US EPA RECORDS CENTER REGION 5
466274

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: 8-14-86

SUBJECT: Precision and Accuracy of Analyses for Data Set SF 3413
Site: AMERICAN CHEMICAL SERVICE

FROM: Steve Parker,
CRL QC Coordinator

TO: Data User: _____

The Region V Central Regional Laboratory has completed its analyses of 7 (number) WATER (matrix type) samples for the parameters listed on the attached sheet. The discrete values reported on the result forms should be considered to be of the precision and accuracy levels listed.

PRECISION is a measure of reproducibility or the closeness with which individual measurements of the same property, under similar conditions agree with each other. It is expressed as the relative percent difference (RPD) or the absolute concentration difference (R') between duplicate analyses. The limit acceptable at the time of analysis is stated. QC data within these limits indicate that the analysis was in control for that set of data.

ACCURACY is a measure of the closeness of an individual measurement to the expected value. It can be expressed as percent recovery of a known spike or standard concentration, or as percent bias which is the deviation from the true value. The limits applicable at the time of analysis are stated. A 95% confidence interval means that 95% of the time, percent recovery will fall between those limts.

Attachment

TRANSMITTED BY
Griffin
AUG 14 1986
U.S. EPA CENTRAL
REGIONAL LAB

PRECISION AND ACCURACY STATEMENT

Data Set: SF 3413 Matrix: WATER

Site Name: AMERICAN CHEMICAL SERVICE

	PRECISION			ACCURACY		
Parameter	RPD R'	Limit	Method of Quality Control	% Recovery % Bias	Limit	Method of Quality Control
VOA	13 SP 3-10%	≤ 22%	SURROGATES	92-105%	82-115%	SURROGATES

COMMENT:

QC FLAGS:

VOLATILE ORGANIC ANALYSIS DATA SHEET
U.S. EPA - Region V, Central Regional Laboratory

Study Name: AMERICAN CHEMICAL SERVICE
Sample # : 86S501$01

Data Set #: SF-3413
Matrix : WATER

	CAS #	Compounds	Concentration (PPB)	
1.	74-87-3	Chloromethane	10	U
2.	74-83-9	Bromomethane	10	U
3.	75-01-4	Vinyl Chloride	10	U
4.	75-00-3	Chloroethane	1.5	U
5.	75-09-2	Methylene Chloride	1.0	U
6.	107-02-8	Acrolein	100	U
7.	67-64-1	Acetone	75	U
8.	107-37-1	Acrylonitrile	50	U
9.	75-15-0	Carbon Disulfide	3.0	U
10.	75-35-4	1,1-Dichloroethene	1.5	U
11.	75-35-3	1,1-Dichloroethane	1.5	U
12.	156-60-5	trans-1,2-Dichloroethene	1.5	U
13.	67-66-3	Chloroform	1.5	U
14.	78-93-3	2-Butanone	50	U
15.	107-06-2	1,2-Dichloroethane	1.5	U
16.	71-55-6	1,1,1-Trichloroethane	1.5	U
17.	56-23-5	Carbon Tetrachloride	1.5	U
18.	108-05-4	Vinyl Acetate	15	U
19.	75-27-4	Bromodichloromethane	1.5	U
20.	78-87-5	1,2-Dichloropropane	1.5	U
21.	10061-02-6	trans-1,3-Dichloropropene	1.0	U
22.	79-01-6	Trichloroethene	1.5	U
23.	71-43-2	Benzene	1.5	U
24.	124-48-1	Dibromochloromethane	1.5	U
25.	79-00-5	1,1,2-Trichloroethane	1.5	U
26.	10061-01-5	cis-1,3-Dichloropropene	2.0	U
27.	110-75-8	2-Chloroethyl Vinyl Ether	1.5	U
28.	75-25-2	Bromoform	1.5	U
29.	108-10-1	4-Methyl-2-pentanone	3.0	U
30.	519-78-6	2-Hexanone	3.6	U
31.	127-18-4	Tetrachloroethene	1.5	U
32.	79-34-5	1,1,2,2-Tetrachloroethane	1.5	U
33.	108-88-3	Toluene	1.5	U
34.	108-90-7	Chlorobenzene	1.5	U
35.	100-41-4	Ethylbenzene	1.5	U
36.	100-42-5	Styrene	1.0	U
37.	108-38-3	m-Xylene	2.0	U
38.		o/p-Xylene (total)	2.5	U

Data Qualifiers:

U -Compound was analyzed for but not detected. The value reported is the method detection limit for reagent water.

SLC -Suspected Laboratory Contaminant.

SFC -Suspected Field Contaminant.

VOLATILE ORGANIC ANALYSIS DATA SHEET
U.S. EPA - Region V, Central Regional Laboratory

Study Name: AMERICAN CHEMICAL SERVICE
Sample # : 86S501D01

Data Set #: SF-3413
Matrix : WATER

	CAS #	Compounds	Concentration (PPB)	
1.	74-87-3	Chloromethane	10	U
2.	74-83-9	Bromomethane	10	U
3.	75-01-4	Vinyl Chloride	10	U
4.	75-00-3	Chloroethane	1.5	U
5.	75-09-2	Methylene Chloride	1.0	U
6.	107-02-8	Acrolein	100	U
7.	67-64-1	Acetone	75	U
8.	107-37-1	Acrylonitrile	50	U
9.	75-15-0	Carbon Disulfide	3.0	U
10.	75-35-4	1,1-Dichloroethene	1.5	U
11.	75-35-3	1,1-Dichloroethane	1.5	U
12.	156-60-5	trans-1,2-Dichloroethene	1.5	U
13.	67-66-3	Chloroform	1.5	U
14.	78-93-3	2-Butanone	50	U
15.	107-06-2	1,2-Dichloroethane	1.5	U
16.	71-55-6	1,1,1-Trichloroethane	1.5	U
17.	56-23-5	Carbon Tetrachloride	1.5	U
18.	108-05-4	Vinyl Acetate	15	U
19.	75-27-4	Bromodichloromethane	1.5	U
20.	78-87-5	1,2-Dichloropropane	1.5	U
21.	10061-02-6	trans-1,3-Dichloropropene	1.0	U
22.	79-01-6	Trichloroethene	1.5	U
23.	71-43-2	Benzene	1.5	U
24.	124-48-1	Dibromochloromethane	1.5	U
25.	79-00-5	1,1,2-Trichloroethane	1.5	U
26.	10061-01-5	cis-1,3-Dichloropropene	2.0	U
27.	110-75-8	2-Chloroethyl Vinyl Ether	1.5	U
28.	75-25-2	Bromoform	1.5	U
29.	108-10-1	4-Methyl-2-pentanone	3.0	U
30.	519-78-6	2-Hexanone	3.6	U
31.	127-18-4	Tetrachloroethene	1.5	U
32.	79-34-5	1,1,2,2-Tetrachloroethane	1.5	U
33.	108-88-3	Toluene	1.5	U
34.	108-90-7	Chlorobenzene	1.5	U
35.	100-41-4	Ethylbenzene	1.5	U
36.	100-42-5	Styrene	1.0	U
37.	108-38-3	m-Xylene	2.0	U
38.		o/p-Xylene (total)	2.5	U

Data Qualifiers:

U -Compound was analyzed for but not detected. The value reported is the method detection limit for reagent water.

SLC -Suspected Laboratory Contaminant.

SFC -Suspected Field Contaminant.

VOLATILE ORGANIC ANALYSIS ~~DATA SHEET~~
U.S. EPA - Region V, Central Regional Laboratory

Study Name: AMERICAN CHEMICAL SERVICE
Sample # : 86S501$02

Data Set #: SF-3413
Matrix : WATER

	CAS #	Compounds	Concentration (PPB)	
1.	74-87-3	Chloromethane	10	U
2.	74-83-9	Bromomethane	10	U
3.	75-01-4	Vinyl Chloride	10	U
4.	75-00-3	Chloroethane	1.5	U
5.	75-09-2	Methylene Chloride	1.0	U
6.	107-02-8	Acrolein	100	U
7.	67-64-1	Acetone	75	U
8.	107-37-1	Acrylonitrile	50	U
9.	75-15-0	Carbon Disulfide	3.0	U
10.	75-35-4	1,1-Dichloroethene	1.5	U
11.	75-35-3	1,1-Dichloroethane	1.5	U
12.	156-60-5	trans-1,2-Dichloroethene	1.5	U
13.	67-66-3	Chloroform	1.5	U
14.	78-93-3	2-Butanone	50	U
15.	107-06-2	1,2-Dichloroethane	1.5	U
16.	71-55-6	1,1,1-Trichloroethane	1.5	U
17.	56-23-5	Carbon Tetrachloride	1.5	U
18.	108-05-4	Vinyl Acetate	15	U
19.	75-27-4	Bromodichloromethane	1.5	U
20.	78-87-5	1,2-Dichloropropane	1.5	U
21.	10061-02-6	trans-1,3-Dichloropropene	1.0	U
22.	79-01-6	Trichloroethene	1.5	U
23.	71-43-2	Benzene	1.5	U
24.	124-48-1	Dibromochloromethane	1.5	U
25.	79-00-5	1,1,2-Trichloroethane	1.5	U
26.	10061-01-5	cis-1,3-Dichloropropene	2.0	U
27.	110-75-8	2-Chloroethyl Vinyl Ether	1.5	U
28.	75-25-2	Bromoform	1.5	U
29.	108-10-1	4-Methyl-2-pentanone	3.0	U
30.	519-78-6	2-Hexanone	3.6	U
31.	127-18-4	Tetrachloroethene	1.5	U
32.	79-34-5	1,1,2,2-Tetrachloroethane	1.5	U
33.	108-88-3	Toluene	1.5	U
34.	108-90-7	Chlorobenzene	1.5	U
35.	100-41-4	Ethylbenzene	1.5	U
36.	100-42-5	Styrene	1.0	U
37.	108-38-3	m-Xylene	2.0	U
38.		o/p-Xylene (total)	2.5	U

Data Qualifiers:

U -Compound was analyzed for but not detected. The value reported is the method detection limit for reagent water.

SLC -Suspected Laboratory Contaminant.

SFC -Suspected Field Contaminant.

VOLATILE ORGANIC ANALYSIS DATA SHEET
U.S. EPA - Region V, Central Regional Laboratory

Study Name: AMERICAN CHEMICAL SERVICE
Sample # : 86S501$03

Data Set #: SF-3413
Matrix : WATER

	CAS #	Compounds	Concentration (PPB)	
1.	74-87-3	Chloromethane	10	U
2.	74-83-9	Bromomethane	10	U
3.	75-01-4	Vinyl Chloride	10	U
4.	75-00-3	Chloroethane	1.5	U
5.	75-09-2	Methylene Chloride	1.0	U
6.	107-02-8	Acrolein	100	U
7.	67-64-1	Acetone	75	U
8.	107-37-1	Acrylonitrile	50	U
9.	75-15-0	Carbon Disulfide	3.0	U
10.	75-35-4	1,1-Dichloroethene	1.5	U
11.	75-35-3	1,1-Dichloroethane	1.5	U
12.	156-60-5	trans-1,2-Dichloroethene	1.5	U
13.	67-66-3	Chloroform	1.5	U
14.	78-93-3	2-Butanone	50	U
15.	107-06-2	1,2-Dichloroethane	1.5	U
16.	71-55-6	1,1,1-Trichloroethane	1.5	U
17.	56-23-5	Carbon Tetrachloride	1.5	U
18.	108-05-4	Vinyl Acetate	15	U
19.	75-27-4	Bromodichloromethane	1.5	U
20.	78-87-5	1,2-Dichloropropane	1.5	U
21.	10061-02-6	trans-1,3-Dichloropropene	1.0	U
22.	79-01-6	Trichloroethene	1.5	U
23.	71-43-2	Benzene	1.5	U
24.	124-48-1	Dibromochloromethane	1.5	U
25.	79-00-5	1,1,2-Trichloroethane	1.5	U
26.	10061-01-5	cis-1,3-Dichloropropene	2.0	U
27.	110-75-8	2-Chloroethyl Vinyl Ether	1.5	U
28.	75-25-2	Bromoform	1.5	U
29.	108-10-1	4-Methyl-2-pentanone	3.0	U
30.	519-78-6	2-Hexanone	3.6	U
31.	127-18-4	Tetrachloroethene	1.5	U
32.	79-34-5	1,1,2,2-Tetrachloroethane	1.5	U
33.	108-88-3	Toluene	1.5	U
34.	108-90-7	Chlorobenzene	1.5	U
35.	100-41-4	Ethylbenzene	1.5	U
36.	100-42-5	Styrene	1.0	U
37.	108-38-3	m-Xylene	2.0	U
38.		o/p-Xylene (total)	2.5	U

Data Qualifiers:

U -Compound was analyzed for but not detected. The value reported is the method detection limit for reagent water.

SLC -Suspected Laboratory Contaminant.

SFC -Suspected Field Contaminant.

VOLATILE ORGANIC ANALYSIS DATA SHEET
U.S. EPA - Region V, Central Regional Laboratory

Study Name: AMERICAN CHEMICAL SERVICE
Sample # : 86S501$04

Data Set #: SF-3413
Matrix : WATER

	CAS #	Compounds	Concentration (PPB)	
1.	74-87-3	Chloromethane	10	U
2.	74-83-9	Bromomethane	10	U
3.	75-01-4	Vinyl Chloride	10	U
4.	75-00-3	Chloroethane	1.5	U
5.	75-09-2	Methylene Chloride	1.0	U
6.	107-02-8	Acrolein	100	U
7.	67-64-1	Acetone	75	U
8.	107-37-1	Acrylonitrile	50	U
9.	75-15-0	Carbon Disulfide	3.0	U
10.	75-35-4	1,1-Dichloroethene	1.5	U
11.	75-35-3	1,1-Dichloroethane	1.5	U
12.	156-60-5	trans-1,2-Dichloroethene	1.5	U
13.	67-66-3	Chloroform	1.5	U
14.	78-93-3	2-Butanone	50	U
15.	107-06-2	1,2-Dichloroethane	1.5	U
16.	71-55-6	1,1,1-Trichloroethane	1.5	U
17.	56-23-5	Carbon Tetrachloride	1.5	U
18.	108-05-4	Vinyl Acetate	15	U
19.	75-27-4	Bromodichloromethane	1.5	U
20.	78-87-5	1,2-Dichloropropane	1.5	U
21.	10061-02-6	trans-1,3-Dichloropropene	1.0	U
22.	79-01-6	Trichloroethene	1.5	U
23.	71-43-2	Benzene	1.5	U
24.	124-48-1	Dibromochloromethane	1.5	U
25.	79-00-5	1,1,2-Trichloroethane	1.5	U
26.	10061-01-5	cis-1,3-Dichloropropene	2.0	U
27.	110-75-8	2-Chloroethyl Vinyl Ether	1.5	U
28.	75-25-2	Bromoform	1.5	U
29.	108-10-1	4-Methyl-2-pentanone	3.0	U
30.	519-78-6	2-Hexanone	3.6	U
31.	127-18-4	Tetrachloroethene	1.5	U
32.	79-34-5	1,1,2,2-Tetrachloroethane	1.5	U
33.	108-88-3	Toluene	1.5	U
34.	108-90-7	Chlorobenzene	1.5	U
35.	100-41-4	Ethylbenzene	1.5	U
36.	100-42-5	Styrene	1.0	U
37.	108-38-3	m-Xylene	2.0	U
38.		o/p-Xylene (total)	2.5	U

Data Qualifiers:

U -Compound was analyzed for but not detected. The value reported is the method detection limit for reagent water.

SLC -Suspected Laboratory Contaminant.

SFC -Suspected Field Contaminant.

VOLATILE ORGANIC ANALYSIS DATA SHEET
U.S. EPA - Region V, Central Regional Laboratory

Study Name: AMERICAN CHEMICAL SERVICE
Sample # : 86S501$05

Data Set #: SF-3413
Matrix : WATER

	CAS #	Compounds	Concentration (PPB)	
1.	74-87-3	Chloromethane	10	U
2.	74-83-9	Bromomethane	10	U
3.	75-01-4	Vinyl Chloride	10	U
4.	75-00-3	Chloroethane	1.5	U
5.	75-09-2	Methylene Chloride	1.0	U
6.	107-02-8	Acrolein	100	U
7.	67-64-1	Acetone	75	U
8.	107-37-1	Acrylonitrile	50	U
9.	75-15-0	Carbon Disulfide	3.0	U
10.	75-35-4	1,1-Dichloroethene	1.5	U
11.	75-35-3	1,1-Dichloroethane	1.5	U
12.	156-60-5	trans-1,2-Dichloroethene	1.5	U
13.	67-66-3	Chloroform	1.5	U
14.	78-93-3	2-Butanone	50	U
15.	107-06-2	1,2-Dichloroethane	1.5	U
16.	71-55-6	1,1,1-Trichloroethane	1.5	U
17.	56-23-5	Carbon Tetrachloride	1.5	U
18.	108-05-4	Vinyl Acetate	15	U
19.	75-27-4	Bromodichloromethane	1.5	U
20.	78-87-5	1,2-Dichloropropane	1.5	U
21.	10061-02-6	trans-1,3-Dichloropropene	1.0	U
22.	79-01-6	Trichloroethene	1.5	U
23.	71-43-2	Benzene	1.5	U
24.	124-48-1	Dibromochloromethane	1.5	U
25.	79-00-5	1,1,2-Trichloroethane	1.5	U
26.	10061-01-5	cis-1,3-Dichloropropene	2.0	U
27.	110-75-8	2-Chloroethyl Vinyl Ether	1.5	U
28.	75-25-2	Bromoform	1.5	U
29.	108-10-1	4-Methyl-2-pentanone	3.0	U
30.	519-78-6	2-Hexanone	3.6	U
31.	127-18-4	Tetrachloroethene	1.5	U
32.	79-34-5	1,1,2,2-Tetrachloroethane	1.5	U
33.	108-88-3	Toluene	1.5	U
34.	108-90-7	Chlorobenzene	1.5	U
35.	100-41-4	Ethylbenzene	1.5	U
36.	100-42-5	Styrene	1.0	U
37.	108-38-3	m-Xylene	2.0	U
38.		o/p-Xylene (total)	2.5	U

Data Qualifiers:

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SLC -Suspected Laboratory Contaminant.

SFC -Suspected Field Contaminant.

VOLATILE ORGANIC ANALYSIS DATA SHEET
U.S. EPA - Region V, Central Regional Laboratory

Study Name: AMERICAN CHEMICAL SERVICE
Sample # : 86S501$05

Data Set #: SF-3413
Matrix : WATER

TENTATIVELY IDENTIFIED COMPOUNDS	ESTIMATED CONC.(PPB)
2-PROPANOL	11

VOLATILE ORGANIC ANALYSIS DATA SHEET
U.S. EPA - Region V, Central Regional Laboratory

Study Name: AMERICAN CHEMICAL SERVICE
Sample # : 86S501R01

Data Set #: SF-3413
Matrix : WATER

	CAS #	Compounds	Concentration (PPB)	
1.	74-87-3	Chloromethane	10	U
2.	74-83-9	Bromomethane	10	U
3.	75-01-4	Vinyl Chloride	10	U
4.	75-00-3	Chloroethane	1.5	U
5.	75-09-2	Methylene Chloride	1.0	U
6.	107-02-8	Acrolein	100	U
7.	67-64-1	Acetone	75	U
8.	107-37-1	Acrylonitrile	50	U
9.	75-15-0	Carbon Disulfide	3.0	U
10.	75-35-4	1,1-Dichloroethene	1.5	U
11.	75-35-3	1,1-Dichloroethane	1.5	U
12.	156-60-5	trans-1,2-Dichloroethene	1.5	U
13.	67-66-3	Chloroform	1.5	U
14.	78-93-3	2-Butanone	50	U
15.	107-06-2	1,2-Dichloroethane	1.5	U
16.	71-55-6	1,1,1-Trichloroethane	2.9	SFC
17.	56-23-5	Carbon Tetrachloride	1.5	U
18.	108-05-4	Vinyl Acetate	15	U
19.	75-27-4	Bromodichloromethane	1.5	U
20.	78-87-5	1,2-Dichloropropane	1.5	U
21.	10061-02-6	trans-1,3-Dichloropropene	1.0	U
22.	79-01-6	Trichloroethene	1.5	U
23.	71-43-2	Benzene	1.5	U
24.	124-48-1	Dibromochloromethane	1.5	U
25.	79-00-5	1,1,2-Trichloroethane	1.5	U
26.	10061-01-5	cis-1,3-Dichloropropene	2.0	U
27.	110-75-8	2-Chloroethyl Vinyl Ether	1.5	U
28.	75-25-2	Bromoform	1.5	U
29.	108-10-1	4-Methyl-2-pentanone	3.0	U
30.	519-78-6	2-Hexanone	3.6	U
31.	127-18-4	Tetrachloroethene	1.5	U
32.	79-34-5	1,1,2,2-Tetrachloroethane	1.5	U
33.	108-88-3	Toluene	1.5	U
34.	108-90-7	Chlorobenzene	1.5	U
35.	100-41-4	Ethylbenzene	1.5	U
36.	100-42-5	Styrene	1.0	U
37.	108-38-3	m-Xylene	2.0	U
38.		o/p-Xylene (total)	2.5	U

8/14/86

Data Qualifiers:
U -Compound was analyzed for but not detected. The value reported is the method detection limit for reagent water.
SLC -Suspected Laboratory Contaminant.
SFC -Suspected Field Contaminant.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: 8-20-86

SUBJECT: Precision and Accuracy of Analyses for Data Set SF 3413
Site: AMERICAN CHEMICAL SERVICE

FROM: Steve Parker,
CRL QC Coordinator

TO: Data User: Karen Waldvogel

The Region V Central Regional Laboratory has completed its analyses of 14 (number) WATER (matrix type) samples for the parameters listed on the attached sheet. The discrete values reported on the result forms should be considered to be of the precision and accuracy levels listed.

PRECISION is a measure of reproducibility or the closeness with which individual measurements of the same property, under similar conditions agree with each other. It is expressed as the relative percent difference (RPD) or the absolute concentration difference (R') between duplicate analyses. The limit acceptable at the time of analysis is stated. QC data within these limits indicate that the analysis was in control for that set of data.

ACCURACY is a measure of the closeness of an individual measurement to the expected value. It can be expressed as percent recovery of a known spike or standard concentration, or as percent bias which is the deviation from the true value. The limits applicable at the time of analysis are stated. A 95% confidence interval means that 95% of the time, percent recovery will fall between those limts.

Attachment

TRANSMITTED BY
AUG 20 1986

U.S. EPA CENTRAL
REGIONAL LAB

PRECISION AND ACCURACY STATEMENT

Data Set: SF 3413 Matrix: WATER

Site Name: AMERICAN CHEMICAL SERVICE

	PRECISION			ACCURACY		
Parameter	RPD R'	Limit	Method of Quality Control	% Recovery % Bias	Limit	Method of Quality Control
CN	1.4 µg/L	≤5 µg/L	DUPLICATE CONTROL	113 - 120%	75-125%	CONTROL STANDARDS
Hg	0.05 µg/L	<0.1 µg/L	"	113%	85-115%	SPIKED SAMPLE

COMMENT:

QC FLAGS:

American Chemical Service IND-016-360-165

American Chemical Service
IND-016-360-165
all be pan - PP &
ACTIVITY# C41100

8/18/86

SUPERFUND

ENVIRONMENTAL PROTECTION AGENCY
FOR THE TEAM: MINERALS - NUTRIENTS

DIVISION/BRANCH WMD: SHE-12 SAMPLE DATE 8/5/86 LAB ARRIVAL DATE 8/6/86 DUE DATE 8/27/86

DU NUMBER Y306 DATA SET NUMBER 3413 STUDY _____ PRIORITY N CONTRACTOR N

CRL LOG NUMBER	SAMPLE DESCRIPTION	WATER PHENOLICS UG PHENOL/L MIN 74818	WATER CYANIDE UG CN/L MIN 74919	WATER GROSS ALPHA P CI/L MIN 76020	WATER CR^{+6} UG CR^{+6}/L MIN 74816	WATER MERCURY UG HG/L MIN 74717
865501S01	5-61561		✓ K 5 *			
865501D01	5-61581		✓ K 5 *			
865501R01	5-61585		✓ K 5 *			
865501S02	5-61553		✓ K 5 *			
865501S03	5-61609		✓ K 5 *			
865501S04	5-61597		✓ K 5 *			
865501S05	5-61601		✓ K 5 *			
865501S01	5-61560					✓ K0.1
865501D01	5-61580		* SCREENED	USING AUTO-UV		✓ K0.1
865501R01	5-61584		METHOD #	335.3		✓ K0.1
865501S02	5-61551		R.G. Pano			✓ K0.1
865501S03	5-61608		8-7-86			✓ K0.1
865501S04	5-61596					✓ K0.1
865501S05	5-61600					✓ K0.1
						PP - ice 8/14/86

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

ESD/Central Regional Laboratory
DATA TRACKING FORM FOR CONTRACT SAMPLES

~~CRL Data Set No.~~ SF 3413 CERCLIS No. _____

SMO Case No. _____ Site Name and Location: American Chemical Service

Name of Contractor or EPA Laboratory: CRL Data User: Karen Wallvogel

No. of Samples: 14 Date Samples or Data Received: 8-20-86

1. Have chain-of-custody records been received? YES ✓ NO ____
2. Have Traffic Reports or packing lists been received? YES ____ NO ____
3. If no, are Traffic Report or packing list numbers written on the chain-of-custody record? YES ____ NO ____
4. If no, which Traffic report or packing list numbers are missing?

Are basic data forms in? YES ✓ NO ____

Number of samples claimed: 14 Number of samples received: 14

Checked by: Sylvia Griffin Date: 8-20-86

Received by Contract Project Management Section: _____ Date: _____

Review Started: _____ Reviewer Signature: _____

Total time spent on review: _____ Date review completed: _____

Copied (xeroxed) by: _____ Date: _____

Mailed to Data User by: Sylvia Griffin Date: 8-20-86

DATA USERS: CN, Hg

Please fill in the blanks below and return this form to: Sylvia Griffin, Data Management Coordinator, Region V, 5SCRL

Data received by: _____ Date: _____

Q.A. review received by: _____ Date: _____

Inorganic Data Complete [ ], Suitable for Intended Purposes [ ] ✓ [ ] if acceptable.
Organic Data Complete [ ], Suitable for Intended Purposes [ ] List problems below.
Dioxin Data Complete [ ], Suitable for Intended Purposes [ ]
SAS Data Complete [ ], Suitable for Intended Purposes [ ]

See Attached "Missing Data Request Form" [ ]
PROBLEMS: Please indicate reasons (if any) why data are not suitable for your uses. Other problems.

Received by Data Management Coordinator, CRL for File: Date: _____

Signature: _____

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: 9-9-86

SUBJECT: Precision and Accuracy of Analyses for Data Set SF 3413
Site: AMERICAN CHEMICAL SERVICE

FROM: Steve Parker,
CRL QC Coordinator

TO: Data User: Karen Waldvogel

The Region V Central Regional Laboratory has completed its analyses of 7 (number) WATER (matrix type) samples for the parameters listed on the attached sheet. The discrete values reported on the result forms should be considered to be of the precision and accuracy levels listed.

PRECISION is a measure of reproducibility or the closeness with which individual measurements of the same property, under similar conditions agree with each other. It is expressed as the relative percent difference (RPD) or the absolute concentration difference (R') between duplicate analyses. The limit acceptable at the time of analysis is stated. QC data within these limits indicate that the analysis was in control for that set of data.

ACCURACY is a measure of the closeness of an individual measurement to the expected value. It can be expressed as percent recovery of a known spike or standard concentration, or as percent bias which is the deviation from the true value. The limits applicable at the time of analysis are stated. A 95% confidence interval means that 95% of the time, percent recovery will fall between those limts.

Attachment

TRANSMITTED BY
Griffin
SEP 10 1986

U.S. EPA CENTRAL
REGIONAL LAB

PRECISION AND ACCURACY STATEMENT

Data Set: SF 3413 Matrix: WATER

Site Name: AMERICAN CHEMICAL SERVICE

	PRECISION			ACCURACY		
Parameter	RPD R	Limit	Method of Quality Control	% Recovery % Bias	Limit	Method of Quality Control
As	0.2 µg/L	≤4µg/L	CONTROL STDs	93-94%	90-110%	CONTROL STD
Pb	1.2 µg/L	≤4µg/L	"	98-108%	"	"
Sb	1.6 µg/L	"	"	98-104%	"	"
Se	1.0 µg/L	≤2µg/L	"	91-100%	"	"
Cd	0.00 µg/L	≤0.2µg/L	"	99-100%	"	"

COMMENT:

QC FLAGS:

1

~~6TGB05 WUU7~~
6TGB05WUU7

American Chemical Service
IND-016-360-165
ACTIVITY # ~~C41100~~ C411J7

9/4/86 AJ
JM 9/9/86

ENVIRONMENTAL PROTECTION AGENCY
FOR THE TEAM: METALS

SUPERFUND

DIVISION/BRANCH WMD: SHE-12 SAMPLE DATE 8/5/86 LAB ARRIVAL DATE 8/6/86 DUE DATE 8/27/86

DU NUMBER Y306 DATA SET NUMBER 3413 STUDY _____ PRIORITY N CONTRACTOR N

CRL LOG NUMBER	SAMPLE DESCRIPTION	TOTAL METALS WATER TOTAL ICAP UG/L MET111	TOTAL METALS WATER AS UG/L MET181	TOTAL METALS WATER PB UG/L MET1191	TOTAL METALS WATER SB UG/L MET1201	TOTAL METALS WATER SE UG/L MET1211	TOTAL METALS WATER TL UG/L MET1221
865[redacted]01S01	5-61559	✓	✓ <2	✓ <2 JM 8/20/86	✓ <2	✓ <2	
865[redacted]01 D01	5-61579	✓	✓ <2	✓ <2 JM 8/26	✓ <2	✓ <2	
865[redacted]01 R01	5-61583	✓	✓ <2	✓ <2 JM 8/26	✓ <2	✓ <2	
865[redacted]01 S02	5-61552	✓	✓ <2	✓ <2 JM ~~<2 HMR 8/28/86~~	✓ <2	✓ <2	
865[redacted]01 S03	5-61607	✓	✓ <2	✓ <2 JM 8/26	✓ <2	✓ <2	
865[redacted]01 S04	5-61595	✓	✓ <2	✓ <2 JM 8/26	✓ <2	✓ <2	
865[redacted]01 S05	5-61599	✓	✓ <2	✓ <2 JM 8/26	✓ <2	✓ <2	
			PM 8-29-86		8-19-86 P.M.	8-26-86 PM	
			MS 8-29-86				

For Sample to CRL

6TG305WUJ7 · 9/4/86
C41N7

JVM 359 9/9/86

ENVIRONMENTAL PROTECTION AGENCY
FOR THE TEAM: METALS

DIVISION/BRANCH SF - Enforcement SAMPLING DATE 8/5/86 LAB ARRIVAL DATE 8/6/86 DUE DATE 8/27/86

DU NUMBER Y306 DATASET NUMBER 3413 STUDY American Chemical Service PRIORITY N CONTRACTOR N

CRL LOG NUMBER	SAMPLE DESCRIPTION	TOTAL METALS IN WATER TOTAL ICAP UG/L MET111	TOTAL METALS IN WATER AS UG/L MET161	TOTAL METALS IN WATER CD UG/L MET181	TOTAL METALS IN WATER CR UG/L MET1101	TOTAL METALS IN WATER PB UG/L MET1191
86550150 1	5-61559			✓ <0.1		
865501D01	5-61579			✓ <0.1		
865501R01	5-61583			✓ <0.1		
865501502	5-61552			✓ <0.1		
865501503	5-61607			✓ <0.1		
865501504	5-61595			✓ <0.1		
865501505	5-61599			✓ <0.1		
				I.L		
				8.22.86.		

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

ESD/Central Regional Laboratory
DATA TRACKING FORM FOR CONTRACT SAMPLES

CRL Data Set No. SF 3413 CERCLIS No. IND-016-360-165

SMO Case No. — Site Name and Location: American Chemical Services

Name of Contractor or EPA Laboratory: CRL Data User: Karen Waldvogel

No. of Samples: 7 Date Samples or Data Received: 9-10-86

1. Have chain-of-custody records been received? YES ✓ NO___
2. Have Traffic Reports or packing lists been received? YES ✓ NO___
3. If no, are Traffic Report or packing list numbers written on the chain-of-custody record? YES___ NO___
4. If no, which Traffic report or packing list numbers are missing?

Are basic data forms in? YES ✓ NO___

Number of samples claimed: 7 Number of samples received: 7

Checked by: Sylvia Griffin Date: 9-10-86

Received by Contract Project Management Section: _____ Date: _____

Review Started: _____ Reviewer Signature: _____

Total time spent on review: _____ Date review completed: _____

Copied (xeroxed) by: _____ Date: _____

Mailed to Data User by: Sylvia Griffin Date: 9-10-86

DATA USERS: ICAP METALS

Please fill in the blanks below and return this form to: Sylvia Griffin, Data Management Coordinator, Region V, 5SCRL

Data received by: _____ Date: _____

Q.A. review received by: _____ Date: _____

Inorganic Data Complete [ ], Suitable for Intended Purposes [ ] ✓ [ ] if acceptable.
Organic Data Complete [ ], Suitable for Intended Purposes [ ] List problems below.
Dioxin Data Complete [ ], Suitable for Intended Purposes [ ]
SAS Data Complete [ ], Suitable for Intended Purposes [ ]

See Attached "Missing Data Request Form" [ ]
PROBLEMS: Please indicate reasons (if any) why data are not suitable for your uses. Other problems.

Received by Data Management Coordinator, CRL for File: Date: _____

Signature: _____

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

ESD/Central Regional Laboratory
DATA TRACKING FORM FOR CONTRACT SAMPLES

CRL Data Set No. SF 3413 CERCLIS No. IND-016-360-165

SMO Case No. — Site Name and Location: American Chemical Service

Name of Contractor or EPA Laboratory: CRL Data User: Karen Waldvogel

No. of Samples: 7 Date Samples or Data Received: 9-10-86

1. Have chain-of-custody records been received? YES ✓ NO ___
2. Have Traffic Reports or packing lists been received? YES ✓ NO ___
3. If no, are Traffic Report or packing list numbers written on the chain-of-custody record? YES ___ NO ___
4. If no, which Traffic report or packing list numbers are missing?

Are basic data forms in? YES ✓ NO ___

Number of samples claimed: 7 Number of samples received: 7

Checked by: Sylvia Griffin Date: 9-10-86

Received by Contract Project Management Section: ___ Date: ___

Review Started: ___ Reviewer Signature: ___

Total time spent on review: ___ Date review completed: ___

Copied (xeroxed) by: ___ Date: ___

Mailed to Data User by: Sylvia Griffin Date: 9-10-86

DATA USERS: Nitrates/Ammonia

Please fill in the blanks below and return this form to: Sylvia Griffin, Data Management Coordinator, Region V, 5SCRL

Data received by: ___ Date: ___

Q.A. review received by: ___ Date: ___

Inorganic Data Complete [ ], Suitable for Intended Purposes [ ] ✓ [ ] if acceptable.
Organic Data Complete [ ], Suitable for Intended Purposes [ ] List problems below.
Dioxin Data Complete [ ], Suitable for Intended Purposes [ ]
SAS Data Complete [ ], Suitable for Intended Purposes [ ]

See Attached "Missing Data Request Form" [ ]
PROBLEMS: Please indicate reasons (if any) why data are not suitable for your uses. Other problems.

Received by Data Management Coordinator, CRL for File: Date: ___

Signature: ___

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: 9-10-86

SUBJECT: Precision and Accuracy of Analyses for Data Set SF 3413
Site: AMERICAN CHEMICAL SERVICE

FROM: Steve Parker,
CRL QC Coordinator

TO: Data User: Karen Waldvogel

The Region V Central Regional Laboratory has completed its analyses of 2 (number) WATER (matrix type) samples for the parameters listed on the attached sheet. The discrete values reported on the result forms should be considered to be of the precision and accuracy levels listed.

PRECISION is a measure of reproducibility or the closeness with which individual measurements of the same property, under similar conditions agree with each other. It is expressed as the relative percent difference (RPD) or the absolute concentration difference (R') between duplicate analyses. The limit acceptable at the time of analysis is stated. QC data within these limits indicate that the analysis was in control for that set of data.

ACCURACY is a measure of the closeness of an individual measurement to the expected value. It can be expressed as percent recovery of a known spike or standard concentration, or as percent bias which is the deviation from the true value. The limits applicable at the time of analysis are stated. A 95% confidence interval means that 95% of the time, percent recovery will fall between those limts.

Attachment

TRANSMITTED BY
Griffin
SEP 11 1986
U.S. EPA CENTRAL
REGIONAL LAB

PRECISION AND ACCURACY STATEMENT

Data Set: SF 3413 Matrix: WATER

Site Name: AMERICAN CHEMICAL SERVICE

	PRECISION			ACCURACY		
Parameter	RPD R'	Limit	Method of Quality Control	% Recovery % Bias	Limit	Method of Quality Control
ABN ACID FRACTION	1-12%	≤ 35%	SURROGATE SPIKES	36-101	10-107%	SURROGATE SPIKES
ABN BASE NEUTRAL	4-15%	"	"	45-107	25-122%	"

COMMENT:

QC FLAGS:

SEMIVOLATILES ORGANIC ANALYSIS DATA SHEET

STUDY NAME: AM. CHEM. SERVICE STUDY NUMBER: SF-3413

LAB SAMPLE I.D. NO: 86S501D01 ACTIVITY CODE: C41100

	CAS #	COMPOUND	CONCENTRATION (UG/L)	
1.	111-44-4	BIS(2-CHLOROETHYL)ETHER	1.5	U
2.	108-95-2	PHENOL	2.0	U
3.	95-57-8	2-CHLOROPHENOL	2.0	U
4.	541-73-1	1,3-DICHLOROBENZENE	2.0	U
5.	106-46-7	1,4-DICHLOROBENZENE	2.0	U
6.	95-50-1	1,2-DICHLOROBENZENE	2.5	U
7.	100-51-6	BENZYL ALCOHOL	2.0	U
8.	39638-32-9	BIS(2-CHLOROISOPROPYL)ETHER	2.5	U
9.	95-48-7	2-METHYLPHENOL	1.0	U
10.	67-72-1	HEXACHLOROETHANE	2.0	U
11.	621-64-7	N-NITROSODIPROPYLAMINE	1.5	U
12.	98-95-3	NITROBENZENE	2.5	U
13.	106-44-5	4-METHYLPHENOL	1.0	U
14.	78-59-1	ISOPHORONE	2.5	U
15.	88-75-5	2-NITROPHENOL	2.0	U
16.	105-67-9	2,4-DIMETHYLPHENOL	2.0	U
17.	111-91-1	BIS(2-CHLOROETHOXY)METHANE	2.5	U
18.	120-83-2	2,4-DICHLOROPHENOL	2.0	U
19.	120-82-1	1,2,4-TRICHLOROBENZENE	2.0	U
20.	91-20-3	NAPHTHALENE	2.0	U
21.	106-47-8	4-CHLOROANILINE	2.0	U
22.	87-68-3	HEXACHLOROBUTADIENE	2.5	U
23.	65-85-0	BENZOIC ACID	(30)	U
24.	91-57-6	2-METHYLNAPHTHALENE	2.0	U
25.	59-50-7	4-CHLORO-3-CRESOL	1.5	U
26.	77-47-4	HEXACHLOROCYCLOPENTADIENE	2.0	U
27.	88-06-2	2,4,6-TRICHLOROPHENOL	1.5	U
28.	95-95-4	2,4,5-TRICHLOROPHENOL	1.5	U
29.	91-58-7	2-CHLORONAPHTHALENE	1.5	U
30.	208-96-8	ACENAPHTHYLENE	1.5	U
31.	131-11-3	DIMETHYL PHTHALATE	1.5	U
32.	606-20-2	2,6-DINITROTOLUENE	1.0	U
33.	83-32-9	ACENAPHTHENE	1.5	U
34.	99-09-2	3-NITROANILINE	2.5	U
35.	132-64-9	DIBENZOFURAN	1.0	U

STUDY NAME: AM. CHEM. SERVICE STUDY NUMBER: SF-3413

LAB SAMPLE I.D. NO: 86S501D01 ACTIVITY CODE: C41100

	CAS #	COMPOUND	CONCENTRATION (UG/L)	
36.	51-28-5	2,4-DINITROPHENOL	(15)	U
37.	121-14-2	2,4-DINITROTOLUENE	1.0	U
38.	86-73-7	FLUORENE	1.0	U
39.	100-02-7	4-NITROPHENOL	1.5	U
40.	7005-72-3	4-CHLOROPHENYLPHENYL ETHER	1.0	U
41.	84-66-2	DIETHYL PHTHALATE	1.0	U
42.	534-52-1	4,6-DINITRO-2-METHYLPHENOL	(15)	U
43.	86-30-6	N-NITROSODIPHENYLAMINE *	1.5	U
	122-39-4	DIPHENYLAMINE *		
44.	100-01-6	4-NITROANILINE	3.0	U
45.	101-55-3	4-BROMOPHENYLPHENYL ETHER	1.5	U
46.	118-74-1	HEXACHLOROBENZENE	1.5	U
47.	87-86-5	PENTACHLOROPHENOL	2.0	U
48.	85-01-8	PHENANTHRENE	1.0	U
49.	120-12-7	ANTHRACENE	2.5	U
50.	84-74-2	DI-N-BUTYL PHTHALATE	2.0	U
51.	206-44-0	FLUORANTHENE	1.5	U
52.	129-00-0	PYRENE	1.5	U
53.	85-68-7	BUTYLBENZYL PHTHALATE	3.5	U
54.	218-01-9	CHRYSENE **	1.5	U
55.	56-55-3	BENZO(A)ANTHRACENE **		
56.	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE		26 SLC
57.	117-84-0	DI-N-OCTYL PHTHALATE	1.5	U
58.	205-99-2	BENZO(B)FLUORANTHENE ***	1.5	U
59.	207-08-9	BENZO(K)FLUORANTHENE ***		
60.	50-32-8	BENZO(A)PYRENE	2.0	U
61.	193-39-5	INDENO(1,2,3-CD)PYRENE	3.5	U
62.	53-70-3	DIBENZO(A,H)ANTHRACENE	2.5	U
63.	191-24-2	BENZO(GHI)PERYLENE	4.0	U
64.	88-74-4	2-NITROANILINE	1.0	U

CODES: U --- COMPOUND WAS ANALYZED FOR, BUT NOT DETECTED. THE VALUE REPORTED IS THE METHOD DETECTION LIMIT FOR REAGENT WATER.
SLC - SUSPECTED LABORATORY CONTAMINANT
SFC - SUSPECTED FIELD CONTAMINANT

* THESE TWO PARAMETERS ARE REPORTED AS A TOTAL.
** THESE TWO PARAMETERS ARE REPORTED AS A TOTAL.
*** THESE TWO PARAMETERS ARE REPORTED AS A TOTAL.

VALUES IN PARENTHESES ARE ESTIMATES. ACTUAL VALUES ARE BEING DETERMINED AT THIS TIME.

SEMIVOLATILES ORGANIC ANALYSIS DATA SHEET

STUDY NAME: AM. CHEM. SERVICE STUDY NUMBER: SF-3413

LAB SAMPLE I.D. NO: 86S501S01 ACTIVITY CODE: C41100

	CAS #	COMPOUND	CONCENTRATION (UG/L)	
1.	111-44-4	BIS(2-CHLOROETHYL)ETHER	1.5	U
2.	108-95-2	PHENOL	2.0	U
3.	95-57-8	2-CHLOROPHENOL	2.0	U
4.	541-73-1	1,3-DICHLOROBENZENE	2.0	U
5.	106-46-7	1,4-DICHLOROBENZENE	2.0	U
6.	95-50-1	1,2-DICHLOROBENZENE	2.5	U
7.	100-51-6	BENZYL ALCOHOL	2.0	U
8.	39638-32-9	BIS(2-CHLOROISOPROPYL)ETHER	2.5	U
9.	95-48-7	2-METHYLPHENOL	1.0	U
10.	67-72-1	HEXACHLOROETHANE	2.0	U
11.	621-64-7	N-NITROSODIPROPYLAMINE	1.5	U
12.	98-95-3	NITROBENZENE	2.5	U
13.	106-44-5	4-METHYLPHENOL	1.0	U
14.	78-59-1	ISOPHORONE	2.5	U
15.	88-75-5	2-NITROPHENOL	2.0	U
16.	105-67-9	2,4-DIMETHYLPHENOL	2.0	U
17.	111-91-1	BIS(2-CHLOROETHOXY)METHANE	2.5	U
18.	120-83-2	2,4-DICHLOROPHENOL	2.0	U
19.	120-82-1	1,2,4-TRICHLOROBENZENE	2.0	U
20.	91-20-3	NAPHTHALENE	2.0	U
21.	106-47-8	4-CHLOROANILINE	2.0	U
22.	87-68-3	HEXACHLOROBUTADIENE	2.5	U
23.	65-85-0	BENZOIC ACID	(30)	U
24.	91-57-6	2-METHYLNAPHTHALENE	2.0	U
25.	59-50-7	4-CHLORO-3-CRESOL	1.5	U
26.	77-47-4	HEXACHLOROCYCLOPENTADIENE	2.0	U
27.	88-06-2	2,4,6-TRICHLOROPHENOL	1.5	U
28.	95-95-4	2,4,5-TRICHLOROPHENOL	1.5	U
29.	91-58-7	2-CHLORONAPHTHALENE	1.5	U
30.	208-96-8	ACENAPHTHYLENE	1.5	U
31.	131-11-3	DIMETHYL PHTHALATE	1.5	U
32.	606-20-2	2,6-DINITROTOLUENE	1.0	U
33.	83-32-9	ACENAPHTHENE	1.5	U
34.	99-09-2	3-NITROANILINE	2.5	U
35.	132-64-9	DIBENZOFURAN	1.0	U

STUDY NAME: AM. CHEM. SERVICE STUDY NUMBER: SF-3413

LAB SAMPLE I.D. NO: 86S501S01 ACTIVITY CODE: C41100

	CAS #	COMPOUND	CONCENTRATION (UG/L)	
36.	51-28-5	2,4-DINITROPHENOL	(15)	U
37.	121-14-2	2,4-DINITROTOLUENE	1.0	U
38.	86-73-7	FLUORENE	1.0	U
39.	100-02-7	4-NITROPHENOL	1.5	U
40.	7005-72-3	4-CHLOROPHENYLPHENYL ETHER	1.0	U
41.	84-66-2	DIETHYL PHTHALATE	1.0	U
42.	534-52-1	4,6-DINITRO-2-METHYLPHENOL	(15)	U
43.	86-30-6	N-NITROSODIPHENYLAMINE *	1.5	U
	122-39-4	DIPHENYLAMINE *		
44.	100-01-6	4-NITROANILINE	3.0	U
45.	101-55-3	4-BROMOPHENYLPHENYL ETHER	1.5	U
46.	118-74-1	HEXACHLOROBENZENE	1.5	U
47.	87-86-5	PENTACHLOROPHENOL	2.0	U
48.	85-01-8	PHENANTHRENE	1.0	U
49.	120-12-7	ANTHRACENE	2.5	U
50.	84-74-2	DI-N-BUTYL PHTHALATE	2.0	U
51.	206-44-0	FLUORANTHENE	1.5	U
52.	129-00-0	PYRENE	1.5	U
53.	85-68-7	BUTYLBENZYL PHTHALATE	3.5	U
54.	218-01-9	CHRYSENE **	1.5	U
55.	56-55-3	BENZO(A)ANTHRACENE **		
56.	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE	51	SLC
57.	117-84-0	DI-N-OCTYL PHTHALATE	1.5	U
58.	205-99-2	BENZO(B)FLUORANTHENE ***	1.5	U
59.	207-08-9	BENZO(K)FLUORANTHENE ***		
60.	50-32-8	BENZO(A)PYRENE	2.0	U
61.	193-39-5	INDENO(1,2,3-CD)PYRENE	3.5	U
62.	53-70-3	DIBENZO(A,H)ANTHRACENE	2.5	U
63.	191-24-2	BENZO(GHI)PERYLENE	4.0	U
64.	88-74-4	2-NITROANILINE	1.0	U

CODES: U --- COMPOUND WAS ANALYZED FOR, BUT NOT DETECTED. THE VALUE REPORTED IS THE METHOD DETECTION LIMIT FOR REAGENT WATER.
SLC - SUSPECTED LABORATORY CONTAMINANT
SFC - SUSPECTED FIELD CONTAMINANT

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SEMIVOLATILES ORGANIC ANALYSIS DATA SHEET

STUDY NAME: AM. CHEM. SERVICE STUDY NUMBER: SF-3413

LAB SAMPLE I.D. NO: 86S501R01 ACTIVITY CODE: C41100

	CAS #	COMPOUND	CONCENTRATION (UG/L)	
1.	111-44-4	BIS(2-CHLOROETHYL)ETHER	1.5	U
2.	108-95-2	PHENOL	2.0	U
3.	95-57-8	2-CHLOROPHENOL	2.0	U
4.	541-73-1	1,3-DICHLOROBENZENE	2.0	U
5.	106-46-7	1,4-DICHLOROBENZENE	2.0	U
6.	95-50-1	1,2-DICHLOROBENZENE	2.5	U
7.	100-51-6	BENZYL ALCOHOL	2.0	U
8.	39638-32-9	BIS(2-CHLOROISOPROPYL)ETHER	2.5	U
9.	95-48-7	2-METHYLPHENOL	1.0	U
10.	67-72-1	HEXACHLOROETHANE	2.0	U
11.	621-64-7	N-NITROSODIPROPYLAMINE	1.5	U
12.	98-95-3	NITROBENZENE	2.5	U
13.	106-44-5	4-METHYLPHENOL	1.0	U
14.	78-59-1	ISOPHORONE	2.5	U
15.	88-75-5	2-NITROPHENOL	2.0	U
16.	105-67-9	2,4-DIMETHYLPHENOL	2.0	U
17.	111-91-1	BIS(2-CHLOROETHOXY)METHANE	2.5	U
18.	120-83-2	2,4-DICHLOROPHENOL	2.0	U
19.	120-82-1	1,2,4-TRICHLOROBENZENE	2.0	U
20.	91-20-3	NAPHTHALENE	2.0	U
21.	106-47-8	4-CHLOROANILINE	2.0	U
22.	87-68-3	HEXACHLOROBUTADIENE	2.5	U
23.	65-85-0	BENZOIC ACID	(30)	U
24.	91-57-6	2-METHYLNAPHTHALENE	2.0	U
25.	59-50-7	4-CHLORO-3-CRESOL	1.5	U
26.	77-47-4	HEXACHLOROCYCLOPENTADIENE	2.0	U
27.	88-06-2	2,4,6-TRICHLOROPHENOL	1.5	U
28.	95-95-4	2,4,5-TRICHLOROPHENOL	1.5	U
29.	91-58-7	2-CHLORONAPHTHALENE	1.5	U
30.	208-96-8	ACENAPHTHYLENE	1.5	U
31.	131-11-3	DIMETHYL PHTHALATE	1.5	U
32.	606-20-2	2,6-DINITROTOLUENE	1.0	U
33.	83-32-9	ACENAPHTHENE	1.5	U
34.	99-09-2	3-NITROANILINE	2.5	U
35.	132-64-9	DIBENZOFURAN	1.0	U

STUDY NAME: AM. CHEM. SERVICE STUDY NUMBER: SF-3413

LAB SAMPLE I.D. NO: 86S501R01 ACTIVITY CODE: C41100

	CAS #	COMPOUND	CONCENTRATION (UG/L)	
36.	51-28-5	2,4-DINITROPHENOL	(15)	U
37.	121-14-2	2,4-DINITROTOLUENE	1.0	U
38.	86-73-7	FLUORENE	1.0	U
39.	100-02-7	4-NITROPHENOL	1.5	U
40.	7005-72-3	4-CHLOROPHENYLPHENYL ETHER	1.0	U
41.	84-66-2	DIETHYL PHTHALATE	1.0	U
42.	534-52-1	4,6-DINITRO-2-METHYLPHENOL	(15)	U
43.	86-30-6	N-NITROSODIPHENYLAMINE *	1.5	U
	122-39-4	DIPHENYLAMINE *		
44.	100-01-6	4-NITROANILINE	3.0	U
45.	101-55-3	4-BROMOPHENYLPHENYL ETHER	1.5	U
46.	118-74-1	HEXACHLOROBENZENE	1.5	U
47.	87-86-5	PENTACHLOROPHENOL	2.0	U
48.	85-01-8	PHENANTHRENE	1.0	U
49.	120-12-7	ANTHRACENE	2.5	U
50.	84-74-2	DI-N-BUTYL PHTHALATE	2.0	U
51.	206-44-0	FLUORANTHENE	1.5	U
52.	129-00-0	PYRENE	1.5	U
53.	85-68-7	BUTYLBENZYL PHTHALATE	3.5	U
54.	218-01-9	CHRYSENE **	1.5	U
55.	56-55-3	BENZO(A)ANTHRACENE **		
56.	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE	19	SLC
57.	117-84-0	DI-N-OCTYL PHTHALATE	1.5	U
58.	205-99-2	BENZO(B)FLUORANTHENE ***	1.5	U
59.	207-08-9	BENZO(K)FLUORANTHENE ***		
60.	50-32-8	BENZO(A)PYRENE	2.0	U
61.	193-39-5	INDENO(1,2,3-CD)PYRENE	3.5	U
62.	53-70-3	DIBENZO(A,H)ANTHRACENE	2.5	U
63.	191-24-2	BENZO(GHI)PERYLENE	4.0	U
64.	88-74-4	2-NITROANILINE	1.0	U

CODES: U --- COMPOUND WAS ANALYZED FOR, BUT NOT DETECTED. THE VALUE REPORTED IS THE METHOD DETECTION LIMIT FOR REAGENT WATER.
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SEMIVOLATILES ORGANIC ANALYSIS DATA SHEET

STUDY NAME: AM. CHEM. SERVICE STUDY NUMBER: SF-3413

LAB SAMPLE I.D. NO: 86S501S02 ACTIVITY CODE: C41100

	CAS #	COMPOUND	CONCENTRATION (UG/L)	
1.	111-44-4	BIS(2-CHLOROETHYL)ETHER	1.5	U
2.	108-95-2	PHENOL	2.0	U
3.	95-57-8	2-CHLOROPHENOL	2.0	U
4.	541-73-1	1,3-DICHLOROBENZENE	2.0	U
5.	106-46-7	1,4-DICHLOROBENZENE	2.0	U
6.	95-50-1	1,2-DICHLOROBENZENE	2.5	U
7.	100-51-6	BENZYL ALCOHOL	2.0	U
8.	39638-32-9	BIS(2-CHLOROISOPROPYL)ETHER	2.5	U
9.	95-48-7	2-METHYLPHENOL	1.0	U
10.	67-72-1	HEXACHLOROETHANE	2.0	U
11.	621-64-7	N-NITROSODIPROPYLAMINE	1.5	U
12.	98-95-3	NITROBENZENE	2.5	U
13.	106-44-5	4-METHYLPHENOL	1.0	U
14.	78-59-1	ISOPHORONE	2.5	U
15.	88-75-5	2-NITROPHENOL	2.0	U
16.	105-67-9	2,4-DIMETHYLPHENOL	2.0	U
17.	111-91-1	BIS(2-CHLOROETHOXY)METHANE	2.5	U
18.	120-83-2	2,4-DICHLOROPHENOL	2.0	U
19.	120-82-1	1,2,4-TRICHLOROBENZENE	2.0	U
20.	91-20-3	NAPHTHALENE	2.0	U
21.	106-47-8	4-CHLOROANILINE	2.0	U
22.	87-68-3	HEXACHLOROBUTADIENE	2.5	U
23.	65-85-0	BENZOIC ACID	(30)	U
24.	91-57-6	2-METHYLNAPHTHALENE	2.0	U
25.	59-50-7	4-CHLORO-3-CRESOL	1.5	U
26.	77-47-4	HEXACHLOROCYCLOPENTADIENE	2.0	U
27.	88-06-2	2,4,6-TRICHLOROPHENOL	1.5	U
28.	95-95-4	2,4,5-TRICHLOROPHENOL	1.5	U
29.	91-58-7	2-CHLORONAPHTHALENE	1.5	U
30.	208-96-8	ACENAPHTHYLENE	1.5	U
31.	131-11-3	DIMETHYL PHTHALATE	1.5	U
32.	606-20-2	2,6-DINITROTOLUENE	1.0	U
33.	83-32-9	ACENAPHTHENE	1.5	U
34.	99-09-2	3-NITROANILINE	2.5	U
35.	132-64-9	DIBENZOFURAN	1.0	U

STUDY NAME: AM. CHEM. SERVICE STUDY NUMBER: SF-3413

LAB SAMPLE I.D. NO: 86S501S02 ACTIVITY CODE: C41100

	CAS #	COMPOUND	CONCENTRATION (UG/L)		
36.	51-28-5	2,4-DINITROPHENOL	(15)	U	
37.	121-14-2	2,4-DINITROTOLUENE	1.0	U	
38.	86-73-7	FLUORENE	1.0	U	
39.	100-02-7	4-NITROPHENOL	1.5	U	
40.	7005-72-3	4-CHLOROPHENYLPHENYL ETHER	1.0	U	
41.	84-66-2	DIETHYL PHTHALATE	1.0	U	
42.	534-52-1	4,6-DINITRO-2-METHYLPHENOL	(15)	U	
43.	86-30-6	N-NITROSODIPHENYLAMINE *	1.5	U	
	122-39-4	DIPHENYLAMINE *			
44.	100-01-6	4-NITROANILINE	3.0	U	
45.	101-55-3	4-BROMOPHENYLPHENYL ETHER	1.5	U	
46.	118-74-1	HEXACHLOROBENZENE	1.5	U	
47.	87-86-5	PENTACHLOROPHENOL	2.0	U	
48.	85-01-8	PHENANTHRENE	1.0	U	
49.	120-12-7	ANTHRACENE	2.5	U	
50.	84-74-2	DI-N-BUTYL PHTHALATE	2.0	U	
51.	206-44-0	FLUORANTHENE	1.5	U	
52.	129-00-0	PYRENE	1.5	U	
53.	85-68-7	BUTYLBENZYL PHTHALATE	3.5	U	
54.	218-01-9	CHRYSENE **	1.5	U	
55.	56-55-3	BENZO(A)ANTHRACENE **			
56.	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE			39 SLC
57.	117-84-0	DI-N-OCTYL PHTHALATE	1.5	U	
58.	205-99-2	BENZO(B)FLUORANTHENE ***	1.5	U	
59.	207-08-9	BENZO(K)FLUORANTHENE ***			
60.	50-32-8	BENZO(A)PYRENE	2.0	U	
61.	193-39-5	INDENO(1,2,3-CD)PYRENE	3.5	U	
62.	53-70-3	DIBENZO(A,H)ANTHRACENE	2.5	U	
63.	191-24-2	BENZO(GHI)PERYLENE	4.0	U	
64.	88-74-4	2-NITROANILINE	1.0	U	

CODES: U --- COMPOUND WAS ANALYZED FOR. BUT NOT DETECTED. THE VALUE REPORTED IS THE METHOD DETECTION LIMIT FOR REAGENT WATER.
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SEMIVOLATILES ORGANIC ANALYSIS DATA SHEET

STUDY NAME: AM. CHEM. SERVICE STUDY NUMBER: SF-3413

LAB SAMPLE I.D. NO: 86S501S03 ACTIVITY CODE: C41100

	CAS #	COMPOUND	CONCENTRATION (UG/L)	
1.	111-44-4	BIS(2-CHLOROETHYL)ETHER	1.5	U
2.	108-95-2	PHENOL	2.0	U
3.	95-57-8	2-CHLOROPHENOL	2.0	U
4.	541-73-1	1,3-DICHLOROBENZENE	2.0	U
5.	106-46-7	1,4-DICHLOROBENZENE	2.0	U
6.	95-50-1	1,2-DICHLOROBENZENE	2.5	U
7.	100-51-6	BENZYL ALCOHOL	2.0	U
8.	39638-32-9	BIS(2-CHLOROISOPROPYL)ETHER	2.5	U
9.	95-48-7	2-METHYLPHENOL	1.0	U
10.	67-72-1	HEXACHLOROETHANE	2.0	U
11.	621-64-7	N-NITROSODIPROPYLAMINE	1.5	U
12.	98-95-3	NITROBENZENE	2.5	U
13.	106-44-5	4-METHYLPHENOL	1.0	U
14.	78-59-1	ISOPHORONE	2.5	U
15.	88-75-5	2-NITROPHENOL	2.0	U
16.	105-67-9	2,4-DIMETHYLPHENOL	2.0	U
17.	111-91-1	BIS(2-CHLOROETHOXY)METHANE	2.5	U
18.	120-83-2	2,4-DICHLOROPHENOL	2.0	U
19.	120-82-1	1,2,4-TRICHLOROBENZENE	2.0	U
20.	91-20-3	NAPHTHALENE	2.0	U
21.	106-47-8	4-CHLOROANILINE	2.0	U
22.	87-68-3	HEXACHLOROBUTADIENE	2.5	U
23.	65-85-0	BENZOIC ACID	(30)	U
24.	91-57-6	2-METHYLNAPHTHALENE	2.0	U
25.	59-50-7	4-CHLORO-3-CRESOL	1.5	U
26.	77-47-4	HEXACHLOROCYCLOPENTADIENE	2.0	U
27.	88-06-2	2,4,6-TRICHLOROPHENOL	1.5	U
28.	95-95-4	2,4,5-TRICHLOROPHENOL	1.5	U
29.	91-58-7	2-CHLORONAPHTHALENE	1.5	U
30.	208-96-8	ACENAPHTHYLENE	1.5	U
31.	131-11-3	DIMETHYL PHTHALATE	1.5	U
32.	606-20-2	2,6-DINITROTOLUENE	1.0	U
33.	83-32-9	ACENAPHTHENE	1.5	U
34.	99-09-2	3-NITROANILINE	2.5	U
35.	132-64-9	DIBENZOFURAN	1.0	U

STUDY NAME: AM. CHEM. SERVICE STUDY NUMBER: SF-3413

LAB SAMPLE I.D. NO: 86S501S03 ACTIVITY CODE: C41100

	CAS #	COMPOUND	CONCENTRATION (UG/L)	
36.	51-28-5	2,4-DINITROPHENOL	(15)	U
37.	121-14-2	2,4-DINITROTOLUENE	1.0	U
38.	86-73-7	FLUORENE	1.0	U
39.	100-02-7	4-NITROPHENOL	1.5	U
40.	7005-72-3	4-CHLOROPHENYLPHENYL ETHER	1.0	U
41.	84-66-2	DIETHYL PHTHALATE	1.0	U
42.	534-52-1	4,6-DINITRO-2-METHYLPHENOL	(15)	U
43.	86-30-6	N-NITROSODIPHENYLAMINE *	1.5	U
	122-39-4	DIPHENYLAMINE *		
44.	100-01-6	4-NITROANILINE	3.0	U
45.	101-55-3	4-BROMOPHENYLPHENYL ETHER	1.5	U
46.	118-74-1	HEXACHLOROBENZENE	1.5	U
47.	87-86-5	PENTACHLOROPHENOL	2.0	U
48.	85-01-8	PHENANTHRENE	1.0	U
49.	120-12-7	ANTHRACENE	2.5	U
50.	84-74-2	DI-N-BUTYL PHTHALATE	2.0	U
51.	206-44-0	FLUORANTHENE	1.5	U
52.	129-00-0	PYRENE	1.5	U
53.	85-68-7	BUTYLBENZYL PHTHALATE	3.5	U
54.	218-01-9	CHRYSENE **	1.5	U
55.	56-55-3	BENZO(A)ANTHRACENE **		
56.	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE		32 SLC
57.	117-84-0	DI-N-OCTYL PHTHALATE	1.5	U
58.	205-99-2	BENZO(B)FLUORANTHENE ***	1.5	U
59.	207-08-9	BENZO(K)FLUORANTHENE ***		
60.	50-32-8	BENZO(A)PYRENE	2.0	U
61.	193-39-5	INDENO(1,2,3-CD)PYRENE	3.5	U
62.	53-70-3	DIBENZO(A,H)ANTHRACENE	2.5	U
63.	191-24-2	BENZO(GHI)PERYLENE	4.0	U
64.	88-74-4	2-NITROANILINE	1.0	U

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SEMIVOLATILES ORGANIC ANALYSIS DATA SHEET

STUDY NAME: AM. CHEM. SERVICE STUDY NUMBER: SF-3413

LAB SAMPLE I.D. NO: 86S501S04 ACTIVITY CODE: C41100

	CAS #	COMPOUND	CONCENTRATION (UG/L)	
1.	111-44-4	BIS(2-CHLOROETHYL)ETHER	1.5	U
2.	108-95-2	PHENOL	2.0	U
3.	95-57-8	2-CHLOROPHENOL	2.0	U
4.	541-73-1	1,3-DICHLOROBENZENE	2.0	U
5.	106-46-7	1,4-DICHLOROBENZENE	2.0	U
6.	95-50-1	1,2-DICHLOROBENZENE	2.5	U
7.	100-51-6	BENZYL ALCOHOL	2.0	U
8.	39638-32-9	BIS(2-CHLOROISOPROPYL)ETHER	2.5	U
9.	95-48-7	2-METHYLPHENOL	1.0	U
10.	67-72-1	HEXACHLOROETHANE	2.0	U
11.	621-64-7	N-NITROSODIPROPYLAMINE	1.5	U
12.	98-95-3	NITROBENZENE	2.5	U
13.	106-44-5	4-METHYLPHENOL	1.0	U
14.	78-59-1	ISOPHORONE	2.5	U
15.	88-75-5	2-NITROPHENOL	2.0	U
16.	105-67-9	2,4-DIMETHYLPHENOL	2.0	U
17.	111-91-1	BIS(2-CHLOROETHOXY)METHANE	2.5	U
18.	120-83-2	2,4-DICHLOROPHENOL	2.0	U
19.	120-82-1	1,2,4-TRICHLOROBENZENE	2.0	U
20.	91-20-3	NAPHTHALENE	2.0	U
21.	106-47-8	4-CHLOROANILINE	2.0	U
22.	87-68-3	HEXACHLOROBUTADIENE	2.5	U
23.	65-85-0	BENZOIC ACID	(30)	U
24.	91-57-6	2-METHYLNAPHTHALENE	2.0	U
25.	59-50-7	4-CHLORO-3-CRESOL	1.5	U
26.	77-47-4	HEXACHLOROCYCLOPENTADIENE	2.0	U
27.	88-06-2	2,4,6-TRICHLOROPHENOL	1.5	U
28.	95-95-4	2,4,5-TRICHLOROPHENOL	1.5	U
29.	91-58-7	2-CHLORONAPHTHALENE	1.5	U
30.	208-96-8	ACENAPHTHYLENE	1.5	U
31.	131-11-3	DIMETHYL PHTHALATE	1.5	U
32.	606-20-2	2,6-DINITROTOLUENE	1.0	U
33.	83-32-9	ACENAPHTHENE	1.5	U
34.	99-09-2	3-NITROANILINE	2.5	U
35.	132-64-9	DIBENZOFURAN	1.0	U

STUDY NAME: AM. CHEM. SERVICE STUDY NUMBER: SF-3413

LAB SAMPLE I.D. NO: 86S501S04 ACTIVITY CODE: C41100

	CAS #	COMPOUND	CONCENTRATION (UG/L)	
36.	51-28-5	2,4-DINITROPHENOL	(15)	U
37.	121-14-2	2,4-DINITROTOLUENE	1.0	U
38.	86-73-7	FLUORENE	1.0	U
39.	100-02-7	4-NITROPHENOL	1.5	U
40.	7005-72-3	4-CHLOROPHENYLPHENYL ETHER	1.0	U
41.	84-66-2	DIETHYL PHTHALATE	1.0	U
42.	534-52-1	4,6-DINITRO-2-METHYLPHENOL	(15)	U
43.	86-30-6	N-NITROSODIPHENYLAMINE *	1.5	U
	122-39-4	DIPHENYLAMINE *		
44.	100-01-6	4-NITROANILINE	3.0	U
45.	101-55-3	4-BROMOPHENYLPHENYL ETHER	1.5	U
46.	118-74-1	HEXACHLOROBENZENE	1.5	U
47.	87-86-5	PENTACHLOROPHENOL	2.0	U
48.	85-01-8	PHENANTHRENE	1.0	U
49.	120-12-7	ANTHRACENE	2.5	U
50.	84-74-2	DI-N-BUTYL PHTHALATE	2.0	U
51.	206-44-0	FLUORANTHENE	1.5	U
52.	129-00-0	PYRENE	1.5	U
53.	85-68-7	BUTYLBENZYL PHTHALATE	3.5	U
54.	218-01-9	CHRYSENE **	1.5	U
55.	56-55-3	BENZO(A)ANTHRACENE **		
56.	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE	28	SLC
57.	117-84-0	DI-N-OCTYL PHTHALATE	1.5	U
58.	205-99-2	BENZO(B)FLUORANTHENE ***	1.5	U
59.	207-08-9	BENZO(K)FLUORANTHENE ***		
60.	50-32-8	BENZO(A)PYRENE	2.0	U
61.	193-39-5	INDENO(1,2,3-CD)PYRENE	3.5	U
62.	53-70-3	DIBENZO(A,H)ANTHRACENE	2.5	U
63.	191-24-2	BENZO(GHI)PERYLENE	4.0	U
64.	88-74-4	2-NITROANILINE	1.0	U

CODES: U --- COMPOUND WAS ANALYZED FOR. BUT NOT DETECTED. THE VALUE REPORTED IS THE METHOD DETECTION LIMIT FOR REAGENT WATER.
SLC - SUSPECTED LABORATORY CONTAMINANT
SFC - SUSPECTED FIELD CONTAMINANT

* THESE TWO PARAMETERS ARE REPORTED AS A TOTAL.
** THESE TWO PARAMETERS ARE REPORTED AS A TOTAL.
*** THESE TWO PARAMETERS ARE REPORTED AS A TOTAL.

VALUES IN PARENTHESES ARE ESTIMATES. ACTUAL VALUES ARE BEING DETERMINED AT THIS TIME.

SEMIVOLATILES ORGANIC ANALYSIS DATA SHEET

STUDY NAME: AM. CHEM. SERVICE STUDY NUMBER: SF-3413

LAB SAMPLE I.D. NO: 86S501S05 ACTIVITY CODE: C41100

	CAS #	COMPOUND	CONCENTRATION (UG/L)	
1.	111-44-4	BIS(2-CHLOROETHYL)ETHER	1.5	U
2.	108-95-2	PHENOL	2.0	U
3.	95-57-8	2-CHLOROPHENOL	2.0	U
4.	541-73-1	1,3-DICHLOROBENZENE	2.0	U
5.	106-46-7	1,4-DICHLOROBENZENE	2.0	U
6.	95-50-1	1,2-DICHLOROBENZENE	2.5	U
7.	100-51-6	BENZYL ALCOHOL	2.0	U
8.	39638-32-9	BIS(2-CHLOROISOPROPYL)ETHER	2.5	U
9.	95-48-7	2-METHYLPHENOL	1.0	U
10.	67-72-1	HEXACHLOROETHANE	2.0	U
11.	621-64-7	N-NITROSODIPROPYLAMINE	1.5	U
12.	98-95-3	NITROBENZENE	2.5	U
13.	106-44-5	4-METHYLPHENOL	1.0	U
14.	78-59-1	ISOPHORONE	2.5	U
15.	88-75-5	2-NITROPHENOL	2.0	U
16.	105-67-9	2,4-DIMETHYLPHENOL	2.0	U
17.	111-91-1	BIS(2-CHLOROETHOXY)METHANE	2.5	U
18.	120-83-2	2,4-DICHLOROPHENOL	2.0	U
19.	120-82-1	1,2,4-TRICHLOROBENZENE	2.0	U
20.	91-20-3	NAPHTHALENE	2.0	U
21.	106-47-8	4-CHLOROANILINE	2.0	U
22.	87-68-3	HEXACHLOROBUTADIENE	2.5	U
23.	65-85-0	BENZOIC ACID	(30)	U
24.	91-57-6	2-METHYLNAPHTHALENE	2.0	U
25.	59-50-7	4-CHLORO-3-CRESOL	1.5	U
26.	77-47-4	HEXACHLOROCYCLOPENTADIENE	2.0	U
27.	88-06-2	2,4,6-TRICHLOROPHENOL	1.5	U
28.	95-95-4	2,4,5-TRICHLOROPHENOL	1.5	U
29.	91-58-7	2-CHLORONAPHTHALENE	1.5	U
30.	208-96-8	ACENAPHTHYLENE	1.5	U
31.	131-11-3	DIMETHYL PHTHALATE	1.5	U
32.	606-20-2	2,6-DINITROTOLUENE	1.0	U
33.	83-32-9	ACENAPHTHENE	1.5	U
34.	99-09-2	3-NITROANILINE	2.5	U
35.	132-64-9	DIBENZOFURAN	1.0	U

STUDY NAME: AM. CHEM. SERVICE STUDY NUMBER: SF-3413

LAB SAMPLE I.D. NO: 86S501S05 ACTIVITY CODE: C41100

	CAS #	COMPOUND	CONCENTRATION (UG/L)	
36.	51-28-5	2,4-DINITROPHENOL	(15)	U
37.	121-14-2	2,4-DINITROTOLUENE	1.0	U
38.	86-73-7	FLUORENE	1.0	U
39.	100-02-7	4-NITROPHENOL	1.5	U
40.	7005-72-3	4-CHLOROPHENYLPHENYL ETHER	1.0	U
41.	84-66-2	DIETHYL PHTHALATE	1.0	U
42.	534-52-1	4,6-DINITRO-2-METHYLPHENOL	(15)	U
43.	86-30-6	N-NITROSODIPHENYLAMINE *	1.5	U
	122-39-4	DIPHENYLAMINE *		
44.	100-01-6	4-NITROANILINE	3.0	U
45.	101-55-3	4-BROMOPHENYLPHENYL ETHER	1.5	U
46.	118-74-1	HEXACHLOROBENZENE	1.5	U
47.	87-86-5	PENTACHLOROPHENOL	2.0	U
48.	85-01-8	PHENANTHRENE	1.0	U
49.	120-12-7	ANTHRACENE	2.5	U
50.	84-74-2	DI-N-BUTYL PHTHALATE	2.0	U
51.	206-44-0	FLUORANTHENE	1.5	U
52.	129-00-0	PYRENE	1.5	U
53.	85-68-7	BUTYLBENZYL PHTHALATE	3.5	U
54.	218-01-9	CHRYSENE **	1.5	U
55.	56-55-3	BENZO(A)ANTHRACENE **		
56.	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE	65	SLC
57.	117-84-0	DI-N-OCTYL PHTHALATE	1.5	U
58.	205-99-2	BENZO(B)FLUORANTHENE ***	1.5	U
59.	207-08-9	BENZO(K)FLUORANTHENE ***		
60.	50-32-8	BENZO(A)PYRENE	2.0	U
61.	193-39-5	INDENO(1,2,3-CD)PYRENE	3.5	U
62.	53-70-3	DIBENZO(A,H)ANTHRACENE	2.5	U
63.	191-24-2	BENZO(GHI)PERYLENE	4.0	U
64.	88-74-4	2-NITROANILINE	1.0	U

CODES: U --- COMPOUND WAS ANALYZED FOR, BUT NOT DETECTED. THE VALUE REPORTED IS THE METHOD DETECTION LIMIT FOR REAGENT WATER.
SLC - SUSPECTED LABORATORY CONTAMINANT
SFC - SUSPECTED FIELD CONTAMINANT

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: 9-9-86

SUBJECT: Precision and Accuracy of Analyses for Data Set SF 3413
Site: AMERICAN CHEMICAL SERVICE

FROM: Steve Parker,
CRL QC Coordinator

TO: Data User: Karen Waldvogel

The Region V Central Regional Laboratory has completed its analyses of 7 (number) WATER (matrix type) samples for the parameters listed on the attached sheet. The discrete values reported on the result forms should be considered to be of the precision and accuracy levels listed.

PRECISION is a measure of reproducibility or the closeness with which individual measurements of the same property, under similar conditions agree with each other. It is expressed as the relative percent difference (RPD) or the absolute concentration difference (R') between duplicate analyses. The limit acceptable at the time of analysis is stated. QC data within these limits indicate that the analysis was in control for that set of data.

ACCURACY is a measure of the closeness of an individual measurement to the expected value. It can be expressed as percent recovery of a known spike or standard concentration, or as percent bias which is the deviation from the true value. The limits applicable at the time of analysis are stated. A 95% confidence interval means that 95% of the time, percent recovery will fall between those limts.

Attachment

TRANSMITTED BY
SEP 18 1986

U.S. EPA CENTRAL
REGIONAL LAB

PRECISION AND ACCURACY STATEMENT

Data Set: SF 3413 Matrix: WATER

Site Name: AMERICAN CHEMICAL SERVICE

	PRECISION			ACCURACY		
Parameter	~~PPM~~ ~~%~~ 'R'	Limit	Method of Quality Control	% Recovery % Bias	Limit	Method of Quality Control
NITRATE/NITRITE NITROGEN	0.00 mg/L	≤ 0.15 mg/L	DUPLICATE CONTROL	95%	92-108%	SPIKED SAMPLE
AMMONIA NITROGEN	0.00 mg/L	≤ 0.5 mg/L	"	102%	94-106%	"

COMMENT:

QC FLAGS:

American Chemical Service 9/8/86
INO-016-360-165

SUPERFUND

ENVIRONMENTAL PROTECTION AGENCY
FOR THE TEAM: MINERALS-NUTRIENTS

DIVISION/BRANCH WMD: SHE-12 SAMPLING DATE 8/5/86 LAB ARRIVAL DATE 8/6/86 DUE DATE 8/27/86

DU NUMBER Y306 DATASET NUMBER 3413 STUDY PRIORITY N CONTRACTOR

CRL LOG NUMBER	SAMPLE DESCRIPTION	WATER NITRATE & NITRITE MG N/L MIN7284	WATER AMMONIA MG N/L = mg N/L MIN7294	WATER TOTAL KJELDAHL NITROGEN MG N/L MIN7384	WATER TOTAL PHOSPHORUS MG P/L MIN7315	WATER TOTAL DISSOLVED PHOSPHORUS MG P/L MIN7329
865~~9~~01S01	5-61562	✓ K0.10	✓ 0.20			
865~~9~~01D01	5-61582	✓ K0.10	✓ 0.20			
865~~9~~01R01	5-61586	✓ K0.10	✓ ~~0.20~~ K0.05			
865~~9~~01S02	5-61554	✓ K0.10	✓ ~~K0.05~~ 0.20			
865~~9~~01S03	5-61610	✓ K0.10	✓ ~~0.20~~ 0.20			
865~~9~~01S04	5-61598	✓ K0.10	✓ 0.30			
865~~9~~01S05	5-61602	✓ K0.10	✓ 0.20			
		Flora R. Rudin 8/25/86	Flora R. Rudin 8/25/86			

OK-BP 9/9/86

STRIMBU

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: 9-10-86

SUBJECT: Precision and Accuracy of Analyses for Data Set SF 3413
Site: AMERICAN CHEMICAL SERVICE

FROM: Steve Parker,
CRL QC Coordinator

TO: Data User: SF - Anthony Rutter

The Region V Central Regional Laboratory has completed its analyses of 2 (number) WATER (matrix type) samples for the parameters listed on the attached sheet. The discrete values reported on the result forms should be considered to be of the precision and accuracy levels listed.

