 3, 1999
Report No. 104767-3

Water, Foxtrot, Project #1285.002, Trip Blank, 02/17/99, received 02/18/99

RESULTS

Volatile Organics (EPA 8260B)	Result (ug/l)	Detection Limit (ug/l)
1,2-Dibromo-3-chloropropane	BDL	10
1,2-Dibromoethane	BDL	10
Dibromomethane	BDL	10
1,2-Dichlorobenzene	BDL	10
1,3-Dichlorobenzene	BDL	10
1,4-Dichlorobenzene	BDL	10
Dichlorodifluoromethane	BDL	10
1,1-Dichloroethane	BDL	2
1,2-Dichloroethane	BDL	2
1,1-Dichloroethene	BDL	2
cis-1,2-Dichloroethene	BDL	2
trans-1,2-Dichloroethene	BDL	2
1,2-Dichloropropane	BDL	2
1,3-Dichloropropane	BDL	2
2,2-Dichloropropane	BDL	10
1,1-Dichloropropene	BDL	10
cis-1,3-Dichloropropene	BDL	2
trans-1,3-Dichloropropene	BDL	2
Ethylbenzene	BDL	2
Hexachlorobutadiene	BDL	10
2-Hexanone	BDL	10
Isopropylbenzene	BDL	10
p-Isopropyltoluene	BDL	10
Methylene chloride	BDL	5
4-Methyl-2-pentanone	BDL	10
Naphthalene	BDL	10
n-Propylbenzene	BDL	10
Styrene	BDL	5
1,1,1,2-Tetrachloroethane	BDL	2
1,1,2,2-Tetrachloroethane	BDL	2
Tetrachloroethene	BDL	2
Toluene	BDL	2
1,2,3-Trichlorobenzene	BDL	10
1,2,4-Trichlorobenzene	BDL	10
1,1,1-Trichloroethane	BDL	2
1,1,2-Trichloroethane	BDL	2
Trichloroethene	BDL	2
Trichlorofluoromethane	BDL	10
1,2,3-Trichloropropane	BDL	10

BDL - Below Detection Limit

March 3, 1999
Report No. 104767-3

Water, Foxtrot, Project #1285.002, Trip Blank, 02/17/99, received 02/18/99

RESULTS

Volatile Organics (EPA 8260B)	Result (ug/l)	Detection Limit (ug/l)
1,2,4-Trimethylbenzene	BDL	10
1,3,5-Trimethylbenzene	BDL	10
Vinyl acetate	BDL	10
Vinyl chloride	BDL	10
m+p-Xylene	BDL	5
o-Xylene	BDL	5
Xylenes (total)	BDL	5

BDL - Below Detection Limit

Respectfully submitted,

Bonnie G. Hogue
Project Manager

Quality Assurance

JJ68

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ANALYTICAL SERVICES, INC.

ENVIRONMENTAL MONITORING & LABORATORY ANALYSIS

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LABORATORY REPORT

Jordan Jones & Goulding
2000 Clearview Avenue NE
Suite 200
Atlanta, GA 30340

March 16, 1999

Attention: Mr. Andy Lydick

Report No. 104902-1

Sample Description

Groundwater, Foxtrot, Project #1285.002, Travel Blank, 02/20/99, received 02/22/99

RESULTS

Volatile Organics (EPA 8260B)	Result (ug/l)	Detection Limit (ug/l)
Acetone	BDL	100
Acrolein	BDL	50
Acrylonitrile	BDL	50
Benzene	BDL	2
Bromobenzene	BDL	10
Bromochloromethane	BDL	10
Bromodichloromethane	BDL	10
Bromoform	BDL	10
Bromomethane	BDL	10
2-Butanone	BDL	100
n-Butylbenzene	BDL	10
sec-Butylbenzene	BDL	10
tert-Butylbenzene	BDL	10
Carbon disulfide	BDL	10
Carbon tetrachloride	BDL	2
Chlorobenzene	BDL	10
Chloroethane	BDL	5
Chloroform	BDL	2
Chloromethane	BDL	10
2-Chlorotoluene	BDL	10
4-Chlorotoluene	BDL	10
2-Chloroethylvinyl ether	BDL	10

BDL - Below Detection Limit

JJ67

March 16, 1999
Report No. 104902-1

Groundwater, Foxtrot, Project #1285.002, Travel Blank, 02/20/99, received 02/22/99

Blank

RESULTS

Volatile Organics (EPA 8260B)	Result (ug/l)	Detection Limit (ug/l)
Dibromochloromethane	BDL	10
1,2-Dibromo-3-chloropropane	BDL	10
1,2-Dibromoethane	BDL	10
Dibromomethane	BDL	10
1,2-Dichlorobenzene	BDL	10
1,3-Dichlorobenzene	BDL	10
1,4-Dichlorobenzene	BDL	10
Dichlorodifluoromethane	BDL	10
1,1-Dichloroethane	BDL	2
1,2-Dichloroethane	BDL	2
1,1-Dichloroethene	BDL	2
cis-1,2-Dichloroethene	BDL	2
trans-1,2-Dichloroethene	BDL	2
1,2-Dichloropropane	BDL	2
1,3-Dichloropropane	BDL	2
2,2-Dichloropropane	BDL	10
1,1-Dichloropropene	BDL	10
cis-1,3-Dichloropropene	BDL	2
trans-1,3-Dichloropropene	BDL	2
Ethylbenzene	BDL	2
Hexachlorobutadiene	BDL	10
2-Hexanone	BDL	10
Isopropylbenzene	BDL	10
p-Isopropyltoluene	BDL	10
Methylene chloride	BDL	5
4-Methyl-2-pentanone	BDL	10
Naphthalene	BDL	10
n-Propylbenzene	BDL	10
Styrene	BDL	5
1,1,1,2-Tetrachloroethane	BDL	2
1,1,2,2-Tetrachloroethane	BDL	2
Tetrachloroethene	BDL	2
Toluene	BDL	2
1,2,3-Trichlorobenzene	BDL	10
1,2,4-Trichlorobenzene	BDL	10
1,1,1-Trichloroethane	BDL	2
1,1,2-Trichloroethane	BDL	2
Trichloroethene	BDL	2

BDL - Below Detection Limit

March 16, 1999
Report No. 104902-1

Groundwater, Foxtrot, Project #1285.002, Travel Blank, 02/20/99, received 02/22/99

Blank

RESULTS

Volatile Organics (EPA 8260B)	Result (ug/l)	Detection Limit (ug/l)
Trichlorofluoromethane	BDL	10
1,2,3-Trichloropropane	BDL	10
1,2,4-Trimethylbenzene	BDL	10
1,3,5-Trimethylbenzene	BDL	10
Vinyl acetate	BDL	10
Vinyl chloride	BDL	10
m+p-Xylene	BDL	5
o-Xylene	BDL	5
Xylenes (total)	BDL	5

BDL - Below Detection Limit

Respectfully submitted,

Bonnie J. Hogue
Project Manager

Carrie Brunk
Quality Assurance

JJ71

QC

Analytical Services Inc. Batch QC
For Report Number :104902
Organochlorine Pesticides

Matrix : Aqueous Batch # 45834 Method : EPA 8081

Lab Control Information Analyte	LC %Rec	LCD %Rec	LC RPD	%Recovery Range	RPD Range
BHC-gamma (Lindane)	94	97	4	32 - 127	0 - 40
Heptachlor	99	102	4	34 - 111	0 - 40
Aldrin	94	97	3	42 - 122	0 - 40
Dieldrin	99	103	4	36 - 146	0 - 40
Endrin	100	105	5	30 - 147	0 - 40
4,4'-DDT	109	113	4	25 - 160	0 - 40

Matrix Spike Information Analyte	MS %Rec	MSD %Rec	MS RPD	%Recovery Range	RPD Range
BHC-gamma (Lindane)	74	73	1	32 - 127	0 - 40
Heptachlor	62	63	1	34 - 111	0 - 40
Aldrin	78	75	4	42 - 122	0 - 40
Dieldrin	85	80	5	36 - 146	0 - 40
Endrin	86	123	36	30 - 147	0 - 40
4,4'-DDT	36	29	20	25 - 160	0 - 40

JJ72

Analytical Services Inc. Batch QC
Surrogate Recovery
Organochlorine Pesticides

Matrix : Aqueous Batch # 45834 Method : EPA 8081

% Recovery Objectives

S1	Dibutylchlorendate	14 - 161
S2	Tetrachloro-m-xylene	47 - 113
S3	Decachlorobiphenyl	10 - 139

Sample	File	S1	S2	S3	S4	S5	S6
45834BLK	021699009R	81	106	61			
104542-1	021699010R	81	100	60			
104542-2	021699011R	72	89	60			
45834LCS	021699012R	116	102	81			
45834LCSD	021699013R	109	98	49			
104542-1MS	021699025R	80	82	52			
104542-1MSD	021699046R	86	80	60			
104495-2	021899026F	119	86	136			
104495-3	021899027F	96	93	56			
104495-4	021899028F	76	81	44			
BLK02/16	022099032R	43	43	23			
104625-8	022099022F	95	73	105			
BLK02/22	022399006R	90	93	100			
104902-2	022399007F	48	50	14			
104902-3	022399008F	88	88	76			
104902-4	022399009F	80	76	55			
104893-5	022699007F	38	81	19			
104893-7	022699008F	74	83	60			
104893-7DUP	022699009F	56	78	38			
104893-21	022699018F	48	86	30			
104893-28	022699019F	86	88	86			
BLK02/24	022599024F	94	81	106			

Q.C. Information for Batch # 45834 Printed: 03/16/99 16:52:03

Blank Results Information
Organochlorine Pesticides Method : EPA 8081

Analyte	Blank Result	Detection Limit
Aldrin	BDL	0.1
BHC-alpha	BDL	0.1
BHC-beta	BDL	0.1
BHC-delta	BDL	0.1
BHC-gamma	BDL	0.1
Chlordane	BDL	0.5
4,4'-DDD	BDL	0.2
4,4'-DDE	BDL	0.2
4,4'-DDT	BDL	0.2
Dieldrin	BDL	0.1
Endosulfan I	BDL	0.5
Endosulfan II	BDL	0.5
Endosulfan sulfate	BDL	0.5
Endrin	BDL	0.2
Endrin aldehyde	BDL	0.2
Heptachlor	BDL	0.1
Heptachlor epoxide	BDL	0.1
Methoxychlor	BDL	0.3
Toxaphene	BDL	2.0

Q.C. Information for Batch # 45834 Printed: 03/16/99 16:52:03

Sample Batch Information
Organochlorine Pesticides Method : EPA 8081

Sample ID	Preparation Date	Preparation Time	Preparation By	Preparation Notes	Analysis Date	Analysis Time	Analysis By	Inst #
45834BLK	02/12/99	0900	SVOA		02/15/99	1711	JQZ	GC-3
45834LCS	02/12/99	0900	SVOA		02/15/99	1847	JQZ	GC-3
45834LCSD	02/12/99	0900	SVOA		02/15/99	1920	JQZ	GC-3
104542-1MS	02/12/99	0900	SVOA		02/16/99	1309	JQZ	GC-3
104542-1MSD	02/12/99	0900	SVOA		02/16/99	1342	JQZ	GC-3
104542-1	02/12/99	0900	SVOA		02/15/99	1744	JQZ	GC-3
104542-2	02/12/99	0900	SVOA		02/15/99	1818	JQZ	GC-3
104495-2	02/12/99	0900	SVOA		02/19/99	1024	JQZ	GC-3
104495-3	02/12/99	0900	SVOA		02/19/99	1059	JQZ	GC-3
104495-4	02/12/99	0900	SVOA		02/19/99	1133	JQZ	GC-3
104625-8	02/16/99	0900	SVOA		02/21/99	0410	JQZ	GC-3
BLK02/16	02/16/99	0900	SVOA		02/21/99	1115	JQZ	GC-3
BLK02/22	02/22/99	1530	SVOA		02/23/99	1237	JQZ	GC-3
104902-2	02/22/99	1530	SVOA		02/23/99	1345	JQZ	GC-3
104902-3	02/22/99	1530	SVOA		02/23/99	1420	JQZ	GC-3
104902-4	02/22/99	1530	SVOA		02/23/99	1454	JQZ	GC-3
104893-7DUP	02/24/99	1145	SVOA		02/25/99	1556	JQZ	GC-3
104893-7	02/24/99	1145	SVOA		02/25/99	1524	JQZ	GC-3
104893-21	02/24/99	1145	SVOA		02/25/99	2049	JQZ	GC-3
104893-28	02/24/99	1145	SVOA		02/25/99	2122	JQZ	GC-3
104893-5	02/24/99	1145	SVOA		02/25/99	1452	JQZ	GC-3
BLK02/24	02/24/99	0800	SVOA		02/26/99	0005	JQZ	GC-3

Analytical Services Inc. Batch QC
For Report Number :104902
PCB's

Matrix : Aqueous Batch # 45835 Method : EPA 8082

Lab Control Information Analyte	LC %Rec	LCD %Rec	LC RPD	%Recovery Range	RPD Range
PCB 1016	74	94	23	50 - 150	0 - 50
PCB 1260	69	63	9	50 - 150	0 - 50

Matrix Spike Information Analyte	MS %Rec	MSD %Rec	MS RPD	%Recovery Range	RPD Range
PCB 1016	96	101	5	50 - 150	0 - 50
PCB 1260	80	81	1	50 - 150	0 - 50

Analytical Services Inc. Batch QC
Surrogate Recovery
PCB's

Matrix : Aqueous Batch # 45835 Method : EPA 8082

% Recovery Objectives

S1	Tetrachloro-m-xylene	47 - 113
S2	Decachlorobiphenyl	10 - 139

Sample	File	S1	S2	S3	S4	S5	S6
45835BLK	021599007R	85	59				
45835LCS	021599008R	69	21				
45835LCSD	021599009R	82	13				
104542-2MS	021599010R	86	49				
104542-2MSD	021599011R	88	50				
104542-1	021599014R	90	57				
104542-2	021599015R	90	62				
104495-2	021599016R	94	106				
104495-3	021599017R	96	49				
104495-4	021599018R	88	39				
104519-1	021599019R	97	106				
104519-2	021599020R	89	96				
BLK02/16	021799011R	30	20				
104658	021799012R	81	92				
104540-5	021799013R	77	30				
104536-5	021799014R	76	37				
BLK02/17	021899002R	70	29				
104611-1	021899003R	76	51				
104611-15	021899004R	61	51				
104611-16	021899005R	63	45				
BLK02/18	021999005R	61	76				
104767-1	021999006R	63	80				
104767-2	021999007R	60	32				
BLK02/22	022399002R	73	81				
104902-2	022399003R	53	3				
104902-3	022399004R	73	63				
104902-4	022399005R	68	50				
BLK02/24	022599011R	77	57				
104893-5	022599012R	70	21				
104893-7	022599013R	67	45				
104893-7DUP	022599014R	72	43				

Q.C. Information for Batch # 45835 Printed: 03/16/99 16:52:04

Blank Results Information
PCB's Method : EPA 8082 / 608

Analyte	Blank Result	Detection Limit
PCB 1016	BDL	1.0
PCB 1221	BDL	1.0
PCB 1232	BDL	1.0
PCB 1242	BDL	1.0
PCB 1248	BDL	1.0
PCB 1254	BDL	1.0
PCB 1260	BDL	1.0

JJ75

Q.C. Information for Batch # 45835 Printed: 03/16/99 16:52:04

Sample Batch Information
PCB's Method : EPA 8082 / 608

Sample ID	Preparation Date	Preparation Time	Preparation By	Preparation Notes	Analysis Date	Analysis Time	Analysis By	Inst #
45835BLK	02/12/99	0900	DG/MB		02/15/99	1306	JPH	GC-4
45835LCS	02/12/99	0900	DG/MB		02/15/99	1323	JPH	GC-4
45835LCSD	02/12/99	0900	DG/MB		02/15/99	1339	JPH	GC-4
104542-2MS	02/12/99	0900	DG/MB		02/15/99	1355	JPH	GC-4
104542-2MSD	02/12/99	0900	DG/MB		02/15/99	1411	JPH	GC-4
104542-1	02/12/99	0900	DG/MB		02/15/99	1500	JPH	GC-4
104542-2	02/12/99	0900	DG/MB		02/15/99	1516	JPH	GC-4
104519-1	02/12/99	0900	DG/MB	PCB ONLY	02/15/99	1621	JPH	GC-4
104519-2	02/12/99	0900	DG/MB	PCB ONLY	02/15/99	1637	JPH	GC-4
104495-2	02/12/99	0900	DG/MB		02/15/99	1532	JPH	GC-4
104495-3	02/12/99	0900	DG/MB		02/15/99	1548	JPH	GC-4
104495-4	02/12/99	0900	DG/MB		02/15/99	1604	JPH	GC-4
104536-5	02/12/99	1345	DG/MB		02/17/99	2124	JPH	GC-4
104540-5	02/12/99	1345	DG/MB	PCB ONLY	02/17/99	2107	JPH	GC-4
104658	02/16/99	1110	SVOA	PCB ONLY	02/17/99	2051	JPH	GC-4
LK02/16	02/16/99	0900	SVOA		02/17/99	2035	JPH	GC-4
LK02/17	02/17/99	1130	SVOA		02/18/99	1539	JPH	GC-4
104611-1	02/17/99	0855	SVOA		02/18/99	1555	JPH	GC-4
104611-15	02/17/99	0855	SVOA		02/18/99	1611	JPH	GC-4
104611-16	02/17/99	0855	SVOA		02/18/99	1627	JPH	GC-4
104767-1	02/18/99	1450	SVOA		02/18/99	1738	JPH	GC-4
104767-2	02/18/99	1450	SVOA		02/18/99	1751	JPH	GC-4
LK02/18	02/18/99	1450	SVOA		02/18/99	1724	JPH	GC-4
LK02/22	02/22/99	1530	CP		02/23/99	1007	JPH	GC-4
104902-2	02/22/99	1530	CP		02/23/99	1021	JPH	GC-4
104902-3	02/22/99	1530	CP		02/23/99	1035	JPH	GC-4
104902-4	02/22/99	1530	CP		02/23/99	1050	JPH	GC-4
3LK02/24	02/24/99	0800	SVO		02/25/99	1557	JPH	GC-4
104893-7	02/24/99	1145	SVO		02/25/99	1625	JPH	GC-4
104893-7DUP	02/24/99	1145	SVO		02/25/99	1639	JPH	GC-4
104893-5	02/24/99	1145	SVO		02/25/99	1611	JPH	GC-4

Analytical Services Inc. Batch QC
For Report Number :104902
Diesel Range Organics

Matrix : Aqueous Batch # 45980 Method : EPA 8015B

Lab Control Information Analyte	LC %Rec	LCD %Rec	LC RPD	%Recovery Range	RPD Range
iesel	87	99	13	61 - 143	0 - 30

Matrix Spike Information Analyte	MS %Rec	MSD %Rec	MS RPD	%Recovery Range	RPD Range
iesel	95	84	12	61 - 143	0 - 30

Analytical Services Inc. Batch QC
Surrogate Recovery
Diesel Range Organics

Matrix : Aqueous Batch # 45980 Method : EPA 8015B

% Recovery Objectives

S1	n-Nonane	5 - 100
S2	n-Pentacosane	23 - 131

Sample	File	S1	S2	S3	S4	S5	S6
45980BLK	021299002R	65	75				
45980LCS	021299006R	80	92				
45980LCSD	021299007R	73	92				
104417MS	021299008R	71	80				
104417MSD	021299009R	72	76				
104417	021299010R	38	97				
BLK02/12	021599003R	41	81				
104540-1	021599004R	52	78				
104540-5	021599005R	41	60				
104540-8	021599006R	43	96				
BLK02/15	021799010R	28	84				
104552-14	021799011R	39	78				
104556	021799014R	36	114				
BLK02/22	022399002R	52	88				
104902-2	022399003R	41	77				
104902-3	022399004R	74	93				
104902-4	022399005R	51	82				
DAYBL03/10	031299022F	48	96				
105536	031299023F	44	68				
105536DUP	031299024F	9	71				

Q.C. Information for Batch # 45980 Printed: 03/16/99 16:52:05

Blank Results Information
Diesel Range Organics Method : EPA 8015B

Analyte	Blank Result	Detection Limit
Diesel Range Organics	BDL	0.20

JJS2

Q.C. Information for Batch # 45980 Printed: 03/16/99 16:52:05

Sample Batch Information
Diesel Range Organics Method : EPA 8015B

Sample ID	Preparation Date	Preparation Time	Preparation By	Preparation Notes	Analysis Date	Analysis Time	Analysis By	Inst #
45980BLK	02/11/99	1455	SVO		02/12/99	1153	JPH	GC-5
45980LCS	02/11/99	1455	SVO		02/12/99	1726	JPH	GC-5
45980LCSD	02/11/99	1455	SVO		02/12/99	1748	JPH	GC-5
104417	02/11/99	1455	SVO		02/12/99	1854	JPH	GC-5
104417MS	02/11/99	1455	SVO		02/12/99	1810	JPH	GC-5
104417MSD	02/11/99	1455	SVO		02/12/99	1832	JPH	GC-5
104540-1	02/12/99	1345	SVO		02/15/99	1219	JPH	GC-5
104540-5	02/12/99	1345	SVO		02/15/99	1241	JPH	GC-5
104540-8	02/12/99	1345	SVO		02/15/99	1303	JPH	GC-5
BLK02/12	02/12/99	1345	SVO		02/15/99	1157	JPH	GC-5
104552-14	02/15/99	0930	SVO		02/17/99	1346	JPH	GC-5
104556	02/15/99	1400	SVO		02/17/99	1434	JPH	GC-5
BLK02/15	02/15/99	0900	SVO		02/17/99	1330	JPH	GC-5
BLK02/22	02/22/99	1530	CP		02/23/99	1033	JPH	GC-2
104902-2	02/22/99	1530	SVOA		02/23/99	1048	JPH	GC-2
104902-3	02/22/99	1530	SVOA		02/23/99	1103	JPH	GC-2
104902-4	02/22/99	1530	SVOA		02/23/99	1119	JPH	GC-2
105536	03/10/99	1220	SVOA		03/12/99	1646	JPH	GC-4
105536DUP	03/10/99	1220	SVOA		03/12/99	1707	JPH	GC-4
AYBL03/10	03/10/99	1220	SVOA		03/12/99	1626	JPH	GC-4