PRECISION is a measure of reproducibility or the closeness with which individual measurements of the same property, under similar conditions agree with each other. It is expressed as the relative percent difference (RPD) or the absolute concentration difference (R') between duplicate analyses. The limit acceptable at the time of analysis is stated. QC data within these limits indicate that the analysis was in control for that set of data.

ACCURACY is a measure of the closeness of an individual measurement to the expected value. It can be expressed as percent recovery of a known spike or standard concentration, or as percent bias which is the deviation from the true value. The limits applicable at the time of analysis are stated. A 95% confidence interval means that 95% of the time, percent recovery will fall between those limts.

Attachment

TRANSMITTED BY
Griffin
SEP 11 1986
U.S. EPA CENTRAL REGIONAL LAB

American Chemical Service
IND-016-360-165
ACTIVITY#C41100

SUPERFUND

ENVIRONMENTAL PROTECTION AGENCY
FOR THE TEAM: TOXIC SUBSTANCES

DIVISION/BRANCH WMD: SHE-12 SAMPLE DATE 8/5/86 LAB ARRIVAL DATE 8/6/86 DUE DATE 8/27/86

DU NUMBER Y306 DATA SET NUMBER 3413 STUDY PRIORITY N CONTRACTOR N

CRL LOG NUMBER	SAMPLE DESCRIPTION	WATER VOLATILE ORGANICS SCAN UG/L TOX 17684	WATER ABN ORGANICS SCAN UG/L TOX 17674	SEDIMENTS SOLIDS VOLATILE ORGANICS SCAN MG/KG (DRY) TOX 215822	SEDIMENTS SOLIDS ABN ORGANICS SCAN MG/KG (DRY) TOX 215722
8659001S01	5-61563-64-67-68-74+76	✓			
8659001D01	5-61571-72	✓			
8659001R01	5-61587-88	✓			
8659001S02	5-61555-56	✓			
8659001S03	5-61611-12	✓			
8659001S04	5-61593-94	✓			
8659001S05	5-61603-04	✓			
86S501S01	5-61565+69+77		✓		
86S501D01	5-61573		✓		
86S501R01	5-61589		✓		
86S501S02	5-61557		✓		
86S501S03	5-61613		✓		
86S501S04	5-61591		✓		
86S501S05	5-61605		✓		
			SK 8-27-86		
			GF 9/2/86		
			9/10/86		

PRECISION AND ACCURACY STATEMENT

Data Set: SF 3413 Matrix: WATER

Site Name: AMERICAN CHEMICAL SERVICE

	PRECISION			ACCURACY		
Parameter	RPD R'	Limit	Method of Quality Control	% Recovery % Bias	Limit	Method of Quality Control
ABN ACID FRACTION	1-12%	≤ 35%	SURROGATE SPIKES	36-101	10-107%	SURROGATE SPIKES
ABN BASE NEUTRAL	4-15%	"	"	45-107	25-122%	"

COMMENT:

QC FLAGS:

SEMIVOLATILES ORGANIC ANALYSIS DATA SHEET

STUDY NAME: AM. CHEM. SERVICE STUDY NUMBER: SF-3413

LAB SAMPLE I.D. NO: 86S501S01 ACTIVITY CODE: C41100

	CAS #	COMPOUND	CONCENTRATION (UG/L)	
1.	111-44-4	BIS(2-CHLOROETHYL)ETHER	1.5	U
2.	108-95-2	PHENOL	2.0	U
3.	95-57-8	2-CHLOROPHENOL	2.0	U
4.	541-73-1	1,3-DICHLOROBENZENE	2.0	U
5.	106-46-7	1,4-DICHLOROBENZENE	2.0	U
6.	95-50-1	1,2-DICHLOROBENZENE	2.5	U
7.	100-51-6	BENZYL ALCOHOL	2.0	U
8.	39638-32-9	BIS(2-CHLOROISOPROPYL)ETHER	2.5	U
9.	95-48-7	2-METHYLPHENOL	1.0	U
10.	67-72-1	HEXACHLOROETHANE	2.0	U
11.	621-64-7	N-NITROSODIPROPYLAMINE	1.5	U
12.	98-95-3	NITROBENZENE	2.5	U
13.	106-44-5	4-METHYLPHENOL	1.0	U
14.	78-59-1	ISOPHORONE	2.5	U
15.	88-75-5	2-NITROPHENOL	2.0	U
16.	105-67-9	2,4-DIMETHYLPHENOL	2.0	U
17.	111-91-1	BIS(2-CHLOROETHOXY)METHANE	2.5	U
18.	120-83-2	2,4-DICHLOROPHENOL	2.0	U
19.	120-82-1	1,2,4-TRICHLOROBENZENE	2.0	U
20.	91-20-3	NAPHTHALENE	2.0	U
21.	106-47-8	4-CHLOROANILINE	2.0	U
22.	87-68-3	HEXACHLOROBUTADIENE	2.5	U
23.	65-85-0	BENZOIC ACID	(30)	U
24.	91-57-6	2-METHYLNAPHTHALENE	2.0	U
25.	59-50-7	4-CHLORO-3-CRESOL	1.5	U
26.	77-47-4	HEXACHLOROCYCLOPENTADIENE	2.0	U
27.	88-06-2	2,4,6-TRICHLOROPHENOL	1.5	U
28.	95-95-4	2,4,5-TRICHLOROPHENOL	1.5	U
29.	91-58-7	2-CHLORONAPHTHALENE	1.5	U
30.	208-96-8	ACENAPHTHYLENE	1.5	U
31.	131-11-3	DIMETHYL PHTHALATE	1.5	U
32.	606-20-2	2,6-DINITROTOLUENE	1.0	U
33.	83-32-9	ACENAPHTHENE	1.5	U
34.	99-09-2	3-NITROANILINE	2.5	U
35.	132-64-9	DIBENZOFURAN	1.0	U

STUDY NAME: AM. CHEM. SERVICE STUDY NUMBER: SF-S413

LAB SAMPLE I.D. NO: 86S501S01 ACTIVITY CODE: C41100

	CAS #	COMPOUND	CONCENTRATION (UG/L)	
36.	51-28-5	2,4-DINITROPHENOL	(15)	U
37.	121-14-2	2,4-DINITROTOLUENE	1.0	U
38.	86-73-7	FLUORENE	1.0	U
39.	100-02-7	4-NITROPHENOL	1.5	U
40.	7005-72-3	4-CHLOROPHENYLPHENYL ETHER	1.0	U
41.	84-66-2	DIETHYL PHTHALATE	1.0	U
42.	534-52-1	4,6-DINITRO-2-METHYLPHENOL	(15)	U
43.	86-30-6	N-NITROSODIPHENYLAMINE *	1.5	U
	122-39-4	DIPHENYLAMINE *		
44.	100-01-6	4-NITROANILINE	3.0	U
45.	101-55-3	4-BROMOPHENYLPHENYL ETHER	1.5	U
46.	118-74-1	HEXACHLOROBENZENE	1.5	U
47.	87-86-5	PENTACHLOROPHENOL	2.0	U
48.	85-01-8	PHENANTHRENE	1.0	U
49.	120-12-7	ANTHRACENE	2.5	U
50.	84-74-2	DI-N-BUTYL PHTHALATE	2.0	U
51.	206-44-0	FLUORANTHENE	1.5	U
52.	129-00-0	PYRENE	1.5	U
53.	85-68-7	BUTYLBENZYL PHTHALATE	3.5	U
54.	218-01-9	CHRYSENE **	1.5	U
55.	56-55-3	BENZO(A)ANTHRACENE **		
56.	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE		51 SLC
57.	117-84-0	DI-N-OCTYL PHTHALATE	1.5	U
58.	205-99-2	BENZO(B)FLUORANTHENE ***	1.5	U
59.	207-08-9	BENZO(K)FLUORANTHENE ***		
60.	50-32-8	BENZO(A)PYRENE	2.0	U
61.	193-39-5	INDENO(1,2,3-CD)PYRENE	3.5	U
62.	53-70-3	DIBENZO(A,H)ANTHRACENE	2.5	U
63.	191-24-2	BENZO(GHI)PERYLENE	4.0	U
64.	88-74-4	2-NITROANILINE	1.0	U

CODES: U --- COMPOUND WAS ANALYZED FOR, BUT NOT DETECTED. THE VALUE REPORTED IS THE METHOD DETECTION LIMIT FOR REAGENT WATER.
SLC - SUSPECTED LABORATORY CONTAMINANT
SFC - SUSPECTED FIELD CONTAMINANT

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*** THESE TWO PARAMETERS ARE REPORTED AS A TOTAL.

VALUES IN PARENTHESES ARE ESTIMATES. ACTUAL VALUES ARE BEING DETERMINED AT THIS TIME.

U.S. EPA - REGION V, CENTRAL REGIONAL LABORATORY
536 SOUTH CLARK STREET, CHICAGO, ILLINOIS 60605

SEMIVOLATILES ORGANIC ANALYSIS DATA SHEET

STUDY NAME: AM. CHEM. SERVICE — STUDY NUMBER: SF-3413

LAB SAMPLE I.D. NO: 86S501D01 — ACTIVITY CODE: C41100

	CAS #	COMPOUND	CONCENTRATION (UG/L)	
1.	111-44-4	BIS(2-CHLOROETHYL)ETHER	1.5	U
2.	108-95-2	PHENOL	2.0	U
3.	95-57-8	2-CHLOROPHENOL	2.0	U
4.	541-73-1	1,3-DICHLOROBENZENE	2.0	U
5.	106-46-7	1,4-DICHLOROBENZENE	2.0	U
6.	95-50-1	1,2-DICHLOROBENZENE	2.5	U
7.	100-51-6	BENZYL ALCOHOL	2.0	U
8.	39638-32-9	BIS(2-CHLOROISOPROPYL)ETHER	2.5	U
9.	95-48-7	2-METHYLPHENOL	1.0	U
10.	67-72-1	HEXACHLOROETHANE	2.0	U
11.	621-64-7	N-NITROSODIPROPYLAMINE	1.5	U
12.	98-95-3	NITROBENZENE	2.5	U
13.	106-44-5	4-METHYLPHENOL	1.0	U
14.	78-59-1	ISOPHORONE	2.5	U
15.	88-75-5	2-NITROPHENOL	2.0	U
16.	105-67-9	2,4-DIMETHYLPHENOL	2.0	U
17.	111-91-1	BIS(2-CHLOROETHOXY)METHANE	2.5	U
18.	120-83-2	2,4-DICHLOROPHENOL	2.0	U
19.	120-82-1	1,2,4-TRICHLOROBENZENE	2.0	U
20.	91-20-3	NAPHTHALENE	2.0	U
21.	106-47-8	4-CHLOROANILINE	2.0	U
22.	87-68-3	HEXACHLOROBUTADIENE	2.5	U
23.	65-85-0	BENZOIC ACID	(30)	U
24.	91-57-6	2-METHYLNAPHTHALENE	2.0	U
25.	59-50-7	4-CHLORO-3-CRESOL	1.5	U
26.	77-47-4	HEXACHLOROCYCLOPENTADIENE	2.0	U
27.	88-06-2	2,4,6-TRICHLOROPHENOL	1.5	U
28.	95-95-4	2,4,5-TRICHLOROPHENOL	1.5	U
29.	91-58-7	2-CHLORONAPHTHALENE	1.5	U
30.	208-96-8	ACENAPHTHYLENE	1.5	U
31.	131-11-3	DIMETHYL PHTHALATE	1.5	U
32.	606-20-2	2,6-DINITROTOLUENE	1.0	U
33.	83-32-9	ACENAPHTHENE	1.5	U
34.	99-09-2	3-NITROANILINE	2.5	U
35.	132-64-9	DIBENZOFURAN	1.0	U

STUDY NAME: AM. CHEM. SERVICE STUDY NUMBER: SF-3419

LAB SAMPLE I.D. NO: 86S501D01 ACTIVITY CODE: C41100

	CAS #	COMPOUND	CONCENTRATION (UG/L)		
36.	51-28-5	2.4-DINITROPHENOL	(15)	U	
37.	121-14-2	2.4-DINITROTOLUENE	1.0	U	
38.	86-73-7	FLUORENE	1.0	U	
39.	100-02-7	4-NITROPHENOL	1.5	U	
40.	7005-72-3	4-CHLOROPHENYLPHENYL ETHER	1.0	U	
41.	84-66-2	DIETHYL PHTHALATE	1.0	U	
42.	534-52-1	4.6-DINITRO-2-METHYLPHENOL	(15)	U	
43.	86-30-6	N-NITROSODIPHENYLAMINE *	1.5	U	
	122-39-4	DIPHENYLAMINE *			
44.	100-01-6	4-NITROANILINE	3.0	U	
45.	101-55-3	4-BROMOPHENYLPHENYL ETHER	1.5	U	
46.	118-74-1	HEXACHLOROBENZENE	1.5	U	
47.	87-86-5	PENTACHLOROPHENOL	2.0	U	
48.	85-01-8	PHENANTHRENE	1.0	U	
49.	120-12-7	ANTHRACENE	2.5	U	
50.	84-74-2	DI-N-BUTYL PHTHALATE	2.0	U	
51.	206-44-0	FLUORANTHENE	1.5	U	
52.	129-00-0	PYRENE	1.5	U	
53.	85-68-7	BUTYLBENZYL PHTHALATE	3.5	U	
54.	218-01-9	CHRYSENE **	1.5	U	
55.	56-55-3	BENZO(A)ANTHRACENE **			
56.	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE			26 SLC
57.	117-84-0	DI-N-OCTYL PHTHALATE	1.5	U	
58.	205-99-2	BENZO(B)FLUORANTHENE ***	1.5	U	
59.	207-08-9	BENZO(K)FLUORANTHENE ***			
60.	50-32-8	BENZO(A)PYRENE	2.0	U	
61.	193-39-5	INDENO(1.2,3-CD)PYRENE	3.5	U	
62.	53-70-3	DIBENZO(A.H)ANTHRACENE	2.5	U	
63.	191-24-2	BENZO(GHI)PERYLENE	4.0	U	
64.	88-74-4	2-NITROANILINE	1.0	U	

CODES: U --- COMPOUND WAS ANALYZED FOR, BUT NOT DETECTED. THE VALUE REPORTED IS THE METHOD DETECTION LIMIT FOR REAGENT WATER.
SLC - SUSPECTED LABORATORY CONTAMINANT
SFC - SUSPECTED FIELD CONTAMINANT

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SEMIVOLATILES ORGANIC ANALYSIS DATA SHEET

STUDY NAME: AM. CHEM. SERVICE STUDY NUMBER: SF-3413

LAB SAMPLE I.D. NO: 86S501R01 ACTIVITY CODE: C41100

	CAS #	COMPOUND	CONCENTRATION (UG/L)	
1.	111-44-4	BIS(2-CHLOROETHYL)ETHER	1.5	U
2.	108-95-2	PHENOL	2.0	U
3.	95-57-8	2-CHLOROPHENOL	2.0	U
4.	541-73-1	1,3-DICHLOROBENZENE	2.0	U
5.	106-46-7	1,4-DICHLOROBENZENE	2.0	U
6.	95-50-1	1,2-DICHLOROBENZENE	2.5	U
7.	100-51-6	BENZYL ALCOHOL	2.0	U
8.	39638-32-9	BIS(2-CHLOROISOPROPYL)ETHER	2.5	U
9.	95-48-7	2-METHYLPHENOL	1.0	U
10.	67-72-1	HEXACHLOROETHANE	2.0	U
11.	621-64-7	N-NITROSODIPROPYLAMINE	1.5	U
12.	98-95-3	NITROBENZENE	2.5	U
13.	106-44-5	4-METHYLPHENOL	1.0	U
14.	78-59-1	ISOPHORONE	2.5	U
15.	88-75-5	2-NITROPHENOL	2.0	U
16.	105-67-9	2,4-DIMETHYLPHENOL	2.0	U
17.	111-91-1	BIS(2-CHLOROETHOXY)METHANE	2.5	U
18.	120-83-2	2,4-DICHLOROPHENOL	2.0	U
19.	120-82-1	1,2,4-TRICHLOROBENZENE	2.0	U
20.	91-20-3	NAPHTHALENE	2.0	U
21.	106-47-8	4-CHLOROANILINE	2.0	U
22.	87-68-3	HEXACHLOROBUTADIENE	2.5	U
23.	65-85-0	BENZOIC ACID	(30)	U
24.	91-57-6	2-METHYLNAPHTHALENE	2.0	U
25.	59-50-7	4-CHLORO-3-CRESOL	1.5	U
26.	77-47-4	HEXACHLOROCYCLOPENTADIENE	2.0	U
27.	88-06-2	2,4,6-TRICHLOROPHENOL	1.5	U
28.	95-95-4	2,4,5-TRICHLOROPHENOL	1.5	U
29.	91-58-7	2-CHLORONAPHTHALENE	1.5	U
30.	208-96-8	ACENAPHTHYLENE	1.5	U
31.	131-11-3	DIMETHYL PHTHALATE	1.5	U
32.	606-20-2	2,6-DINITROTOLUENE	1.0	U
33.	83-32-9	ACENAPHTHENE	1.5	U
34.	99-09-2	3-NITROANILINE	2.5	U
35.	132-64-9	DIBENZOFURAN	1.0	U

STUDY NAME: AM. CHEM. SERVICE STUDY NUMBER: SF-3413

LAB SAMPLE I.D. NO: 86S501R01 ACTIVITY CODE: C41100

	CAS #	COMPOUND	CONCENTRATION (UG/L)	
36.	51-28-5	2,4-DINITROPHENOL	(15)	U
37.	121-14-2	2,4-DINITROTOLUENE	1.0	U
38.	86-73-7	FLUORENE	1.0	U
39.	100-02-7	4-NITROPHENOL	1.5	U
40.	7005-72-3	4-CHLOROPHENYLPHENYL ETHER	1.0	U
41.	84-66-2	DIETHYL PHTHALATE	1.0	U
42.	534-52-1	4,6-DINITRO-2-METHYLPHENOL	(15)	U
43.	86-30-6	N-NITROSODIPHENYLAMINE *	1.5	U
	122-39-4	DIPHENYLAMINE *		
44.	100-01-6	4-NITROANILINE	3.0	U
45.	101-55-3	4-BROMOPHENYLPHENYL ETHER	1.5	U
46.	118-74-1	HEXACHLOROBENZENE	1.5	U
47.	87-86-5	PENTACHLOROPHENOL	2.0	U
48.	85-01-8	PHENANTHRENE	1.0	U
49.	120-12-7	ANTHRACENE	2.5	U
50.	84-74-2	DI-N-BUTYL PHTHALATE	2.0	U
51.	206-44-0	FLUORANTHENE	1.5	U
52.	129-00-0	PYRENE	1.5	U
53.	85-68-7	BUTYLBENZYL PHTHALATE	3.5	U
54.	218-01-9	CHRYSENE **	1.5	U
55.	56-55-3	BENZO(A)ANTHRACENE **		
56.	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE		19 SLC
57.	117-84-0	DI-N-OCTYL PHTHALATE	1.5	U
58.	205-99-2	BENZO(B)FLUORANTHENE ***	1.5	U
59.	207-08-9	BENZO(K)FLUORANTHENE ***		
60.	50-32-8	BENZO(A)PYRENE	2.0	U
61.	193-39-5	INDENO(1,2,3-CD)PYRENE	3.5	U
62.	53-70-3	DIBENZO(A,H)ANTHRACENE	2.5	U
63.	191-24-2	BENZO(GHI)PERYLENE	4.0	U
64.	88-74-4	2-NITROANILINE	1.0	U

CODES: U --- COMPOUND WAS ANALYZED FOR, BUT NOT DETECTED. THE VALUE REPORTED IS THE METHOD DETECTION LIMIT FOR REAGENT WATER.
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SEMIVOLATILES ORGANIC ANALYSIS DATA SHEET

STUDY NAME: AM. CHEM. SERVICE STUDY NUMBER: SF-3413

LAB SAMPLE I.D. NO: 86S501S02 ACTIVITY CODE: C41100

	CAS #	COMPOUND	CONCENTRATION (UG/L)	
1.	111-44-4	BIS(2-CHLOROETHYL)ETHER	1.5	U
2.	108-95-2	PHENOL	2.0	U
3.	95-57-8	2-CHLOROPHENOL	2.0	U
4.	541-73-1	1,3-DICHLOROBENZENE	2.0	U
5.	106-46-7	1,4-DICHLOROBENZENE	2.0	U
6.	95-50-1	1,2-DICHLOROBENZENE	2.5	U
7.	100-51-6	BENZYL ALCOHOL	2.0	U
8.	39638-32-9	BIS(2-CHLOROISOPROPYL)ETHER	2.5	U
9.	95-48-7	2-METHYLPHENOL	1.0	U
10.	67-72-1	HEXACHLOROETHANE	2.0	U
11.	621-64-7	N-NITROSODIPROPYLAMINE	1.5	U
12.	98-95-3	NITROBENZENE	2.5	U
13.	106-44-5	4-METHYLPHENOL	1.0	U
14.	78-59-1	ISOPHORONE	2.5	U
15.	88-75-5	2-NITROPHENOL	2.0	U
16.	105-67-9	2,4-DIMETHYLPHENOL	2.0	U
17.	111-91-1	BIS(2-CHLOROETHOXY)METHANE	2.5	U
18.	120-83-2	2,4-DICHLOROPHENOL	2.0	U
19.	120-82-1	1,2,4-TRICHLOROBENZENE	2.0	U
20.	91-20-3	NAPHTHALENE	2.0	U
21.	106-47-8	4-CHLOROANILINE	2.0	U
22.	87-68-3	HEXACHLOROBUTADIENE	2.5	U
23.	65-85-0	BENZOIC ACID	(30)	U
24.	91-57-6	2-METHYLNAPHTHALENE	2.0	U
25.	59-50-7	4-CHLORO-3-CRESOL	1.5	U
26.	77-47-4	HEXACHLOROCYCLOPENTADIENE	2.0	U
27.	88-06-2	2,4,6-TRICHLOROPHENOL	1.5	U
28.	95-95-4	2,4,5-TRICHLOROPHENOL	1.5	U
29.	91-58-7	2-CHLORONAPHTHALENE	1.5	U
30.	208-96-8	ACENAPHTHYLENE	1.5	U
31.	131-11-3	DIMETHYL PHTHALATE	1.5	U
32.	606-20-2	2,6-DINITROTOLUENE	1.0	U
33.	83-32-9	ACENAPHTHENE	1.5	U
34.	99-09-2	3-NITROANILINE	2.5	U
35.	132-64-9	DIBENZOFURAN	1.0	U

STUDY NAME: AM. CHEM. SERVICE STUDY NUMBER: SF-34[illegible]

LAB SAMPLE I.D. NO: 86S501S02 ACTIVITY CODE: C41100

	CAS #	COMPOUND	CONCENTRATION (UG/L)	
36.	51-28-5	2,4-DINITROPHENOL	(15)	U
37.	121-14-2	2,4-DINITROTOLUENE	1.0	U
38.	86-73-7	FLUORENE	1.0	U
39.	100-02-7	4-NITROPHENOL	1.5	U
40.	7005-72-3	4-CHLOROPHENYLPHENYL ETHER	1.0	U
41.	84-66-2	DIETHYL PHTHALATE	1.0	U
42.	534-52-1	4,6-DINITRO-2-METHYLPHENOL	(15)	U
43.	86-30-6	N-NITROSODIPHENYLAMINE *	1.5	U
	122-39-4	DIPHENYLAMINE *		
44.	100-01-6	4-NITROANILINE	3.0	U
45.	101-55-3	4-BROMOPHENYLPHENYL ETHER	1.5	U
46.	118-74-1	HEXACHLOROBENZENE	1.5	U
47.	87-86-5	PENTACHLOROPHENOL	2.0	U
48.	85-01-8	PHENANTHRENE	1.0	U
49.	120-12-7	ANTHRACENE	2.5	U
50.	84-74-2	DI-N-BUTYL PHTHALATE	2.0	U
51.	206-44-0	FLUORANTHENE	1.5	U
52.	129-00-0	PYRENE	1.5	U
53.	85-68-7	BUTYLBENZYL PHTHALATE	3.5	U
54.	218-01-9	CHRYSENE **	1.5	U
55.	56-55-3	BENZO(A)ANTHRACENE **		
56.	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE		39 SLC
57.	117-84-0	DI-N-OCTYL PHTHALATE	1.5	U
58.	205-99-2	BENZO(B)FLUORANTHENE ***	1.5	U
59.	207-08-9	BENZO(K)FLUORANTHENE ***		
60.	50-32-8	BENZO(A)PYRENE	2.0	U
61.	193-39-5	INDENO(1,2,3-CD)PYRENE	3.5	U
62.	53-70-3	DIBENZO(A,H)ANTHRACENE	2.5	U
63.	191-24-2	BENZO(GHI)PERYLENE	4.0	U
64.	88-74-4	2-NITROANILINE	1.0	U

CODES: U --- COMPOUND WAS ANALYZED FOR, BUT NOT DETECTED. THE VALUE REPORTED IS THE METHOD DETECTION LIMIT FOR REAGENT WATER.
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SEMIVOLATILES ORGANIC ANALYSIS DATA SHEET

STUDY NAME: AM. CHEM. SERVICE STUDY NUMBER: SF-3413

LAB SAMPLE I.D. NO: 86S501S03 ACTIVITY CODE: C41100

	CAS #	COMPOUND	CONCENTRATION (UG/L)	
1.	111-44-4	BIS(2-CHLOROETHYL)ETHER	1.5	U
2.	108-95-2	PHENOL	2.0	U
3.	95-57-8	2-CHLOROPHENOL	2.0	U
4.	541-73-1	1,3-DICHLOROBENZENE	2.0	U
5.	106-46-7	1,4-DICHLOROBENZENE	2.0	U
6.	95-50-1	1,2-DICHLOROBENZENE	2.5	U
7.	100-51-6	BENZYL ALCOHOL	2.0	U
8.	39638-32-9	BIS(2-CHLOROISOPROPYL)ETHER	2.5	U
9.	95-48-7	2-METHYLPHENOL	1.0	U
10.	67-72-1	HEXACHLOROETHANE	2.0	U
11.	621-64-7	N-NITROSODIPROPYLAMINE	1.5	U
12.	98-95-3	NITROBENZENE	2.5	U
13.	106-44-5	4-METHYLPHENOL	1.0	U
14.	78-59-1	ISOPHORONE	2.5	U
15.	88-75-5	2-NITROPHENOL	2.0	U
16.	105-67-9	2,4-DIMETHYLPHENOL	2.0	U
17.	111-91-1	BIS(2-CHLOROETHOXY)METHANE	2.5	U
18.	120-83-2	2,4-DICHLOROPHENOL	2.0	U
19.	120-82-1	1,2,4-TRICHLOROBENZENE	2.0	U
20.	91-20-3	NAPHTHALENE	2.0	U
21.	106-47-8	4-CHLOROANILINE	2.0	U
22.	87-68-3	HEXACHLOROBUTADIENE	2.5	U
23.	65-85-0	BENZOIC ACID	(30)	U
24.	91-57-6	2-METHYLNAPHTHALENE	2.0	U
25.	59-50-7	4-CHLORO-3-CRESOL	1.5	U
26.	77-47-4	HEXACHLOROCYCLOPENTADIENE	2.0	U
27.	88-06-2	2,4,6-TRICHLOROPHENOL	1.5	U
28.	95-95-4	2,4,5-TRICHLOROPHENOL	1.5	U
29.	91-58-7	2-CHLORONAPHTHALENE	1.5	U
30.	208-96-8	ACENAPHTHYLENE	1.5	U
31.	131-11-3	DIMETHYL PHTHALATE	1.5	U
32.	606-20-2	2,6-DINITROTOLUENE	1.0	U
33.	83-32-9	ACENAPHTHENE	1.5	U
34.	99-09-2	3-NITROANILINE	2.5	U
35.	132-64-9	DIBENZOFURAN	1.0	U

STUDY NAME: AM. CHEM. SERVICE STUDY NUMBER: SF-3413

LAB SAMPLE I.D. NO: 86S501S03 ACTIVITY CODE: C41100

	CAS #	COMPOUND	CONCENTRATION (UG/L)	
36.	51-28-5	2,4-DINITROPHENOL	(15)	U
37.	121-14-2	2,4-DINITROTOLUENE	1.0	U
38.	86-73-7	FLUORENE	1.0	U
39.	100-02-7	4-NITROPHENOL	1.5	U
40.	7005-72-3	4-CHLOROPHENYLPHENYL ETHER	1.0	U
41.	84-66-2	DIETHYL PHTHALATE	1.0	U
42.	534-52-1	4,6-DINITRO-2-METHYLPHENOL	(15)	U
43.	86-30-6	N-NITROSODIPHENYLAMINE *	1.5	U
	122-39-4	DIPHENYLAMINE *		
44.	100-01-6	4-NITROANILINE	3.0	U
45.	101-55-3	4-BROMOPHENYLPHENYL ETHER	1.5	U
46.	118-74-1	HEXACHLOROBENZENE	1.5	U
47.	87-86-5	PENTACHLOROPHENOL	2.0	U
48.	85-01-8	PHENANTHRENE	1.0	U
49.	120-12-7	ANTHRACENE	2.5	U
50.	84-74-2	DI-N-BUTYL PHTHALATE	2.0	U
51.	206-44-0	FLUORANTHENE	1.5	U
52.	129-00-0	PYRENE	1.5	U
53.	85-68-7	BUTYLBENZYL PHTHALATE	3.5	U
54.	218-01-9	CHRYSENE **	1.5	U
55.	56-55-3	BENZO(A)ANTHRACENE **		
56.	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE	32	SLC
57.	117-84-0	DI-N-OCTYL PHTHALATE	1.5	U
58.	205-99-2	BENZO(B)FLUORANTHENE ***	1.5	U
59.	207-08-9	BENZO(K)FLUORANTHENE ***		
60.	50-32-8	BENZO(A)PYRENE	2.0	U
61.	193-39-5	INDENO(1,2,3-CD)PYRENE	3.5	U
62.	53-70-3	DIBENZO(A,H)ANTHRACENE	2.5	U
63.	191-24-2	BENZO(GHI)PERYLENE	4.0	U
64.	88-74-4	2-NITROANILINE	1.0	U

CODES: U --- COMPOUND WAS ANALYZED FOR, BUT NOT DETECTED. THE VALUE REPORTED IS THE METHOD DETECTION LIMIT FOR REAGENT WATER.
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U.S. EPA - REGION V. CENTRAL REGIONAL LABORATORY
536 SOUTH CLARK STREET. CHICAGO. ILLINOIS 60605

SEMIVOLATILES ORGANIC ANALYSIS DATA SHEET

STUDY NAME: AM. CHEM. SERVICE STUDY NUMBER: SF-3413

LAB SAMPLE I.D. NO: 86S501S04 ACTIVITY CODE: C41100

	CAS #	COMPOUND	CONCENTRATION (UG/L)	
1.	111-44-4	BIS(2-CHLOROETHYL)ETHER	1.5	U
2.	108-95-2	PHENOL	2.0	U
3.	95-57-8	2-CHLOROPHENOL	2.0	U
4.	541-73-1	1.3-DICHLOROBENZENE	2.0	U
5.	106-46-7	1.4-DICHLOROBENZENE	2.0	U
6.	95-50-1	1.2-DICHLOROBENZENE	2.5	U
7.	100-51-6	BENZYL ALCOHOL	2.0	U
8.	39638-32-9	BIS(2-CHLOROISOPROPYL)ETHER	2.5	U
9.	95-48-7	2-METHYLPHENOL	1.0	U
10.	67-72-1	HEXACHLOROETHANE	2.0	U
11.	621-64-7	N-NITROSODIPROPYLAMINE	1.5	U
12.	98-95-3	NITROBENZENE	2.5	U
13.	106-44-5	4-METHYLPHENOL	1.0	U
14.	78-59-1	ISOPHORONE	2.5	U
15.	88-75-5	2-NITROPHENOL	2.0	U
16.	105-67-9	2.4-DIMETHYLPHENOL	2.0	U
17.	111-91-1	BIS(2-CHLOROETHOXY)METHANE	2.5	U
18.	120-83-2	2.4-DICHLOROPHENOL	2.0	U
19.	120-82-1	1.2.4-TRICHLOROBENZENE	2.0	U
20.	91-20-3	NAPHTHALENE	2.0	U
21.	106-47-8	4-CHLOROANILINE	2.0	U
22.	87-68-3	HEXACHLOROBUTADIENE	2.5	U
23.	65-85-0	BENZOIC ACID	(30)	U
24.	91-57-6	2-METHYLNAPHTHALENE	2.0	U
25.	59-50-7	4-CHLORO-3-CRESOL	1.5	U
26.	77-47-4	HEXACHLOROCYCLOPENTADIENE	2.0	U
27.	88-06-2	2.4.6-TRICHLOROPHENOL	1.5	U
28.	95-95-4	2.4.5-TRICHLOROPHENOL	1.5	U
29.	91-58-7	2-CHLORONAPHTHALENE	1.5	U
30.	208-96-8	ACENAPHTHYLENE	1.5	U
31.	131-11-3	DIMETHYL PHTHALATE	1.5	U
32.	606-20-2	2.6-DINITROTOLUENE	1.0	U
33.	83-32-9	ACENAPHTHENE	1.5	U
34.	99-09-2	3-NITROANILINE	2.5	U
35.	132-64-9	DIBENZOFURAN	1.0	U

STUDY NAME: AM. CHEM. SERVICE STUDY NUMBER: SF-3413

LAB SAMPLE I.D. NO: 86S501S04 ACTIVITY CODE: C41100

	CAS #	COMPOUND	CONCENTRATION (UG/L)	
36.	51-28-5	2,4-DINITROPHENOL	(15)	U
37.	121-14-2	2,4-DINITROTOLUENE	1.0	U
38.	86-73-7	FLUORENE	1.0	U
39.	100-02-7	4-NITROPHENOL	1.5	U
40.	7005-72-3	4-CHLOROPHENYLPHENYL ETHER	1.0	U
41.	84-66-2	DIETHYL PHTHALATE	1.0	U
42.	534-52-1	4,6-DINITRO-2-METHYLPHENOL	(15)	U
43.	86-30-6	N-NITROSODIPHENYLAMINE *	1.5	U
	122-39-4	DIPHENYLAMINE *		
44.	100-01-6	4-NITROANILINE	3.0	U
45.	101-55-3	4-BROMOPHENYLPHENYL ETHER	1.5	U
46.	118-74-1	HEXACHLOROBENZENE	1.5	U
47.	87-86-5	PENTACHLOROPHENOL	2.0	U
48.	85-01-8	PHENANTHRENE	1.0	U
49.	120-12-7	ANTHRACENE	2.5	U
50.	84-74-2	DI-N-BUTYL PHTHALATE	2.0	U
51.	206-44-0	FLUORANTHENE	1.5	U
52.	129-00-0	PYRENE	1.5	U
53.	85-68-7	BUTYLBENZYL PHTHALATE	3.5	U
54.	218-01-9	CHRYSENE **	1.5	U
55.	56-55-3	BENZO(A)ANTHRACENE **		
56.	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE		28 SLC
57.	117-84-0	DI-N-OCTYL PHTHALATE	1.5	U
58.	205-99-2	BENZO(B)FLUORANTHENE ***	1.5	U
59.	207-08-9	BENZO(K)FLUORANTHENE ***		
60.	50-32-8	BENZO(A)PYRENE	2.0	U
61.	193-39-5	INDENO(1,2,3-CD)PYRENE	3.5	U
62.	53-70-3	DIBENZO(A,H)ANTHRACENE	2.5	U
63.	191-24-2	BENZO(GHI)PERYLENE	4.0	U
64.	88-74-4	2-NITROANILINE	1.0	U

CODES: U --- COMPOUND WAS ANALYZED FOR, BUT NOT DETECTED. THE VALUE REPORTED IS THE METHOD DETECTION LIMIT FOR REAGENT WATER.
SLC - SUSPECTED LABORATORY CONTAMINANT
SFC - SUSPECTED FIELD CONTAMINANT

* THESE TWO PARAMETERS ARE REPORTED AS A TOTAL.
** THESE TWO PARAMETERS ARE REPORTED AS A TOTAL.
*** THESE TWO PARAMETERS ARE REPORTED AS A TOTAL.

VALUES IN PARENTHESES ARE ESTIMATES. ACTUAL VALUES ARE BEING DETERMINED AT THIS TIME.

SEMIVOLATILES ORGANIC ANALYSIS DATA SHEET

STUDY NAME: AM. CHEM. SERVICE

STUDY NUMBER: SF-3413

LAB SAMPLE I.D. NO: 86S501S05

ACTIVITY CODE: C41100

	CAS #	COMPOUND	CONCENTRATION (UG/L)	
1.	111-44-4	BIS(2-CHLOROETHYL)ETHER	1.5	U
2.	108-95-2	PHENOL	2.0	U
3.	95-57-8	2-CHLOROPHENOL	2.0	U
4.	541-73-1	1,3-DICHLOROBENZENE	2.0	U
5.	106-46-7	1,4-DICHLOROBENZENE	2.0	U
6.	95-50-1	1,2-DICHLOROBENZENE	2.5	U
7.	100-51-6	BENZYL ALCOHOL	2.0	U
8.	39638-32-9	BIS(2-CHLOROISOPROPYL)ETHER	2.5	U
9.	95-48-7	2-METHYLPHENOL	1.0	U
10.	67-72-1	HEXACHLOROETHANE	2.0	U
11.	621-64-7	N-NITROSODIPROPYLAMINE	1.5	U
12.	98-95-3	NITROBENZENE	2.5	U
13.	106-44-5	4-METHYLPHENOL	1.0	U
14.	78-59-1	ISOPHORONE	2.5	U
15.	88-75-5	2-NITROPHENOL	2.0	U
16.	105-67-9	2,4-DIMETHYLPHENOL	2.0	U
17.	111-91-1	BIS(2-CHLOROETHOXY)METHANE	2.5	U
18.	120-83-2	2,4-DICHLOROPHENOL	2.0	U
19.	120-82-1	1,2,4-TRICHLOROBENZENE	2.0	U
20.	91-20-3	NAPHTHALENE	2.0	U
21.	106-47-8	4-CHLOROANILINE	2.0	U
22.	87-68-3	HEXACHLOROBUTADIENE	2.5	U
23.	65-85-0	BENZOIC ACID	(30)	U
24.	91-57-6	2-METHYLNAPHTHALENE	2.0	U
25.	59-50-7	4-CHLORO-3-CRESOL	1.5	U
26.	77-47-4	HEXACHLOROCYCLOPENTADIENE	2.0	U
27.	88-06-2	2,4,6-TRICHLOROPHENOL	1.5	U
28.	95-95-4	2,4,5-TRICHLOROPHENOL	1.5	U
29.	91-58-7	2-CHLORONAPHTHALENE	1.5	U
30.	208-96-8	ACENAPHTHYLENE	1.5	U
31.	131-11-3	DIMETHYL PHTHALATE	1.5	U
32.	606-20-2	2,6-DINITROTOLUENE	1.0	U
33.	83-32-9	ACENAPHTHENE	1.5	U
34.	99-09-2	3-NITROANILINE	2.5	U
35.	132-64-9	DIBENZOFURAN	1.0	U

STUDY NAME: AM. CHEM. SERVICE STUDY NUMBER: SF-34[illegible]

LAB SAMPLE I.D. NO: 86S501S05 ACTIVITY CODE: C41100

	CAS #	COMPOUND	CONCENTRATION (UG/L)	
36.	51-28-5	2.4-DINITROPHENOL	(15)	U
37.	121-14-2	2.4-DINITROTOLUENE	1.0	U
38.	86-73-7	FLUORENE	1.0	U
39.	100-02-7	4-NITROPHENOL	1.5	U
40.	7005-72-3	4-CHLOROPHENYLPHENYL ETHER	1.0	U
41.	84-66-2	DIETHYL PHTHALATE	1.0	U
42.	534-52-1	4,6-DINITRO-2-METHYLPHENOL	(15)	U
43.	86-30-6	N-NITROSODIPHENYLAMINE *	1.5	U
	122-39-4	DIPHENYLAMINE *		
44.	100-01-6	4-NITROANILINE	3.0	U
45.	101-55-3	4-BROMOPHENYLPHENYL ETHER	1.5	U
46.	118-74-1	HEXACHLOROBENZENE	1.5	U
47.	87-86-5	PENTACHLOROPHENOL	2.0	U
48.	85-01-8	PHENANTHRENE	1.0	U
49.	120-12-7	ANTHRACENE	2.5	U
50.	84-74-2	DI-N-BUTYL PHTHALATE	2.0	U
51.	206-44-0	FLUORANTHENE	1.5	U
52.	129-00-0	PYRENE	1.5	U
53.	85-68-7	BUTYLBENZYL PHTHALATE	3.5	U
54.	218-01-9	CHRYSENE **	1.5	J
55.	56-55-3	BENZO(A)ANTHRACENE **		
56.	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE		65 SLC
57.	117-84-0	DI-N-OCTYL PHTHALATE	1.5	U
58.	205-99-2	BENZO(B)FLUORANTHENE ***	1.5	U
59.	207-08-9	BENZO(K)FLUORANTHENE ***		
60.	50-32-8	BENZO(A)PYRENE	2.0	U
61.	193-39-5	INDENO(1,2,3-CD)PYRENE	3.5	U
62.	53-70-3	DIBENZO(A,H)ANTHRACENE	2.5	U
63.	191-24-2	BENZO(GHI)PERYLENE	4.0	U
64.	88-74-4	2-NITROANILINE	1.0	U

CODES: U --- COMPOUND WAS ANALYZED FOR, BUT NOT DETECTED. THE VALUE REPORTED IS THE METHOD DETECTION LIMIT FOR REAGENT WATER.
SLC - SUSPECTED LABORATORY CONTAMINANT
SFC - SUSPECTED FIELD CONTAMINANT

* THESE TWO PARAMETERS ARE REPORTED AS A TOTAL.
** THESE TWO PARAMETERS ARE REPORTED AS A TOTAL.
*** THESE TWO PARAMETERS ARE REPORTED AS A TOTAL.

VALUES IN PARENTHESES ARE ESTIMATES. ACTUAL VALUES ARE BEING DETERMINED AT THIS TIME.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: 9/24/86

SUBJECT: Precision and Accuracy of Analyses for Data Set SF 3413
Site: AMERICAN CHEMICAL SERVICES

FROM: Steve Parker,
CRL QC Coordinator

TO: Data User: Karen Waldvogel

The Region V Central Regional Laboratory has completed its analyses of 76 (number) WATER (matrix type) samples for the parameters listed on the attached sheet. The discrete values reported on the result forms should be considered to be of the precision and accuracy levels listed.

PRECISION is a measure of reproducibility or the closeness with which individual measurements of the same property, under similar conditions agree with each other. It is expressed as the relative percent difference (RPD) or the absolute concentration difference (R') between duplicate analyses. The limit acceptable at the time of analysis is stated. QC data within these limits indicate that the analysis was in control for that set of data.

ACCURACY is a measure of the closeness of an individual measurement to the expected value. It can be expressed as percent recovery of a known spike or standard concentration, or as percent bias which is the deviation from the true value. The limits applicable at the time of analysis are stated. A 95% confidence interval means that 95% of the time, percent recovery will fall between those limts.

Attachment

TRANSMITTED BY
Griffin
SEP 24 1986
U.S. EPA CENTRAL REGIONAL LAB

PRECISION AND ACCURACY STATEMENT

Data Set: SF-3413 Matrix: WATER

Site Name: AMERICAN CHEMICAL SERVICES

	PRECISION			ACCURACY		
Parameter	RPD R'	Limit	Method of Quality Control	% Recovery % Bias	Limit	Method of Quality Control
PCB	16%	≤ 35%	DUPLICATE SPIKE	61-73	60-120%	SPIKED WATER
LINDANE	2%			122-124 *	62-118	
HEPTACHLOR	3%			138-141 *	62-124	
ALDRIN	2%			123-125 *	50-104	
ENDOSULFAN-1	2%			80-81	65-123	
DIELDRIN	2%			118-120	79-126	
ENDRIN	1%			108-109	69-119	
DDT	1%			106-107	66-117	
METHOXYCHLOR	1%			110-111	71-139	

COMMENT: * NOT SIGNIFICANT

SAMPLE 504 WAS LOST DURING SAMPLE PREPARATION

QC FLAGS:

ENVIRONMENTAL PROTECTION AGENCY, REGION V BASIC DATA FORM:

DIVISION/BRANCH: ESD Sampling Date: 8/15/86 (Month Day Year) Arrival Date: 8/16/86 (Month Day Year) Analysis Due Date: 8/27/86 (Month Day Year)

D.U. Number: Y306. Group #: Amer Chem Serv. Activity #: C41100 Study: SF3413

ALL UNITS ARE MICROGRAMS PER LITER OR MILLIGRAMS PER KILOGRAM.

Pesticide / Sample #	Y-BHC Lindane	Heptachlor	Aldrin	Heptachlor epoxide	Endosulfan I	Dieldrin	Endrin	Endosulfan II	pp-DDE	Beta-BHC	Delta-BHC	α-BHC	pp-DDD	pp-DDT	Methoxy Chlor	Endosulfan sulfate	Endrin aldehyde	Endrin ketone	Chlordane	Toxaphene
1 86S5001 $01	<.005	<.030	<.005	<.005	<.01	<.01	<.01	<.01	<.005	<.005	<.005	<.010	<.020	<.020	<.020	<.1	<.030	<.030	<.02	<1.0
2 $02	<.005	<.030	<.005	<.005	<.01	<.01	<.01	<.01	<.005	<.005	<.005	<.010	<.020	<.020	<.020	<.1	<.030	<.030	<.02	<1.0
3 D01	<.005	<.030	<.005	<.005	<.01	<.01	<.01	<.01	<.005	<.005	<.005	<.010	<.020	<.020	<.020	<.1	<.030	<.030	<.02	<1.0
4 R01	<.005	<.030	<.005	<.005	<.01	<.01	<.01	<.01	<.005	<.005	<.005	<.010	<.020	<.020	<.020	<.1	<.030	<.030	<.02	<1.0
5 $03	<.005	<.030	<.005	<.005	<.01	<.01	<.01	<.01	<.005	<.005	<.005	<.010	<.020	<.020	<.020	<.1	<.030	<.030	<.02	<1.0
6 $04*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
7 $05	<.005	<.005	<.005	<.005	<.01	<.01	<.01	<.01	<.005	<.005	<.005	<.010	<.020	<.020	<.020	<.1	<.030	<.030	<.02	<1.0
8	/																			
9										AL 9/15/86										
10										D.T. 9-15-86										
11	* Lost during sample preparation.									VF 9-15-86										
12										9/24/82										

ENVIRONMENTAL PROTECTION AGENCY, REGION V BASIC DATA FORM:

Form # 1: 8/27/81

DIVISION/BRANCH: ESD Sampling Date: 8 15 86 (Month Day Year) Arrival Date: 8 16 86 (Month Day Year) Analysis Due Date: 1 (Month Da

D.U. Number: Y306 Group #: Amerchem Serv. Activity #: C41100 Study: SF 3413

All units are micrograms per liter or milligram per kilograms Sample Type: Water, Sediment, Oil, Sludg

#	Sample #	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor	Aroclor	Aroclor	Dibuthyl phthalate	Diethyl Hexyl phthalate
1	8653001 $01	<.1	<.1	<.1	<.1					
2	D01	<.1	<.1	<.1	<.1					
3	R01	<.1	<.1	<.1	<.1					
4	$02	<.1	<.1	<.1	<.1					
5	$03	<.1	<.1	<.1	<.1					
6	$04*	—	—	—	—					
7	$05	<.1	<.1	<.1	<.1					
8										
9										
0					AC	9/15/86				
1										
2					JJ.7	9-15-86				
3										
4		* Lost during sample prep.			UF	9-15-86				
5					DK	9/24/86				
6										
7										
8										
9										
0										
1										
2										

1

N
12/3/97

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5 CENTRAL REGIONAL LABORATORY

536 SOUTH CLARK STREET

CHICAGO, ILLINOIS 60605

Date: DEC 03 1997

Subject: Review of Region 5 Data for **AMERICAN CHEMICAL SERVICES**

From: Charles T. Elly, Director Chuck Elly
Region 5 Central Regional Laboratory

To: B&V

Attached are the results for **AMERICAN CHEMICAL SERVICES**
CRL request number **970605**
for analyses for and **Total Organic Carbon(TOC).**
Results are reported for sample designations: 97ZB07S01, 97ZB07S02, 97ZB07S03, 97ZB07S04, 97ZB07D04, 97ZB07S05, 97ZB07S06, 97ZB07S07, 97ZB07S08, 97ZB07S09, 97ZB07S10, and 97ZB07S11.

Results Status:

( ) Acceptable for Use:
(X) Data Qualified, but Acceptable for use:
( ) Data Unacceptable for Use:
( ) Sewer Disposal Criteria Met;

Comments on Data Quality by Reviewer:

All the soil samples submitted for TOC analysis were assayed and the results are attached. Required quality control criteria for the laboratory, method, and system performance audits were evaluated and determined to be within the limits with the following exception;

Spike Recovery: The matrix spike recovery obtained for sample 97ZB07S02 (recovery 79.4%) was found to be marginally out of the limit. The limit is 100 ± 20 %. This should not affect the data.

Holding Time: The holding time for TOC analysis (Limit = 28 days) was exceeded due to an instrument problem. The TOC results could be biased low. The results are acceptable for use.

Comments on Sample Results:

All the sample results are acceptable for use.

Comments by Laboratory Director or Quality Control Coordinator:

Francis A. Awanya 12/2/97
Review and Date (X) Reviewed ( ) Unreviewed

7 Dec 97
Team Leader and Date (X) Reviewed ( ) Unreviewed

Chuck E Ely 12/3/97
QC Coordinator and Date ( ) Reviewed (X) Unreviewed

Sylvia Griffin DEC 03 1997
Data Management Coordinator and Date Received

DEC 03 1997
Date Transmitted

Please sign and date this form below and return it with any comments to:

Sylvia Griffin
Data Management Coordinator
Region 5 Central Regional Laboratory
SL - 10C

Received by and Date

Comments:

TOC Soil Calculation
METHOD 415 SOIL
(DRY COMBUSTION,IR DETECTION)

DATASET 970605

Analyst - B. YUEN / L. LEONOVA

Date of analysis - 09/12-11/06/1997

FINAL TABULATED REPORT

(A) SAMPLE I.D.#	(B) Total Solid % 60	(C) Total Solid % 105	(D) Volatile Solid % 550	(E) Moisture Sample % 60-105	(F) CALC. TOC % Dry Wt. 60 deg.	(G) CALC. TOC % Moisture Corr.Wt.	(H) CALC. TOC % Total Sample
	Degrees (Centigrade)			Degrees			
97ZB07							
S01	67.5566	67.1298	11.3617	0.6319	3.3859	3.3645	2.2729
S02	24.2158	23.3371	35.6923	3.6286	8.3802	8.0761	1.9557
S03	63.6840	63.3434	5.1977	0.5347	1.2078	1.2013	0.7651
S04	71.6905	71.4228	3.0125	0.3734	0.4848	0.4830	0.3463
D04	71.5835	71.2977	3.2987	0.3992	1.0687	1.0644	0.7620
S05	73.6514	73.4094	4.1019	0.3286	1.2489	1.2448	0.9168
S06	57.1512	56.7650	8.8060	0.6757	1.4924	1.4823	0.8472
S07	49.1541	48.4500	27.1287	1.4324	5.5725	5.4927	2.6999
S08	67.1697	66.5966	8.4114	0.8532	2.0146	1.9974	1.3417
S09	32.9141	32.4983	20.4895	1.2633	4.8588	4.7974	1.5790
S10	58.2576	58.0289	4.6472	0.3926	1.1607	1.1561	0.6735
S11	56.2557	55.4680	7.5938	1.4002	1.3786	1.3593	0.7647

11.06.97
L. Leonova
B. Yuen

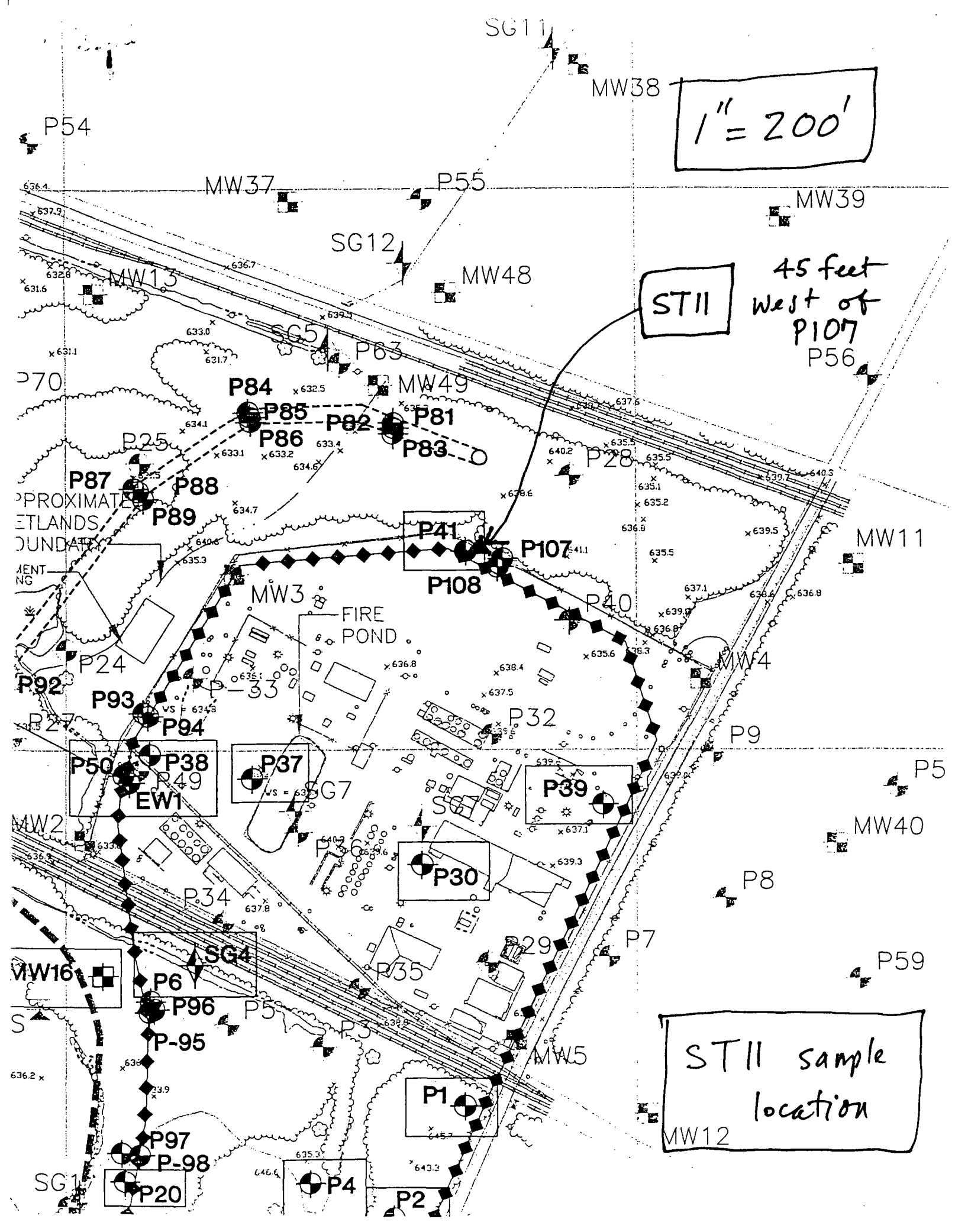
FORMULAS:

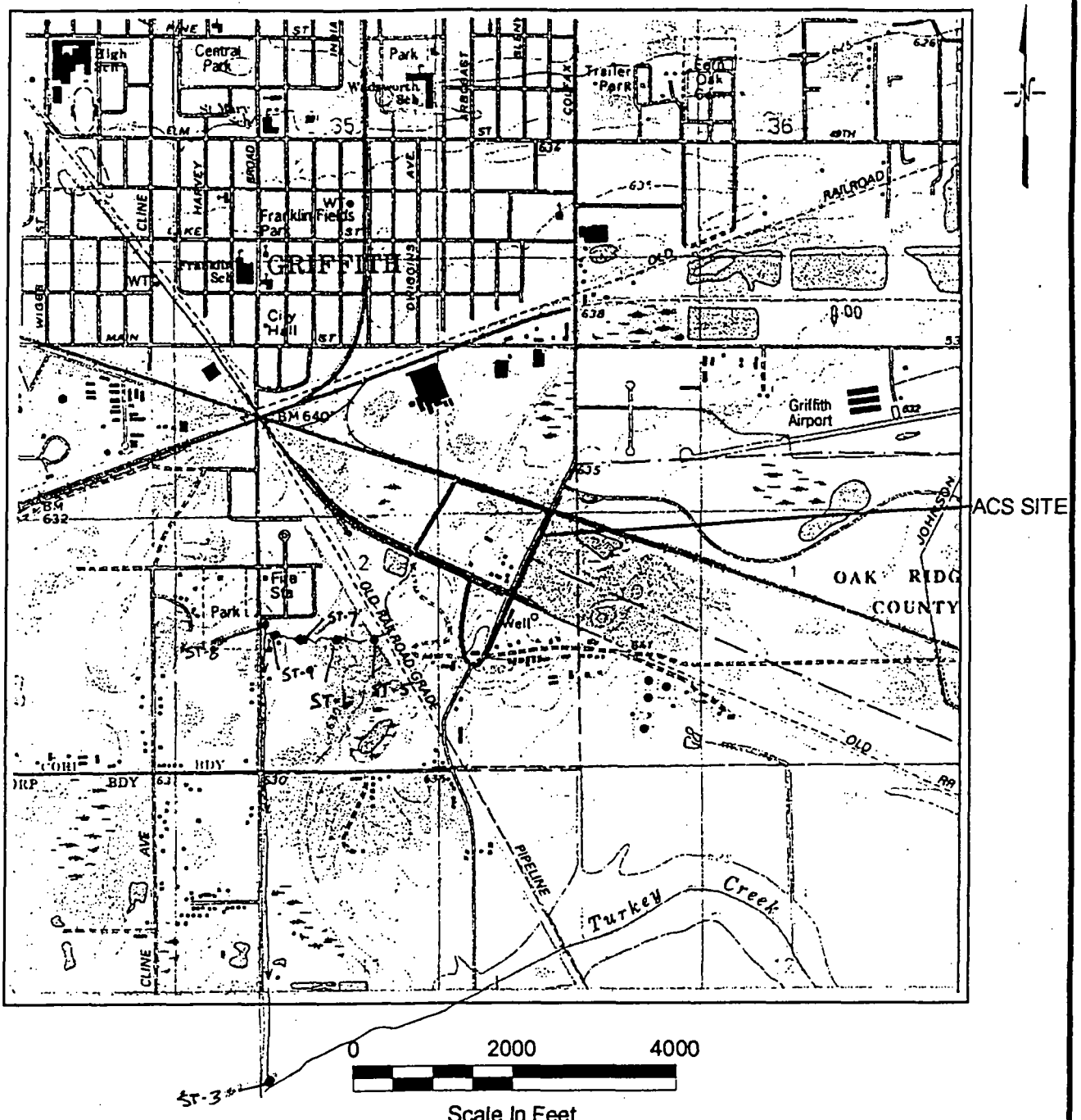
Moisture Corr. = Factor	100 - (E)	CALC. TOC % Moisture Corr.Wt.	= (F) x (I)/100	CALC. Total Sample TOC %	= (G) x (B)/100

(I)
Moisture
Corr.
Factor

99.3681 = S01
96.3714 = S02
99.4653 = S03
99.6266 = S04
99.6008 = D04
99.6714 = S05
99.3243 = S06
98.5676 = S07
99.1468 = S08
98.7367 = S09
99.6074 = S10
98.5998 = S11

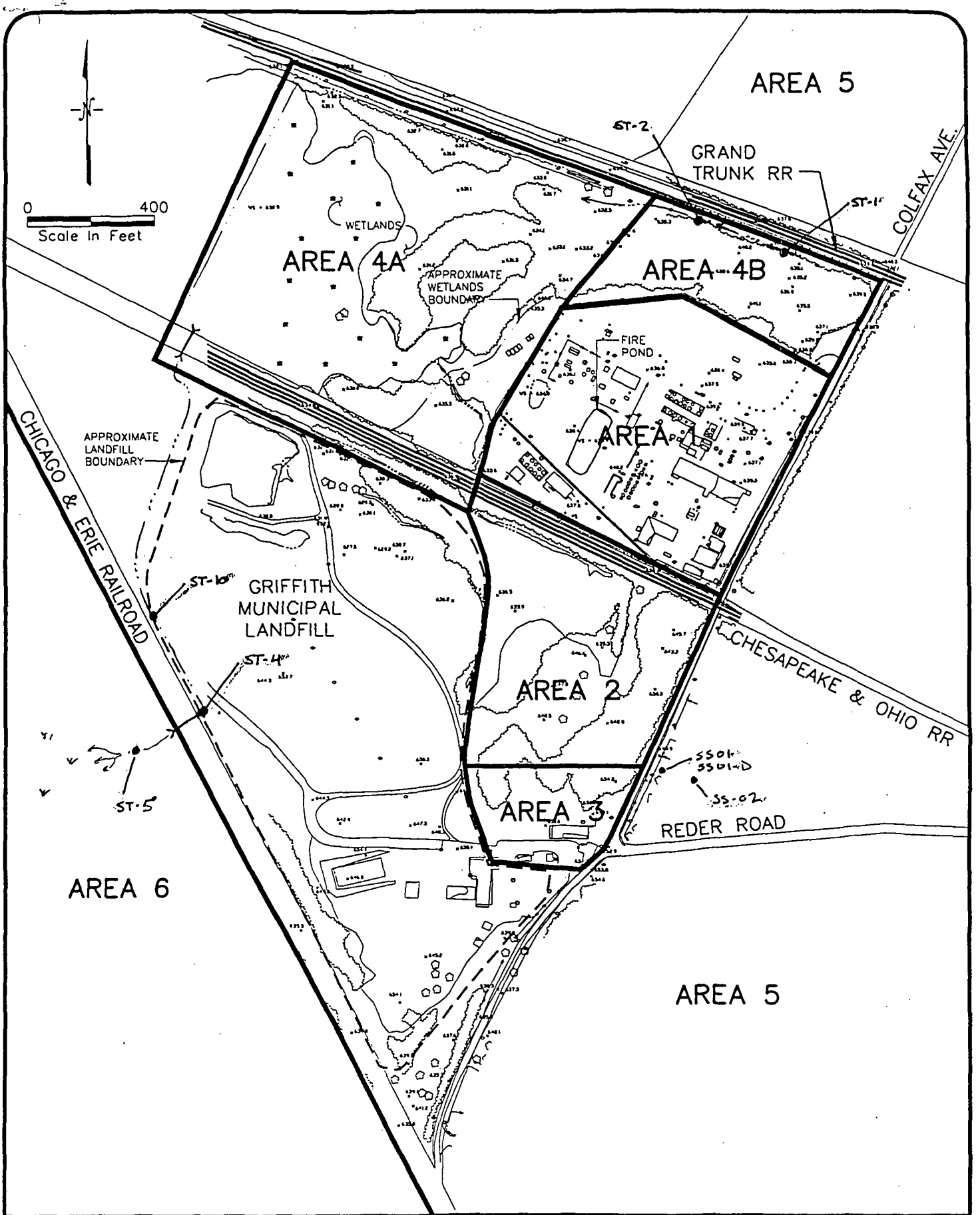
11.06.97
I. Ivanova
B. Yuan


1" = 200'
ST11
45 feet west of P107
ST11 sample location
SG11
MW38
P54
MW37
P55
MW39
SG12
MW48
MW13
SG5
P63
P56
P70
MW49
P84
P85
P82
P81
P86
P83
P25
P28
P87
P88
P89
P41
P107
P108
MW11
MW3
FIRE POND
P40
P24
MW4
P92
P93
P94
P33
P32
P9
P50
P38
P49
EW1
P37
SG7
P39
P5
MW2
MW40
P36
P30
P8
P34
P29
P7
SG4
MW16
P6
P96
P35
P59
P5
P3
P-95
MW5
P1
MW12
P97
P-98
SG1
P20
P4
P2



SOURCE: USGS TOPOGRAPHIC; HIGHLAND QUADRANGLE, I NDIANA, 1991

ENVIRON	SITE LOCATION MAP ACS NPL SITE GRIFFITH, INDIANA	Figure 1
Drafted By: HFZ Date: 6/24/97		5543BJ01



ENVIRON

DRAFTED BY: KPM/HFZ | DATE: 10/2/97

POTENTIAL EXPOSURE AREAS
ACS NPL SITE
GRIFFITH, INDIANA

FIGURE 3-3

5543AB01(V=A)

CENTRAL REGIONAL LABORATORY SAMPLE DATA REPORT
ORGANICS/INORGANICS

THIS FORM IS TO BE USED FOR SAMPLES SENT TO CONTRACT ONLY

: NUMBER/SAS No. 25668 SITE NAME American Chemical Service LABORATORY Southwest Labs of OK DATE SHIPPED 9-10-97

RFUND DU NUMBER TGB102 EPA RPM or OSC (S.M.S.)/(CES) S. Bianchin CERCLIS ID INDO16360265 PAGE 1 OF 1

VITY NUMBER

CRL LOG NUMBER	ORGANIC TRAFFIC REPORT NUMBER or SAS Packing List No.	INORGANIC TRAFFIC REPORT NUMBER	WATER OR LIQUIDS: ACID BASE NEUTRAL CPDS ORGANIC SCAN UG L TOX17574	VOLATILE ORGANIC ANALYSIS ORGANIC SCAN UG L TOX17564	WATER POLYCHLORINATED BIPHENYLS UG L PES 17144	WATER CHLORINATED PESTICIDES UG L PES17134	TOTAL METALS IN WATER UG L MET111	WATER CYANIDE UG L MIN74919	NITRATE NITRITE MG L MIN7284	AMMONIA MG L MIN7294	RESIDUE, FILTERABLE TDS MG L MIN7362	RESIDUE, NON-FILT TSS MG L MIN7372			SEDIMENTS or SOILS: ACID-BASE NEUTRAL CPDS ORGANIC SCAN MG KG TOX215722	VOLATILE ORGANIC ANALYSIS ORGANIC SCAN MG KG TOX215622	SEDIMENTS POLYCHLORINATED BIPHENYLS MG KG PES	SEDIMENTS CHLORINATED PESTICIDES MG KG	TOTAL METALS MG KG MET	CYANIDE MG KG MIN4990	EP TOXICITY METALS MG KG	AMMONIA MG KG MIN4925	Total Organic Carbon			
17ZB07ST01	EARX3	—													X		X						X				
ST02	EARX4	—													X		X						X				
ST03	EARX5	—													X		X						X				
ST04	EAZR9	—													X		X						X				
ST04D	EAZS6	—													X		X						X				
ST05	EAZS0	—													X		X						X				
ST06	EAZS1	—													X		X						X				
ST07	EAZS2	—													X		X						X				
ST08	EAZS3	—													X		X						X				
ST09	EAZS4	—													X		X						X				
ST10	EAZS5	—													X		X						X				
ST11	EAZS7	—													X		X						X				

EPA United States Environmental Protection Agency
Contract Laboratory Program

Organic Traffic Report & Chain of Custody Record
(For Organic CLP Analysis)

SAS No. (if applicable):
Case No.: 25668

1. Project Code:
Account Code:
2. Region No.: 5
Sampling Co.: BVSPC
4. Date Shipped: 9-10-97
Carrier: Federal Express

Regional Information: TGB102
Sampler (Name): Steve Mrkvicka
Airbill Number: 5654191023

Non-Superfund Program:
Sampler Signature: SMrkvicka

Site Name: American Chemical Services
3. Purpose*
Lead: [ ] SF [X] PRP [ ] ST [ ] FED
Early Action: [ ] CLEM [ ] PA [ ] REM [ ] RI [ ] SI [ ] ESI
Long-Term Action: [ ] FS [X] RD [X] RA [ ] O&M [ ] NPLD

City, State: Griffith, IN
Site Spill ID: J7

5. Ship To: Southwest Labs of Oklahoma
1700 West Albany, Suite C
Broken Arrow, OK 74102
ATTN: Mark Smith, Manager

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)
EAZS6	5	L	C	5		X	X		5-129375,6	ACS-ST04-101	9-10-97 0720	—	SRM	D
EAZS7	5	L	C	5		X	X		5-129377,8	ACS-ST11-001	9-10-97 1120	—	SRM	—

Shipment for Case Complete? (Y/N): Y
Page 2 of 2
Sample(s) to be Used for Laboratory QC: EAZS4 MS/MSD
Additional Sampler Signatures:
Chain of Custody Seal Number(s): 153263, 153264

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
SMrkvicka	9-10-97 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)	Date / Time	Remarks Is custody seal intact? Y/N/none	

A21-012-3 REV. 3/93

DISTRIBUTION: Blue - Region Copy; White - Lab Copy for Return to Region; Pink - SMO Copy; Yellow - Lab Copy for Return to SMO

EPA Form 9110-2

SEE REVERSE FOR ADDITIONAL STANDARD INSTRUCTIONS
*SEE REVERSE FOR PURPOSE CODE DEFINITIONS

359279

EPA United States Environmental Protection Agency
Contract Laboratory Program

Organic Traffic Report & Chain of Custody Record
(For Organic CLP Analysis)

SAS No. (if applicable):

Case No.: 25668

1. Project Code:
Account Code:
2. Region No.: 5
Sampling Co.: BVSPC
4. Date Shipped: 9-10-97
Carrier: Federal Express

Regional Information: TGB102
Sampler (Name): Steve Mrkvicka
Airbill Number: 5654191023

Non-Superfund Program
Sampler Signature: SMrkvicka
5. Ship To: Southwest Labs of Oklahoma, 1700 West Albany, Suite C, Broken Arrow, OK 74012
ATTN: Mark Smith, Manager

Site Name: American Chemical Services
City, State: Griffith, IN
Site Spill ID: J7

3. Purpose*
Lead: [ ] SF [X] PRP [ ] ST [ ] FED
Early Action: [ ] CLEM [ ] PA [ ] REM [ ] RI [ ] SI [ ] ESI
Long-Term Action: [ ] FS [X] RD [X] 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)
EARX3	5	L	C SRM	5		X	X		5-129352,3	ACS-ST01-001	9-8-97 1315 SRM	—	SRM	—
EARX4	5	L	C SRM	5		X	X		5-129355,6	ACS-ST02-001	9-8-97 1340	—	SRM	—
EARX5	5	L	C SRM	5		X	X		5-129358,9	ACS-ST03-001	9-8-97 1530	—	SRM	—
EAZR9	5	L	C	5		X	X		5-129361,2	ACS-ST04-001	9-10-97 0720	—	SRM	—
EAZSØ	5	L	C	5		X	X		5-129363,4	ACS-ST05-001	9-10-97 0735	—	SRM	—
EAZS1	5	L	C	5		X	X		5-129365,6	ACS-ST06-001	9-10-97 0805	—	SRM	—
EAZS2	5	L	C	5		X	X		5-129367,8	ACS-ST07-001	9-10-97 0825	—	SRM	—
EAZS3	5	L	C	5		X	X		5-129369,70	ACS-ST08-001	9-10-97 0840	—	SRM	—
EAZS4	5	L	C	5		X	X		5-129371,2	ACS-ST09-001	9-10-97 0850	—	SRM	MS/MSD
EAZS5	5	L	C	5		X	X		5-129373,4	ACS-ST10-001	9-10-97 0955	—	SRM	—

Shipment for Case Complete? (Y/N): Y
Page 1 of 2
Sample(s) to be Used for Laboratory QC: EAZS4 MS/MSD
Additional Sampler Signatures:
Chain of Custody Seal Number(s): 153263, 153264

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
SMrkvicka	9-10-97 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)	Date / Time	Remarks Is custody seal intact? Y/N/none	

AQ1-012-3 REV. 3/93

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EPA Form 9110-2

SEE REVERSE FOR ADDITIONAL STANDARD INSTRUCTIONS
*SEE REVERSE FOR PURPOSE CODE DEFINITIONS

359278

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

REGION 5
77 West Jackson Boulevard
Chicago, Illinois 60604

CHAIN OF CUSTODY RECORD

PROJ. NO.: 91670.600
PROJECT NAME: American Chemical Services
Activity Code:

SAMPLERS: (Print Name and Sign) Steve Mrkvicka

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	Analyte: TOC						CRL No.	TAG NUMBERS
ST01	9-9-97	1315	X	X SRM	ACS-ST01-001 EARX3	1	1						97ZB07ST01	5-129354
ST02	9-9-97	1340	X	X SRM	ACS-ST02-001 EARX4	1	1						97ZB07ST02	5-129357
ST03	9-9-97	1530	X	X SRM	ACS-ST03-001 EARX5	1	1						97ZB07ST03	5-129360
ST04	9-10-97	0720	X		ACS-ST04-001 EAZR9	1	1						97ZB07ST04	5-129379
ST04D	9-10-97	0720	X		ACS-ST04-101 EAZS~~0~~R6 SRM	1	1						97ZB07ST04D	5-129380
ST05	9-10-97	0735	X		ACS-ST05-001 EAZS0	1	1						97ZB07ST05	5-129381
ST06	9-10-97	0805	X		ACS-ST06-001 EAZS1	1	1						97ZB07ST06	5-129382
ST07	9-10-97	0825	X		ACS-ST07-001 EAZS2	1	1						97ZB07ST07	5-129383
ST08	9-10-97	0840	X		ACS-ST08-001 EAZS3	1	1						97ZB07ST08	5-129384
ST09	9-10-97	0850	X		ACS-ST09-001 EAZS4	1	1						97ZB07ST09	5-129385
ST10	9-10-97	0755	X		ACS-ST10-001 EAZS5	1	1						97ZB07ST10	5-129386
ST11	9-10-97	1120	X		ACS-ST11-001 EAZS7	1	1						97ZB07ST11	5-129387

Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	9-11-97 0750	[signature]
Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature) / Date / Time
		[signature] 9/11/97 7:52 AM

Ship To:

ATTN:

Airbill Number

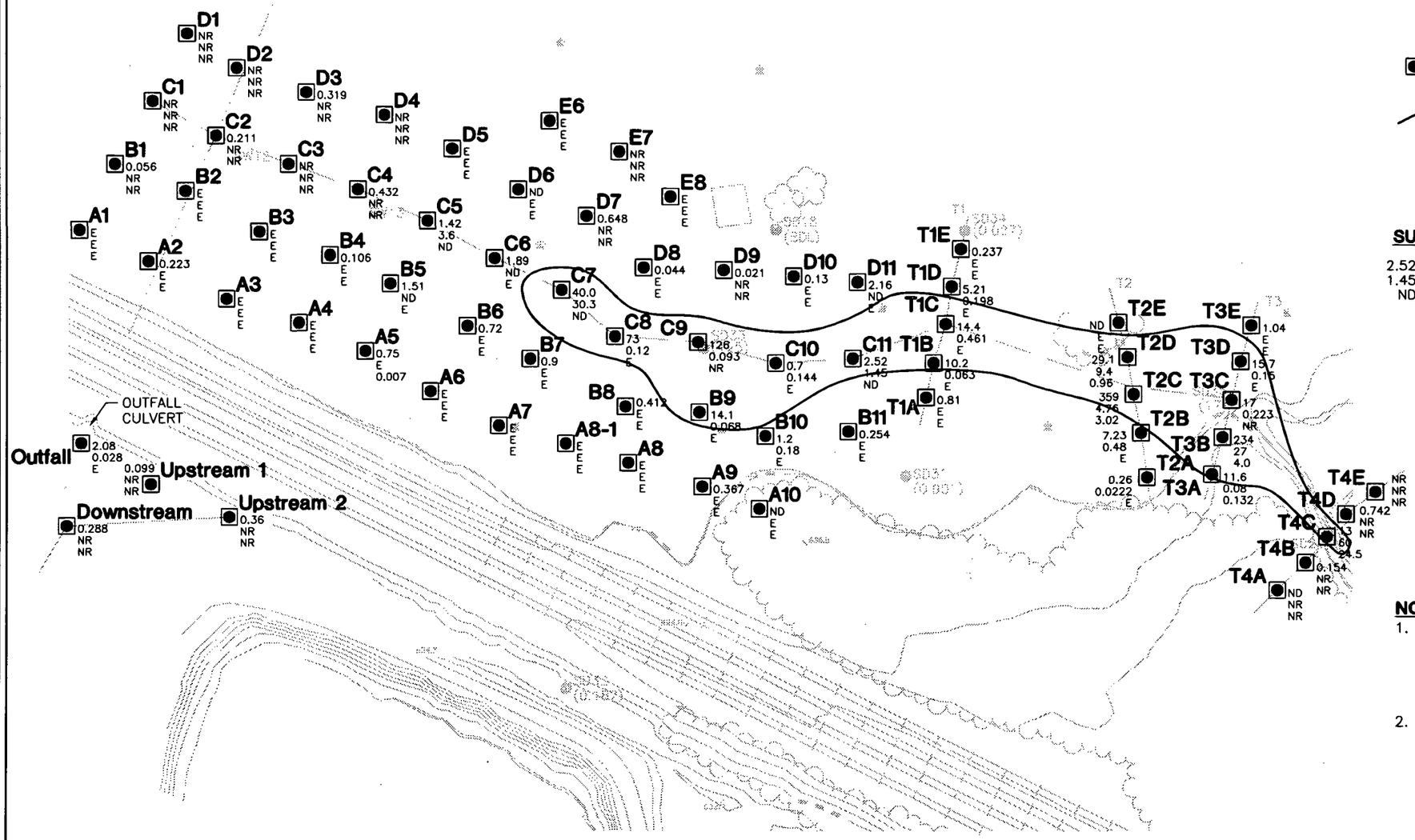
Chain of Custody Seal Numbers

Distribution: White - Accompanies Shipment; Pink - Coordinator Field Files; Yellow - Laboratory File

Printed on Recycled Paper/Printed with Soy-Based Ink

5-60571

PCBs IN SEDIMENTS



LEGEND

- CHANNEL COURSE
- (3031) SEDIMENT/SOIL SAMPLE LOCATION AND NUMBER, FROM PHASE I WETLAND INVESTIGATION
- (0.601) TOTAL PCB CONCENTRATION, in mg/kg FROM PHASE I WETLAND INVESTIGATION
- A1 WETLAND SAMPLE LOCATION AND NUMBER
- PROPOSED LIMITS OF EXCAVATION

SUMMARY OF TOTAL PCB RESULTS

2.52 – 0.5 ft.
1.45 – 1.0 ft.
ND – 1.5 ft.
— ALL RESULTS IN mg/kg (ppm)

ND NOT DETECTED (DETECTION LIMIT APPROXIMATELY 0.05 mg/kg)
E EXTRACTED, NOT ANALYZED
NR ANALYSIS NOT REQUESTED

NOTES

1. BASE MAP DEVELOPED FROM AN AERIAL SURVEY MAP OF THE SITE FLOWN ON MARCH 8, 1994 BY GEONEX CHICAGO AERIAL SURVEY, INC. CONTOUR INTERVAL IS TWO FEET.
2. SEDIMENT SAMPLES COLLECTED BY MONTGOMERY WATSON FROM NOVEMBER 18 TO NOVEMBER 21, 1996.

north

0 80 160

SCALE IN FEET

FIGURE 1

Developed By TAB
Drawn By DKP
Approved By
Date 3/12/98
Reference J:/1252/042/MWDWGS/SAMPLE LOCATIONS/PCB_CONCEN.dwg
Revisions

WETLAND SEDIMENT PCB CONCENTRATION MAP AND PROPOSED AREA OF EXCAVATION

AMERICAN CHEMICAL SERVICE, INC.
NPL SITE
GRIFFITH, INDIANA

Drawing Number
1252042
260101

MONTGOMERY WATSON

Management Review
Other
Technical Review
Project Manager
Graphic Standards
Lead Professional
QUALITY CONTROL

This document has been developed for a specific application and may not be used without the written approval of Montgomery Watson.

12/30/96

FAX

MONTGOMERY WATSON

2100 Corporate Drive
Addison, IL 60101

Tel: 630 691-5020
Fax: 630 691-5133

Date: 30-Dec-96

To:	Sheri Bianchin	Fax No.:	(312) 886-4071
	Jim Chapman	Fax No.:	(312) 353-9281
	Holly Grejda	Fax No.:	(317) 308-3063
	Steve Mrkvika	Fax No.:	(312) 346-4781

From: Peter Vagt

Subject: ACS NPL Site Sediment Sampling

COMMENTS

The following items are attached to provide a summary of the Round 1 and Round 2 Sediment Sample Analyses results:

Table 1. Update of Wetland PCB Sediment Sampling. This table includes the analytical results for PCBs and mercury in the Round 1 analyses and the PCB results for the Round 2 analyses.

Plot of Results through Round 2. This is a two-page tabulation to provide a graphic representation of the results of the first two rounds of analysis.

Table 2. Sample Analysis Selection Matrix. This is a tabulation of all samples collected, with a listing of which samples are being analyzed for each round of analysis. The column titled "**Rd 3 Spls**" indicates the samples that have been submitted for the third round of analysis.

If you do not receive all pages, or if there are any problems with this transmission, please call (608) 231-4747. Operator: _____ *No. of pages including cover:* 11

Update of Wetland PCB Sediment Sampling

American Chemical Service NPL Site
Griffith, Indiana

Table 1

Sample-ID	Depth	AR-1016	AR-1221	AR-1232	AR-1242	AR-1248		AR-1254		AR-1260		Total PCBs mg/kg	Mercury mg/kg
Round 1 Analytical Results - Final, Unvalidated: 12/9/96													
APD-Culvert Outfall	0.5	U	U	U	U	510		810	P	760	P	2.08	0.16 UN
APD-Culvert Downstream	0.5	U	U	U	U	58		110	P	120		0.29	0.11 UN
APD-Culvert Upstream (1)	0.5	U	U	U	U	29	JP	43	JP	27	JP	0.10	0.17 UN
APD-Culvert Upstream (2)	0.5	U	U	U	U	U		U		U		ND	0.19 UN
APD-SDB1	0.5	U	U	U	U	U		15	JP	41	J	0.056	0.43 U
APD-SDB5	0.5	U	U	U	U	250		830		430	P	**1.5**	**0.28**
APD-SDB9	0.5	U	U	U	U	2,100	J	7,100		4,900	P	**14.1**	**0.28**
APD-SDC2	0.5	U	U	U	U	49	JP	99	P	63	JP	0.21	0.24 U
APD-SDC4	0.5	U	U	U	U	72	P	230		130	P	0.432	0.17 U
APD-SDC6	0.5	U	U	U	U	190	JP	940		760		**1.89**	0.12 U
APD-SDC8	0.5	U	U	U	U	23,000		35,000	P	15,000	P	**73**	**0.60**
APD-SDC9	1.0	U	U	U	U	21	JP	49	P	23	JP	0.093	0.12 U
APD-SDC10	0.5	U	U	U	U	170	P	360	P	170	P	0.7	0.12 UN
APD-SDD3	0.5	U	U	U	U	62	P	170		87	P	0.319	0.17 U
APD-SDD7	0.5	U	U	U	U	78	JP	320		250		0.65	0.11 U
APD-SDD9	0.5	U	U	U	U	1.8	JP	12	JP	6.9	JP	0.021	0.10 U
APD-SDT1 (B)	0.5	U	U	U	U	1,800	JP	4,800	P	3,600		**10.2**	**0.44**
APD-SDT1 (C)	0.5	U	U	U	U	2,300	JP	9,300	P	2,800	J	**14.4**	**1.4**
APD-SDT1 (D)	0.5	U	U	U	U	510	JP	3,500	P	1,200		**5.2**	**2.6**
APD-SDT2 (B)	0.5	U	U	U	U	930	J	3,400	P	2,900	P	**7.23**	0.15 U
APD-SDT2 (C)	0.5	U	U	U	U	99,000		200,000		60,000	JP	**359**	**6.1**
APD-SDT2 (D)	0.5	U	U	U	U	6,700	JP	17,000		5,400	JP	**29**	**1.6**
APD-SDT3 (B)	0.5	U	U	U	U	54,000	P	150,000		30,000	JP	**234**	**1.2**
APD-SDT3 (C)	1.0	U	U	U	U	80	P	100	58	43	JP	0.28	0.13 U
APD-SDT3 (D)	0.5	U	U	U	U	2,200	JP	7,000		6,500	P	**16**	**2.5**
APD-SDT4 (B)	0.5	U	U	U	U	13	JP	80	P	61	P	0.15	0.19 UN
APD-SDT4 (C)	1.0	U	U	U	U	10,000	JP	31,000	JP	19,000	J	**60**	0.28 N
APD-SDT4 (D)	0.5	U	U	U	U	22	JP	590		200		0.81	0.12 UN

FROM : MONTGOMERY WATSON 708 691 5133 1996,12-30 08:55 #008 P.02/11

Tab 1

FROM : MONTGOMERY WATSON 708 691 5133 1996,12-30 08:56 #008 P.03/11

Sample-ID	Depth	AR-1016	AR-1221	AR-1232	AR-1242	AR-1248		AR-1254		AR-1260		Total PCBs mg/kg	Mercury mg/kg
Round 2 Analytical Results - Preliminary Draft: 12/23/96													
APD-Culvert Outfall	1.0	U	U	U	U		U	28	JP		U	0.028	na
APD-SDA2	0.5	U	U	U	U		U	130		66		0.196	na
APD-SDA5	0.5	U	U	U	U	4.2	JP	2.8	JP	U		0.007	na
APD-SDA9	0.5	U	U	U	U		U	170		150		0.32	na
APD-SDB1 Dup	0.5	U	U	U	U							ND	na
APD-SDB4	0.5	U	U	U	U	38	J	54	J	14	JP	0.106	na
APD-SDB5	1.0	U	U	U	U		U		U		U	ND	na
APD-SDB6	0.5	U	U	U	U	160	J	370		190	J	0.72	na
APD-SDB8	0.5	U	U	U	U	79	J	250		83	J	0.412	na
APD-SDB9	1.0	U	U	U	U	27	JP	41	JP		U	0.068	na
APD-SDB10	0.5	U	U	U	U	230	J	670		300	JP	1.2	na
APD-SDC5	0.5	U	U	U	U							ND	na
APD-SDC6	1.0	U	U	U	U		U		U		U	ND	na
APD-SDC7	0.5	U	U	U	U		U	450		200		0.65	na
APD-SDC7 Dup	0.5	U	U	U	U		U	20,000			U	20	na
APD-SDC8	1.0	U	U	U	U	68		52			U	0.12	na
APD-SDC10	1.0	U	U	U	U	71		73	P		U	0.144	na
APD-SDC11	0.5	U	U	U	U	U		840		630		1.47	na
APD-SDD6	0.5	U	U	U	U		U		U		U	ND	na
APD-SDD8	0.5	U	U	U	U		U	44	P		U	0.044	na
APD-SDD10	0.5	U	U	U	U		U	95		35		0.13	na
APD-SD T1 (A)	0.5	U	U	U	U		U	570		240		0.81	na
APD-SD T1 (B)	1.0	U	U	U	U	18	JP	35	J	10	J	0.063	na
APD-SD T1 (C)	1.0	U	U	U	U	120	P	250		91	P	0.461	na
APD-SD T1 (D)	1.0	U	U	U	U	U		160		38	JP	0.198	na
APD-SD T1 (E)	0.5	U	U	U	U	57	JP	180	P		U	0.237	na
APD-SD T2 (A)	0.5	U	U	U	U		U	260	P		U	0.26	na
APD-SD T2 (B)	1.0	U	U	U	U		U	220		93		0.313	na
APD-SD T2 (C)	1.0	U	U	U	U		U	1,800			U	1.8	na
APD-SD T2 (D)	1.0	U	U	U	U	U		3,800			U	3.8	na
APD-SD T2 (D) Dup	0.5	U	U	U	U							ND	na
APD-SD T2 (D) Dup	1.0	U	U	U	U							ND	na

Update of Wetland PCB Sediment Sampling

Table 1

American Chemical Service NPL Site
Griffith, Indiana

Sample-ID	Depth	AR-1016	AR-1221	AR-1232	AR-1242	AR-1248	AR-1254	AR-1260	Total PCBs mg/kg	Mercury mg/kg
APD-SD T2 (E)	0.5	U	U	U	U	U	U	U	ND	na
APD-SD T3 (A)	0.5	U	U	U	U	5,000 PD	6,600 PD	U	**11.6**	na
APD-SD T3 (B)	1.0	U	U	U	U	13,000 PD	14,000 PD	U	**27**	na
APD-SD T3 (D)	1.0	U	U	U	U	61 P	89 P	U	0.15	na
APD-SD T3 (E)	0.5	U	U	U	U	U	320	400	0.72	na
APD-SD T4 (C)	1.5	U	U	U	U	U	7,600	3,600	11.2	na

Notes:
This table presents results for sediment samples collected at the ACS Site in Griffith, Indiana between November 20 and 22, 1996. Samples were analyzed in rounds. Round 1 was determined by mutual agreement between all parties. Round two samples were selected to include intervals to the side and beneath any sample with total PCBs greater than 1 ppm. Results are added to this table as the become available. The last date of revision is presented in each round's header line.

U = undetected
J = The associated numerical value is an estimated quantity, because the value was less than the CRQL.
P = This flag is used for a pesticide/PCB target compound when there is greater than 25% difference for the detected concentrations between the two GC columns. The lower of the two values is reported.
N = Indicates spike sample recovery was not within control limits.
na = Not analyzed.

FROM : MONTGOMERY WATSON 708 691 5133 1996,12-30 08:56 #008 P.04/11

4

5

Plot of Results through Round 2

SEDIMENT SAMPLE PCB RESULTS

Grid Samples

depth									
0.5	A1	E	*B1*	0.056	C1		D1		
1.0		E							
1.5		E							
0.5	A2	0.196	B2	E	C2	0.21	D2		
1.0		E		E					
1.5		E		E					
0.5	A3	E	B3	E	C3		*D3*	0.32	
1.0		E		E					
1.5		E		E					
0.5	A4	E	B4	0.11	*C4*	0.43	D4		
1.0		E		E					
1.5		E		E					
0.5	A5	0.007	***B5***	**1.51**	C5	ND	D5	E	
1.0		E		ND		E		E	
1.5		E		E		E		E	
0.5	A6	E	B6	0.72	***C6***	**1.9**	D6	ND	E6 E
1.0		E		E		ND		E	E
1.5		E		E		E		E	E
0.5	A7	E	B7	A	C7	0.65	*D7*	0.65	E7
1.0		E		E		A			
1.5		E		E		E			
0.5	A8	E	B8	0.41	***C8***	**73**	D8	0.044	E8 E
1.0		E		E		0.12		E	E
1.5		E		E		E		E	E
0.5	A9	0.32	***B9***	**14.1**	*C9*	SD33=126	*D9*	0.021	
1.0		E		0.068		0.093			
1.5		E		E					
0.5	A10	A	B10	**1.2**	***C10***	0.7	D10	0.13	
1.0		E		A		0.14		E	
1.5		E		E		E		E	
0.5			B11	A	C11	1.47	D11	A	
1.0				E		A		E	
1.5				E		E		E	

Conc in ppm
Bold = > 1 ppm PCBs
E = Rd 2 Extract Only

6

Plot of Results through Round 2

Transect Samples

depth										
0.5	T1 (A)	0.81	*T1 (B)*	10	*T1 (C)*	14	*T1 (D)*	5.2	T1 (E)	0.24
1.0		E		0.063		0.46		0.20		E
1.5		E		E		E		E		E
0.5	T2 (A)	0.26	*T2 (B)*	7.2	*T2 (C)*	359	*T2 (D)*	29	T2 (E)	ND
1.0		A		0.313		1.8		3.8		E
1.5		E		E		A		A		E
0.5	T3 (A)	12	*T3 (B)*	234	*T3 (C)*	SD35=17	*T3 (D)*	16	T3 (E)	0.72
1.0		A		27		0.281		0.15		E
1.5		E		A				E		E
0.5	T4 (A)	A	*T4 (B)*	0.15	*T4 (C)*	SD21=13	*T4 (D)*	0.8	T4 (E)	
1.0						60				
1.5						11.2				

Culvert Samples

0.5	*Dwnstrm*	0.29	*Outfall*	2.1
1.0				0.028
1.5				E
0.5			*Upstrm 1*	0.099
1.0				
1.5				
0.5			*Upstrm 2*	ND
1.0				
1.5				

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Table 2

Sample Analysis Selection Matrix
ACS NPL Site

						ALL
		Rd 1 Spls	Rd 2 Spls		Rd 3 Spls	ROUNDS
Sample ID	Depth	Total PCBs	Extract	Total PCBs	Analyze	Total PCBs
APD-SDA1	0.5		E			E
APD-SDA1	1.0		E			E
APD-SDA1	1.5		E			E
APD-SDA2	0.5		E	0.196		0.196
APD-SDA2	1.0		E			E
APD-SDA2	1.5		E			E
APD-SDA3	0.5		E			E
APD-SDA3	1.0		E			E
APD-SDA3	1.5		E			E
APD-SDA4	0.5		E			E
APD-SDA4	1.0		E			E
APD-SDA4	1.5		E			E
APD-SDA5	0.5		E	0.007		0.007
APD-SDA5	1.0		E			E
APD-SDA5	1.5		E			E
APD-SDA6	0.5		E			E
APD-SDA6	1.0		E			E
APD-SDA6	1.5		E			E
APD-SDA7	0.5		E			E
APD-SDA7	1.0		E			E
APD-SDA7	1.5		E			E
APD-SDA8	0.5		E			E
APD-SDA8	1.0		E			E
APD-SDA8	1.5		E			E
APD-SDA8 Dup	0.5		E			E
APD-SDA8 Dup	1.0		E			E
APD-SDA8 Dup	1.5		E			E
APD-SDA8 (1)	0.5		E			E
APD-SDA8 (1)	1.0		E			E
APD-SDA8 (1)	1.5		E			E
APD-SDA9	0.5		E	0.32		0.32
APD-SDA9	1.0		E			E
APD-SDA9	1.5		E			E
APD-SDA10	0.5		E		A	A
APD-SDA10	1.0		E			E
APD-SDA10	1.5		E			E
APD-SDB1	0.5	0.056				0.056
APD-SDB1	1.0					
APD-SDB1	1.5					
APD-SDB1 Dup	0.5		E	ND		ND
APD-SDB1 Dup	1.0					
APD-SDB1 Dup	1.5					
APD-SDB2	0.5		E			E
APD-SDB2	1.0		E			E
APD-SDB2	1.5		E			E
APD-SDB3	0.5		E			E
APD-SDB3	1.0		E			E
APD-SDB3	1.5		E			E
APD-SDB4	0.5		E	0.106		0.106
APD-SDB4	1.0		E			E
APD-SDB4	1.5		E			E

Table 2

Sample Analysis Selection Matrix
ACS NPL Site

		Rd 1 Spls	Rd 2 Spls		Rd 3 Spls	ALL ROUNDS
Sample ID	Depth	Total PCBs	Extract	Total PCBs	Analyze	Total PCBs
APD-SDB5	0.5	1.51				1.51
APD-SDB5	1.0		E	ND		ND
APD-SDB5	1.5		E			E
APD-SDB6	0.5		E	0.72		0.72
APD-SDB6	1.0		E			E
APD-SDB6	1.5		E			E
APD-SDB7	0.5		E		A	A
APD-SDB7	1.0		E			E
APD-SDB7	1.5		E			E
APD-SDB8	0.5		E	0.412		0.412
APD-SDB8	1.0		E			E
APD-SDB8	1.5		E			E
APD-SDB9	0.5	14.1				14.1
APD-SDB9	1.0		E	0.068		0.068
APD-SDB9	1.5		E			E
APD-SDB10	0.5		E	1.2		1.2
APD-SDB10	1.0		E		A	A
APD-SDB10	1.5		E			E
APD-SDB11	0.5		E		A	A
APD-SDB11	1.0		E			E
APD-SDB11	1.5		E			E
APD-SDC1	0.5					
APD-SDC1	1.0					
APD-SDC1	1.5					
APD-SDC2	0.5	0.21				0.211
APD-SDC2	1.0					
APD-SDC2	1.5					
APD-SDC3	0.5					
APD-SDC3	1.0					
APD-SDC3	1.5					
APD-SDC4	0.5	0.432				0.432
APD-SDC4	1.0					
APD-SDC4	1.5					
APD-SDC5	0.5		E	ND		ND
APD-SDC5	1.0		E			E
APD-SDC5	1.5		E			E
APD-SDC6	0.5	1.89				1.89
APD-SDC6	1.0		E	ND		ND
APD-SDC6	1.5		E			E
APD-SDC7	0.5		E	0.65		0.65
APD-SDC7	1.0		E		A	A
APD-SDC7	1.5		E			E
APD-SDC7 Dup	0.5		E	20		20
APD-SDC7 Dup	1.0		E			E
APD-SDC7 Dup	1.5		E			E
APD-SDC8	0.5	73				73
APD-SDC8	1.0		E	0.12		0.12
APD-SDC8	1.5		E			E
APD-SDC9	0.5	SD33=126				SD33=126
APD-SDC9	1.0	0.093				0.093
APD-SDC9	1.5					

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Table 2

Sample Analysis Selection Matrix
ACS NPL Site

		Rd 1 Spls	Rd 2 Spls		Rd 3 Spls	ALL ROUNDS
Sample ID	Depth	Total PCBs	Extract	Total PCBs	Analyze	Total PCBs
APD-SDC10	0.5	0.7				0.7
APD-SDC10	1.0		E	0.144		0.144
APD-SDC10	1.5		E			E
APD-SDC11	0.5		E	1.47		1.47
APD-SDC11	1.0		E		A	A
APD-SDC11	1.5		E			E
APD-SDD1	0.5					
APD-SDD1	1.0					
APD-SDD1	1.5					
APD-SDD1 Dup	0.5					
APD-SDD1 Dup	1.0					
APD-SDD1 Dup	1.5					
APD-SDD2	0.5					
APD-SDD2	1.0					
APD-SDD2	1.5					
APD-SDD3	0.5	0.319				0.319
APD-SDD3	1.0					
APD-SDD3	1.5					
APD-SDD4	0.5					
APD-SDD4	1.0					
APD-SDD4	1.5					
APD-SDD5	0.5		E			E
APD-SDD5	1.0		E			E
APD-SDD5	1.5		E			E
APD-SDD6	0.5		E	ND		ND
APD-SDD6	1.0		E			E
APD-SDD6	1.5		E			E
APD-SDD7	0.5	0.65				0.648
APD-SDD7	1.0					
APD-SDD7	1.5					
APD-SDD8	0.5		E	0.044		0.044
APD-SDD8	1.0		E			E
APD-SDD8	1.5		E			E
APD-SDD9	0.5	0.021				0.021
APD-SDD9	1.0					
APD-SDD9	1.5					
APD-SDD10	0.5		E	0.13		0.13
APD-SDD10	1.0		E			E
APD-SDD10	1.5		E			E
APD-SDD11	0.5		E		A	A
APD-SDD11	1.0		E			E
APD-SDD11	1.5		E			E
APD-SDE6	0.5		E			E
APD-SDE6	1.0		E			E
APD-SDE6	1.5		E			E
APD-SDE6 Dup	0.5		E			E
APD-SDE6 Dup	1.0		E			E
APD-SDE6 Dup	1.5		E			E
APD-SDE7	0.5					
APD-SDE7	1.0					
APD-SDE7	1.5					

Sample Analysis Selection Matrix
ACS NPL Site

Table 2

						ALL
		Rd 1 Spls	Rd 2 Spls		Rd 3 Spls	ROUNDS
Sample ID	Depth	Total PCBs	Extract	Total PCBs	Analyze	Total PCBs
APD-SDE8	0.5		E			E
APD-SDE8	1.0		E			E
APD-SDE8	1.5		E			E
APD-SD T1 (A)	0.5		E	0.81		0.81
APD-SD T1 (A)	1.0		E			E
APD-SD T1 (A)	1.5		E			E
APD-SD T1 (B)	0.5	10.2				10.2
APD-SD T1 (B)	1.0		E	0.063		0.063
APD-SD T1 (B)	1.5		E			E
APD-SD T1 (C)	0.5	14.4				14.4
APD-SD T1 (C)	1.0		E	0.461		0.461
APD-SD T1 (C)	1.5		E			E
APD-SD T1 (D)	0.5	5.21				5.21
APD-SD T1 (D)	1.0		E	0.198		0.198
APD-SD T1 (D)	1.5		E			E
APD-SD T1 (E)	0.5		E	0.237		0.237
APD-SD T1 (E)	1.0		E			E
APD-SD T1 (E)	1.5		E			E
APD-SD T2 (A)	0.5		E	0.26		0.26
APD-SD T2 (A)	1.0		E		A	A
APD-SD T2 (A)	1.5		E			E
APD-SD T2 (B)	0.5	7.23				7.23
APD-SD T2 (B)	1.0		E	0.313		0.313
APD-SD T2 (B)	1.5		E			E
APD-SD T2 (C)	0.5	359				359
APD-SD T2 (C)	1.0		E	1.8		1.8
APD-SD T2 (C)	1.5		E		A	A
APD-SD T2 (D)	0.5	29				29.1
APD-SD T2 (D)	1.0		E	3.8		3.8
APD-SD T2 (D)	1.5		E		A	A
APD-SD T2 (D) Dup	0.5		E	ND		ND
APD-SD T2 (D) Dup	1.0		E	ND		ND
APD-SD T2 (D) Dup	1.5		E			E
APD-SD T2 (E)	0.5		E	ND		ND
APD-SD T2 (E)	1.0		E			E
APD-SD T2 (E)	1.5		E			E
APD-SD T3 (A)	0.5		E	11.60		11.6
APD-SD T3 (A)	1.0		E		A	A
APD-SD T3 (A)	1.5		E			E
APD-SD T3 (B)	0.5	234				234
APD-SD T3 (B)	1.0		E	27		27
APD-SD T3 (B)	1.5		E		A	A
APD-SD T3 (C)	0.5	SD35=17				SD35=17
APD-SD T3 (C)	1.0	0.28				0.281
APD-SD T3 (C)	1.5					
APD-SD T3 (D)	0.5	15.7				15.7
APD-SD T3 (D)	1.0		E	0.15		0.15
APD-SD T3 (D)	1.5		E			E
APD-SD T3 (E)	0.5		E	0.72		0.72
APD-SD T3 (E)	1.0		E			E
APD-SD T3 (E)	1.5		E			E

Sample Analysis Selection Matrix
ACS NPL Site

Table 2

									ALL
		Rd 1 Spls		Rd 2 Spls			Rd 3 Spls		ROUNDS
Sample ID	Depth	Total PCBs		Extract	Total PCBs		Analyze		Total PCBs
APD-SD T4 (A)	0.5						A		A
APD-SD T4 (A)	1.0								
APD-SD T4 (A)	1.5								
APD-SD T4 (B)	0.5	0.15							0.154
APD-SD T4 (B)	1.0								
APD-SD T4 (B)	1.5								
APD-SD T4 (C)	0.5	SD21=13							SD21=13
APD-SD T4 (C)	1.0	60							60
APD-SD T4 (C)	1.5			E	11.2				11.2
APD-SD T4 (D)	0.5	0.81							0.812
APD-SD T4 (D)	1.0								
APD-SD T4 (D)	1.5								
APD-SD T4 (E)	0.5								
APD-SD T4 (E)	1.0								
APD-SD T4 (E)	1.5								
APD-Culvert Outfall	0.5	2.08							2.08
APD-Culvert Outfall	1.0			E	0.028				0.028
APD-Culvert Outfall	1.5			E					E
APD-Culvert Downstream	0.5	0.29							0.288
APD-Culvert Downstream	1.0								
APD-Culvert Downstream	1.5								
APD-Culvert Upstream (1)	0.5	0.099							0.099
APD-Culvert Upstream (1)	1.0								
APD-Culvert Upstream (1)	1.5								
APD-Culvert Upstream (2)	0.5	ND							ND
APD-Culvert Upstream (2)	1.0								
APD-Culvert Upstream (2)	1.5								
APR-Rinsate	1								
Total		28		0	57		0		

Notes:
All sediment samples collected November 20 and 21, 1996 are included here.

Total PCBs = sum of PCB results (generally ARs 1248, 1254, and 1260), converted to mg/kg.
E = Extraction requested (extracts have a holdtime of 40 days after the extraction date).

Round 1 = samples from 0.5' (or 1.0' for C9 & T4(C)) as selected by agencies. Earlier sediment samples collected at grid points are also included for reference.
Round 2 = Analyze all samples on each side and beneath any Rd 1 sample > 1 ppm PCBs. Extract samples farther out to meet reasonable worst case scenario.
Round 3 = Analyze samples extracted in Round 2 using same criteria as Rd 2.

N
12/2/96

MEMORANDUM

MONTGOMERY WATSON

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From: Peter Vagt

Subject: Preliminary Round 2 Analyses
Phase II Sediment Sampling
ACS NPL Site RD/RA

The Phase II sediment sampling was completed on November 21, 1996. The attached draft map and tabulations of data may be useful in today's ACS project conference call at 2:30 PM CT.

The results of the Round 1 analyses are attached. On the basis of these results, an additional 38 samples have been submitted for Round 2 analysis. In addition, we have submitted approximately 110 more samples for extraction, to be ready for analysis if necessary in Round 3.

Peter V.

PJV
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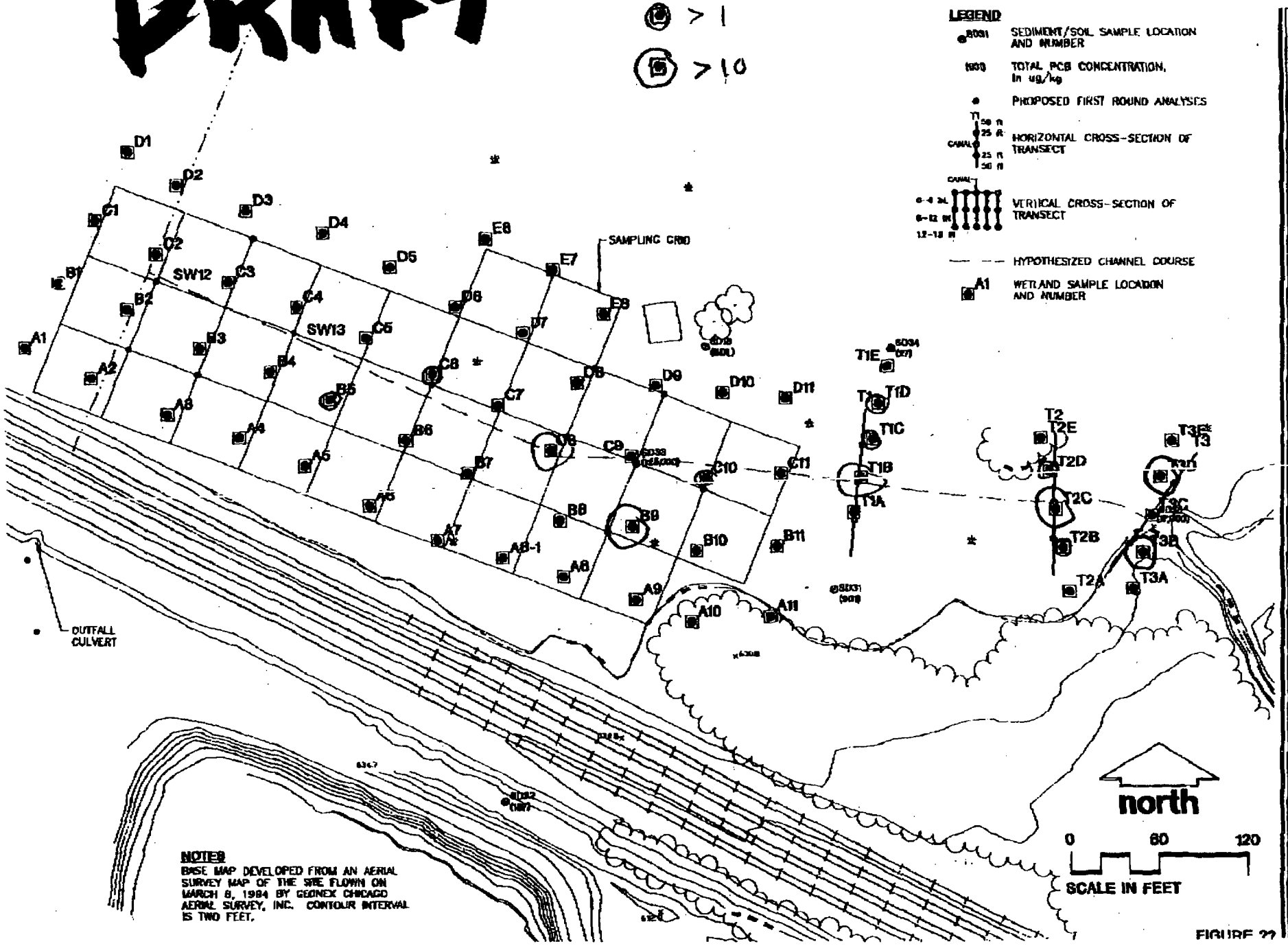
4077.0074

DRAFT

Round 1 Analyses Results

> 1

> 10



NOTES
BASE MAP DEVELOPED FROM AN AERIAL SURVEY MAP OF THE SITE FLOWN ON MARCH 8, 1994 BY GEONEX CHICAGO AERIAL SURVEY, INC. CONTOUR INTERVAL IS TWO FEET.

FIGURE 22

WETLAND SAMPLE LOCATIONS
AMERICAN CHEMICAL SERVICE, INC.
NPL SITE
GRIFFITH, INDIANA

Drawing Number 4077.0076 B

MONTGOMERY WATSON

1st Round Analyses

Draft Wetland Sediment Sample PCB Results
American Chemical Service
Griffith Indiana

		Draft Results in mg/kg Dry Wt Basis								
Sample-ID	Depth	AR-1016	AR-1221	AR-1232	AR-1242	AR-1248	AR-1254	AR-1260	Total PCBs mg/kg	ppm Action
APD-Culvert Outfall	0.5	U	U	U	U	510	1,300	1,100	2.9	>1
APD-Culvert Downstream	0.5	U	U	U	U	62	200	120	0.38	
APD-Culvert Upstream (1)	0.5	U	U	U	U	45	86	110	0.24	
APD-Culvert Upstream (2)	0.5	U	U	U	U	U	U	U	ND	
APD-SDB1	0.5	U	U	U	U	14	66	50	0.13	
APD-SDB5	0.5	U	U	U	U	250	720	710	1.7	>1
APD-SDB9	0.5	U	U	U	U	2,700	9,400	46,000	58.1	>10
APD-SDC10	0.5	U	U	U	U	230	480	340	1.05	>1
APD-SDC2	0.5	U	U	U	U	120	130	93	0.34	
APD-SDC4	0.5	U	U	U	U	100	280	230	0.61	
APD-SDC6	0.5	U	U	U	U	360	940	880	2.18	>1
APD-SDC8	0.5	U	U	U	U	18,000	49,000	91,000	158	>10
APD-SDC9	1.0	U	U	U	U	21	49	23	0.093	
APD-SDD3	0.5	U	U	U	U	90	170	140	0.4	
APD-SDD7	0.5	U	U	U	U	78	320	280	0.68	
APD-SDD9	0.5	U	U	U	U	18	13	8.9	0.040	
APD-SDT1 (B)	0.5	U	U	U	U	1,800	4,800	3,900	10.5	>10
APD-SDT1 (C)	0.5	U	U	U	U	3,200	4,600	U	7.8	>1
APD-SDT1 (D)	0.5	U	U	U	U	510	2,500	U	3.0	>1
APD-SDT2 (B)	0.5	U	U	U	U	1,000	3,400	3,400	7.8	>1
APD-SDT2 (C)	0.5	U	U	U	U	99,000	200,000	60,000	359	>10
APD-SDT2 (D)	0.5	U	U	U	U	6,700	20,000	5,400	32	>10
APD-SDT3 (B)	0.5	U	U	U	U	54,000	120,000	90,000	264	>10
APD-SDT3 (C)	1.0	U	U	U	U	23	58	32	0.11	
APD-SDT3 (D)	0.5	U	U	U	U	2,200	7,000	8,500	18	>10
APD-SDT4 (B)	0.5	U	U	U	U	37	80	110	0.23	
APD-SDT4 (C)	1.0	U	U	U	U	12,000	59,000	25,000	96	>10
APD-SDT4 (D)	0.5	U	U	U	U	22	590	250	0.86	

Notes:
This table presents draft results for sediment samples collected at the ACS Site in Griffith Indiana between November 20 and 22, 1996.
U= undetected

DRAFT

SEDIMENT SAMPLE PCB RESULTS

Grid Samples

depth									
0.5	A1	E	*B1*	0.13	C1		D1		
1.0		E							
1.5		E							
0.5	A2	A	B2	E	*C2*	0.34	D2		
1.0		E		E					
1.5		E		E					
0.5	A3	E	B3	E	C3		*D3*	0.4	
1.0		E		E					
1.5		E		E					
0.5	*A4*	E	B4	A	*C4*	0.61	D4		
1.0		E		E					
1.5		E		E					
0.5	A5	A	*B5*	1.7	C5	A	D5	E	
1.0		E		A		E		E	
1.5		E		E		E		E	
0.5	A6	E	B6	A	*C6*	2.18	D6	A	E6 E
1.0		E		E		A		E	E
1.5		E		E		E		E	E
0.5	A7	E	B7	E	C7	A	*D7*	0.68	E7
1.0		E		E		E			
1.5		E		E		E			
0.5	A8	E	B8	A	*C8*	158	D8	A	E8 E
1.0		E		E		A		E	E
1.5		E		E		E		E	E
0.5	*A9*	A	*B9*	58.1	*C9*	(126)	*D9*	0.04	
1.0		E		A		0.093			
1.5		E		E					
0.5	A10	E	B10	A	*C10*	1.05	D10	A	
1.0		E		E		A		E	
1.5		E		E		E		E	
0.5			B11	E	C11	A	D11	E	
1.0				E		E		E	
1.5				E		E		E	

Conc in ppm

Bold = > 1 ppm PCBs

E = Rd 2 Extract Only

A = Rd 2 Extract & Analyze

Notes

A = Analyzed

E = Extracted for potential analysis

Transect Samples

depth										
0.5	T1 (A)	A	*T1 (B)*	10.5	*T1 (C)*	7.8	*T1 (D)*	3	T1 (E)	A
1.0		E		A		A		A		E
1.5		E		E		E		E		E
0.5	T2 (A)	A	*T2 (B)*	7.8	*T2 (C)*	359	*T2 (D)*	32	T2 (E)	A
1.0		E		A		A		A		E
1.5		E		E		E		E		E
0.5	T3 (A)	A	*T3 (B)*	264	*T3 (C)*	(17)	*T3 (D)*	18	T3 (E)	A
1.0		E		A		0.11		A		E
1.5		E		E				E		E
0.5	T4 (A)		*T4 (B)*	0.23	*T4 (C)*	(13.1)	*T4 (D)*	0.86	T4 (E)	
1.0						96				
1.5						A				

Culvert Samples

0.5	*Dwnstrm*	0.38	*Outfall*	2.9
1.0				A
1.5				E
0.5			*Upstrm 1*	0.24
1.0				
1.5				
0.5			*Upstrm 2*	ND
1.0				
1.5				

DRAFT

DRAFT

Round 1,2 Analyses Results

>0.1

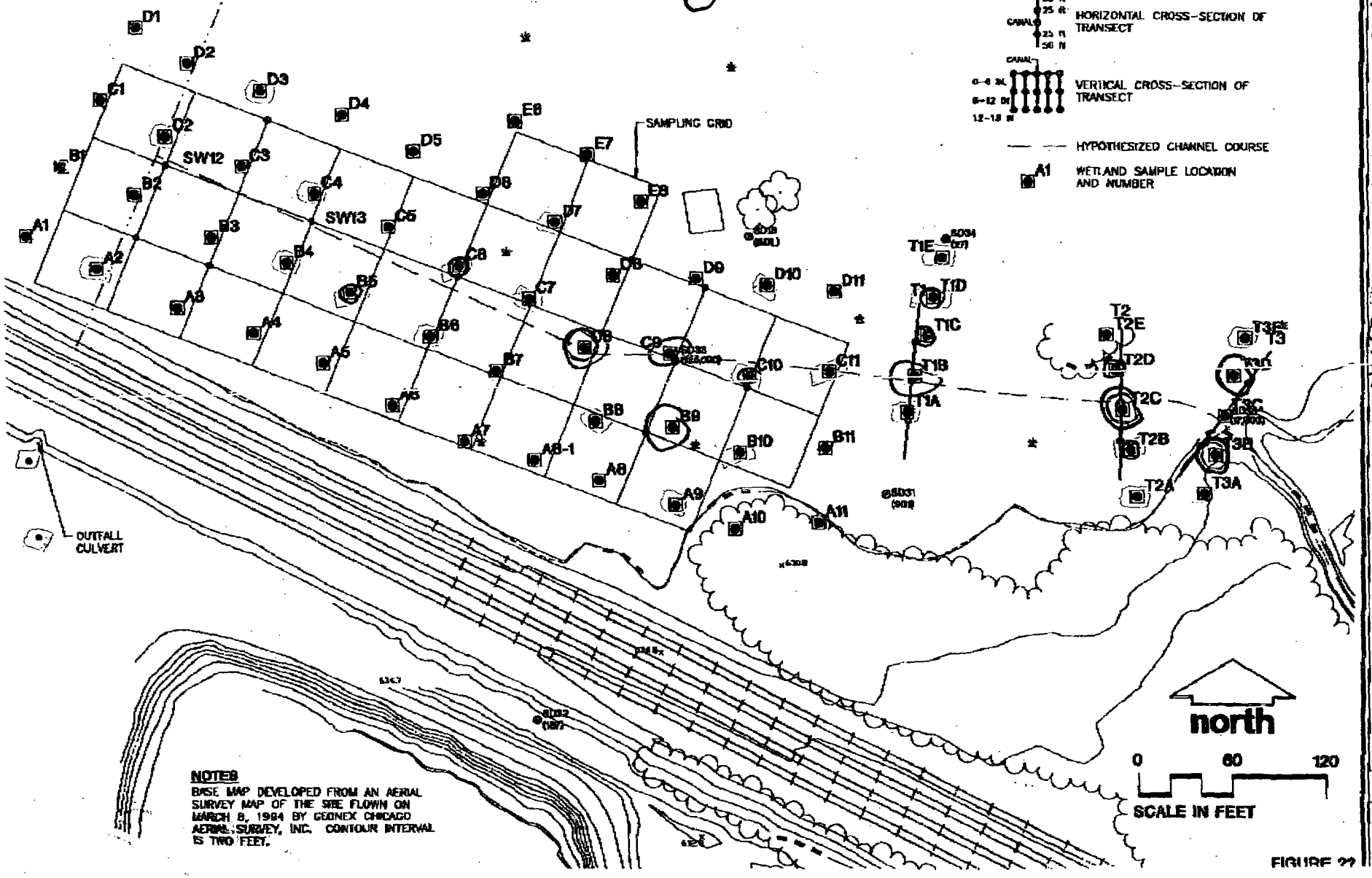
>1 ppm PCBs

>10

>50

LEGEND

- SEDIMENT/SOIL SAMPLE LOCATION AND NUMBER
- TOTAL PCB CONCENTRATION, in ug/kg
- PROPOSED FIRST ROUND ANALYSES
- HORIZONTAL CROSS-SECTION OF TRANSECT
- VERTICAL CROSS-SECTION OF TRANSECT
- HYPOTHESIZED CHANNEL COURSE
- WETLAND SAMPLE LOCATION AND NUMBER



NOTES

BASE MAP DEVELOPED FROM AN AERIAL SURVEY MAP OF THE SITE FLOWN ON MARCH 8, 1984 BY GEONEX CHICAGO AERIAL SURVEY, INC. CONTOUR INTERVAL IS TWO FEET.

FIGURE 22

WETLAND SAMPLE LOCATIONS

AMERICAN CHEMICAL SERVICE, INC.
NPL SITE
GRIFFITH, INDIANA

Drawing Number 4077.0076 B

MONTGOMERY WATSON

N 11/25/96

BLACK & VEATCH
SPECIAL PROJECTS CORP.

101 North Wacker Drive, Suite 1100, Chicago, Illinois 60606, (312) 346-3775, Fax: (312) 346-4781

FAX COVER SHEET

Project No.: 71670, 600 **Date:** 11-25-96

To: Sheri Bianchin **Co. Name:** USEPA

Fax No.: (312) 886-4071 **Telephone No.:** (312) 886-4745

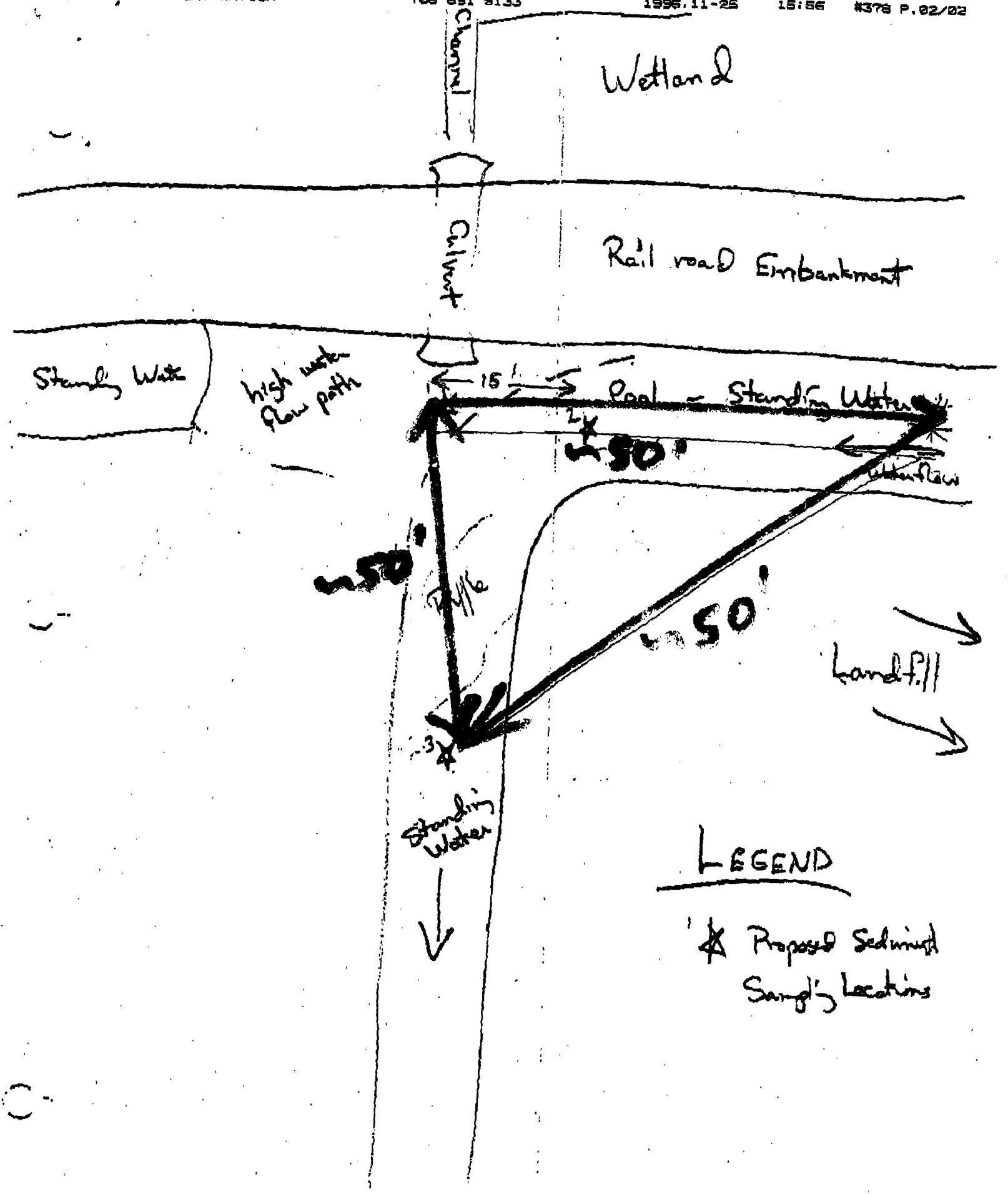
Senders Name: Ashok Rupani **Telephone No.:** (312) 683-7822

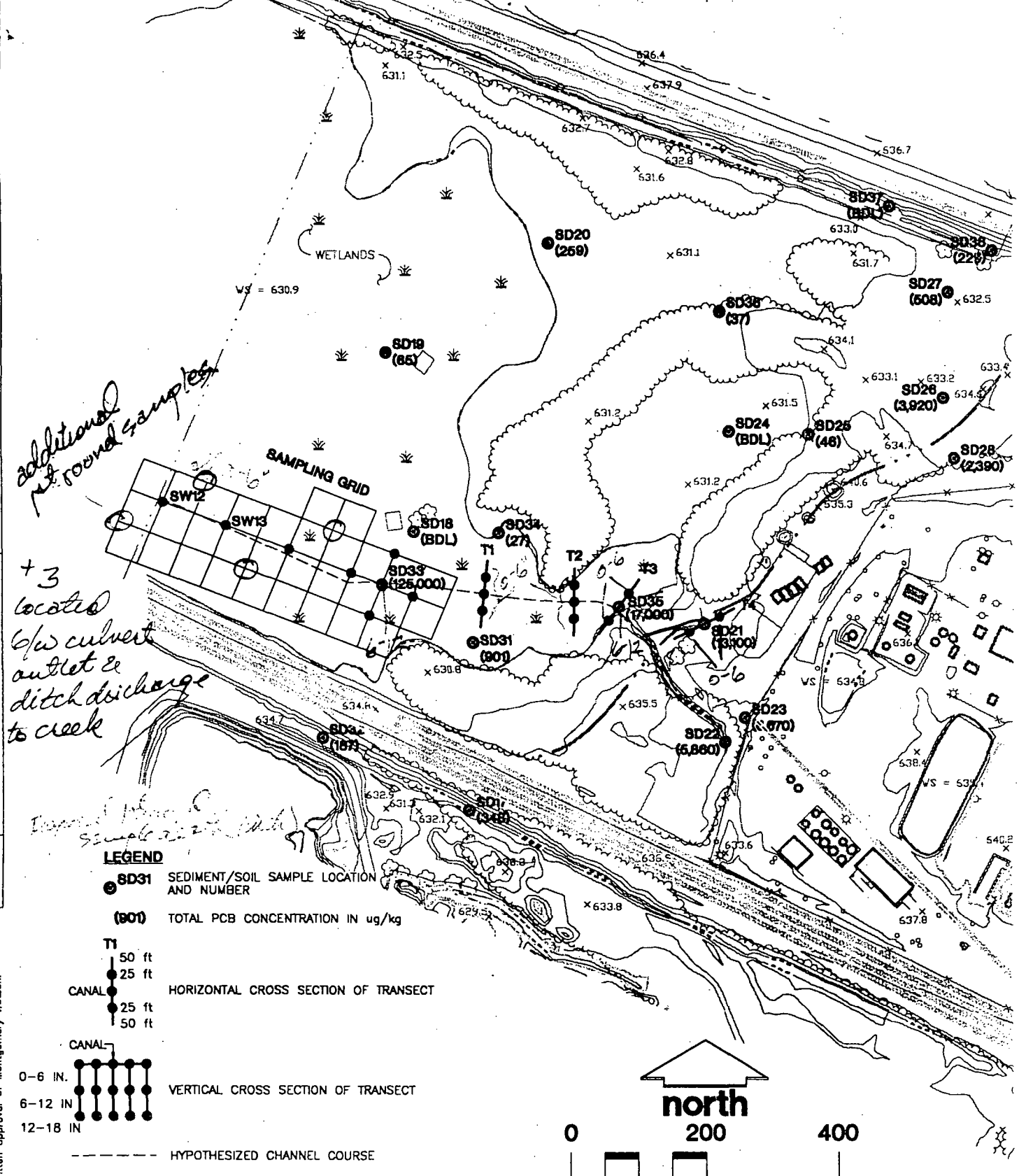
This transmittal consists of 2 **pages, including this cover sheet. A copy of this transmittal (will), (will not) be sent by mail.**

Comments: Sheri, the attached map shows four locations near the culvert where samples were collected. Location 2 is the additional sample collected by Montgomery Watson. Please call if you have any questions.

– AKR

Transmitted By: Ashok **Date/Time:** 11/25/96 1520


Channel
Wetland
Culvert
Railroad Embankment
Standing Water
high water flow path
15'
Pool - Standing Water
2
~50'
Water flow
~50'
~50'
Landfill
3
Standing Water
LEGEND
Proposed Sediment Sampling Locations



LEGEND

- SD31 — SEDIMENT/SOIL SAMPLE LOCATION AND NUMBER
- (901) — TOTAL PCB CONCENTRATION IN ug/kg
- T1 — 50 ft, 25 ft, CANAL, 25 ft, 50 ft — HORIZONTAL CROSS SECTION OF TRANSECT
- CANAL — 0–6 IN., 6–12 IN, 12–18 IN — VERTICAL CROSS SECTION OF TRANSECT
- - - - - - HYPOTHESIZED CHANNEL COURSE

NOTE

BASE MAP DEVELOPED FROM AN AERIAL SURVEY MAP OF THE SITE FLOWN ON MARCH 8, 1994 BY GEONEX CHICAGO AERIAL SURVEY, INC. CONTOUR INTERVAL TWO FEET.

north

0 200 400

SCALE IN FEET

FIGURE 3

Developed By PJV	Drawn By DLF	**PROPOSED FIRST ROUND SEDIMENT ANALYSIS LOCATIONS**	Drawing Number 4077.0076 A5
Approved By PJV	Date 9/12/96	AMERICAN CHEMICAL SERVICE, INC. NPL SITE GRIFFITH, INDIANA	MONTGOMERY WATSON
Reference			
Revisions			

QUALITY CONTROL — Graphic Standards — Lead Professional — Technical Review — Project Manager — Management Review — Other

This document has been developed for a specific application and may not be used without the written approval of Montgomery Watson.

FAX

MONTGOMERY WATSON

2100 Corporate Drive
Addison, Illinois 60101

Tel: (630) 691-5000
Fax: (630) 691-5133

Date: 11/20/96

To: Shari Bianchi
Fax: 312 886-4671
Company:
Ref:
From: Ron Vf
Subject:

COMMENTS

Shari

Here is a copy of a draft map showing our proposed sampling locations on the south side of the culvert. (We discussed these in the conference call on Monday

Ron

If you do not receive all pages, or if there are any problems with this transmission, please call (630) 691-5000. Operator:_____ No. of pages including cover:_____

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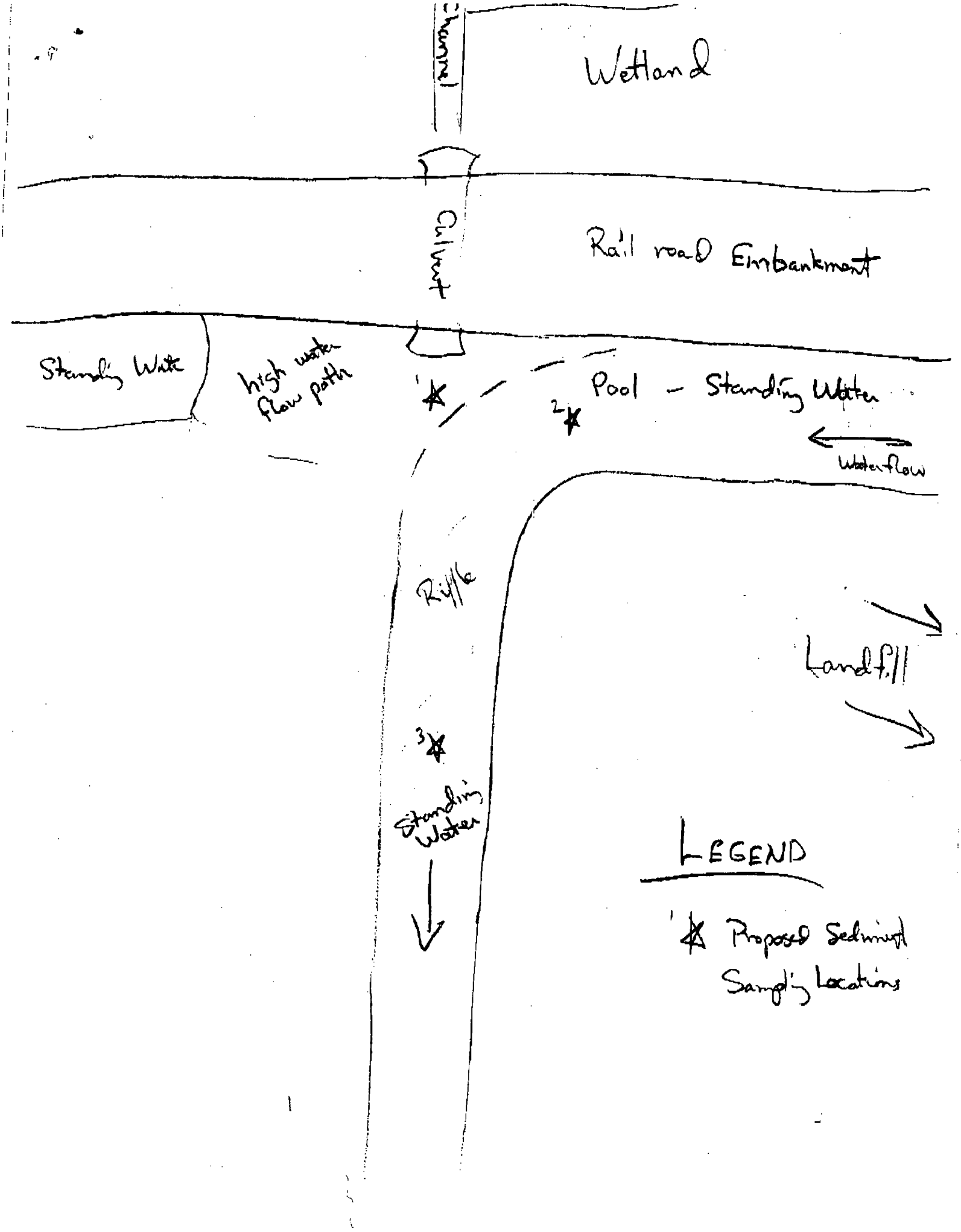

Culvert
Wetland
Culvert
Rail road Embankment
Standing Water
high water flow path
1
2
Pool - Standing Water
Waterflow
Riffle
Landfill
3
Standing Water
LEGEND
1 Proposed Sediment Sampling Locations

N 10/23/97

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: October 23, 1997

SUBJECT: Review of Data
Received for Review on October 8, 1997

FROM: Stephen L. Ostrodka, Chief (SRT-4J) for Steve Ostrodka Richard L Bynitz 10/30/97
Superfund Technical Support Section

TO: Data User: B & V

We have reviewed the data for the following case:

SITE NAME: American Chemical Services (IN)

CASE NUMBER: 25668 SDG NUMBER: EARX3

Number and Type of Samples: 12 Soil

Sample Numbers: EARX3-5,EARR9,EAZS0-7

Laboratory: SWOK Hrs. for Review: 13.5 + 1 wkr

Following are our findings:
the data is usable and acceptable with the qualifications described in the attached narrative.
Richard L Bynitz

CC: Regional TPO
Cecilia Luckett MOORE
SM-5J

Case Number :25668 **SDG Number: EARX3**
Site Name: American Chem. Service (IN) **Laboratory: SWOK**

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Twelve soil samples, numbered EARX3-5, EARR9, EAZS0-7 were collected on September 9-10, 1997. The lab received the samples on September 11, 1997 in good condition. All samples were analyzed for the full list of organic analytes. All were analyzed according to CLP SOW *OLM03.2* 3/90.

Reviewed By: M. Kaminsky
Date: October 28, 1997

Case Number :25668 **SDG Number: EARX3**
Site Name: American Chem. Service (IN) **Laboratory: SWOK**

1. HOLDING TIME

No problems found for this qualification.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems found for this qualification.

3. CALIBRATION

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".

Hexachlorocyclopentadiene, 2,4-Dinitrophenol,
4,6-Dinitro-2-methylphenol, Butylbenzylphthalate, Di-n-octylphthalate
EAZS3DL, EAZS5RE

The RPD between the nominal and the calculated amount of an analyte in the midpoint INDA/INDB exceeded criteria.
Hits are qualified "J" and non-detects are qualified "UJ".

EARX3, EARX4, EARX5, EAZR9, EAZS0, EAZS1, EAZS2, EAZS3, EAZS4, EAZS4MS, EAZS4MSD, EAZS5, EAZS6, PBLKSB
beta-BHC, delta-BHC, 4,4'-DDT, Methoxychlor

4. BLANKS

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.

bis(2-Ethylhexyl)phthalate
EARX3, EARX4, EARX5, EAZR9, EAZS0, EAZS1, EAZS2, EAZS3, EAZS3DL, EAZS4, EAZS4MS, EAZS4MSD, EAZS5, EAZS6

5. SYSTEM MONITORING COMPOUND AND SURROGATE RECOVERY

No problems found for this qualification.

6. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No problems found for this qualification.

7. FIELD BLANK AND FIELD DUPLICATE

None reported on the COC.

8. INTERNAL STANDARDS

The following semivolatile samples have internal standard area counts

Reviewed By: M. Kaminsky
Date: October 28, 1997

Case Number :25668 **SDG Number: EARX3**
Site Name: American Chem. Service (IN) **Laboratory: SWOK**

that are outside the upper limit of primary criteria.
Hits are qualified "J" and non-detects are qualified "UJ".

EAZS5, EAZS5RE
Phenol, bis(2-Chloroethyl)ether, 2-Chlorophenol, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 1,2-Dichlorobenzene, 2-Methylphenol, 2,2'-oxybis(1-Chloropropane), 4-Methylphenol, N-Nitroso-di-n-propylamine, Hexachloroethane, Nitrobenzene, Isophorone, 2-Nitrophenol, 2,4-Dimethylphenol, bis(2-Chloroethoxy)methane, 2,4-Dichlorophenol, 1,2,4-Trichlorobenzene, Naphthalene, 4-Chloroaniline, Hexachlorobutadiene, 4-Chloro-3-methylphenol, 2-Methylnaphthalene, Hexachlorocyclopentadiene, 2,4,6-Trichlorophenol, 2,4,5-Trichlorophenol, 2-Chloronaphthalene, 2-Nitroaniline, Dimethylphthalate, Acenaphthylene, 2,6-Dinitrotoluene, 3-Nitroaniline, Acenaphthene, 2,4-Dinitrophenol, 4-Nitrophenol, Dibenzofuran, 2,4-Dinitrotoluene, Diethylphthalate, 4-Chlorophenyl-phenylether, Fluorene, 4-Nitroaniline, 4,6-Dinitro-2-methylphenol, N-Nitrosodiphenylamine (1), 4-Bromophenyl-phenylether, Hexachlorobenzene, Pentachlorophenol, Phenanthrene, Anthracene, Carbazole, Di-n-butylphthalate, Fluoranthene

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that all VOA, SVOA, and Pesticide/PCB compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following semivolatile samples have analyte concentrations below the quantitation limit (CRQL). All results below the CRQL are qualified "J".

EARX3
Naphthalene, 2-Methylnaphthalene, Acenaphthylene, Phenanthrene, Anthracene, Carbazole, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene, Benzo(g,h,i)perylene

EARX4
Acenaphthylene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene, Benzo(g,h,i)perylene

EARX5
Phenanthrene, Anthracene, Carbazole, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene,

Reviewed By: M. Kaminsky
Date: October 28, 1997

Case Number :25668 **SDG Number: EARX3**
Site Name: American Chem. Service (IN) **Laboratory: SWOK**

Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene, Benzo(g,h,i)perylene

EAZR9
Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene, Benzo(g,h,i)perylene

EAZS0
4-Methylphenol, Acenaphthylene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene, Benzo(g,h,i)perylene

EAZS1
Di-n-butylphthalate

EAZS2
Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene

EAZS3
Acenaphthene, Dibenzofuran, Fluorene, Anthracene, Carbazole, Dibenz(a,h)anthracene

EAZS3DL
Acenaphthene, Fluorene, Anthracene, Carbazole, Dibenz(a,h)anthracene

EAZS4
Phenanthrene, Anthracene, Carbazole, Di-n-butylphthalate, Benzo(a)anthracene, Benzo(k)fluoranthene, Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene, Benzo(g,h,i)perylene

EAZS4MS
Fluorene, Phenanthrene, Anthracene, Carbazole, Benzo(a)anthracene, Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene

EAZS4MSD
Fluorene, Anthracene, Carbazole, Di-n-butylphthalate, Dibenz(a,h)anthracene

EAZS5
Pyrene

EAZS6
Naphthalene, Phenanthrene, Fluoranthene, Pyrene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Benzo(g,h,i)perylene

EAZS7

Reviewed By: M. Kaminsky
Date: October 28, 1997

Case Number :25668 **SDG Number: EARX3**
Site Name: American Chem. Service (IN) **Laboratory: SWOK**

Isophorone, Phenanthrene, Di-n-butylphthalate, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene

SBLK1
bis(2-Ethylhexyl)phthalate

The following pesticide samples have analyte concentrations below the quantitation limit (CRQL). All results below the CRQL are qualified "J".

EAZS3
Heptachlor

EAZS4MS, EAZS4MSD
gamma-BHC (Lindane), Heptachlor, Aldrin, Dieldrin, Endrin, 4,4'-DDT

EAZS7
beta-BHC, gamma-BHC (Lindane), Methoxychlor

The following pesticide samples have analytes for which the percent difference between column results exceeds primary criteria. Hits are flagged "J" and non-detects are not flagged.

EAZS3
Heptachlor

EAZS4MS
Aldrin, Endrin

EAZS4MSD
Endrin

EAZS7
beta-BHC, gamma-BHC (Lindane), Heptachlor, Endosulfan I
Endrin, 4,4'-DDD, Endosulfan sulfate, 4,4'-DDT
alpha-Chlordane, gamma-Chlordane

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance. The GC baseline for the pesticide analysis was acceptable.

12. ADDITIONAL INFORMATION

Fluoranthene and Pyrene exceeded the instrument calibration range in

Reviewed By: M. Kaminsky
Date: October 28, 1997

Case Number :25668 **SDG Number: EARX3**
Site Name: American Chem. Service (IN) **Laboratory: SWOK**

semivolatile sample EAZS3; the results from sample EAXS3DL should be considered the final concentration for these analytes.

The pH of the soil samples is shown below:

SAMPLE #	pH	SAMPLE #	pH
EARX3	7.4	EARX4	7.9
EARX5	7.5	EARR9	7.6
EAZS0	7.6	EAZS1	7.2
EAZS2	7.2	EAZS3	7.5
EAZS4	6.2	EAZS7	7.0
EAZS6	7.2	EAZS7	7.7

Reviewed By: M. Kaminsky
Date: October 28, 1997

CADRE Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The anlayte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the present of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the present of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present)
H	Sample result is estimated and biased high.
L	Sample result is estimated and biased low.

TCL QUALIFIED SPREADSHEET

Case No: 25668 Site: AMERICAN CHEMICAL SERVICE
SDG No: EARX3 Laboratory: SOUTHWEST LABS OF OKLAHOM

EPA SAMPLE NUMBER:	EARX3		EARX4		EARX5		EAZR9		EAZS0	
REGIONAL SAMPLE NUMBER:										
SAMPLE LOCATION:	ACS-ST01-001		ACS-ST02-001		ACS-ST03-001		ACS-ST04-001		ACS-ST05-001	
SAMPLE TYPE:	Routine Sample		Routine Sample		Routine Sample		Routine Sample		Routine Sample	
MATRIX/ANALYSIS:	Soil/Low		Soil/Low		Soil/Low		Soil/Low		Soil/Low	
DILUTION FACTOR:	1.0		1.0		1.0		1.0		1.0	
PERCENT MOISTURE:	33		77		36		28		26	
BNA										
Phenol	480	U	1400	U	500	U	440	U	440	U
bis(2-Chloroethyl)ether	480	U	1400	U	500	U	440	U	440	U
2-Chlorophenol	480	U	1400	U	500	U	440	U	440	U
1,3-Dichlorobenzene	480	U	1400	U	500	U	440	U	440	U
1,4-Dichlorobenzene	480	U	1400	U	500	U	440	U	440	U
1,2-Dichlorobenzene	480	U	1400	U	500	U	440	U	440	U
2-Methylphenol	480	U	1400	U	500	U	440	U	440	U
2,2'-oxybis(1-Chloropropane)	480	U	1400	U	500	U	440	U	440	U
4-Methylphenol	480	U	1400	U	500	U	440	U	26	J
N-Nitroso-di-n-propylamine	480	U	1400	U	500	U	440	U	440	U
Hexachloroethane	480	U	1400	U	500	U	440	U	440	U
Nitrobenzene	480	U	1400	U	500	U	440	U	440	U
Isophorone	480	U	1400	U	500	U	440	U	440	U
2-Nitrophenol	480	U	1400	U	500	U	440	U	440	U
2,4-Dimethylphenol	480	U	1400	U	500	U	440	U	440	U
bis(2-Chloroethoxy)methane	480	U	1400	U	500	U	440	U	440	U
2,4-Dichlorophenol	480	U	1400	U	500	U	440	U	440	U
1,2,4-Trichlorobenzene	480	U	1400	U	500	U	440	U	440	U
Naphthalene	25	J	1400	U	500	U	440	U	440	U
4-Chloroaniline	480	U	1400	U	500	U	440	U	440	U
Hexachlorobutadiene	480	U	1400	U	500	U	440	U	440	U
4-Chloro-3-methylphenol	480	U	1400	U	500	U	440	U	440	U
2-Methylnaphthalene	31	J	1400	U	500	U	440	U	440	U
Hexachlorocyclopentadiene	480	U	1400	U	500	U	440	U	440	U
2,4,6-Trichlorophenol	480	U	1400	U	500	U	440	U	440	U
2,4,5-Trichlorophenol	1200	U	3400	U	1200	U	1100	U	1100	U
2-Chloronaphthalene	480	U	1400	U	500	U	440	U	440	U
2-Nitroaniline	1200	U	3400	U	1200	U	1100	U	1100	U
Dimethylphthalate	480	U	1400	U	500	U	440	U	440	U
Acenaphthylene	52	J	73	J	500	U	440	U	38	J
2,6-Dinitrotoluene	480	U	1400	U	500	U	440	U	440	U
3-Nitroaniline	1200	U	3400	U	1200	U	1100	U	1100	U
Acenaphthene	480	U	1400	U	500	U	440	U	440	U
2,4-Dinitrophenol	1200	U	3400	U	1200	U	1100	U	1100	U
4-Nitrophenol	1200	U	3400	U	1200	U	1100	U	1100	U
Dibenzofuran	480	U	1400	U	500	U	440	U	440	U
2,4-Dinitrotoluene	480	U	1400	U	500	U	440	U	440	U
Diethylphthalate	480	U	1400	U	500	U	440	U	440	U
4-Chlorophenyl-phenylether	480	U	1400	U	500	U	440	U	440	U
Fluorene	480	U	1400	U	500	U	440	U	440	U
4-Nitroaniline	1200	U	3400	U	1200	U	1100	U	1100	U
4,6-Dinitro-2-methylphenol	1200	U	3400	U	1200	U	1100	U	1100	U
N-Nitrosodiphenylamine (1)	480	U	1400	U	500	U	440	U	440	U
4-Bromophenyl-phenylether	480	U	1400	U	500	U	440	U	440	U
Hexachlorobenzene	480	U	1400	U	500	U	440	U	440	U
Pentachlorophenol	1200	U	3400	U	1200	U	1100	U	1100	U
Phenanthrene	93	J	150	J	190	J	26	J	31	J
Anthracene	68	J	91	J	32	J	440	U	53	J
Carbazole	36	J	1400	U	25	J	440	U	440	U
Di-n-butylphthalate	480	U	1400	U	500	U	440	U	440	U
Fluoranthene	280	J	360	J	390	J	33	J	360	J
Pyrene	280	J	360	J	300	J	31	J	400	J
Butylbenzylphthalate	480	U	1400	U	500	U	440	U	440	U
3,3'-Dichlorobenzidine	480	U	1400	U	500	U	440	U	440	U
Benzo(a)anthracene	160	J	200	J	140	J	22	J	240	J
Chrysene	260	J	300	J	190	J	31	J	240	J
bis(2-Ethylhexyl)phthalate	480	U	1400	U	500	U	440	U	440	U
Di-n-octylphthalate	480	U	1400	U	500	U	440	U	440	U
Benzo(b)fluoranthene	290	J	390	J	170	J	26	J	200	J
Benzo(k)fluoranthene	250	J	300	J	140	J	440	U	190	J
Benzo(a)pyrene	220	J	320	J	160	J	25	J	190	J
Indeno(1,2,3-cd)pyrene	170	J	210	J	88	J	440	U	81	J
Dibenz(a,h)anthracene	63	J	75	J	36	J	440	U	34	J
Benzo(g,h,i)perylene	220	J	250	J	110	J	23	J	91	J

Water units are reported in ug/L. Soil units are reported in ug/Kg.

TCL QUALIFIED SPREADSHEET

Case No: 25668
SDG No: EARX3

Site: AMERICAN CHEMICAL SERVICE
Laboratory: SOUTHWEST LABS OF OKLAHOM

EPA SAMPLE NUMBER:	EAZS1		EAZS2		EAZS3		EAZS3DL		EAZS4	
REGIONAL SAMPLE NUMBER:										
SAMPLE LOCATION:	ACS-ST06-001		ACS-ST07-001		ACS-ST08-001		ACS-ST08-001		ACS-ST09-001	
SAMPLE TYPE:	Routine Sample		Routine Sample		Routine Sample		Routine Sample		Routine Sample	
MATRIX/ANALYSIS:	Soil/Low		Soil/Low		Soil/Low		Soil/Low		Soil/Low	
DILUTION FACTOR:	1.0		1.0		2.0		4.0		1.0	
PERCENT MOISTURE:	45		50		31		31		66	
BNA										
Phenol	570	U	650	U	950	U	1900	U	950	U
bis(2-Chloroethyl)ether	570	U	650	U	950	U	1900	U	950	U
2-Chlorophenol	570	U	650	U	950	U	1900	U	950	U
1,3-Dichlorobenzene	570	U	650	U	950	U	1900	U	950	U
1,4-Dichlorobenzene	570	U	650	U	950	U	1900	U	950	U
1,2-Dichlorobenzene	570	U	650	U	950	U	1900	U	950	U
2-Methylphenol	570	U	650	U	950	U	1900	U	950	U
2,2'-oxybis(1-Chloropropane)	570	U	650	U	950	U	1900	U	950	U
4-Methylphenol	570	U	650	U	950	U	1900	U	950	U
N-Nitroso-di-n-propylamine	570	U	650	U	950	U	1900	U	950	U
Hexachloroethane	570	U	650	U	950	U	1900	U	950	U
Nitrobenzene	570	U	650	U	950	U	1900	U	950	U
Isophorone	570	U	650	U	950	U	1900	U	950	U
2-Nitrophenol	570	U	650	U	950	U	1900	U	950	U
2,4-Dimethylphenol	570	U	650	U	950	U	1900	U	950	U
bis(2-Chloroethoxy)methane	570	U	650	U	950	U	1900	U	950	U
2,4-Dichlorophenol	570	U	650	U	950	U	1900	U	950	U
1,2,4-Trichlorobenzene	570	U	650	U	950	U	1900	U	950	U
Naphthalene	570	U	650	U	950	U	1900	U	950	U
4-Chloroaniline	570	U	650	U	950	U	1900	U	950	U
Hexachlorobutadiene	570	U	650	U	950	U	1900	U	950	U
4-Chloro-3-methylphenol	570	U	650	U	950	U	1900	U	950	U
2-Methylnaphthalene	570	U	650	U	950	U	1900	U	950	U
Hexachlorocyclopentadiene	570	U	650	U	950	U	1900	UJ	950	U
2,4,6-Trichlorophenol	570	U	650	U	950	U	1900	U	950	U
2,4,5-Trichlorophenol	1400	U	1600	U	2400	U	4800	U	2400	U
2-Chloronaphthalene	570	U	650	U	950	U	1900	U	950	U
2-Nitroaniline	1400	U	1600	U	2400	U	4800	U	2400	U
Dimethylphthalate	570	U	650	U	950	U	1900	U	950	U
Acenaphthylene	570	U	650	U	950	U	1900	U	950	U
2,6-Dinitrotoluene	570	U	650	U	950	U	1900	U	950	U
3-Nitroaniline	1400	U	1600	U	2400	U	4800	U	2400	U
Acenaphthene	570	U	650	U	230	J	200	J	950	U
2,4-Dinitrophenol	1400	U	1600	U	2400	U	4800	UJ	2400	U
4-Nitrophenol	1400	U	1600	U	2400	U	4800	U	2400	U
Dibenzofuran	570	U	650	U	110	J	1900	U	950	U
2,4-Dinitrotoluene	570	U	650	U	950	U	1900	U	950	U
Diethylphthalate	570	U	650	U	950	U	1900	U	950	U
4-Chlorophenyl-phenylether	570	U	650	U	950	U	1900	U	950	U
Fluorene	570	U	650	U	230	J	210	J	950	U
4-Nitroaniline	1400	U	1600	U	2400	U	4800	U	2400	U
4,6-Dinitro-2-methylphenol	1400	U	1600	U	2400	U	4800	UJ	2400	U
N-Nitrosodiphenylamine (1)	570	U	650	U	950	U	1900	U	950	U
4-Bromophenyl-phenylether	570	U	650	U	950	U	1900	U	950	U
Hexachlorobenzene	570	U	650	U	950	U	1900	U	950	U
Pentachlorophenol	1400	U	1600	U	2400	U	4800	U	2400	U
Phenanthrene	570	U	47	J	4700		4300		690	J
Anthracene	570	U	650	U	610	J	500	J	120	J
Carbazole	570	U	650	U	600	J	560	J	75	J
Di-n-butylphthalate	44	J	650	U	950	U	1900	U	66	J
Fluoranthene	570	U	95	J	9200		9200		1900	
Pyrene	570	U	81	J	8200		6800		1600	
Butylbenzylphthalate	570	U	650	U	950	U	1900	UJ	950	U
3,3'-Dichlorobenzidine	570	U	650	U	950	U	1900	U	950	U
Benzo(a)anthracene	570	U	48	J	3200		3000		720	J
Chrysene	570	U	66	J	4400		4100		960	
bis(2-Ethylhexyl)phthalate	570	U	650	U	950	U	1900	U	950	U
Di-n-octylphthalate	570	U	650	U	950	U	1900	UJ	950	U
Benzo(b)fluoranthene	570	U	65	J	4800		3700		1100	
Benzo(k)fluoranthene	570	U	46	J	3200		3200		930	J
Benzo(a)pyrene	570	U	58	J	4000		3400		1000	
Indeno(1,2,3-cd)pyrene	570	U	37	J	2600		2300		740	J
Dibenz(a,h)anthracene	570	U	650	U	930	J	770	J	250	J
Benzo(g,h,i)perylene	570	U	46	J	3200		2600		890	J

Water units are reported in ug/L. Soil units are reported in ug/Kg.