Analytical Services Inc. Batch QC
For Report Number :104902
Volatile Organics

Matrix : Aqueous Batch # 46121 Method : EPA 8260

Lab Control Information Analyte	LC %Rec	LCD %Rec	LC RPD	%Recovery Range	RPD Range
,1-Dichloroethene	118	111	6	61 - 145	0 - 14
richloroethene	117	112	4	71 - 120	0 - 14
enzene	127	125	2	76 - 127	0 - 11
Toluene	127	126	1	76 - 125	0 - 13
hlorobenzene	124	123	1	75 - 130	0 - 13

atrix Spike Information Analyte	MS %Rec	MSD %Rec	MS RPD	%Recovery Range	RPD Range
,1-Dichloroethene	109	98	11	61 - 145	0 - 14
richloroethene	91	85	7	71 - 120	0 - 14
Benzene	110	100	10	76 - 127	0 - 11
oluene	101	93	9	76 - 125	0 - 13
hlorobenzene	99	89	11	75 - 130	0 - 13

JJ84

Analytical Services Inc. Batch QC
Surrogate Recovery
Volatile Organics

Matrix : Aqueous Batch # 46121 Method : EPA 8260

% Recovery Objectives

S1	1,2-Dichloroethane-d4	76 - 119
S2	Toluene-d8	88 - 110
S3	Ethylbenzene-d10	75 - 115
S4	4-Bromofluorobenzene	86 - 120

Sample	File	S1	S2	S3	S4	S5	S6
46121BLK	B1605	96	92	104	92		
46121LCS	B1606	98	93	107	91		
46121LCSD	B1607	99	94	109	90		
104612-4	B1626	103	92	109	88		
104437-1	B1616	96	104	98	104		
104437-2	B1617	96	95	103	91		
104433	B1618	94	104	98	104		
46121BLK 02/22	C9217	104	99	97	97		
104433D	C9224	105	100	98	101		
^^Note: 1:5 DILUTION							
104437-1D	C9225	105	100	98	99		
^^Note: 1:5 DILUTION							
46121BLK2 02/22	B1640	93	94	101	96		
104547-1	B1641	97	94	103	90		
104547-2	B1642	98	93	104	89		
104901-1	B1644	97	94	104	95		
104901-2	B1645	92	104	98	103		
104901-3	B1646	97	93	103	90		
46121BLK 02/23	B1675	97	96	98	91		
104902-1	B1688	98	94	103	95		
104902-2	B1689	98	94	102	93		
104902-3	B1690	103	96	102	92		
104902-4	B1691	98	97	102	95		
46121BLK 02/24	C9290	103	101	99	101		
104902-3D	C9304	107	101	99	99		
^^Note: 1:100 DILUTION							
104902-4DUP	C9305	111	103	98	98		
104902-4D	C9307	108	99	100	100		
^^Note: 1:5 DILUTION							
104486-3	B1678	100	91	100	81		
104486-4	B1679	101	88	101	80		
104486-5	B1680	104	91	102	86		
104486-6	B1681	98	91	98	103		

JJS5

Analytical Services Inc. Batch QC
Surrogate Recovery
Volatile Organics

Matrix : Aqueous Batch # 46121 Method : EPA 8260

% Recovery Objectives

S1	1,2-Dichloroethane-d4	76 - 119
S2	Toluene-d8	88 - 110
S3	Ethylbenzene-d10	75 - 115
S4	4-Bromofluorobenzene	86 - 120

Sample	File	S1	S2	S3	S4	S5	S6
104486-7	B1682	98	90	99	89		
104486-8	B1683	98	90	101	86		
46121BLK 02/27	B1798	100	99	100	100		
104486-3DUP	B1822	102	97	102	97		
104486-4DUP	B1823	106	97	102	97		
46121BLK 03/02	B1931	95	97	98	96		
104901-1MS	B1944	100	97	101	98		
104901-1MSD	B1945	102	98	100	95		

JJ86

Q.C. Information for Batch # 46121 Printed: 03/16/99 16:52:06

Blank Results Information
Volatile Organics Method : EPA 8260

Analyte	Blank Result	Detection Limit
Acetone	BDL	100
Acrolein	BDL	50
Acrylonitrile	BDL	50
Benzene	BDL	2
Bromobenzene	BDL	10
Bromochloromethane	BDL	10
Bromodichloromethane	BDL	10
Bromoform	BDL	10
Bromomethane	BDL	10
2-Butanone	BDL	100
n-Butylbenzene	BDL	10
sec-Butylbenzene	BDL	10
tert-Butylbenzene	BDL	10
Carbon disulfide	BDL	10
Carbon tetrachloride	BDL	2
Chlorobenzene	BDL	10
Chloroethane	BDL	5
Chloroform	BDL	2
Chloromethane	BDL	10
2-Chlorotoluene	BDL	10
4-Chlorotoluene	BDL	10
2-Chloroethylvinyl ether	BDL	10
Dibromochloromethane	BDL	10
1,2-Dibromo-3-chloropropane	BDL	10
1,2-Dibromoethane	BDL	10
Dibromomethane	BDL	10
1,2-Dichlorobenzene	BDL	10
1,3-Dichlorobenzene	BDL	10
1,4-Dichlorobenzene	BDL	10
Dichlorodifluoromethane	BDL	10
1,1-Dichloroethane	BDL	2
1,2-Dichloroethane	BDL	2
1,1-Dichloroethene	BDL	2
cis-1,2-Dichloroethene	BDL	2
trans-1,2-Dichloroethene	BDL	2
1,2-Dichloropropane	BDL	2
1,3-Dichloropropane	BDL	2
2,2-Dichloropropane	BDL	10
1,1-Dichloropropene	BDL	10
cis-1,3-Dichloropropene	BDL	2
trans-1,3-Dichloropropene	BDL	2
Ethylbenzene	BDL	2
Hexachlorobutadiene	BDL	10
2-Hexanone	BDL	10
Isopropylbenzene	BDL	10
p-Isopropyltoluene	BDL	10
Methylene chloride	BDL	5
4-Methyl-2-pentanone	BDL	10
Naphthalene	BDL	10

JJ87

Q.C. Information for Batch # 46121 Printed: 03/16/99 16:52:06

Blank Results Information
Volatile Organics Method : EPA 8260

Analyte	Blank Result	Detection Limit
n-Propylbenzene	BDL	10
Styrene	BDL	5
1,1,1,2-Tetrachloroethane	BDL	2
1,1,2,2-Tetrachloroethane	BDL	2
Tetrachloroethene	BDL	2
Toluene	BDL	2
1,2,3-Trichlorobenzene	BDL	10
1,2,4-Trichlorobenzene	BDL	10
1,1,1-Trichloroethane	BDL	2
1,1,2-Trichloroethane	BDL	2
Trichloroethene	BDL	2
Trichlorofluoromethane	BDL	10
1,2,3-Trichloropropane	BDL	10
1,2,4-Trimethylbenzene	BDL	10
1,3,5-Trimethylbenzene	BDL	10
Vinyl acetate	BDL	10
Vinyl chloride	BDL	10
m+p-Xylene	BDL	5
o-Xylene	BDL	5
Xylenes	BDL	5

Q.C. Information for Batch # 46121 Printed: 03/16/99 16:52:06

Sample Batch Information
Volatile Organics Method : EPA 8260

Sample ID	Preparation Date	Preparation Time	By	Preparation Notes	Analysis Date	Time	By	Inst #
46121BLK	/ /				02/21/99	2307	LLP	VOA2
46121LCS	/ /				02/21/99	2338	LLP	VOA2
46121LCSD	/ /				02/22/99	0008	LLP	VOA2
104612-4	/ /				02/22/99	0951	JTC	VOA2
104437-1	/ /				02/22/99	0444	LLP	VOA2
104437-2	/ /				02/22/99	0515	LLP	VOA2
104433	/ /				02/22/99	0546	LLP	VOA2
46121BLK 02/22	/ /				02/22/99	0345	JTC	VOA3
104433D	/ /				02/22/99	1646	JTC	VOA3
104437-1D	/ /				02/22/99	1712	JTC	VOA3
46121BLK2 02/22	/ /				02/22/99	1905	LLP	VOA2
104547-1	/ /				02/22/99	1936	LLP	VOA2
104547-2	/ /				02/22/99	2006	LLP	VOA2
104901-1	/ /				02/22/99	2108	LLP	VOA2
104901-2	/ /				02/22/99	2138	LLP	VOA2
104901-3	/ /				02/22/99	2208	LLP	VOA2
46121BLK 02/23	/ /				02/23/99	2001	LLP	VOA2
104902-1	/ /				02/24/99	0212	LLP	VOA2
104902-2	/ /				02/24/99	0240	LLP	VOA2
104902-3	/ /				02/24/99	0307	LLP	VOA2
104902-4	/ /				02/24/99	0334	LLP	VOA2
46121BLK 02/24	/ /				02/24/99	0955	LLP	VOA3
104902-3D	/ /				02/24/99	1638	LLP	VOA3
104902-4DUP	/ /				02/24/99	1704	LLP	VOA3
104902-4D	/ /				02/24/99	1840	LLP	VOA3
104486-3	/ /				02/23/99	2129	LLP	VOA2
104486-4	/ /				02/23/99	2156	LLP	VOA2
104486-5	/ /				02/23/99	2223	LLP	VOA2
104486-6	/ /				02/23/99	2250	LLP	VOA2
104486-7	/ /				02/23/99	2317	LLP	VOA2
104486-8	/ /				02/23/99	2345	LLP	VOA2
46121BLK 02/27	/ /				02/27/99	0428	DR	VOA2
104486-3DUP	/ /				02/27/99	1534	DR	VOA2
104486-4DUP	/ /				02/27/99	1601	DR	VOA2
46121BLK 03/02	/ /				03/02/99	0112	LLP	VOA2
104901-1MS	/ /				03/02/99	0707	LLP	VOA2
104901-1MSD	/ /				03/02/99	0735	LLP	VOA2

Analytical Services Inc. Batch QC
For Report Number :104902
Gasoline Range Organics

Matrix : Aqueous Batch # 46122 Method : 8260B

Lab Control Information Analyte	LC %Rec	LCD %Rec	LC RPD	%Recovery Range	RPD Range
Gasoline	102	106	4	67 - 136	0 - 30

Matrix Spike Information Analyte	MS %Rec	MSD %Rec	MS RPD	%Recovery Range	RPD Range
Gasoline	128	122	5	67 - 136	0 - 30

Analytical Services Inc. Batch QC
Surrogate Recovery
Gasoline Range Organics

Matrix : Aqueous Batch # 46122 Method : 8260B

% Recovery Objectives

S1	1,2-Dichloroethane-d4	76 - 119
S2	Toluene-d8	88 - 110
S3	Ethylbenzene-d10	75 - 115
S4	4-Bromofluorobenzene	86 - 115

Sample	File	S1	S2	S3	S4	S5	S6
46122LCS	B1499	97	101	99	93		
46122LCSD	B1500	96	101	99	93		
104369-4MS	B1507	94	103	99	96		
104369-4MSD	B1508	96	100	98	96		
104369-4	B1506	101	92	102	89		
46122BLK	B1512	103	96	99	94		
46122BLK 02/21	B1605	96	92	104	92		
104767-1	B1612	94	95	100	92		
104767-2	B1613	97	95	101	95		
46122BLK 02/22	B1640	93	94	101	96		
104341-2	B1668	97	96	100	105		
^^Note: 1:1000 DILUTION							
46122BLK 02/23	B1675	97	96	98	91		
104902-2	B1689	98	94	102	93		
104902-3	B1690	103	96	102	92		
104902-4	B1691	98	97	102	95		
46122BLK 02/24	C9290	103	101	99	101		
104902-3D	C9304	107	101	99	99		
^^Note: 1:100 DILUTION							
104902-4DUP	C9305	111	103	98	98		
104552-14	B1534	95	93	100	92		
46122BLK 03/11	B2175	107	95	105	88		
105484	B2193	111	96	105	86		
105242	B2194	114	96	105	86		

Q.C. Information for Batch # 46122 Printed: 03/16/99 16:52:08

Blank Results Information
Gasoline Range Organics Method : 8260B

Analyte	Blank Result	Detection Limit
Gasoline Range Organics	BDL	0.10

JJ92

Q.C. Information for Batch # 46122 Printed: 03/16/99 16:52:08

Sample Batch Information
Gasoline Range Organics Method : 8260B

Sample ID	Preparation Date	Time	By	Preparation Notes	Analysis Date	Time	By	Inst #
46122LCS	/ /				02/17/99	0855	LLP	VOA2
46122LCSD	/ /				02/17/99	0925	LLP	VOA2
104369-4MS	/ /				02/17/99	1320	LLP	VOA2
104369-4MSD	/ /				02/17/99	1358	LLP	VOA2
104369-4	/ /				02/17/99	1230	LLP	VOA2
46122BLK	/ /				02/17/99	1609	LLP	VOA2
46122BLK 02/21	/ /				02/21/99	2307	LLP	VOA2
104767-1	/ /				02/22/99	0242	LLP	VOA2
104767-2	/ /				02/22/99	0312	LLP	VOA2
104767-3	/ /				02/22/99	0343	LLP	VOA2
46122BLK 02/22	/ /				02/22/99	1905	LLP	VOA2
104341-2	/ /				02/22/99	1226	LLP	VOA2
46122BLK 02/23	/ /				02/23/99	2001	LLP	VOA2
104902-2	/ /				02/24/99	0240	LLP	VOA2
104902-3	/ /				02/24/99	0307	LLP	VOA2
104902-4	/ /				02/24/99	0334	LLP	VOA2
46122BLK 02/24	/ /				02/24/99	0955	LLP	VOA3
104902-3D	/ /				02/24/99	1638	LLP	VOA3
104902-4DUP	/ /				02/24/99	1704	LLP	VOA3
104552-14	/ /				02/18/99	0707	LLP	VOA2
46122BLK 03/11	/ /				03/11/99	0122	DR	VOA2
105484	/ /				03/11/99	0940	DR	VOA2
105242	/ /				03/11/99	1008	DR	VOA2

JJ43

Analytical Services Inc. Batch QC
For Report Number :104902

QC Batch General Information

Batch Number	Analyte	Analysis Method	Matrix		Blank Result	Prep. Method
44982	Hg	EPA 7470	Aqueous	<	0.0002	
45905	As	EPA 7060	Aqueous	<	0.0050	
45905	Se	EPA 7740	Aqueous	<	0.0050	
45907	Ag	EPA 6010	Aqueous	<	0.0030	
45907	Ba	EPA 6010	Aqueous	<	0.0100	
45907	Cd	EPA 6010	Aqueous	<	0.0050	
45907	Cr	EPA 6010	Aqueous	<	0.0050	
45907	Pb	EPA 6010	Aqueous	<	0.0050	

Lab Control Information

Batch Number	Analyte	Method	LC %Rec	LCD %Rec	LC RPD	%Recovery Range	RPD Range
44982	Hg	EPA 7470	91	99	8	76 - 124	0 - 20
45905	As	EPA 7060	105	106	1	76 - 124	0 - 20
45905	Se	EPA 7740	109	104	5	76 - 124	0 - 20
45907	Ag	EPA 6010	91	90	1	76 - 124	0 - 20
45907	Ba	EPA 6010	89	88	1	76 - 124	0 - 20
45907	Cd	EPA 6010	88	88	0	76 - 124	0 - 20
45907	Cr	EPA 6010	87	86	1	76 - 124	0 - 20
45907	Pb	EPA 6010	89	89	0	76 - 124	0 - 20

Matrix Spike Information

Batch Number	Analyte	Method	MS %Rec	MSD %Rec	MS RPD	%Recovery Range	RPD Range
44982	Hg	EPA 7470	99	91	8	76 - 124	0 - 20
45905	As	EPA 7060	76	78	3	76 - 124	0 - 20
45905	Se	EPA 7740	55	69	23	76 - 124	0 - 20
45907	Ag	EPA 6010	92	91	1	76 - 124	0 - 20
45907	Ba	EPA 6010	89	88	1	76 - 124	0 - 20
45907	Cd	EPA 6010	88	88	0	76 - 124	0 - 20
45907	Cr	EPA 6010	87	87	0	76 - 124	0 - 20
45907	Pb	EPA 6010	89	89	0	76 - 124	0 - 20

JJ94

Analytical Services Inc. Batch QC
For Report Number :104902

Post Digestion Spike Information

Batch Number	Analyte	Method	PDS %Rec	%Recovery Range
45905	As	EPA 7060	78	76 - 124
45905	Se	EPA 7740	50	76 - 124
45907	Ag	EPA 6010	97	76 - 124
45907	Ba	EPA 6010	96	76 - 124
45907	Cd	EPA 6010	95	76 - 124
45907	Cr	EPA 6010	94	76 - 124
45907	Pb	EPA 6010	96	76 - 124

Unspiked Sample Duplicate Information

Batch Number	Analyte	Method	Sample 1 RPD	Sample 2 RPD	RPD Range
44982	Hg	EPA 7470	0		0 - 20

JJ95

Q.C. Information for Batch # 44982 For Report Number :104902

Sample Batch Information
Analysis : Hg

Sample ID	Tag	Preparation Date	Preparation Time	Preparation By	Preparation Notes	Analysis Date	Analysis Time	Analysis By	Inst
44982BLANK	hg	02/23/99	1130	CRB		02/23/99	1523	CRB	HG1
44982LCS	hg	02/23/99	1130	CRB		02/23/99	1526	CRB	HG1
44982LCSD	hg	02/23/99	1130	CRB		02/23/99	1528	CRB	HG1
104832MS	hg	02/23/99	1130	CRB		02/23/99	1533	CRB	HG1
104832MSD	hg	02/23/99	1130	CRB		02/23/99	1536	CRB	HG1
104823DUP	hg	02/23/99	1130	CRB		02/23/99	1541	CRB	HG1
104823	hg	02/23/99	1130	CRB		02/23/99	1538	CRB	HG1
104835	hg	02/23/99	1130	CRB		02/23/99	1543	CRB	HG1
104836	hg	02/23/99	1130	CRB		02/23/99	1546	CRB	HG1
104846-1	hg	02/23/99	1130	CRB		02/23/99	1554	CRB	HG1
104851-2	hg	02/23/99	1130	CRB		02/23/99	1556	CRB	HG1
104858	hg	02/23/99	1130	CRB		02/23/99	1559	CRB	HG1
104832	hg	02/23/99	1130	CRB		02/23/99	1531	CRB	HG1
104902-2	hg	02/23/99	1130	CRB		02/23/99	1601	CRB	HG1
104902-3	hg	02/23/99	1130	CRB		02/23/99	1604	CRB	HG1
104902-4	hg	02/23/99	1130	CRB		02/23/99	1606	CRB	HG1