TCL QUALIFIED SPREADSHEET

Case No: 25668
SDG No: EARX3

Site: AMERICAN CHEMICAL SERVICE
Laboratory: SOUTHWEST LABS OF OKLAHOM

EPA SAMPLE NUMBER:	EAZS4MS		EAZS4MSD		EAZS5		EAZS5RE		EAZS6	
REGIONAL SAMPLE NUMBER:										
SAMPLE LOCATION:	ACS-ST09-001		ACS-ST09-001		ACS-ST10-001		ACS-ST10-001		ACS-ST04-101	
SAMPLE TYPE:	Matrix Spike		Matrix Spike Dup		Routine Sample		Routine Sample		Routine Sample	
MATRIX/ANALYSIS:	Soil/Low		Soil/Low		Soil/Low		Soil/Low		Soil/Low	
DILUTION FACTOR:	1.0		1.0		1.0		1.0		1.0	
PERCENT MOISTURE:	66		66		39		39		28	
BNA										
Phenol	3300		3600		530	UJ	530	UJ	440	U
bis(2-Chloroethyl)ether	920	U	920	U	530	UJ	530	UJ	440	U
2-Chlorophenol	3400		3700		530	UJ	530	UJ	440	U
1,3-Dichlorobenzene	920	U	920	U	530	UJ	530	UJ	440	U
1,4-Dichlorobenzene	1900		2000		530	UJ	530	UJ	440	U
1,2-Dichlorobenzene	920	U	920	U	530	UJ	530	UJ	440	U
2-Methylphenol	920	U	920	U	530	UJ	530	UJ	440	U
2,2'-oxybis(1-Chloropropane)	920	U	920	U	530	UJ	530	UJ	440	U
4-Methylphenol	920	U	920	U	530	UJ	530	UJ	440	U
N-Nitroso-di-n-propylamine	2100		2400		530	UJ	530	UJ	440	U
Hexachloroethane	920	U	920	U	530	UJ	530	UJ	440	U
Nitrobenzene	920	U	920	U	530	UJ	530	UJ	440	U
Isophorone	920	U	920	U	530	UJ	530	UJ	440	U
2-Nitrophenol	920	U	920	U	530	UJ	530	UJ	440	U
2,4-Dimethylphenol	920	U	920	U	530	UJ	530	UJ	440	U
bis(2-Chloroethoxy)methane	920	U	920	U	530	UJ	530	UJ	440	U
2,4-Dichlorophenol	920	U	920	U	530	UJ	530	UJ	440	U
1,2,4-Trichlorobenzene	2300		2400		530	UJ	530	UJ	440	U
Naphthalene	920	U	920	U	530	UJ	530	UJ	75	J
4-Chloroaniline	920	U	920	U	530	UJ	530	UJ	440	U
Hexachlorobutadiene	920	U	920	U	530	UJ	530	UJ	440	U
4-Chloro-3-methylphenol	3500		4100		530	UJ	530	UJ	440	U
2-Methylnaphthalene	920	U	920	U	530	UJ	530	UJ	440	U
Hexachlorocyclopentadiene	920	U	920	U	530	UJ	530	UJ	440	U
2,4,6-Trichlorophenol	920	U	920	U	530	UJ	530	UJ	440	U
2,4,5-Trichlorophenol	2300	U	2300	U	1300	UJ	1300	UJ	1100	U
2-Chloronaphthalene	920	U	920	U	530	UJ	530	UJ	440	U
2-Nitroaniline	2300	U	2300	U	1300	UJ	1300	UJ	1100	U
Dimethylphthalate	920	U	920	U	530	UJ	530	UJ	440	U
Acenaphthylene	920	U	920	U	530	UJ	530	UJ	440	U
2,6-Dinitrotoluene	920	U	920	U	530	UJ	530	UJ	440	U
3-Nitroaniline	2300	U	2300	U	1300	UJ	1300	UJ	1100	U
Acenaphthene	2700		2800		530	UJ	530	UJ	440	U
2,4-Dinitrophenol	2300	U	2300	U	1300	UJ	1300	UJ	1100	U
4-Nitrophenol	3300		4000		1300	UJ	1300	UJ	1100	U
Dibenzofuran	920	U	920	U	530	UJ	530	UJ	440	U
2,4-Dinitrotoluene	2600		2800		530	UJ	530	UJ	440	U
Diethylphthalate	920	U	920	U	530	UJ	530	UJ	440	U
4-Chlorophenyl-phenylether	920	U	920	U	530	UJ	530	UJ	440	U
Fluorene	50	J	68	J	530	UJ	530	UJ	440	U
4-Nitroaniline	2300	U	2300	U	1300	UJ	1300	UJ	1100	U
4,6-Dinitro-2-methylphenol	2300	U	2300	U	1300	UJ	1300	UJ	1100	U
N-Nitrosodiphenylamine (1)	920	U	920	U	530	UJ	530	UJ	440	U
4-Bromophenyl-phenylether	920	U	920	U	530	UJ	530	UJ	440	U
Hexachlorobenzene	920	U	920	U	530	UJ	530	UJ	440	U
Pentachlorophenol	3300		3900		1300	UJ	1300	UJ	1100	U
Phenanthrene	760	J	1100		530	UJ	530	UJ	36	J
Anthracene	120	J	180	J	530	UJ	530	UJ	440	U
Carbazole	78	J	120	J	530	UJ	530	UJ	440	U
Di-n-butylphthalate	920	U	120	J	530	UJ	530	UJ	440	U
Fluoranthene	1800		2900		530	UJ	530	UJ	41	J
Pyrene	4500		5400		30	J	530	U	41	J
Butylbenzylphthalate	920	U	920	U	530	U	530	UJ	440	U
3,3'-Dichlorobenzidine	920	U	920	U	530	U	530	U	440	U
Benzo(a)anthracene	790	J	1100		530	U	530	U	440	U
Chrysene	1100		1500		530	U	530	U	35	J
bis(2-Ethylhexyl)phthalate	920	U	920	U	530	U	530	U	440	U
Di-n-octylphthalate	920	U	920	U	530	U	530	UJ	440	U
Benzo(b)fluoranthene	1300		1600		530	U	530	U	28	J
Benzo(k)fluoranthene	930		1400		530	U	530	U	23	J
Benzo(a)pyrene	1200		1600		530	U	530	U	26	J
Indeno(1,2,3-cd)pyrene	820	J	1100		530	U	530	U	440	U
Dibenz(a,h)anthracene	290	J	380	J	530	U	530	U	440	U
Benzo(g,h,i)perylene	1000		1400		530	U	530	U	37	J

Water units are reported in ug/L. Soil units are reported in ug/Kg.

TCL QUALIFIED SPREADSHEET

Case No: 25668
SDG No: EARX3

Site: AMERICAN CHEMICAL SERVICE
Laboratory: SOUTHWEST LABS OF OKLAHOM

EPA SAMPLE NUMBER:	EAZS7		SBLK1							
REGIONAL SAMPLE NUMBER:										
SAMPLE LOCATION:	ACS-ST11-101									
SAMPLE TYPE:	Routine Sample		Method Blank							
MATRIX/ANALYSIS:	Soil/Low		Soil/Low							
DILUTION FACTOR:	1.0		1.0							
PERCENT MOISTURE:	43		0							
BNA										
Phenol	560	U	330	U						
bis(2-Chloroethyl)ether	560	U	330	U						
2-Chlorophenol	560	U	330	U						
1,3-Dichlorobenzene	560	U	330	U						
1,4-Dichlorobenzene	560	U	330	U						
1,2-Dichlorobenzene	560	U	330	U						
2-Methylphenol	560	U	330	U						
2,2'-oxybis(1-Chloropropane)	560	U	330	U						
4-Methylphenol	560	U	330	U						
N-Nitroso-di-n-propylamine	560	U	330	U						
Hexachloroethane	560	U	330	U						
Nitrobenzene	560	U	330	U						
Isophorone	42	J	330	U						
2-Nitrophenol	560	U	330	U						
2,4-Dimethylphenol	560	U	330	U						
bis(2-Chloroethoxy)methane	560	U	330	U						
2,4-Dichlorophenol	560	U	330	U						
1,2,4-Trichlorobenzene	560	U	330	U						
Naphthalene	560	U	330	U						
4-Chloroaniline	560	U	330	U						
Hexachlorobutadiene	560	U	330	U						
4-Chloro-3-methylphenol	560	U	330	U						
2-Methylnaphthalene	560	U	330	U						
Hexachlorocyclopentadiene	560	U	330	U						
2,4,6-Trichlorophenol	560	U	330	U						
2,4,5-Trichlorophenol	1400	U	830	U						
2-Chloronaphthalene	560	U	330	U						
2-Nitroaniline	1400	U	830	U						
Dimethylphthalate	560	U	330	U						
Acenaphthylene	560	U	330	U						
2,6-Dinitrotoluene	560	U	330	U						
3-Nitroaniline	1400	U	830	U						
Acenaphthene	560	U	330	U						
2,4-Dinitrophenol	1400	U	830	U						
4-Nitrophenol	1400	U	830	U						
Dibenzofuran	560	U	330	U						
2,4-Dinitrotoluene	560	U	330	U						
Diethylphthalate	560	U	330	U						
4-Chlorophenyl-phenylether	560	U	330	U						
Fluorene	560	U	330	U						
4-Nitroaniline	1400	U	830	U						
4,6-Dinitro-2-methylphenol	1400	U	830	U						
N-Nitrosodiphenylamine (1)	560	U	330	U						
4-Bromophenyl-phenylether	560	U	330	U						
Hexachlorobenzene	560	U	330	U						
Pentachlorophenol	1400	U	830	U						
Phenanthrene	36	J	330	U						
Anthracene	560	U	330	U						
Carbazole	560	U	330	U						
Di-n-butylphthalate	84	J	330	U						
Fluoranthene	70	J	330	U						
Pyrene	110	J	330	U						
Butylbenzylphthalate	560	U	330	U						
3,3'-Dichlorobenzidine	560	U	330	U						
Benzo(a)anthracene	47	J	330	U						
Chrysene	79	J	330	U						
bis(2-Ethylhexyl)phthalate	4000		38	J						
Di-n-octylphthalate	560	U	330	U						
Benzo(b)fluoranthene	100	J	330	U						
Benzo(k)fluoranthene	58	J	330	U						
Benzo(a)pyrene	69	J	330	U						
Indeno(1,2,3-cd)pyrene	54	J	330	U						
Dibenz(a,h)anthracene	560	U	330	U						
Benzo(g,h,i)perylene	77	J	330	U						

Water units are reported in ug/L. Soil units are reported in ug/Kg.

TCL QUALIFIED SPREADSHEET

Case No: 25668
SDG No: EARX3

Site: AMERICAN CHEMICAL SERVICE
Laboratory: SOUTHWEST LABS OF OKLAHOM

EPA SAMPLE NUMBER:	EARX3		EARX4		EARX5		EAZR9		EAZS0	
REGIONAL SAMPLE NUMBER:										
SAMPLE LOCATION:	ACS-ST01-001		ACS-ST02-001		ACS-ST03-001		ACS-ST04-001		ACS-ST05-001	
SAMPLE TYPE:	Routine Sample		Routine Sample		Routine Sample		Routine Sample		Routine Sample	
MATRIX/ANALYSIS:	Soil		Soil		Soil		Soil		Soil	
DILUTION FACTOR:	10.0		10.0		10.0		10.0		10.0	
PERCENT MOISTURE:	33		77		36		28		26	
PES										
alpha-BHC	25	U	70	U	25	U	24	U	21	U
beta-BHC	25	UJ	70	UJ	25	UJ	24	UJ	21	UJ
delta-BHC	25	UJ	70	UJ	25	UJ	24	UJ	21	UJ
gamma-BHC (Lindane)	25	U	70	U	25	U	24	U	21	U
Heptachlor	25	U	70	U	25	U	24	U	21	U
Aldrin	25	U	70	U	25	U	24	U	21	U
Heptachlor epoxide	25	U	70	U	25	U	24	U	21	U
Endosulfan I	25	U	70	U	25	U	24	U	21	U
Dieldrin	49	U	140	U	49	U	46	U	41	U
4,4'-DDE	49	U	140	U	49	U	46	U	41	U
Endrin	49	U	140	U	49	U	46	U	41	U
Endosulfan II	49	U	140	U	49	U	46	U	41	U
4,4'-DDD	49	U	140	U	49	U	46	U	41	U
Endosulfan sulfate	49	U	140	U	49	U	46	U	41	U
4,4'-DDT	49	UJ	140	UJ	49	UJ	46	UJ	41	UJ
Methoxychlor	250	UJ	700	UJ	250	UJ	240	UJ	210	UJ
Endrin ketone	49	U	140	U	49	U	46	U	41	U
Endrin aldehyde	49	U	140	U	49	U	46	U	41	U
alpha-Chlordane	25	U	70	U	25	U	24	U	21	U
gamma-Chlordane	25	U	70	U	25	U	24	U	21	U
Toxaphene	2500	U	7000	U	2500	U	2400	U	2100	U
Aroclor-1016	490	U	1400	U	490	U	460	U	410	U
Aroclor-1221	990	U	2800	U	1000	U	930	U	840	U
Aroclor-1232	490	U	1400	U	490	U	460	U	410	U
Aroclor-1242	490	U	1400	U	490	U	460	U	410	U
Aroclor-1248	490	U	1400	U	490	U	460	U	410	U
Aroclor-1254	490	U	1400	U	490	U	460	U	410	U
Aroclor-1260	490	U	1400	U	490	U	460	U	410	U

Water units are reported in ug/L.
Soil units are reported in ug/Kg.

TCL QUALIFIED SPREADSHEET

Case No: 25668
SDG No: EARX3

Site: AMERICAN CHEMICAL SERVICE
Laboratory: SOUTHWEST LABS OF OKLAHOM

EPA SAMPLE NUMBER:	EAZS1		EAZS2		EAZS3		EAZS4		EAZS4MS	
REGIONAL SAMPLE NUMBER:										
SAMPLE LOCATION:	ACS-ST06-001		ACS-ST07-001		ACS-ST08-001		ACS-ST09-001		ACS-ST09-001	
SAMPLE TYPE:	Routine Sample		Routine Sample		Routine Sample		Routine Sample		Matrix Spike	
MATRIX/ANALYSIS:	Soil		Soil		Soil		Soil		Soil	
DILUTION FACTOR:	10.0		10.0		10.0		10.0		10.0	
PERCENT MOISTURE:	30		50		31		66		66	
PES										
alpha-BHC	24	U	34	U	24	U	49	U	47	U
beta-BHC	24	UJ	34	UJ	24	UJ	49	UJ	47	UJ
delta-BHC	24	UJ	34	UJ	24	UJ	49	UJ	47	UJ
gamma-BHC (Lindane)	24	U	34	U	24	U	49	U	30	J
Heptachlor	24	U	34	U	2.5	J	49	U	38	J
Aldrin	24	U	34	U	24	U	49	U	30	J
Heptachlor epoxide	24	U	34	U	24	U	49	U	47	U
Endosulfan I	24	U	34	U	24	U	49	U	47	U
Dieldrin	47	U	66	U	46	U	95	U	70	J
4,4'-DDE	47	U	66	U	46	U	95	U	92	U
Endrin	47	U	66	U	46	U	95	U	52	J
Endosulfan II	47	U	66	U	46	U	95	U	92	U
4,4'-DDD	47	U	66	U	46	U	95	U	92	U
Endosulfan sulfate	47	U	66	U	46	U	95	U	92	U
4,4'-DDT	47	UJ	66	UJ	46	UJ	95	UJ	62	J
Methoxychlor	240	UJ	340	UJ	240	UJ	490	UJ	470	UJ
Endrin ketone	47	U	66	U	46	U	95	U	92	U
Endrin aldehyde	47	U	66	U	46	U	95	U	92	U
alpha-Chlordane	24	U	34	U	24	U	49	U	47	U
gamma-Chlordane	24	U	34	U	24	U	49	U	47	U
Toxaphene	2400	U	3400	U	2400	U	4900	U	4700	U
Aroclor-1016	470	U	660	U	460	U	950	U	920	U
Aroclor-1221	950	U	1300	U	940	U	1900	U	1900	U
Aroclor-1232	470	U	660	U	460	U	950	U	920	U
Aroclor-1242	470	U	660	U	460	U	950	U	920	U
Aroclor-1248	470	U	660	U	460	U	950	U	920	U
Aroclor-1254	470	U	660	U	460	U	950	U	920	U
Aroclor-1260	470	U	660	U	460	U	950	U	920	U

Water units are reported in ug/L.
Soil units are reported in ug/Kg.

TCL QUALIFIED SPREADSHEET

Case No: 25668
SDG No: EARX3

Site: AMERICAN CHEMICAL SERVICE
Laboratory: SOUTHWEST LABS OF OKLAHOM

EPA SAMPLE NUMBER:	EAZS4MSD		EAZS5		EAZS6		EAZS7		PBLKSB	
REGIONAL SAMPLE NUMBER:										
SAMPLE LOCATION:	ACS-ST09-001		ACS-ST10-001		ACS-ST04-101		ACS-ST11-101			
SAMPLE TYPE:	Matrix Spike Dup		Routine Sample		Routine Sample		Routine Sample		Method Blank	
MATRIX/ANALYSIS:	Soil		Soil		Soil		Soil		Soil	
DILUTION FACTOR:	10.0		10.0		10.0		10.0		1.0	
PERCENT MOISTURE:	66		39		38		43		0	
PES										
alpha-BHC	46	U	27	U	26	U	30	U	1.7	U
beta-BHC	46	UJ	27	UJ	26	UJ	26	J	1.7	UJ
delta-BHC	46	UJ	27	UJ	26	UJ	30	UJ	1.7	UJ
gamma-BHC (Lindane)	29	J	27	U	26	U	29	J	1.7	U
Heptachlor	31	J	27	U	26	U	62	J	1.7	U
Aldrin	28	J	27	U	26	U	30	U	1.7	U
Heptachlor epoxide	46	U	27	U	26	U	30	U	1.7	U
Endosulfan I	46	U	27	U	26	U	390	J	1.7	U
Dieldrin	59	J	52	U	51	U	57	U	3.3	U
4,4'-DDE	90	U	52	U	51	U	290	J	3.3	U
Endrin	56	J	52	U	51	U	150	J	3.3	U
Endosulfan II	90	U	52	U	51	U	57	U	3.3	U
4,4'-DDD	90	U	52	U	51	U	78	J	3.3	U
Endosulfan sulfate	90	U	52	U	51	U	60	J	3.3	U
4,4'-DDT	53	J	52	UJ	51	UJ	240	J	3.3	UJ
Methoxychlor	460	UJ	270	UJ	260	UJ	290	J	17	UJ
Endrin ketone	90	U	52	U	51	U	57	U	3.3	U
Endrin aldehyde	90	U	52	U	51	U	57	U	3.3	U
alpha-Chlordane	46	U	27	U	26	U	220	J	1.7	U
gamma-Chlordane	46	U	27	U	26	U	48	J	1.7	U
Toxaphene	4600	U	2700	U	2600	U	3000	U	170	U
Aroclor-1016	900	U	520	U	510	U	570	U	33	U
Aroclor-1221	1800	U	1000	U	1000	U	1200	U	67	U
Aroclor-1232	900	U	520	U	510	U	570	U	33	U
Aroclor-1242	900	U	520	U	510	U	570	U	33	U
Aroclor-1248	900	U	520	U	510	U	570	U	33	U
Aroclor-1254	900	U	520	U	510	U	8800		33	U
Aroclor-1260	900	U	520	U	510	U	570	U	33	U

Water units are reported in ug/L.
Soil units are reported in ug/Kg.

Missing Contents Error Report

SDG NO: **EARX3**

CASE NO: **25668**

LABORATORY: **SOUTHWEST LAB**

AGENCY INPUT FILE: **EARX3.OAS**

FIELD DESCRIPTION	CADRE KEY		
Analysis Time	Record Type 20	Line 3687	Format HH:MM
Analysis Time	Record Type 20	Line 3700	Format HH:MM
Sulfur Cleanup	Record Type 27	Line 4105	Format RANGE
Analysis Time	Record Type 20	Line 4899	Format HH:MM
Analysis Time	Record Type 20	Line 4912	Format HH:MM
Sulfur Cleanup	Record Type 27	Line 5317	Format RANGE
Analysis Time	Record Type 20	Line 6111	Format HH:MM
Analysis Time	Record Type 20	Line 6124	Format HH:MM
Analysis Time	Record Type 20	Line 6737	Format HH:MM
Analysis Time	Record Type 20	Line 6750	Format HH:MM

Semivolatile Analysis Data - SBLK1
Tentatively Identified Compounds

CASE NO: 25668 LABORATORY: SOUTHWEST LABS OF OKLAHOM
SDG NO: EARX3

CAS NUMBER	COMPOUND NAME	RT	ESTIMATED CONCENTRATION	Q
141-79-7	3-PENTEN-2-ONE, 4-METHYL-	2.66	1200.000	NJA
	UNKNOWN	2.74	270.000	J
	UNKNOWN	3.38	160.000	J
	UNKNOWN	10.50	76.000	J
	UNKNOWN AMIDE	13.12	70.000	J
	UNKNOWN AMIDE	14.42	2500.000	J
	UNKNOWN AMIDE	14.58	120.000	J

FILE NAME: EARX3.SDG DATE: 10/23/97 TIME: 14:18 CADRE 2.3.1 PAGE: 1

Semivolatile Analysis Data - EARX3
Tentatively Identified Compounds

CASE NO: 25668 LABORATORY: SOUTHWEST LABS OF OKLAHOM
SDG NO: EARX3

CAS NUMBER	COMPOUND NAME	RT	ESTIMATED CONCENTRATION	Q
123-42-2	2-PENTANONE, 4-HYDROXY-4-METHY	2.93	530.000	NJA
	UNKNOWN	3.63	230.000	J
103-82-2	BENZENEACETIC ACID	5.46	210.000	NJ
	UNKNOWN	7.88	570.000	J
	UNKNOWN	10.37	270.000	J
10544-50-0	SULFUR, MOL. (S8)	12.46	2500.000	NJ
	-BENZO[]FLUORENE	13.64	120.000	J
192-97-2	BENZO[E]PYRENE	17.81	280.000	NJ
	UNKNOWN	18.45	200.000	J
	UNKNOWN	18.91	180.000	J
	UNKNOWN	19.35	130.000	J
	UNKNOWN PAH	19.51	280.000	J
	UNKNOWN	19.85	200.000	J
14021-23-9	D-FRIEDOOLEAN-14-ENE, 3-METHOX	19.89	1400.000	NJ
	UNKNOWN	20.31	710.000	J
	UNKNOWN	20.39	330.000	J
	UNKNOWN	20.49	180.000	J
	UNKNOWN	20.55	170.000	J
	UNKNOWN	20.68	500.000	J
464-97-1	URS-12-ENE	20.82	500.000	NJ
0-00-0	ESEROLINE	20.99	360.000	NJ
	UNKNOWN	21.06	290.000	J
	UNKNOWN PAH	21.17	280.000	J
	UNKNOWN KETONE	21.28	1300.000	J
	UNKNOWN	21.86	160.000	J
	UNKNOWN	22.08	310.000	J
	UNKNOWN	22.65	170.000	J

FILE NAME: EARX3.SDG DATE: 10/23/97 TIME: 14:18 CADRE 2.3.1 PAGE: 2

Semivolatile Analysis Data - EARX4
Tentatively Identified Compounds

CASE NO: 25668
SDG NO: EARX3

LABORATORY: SOUTHWEST LABS OF OKLAHOM

CAS NUMBER	COMPOUND NAME	RT	ESTIMATED CONCENTRATION	Q
123-42-2	2-PENTANONE, 4-HYDROXY-4-METHY	2.93	1500.000	NJA
	UNKNOWN	2.97	390.000	J
	UNKNOWN	3.01	490.000	J
	UNKNOWN	3.58	330.000	J
	UNKNOWN	3.63	500.000	J
	UNKNOWN	4.21	370.000	J
544-63-8	TETRADECANOIC ACID	9.73	280.000	NJ
	UNKNOWN	10.36	580.000	J
	-HEXADECENE, -TETRAMETHYL-,	10.45	380.000	J
	UNKNOWN	10.61	320.000	J
2091-29-4	9-HEXADECENOIC ACID	11.26	2000.000	NJ
109-29-5	OXACYCLOHEPTADECAN-2-ONE	11.33	520.000	NJ
57-10-3	HEXADECANOIC ACID	11.39	880.000	NJ
10544-50-0	SULFUR, MOL. (S8)	12.46	2600.000	NJ
192-97-2	BENZO[E]PYRENE	17.81	330.000	NJ
	UNKNOWN	19.08	660.000	J
	UNKNOWN	19.16	440.000	J
	UNKNOWN PAH	19.51	360.000	J
	UNKNOWN PAH	19.91	300.000	J
	UNKNOWN	19.96	350.000	J
83-47-6	.GAMMA.-SITOSTEROL	20.31	810.000	NJ
	UNKNOWN	20.40	380.000	J
559-70-6	.BETA.-AMYRIN	20.48	1100.000	NJ
559-70-6	.BETA.-AMYRIN	20.67	710.000	NJ
	UNKNOWN	21.85	1200.000	J

Semivolatile Analysis Data - EARX5
Tentatively Identified Compounds

CASE NO: 25668 LABORATORY: SOUTHWEST LABS OF OKLAHOM
SDG NO: EARX3

CAS NUMBER	COMPOUND NAME	RT	ESTIMATED CONCENTRATION	Q
123-42-2	2-PENTANONE, 4-HYDROXY-4-METHY	2.93	540.000	NJA
	UNKNOWN	2.97	160.000	J
110-89-4	PIPERIDINE	3.01	180.000	NJ
	UNKNOWN	3.63	220.000	J
	UNKNOWN	7.88	110.000	J
629-74-3	1-HEXADECYNE	10.77	130.000	NJ
57-10-3	HEXADECANOIC ACID	11.39	130.000	NJ
	UNKNOWN	12.32	120.000	J
10544-50-0	SULFUR, MOL. (S8)	12.45	280.000	NJ
192-97-2	BENZO[E]PYRENE	17.82	140.000	NJ
	UNKNOWN	19.10	110.000	J
57-88-5	CHOLESTEROL	19.16	120.000	NJ
	UNKNOWN PAH	19.52	110.000	J
	UNKNOWN	19.96	130.000	J
	UNKNOWN	20.31	590.000	J
	UNKNOWN	20.39	150.000	J
559-70-6	.BETA.-AMYRIN	20.49	180.000	NJ
	UNKNOWN	20.54	180.000	J
638-95-9	.ALPHA.-AMYRIN	20.67	520.000	NJ
	UNKNOWN	20.80	400.000	J
464-97-1	URS-12-ENE	20.99	350.000	NJ
	UNKNOWN	21.04	130.000	J
	UNKNOWN	21.27	470.000	J
	UNKNOWN	21.86	260.000	J
	UNKNOWN	22.08	450.000	J

Semivolatile Analysis Data - EAZR9
Tentatively Identified Compounds

CASE NO: 25668 LABORATORY: SOUTHWEST LABS OF OKLAHOM
SDG NO: EARX3

CAS NUMBER	COMPOUND NAME	RT	ESTIMATED CONCENTRATION	Q
123-42-2	2-PENTANONE, 4-HYDROXY-4-METHY	2.94	330.000	NJA
	UNKNOWN	3.58	97.000	J
5166-53-0	3-HEXEN-2-ONE, 5-METHYL-	3.64	110.000	NJ
	UNKNOWN	4.22	110.000	J
	-HEXADECENE, -TETRAMETHYL-, [R	10.46	89.000	J
	UNKNOWN	10.76	160.000	J
10544-50-0	SULFUR, MOL. (S8)	12.45	180.000	NJ
	UNKNOWN ALDEHYDE	17.32	130.000	J
	UNKNOWN ALDEHYDE	18.45	120.000	J
	UNKNOWN	18.57	170.000	J
	UNKNOWN	18.90	90.000	J
	UNKNOWN	19.09	110.000	J
	UNKNOWN	19.15	200.000	J
	UNKNOWN	20.31	230.000	J
	UNKNOWN	21.28	140.000	J
	UNKNOWN	22.07	100.000	J

Semivolatile Analysis Data - EAZS0
Tentatively Identified Compounds

CASE NO: 25668 LABORATORY: SOUTHWEST LABS OF OKLAHOM
SDG NO: EARX3

CAS NUMBER	COMPOUND NAME	RT	ESTIMATED CONCENTRATION	Q
	UNKNOWN ALKENE	2.83	680.000	J
123-42-2	2-PENTANONE, 4-HYDROXY-4-METHY	2.93	540.000	NJA
	UNKNOWN	3.58	150.000	J
	UNKNOWN	3.63	170.000	J
	UNKNOWN	4.21	110.000	J
10544-50-0	SULFUR, MOL. (S8)	7.88	270.000	NJ
	UNKNOWN	10.37	130.000	J
	UNKNOWN ORGANIC ACID	11.39	110.000	J
10544-50-0	SULFUR, MOL. (S8)	12.45	790.000	NJ
	-BENZO[]FLUORENE	13.64	140.000	J
	UNKNOWN	17.32	170.000	J
	UNKNOWN	17.70	100.000	J
192-97-2	BENZO[E]PYRENE	17.81	170.000	NJ
198-55-0	PERYLENE	18.03	120.000	NJ
	UNKNOWN	19.16	180.000	J
	UNKNOWN	19.42	99.000	J
	UNKNOWN PAH	19.52	97.000	J
	UNKNOWN	19.76	130.000	J
	UNKNOWN PAH	19.92	100.000	J
83-47-6	.GAMMA.-SITOSTEROL	20.31	380.000	NJ
	UNKNOWN	20.68	160.000	J
	UNKNOWN	20.78	170.000	J
	UNKNOWN	20.84	110.000	J
	UNKNOWN KETONE	21.27	330.000	J
	UNKNOWN	22.65	140.000	J

Semivolatile Analysis Data - EAZS1
Tentatively Identified Compounds

CASE NO: 25668 LABORATORY: SOUTHWEST LABS OF OKLAHOM
SDG NO: EARX3

CAS NUMBER	COMPOUND NAME	RT	ESTIMATED CONCENTRATION	Q
	UNKNOWN ALKENE	2.83	1000.000	J
	UNKNOWN	7.89	1400.000	J
10544-50-0	SULFUR, MOL. (S8)	10.36	750.000	NJ
	UNKNOWN ALDEHYDE	10.40	1100.000	J
	-HEXADECENE, -TETRAMETHYL-	10.46	470.000	J
	UNKNOWN	10.76	650.000	J
544-63-8	TETRADECANOIC ACID	11.39	500.000	NJ
10544-50-0	SULFUR, MOL. (S8)	12.47	7300.000	NJ
638-66-4	OCTADECANAL	17.32	1200.000	NJ
	UNKNOWN	17.68	500.000	J
	UNKNOWN ALDEHYDE	18.44	400.000	J
	UNKNOWN	18.90	490.000	J
	UNKNOWN	19.02	370.000	J
59-02-9	VITAMIN E	19.09	640.000	NJ
57-88-5	CHOLESTEROL	19.15	870.000	NJ
	ERGOST--DIEN--OL, (.BETA.	19.42	780.000	J
	UNKNOWN	19.61	410.000	J
	UNKNOWN	19.77	630.000	J
	UNKNOWN	19.82	460.000	J
0-00-0	2-HEPTACOSANONE	19.96	580.000	NJ
	UNKNOWN	20.08	490.000	J
	HEXADECANOIC ACID,	20.20	520.000	J
83-47-6	.GAMMA.-SITOSTEROL	20.31	4500.000	NJ
6538-02-9	ERGOSTANOL	20.39	610.000	NJ
	UNKNOWN	20.49	950.000	J
	UNKNOWN	20.54	540.000	J
	UNKNOWN	20.67	1900.000	J
	UNKNOWN	20.80	1400.000	J
	UNKNOWN ALKENE	20.98	1400.000	J
	UNKNOWN	22.64	400.000	J

Semivolatile Analysis Data - EAZS2
Tentatively Identified Compounds

CASE NO: 25668 LABORATORY: SOUTHWEST LABS OF OKLAHOM
SDG NO: EARX3

CAS NUMBER	COMPOUND NAME	RT	ESTIMATED CONCENTRATION	Q
	UNKNOWN	2.83	3800.000	JB
123-42-2	2-PENTANONE, 4-HYDROXY-4-METHY	2.93	790.000	NJA
10544-50-0	SULFUR, MOL. (S8)	7.88	400.000	NJ
10544-50-0	SULFUR, MOL. (S8)	10.36	390.000	NJ
	UNKNOWN	10.40	1200.000	JB
02608-53-7	3,7,11,15-TETRAMETHYL-2-HEXADE	10.76	500.000	NJ
57-10-3	HEXADECANOIC ACID	11.39	640.000	NJ
10544-50-0	SULFUR, MOL. (S8)	12.45	960.000	NJ
	UNKNOWN ALDEHYDE	17.32	340.000	J
	UNKNOWN ALDEHYDE	18.45	590.000	J
	UNKNOWN	18.59	2200.000	J
	UNKNOWN KETONE	18.87	360.000	J
	UNKNOWN	18.90	1300.000	J
	UNKNOWN	19.02	610.000	J
59-02-9	VITAMIN E	19.09	560.000	NJ
57-88-5	CHOLESTEROL	19.15	530.000	NJ
	UNKNOWN ALDEHYDE	19.52	350.000	J
	UNKNOWN	19.83	650.000	J
	UNKNOWN KETONE	19.96	780.000	J
83-47-6	.GAMMA.-SITOSTEROL	20.31	4500.000	NJ
	UNKNOWN PAH	20.39	970.000	J
	UNKNOWN	20.48	470.000	J
	UNKNOWN	20.55	530.000	J
	UNKNOWN	20.68	1800.000	J
559-70-6	.BETA.-AMYRIN	20.81	850.000	NJ
	UNKNOWN	20.99	1400.000	J
	UNKNOWN	21.17	490.000	J
1058-61-3	STIGMAST-4-EN-3-ONE	21.28	5400.000	NJ
984-87-2	CHOLESTAN-3-ONE, 4-METHYL-, (4	22.65	510.000	NJ

Semivolatile Analysis Data - EAZS3
Tentatively Identified Compounds

CASE NO: 25668 LABORATORY: SOUTHWEST LABS OF OKLAHOM
SDG NO: EARX3

CAS NUMBER	COMPOUND NAME	RT	ESTIMATED CONCENTRATION	Q
4245-37-8	2-PROPENOIC ACID, 2-METHYL-, E	2.81	11000.000	NJ
123-42-2	2-PENTANONE, 4-HYDROXY-4-METHY	2.92	560.000	NJA
	UNKNOWN	10.38	960.000	J
	UNKNOWN	10.73	430.000	J
203-64-5	4H-CYCLOPENTA[DEF]PHENANTHRENE	11.35	860.000	NJ
84-65-1	9,10-ANTHRACENEDIONE	11.77	850.000	NJ
	UNKNOWN	12.29	440.000	J
	BENZO[]FLUORENE	13.62	1000.000	J
	PYRENE, -METHYL-	13.75	560.000	J
	UNKNOWN PAH	15.82	480.000	J
	TRIPHENYLENE, -METHYL-	16.13	450.000	J
2498-66-0	BENZ(A)ANTHRACENE-7,12-DIONE	16.22	460.000	NJ
	UNKNOWN	16.31	400.000	J
604-53-5	1,1'-BINAPHTHALENE	17.06	440.000	NJ
	BENZO[]FLUORANTHENE	17.49	620.000	J
	UNKNOWN PAH	17.67	460.000	J
192-97-2	BENZO[E]PYRENE	17.78	3600.000	NJ
198-55-0	PERYLENE	18.01	1100.000	NJ
	UNKNOWN PAH	18.24	440.000	J
	UNKNOWN PAH	18.70	560.000	J
	UNKNOWN PAH	19.48	830.000	J
	BENZO[]TRIPHENYLENE	19.88	790.000	J
	UNKNOWN PAH	19.93	440.000	J
	UNKNOWN PAH	20.27	1100.000	J
	UNKNOWN PAH	20.96	700.000	J
	-DIBENZPYRENE	22.09	1500.000	J
	DIBENZPYRENE	22.25	900.000	J
	-DIBENZPYRENE	22.36	790.000	J
191-07-1	CORONENE	23.08	1200.000	NJ
	-DIBENZPYRENE	23.13	820.000	J

Semivolatile Analysis Data - EAZS4
Tentatively Identified Compounds

CASE NO: 25668
SDG NO: EARX3

LABORATORY: SOUTHWEST LABS OF OKLAHOM

CAS NUMBER	COMPOUND NAME	RT	ESTIMATED CONCENTRATION	Q
	UNKNOWN ALKENE	2.81	10000.000	J
123-42-2	2-PENTANONE, 4-HYDROXY-4-METHY	2.93	620.000	NJA
	UNKNOWN	7.85	1500.000	J
	UNKNOWN	10.34	630.000	J
	UNKNOWN	10.38	470.000	J
57-10-3	HEXADECANOIC ACID	11.36	640.000	NJ
7704-34-9	SULFUR	12.43	5600.000	NJ
	-BENZO[]FLUORENE	13.62	450.000	J
	UNKNOWN	17.41	290.000	J
	UNKNOWN PAH	18.09	500.000	J
	UNKNOWN PAH	18.14	430.000	J
	UNKNOWN PAH	18.50	400.000	J
	UNKNOWN ALKENE	18.55	510.000	J
	UNKNOWN PAH	18.86	880.000	J
	-PENTADECANETHIOL	19.07	630.000	J
	UNKNOWN	19.13	380.000	J
	UNKNOWN PAH	19.88	690.000	J
	UNKNOWN PAH	19.95	750.000	J
	UNKNOWN	20.16	640.000	J
83-47-6	.GAMMA.-SITOSTEROL	20.29	900.000	NJ
	UNKNOWN PAH	20.36	790.000	J
	UNKNOWN PAH	20.45	530.000	J
	UNKNOWN PAH	20.64	500.000	J
	UNKNOWN PAH	20.76	910.000	J
1058-61-3	STIGMAST-4-EN-3-ONE	21.23	970.000	NJ
	UNKNOWN	21.82	360.000	J
7683-64-9	SQUALENE	22.02	830.000	NJ
	-DIBENZPYRENE	22.09	410.000	J
	-DIBENZPYRENE	22.25	400.000	J
	UNKNOWN PAH	22.34	330.000	J

Semivolatile Analysis Data - EAZS5
Tentatively Identified Compounds

CASE NO: 25668 LABORATORY: SOUTHWEST LABS OF OKLAHOM
SDG NO: EARX3

CAS NUMBER	COMPOUND NAME	RT	ESTIMATED CONCENTRATION	Q
	UNKNOWN	2.62	960.000	J
	UNKNOWN ALKENE	2.81	670.000	J
123-42-2	2-PENTANONE, 4-HYDROXY-4-METHY	2.92	350.000	NJA
5166-53-0	3-HEXEN-2-ONE, 5-METHYL-	3.61	120.000	NJ
	UNKNOWN	7.85	640.000	J
10544-50-0	SULFUR, MOL. (S8)	10.34	340.000	NJ
	-HEXADECENE, -TETRAMETHYL-,	10.44	130.000	J
	-TETRAMETHYL--HEXADECEN--OL	10.59	160.000	J
	UNKNOWN	10.74	400.000	J
57-10-3	HEXADECANOIC ACID	11.36	150.000	NJ
10544-50-0	SULFUR, MOL. (S8)	12.43	3200.000	NJ
150-86-7	PHYTOL	12.59	160.000	NJ
	UNKNOWN ALDEHYDE	17.30	330.000	J
	UNKNOWN	17.45	170.000	J
	UNKNOWN	17.66	190.000	J
	TETRADECANOIC ACID, ESTER	18.01	460.000	J
	UNKNOWN ALDEHYDE	18.42	170.000	J
1599-67-3	1-DOCOSENE	18.55	320.000	NJ
2599-01-1	TETRADECANOIC ACID, HEXADECYL	19.07	390.000	NJ
	UNKNOWN	19.13	330.000	J
	UNKNOWN	19.39	170.000	J
	UNKNOWN	19.59	160.000	J
	UNKNOWN	19.74	240.000	J
	UNKNOWN PAH	20.06	200.000	J
	HEXADECANOIC ACID, DECYL ESTER	20.16	260.000	J
83-47-6	.GAMMA.-SITOSTEROL	20.28	730.000	NJ
	UNKNOWN	20.64	150.000	J
	UNKNOWN	20.75	180.000	J
1058-61-3	STIGMAST-4-EN-3-ONE	21.23	180.000	NJ

Semivolatile Analysis Data - EAZS6
Tentatively Identified Compounds

CASE NO: 25668 LABORATORY: SOUTHWEST LABS OF OKLAHOM
SDG NO: EARX3

CAS NUMBER	COMPOUND NAME	RT	ESTIMATED CONCENTRATION	Q
123-42-2	2-PENTANONE, 4-HYDROXY-4-METHY	2.92	360.000	NJA
5166-53-0	3-HEXEN-2-ONE, 5-METHYL-	3.61	150.000	NJ
	UNKNOWN	7.86	130.000	J
	-HEXADECENE, -TETRAMETHYL-,	10.43	140.000	J
	UNKNOWN	10.74	240.000	J
10544-50-0	SULFUR, MOL. (S8)	12.43	270.000	NJ
	UNKNOWN	14.56	290.000	J
	UNKNOWN	17.30	200.000	J
	UNKNOWN	17.46	120.000	J
3234-85-3	TETRADECANOIC ACID, TETRADECYL	18.01	250.000	NJ
	UNKNOWN	18.55	180.000	J
	UNKNOWN	18.86	100.000	J
	UNKNOWN	19.06	180.000	J
	UNKNOWN	19.13	380.000	J
	UNKNOWN	19.94	100.000	J
83-47-6	.GAMMA.-SITOSTEROL	20.29	450.000	NJ
	UNKNOWN	20.51	140.000	J
	UNKNOWN PAH	20.65	230.000	J
	UNKNOWN PAH	20.68	190.000	J
	UNKNOWN PAH	20.74	350.000	J
	UNKNOWN	20.94	190.000	J
	UNKNOWN	21.00	170.000	J
1058-61-3	STIGMAST-4-EN-3-ONE	21.23	190.000	NJ
	UNKNOWN	21.82	140.000	J
	UNKNOWN	22.02	170.000	J

Semivolatile Analysis Data - EAZS7
Tentatively Identified Compounds

CASE NO: 25668
SDG NO: EARX3

LABORATORY: SOUTHWEST LABS OF OKLAHOM

CAS NUMBER	COMPOUND NAME	RT	ESTIMATED CONCENTRATION	Q
123-42-2	2-PENTANONE, 4-HYDROXY-4-METHY	2.92	580.000	NJA
10544-50-0	SULFUR, MOL. (S8)	7.85	280.000	NJ
544-63-8	TETRADECANOIC ACID	9.71	240.000	NJ
10544-50-0	SULFUR, MOL. (S8)	10.34	260.000	NJ
	UNKNOWN	10.38	400.000	J
	UNKNOWN	10.74	320.000	J
	1,1'-BIPHENYL,-TRICHLORO-	10.92	300.000	J
10544-50-0	SULFUR, MOL. (S8)	12.42	880.000	NJ
	1,1'-BIPHENYL, -TETRACHLORO-	12.77	450.000	J
	1,1'-BIPHENYL, PENTACHLORO-	12.86	690.000	J
	UNKNOWN	13.16	580.000	J
	1,1'-BIPHENYL,-PENTACHLORO-	13.20	370.000	J
	1,1'-BIPHENYL, PENTACHLORO-	13.29	310.000	J
	1,1'-BIPHENYL, -PENTACHLORO-	13.44	750.000	J
	1,1'-BIPHENYL, -PENTACHLORO-	13.83	540.000	J
	1,1'-BIPHENYL,-HEXACHLORO	14.24	340.000	J
1241-94-7	OCTICIZER	14.93	310.000	NJ
14047-09-7	DIAZENE, BIS(3,4-DICHLOROPHENY	15.00	420.000	NJ
57-88-5	CHOLESTEROL	19.13	550.000	NJ
14021-23-9	D-FRIEDOOLEAN-14-ENE, 3-METHOX	19.86	600.000	NJ
	UNKNOWN	19.94	380.000	J
83-47-6	.GAMMA.-SITOSTEROL	20.28	820.000	NJ
	UNKNOWN	20.37	1000.000	J
	UNKNOWN PAH	20.95	450.000	J
	UNKNOWN	21.23	840.000	J
	UNKNOWN	21.82	370.000	J
	UNKNOWN	22.04	1100.000	J
	BICYCLO[]HEPT--ENE,	22.16	930.000	J

Semivolatile Analysis Data - EAZS3DL
Tentatively Identified Compounds

CASE NO: 25668 LABORATORY: SOUTHWEST LABS OF OKLAHOM
SDG NO: EARX3

CAS NUMBER	COMPOUND NAME	RT	ESTIMATED CONCENTRATION	Q
141-79-7	3-PENTEN-2-ONE, 4-METHYL-	2.64	1500.000	NJABD
	UNKNOWN ALKENE	2.80	4100.000	JD
123-42-2	2-PENTANONE, 4-HYDROXY-4-METHY	2.92	500.000	NJAD
	UNKNOWN	2.96	610.000	JD
203-64-5	4H-CYCLOPENTA[DEF]PHENANTHRENE	11.35	680.000	NJD
84-65-1	9,10-ANTHRACENEDIONE	11.77	750.000	NJD
	-BENZO[]FLUORENE	13.75	530.000	JD
	UNKNOWN AMIDE	14.39	1800.000	JBD
	BENZO[]NAPHTHO[]THIOPHENE	14.82	510.000	JD
	BENZO[]FLUORANTHENE	14.91	750.000	JD
	BENZO[]PHENANTHRENE	15.53	690.000	JD
	UNKNOWN PAH	15.82	420.000	JD
	UNKNOWN PAH	16.13	430.000	JD
2498-66-0	BENZ(A)ANTHRACENE-7,12-DIONE	16.21	400.000	NJD
	UNKNOWN PAH	17.06	520.000	JD
	BENZO[]FLUORANTHENE	17.49	640.000	JD
198-55-0	PERYLENE	17.78	3300.000	NJD
192-97-2	BENZO[E]PYRENE	18.00	1000.000	NJD
	UNKNOWN PAH	18.25	400.000	JD
	UNKNOWN PAH	18.69	690.000	JD
	UNKNOWN PAH	19.48	740.000	JD
	DIBENZ[]ANTHRACENE	19.82	400.000	JD
	BENZO[]TRIPHENYLENE	19.87	580.000	JD
	DIBENZO[,]CHRYSENE	20.26	840.000	JD
	UNKNOWN PAH	20.34	510.000	JD
	UNKNOWN PAH	20.97	560.000	JD
	DIBENZPYRENE	22.09	1300.000	JD
	DIBENZPYRENE	22.25	970.000	JD
192-65-4	NAPHTHO[1,2,3,4-DEF]CHRYSENE	22.35	960.000	NJD
191-07-1	CORONENE	22.51	430.000	NJD
191-07-1	CORONENE	23.07	810.000	NJD
	UNKNOWN PAH	23.12	780.000	JD

Semivolatile Analysis Data - EAZS5RE
Tentatively Identified Compounds

CASE NO: 25668 LABORATORY: SOUTHWEST LABS OF OKLAHOM
SDG NO: EARX3

CAS NUMBER	COMPOUND NAME	RT	ESTIMATED CONCENTRATION	Q
141-79-7	3-PENTEN-2-ONE, 4-METHYL-	2.65	1300.000	NJAB
4245-37-8	2-PROPENOIC ACID, 2-METHYL-, E	2.81	430.000	NJ
123-42-2	2-PENTANONE, 4-HYDROXY-4-METHY	2.92	330.000	NJA
	UNKNOWN	3.37	220.000	JB
	UNKNOWN	3.60	120.000	J
	UNKNOWN	7.85	610.000	J
	UNKNOWN	10.33	290.000	J
	UNKNOWN	10.37	420.000	J
56554-34-8	2-HEXADECENE, 2,6,10,14-TETRAM	10.44	210.000	NJ
71899-38-2	9-EICOSYNE	10.58	200.000	NJ
02608-53-7	3,7,11,15-TETRAMETHYL-2-HEXADE	10.74	420.000	NJ
57-10-3	HEXADECANOIC ACID	11.36	110.000	NJ
10544-50-0	SULFUR, MOL. (S8)	12.43	3000.000	NJ
	UNKNOWN AMIDE	13.08	140.000	JB
	UNKNOWN AMIDE	14.40	3000.000	JB
	UNKNOWN AMIDE	14.55	190.000	JB
	UNKNOWN ALDEHYDE	17.29	240.000	J
3234-85-3	TETRADECANOIC ACID, TETRADECYL	18.01	460.000	NJ
	UNKNOWN ALDEHYDE	18.42	150.000	J
2599-01-1	TETRADECANOIC ACID, HEXADECYL	19.07	370.000	NJ
57-88-5	CHOLESTEROL	19.13	310.000	NJ
	UNKNOWN	19.40	170.000	J
	UNKNOWN	19.74	170.000	J
	HEXADECANOIC ACID, ESTER	20.15	260.000	J
83-47-6	.GAMMA.-SITOSTEROL	20.28	580.000	NJ
	UNKNOWN	20.96	140.000	J
1850-29-9	1H-INDOLE-2-ETHANOL, .BETA.-(3	21.23	220.000	NJ

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

ESD Central Regional Laboratory
Data Tracking Form for Contract Samples

Data Set No: _____ CERCLIS No: IN

Case No: 25668 Site Name Location: American Chem Servic

Contractor or EPA Lab: SWOK Data User: BH

No. of Samples: 12 Date Sampled or Data Received: 10-7-97

Have Chain-of-Custody records been received? Yes ✓ No ___
Have traffic reports or packing lists been received? Yes ✓ No ___
If no, are traffic report or packing list numbers written on the chain-of-custody record? Yes ✓ No ___
If no, which traffic report or packing list numbers are missing?

_____ _____ _____ _____

_____ _____ _____ _____

Are basic data forms in? Yes ✓ No ___
No of samples claimed: 12 No. of samples received: 12

Received by: Lynette Burnett Date: 10-7-97

Received by LSSS: Lynette Burnett Date: 10-7-97

Review started: 10-23-97 Reviewer Signature: [illegible]

Total time spent on review: 13.5 Date review completed: 10-24-97

Copied by: Lynette Burnett Date: 11-4-97

Mailed to user by: Lynette Burnett Date: 11-4-97

DATA USER:
Please fill in the blanks below and return this form to:
Sylvia Griffen, Data mgmt. Coordinator, Region V, 5SCRL

Data received by: _____ Date: _____

Data review received by: _____ Date: _____

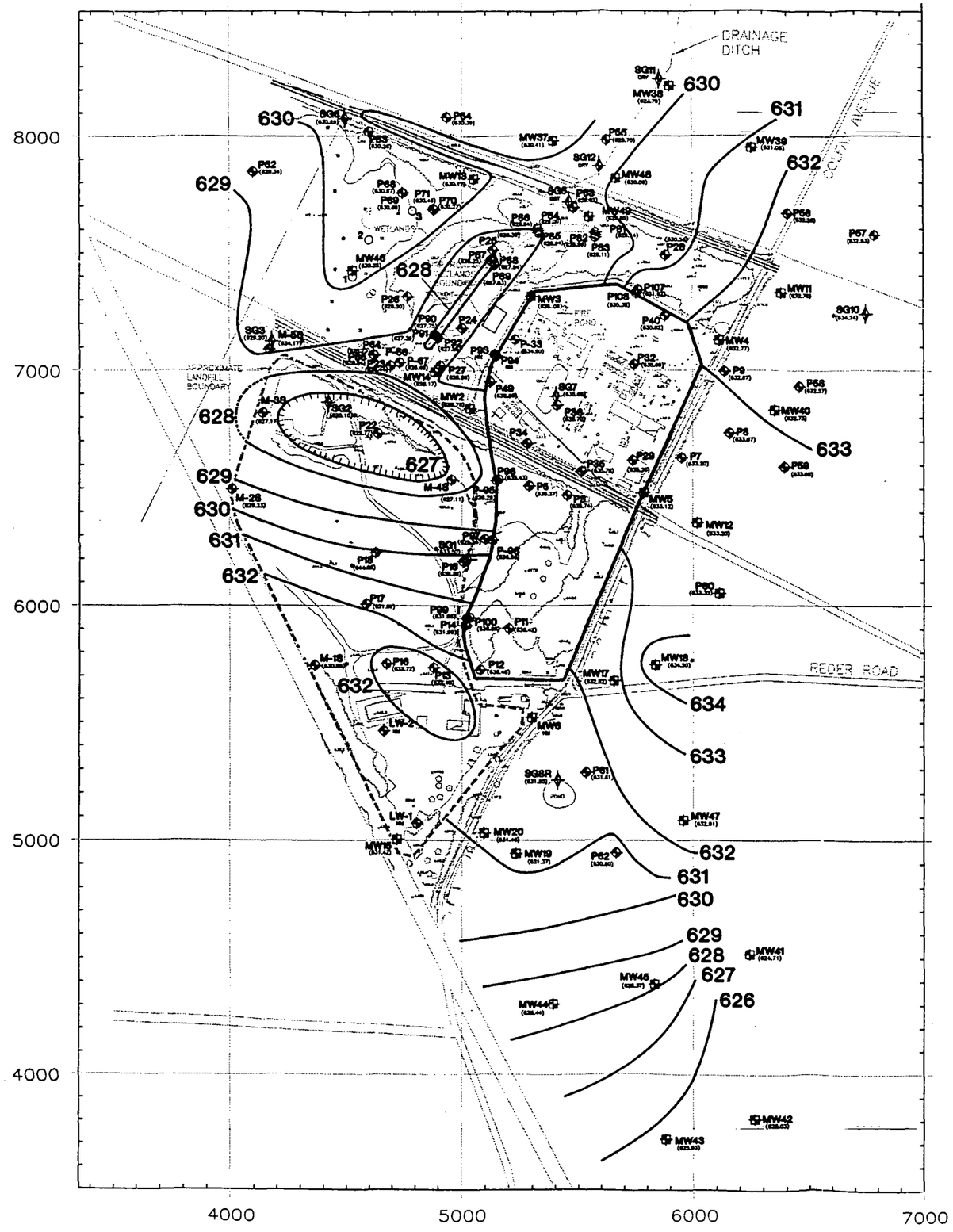
Inorganic Data Complete [ ] Suitable for Intended Purpose [ ] ✓ if OK
Organic Data Complete [ ] Suitable for Intended Purpose [ ] ✓ if OK
Dioxin Data Complete [ ] Suitable for Intended Purpose [ ] ✓ if OK
SAS Data Complete [ ] Suitable for Intended Purpose [ ] ✓ if OK

PROBLEMS: Please indicate reasons why data are not suitable for your uses.

_____

_____

Received by Data Mgmt. Coordinator for Files. Data: _____



LEGEND

- MW12 — UPPER AQUIFER WELL LOCATION AND DESIGNATION
- M-18 — LEACHATE WELL LOCATION AND DESIGNATION
- P61 — PIEZOMETER LOCATION AND DESIGNATION
- SG10 — STAFF GAUGE LOCATION AND DESIGNATION
- S — SURFACE DISCHARGE LOCATION FOR PERIMETER GROUND WATER CONTAINMENT SYSTEM
- (632) — ELEVATION
- (632)* — ELEVATION MEASURED BUT NOT USED FOR DETERMINATION OF THE POTENTIOMETRIC SURFACE
- 630 —— GROUNDWATER ELEVATION CONTOUR BASED ON GROUNDWATER ELEVATION DATA
- 630 - - - - GROUNDWATER ELEVATION CONTOUR BASED ON HYDROGEOLOGIC CONDITIONS
- BARRIER WALL
- PERIMETER GROUND WATER CONTAINMENT SYSTEM
- GRIFFITH LANDFILL BOUNDARY

NOTES

1. GROUNDWATER ELEVATIONS FOR WATER TABLE CONTOURS WERE MEASURED AT THE SITE ON SEPTEMBER 22, 1997.

north

0 500 1000

SCALE IN FEET

FIGURE 1

Developed By JMC
Drawn By DKP
Approved By TAB
Date 9/25/97
Reference
Revisions

UPPER AQUIFER POTENTIOMETRIC SURFACE SEPTEMBER 22, 1997

SEPTEMBER 1997 GROUNDWATER SAMPLING RESULTS REPORT
AMERICAN CHEMICAL SERVICE, INC.
NPL SITE
GRIFFITH, INDIANA

Drawing Number
1252042
221602 B1

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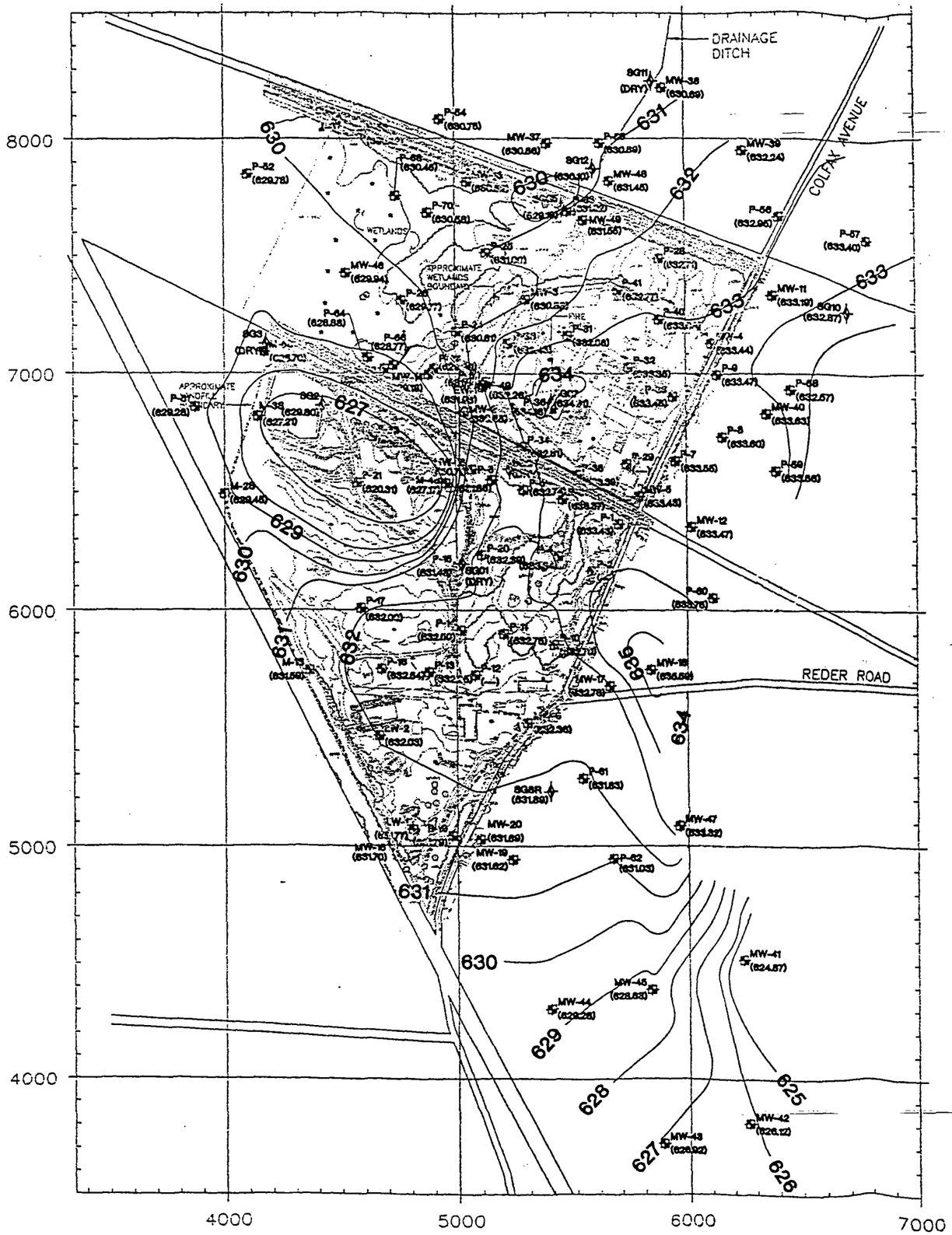

LEGEND

MW-12	UPPER AQUIFER WELL LOCATION AND NUMBER
M-18	LEACHATE/UPPER AQUIFER WELL LOCATION AND NUMBER
P-61	PIEZOMETER LOCATION AND NUMBER
SG10	STAFF GAUGE LOCATION AND NUMBER
(630.62)	MEASURED WATER TABLE ELEVATION, IN FT. AMSL
(—)	NOT MEASURED
635	GROUNDWATER ELEVATION CONTOUR

NOTES

1. GROUNDWATER LEVELS FOR WATER TABLE CONTOURS WERE MEASURED AT THE SITE ON NOVEMBER 4, 1996.

north

0 500 1000

SCALE IN FEET

FIGURE 2

Developed By DAP
Approved By
Drawn By CCM
Date 1/29/98
Reference
Revisions

UPPER AQUIFER WATER TABLE ELEVATIONS
NOVEMBER 4, 1996
FIRST QUARTER GROUNDWATER MONITORING RESULTS REPORT
AMERICAN CHEMICAL SERVICE, INC.
NPL SITE
GRIFFITH, INDIANA

Drawing Number
4077.0074B15

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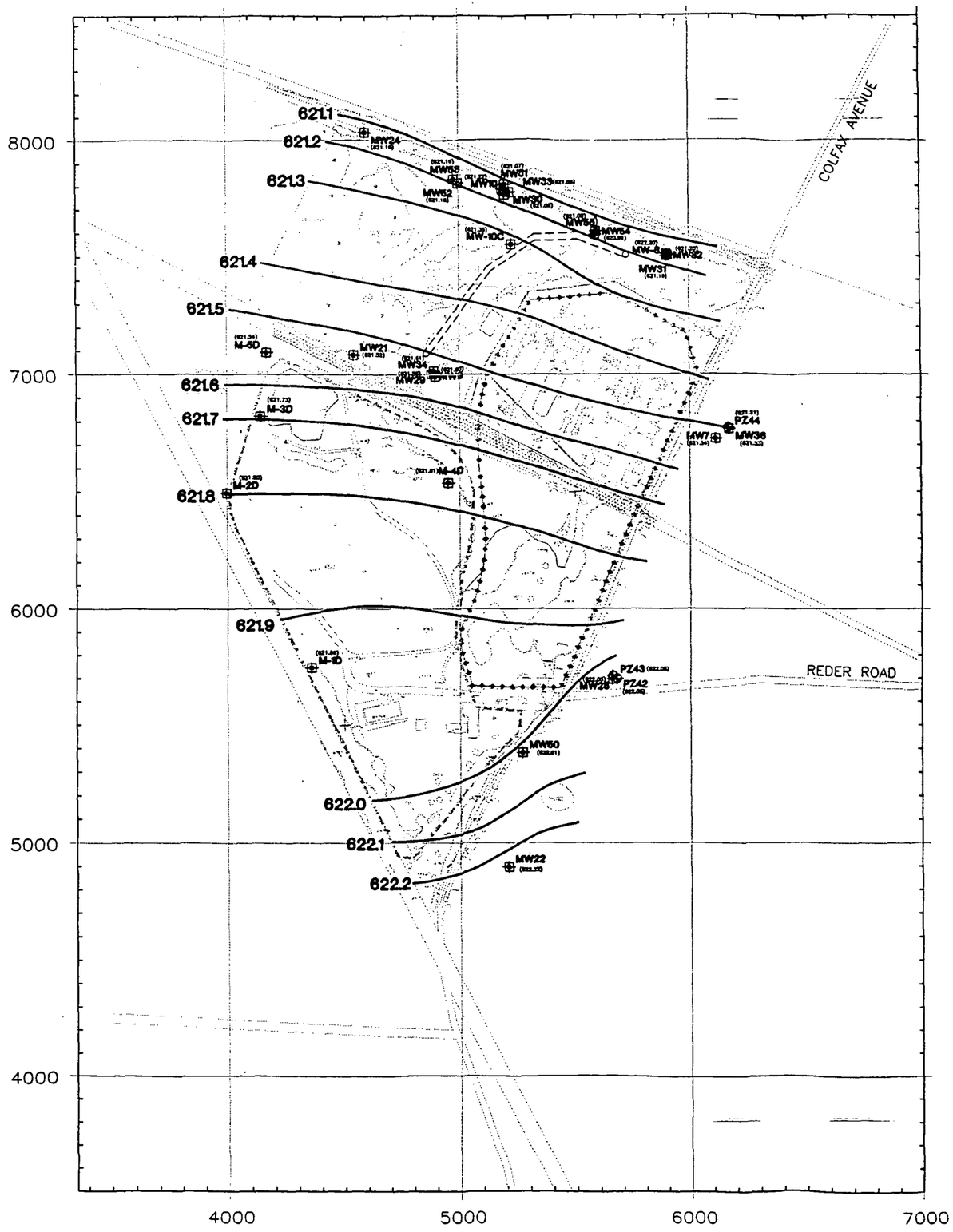

LEGEND

- MW09 — LOWER AQUIFER MONITORING WELL LOCATION AND DESIGNATION, SHOWING MEASURED GROUNDWATER ELEVATION
- PZ1 — PIEZOMETER LOCATION AND DESIGNATION
- (632) — ELEVATION
- 621.0 — GROUNDWATER ELEVATION CONTOUR
- BARRIER WALL
- GRIFFITH LANDFILL BOUNDARY
- PERIMETER GROUND WATER CONTAINMENT SYSTEM

NOTES

1. GROUNDWATER ELEVATIONS FOR THE POTENTIOMETRIC SURFACE CONTOURS WERE MEASURED AT THE SITE ON 09/22/97
2. CONTOUR INTERVAL = 0.1 FEET

north

0 500 1000

SCALE IN FEET

FIGURE 3

LOWER AQUIFER POTENTIOMETRIC SURFACE
SEPTEMBER 22, 1997

1997 BASELINE GROUNDWATER SAMPLING RESULTS REPORT
AMERICAN CHEMICAL SERVICE, INC.
NPL SITE
GRIFFITH, INDIANA

Developed By JMC
Drawn By DKP
Approved By TAB
Date 9/25/97
Reference J:/1252042/MWOWCS/SEPT97/LOW_POTENTI2.dwg
Revisions

Drawing Number
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221602 B3

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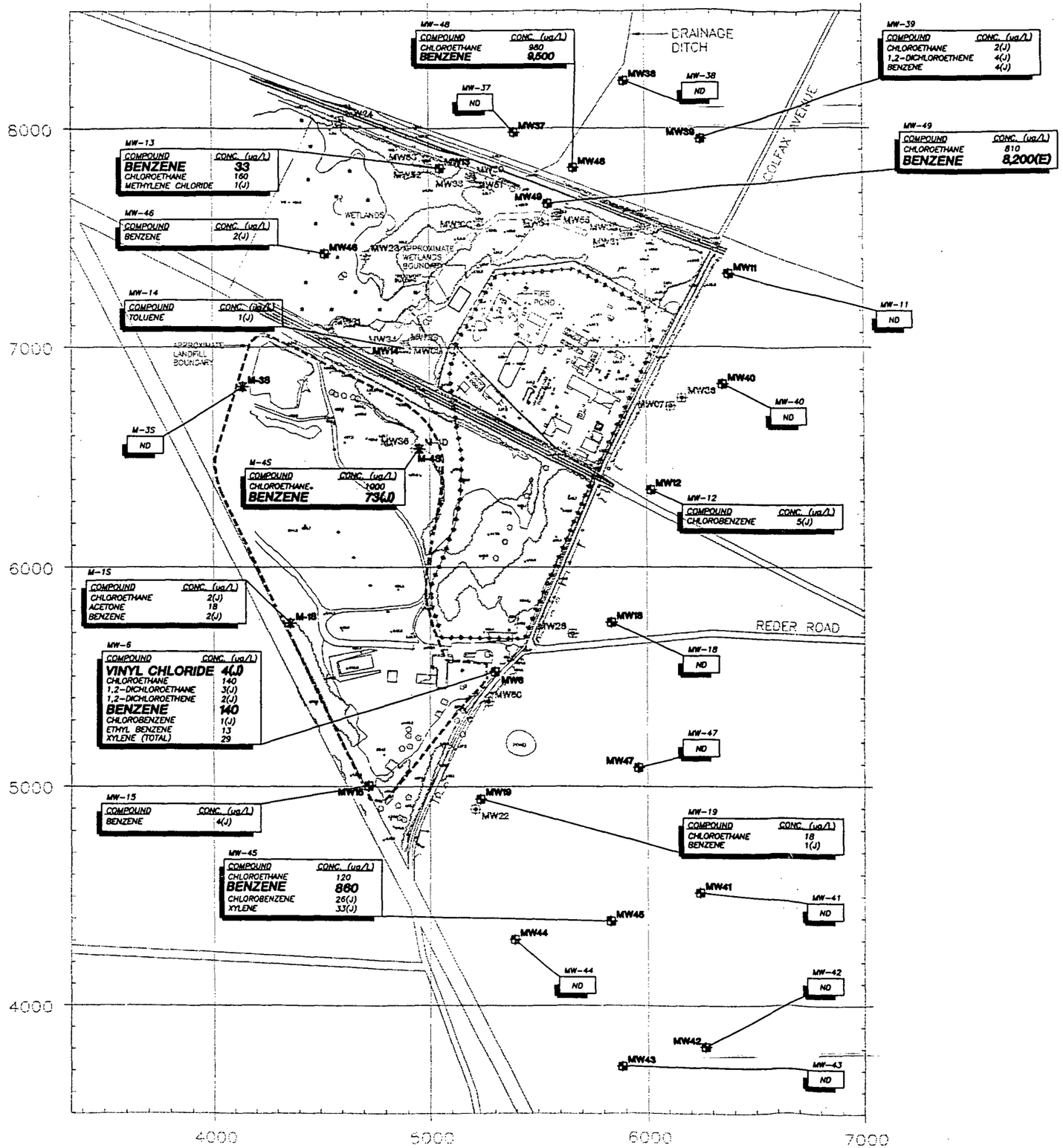

LEGEND

MW-12	UPPER AQUIFER WELL LOCATION AND DESIGNATION
MW23	LEACHATE/LOWER AQUIFER WELL LOCATION AND DESIGNATION
ug/L	MICROGRAMS PER LITER
(J)	INDICATES AN ESTIMATED VALUE
ND	NO VOC DETECTED
	BARRIER WALL
	PERIMETER GROUND WATER CONTAINMENT SYSTEM
	GRIFFITH LANDFILL BOUNDARY

NOTE

THE CONCENTRATION (AND ASSOCIATED COMPOUND) SHOWN IN BOLD EXCEEDED ROD REMEDIATION LEVELS

north

0 500 1000

SCALE IN FEET

FIGURE 4

Developed By PMS
Drawn By CCM
Approved By
Date
Reference J:/1252042/MWOWCS/SEPT97/SP0011_3RD-1997.dwg
Revisions

VOCs DETECTED IN UPPER AQUIFER MONITORING WELLS

SEPTEMBER 1997 GROUNDWATER MONITORING RESULTS REPORT
AMERICAN CHEMICAL SERVICE, INC.
NPL SITE
GRIFFITH, INDIANA

Drawing Number
1252042 B11

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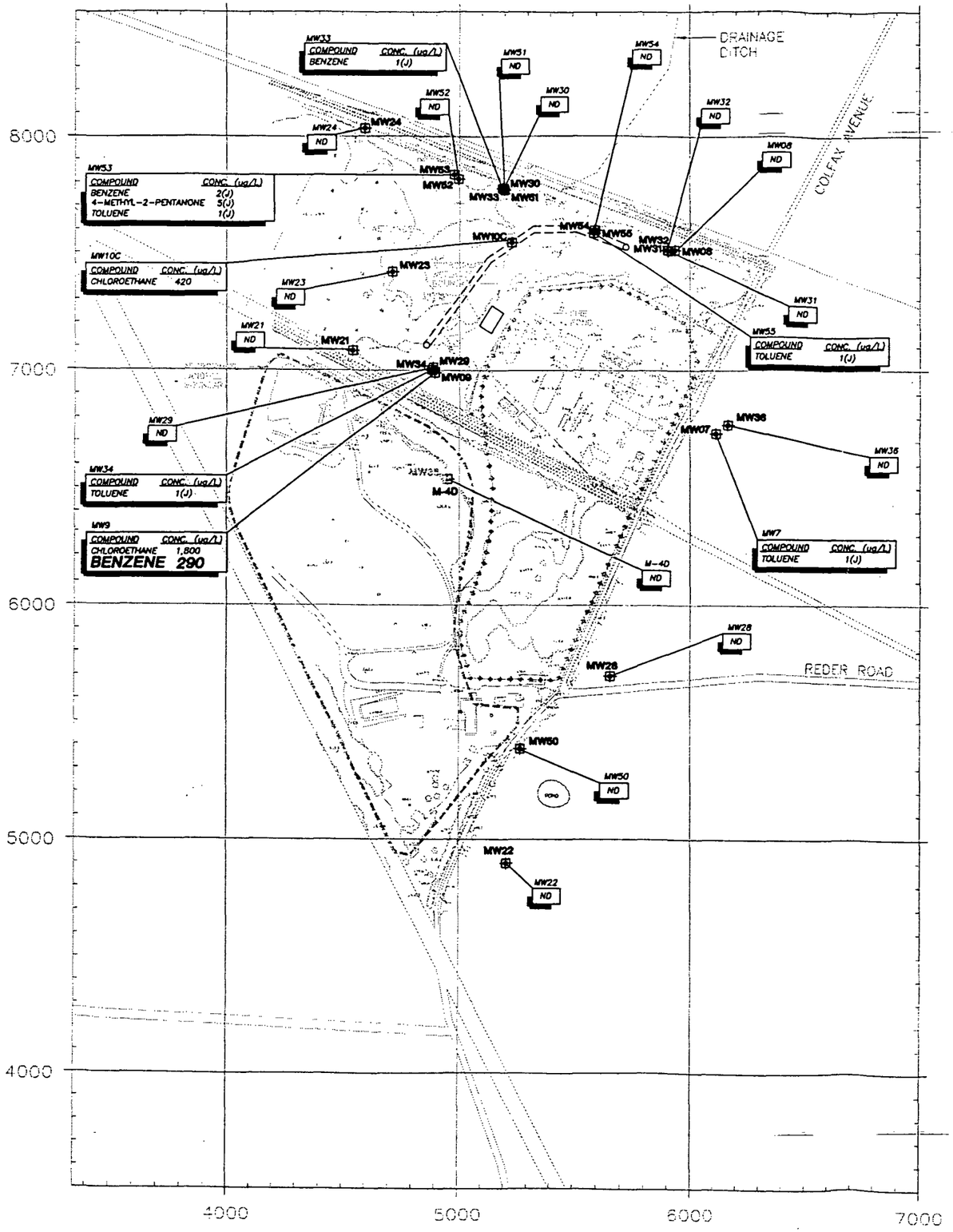

LEGEND

MW12	LOWER AQUIFER MONITORING WELL LOCATION AND DESIGNATION
M-18	LEACHATE WELL LOCATION AND DESIGNATION
ug/L	MICROGRAMS PER LITER
(J)	INDICATES AN ESTIMATED VALUE
ND	NO VOC DETECTED
	BARRIER WALL
	PERIMETER GROUND WATER CONTAINMENT SYSTEM
	GRIFFITH LANDFILL BOUNDARY

NOTE

THE CONCENTRATION (AND ASSOCIATED COMPOUND) SHOWN IN BOLD EXCEEDED ROD REMEDIATION LEVELS

north

0 500 1000

SCALE IN FEET

FIGURE 5

VOCs DETECTED IN LOWER AQUIFER MONITORING WELLS

SEPTEMBER 1997 GROUNDWATER MONITORING RESULTS REPORT
AMERICAN CHEMICAL SERVICE, INC.
NPL SITE
GRIFFITH, INDIANA

Drawing Number
1252.042 **B12**

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Drawn By CCM
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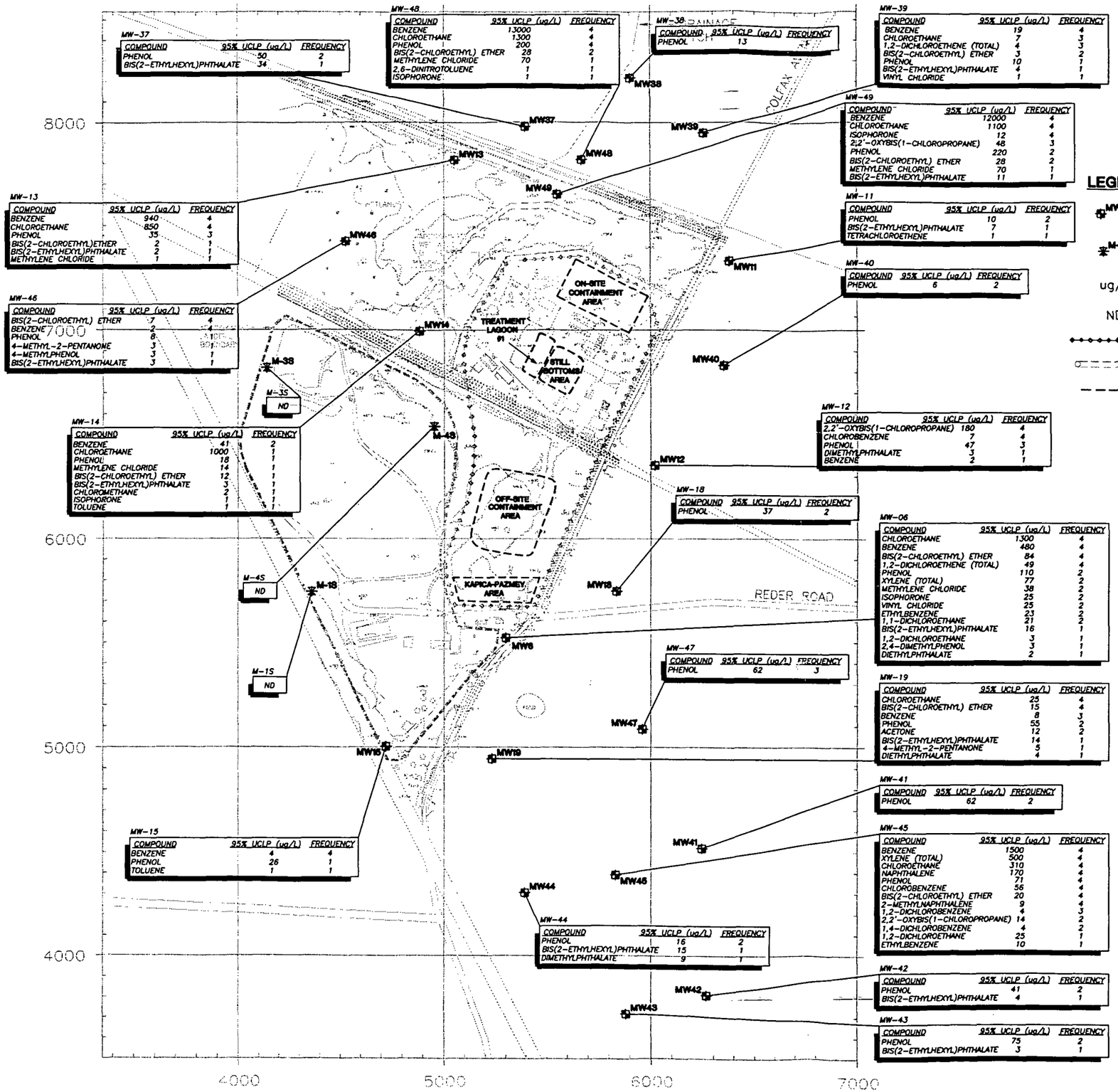

MW-37 COMPOUND	95% UCLP (ug/L)	FREQUENCY
PHENOL	50	2
BIS(2-ETHYLHEXYL)PHTHALATE	34	1

MW-48 COMPOUND	95% UCLP (ug/L)	FREQUENCY
BENZENE	13000	4
CHLOROETHANE	1300	4
PHENOL	200	4
BIS(2-CHLOROETHYL) ETHER	28	2
METHYLENE CHLORIDE	70	1
2,6-DINITROTOLUENE	1	1
ISOPHORONE	1	1

MW-38 COMPOUND	95% UCLP (ug/L)	FREQUENCY
PHENOL	13	1

MW-39 COMPOUND	95% UCLP (ug/L)	FREQUENCY
BENZENE	19	4
CHLOROETHANE	7	3
1,2-DICHLOROETHENE (TOTAL)	4	3
BIS(2-CHLOROETHYL) ETHER	3	2
PHENOL	10	1
BIS(2-ETHYLHEXYL)PHTHALATE	4	1
VINYL CHLORIDE	1	1

MW-49 COMPOUND	95% UCLP (ug/L)	FREQUENCY
BENZENE	12000	4
CHLOROETHANE	1100	4
ISOPHORONE	12	4
2,2'-OXYBIS(1-CHLOROPROPANE)	48	3
PHENOL	220	2
BIS(2-CHLOROETHYL) ETHER	28	2
METHYLENE CHLORIDE	70	1
BIS(2-ETHYLHEXYL)PHTHALATE	11	1

MW-13 COMPOUND	95% UCLP (ug/L)	FREQUENCY
BENZENE	940	4
CHLOROETHANE	850	4
PHENOL	35	3
BIS(2-CHLOROETHYL)ETHER	2	1
BIS(2-ETHYLHEXYL)PHTHALATE	2	1
METHYLENE CHLORIDE	1	1

MW-11 COMPOUND	95% UCLP (ug/L)	FREQUENCY
PHENOL	10	2
BIS(2-ETHYLHEXYL)PHTHALATE	7	1
TETRACHLOROETHENE	1	1

MW-40 COMPOUND	95% UCLP (ug/L)	FREQUENCY
PHENOL	6	2

MW-46 COMPOUND	95% UCLP (ug/L)	FREQUENCY
BIS(2-CHLOROETHYL) ETHER	7	4
BENZENE	2	4
PHENOL	8	3
4-METHYL-2-PENTANONE	3	1
4-METHYLPHENOL	3	1
BIS(2-ETHYLHEXYL)PHTHALATE	3	1

MW-14 COMPOUND	95% UCLP (ug/L)	FREQUENCY
BENZENE	41	2
CHLOROETHANE	1000	1
PHENOL	18	1
METHYLENE CHLORIDE	14	1
BIS(2-CHLOROETHYL) ETHER	12	1
BIS(2-ETHYLHEXYL)PHTHALATE	3	1
CHLOROMETHANE	2	1
ISOPHORONE	1	1
TOLUENE	1	1

MW-12 COMPOUND	95% UCLP (ug/L)	FREQUENCY
2,2'-OXYBIS(1-CHLOROPROPANE)	180	4
CHLOROBENZENE	7	4
PHENOL	47	3
DIMETHYLPHTHALATE	3	1
BENZENE	2	1

MW-18 COMPOUND	95% UCLP (ug/L)	FREQUENCY
PHENOL	37	2

MW-06 COMPOUND	95% UCLP (ug/L)	FREQUENCY
CHLOROETHANE	1300	4
BENZENE	480	4
BIS(2-CHLOROETHYL) ETHER	84	4
1,2-DICHLOROETHENE (TOTAL)	49	4
PHENOL	110	2
XYLENE (TOTAL)	77	2
METHYLENE CHLORIDE	38	2
ISOPHORONE	25	2
VINYL CHLORIDE	25	2
ETHYLBENZENE	23	2
1,1-DICHLOROETHANE	21	2
BIS(2-ETHYLHEXYL)PHTHALATE	16	1
1,2-DICHLOROETHANE	3	1
2,4-DIMETHYLPHENOL	3	1
DIETHYLPHTHALATE	2	1

MW-47 COMPOUND	95% UCLP (ug/L)	FREQUENCY
PHENOL	62	3

MW-19 COMPOUND	95% UCLP (ug/L)	FREQUENCY
CHLOROETHANE	25	4
BIS(2-CHLOROETHYL) ETHER	15	4
BENZENE	8	3
PHENOL	55	2
ACETONE	12	2
BIS(2-ETHYLHEXYL)PHTHALATE	14	1
4-METHYL-2-PENTANONE	5	1
DIETHYLPHTHALATE	4	1

MW-15 COMPOUND	95% UCLP (ug/L)	FREQUENCY
BENZENE	4	4
PHENOL	26	1
TOLUENE	1	1

MW-41 COMPOUND	95% UCLP (ug/L)	FREQUENCY
PHENOL	62	2

MW-45 COMPOUND	95% UCLP (ug/L)	FREQUENCY
BENZENE	1500	4
XYLENE (TOTAL)	500	4
CHLOROETHANE	310	4
NAPHTHALENE	170	4
PHENOL	71	4
CHLOROBENZENE	56	4
BIS(2-CHLOROETHYL) ETHER	20	4
2-METHYLNAPHTHALENE	9	4
1,2-DICHLOROBENZENE	4	3
2,2'-OXYBIS(1-CHLOROPROPANE)	14	2
1,4-DICHLOROBENZENE	4	2
1,2-DICHLOROETHANE	25	1
ETHYLBENZENE	10	1

MW-44 COMPOUND	95% UCLP (ug/L)	FREQUENCY
PHENOL	16	2
BIS(2-ETHYLHEXYL)PHTHALATE	15	1
DIMETHYLPHTHALATE	9	1

MW-42 COMPOUND	95% UCLP (ug/L)	FREQUENCY
PHENOL	41	2
BIS(2-ETHYLHEXYL)PHTHALATE	4	1

MW-43 COMPOUND	95% UCLP (ug/L)	FREQUENCY
PHENOL	75	2
BIS(2-ETHYLHEXYL)PHTHALATE	3	1

LEGEND

MW-12	UPPER AQUIFER WELL LOCATION AND NUMBER
M-18	LEACHATE/UPPER AQUIFER WELL LOCATION AND DESIGNATION
ug/L	MICROGRAMS PER LITER
ND	NO VOCS DETECTED
	BARRIER WALL
	PERIMETER GROUND WATER CONTAINMENT SYSTEM
	GRIFFITH LANDFILL BOUNDARY

north

0 500 1000

SCALE IN FEET

FIGURE 6

SPACIAL AND TEMPORAL VARIABILITY OF HISTORICAL VOC AND SVOC DETECTIONS
UPPER AQUIFER

SEPTEMBER 1997 GROUNDWATER MONITORING RESULTS REPORT
AMERICAN CHEMICAL SERVICE, INC.
NPL SITE
GRIFFITH, INDIANA

Developed By TAB
Drawn By DKP
Approved By TAB
Date 1/19/98
Reference J:/1252/042/MWDWGS/SEPT97/HIS_VOC_SVOC1.dwg
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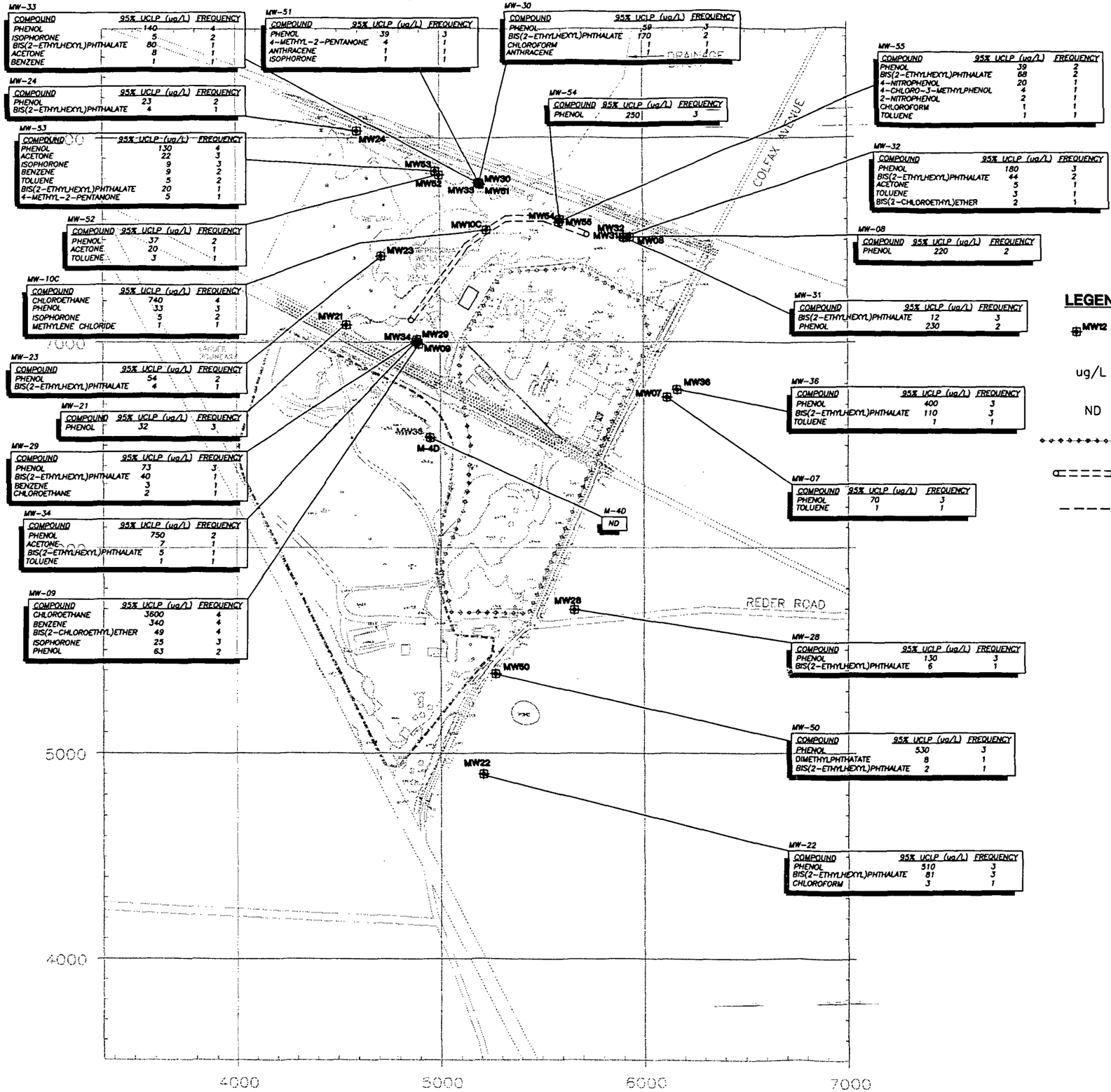

LEGEND

MW12	LOWER AQUIFER MONITORING WELL LOCATION AND DESIGNATION
ug/L	MICROGRAMS PER LITER
ND	NO VOCS DETECTED
	BARRIER WALL
	PERIMETER GROUND WATER CONTAINMENT SYSTEM
	GRIFFITH LANDFILL BOUNDARY

north

0 500 1000

SCALE IN FEET

FIGURE 7

SPACIAL AND TEMPORAL VARIABILITY OF HISTORICAL VOC AND SVOC DETECTIONS LOWER AQUIFER

SEPTEMBER 1997 GROUNDWATER MONITORING RESULTS REPORT
AMERICAN CHEMICAL SERVICE, INC.
NPL SITE
GRIFFITH, INDIANA

Developed By TAB
Drawn By DKP
Approved By TAB
Date 1/19/98
Reference J:/1252042/MWDWGS/SEPT97/SPDTYZ_SVO_1997.dwg
Revisions

Drawing Number
1252.042 **B12**

MONTGOMERY WATSON

Management Review
Other
Technical Review
Project Manager
Graphic Standards CCM 1/16/97
Lead Professional
QUALITY CONTROL

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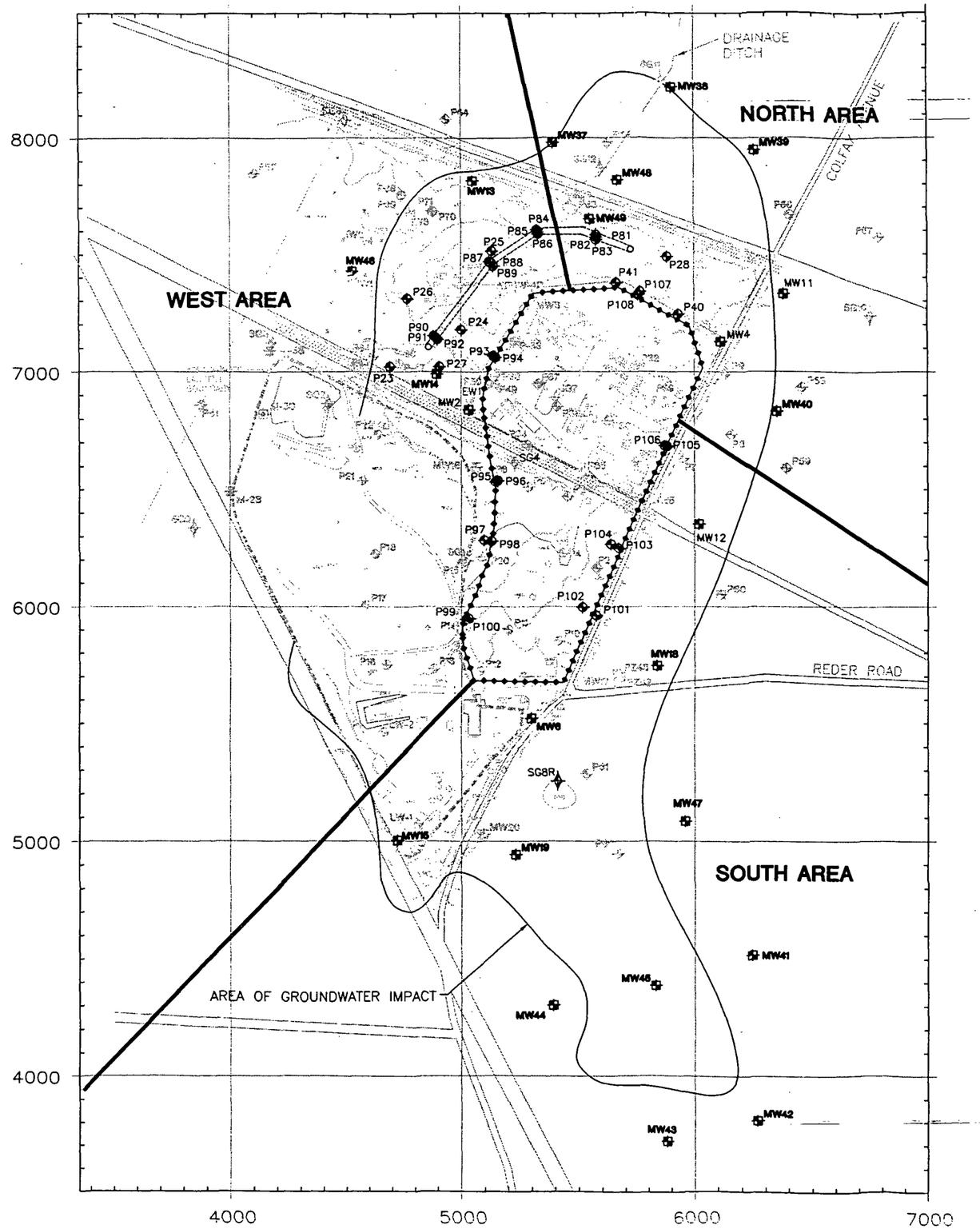

LEGEND

- MW39 — UPPER AQUIFER WELL LOCATION AND NUMBER TO BE SAMPLED AND GAUGED
- M-18 — LEACHATE/UPPER AQUIFER WELL LOCATION AND DESIGNATION TO BE SAMPLED
- MW11 — UPPER AQUIFER WELL LOCATION AND NUMBER TO BE GAUGED
- SG8R — STAFF GAUGE TO BE GAUGED
- P61 — PIEZOMETER LOCATION AND DESIGNATION TO BE GAUGED
- MW42 — MONITORING WELL NOT INCLUDED IN THE QUARTERLY MONITORING PROGRAM
- P61 — PIEZOMETER NOT INCLUDED IN THE QUARTERLY MONITORING PROGRAM
- SG10 — STAFF GAUGE NOT INCLUDED IN THE QUARTERLY MONITORING PROGRAM
- BARRIER WALL
- PERIMETER GROUND WATER CONTAINMENT SYSTEM
- GRIFFITH LANDFILL BOUNDARY
- NORTH/ SOUTH/ WEST AREA BOUNDRY LINES

Table 10 = list of wells for UA
Table 11 = list of wells for LA.

north

0 500 1000

SCALE IN FEET

FIGURE 8

MONITORING WELLS PROPOSED FOR LONG-TERM MONITORING IN THE UPPER AQUIFER

SEPTEMBER 1997 GROUNDWATER MONITORING RESULTS REPORT
AMERICAN CHEMICAL SERVICE, INC.
NPL SITE
GRIFFITH, INDIANA

Developed By TAB | Drawn By DKP
Approved By TAB | Date 1/19/98
Reference J:/1252042/MWOWCS/SEPT97/PROPOSED_MW.dwg
Revisions

Drawing Number
1252042
221602 B1

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Management Review
Other
Technical Review
Project Manager
Graphic Standards
Lead Professional
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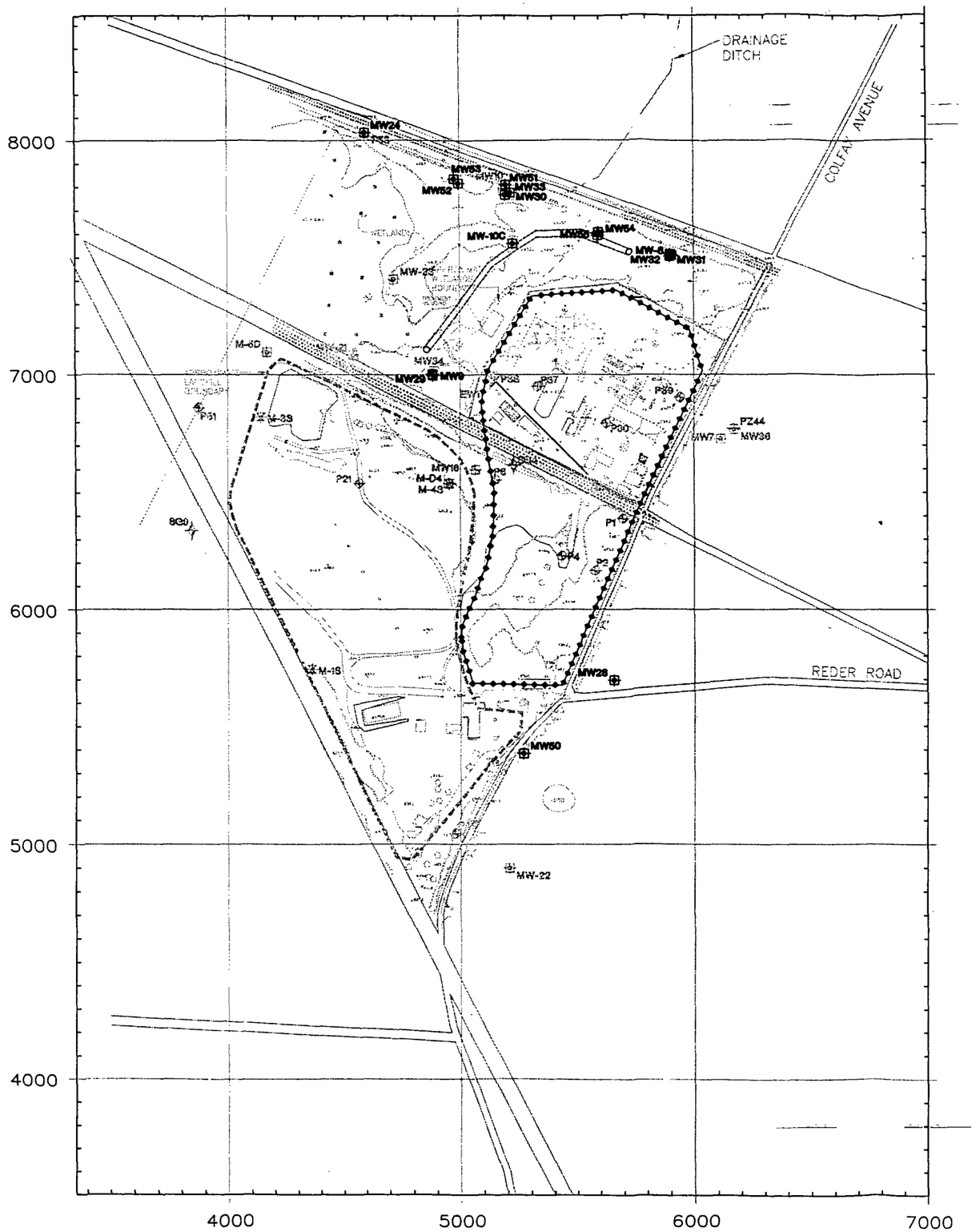

LEGEND

- MW63 — LOWER AQUIFER WELL LOCATION AND NUMBER TO BE SAMPLED
- P51 — PIEZOMETER NOT INCLUDED IN THE QUARTERLY MONITORING REPORT
- MONITORING WELL NOT INCLUDED IN THE QUARTERLY MONITORING PROGRAM
- M-18 — LEACHATE/LOWER AQUIFER WELL NOT INCLUDED IN THE QUARTERLY MONITORING REPORT
- SG4 — STAFF GAUGE NOT INCLUDED IN THE QUARTERLY MONITORING REPORT
- BARRIER WALL
- PERIMETER GROUND WATER CONTAINMENT SYSTEM
- GRIFFITH LANDFILL BOUNDARY

NOTES

1. SEE TABLE 9 FOR LOWER AQUIFER WELLS TO BE GAUGED

north

0 500 1000

SCALE IN FEET

FIGURE 9

MONITORING WELLS PROPOSED FOR LONG-TERM MONITORING IN THE LOWER AQUIFER

SEPTEMBER 1997 GROUNDWATER MONITORING RESULTS REPORT
AMERICAN CHEMICAL SERVICE, INC.
NPL SITE
GRIFFITH, INDIANA

Developed By TAB
Drawn By DKP
Approved By TAB
Date 1/19/98
Reference
Revisions

Drawing Number
1252042
221602 B1

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2/21/96

BLACK & VEATCH
SPECIAL PROJECTS CORP.

101 North Wacker Drive, Suite 1100, Chicago, Illinois 60606, (312) 346-3775, Fax: (312) 346-4781

FAX COVER SHEET

Project No.: _____ **Date:** _____

To: Sheri Bianchin **Co. Name:** U.S. EPA

Fax No.: 886-4745 **Telephone No.:** _____

Senders Name: Rob Lantz **Telephone No.:** 346-3775

This transmittal consists of 6 **pages, including this cover sheet. A copy of this transmittal (will), (will not) be sent by mail.**

Comments:

Transmitted By: Gwendolyn Francis **Date/Time:** 2-21-96

DRAFT

Tabulation of Upper Aquifer Field Screening Results

Probe Number	Coordinates Easting	Coordinates Northing	Acetone (ug/L)	Benzene (ug/L)	BETX (ug/L)	Total VOCs (ppm)
GP50	4756.5	7309.0	11	nd	nd	0.011
GP51	4568.2	7240.7	nd	nd	nd	nd
GP52	4687.4	7519.2	nd	nd	nd	nd
GP53	5042.0	7618.2	100	550	573	0.15
GP55	5026.8	7451.6	9	400	400	0.014
GP56	4994.1	7750.3	3000	nd	nd	3
GP57	4938.8	7658.5	380	5000	nd	5.4
GP58	4829.8	7705.0	25000	nd	nd	25
GP59	4751.7	7615.9	5.3	nd	nd	0.0053
GP60	4830.7	7537.2	1800	nd	nd	1.8
GP61	4741.4	7752.7	nd	nd	nd	nd
GP62	4813.6	7857.5	nd	nd	nd	nd
GP63	4855.1	7259.5	nd	nd	nd	nd
GP64	4798.0	7166.3	6	nd	nd	0.006
GP65	4763.6	7087.3	nd	nd	nd	nd
GP66	4716.0	7632.5	nd	nd	nd	nd
GP67	4723.3	7432.8	350	nd	nd	0.35
GP68	4731.6	7032.7	8.5	nd	nd	0.0085
GP69	4747.1	7168.2	nd	nd	nd	nd
GP70	4616.5	7064.6	nd	nd	nd	nd
GP71	4628.8	7420.4	nd	nd	nd	nd
GP72	5474.1	5558.7	nd	nd	nd	nd
GP73	4797.3	4726.1	17	nd	nd	0.017
GP74	4698.9	4904.4	28.7	nd	nd	0.029
GP75	4606.8	5082.5	nd	nd	nd	nd
GP76	4509.4	5257.8	nd	nd	nd	nd
GP77	4395.7	5420.9	nd	nd	nd	nd
GP78	4305.3	5619.1	31.1	nd	nd	0.031
GP79	4212.7	5795.8	nd	nd	nd	nd
GP80	5472.9	5563.3	nd	7860	22803	23.1
GP81	5622.8	5547.8	1720	nd	13868	18.80
GP82	5621.1	5352.5	4450	3430	21550	29.5
GP83	5822.3	5356.9	nd	nd	16.7	0.0017
GP84	5797.9	5171.7	nd	nd	nd	0.044
GP85	5806.4	4972.5	nd	nd	nd	nd
GP86	5976.4	5043.0	nd	nd	nd	nd
GP87	5111.6	5523.4	1950	419	722.6	2.7
GP88	5160.6	5368.9	159	nd	nd	0.16
GP89	5118.5	5565.8	2910	1060	6560	9.5
GP90	5538.8	5705.9	3960	8260	52720	93
GP91	5610.7	5891.5	nd	nd	6.1	0.016
GP92	5725.9	6086.7	81.5	nd	nd	0.082
GP93	5802.3	6267.1	42.7	5	5	0.053
GP94	6149.4	6280.2	nd	nd	nd	0.01
GP95	6230.7	6472.2	nd	nd	nd	nd
GP96	6298.7	6648.4	nd	nd	nd	nd
GP97	6295.1	6832.1	nd	nd	nd	nd

Tabulation of Upper Aquifer Field Screening Results

DRAFT

Probe Number	Coordinates Easting	Coordinates Northing	Acetone (ug/L)	Benzene (ug/L)	BETX (ug/L)	Total VOCs (ppm)
GP98	6350.2	7046.3	nd	nd	nd	nd
GP99	6410.4	7280.7	nd	nd	nd	nd
GP100	6405.0	7678.9	nd	nd	nd	nd
GP101	5944.6	5706.5	nd	nd	nd	nd
GP102	5994.6	5905.4	nd	nd	nd	nd
GP103	6062.3	6086.4	nd	nd	nd	nd
GP104	6217.2	7736.6	47.9	nd	nd	0.048
GP105	6002.5	7753.3	205	52.5	52.5	0.33
GP106	5818.0	7827.9	37.5	118	118	0.16
GP107	5581.7	7906.7	860	5320	5320	6.2
GP108	5398.0	7984.1	nd	nd	nd	0.0061
GP109	5195.9	7973.0	nd	nd	nd	nd
GP110	4949.6	8072.4	nd	nd	nd	nd
GP111	6368.8	7845.2	nd	nd	nd	nd
GP112	6138.2	7961.0	172	nd	nd	0.17
GP113	5985.9	7954.8	nd	nd	nd	nd
GP114	5794.2	8025.5	53.3	nd	nd	53.3
GP116	5651.9	4835.4	240	710	5926	6.2
GP117	5435.5	4793.5	175	nd	nd	0.18
GP118	5084.4	4798.9	nd	nd	nd	nd
GP119	5777.1	4741.2	16.6	5.2	5.2	0.03
GP120	5594.5	4625.2	719	131	376	1.1
GP121	5393.1	5512.7	4780	4580	11840	17
GP122	5305.8	5361.2	834	nd	nd	0.83
GP123	5114.8	5612.9	6000	1590	3680	19
GP124	5231.1	5606.3	3810	6950	6950	11
GP125	6234.4	7399.7	nd	nd	nd	nd
GP126	5889.3	4782.9	51.4	nd	nd	0.067
GP127	5816.6	4591.6	13.4	nd	nd	0.019
GP128	5587.7	4518.1	nd	506	5376	5.4
GP129	5392.9	4629.7	nd	nd	nd	nd
GP130	5275.9	4790.1	168	nd	nd	0.17

Upper Aquifer Field Screening Base Map

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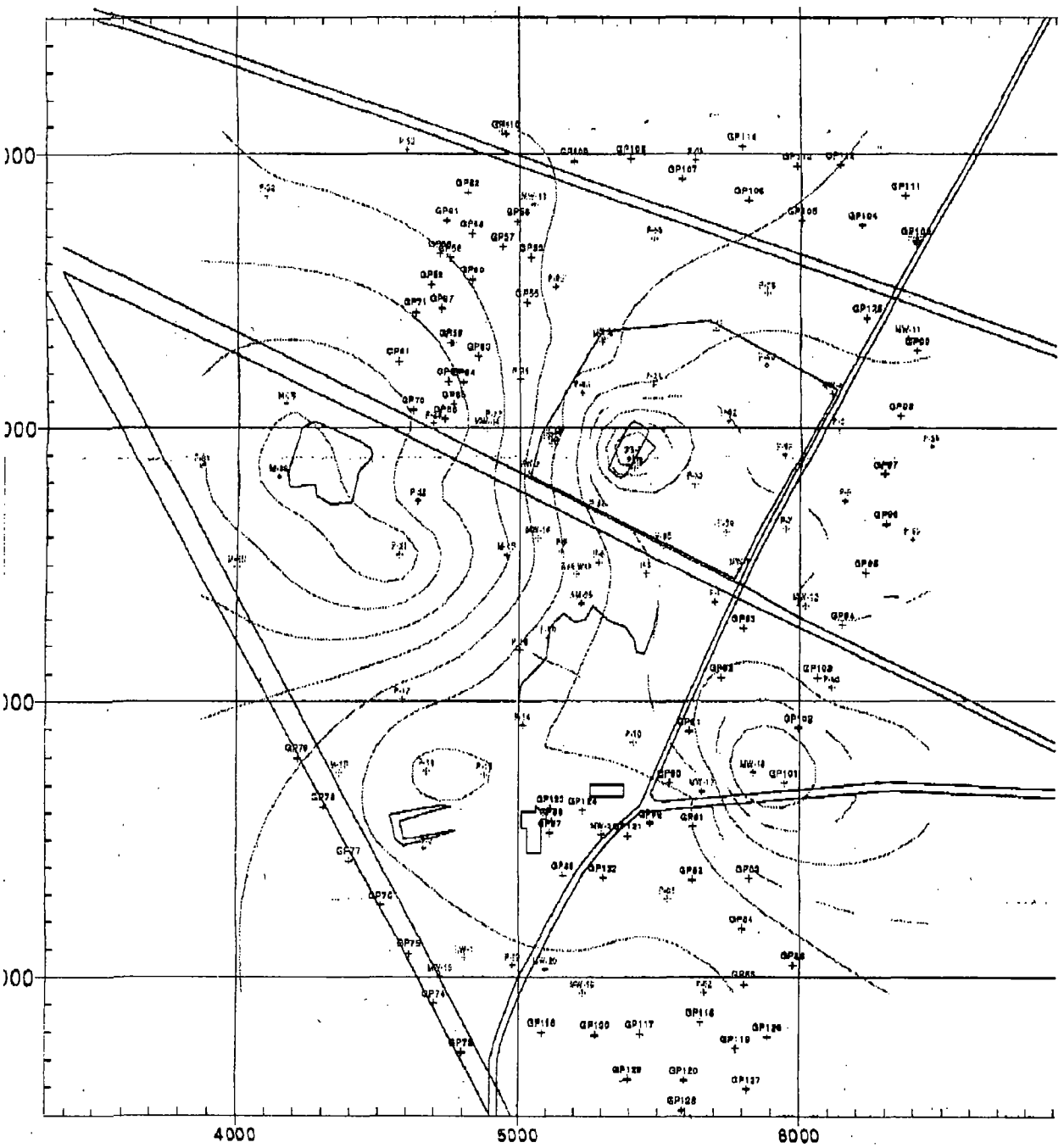

Upper Aquifer Plot of Benzene Detections (ppb)

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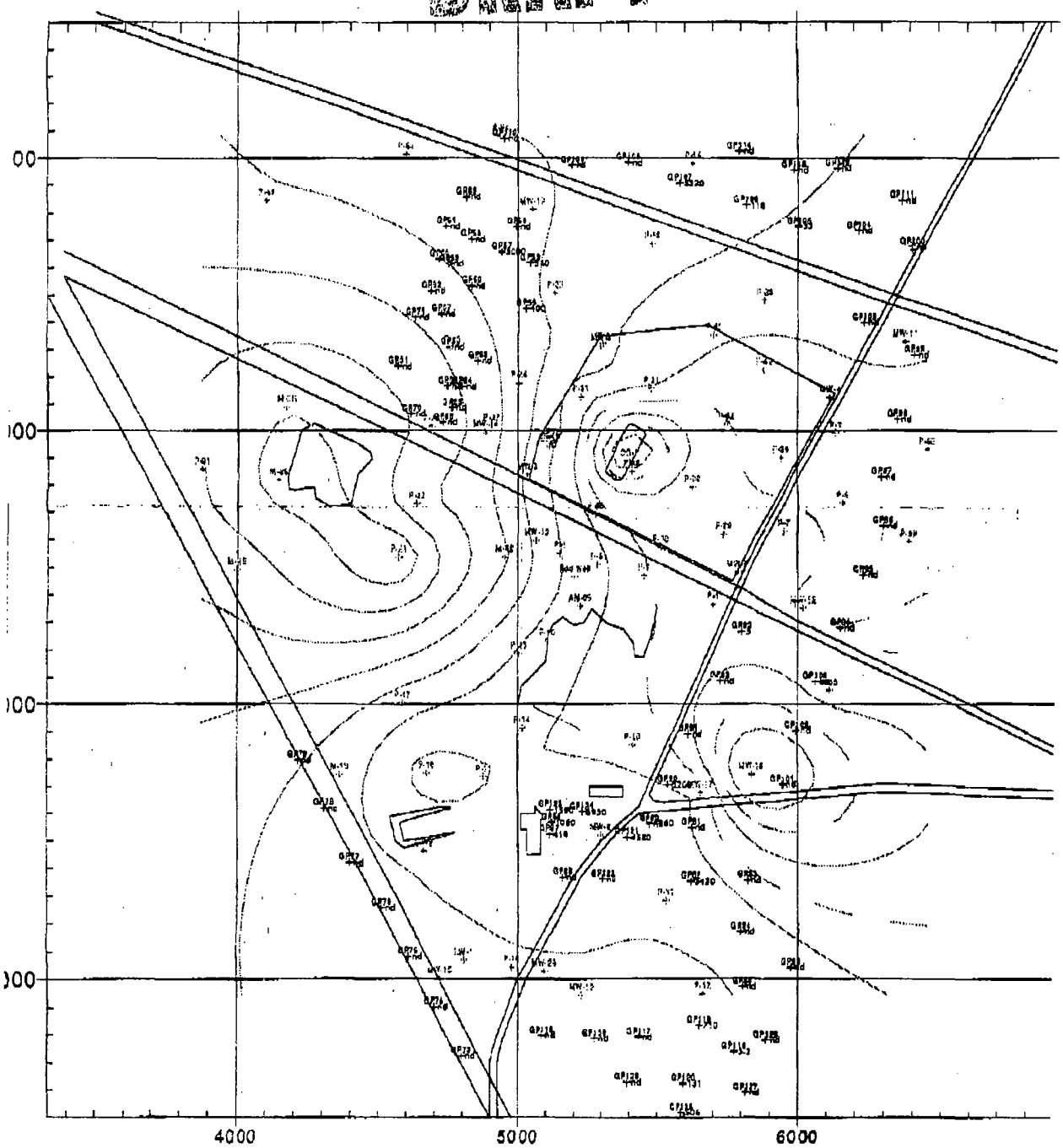

Upper Aquifer Field Screening - Acetone (ppb)

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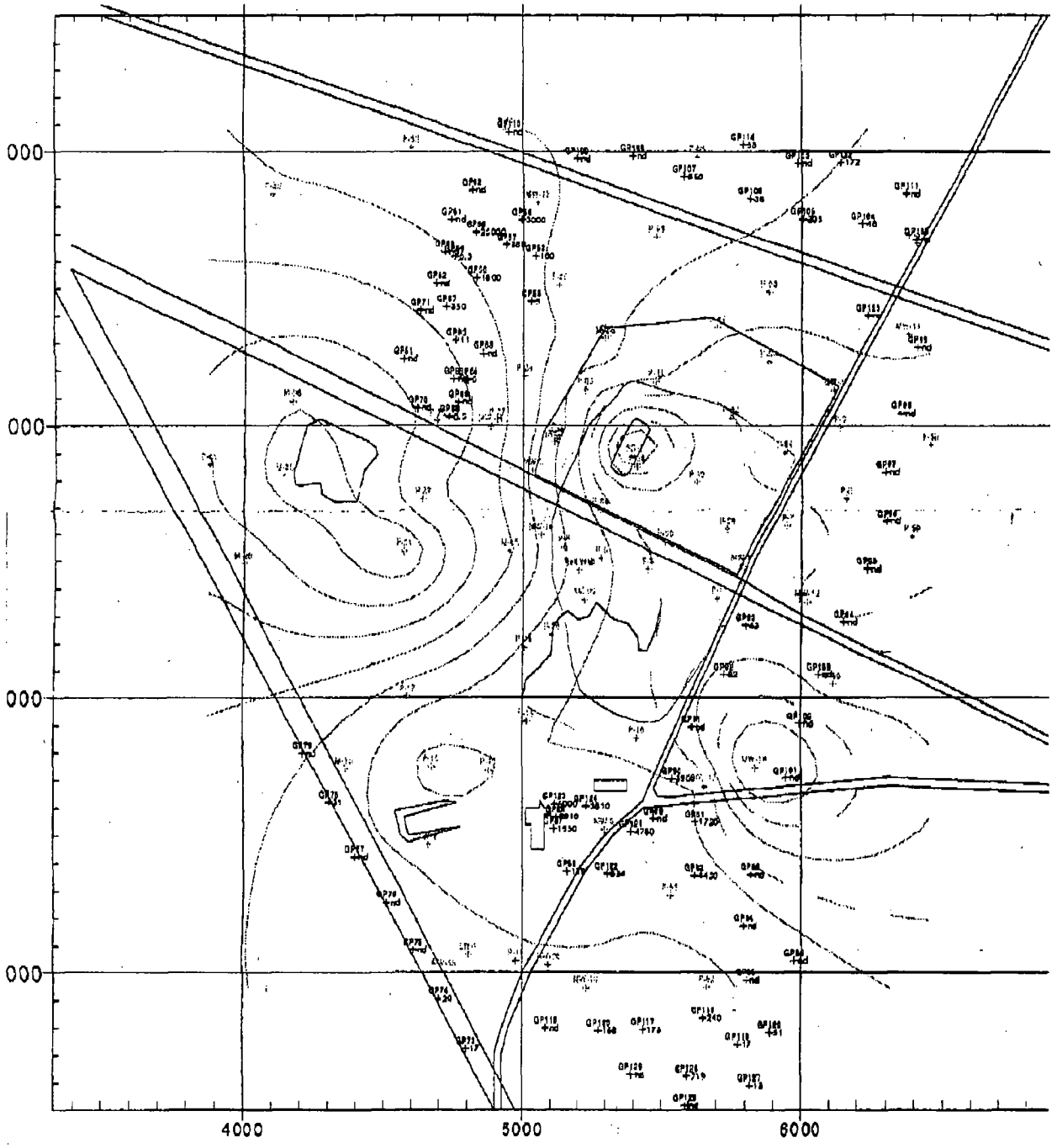

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Table 1

ORGANIC AND INORGANIC CHEMICAL CONCENTRATIONS
AMERICAN CHEMICAL SERVICES RI/FS
GRIFFITH, INDIANA

MATRIX: Ground Water
SOURCE AREA: Upper Aquifer

CHEMICAL	UNITS	CHEMICAL CONCENTRATION MINIMUM	MAXIMUM	ARITHMETIC MEAN	NUMBER SAMPLES ANALYZED TOTAL	DETECTED
Volatiles					24	
Chloromethane	ug/l	68.000	68.000	68.00		1
Vinyl Chloride	ug/l	22.000	720.000	374.00		3
Chloroethane	ug/l	3.000	2000.000	442.71		17
Methylene Chloride	ug/l	1.000	7.000	4.00		2
Acetone	ug/l	84000.000	99000.000	91500.00		2
1,1-Dichloroethane	ug/l	6.000	2400.000	981.25		4
Total 1,2-Dichloroethene	ug/l	1.000	400.000	180.67		6
2-Butanone	ug/l	150000.000	220000.000	185000.00		2
Trichloroethene	ug/l	34.000	45.000	39.50		2
Benzene	ug/l	1.000	100000.000	7265.20		15
4-Methyl-2-Pentanone	ug/l	45000.000	54000.000	49500.00		2
2-Hexanone	ug/l	1200.000	1800.000	1500.00		2
Tetrachloroethene	ug/l	160.000	200.000	180.00		2
Toluene	ug/l	21.000	2300.000	725.25		4
Chlorobenzene	ug/l	2.000	96.000	33.60		5
Ethylbenzene	ug/l	52.000	1100.000	476.00		7
Total Xylenes	ug/l	47.000	3000.000	659.57		7
Semi-Volatiles					24	
Phenol	ug/l	3.000	240.000	34.20		10
bis(2-Chloroethyl)ether	ug/l	4.000	250.000	65.67		9
1,3-Dichlorobenzene	ug/l	3.000	3.000	3.00		1
1,4-Dichlorobenzene	ug/l	3.000	10.000	5.50		4
1,2-Dichlorobenzene	ug/l	4.000	33.000	18.50		6
2-Methylphenol	ug/l	2.000	38.000	14.50		4
bis(2-Chloroisopropyl)ether	ug/l	59.000	300.000	143.20		5
4-Methylphenol	ug/l	5.000	2200.000	468.00		5
Isophorone	ug/l	19.000	35.000	26.33		3
2,4-Dimethylphenol	ug/l	6.000	110.000	41.33		3
Benzoic acid	ug/l	2.000	1900.000	323.00		6
Naphthalene	ug/l	2.000	71.000	32.50		6
4-Chloro-3-methylphenol	ug/l	2.000	2.000	2.00		1
2-Methylnaphthalene	ug/l	9.000	27.000	17.00		3
Diethylphthalate	ug/l	3.000	9.000	6.00		2
Pentachlorophenol	ug/l	2.000	3.000	2.50		2
Di-n-butylphthalate	ug/l	2.000	2.000	2.00		1
bis(2-Ethylhexyl)phthalate	ug/l	2.000	50.000	16.33		6
Pesticides/PCBs					24	
AROCLOR-1248	ug/l	2.600	2.600	2.60		1
AROCLOR-1260	ug/l	27.000	27.000	27.00		1

Table 1

ORGANIC AND INORGANIC CHEMICAL CONCENTRATIONS
AMERICAN CHEMICAL SERVICES RI/FS
GRIFFITH, INDIANA

MATRIX: Ground Water
SOURCE AREA: Upper Aquifer

CHEMICAL	UNITS	CHEMICAL CONCENTRATION MINIMUM	MAXIMUM	ARITHMETIC MEAN	NUMBER SAMPLES ANALYZED TOTAL	DETECTED
Metals					24	
Aluminum	ug/l	250.000	280.000	265.00		2
Arsenic	ug/l	2.100	43.200	13.59		17
Barium	ug/l	230.000	1840.000	608.75		16
Beryllium	ug/l	0.250	0.250	0.25		1
Cadmium	ug/l	0.240	3.100	0.98		4
Calcium	ug/l	32100.000	1040000.000	176233.33		24
Chromium, Total	ug/l	1.100	3.900	2.43		4
Iron	ug/l	170.000	218000.000	25052.77		22
Lead	ug/l	3.200	4.600	3.90		2
Magnesium	ug/l	7270.000	78800.000	33820.56		18
Manganese	ug/l	281.000	4250.000	2099.00		23
Mercury	ug/l	1.700	1.700	1.70		1
Nickel	ug/l	48.000	53.000	49.67		3
Potassium	ug/l	1480.000	95800.000	13938.75		24
Selenium	ug/l	2.100	6.200	3.47		3
Sodium	ug/l	12700.000	444000.000	145423.81		21
Thallium	ug/l	3.100	4.000	3.55		2
Vanadium	ug/l	2.200	25.900	8.25		8
Zinc	ug/l	10.000	886.000	113.15		20
Cyanide, Total	ug/l	10.000	10.000	10.00		1
Tent. Ident. Compound-SVOC					24	
Unknown	ug/l	6.000	2600.000	249.79		86
Unknown Hydrocarbon	ug/l	36.000	1100.000	418.67		3
Ethylmethylbenzene isomer	ug/l	24.000	130.000	64.00		4
Trimethylbenzene isomer	ug/l	50.000	300.000	172.50		4
Ethyldimethylbenzene isomer	ug/l	32.000	160.000	96.00		2
Undecane, 4,7-dimethyl-	ug/l	120.000	120.000	120.00		1
Benzene, 1,1'-oxybis-	ug/l	24.000	24.000	24.00		1
Benzene, propyl-	ug/l	22.000	22.000	22.00		1
Benzene, 1-ethyl-2-methyl-	ug/l	42.000	88.000	65.00		2
Benzene, 2-ethyl-1,4-dimethyl-	ug/l	6.000	400.000	151.00		4
Unknown Substituted Benzene	ug/l	22.000	110.000	51.00		8
Unknown carboxylic acid	ug/l	22.000	22.000	22.00		1
Tetramethylbenzene isomer	ug/l	120.000	130.000	125.00		2
Benzene, 1,3,5-trimethyl-	ug/l	82.000	280.000	181.00		2
Cyclohexanol, 3,3,5-trimethyl-	ug/l	26.000	2000.000	728.57		7
Hexanoic acid, 2-ethyl-	ug/l	360.000	360.000	360.00		1
Benzene, 1-ethenyl-3-ethyl-	ug/l	18.000	18.000	18.00		1
Hexanoic acid (DOT)	ug/l	740.000	740.000	740.00		1
Dimethylphenol	ug/l	54.000	200.000	127.00		2
Cyclopentanol, 2-methyl-Cl...	ug/l	52.000	52.000	52.00		1
Benzene, 1-ethyl-4-methoxy-	ug/l	90.000	90.000	90.00		1
Furan, 2,2'-methylenebis-	ug/l	150.000	150.000	150.00		1
Benzenamine, n,n-diethyl-	ug/l	32.000	32.000	32.00		1

Table 1
ORGANIC AND INORGANIC CHEMICAL CONCENTRATIONS
AMERICAN CHEMICAL SERVICES RI/FS
GRIFFITH, INDIANA

MATRIX: Ground Water
SOURCE AREA: Upper Aquifer

CHEMICAL	UNITS	CHEMICAL CONCENTRATION MINIMUM	MAXIMUM	ARITHMETIC MEAN	NUMBER SAMPLES ANALYZED TOTAL	DETECTED
Furan, 2,2'-[oxybis(methylene)]bis,-	ug/l	32.000	54.000	42.67		3
Hexanoic acid, anhydride	ug/l	60.000	60.000	60.00		1
1,4-Methanonaphthalene, 1,4-...	ug/l	160.000	160.000	160.00		1
2-Propanol, 1-[2-(2-methoxy-1-methylethoxy)-1-2-propanol	ug/l	110.000	110.000	110.00		1
Hexanoic acid, 2-methyl-	ug/l	720.000	720.000	720.00		1
2,4-Pentanediol, 2-methyl-	ug/l	72.000	1800.000	936.00		2
2-Propanol, 2-(2-methoxy-1-m...	ug/l	90.000	90.000	90.00		1
Benzeneacetic acid, .alpha.-ethyl-	ug/l	58.000	58.000	58.00		1
Pentanoic acid, 4-methyl-	ug/l	1100.000	1100.000	1100.00		1
Disulfide, diethyl-	ug/l	140.000	720.000	430.00		2
3-Octanone	ug/l	86.000	86.000	86.00		1
Benzene, 1-chloro-3-methyl-	ug/l	120.000	120.000	120.00		1
Cyclohexanemethanol, .alpha.-.alpha.-4-trimethyl-	ug/l	220.000	220.000	220.00		1
Unknown substituted phenol	ug/l	28.000	28.000	28.00		1
Phenol, 3-ethyl-5-methyl-	ug/l	50.000	50.000	50.00		1
Benzoic acid, 3-methyl-	ug/l	38.000	38.000	38.00		1
Ethane, 1,2-bis(2-chloroethoxy)-	ug/l	50.000	78.000	64.00		2
Benzene, ethyl-	ug/l	16.000	16.000	16.00		1
Benzene, 1,3-dimethyl-	ug/l	440.000	440.000	440.00		1
Benzene, 1,2-dimethyl-4-(phenylmethyl)-	ug/l	24.000	24.000	24.00		1
Benzene, (1,1-dimethylpropyl...	ug/l	32.000	32.000	32.00		1
Naphthalene, 1,2,3,4-tetrah...	ug/l	52.000	52.000	52.00		1
1(2H)-Naphthalenone, 3,4-dih...	ug/l	12.000	12.000	12.00		1
2-Cyclohepten-1-one	ug/l	92.000	92.000	92.00		1
Benzene, 1-methyl-4-(methyls...	ug/l	14.000	14.000	14.00		1
Glycine, n-(2-methyl-1-oxo-2...	ug/l	12.000	12.000	12.00		1
Phenol, 3,5-dimethyl-	ug/l	12.000	12.000	12.00		1
1,3-Pentanediol, 2,2,4-trimethyl-	ug/l	40.000	40.000	40.00		1
2,4,6(1H,3H,5H)-Pyrimidinetrione-5-(1-methyl)-	ug/l	10.000	130.000	70.00		2
2-Methylcyclopentanol isomer	ug/l	2000.000	2000.000	2000.00		1
Trimethylphenol isomer	ug/l	62.000	62.000	62.00		1
Methylbenzoic acid isomer	ug/l	44.000	420.000	232.00		2
2-Propanol, 1-(2-methoxy-1-methylethoxy)-2-propanol	ug/l	140.000	2200.000	1170.00		2
Propanoic acid, 2-(3-chlorophenoxy)-propanoic acid	ug/l	98.000	98.000	98.00		1
Unknown substituted sulfonyl	ug/l	44.000	44.000	44.00		1
Trimethyl benzoic acid	ug/l	12.000	12.000	12.00		1
Caprolactam	ug/l	10.000	10.000	10.00		1
Octane, 2,3-dimethyl-	ug/l	320.000	720.000	520.00		2
Decane, 2,6,7-trimethyl-	ug/l	320.000	380.000	350.00		2
Nonane, 3,7-dimethyl-	ug/l	180.000	180.000	180.00		1

Table 1

ORGANIC AND INORGANIC CHEMICAL CONCENTRATIONS
AMERICAN CHEMICAL SERVICES RI/FS
GRIFFITH, INDIANA

MATRIX: Ground Water
SOURCE AREA: Upper Aquifer

CHEMICAL	UNITS	CHEMICAL CONCENTRATION MINIMUM	MAXIMUM	ARITHMETIC MEAN	NUMBER SAMPLES ANALYZED TOTAL	DETECTED
Dimethyl undecane	ug/l	170.000	170.000	170.00		1
Methylethylphenol	ug/l	54.000	88.000	71.00		2
Unknown diol	ug/l	82.000	82.000	82.00		1
Chloromethylbenzene	ug/l	68.000	68.000	68.00		1
Disilane, hexaethyl-	ug/l	46.000	46.000	46.00		1
Unknown alcohol	ug/l	24.000	24.000	24.00		1
Methylpropenylbenzene	ug/l	6.000	6.000	6.00		1
Tetrahydronaphthalene	ug/l	66.000	66.000	66.00		1
2-Cyclohexen-1-one, 3,5,5-trimethyl-	ug/l	32.000	32.000	32.00		1
Benzoic acid, 2,4-dimethyl-	ug/l	24.000	24.000	24.00		1
Benzoic acid, 2,4,6-trimethyl-	ug/l	36.000	36.000	36.00		1
Benzoic acid, 4-(1,1-dimethylethyl)-	ug/l	34.000	34.000	34.00		1
Phenobarbital (VAN)	ug/l	8.000	22.000	15.00		2
Ethyltrimethylbenzene + unknown	ug/l	54.000	54.000	54.00		1
Methylnaphthalene	ug/l	74.000	74.000	74.00		1
Dimethylnaphthalene	ug/l	38.000	38.000	38.00		1
Tent. Ident. Compound-VOC					24	
Unknown	ug/l	29.000	140.000	73.50		8
Benzene, 1-ethyl-2-methyl-	ug/l	70.000	70.000	70.00		1
Benzene, propyl-	ug/l	60.000	60.000	60.00		1
Benzene, (1-methylethyl)-	ug/l	60.000	60.000	60.00		1
Cyclohexane, methyl-	ug/l	40.000	40.000	40.00		1
Ethylmethylbenzene isomer	ug/l	35.000	100.000	59.60		5
Trimethylbenzene isomer	ug/l	130.000	640.000	437.50		4
Benzene, 1,3,5-trimethyl-	ug/l	170.000	170.000	170.00		1
Unknown alcohol	ug/l	700.000	1100.000	900.00		2
Ethane, 1,1'oxybis-	ug/l	4.000	1500.000	264.29		7
2-Propanol, 2-methyl-	ug/l	8.000	8.000	8.00		1
Unknown oxygenated alkane	ug/l	450.000	450.000	450.00		1
Dimethylcyclohexane	ug/l	76.000	76.000	76.00		1
Ethenylcyclohexene	ug/l	63.000	63.000	63.00		1
Diethylbenzene	ug/l	78.000	78.000	78.00		1
Butanol	ug/l	40.000	40.000	40.00		1
Propane, 1,1'-oxybis-	ug/l	6.000	6.000	6.00		1
Methylpentanol	ug/l	15.000	15.000	15.00		1
Methylhexanone	ug/l	7.000	7.000	7.00		1
Cyclohexane, 1,3-dimethyl-, trans-	ug/l	45.000	45.000	45.00		1
Disopropyl ether (DOT)	ug/l	8.100	8.100	8.10		1

This table includes all compounds identified above detection limits in the Upper Aquifer Source Area (see table 7-1 for samples included in this area), and is provided as the starting point in the development of a Set of Chemical Data for use in the Risk Assessment, as discussed in Section 7.1.2.1. Refer to appropriate appendices to determine the total parameters analyzed and their associated detection limits. Refer to appendix U for values used in risk calulations. The data values presented contain a maximum of three significant digits for the results of metals analyses and two significant digits for organic chemical analyses: additional digits are due to limitations in the computer program used to prepare these tables, and do not infer an increase in accuracy. The number of tentatively identified compounds designated as unknowns may exceed the total number of samples analyzed because more than one unknown compound may be present in a given sample.

[ACS]UGW.MAX

Table 2

ORGANIC AND INORGANIC CHEMICAL CONCENTRATIONS
AMERICAN CHEMICAL SERVICES RI/FS
GRIFFITH, INDIANA

MATRIX: Ground Water
SOURCE AREA: Lower Aquifer

CHEMICAL	UNITS	CHEMICAL CONCENTRATION MINIMUM	MAXIMUM	ARITHMETIC MEAN	NUMBER SAMPLES ANALYZED TOTAL	DETECTED
Volatiles					9	
Chloroethane	ug/l	3.000	440.000	214.33		3
4-Methyl-2-Pentanone	ug/l	3.000	3.000	3.00		1
Semi-Volatiles					9	
bis(2-Chloroethyl)ether	ug/l	11.000	12.000	11.50		2
Metals					9	
Arsenic	ug/l	2.100	8.600	4.06		5
Barium	ug/l	220.000	310.000	255.00		4
Calcium	ug/l	59000.000	151000.000	113266.67		6
Iron	ug/l	152.000	3160.000	1043.33		6
Magnesium	ug/l	19300.000	53100.000	35766.67		6
Manganese	ug/l	123.000	866.000	337.33		6
Mercury	ug/l	0.470	0.470	0.47		1
Potassium	ug/l	960.000	3420.000	1923.33		6
Sodium	ug/l	10000.000	96200.000	40700.00		6
Vanadium	ug/l	2.000	2.000	2.00		1
Zinc	ug/l	10.000	22.000	16.00		2
Tent. Ident. Compound-SVOC					9	
Unknown	ug/l	10.000	3300.000	340.59		17
Cyclohexanol, 3,3,5-trimethyl-	ug/l	2500.000	2500.000	2500.00		1
2-Propanol, 1-[2-(2-methoxy-1-methylethoxy)-1-2-propanol	ug/l	1000.000	1000.000	1000.00		1
2,4-Pentanediol, 2-methyl-	ug/l	270.000	270.000	270.00		1
2-Propanol, 1-(2-methoxy-1-methylethoxy)-2-propanol	ug/l	530.000	530.000	530.00		1
Dimethylbenzoic acid	ug/l	400.000	400.000	400.00		1
Dimethylethylbenzoic acid	ug/l	400.000	400.000	400.00		1
Propanoic acid, 2-(3-chlorophenoxy)-propanoic acid	ug/l	170.000	170.000	170.00		1
Tent. Ident. Compound-VOC					9	
Unknown	ug/l	1200.000	1200.000	1200.00		1
Methane, dimethoxy-	ug/l	6.000	6.000	6.00		1

Table 2

ORGANIC AND INORGANIC CHEMICAL CONCENTRATIONS
AMERICAN CHEMICAL SERVICES RI/FS
GRIFFITH, INDIANA

MATRIX: Ground Water
SOURCE AREA: Lower Aquifer

		CHEMICAL CONCENTRATION			NUMBER SAMPLES ANALYZED	
CHEMICAL	UNITS	MINIMUM	MAXIMUM	ARITHMETIC MEAN	TOTAL	DETECTED
Ethane, 1,1'oxybis-	ug/l	36.000	36.000	36.00		1
Propane, 2,2'-oxybis-	ug/l	10.000	10.000	10.00		1
Substituted methylborane	ug/l	11.000	11.000	11.00		1

This table includes all compounds identified above detection limits in the lower Aquifer Source Area (see table 7-1 for samples included in this area), and is provided as the starting point in the development of a Set of Chemical Data for use in the Risk Assessment, as discussed in Section 7.1.2.1. Refer to appropriate appendices to determine the total parameters analyzed and their associated detection limits. Refer to appendix U for values used in risk calulations. The data values presented contain a maximum of three significant digits for the results of metals analyses and two significant digits for organic chemical analyses: additional digits are due to limitations in the computer program used to prepare these tables, and do not infer an increase in accuracy. The number of tentatively identified compounds designated as unknowns may exceed the total number of samples analyzed because more than one unknown compound may be present in a given sample.

FIGURE 4

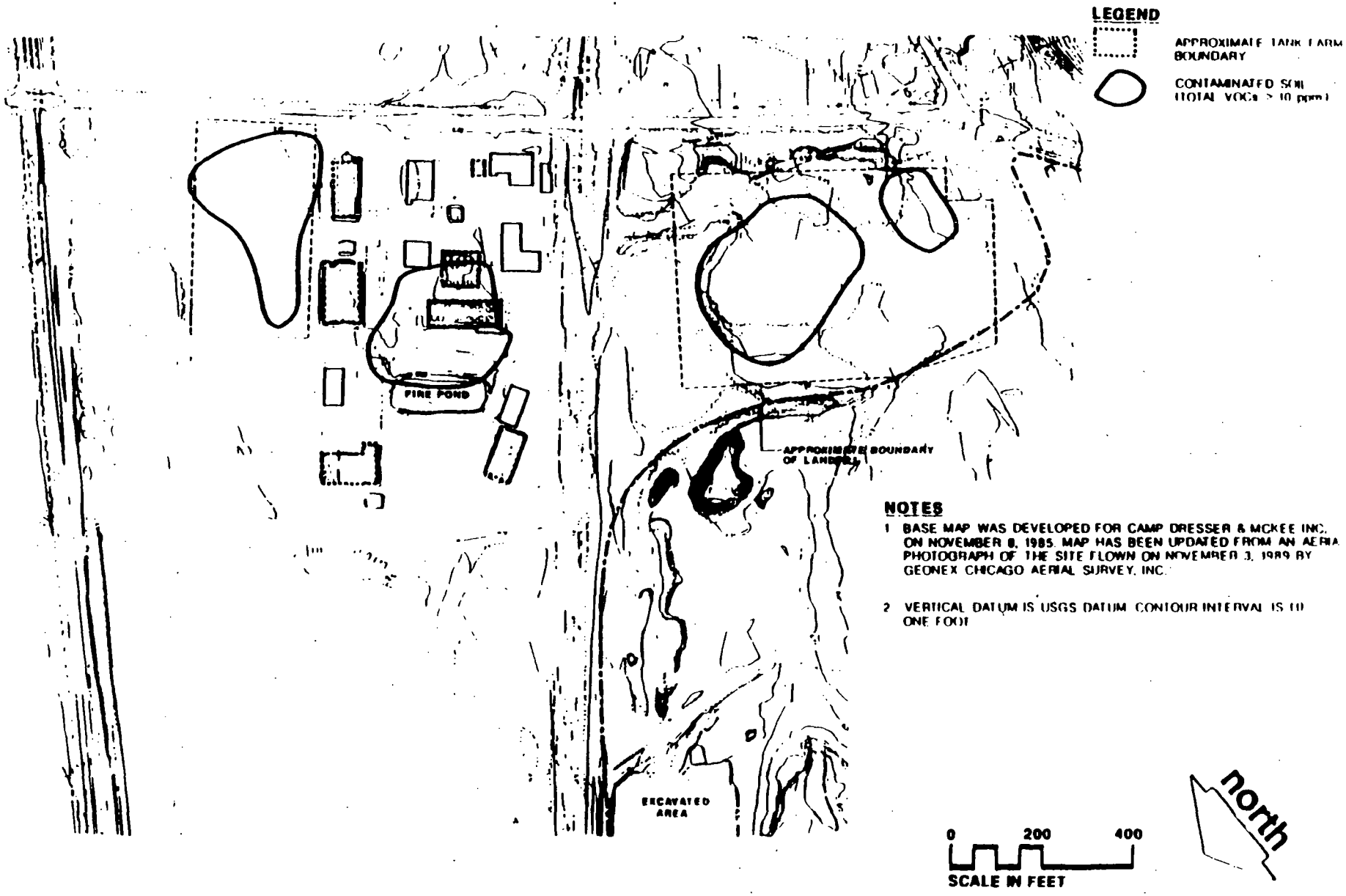
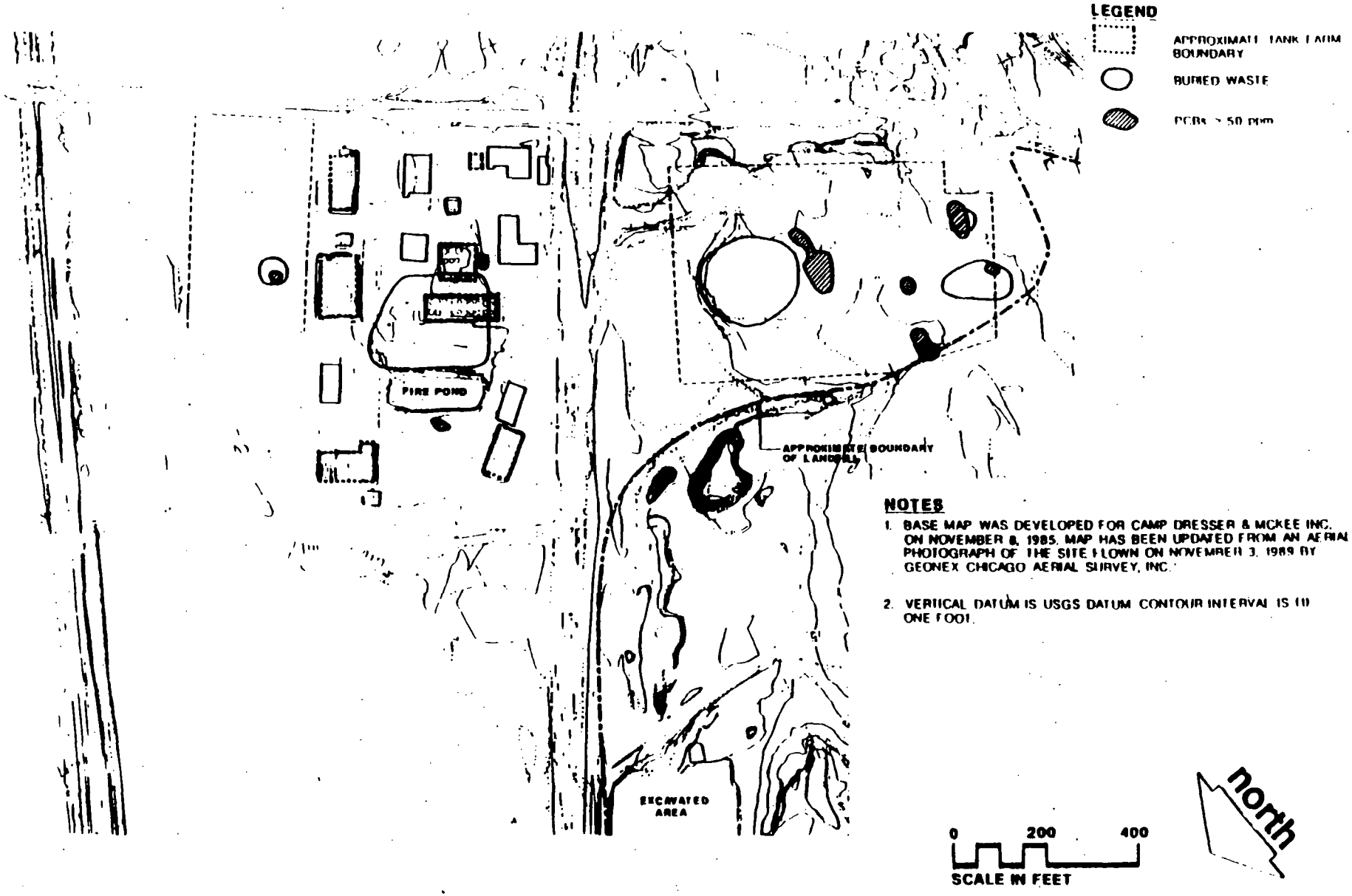

LEGEND
APPROXIMATE TANK FARM BOUNDARY
CONTAMINATED SOIL (TOTAL VOCs > 10 ppm)
FIRE POND
APPROXIMATE BOUNDARY OF LANDFILL
EXCAVATED AREA
NOTES
1 BASE MAP WAS DEVELOPED FOR CAMP DRESSER & MCKEE INC. ON NOVEMBER 8, 1985. MAP HAS BEEN UPDATED FROM AN AERIAL PHOTOGRAPH OF THE SITE FLOWN ON NOVEMBER 3, 1989 BY GEONEX CHICAGO AERIAL SURVEY, INC.
2 VERTICAL DATUM IS USGS DATUM. CONTOUR INTERVAL IS 10 ONE FOOT
0
200
400
SCALE IN FEET
north

FIGURE 3



NOTES

1. BASE MAP WAS DEVELOPED FOR CAMP DRESSER & MCKEE INC. ON NOVEMBER 8, 1985. MAP HAS BEEN UPDATED FROM AN AERIAL PHOTOGRAPH OF THE SITE FLOWN ON NOVEMBER 3, 1989 BY GEONEX CHICAGO AERIAL SURVEY, INC.

2. VERTICAL DATUM IS USGS DATUM. CONTOUR INTERVAL IS (1) ONE FOOT.

N. 6/23/97

Letter of Transmittal
Black & Veatch Special Projects Corp.

101 North Wacker Drive, Suite 1100, Chicago, Illinois, 60606, Phone (312) 346-3775, Fax (312) 346-4781

To: Ms. Sheri Bianchin
United States Environmental Protection Agency
77 West Jackson Boulevard (SRW-6J)
Chicago, Illinois 60604

Date: June 23, 1997
From: Steve Mrkvicka
Project: American Chemical Services
Project No.: 71670
File: C.3

We are sending you: [XXX] Attached [ ] Under separate cover via

[ ] Preliminary Report
[ ] Final Report
[XXX] Other: Analytical results from ATMW4D

[ ] Specifications
[ ] Change Order
[ ] Addendum

These items are transmitted:

[XXX] As requested
[ ] For your approval
[ ] For your information
[ ] For review and comment

Remarks: Enclosed are the analytical data results from the March 1997 sampling of ATMW4D.

If you have any questions, please call me at 312/683-7849.

American Chemical Services
Work Assignment 80-5PJ7

Copy To: P. Hendrixson, USEPA (w/o enclosure); E. Howard, USEPA (w/o enclosure)

Signed: June 23, 1997

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EPA RLIMS CRL - REGION V
FINAL RESULTS REPORT
Parameter:VOA

Sample organization: B & V
Sample Requestor: ASWOK LUPARR1
Facility: AMERICAN CHEMICAL SERVICES INC
Matrix:WATER
Method:B624SAS.0

Sample Batch ID: 970071
Account No: TFA301
Sample ID: 97ZB04S20
Units: ug/L

Date Collected:02-APR-97
Date Extracted:08-APR-97

Date Received:02-APR-97
Date Analyzed:08-APR-97

CAS NUMBER	COMPOUND	AMOUNT	QUALIFIERS
74-87-3	Chloromethane	1	U
75-01-4	Vinyl Chloride	1	U
74-83-9	Bromomethane	1	U
75-00-3	Chloroethane	1	U
75-35-4	1,1-Dichloroethene	1	U
67-64-1	Acetone	3	U
75-15-0	Carbon Disulfide	1	U
75-09-2	Methylene Chloride	1	U
156-60-5	trans-1,2-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
594-20-7	2,2-Dichloropropane	1	U
156-59-2	cis-1,2-Dichloroethene	1	U
74-97-5	2-Butanone	3	U
74-97-5	Bromochloromethane	1	U
67-66-3	Chloroform	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
563-58-6	1,1-Dichloropropene	1	U
71-43-2	Benzene	23	
107-06-2	1,2-Dichloroethane	1	U
79-01-6	Trichloroethene	1	U
78-87-5	1,2-Dichloropropane	1	U
74-95-3	Dibromomethane	1	U
75-27-4	Bromodichloromethane	1	U
10061-01-5	Cis-1,3-Dichloropropene	1	U
108-88-3	Toluene	1	U
108-10-1	4-Methyl-2-Pentanone	2	U
10061-02-6	Trans-1,3-Dichloropropene	1	U
127-18-4	Tetrachloroethene	1	U
79-00-5	1,1,2-Trichloroethane	2	U
142-28-9	1,3-Dichloropropane	1	U
591-78-6	2-Hexanone	2	U
124-48-1	Dibromochloromethane	1	U
106-93-4	1,2-Dibromoethane	1	U
108-90-7	Chlorobenzene	1	U
630-20-6	1,1,1,2-Tetrachloroethane	1	U
100-41-4	Ethylbenzene	1	U
1083836423	m &/or p-Xylene	1	U
95-47-6	o-Xylene	1	U
100-42-5	Styrene	1	U
75-25-2	Bromoform	1	U
98-82-8	Isopropylbenzene	1	U
108-86-1	Bromobenzene	1	U
96-18-4	1,2,3-Trichloropropane	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
103-65-1	n-Propylbenzene	1	U
95-49-8	2-Chlorotoluene	1	U
106-43-4	4-Chlorotoluene	1	U
108-67-8	1,3,5-Trimethylbenzene	1	U

EPA RLIMS CRL - REGION V
FINAL RESULTS REPORT
Parameter:VOA

Sample organization: B & V
Sample Requestor: ASWOK LUPARR1
Facility: AMERICAN CHEMICAL SERVICES INC
Matrix:WATER
Method:B624SAS.0

Sample Batch ID: 970071
Account No: TFA301
Sample ID: 97ZB04S20
Units: ug/L

Date Collected:02-APR-97
Date Extracted:08-APR-97

Date Received:02-APR-97
Date Analyzed:08-APR-97

CAS NUMBER	COMPOUND	AMOUNT	QUALIFIERS
98-06-6	tert-Butylbenzene	1	U
95-63-6	1,2,4-Trimethylbenzene	1	U
135-98-8	sec-Butylbenzene	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
99-87-6	p-Isopropyltoluene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
104-51-8	n-Butylbenzene	1	U
96-12-8	1,2-Dibromo-3-chloropropane	2	U
120-82-1	1,2,4-Trichlorobenzene	1	U
91-20-3	Naphthalene	1	U
87-68-3	Hexachlorobutadiene	1	U
87-61-6	1,2,3-Trichlorobenzene	1	U

Analyzed by: A. Ingliotta / Lockheed ESAT

Team Leader:

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

97ZB04S20

Lab Name: American Chem Service Contract:

Lab Code: Case No.: 970071 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 97ZB04S20

Sample wt/vol: 1000 (g/ml) ML Lab File ID: 04079704.D

Level: (low/med) LOW Date Received: 04/02/97

% Moisture: decanted:(Y/N) N Date Extracted: 04/03/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 04/07/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
111-44-4	bis(2-Chloroethyl)ether	5	U J
108-95-2	Phenol	5	U
95-57-8	2-Chlorophenol	5	U J
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
100-51-6	Benzyl alcohol	5	U
95-48-7	2-Methylphenol	5	U
106-44-5	4-Methylphenol	5	U
108-60-1	bis(2-chloroisopropyl)ether	5	U
67-72-1	Hexachloroethane	5	U J
621-64-7	N-Nitroso-di-n-propylamine	5	U
98-95-3	Nitrobenzene	5	U
78-59-1	Isophorone	5	U
88-75-5	2-Nitrophenol	5	U
105-67-9	2,4-Dimethylphenol	5	U
65-80-0	Benzoic acid	20	U
111-91-1	bis(2-Chloroethoxy)methane	5	U
120-83-2	2,4-Dichlorophenol	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U J
91-20-3	Naphthalene	5	U J
106-47-8	4-Chloroaniline	5	U
87-68-3	Hexachlorobutadiene	5	U
59-50-7	4-Chloro-3-methylphenol	5	U
91-57-6	2-Methylnaphthalene	5	U
77-47-4	Hexachlorocyclopentadiene	5	U
88-06-2	2,4,6-Trichlorophenol	5	U J
95-95-4	2,4,5-Trichlorophenol	20	U
91-58-7	2-Chloronaphthalene	5	U J
88-74-4	2-Nitroaniline	20	U
208-96-8	Acenaphthylene	5	U
131-11-3	Dimethylphthalate	5	U
606-20-2	2,6-Dinitrotoluene	5	U
83-32-9	Acenaphthene	5	U
99-09-2	3-Nitroaniline	20	U
51-28-5	2,4-Dinitrophenol	20	U
132-64-9	Dibenzofuran	5	U

ZR 4-15-97

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

97ZB04S20

Lab Name: American Chem Service Contract:

Lab Code: Case No.: 970071 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 97ZB04S20

Sample wt/vol: 1000 (g/ml) ML Lab File ID: 04079704.D

Level: (low/med) LOW Date Received: 04/02/97

% Moisture: decanted:(Y/N) N Date Extracted: 04/03/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 04/07/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
121-14-2	2,4-Dinitrotoluene	5	U
100-02-7	4-Nitrophenol	5	U
86-73-7	Fluorene	5	U
7005-72-3	4-Chlorophenyl-phenylether	5	U
84-66-2	Diethylphthalate	5	U J
100-01-6	4-Nitroaniline	20	U
534-52-1	4,6-Dinitro-2-methylphenol	20	U J
86-30-6	n-Nitrosodiphenylamine	5	U
101-55-3	4-Bromophenyl-phenylether	5	U
118-74-1	Hexachlorobenzene	5	U
87-86-5	Pentachlorophenol	20	U
85-01-8	Phenanthrene	5	U
120-12-7	Anthracene	5	U
86-74-8	Carbazole	5	U
84-74-2	Di-n-butylphthalate	5	U
206-44-0	Fluoranthene	5	U
129-00-0	Pyrene	5	U
85-68-7	Butylbenzylphthalate	5	U
91-94-1	3,3'-Dichlorobenzidine	5	U
56-55-3	Benzo[a]anthracene	5	U
218-01-9	Chrysene	5	U
117-81-7	bis(2-Ethylhexyl)phthalate	2	~~JB~~ U
117-84-0	Di-n-octylphthalate	5	U J
205-99-2	Benzo[b]fluoranthene	5	U
207-08-9	Benzo[k]fluoranthene	5	U
50-32-8	Benzo[a]pyrene	5	U
193-39-5	Indeno[1,2,3-cd]pyrene	5	U
53-70-3	Dibenz[a,h]anthracene	5	U
191-24-2	Benzo[g,h,i]perylene	5	U

ZR 4-15-97

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

97ZB04S20

Lab Name: American Chem Service Contract: _____

Lab Code: _____ Case No.: 970071 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 97ZB04S20

Sample wt/vol: 1000 (g/ml) ML Lab File ID: 04079704.D

Level: (low/med) LOW Date Received: 04/02/97

% Moisture: _____ decanted: (Y/N) N Date Analyzed: 04/07/97

Concentrated Extract Volume: 1000 (uL) Dilution Factor: 1.0

Injection Volume: 1.0 (uL) Soil Aliquot Volume: 1 (uL)

GPC Cleanup: (Y/N) N pH: _____

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

EPA RLIMS CRL - REGION V
FINAL RESULTS REPORT
Parameter: PEST/PCB

Sample organization: B & V
Sample Requestor: ASWOK LUPARR1
Facility: AMERICAN CHEMICAL SERVICES INC
Matrix: WATER
RLIMS Method: 608_P/P.REV3

Sample Batch ID: 970071
Account No: TFA301
Sample ID: 97ZB04S20
Units: ug/L

Date Collected: 02-APR-97
Date Extracted: 27-MAR-97

Date Received: 02-APR-97
Date Analyzed: 03-APR-97

CAS NUMBER	COMPOUND	AMOUNT	QUALIFIERS
319846	Alpha-BHC	.01	U
58899	Lindane	.01	U
76448	Heptachlor	.01	U
309002	Aldrin	.01	U
1024573	Heptachlor Epoxide	.01	U
959988	Endosulfan I	.01	U
60571	Dieldrin	.02	U
72208	Endrin	.02	U
3312659	Endosulfan II	.02	U
50293	p,p'-DDT	.02	U
72-43-5	Methoxychlor	.1	U
319857	Beta-BHC	.01	U
419868	Delta-BHC	.01	U
5103-74-2	Gamma-Chlordane	.01	U
5103-71-9	Alpha-Chlordane	.01	U
72559	p,p'-DDE	.02	U
72548	p,p'-DDD	.02	U
7421934	Endrin Aldehyde	.02	U
1031078	Endosulfan Sulfate	.02	U
53494-70-5	Endrin Ketone	.02	U
57-74-9	Chlordane, Technical	.2	U
8001352	Toxaphene	1	U
1104-28-2	Aroclor 1221	.2	U
11141165	Aroclor 1232	.2	U
53469219	Aroclor 1242	.2	U
12674-11-2	Aroclor 1016	.2	U
12672296	Aroclor 1248	.2	U
11097691	Aroclor 1254	.2	U
11096825	Aroclor 1260	.2	U

Analyzed by: [illegible] | [illegible]

Team Leader: [illegible]

ENVIRONMENTAL PROTECTION AGENCY
REGION V
CENTRAL REGIONAL LABORATORY

Single Analyte Result Report, produced on: 15-APR-97

Sample organization: **B & V**
Sample Requestor: **ASWOK LUPARR1**
Facility: **AMERICAN CHEMICAL SERVICES INC**
Matrix: **WATER**
Date Collected: **02-APR-97**

Sample Batch ID: **970071**
Account No: **TFA301**
Sample ID: **97ZB04S20**
Units: **ug/L**
Date Received: **02-APR-97**

Parameter	Result	Anal. Date	Analyst	Comments
Antimony	1U	03-APR-97	T. Lee	
Arsenic Concentration	2	04-APR-97	B. Yuen	
Cadmium Concentration	1.4	03-APR-97	B. Yuen	
Lead Concentration	7	03-APR-97	J. Harry	
Selenium Concentration	4U	04-APR-97	B. Yuen	
Thallium Concentration	2U	04-APR-97	J. Harry	

Team Leader: Jun 17 Apr 97

EPA RLIMS CRL - REGION V
FINAL RESULTS REPORT
REPORT PRODUCED ON: 07-APR-97

SAMPLE ORGANIZATION: B & V
SAMPLE REQUESTOR: ASWOK LUPARR1
LABORATORY: ESAT

SAMPLE BATCH ID: 970071
ACCOUNT NO: TFA301
FACILITY: AMERICAN CHEMICAL SERVICES INC

SAMPLE: 97ZB04S20 FIELD: 97ZB04S20

COLLECTED: 02-APR-97 RECEIVED: 02-APR-97 ANALYZED: 04-APR-97

COMPOUND	AMOUNT	(Units)	QUALIFIERS	CAS NUMBER
Aluminum	523	(ug/L)		7429-90-5
Barium	31	(ug/L)		7440-39-3
Beryllium	1U	(ug/L)	BDL	7440-41-7
Calcium	34000	(ug/L)		7440-70-2
Chromium	22	(ug/L)		7440-47-3
Cobalt	6U	(ug/L)	BDL	7440-48-4
Copper	18	(ug/L)		7440-50-8
Iron	923	(ug/L)		7439-89-6
Magnesium	39000	(ug/L)		7439-95-4
Manganese	31	(ug/L)		7439-96-5
Nickel	20U	(ug/L)	BDL	7440-02-0
Potassium	56800	(ug/L)		7440-09-7
Silver	6U	(ug/L)	BDL	7440-22-4
Sodium	91000	(ug/L)		7440-23-5
Vanadium	5U	(ug/L)	BDL	7440-62-2
Zinc	40U	(ug/L)	BDL	7440-66-6

ANALYZED BY: 4-7-97

17 Apr 97

ENVIRONMENTAL PROTECTION AGENCY
REGION V
CENTRAL REGIONAL LABORATORY
FINAL RESULT REPORT for the team: MINERALS-NUTRIENTS

Report produced on: 25-APR-97

Sample Organization: B & V
Sample Requestor: ASWOK LUPARR1
Laboratory: ESAT

Sample Batch ID: 970071
Account NO: TFA301
Facility: AMERICAN CHEMICAL SERVICES INC

Sample: 97ZB04S20

Field: 97ZB04S20

Collected: 02-APR-97 /

Received: 02-APR-97

Parameter	Result	(Units)	QUALIFIERS	Anal. Date	Analyst
Cyanide (TOTAL)	8	(ug/L)	U	10-APR-97	S. Tahan

Reviewed by : Francis A. Awanya 4/28/97

ENVIRONMENTAL PROTECTION AGENCY
REGION V
CENTRAL REGIONAL LABORATORY
FINAL RESULT REPORT for the team: MINERALS-NUTRIENTS

Report produced on: 25-APR-97

Sample Organization: B & V
Sample Requestor: ASWOK LUPARR1
Laboratory: ESAT

Sample Batch ID: 970071
Account NO: TFA301
Facility: AMERICAN CHEMICAL SERVICES INC

Sample: 97ZB04S20

Field: 97ZB04S20

Collected: 02-APR-97 /

Received: 02-APR-97

Parameter	Result	(Units)	QUALIFIERS	Anal. Date	Analyst
Mercury (Total)	0.2	(ug/L)	U	08-APR-97	L. [illegible]

Reviewed by : Jm 28 Apr 97

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

REGION 5
230 South Dearborn Street
Chicago, Illinois 60604

CHAIN OF CUSTODY RECORD

PROJ. NO.: 90ZB04
PROJECT NAME: American Chemical Services
SAMPLERS: (Signature) Robert Lant

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	VOAs	ABN	Pest/PCB	Metals + Hg	Cyanide		REMARKS Tag #'s
S19	4/1/97	1645		X	ACS - PWL - 001	6	2	1	1	1	1		5-150033 - 38
S20	4/2/97	1210		X	ACS - ATMW4D - 001	6	2	1	1	1	1		5-150027 - 32
~~R07~~	4/2/97	1100		X	ACS - RB09 - 201 (RML 4/2/97)	6	2	1	1	1	1		5-150021 - 26
R10	4/2/97	0815		X	ACS - TB11 - 201	2	2						5-150019 - 20
S21	4/1/97	1600		X	ACS - SW02 - 001	2	2						5-150039 - 40

Shipment is complete

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Robert Lant	4/2/97 1300				
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) Lynette Burnett	Date / Time 4/2/97 2:07 p.m.	Remarks Hand Delivered to CRL	

Distribution: White — Accompanies Shipment; Pink — Coordinator Field Files; Yellow — Laboratory File

5- 02082

6/23/97 N.