JJ96

Q.C. Information for Batch # 45905 For Report Number :104902

Sample Batch Information
Analysis : As, Se

Sample ID	Tag	Preparation Date	Preparation Time	Preparation By	Preparation Notes	Analysis Date	Analysis Time	Analysis By	Inst
45905BLANK	As	02/23/99	0910	RAF	GFAA	02/23/99	1426	RCP	AA3
45905LCS	As	02/23/99	0910	RAF	GFAA	02/23/99	1426	RCP	AA3
45905LCSD	As	02/23/99	0910	RAF	GFAA	02/23/99	1426	RCP	AA3
104778-28MS	As	02/23/99	0910	RAF	GFAA	02/23/99	1426	RCP	AA3
104778-28MSD	As	02/23/99	0910	RAF	GFAA	02/23/99	1426	RCP	AA3
104778-30PDS	As	02/23/99	0910	RAF	GFAA	02/23/99	1426	RCP	AA3
104778-30DUP	As	02/23/99	0910	RAF	GFAA	02/23/99	1426	RCP	AA3
104778-24	As	02/23/99	0910	RAF	GFAA	02/23/99	1426	RCP	AA3
104778-25	As	02/23/99	0910	RAF	GFAA	02/23/99	1426	RCP	AA3
104778-28	As	02/23/99	0910	RAF	GFAA	02/23/99	1426	RCP	AA3
104778-30	As	02/23/99	0910	RAF	GFAA	02/23/99	1426	RCP	AA3
104902-2	As	02/23/99	0910	RAF	GFAA	02/23/99	1426	RCP	AA3
104902-3	As	02/23/99	0910	RAF	GFAA	02/23/99	1426	RCP	AA3
104902-4	As	02/23/99	0910	RAF	GFAA	02/23/99	1426	RCP	AA3
104844	As	02/23/99	0910	RAF	GFAA	02/23/99	1426	RCP	AA3
45905BLANK	Se	02/23/99	0910	RAF	GFAA	02/24/99	0952	DCF	AA1
45905LCS	Se	02/23/99	0910	RAF	GFAA	02/24/99	0952	DCF	AA1
45905LCSD	Se	02/23/99	0910	RAF	GFAA	02/24/99	0952	DCF	AA1
104778-28MS	Se	02/23/99	0910	RAF	GFAA	02/24/99	0952	DCF	AA1
104778-28MSD	Se	02/23/99	0910	RAF	GFAA	02/24/99	0952	DCF	AA1
104778-30PDS	Se	02/23/99	0910	RAF	GFAA	02/24/99	0952	DCF	AA1
104778-30DUP	Se	02/23/99	0910	RAF	GFAA	02/24/99	0952	DCF	AA1
104778-24	Se	02/23/99	0910	RAF	GFAA	02/24/99	0952	DCF	AA1
104778-25	Se	02/23/99	0910	RAF	GFAA	02/24/99	0952	DCF	AA1
104778-28	Se	02/23/99	0910	RAF	GFAA	02/24/99	0952	DCF	AA1
104778-30	Se	02/23/99	0910	RAF	GFAA	02/24/99	0952	DCF	AA1
104902-2	Se	02/23/99	0910	RAF	GFAA	02/24/99	0952	DCF	AA1
104902-3	Se	02/23/99	0910	RAF	GFAA	02/24/99	0952	DCF	AA1
104902-4	Se	02/23/99	0910	RAF	GFAA	02/24/99	0952	DCF	AA1
104844	Se	02/23/99	0910	RAF	GFAA	02/24/99	0952	DCF	AA1

JJ97

Q.C. Information for Batch # 45907 For Report Number :104902

Sample Batch Information
Analysis : Ag, Ba, Cd, Cr, Pb

Sample ID	Tag	Preparation Date	Preparation Time	Preparation By	Preparation Notes	Analysis Date	Analysis Time	Analysis By	Inst
45907BLANK		02/23/99	0930	LP	TRACE	02/23/99	1604	FBS	ICP2
45907LCS		02/23/99	0930	LP	TRACE	02/23/99	1608	FBS	ICP2
5907LCSD		02/23/99	0930	LP	TRACE	02/23/99	1612	FBS	ICP2
04678-5MS		02/23/99	0930	LP	AKA 104678-4	02/23/99	1616	FBS	ICP2
104678-6MSD		02/23/99	0930	LP	AKA 104678-4	02/23/99	1620	FBS	ICP2
04678-2PDS		02/23/99	0930	LP	TRACE	02/23/99	1624	FBS	ICP2
04678-2DUP		02/23/99	0930	LP	TRACE	02/23/99	1628	FBS	ICP2
104902-2		02/23/99	0930	LP	TRACE	02/23/99	1521	FBS	ICP2
04902-3		02/23/99	0930	LP	TRACE	02/23/99	1525	FBS	ICP2
04902-4		02/23/99	0930	LP	TRACE	02/23/99	1529	FBS	ICP2
104906		02/23/99	0930	LP	TRACE	02/23/99	1533	FBS	ICP2
104678-2		02/23/99	0930	LP	TRACE	02/23/99	1636	FBS	ICP2
04678-3		02/23/99	0930	LP	TRACE	02/23/99	1640	FBS	ICP2
04678-4		02/23/99	0930	LP	TRACE	02/23/99	1632	FBS	ICP2
104678-7		02/23/99	0930	LP	TRACE	02/23/99	1652	FBS	ICP2
04678-8		02/23/99	0930	LP	TRACE	02/23/99	1656	FBS	ICP2
04678-9		02/23/99	0930	LP	TRACE	02/23/99	1659	FBS	ICP2
104879		02/23/99	0930	LP	TRACE	02/23/99	1703	FBS	ICP2
04815-1		02/23/99	0930	LP	TRACE	02/23/99	1707	FBS	ICP2
04815-2		02/23/99	0930	LP	TRACE	02/23/99	1711	FBS	ICP2

JJ98

Analytical Services Inc. Batch QC
For Report Number :104988
Organochlorine Pesticides

QC

Matrix : Aqueous Batch # 46034 Method : EPA 8081

Lab Control Information Analyte	LC %Rec	LCD %Rec	LC RPD	%Recovery Range	RPD Range
HC-gamma (Lindane)	89	89	0	32 - 127	0 - 40
eptachlor	78	80	2	34 - 111	0 - 40
Aldrin	83	84	1	42 - 122	0 - 40
Dieldrin	90	89	1	36 - 146	0 - 40
ndrin	81	80	2	30 - 147	0 - 40
,4'-DDT	70	72	3	25 - 160	0 - 40

atrix Spike Information Analyte	MS %Rec	MSD %Rec	MS RPD	%Recovery Range	RPD Range
HC-gamma (Lindane)	100	91	10	32 - 127	0 - 40
Heptachlor	95	68	33	34 - 111	0 - 40
ldrin	89	82	8	42 - 122	0 - 40
ieldrin	102	92	10	36 - 146	0 - 40
Endrin	85	82	3	30 - 147	0 - 40
,4'-DDT	69	57	19	25 - 160	0 - 40

JJ99

Analytical Services Inc. Batch QC
Surrogate Recovery
Organochlorine Pesticides

Matrix : Aqueous Batch # 46034 Method : EPA 8081

% Recovery Objectives

S1	Dibutylchlorendate	14 - 161
S2	Tetrachloro-m-xylene	47 - 113
S3	Decachlorobiphenyl	10 - 139

Sample	File	S1	S2	S3	S4	S5	S6
46034BLK	022099023F	85	70	97			
46034LCS	022099025F	84	74	32			
46034LCSD	022099026F	97	76	52			
104625-16MS	022099027R	100	92	35			
104625-16MSD	022099028R	68	73	42			
104625-16	022099031R	91	90	35			
104625-17DUP	022099033F	43	60	35			
104625-17	022099034F	66	56	35			
BLK02/24	022499006R	84	85	64			
104988-1	022499007R	86	80	56			
BLK03/04	030499006F	78	89	63			
105323-1	030499018F	107	85	43			
105323-2	030499019F	132	90	105			
105315-4	030599023R	113	84	106			
105315-5	030599024F	62	100	133			
105315-6	030599025R	99	84	87			
105315-3	030599028R	125	100	132			

Q.C. Information for Batch # 46034 Printed: 03/09/99 16:06:34

Blank Results Information
Organochlorine Pesticides Method : EPA 8081

Analyte	Blank Result	Detection Limit
Aldrin	BDL	0.1
BHC-alpha	BDL	0.1
BHC-beta	BDL	0.1
BHC-delta	BDL	0.1
BHC-gamma	BDL	0.1
Chlordane	BDL	0.5
4,4'-DDD	BDL	0.2
4,4'-DDE	BDL	0.2
4,4'-DDT	BDL	0.2
Dieldrin	BDL	0.1
Endosulfan I	BDL	0.5
Endosulfan II	BDL	0.5
Endosulfan sulfate	BDL	0.5
Endrin	BDL	0.2
Endrin aldehyde	BDL	0.2
Heptachlor	BDL	0.1
Heptachlor epoxide	BDL	0.1
Methoxychlor	BDL	0.3
Toxaphene	BDL	2.0

JJ1C1

Q.C. Information for Batch # 46034 Printed: 03/09/99 16:06:34

Sample Batch Information
Organochlorine Pesticides Method : EPA 8081

Sample ID	Preparation Date	Preparation Time	Preparation By	Preparation Notes	Analysis Date	Analysis Time	Analysis By	Inst #
46034BLK	02/17/99	1130	SVOA		02/21/99	0444	JQZ	GC-3
46034LCS	02/17/99	1130	SVOA		02/21/99	0553	JQZ	GC-3
46034LCSD	02/17/99	1130	SVOA		02/21/99	0628	JQZ	GC-3
104625-16MS	02/17/99	1130	SVOA		02/21/99	0628	JQZ	GC-3
104625-16MSD	02/17/99	1130	SVOA		02/21/99	0933	JQZ	GC-3
104625-17DUP	02/17/99	1130	SVOA		02/22/99	1224	JQZ	GC-3
104625-16	02/17/99	1130	SVOA		02/22/99	1041	JQZ	GC-3
104625-17	02/17/99	1130	SVOA		02/22/99	1259	JQZ	GC-3
BLK02/24	02/24/99	0800	SVOA		02/24/99	1236	JQZ	GC-3
104988-1	02/24/99	0800	SVOA		02/24/99	1310	JQZ	GC-3
BLK03/04	03/04/99	0800	SVOA		03/04/99	1735	JQZ	GC-3
105315-3	03/04/99	0800	SVOA		03/05/99	1441	JQZ	GC-3
105315-4	03/04/99	0800	SVOA		03/05/99	1158	JQZ	GC-3
105315-5	03/04/99	0800	SVOA		03/05/99	1303	JQZ	GC-3
105315-6	03/04/99	0800	SVOA		03/05/99	1303	JQZ	GC-3
105323-1	03/04/99	0800	SVOA		03/04/99	2338	JQZ	GC-3
105323-2	03/04/99	0800	SVOA		03/05/99	0008	JQZ	GC-3
BLK03/08	03/08/99	1000	SVOA		/ /			
105454-1	03/08/99	1000	SVOA		/ /			
105454-2	03/08/99	1000	SVOA		/ /			
105454-3	03/08/99	1000	SVOA		/ /			
105454-4	03/08/99	1000	SVOA		/ /			
105454-5	03/08/99	1000	SVOA		/ /			
105454-6	03/08/99	1000	SVOA		/ /			

JJ102

Analytical Services Inc. Batch QC
For Report Number :104988
Diesel Range Organics

Matrix : Aqueous Batch # 46094 Method : EPA 8015B

Lab Control Information Analyte	LC %Rec	LCD %Rec	LC RPD	%Recovery Range	RPD Range
Diesel	115	111	4	61 - 143	0 - 30

Matrix Spike Information Analyte	MS %Rec	MSD %Rec	MS RPD	%Recovery Range	RPD Range
Diesel	112	117	4	61 - 143	0 - 30

JJ103

Analytical Services Inc. Batch QC
Surrogate Recovery
Diesel Range Organics
Batch # 46094

Matrix : Aqueous

Method : EPA 8015B

% Recovery Objectives

S1	n-Nonane	5 - 100
S2	n-Pentacosane	23 - 131

Sample	File	S1	S2	S3	S4	S5	S6
BLK02/19	021999007F	52	77				
104701	021999008F	46	67				
46094BLK	021999009F	49	89				
46094LCS	021999010F	56	88				
46094LCSD	021999011F	55	82				
104625-8MS	021999012F	71	87				
104625-8MSD	021999013F	72	89				
104625-8	021999014F	51	94				
104625-16	021999015F	51	89				
104625-17	021999016F	49	87				
104625-17DUP	021999017F	51	81				
BLK02/18	021999020F	24	98				
104767-1	021999021F	17	75				
104767-2	022199028F	26	87				
BLK02/24	022499008F	36	90				
104988-1	222499009F	36	86				
BLK02/25	022699006F	65	77				
105057-2	022699007F	59	70				
105154	030399B019F	92	53				
^^Note: 1:10 DILUTION							
BLK03/01	030399016F	52	87				

JJ 104

Q.C. Information for Batch # 46094 Printed: 03/09/99 16:06:35

Blank Results Information
Diesel Range Organics Method : EPA 8015B

Analyte	Blank Result	Detection Limit
Gasoline Range Organics	BDL	0.1
Diesel Range Organics	BDL	0.20

Q.C. Information for Batch # 46094 Printed: 03/09/99 16:06:35

Sample Batch Information
Diesel Range Organics Method : EPA 8015B

Sample ID	Preparation Date	Preparation Time	Preparation By	Preparation Notes	Analysis Date	Analysis Time	Analysis By	Inst #
BLK02/19	02/19/99	1230	SVOA		02/19/99	1341	JPH	GC-4
04701	02/19/99	1230	SVOA		02/19/99	1404	JPH	GC-4
6094BLK	02/17/99	0855	SVOA		02/19/99	1419	JPH	GC-4
46094LCS	02/17/99	0855	SVOA		02/19/99	1434	JPH	GC-4
6094LCSD	02/17/99	0855	SVOA		02/19/99	1450	JPH	GC-4
04625-8MS	02/17/99	0855	SVOA		02/19/99	1505	JPH	GC-4
04625-8MSD	02/17/99	0855	SVOA		02/19/99	1521	JPH	GC-4
104625-8	02/17/99	0855	SVOA		02/19/99	1536	JPH	GC-4
04625-16	02/17/99	0855	SVOA		02/19/99	1552	JPH	GC-4
04625-17	02/17/99	0855	SVOA		02/19/99	1607	JPH	GC-4
104625-17DUP	02/17/99	0855	SVOA		02/19/99	1622	JPH	GC-4
04767-1	02/18/99	1450	SVOA		02/19/99	1724	JPH	GC-4
04767-2	02/18/99	1450	SVOA		02/19/99	1132	JPH	GC-4
BLK02/18	02/18/99	1450	SVOA		02/19/99	1709	JPH	GC-4
BLK02/24	02/24/99	0800	SVOA		02/24/99	1306	JPH	GC-2
4988-1	02/24/99	0800	SVOA		02/24/99	1326	JPH	GC-2
4701	02/19/99	1230	MB		/ /			
BLK02/19	02/19/99	1230	MB		/ /			
LK02/25	02/25/99	1700	JS		02/26/99	1147	JPH	GC-2
5057-2	02/25/99	1700	JS		02/26/99	1203	JPH	GC-2
BLK03/01	03/01/99	1000	SVO		03/03/99	1901	JPH	GC-4
05154	03/01/99	1000	SVO		03/02/99	2008	JPH	GC-4
K03/05	03/05/99	2040	LAR		/ /			
05242	03/05/99	2040	LAR		/ /			
BLK03/08	03/08/99	1000	SVOA		/ /			
5484	03/08/99	1000	SVOA		/ /			

J.T106

Analytical Services Inc. Batch QC
For Report Number :104988
PCB's

Matrix : Aqueous Batch # 46144 Method : EPA 8082

Lab Control Information Analyte	LC %Rec	LCD %Rec	LC RPD	%Recovery Range	RPD Range
PCB 1016	71	81	12	50 - 150	0 - 50
PCB 1260	72	82	13	50 - 150	0 - 50

Matrix Spike Information Analyte	MS %Rec	MSD %Rec	MS RPD	%Recovery Range	RPD Range
PCB 1016	90	74	19	50 - 150	0 - 50
PCB 1260	69	56	20	50 - 150	0 - 50

JJ167

Analytical Services Inc. Batch QC
Surrogate Recovery
PCB's

Matrix : Aqueous Batch # 46144 Method : EPA 8082

% Recovery Objectives

S1	Tetrachloro-m-xylene	47 - 113
S2	Decachlorobiphenyl	10 - 139

Sample	File	S1	S2	S3	S4	S5	S6
BLK02/24	022499002R	71	50				
104988-1	022499003R	67	42				
46144BLK	022499004R	62	70				
46144LCS	022499005R	64	74				
46144LCSD	022499006R	71	80				
104837-1	022499007R	79	80				
104837-2	022499008R	69	72				
104832	022499009R	73	68				
blk02/24	022599011R	77	57				
104893-2	022599015R	55	22				
104893-2MS	022599016R	77	45				
104893-2MSD	022599017R	62	37				
104893-9	022599018R	74	64				
104893-9DUP	022599019R	67	65				
104893-14	022599020R	67	36				
104893-16	022599023R	73	31				
104893-21	022599024R	65	20				
104893-28	022599025R	72	77				
105049-1	030199020R	72	56				
105049-3	030199023R	77	62				
105049-5	030199024R	79	68				
105049-7	030199025R	85	56				
105049-11	030199026R	78	63				
105049-13	030199027R	50	24				
105049-17	030199028R	74	46				
105049-19	030199029R	75	74				
BLK02/26	030199030R	77	77				
105109-1	030199031R	84	96				
105109-2	030199032R	93	110				

Q.C. Information for Batch # 46144 Printed: 03/09/99 16:06:35

Blank Results Information
PCB's Method : EPA 8082 / 608

Analyte	Blank Result	Detection Limit
PCB 1016	BDL	1.0
PCB 1221	BDL	1.0
PCB 1232	BDL	1.0
PCB 1242	BDL	1.0
PCB 1248	BDL	1.0
PCB 1254	BDL	1.0
PCB 1260	BDL	1.0

JJ 1001

Q.C. Information for Batch # 46144 Printed: 03/09/99 16:06:35

Sample Batch Information
PCB's Method : EPA 8082 / 608

Sample ID	Preparation Date	Preparation Time	Preparation By	Preparation Notes	Analysis Date	Analysis Time	Analysis By	Inst #
46144BLK	02/23/99	0845	SVO		02/24/99	1207	JPH	GC-4
46144LCS	02/23/99	0845	SVO		02/24/99	1222	JPH	GC-4
46144LCSD	02/23/99	0845	SVO		02/24/99	1236	JPH	GC-4
104832	02/23/99	0845	SVO		02/24/99	1318	JPH	GC-4
104837-1	02/23/99	0845	SVO		02/24/99	1250	JPH	GC-4
104837-2	02/23/99	0845	SVO		02/24/99	1304	JPH	GC-4
BLK02/24	02/24/99	0800	SVO		02/24/99	1139	JPH	GC-4
104988-1	02/24/99	0800	SVO		02/24/99	1153	JPH	GC-4
104893-21	02/24/99	1145	SVO		02/25/99	1901	JPH	GC-4
104893-28	02/24/99	1145	SVO		02/25/99	1915	JPH	GC-4
104893-14	02/24/99	1520	SVO		02/25/99	1504	JPH	GC-4
104893-16	02/24/99	1520	SVO		02/25/99	1847	JPH	GC-4
104893-2	02/24/99	1520	SVO		02/25/99	1653	JPH	GC-4
104893-2MS	02/24/99	1520	SVO		02/25/99	1708	JPH	GC-4
104893-2MSD	02/24/99	1520	SVO		02/25/99	1722	JPH	GC-4
104893-9	02/24/99	1520	SVO		02/25/99	1736	JPH	GC-4
104893-9DUP	02/24/99	1520	SVO		02/25/99	1750	JPH	GC-4
BLK02/26	02/26/99	1100	SVO		03/02/99	0119	JPH	GC-4
105049-1	02/26/99	1100	SVO		03/01/99	2257	JPH	GC-4
105049-3	02/26/99	1100	SVO		03/01/99	2340	JPH	GC-4
105049-5	02/26/99	1100	SVO		03/01/99	2354	JPH	GC-4
105049-7	02/26/99	1100	SVO		03/02/99	0008	JPH	GC-4
105049-11	02/26/99	1100	SVO		03/02/99	0022	JPH	GC-4
105049-13	02/26/99	1100	SVO		03/02/99	0037	JPH	GC-4
105049-17	02/26/99	1100	SVO		03/02/99	0051	JPH	GC-4
105049-19	02/26/99	1100	SVO		03/02/99	0105	JPH	GC-4
105109-1	02/26/99	1400	SVO		03/02/99	0133	JPH	GC-4
105109-2	02/26/99	1400	SVO		03/02/99	0147	JPH	GC-4

JJ110

Analytical Services Inc. Batch QC
For Report Number :104988
Volatile Organics

Matrix : Aqueous Batch # 46186 Method : EPA 8260

Lab Control Information Analyte	LC %Rec	LCD %Rec	LC RPD	%Recovery Range	RPD Range
,1-Dichloroethene	90	89	1	61 - 145	0 - 14
richloroethene	95	98	3	71 - 120	0 - 14
enzene	100	103	4	76 - 127	0 - 11
Toluene	99	103	4	76 - 125	0 - 13
hlorobenzene	96	100	4	75 - 130	0 - 13

atrix Spike Information Analyte	MS %Rec	MSD %Rec	MS RPD	%Recovery Range	RPD Range
,1-Dichloroethene	74	83	12	61 - 145	0 - 14
richloroethene	75	87	15	71 - 120	0 - 14
Benzene	82	93	13	76 - 127	0 - 11
oluene	73	85	15	76 - 125	0 - 13
hlorobenzene	81	91	12	75 - 130	0 - 13

JJ III

Analytical Services Inc. Batch QC
Surrogate Recovery
Volatile Organics

Matrix : Aqueous Batch # 46186 Method : EPA 8260

% Recovery Objectives

S1	1,2-Dichloroethane-d4	76 - 119
S2	Toluene-d8	88 - 110
S3	Ethylbenzene-d10	75 - 115
S4	4-Bromofluorobenzene	86 - 120