Letter of Transmittal
Black & Veatch Special Projects Corp.

101 North Wacker Drive, Suite 1100, Chicago, Illinois, 60606, Phone (312) 346-3775, Fax (312) 346-4781

To: Ms. Sheri Bianchin
United States Environmental Protection Agency
77 West Jackson Boulevard (SRW-6J)
Chicago, Illinois 60604

Date: June 23, 1997
From: Steve Mrkvicka
Project: American Chemical Services
Project No.: 71670
File: C.3

We are sending you: [XXX] Attached [ ] Under separate cover via

[ ] Preliminary Report
[ ] Final Report
[XXX] Other: Analytical results from ATMW4D
[ ] Specifications
[ ] Change Order
[ ] Addendum

These items are transmitted:

[XXX] As requested
[ ] For your approval
[ ] For your information
[ ] For review and comment

Remarks: Enclosed are the analytical data results from the March 1997 sampling of ATMW4D.

If you have any questions, please call me at 312/683-7849.

American Chemical Services
Work Assignment 80-5PJ7

Post-it® Fax Note 7671	Date 6-23	# of pages ▶ 12
To Sheri Bianchin	From Steve Mrkvicka	
Co./Dept. USEPA	Co. B&V	
Phone #	Phone #	
Fax #	Fax #	

Copy To: P. Hendrixson, USEPA (w/o enclosure); E. Howard, USEPA (w/o enclosure)

Signed: SMrk June 23, 1997

t:\projects\acs\letters\tran-lcl.wk4

EPA RLIMS CRL - REGION V
FINAL RESULTS REPORT
Parameter:VOA

Sample organization: B & V
Sample Requestor: ASWOK LUPARR1
Facility: AMERICAN CHEMICAL SERVICES INC
Matrix:WATER Method:B624SAS.0

Sample Batch ID: 970071
Account No: TFA301
Sample ID: 97ZB04S20
Units: ug/L

Date Collected:02-APR-97
Date Extracted:08-APR-97

Date Received:02-APR-97
Date Analyzed:08-APR-97

CAS NUMBER	COMPOUND	AMOUNT	QUALIFIERS
74-87-3	Chloromethane	1	U
75-01-4	Vinyl Chloride	1	U
74-83-9	Bromomethane	1	U
75-00-3	Chloroethane	1	U
75-35-4	1,1-Dichloroethene	1	U
67-64-1	Acetone	3	U
75-15-0	Carbon Disulfide	1	U
75-09-2	Methylene Chloride	1	U
156-60-5	trans-1,2-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
594-20-7	2,2-Dichloropropane	1	U
156-59-2	cis-1,2-Dichloroethene	1	U
74-97-5	2-Butanone	3	U
74-97-5	Bromochloromethane	1	U
67-66-3	Chloroform	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
563-58-6	1,1-Dichloropropene	1	U
71-43-2	Benzene	23	
107-06-2	1,2-Dichloroethane	1	U
79-01-6	Trichloroethene	1	U
78-87-5	1,2-Dichloropropane	1	U
74-95-3	Dibromomethane	1	U
75-27-4	Bromodichloromethane	1	U
10061-01-5	Cis-1,3-Dichloropropene	1	U
108-88-3	Toluene	1	U
108-10-1	4-Methyl-2-Pentanone	2	U
10061-02-6	Trans-1,3-Dichloropropene	1	U
127-18-4	Tetrachloroethene	1	U
79-00-5	1,1,2-Trichloroethane	2	U
142-28-9	1,3-Dichloropropane	1	U
591-78-6	2-Hexanone	2	U
124-48-1	Dibromochloromethane	1	U
106-93-4	1,2-Dibromoethane	1	U
108-90-7	Chlorobenzene	1	U
630-20-6	1,1,1,2-Tetrachloroethane	1	U
100-41-4	Ethylbenzene	1	U
1083836423	m &/or p-Xylene	1	U
95-47-6	o-Xylene	1	U
100-42-5	Styrene	1	U
75-25-2	Bromoform	1	U
98-82-8	Isopropylbenzene	1	U
108-86-1	Bromobenzene	1	U
96-18-4	1,2,3-Trichloropropane	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
103-65-1	n-Propylbenzene	1	U
95-49-8	2-Chlorotoluene	1	U
106-43-4	4-Chlorotoluene	1	U
108-67-8	1,3,5-Trimethylbenzene	1	U

EPA RLIMS CRL - REGION V
FINAL RESULTS REPORT
Parameter:VOA

Sample organization: B & V
Sample Requestor: ASWOK LUPARR1
Facility: AMERICAN CHEMICAL SERVICES INC
Matrix:WATER Method:B624SAS.0

Sample Batch ID: 970071
Account No: TFA301
Sample ID: 97ZB04S20
Units: ug/L

Date Collected:02-APR-97
Date Extracted:08-APR-97

Date Received:02-APR-97
Date Analyzed:08-APR-97

CAS NUMBER	COMPOUND	AMOUNT	QUALIFIERS
98-06-6	tert-Butylbenzene	1	U
95-63-6	1,2,4-Trimethylbenzene	1	U
135-98-8	sec-Butylbenzene	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
99-87-6	p-Isopropyltoluene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
104-51-8	n-Butylbenzene	1	U
96-12-8	1,2-Dibromo-3-chloropropane	2	U
120-82-1	1,2,4-Trichlorobenzene	1	U
91-20-3	Naphthalene	1	U
87-68-3	Hexachlorobutadiene	1	U
87-61-6	1,2,3-Trichlorobenzene	1	U

Analyzed by: A. Inglotte / Lockheed ESAT

Team Leader:

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
97ZB04S20

Lab Name: American Chem Service Contract:
Lab Code: Case No.: 970071 SAS No.: SDG No.:
Matrix: (soil/water) WATER Lab Sample ID: 97ZB04S20
Sample wt/vol: 1000 (g/ml) ML Lab File ID: 04079704.D
Level: (low/med) LOW Date Received: 04/02/97
% Moisture: decanted:(Y/N) N Date Extracted: 04/03/97
Concentrated Extract Volume: 1000 (uL) Date Analyzed: 04/07/97
Injection Volume: 1.0 (uL) Dilution Factor: 1.0
GPC Cleanup: (Y/N) N pH:

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

CAS NO.	COMPOUND		Q
111-44-4	bis(2-Chloroethyl)ether	5	U J
108-95-2	Phenol	5	U
95-57-8	2-Chlorophenol	5	U J
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
100-51-6	Benzyl alcohol	5	U
95-48-7	2-Methylphenol	5	U
106-44-5	4-Methylphenol	5	U
108-60-1	bis(2-chloroisopropyl)ether	5	U
67-72-1	Hexachloroethane	5	U J
621-64-7	N-Nitroso-di-n-propylamine	5	U
98-95-3	Nitrobenzene	5	U
78-59-1	Isophorone	5	U
88-75-5	2-Nitrophenol	5	U
105-67-9	2,4-Dimethylphenol	5	U
65-80-0	Benzoic acid	20	U
111-91-1	bis(2-Chloroethoxy)methane	5	U
120-83-2	2,4-Dichlorophenol	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U J
91-20-3	Naphthalene	5	U J
106-47-8	4-Chloroaniline	5	U
87-68-3	Hexachlorobutadiene	5	U
59-50-7	4-Chloro-3-methylphenol	5	U
91-57-6	2-Methylnaphthalene	5	U
77-47-4	Hexachlorocyclopentadiene	5	U
88-06-2	2,4,6-Trichlorophenol	5	U J
95-95-4	2,4,5-Trichlorophenol	20	U
91-58-7	2-Chloronaphthalene	5	U J
88-74-4	2-Nitroaniline	20	U
208-96-8	Acenaphthylene	5	U
131-11-3	Dimethylphthalate	5	U
606-20-2	2,6-Dinitrotoluene	5	U
83-32-9	Acenaphthene	5	U
99-09-2	3-Nitroaniline	20	U
51-28-5	2,4-Dinitrophenol	20	U
132-64-9	Dibenzofuran	5	U

ZR 4-15-97

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
97ZB04S20

Lab Name: American Chem Service Contract:
Lab Code: Case No.: 970071 SAS No.: SDG No.:
Matrix: (soil/water) WATER Lab Sample ID: 97ZB04S20
Sample wt/vol: 1000 (g/ml) ML Lab File ID: 04079704.D
Level: (low/med) LOW Date Received: 04/02/97
% Moisture: decanted:(Y/N) N Date Extracted: 04/03/97
Concentrated Extract Volume: 1000 (uL) Date Analyzed: 04/07/97
Injection Volume: 1.0 (uL) Dilution Factor: 1.0
GPC Cleanup: (Y/N) N pH:

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

CAS NO.	COMPOUND		Q
121-14-2	2,4-Dinitrotoluene	5	U
100-02-7	4-Nitrophenol	5	U
86-73-7	Fluorene	5	U
7005-72-3	4-Chlorophenyl-phenylether	5	U
84-66-2	Diethylphthalate	5	U S
100-01-6	4-Nitroaniline	20	U
534-52-1	4,6-Dinitro-2-methylphenol	20	U S
86-30-6	n-Nitrosodiphenylamine	5	U
101-55-3	4-Bromophenyl-phenylether	5	U
118-74-1	Hexachlorobenzene	5	U
87-86-5	Pentachlorophenol	20	U
85-01-8	Phenanthrene	5	U
120-12-7	Anthracene	5	U
86-74-8	Carbazole	5	U
84-74-2	Di-n-butylphthalate	5	U
206-44-0	Fluoranthene	5	U
129-00-0	Pyrene	5	U
85-68-7	Butylbenzylphthalate	5	U
91-94-1	3,3'-Dichlorobenzidine	5	U
56-55-3	Benzo[a]anthracene	5	U
218-01-9	Chrysene	5	U
117-81-7	bis(2-Ethylhexyl)phthalate	2	~~JB~~ U 06/11/97
117-84-0	Di-n-octylphthalate	5	U S
205-99-2	Benzo[b]fluoranthene	5	U
207-08-9	Benzo[k]fluoranthene	5	U ZR 4-15-97
50-32-8	Benzo[a]pyrene	5	U
193-39-5	Indeno[1,2,3-cd]pyrene	5	U
53-70-3	Dibenz[a,h]anthracene	5	U
191-24-2	Benzo[g,h,i]perylene	5	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

97ZB04S20

Lab Name: American Chem Service Contract: _____

Lab Code: _____ Case No.: 970071 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 97ZB04S20

Sample wt/vol: 1000 (g/ml) ML Lab File ID: 04079704.D

Level: (low/med) LOW Date Received: 04/02/97

% Moisture: _____ decanted: (Y/N) N Date Analyzed: 04/07/97

Concentrated Extract Volume: 1000 (uL) Dilution Factor: 1.0

Injection Volume: 1.0 (uL) Soil Aliquot Volume: 1 (uL)

GPC Cleanup: (Y/N) N pH: _____

CONCENTRATION UNITS:

Number TICs found: 0 (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

EPA RLIMS CRL - REGION V
FINAL RESULTS REPORT
Parameter: PEST/PCB

Sample organization: B & V
Sample Requestor: ASWOK LUPARRI
Facility: AMERICAN CHEMICAL SERVICES INC
Matrix: WATER
RLIMS Method: 608_P/P.REV3

Sample Batch ID: 970071
Account No: TFA301
Sample ID: 97ZB04S20
Units: ug/L

Date Collected: 02-APR-97
Date Extracted: 27-MAR-97

Date Received: 02-APR-97
Date Analyzed: 03-APR-97

CAS NUMBER	COMPOUND	AMOUNT	QUALIFIERS
319846	Alpha-BHC	.01	U
58899	Lindane	.01	U
76448	Heptachlor	.01	U
309002	Aldrin	.01	U
1024573	Heptachlor Epoxide	.01	U
959988	Endosulfan I	.01	U
60571	Dieldrin	.02	U
72208	Endrin	.02	U
3312659	Endosulfan II	.02	U
50293	p,p'-DDT	.02	U
72-43-5	Methoxychlor	.1	U
319857	Beta-BHC	.01	U
419868	Delta-BHC	.01	U
5103-74-2	Gamma-Chlordane	.01	U
5103-71-9	Alpha-Chlordane	.01	U
72559	p,p'-DDE	.02	U
72548	p,p'-DDD	.02	U
7421934	Endrin Aldehyde	.02	U
1031078	Endosulfan Sulfate	.02	U
53494-70-5	Endrin Ketone	.02	U
57-74-9	Chlordane, Technical	.2	U
8001352	Toxaphene	1	U
1104-28-2	Aroclor 1221	.2	U
11141165	Aroclor 1232	.2	U
53469219	Aroclor 1242	.2	U
12674-11-2	Aroclor 1016	.2	U
12672296	Aroclor 1248	.2	U
11097691	Aroclor 1254	.2	U
11096825	Aroclor 1260	.2	U

Analyzed by: [illegible] | EMAT

Team Leader: [illegible]

ENVIRONMENTAL PROTECTION AGENCY
REGION V
CENTRAL REGIONAL LABORATORY

Single Analyte Result Report, produced on: 15-APR-97

Sample organization: **B & V**
Sample Requestor: **ASWOK LUPARR1**
Facility: **AMERICAN CHEMICAL SERVICES INC**
Matrix: **WATER**
Date Collected: **02-APR-97**

Sample Batch ID: **970071**
Account No: **TFA301**
Sample ID: **97ZB04S20**
Units: **ug/L**
Date Received: **02-APR-97**

Parameter	Result	Anal. Date	Analyst	Comments
Antimony	1U	03-APR-97	[illegible]	
Arsenic Concentration	2	04-APR-97	B. Yun	
Cadmium Concentration	1.4	03-APR-97	B. Yun	
Lead Concentration	7	03-APR-97	J. Harry	
Selenium Concentration	4U	04-APR-97	B. Yun	
Thallium Concentration	2U	04-APR-97	J. Harry	

Team Leader: [illegible] 17 Apr 97

EPA CLIMS CRL - REGION V
FINAL RESULTS REPORT
REPORT PRODUCED ON: 07-APR-97

SAMPLE ORGANIZATION: B & V
SAMPLE REQUESTOR: ASWOK LUPARR1
LABORATORY: ESAT

SAMPLE BATCH ID: 970071
ACCOUNT NO: TFA301
FACILITY: AMERICAN CHEMICAL SERVICES INC

SAMPLE: 97ZB04S20 FIELD: 97ZB04S20

COLLECTED: 02-APR-97 RECEIVED: 02-APR-97 ANALYZED: 04-APR-97

COMPOUND	AMOUNT	(Units)	QUALIFIERS	CAS NUMBER
Aluminum	523	(ug/L)		7429-90-5
Barium	31	(ug/L)		7440-39-3
Beryllium	1U	(ug/L)	BDL	7440-41-7
Calcium	34000	(ug/L)		7440-70-2
Chromium	22	(ug/L)		7440-47-3
Cobalt	6U	(ug/L)	BDL	7440-48-4
Copper	18	(ug/L)		7440-50-8
Iron	923	(ug/L)		7439-89-6
Magnesium	39000	(ug/L)		7439-95-4
Manganese	31	(ug/L)		7439-96-5
Nickel	20U	(ug/L)	BDL	7440-02-0
Potassium	56800	(ug/L)		7440-09-7
Silver	6U	(ug/L)	BDL	7440-22-4
Sodium	91000	(ug/L)		7440-23-5
Vanadium	5U	(ug/L)	BDL	7440-62-2
Zinc	40U	(ug/L)	BDL	7440-66-6

ANALYZED BY: 4-7-97

MM 17 Apr 97

ENVIRONMENTAL PROTECTION AGENCY
REGION V
CENTRAL REGIONAL LABORATORY
FINAL RESULT REPORT for the team: MINERALS-NUTRIENTS

Report produced on: 25-APR-97

Sample Organization: **B & V**
Sample Requestor: **ASWOK LUPARR1**
Laboratory: **ESAT**

Sample Batch ID: **970071**
Account NO: **TFA301**
Facility: **AMERICAN CHEMICAL SERVICES INC**

Sample: **97ZB04S20**
Field: **97ZB04S20**

Collected: **02-APR-97 /**
Received: **02-APR-97**

Parameter	Result	(Units)	QUALIFIERS	Anal. Date	Analyst
Cyanide (TOTAL)	8	(ug/L)	U	10-APR-97	S. Tobin

Reviewed by : Francis A. Roanza 4/28/97

ENVIRONMENTAL PROTECTION AGENCY
REGION V
CENTRAL REGIONAL LABORATORY
FINAL RESULT REPORT for the team: MINERALS-NUTRIENTS

Report produced on: 25-APR-97

Sample Organization: **B & V**
Sample Requestor: **ASWOK LUPARR1**
Laboratory: **ESAT**

Sample Batch ID: **970071**
Account NO: **TFA301**
Facility: **AMERICAN CHEMICAL SERVICES INC**

Sample: **97ZB04S20**
Field: **97ZB04S20**

Collected: **02-APR-97 /**
Received: **02-APR-97**

Parameter	Result	(Units)	QUALIFIERS	Anal. Date	Analyst
Mercury (Total)	0.2	(ug/L)	U	08-APR-97	[illegible]

Reviewed by : Jun 28 Apr 97

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

REGION 5
230 South Dearborn Street
Chicago, Illinois 60604

CHAIN OF CUSTODY RECORD

PROJ. NO.: 902BP4
PROJECT NAME: American Chemical Services
SAMPLERS: (Signature) Robert Lanf

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	VOAs	ABN	Pest/PCB	Metals + Hg	Cyanide		REMARKS Tag #'s
519	4/1/97	1645		X	ACS - PWL - 001	6	2	1	1	1	1		5-150033 - 38
520	4/2/97	1210		X	ACS - ATMW4D - 001	6	2	1	1	1	1		5-150027 - 32
~~R07~~	4/2/97	1100		X	ACS - RB09L - 201 (RM 4/2/97)	6	2	1	1	1	1		5-150021 - 26
R10	4/2/97	0815		X	ACS - TB11 - 201	2	2						5-150019 - 20
521	4/1/97	1400		X	ACS - SW02 - 001	2	2						5-150039 - 40

Shipment is complete

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Robert Lanf	4/2/97 1300				
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	
		Lynette Burnett	4/2/97 2:07 p.m.	Hand Delivered to CRL	

Distribution: White — Accompanies Shipment; Pink — Coordinator Field Files; Yellow — Laboratory File

JUN 23 '97 04:04PM BLACK & VEATCH P.12

5- 02082

2/4/98 N.

Semi-Volatile Organic Compound Detections

SVOCs	Detections					
	Upper Aquifer		Lower Aquifer		Total	
Phenol	55	24.3%	60	51.7%	115	33.6%
Bis(2-Ethylhexyl)Phthalate	20	8.8%	28	24.1%	48	14.0%
Bis(2-Chloroethyl)Ether	39	17.3%	9	7.8%	48	14.0%
Isophorone	13	5.8%	11	9.5%	24	7.0%
2,2'-Oxybis(1-Chloropropane)	17	7.5%		0.0%	17	5.0%
Naphthalene	12	5.3%		0.0%	12	3.5%
1,2-Dichlorobenzene	10	4.4%	1	0.9%	11	3.2%
2-Methylnaphthalene	8	3.5%		0.0%	8	2.3%
4-Methylphenol	8	3.5%		0.0%	8	2.3%
1,4-Dichlorobenzene	7	3.1%		0.0%	7	2.0%
2,4-Dimethylphenol	7	3.1%		0.0%	7	2.0%
Benzoic Acid	6	2.7%		0.0%	6	1.8%
Diethylphthalate	5	2.2%		0.0%	5	1.5%
2-Methylphenol	4	1.8%		0.0%	4	1.2%
Di-n-octylphthalate	2	0.9%	2	1.7%	4	1.2%
4-Chloro-3-Methylphenol	2	0.9%	1	0.9%	3	0.9%
Di-n-butylphthalate	3	1.3%		0.0%	3	0.9%
Dimethylphthalate	2	0.9%	1	0.9%	3	0.9%
1,3-Dichlorobenzene	2	0.9%		0.0%	2	0.6%
Anthracene	1	0.4%	1	0.9%	2	0.6%
Pentachlorophenol	2	0.9%		0.0%	2	0.6%
2,6-Dinitrotoluene	1	0.4%		0.0%	1	0.3%
2-Nitrophenol	0	0.0%	1	0.9%	1	0.3%
4-Nitrophenol	0	0.0%	1	0.9%	1	0.3%
Total VOC Detections:	226	100%	116	100%	342	100%

Volatile Organic Compound Detections

VOC	Detections					
	Upper Aquifer		Lower Aquifer		Total	
Benzene	**73**	73/263 **27.8%**	**9**	**18.4%**	**82**	**26.3%**
Chloroethane	**65**	**24.7%**	**14**	**28.6%**	**79**	**25.3%**
1,2-Dichloroethene (total)	21	8.0%			21	6.7%
Chlorobenzene	18	6.8%			18	5.8%
Acetone	6	2.3%	9	18.4%	15	4.8%
Toluene	7	2.7%	8	16.3%	15	4.8%
Xylene (total)	15	5.7%			15	4.8%
Ethylbenzene	13	4.9%			13	4.2%
4-Methyl-2-Pentanone	7	2.7%	5	10.2%	12	3.8%
Methylene Chloride	8	3.0%	1	2.0%	9	2.9%
1,1-Dichloroethane	8	3.0%			8	2.6%
Vinyl Chloride	8	3.0%			8	2.6%
2-Butanone	3	1.1%			3	1.0%
Tetrachloroethene	3	1.1%			3	1.0%
Chloroform	0	0.0%	3	6.1%	3	1.0%
1,2-Dichloroethane	2	0.8%			2	0.6%
2-Hexanone	2	0.8%			2	0.6%
Chloromethane	2	0.8%			2	0.6%
Trichloroethene	2	0.8%			2	0.6%
Bromomethane						
Carbon Disulfide						
1,1-Dichloroethene						
1,1,1-Trichloroethane						
Carbon Tetrachloride						
Bromodichloromethane						
1,2-Dichloropropane						
cis-1,3-Dichloropropene						
Trans-1,3-Dichloropropene						
Dibromochloromethane						
1,1,2-Trichloroethane						
Bromoform						
1,1,2,2-Tetrachloroethane						
Styrene						
Total VOC Detections:	263		49	100.0%	312	100.0%

N. MO

Table 7. Proposed Sampling Plan -- Upper Aquifer Monitoring Wells

American Chemical Service, Inc. - NPL Site

	Area of Site	Well Identification	Site Location	1996 August	1996 October 4th	1997 Quarter 1st	1997 Quarter 2nd	1997 Quarter 3rd	1997 Quarter 4th	1998 Quarter 1st	1998 Quarter 2nd	1998 Quarter 3rd	1998 Quarter 4th
1	North	MW37	Downgradient	TAL/TCL		TIL	TIL	TAL/TCL		TIL		TCL	
2		MW38	Downgradient	TAL/TCL		TIL	TIL	TAL/TCL		TIL		TCL	
3		MW39	Side-gradient	TAL/TCL		TIL	TIL	TAL/TCL		TIL		TCL	
4	East	MW11	Side-gradient		TAL/TCL	TIL	TIL	TAL/TCL		TIL		TCL	
5		MW40	East of site	TAL/TCL		TIL	TIL	TAL/TCL		TIL		TCL	
6		MW12			TAL/TCL	TIL	TIL	TAL/TCL		TIL		TCL	
7		MW18			TAL/TCL	TIL	TIL	TAL/TCL		TIL		TCL	
8	Southeast	MW47	Downgradient	TAL/TCL		TIL	TIL	TAL/TCL		TIL		TCL	
9		MW41	southeast of landfill	TAL/TCL		TIL	TIL	TAL/TCL		TIL		TCL	
10		MW42		TAL/TCL		TIL	TIL	TAL/TCL		TIL		TCL	
11		MW43		TAL/TCL		TIL	TIL	TAL/TCL		TIL		TCL	
12		MW44		TAL/TCL		TIL	TIL	TAL/TCL		TIL		TCL	
13		MW19			TAL/TCL	TIL	TIL	TAL/TCL		TIL		TCL	
14	Southwest	MW15	Southwest of landfill		TAL/TCL	TIL	TIL	TAL/TCL		TIL		TCL	
15	Wetlands	MW14	Downgradient		TAL/TCL	TIL	TIL	TAL/TCL		TIL		TCL	
16		MW46	in wetland area	TAL/TCL		TIL	TIL	TAL/TCL		TIL		TCL	
17		MW13			TAL/TCL	TIL	TIL	TAL/TCL		TIL		TCL	
18	Plume Interior	MW48	North side of site	TAL/TCL				TCL				TCL	
19		MW49	North side of site	TAL/TCL				TCL				TCL	
20		MW6	southeast of landfill		TAL/TCL			TCL				TCL	
21		MW45	southeast of landfill	TAL/TCL				TCL				TCL	

Notes:

TCL Target Compound List (VOCs, SVOCs, pesticides & PCBs)

TAL Target Analyte List (Metals)

TIL Target Indicator List (benzene, chloroethane, ethylbenzene, toluene, xylene, chlorobenzene, 1,2-dichloroethene, and 1,1-dichloroethane)

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

REGION 5
230 South Dearborn Street
Chicago, Illinois 60604

CHAIN OF CUSTODY RECORD

PROJ. NO.: 865501

PROJECT NAME: American Chemical Services

SAMPLERS: *(Signature)* Karen Waldvogel

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	Metals	Mercury	Cyanide	NH_3/NO_2-NO_3			REMARKS Tag # Superfund 3413
S02	8/5/86	210		✓	1009 Reeder Rd	4-1l	X	X	X	X			5-61552 M; 5-61551 Hg; 5-61553 CN; 5-61554 NO_3-NO_2
S01	8/5/86	1222		✓	1007 Reeder Rd	4-1l	X	X	X	X			5-61559 M; 5-61560 Hg; 5-61561 CN; 5-61562 NO_3-NO_2
D01	8/5/86	1222		✓	1007 Reeder Rd	4-1l	X	X	X	X			5-61579 M; 5-61580 Hg; 5-61581 CN; 5-61582 NO_3-NO_2
R01	8/5/86	1222		✓	1007 Reeder Rd	4-1l	X	X	X	X			5-61593 M; 5-61584 Hg; 5-61585 CN; 5-61586 NO_3-NO_2
S03	8/5/86	1500		✓	1048 Reeder Rd	4-1l	X	X	X	X			5-61607 M; 5-61608 Hg; 5-61609 CN; 5-61610 NO_3-NO_2
S04	8/5/86	1435		✓	1002 Reeder Rd	4-1l	X	X	X	X			5-61595 M; 5-61596 Hg; 5-61597 CN; 5-61598 NO_3-NO_2
S05	8/5/86	1530		✓	938 S Arbogast	4-1l	X	X	X	X			5-61599 M; 5-61600 Hg; 5-61601 CN; 5-61602 NO_3-NO_2

Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*
Karen Waldvogel	8/6/86	Paul William Smith			
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	
		William Smith	8/6/86 9:00AM	Custody Seals 14688 + 14689	

Distribution: White — Accompanies Shipment; Pink — Coordinator Field Files; Yellow — Laboratory File

5- 01801

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

REGION 5
230 South Dearborn Street
Chicago, Illinois 60604

CHAIN OF CUSTODY RECORD

PROJ. NO.: 8655001
PROJECT NAME: American Chemical Service
SAMPLERS: (Signature) Karen Waldvogel

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	B/N/A	Pesticide/PCB	Volatile				REMARKS
													Sampled 3413
S01	8/5/86	1222		X	1007 REDER RD.	3-80oz	X						5-61565, 5-61569, 5-61577
						3-80oz		X					5-61566, 5-61570, 5-61578
						6-40ml			X				5-61567-68, 5-61563-64, 5-61574, 5-61576

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Karen Waldvogel	8/6/86 9:20 am	William Sangster			
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	
		William Sangster	8/6/86 9:30 AM	Custody Seals 14603, 14605	

Distribution: White — Accompanies Shipment; Pink — Coordinator Field Files; Yellow — Laboratory File

5-01805

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

REGION 5
230 South Dearborn Street
Chicago, Illinois 60604

CHAIN OF CUSTODY RECORD

PROJ. NO.: 8655001
PROJECT NAME: American Chemical Service
SAMPLERS: (Signature) Karen Waldvogel

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	B/N/A	Pesticide/PCB	Volatile				REMARKS
													Superfund 3413
S02	8/5/86	1210		X	1009 Reder Rd.	1-80oz	X						5-61557, ~~5-61558~~
						1-80oz		X					5-61558
						2-40ml			X				5-61555, 5-61556
D01	8/5/86	1222		X	1007 Reder Rd	1-80oz	X						5-61573
						1-80oz		X					5-61575
						2-40ml			X				5-61572, 5-61573
R01	8/5/86	1222		X	1007 Reder Rd.	1-80oz	X						5-61589
						1-80oz		X					5-61590
						2-40ml			X				5-61588, 5-61587

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Karen Waldvogel	8/6/86 9:20 am	William Sargent Jr.			
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	
		William Sargent Jr.	8/6/86 9:30am	Custody Seals 14601, 14602	

Distribution: White — Accompanies Shipment; Pink — Coordinator Field Files; Yellow — Laboratory File

5-01802

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

REGION 5
230 South Dearborn Street
Chicago, Illinois 60604

CHAIN OF CUSTODY RECORD

PROJ. NO.: 865 5001
PROJECT NAME: American Chem. Services
SAMPLERS: (Signature) Karen Waldvogel

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	B/N/A	Pest./PCB	VOLATILES				REMARKS: Superfund 3413
503	8/5	3:00 p		✓	1048 Reeder Rd	1-80oz	X						5-61613
						1-80oz		X					5-61614
						2-40ml			X				5-61611 5-61612
504	8/5	2:35 p		✓	1002 Reeder Rd	1-80oz	X						5-61591
						1-80oz		X					5-61592
						2-40ml			X				5-61593, 5-61594
505	8/5	3:30 pm		✓	938 S. Arbogast	1-80oz	X						5-61605
						1-80oz		X					5-61606
						2-40ml			X				5-61604, 5-61603

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Karen Waldvogel	8/6/86 9:20 am	William Sargent Jr.			
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	
		William Sargent Jr.	8/6/86 9:20 am	custody Seals 14604, 14690	

Distribution: White — Accompanies Shipment; Pink — Coordinator Field Files; Yellow — Laboratory File

5- 01804

CASE #	SAMPLE #	CRL #	MATRIX	CONC.	SAMPLE DATE	SHIPPING DATE	LAB	FEDERAL EXPRESS #	C-O-C ~~CUSTODY SEAL~~	Custody ~~C-O-C~~ Seal	OTR #	ITR #	TAG #	QC LOT #	
	EDNA O'Niel 1007 REDER	865500 1R01	water	Low	8/5/86		CRL			14601-02	✓		5-61590	A6188062	~~(E)~~ Pest/PCB
										14601-02	✓		5-61589	A6188062	~~(E)~~ BNA
										14601-02	✓		5-61587	B6193182	(V)
										14601-02	✓		5-61588	B6193182	(V)
										14688-89	✓		5-61583	C6114082	Metals
										14688-89	✓		5-61584	C6114082	Hg
										14688-89	✓		5-61585	C6114082	CN
										14688-89	✓		5-61586	C6114082	NO_3-NO_2
	DAVE REEDER 1048 Reeder Road 1048	865500 1503	water	Low	8/5/86	3:00	CRL			14604,90	✓	5-61613	~~5-61615~~	A6188062	B/N/A
										14604,90	✓	5-61614	~~5-61616~~	A6188062	Pest/PCB
										14604,90	✓	5-61611	~~5-61617~~	B6193182	(V)
										14604,90	✓	5-61612	~~5-61618~~	B6193182	(V)
										14688-89	✓	5-61607	~~5-61619~~	C6114082	Metals
										14688-89	✓	5-61608	~~5-61620~~	C6114082	Hg
										14688-89	✓	5-61609	~~5-61621~~	C6114082	CN
										14688-89	✓	10	~~5-61622~~	C6114082	NO_3-NO_2
	Earl Bulgard 1002 Reeder Road	865500 1504	water	Low	8/5/86	2:35	CRL			14604,90	✓		5-61591	A6188062	BNA
										14604,90	✓		~~5-61592~~	A6188062	Pest/PCB
										14604,90	✓		~~5-61593~~	B6193182	~~metals~~(V)
										14604,90	✓	OK	~~5-61594~~	B6193182	~~Hg~~(V)
										14688-89	✓	JMB	~~5-61595~~	C6114082	~~CN~~ Metals
										14688-89	✓		~~5-61596~~	C6114082	~~Hg~~ Hg
										14688-89	✓		~~5-61597~~	C6114082	CN
										14688-89	✓		~~5-61598~~	C6114082	NO_3-NO_2
	MARE Janson 9385. Antogast	865500 1505	water	Low	8/5/86	3:30	CRL			14604,90	✓	5-61605	~~5-61623~~	A6188062	BNA
										14604,90	✓	5-61606	~~5-61624~~	15141242	Pest/PCB
										14604,90	✓	5-61604	~~5-61625~~	B6193182	(V)
										14604,90	✓	5-61603	~~5-61626~~	B6193182	(V)
										14688-89		5-61599	~~5-61627~~	C6114082	Metals
										14688-89		5-61600	~~5-61628~~	C6114082	Hg
										14688-89		5-61601	~~5-61629~~	C6114082	CN
										14688-89		5-61602	~~5-61630~~	C6114082	NO_3-NO_2

PAGE:

DATE:

REVIEWER:

SITE NAME / SITE NUMBER

ORIGINATOR:

CASE #	SAMPLE #	CRL #	MATRIX	CONC.	SAMPLE DATE	SHIPPING DATE	LAB	FEDERAL EXPRESS #	C-O-C ~~CUSTODY SEAL~~	Custody ~~C-O-C~~ SEAL	OTR #	ITR #	TAG #	QC LOT #	
	~~8655001502~~														
	JAMES GARMAN 1009 REDER	8655001502	Water	Low	8/5/86	12:10	CRL			14601-02	✓ —	—	5-61557 ✓	15141242	(E) B+A
										14601-02	✓		5-61558 ✓	15141242	(E) Pest/PCB
										14601-02	✓		5-61556 ✓	B6193182	(V)
										14601-02	✓		5-61555 ✓	B6193182	(V)
										14688-89	✓		5-61552	C6114082	Metals
										14688-89	✓		5-61551	C6114082	Hg
										14688-89	✓		5-61553	C6114082	CN
										14688-89	✓		5-61554	C6114082	NO_3-NO_2
	EDNA O'Niel 1007 REDER	8655001501	Water	Low	8/5/86	12:22	CRL			14603,05	✓		5-61566	A6188062	(E) Pest/PCB
										14603,05	✓		5-61565	A6188062	(E) BNA
										14603,05	✓		5-61570	A6188062	(E) Pest/PCB
										14603,05	✓		5-61569	A6188062	(E) BNA
										14603,05	✓		5-61577	A6188062	(E) B/NA
										14603,05	✓		5-61578	A6188062	(E) Pest/PCB
										14603,05	✓		5-61576	B6193182	(V)
										14603,05	✓		5-61574	B6193182	(V)
										14603,05	✓		5-61563	B6193182	(V)
										14603,05	✓		5-61564	B6193182	(V)
										14603,05	✓		5-61567	B6193182	(V)
										14603,05	✓		5-61568	B6193182	(V)
										14688-89	✓		5-61559	C6114082	METALS
										14688-89	✓		5-61560	C6114082	HG
										14688-89	✓		5-61561	C6114082	CN
										14688-89	✓		5-61562	C6114082	NO_3-NO_2
	EDNA O'Niel 1007 REDER	8655001001	Water	Low	8/5/86		CRL			14601-02	✓		5-61575 ✓	15141222	(E) Pest/PCB
										14601-02	✓		5-61573 ✓	15141242	(E) B/N/A
										14601-02	✓		5-61572 ✓	B6193182	(V)
										14601-02	✓		5-61573 ✓	B6193182	(V)
										14688-89	✓		5-61579	C6114082	METALS
										14688-89	✓		5-61580	C6114082	Hg
										14688-89	✓		5-61581	C6114082	CN
										14688-89	✓		5-61582	C6114082	NO_2-NO_3

PAGE:

DATE:

SITE NAME / SITE NUMBER:

REVIEWER:

ORIGINATOR:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (METALS BY ICP)
REGION 5 CENTRAL REGIONAL LABORATORY (WATER)
536 SOUTH CLARK STREET (5SCRL)
CHICAGO, ILLINOIS 60605

DATE: 9/8/86 CRL DATA SET NUMBER: SF 3413

SUBJECT: QUALITY CONTROL SUMMARY STATEMENT FOR AMERICAN CHEMICAL SERVICE

FROM: STEVE PARKER, CRL QC COORDINATOR
(312 353 3805)

TO: DATA USER:
Karen Waldvogel

The Region V Central Regional Laboratory (CRL) has completed analysis of the samples submitted for metals analysis using inductively coupled plasma emission spectroscopy. The analysis was performed using the CRL's "Standard Operating Procedure for the Analysis of Metals in Water Using Inductively Coupled Plasma Emission Spectroscopy", Method 200.7 DNS (INDUCTIVELY COUPLED PLASMA, DIGESTED). The method is the CRL's implementation of USEPA method 200.7 and is approved for NPDES and SDWA samples.

Metals that have been indicated as being of primary interest, by the site investigators will be reported. Metals that are of secondary interest may be deleted from the report without comment. The routine controls designed into the run in which the samples were analyzed are listed below and were met unless noted otherwise.

The following metals are primary or secondary drinking water parameters with maximum contaminant levels as indicated:

Primary:	Maximum Contaminant Level (MCL)
Barium - Ba	1 milligram per liter
Cadmium - Cd	0.010 milligrams per liter
Chromium - Cr	0.05 milligrams per liter
Lead - Pb	0.05 milligrams per liter
Silver - Ag	0.05 milligrams per liter

Secondary:	Maximum Contaminant Level (MCL)
Copper - Cu	1 milligram per liter
Iron - Fe	0.3 milligrams per liter
Manganese - Mn	0.05 milligrams per liter
Zinc - Zn	5 milligrams per liter

SAMPLE HANDLING

The samples were properly preserved by acidification to a pH < 2 with concentrated nitric acid. The samples were shipped and stored at 4 C or room temperature in high density polyethylene containers. The analysis was completed within 6 months of the date of sampling

METHOD DETECTION LIMIT

The Method Detection Limit (MDL) is defined as the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined in a given matrix containing the analyte. The CRL periodically monitors the analytical system by determining the MDL in deionized distilled water and has calculated them to be as indicated in the enclosed tables. The MDL for this site can only be determined by studying samples from the different matrixes at this site and is determined only upon request as outline in the site's project plan.

METHOD BIAS

Bias is defined as the difference between the population mean and the true or reference value or as estimated from sample statistics, the difference between the sample average and the reference value. The CRL has not detected any significant method bias in deionized distilled water. To monitor for any systematic bias, the CRL analyzes a control sample at the beginning and end of the run. The expected value and the control values for each element are listed in an enclosed table. Indications of potential bias can be determined from spiked samples from this site. Samples to be spiked must be chosen based on information about the site and the investigation's objectives. Unless requested by the field, a spike will not necessarily be run with each data set.

METHOD PRECISION

Precision is defined as the degree of mutual agreement among individual measurements made under prescribed conditions. The long term precision for the method can be inferred from the control limits for the control standard. The precision of the data for this site must be determined from the results of replicate or co located samples samples designed into the sampling plan. Unless requested by the field, replicate samples will not necessarily be run with each data set. When replicate samples are analyzed, they are evaluated in two ways depending upon whether they contain a large amount, when compared to the method detection limit, of the parameter being analyzed or whether the amount is relatively close to the method detection limit. In the case where there is a large amount of material, we typically find that the results are in agreement to 10% relative percent difference. At lower levels, we typically find the results to be within ± MDL of the average value or below the detection limit for the parameter.

CONTAMINATION

Laboratory blanks are analyzed within each analytical run along with any field blanks that have been submitted. The laboratory blank is expected to be within ±MDL of zero.

Site: SF 3413
Data Set Number: AMERICAN CHEMICAL SERVICE

The following laboratory control samples were examined for precision and bias information:

✓ Undigested Blank(s).
✓ Digested Blank(s).
✓ Analytical Quality Control Sample(s).
✓ The blanks were within the method detection limit of zero for each element listed unless indicated otherwise.
✓ The Analytical Quality Control Sample (AQC) results were within the expected control limits unless indicated otherwise.

ELEMENT	MDL	AQC SAMPLE EXPECTED	CONTROL LIMITS
* SILVER - Ag	6 ug/L	168 ug/L	150 - 185 ug/L
ALUMINUM - Al	80 ug/L	4760 ug/L	4280 - 5250 ug/L
BARIUM - Ba	6 ug/L	1510 ug/L	1360 - 1660 ug/L
BERYLLIUM - Be	1 ug/L	728 ug/L	655 - 800 ug/L
~~BORON - B~~	~~80 ug/L~~	~~1050 ug/L~~	~~945 - 1155 ug/L~~
CADMIUM - Cd	10 ug/L	425 ug/L	380 - 470 ug/L
COBALT - Co	6 ug/L	972 ug/L	875 - 1070 ug/L
CHROMIUM - Cr	8 ug/L	1570 ug/L	1410 - 1730 ug/L
COPPER - Cu	6 ug/L	1160 ug/l	1040 - 1280 ug/L
IRON - Fe	80 ug/L	3820 ug/L	3440 - 4200 ug/L
LITHIUM - Li	10 ug/L	808 ug/L	725 - 890 ug/L
MANGANESE - Mn	5 ug/L	1330 ug/L	1200 - 1460 ug/L
MOLYBDENUM - Mo	15 ug/L	811 ug/L	730 - 890 ug/L
NICKEL - Ni	15 ug/L	1180 ug/L	1060 - 1300 ug/L
~~LEAD - Pb~~	~~70 ug/L~~	~~2970 ug/L~~	~~2670 - 3270 ug/L~~
TIN - Sn	40 ug/L	2430 ug/L	~~1080~~ 2190 - ~~1320~~ 2670 ug/L
STRONTIUM - Sr	10 ug/L	902 ug/L	810 - 990 ug/L
TITANIUM - Ti	25 ug/L	1200 ug/L	1080 - 1320 ug/L
VANADIUM - V	5 ug/L	744 ug/L	670 - 820 ug/L
YTTRIUM - Y	5 ug/L	784 ug/L	700 - 860 ug/L
ZINC - Zn	40 ug/L	2800 ug/L	2500 - 3100 ug/L
CALCIUM - Ca	0.5 mg/L	13.2 mg/L	12.0 - 14.5 mg/L
MAGNESIUM - Mg	0.1 mg/L	5.2 mg/L	4.7 - 5.7 mg/L
POTASSIUM - K	2 mg/L	96	86 - 106 mg/L
SODIUM - Na	1 mg/L	18.5 mg/L	16.6 - 20.4 mg/L

OBSERVATION/DEVIATIONS:
* SILVER INDICATED A HIGH BIAS, HOWEVER THE SAMPLES DID NOT INDICATE THE PRESENCE OF SILVER.

Site: SF 3413
Data Set Number: AMERICAN CHEMICAL SERVICE

The following samples were examined for precision and bias information:

Duplicate: S501 S02
Spike: S501 S02

✓ The spike recoveries were within the control limits for each element unless indicated otherwise.
✓ The duplicate results were acceptable.

ELEMENT	MDL	SAMPLE SPIKE EXPECTED	CONTROL LIMITS
SILVER - Ag	6 ug/L	50 ug/L	42 - 58 ug/L
ALUMINUM - Al	80 ug/L	800 ug/L	680 - 920 ug/L
BARIUM - Ba	6 ug/L	200 ug/L	170 - 230 ug/L
BERYLLIUM - Be	1 ug/L	10 ug/L	8 - 12 ug/L
~~BORON - B~~	~~80 ug/L~~	~~800 ug/L~~	~~680 - 920 ug/L~~
** CADMIUM - Cd	10 ug/L	25 ug/L	21 - 29 ug/L
COBALT - Co	6 ug/L	100 ug/L	85 - 115 ug/L
CHROMIUM - Cr	8 ug/L	100 ug/L	85 - 115 ug/L
* COPPER - Cu	6 ug/L	50 ug/L	42 - 58 ug/L
IRON - Fe	80 ug/L	800 ug/L	680 - 920 ug/L
LITHIUM - Li	10 ug/L	54 ug/L	46 - 62 ug/L
MANGANESE - Mn	5 ug/L	50 ug/L	42 - 58 ug/L
MOLYBDENUM - Mo	15 ug/L	100 ug/L	85 - 115 ug/L
NICKEL - Ni	15 ug/L	150 ug/L	128 - 172 ug/L
~~** LEAD - Pb~~	~~70 ug/L~~	~~800 ug/L~~	~~680 - 920 ug/L~~
TIN - Sn	40 ug/L	400 ug/L	340 - 460 ug/L
STRONTIUM - Sr	10 ug/L	1000 ug/L	850 - 1150 ug/L
TITANIUM - Ti	25 ug/L	100 ug/L	85 - 115 ug/L
VANADIUM - V	5 ug/L	50 ug/L	42 - 58 ug/L
YTTRIUM - Y	5 ug/L	50 ug/L	42 - 58 ug/L
ZINC - Zn	40 ug/L	400 ug/L	340 - 460 ug/L
CALCIUM - Ca	0.5 mg/L	50 mg/L	42 - 58 mg/L
MAGNESIUM - Mg	0.1 mg/L	25 mg/L	21 - 29 mg/L
POTASSIUM - K	2 mg/L	20 mg/L	17 - 23 mg/L
SODIUM - Na	1 mg/L	50 mg/L	42 - 58 mg/L

OBSERVATION/DEVIATIONS:
* COPPER SHOWED LOW RECOVERIES 37 ug/L (74%)
THE REPORTED DL HAS BEEN RAISED FROM 6 TO 20 ug/L.
ALL OF THE SAMPLES ARE WELL BELOW THE MCL OF
1 MILLIGRAM/LITER. THE AQC SAMPLE RESULTS
WERE SATISFACTORY.

** Cd AND Pb WILL BE RUN BY GFAA AND
REPORTED SEPERATELY.

9/4/86 AJ

9/9/86

SF 3413 American 1905 C411J7 AQ

JW 3 Sept

DL1:[001,054]RUN539.BRN 20-AUG-86 07:53:03 PAGE 1

DATA SET : SF3413 American Chemical Service

ELEMENT		S501S01		S501D01		S501S02		S501S03
AG ug/L	<	6.00	<	6.00	<	6.00	<	6.00
AL	<	80.0	<	80.0	<	80.0	<	80.0
BA		107.		106.		114.		131.
BE	<	1.00	<	1.00	<	1.00	<	1.00
~~CD~~	~~<~~	~~10.0~~	~~<~~	~~10.0~~	~~<~~	~~10.0~~	~~<~~	~~10.0~~
CO	<	6.00	<	6.00	<	6.00	<	6.00
CR	<	8.00	<	8.00	<	8.00	<	8.00
CU		CD Jw ~~8.4~~		CD Jw ~~8.0~~		CD Jw ~~11.6~~		CD Jw ~~19.5~~
FE		2080.		2060.		2040.		2840.
LI		28.8		28.1		30.3		31.4
MN		40.4		39.8		48.6		75.1
MO	<	15.0	<	15.0	<	15.0	<	15.0
NI	<	15.0	<	15.0	<	15.0	<	15.0
~~PB~~	~~<~~	~~70.0~~	~~<~~	~~70.0~~	~~<~~	~~70.0~~	~~<~~	~~70.0~~
SN	<	40.0	<	40.0	<	40.0	<	40.0
SR		503.		499.		506.		755.
TI	<	25.0	<	25.0	<	25.0	<	25.0
V	<	5.00	<	5.00	<	5.00	<	5.00
Y	<	5.00	<	5.00	<	5.00	<	5.00
ZN		89.		85.		44.		120.
~~CA~~		~~103.~~		~~103.~~		~~103.~~		~~103.~~
CA mg/L		83.1		82.5		86.6		90.7
MG		36.7		36.6		38.1		~~44.6~~ 44.6
NA		16.3		16.1		16.2		17.4
K	<	2.00	<	2.00		2.18		2.57

Cd, Pb will be determined by AA

9/4/86 AJ

8/9/86

SF 3413 American Y905 C411JZ

jm 35gtt

A Cu

DL1:[001,054]RUN539.BRN 20-AUG-86 07:52:03 PAGE

DATA SET : SF3413 American Chemical Service

ELEMENT		S501S04	S501S05	S501S05 dil for Na only	S501R03
AG	µg/L	< 6.00	< 6.00		< 6.00
AL		< 80.0	< 80.0		< 80.0
BA		118	85.7		< 6.00
BE		< 1.00	1.00		< 1.00
CD		< 10.0	< 10.0		< 10.0
CO		< 6.00	< 6.00		< 6.00
CR		< 8.00	< 8.00		< 8.00
CU		14.5	< 6.00		< 8.00
FE		2200.	131.		< 6.00
LI		30.7	65.1		< 80.0
MN		27.4	12.9		< 10.0
MO		< 15.0	26.9		< 5.00
NI		< 15.0	< 15.0		< 15.0
PH		< 70.0	< 70.0		< 15.0
SN		< 40.0	< 40.0		< 70.0
SR		602.	< 10.0		< 40.0
TI		< 25.0	43.4		< 10.0
V		< 5.00	13.00		< 25.0
Y		< 5.00	< 5.00		< 5.00
ZN		47.5	106.		< 5.00
CA	mg/L	103.000	0.500		< 40.0
MG		79.8	0.500		< 0.500
NA		38.4	0.100		< 0.500
K		18.9	213.00	204	< 0.100
		< 2.00	< 2.00		< 1.00
					< 2.12

Cd, Pb will be determined by AA

9/4/86

SF 3413 American Y 905 C41JZ

DL1:L001.0543RN539A.BKN 27-AUG-86 11:29:44 PAGE 1

DATA SET : SF3413

ELEMENT	S501R01	S501S01	S501D01	S501S02
MG	< 0.1	37.3	36.1	37.7
K	2.12 <	2.00 <	2.00	2.18

Sm
3 Sept

9/4/86 AJ

SF 3413 American 4905 C411JZ

DATA SET : SF3413

ELEMENT	S501S03		S501S04		S501S05
MG	42.700		36.800	<	0.100
K	2.57	<	2.00	<	2.00

JW 7/29/86

9/4/86 AJ

DATA SET : SF3413 SAMPLE ID : S501S03 diluted for Mg reading only

LEMENT	Sample
MG	44.60

No 3 spots

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

ESD/Central Regional Laboratory
DATA TRACKING FORM FOR CONTRACT SAMPLES

CRL Data Set No. SF 3413 CERCLIS No. IND-016-360-165

SMO Case No. — Site Name and Location: AMERICAN CHEMICAL SER.

Name of Contractor or EPA Laboratory: CRL Data User: Karen Waldvogel

No. of Samples: 7 Date Samples or Data Received: 9-10-86

1. Have chain-of-custody records been received? YES ✓ NO___
2. Have Traffic Reports or packing lists been received? YES ✓ NO___
3. If no, are Traffic Report or packing list numbers written on the chain-of-custody record? YES___ NO___
4. If no, which Traffic report or packing list numbers are missing?

Are basic data forms in? YES ✓ NO___

Number of samples claimed: 7 Number of samples received: 7

Checked by: Sylvia Griffin Date: 9-11-86

Received by Contract Project Management Section: _____ Date: _____

Review Started: _____ Reviewer Signature: _____

Total time spent on review: _____ Date review completed: _____

Copied (xeroxed) by: _____ Date: _____

Mailed to Data User by: Sylvia Griffin Date: 9-11-86

DATA USERS: ABN

Please fill in the blanks below and return this form to: Sylvia Griffin, Data Management Coordinator, Region V, 5SCRL

Data received by: _____ Date: _____

Q.A. review received by: _____ Date: _____

Inorganic Data Complete [ ], Suitable for Intended Purposes [ ] ✓ [ ] if acceptable.
Organic Data Complete [ ], Suitable for Intended Purposes [ ] List problems below.
Dioxin Data Complete [ ], Suitable for Intended Purposes [ ]
SAS Data Complete [ ], Suitable for Intended Purposes [ ]

See Attached "Missing Data Request Form" [ ]
PROBLEMS: Please indicate reasons (if any) why data are not suitable for your uses. Other problems.

Received by Data Management Coordinator, CRL for File: Date: _____

Signature: _____

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

ESD/Central Regional Laboratory
DATA TRACKING FORM FOR CONTRACT SAMPLES

CRL Data Set No. SF 3413 CERCLIS No. IND-016-360-165

SMO Case No. — Site Name and Location: AMERICAN CHEMICAL SERVICE

Name of Contractor or EPA Laboratory: CRL Data User: KAREN WALDVOGEL

No. of Samples: 7 Date Samples or Data Received: 9-10-86

1. Have chain-of-custody records been received? YES ✓ NO___
2. Have Traffic Reports or packing lists been received? YES ✓ NO___
3. If no, are Traffic Report or packing list numbers written on the chain-of-custody record? YES___ NO___
4. If no, which Traffic report or packing list numbers are missing?

Are basic data forms in? YES ✓ NO___

Number of samples claimed: 7 Number of samples received: 7

Checked by: Sylvia Griffin Date: 9-10-86

Received by Contract Project Management Section: _____ Date: _____

Review Started: _____ Reviewer Signature: _____

Total time spent on review: _____ Date review completed: _____

Copied (xeroxed) by: _____ Date: _____

Mailed to Data User by: Sylvia Griffin Date: 9-10-86

DATA USERS: Metals

Please fill in the blanks below and return this form to: Sylvia Griffin, Data Management Coordinator, Region V, 5SCRL

Data received by: _____ Date: _____

Q.A. review received by: _____ Date: _____

Inorganic Data Complete [ ], Suitable for Intended Purposes [ ] ✓ [ ] if acceptable.
Organic Data Complete [ ], Suitable for Intended Purposes [ ] List problems below.
Dioxin Data Complete [ ], Suitable for Intended Purposes [ ]
SAS Data Complete [ ], Suitable for Intended Purposes [ ]

See Attached "Missing Data Request Form" [ ]
PROBLEMS: Please indicate reasons (if any) why data are not suitable for your uses. Other problems.

Received by Data Management Coordinator, CRL for File: Date: _____

Signature: _____

Telephone (312) 544-3260
FAX (312) 544-8587

2/23/89

SUBURBAN LABORATORIES, Inc.

4140 LITT DRIVE HILLSIDE, ILLINOIS 60162 - 1183

EARL I. ROSENBERG
President

H.R. THOMAS, JR.
Director

February 23, 1989

Roy F. Weston, Inc.
Sper Division
River Center
111 North Canal Street
8th Floor, Suite #855
Chicago, Illinois 60606

RECEIVED
FEB 24 1989
TAT REG V

Attention: Ms. Melody Sullivan

Re: P.O. #22738

Samples Received: 2/21/89	Lead (mg/l) mg/kg
S/L #9-1965 - Dirt Pile Sample P-1, 2/20/89	< 0.10
S/L #9-1966 - Dirt Pile Sample P-2, 2/20/89	0.16
S/L #9-1967 - Dirt Pile Sample P-3, 2/20/89	85.6
S/L #9-1968 - Dirt Pile Sample P-4, 2/20/89	0.29
S/L #9-1969 - Excavated Dirt Sample P-5, 2/20/89	< 0.10
S/L #9-1970 - Excavated Dirt Sample P-6, 2/20/89	< 0.10
S/L #9-1971 - Excavated Dirt Sample P-7, 2/20/89	< 0.10
S/L #9-1972 - Dirt Pile Smaple P-8, 2/20/89	< 0.10
S/L #9-1973 - Dirt Pile Sample P-9, 2/20/89	0.31
S/L #9-1974 - Excavated Dirt Sample P-10, 2/20/89	0.12
S/L #9-1975 - Excavated Dirt Sample P-11, 2/20/89	0.22

< = less than

Data biased low, all data estimated.

Ken Chin 2/24

ANALYSIS CERTIFIED BY: _____ Director (HRT/ck)

Members of American Society of Mass Spectrometry • American Chemical Society • American Society for Microbiology
Water Pollution Control Federation • Institute of Food Technology • Certifications: U.S.D.A. #1783 • Ill. Dept. of Public Health #17135
Amer. Spice Trade Assn. • F.D.A. Reg. #1419676 • Ill. EPA #100225 • Wis. DNR #999318210

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

89WT03

REGION 5
230 South Dearborn Street
Chicago, Illinois 60604

CHAIN OF CUSTODY RECORD

PROJ. NO.: 2149

PROJECT NAME:

SAMPLERS: (Signature) George Cella

	STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	PCB's	EP Tox/Lead					REMARKS EPA TAG #
S-34	P-1	2/20/89	1310		X	dirt pile	1-8oz	X	X					5-172401
S-35	P-2		1320		X	dirt pile		X	X					5-172402
S-36	P-3		1325		X	dirt pile		X	X					5-172403
S-37	P-4		1330		X	dirt pile		X	X					5-87885
S-38	P-5		1335		X	excavated dirt		X	X					5-172408
S-39	P-6		1340		X	excavated dirt		X	X					5-172409
S-40	P-7		1345		X	excavated dirt		X	X					5-172410
S-41	P-8		1350		X	dirt pile		X	X					5-172411
S-42	P-9		1355		X	dirt pile		X	X					5-172412
S-43	P-10		1400		X	excavated dirt		X	X					5-172413
S-44	P-11		1405		X	excavated dirt		X	X					5-172414

RESULTS TO: ROY F. WESTON
111 N CANAL SUITE 855
CHICAGO IL 60606

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
George Cella	2/20/89 1050	Thomas B Evans		2/21 1145	Ven Shah
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	
				SUBURBAN LAB 4140 LITT DRIVE HILLSIDE IL 60162 312/544-3260	ATTN: RAY THOMAS

Distribution: White — Accompanies Shipment; Pink — Coordinator Field Files; Yellow — Laboratory File

SUBURBAN LABORATORIES, INC.
4140 LITT DRIVE
HILLSIDE, ILLINOIS 60162

ANALYSIS OF ORGANIC CHEMICAL COMPOUNDS BY
GAS CHROMATOGRAPHY / ELECTRON CAPTURE DETECTOR
FINAL REPORT

S/L FILE NUMBER.....9-1967 CLIENT: ROY F. WESTON

GC/ECD SIGNAL FILE....A:G7EEDB05 SAMPLE:"P-3 2/20/89 Dirt Pile "

FINAL REPORT BY: FDR

PH= 5.5

DATE RECEIVED: 02/21/89 DATE EXTRACTED: 02/21/89

Note: Upon visual review of the Total Ion Chromatogram, unidentified peaks were observed outside of those parameters which are listed below.

****

>>>>>>>>>>> POLYCHLORINATED BIPHENYLS (PCB'S) METHOD 8080 <<<<<<<<<<<<

****

COMPOUND	MDL ug/kg	CAS NUMBER	PQL	SAMPLE CONC ug/kg (wet weight)
1.+d10-Anthracene				NI
1. PCB-1016	<1.00	12674-11-1	10.00	BDL
2. PCB-1221	<1.00	11104-28-2	10.00	BDL
3. PCB-1232	<1.00	11141-16-5	10.00	BDL
4. PCB-1242	<1.00	53469-21-9	10.00	BDL
5. PCB-1248	<1.00	12672-29-6	10.00	BDL
6. PCB-1254	<1.00	11097-69-1	10.00	BDL
7. PCB-1260	<1.00	11096-82-5	10.00	BDL

+.....INTERNAL STANDARD

MDL.....METHOD DETECTION LIMIT
THE MINIMUM CONCENTRATION OF A SUBSTANCE THAT CAN BE MEASURED AND REPORTED WITH 99% CONFIDENCE THAT VALUE IS ABOVE ZERO. (Ref: SW-846 3rd. Ed.)

BDL.....BELOW DETECTION LIMIT
DETECTION LIMITS LISTED HEREIN ARE PROVIDED FOR GUIDANCE, AND MAY NOT ALWAYS BE ACHIEVABLE.

SUBURBAN LABORATORIES, INC.
4140 LITT DRIVE
HILLSIDE, ILLINOIS 60162

ANALYSIS OF ORGANIC CHEMICAL COMPOUNDS BY
GAS CHROMATOGRAPHY / ELECTRON CAPTURE DETECTOR
FINAL REPORT

S/L FILE NUMBER.....9-1966 CLIENT: RD/ F. WESTON

GC/ECD SIGNAL FILE....A:07FEFCEC SAMPLE:"P-2 2/20/89 Dirt Pile "

FINAL REPORT BY: FDR

PH= 6.0

DATE RECEIVED: 02/21/89 DATE EXTRACTED: 01/21/89

Note: Upon visual review of the Total Ion Chromatogram, unidentified peaks were observed outside of those parameters which are listed below.

****

>>>>>>>>>>> POLYCHLORINATED BIPHENYLS (PCB'S) METHOD 8080 <<<<<<<<<<<<

****

COMPOUND	MDL ug/kg	CAS NUMBER	PQL	SAMPLE CONC ug/kg (wet weight)
1.+d10-Anthracene				NI
1. PCB-1016	<1.00	12674-11-1	10.00	BDL
2. PCB-1221	<1.00	11104-28-2	10.00	BDL
3. PCB-1232	<1.00	11141-16-5	10.00	BDL
4. PCB-1242	<1.00	53469-21-9	10.00	BDL
5. PCB-1248	<1.00	12672-29-6	10.00	BDL
6. PCB-1254	<1.00	11097-69-1	10.00	BDL
7. PCB-1260	<1.00	11096-82-5	10.00	BDL

+.....INTERNAL STANDARD

MDL.....METHOD DETECTION LIMIT
THE MINIMUM CONCENTRATION OF A SUBSTANCE THAT CAN BE MEASURED AND REPORTED WITH 99% CONFIDENCE THAT VALUE IS ABOVE ZERO. (Ref: SW-846 3rd. Ed.)

BDL.....BELOW DETECTION LIMIT
DETECTION LIMITS LISTED HEREIN ARE PROVIDED FOR GUIDANCE, AND MAY NOT ALWAYS BE ACHIEVABLE.

SUBURBAN LABORATORIES, INC.
4140 LITT DRIVE
HILLSIDE, ILLINOIS 60162

ANALYSIS OF ORGANIC CHEMICAL COMPOUNDS BY
GAS CHROMATOGRAPHY / ELECTRON CAPTURE DETECTOR
FINAL REPORT

S/L FILE NUMBER.....9-1966 CLIENT: ROY F. WESTON

GC/ECD SIGNAL FILE....A:07EEE416 SAMPLE:"P-4 2/20/89 Dirt Pile "

FINAL REPORT BY: FDR

PH= 6.5

DATE RECEIVED: 02/21/89 DATE EXTRACTED: 02/21/89

Note: Upon visual review of the Total Ion Chromatogram, unidentified peaks were observed outside of those parameters which are listed below.

****

>>>>>>>>>>> POLYCHLORINATED BIPHENYLS (PCB'S) METHOD 8080 <<<<<<<<<<<<

****

COMPOUND	MDL ug/kg	CAS NUMBER	PQL	SAMPLE CONC ug/kg (wet weight)
1.+d10-Anthracene				NI
1. PCB-1016	<1.00	12674-11-1	10.00	BDL
2. PCB-1221	<1.00	11104-28-2	10.00	BDL
3. PCB-1232	<1.00	11141-16-5	10.00	BDL
4. PCB-1242	<1.00	53469-21-9	10.00	BDL
5. PCB-1248	<1.00	12672-29-6	10.00	BDL
6. PCB-1254	<1.00	11097-69-1	10.00	BDL
7. PCB-1260	<1.00	11096-82-5	10.00	BDL

+.....INTERNAL STANDARD

MDL.....METHOD DETECTION LIMIT
THE MINIMUM CONCENTRATION OF A SUBSTANCE THAT CAN BE MEASURED AND REPORTED WITH 99% CONFIDENCE THAT VALUE IS ABOVE ZERO. (Ref: SW-846 3rd. Ed.)

BDL.....BELOW DETECTION LIMIT
DETECTION LIMITS LISTED HEREIN ARE PROVIDED FOR GUIDANCE, AND MAY NOT ALWAYS BE ACHIEVABLE.

SUBURBAN LABORATORIES, INC.
4140 LITT DRIVE
HILLSIDE, ILLINOIS 60162

ANALYSIS OF ORGANIC CHEMICAL COMPOUNDS BY
GAS CHROMATOGRAPHY / ELECTRON CAPTURE DETECTOR
FINAL REPORT

S/L FILE NUMBER.....9-1972 CLIENT: ROY F. WESTON

GC/ECD SIGNAL FILE....A:07FF0520 SAMPLE:"P-P 2/20/89 Dirt Pile "

FINAL REPORT BY: FDR

PH= 5.5

DATE RECEIVED: 02/21/89 DATE EXTRACTED: 02/21/89

Note: Upon visual review of the Total Ion Chromatogram, unidentified peaks were observed outside of those parameters which are listed below.

****

>>>>>>>>>>> POLYCHLORINATED BIPHENYLS (PCB'S) METHOD 8080 <<<<<<<<<<<<

****

COMPOUND	MDL ug/kg	CAS NUMBER	PQL	SAMPLE CONC ug/kg (wet weight)
1.+d10-Anthracene				NI
1. PCB-1016	<1.00	12674-11-1	10.00	BDL
2. PCB-1221	<1.00	11104-28-2	10.00	BDL
3. PCB-1232	<1.00	11141-16-5	10.00	BDL
4. PCB-1242	<1.00	53469-21-9	10.00	BDL
5. PCB-1248	<1.00	12672-29-6	10.00	BDL
6. PCB-1254	<1.00	11097-69-1	10.00	BDL
7. PCB-1260	<1.00	11096-82-5	10.00	BDL

+.....INTERNAL STANDARD

MDL.....METHOD DETECTION LIMIT
THE MINIMUM CONCENTRATION OF A SUBSTANCE THAT CAN BE MEASURED AND REPORTED WITH 99% CONFIDENCE THAT VALUE IS ABOVE ZERO. (Ref: SW-846 3rd. Ed.)

BDL.....BELOW DETECTION LIMIT
DETECTION LIMITS LISTED HEREIN ARE PROVIDED FOR GUIDANCE, AND MAY NOT ALWAYS BE ACHIEVABLE.

SUBURBAN LABORATORIES, INC.
4140 LITT DRIVE
HILLSIDE, ILLINOIS 60162

ANALYSIS OF ORGANIC CHEMICAL COMPOUNDS BY
GAS CHROMATOGRAPHY / ELECTRON CAPTURE DETECTOR
FINAL REPORT

S/L FILE NUMBER.....9-1971 CLIENT: ROY F. WESTON

GC/ECD SIGNAL FILE....A:Q7EEEC59 SAMPLE:"P-7 2/20/89
Excavated Dirt "

FINAL REPORT BY: FDR

PH= 6.5

DATE RECEIVED: 02/21/89 DATE EXTRACTED: 01/21/89

Note: Upon visual review of the Total Ion Chromatogram, unidentified peaks were observed outside of those parameters which are listed below.

****

>>>>>>>>>>> POLYCHLORINATED BIPHENYLS (PCB'S) METHOD 8080 <<<<<<<<<<<<<

****

COMPOUND	MDL ug/kg	CAS NUMBER	PQL	SAMPLE CONC ug/kg (wet weight)
1.+d10-Anthracene				NI
1. PCB-1016	<1.00	12674-11-1	10.00	BDL
2. PCB-1221	<1.00	11104-28-2	10.00	BDL
3. PCB-1232	<1.00	11141-16-5	10.00	BDL
4. PCB-1242	<1.00	53469-21-9	10.00	BDL
5. PCB-1248	<1.00	12672-29-6	10.00	BDL
6. PCB-1254	<1.00	11097-69-1	10.00	BDL
7. PCB-1260	<1.00	11096-82-5	10.00	440.0 (awaiting confirmation)

+.....INTERNAL STANDARD

MDL.....METHOD DETECTION LIMIT
THE MINIMUM CONCENTRATION OF A SUBSTANCE THAT CAN BE MEASURED AND REPORTED WITH 99% CONFIDENCE THAT VALUE IS ABOVE ZERO. (Ref: SW-846 3rd. Ed.)

BDL.....BELOW DETECTION LIMIT
DETECTION LIMITS LISTED HEREIN ARE PROVIDED FOR GUIDANCE, AND MAY NOT ALWAYS BE ACHIEVABLE.

SUBURBAN LABORATORIES, INC.
4140 LITT DRIVE
HILLSIDE, ILLINOIS 60162

ANALYSIS OF ORGANIC CHEMICAL COMPOUNDS BY
GAS CHROMATOGRAPHY / ELECTRON CAPTURE DETECTOR
FINAL REPORT

S/L FILE NUMBER.....9-1970 CLIENT: ROY F. WESTON

GC/ECD SIGNAL FILE....A:02EEC443 SAMPLE:"P-6 2/20/89
Excavated Dirt "

FINAL REPORT BY: FDR

PH= 6.0

DATE RECEIVED: 02/21/89 DATE EXTRACTED: 02/21/89

Note: Upon visual review of the Total Ion Chromatogram, unidentified peaks were observed outside of those parameters which are listed below.

****

>>>>>>>>>>> POLYCHLORINATED BIPHENYLS (PCB'S) METHOD 8080 <<<<<<<<<<<<<

****

COMPOUND	MDL ug/kg	CAS NUMBER	PQL	SAMPLE CONC ug/kg (wet weight)
1.+d10-Anthracene				NI
1. PCB-1016	<1.00	12674-11-1	10.00	BDL
2. PCB-1221	<1.00	11104-28-2	10.00	BDL
3. PCB-1232	<1.00	11141-16-5	10.00	BDL
4. PCB-1242	<1.00	53469-21-9	10.00	BDL
5. PCB-1248	<1.00	12672-29-6	10.00	BDL
6. PCB-1254	<1.00	11097-69-1	10.00	BDL
7. PCB-1260	<1.00	11096-82-5	10.00	BDL

+.....INTERNAL STANDARD

MDL.....METHOD DETECTION LIMIT
THE MINIMUM CONCENTRATION OF A SUBSTANCE THAT CAN BE MEASURED AND REPORTED WITH 99% CONFIDENCE THAT VALUE IS ABOVE ZERO. (Ref: SW-846 3rd. Ed.)

BDL.....BELOW DETECTION LIMIT
DETECTION LIMITS LISTED HEREIN ARE PROVIDED FOR GUIDANCE, AND MAY NOT ALWAYS BE ACHIEVABLE.

SUBURBAN LABORATORIES, INC.
4140 LITT DRIVE
HILLSIDE, ILLINOIS 60162

ANALYSIS OF ORGANIC CHEMICAL COMPOUNDS BY
GAS CHROMATOGRAPHY / ELECTRON CAPTURE DETECTOR
FINAL REPORT

S/L FILE NUMBER.....9-1969 CLIENT: ROY F. WESTON

GC/ECD SIGNAL FILE....A:Q7EEF4RD SAMPLE:"P-5 2/20/89
Excavated Dirt "

FINAL REPORT BY: FDR

PH= 6.0

DATE RECEIVED: 02/21/89 DATE EXTRACTED: 02/21/89

Note: Upon visual review of the Total Ion Chromatogram, unidentified peaks were observed outside of those parameters which are listed below.

****

>>>>>>>>>>> POLYCHLORINATED BIPHENYLS (PCB'S) METHOD 8080 <<<<<<<<<<<<<

****

COMPOUND	MDL ug/kg	CAS NUMBER	PQL	SAMPLE CONC ug/kg (wet weight)
1.+d10-Anthracene				NI
1. PCB-1016	<1.00	12674-11-1	10.00	BDL
2. PCB-1221	<1.00	11104-28-2	10.00	BDL
3. PCB-1232	<1.00	11141-16-5	10.00	BDL
4. PCB-1242	<1.00	53469-21-9	10.00	BDL
5. PCB-1248	<1.00	12672-29-6	10.00	BDL
6. PCB-1254	<1.00	11097-69-1	10.00	BDL
7. PCB-1260	<1.00	11096-82-5	10.00	BDL

+.....INTERNAL STANDARD

MDL.....METHOD DETECTION LIMIT
THE MINIMUM CONCENTRATION OF A SUBSTANCE THAT CAN BE MEASURED AND REPORTED WITH 99% CONFIDENCE THAT VALUE IS ABOVE ZERO. (Ref: SW-846 3rd. Ed.)

BDL.....BELOW DETECTION LIMIT
DETECTION LIMITS LISTED HEREIN ARE PROVIDED FOR GUIDANCE, AND MAY NOT ALWAYS BE ACHIEVABLE.

SUBURBAN LABORATORIES, INC.
4140 LITT DRIVE
HILLSIDE, ILLINOIS 60162

ANALYSIS OF ORGANIC CHEMICAL COMPOUNDS BY
GAS CHROMATOGRAPHY / ELECTRON CAPTURE DETECTOR
FINAL REPORT

S/L FILE NUMBER.....9-1975 CLIENT: ROY F. WESTON

GC/ECD SIGNAL FILE....A:07EF0225 SAMPLE:"P-11 2/20/89
Excavated Dirt "

FINAL REPORT BY: FDR

PH= 5.5

DATE RECEIVED: 02/21/89 DATE EXTRACTED: 02/21/89

Note: Upon visual review of the Total Ion Chromatogram, unidentified peaks were observed outside of those parameters which are listed below.

****

>>>>>>>>>>> POLYCHLORINATED BIPHENYLS (PCB'S) METHOD 8080 <<<<<<<<<<<<<

****

COMPOUND	MDL ug/kg	CAS NUMBER	PQL	SAMPLE CONC ug/kg (wet weight)
1.+d10-Anthracene				NI
1. PCB-1016	<1.00	12674-11-1	10.00	BDL
2. PCB-1221	<1.00	11104-28-2	10.00	BDL
3. PCB-1232	<1.00	11141-16-5	10.00	BDL
4. PCB-1242	<1.00	53469-21-9	10.00	BDL
5. PCB-1248	<1.00	12672-29-6	10.00	BDL
6. PCB-1254	<1.00	11097-69-1	10.00	BDL
7. PCB-1260	<1.00	11096-82-5	10.00	BDL

+.....INTERNAL STANDARD

MDL.....METHOD DETECTION LIMIT
THE MINIMUM CONCENTRATION OF A SUBSTANCE THAT CAN BE MEASURED AND REPORTED WITH 99% CONFIDENCE THAT VALUE IS ABOVE ZERO. (Ref: SW-846 3rd. Ed.)

BDL.....BELOW DETECTION LIMIT
DETECTION LIMITS LISTED HEREIN ARE PROVIDED FOR GUIDANCE, AND MAY NOT ALWAYS BE ACHIEVABLE.

SUBURBAN LABORATORIES, INC.
4140 LITT DRIVE
HILLSIDE, ILLINOIS 60162

ANALYSIS OF ORGANIC CHEMICAL COMPOUNDS BY
GAS CHROMATOGRAPHY / ELECTRON CAPTURE DETECTOR
FINAL REPORT

S/L FILE NUMBER.....9-1974 CLIENT: ROY F. WESTON

GC/ECD SIGNAL FILE....A:Q7EF1533 SAMPLE:"P-10 2/20/89
Excavated Dirt "

FINAL REPORT BY: FDR

PH= 5.5

DATE RECEIVED: 02/21/89 DATE EXTRACTED: 02/21/89

Note: Upon visual review of the Total Ion Chromatogram, unidentified peaks were observed outside of those parameters which are listed below.

****

>>>>>>>>>>> POLYCHLORINATED BIPHENYLS (PCB'S) METHOD 8080 <<<<<<<<<<<<<

****

COMPOUND	MDL ug/kg	CAS NUMBER	PQL	SAMPLE CONC ug/kg (wet weight)
1.+d10-Anthracene				NI
1. PCB-1016	<1.00	12674-11-1	10.00	BDL
2. PCB-1221	<1.00	11104-28-2	10.00	BDL
3. PCB-1232	<1.00	11141-16-5	10.00	BDL
4. PCB-1242	<1.00	53469-21-9	10.00	BDL
5. PCB-1248	<1.00	12672-29-6	10.00	BDL
6. PCB-1254	<1.00	11097-69-1	10.00	BDL
7. PCB-1260	<1.00	11096-82-5	10.00	BDL

+.....INTERNAL STANDARD

MDL.....METHOD DETECTION LIMIT
THE MINIMUM CONCENTRATION OF A SUBSTANCE THAT CAN BE MEASURED AND REPORTED WITH 99% CONFIDENCE THAT VALUE IS ABOVE ZERO. (Ref: SW-846 3rd. Ed.)

BDL.....BELOW DETECTION LIMIT
DETECTION LIMITS LISTED HEREIN ARE PROVIDED FOR GUIDANCE, AND MAY NOT ALWAYS BE ACHIEVABLE.

SUBURBAN LABORATORIES, INC.
4140 LITT DRIVE
HILLSIDE, ILLINOIS 60162

ANALYSIS OF ORGANIC CHEMICAL COMPOUNDS BY
GAS CHROMATOGRAPHY / ELECTRON CAPTURE DETECTOR
FINAL REPORT

S/L FILE NUMBER.....9-1973 CLIENT: ROY F. WESTON

GC/ECD SIGNAL FILE....A:Q7EF0D38 SAMPLE:"P-9 2/20/89 Dirt Pile "

FINAL REPORT BY: FDR

PH= 6.0

DATE RECEIVED: 02/21/89 DATE EXTRACTED: 02/21/89

Note: Upon visual review of the Total Ion Chromatogram, unidentified peaks were observed outside of those parameters which are listed below.

****

>>>>>>>>>>> POLYCHLORINATED BIPHENYLS (PCB'S) METHOD 8080 <<<<<<<<<<<<<

****

COMPOUND	MDL ug/kg	CAS NUMBER	PQL	SAMPLE CONC ug/kg (wet weight)
1.+d10-Anthracene				NI
1. PCB-1016	<1.00	12674-11-1	10.00	BDL
2. PCB-1221	<1.00	11104-28-2	10.00	BDL
3. PCB-1232	<1.00	11141-16-5	10.00	BDL
4. PCB-1242	<1.00	53469-21-9	10.00	BDL
5. PCB-1248	<1.00	12672-29-6	10.00	BDL
6. PCB-1254	<1.00	11097-69-1	10.00	BDL
7. PCB-1260	<1.00	11096-82-5	10.00	BDL

+.....INTERNAL STANDARD

MDL.....METHOD DETECTION LIMIT
THE MINIMUM CONCENTRATION OF A SUBSTANCE THAT CAN BE MEASURED AND REPORTED WITH 99% CONFIDENCE THAT VALUE IS ABOVE ZERO. (Ref: SW-846 3rd. Ed.)

BDL.....BELOW DETECTION LIMIT
DETECTION LIMITS LISTED HEREIN ARE PROVIDED FOR GUIDANCE, AND MAY NOT ALWAYS BE ACHIEVABLE.

SUBURBAN LABORATORIES, INC.
4140 LITT DRIVE
HILLSIDE, ILLINOIS 60162

ANALYSIS OF ORGANIC CHEMICAL COMPOUNDS BY
GAS CHROMATOGRAPHY / ELECTRON CAPTURE DETECTOR
FINAL REPORT

S/L FILE NUMBER.....9-1965 STD OF ADDITION CLIENT: ROY F. WESTON

GC/ECD SIGNAL FILE....A:07F04C94 SAMPLE:"P-1 2/20/89 Dirt Pile "

FINAL REPORT BY: FDR

PH= 6.5

DATE RECEIVED: 02/21/89 DATE EXTRACTED: 01/21/89

Note: Upon visual review of the Total Ion Chromatogram, unidentified peaks were observed outside of those parameters which are listed below.

****

>>>>>>>>>>> POLYCHLORINATED BIPHENYLS (PCB'S) METHOD 8080 <<<<<<<<<<<<

****

COMPOUND	MDL ug/kg	CAS NUMBER	PQL	AMOUNT ADDED ug/kg	AMOUNT RECVD ug/kg	PERCENT RECOVERY
1.+d10-Anthracene						
1. PCB-1016	<1.00	12674-11-1	10.00			
2. PCB-1221	<1.00	11104-28-2	10.00			
3. PCB-1232	<1.00	11141-16-5	10.00			
4. PCB-1242	<1.00	53469-21-9	10.00			
5. PCB-1248	<1.00	12672-29-6	10.00			
6. PCB-1254	<1.00	11097-69-1	10.00			
7. PCB-1260	<1.00	11096-82-5	10.00	15.00	17.00	110%

+.....INTERNAL STANDARD

MDL.....METHOD DETECTION LIMIT
THE MINIMUM CONCENTRATION OF A SUBSTANCE THAT CAN BE MEASURED AND REPORTED WITH 99% CONFIDENCE THAT VALUE IS ABOVE ZERO. (Ref: SW-846 3rd. Ed.)

BDL.....BELOW DETECTION LIMIT
DETECTION LIMITS LISTED HEREIN ARE PROVIDED FOR GUIDANCE, AND MAY NOT ALWAYS BE ACHIEVABLE.

SUBURBAN LABORATORIES, INC.
4140 LITT DRIVE
HILLSIDE, ILLINOIS 60162

ANALYSIS OF ORGANIC CHEMICAL COMPOUNDS BY
GAS CHROMATOGRAPHY / ELECTRON CAPTURE DETECTOR
FINAL REPORT

S/L FILE NUMBER.....9-1965 CLIENT: ROY F. WESTON

GC/ECD SIGNAL FILE....A:07EF1D99 SAMPLE:"P-1 2/20/89 Dirt Pile "

FINAL REPORT BY: FDR

PH= 6.5

DATE RECEIVED: 02/21/89 DATE EXTRACTED: 02/21/89

Note: Upon visual review of the Total Ion Chromatogram, unidentified peaks were observed outside of those parameters which are listed below.

****

>>>>>>>>>>> POLYCHLORINATED BIPHENYLS (PCB'S) METHOD 8080 <<<<<<<<<<<<<

****

COMPOUND	MDL ug/kg	CAS NUMBER	PQL	SAMPLE CONC ug/kg (wet weight)
1.+d10-Anthracene				NI
1. PCB-1016	<1.00	12674-11-1	10.00	BDL
2. PCB-1221	<1.00	11104-28-2	10.00	BDL
3. PCB-1232	<1.00	11141-16-5	10.00	BDL
4. PCB-1242	<1.00	53469-21-9	10.00	BDL
5. PCB-1248	<1.00	12672-29-6	10.00	BDL
6. PCB-1254	<1.00	11097-69-1	10.00	BDL
7. PCB-1260	<1.00	11096-82-5	10.00	BDL

+.....INTERNAL STANDARD

MDL.....METHOD DETECTION LIMIT
THE MINIMUM CONCENTRATION OF A SUBSTANCE THAT CAN BE MEASURED AND REPORTED WITH 99% CONFIDENCE THAT VALUE IS ABOVE ZERO. (Ref: SW-846 3rd. Ed.)

BDL.....BELOW DETECTION LIMIT
DETECTION LIMITS LISTED HEREIN ARE PROVIDED FOR GUIDANCE, AND MAY NOT ALWAYS BE ACHIEVABLE.

SUBURBAN LABORATORIES, INC.
4140 LITT DRIVE
HILLSIDE, ILLINOIS 60162

ANALYSIS OF ORGANIC CHEMICAL COMPOUNDS BY
GAS CHROMATOGRAPHY / ELECTRON CAPTURE DETECTOR
FINAL REPORT

S/L FILE NUMBER.....9-1965 DUP. CLIENT: ROY F. WESTON

GC/ECD SIGNAL FILE....A:Q7F01FD5 SAMPLE:"P-1 2/20/89 Dirt Pile "

FINAL REPORT BY: FDR

PH= 6.5

DATE RECEIVED: 02/21/89 DATE EXTRACTED: 01/21/89

Note: Upon visual review of the Total Ion Chromatogram, unidentified peaks were observed outside of those parameters which are listed below.

****

>>>>>>>>>>> POLYCHLORINATED BIPHENYLS (PCB'S) METHOD 8080 <<<<<<<<<<<<

****

COMPOUND	MDL ug/kg	CAS NUMBER	PQL	SAMPLE CONC ug/kg (wet weight)
1.+d10-Anthracene				NI
1. PCB-1016	<1.00	12674-11-1	10.00	BDL
2. PCB-1221	<1.00	11104-28-2	10.00	BDL
3. PCB-1232	<1.00	11141-16-5	10.00	BDL
4. PCB-1242	<1.00	53469-21-9	10.00	BDL
5. PCB-1248	<1.00	12672-29-6	10.00	BDL
6. PCB-1254	<1.00	11097-69-1	10.00	BDL
7. PCB-1260	<1.00	11096-82-5	10.00	BDL

+.....INTERNAL STANDARD

MDL.....METHOD DETECTION LIMIT
THE MINIMUM CONCENTRATION OF A SUBSTANCE THAT CAN BE MEASURED AND REPORTED WITH 99% CONFIDENCE THAT VALUE IS ABOVE ZERO. (Ref: SW-846 3rd. Ed.)

BDL.....BELOW DETECTION LIMIT
DETECTION LIMITS LISTED HEREIN ARE PROVIDED FOR GUIDANCE, AND MAY NOT ALWAYS BE ACHIEVABLE.

SUBURBAN LABORATORIES, INC.
4140 LITT DRIVE
HILLSIDE, ILLINOIS 60162

ANALYSIS OF ORGANIC CHEMICAL COMPOUNDS BY
GAS CHROMATOGRAPHY / ELECTRON CAPTURE DETECTOR
FINAL REPORT

S/L FILE NUMBER.....BLANK EXT. CLIENT: ROY F. WESTON

GC/ECD SIGNAL FILE....A:D7F02811 SAMPLE:

FINAL REPORT BY: FDR

PH=

DATE RECEIVED: -------- DATE EXTRACTED: --------

Note: Upon visual review of the Total Ion Chromatogram, unidentified peaks were observed outside of those parameters which are listed below.

****

>>>>>>>>>>> POLYCHLORINATED BIPHENYLS (PCB'S) METHOD 8080 <<<<<<<<<<<<

****

COMPOUND	MDL ug/kg	CAS NUMBER	PQL	SAMPLE CONC ug/kg (wet weight)
1.+d10-Anthracene				NI
1. PCB-1016	<1.00	12674-11-1	10.00	BDL
2. PCB-1221	<1.00	11104-28-2	10.00	BDL
3. PCB-1232	<1.00	11141-16-5	10.00	BDL
4. PCB-1242	<1.00	53469-21-9	10.00	BDL
5. PCB-1248	<1.00	12672-29-6	10.00	BDL
6. PCB-1254	<1.00	11097-69-1	10.00	BDL
7. PCB-1260	<1.00	11096-82-5	10.00	BDL

+.....INTERNAL STANDARD

MDL.....METHOD DETECTION LIMIT
THE MINIMUM CONCENTRATION OF A SUBSTANCE THAT CAN BE MEASURED AND REPORTED WITH 99% CONFIDENCE THAT VALUE IS ABOVE ZERO. (Ref: SW-846 3rd. Ed.)

BDL.....BELOW DETECTION LIMIT
DETECTION LIMITS LISTED HEREIN ARE PROVIDED FOR GUIDANCE, AND MAY NOT ALWAYS BE ACHIEVABLE.

Telephone (312) 544-3260
FAX (312) 544-8587

SUBURBAN LABORATORIES, Inc.

4140 LITT DRIVE HILLSIDE, ILLINOIS 60162 - 1183

EARL I. ROSENBERG
President

H.R. THOMAS, JR.
Director

RECEIVED

MAT REG V

March 8, 1989

Ms. Melody Sullivan
ROY F. WESTON / SPER DIVISION
111 North Canal Street
8th Floor Suite 855
Chicago, Illinois 60606

Dear Ms. Sullivan:

In our analysis of Weston samples S/L #9-1965 to 9-1975, we reported S/L #9-1971 as being positive for PCB 1260, but that sample required confirmation. Our confirmation procedure involves both re-extraction of the sample and re-analysis. This procedure was followed and the results were negative. Because this difference the sample was then extracted and analyzed a third time, and again, the results were negative.

It is our conclusion that the initial sample was contaminated at some point in the analysis and that S/L #9-1971 is negative for PCB's. Enclosed is the corrected finaal report.

If I can be of any further assistence, please do not hesitate to contact me.

Sincerely,

Lazaro Lopez, Jr.
Associate Director

Members of American Society of Mass Spectrometry • American Chemical Society • American Society for Microbiology
Water Pollution Control Federation • Institute of Food Technology • Certifications: U.S.D.A. #1783 • Ill. Dept. of Public Health #17135
Amer. Spice Trade Assn. • F.D.A. Reg. #1419676 • Ill. EPA #100225 • Wis. DNR #999318210

SUBURBAN LABORATORIES, INC.
4140 LITT DRIVE
HILLSIDE, ILLINOIS 60162

ANALYSIS OF ORGANIC CHEMICAL COMPOUNDS BY
GAS CHROMATOGRAPHY / ELECTRON CAPTURE DETECTOR
FINAL REPORT

S/L FILE NUMBER.....9-1971 CLIENT: ROY F. WESTON, INC.

GC/ECD SIGNAL FILE....A:Q7F596C8 SAMPLE:" P-7 2/20/89 Excavated Dirt "

FINAL REPORT BY: FDR

PH= 6.5

DATE RECEIVED: 02/21/89 DATE EXTRACTED: 02/21/89

Note: Upon visual review of the Total Ion Chromatogram, unidentified peaks were observed outside of those parameters which are listed below.

****

>>>>>>>>>>> POLYCHLORINATED BIPHENYLS (PCB'S) METHOD 608 <<<<<<<<<<<<<<

****

COMPOUND	MDL ug/l	CAS NUMBER	SAMPLE CONC ug/l
1.+d10-Anthracene			185.00
1. PCB-1016	<1.00	12674-11-1	BDL
2. PCB-1221	<1.00	11104-28-2	BDL
3. PCB-1232	<1.00	11141-16-5	BDL
4. PCB-1242	<1.00	53469-21-9	BDL
5. PCB-1248	<1.00	12672-29-6	BDL
6. PCB-1254	<1.00	11097-69-1	BDL
7. PCB-1260	<1.00	11096-82-5	BDL

+.....INTERNAL STANDARD

MDL.....METHOD DETECTION LIMIT
THE MINIMUM CONCENTRATION OF A SUBSTANCE THAT CAN BE MEASURED AND REPORTED WITH 99% CONFIDENCE THAT VALUE IS ABOVE ZERO. (Ref: SW-846 3rd. Ed.)

BDL.....BELOW DETECTION LIMIT
DETECTION LIMITS LISTED HEREIN ARE PROVIDED FOR GUIDANCE, AND MAY NOT ALWAYS BE ACHIEVABLE.

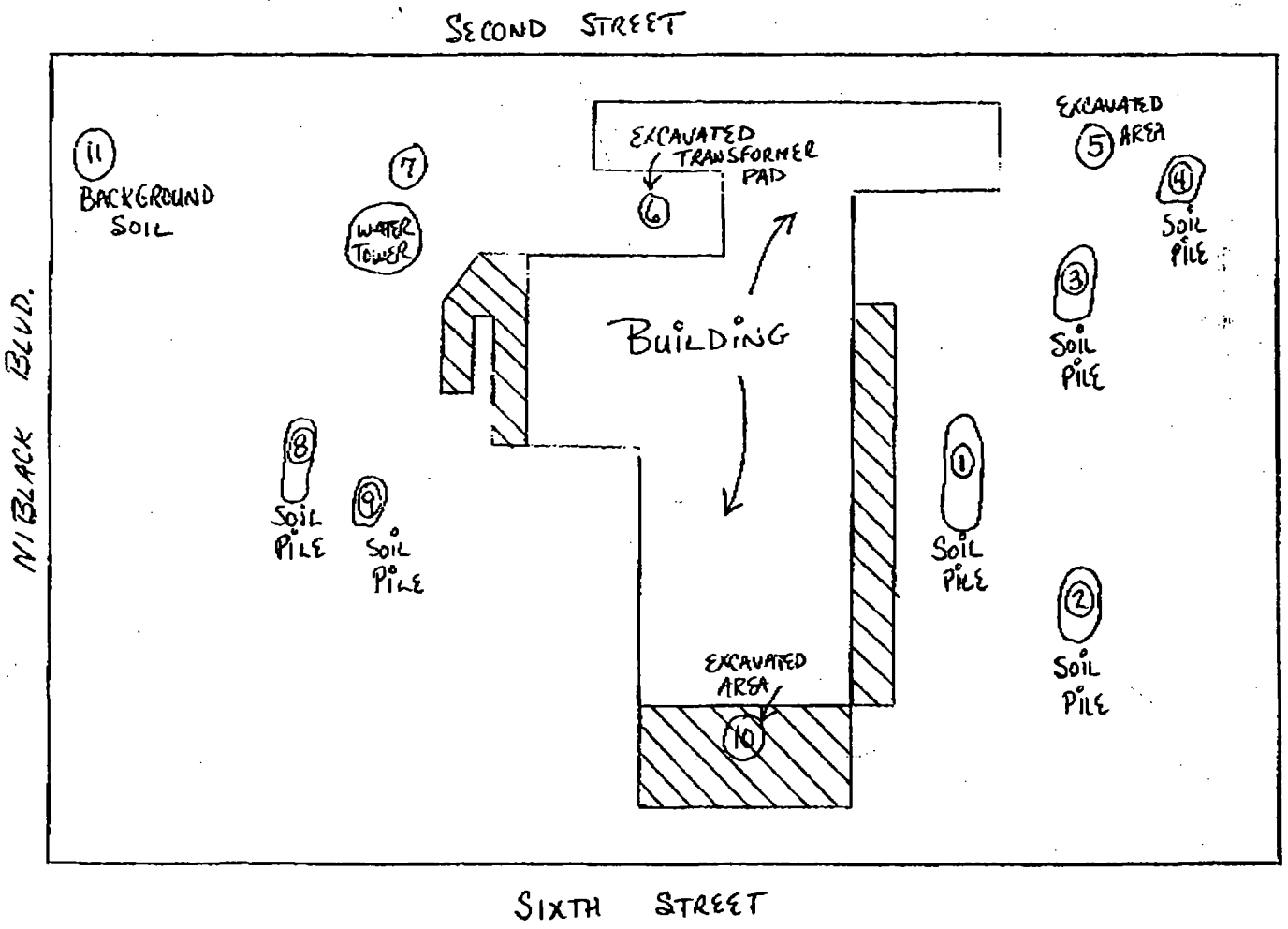
GC PARAMETERS: SPB-608 FUSED SILICA CAPILLARY COLUMN 30m x 0.25mm; ID FILM THICKNESS: 0.25um; COL. TMP.: HOLD 4 min. AT 150'C, THEN TO 290'C AT 8'C/min.; MAKE-UP GAS: NITROGEN 60ml/min.; DET.: ECD; SPLIT RATIO: 5:1

REV. 4/88

PRESOLITE BATTERY SITE

VINCENNES, IND.

SOIL SAMPLING LOCATION MAP



(*) SOIL SAMPLE LOCATION

EXCAVATED AREA

SITE AREA = 17.5 ACRES

MAP SCALE

ONE INCH = 155 FEET

N

SOIL SAMPLING DATE: 02/20/89

N.
N.R

WESTON
MANAGERS DESIGNERS/CONSULTANTS

SHEET ____ of ____

CLIENT/SUBJECT _____ W.O. NO. _____

TASK DESCRIPTION _____ TASK NO. _____

PREPARED BY _____ DEPT _____ DATE _____

MATH CHECK BY _____ DEPT _____ DATE _____

METHOD REV. BY _____ DEPT _____ DATE _____

APPROVED BY _____

DEPT _____ DATE _____

Contaminants - lead, PCB's, high impact from soil by aquatic min.
1987 no G.W cont

Fac - 1945 made lead acid batt
Lease 3-6-85 inactive 5-1985

N Plant Op - lead 3PbOxidis, $PbSO_4$, & $PbSO_4$
wastes
air contaminated with lead

Soil cont by airborn
3000

Location 38° 41.5 min north 87° 30.1 min west
18 acres size 430 ft about 51
enclosed by 8 ft high chain link fence

Aquatic comp ou wash sand gravel
deposits
possible effect on ½ on Waters
& wetlands

Map & Site Map

Feb - march
lead 1985

RFW 10-05-003/A-5/85

N
2/23/89

Telephone (312) 544-3260
FAX (312) 544-8587

SUBURBAN LABORATORIES, Inc.

4140 LITT DRIVE HILLSIDE, ILLINOIS 60162 - 1183

EARL I. ROSENBERG
President

H.R. THOMAS, JR.
Director

February 23, 1989

Roy F. Weston, Inc.
Sper Division
River Center
111 North Canal Street
8th Floor, Suite #855
Chicago, Illinois 60606

RECEIVED
FEB 24 1989
TAT REG V

Attention: Ms. Melody Sullivan

Re: P.O. #22738

Samples Received: 2/21/89	Lead (mg/l) mg/kg
S/L #9-1965 - Dirt Pile Sample P-1, 2/20/89	< 0.10
S/L #9-1966 - Dirt Pile Sample P-2, 2/20/89	0.16
S/L #9-1967 - Dirt Pile Sample P-3, 2/20/89	85.6
S/L #9-1968 - Dirt Pile Sample P-4, 2/20/89	0.29
S/L #9-1969 - Excavated Dirt Sample P-5, 2/20/89	< 0.10
S/L #9-1970 - Excavated Dirt Sample P-6, 2/20/89	< 0.10
S/L #9-1971 - Excavated Dirt Sample P-7, 2/20/89	< 0.10
S/L #9-1972 - Dirt Pile Smaple P-8, 2/20/89	< 0.10
S/L #9-1973 - Dirt Pile Sample P-9, 2/20/89	0.31
S/L #9-1974 - Excavated Dirt Sample P-10, 2/20/89	0.12
S/L #9-1975 - Excavated Dirt Sample P-11, 2/20/89	0.22

< = less than

Data biased low, all data estimated.

Ken Chin 2/24

ANALYSIS CERTIFIED BY: _____ Director (HRT/ck)

Members of American Society of Mass Spectrometry • American Chemical Society • American Society for Microbiology
Water Pollution Control Federation • Institute of Food Technology • Certifications: U.S.D.A. #1783 • Ill. Dept. of Public Health #17135
Amer. Spice Trade Assn. • F.D.A. Reg. #1419676 • Ill. EPA #100225 • Wis. DNR #999318210

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

89WT03

REGION 5
230 South Dearborn Street
Chicago, Illinois 60604

CHAIN OF CUSTODY RECORD

PROJ. NO.: 2149

PROJECT NAME:

SAMPLERS: (Signature) George Cello

	STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	PCB's	EP Tox/Lead					REMARKS EPA TAG #
S-34	P-1	2/20/89	1310		X	dirt pile	1-8oz	X	X					5-172401
S-35	P-2		1320		X	dirt pile		X	X					5-172402
S-36	P-3		1325		X	dirt pile		X	X					5-172403
S-37	P-4		1330		X	dirt pile		X	X					5-87885
S-38	P-5		1335		X	excavated dirt		X	X					5-172408
S-39	P-6		1340		X	excavated dirt		X	X					5-172409
S-40	P-7		1345		X	excavated dirt		X	X					5-172410
S-41	P-8		1350		X	dirt pile		X	X					5-172411
S-42	P-9		1355		X	dirt pile		X	X					5-172412
S-43	P-10		1400		X	excavated dirt		X	X					5-172413
S-44	P-11		1405		X	excavated dirt		X	X					5-172414

RESULTS TO: ROY F. WESTON
111 N CANAL SUITE 855
CHICAGO IL 60606

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
George Cello	2/20/89 1050	Thomas A Evans		2/21 1145	Ken Shelnd
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 SUBURBAN LAB 4140 LITT DRIVE HILLSIDE IL 60162 312/544-3260	ATTN: RAY THOMAS

Distribution: White — Accompanies Shipment; Pink — Coordinator Field Files; Yellow — Laboratory File

Telephone (312) 544-3260
FAX (312) 544-8587

SUBURBAN LABORATORIES, Inc.

4140 LITT DRIVE HILLSIDE, ILLINOIS 60162 - 1183

EARL I. ROSENBERG
President

H.R. THOMAS, JR.
Director

February 23, 1989

Roy F. Weston, Inc.
Sper Division
River Center
111 North Canal Street
8th Floor, Suite #855
Chicago, Illinois 60606

RECEIVED
FEB 24 1989
TAT REG V

Attention: Ms. Melody Sullivan

Re: P.O. #22738

Samples Received: 2/21/89	Lead (mg/l) mg/kg
S/L #9-1965 - Dirt Pile Sample P-1, 2/20/89	< 0.10
S/L #9-1966 - Dirt Pile Sample P-2, 2/20/89	0.16
S/L #9-1967 - Dirt Pile Sample P-3, 2/20/89	85.6
S/L #9-1968 - Dirt Pile Sample P-4, 2/20/89	0.29
S/L #9-1969 - Excavated Dirt Sample P-5, 2/20/89	< 0.10
S/L #9-1970 - Excavated Dirt Sample P-6, 2/20/89	< 0.10
S/L #9-1971 - Excavated Dirt Sample P-7, 2/20/89	< 0.10
S/L #9-1972 - Dirt Pile Smaple P-8, 2/20/89	< 0.10
S/L #9-1973 - Dirt Pile Sample P-9, 2/20/89	0.31
S/L #9-1974 - Excavated Dirt Sample P-10, 2/20/89	0.12
S/L #9-1975 - Excavated Dirt Sample P-11, 2/20/89	0.22

< = less than

Data biased low, all data estimated.

Ken Chin 2/24

ANALYSIS CERTIFIED BY: _____ Director (HRT/ck)

Members of American Society of Mass Spectrometry • American Chemical Society • American Society for Microbiology
Water Pollution Control Federation • Institute of Food Technology • Certifications: U.S.D.A. #1783 • Ill. Dept. of Public Health #17135
Amer. Spice Trade Assn. • F.D.A. Reg. #1419676 • Ill. EPA #100225 • Wis. DNR #999318210

SUBURBAN LABORATORIES, INC.
4140 LITT DRIVE
HILLSIDE, ILLINOIS 60162

ANALYSIS OF ORGANIC CHEMICAL COMPOUNDS BY
GAS CHROMATOGRAPHY / ELECTRON CAPTURE DETECTOR
FINAL REPORT

S/L FILE NUMBER.....9-1966 CLIENT: ROY F. WESTON

GC/ECD SIGNAL FILE....A:Q7EEE416 SAMPLE:"P-4 2/20/89 Dirt Pile "

FINAL REPORT BY: FDR

PH= 6.5

DATE RECEIVED: 02/21/89 DATE EXTRACTED: 02/21/89

Note: Upon visual review of the Total Ion Chromatogram, unidentified peaks were observed outside of those parameters which are listed below.

****

>>>>>>>>>>> POLYCHLORINATED BIPHENYLS (PCB'S) METHOD 8080 <<<<<<<<<<<

****

COMPOUND	MDL ug/kg	CAS NUMBER	PQL	SAMPLE CONC ug/l (wet weight)
1.+d10-Anthracene				NI
1. PCB-1016	<1.00	12674-11-1	10.00	BDL
2. PCB-1221	<1.00	11104-28-2	10.00	BDL
3. PCB-1232	<1.00	11141-16-5	10.00	BDL
4. PCB-1242	<1.00	53469-21-9	10.00	BDL
5. PCB-1248	<1.00	12672-29-6	10.00	BDL
6. PCB-1254	<1.00	11097-69-1	10.00	BDL
7. PCB-1260	<1.00	11096-82-5	10.00	BDL

+.....INTERNAL STANDARD

MDL.....METHOD DETECTION LIMIT
THE MINIMUM CONCENTRATION OF A SUBSTANCE THAT CAN BE MEASURED AND REPORTED WITH 99% CONFIDENCE THAT VALUE IS ABOVE ZERO. (Ref: SW-846 3rd. Ed.)

BDL.....BELOW DETECTION LIMIT
DETECTION LIMITS LISTED HEREIN ARE PROVIDED FOR GUIDANCE, AND MAY NOT ALWAYS BE ACHIEVABLE.

SUBURBAN LABORATORIES, INC.
4140 LITT DRIVE
HILLSIDE, ILLINOIS 60162

ANALYSIS OF ORGANIC CHEMICAL COMPOUNDS BY
GAS CHROMATOGRAPHY / ELECTRON CAPTURE DETECTOR
FINAL REPORT

S/L FILE NUMBER.....9-1967 CLIENT: ROY F. WESTON

GC/ECD SIGNAL FILE....A:G7FEDR05 SAMPLE:"P-3 2/20/89 Dirt Pile "

FINAL REPORT BY: FDR

PH= 5.5

DATE RECEIVED: 02/21/89 DATE EXTRACTED: 02/21/89

Note: Upon visual review of the Total Ion Chromatogram, unidentified peaks were observed outside of those parameters which are listed below.

****

>>>>>>>>>> POLYCHLORINATED BIPHENYLS (PCB'S) METHOD 8080 <<<<<<<<<<<<

****

COMPOUND	MDL ug/kg	CAS NUMBER	PQL	SAMPLE CONC ug/kg (wet weight)
+5,10-Anthracene				NI
1. PCB-1016	<1.00	12674-11-1	10.00	BDL
2. PCB-1221	<1.00	11104-28-2	10.00	BDL
3. PCB-1232	<1.00	11141-16-5	10.00	BDL
4. PCB-1242	<1.00	53469-21-9	10.00	BDL
5. PCB-1248	<1.00	12672-29-6	10.00	BDL
6. PCB-1254	<1.00	11097-69-1	10.00	BDL
7. PCB-1260	<1.00	11096-82-5	10.00	BDL

+.....INTERNAL STANDARD

MDL.....METHOD DETECTION LIMIT
THE MINIMUM CONCENTRATION OF A SUBSTANCE THAT CAN BE MEASURED AND REPORTED WITH 99% CONFIDENCE THAT VALUE IS ABOVE ZERO. (Ref: SW-846 3rd. Ed.)

BDL.....BELOW DETECTION LIMIT
DETECTION LIMITS LISTED HEREIN ARE PROVIDED FOR GUIDANCE, AND MAY NOT ALWAYS BE ACHIEVABLE.

SUBURBAN LABORATORIES, INC.
4140 LITT DRIVE
HILLSIDE, ILLINOIS 60162

ANALYSIS OF ORGANIC CHEMICAL COMPOUNDS BY
GAS CHROMATOGRAPHY / ELECTRON CAPTURE DETECTOR
FINAL REPORT

S/L FILE NUMBER.....9-196[illegible] CLIENT: R[illegible] F. WESTON

GC/ECD SIGNAL FILE....A:D7[illegible] SAMPLE:"P-2 2/20/89 Dirt Pile "

FINAL REPORT BY: FDR

PH= 6.0

DATE RECEIVED: 02/21/89 DATE EXTRACTED: 02/21/89

Note: Upon visual review of the Total Ion Chromatogram, unidentified peaks were observed outside of those parameters which are listed below.

****

>>>>>>>>>> POLYCHLORINATED BIPHENYLS (PCB'S) METHOD 8080 <<<<<<<<<<

****

COMPOUND	MDL ug/kg	CAS NUMBER	RDL	SAMPLE LOD ug/kg (wet weight)
[illegible]				NI
1. PCB-1016.....	<1.00	12674-11-1	10.00	BDL
2. PCB-1221.....	<1.00	11104-28-2	10.00	BDL
3. PCB-1232.....	<1.00	11141-16-5	10.00	BDL
4. PCB-1242.....	<1.00	53469-21-9	10.00	BDL
5. PCB-1248.....	<1.00	12672-29-6	10.00	BDL
6. PCB-1254.....	<1.00	11097-69-1	10.00	BDL
7. PCB-1260.....	<1.00	11096-82-5	10.00	BDL

+.....INTERNAL STANDARD

MDL.....METHOD DETECTION LIMIT
THE MINIMUM CONCENTRATION OF A SUBSTANCE THAT CAN BE MEASURED AND REPORTED WITH 99% CONFIDENCE THAT VALUE IS ABOVE ZERO. (Ref: SW-846 3rd. Ed.)

BDL.....BELOW DETECTION LIMIT
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SUBURBAN LABORATORIES, INC.
4140 LITT DRIVE
HILLSIDE, ILLINOIS 60162

ANALYSIS OF ORGANIC CHEMICAL COMPOUNDS BY
GAS CHROMATOGRAPHY / ELECTRON CAPTURE DETECTOR
FINAL REPORT

S/L FILE NUMBER.....9-1969 CLIENT: ROY F. WESTON

GC/ECD SIGNAL FILE....A:Q7EEF4BD SAMPLE:"P-5 2/20/89
Excavated Dirt "

FINAL REPORT BY: FDR

PH= 6.0

DATE RECEIVED: 02/21/89 DATE EXTRACTED: 02/21/89

Note: Upon visual review of the Total Ion Chromatogram, unidentified peaks were observed outside of those parameters which are listed below.

****

>>>>>>>>>>>> POLYCHLORINATED BIPHENYLS (PCB'S) METHOD 8080 <<<<<<<<<<<<<

****

COMPOUND	MDL ug/kg	CAS NUMBER	PDL	SAMPLE CONC ug/kg (wet weight)
1.+d10-Anthracene				NI
1. PCB-1016	<1.00	12674-11-1	10.00	BDL
2. PCB-1221	<1.00	[illegible]	10.00	BDL
3. PCB-1232	<1.00	11141-16-5	10.00	BDL
4. PCB-1242	<1.00	53469-21-9	10.00	BDL
5. PCB-1248	<1.00	12672-29-6	10.00	BDL
6. PCB-1254	<1.00	11097-69-1	10.00	BDL
7. PCB-1260	<1.00	11096-82-5	10.00	BDL

+.....INTERNAL STANDARD

MDL.....METHOD DETECTION LIMIT
THE MINIMUM CONCENTRATION OF A SUBSTANCE THAT CAN BE MEASURED AND REPORTED WITH 99% CONFIDENCE THAT VALUE IS ABOVE ZERO. (Ref: SW-846 3rd. Ed.)

BDL.....BELOW DETECTION LIMIT
DETECTION LIMITS LISTED HEREIN ARE PROVIDED FOR GUIDANCE, AND MAY NOT ALWAYS BE ACHIEVABLE.

SUBURBAN LABORATORIES, INC.
4140 LITT DRIVE
HILLSIDE, ILLINOIS 60162

ANALYSIS OF ORGANIC CHEMICAL COMPOUNDS BY
GAS CHROMATOGRAPHY / ELECTRON CAPTURE DETECTOR
FINAL REPORT

S/L FILE NUMBER.....9-1965 STD OF ADDITION CLIENT: ROY F. WESTON

GC/ECD SIGNAL FILE....A:07FU4C94 SAMPLE:"P-1 2/20/89 Dirt Pile "

FINAL REPORT BY: FDR

PH= 6.5

DATE RECEIVED: 01/21/89 DATE EXTRACTED: 01/21/89

Note: Upon visual review of the Total Ion Chromatogram, unidentified peaks were observed outside of those parameters which are listed below.

****

[illegible] POLYCHLORINATED BIPHENYLS [illegible] METHOD 8080 [illegible]

****

COMPOUND	MDL ug/kg	CAS NUMBER	RDL	AMOUNT ADDED ug/kg	AMOUNT RECOVERED ug/kg	PERCENT RECOVERY
1.+d10-Anthracene						
1. PCB-1016	<1.00	12674-11-1	10.00			
2. PCB-1221	<1.00	11104-28-2	10.00			
3. PCB-1232	<1.00	11141-16-5	10.00			
4. PCB-1242	<1.00	53469-21-9	10.00			
5. PCB-1248	<1.00	12672-29-6	10.00			
6. PCB-1254	<1.00	11097-69-1	10.00			
7. PCB-1260	<1.00	11096-82-5	10.00	15.00	17.00	110%

+.....INTERNAL STANDARD

MDL.....METHOD DETECTION LIMIT
THE MINIMUM CONCENTRATION OF A SUBSTANCE THAT CAN BE MEASURED AND REPORTED WITH 99% CONFIDENCE THAT VALUE IS ABOVE ZERO. (Ref: SW-846 3rd. Ed.)

BD .....BELOW DETECTION LIMIT
DETECTION LIMITS LISTED HEREIN ARE PROVIDED FOR GUIDANCE, AND MAY NOT ALWAYS BE ACHIEVABLE.

SUBURBAN LABORATORIES, INC.
4145 LITT DRIVE
HILLSIDE, ILLINOIS 60162

ANALYSIS OF ORGANIC CHEMICAL COMPOUNDS BY
GAS CHROMATOGRAPHY / ELECTRON CAPTURE DETECTOR
FINAL REPORT

S/L FILE NUMBER.....9-1965 CLIENT: ROY F. WESTON

GC/ECD SIGNAL FILE....A:07FF1099 SAMPLE:"P-1 2/20/89 Dirt Pile "

FINAL REPORT BY: FDR

PH= 6.5

DATE RECEIVED: 02/21/89 DATE EXTRACTED: 02/21/89

Note: Upon visual review of the Total Ion Chromatogram, unidentified peaks were observed outside of those parameters which are listed below.

****

>>>>>>>>>> POLYCHLORINATED BIPHENYLS (PCB'S) METHOD 8080 <<<<<<<<<<<<<

****

COMPOUND	MDL ug/kg	CAS NUMBER	PQL	SAMPLE CONC ug/kg (wet weight)
1.+d10-Anthracene				NI
1. PCB-1016	<1.00	12674-11-1	10.00	BDL
2. PCB-1221	<1.00	11104-28-2	10.00	BDL
3. PCB-1232	<1.00	11141-16-5	10.00	BDL
4. PCB-1242	<1.00	53469-21-9	10.00	BDL
5. PCB-1248	<1.00	12672-29-6	10.00	BDL
6. PCB-1254	<1.00	11097-69-1	10.00	BDL
7. PCB-1260	<1.00	11096-82-5	10.00	BDL

+.....INTERNAL STANDARD

MDL.....METHOD DETECTION LIMIT
THE MINIMUM CONCENTRATION OF A SUBSTANCE THAT CAN BE MEASURED AND REPORTED WITH 99% CONFIDENCE THAT VALUE IS ABOVE ZERO. (Ref: SW-846 3rd. Ed.)

BDL.....BELOW DETECTION LIMIT
DETECTION LIMITS LISTED HEREIN ARE PROVIDED FOR GUIDANCE, AND MAY NOT ALWAYS BE ACHIEVABLE.

SUBURBAN LABORATORIES, INC.
4140 LITT DRIVE
HILLSIDE, ILLINOIS 60162

ANALYSIS OF ORGANIC CHEMICAL COMPOUNDS BY
GAS CHROMATOGRAPHY / ELECTRON CAPTURE DETECTOR
FINAL REPORT

S/L FILE NUMBER.....9-1965 DUP. CLIENT: ROY F. WESTON

GC/ECD SIGNAL FILE....A:Q7F01FD5 SAMPLE:"P-1 2/20/89 Dirt Pile "

FINAL REPORT BY: FDR

PH= 6.5

DATE RECEIVED: 02/21/89 DATE EXTRACTED: 01/21/89

Note: Upon visual review of the Total Ion Chromatogram, unidentified peaks were observed outside of those parameters which are listed below.

****

>>>>>>>>>>> POLYCHLORINATED BIPHENYLS (PCB'S) METHOD 8080 <<<<<<<<<<<

****

COMPOUND	MDL ug/kg	CAS NUMBER	F...	SAMPLE CON ug/kg (wet weight)
1.+d10-Anthracene				NI
1. PCB-1016	<1.00	12674-11-1	10.00	BDL
2. PCB-1221	<1.00	11104-28-2	10.00	BDL
3. PCB-1232	<1.00	11141-16-5	10.00	BDL
4. PCB-1242	<1.00	53469-21-9	10.00	BDL
5. PCB-1248	<1.00	12672-29-6	10.00	BDL
6. PCB-1254	<1.00	11097-69-1	10.00	BDL
7. PCB-1260	<1.00	11096-82-5	10.00	BDL

+.....INTERNAL STANDARD

MDL.....METHOD DETECTION LIMIT
THE MINIMUM CONCENTRATION OF A SUBSTANCE THAT CAN BE MEASURED AND REPORTED WITH 99% CONFIDENCE THAT VALUE IS ABOVE ZERO. (Ref: SW-846 3rd. Ed.)

BDL.....BELOW DETECTION LIMIT
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SUBURBAN LABORATORIES, INC.
4140 LITT DRIVE
HILLSIDE, ILLINOIS 60162

ANALYSIS OF ORGANIC CHEMICAL COMPOUNDS BY
GAS CHROMATOGRAPHY / ELECTRON CAPTURE DETECTOR
FINAL REPORT

S/L FILE NUMBER.....BLANK EXT. CLIENT: ROY F. WESTON

STORED SIGNAL FILE....A:07F02811 SAMPLE:

FINAL REPORT BY: FDR

PH=

DATE RECEIVED: -------- DATE EXTRACTED: --------

Note: Upon visual review of the Total Ion Chromatogram, unidentified peaks were observed outside of those parameters which are listed below.

****

>>>>>>>>>> POLYCHLORINATED BIPHENYLS (PCB'S) METHOD 8080 <<<<<<<<<<<<

****

COMPOUND	MDL ug/kg	CAS NUMBER	PDL	SAMPLE CONC ug/kg (wet weight)
1.+d10-Anthracene				NI
1. PCB-1016	<1.00	12674-11-1	10.00	BDL
2. PCB-1221	<1.00	11104-28-2	10.00	BDL
3. PCB-1232	<1.00	11141-16-5	10.00	BDL
4. PCB-1242	<1.00	53469-21-9	10.00	BDL
5. PCB-1248	<1.00	12672-29-6	10.00	BDL
6. PCB-1254	<1.00	11097-69-1	10.00	BDL
7. PCB-1260	<1.00	11096-82-5	10.00	BDL

+.....INTERNAL STANDARD

MDL.....METHOD DETECTION LIMIT
THE MINIMUM CONCENTRATION OF A SUBSTANCE THAT CAN BE MEASURED AND REPORTED WITH 99% CONFIDENCE THAT VALUE IS ABOVE ZERO. (Ref: SW-846 3rd. Ed.)

BDL.....BELOW DETECTION LIMIT
DETECTION LIMITS LISTED HEREIN ARE PROVIDED FOR GUIDANCE, AND MAY NOT ALWAYS BE ACHIEVABLE.

SUBURBAN LABORATORIES, INC.
4140 LITT DRIVE
HILLSIDE, ILLINOIS 60162

ANALYSIS OF ORGANIC CHEMICAL COMPOUNDS BY
GAS CHROMATOGRAPHY / ELECTRON CAPTURE DETECTOR
FINAL REPORT

S/L FILE NUMBER.....9-1975 CLIENT: ROY F. WESTON

GC/ECD SIGNAL FILE....A:GCFED225 SAMPLE:"P-11 2/20/89
Excavated Dirt "

FINAL REPORT BY: FDR

PH= 5.5

DATE RECEIVED: 02/21/89 DATE EXTRACTED: 02/21/89

Note: Upon visual review of the Total Ion Chromatogram, unidentified peaks were observed outside of those parameters which are listed below.

****

>>>>>>>>>> POLYCHLORINATED BIPHENYLS (PCB'S) METHOD 8080 <<<<<<<<<<<<<

****

COMPOUND	MDL ug/kg	CAS NUMBER	RDL	SAMPLE CONC ug/kg (wet weight)
1.+810-Anthracene.....				NI
1. PCB-1016.....	<1.00	12674-11-1	10.00	BDL
2. PCB-1221.....	<1.00	11104-28-2	10.00	BDL
3. PCB-1232.....	<1.00	11141-16-5	10.00	BDL
4. PCB-1242.....	<1.00	53469-21-9	10.00	BDL
5. PCB-1248.....	<1.00	12672-29-6	10.00	BDL
6. PCB-1254.....	<1.00	11097-69-1	10.00	BDL
7. PCB-1260.....	<1.00	11096-82-5	10.00	BDL

+.....INTERNAL STANDARD

MDL.....METHOD DETECTION LIMIT
THE MINIMUM CONCENTRATION OF A SUBSTANCE THAT CAN BE MEASURED AND REPORTED WITH 99% CONFIDENCE THAT VALUE IS ABOVE ZERO. (Ref: SW-846 3rd. Ed.)

RDL.....BELOW DETECTION LIMIT
DETECTION LIMITS LISTED HEREIN ARE PROVIDED FOR GUIDANCE, AND MAY NOT ALWAYS BE ACHIEVABLE.

SUBURBAN LABORATORIES, INC.
4140 LITT DRIVE
HILLSIDE, ILLINOIS 60162

ANALYSIS OF ORGANIC CHEMICAL COMPOUNDS BY
GAS CHROMATOGRAPHY / ELECTRON CAPTURE DETECTOR
FINAL REPORT

S/L FILE NUMBER.....9-1974 CLIENT: ROY F. WESTON

GC/ECD SIGNAL FILE....A:07EF1533 SAMPLE:"P-10 2/20/89
Excavated Dirt "

FINAL REPORT BY: FDR

PH= 5.5

DATE RECEIVED: 02/21/89 DATE EXTRACTED: 02/21/89

Note: Upon visual review of the Total Ion Chromatogram, unidentified peaks were observed outside of those parameters which are listed below.

****

POLYCHLORINATED BIPHENYLS (PCB'S) METHOD 8080 <<<<<<<<<<<<<<

****

COMPOUNDS	MDL ug/kg	CAS NUMBER	RDL	SAMPLE CONC ug/kg (wet weight)
1.+d10-Anthracene.....				NI
1. PCB-1016.....	<1.00	12674-11-1	10.00	BDL
2. PCB-1221.....	<1.00	11104-28-2	10.00	BDL
3. PCB-1232.....	<1.00	11141-16-5	10.00	BDL
4. PCB-1242.....	<1.00	53469-21-9	10.00	BDL
5. PCB-1248.....	<1.00	12672-29-6	10.00	BDL
6. PCB-1254.....	<1.00	11097-69-1	10.00	BDL
7. PCB-1260.....	<1.00	11096-82-5	10.00	BDL

+.....INTERNAL STANDARD

MDL.....METHOD DETECTION LIMIT
THE MINIMUM CONCENTRATION OF A SUBSTANCE THAT CAN BE MEASURED AND REPORTED WITH 99% CONFIDENCE THAT VALUE IS ABOVE ZERO. (Ref: SW-846 3rd. Ed.)

BDL.....BELOW DETECTION LIMIT
DETECTION LIMITS LISTED HEREIN ARE PROVIDED FOR GUIDANCE, AND MAY NOT ALWAYS BE ACHIEVABLE.

SUBURBAN LABORATORIES, INC.
4140 LITT DRIVE
HILLSIDE, ILLINOIS 60162

ANALYSIS OF ORGANIC CHEMICAL COMPOUNDS BY
GAS CHROMATOGRAPHY / ELECTRON CAPTURE DETECTOR
FINAL REPORT

S/L FILE NUMBER.....9-1973 CLIENT: ROY F. WESTON

GC/ECD SIGNAL FILE....A:Q7EF0D38 SAMPLE:"P-9 2/20/89 Dirt Pile "

FINAL REPORT BY: FDR

PH= 6.0

DATE RECEIVED: 02/21/89 DATE EXTRACTED: 02/21/89

Note: Upon visual review of the Total Ion Chromatogram, unidentified peaks were observed outside of those parameters which are listed below.

****

>>>>>>>>>>> POLYCHLORINATED BIPHENYLS (PCB'S) METHOD 8080 <<<<<<<<<<<<<

****

COMPOUND	MDL ug/kg	CAS NUMBER	PQL	SAMPLE DATA ug/kg (wet weight)
1.+d10-Anthracene				NI
1. PCB-1016	<1.00	12674-11-1	10.00	BDL
2. PCB-1221	<1.00	11104-28-2	10.00	BDL
3. PCB-1232	<1.00	11141-16-5	10.00	BDL
4. PCB-1242	<1.00	53469-21-9	10.00	BDL
5. PCB-1248	<1.00	12672-29-6	10.00	BDL
6. PCB-1254	<1.00	11097-69-1	10.00	BDL
7. PCB-1260	<1.00	11096-82-5	10.00	BDL

+.....INTERNAL STANDARD

MDL.....METHOD DETECTION LIMIT
THE MINIMUM CONCENTRATION OF A SUBSTANCE THAT CAN BE MEASURED AND REPORTED WITH 99% CONFIDENCE THAT VALUE IS ABOVE ZERO. (Ref: SW-846 3rd. Ed.)

BDL.....BELOW DETECTION LIMIT
DETECTION LIMITS LISTED HEREIN ARE PROVIDED FOR GUIDANCE, AND MAY NOT ALWAYS BE ACHIEVABLE.

SUBURBAN LABORATORIES, INC.
4140 LITT DRIVE
HILLSIDE, ILLINOIS 60162

ANALYSIS OF ORGANIC CHEMICAL COMPOUNDS BY
GAS CHROMATOGRAPHY / ELECTRON CAPTURE DETECTOR
FINAL REPORT

S/L FILE NUMBER.....9-1972 CLIENT: ROY F. WESTON

GC/ECD SIGNAL FILE....A:02FE0520 SAMPLE:"P-P 2/20/89 D++ Pile "

FINAL REPORT BY: FDR

PH= 5.5

DATE RECEIVED: 02/21/89 DATE EXTRACTED: 02/21/89

Note: Upon visual review of the Total Ion Chromatogram, unidentified peaks were observed outside of those parameters which are listed below.

****

>>>>>>>>>>> POLYCHLORINATED BIPHENYLS (PCB'S) METHOD 8080 <<<<<<<<<<

****

COMPOUND	MDL ug/kg	CAS NUMBER	PQL	SAMPLE CONC. ug/kg (wet weight)
1.+d10-Anthracene				NI
1. PCB-1016	<1.00	12674-11-1	10.00	BDL
2. PCB-1221	<1.00	11104-28-2	10.00	BDL
3. PCB-1232	<1.00	11141-16-5	10.00	BDL
4. PCB-1242	<1.00	53469-21-9	10.00	BDL
5. PCB-1248	<1.00	12672-29-6	10.00	BDL
6. PCB-1254	<1.00	11097-69-1	10.00	BDL
7. PCB-1260	<1.00	11096-82-5	10.00	BDL

+.....INTERNAL STANDARD

MDL.....METHOD DETECTION LIMIT
THE MINIMUM CONCENTRATION OF A SUBSTANCE THAT CAN BE MEASURED AND REPORTED WITH 99% CONFIDENCE THAT VALUE IS ABOVE ZERO. (Ref: SW-846 3rd. Ed.)

BDL.....BELOW DETECTION LIMIT
DETECTION LIMITS LISTED HEREIN ARE PROVIDED FOR GUIDANCE, AND MAY NOT ALWAYS BE ACHIEVABLE.

SUBURBAN LABORATORIES, INC.
4140 LITT DRIVE
HILLSIDE, ILLINOIS 60162

ANALYSIS OF ORGANIC CHEMICAL COMPOUNDS BY
GAS CHROMATOGRAPHY / ELECTRON CAPTURE DETECTOR
FINAL REPORT

S/L FILE NUMBER.....9-1971 CLIENT: ROY F. WESTON

GC/ECD SIGNAL FILE....A:Q7EEEC59 SAMPLE:"P-7 2/20/89
Excavated Dirt "

FINAL REPORT BY: FDR

PH= 6.5

DATE RECEIVED: 02/21/89 DATE EXTRACTED: 03/21/89

Note: Upon visual review of the Total Ion Chromatogram, unidentified peaks were observed outside of those parameters which are listed below.

****

>>>>>>>>>>>> POLYCHLORINATED BIPHENYLS (PCB'S) METHOD 8080 <<<<<<<<<<<<

****

COMPOUND	MDL ug/kg	CAS NUMBER	PQL	SAMPLE CONC ug/kg (wet weight)
1,4-DB-Anthracene.....				NI
1. PCB-1016.....	<1.00	12674-11-1	10.00.....	BDL
2. PCB-1221.....	<1.00	11104-28-2	10.00.....	BDL
3. PCB-1232.....	<1.00	11141-16-5	10.00.....	BDL
4. PCB-1242.....	<1.00	53469-21-9	10.00.....	BDL
5. PCB-1248.....	<1.00	12672-29-6	10.00.....	BDL
6. PCB-1254.....	<1.00	11097-69-1	10.00.....	BDL
7. PCB-1260.....	<1.00	11096-82-5	10.00.....	440.0 (awaiting confirmation)

+.....INTERNAL STANDARD

MDL.....METHOD DETECTION LIMIT
THE MINIMUM CONCENTRATION OF A SUBSTANCE THAT CAN BE MEASURED AND REPORTED WITH 99% CONFIDENCE THAT VALUE IS ABOVE ZERO. (Ref: SW-846 3rd. Ed.)

BDL.....BELOW DETECTION LIMIT
DETECTION LIMITS LISTED HEREIN ARE PROVIDED FOR GUIDANCE, AND MAY NOT ALWAYS BE ACHIEVABLE.

SUBURBAN LABORATORIES, INC.
4140 LITT DRIVE
HILLSIDE, ILLINOIS 60162

ANALYSIS OF ORGANIC CHEMICAL COMPOUNDS BY
GAS CHROMATOGRAPHY / ELECTRON CAPTURE DETECTOR
FINAL REPORT

S/L FILE NUMBER.....9-1970 CLIENT: ROY F. WESTON

GC/ECD SIGNAL FILE....A:07FEC443 SAMPLE:"P-6 2/20/89
Excavated Dirt "

FINAL REPORT BY: FDR

PH= 6.0

DATE RECEIVED: 02/21/89 DATE EXTRACTED: 02/21/89

Note: Upon visual review of the Total Ion Chromatogram, unidentified peaks were observed outside of those parameters which are listed below.

****

>>>>>>>>>>> POLYCHLORINATED BIPHENYLS (PCB'S) METHOD 8080 <<<<<<<<<<<<

****

COMPOUND	MDL ug/kg	CAS NUMBER	PQL	SAMPLE CONC ug/kg (wet weight)
1.+d10-Anthracene				NI
1. PCB-1016	<1.00	12674-11-1	10.00	BDL
2. PCB-1221	<1.00	11104-28-2	10.00	BDL
3. PCB-1232	<1.00	11141-16-5	10.00	BDL
4. PCB-1242	<1.00	53469-21-9	10.00	BDL
5. PCB-1248	<1.00	12672-29-6	10.00	BDL
6. PCB-1254	<1.00	11097-69-1	10.00	BDL
7. PCB-1260	<1.00	11096-82-5	10.00	BDL

+.....INTERNAL STANDARD

MDL.....METHOD DETECTION LIMIT
THE MINIMUM CONCENTRATION OF A SUBSTANCE THAT CAN BE MEASURED AND REPORTED WITH 99% CONFIDENCE THAT VALUE IS ABOVE ZERO. (Ref: SW-846 3rd. Ed.)

BDL.....BELOW DETECTION LIMIT
DETECTION LIMITS LISTED HEREIN ARE PROVIDED FOR GUIDANCE, AND MAY NOT ALWAYS BE ACHIEVABLE.

N
8/25/00

CRL REVIEW OF ENFORCEMENT CASES - CHECKLIST

BACKGROUND

American Chemical Services _____ SF
Facility/Case/Site Name Facility/Case/Site Location Program

Data Set Numbers: SF20000027

Sample receipt or analyses dates: 3/31/00 Type of Analysis: Metals, CN

PRIORITY

DOJ/Program Office Priority List?: YES / NO ; Hot / Priority

SAMPLE RECEIVING LOG REVIEW CYANIDE SIGNED OUT 4/7/00 S. CONNETT
METALS SIGNED OUT 4/3/2000 RICHARD DILG

1. Receiving Log in/out Name(s): W. Sargent

2. Data Set Number(s) Reviewed: SF 20000027

DATA SET(S) REVIEW

1. Data Sets where Analyst identified: Data Set #: _____

   Analyst Name(s) (CJ/AK/KM/RK/Other): S. Connett, M. Mattox, R. Dilg ESAT

2. Sample Preparation Records (including TCLP Prep.)? YES

   Preparation Staff Name(s) (CJ/AK/KM/RK/Other): _____ ESAT

3. QA Review of CLP Data? YES NO

   QA Reviewer Name(s): (CJ/AK/KM/RK/Other): _____ ESAT

4. Other CRL/ESAT Involvement (Describe): _____
   Who? _____

5. Conclusion (Statement about findings): Target analysts not found.

REVIEW COMPLETION AND PROGRAM NOTIFICATION

Denise Boone 8/21/00 [signature] 8/25/00
(Reviewer) Date ~~Supervisor~~ CRL Approval Date

Please look for following forms

CRL Data:
1. Data Package Transmittal Form
2. Data Summary Sheet
3. Sample Preparation Form
4. Sample Analysis
5. Data narrative (Case Narrative)

CLP Data:
6. Validation (Review)

Look for Following Names

Names: CRL
1. Chacko T. Joseph (CJ or TCJ
2. Amberina Khan (AK)

ESAT
3. Krystina Minczuk (KM)
4. Robert Kuhajda (RK)

Look for the following part in Organic or Inorganic.

Organic:
1. VOA
2. ABN or SVOA
3. PCBs/Pesticides

Biology:
1. Asbestos
2. Acute Toxicity Tests
3. Chronic Toxicity Tests
4. Microbiology (Fecal Coliforms)

Inorganic:
1. ICP (or ICAP) Metals
2. Metals (GFAA Metals)
3. Mercury (Hg)
4. Cyanide (CN)
5. Other assorted tests

CRL REVIEW OF ENFORCEMENT CASES - CHECKLIST

BACKGROUND

American Chemical Services _____ SF
Facility/Case/Site Name Facility/Case/Site Location Program

Data Set Numbers: SF20000027

Sample receipt or analyses dates: 3/31/00 Type of Analysis: Metals, CN

PRIORITY

DOJ/Program Office Priority List?: YES / NO ; Hot / Priority

SAMPLE RECEIVING LOG REVIEW

1. Receiving Log in/out Name(s): W. Sargent

2. Data Set Number(s) Reviewed: _____

DATA SET(S) REVIEW

1. Data Sets where Analyst identified: Data Set #: _____

   Analyst Name(s) (CJ/AK/KM/RK/Other): S. Connett, M. Mattox, R. Dilg ESAT

2. Sample Preparation Records (including TCLP Prep.)? YES

   Preparation Staff Name(s) (CJ/AK/KM/RK/Other): _____ ESAT

3. QA Review of CLP Data? YES NO

   QA Reviewer Name(s): (CJ/AK/KM/RK/Other): _____ ESAT

4. Other CRL/ESAT Involvement (Describe): _____
   Who? _____

5. Conclusion (Statement about findings): Target analysts not found.

REVIEW COMPLETION AND PROGRAM NOTIFICATION

Denise Boone 8/21/00 _____ _____
(Reviewer) Date Supervisor Approval Date

Please look for following forms

CRL Data:
1. Data Package Transmittal Form
2. Data Summary Sheet
3. Sample Preparation Form
4. Sample Analysis
5. Data narrative (Case Narrative)

CLP Data:
6. Validation (Review)

Look for Following Names

Names: CRL
1. Chacko T. Joseph (CJ or TCJ
2. Amberina Khan (AK)

ESAT
3. Krystina Minczuk (KM)
4. Robert Kuhajda (RK)

Look for the following part in Organic or Inorganic.

Organic:
1. VOA
2. ABN or SVOA
3. PCBs/Pesticides

Biology:
1. Asbestos
2. Acute Toxicity Tests
3. Chronic Toxicity Tests
4. Microbiology (Fecal Coliforms)

Inorganic:
1. ICP (or ICAP) Metals
2. Metals (GFAA Metals)
3. Mercury (Hg)
4. Cyanide (CN)
5. Other assorted tests

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

REGION 5
77 West Jackson Boule
Chicago, Illinois 606

CHAIN OF CUSTODY RECORD

PROJ. NO.: 2000BB01
PROJECT NAME: American Chemical Services
Activity Code: 501020
SAMPLERS: (Print Name and Sign) Steve Mrkvicka

SF 20000027

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	Analyte: Total Metals	Cyanide					CRL No.	TAG NUMBERS	Tag No
R01	3-30	1130		X	ACS-RB01-201	2	1	1					2000BB01R01		5-053952,:
D01	3-30	1450		X	ACS-GW01-101	2	1	1					2000BB01D01		5-053978,9
S01	3-30	1450		X	ACS-GW01-001	6	3	3					2000BB01S01	MS/MSD	5-053980-5

Relinquished by: (Signature)	Date / Time	Received by: (Signature)
	3-31-00 0943	
Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature) — Date / Time: 3/31/00 9:43am

Ship To: HAND DELIVERED TO CRL

ATTN:

Airbill Number

Chain of Custody Seal Numbers

Distribution: White - Accompanies Shipment; Pink - Coordinator Field Files; Yellow - Laboratory File

Printed on Recycled Paper/Printed with Soy-Based Ink

5-60607

2000 0027 501020

ENVIRONMENTAL PROTECTION AGENCY
FOR THE TEAM: METALS

DIVISION/BRANCH SUPERFUND SAMPLE DATE 3-30-2000 LAB ARRIVAL DATE 3/31/2000 DUE DATE 5/1/2000

DU NUMBER 501020 DATA SET NUMBER 20000027 STUDY ACS PRIORITY N CONTRACTOR Black & Veatch

CRL LOG NUMBER	SAMPLE DESCRIPTION	TOTAL METALS WATER TOTAL ICAP UG/L MET111	TOTAL METALS WATER AS UG/L MET161	TOTAL METALS WATER PB UG/L MET1191	TOTAL METALS WATER SB UG/L MET1201	TOTAL METALS WATER SE UG/L MET1211	TOTAL METALS WATER TL UG/L MET1221
2000BB01R01	ACS-RB01-201 5053-952	X	X	X	X	X	X
2000BB01D01	ACS-GW01-101 5053-978	X	X	X	X	X	X
2000BB01S01	ACS-GW01-001 50539-8812	X	X	X	X	X	X

2000 0027 50102D

ENVIRONMENTAL PROTECTION AGENCY
FOR THE TEAM: METALS

IVISION/BRANCH SUPERFUND SAMPLING DATE 3/30/2000 LAB ARRIVAL DATE 3/31/2000 DUE DATE 5/1/2000

U NUMBER 50102D DATASET NUMBER 20000027 STUDY ACS PRIORITY N CONTRACTOR BUNKER

RL LOG NUMBER	SAMPLE DESCRIPTION	MATRIX Water TEST Hg UNITS ug/kg HE1235826	
000BBU1			
R01	ACS-RBU1-201	X	5-053952
D01	ACS-GW01-101	X	5053978
S01	ACS-GW01-001	X	5-053980-981-82

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5 CENTRAL REGIONAL LABORATORY

536 SOUTH CLARK STREET

CHICAGO, ILLINOIS 60605

Date: APR 24 2000

Subject: Review of Region 5 Data for American Chemical Services Code:05J7

From: ESAT , Chemist
Region 5 Central Regional Laboratory

To:

Attached are the results for Site: American Chemical Services Code:05J7
CRL Data Set Number: 20000027
for analyses of : Cyanide
Results are reported for sample numbers: 2000BB01S01, 2000BB01D01 and 2000BB01R01

Results Status:
(x) Acceptable for Use
( ) Data Qualified, but Acceptable for use
( ) Data Unacceptable for Use

Sylvia Griffin APR 24 2000

CRL Data Management Coordinator and Date Received

Date Transmitted: APR 24 2000

Please have the US EPA project leader fill out the customer survey form on the Region 5 Intranet: http://www.r5intra.epa.gov/crl/qa.html, (← by clicking on this link, or call George Schupp, CRL Sample Coordinator, at 3-1226).

Please sign and date this form below and return it with any comments to:

Sylvia Griffin
Data Management Coordinator
Region 5 Central Regional Laboratory
ML - 10C

Received by and Date

Comments:

CRL Data Review Qualification Codes

QUALIFIER	DESCRIPTION
B	This flag is used when the analyte is found in the associated ***B***lank as well as the sample. It indicates possible blank contamination and warns the user to take appropriate action while assessing the data. See the case narrative for a discussion of common lab contaminants and/or the relative concentration of contamination in the samples and blanks for relevance.
D	This flag is used when the analyte concentration results from a required ***D***ilution of the sample, extract or digestate.
E	This flag is used to identify analyte concentrations ***E***xceeding the upper calibration range of the analytical instrument after dilution of the sample, extract or digestate. The reported value is considered to be estimated
J	This flag is used when the analyte is estimated due to quality control limit(s) being exceeded. This flag accompanies all GC/MS tentatively identified compounds (TICs). This flag also applies to a suspected, unidentified interference. This flag is placed on affected detected results as well as non-detected (i.e., "U" flagged) results. (***J*** is the flag used in the Superfund CLP SOW and Data Review Functional Guidelines and is used by CRL for consistency.)
M	This flag is used when the analyte is confirmed to be qualitatively present in the sample, extract or digestate, at or above the CRL ***M***ethod Detection Limit (MDL) but below the CRL reporting limit (RL). This flag applies to all values in this concentration range and indicates the quantitated value is estimated due to its presence in this concentration range.
N	This flag applies to GC/MS Te***N***tatively Identified Compounds (TICs) that have a mass spectral library match.
Q	This flag applies to analyte data that are severely estimated due to quality control and/or ***Q***uantitation problems, but are confirmed to be qualitatively present in the sample. No value is reported with this qualification flag.
R	This flag applies to analyte data that are ***R***ejected and unusable due to severe quality control, quantitation and/or qualitative identification problems. No other qualification flags are reported for this analyte. No value is reported with this qualification flag.
U	This flag in used when the analyte was analyzed but ***U***ndetected in the sample. The CRL RL for the analyte accompanies this flag. As with sample results that are positive, the value is corrected for dry weight, dilution and/or sample weight or volume.

4/11/00

Method: 335.2NS (Cyanide)
Site: American Chemical Service
Date: April 10, 2000
Prepared by: Stephen Connet

TDF: 5104-286
PWO: ESE51028
WAD: 05-00-4-04
Data Set: 20000027

NARRATIVE

Three (3) water samples from the American Chemical Service site [2000BB01S01(ACS-GW01-001), D01 (ACS-GW01-101), R01 (ACS-RB01-201)] were collected on March 30, 2000 and were received properly preserved by CRL on March 31, 2000. The samples were assigned to ESAT for cyanide analysis. The samples were checked with lead acetate and potassium iodide starch papers with negative results. The samples were distilled using the MIDI distillation method on April 7, 2000. The samples were analyzed on April 7, 2000 for cyanide using a Lachat QuickChem AE Autoanalyzer according to CRL methods. The samples were analyzed within the 14-day holding time limit. Included with these samples in the distillation and analysis were 8 MDL samples prepared at 5.0 ppb. The calculated value obtained for the MDL was significantly lower than the actual concentration of the MDL solution. A lower concentration solution will be evaluated at a future date.

All QC audits were in control; all sample results are acceptable. A control sample was distilled and analyzed with the sample batch; no criteria have been established for the sample.

The narrative, QC summary report and Results spreadsheet are stored in:
I:\r5crl\vol1\Min_nut\Sconnet\Lachat2(ESAT)\20000027\20000027_nar.
I:\r5crl\vol1\Min_nut\Sconnet\Lachat2(ESAT)\20000027\QC Summary.
I:\r5crl\vol1\Min_nut\Sconnet\Lachat2(ESAT)\20000027\20000027_res.

The instrument run file will be uploaded to R5CRL into the
I:\r5crl\vol1\Min_nut\Sconnet\Lachat2(ESAT)\20000027\[run file] folder at a future date.

Since RLIMS was unavailable, the results are reported in a word-processing document only. Time will be necessary in the future to enter all results into RLIMS.

4-10-00

ENVIRONMENTAL PROTECTION AGENCY
REGION V
CENTRAL REGIONAL LABORATORY
FINAL RESULT REPORT FOR THE TEAM: MINERAL/NUTRIENTS

DIVISION/BRANCH: SUPERFUND **SAMPLING DATE:** 3/30/00 **LAB ARRIVAL DATE:** 3/31/00 **DUE DATE:** 5/1/00
DU NUMBER: 50102D **DATASET NUMBER:** 20000027 **STUDY:** American Chemical Service **PRIORITY:** Routine **LABORATORY :**ESAT

	CRL LOG NUMBER	SAMPLE DESCRIPTION	WATER CYANIDE (μg/L)	
1	**2000BB01S01**	ACS-GW01-001	8 U	
2	**2000BB01D01**	ACS-GW01-101	8 U	
3	**2000BB01R01**	ACS-RB01-201	8 U	
DATE OF ANALYSIS		4-10-00	4/7/00	
ANALYST			S. Connet	

Reviewed by: J. Gary Date: 4/20/2000

ENVIRONMENTAL PROTECTION AGENCY
REGION V
CENTRAL REGIONAL LABORATORY
FINAL RESULT REPORT FOR THE TEAM: MINERAL/NUTRIENTS

DIVISION/BRANCH: SUPERFUND **SAMPLING DATE:** 3/30/00 **LAB ARRIVAL DATE:** 3/31/00 **DUE DATE:** 5/1/00
DU NUMBER: 50102D **DATASET NUMBER:** 20000027 **STUDY:** American Chemical Service **PRIORITY:** Routine **LABORATORY :**ESAT

	CRL LOG NUMBER	SAMPLE DESCRIPTION	WATER CYANIDE (μg/L)	
1	**2000BB01S01**	ACS-GW01-001	8 U	
2	**2000BB01D01**	ACS-GW01-101	8 U	
3	**2000BB01R01**	ACS-RB01-201	8 U	
DATE OF ANALYSIS		4-10-00	4/7/00	
ANALYST			S. Connet	

Reviewed by: J. Gary Date: 4 / 20 / 2000

ENVIRONMENTAL PROTECTION AGENCY
REGION V
CENTRAL REGIONAL LABORATORY
FINAL RESULT REPORT FOR THE TEAM: MINERAL/NUTRIENTS

DIVISION/BRANCH: SUPERFUND **SAMPLING DATE:** 3/30/00 **LAB ARRIVAL DATE:** 3/31/00 **DUE DATE:** 5/1/00
DU NUMBER: 50102D **DATASET NUMBER:** 20000027 **STUDY:** American Chemical Service **PRIORITY:** Routine **LABORATORY :**ESAT

	CRL LOG NUMBER	SAMPLE DESCRIPTION	WATER CYANIDE (μg/L)	
1	**2000BB01S01**	ACS-GW01-001	8 U	
2	**2000BB01D01**	ACS-GW01-101	8 U	
3	**2000BB01R01**	ACS-RB01-201	8 U	
DATE OF ANALYSIS		4-10-00	4/7/00	
ANALYST			S. Connet	

Reviewed by: J. Gary Date: 4/20/2000

CENTRAL REGIONAL LABORATORY

Data Checklist

Data Set SF 20000027 American Chem. Service's CN

- [x] Chain-of-Custody
- [ ] Analysis Request Form(s)*
- [ ] Sample Tags
- [x] Transmittal Report w/signatures of the following:
  - Analyst (s)
  - Data Management Coordinator

* Analysis Request Forms provide the data user a means to connect sample numbers with sampling locations

Prepared by: Sylvia Griffin 5/4/00
Data Management Coordinator

Rev. 5/4/00

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5 CENTRAL REGIONAL LABORATORY

536 SOUTH CLARK STREET

CHICAGO, ILLINOIS 60605

Date: APR 24 2000

Subject: Review of Region 5 Data for American Chemical Services Code:05J7

From: ESAT , Chemist
Region 5 Central Regional Laboratory

To:

Attached are the results for Site: American Chemical Services Code:05J7
CRL Data Set Number: 20000027
for analyses of : Cyanide
Results are reported for sample numbers: 2000BB01S01, 2000BB01D01 and 2000BB01R01

Results Status:
(x) Acceptable for Use
( ) Data Qualified, but Acceptable for use
( ) Data Unacceptable for Use

Sylvia Griffin APR 24 2000

CRL Data Management Coordinator and Date Received

Date Transmitted: APR 24 2000

Please have the US EPA project leader fill out the customer survey form on the Region 5 Intranet: http://www.r5intra.epa.gov/crl/qa.html, (← by clicking on this link, or call George Schupp, CRL Sample Coordinator, at 3-1226).

Please sign and date this form below and return it with any comments to:

Sylvia Griffin
Data Management Coordinator
Region 5 Central Regional Laboratory
ML - 10C

Received by and Date

Comments:

CRL Data Review Qualification Codes

QUALIFIER	DESCRIPTION
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E	This flag is used to identify analyte concentrations ***E***xceeding the upper calibration range of the analytical instrument after dilution of the sample, extract or digestate. The reported value is considered to be estimated
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M	This flag is used when the analyte is confirmed to be qualitatively present in the sample, extract or digestate, at or above the CRL ***M***ethod Detection Limit (MDL) but below the CRL reporting limit (RL). This flag applies to all values in this concentration range and indicates the quantitated value is estimated due to its presence in this concentration range.
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U	This flag in used when the analyte was analyzed but ***U***ndetected in the sample. The CRL RL for the analyte accompanies this flag. As with sample results that are positive, the value is corrected for dry weight, dilution and/or sample weight or volume.

4/11/00

Method: 335.2NS (Cyanide)
Site: American Chemical Service
Date: April 10, 2000
Prepared by: Stephen Connet

TDF: 5104-286
PWO: ESE51028
WAD: 05-00-4-04
Data Set: 20000027

NARRATIVE

Three (3) water samples from the American Chemical Service site [2000BB01S01(ACS-GW01-001), D01 (ACS-GW01-101), R01 (ACS-RB01-201)] were collected on March 30, 2000 and were received properly preserved by CRL on March 31, 2000. The samples were assigned to ESAT for cyanide analysis. The samples were checked with lead acetate and potassium iodide starch papers with negative results. The samples were distilled using the MIDI distillation method on April 7, 2000. The samples were analyzed on April 7, 2000 for cyanide using a Lachat QuickChem AE Autoanalyzer according to CRL methods. The samples were analyzed within the 14-day holding time limit. Included with these samples in the distillation and analysis were 8 MDL samples prepared at 5.0 ppb. The calculated value obtained for the MDL was significantly lower than the actual concentration of the MDL solution. A lower concentration solution will be evaluated at a future date.