Sample	File	S1	S2	S3	S4	S5	S6
46186BLK	C9290	103	101	99	101		
46186LCS	C9297	109	101	98	99		
46186LCSD	C9298	107	102	99	98		
104988-1	C9309	111	100	97	97		
104988-2	C9310	110	102	98	101		
104988-1D	C9322	114	102	99	100		
^^Note: 1:5 DILUTION							
104722	C9378	103	85	74	97		
104608-13	C9296	107	99	97	99		
104608-14	C9295	108	101	96	97		
104608-9	C9299	107	99	96	99		
104608-12	C9300	112	99	97	98		
104608-10	C9301	109	99	97	99		
104608-18	C9302	111	99	95	100		
104608-8	C9306	113	99	96	99		
104990-1	C9321	112	101	100	100		
104722DUP	C9320	110	91	82	97		
46186BLK 02/25	C9341	109	102	101	100		
104620	C9352	111	98	90	98		
104608-9MS	C9355	109	96	95	97		
104608-9MSD	C9356	108	99	96	96		
46186BLK 02/23	C9251	113	108	113	105		
46186BLK 02/25	C9341	109	102	101	100		
105057-1	C9358	111	101	99	98		
105057-2	C9359	107	97	93	97		
46186BLK 02/26	C9370	109	100	101	98		
104817-3	C9393	110	102	101	97		
46186BLK 02/26	C9405	109	100	102	99		
104988-2DUP	C9408	109	102	102	96		
104663	C9409	107	101	102	98		
104713-21	C9392	109	99	97	97		
46186BLK 02/28	C9475	107	99	100	99		
104893-27	C9490	107	97	98	99		
104893-28	C9500	109	98	98	98		

Q.C. Information for Batch # 46186 Printed: 03/09/99 16:06:36

Blank Results Information
Volatile Organics Method : EPA 8260

Analyte	Blank Result	Detection Limit
Acetone	BDL	100
Acrolein	BDL	50
Acrylonitrile	BDL	50
Benzene	BDL	2
Bromobenzene	BDL	10
Bromochloromethane	BDL	10
Bromodichloromethane	BDL	10
Bromoform	BDL	10
Bromomethane	BDL	10
2-Butanone	BDL	100
n-Butylbenzene	BDL	10
sec-Butylbenzene	BDL	10
tert-Butylbenzene	BDL	10
Carbon disulfide	BDL	10
Carbon tetrachloride	BDL	2
Chlorobenzene	BDL	10
Chloroethane	BDL	5
Chloroform	BDL	2
Chloromethane	BDL	10
2-Chlorotoluene	BDL	10
4-Chlorotoluene	BDL	10
2-Chloroethylvinyl ether	BDL	10
Dibromochloromethane	BDL	10
1,2-Dibromo-3-chloropropane	BDL	10
1,2-Dibromoethane	BDL	10
Dibromomethane	BDL	10
1,2-Dichlorobenzene	BDL	10
1,3-Dichlorobenzene	BDL	10
1,4-Dichlorobenzene	BDL	10
Dichlorodifluoromethane	BDL	10
1,1-Dichloroethane	BDL	2
1,2-Dichloroethane	BDL	2
1,1-Dichloroethene	BDL	2
cis-1,2-Dichloroethene	BDL	2
trans-1,2-Dichloroethene	BDL	2
1,2-Dichloropropane	BDL	2
1,3-Dichloropropane	BDL	2
2,2-Dichloropropane	BDL	10
1,1-Dichloropropene	BDL	10
cis-1,3-Dichloropropene	BDL	2
trans-1,3-Dichloropropene	BDL	2
Ethylbenzene	BDL	2
Hexachlorobutadiene	BDL	10
2-Hexanone	BDL	10
Isopropylbenzene	BDL	10
p-Isopropyltoluene	BDL	10
Methylene chloride	BDL	5
4-Methyl-2-pentanone	BDL	10
Naphthalene	BDL	10

JJ113

Q.C. Information for Batch # 46186 Printed: 03/09/99 16:06:36

Blank Results Information
Volatile Organics Method : EPA 8260

Analyte	Blank Result	Detection Limit
n-Propylbenzene	BDL	10
Styrene	BDL	5
1,1,1,2-Tetrachloroethane	BDL	2
1,1,2,2-Tetrachloroethane	BDL	2
Tetrachloroethene	BDL	2
Toluene	BDL	2
1,2,3-Trichlorobenzene	BDL	10
1,2,4-Trichlorobenzene	BDL	10
1,1,1-Trichloroethane	BDL	2
1,1,2-Trichloroethane	BDL	2
Trichloroethene	BDL	2
Trichlorofluoromethane	BDL	10
1,2,3-Trichloropropane	BDL	10
1,2,4-Trimethylbenzene	BDL	10
1,3,5-Trimethylbenzene	BDL	10
Vinyl acetate	BDL	10
Vinyl chloride	BDL	10
m+p-Xylene	BDL	5
o-Xylene	BDL	5
Xylenes	BDL	5

Q.C. Information for Batch # 46186 Printed: 03/09/99 16:06:36

Sample Batch Information
Volatile Organics Method : EPA 8260

Sample ID	Preparation Date	Preparation Time	Preparation By	Preparation Notes	Analysis Date	Analysis Time	Analysis By	Inst #
46186BLK	/ /				02/24/99	0955	LLP	VOA3
46186LCS	/ /				02/24/99	1334	JTC	VOA3
46186LCSD	/ /				02/24/99	1400	JTC	VOA3
104988-1	/ /				02/24/99	1933	JTC	VOA3
104988-2	/ /				02/24/99	1959	JTC	VOA3
104988-1D	/ /				02/25/99	0220	JTC	VOA3
104722	/ /				02/24/99	0301	JTC	VOA3
104608-13	/ /				02/24/99	1304	JTC	VOA3
104608-14	/ /				02/24/99	1237	JTC	VOA3
104608-9	/ /				02/24/99	1426	JTC	VOA3
104608-12	/ /				02/24/99	1453	JTC	VOA3
104608-10	/ /				02/24/99	1519	JTC	VOA3
104608-18	/ /				02/24/99	1545	JTC	VOA3
104608-8	/ /				02/24/99	1731	JTC	VOA3
104990-1	/ /				02/25/99	0154	JTC	VOA3
104722DUP	/ /				02/25/99	0127	JTC	VOA3
46186BLK 02/25	/ /				02/25/99	1111	JTC	VOA3
104620	/ /				02/25/99	1625	LLP	VOA3
104608-9MS	/ /				02/25/99	1801	LLP	VOA3
104608-9MSD	/ /				02/25/99	1827	LLP	VOA3
46186BLK 02/23	/ /				02/23/99	1302	LLP	VOA3
105057-1	/ /				02/25/99	1930	JTC	VOA3
105057-2	/ /				02/25/99	1957	JTC	VOA3
46186BLK 02/26	/ /				02/26/99	2112	DR	VOA3
104817-3	/ /				02/26/99	1112	JTC	VOA3
104988-2DUP	/ /				02/26/99	2231	DR	VOA3
104663	/ /				02/26/99	2258	JTC	VOA3
104713-21	/ /				02/26/99	1046	JTC	VOA3
104879	/ /				02/28/99	0936	JTC	VOA3
46186BLK 02/28	/ /				02/28/99	1002	JTC	VOA3
104893-27	/ /				02/28/99	2006	JTC	VOA3
104893-28	/ /				03/01/99	0053	JTC	VOA3

JJ115

Analytical Services Inc. Batch QC
For Report Number :104988

QC Batch General Information

Batch Number	Analyte	Analysis Method	Matrix		Blank Result	Prep. Method
4983	Hg	EPA 7470	Aqueous	<	0.0002	
45914	Se	EPA 7740	Aqueous	<	0.0100	
5914	As	EPA 7060	Aqueous	<	0.0050	
5922	Ag	EPA 6010	Aqueous	<	0.0100	
5922	Ba	EPA 6010	Aqueous	<	0.0100	
45922	Cd	EPA 6010	Aqueous	<	0.0050	
5922	Cr	EPA 6010	Aqueous	<	0.0100	
5922	Pb	EPA 6010	Aqueous	<	0.0050	

Lab Control Information

Batch Number	Analyte	Method	LC %Rec	LCD %Rec	LC RPD	%Recovery Range	RPD Range
4983	Hg	EPA 7470	89	94	5	76 - 124	0 - 20
5914	Se	EPA 7740	91	99	8	76 - 124	0 - 20
45914	As	EPA 7060	101	108	7	76 - 124	0 - 20
5922	Ag	EPA 6010	93	94	1	76 - 124	0 - 20
5922	Ba	EPA 6010	87	89	2	76 - 124	0 - 20
45922	Cd	EPA 6010	91	95	4	76 - 124	0 - 20
45922	Cr	EPA 6010	97	99	2	76 - 124	0 - 20
5922	Pb	EPA 6010	90	94	4	76 - 124	0 - 20

atrix Spike Information

Batch Number	Analyte	Method	MS %Rec	MSD %Rec	MS RPD	%Recovery Range	RPD Range
44983	Hg	EPA 7470	93	83	11	76 - 124	0 - 20
5914	Se	EPA 7740	37	38	3	76 - 124	0 - 20
5914	As	EPA 7060	23	24	4	76 - 124	0 - 20
45922	Ag	EPA 6010	94	94	0	76 - 124	0 - 20
5922	Ba	EPA 6010	90	89	1	76 - 124	0 - 20
5922	Cd	EPA 6010	95	94	1	76 - 124	0 - 20
45922	Cr	EPA 6010	99	99	0	76 - 124	0 - 20
5922	Pb	EPA 6010	94	94	0	76 - 124	0 - 20

Analytical Services Inc. Batch QC
For Report Number :104988

Post Digestion Spike Information

Batch Number	Analyte	Method	PDS %Rec	%Recovery Range
5914	Se	EPA 7740	68	76 - 124
45914	As	EPA 7060	67	76 - 124
5922	Ag	EPA 6010	97	76 - 124
5922	Ba	EPA 6010	93	76 - 124
45922	Cd	EPA 6010	97	76 - 124
45922	Cr	EPA 6010	100	76 - 124
5922	Pb	EPA 6010	97	76 - 124

Unspiked Sample Duplicate Information

Batch Number	Analyte	Method	Sample 1 RPD	Sample 2 RPD	RPD Range
44983	Hg	EPA 7470	0		0 - 20

JJ117

Q.C. Information for Batch # 44983 For Report Number :104988

Sample Batch Information
Analysis : Hg

Sample ID	Tag	Preparation Date	Preparation Time	Preparation By	Preparation Notes	Analysis Date	Analysis Time	Analysis By	Inst
44983BLANK	HG	02/24/99	1000	CRB		02/24/99	1327	CRB	HG1
44983LCS	HG	02/24/99	1000	CRB		02/24/99	1330	CRB	HG1
44983LCSD	HG	02/24/99	1000	CRB		02/24/99	1332	CRB	HG1
104893-1MS	HG	02/24/99	1000	CRB		02/24/99	1337	CRB	HG1
104893-1MSD	HG	02/24/99	1000	CRB		02/24/99	1340	CRB	HG1
104893-3DUP	HG	02/24/99	1000	CRB		02/24/99	1335	CRB	HG1
104893-1	HG	02/24/99	1000	CRB		02/24/99	1342	CRB	HG1
104893-3	HG	02/24/99	1000	CRB		02/24/99	1344	CRB	HG1
104893-6	HG	02/24/99	1000	CRB		02/24/99	1347	CRB	HG1
104893-10	HG	02/24/99	1000	CRB		02/24/99	1349	CRB	HG1
104893-15	HG	02/24/99	1000	CRB		02/24/99	1357	CRB	HG1
104893-17	HG	02/24/99	1000	CRB		02/24/99	1400	CRB	HG1
104893-22	HG	02/24/99	1000	CRB		02/24/99	1402	CRB	HG1
104893-29	HG	02/24/99	1000	CRB		02/24/99	1405	CRB	HG1
104893-30	HG	02/24/99	1000	CRB		02/24/99	1407	CRB	HG1
104893-31	HG	02/24/99	1000	CRB		02/24/99	1410	CRB	HG1
104893-32	HG	02/24/99	1000	CRB		02/24/99	1412	CRB	HG1
104914-1	HG	02/24/99	1000	CRB		02/24/99	1418	CRB	HG1
104914-2	HG	02/24/99	1000	CRB		02/24/99	1427	CRB	HG1
104914-3	HG	02/24/99	1000	CRB		02/24/99	1435	CRB	HG1
104924	HG	02/24/99	1000	CRB		02/24/99	1448	CRB	HG1
104928-1	HG	02/24/99	1000	CRB		02/24/99	1450	CRB	HG1
104963	HG	02/24/99	1000	CRB		02/24/99	1453	CRB	HG1
104980	HG	02/24/99	1000	CRB		02/24/99	1458	CRB	HG1
104988-1	HG	02/24/99	1000	CRB		02/24/99	1500	CRB	HG1
104980-1	HG	02/24/99	1000	CRB		02/24/99	1458	CRB	HG1
104963D	HG	02/24/99	1000	CRB		02/24/99	1455	CRB	HG1

Q.C. Information for Batch # 45914 For Report Number :104988

Sample Batch Information
Analysis : Se, As

Sample ID	Tag	Preparation Date	Preparation Time	Preparation By	Preparation Notes	Analysis Date	Analysis Time	Analysis By	Inst
45914BLANK	Se	02/24/99	0840	RAF	GFAA	02/24/99	1228	DCF	AA1
45914LCS	Se	02/24/99	0840	RAF	GFAA	02/24/99	1228	DCF	AA1
45914LCSD	Se	02/24/99	0840	RAF	GFAA	02/24/99	1228	DCF	AA1
104963MS	Se	02/24/99	0840	RAF	GFAA	02/24/99	1228	DCF	AA1
104963MSD	Se	02/24/99	0840	RAF	GFAA	02/24/99	1228	DCF	AA1
104893-31PDS	Se	02/24/99	0840	RAF	GFAA	02/24/99	1228	DCF	AA1
104893-31DUP	Se	02/24/99	0840	RAF	GFAA	02/24/99	1228	DCF	AA1
104963	Se	02/24/99	0840	RAF	GFAA	02/24/99	1228	DCF	AA1
104893-30	Se	02/24/99	0840	RAF	GFAA	02/24/99	1228	DCF	AA1
104893-31	Se	02/24/99	0840	RAF	GFAA	02/24/99	1228	DCF	AA1
104964	Se	02/24/99	0840	RAF	GFAA	02/24/99	1228	DCF	AA1
104963D	Se	02/24/99	0840	RAF	GFAA	02/24/99	1228	DCF	AA1
104988-1	Se	02/24/99	0840	RAF	GFAA	02/24/99	1228	DCF	AA1
45914BLANK	As	02/24/99	0840	RAF	GFAA	02/24/99	1409	RCP	AA3
45914LCS	As	02/24/99	0840	RAF	GFAA	02/24/99	1409	RCP	AA3
45914LCSD	As	02/24/99	0840	RAF	GFAA	02/24/99	1409	RCP	AA3
104963MS	As	02/24/99	0840	RAF	GFAA	02/24/99	1409	RCP	AA3
104963MSD	As	02/24/99	0840	RAF	GFAA	02/24/99	1409	RCP	AA3
104893-31PDS	As	02/24/99	0840	RAF	GFAA	02/24/99	1409	RCP	AA3
104893-31DUP	As	02/24/99	0840	RAF	GFAA	02/24/99	1409	RCP	AA3
104963	As	02/24/99	0840	RAF	GFAA	02/24/99	1409	RCP	AA3
104893-30	As	02/24/99	0840	RAF	GFAA	02/24/99	1409	RCP	AA3
104893-31	As	02/24/99	0840	RAF	GFAA	02/24/99	1409	RCP	AA3
104964	As	02/24/99	0840	RAF	GFAA	02/24/99	1409	RCP	AA3
104963D	As	02/24/99	0840	RAF	GFAA	02/24/99	1409	RCP	AA3
104988-1	As	02/24/99	0840	RAF	GFAA	02/24/99	1409	RCP	AA3

JJ11-1

Q.C. Information for Batch # 45922 For Report Number :104988

Sample Batch Information
Analysis : Ag, Ba, Cd, Cr, Pb

Sample ID	Tag	Preparation Date	Preparation Time	Preparation By	Preparation Notes	Analysis Date	Analysis Time	Analysis By	Inst
45922BLANK		02/24/99	1000	ELK	TRACE	02/24/99	2218	MAB	ICP2
45922LCS		02/24/99	1000	ELK	TRACE	02/24/99	2222	MAB	ICP2
45922LCSD		02/24/99	1000	ELK	TRACE	02/24/99	2254	MAB	ICP2
104893-3MS		02/24/99	1000	ELK	TRACE	02/24/99	2258	MAB	ICP2
104893-3MSD		02/24/99	1000	ELK	TRACE	02/24/99	2301	MAB	ICP2
104893-17PDS		02/24/99	1000	ELK	TRACE	02/24/99	2328	MAB	ICP2
104893-17DUP		02/24/99	1000	ELK	TRACE	02/24/99	2331	MAB	ICP2
104893-1		02/24/99	1000	ELK	TRACE	02/24/99	2341	MAB	ICP2
104893-3		02/24/99	1000	ELK	TRACE	02/24/99	2334	MAB	ICP2
104893-4		02/24/99	1000	ELK	TRACE	02/24/99	2352	MAB	ICP2
104893-6		02/24/99	1000	ELK	TRACE	02/24/99	2356	MAB	ICP2
104893-8		02/24/99	1000	ELK	TRACE	02/24/99	2359	MAB	ICP2
104893-10		02/24/99	1000	ELK	TRACE	02/25/99	0002	MAB	ICP2
104893-11		02/24/99	1000	ELK	TRACE	02/25/99	0006	MAB	ICP2
104893-12		02/24/99	1000	ELK	TRACE	02/25/99	0009	MAB	ICP2
104893-13		02/24/99	1000	ELK	TRACE	02/25/99	0013	MAB	ICP2
104893-15		02/24/99	1000	ELK	TRACE	02/25/99	0016	MAB	ICP2
104893-17		02/24/99	1000	ELK	TRACE	02/24/99	2338	MAB	ICP2
104893-18		02/24/99	1000	ELK	TRACE	02/25/99	0020	MAB	ICP2
104893-19		02/24/99	1000	ELK	TRACE	02/25/99	0023	MAB	ICP2
104893-20		02/24/99	1000	ELK	TRACE	02/25/99	0034	MAB	ICP2
104893-22		02/24/99	1000	ELK	TRACE	02/25/99	0037	MAB	ICP2
104893-23		02/24/99	1000	ELK	TRACE	02/25/99	0041	MAB	ICP2
104893-24		02/24/99	1000	ELK	TRACE	02/25/99	0044	MAB	ICP2
104893-25		02/24/99	1000	ELK	TRACE	02/25/99	0048	MAB	ICP2
104893-26		02/24/99	1000	ELK	TRACE	02/25/99	0051	MAB	ICP2
104988-1		02/24/99	1000	ELK	TRACE	02/24/99	1440	MAB	ICP2

JJ126

QC

Analytical Services Inc. Batch QC
For Report Number :104767
Organochlorine Pesticides

Matrix : Aqueous Batch # 45362 Method : EPA 8081

Lab Control Information Analyte	LC %Rec	LCD %Rec	LC RPD	%Recovery Range	RPD Range
BHC-gamma (Lindane)	85	79	6	32 - 127	0 - 40
eptachlor	92	86	6	34 - 111	0 - 40
drin	81	78	4	42 - 122	0 - 40
Dieldrin	92	87	5	36 - 146	0 - 40
drin	92	86	7	30 - 147	0 - 40
4'-DDT	100	94	7	25 - 160	0 - 40

trix Spike Information Analyte	MS %Rec	MSD %Rec	MS RPD	%Recovery Range	RPD Range
C-gamma (Lindane)	95	86	9	32 - 127	0 - 40
eptachlor	95	93	2	34 - 111	0 - 40
drin	89	92	3	42 - 122	0 - 40
eldrin	101	103	2	36 - 146	0 - 40
ndrin	98	100	2	30 - 147	0 - 40
4'-DDT	91	99	8	25 - 160	0 - 40

Analytical Services Inc. Batch QC
Surrogate Recovery
Organochlorine Pesticides

Matrix : Aqueous Batch # 45362 Method : EPA 8081

% Recovery Objectives

S1	Dibutylchlorendate	14 - 161
S2	Tetrachloro-m-xylene	47 - 113
S3	Decachlorobiphenyl	10 - 139

Sample	File	S1	S2	S3	S4	S5	S6
45362BLK	012999012F	88	91	68			
45362LCS	012999014F	93	81	105			
45362LCSD	012999015F	89	91	94			
103876	012999020R	84	82	108			
BLK01/26	012999018F	91	94	98			
BLK02/02	020399014F	106	97	130			
104139-19MS	020399015R	81	90	52			
104139-19MSD	020399016F	97	100	96			
104139-17	020399017F	51	99	24			
104139-17DUP	020399018R	37	86	17			
104139-19	020399019R	62	89	39			
104139-21	020399020R	62	91	29			
104139-23	020399021R	99	91	89			
BLK02/06	020799015R	111	91	124			
104365-4	020799016R	92	91	92			
BLK02/05	020799017F	93	101	111			
104260	020799026R	56	79	42			
104420	021199015F	25	51	8			
104433	021199014F	44	60	3			
BLK02/06	021199012F	85	99	102			
BLK02/10	021199016F	77	77	98			
BLK02/12	021699009F	86	97	56			
104536-5	021899038F	84	95	63			
BLK02/18	022099007R	112	96	117			
104767-1	022099008F	107	77	119			
104767-2	022099009F	82	67	52			

Q.C. Information for Batch # 45362 Printed: 03/03/99 13:46:28

Blank Results Information
Organochlorine Pesticides Method : EPA 8081

Analyte	Blank Result	Detection Limit
Aldrin	BDL	0.1
BHC-alpha	BDL	0.1
BHC-beta	BDL	0.1
BHC-delta	BDL	0.1
BHC-gamma	BDL	0.1
Chlordane	BDL	0.5
4,4'-DDD	BDL	0.2
4,4'-DDE	BDL	0.2
4,4'-DDT	BDL	0.2
Dieldrin	BDL	0.1
Endosulfan I	BDL	0.5
Endosulfan II	BDL	0.5
Endosulfan sulfate	BDL	0.5
Endrin	BDL	0.2
Endrin aldehyde	BDL	0.2
Heptachlor	BDL	0.1
Heptachlor epoxide	BDL	0.1
Methoxychlor	BDL	0.3
Toxaphene	BDL	2.0

Q.C. Information for Batch # 45362 Printed: 03/03/99 13:46:28

Sample Batch Information
Organochlorine Pesticides Method : EPA 8081

ample ID	Preparation Date	Time	By	Preparation Notes	Analysis Date	Time	By	Inst #
45362BLK	01/27/99	1015	SVOA		01/29/99	2123	JQZ	GC-3
5362LCS	01/27/99	1015	SVOA		01/29/99	2158	JQZ	GC-3
5362LCSD	01/27/99	1015	SVOA		01/29/99	2307	JQZ	GC-3
103876	01/26/99	0745	SVOA		01/30/99	0124	JQZ	GC-3
BLK01/26	01/26/99	0745	SVOA		01/30/99	0059	JQZ	GC-3
LK02/02	02/02/99	0900	SVOA		02/04/99	0145	JQZ	GC-3
104139-19MS	02/02/99	0900	SVOA		02/04/99	0145	JQZ	GC-3
104139-19MSD	02/02/99	0900	SVOA		02/04/99	0254	JQZ	GC-3
04139-17DUP	02/02/99	0900	SVOA		02/04/99	0328	JQZ	GC-3
04139-17	02/02/99	0900	SVOA		02/04/99	0328	JQZ	GC-3
104139-19	02/02/99	0900	SVOA		02/04/99	0403	JQZ	GC-3
104139-21	02/02/99	0900	SVOA		02/04/99	0437	JQZ	GC-3
04139-23	02/02/99	0900	SVOA		02/04/99	0512	JQZ	GC-3
104260	02/05/99	0930	SVOA		02/08/99	0627	JQZ	GC-3
BLK02/06	02/06/99	1325	SVOA		02/12/99	0043	JQZ	GC-3
04365-4	02/06/99	1325	SVOA		02/08/99	0043	JQZ	GC-3
LK02/05	02/05/99	0930	SVOA		02/08/99	0152	JQZ	GC-3
BLK02/10	02/10/99	0815	SVOA		02/12/99	0301	JQZ	GC-3
04433	02/10/99	0815	SVOA		02/12/99	0152	JQZ	GC-3
04420	02/10/99	0815	SVOA		02/12/99	0227	JQZ	GC-3
104536-5	02/12/99	1345	SVOA		02/19/99	1802	JQZ	GC-3
BLK02/12	02/12/99	1345	SVOA		02/15/99	1744	JQZ	GC-3
04767-1	02/18/99	1450	SVOA		02/20/99	2007	JQZ	GC-3
104767-2	02/18/99	1450	SVOA		02/20/99	2042	JQZ	GC-3
BLK02/18	02/18/99	1450	SVOA		02/20/99	1858	JQZ	GC-3

Analytical Services Inc. Batch QC
For Report Number :104767
Volatile Organics

Matrix : Aqueous Batch # 45791 Method : EPA 8260

Lab Control Information Analyte	LC %Rec	LCD %Rec	LC RPD	%Recovery Range	RPD Range
,1-Dichloroethene	106	107	1	61 - 145	0 - 14
richloroethene	102	103	1	71 - 120	0 - 14
enzene	106	107	1	76 - 127	0 - 11
Toluene	108	107	2	76 - 125	0 - 13
hlorobenzene	107	107	0	75 - 130	0 - 13

atrix Spike Information Analyte	MS %Rec	MSD %Rec	MS RPD	%Recovery Range	RPD Range
,1-Dichloroethene	106	105	1	61 - 145	0 - 14
richloroethene	95	96	1	71 - 120	0 - 14
Benzene	102	103	0	76 - 127	0 - 11
oluene	102	103	1	76 - 125	0 - 13
hlorobenzene	102	100	1	75 - 130	0 - 13

Analytical Services Inc. Batch QC
Surrogate Recovery
Volatile Organics

Matrix : Aqueous Batch # 45791 Method : EPA 8260

% Recovery Objectives

S1	1,2-Dichloroethane-d4	76 - 119
S2	Toluene-d8	88 - 110
S3	Ethylbenzene-d10	75 - 115
S4	4-Bromofluorobenzene	86 - 120

Sample	File	S1	S2	S3	S4	S5	S6
45791BLK	B1252	103	91	104	91		
45791LCS	B1255	103	92	107	87		
45791LCSD	B1256	104	93	108	89		
45791BLK 02/11	B1270	110	92	108	88		
104139-19	B1275	110	92	107	87		
104139-21	B1276	109	92	108	87		
104139-23	B1277	108	92	107	89		
104229-1	B1278	109	92	106	88		
104229-2	B1279	107	89	110	91		
104143-1	B1280	105	92	106	96		
104143-2	B1281	106	92	105	91		
104170-3	B1282	108	91	107	89		
104377-1	B1284	104	104	98	99		
^^Note: 1:500,000 DILUTION							
104377-2	B1285	102	101	96	98		
^^Note: 1:500,000 DILUTION							
45791BLK 02/11	B1294	100	93	101	92		
104157-2	B1294b	106	91	105	89		
104229-1MS	B1296	105	92	110	90		
104229-1MSD	B1297	104	93	109	87		
45791BLK	B1270	99	93	101	91		
104469-13	B1286	104	90	108	86		
104469-14	B1287	107	91	107	87		
104552-14	B1534	95	93	100	92		
45791BLK 02/21	B1605	96	92	104	92		
104767-1	B1612	94	95	100	92		
104767-2	B1613	97	95	101	95		
104767-3	B1614	98	95	102	90		
45791BLK 02/22	B1640	93	94	101	96		
104558	B1643	99	98	99	92		
45791BLK 02/23	B1675	97	96	98	91		
104486-1	B1676	98	95	99	91		
104486-2	B1677	97	92	101	91		

Q.C. Information for Batch # 45791 Printed: 03/03/99 13:46:30

Blank Results Information
Volatile Organics Method : EPA 8260

Analyte	Blank Result	Detection Limit
Acetone	BDL	100
Acrolein	BDL	50
Acrylonitrile	BDL	50
Benzene	BDL	2
Bromobenzene	BDL	10
Bromochloromethane	BDL	10
Bromodichloromethane	BDL	10
Bromoform	BDL	10
Bromomethane	BDL	10
2-Butanone	BDL	100
n-Butylbenzene	BDL	10
sec-Butylbenzene	BDL	10
tert-Butylbenzene	BDL	10
Carbon disulfide	BDL	10
Carbon tetrachloride	BDL	2
Chlorobenzene	BDL	10
Chloroethane	BDL	5
Chloroform	BDL	2
Chloromethane	BDL	10
2-Chlorotoluene	BDL	10
4-Chlorotoluene	BDL	10
2-Chloroethylvinyl ether	BDL	10
Dibromochloromethane	BDL	10
1,2-Dibromo-3-chloropropane	BDL	10
1,2-Dibromoethane	BDL	10
Dibromomethane	BDL	10
1,2-Dichlorobenzene	BDL	10
1,3-Dichlorobenzene	BDL	10
1,4-Dichlorobenzene	BDL	10
Dichlorodifluoromethane	BDL	10
1,1-Dichloroethane	BDL	2
1,2-Dichloroethane	BDL	2
1,1-Dichloroethene	BDL	2
cis-1,2-Dichloroethene	BDL	2
trans-1,2-Dichloroethene	BDL	2
1,2-Dichloropropane	BDL	2
1,3-Dichloropropane	BDL	2
2,2-Dichloropropane	BDL	10
1,1-Dichloropropene	BDL	10
cis-1,3-Dichloropropene	BDL	2
trans-1,3-Dichloropropene	BDL	2
Ethylbenzene	BDL	2
Hexachlorobutadiene	BDL	10
2-Hexanone	BDL	10
Isopropylbenzene	BDL	10
p-Isopropyltoluene	BDL	10
Methylene chloride	BDL	5
4-Methyl-2-pentanone	BDL	10
Naphthalene	BDL	10

Q.C. Information for Batch # 45791 Printed: 03/03/99 13:46:30

Blank Results Information
Volatile Organics Method : EPA 8260

Analyte	Blank Result	Detection Limit
n-Propylbenzene	BDL	10
Styrene	BDL	5
1,1,1,2-Tetrachloroethane	BDL	2
1,1,2,2-Tetrachloroethane	BDL	2
Tetrachloroethene	BDL	2
Toluene	BDL	2
1,2,3-Trichlorobenzene	BDL	10
1,2,4-Trichlorobenzene	BDL	10
1,1,1-Trichloroethane	BDL	2
1,1,2-Trichloroethane	BDL	2
Trichloroethene	BDL	2
Trichlorofluoromethane	BDL	10
1,2,3-Trichloropropane	BDL	10
1,2,4-Trimethylbenzene	BDL	10
1,3,5-Trimethylbenzene	BDL	10
Vinyl acetate	BDL	10
Vinyl chloride	BDL	10
m+p-Xylene	BDL	5
o-Xylene	BDL	5
Xylenes	BDL	5

Q.C. Information for Batch # 45791 Printed: 03/03/99 13:46:30

Sample Batch Information
Volatile Organics Method : EPA 8260

Sample ID	Preparation Date	Time	By	Preparation Notes	Analysis Date	Time	By	Inst #
45791BLK	/ /				02/16/99	1411	LLP	VOA2
45791LCS	/ /				02/10/99	1702	DR	VOA2
45791LCSD	/ /				02/10/99	1733	DR	VOA2
45791BLK 02/11	/ /				02/11/99	1342	DR	VOA2
104139-19	/ /				02/11/99	0359	DR	VOA2
104139-21	/ /				02/11/99	0430	DR	VOA2
104139-23	/ /				02/11/99	0501	DR	VOA2
104229-1	/ /				02/11/99	0532	DR	VOA2
104229-2	/ /				02/11/99	0603	DR	VOA2
104143-1	/ /				02/11/99	0634	DR	VOA2
104143-2	/ /				02/11/99	0704	DR	VOA2
104170-3	/ /				02/11/99	0735	DR	VOA2
104377-1	/ /				02/11/99	0837	DR	VOA2
104377-2	/ /				02/11/99	0907	DR	VOA2
104157-2	/ /				02/11/99	1643	DR	VOA2
104059-7D3	/ /				02/11/99	1714	DR	VOA2
104229-1MS	/ /				02/11/99	1745	DR	VOA2
104229-1MSD	/ /				02/11/99	1816	DR	VOA2
104469-13	/ /				02/17/99	0215	LLP	VOA2
104469-14	/ /				02/17/99	0245	LLP	VOA2
104552-14	/ /				02/18/99	0707	LLP	VOA2
45791BLK 02/21	/ /				02/21/99	2307	LLP	VOA2
104767-1	/ /				02/22/99	0242	LLP	VOA2
104767-2	/ /				02/22/99	0312	LLP	VOA2
104767-3	/ /				02/22/99	0343	LLP	VOA2
104558	/ /				02/22/99	2037	LLP	VOA2
45791BLK 02/22	/ /				02/22/99	1905	LLP	VOA2
45791BLK 02/23	/ /				02/23/99	2001	LLP	VOA2
104486-1	/ /				02/23/99	2032	LLP	VOA2
104486-2	/ /				02/23/99	2101	LLP	VOA2

Analytical Services Inc. Batch QC
For Report Number :104767
PCB's

Matrix : Aqueous Batch # 45835 Method : EPA 8082

Lab Control Information Analyte	LC %Rec	LCD %Rec	LC RPD	%Recovery Range	RPD Range
PCB 1016	74	94	23	50 - 150	0 - 50
PCB 1260	69	63	9	50 - 150	0 - 50

Matrix Spike Information Analyte	MS %Rec	MSD %Rec	MS RPD	%Recovery Range	RPD Range
PCB 1016	96	101	5	50 - 150	0 - 50
PCB 1260	80	81	1	50 - 150	0 - 50

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Analytical Services Inc. Batch QC
Surrogate Recovery
PCB's

Matrix : Aqueous Batch # 45835 Method : EPA 8082

% Recovery Objectives

S1	Tetrachloro-m-xylene	47 - 113
S2	Decachlorobiphenyl	10 - 139

Sample	File	S1	S2	S3	S4	S5	S6
45835BLK	021599007R	85	59				
45835LCS	021599008R	69	21				
45835LCSD	021599009R	82	13				
104542-2MS	021599010R	86	49				
104542-2MSD	021599011R	88	50				
104542-1	021599014R	90	57				
104542-2	021599015R	90	62				
104495-2	021599016R	94	106				
104495-3	021599017R	96	49				
104495-4	021599018R	88	39				
104519-1	021599019R	97	106				
104519-2	021599020R	89	96				
BLK02/16	021799011R	30	20				
104658	021799012R	81	92				
104540-5	021799013R	77	30				
104536-5	021799014R	76	37				
BLK02/17	021899002R	70	29				
104611-1	021899003R	76	51				
104611-15	021899004R	61	51				
104611-16	021899005R	63	45				
BLK02/18	021999005R	61	76				
104767-1	021999006R	63	80				
104767-2	021999007R	60	32				
BLK02/22	022399002R	73	81				
104902-2	022399003R	53	3				
104902-3	022399004R	73	63				
104902-4	022399005R	68	50				
BLK02/24	022599011R	77	57				
104893-5	022599012R	70	21				
104893-7	022599013R	67	45				
104893-7DUP	022599014R	72	43				

Q.C. Information for Batch # 45835 Printed: 03/03/99 13:46:31

Blank Results Information
PCB's Method : EPA 8082 / 608

Analyte	Blank Result	Detection Limit
PCB 1016	BDL	1.0
PCB 1221	BDL	1.0
PCB 1232	BDL	1.0
PCB 1242	BDL	1.0
PCB 1248	BDL	1.0
PCB 1254	BDL	1.0
PCB 1260	BDL	1.0

Q.C. Information for Batch # 45835 Printed: 03/03/99 13:46:31

Sample Batch Information
PCB's Method : EPA 8082 / 608

Sample ID	Preparation Date	Preparation Time	Preparation By	Preparation Notes	Analysis Date	Analysis Time	Analysis By	Inst #
45835BLK	02/12/99	0900	DG/MB		02/15/99	1306	JPH	GC-4
45835LCS	02/12/99	0900	DG/MB		02/15/99	1323	JPH	GC-4
45835LCSD	02/12/99	0900	DG/MB		02/15/99	1339	JPH	GC-4
104542-2MS	02/12/99	0900	DG/MB		02/15/99	1355	JPH	GC-4
104542-2MSD	02/12/99	0900	DG/MB		02/15/99	1411	JPH	GC-4
104542-1	02/12/99	0900	DG/MB		02/15/99	1500	JPH	GC-4
104542-2	02/12/99	0900	DG/MB		02/15/99	1516	JPH	GC-4
104519-1	02/12/99	0900	DG/MB	PCB ONLY	02/15/99	1621	JPH	GC-4
104519-2	02/12/99	0900	DG/MB	PCB ONLY	02/15/99	1637	JPH	GC-4
104495-2	02/12/99	0900	DG/MB		02/15/99	1532	JPH	GC-4
104495-3	02/12/99	0900	DG/MB		02/15/99	1548	JPH	GC-4
104495-4	02/12/99	0900	DG/MB		02/15/99	1604	JPH	GC-4
104536-5	02/12/99	1345	DG/MB		02/17/99	2124	JPH	GC-4
104540-5	02/12/99	1345	DG/MB	PCB ONLY	02/17/99	2107	JPH	GC-4
104658	02/16/99	1110	SVOA	PCB ONLY	02/17/99	2051	JPH	GC-4
BLK02/16	02/16/99	0900	SVOA		02/17/99	2035	JPH	GC-4
BLK02/17	02/17/99	1130	SVOA		02/18/99	1539	JPH	GC-4
104611-1	02/17/99	0855	SVOA		02/18/99	1555	JPH	GC-4
104611-15	02/17/99	0855	SVOA		02/18/99	1611	JPH	GC-4
104611-16	02/17/99	0855	SVOA		02/18/99	1627	JPH	GC-4
104767-1	02/18/99	1450	SVOA		02/18/99	1738	JPH	GC-4
104767-2	02/18/99	1450	SVOA		02/18/99	1751	JPH	GC-4
BLK02/18	02/18/99	1450	SVOA		02/18/99	1724	JPH	GC-4
BLK02/22	02/22/99	1530	CP		02/23/99	1007	JPH	GC-4
104902-2	02/22/99	1530	CP		02/23/99	1021	JPH	GC-4
104902-3	02/22/99	1530	CP		02/23/99	1035	JPH	GC-4
104902-4	02/22/99	1530	CP		02/23/99	1050	JPH	GC-4
BLK02/24	02/24/99	0800	SVO		02/25/99	1557	JPH	GC-4
104893-7	02/24/99	1145	SVO		02/25/99	1625	JPH	GC-4
104893-7DUP	02/24/99	1145	SVO		02/25/99	1639	JPH	GC-4
104893-5	02/24/99	1145	SVO		02/25/99	1611	JPH	GC-4

Analytical Services Inc., Batch QC
For Report Number :104767
Diesel Range Organics

Matrix : Aqueous Batch # 46094 Method : EPA 8015B

Lab Control Information Analyte	LC %Rec	LCD %Rec	LC RPD	%Recovery Range	RPD Range
Diesel	115	111	4	61 - 143	0 - 30

Matrix Spike Information Analyte	MS %Rec	MSD %Rec	MS RPD	%Recovery Range	RPD Range
Diesel	112	117	4	61 - 143	0 - 30

Analytical Services Inc. Batch QC
Surrogate Recovery
Diesel Range Organics

Matrix : Aqueous Batch # 46094 Method : EPA 8015B

% Recovery Objectives

S1	n-Nonane	5 - 100
S2	n-Pentacosane	23 - 131

Sample	File	S1	S2	S3	S4	S5	S6
BLK02/19	021999007F	52	77				
104701	021999008F	46	67				
46094BLK	021999009F	49	89				
46094LCS	021999010F	56	88				
46094LCSD	021999011F	55	82				
104625-8MS	021999012F	71	87				
104625-8MSD	021999013F	72	89				
104625-8	021999014F	51	94				
104625-16	021999015F	51	89				
104625-17	021999016F	49	87				
104625-17DUP	021999017F	51	81				
BLK02/18	021999020F	24	98				
104767-1	021999021F	17	75				
104767-2	022199028F	26	87				
BLK02/24	022499008F	36	90				
104988-1	222499009F	36	86				
BLK02/25	022699006F	65	77				
105057-2	022699007F	59	70				

Q.C. Information for Batch # 46094 Printed: 03/03/99 13:46:32

Blank Results Information
Diesel Range Organics Method : EPA 8015B

Analyte	Blank Result	Detection Limit
Diesel Range Organics	BDL	0.20

Q.C. Information for Batch # 46094 Printed: 03/03/99 13:46:32

Sample Batch Information
Diesel Range Organics Method : EPA 8015B

Sample ID	Preparation Date	Preparation Time	Preparation By	Preparation Notes	Analysis Date	Analysis Time	Analysis By	Inst #
BLK02/19	02/19/99	1230	SVOA		02/19/99	1341	JPH	GC-4
04701	02/19/99	1230	SVOA		02/19/99	1404	JPH	GC-4
5094BLK	02/17/99	0855	SVOA		02/19/99	1419	JPH	GC-4
46094LCS	02/17/99	0855	SVOA		02/19/99	1434	JPH	GC-4
5094LCSD	02/17/99	0855	SVOA		02/19/99	1450	JPH	GC-4
04625-8MS	02/17/99	0855	SVOA		02/19/99	1505	JPH	GC-4
04625-8MSD	02/17/99	0855	SVOA		02/19/99	1521	JPH	GC-4
04625-8	02/17/99	0855	SVOA		02/19/99	1536	JPH	GC-4
04625-16	02/17/99	0855	SVOA		02/19/99	1552	JPH	GC-4
04625-17	02/17/99	0855	SVOA		02/19/99	1607	JPH	GC-4
104625-17DUP	02/17/99	0855	SVOA		02/19/99	1622	JPH	GC-4
04767-1	02/18/99	1450	SVOA		02/19/99	1724	JPH	GC-4
04767-2	02/18/99	1450	SVOA		02/19/99	1132	JPH	GC-4
BLK02/18	02/18/99	1450	SVOA		02/19/99	1709	JPH	GC-4
LK02/24	02/24/99	0800	SVOA		02/24/99	1306	JPH	GC-2
04988-1	02/24/99	0800	SVOA		02/24/99	1326	JPH	GC-2
04701	02/19/99	1230	MB		/ /			
BLK02/19	02/19/99	1230	MB		/ /			
LK02/25	02/25/99	1700	JS		02/26/99	1147	JPH	GC-2
05057-2	02/25/99	1700	JS		02/26/99	1203	JPH	GC-2
BLK03/01	03/01/99	1000	SVO		/ /			
05154	03/01/99	1000	SVO		/ /			

Analytical Services Inc. Batch QC
For Report Number :104767
Gasoline Range Organics

Matrix : Aqueous Batch # 46122 Method : 8260B

Lab Control Information Analyte	LC %Rec	LCD %Rec	LC RPD	%Recovery Range	RPD Range
Gasoline	102	106	4	67 - 136	0 - 30

Matrix Spike Information Analyte	MS %Rec	MSD %Rec	MS RPD	%Recovery Range	RPD Range
Gasoline	128	122	5	67 - 136	0 - 30

Analytical Services Inc. Batch QC
Surrogate Recovery
Gasoline Range Organics

Matrix : Aqueous Batch # 46122 Method : 8260B

% Recovery Objectives

S1	1,2-Dichloroethane-d4	76 - 119
S2	Toluene-d8	88 - 110
S3	Ethylbenzene-d10	75 - 115
S4	4-Bromofluorobenzene	86 - 115

Sample	File	S1	S2	S3	S4	S5	S6
46122LCS	B1499	97	101	99	93		
46122LCSD	B1500	96	101	99	93		
104369-4MS	B1507	94	103	99	96		
104369-4MSD	B1508	96	100	98	96		
104369-4	B1506	101	92	102	89		
46122BLK	B1512	103	96	99	94		
46122BLK 02/21	B1605	96	92	104	92		
104767-1	B1612	94	95	100	92		
104767-2	B1613	97	95	101	95		
46122BLK 02/22	B1640	93	94	101	96		
104341-2	B1668	97	96	100	105		
^^Note: 1:1000 DILUTION							
46122BLK 02/23	B1675	97	96	98	91		
104902-2	B1689	98	94	102	93		
104902-3	B1690	103	96	102	92		
104902-4	B1691	98	97	102	95		
46122BLK 02/24	C9290	103	101	99	101		
104902-3D	C9304	107	101	99	99		
^^Note: 1:100 DILUTION							
104902-4DUP	C9305	111	103	98	98		
104552-14	B1534	95	93	100	92		

Q.C. Information for Batch # 46122 Printed: 03/03/99 13:46:32

Blank Results Information
Gasoline Range Organics Method : 8260B

Analyte	Blank Result	Detection Limit
Gasoline Range Organics	BDL	0.10

Q.C. Information for Batch # 46122 Printed: 03/03/99 13:46:32

Sample Batch Information
Gasoline Range Organics Method : 8260B

ample ID	Preparation Date	Preparation Time	Preparation By	Preparation Notes	Analysis Date	Analysis Time	Analysis By	Inst #
46122LCS	/ /				02/17/99	0855	LLP	VOA2
6122LCSD	/ /				02/17/99	0925	LLP	VOA2
04369-4MS	/ /				02/17/99	1320	LLP	VOA2
104369-4MSD	/ /				02/17/99	1358	LLP	VOA2
04369-4	/ /				02/17/99	1230	LLP	VOA2
6122BLK	/ /				02/17/99	1609	LLP	VOA2
6122BLK 02/21	/ /				02/21/99	2307	LLP	VOA2
04767-1	/ /				02/22/99	0242	LLP	VOA2
04767-2	/ /				02/22/99	0312	LLP	VOA2
04767-3	/ /				02/22/99	0343	LLP	VOA2
46122BLK 02/22	/ /				02/22/99	1905	LLP	VOA2
04341-2	/ /				02/22/99	1226	LLP	VOA2
6122BLK 02/23	/ /				02/23/99	2001	LLP	VOA2
104902-2	/ /				02/24/99	0240	LLP	VOA2
04902-3	/ /				02/24/99	0307	LLP	VOA2
04902-4	/ /				02/24/99	0334	LLP	VOA2
6122BLK 02/24	/ /				02/24/99	0955	LLP	VOA3
104902-3D	/ /				02/24/99	1638	LLP	VOA3
04902-4DUP	/ /				02/24/99	1704	LLP	VOA3
04552-14	/ /				02/18/99	0707	LLP	VOA2

Analytical Services Inc. Batch QC
For Report Number :104767

QC Batch General Information

Batch Number	Analyte	Analysis Method	Matrix		Blank Result	Prep. Method
4969	Hg	EPA 7470	Aqueous	<	0.0002	
45888	As	EPA 7060	Aqueous	<	0.0050	
5888	Se	EPA 7740	Aqueous	<	0.0050	
5894	Ag	EPA 6010	Aqueous	<	0.0100	
45894	Ba	EPA 6010	Aqueous	<	0.0100	
45894	Cd	EPA 6010	Aqueous	<	0.0050	
5894	Cr	EPA 6010	Aqueous	<	0.0100	
5894	Pb	EPA 6010	Aqueous	<	0.0050	

Lab Control Information

Batch Number	Analyte	Method	LC %Rec	LCD %Rec	LC RPD	%Recovery Range	RPD Range
4969	Hg	EPA 7470	86	86	0	76 - 124	0 - 20
5888	As	EPA 7060	82	94	14	76 - 124	0 - 20
45888	Se	EPA 7740	107	106	1	76 - 124	0 - 20
5894	Ag	EPA 6010	100	100	0	76 - 124	0 - 20
5894	Ba	EPA 6010	92	92	0	76 - 124	0 - 20
45894	Cd	EPA 6010	99	98	1	76 - 124	0 - 20
45894	Cr	EPA 6010	98	97	1	76 - 124	0 - 20
5894	Pb	EPA 6010	99	98	1	76 - 124	0 - 20

atrix Spike Information

Batch Number	Analyte	Method	MS %Rec	MSD %Rec	MS RPD	%Recovery Range	RPD Range
44969	Hg	EPA 7470	85	84	1	76 - 124	0 - 20
5888	As	EPA 7060	65	77	17	76 - 124	0 - 20
5888	Se	EPA 7740	64	61	5	76 - 124	0 - 20
45894	Ag	EPA 6010	100	110	10	76 - 124	0 - 20
5894	Ba	EPA 6010	91	90	1	76 - 124	0 - 20
5894	Cd	EPA 6010	98	97	1	76 - 124	0 - 20
45894	Cr	EPA 6010	96	96	0	76 - 124	0 - 20
5894	Pb	EPA 6010	97	96	1	76 - 124	0 - 20

Analytical Services Inc. Batch QC
For Report Number :104767

Post Digestion Spike Information

Batch Number	Analyte	Method	PDS %Rec	%Recovery Range
5888	As	EPA 7060	62	76 - 124
45888	Se	EPA 7740	35	76 - 124
5894	Ag	EPA 6010	100	76 - 124
5894	Ba	EPA 6010	94	76 - 124
45894	Cd	EPA 6010	100	76 - 124
45894	Cr	EPA 6010	99	76 - 124
5894	Pb	EPA 6010	100	76 - 124

Unspiked Sample Duplicate Information

Batch Number	Analyte	Method	Sample 1 RPD	Sample 2 RPD	RPD Range
44969	Hg	EPA 7470	0		0 - 20

Q.C. Information for Batch # 44969 For Report Number :104767

Sample Batch Information
Analysis : Hg

Sample ID	Tag	Preparation Date	Preparation Time	Preparation By	Preparation Notes	Analysis Date	Analysis Time	Analysis By	Inst
44969BLANK	HG	02/19/99	0930	CRB		02/22/99	0947	CRB	HG1
44969LCS	HG	02/19/99	0930	CRB		02/22/99	0949	CRB	HG1
44969LCSD	HG	02/19/99	0930	CRB		02/22/99	0952	CRB	HG1
104550-1MS	HG	02/19/99	0930	CRB		02/22/99	0957	CRB	HG1
104550-1MSD	HG	02/19/99	0930	CRB		02/22/99	0959	CRB	HG1
104550-1DUP	HG	02/19/99	0930	CRB		02/22/99	1002	CRB	HG1
104546	HG	02/15/99	0930	CRB		02/22/99	1032	CRB	HG1
104549-1	HG	02/15/99	0930	CRB		02/22/99	1034	CRB	HG1
104549-2	HG	02/15/99	0930	CRB		02/22/99	1037	CRB	HG1
104551-1	HG	02/15/99	0930	CRB		02/22/99	1050	CRB	HG1
104553-1	HG	02/15/99	0930	CRB		02/22/99	1053	CRB	HG1
104568-1	HG	02/15/99	0930	CRB		02/22/99	1055	CRB	HG1
104550-1	HG	02/15/99	0930	CRB		02/22/99	0954	CRB	HG1
104550-10	HG	02/15/99	0930	CRB		02/22/99	1022	CRB	HG1
104550-11	HG	02/15/99	0930	CRB		02/22/99	1025	CRB	HG1
104550-2	HG	02/15/99	0930	CRB		02/22/99	0957	CRB	HG1
104550-3	HG	02/15/99	0930	CRB		02/22/99	0959	CRB	HG1
104550-4	HG	02/15/99	0930	CRB		02/22/99	1002	CRB	HG1
104550-5	HG	02/15/99	0930	CRB		02/22/99	1004	CRB	HG1
104550-6	HG	02/15/99	0930	CRB		02/22/99	1007	CRB	HG1
104550-7	HG	02/15/99	0930	CRB		02/22/99	1009	CRB	HG1
104550-8	HG	02/15/99	0930	CRB		02/22/99	1017	CRB	HG1
104550-9	HG	02/15/99	0930	CRB		02/22/99	1020	CRB	HG1
104767-1	HG	02/19/99	0930	CRB		02/22/99	1027	CRB	HG1
104767-2	HG	02/19/99	0930	CRB		02/22/99	1030	CRB	HG1
104714-1	HG	02/19/99	1430	CRB		02/18/99	1058	CRB	HG1

Q.C. Information for Batch # 45888 For Report Number :104767

Sample Batch Information
Analysis : As, Se

Sample ID	Tag	Preparation Date	Preparation Time	Preparation By	Preparation Notes	Analysis Date	Analysis Time	Analysis By	Inst
45888BLANK	As	02/19/99	0905	RAF	GFAA	02/22/99	0944	RCP	AA3
45888LCS	As	02/19/99	0905	RAF	GFAA	02/22/99	0944	RCP	AA3
45888LCSD	As	02/19/99	0905	RAF	GFAA	02/22/99	0944	RCP	AA3
104678-13MS	As	02/19/99	0905	RAF	GFAA	02/22/99	0944	RCP	AA3
104678-14MSD	As	02/19/99	0905	RAF	GFAA	02/22/99	0944	RCP	AA3
104767-1PDS	As	02/19/99	0905	RAF	GFAA	02/22/99	0944	RCP	AA3
104767-1DUP	As	02/19/99	0905	RAF	GFAA	02/22/99	0944	RCP	AA3
104767-1	As	02/19/99	0905	RAF	GFAA	02/22/99	0944	RCP	AA3
104767-2	As	02/19/99	0905	RAF	GFAA	02/22/99	0944	RCP	AA3
104678-10	As	02/19/99	0905	RAF	GFAA	02/22/99	0944	RCP	AA3
104678-11	As	02/19/99	0905	RAF	GFAA	02/22/99	0944	RCP	AA3
104678-12	As	02/19/99	0905	RAF	GFAA	02/22/99	0944	RCP	AA3
104678-13	As	02/19/99	0905	RAF	GFAA	02/22/99	0944	RCP	AA3
104678-14	As	02/19/99	0905	RAF	GFAA	02/22/99	0944	RCP	AA3
104678-15	As	02/19/99	0905	RAF	GFAA	02/22/99	0944	RCP	AA3
104678-16	As	02/19/99	0905	RAF	GFAA	02/22/99	0944	RCP	AA3
104678-17	As	02/19/99	0905	RAF	GFAA	02/22/99	0944	RCP	AA3
104678-8	As	02/19/99	0905	RAF	GFAA	02/22/99	0944	RCP	AA3
104678-9	As	02/19/99	0905	RAF	GFAA	02/22/99	0944	RCP	AA3
45888BLANK	Se	02/19/99	0905	RAF	GFAA	02/22/99	1347	RCP	AA3
45888LCS	Se	02/19/99	0905	RAF	GFAA	02/22/99	1347	RCP	AA3
45888LCSD	Se	02/19/99	0905	RAF	GFAA	02/22/99	1347	RCP	AA3
104678-13MS	Se	02/19/99	0905	RAF	GFAA	02/22/99	1347	RCP	AA3
104678-14MSD	Se	02/19/99	0905	RAF	GFAA	02/22/99	1347	RCP	AA3
104767-1PDS	Se	02/19/99	0905	RAF	GFAA	02/22/99	1347	RCP	AA3
104767-1DUP	Se	02/19/99	0905	RAF	GFAA	02/22/99	1347	RCP	AA3
104767-1	Se	02/19/99	0905	RAF	GFAA	02/22/99	1347	RCP	AA3
104767-2	Se	02/19/99	0905	RAF	GFAA	02/22/99	1347	RCP	AA3
104678-10	Se	02/19/99	0905	RAF	GFAA	02/22/99	1347	RCP	AA3
104678-11	Se	02/19/99	0905	RAF	GFAA	02/22/99	1347	RCP	AA3
104678-12	Se	02/19/99	0905	RAF	GFAA	02/22/99	1347	RCP	AA3
104678-13	Se	02/19/99	0905	RAF	GFAA	02/22/99	1347	RCP	AA3
104678-14	Se	02/19/99	0905	RAF	GFAA	02/22/99	1347	RCP	AA3
104678-15	Se	02/19/99	0905	RAF	GFAA	02/22/99	1347	RCP	AA3
104678-16	Se	02/19/99	0905	RAF	GFAA	02/22/99	1347	RCP	AA3
104678-17	Se	02/19/99	0905	RAF	GFAA	02/22/99	1347	RCP	AA3
104678-8	Se	02/19/99	0905	RAF	GFAA	02/22/99	1347	RCP	AA3
104678-9	Se	02/19/99	0905	RAF	GFAA	02/22/99	1347	RCP	AA3

Q.C. Information for Batch # 45894 For Report Number :104767

Sample Batch Information
Analysis : Ag, Ba, Cd, Cr, Pb

Sample ID	Tag	Preparation Date	Preparation Time	Preparation By	Preparation Notes	Analysis Date	Analysis Time	Analysis By	Inst
45894BLANK		02/19/99	1200	RAF	TRACE	02/19/99	2056	MAB	ICP2
45894LCS		02/19/99	1200	RAF	TRACE	02/19/99	2059	MAB	ICP2
45894LCSD		02/19/99	1200	RAF	TRACE	02/19/99	2103	MAB	ICP2
104608-13MS		02/19/99	1200	RAF	TRACE	02/19/99	2106	MAB	ICP2
104608-13MSD		02/19/99	1200	RAF	TRACE	02/19/99	2110	MAB	ICP2
104608-14PDS		02/19/99	1200	RAF	TRACE	02/19/99	2113	MAB	ICP2
104608-14DUP		02/19/99	1200	RAF	TRACE	02/19/99	2117	MAB	ICP2
104767-1		02/19/99	1200	RAF	TRACE	02/19/99	2127	MAB	ICP2
104767-2		02/19/99	1200	RAF	TRACE	02/19/99	2142	MAB	ICP2
104608-1		02/19/99	1200	RAF	TRACE	02/19/99	2145	MAB	ICP2
104608-2		02/19/99	1200	RAF	TRACE	02/19/99	2149	MAB	ICP2
104608-3		02/19/99	1200	RAF	TRACE	02/19/99	2152	MAB	ICP2
104608-4		02/19/99	1200	RAF	TRACE	02/19/99	2156	MAB	ICP2
104608-5		02/19/99	1200	RAF	TRACE	02/19/99	2159	MAB	ICP2
104608-6		02/19/99	1200	RAF	TRACE	02/19/99	2202	MAB	ICP2
104608-7		02/19/99	1200	RAF	TRACE	02/19/99	2206	MAB	ICP2
104608-8		02/19/99	1200	RAF	TRACE	02/19/99	2210	MAB	ICP2
104608-9		02/19/99	1200	RAF	TRACE	02/19/99	2213	MAB	ICP2
104608-10		02/19/99	1200	RAF	TRACE	02/19/99	2224	MAB	ICP2
104608-11		02/19/99	1200	RAF	TRACE	02/19/99	2227	MAB	ICP2
104608-12		02/19/99	1200	RAF	TRACE	02/19/99	2231	MAB	ICP2
104608-13		02/19/99	1200	RAF	TRACE	02/19/99	2120	MAB	ICP2
104608-14		02/19/99	1200	RAF	TRACE	02/19/99	2124	MAB	ICP2
104608-15		02/19/99	1200	RAF	TRACE	02/19/99	2234	MAB	ICP2
104608-16		02/19/99	1200	RAF	TRACE	02/19/99	2238	MAB	ICP2
104608-17		02/19/99	1200	RAF	TRACE	02/19/99	2241	MAB	ICP2
104608-18		02/19/99	1200	RAF	TRACE	02/19/99	2245	MAB	ICP2

From: Nick Sodano
To: SiteRemediation.SRP.FMCLAUGH, SiteRemediation.SRP....
Date: 6/24/99 12:30pm
Subject: well postions-Hamersley

Third party due diligence work at Hamersley.
Locations Based on review of Jordon,Jones,Goulding Field Map:

FS1 was near our GW14. It was 15-25 ft deep. Results: Clean.
FS2 was near our GW8. It was 15 -25 ft deep. Results: Clean.
FM2 was also near GW8. It ws 42-46 ft deep. Results: Clean.
FM1 was near ??? It was 45-50 ft deep. Results: C-DCE 120
GW14 TCE 13, VC 19, DCB 11, DCA
17
FD1 was near GW10. It was 67 - 71 ft deep. Results; C-DCE 4,700
TCE 10,000, PCE 190, VC 150 hit reddish brown silty
(others)
FD2 was near ???. It was 63-68 ft deep. Results: C-DCE 230
GW13 TCE 30, VC 150 (PCE ND)

I have a call in to JJG to firm up locations.

JJ147

ATTACHMENT KK

FARER FERSKO

A Professional Association ATTORNEYS AT LAW

600 SOUTH AVENUE
P.O. BOX 580
WESTFIELD, NJ 07091-0580

908.789.8550
Fax 908.789-8660
Email ff@farerlaw.com

Facsimile Transmission Cover Memo

Date:	November 18, 1999
To:	Nick Sodano, HSMS 2
Company:	New Jersey Department of Environmental Protection Bureau of Environmental Measurements & Quality Assurance
Fax No:	(609) 584-4298
From:	Elaine Kaufmann
Our File:	230302
No. of Pages: (including this page)	11

Message:

Dear Nick:

Larry Jacobs asked me to send the following deeds and Consent Order to you.

Please do not hesitate to call if you have any questions.

Regards,

Elaine Kaufmann
EK:af
Enclosure

Initials EAK

IF YOU HAVE RECEIVED THIS COMMUNICATION IN ERROR, PLEASE CALL US IMMEDIATELY. THIS TRANSMISSION MAY BE PRIVILEGED AND CONFIDENTIAL AND IS INTENDED ONLY FOR THE PARTY TO WHOM IT IS DIRECTED.

FF Fax Room: ( ) Transmission Complete
( ) Transmission Incomplete

Initials: _____
Reason: _____

KKI

FILED
JUL 30 1982
BERGEN COUNTY CLERK
HACKENSACK, NEW JERSEY

GRUEN AND RITVO
15 MAIN STREET
HACKENSACK, N. J. 07601
(201) 487-5600
ATTORNEYS FOR Plaintiffs

SUPERIOR COURT OF NEW JERSEY
LAW DIVISION-BERGEN COUNTY

Plaintiff
MAYOR AND COUNCIL OF THE BOROUGH OF WALLINGTON, a Municipal Corporation of the State of New Jersey, and BOARD OF HEALTH of the BOROUGH OF WALLINGTON

vs.

Defendant
RIVER DRIVE PARK CORPORATION, a New Jersey Corporation and PENRAL, INC., a New Jersey Corporation

Docket No. L67212-8 82-4952

CIVIL ACTION

CONSENT ORDER

This matter having been opened to the Court on Order to Show Cause by Gruen and Ritvo, Esqs., attorneys for the Borough of Wallington and upon the return date of the Order to Show Cause and it appearing that the attorneys for the Defendants, River Drive Park Corporation, L. Mifflin Hayes, Esq. and for Penral, Inc., Witham, Amabile and Takvorian, Esqs., have reached an agreement with the Plaintiff, Borough of Wallington and the Board of Health of the Borough of Wallington, and for good cause shown;

KK2

It is, on this 30th day of July, 1982,

ORDERED as follows:

A. All dumping on the premises of River Drive Park Corporation is hereby restrained subject to the following exceptions:

1. Defendant, Penral, Inc., may dump no more than 5,000 yards of properly processed demolition materials.

2. Said dumping shall be completed no later than September 15, 1982. Subsequent to that date there shall be no dumping permitted on the site.

B. All dumping of the 5,000 yards by Penral, Inc. shall be subject to the supervision of the Borough Engineer of the Borough of Wallington. Penral, Inc. shall notify the office of the Borough Engineer prior to the dumping of any materials on the site. Any costs incurred by the Borough of Wallington as a result of the Borough Engineer's supervision shall be borne by Penral, Inc. Penral shall deposit forthwith the sum of $500.00 in the trust escrow account of the Borough of Wallington to be used to compensate the Borough Engineer. ADDITIONAL MONIES TO BE DEPOSITED AS NECESSARY

C. Up and to September 15, 1982, Penral, Inc. shall be permitted to cause to be dumped on the property in issue clean earth to the extent necessary to provide cover of the demolition materials on site. Said dumping shall also be subject to the Borough Engineer's supervision.

KKS

11-10-99 02:20 PM FROM FAKER FERSKO P03

D. On or before September 15, 1982, Penral, Inc. shall cause the site to be graded and cleared of debris, as well as covered with earth, all to the satisfaction of the Borough Engineer, to provide for proper and adequate runoff so as not to cause damage to adjacent properties.

E. In the event the property is not graded and cleared as above set forth by September 15, 1982, then the Borough of Wallington is authorized to do whatever is necessary to complete the grading and clearing of the site to the satisfaction of the Borough Engineer. The expense of the Borough's actions shall be paid in escrow immediately by Penral, Inc. or the Borough of Wallington shall be entitled to a judgment against Penral, Inc. for the actual cost and Penral, Inc. does hereby confess judgment to the Engineer's estimate.

/s/ Harvey Smith
J.S.C.

HARVEY SMITH, J.S.C.

We hereby consent to the form
and entry of the within Order.

L. Mifflin Hayes, Esq.

Witham, Amabile and Takvorian

By
Anthony R. Amabile, Esq.

KK4

Between H. P. LAND CORP., a New Jersey corporation, having an office at c/o Rosenthal & Rosenthal, Inc. 1451 Broadway

in the Borough of Manhattan County of New York, and State of New York party of the first part;

And RIVER DRIVE PARK CORP., a New Jersey corporation, having an office at 73 Palisade Avenue

in the City of Garfield County of Bergen and State of New Jersey party of the second part;

Witnesseth, That the said party of the first part, for and in consideration of EIGHT HUNDRED THOUSAND ($800,000.00) Dollars lawful money of the United States of America, to it in hand well and truly paid by the said party of the second part, at or before the sealing and delivery of these presents, the receipt whereof is hereby acknowledged, and the said party of the first part being therewith fully satisfied, contented and paid, has given, granted, bargained, sold, aliened, released, enfeoffed, conveyed and confirmed and by these presents does give, grant, bargain, sell, alien, release, enfeoff, convey and confirm unto the said party of the second part, and to and assigns, forever,

All that certain plot, piece, tract or parcel of land with the buildings and improvements thereon erected, situate, lying and being in the City of Garfield and in the Borough of Wallington, County of Bergen and State of New Jersey, more particularly bounded and described in Schedule A annexed hereto and made a part hereof.

The full and actual consideration paid or to be paid for the transfer of title to realty evidenced by the within deed, as such consideration is defined in P.L. 1968, c. 49, Sec. 1(c), is $800,000, including a mortgage held by John Hancock Mutual Life Insurance Company in the unpaid principal amount of $360,439.78 as to which the premises are sold subject. Said mortgage is a part of the consideration stated in the deed.

Consideration $ [illegible]
Realty Transfer Fee [illegible]
Recording Fee 13.25
By [illegible] Total $ 813.75

Ord
on 12/1/69 Paul Michaelson [illegible]

<OVER>

J 184/229

BOOK 5375 PAGE 488

KHS

11-18-99 02:20 PM FROM FARER PERSKO P05

KKG

Made the 1st *day of* December *, in the year of our Lord*
One Thousand Nine Hundred and sixty-nine

(1st Tract-City of Garfield)

I: Beginning at the corner formed by the intersection of the Easterly line of Midland Avenue with the Southerly line of River Drive (formerly called River Road and Saddle River Avenue), and running thence:
(1) South 84 degrees 40 minutes and 30 seconds East, along the southerly line of River Drive (974.02 feet) to a bend; thence;
(2) North 78 degrees 24 minutes and 30 seconds East, still along River Drive (72.40 feet) to the southwesterly right-of-way line of the Erie-Lackawanna Railroad, (Bergen County Railroad); thence,
(3) South 54 degrees 04 minutes and 30 seconds East, along the said right-of-way line about (157.00) feet to the westerly shoreline of the Saddle River; thence,
(4) Southwesterly, northwesterly, southwesterly and northwesterly along the westerly and northerly shoreline of the Saddle River; along the several courses thereof, downstream about (2825.00) feet to a point lying in the Easterly line of Midland Avenue; thence,
(5) North 5 degrees 09 minutes and 10 seconds East along the easterly line of Midland Avenue about (190.00 feet) to the point or placeof beginning.

Lot 1.02 Blk 2.01

Containing about 10.43 acres.

(2nd Tract)

Lot 10 Blk 2.02 in 99 Garfield

II: Beginning at a point lying in the southerly line of River Drive (formerly called River Road and Saddle River Avenue) where the same is intersected by the northeasterly right-of-way line of the Erie-Lackawanna Railroad (Bergen County Railroad) and running from thence,
(1) North 78 degrees 24 minutes and 30 seconds East along the southerly line of River Drive about (75.00 feet) to the westerly shoreline of the Saddle River; thence:
(2) Southwesterly along the westerly shoreline of the Saddle River about (75.00 feet) to a point lying in the northeasterly right-of-way line of the Erie Lackawanna Railroad; thence,
(3) North 54 degrees 04 minutes and 30 seconds West along the said right-of-way line about (80.00 feet) to the point or place of beginning.

(3rd Tract)

III: In the Borough of Wallington, Bergen County, New Jersey.
Beginning at a point lying in the southerly right-of-way line of the Erie-Lackawanna Railroad (Bergen County Railroad), distant (52.24 feet) measured westerly along an arc from a point where the said southerly right-of-way line is intersected by the northerly line of Main Avenue (formerly called Lodi Road) as a 50 foot street and running from thence,
(1) Northwesterly along the said right-of-way line of the Erie-Lackawanna Railroad along a curve having a radius of (2,217.01 feet) bearing to the left for an arc distance of (934.26 feet) to the point of tangency lying in the southerly right-of-way line of the said railroad; thence,
(2) North 54 degrees 06 minutes and 30 seconds West still along the southerly right-of-way line of said railroad about (325.00 feet) to the easterly shoreline of the saddle River; thence,
(3) Southwesterly along the easterly shoreline of the Saddle River the several courses thereof, about (430.00 feet) to the northwesterly corner of line of lands now or formerly of John J. O'Leary and lands now or formerly of William Van Kruiningen & Sons, Inc.; thence,

PQ

5375/469

KK7

Sch A

KKS

All those certain tracts or parcels of land and premises, situate, lying and being in the City of Garfield and Borough of Wallington, County of Bergen, State of New Jersey, being more particularly described as follows:

course of said Parcel #1 [illegible]
(6) South 48 degrees 21 minutes and 30 seconds East along the third course of Parcel #1 and along the first course of Parcel #2 (425.86 feet) to a point lying in the sixth course as described in Parcel #1; thence,
(7) South 64 degrees 21 minutes and 30 seconds East along the sixth course of Parcel #1 (147.76 feet) to a bend; thence,
(8) South 67 degrees 21 minutes and 30 seconds East along the seventh course of Parcel #1 (204.00 feet) to a bend; thence,
(9) North 86 degrees 38 minutes and 30 seconds East (80.28feet) to a bend; thence,
(10) South 48 degrees 21 minutes and 30 seconds East (75.90 feet) to the southwesterly corner of Parcel #2 as described in L.P. Book 21-640; thence,
(11) North 16 degrees 05 minutes and 20 seconds East along the westerly line as described in said book (25.00 feet) to the northwesterly corner thereof; thence,
(12) South 73 degrees 54 minutes and 40 seconds East (38.39 feet) to the point or place of beginning.

Containing about 6.85 acres.

Subject to a 25 foot Easement for drainage, etc., to the County of Bergen as recorded in Book 4653, page 344 for deeds in the Bergen County Clerk's Office running northwesterly from the fifth course of the tract herein above described.

RECEIVED
1969 DEC 11 AM 10: 39
Alexander Allen
BERGEN COUNTY CLERK

5375/490

KH-1

4) South [illegible] 30 [illegible]
northeasterly boundary line of [illegible]

and Van Kruiningen about (135.00 feet) to the end of the first course as recited in Parcel #1 heretofor conveyed by the Hamersley Manufacturing Company to others; thence,

(5) North 41 degrees 38 minutes and 30 seconds East along the second course of said Parcel #1 (125.00 feet); thence,

Extended Page

This Deed is made on November 20, 1989. MICHAEL F. LOGERFO, ESQ.

BETWEEN

RIVER DRIVE PARK CORP.

a corporation of the state of New Jersey
having its principal office at 83 River Drive, Garfield, New Jersey
referred to as the Grantor.

AND

ANTHONY LABUE

whose post office address is 32 The Crossway, Kinnelon, NJ 07405
referred to as the Grantee.

The word "Grantee" shall mean all Grantees listed above.

Transfer of Ownership. The Grantor grants and conveys (transfers ownership of) the property described below to the Grantee. This transfer is made for the sum of ONE AND NO/100 DOLLARS----------

The Grantor acknowledges receipt of this money.

Tax Map Reference. (N.J.S.A. 46:15-2.1) Municipality of Wallington
Block No. 71 Lot No. 35A Account No.

☐ No property tax identification number is available on the date of this Deed. (Check box if applicable.)

Property. The property consists of the land and all the buildings and structures on the land in the Borough of Wallington
County of Bergen and State of New Jersey. The legal description is:

All that certain tract or parcel of land and premises, situate, lying and being in the Borough of Wallington, in the County of Bergen, State of New Jersey, more particularly described herein.

BEGINNING at a point lying in the southerly right-of-way line of the Erie-Lackawanna Railroad (Bergen County Railroad), distant (52.24 feet) measured westerly along an arc from a point where the said southerly right-of-way line is intersected by the northerly line of Main Avenue (formerly called Lodi Road) as a 50 foot street and running from thence,

1. Northwesterly along the said right-of-way line of the Erie-Lackawanna Railroad along a curve having a radius of (2,217.01 feet) bearing to the left for an arc distance of (934.26 feet) to the point of tangency lying in the southerly right-of-way line of the said railroad; thence

2. North 54° 06' and 30" West still along the southerly right-of-way line of said railroad about (325.00 feet) to the easterly shoreline of the Saddle River; thence

3. Southwesterly along the easterly shoreline of the Saddle River the several courses thereof, about (430.00 feet) to the northwesterly corner of line of lands now or formerly of John J. O'Leary and lands now or formerly of William Van Kruiningen & Sons, Inc.; thence

4. South 48° 21' and 30" East along the northeasterly boundary line of lands now or formerly of O'Leary and Van Kruiningen about (135.00 feet) to the end of the first course as recited in Parcel #1 heretofor conveyed by the Hamersley Manufacturing Company to others; thence

5. North 41° 38' and 30" East along the second course of said Parcel #1 (125.00 feet); thence

6. South 48° 21' and 30" East along the third course of Parcel #1 and along the first course of Parcel #2 (425.86 feet) to a point lying in the sixth course as described in Parcel #1; thence

Order 11/28/89 Hail Cardinal NPS

Consideration $
Realty Transfer Fee
Recording Fee
By TM Total

Corrective

RECORDED BERGEN COUNTY
89 DEC 13 AM 10:04
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COUNTY CLERK

BK 7337 PG 926

104—DEED - BARGAIN AND SALE (Covenant as to Grantor's Acts)
CORP TO IND OR CORP — Plain Language

R ST—1

Copyright © 1982 By ALL STATE LEGAL SUPPLY CO
One Commerce Drive Cranford N J 07016

DEED

Prepared by: (Print signer's name below signature)

Michael Logerfo

MICHAEL F. LOGERFO, ESQ.

Extended Page

7. South 64° 21' and 30" East along the sixth course of Parcel #1 (147.76 feet) to a bend; thence

8. South 57° 21' and 30" East along the seventh course of Parcel #1 (204.00 feet) to a bend; thence

9. North 86° 38' and 30" East (80.28 feet) to a bend; thence

10. South 48° 21' and 30" East (75.90 feet) to the southwesterly corner of Parcel #2 as described in L.P. Book 21-640; thence

11. North 16° 05' and 20" East along the westerly line as described in said book (25.00 feet) to the northwesterly corner thereof; thence

12. South 73° 54' and 40" East (38.39 feet) to the point or place of BEGINNING.

BEING commonly known as 551 Main Street, Wallington, New Jersey.

NOTE: Being Lot(s) 35A, Block 71, Tax Map of the Borough of Wallington.

Together with easement reserved for access purposes in Deed Book 4771, page 46.

Being a portion of the same premises conveyed to Grantor herein by H.P. Land Corp., a New Jersey corporation, by deed dated December 1, 1969 and recorded in the Office of the Register of Deeds of Bergen County on December 11,1969 in Deed Book 5375 on Page 488 et seq.

THIS IS A CORRECTIVE DEED, THE PURPOSE OF WHICH IS TO CORRECT THE DEED DATED FEBRUARY 28, 1985 BETWEEN RIVER DRIVE PARK CORP. AND ANTHONY LABUK RECORDED MARCH 7, 1985 IN BOOK 6904 PAGE 769 BY SETTING FORTH THE PRECISE METES AND BOUNDS DESCRIPTION AND A CERTAIN EASEMENT OF RECORD.

KKB

103—0803 BARGAIN AND SALE (Covenant as to Grantor's Acts) NJ TO INC. OR CORP — Plain Language B R V 8 7 - 1

Copyright 1982 By ALL STATE LEGAL SUPPLY CO. One Commerce Drive Cranford N.J. 07016

Prepared by: (Print signer's name below signature)
Michael F. Logerfo
MICHAEL F. LOGERFO, ESQ.

DEED

This Deed is made on November 30, 1989.

BETWEEN

ANTHONY LABUS

whose address is 32 The Crossway, Kinnelon, NJ 07405 referred to as the Grantor,

AND LAKE SIDE PROPERTIES, INC., a New Jersey Corporation

whose post office address is 454 Main Avenue, Wallington, New Jersey referred to as the Grantee

The words "Grantor" and "Grantee" shall mean all Grantors and all Grantees listed above.

Transfer of Ownership. The Grantor grants and conveys (transfers ownership of) the property described below to the Grantee. This transfer is made for the sum of THREE HUNDRED SEVENTY-FIVE THOUSAND AND NO/100 DOLLARS (The Grantor acknowledges receipt of this money)

Tax Map Reference. (N.J.S.A. 46:15-2.1) Municipality of Wallington
Block No. 71 Lot No 25A Account No
☐ No property tax identification number is available on the date of this deed (check box if applicable).

Property. The property consists of the land and all the buildings and structures on the land in the Borough of Wallington County of Bergen and State of New Jersey. The legal description is

All that certain tract or parcel of land and premises, situate, lying and being in the Borough of Wallington, in the County of Bergen, State of New Jersey, more particularly described herein.

BEGINNING at a point lying in the southerly right-of-way line of the Erie-Lackawanna Railroad (Bergen County Railroad), distant (52.24 feet) measured westerly along an arc from a point where the said southerly right-of-way line is intersected by the northerly line of Main Avenue (formerly called Lodi Road) as a 50 foot street and running from thence,

1. Northwesterly along the said right-of-way line of the Erie-Lackawanna Railroad along a curve having a radius of (2,217.01 feet) bearing to the left for an arc distance of (934.26 feet) to the point of tangency lying in the southerly right-of-way line of the said railroad; thence

2. North 54° 06' and 30" West still along the southerly right-of-way line of said railroad about (325.00 feet) to the easterly shoreline of the Saddle River; thence

3. Southwesterly along the easterly shoreline of the Saddle River the several courses thereof, about (430.00 feet) to the northwesterly corner of line of lands now or formerly of John J. O'Leary and lands now or formerly of William Van Kruiningen & Sons, Inc.; thence

4. South 48° 21' and 30" East along the northeasterly boundary line of lands now or formerly of O'Leary and Van Kruiningen about (135.00 feet) to the end of the first course as recited in Parcel #1 heretofor conveyed by the Hamersley Manufacturing Company to others; thence

5. North 41° 38' and 30" East along the second course of said Parcel #1 (125.00 feet); thence

6. South 48° 21' and 30" East along the third course of Parcel #1 and along the first course of Parcel #2 (425.86 feet) to a point lying in the sixth course as described in Parcel #1; thence

RECORDED IN BERGEN COUNTY
COUNTY CLERK
89 DEC 13 AM 10:04
130327

Rec'd 11/30/89 M. Logerfo Esq

Cross Lot 35.02
BK 71
Wallington
TM

7. South 64° 21' and 30" East along the sixth course of Parcel #1 (147.76 feet) to a bend; thence

8. South 67° 21" and 30" East along the seventh course of Parcel #1 (204.00 feet) to a bend; thence

9. North 86° 38' and 30" East (80.28 feet) to a bend; thence

10. South 48° 21' and 30" East (75.90 feet) to the southwesterly corner of Parcel #2 as described in L.P. Book 21-640; thence

11. North 16° 05' and 20" East along the westerly line as described in said book (25.00 feet) to the northwesterly corner thereof; thence

12. South 73° 54' and 40" East (38.39 feet) to the point or place of BEGINNING.

BEING commonly known as 551 Main Street, Wallington, New Jersey.

NOTE: Being Lot(s) 35A, Block 71, Tax Map of the Borough of Wallington.

Together with easement reserved for access purposes in Deed Book 4771, page 46.

Being the same premises conveyed to grantor by deed from River Drive Park Corp., a corporation of New Jersey, dated February 28, 1985 recorded March 7, 1985 in Deed Book 6904 page 769.

ATTACHMENT LL

STATISTICAL SUMMARIES OF NEW JERSEY STREAMFLOW RECORDS

WATER RESOURCES CIRCULAR 23

By

Stanley L. Laskowski
Hydraulic Engineer
U.S. Geological Survey

Prepared by the U.S. Geological Survey
in cooperation with the
State of New Jersey
Department of Environmental Protection
Division of Water Policy and Supply

1970

LLI

1-3895.00 PASSAIC RIVER AT LITTLE FALLS, N. J.

(published as "at Paterson" prior to 1956)

Location.--Lat 40°53'05", long 74°13'35", 0.6 mile downstream from Beatties Dam.

Drainage area.--762 sq mi.

Remarks.--Regulation reduces flood peaks and augments low flow. Diversion very significant at all flows.

DURATION TABLE OF DAILY DISCHARGE

NUMBER OF DAYS IN CLASS

YEAR	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	CFS_DAYS
1898																		2	13	44	33	29	29	43	61	33	33	18	21	3	3					558701.0
1899																	8	22	38	54	26	23	14	20	31	32	30	35	17	14	1					570249.0
1900	1									2				1	1	8	8	38	57	42	34	31	24	25	23	17	27	13	6	4	4					383423.0
1901												1		1	2	10	29	41	63	34	24	10	20	15	17	25	28	20	11	9	5					456969.0
1902															2	5	1	8	20	52	59	31	32	27	35	24	15	14	14	16	3	3	2	2		609001.0
1903														1		1	1		6	19	41	17	14	16	24	36	85	60	21	17	7	1				873766.0
1904	3									1	1		3	2	1		5	16	16	40	31	56	40	32	29	28	28	16	6	3	3	2	1	2	1	563440.0
1905	2	1					1			1			1		2	4	18	14	32	30	47	49	42	45	21	16	15	4	6	9	5					390300.0
1906																2	7	23	18	39	37	24	30	45	32	49	35	13	9	2						444854.0
1907															1	7	11	34	36	38	49	27	30	32	34	30	21	5	3	5	2					357205.0
1908																3	4	19	30	22	16	17	13	18	20	42	63	46	28	21	4					808855.0
1909													1		2	4	23	67	43	26	34	24	27	19	26	15	18	12	21	3						375517.0
1910													1		5	7	50	63	35	23	11	24	23	21	30	19	16	13	14	6	4					393900.0
1911											1		1	3	5	11	39	48	44	28	20	25	33	36	27	20	19	5								259442.0
1912																	22	38	19	40	23	29	25	31	33	40	29	20	7	6	2	2				479540.0
1913								1	1			2			6	27	39	28	18	9	13	18	24	31	39	41	26	21	17	4						466704.0
1914												1	2	2	8	17	18	24	19	21	22	43	41	23	21	31	42	20	4	4	2					436481.0
1915													1	5	12	20	13	21	37	32	25	27	33	33	26	15	22	16	19	7	1					434075.0
1916																5	10	18	26	30	21	33	28	34	46	49	35	17	10	4						482360.0
1917											1		11	12	18	28	29	20	16	20	25	38	32	28	33	23	18	11	2							288553.0
1918									1			1	4	13	20	25	35	42	36	15	19	26	34	23	15	21	18	6	8	3						286328.0
1919													4	21	23	12	13	10	15	15	28	15	21	34	54	50	27	16	2	3	2					426800.0
1920																		2	5	9	40	46	36	49	49	60	31	11	11	9	3	5				615630.0
1921													3	13	5	13	17	12	12	21	19	25	22	34	34	56	48	19	9	3						494610.0
1922											1	2	14	12	6	7	24	14	28	26	18	28	34	29	33	36	35	11	4	3						385201.0
1923									2	10	10	9	17	21	13	13	42	32	17	17	19	24	22	24	16	27	14	6	5	5						272200.0
1924									3		4	2	11	9	14	9	14	13	14	17	19	31	24	17	48	57	28	19	5	5	1	2				474136.0
1925													1	6	3	5	18	47	59	39	26	27	30	34	13	14	17	11	12	3						326493.0
1926												2	5	14	11	8	6	24	22	23	38	33	30	26	32	39	30	14	8							386499.0
1927														3	1	2	6	7	13	11	27	27	24	43	53	84	43	15	2	3	1					528254.0
1928																	1			1	5	18	31	56	82	63	57	29	20	3						690094.0
1929												2	16	18	5	15	18	21	47	39	40	12	16	8	23	30	30	20	5							334949.0
1930												4	12	12	8	13	17	13	34	29	33	29	50	28	47	24	9	3								263791.0
1931												6	21	5	11	12	22	21	37	21	19	23	36	30	35	31	33	2								300742.0
1932			2			3	16	2	4	1	10	9	17	20	22	17	20	29	29	21	19	23	28	31	14	12	10	4	3							193915.0
1933										1	1		1	2	7	3	12	20	13	9	12	15	33	48	44	43	48	21	19	11	2					620246.0
1934														4	2	11	15	18	20	46	42	29	24	31	41	34	25	16	7							376632.0
1935														4	4	9	20	25	30	8	9	53	40	39	40	41	28	5								343764.0
1936													1		6	22	36	30	26	18	18	24	34	43	27	20	22	14	7	6	3	6	3			511793.0
1937																1	4	17	38	39	34	26	22	23	59	44	36	15	7							437484.0
1938																		9	24	15	27	23	45	52	49	59	24	17	12	7	2					549522.0
1939															1	1	13	36	21	30	12	19	32	23	36	15	31	41	36	18						501186.0
1940																1	27	44	58	27	23	28	26	23	20	39	14	22	19							408229.0
1941													1	2	10	14	16	19	33	25	26	35	41	50	20	30	32	11								342599.0
1942														1	9	13	21	22	25	44	37	35	20	26	32	31	21	20	4	4						376294.0
1943													3	1	9	14	22	18	17	7	11	21	30	55	48	49	32	19	5	4						473116.0
1944										4	1	3	6	13	12	23	16	31	22	29	23	34	20	13	29	34	31	18	4							346983.0
1945													1	4	11	13	7	8	11	27	30	22	28	30	37	50	47	18	13	4	2	2				552789.0
1946																1	8	12	11	33	46	46	43	29	31	35	31	27	12							469059.0
1947																2	18	45	38	30	49	30	32	36	40	23	16	6								391467.0
1948													5	5	4	6	14	25	10	20	22	41	39	19	39	34	52	18	13							473329.0
1949										1	1	6	8	5	18	21	40	39	32	14	19	12	13	23	39	41	20	2	3	6	2					333896.0
1950													1	1	12	18	44	37	29	29	35	34	32	28	37	18	3	7								232819.0
1951																	11	46	30	28	21	22	14	25	38	53	46	16	6	4	3	2				514845.0
1952																		9	10	22	19	26	15	39	47	54	47	42	22	8	4	2				741853.0
1953											11		9	10	15	10	14	19	35	29	9	9	7	16	31	54	34	20	26	7						532233.0
1954											3	2	14	15	13	27	29	31	20	38	30	26	27	32	29	19	10									208547.0
1955											2	3	3	4	9	4	7	29	50	31	30	23	26	36	42	31	22	5	3	3	2					351563.0
1956																	7	23	42	35	43	29	26	19	36	57	25	15	3	3	1	2				441214.0
1957											1	6	12	16	15	14	21	40	20	17	16	42	37	31	33	23	12	3	6							270268.0
1958													2	2	13	15	41	32	34	29	24	7	24	17	15	24	27	35	22	2						457650.0
1959																1	14	45	34	64	41	32	33	32	38	23	6	2								245338.0
1960																2	2	8	23	15	27	40	51	53	42	38	42	15	5	3						476189.0
1961																	12	19	31	27	55	62	40	22	17	16	27	25	5	7						412029.0
1962															4	9	20	49	48	53	49	32	18	13	16	8	20	19	3	4						219404.0
1963														5	17	8	22	24	17	62	61	43	29	19	13	10	14	21								199088.0
1964											16	6	10	11	30	19	19	21	42	22	25	21	35	21	17	38	12	2								227433.0
1965										1	2	10	15	33	58	26	33	35	26	34	54	17	5	7	2	2	3	1	1							98219.0
1966													2	13	15	18	42	68	41	31	28	25	26	16	12	8	9	9	2							143894.0
1967																	5	17	29	33	47	43	51	43	30	29	19	10	9							375105.0

LL3

1-3895.00 PASSAIC RIVER AT LITTLE FALLS, N. J.
SUMMARY DURATION TABLE OF DAILY DISCHARGES

CLASS	CFS	TOTAL	ACCUM	PERCT	CLASS	CFS	TOTAL	ACCUM	PERCT	CLASS	CFS	TOTAL	ACCUM	PERCT	CLASS	CFS	TOTAL	ACCUM	PERCT
0	0.00	6	25567	100.0	9	12.00	22	25524	99.8	18	190.0	2000	20534	80.3	27	3100	1063	2024	7.9
1	1.00	1	25561	100.0	10	16.00	66	25502	99.7	19	260.0	1944	18534	72.5	28	4200	591	961	3.7
2	1.40	0	25560	100.0	11	22.00	79	25436	99.5	20	350.0	1964	16590	64.9	29	5700	256	370	1.4
3	1.90	2	25560	100.0	12	30.00	256	25357	99.2	21	480.0	1992	14626	57.2	30	7700	74	114	.4
4	2.50	0	25558	100.0	13	41.00	364	25101	98.2	22	650.0	1974	12634	49.4	31	10000	29	40	.1
5	3.40	3	25558	100.0	14	55.00	501	24737	96.8	23	890.0	2074	10660	41.7	32	14000	6	11	.0
6	4.70	17	25555	100.0	15	75.00	695	24236	94.8	24	1200.0	2242	8586	33.6	33	19000	4	5	.0
7	6.40	3	25538	99.9	16	100.00	1293	23541	92.1	25	1600.0	2376	6344	24.8	34	27000	1	1	
8	8.70	11	25535	99.9	17	140.00	1724	22258	87.1	26	2200.0	1944	3968	15.5					

LOWEST MEAN DISCHARGE, IN CFS, AND RANKING, FOR THE FOLLOWING NUMBER OF CONSECUTIVE DAYS IN YEAR BEGINNING APRIL 1

PASSAIC RIVER AT LITTLE FALLS, N. J.

YEAR	1	3	7	14	30	60	90	120	183	ANNUAL
1898	184.0 69	196.0 69	237.0 69	250.0 66	270.0 63	340.0 61	513.0 60	496.0 56	807.0 57	1890.0 65
1899	0.0 1	114.0 54	169.0 60	178.0 57	207.0 53	247.0 49	252.0 42	263.0 36	308.0 27	1100.0 33
1900	12.0 9	67.7 35	93.0 37	108.0 35	124.0 31	138.0 28	150.0 25	153.0 17	201.0 10	607.0 5
1901	62.0 46	164.0 64	210.0 65	213.0 62	272.0 64	338.0 60	447.0 57	820.0 63	808.0 58	2110.0 67
1902	65.0 47	106.0 50	181.0 63	217.0 63	287.0 66	421.0 63	532.0 62	594.0 59	971.0 62	2210.0 69
1903	30.0 26	170.0 65	225.0 68	286.0 67	335.0 67	730.0 67	720.0 64	993.0 66	1240.0 66	1790.0 63
1904	0.0 2	0.0 1	121.0 47	138.0 46	197.0 49	259.0 52	317.0 50	381.0 47	579.0 45	1140.0 39
1905	0.0 3	40.0 26	78.6 29	98.0 31	122.0 29	169.0 38	221.0 39	269.0 37	360.0 30	921.0 22
1906	76.0 51	133.0 59	145.0 58	167.0 54	201.0 50	235.0 48	313.0 49	373.0 45	581.0 46	1150.0 40
1907	60.0 45	88.0 44	118.0 44	132.0 45	137.0 38	167.0 37	228.0 40	402.0 49	790.0 56	2110.0 68
1908	34.0 30	87.0 43	138.0 55	146.0 49	162.0 45	191.0 45	206.0 38	247.0 34	286.0 25	1060.0 31
1909	55.0 44	83.0 41	99.6 39	115.0 39	127.0 34	135.0 25	142.0 23	182.0 24	221.0 16	1110.0 35
1910	34.0 31	65.3 3[illegible]	85.1 32	85.9 28	94.9 25	120.0 23	133.0 20	147.0 15	201.0 11	800.0 13
1911	21.0 19	85.0 42	119.0 45	129.0 43	142.0 41	179.0 41	338.0 51	388.0 48	587.0 47	1260.0 45
1912	101.0 60	122.0 58	123.0 48	130.0 44	145.0 42	179.0 42	203.0 37	222.0 31	470.0 42	1310.0 53
1913	7.0 6	59.7 32	72.3 28	81.6 25	90.2 24	94.9 19	111.0 18	150.0 16	449.0 41	1150.0 41
1914	28.0 23	44.3 25	61.1 25	63.0 22	66.9 16	84.4 17	91.8 12	120.0 11	194.0 9	1240.0 46
1915	89.0 53	111.0 53	136.0 53	183.0 58	204.0 52	227.0 47	368.0 52	459.0 53	612.0 49	1130.0 37
1916	81.0 52	90.3 45	100.0 40	105.0 33	131.0 37	142.0 30	156.0 29	206.0 27	423.0 39	1040.0 30
1917	16.0 13	27.3 13	32.6 13	36.7 9	55.5 10	67.9 8	79.1 7	156.0 18	218.0 15	930.0 15
1918	9.0 7	36.3 21	39.1 16	45.6 13	50.4 7	77.9 13	76.7 6	90.3 5	144.0 5	762.0 9
1919	49.0 40	68.3 36	95.6 38	119.0 40	224.0 57	485.0 64	859.0 65	1090.0 67	1070.0 65	1660.0 59
1920	173.0 68	190.0 68	223.0 67	364.0 69	511.0 69	847.0 69	887.0 67	975.0 65	1000.0 63	1660.0 60
1921	21.0 20	28.7 15	34.3 14	45.9 14	61.2 13	75.4 12	86.1 10	167.0 22	236.0 18	856.0 19
1922	36.0 36	41.7 24	58.9 23	88.9 30	129.0 35	138.0 26	142.0 24	229.0 32	412.0 35	1100.0 34
1923	9.0 8	10.3 4	13.6 2	15.6 1	24.6 1	36.2 1	46.8 1	54.9 1	216.0 14	853.0 17
1924	30.0 27	32.0 17	43.6 18	49.0 17	86.9 22	144.0 32	296.0 45	288.0 39	324.0 29	1310.0 54
1925	36.0 34	46.7 27	62.9 26	85.1 26	160.0 44	185.0 44	304.0 46	339.0 43	415.0 36	1010.0 29
1926	28.0 24	36.0 20	46.3 21	52.8 19	71.1 18	138.0 27	199.0 36	316.0 41	447.0 40	1070.0 32
1927	48.0 39	107.0 51	132.0 51	168.0 55	275.0 65	678.0 65	909.0 68	944.0 64	1370.0 67	1790.0 64
1928	67.0 48	[illegible] 61	169.0 59	205.0 61	238.0 59	254.0 51	293.0 43	442.0 50	721.0 52	1260.0 47
1929	29.0 25	30.0 16	45.0 20	53.1 20	66.4 15	74.7 11	106.0 17	158.0 19	267.0 22	934.0 24
1930	27.0 21	28.3 14	30.0 11	30.4 5	40.9 4	81.3 15	92.0 13	102.0 8	211.0 13	517.0 4
1931	2.0 4	4.7 2	24.1 5	34.4 8	55.0 9	61.8 6	88.9 11	130.0 13	251.0 20	821.0 14
1932	2.0 5	6.0 3	12.9 1	17.4 2	30.4 3	39.5 2	59.3 3	94.1 6	246.0 19	1120.0 36
1933	47.0 38	61.3 33	92.1 35	108.0 36	130.0 36	226.0 46	380.0 54	671.0 62	932.0 61	1300.0 51
1934	41.0 37	59.0 31	80.0 31	110.0 37	126.0 33	142.0 31	311.0 48	508.0 57	782.0 55	1330.0 55
1935	37.0 35	53.0 29	63.3 27	78.4 24	103.0 27	162.0 34	152.0 26	258.0 35	292.0 26	1220.0 44
1936	69.0 50	77.0 40	92.4 36	105.0 34	122.0 30	153.0 33	169.0 31	244.0 33	318.0 28	1140.0 38
1937	90.0 54	118.0 56	139.0 56	156.0 50	220.0 55	333.0 59	405.0 56	453.0 52	636.0 50	1230.0 45
1938	149.0 66	184.0 67	195.0 64	220.0 64	267.0 62	694.0 66	1000.0 69	1130.0 68	1380.0 68	1690.0 62
1939	54.0 43	76.0 39	92.0 34	103.0 32	125.0 32	140.0 29	156.0 30	160.0 20	203.0 12	789.0 11
1940	132.0 64	152.0 62	172.0 61	189.0 59	224.0 58	383.0 62	490.0 59	485.0 54	723.0 53	1410.0 56
1941	35.0 33	51.0 24	79.6 30	85.9 27	88.8 23	99.7 20	139.0 22	166.0 21	255.0 21	789.0 12
1942	51.0 42	69.7 37	105.0 41	168.0 56	222.0 56	272.0 53	368.0 53	524.0 58	1030.0 64	1500.0 57
1943	31.0 28	35.7 19	47.9 22	86.9 29	100.0 26	122.0 24	136.0 21	183.0 25	480.0 43	987.0 29
1944	13.0 10	13.0 5	27.4 9	37.9 10	60.5 12	77.1 10	131.0 19	179.0 12	180.0 8	987.0 28
1945	157.0 67	179.0 66	220.0 66	296.0 68	431.0 68	798.0 68	886.0 66	1200.0 69	1440.0 69	1660.0 58
1946	96.0 59	119.0 57	124.0 49	140.0 47	243.0 60	298.0 56	383.0 55	444.0 51	539.0 44	957.0 25
1947	95.0 58	105.0 49	114.0 43	143.0 48	153.0 43	177.0 40	246.0 41	380.0 46	697.0 51	1310.0 52
1948	34.0 32	36.7 22	43.4 17	53.1 21	76.5 21	101.0 21	152.0 27	207.0 28	361.0 31	1270.0 46
1949	14.0 11	24.0 12	31.0 12	47.5 16	71.7 19	82.4 16	97.4 15	111.0 9	117.0 3	610.0 6
1950	68.0 49	70.0 38	89.0 33	119.0 41	164.0 46	170.0 39	176.0 32	188.0 26	396.0 34	1150.0 42
1951	110.0 63	134.0 60	145.0 57	156.0 51	174.0 47	297.0 55	455.0 58	485.0 55	596.0 48	1470.0 61
1952	149.0 65	163.0 63	180.0 62	191.0 60	211.0 54	281.0 54	612.0 63	639.0 61	906.0 60	1900.0 66
1953	17.0 15	17.0 7	17.0 3	23.4 4	45.2 6	56.3 4	71.3 4	102.0 7	166.0 7	790.0 10
1954	23.0 17	20.0 9	24.3 6	33.2 6	55.8 11	79.3 14	103.0 16	274.0 38	363.0 32	834.0 16
1955	20.0 18	21.7 11	25.7 7	40.0 11	74.3 20	180.0 43	197.0 35	344.0 44	774.0 54	1150.0 43
1956	108.0 62	117.0 55	135.0 52	159.0 53	176.0 48	316.0 57	294.0 44	330.0 42	421.0 38	916.0 21
1957	19.0 16	21.0 10	28.1 10	34.4 7	41.1 5	57.5 5	80.7 9	88.1 4	114.0 1	880.0 27
1958	90.0 55	99.0 46	105.0 42	112.0 38	140.0 40	165.0 36	186.0 34	218.0 30	387.0 33	962.0 26
1959	91.0 56	103.0 47	127.0 50	157.0 52	201.0 51	252.0 50	310.0 47	309.0 40	420.0 37	933.0 23
1960	95.0 57	105.0 48	137.0 54	231.0 65	246.0 61	321.0 58	517.0 61	602.0 60	844.0 59	1270.0 50
1961	102.0 61	108.0 52	120.0 46	124.0 42	138.0 39	163.0 35	182.0 33	217.0 29	276.0 23	361.0 19
1962	50.0 41	53.3 30	60.3 24	76.9 23	107.0 28	118.0 22	153.0 28	170.0 23	235.0 17	655.0 7
1963	32.0 29	37.7 23	44.1 19	49.3 18	67.8 17	39.5 18	93.2 14	113.0 10	160.0 6	506.0 3
1964	16.0 14	16.7 6	19.7 4	20.5 3	25.3 2	44.9 3	53.1 2	63.0 2	119.0 4	423.0 2
1965	15.0 12	18.7 8	26.6 8	44.5 12	52.6 8	65.2 7	72.4 5	79.8 3	116.0 2	329.0 1
1966	28.0 22	32.7 18	37.1 15	46.2 15	65.2 14	70.7 9	79.6 8	137.0 14	280.0 24	708.0 8

ATTACHMENT MM

Fish and Crab Advisories Based on PCB, Dioxin or Chlordane Contamination

Location	Species	Advisory/Prohibition	
		General Population	High Risk Individual[1]
New Jersey Statewide			
Note: local advisories may be more specific for the same species. See below.	American lobsters	do not eat green gland (hepatopancreas)	do not eat green gland (hepatopancreas)
	American eel	do not eat more than once a week	do not eat
	bluefish (over 6 lbs.)	do not eat more than once a week	do not eat
	striped bass*	consumption advisories vary by area; see below	consumption advisories vary by area; see below
Newark Bay Complex			
This complex includes Newark Bay, Hackensack River downstream of Oradell Dam, Arthur Kill, Kill Van Kull, tidal portions of all rivers and streams that feed into these water bodies and	striped bass*	do not eat	do not eat
	American eel*	do not eat more than once a week	do not eat
	blue crab*	do not eat or harvest	do not eat or harvest
	bluefish (over 6 lbs.), white perch and white catfish	do not eat more than once a week	do not eat
Passaic River downstream of Dundee Dam and streams that feed into this section of the river	all fish and shellfish*	do not eat	do not eat
	blue crab*	do not eat or harvest	do not eat or harvest
Hudson River			
Hudson River includes the river downstream of NY-NJ border (about 4 miles above Alpine, NJ) and Upper New York Bay.	American eel*	do not eat more than once a week	do not eat
	striped bass*	do not eat more than once a week	do not eat
	bluefish (over 6 lbs.), white perch and white catfish	do not eat more than once a week	do not eat
	blue crab	do not eat green gland (hepatopancreas)[3]	do not eat green gland (hepatopancreas)[3]
Raritan Bay Complex			
This complex includes the New Jersey portions of Sandy Hook and Raritan bays, the tidal portions of the Raritan River (downstream of the Rte. 1 bridge in New Brunswick) and the tidal portions of all rivers and streams that feed into these water bodies.	striped bass*	do not eat more than once a week	do not eat
	bluefish (over 6 lbs.), white perch and white catfish	do not eat more than once a week	do not eat
	blue crab	do not eat green gland (hepatopancreas)[3]	do not eat green gland (hepatopancreas)[3]
Northern Coastal Waters			
This area includes all coastal waters from Raritan Bay south to the Barnegat Inlet.	striped bass*	do not eat more than once a week	do not eat
Camden Area			
See additional advisories on page 3.			
This area includes Strawbridge Lake, Pennsauken Creek (north and south branches), Cooper River and its drainage, Cooper River Lake, Stewart Lake and Newton Lake.	all fish, shellfish and crustaceans*	do not eat	do not eat
Delaware River & Bay			
NJ is honoring DE and PA advisories. See additional advisories on page 3.			
Delaware River from Yardley, PA to the PA/DE border	American eel	do not eat	do not eat
Delaware River from Yardley, PA (across from Ewing Twp., NJ) south to the Chesapeake and Delaware Canal	channel catfish* white catfish white perch	do not eat	do not eat
Lower Delaware River includes the river between the PA Turnpike Bridge (I-276 bridge) in Burlington Twp. (Burlington County) and Birch Creek in Logan Twp. (Gloucester County) about 2 miles below Commodore Barry Bridge.	channel catfish*	do not eat	do not eat
Delaware River from the DE/PA border south to the Delaware and Chesapeake Canal	striped bass*	do not eat	do not eat
Delaware River from the Chesapeake and Delaware Canal (across from Salem, NJ) south to mouth of the Delaware Bay	striped bass* channel catfish white catfish	do not eat more than five 8-ounce meals per year	do not eat more than three 4-ounce meals per year *Note: This portion size differs from others listed in this brochure.*

* Selling any of these species from designated water bodies is prohibited in New Jersey.

1 High risk individuals include: infants, children under the age of 15, pregnant women, nursing mothers and women of childbearing age. They are advised not to eat any such fish or crabs taken from the designated regions since these contaminants have a greater impact on the developing young.

2 No harvest means no taking or attempting to take any blue crabs from these waters.

3 Interim recommendation based on research showing elevated levels of chemical contaminants in the blue crab hepatopancreas, also called the green gland.

MM