All QC audits were in control; all sample results are acceptable. A control sample was distilled and analyzed with the sample batch; no criteria have been established for the sample.

The narrative, QC summary report and Results spreadsheet are stored in:
I:\r5crl\vol1\Min_nut\Sconnet\Lachat2(ESAT)\20000027\20000027_nar.
I:\r5crl\vol1\Min_nut\Sconnet\Lachat2(ESAT)\20000027\QC Summary.
I:\r5crl\vol1\Min_nut\Sconnet\Lachat2(ESAT)\20000027\20000027_res.

The instrument run file will be uploaded to R5CRL into the
I:\r5crl\vol1\Min_nut\Sconnet\Lachat2(ESAT)\20000027\[run file] folder at a future date.

Since RLIMS was unavailable, the results are reported in a word-processing document only. Time will be necessary in the future to enter all results into RLIMS.

4-10-00

ENVIRONMENTAL PROTECTION AGENCY
REGION V
CENTRAL REGIONAL LABORATORY
FINAL RESULT REPORT FOR THE TEAM: MINERAL/NUTRIENTS

DIVISION/BRANCH: SUPERFUND **SAMPLING DATE:** 3/30/00 **LAB ARRIVAL DATE:** 3/31/00 **DUE DATE:** 5/1/00
DU NUMBER: 50102D **DATASET NUMBER:** 20000027 **STUDY:** American Chemical Service **PRIORITY:** Routine **LABORATORY :**ESAT

	CRL LOG NUMBER	SAMPLE DESCRIPTION	WATER CYANIDE (μg/L)	
1	**2000BB01S01**	ACS-GW01-001	8 U	
2	**2000BB01D01**	ACS-GW01-101	8 U	
3	**2000BB01R01**	ACS-RB01-201	8 U	
DATE OF ANALYSIS		4-10-00	4/7/00	
ANALYST			S. Connet	

Reviewed by: J. Gary Date: 4/20/2000

ENVIRONMENTAL PROTECTION AGENCY
REGION V
CENTRAL REGIONAL LABORATORY
FINAL RESULT REPORT FOR THE TEAM: MINERAL/NUTRIENTS

DIVISION/BRANCH: SUPERFUND **SAMPLING DATE:** 3/30/00 **LAB ARRIVAL DATE:** 3/31/00 **DUE DATE:** 5/1/00
DU NUMBER: 50102D **DATASET NUMBER:** 20000027 **STUDY:** American Chemical Service **PRIORITY:** Routine **LABORATORY :**ESAT

	CRL LOG NUMBER	SAMPLE DESCRIPTION	WATER CYANIDE (μg/L)	
1	**2000BB01S01**	ACS-GW01-001	8 U	
2	**2000BB01D01**	ACS-GW01-101	8 U	
3	**2000BB01R01**	ACS-RB01-201	8 U	
DATE OF ANALYSIS		4-10-00	4/7/00	
ANALYST			S. Connet	

Reviewed by: J. Gary Date: 4 / 20 / 2000

ENVIRONMENTAL PROTECTION AGENCY
REGION V
CENTRAL REGIONAL LABORATORY
FINAL RESULT REPORT FOR THE TEAM: MINERAL/NUTRIENTS

DIVISION/BRANCH: SUPERFUND **SAMPLING DATE:** 3/30/00 **LAB ARRIVAL DATE:** 3/31/00 **DUE DATE:** 5/1/00
DU NUMBER: 50102D **DATASET NUMBER:** 20000027 **STUDY:** American Chemical Service **PRIORITY:** Routine **LABORATORY :**ESAT

	CRL LOG NUMBER	SAMPLE DESCRIPTION	WATER CYANIDE (μg/L)	
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2	**2000BB01D01**	ACS-GW01-101	8 U	
3	**2000BB01R01**	ACS-RB01-201	8 U	
DATE OF ANALYSIS		4-10-00	4/7/00	
ANALYST			S. Connet	

Reviewed by: J. Gary Date: 4/20/2000

ATTACHMENT II

CRL Analytical and Inorganics Data Review Checklist

Batch Number: 20000027 Facility: AMERICAN CHEMICAL SERVICE

Parameter: CYANIDE CRL.SOP: 335.2 NS

Package Overview:	YES	NO
Raw Data Package Complete?	✓	✓
Results Reported Correctly?	✓	✓
Special Requests Done?	N/A	NA
Calculations Checked?	✓	✓
Calibration Not Exceeded?	✓	✓
Manual Peak Integration performed? Circle one IC or GC and Check	N/A	NA
Field QC Checked?	N/A	NA
Quality Control:		
Holding Times Met?	✓	✓
Preservation Checked?	✓	✓
Proper Digestion Verified?	✓	✓
Initial Instrument Performance Checks Verified?	✓	✓
Calibration Verification Checked?	✓	✓
Sample-Specific QC (Internal Standards or Analytical Spikes) Okay?	N/A	NA
Matrix QC Checked?	✓	✓
Digestion Blanks Checked?	✓	✓
Spiked Blank Checked?	✓	✓
LCS (if applicable) Checked?	N/A	NA
QCS (if applicable) Checked?	✓	✓
Final Check		
Technical Review Done?	✓	✓
Narrative Complete?	✓	✓

Analyst: [signature] Peer Reviewer: M. Mattar

Date: 4-10-00 Date: 4-17-00

Comments Attached? (Y/N)

4/7/00 Cyanide Analysis Summary (20000027 water):

Calibration:

Coefficient of correlation: 0.9999

LRB: Limit = +/- 2 ug/L All LRB's (distilled and undistilled) are within limits

LCM: Limit = 100 +/- 15%; true value = 100 ug/L

Values:	(distilled)	106.14 ug/L	106.1%
	(undistilled)	87.72 ug/L	87.7%
		87.48 ug/L	87.5%
		88.16 ug/L	88.2%

Duplicate:

2000BB01S01 = 0.42 ug/L (actual instrument value)
2000BB01S01 Dup = 0.51 ug/L (actual instrument value)
Dup difference = 0.09 ug/L Limit = duplicate difference < 15 ug/L

Spike:

2000BB01S01- Sample conc. = 8U (note: Contract required reporting limit = 8 ug/L)
Spiked sample = 108.17 ug/L
Spike conc. = 100.00 ug/L
%R = 108.2%
Limit = 100 +/- 20%

4-20-00

OPERATOR: demo
ACQ. TIME: Apr 7, 2000 14:19:19
DATA FILENAME: C:\OMNION\DATA\2K0027C.FDT
TRAY FILENAME: C:\OMNION\TRAYS\CN2K0027.TRA

Multi-Channel Table
Type: Unknowns
Channel Range: 1 to 8 -- Cup Range: 1 to 50

Cup	Sample ID	# of Reps	Cyanide (ug CN/L)	
1	LRB 4/7/00	1	0.45	8U LIMIT= +/- 8µg/L
2	LCM 4/7/00	1	106.14	%R= 106 LIMIT= 100±15%
3	CONTROL 1:1	1	89.23	178.46 NO CONTROL LIMIT ESTABLISHED FOR CONTROL SAMPLE
4	2000BB01S01	1	0.42	8U
5	2000BB01S01 DUP	1	0.51	8U DUP DIFF <15µg/L LIMIT= 15µg/L DIFFERENCE
6	2000BB01S01 SPK	1	108.17	%R= 108 LIMIT= 100±20%
7	2000BB01D01	1	1.18	8U
8	2000BB01R01	1	0.21	8U
9	MDL 1	1	4.80	USED FOR MDL DETERMINATION
10	MDL 2	1	5.00	
11	MDL 3	1	4.31	
12	MDL 4	1	4.51	
13	MDL 5	1	5.01	
14	MDL 6	1	4.92	
15	MDL 7	1	4.72	
16	MDL 8	1	4.88	

INSTRUMENT DETECTION LIMIT = 2 µg/L
CONTRACT REQUIRES 8 µg/L. NON-DETECT SAMPLES
REPORTED AS 8U.

4-7-00

OPERATOR: demo
ACQ. TIME: Apr 7, 2000 14:19:19
DATA FILENAME: C:\OMNION\DATA\2K0027C.FDT
TRAY FILENAME: C:\OMNION\TRAYS\CN2K0027.TRA

Multi-Channel Table
Type: DQM
Channel Range: 1 to 8 -- Cup Range: 1 to 50

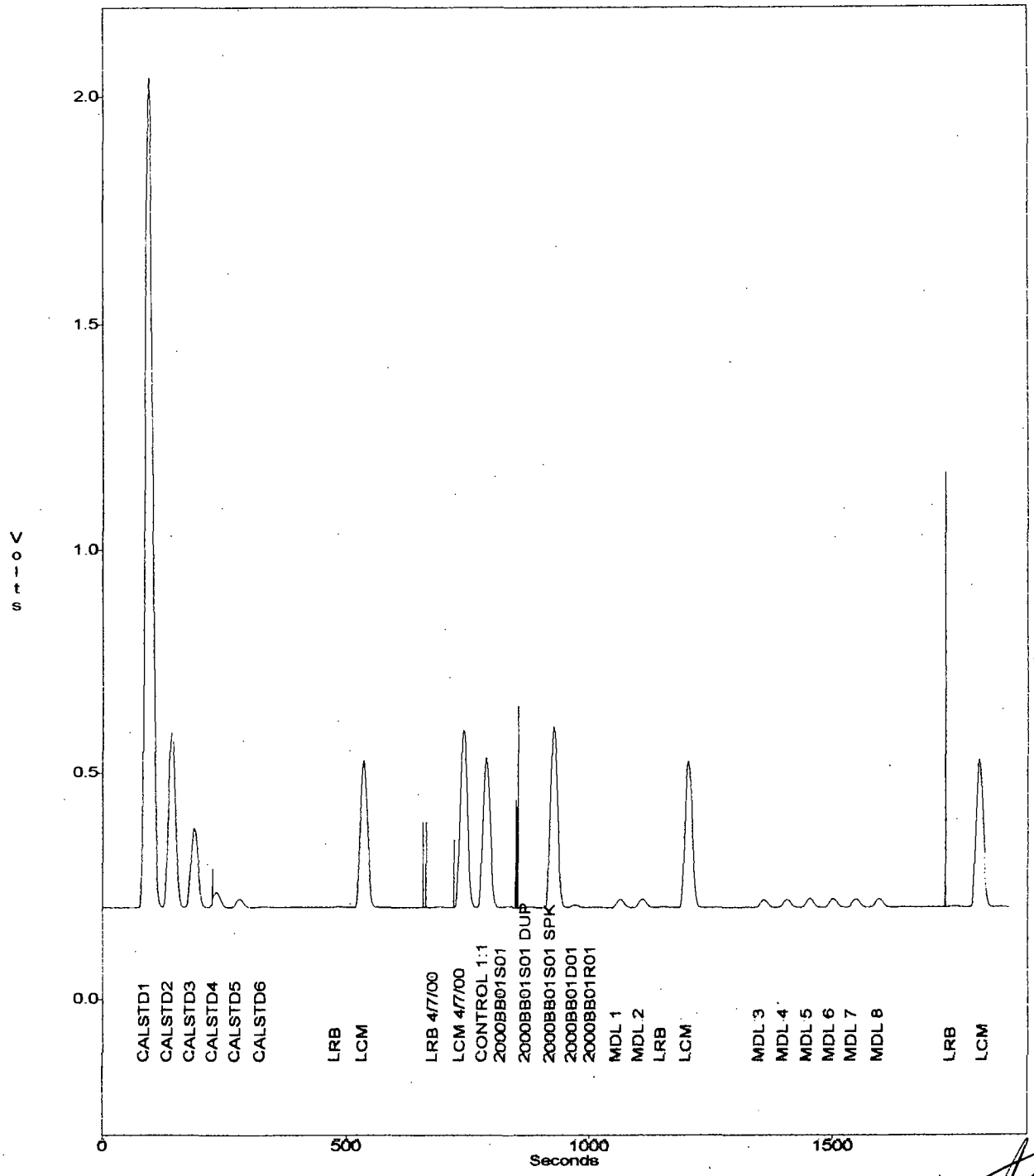
Cup	Sample ID	Sample Type	# of Reps	Cyanide (ug CN/L)	
7	LRB	AbsChkStd	1	0.17	
		Known Concentration:		0.00	
		Difference:		0.17	
7	LRB	AbsChkStd	1	0.25	
		Known Concentration:		0.00	8U LIMIT = ± 8µg/L
		Difference:		0.25	
7	LRB	AbsChkStd	1	0.30	
		Known Concentration:		0.00	
		Difference:		0.30	
8	LCM	AbsChkStd	1	87.72	%R = 87.7
		Known Concentration:		100.00	
		Difference:		-12.28	
8	LCM	AbsChkStd	1	87.48	%R = 87.5 LIMIT = 100 ± 15%
		Known Concentration:		100.00	
		Difference:		-12.52	
8	LCM	AbsChkStd	1	88.16	%R = 88.2
		Known Concentration:		100.00	
		Difference:		-11.84	

LCM = LFB

4-7-00

ACQ. TIME: Apr 7, 2000 14:19:19
DATA FILENAME: C:\OMNION\DATA\2K0027C.FDT
TRAY FILENAME: C:\OMNION\TRAYS\CN2K0027.TRA

Channel 1 - Cyanide

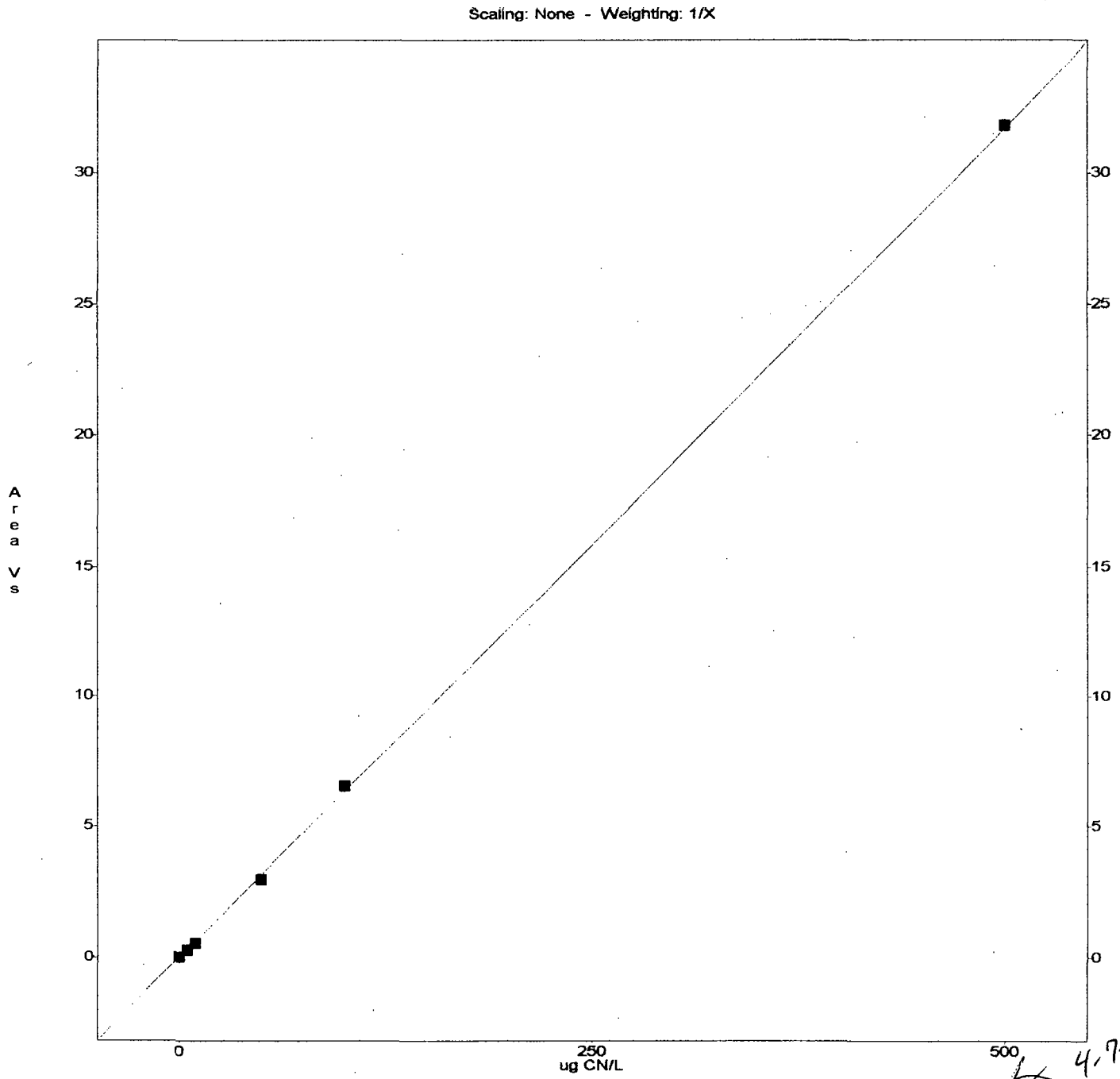


4-7-00

Cyanide

Lvl	Area	ug CN/L	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Replic STD	Replic % RSD	Residual 1st Poly
1	31804914	500	31804914					0.0	0.0	-0.4
2	6564443	100	6564443					0.0	0.0	-3.2
3	2976383	50	2976383					0.0	0.0	7.0
4	583494	10	583494					0.0	0.0	12.9
5	324102	5	324102					0.0	0.0	7.6
6	42494	0	42494					0.0	0.0	

1st Order Poly
Conc = 1.579e-005 Area - 5.006e-001
r = 0.9999



Printed: Friday, April 07, 2000 - 02:51 PM

4.7.00

INSTRUMENT: Flow Injection Analysis
TRAY: CN2K0027.TRA METHOD: CYANIDE.MET DATAFILE: 2K0027C.FDT
DATE/TIME: Fri Apr 07 14:19:19 2000 OPERATOR: demo
DATA SET 20000027 PLUS MDL

*** Begin Calibration ***
Cup# 1 Sample: CALSTD1 Type: CalStd Level: 1 Rep# 1/1
Ch 1: Cyanide Peak Area = 31804914.0 µv-s
Cup# 2 Sample: CALSTD2 Type: CalStd Level: 2 Rep# 1/1
Ch 1: Cyanide Peak Area = 6564443.0 µv-s
Cup# 3 Sample: CALSTD3 Type: CalStd Level: 3 Rep# 1/1
Ch 1: Cyanide Peak Area = 2976383.0 µv-s
Cup# 4 Sample: CALSTD4 Type: CalStd Level: 4 Rep# 1/1
Ch 1: Cyanide Peak Area = 583494.0 µv-s
Cup# 5 Sample: CALSTD5 Type: CalStd Level: 5 Rep# 1/1
Ch 1: Cyanide Peak Area = 324102.0 µv-s
Cup# 6 Sample: CALSTD6 Type: CalStd Level: 6 Rep# 1/1
Ch 1: Cyanide Peak Area = 42494.0 µv-s
*** Updated Calibration ***
Ch 1: Cyanide
** 1st Order Poly Calibration **
C[0] = 1.57936e-005
C[1] = -0.50059
r = 0.9999
*** End Calibration Block ***
*** Calibration Passed ***
***** Auto DQM Begin *****
*** Starting DQM Set CYANIDE ***
Cup# 7 Sample: LRB Type: AbsChkStd Rep# 1/1
Ch 1: Cyanide = 0.1651 ug CN/L
DQM Sample Results: LRB
Ch 1: Cyanide = 0.1651 ug CN/L
Known Conc = 0.0000 ug CN/L - Diff from Known = 0.1651 ug CN/L
Test 1: PASSED < +/- 2
Cup# 8 Sample: LCM Type: AbsChkStd Rep# 1/1
Ch 1: Cyanide = 87.7190 ug CN/L
DQM Sample Results: LCM
Ch 1: Cyanide = 87.7190 ug CN/L
Known Conc = 100.0000 ug CN/L - Diff from Known = -12.2810 ug CN/L
Test 1: PASSED!!
*** End of DQM Set CYANIDE - Set Passed ***
***** Auto DQM End *****
Cup# 1 Sample: LRB 4/7/00 Type: Unknown Rep# 1/1
Ch 1: Cyanide = 0.4536 ug CN/L
Cup# 2 Sample: LCM 4/7/00 Type: Unknown Rep# 1/1
Ch 1: Cyanide = 106.1371 ug CN/L
Cup# 3 Sample: CONTROL 1:1 Type: Unknown Rep# 1/1
Ch 1: Cyanide = 89.2267 ug CN/L
Cup# 4 Sample: 2000BB01S01 Type: Unknown Rep# 1/1
Ch 1: Cyanide = 0.4198 ug CN/L
Cup# 5 Sample: 2000BB01S01 DUP Type: Unknown Rep# 1/1
Ch 1: Cyanide = 0.5130 ug CN/L
Cup# 6 Sample: 2000BB01S01 SPK Type: Unknown Rep# 1/1
Ch 1: Cyanide = 108.1694 ug CN/L
Cup# 7 Sample: 2000BB01D01 Type: Unknown Rep# 1/1
Ch 1: Cyanide = 1.1789 ug CN/L
Cup# 8 Sample: 2000BB01R01 Type: Unknown Rep# 1/1
Ch 1: Cyanide = 0.2062 ug CN/L
Cup# 9 Sample: MDL 1 Type: Unknown Rep# 1/1
Ch 1: Cyanide = 4.7952 ug CN/L
Cup# 10 Sample: MDL 2 Type: Unknown Rep# 1/1
Ch 1: Cyanide = 5.0041 ug CN/L
***** Auto DQM Begin *****
*** Starting DQM Set CYANIDE ***
Cup# 7 Sample: LRB Type: AbsChkStd Rep# 1/1 Repeat# 1
Ch 1: Cyanide = 0.2534 ug CN/L

4-7-00

DQM Sample Results: LRB
Ch 1: Cyanide = 0.2534 ug CN/L
Known Conc = 0.0000 ug CN/L - Diff from Known = 0.2534 ug CN/L
Test 1: PASSED < +/- 2
Cup# 8 Sample: LCM Type: AbsChkStd Rep# 1/1 Repeat# 1
Ch 1: Cyanide = 87.4779 ug CN/L
DQM Sample Results: LCM
Ch 1: Cyanide = 87.4779 ug CN/L
Known Conc = 100.0000 ug CN/L - Diff from Known = -12.5221 ug CN/L
Test 1: PASSED!!
*** End of DQM Set CYANIDE - Set Passed ***
***** Auto DQM End *****
Cup# 11 Sample: MDL 3 Type: Unknown Rep# 1/1
Ch 1: Cyanide = 4.3116 ug CN/L
Cup# 12 Sample: MDL 4 Type: Unknown Rep# 1/1
Ch 1: Cyanide = 4.5134 ug CN/L
Cup# 13 Sample: MDL 5 Type: Unknown Rep# 1/1
Ch 1: Cyanide = 5.0129 ug CN/L
Cup# 14 Sample: MDL 6 Type: Unknown Rep# 1/1
Ch 1: Cyanide = 4.9203 ug CN/L
Cup# 15 Sample: MDL 7 Type: Unknown Rep# 1/1
Ch 1: Cyanide = 4.7212 ug CN/L
Cup# 16 Sample: MDL 8 Type: Unknown Rep# 1/1
Ch 1: Cyanide = 4.8624 ug CN/L
***** Auto DQM Begin *****
*** Starting DQM Set CYANIDE ***
Cup# 7 Sample: LRB Type: AbsChkStd Rep# 1/1 Repeat# 2
Ch 1: Cyanide = 0.2957 ug CN/L
DQM Sample Results: LRB
Ch 1: Cyanide = 0.2957 ug CN/L
Known Conc = 0.0000 ug CN/L - Diff from Known = 0.2957 ug CN/L
Test 1: PASSED < +/- 2
Cup# 8 Sample: LCM Type: AbsChkStd Rep# 1/1 Repeat# 2
Ch 1: Cyanide = 88.1648 ug CN/L
DQM Sample Results: LCM
Ch 1: Cyanide = 88.1648 ug CN/L
Known Conc = 100.0000 ug CN/L - Diff from Known = -11.8352 ug CN/L
Test 1: PASSED!!
*** End of DQM Set CYANIDE - Set Passed ***
***** Auto DQM End *****
******* Tray Run Complete *******

4-7-00

Easy Still Distillation Log

for Water

Data Set #: 20000027
Analyst (initials): [illegible] S. CONNET
Date: 4-7-00
Method #: 335.2 NS

Check which parameter is being distilled:

✓ Cyanide ___ Flouride ___ Phenol

CRL Sample No.	Volume
1	
2	
3 LRB	50
4 LCM	50
5 CONTROL	50
6 2000 BB01 S01	50
7 S01 DUP	50
8 S01 SPK	50
9 D01	50
10 R01	50
11 MDL 1	50
12 MDL 2	50
13 MDL 3	50
14 MDL 4	50
15 MDL 5	50
16 MDL 6	50
17 MDL 7	50
18 MDL 8	50
19	
20	

COMMENTS

MDL SOLUTION 5ppb.

4-7-00

CRL Form 10/1999

ATTACHMENT (VI)

CYANIDE DISTILLATION 4-7-00

2000 0027

LRB
LCM
CONTROL 1:1
2000 BB01 S01
S01 DUP
S01 SPK
D01
R01
MDL 1
MDL 2
MDL 3
MDL 4
MDL 5
MDL 6
MDL 7
MDL 8

- ALL SAMPLES 50 ml FINAL VOL
- LCM, SPIKE 500 µl 10 ppm CN ADDED

- MDL SOLUTION: 250 µl 10 ppm CN → 500 ml 0.25 N NaOH (5ppb)
- DISTILLATION PERFORMED USING EASY STILL
- ALL SAMPLES pH >12
- LEAD ACETATE & POTASSIUM IODIDE STARCH PAPER RESULTS NEGATIVE.

4-7-00

Lockheed Martin Services Group
Environmental Services & Technologies Region 5
536 South Clark Street #1050 Chicago, IL 60605
Telephone 312-353-8302 Facsimile 312-353-8307

LOCKHEED MARTIN

Date: April 10, 2000

To: John V. Morris, EPA WAM

From: Stephen Connet, ESAT Chemist

Thru: Ziyad Rajabi, ESAT Team Manager

Copies: John Ganz, ESAT Inorganic Group Leader
Jay Thakkar, ESAT Contract RPO

Ref: TDF# 5104-286
WA# 05-00-4-04
Contract # 68D60002

SUBJECT: Data Set SF20000027: Inorganic Analyses of Cyanide for the American Chemical Service Site Samples Using Method 335.2NS

Attached is the deliverable for Data Set SF20000027 cyanide analysis of the 3 water samples. Included in the deliverable are the case narrative, results, QC summary and raw data. If you have any questions please feel free to contact me.

4-10-00

LOCKHEED MARTIN ESAT REGION 5
DATA SET CUSTODY TRANSFER FORM

DATA SET NUMBER 20000027 CONTRACT # 68-D6-0002
SITE NAME: AMERICAN CHEMICAL SERVICE WA NUMBER 05-00-4-04
PARAMETER: CYANIDE TDF NUMBER 5104-286
MATRIX: WATER PWO # ESE51028

SAMPLE NUMBERS: 2000BB01 S01, D01, R01

NUMBER OF SAMPLES: 3

ESAT APPROVALS:

4-10-00
Analyst Date

M. Matter 4-13-00
Second-Level QA Reviewer Date

J. Gary 4-20-2000
Third-Level QA Reviewer Date

4-21-00
ESAT Team Manager Date

COMMENTS:

The above identified data set was transferred from ESAT custody to the custody of the U.S. EPA Region V Central Regional Laboratory in its entirety on the indicated date relinquished.

J. Gary 4-24-2000
Relinquished by Date

24 Apr 00
Received by Date

EPA APPROVALS:

24 Apr 00
EPA WAM Date

[ ] Reviewed
[ ] Unreviewed
[x] Accepted
[ ] Rejected
[ ] Returned: _____
Date

COMMENTS:

Section Chief Date

[ ] Reviewed [ ] Unreviewed

ESAT RPO Date

Sylvia Griffin 14/24/00
DATA COORDINATOR/RECD/TRANSMTD

A COPY OF THIS CUSTODY TRANSFER FORM WITH A RECEIVED BY EPA SIGNATURE IS TO BE FILED IN THE TDF FILE. THE ORIGINAL CUSTODY TRANSFER ACCOMPANIES THE DATA SET TO BE APPROVED BY THE EPA AND A COMPLETED COPY RETURNED TO ESAT.

CENTRAL REGIONAL LABORATORY

Data Checklist

Data Set SF 20000027 American Chemical Services
Hg

- [x] Chain-of-Custody
- [ ] Analysis Request Form(s)*
- [ ] Sample Tags
- [x] Transmittal Report w/signatures of the following:
  - Analyst (s)
  - Data Management Coordinator

* Analysis Request Forms provide the data user a means to connect sample numbers with sampling locations

Prepared by: Sylvia Griffin 5/1/00
Data Management Coordinator

Rev. 5/4/00

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5 CENTRAL REGIONAL LABORATORY

536 SOUTH CLARK STREET

CHICAGO, ILLINOIS 60605

Date: MAY 01 2000

Subject: Review of Region 5 Data for American Chemical Services Code:05J7

From: ESAT , Chemist
Region 5 Central Regional Laboratory

To:

Attached are the results for Site: American Chemical Services Code:05J7
CRL Data Set Number: 20000027
for analyses of : Mercury
Results are reported for sample numbers: 2000BB01S01, 2000BB01D01 and 2000BB01R01

Results Status:
(x) Acceptable for Use: **Mercury**
( ) Data Qualified, but Acceptable for use:
( ) Data Unacceptable for Use

Sylvia Griffin MAY 01 2000

CRL Data Management Coordinator and Date Received sg 5/11/00

Date Transmitted: MAY 01 2000 sg 5/11/00

Please have the US EPA project leader fill out the customer survey form on the Region 5 Intranet: http://www.r5intra.epa.gov/crl/qa.html, (← by clicking on this link, or call George Schupp, CRL Sample Coordinator, at 3-1226).

Please sign and date this form below and return it with any comments to:

Sylvia Griffin
Data Management Coordinator
Region 5 Central Regional Laboratory
ML - 10C

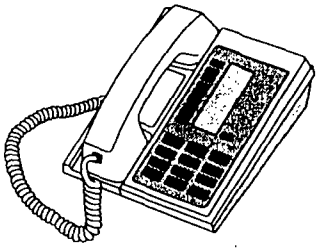
Received by and Date

Comments:

TRANSMIT CONFIRMATION REPORT

NO.	:	001
RECEIVER	:	13123464781
TRANSMITTER	:	US EPA REGION 5
DATE	:	MAY 11'00 6:38
DURATION	:	01'19
MODE	:	STD
PAGES	:	03
RESULT	:	OK

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
RESOURCES MANAGEMENT DIVISION
CENTRAL REGIONAL LABORATORY
REGION 5
536 S. Clark Street
CHICAGO, IL 60605



FACSIMILE REQUEST AND COVER SHEET

CENTRAL REGIONAL LABORATORY
FAX NO. 312-886-2591

CENTRAL REGIONAL LABORATORY VERIFICATION NO. 312-353-8370

OFFICE/TELEPHONE OF RECIPIENT: Black & Veatch

MACHINE NO. 312-346-4781

TO: Steve Mrkvicka

FROM: Sylvia Griffin

TELEPHONE NUMBER 312-353-9073

COMMENTS: Steve,

I mistakenly dated page 2 of the transmittal for the May 1, 2000 American Chem. Serv. Mercury package. Please discard pg. 2 and incorporate the corrected sheet attached.

If you have any questions, please give me a call, and please forgive this inconvenience to you.

DATE: May 11, 2000

NUMBER OF PAGES, INCLUDING COVER SHEET: 3 PAGE 1 OF 3

ENVIRONMENTAL PROTECTION AGENCY
REGION V
CENTRAL REGIONAL LABORATORY
FINAL RESULT REPORT FOR THE TEAM: MERCURY

DIVISION/BRANCH: SUPERFUND **SAMPLING DATE:** 3/30/00 **LAB ARRIVAL DATE:** 3/31/00 **DUE DATE:** 5/1/00
DU NUMBER: 50102D **DATASET NUMBER:** 20000027 **STUDY:** American Chemical Service **PRIORITY:** Routine **LABORATORY :**ESAT

	CRL LOG NUMBER	SAMPLE DESCRIPTION	WATER MERCURY (μg/L)	
1	**2000BB01S01**	ACS-GW01-001	0.2U	
2	**2000BB01D01**	ACS-GW01-101	0.2U	
3	**2000BB01R01**	ACS-RB01-201	0.2U	
DATE OF ANALYSIS		4-26-00	4/25/00	
ANALYST			S. Connet	

Reviewed by: ZR Date: 4 / 28 / 00

ENVIRONMENTAL PROTECTION AGENCY
REGION V
CENTRAL REGIONAL LABORATORY
FINAL RESULT REPORT FOR THE TEAM: MERCURY

DIVISION/BRANCH: SUPERFUND **SAMPLING DATE:** 3/30/00 **LAB ARRIVAL DATE:** 3/31/00 **DUE DATE:** 5/1/00
DU NUMBER: 50102D **DATASET NUMBER:** 20000027 **STUDY:** American Chemical Service **PRIORITY:** Routine **LABORATORY :**ESAT

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2	**2000BB01D01**	ACS-GW01-101	0.2U	
3	**2000BB01R01**	ACS-RB01-201	0.2U	
DATE OF ANALYSIS		4-26-00	4/25/00	
ANALYST			S. Connet	

Reviewed by: ZK Date: 4 / 28 / 00

ENVIRONMENTAL PROTECTION AGENCY
REGION V
CENTRAL REGIONAL LABORATORY
FINAL RESULT REPORT FOR THE TEAM: MERCURY

DIVISION/BRANCH: SUPERFUND **SAMPLING DATE:** 3/30/00 **LAB ARRIVAL DATE:** 3/31/00 **DUE DATE:** 5/1/00
DU NUMBER: 50102D **DATASET NUMBER:** 20000027 **STUDY:** American Chemical Service **PRIORITY:** Routine **LABORATORY :** ESAT

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DATE OF ANALYSIS		4-26-00	4/25/00	
ANALYST			S. Connet	

Reviewed by: ZR Date: 4 / 28 / 00

ENVIRONMENTAL PROTECTION AGENCY
REGION V
CENTRAL REGIONAL LABORATORY
FINAL RESULT REPORT FOR THE TEAM: MERCURY

DIVISION/BRANCH: SUPERFUND **SAMPLING DATE:** 3/30/00 **LAB ARRIVAL DATE:** 3/31/00 **DUE DATE:** 5/1/00
DU NUMBER: 50102D **DATASET NUMBER:** 20000027 **STUDY:** American Chemical Service **PRIORITY:** Routine **LABORATORY :**ESAT

	CRL LOG NUMBER	SAMPLE DESCRIPTION	WATER MERCURY (μg/L)	
1	**2000BB01S01**	ACS-GW01-001	0.2U	
2	**2000BB01D01**	ACS-GW01-101	0.2U	
3	**2000BB01R01**	ACS-RB01-201	0.2U	
DATE OF ANALYSIS		4-26-00	4/25/00	
ANALYST			S. Connet	

Reviewed by: ZR Date: 4 / 28 / 00

ENVIRONMENTAL PROTECTION AGENCY
REGION V
CENTRAL REGIONAL LABORATORY
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DATE OF ANALYSIS		4-26-00	4/25/00	
ANALYST			S. Connet	

Reviewed by: ZR Date: 4/28/00

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ANALYST			S. Connet	

Reviewed by: ZK Date: 4 / 28 / 00

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DATE OF ANALYSIS		4-26-00	4/25/00	
ANALYST			S. Connet	

Reviewed by: ZR Date: 4 / 28 / 00

4/25/00 Mercury Analysis Summary (20000027 and 20000029 water):

Calibration:

Coefficient of correlation: 0.99853 — Limit coefficient of correlation: > 0.9975

r^2: 0.99706 — Limit r^2: > 0.995

ICB/CCB/LRB: Limit = +/- 0.2 ug/L (IDL) — All ICB/CCB/LRB's are within limits

Values:
0.015 ug/L
0.015 ug/L
0.020 ug/L
0.007 ug/L

ICV-CS/CCV-CS: True value = 1.5 ug/L — Limit = 1.5 +/- 13% (+/-0.2 ug/L) (Default/CRL limits)

Values:
1.422 ug/L = 94.8%
1.360 ug/L = 90.7%
1.437 ug/L = 95.8%
1.383 ug/L = 92.2%

DQC-LFB: True value = 1.5 ug/L — Limit = 1.365 - 1.700 ug/L (ESAT limits)

Values:
1.569 ug/L = 104.6%
1.528 ug/L = 101.9%
1.582 ug/L = 105.5%
1.567 ug/L = 104.5%

LFB: True value = 1.0 ug/L — Limit = 1.0 ug/L +/- 13% (0.87 - 1.30 ug/L) (Default/CRL Limits)

Value: 0.979 ug/L = 97.9%

Note: Per F. Awanya, LFB is a spiked blank prepared at 1.0 ug/L. SOP lists concentration as 1.5 ug/L.

Duplicate: Limit = +/- 0.063 ug/L (ESAT limit)

2000BB01S01 Dup Diff = 0.002 ug/L
Sample = 0.010 ug/L (actual instrument value) = 0.2U
Duplicate = 0.012 ug/L (actual instrument value) = 0.2U

2000OL02S01 Dup Diff = 0.003 ug/L
Sample = 0.116 ug/L (actual instrument value) = 0.2U
Duplicate = 0.113 ug/L (actual instrument value) = 0.2U

Spike: True value = 1.00 ug/L — Limit = 100 +/- 20% (Default/CRL limits)

2000BB01S01: Sample conc. = 0.2U
Spiked sample = 0.909 ug/L
%R = 90.9%

2000OL02S01: Sample conc. = 0.2U
Spiked sample = 1.007 ug/L
%R = 100.7%

4-26-00

Parameter: Mercury
Method: 245.2 *DNS (WATER)
Site: American Chemical Service
Date: April 25, 2000
Prepared by: Stephen Connet

TDF: 5104-286
PWO: ESE51028
WAD: 05-00-4-04
Data Set: 20000027

NARRATIVE

Three (3) water samples from the American Chemical Services site [2000BB01S01(ACS-GW01-001), D01 (ACS-GW01-101), R01 (ACS-RB01-201)] were collected on March 30, 2000 and were received properly preserved by CRL on March 31, 2000. The samples were assigned to ESAT for mercury analysis.

The samples were digested with samples from data set 20000029 on April 20 using the autoprep station for acid addition only. Problems with the unit resulted in the manual addition of all other reagents. All digestion tubes were capped during digestion. Analysis of those digests occurred on April 21, 2000. Results indicated a high bias. The autoprep station was repaired and the samples were redigested on April 24, 2000 using the autoprep station. All samples and standards were covered after addition of persulfate during the digestion. Amine was added using the autoprep station on April 25 prior to analysis. Included with the samples in the preparation were 8 MDL samples prepared at 0.2 ppb. All samples were analyzed on April 25, 2000.

All QC audits were in control; all sample results are acceptable. The calculated MDL was outside the acceptance range; it will be reprepped at a lower concentration in the future. The default MDL of 0.2 ug/L was used for this analysis.

This narrative, the QC summary form and the results spreadsheet are stored in:
I:\r5crl\vol1\Min_nut\Sconnet\PSAMercury\HgWATER\20000027\20000027_nar.
I:\r5crl\vol1\Min_nut\Sconnet\PSAMercury\HgWATER\20000027\QC Summary.
I:\r5crl\vol1\Min_nut\Sconnet\PSAMercury\HgWATER\20000027\20000027_res.

Raw data for this data set and data set 20000029 are included with this data package.

The instrument run file will be uploaded to R5CRL into the I:\r5crl\vol1\Min_nut\Sconnet\PSAMercury\HgWATER\20000027\[run file] folder at a future date.

Since RLIMS was unavailable, the results are reported in a word-processing document only. Time will be necessary in the future to enter all results into RLIMS.

4-25-00

CRL Data Review Qualification Codes

QUALIFIER	DESCRIPTION
B	This flag is used when the analyte is found in the associated ***B***lank as well as the sample. It indicates possible blank contamination and warns the user to take appropriate action while assessing the data. See the case narrative for a discussion of common lab contaminants and/or the relative concentration of contamination in the samples and blanks for relevance.
D	This flag is used when the analyte concentration results from a required ***D***ilution of the sample, extract or digestate.
E	This flag is used to identify analyte concentrations ***E***xceeding the upper calibration range of the analytical instrument after dilution of the sample, extract or digestate. The reported value is considered to be estimated
J	This flag is used when the analyte is estimated due to quality control limit(s) being exceeded. This flag accompanies all GC/MS tentatively identified compounds (TICs). This flag also applies to a suspected, unidentified interference. This flag is placed on affected detected results as well as non-detected (i.e., "U" flagged) results. (***J*** is the flag used in the Superfund CLP SOW and Data Review Functional Guidelines and is used by CRL for consistency.)
M	This flag is used when the analyte is confirmed to be qualitatively present in the sample, extract or digestate, at or above the CRL ***M***ethod Detection Limit (MDL) but below the CRL reporting limit (RL). This flag applies to all values in this concentration range and indicates the quantitated value is estimated due to its presence in this concentration range.
N	This flag applies to GC/MS Te***N***tatively Identified Compounds (TICs) that have a mass spectral library match.
Q	This flag applies to analyte data that are severely estimated due to quality control and/or ***Q***uantitation problems, but are confirmed to be qualitatively present in the sample. No value is reported with this qualification flag.
R	This flag applies to analyte data that are ***R***ejected and unusable due to severe quality control, quantitation and/or qualitative identification problems. No other qualification flags are reported for this analyte. No value is reported with this qualification flag.
U	This flag in used when the analyte was analyzed but ***U***ndetected in the sample. The CRL RL for the analyte accompanies this flag. As with sample results that are positive, the value is corrected for dry weight, dilution and/or sample weight or volume.

4/11/00

LOCKHEED MARTIN ESAT REGION 5
DATA SET CUSTODY TRANSFER FORM

DATA SET NUMBER 20000027
SITE NAME: AMERICAN CHEMICAL SERVICE
PARAMETER: MERCURY
MATRIX: WATER

CONTRACT # 68-D6-0002
WA NUMBER 05-00-4-04
TDF NUMBER 5104-286
PWO # ESE51028

SAMPLE NUMBERS: 2000BB01 S01, D01, R01

NUMBER OF SAMPLES: 3

ESAT APPROVALS:

Analyst — 4-26-00 Date

M. Mattop — 4-26-00
Second-Level QA Reviewer Date

Third-Level QA Reviewer — 4-27-00 Date

ESAT Team Manager — 4-28-00 Date

COMMENTS:

The above identified data set was transferred from ESAT custody to the custody of the U.S. EPA Region V Central Regional Laboratory in its entirety on the indicated date relinquished.

Relinquished by — 4-28-00 Date

Francis A. Hoogu — 4/28/2000
Received by Date

EPA APPROVALS:

EPA WAM Date

[ ] Reviewed
[ ] Unreviewed
[ ] Accepted
[ ] Rejected
[ ] Returned: _____
Date

COMMENTS:

Section Chief Date

[ ] Reviewed [ ] Unreviewed

ESAT RPO Date

Sylvia Griffin 5/1/00
DATA COORDINATOR/RECD/TRANSMTD

A COPY OF THIS CUSTODY TRANSFER FORM WITH A RECEIVED BY EPA SIGNATURE IS TO BE FILED IN THE TDF FILE. THE ORIGINAL CUSTODY TRANSFER ACCOMPANIES THE DATA SET TO BE APPROVED BY THE EPA AND A COMPLETED COPY RETURNED TO ESAT.

Lockheed Martin Services Group
Environmental Services & Technologies Region 5
536 South Clark Street #1050 Chicago, IL 60605
Telephone 312-353-8302 Facsimile 312-353-8307

LOCKHEED MARTIN

Date: April 26, 2000

To: John V. Morris, EPA WAM

From: Stephen Connet, ESAT Chemist

Thru: Ziyad Rajabi, ESAT Team Manager

Copies: John Ganz, ESAT Inorganic Group Leader
Jay Thakkar, ESAT Contract RPO

Ref: TDF# 5104-286
WA# 05-00-4-04
Contract # 68D60002

SUBJECT: Data Set SF20000027: Inorganic Analyses of Mercury for American Chemical Service Samples Using Method 245.2*DNS (water)

Attached is the deliverable for Data Set SF20000027 mercury analysis of the 3 water samples. Included in the deliverable are the case narrative, QC summary and raw results. If you have any questions please feel free to contact me.

4-26-00

ATTACHMENT II
CRL Analytical and Inorganics Data Review Checklist

Batch Number: 20000027 Facility: AMERICAN CHEMICAL SERVICE
Parameter: MERCURY CRL.SOP: 245.2 * DNS

Package Overview:	YES	NO
Raw Data Package Complete?	✓	
Results Reported Correctly?	✓	
Special Requests Done?	N/A	
Calculations Checked?	✓	
Calibration Not Exceeded?	✓	
Manual Peak Integration performed? Circle one IC or GC and Check	N/A	
Field QC Checked?	N/A	
Quality Control:		
Holding Times Met?	✓	
Preservation Checked?	✓	
Proper Digestion Verified?	✓	
Initial Instrument Performance Checks Verified?	✓	
Calibration Verification Checked?	✓	
Sample-Specific QC (Internal Standards or Analytical Spikes) Okay?	N/A	
Matrix QC Checked?	✓	
Digestion Blanks Checked?	✓	
Spiked Blank Checked?	✓	
LCS (if applicable) Checked?	N/A	
QCS (if applicable) Checked?	N/A	
Final Check		
Technical Review Done?	✓	
Narrative Complete?	✓	

Analyst: S. CONNET Peer Reviewer: M. Mattox

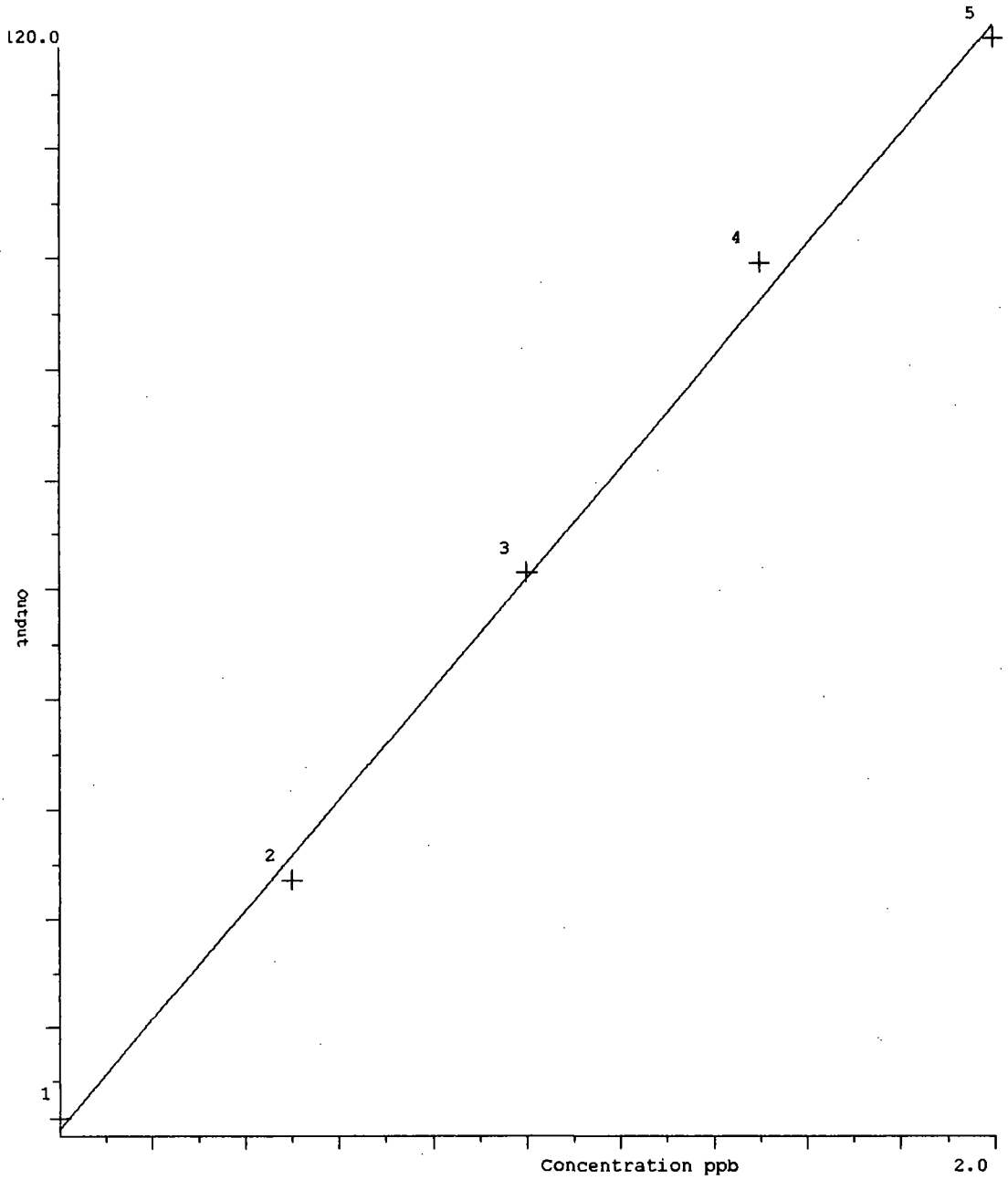
Date: 4-26-00 Date: 4-26-00

Comments Attached? (Y/N)

No	Tag	Ref	Conc.	Unt	Output	Run	SD	Dilution	CODE	RSD	Date	Time
1	AA Head											
2	CAL	STD1	0.000	ppb	2.000	1	0.000	----	PB	0.000	25/04/00	09:50 AM
3	CAL	STD2	0.500	ppb	28.30	1	0.000	----	PB	0.000	25/04/00	09:50 AM
4	CAL	STD3	1.000	ppb	61.80	1	0.000	----	PB	0.000	25/04/00	09:50 AM
5	CAL	STD4	1.500	ppb	95.40	1	0.000	----	PB	0.000	25/04/00	09:50 AM
6	CAL	STD5	2.000	ppb	120.0	1	0.000	----	PB	0.000	25/04/00	09:50 AM
7	NOTAG	ICB/LRB	0.015	ppb	1.800	1	0.000	1.000	PB	0.000	25/04/00	10:12 AM
8	NOTAG	ICV-CS	1.422	ppb	87.10	1	0.000	1.000	PB	0.000	25/04/00	10:14 AM
9	NOTAG	DQC-LFB1	1.569	ppb	96.00	1	0.000	1.000	PB	0.000	25/04/00	10:17 AM
10	NOTAG	LFB	0.979	ppb	60.20	1	0.000	1.000	PB	0.000	25/04/00	10:19 AM
11	NOTAG	027 S01 0.2U	0.010	ppb	1.500	1	0.000	1.000	PB	0.000	25/04/00	10:21 AM
12	NOTAG	027 S01D 0.2U	0.012	ppb	1.600	1	0.000	1.000	PB	0.000	25/04/00	10:24 AM
13	NOTAG	027 S01S	0.909	ppb	56.00	1	0.000	1.000	PB	0.000	25/04/00	10:26 AM
14	NOTAG	S01/2 S } NOT USED	0.823	ppb	50.80	1	0.000	1.000	PB	0.000	25/04/00	10:29 AM
15	NOTAG	027 D01 0.2U	0.010	ppb	1.500	1	0.000	1.000	PB	0.000	25/04/00	10:31 AM
16	NOTAG	027 R01 0.2U	0.017	ppb	1.900	1	0.000	1.000	PB	0.000	25/04/00	10:34 AM
17	NOTAG	CCB 1	0.015	ppb	1.800	1	0.000	1.000	PB	0.000	25/04/00	10:36 AM
18	NOTAG	CCV-CS 1	1.360	ppb	83.30	1	0.000	1.000	PB	0.000	25/04/00	10:39 AM
19	NOTAG	DQC-LFB2	1.528	ppb	93.50	1	0.000	1.000	PB	0.000	25/04/00	10:41 AM
20	NOTAG	029 S01 0.2U	0.116	ppb	7.900	1	0.000	1.000	PB	0.000	25/04/00	10:44 AM
21	NOTAG	029 S01D 0.2U	0.113	ppb	7.700	1	0.000	1.000	PB	0.000	25/04/00	10:47 AM
22	NOTAG	029 S01S	1.007	ppb	61.90	1	0.000	1.000	PB	0.000	25/04/00	10:49 AM
23	NOTAG	S01/2 S } NOT USED	1.010	ppb	62.10	1	0.000	1.000	PB	0.000	25/04/00	10:52 AM
24	NOTAG	029 S02 0.2U	0.129	ppb	8.700	1	0.000	1.000	PB	0.000	25/04/00	10:54 AM
25	NOTAG	029 S03 0.2U	0.134	ppb	9.000	1	0.000	1.000	PB	0.000	25/04/00	10:57 AM
26	NOTAG	029 S04 0.2U	0.122	ppb	8.300	1	0.000	1.000	PB	0.000	25/04/00	10:59 AM
27	NOTAG	029 D04 0.2U	0.136	ppb	9.100	1	0.000	1.000	PB	0.000	25/04/00	11:02 AM
28	NOTAG	CCB 2	0.020	ppb	2.100	1	0.000	1.000	PB	0.000	25/04/00	11:04 AM
29	NOTAG	CCV-CS 2	1.437	ppb	88.00	1	0.000	1.000	PB	0.000	25/04/00	11:07 AM
30	NOTAG	DQC-LFB3	1.582	ppb	96.80	1	0.000	1.000	PB	0.000	25/04/00	11:12 AM
31	NOTAG	0.2 MDL 1	0.200	ppb	13.00	1	0.000	1.000	PB	0.000	25/04/00	11:15 AM
32	NOTAG	0.2 MDL 2	0.190	ppb	12.40	1	0.000	1.000	PB	0.000	25/04/00	11:17 AM
33	NOTAG	0.2 MDL 3	0.198	ppb	12.90	1	0.000	1.000	PB	0.000	25/04/00	11:24 AM
34	NOTAG	0.2 MDL 4 NOT USED	0.192	ppb	12.50	1	0.000	1.000	PB	0.000	25/04/00	11:26 AM
35	NOTAG	0.2 MDL 5	0.190	ppb	12.40	1	0.000	1.000	PB	0.000	25/04/00	11:29 AM
36	NOTAG	0.2 MDL 6	0.216	ppb	14.00	1	0.000	1.000	PB	0.000	25/04/00	11:32 AM
37	NOTAG	0.2 MDL 7	0.207	ppb	13.40	1	0.000	1.000	PB	0.000	25/04/00	11:34 AM
38	NOTAG	0.2 MDL 8	0.210	ppb	13.60	1	0.000	1.000	PB	0.000	25/04/00	11:37 AM
39	NOTAG	CCB 3	0.007	ppb	1.300	1	0.000	1.000	PB	0.000	25/04/00	11:40 AM
40	NOTAG	CCV-CS 3	1.383	ppb	84.70	1	0.000	1.000	PB	0.000	25/04/00	11:43 AM
41	NOTAG	DQC-LFB4	1.567	ppb	95.90	1	0.000	1.000	PB	0.000	25/04/00	11:45 AM

4-26-00

2K027_29.RES Calibration printed on 04/25/00 11:51:16



Active Calibration

Std	Conc	Output	Fit	Runs
1	0.000	2.000	0.018	1
2	0.500	28.30	-0.048	1
3	1.000	61.80	0.005	1
4	1.500	95.40	0.059	1
5	2.000	120.0	-0.035	1

Fit Type: Least Square

Slope = 60.620

Linear Corr Coeff = 0.99853

Y Intercept = 0.880

AA Head

4-26-00

Printed from 2K027_29.RES on 25/04/00

Autosampler Program : 2K027_29.PRG

Line	Pos	Type	Name	Reference	Weight	Unt	Dilution	Unt	Runs
1	01	Calibration	CAL	STD1	0.000	ppb	conc.		1
2	02	Calibration	CAL	STD2	0.500	ppb	conc.		1
3	03	Calibration	CAL	STD3	1.000	ppb	conc.		1
4	04	Calibration	CAL	STD4	1.500	ppb	conc.		1
5	05	Calibration	CAL	STD5	2.000	ppb	conc.		1
6	09	Sample	NOTAG	ICB/LRB	1.000	g	1.000	g	1
7	10	Sample	NOTAG	ICV-CS	1.000	g	1.000	g	1
8	11	Sample	NOTAG	DQC-LFB1	1.000	g	1.000	g	1
9	12	Sample	NOTAG	LFB	1.000	g	1.000	g	1
10	13	Sample	NOTAG	027 S01	1.000	g	1.000	g	1
11	14	Sample	NOTAG	027 S01D	1.000	g	1.000	g	1
12	15	Sample	NOTAG	027 S01S	1.000	g	1.000	g	1
13	16	Sample	NOTAG	S01/2 S	1.000	g	1.000	g	1
14	17	Sample	NOTAG	027 D01	1.000	g	1.000	g	1
15	18	Sample	NOTAG	027 R01	1.000	g	1.000	g	1
16	19	Sample	NOTAG	CCB 1	1.000	g	1.000	g	1
17	20	Sample	NOTAG	CCV-CS 1	1.000	g	1.000	g	1
18	21	Sample	NOTAG	DQC-LFB2	1.000	g	1.000	g	1
19	22	Sample	NOTAG	029 S01	1.000	g	1.000	g	1
20	23	Sample	NOTAG	029 S01D	1.000	g	1.000	g	1
21	24	Sample	NOTAG	029 S01S	1.000	g	1.000	g	1
22	25	Sample	NOTAG	S01/2 S	1.000	g	1.000	g	1
23	26	Sample	NOTAG	029 S02	1.000	g	1.000	g	1
24	27	Sample	NOTAG	029 S03	1.000	g	1.000	g	1
25	28	Sample	NOTAG	029 S04	1.000	g	1.000	g	1
26	29	Sample	NOTAG	029 D04	1.000	g	1.000	g	1
27	30	Sample	NOTAG	CCB 2	1.000	g	1.000	g	1
28	31	Sample	NOTAG	CCV-CS 2	1.000	g	1.000	g	1
29	32	Sample	NOTAG	DQC-LFB3	1.000	g	1.000	g	1
30	33	Sample	NOTAG	0.2 MDL 1	1.000	g	1.000	g	1
31	34	Sample	NOTAG	0.2 MDL 2	1.000	g	1.000	g	1
32	35	Sample	NOTAG	0.2 MDL 3	1.000	g	1.000	g	1
33	36	Sample	NOTAG	0.2 MDL 4	1.000	g	1.000	g	1

4-26-00

34	37	Sample	NOTAG	0.2 MDL 5	1.000	g	1.000	g	1
35	38	Sample	NOTAG	0.2 MDL 6	1.000	g	1.000	g	1
36	39	Sample	NOTAG	0.2 MDL 7	1.000	g	1.000	g	1
37	40	Sample	NOTAG	0.2 MDL 8	1.000	g	1.000	g	1
38	41	Sample	NOTAG	CCB 3	1.000	g	1.000	g	1
39	42	Sample	NOTAG	CCV-CS 3	1.000	g	1.000	g	1
40	43	Sample	NOTAG	DQC-LFB4	1.000	g	1.000	g	1

4-26-00

MERCURY DIGESTION 4-24-00

2000 0027 2000 BB01 S01
S01 DUP
S01 SPK
S01 1/2 SPK *
D01
B01

* SAMPLE DILUTED 10/20 PRIOR TO SPIKING & DIGESTION DUE TO POSSIBLE INTERFERENCES

2000 0029 2000 QL02 S01
S01 DUP
S01 SPK
S01/2 SPK *
S02
S03
S04
D04

- ALL SAMPLES 20 ml
- SPIKES, LFB INCLUDE 200 µl 100 ppb Hg (1.0 ppb Hg ADDED)
- AUTO PREP USING MERCW1 PROGRAM (THROUGH DIGESTION).

0.2 MDL #1 (400 µl 100 ppb Hg → 200 ml)
#2
#3
#4
#5
#6
#7
#8

- MERCURYW PROGRAM (AMINE ADDITION) RUN ON 4-25-00.

STANDARDS: 0, 0.5, 1.0, 1.5, 2.0 ppb (3 TUBES EACH, 4 TUBES OF 2.0)

LRB (ICB/CCB) 4 TUBES
LCMI (ICV-CS/CCV-CS) ↓
LCMO (DQC-LFB)
LFB (SPIKED BLANK) 1 TUBE

4-24-00

ATTACHMENT 1

MERCURY PREPARATION LOG

for WATER SAMPLES

Data Set Number: 20000027 / 29
Method: 245.2
Rack Number: 1 of 5
Analyst (initials): (S. CONNET)
Date: 4-24-00

Position	CRL Sample Identification	Volume (mL)	Comments
1.	EMPTY		
2.	↓		
3.	↓		
4.	0 STD	20 ml	
5.	↓	↓	
6.	↓	↓	
7.	0.5 STD	↓	
8.	↓	↓	
9.	↓	↓	
10.	1.0 STD	↓	
11.	↓	↓	
12.	↓	↓	
13.	1.5 STD	↓	
14.	↓	↓	
15	↓	↓	
16	2.0 STD	↓	
17	↓	↓	
18	↓	↓	4-26-00
19	↓	↓	
20	LRB	↓	
21	↓	↓	

42			

CRL Form 10/1999

ATTACHMENT III

MERCURY PREPARATION LOG

for WATER SAMPLES

Data Set Number: 20000029/29
Method: 245.2
Rack Number: 3 of 5
Analyst (initials): [illegible]
Date: 4-24-00

Position	CRL Sample Identification	Volume (mL)	Comments
43	029 S02	20 ml	
44	S03		
45	S04		
46	D04		
47	0.2 MDL #1		
48	#2		
49	#3		
50	#4		
51	#5		
52	#6		
53	#7		
54	#8		
55	EMPTY		
56			
57			
58			
59			
60			
61			
62			
63			

4-26-00

20000027

501021D

ENVIRONMENTAL PROTECTION AGENCY
FOR THE TEAM: MINERALS - NUTRIENTS

DIVISION/BRANCH SUPERFUND SAMPLE DATE 3-30-2000 LAB ARRIVAL DATE 3/31/2000 DUE DATE 5/1/2000

DU NUMBER 501021D DATA SET NUMBER 20000027 STUDY ACS PRIORITY N CONTRACTOR Black & Veatch

CRL LOG NUMBER	SAMPLE DESCRIPTION	WATER PHENOLICS UG PHENOL/L MIN 74818	WATER CYANIDE UG CN/L MIN 74919	WATER GROSS ALPHA P CI/L MIN 75020	WATER CR^{+6} UG CR^{+6}/L MIN 74616	WATER MERCURY UG HG/L MIN 74717
2000BB01R01	ACS-RB01-201 5-053-953		X			
2000BB01D01	ACS-GW01-101 5053-979		X			
2000BB01S01	ACS-GW01-001 50534-8384-S		X			

CRL Form 10/1999

ATTACHMENT IV

MERCURY PREPARATION LOG

for WATER SAMPLES

Data Set Number: 2000 0027/29
Method: 245.2
Rack Number: 4 of 5
Analyst (initials): [illegible]
Date: 4-24-00

Position	CRL Sample Identification	Volume (mL)	Comments
64	Empty		
65			
66			
67			
68			
69			
70			
71			
72			
73			
74			
75			
76			
77			
78			
79			
80			
81			
82			
83			
84			

4-26-00

CRL Form 10/1999

ATTACHMENT V

MERCURY PREPARATION LOG
for SOIL AND SEDIMENT SAMPLES

Data Set Number: 20000027/29
Method: 245.2
Rack Number: 5 of 5
Analyst (initials): [illegible]
Date: 4-24-00

Position	CRL Sample Identification	Weight (g)	Volume (mL)	Comments
84	Empty			
85				
86				
87				
88				
89				
80				
91				
92				
93				
94				
95				
96				
97				
98				

105

4-26-00

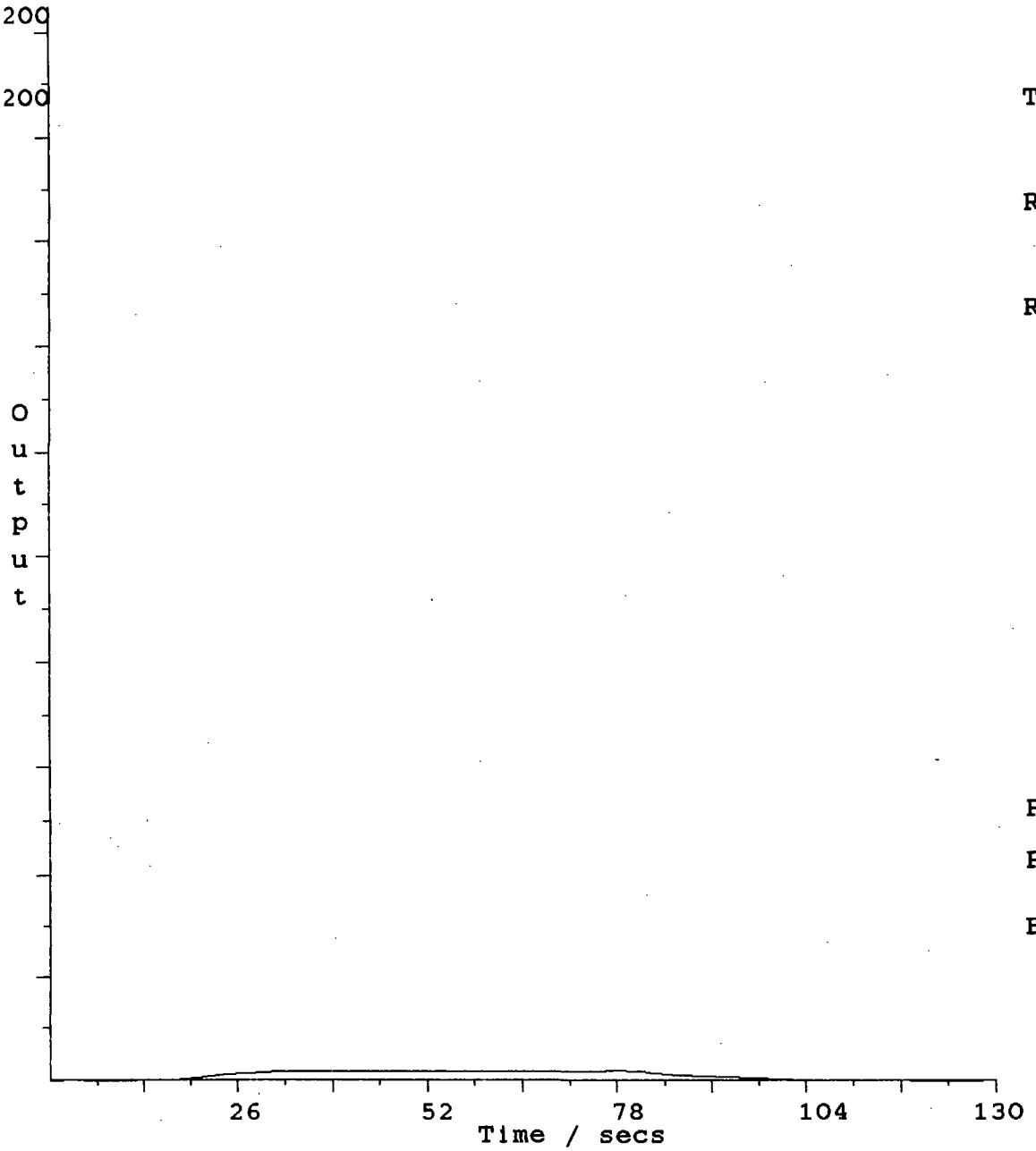
result1 Signal printed on 04/25/00 09:53:19

Signal Plot

Tag:CAL

Ref:

Run:STD1



Peak Ar: 0.00

Peak Ht: 2.00

Base: -0.2

4-26-00

ıg	Ref	Conc\Units		Output	Run	SD	Dilution	CODE	RSD	Date	Time
\L	STD1	0.000	ppb	2.000	1	0.000	----	PB	0.000	25/04/00	09:50 AM

CENTRAL REGIONAL LABORATORY

Data Checklist

Data Set SF20000027 American Chemical Services
AA metals

- [x] Chain-of-Custody
- [ ] Analysis Request Form(s)*
- [ ] Sample Tags
- [x] Transmittal Report w/signatures of the following:
  - Analyst (s)
  - Data Management Coordinator

* Analysis Request Forms provide the data user a means to connect sample numbers with sampling locations

Prepared by: Sylvia Griffin 5/4/00
Data Management Coordinator

Rev. 5/4/00

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5 CENTRAL REGIONAL LABORATORY

536 SOUTH CLARK STREET

CHICAGO, ILLINOIS 60605

Date: MAY 0 4 2000

Subject: Review of Region 5 Data for American Chemical Services Code:05J7

From: ESAT , Chemist
Region 5 Central Regional Laboratory

To:

Attached are the results for Site: American Chemical Services Code:05J7
CRL Data Set Number: 20000027
for analyses of : Antimony, Arsenic, Cadmium, Lead, Selenium and Thallium
Results are reported for sample numbers: 2000BB01S01, 2000BB01D01 and 2000BB01R01

Results Status:
(x) Acceptable for Use
( ) Data Qualified, but Acceptable for use
( ) Data Unacceptable for Use

Sylvia Griffin MAY 0 4 2000

CRL Data Management Coordinator and Date Received

Date Transmitted: MAY 0 4 2000

Please have the US EPA project leader fill out the customer survey form on the Region 5 Intranet: http://www.r5intra.epa.gov/crl/qa.html, (← by clicking on this link, or call George Schupp, CRL Sample Coordinator, at 3-1226).

Please sign and date this form below and return it with any comments to:

Sylvia Griffin
Data Management Coordinator
Region 5 Central Regional Laboratory
ML - 10C

Received by and Date

Comments:

LOCKHEED MARTIN ESAT REGION 5
DATA SET CUSTODY TRANSFER FORM

DATA SET NUMBER 20000027 CONTRACT # 68-D6-0002
SITE NAME: AMERICAN CHEMICAL SERVICE WA NUMBER 05-00-4-04
PARAMETER: GFAA TDF NUMBER 5704-286
MATRIX: WATER PWO # ESE51028

SAMPLE NUMBERS: 2000BB01501, D01, R01

NUMBER OF SAMPLES: 3

ESAT APPROVALS:

M. Mattox 5-1-00
Analyst Date

J. Kary 5-3-2000
Second-Level QA Reviewer Date

5-4-00
Third-Level QA Reviewer Date

5-4-00
ESAT Team Manager Date

COMMENTS: ORIGINAL RAW INSTRUMENT DATA CAN BE FOUND WITH DATA SET 20000029. DATA SET 20000027 ANALYZED WITH DATA SET 20000029

The above identified data set was transferred from ESAT custody to the custody of the U.S. EPA Region V Central Regional Laboratory in its entirety on the indicated date relinquished.

M. Mattox 5-4-00
Relinquished by Date

4 May ..
Received by Date

EPA APPROVALS:

4 May 00
EPA WAM Date

[ ] Reviewed
[ ] Unreviewed
[X] Accepted
[ ] Rejected
[ ] Returned: _____
Date

COMMENTS: _____

[ ] Reviewed [ ] Unreviewed

Section Chief Date

Sylvia Griffin 5/4/00
ESAT RPO Date DATA COORDINATOR/RECD/TRANSMTD

A COPY OF THIS CUSTODY TRANSFER FORM WITH A RECEIVED BY EPA SIGNATURE IS TO BE FILED IN THE TDF FILE. THE ORIGINAL CUSTODY TRANSFER ACCOMPANIES THE DATA SET TO BE APPROVED BY THE EPA AND A COMPLETED COPY RETURNED TO ESAT.

CRL Metals Data Review Checklist

Batch Number: 20000027 Facility: AMERICAN CHEMICAL SERVICE

Parameter: GFAA

Package Overview:	Review:	
	Analyst	Peer
Raw Data Package Complete?	✓	✓
Results Reported Correctly?	✓	✓
Special Requests Done?	NA	
Calculations Checked?	✓	✓
Calibration Not Exceeded?	✓	✓
Field QC Checked?	NA	
Quality Control:		
Holding Times Met?	✓	✓
Preservation Checked?	✓	✓
Proper Digestion Verified?	✓	✓
Initial Instrument Performance Checks Verified?	✓	✓
Calibration Verification Checked?	✓	✓
Sample-Specific QC (Internal Standards or Analytical Spikes) Okay?	✓	✓
Matrix QC Checked?	✓	✓
Digestion Blanks Checked?	✓	✓
Spiked Blank Checked?	NA	X
LCS (if applicable) Checked?	✓	✓
Species QC (if applicable) Checked?	NA	
Final Check:		
Technical Review Done?	✓	✓
Narrative Complete? (See sect. 7 of data review SOP, HK005)	✓	✓

Analyst: M. Matthews Date: 5-1-00

Peer Reviewer: J. Garry Date: 5-3-2000

CRL Form Version 03.1/00

Comments Attached? (Y/N) _____

QC Summary

Analyte	Date	Calibration	LCB (ug/l)	TIME	LCM (ug/l)	%R	TIME	RLC (ug/l)	%R	TIME
As	04/27/00	0.99945	2U ug/l	12:26:04	25.2962422 ug/l	101.18	12:28:55	6.7598428 ug/l	96.57	12:31:53
			2U ug/l	13:04:42	24.8399227 ug/l	99.36	13:07:34	6.2034028 ug/l	88.62	14:23:06
			2U ug/l	13:40:20	24.9845059 ug/l	99.94	13:43:15			
			2U ug/l	14:09:19	24.6571193 ug/l	98.63	14:12:10			
			2U ug/l	14:17:18	23.7581636 ug/l	95.03	14:20:09			
			2U ug/l	14:31:52	25.3272494 ug/l	101.31	14:34:45			
			Limit =		ESAT Limit	CRL Limit		ESAT Limit	CRL Limit	
			+/- 2 ug/l		23.07 - 26.61 ug/l	100% +/- 10%		5.69 - 7.99 ug/l	100% +/- 20%	
Tl	04/28/00	0.99963	1U ug/l	14:43:41	25.2329513 ug/l	100.93	14:46:50	4.3972531 ug/l	109.93	14:50:02
			1U ug/l	15:27:12	25.7661511 ug/l	103.06	15:30:23			
			1U ug/l	16:07:01	25.099998 ug/l	100.40	16:10:10			
			1U ug/l	16:39:45	24.3045319 ug/l	97.22	16:42:56			
			Limit =		ESAT Limit	CRL Limit		ESAT Limit	CRL Limit	
			+/- 1 ug/l		22.5 - 27.5 ug/l	100% +/- 10%		3.2 - 4.8 ug/l	100% +/- 20%	
Cd	04/24/00	0.99985	0.1U ug/l	14:54:48	1.28949224 ug/l	103.16	14:57:57	0.3096578 ug/l	103.22	15:01:09
			0.1U ug/l	15:40:12	1.30169471 ug/l	104.14	15:43:21	0.307599 ug/l	102.53	15:04:24
			0.1U ug/l	16:18:59	1.32143158 ug/l	105.71	16:22:08			
			0.1U ug/l	16:50:30	1.32573843 ug/l	106.06	16:53:37			
			Limit =		ESAT Limit	CRL Limit		ESAT Limit	CRL Limit	
			+/- 0.1 ug/l		1.125 - 1.375 ug/l	100% +/- 10%		0.24 - 0.36 ug/l	100% +/- 20%	
Pb	04/28/00	0.99959	2U ug/l	10:11:24	25.0242142 ug/l	100.10	10:14:31	6.8161095 ug/l	97.37	10:17:45
			2U ug/l	10:53:27	26.4936672 ug/l	105.97	10:56:36	7.4973502 ug/l	107.11	12:22:19
			2U ug/l	11:32:11	26.7782285 ug/l	107.11	11:35:20			
			2U ug/l	12:03:47	26.7560551 ug/l	107.02	12:06:55			
			2U ug/l	12:15:58	26.9985374 ug/l	107.99	12:19:06			
			2U ug/l	12:44:29	27.1404709 ug/l	108.56	12:47:38			
			Limit =		ESAT Limit	CRL Limit		ESAT Limit	CRL Limit	
			+/- 2 ug/l		23.71 - 27.17 ug/l	100% +/- 10%		5.6 - 8.4 ug/l	100% +/- 20%	

M. Mattox 5-3-00

Analyte	Date	Calibration R value	LCB (ug/l)	TIME	LCM (ug/l)	%R	TIME	RLC (ug/l)	%R	TIME
Se	04/27/00	0.99832	2U ug/l	10:49:14	25.450713 ug/l	101.80	10:52:04	6.42183089 ug/l	91.74	10:54:56
			2U ug/l	11:28:28	24.911637 ug/l	99.65	11:31:17	6.54482399 ug/l	93.50	13:42:22
			2U ug/l	12:04:18	24.876364 ug/l	99.51	12:07:07	7.75149798 ug/l	110.74	15:04:48
			2U ug/l	12:33:44	23.373647 ug/l	93.49	12:36:33	6.72859864 ug/l	96.12	15:10:37
		0.99975	2U ug/l	13:36:40	23.124315 ug/l	92.50	13:39:30			
			2U ug/l	14:15:42	23.451985 ug/l	93.81	14:18:32			
			2U ug/l	14:33:17	24.286092 ug/l	97.14	14:36:06			
		0.99867	2U ug/l	14:59:06	25.358211 ug/l	101.43	15:01:56			
			2U ug/l	15:19:28	26.123435 ug/l	104.49	15:07:44			
					25.621385 ug/l	102.49	15:22:16			
			Limit = +/- 2 ug/l		ESAT Limit 22.5 - 27.5 ug/l	CRL Limit 100% +/- 10%		ESAT Limit 5.6 - 8.4 ug/l	CRL Limit 100% +/- 20%	
Sb	04/27/00	0.99829	2U ug/l	16:53:49	27.118029 ug/l	108.47	16:56:29	6.38356 ug/l	91.19	16:59:13
			2U ug/l	17:29:35	24.865218 ug/l	99.46	17:32:16			
	04/28/00	0.99811	2U ug/l	13:14:27	26.42495 ug/l	105.70	13:17:06	7.1523504 ug/l	102.18	13:19:50
			2U ug/l	13:50:15	25.425521 ug/l	101.70	13:52:55	6.76303985 ug/l	96.61	17:27:20
			2U ug/l	14:23:01	26.308868 ug/l	105.24	14:25:41	7.10528067 ug/l	101.50	18:19:46
			2U ug/l	17:21:57	26.979353 ug/l	107.92	17:24:36			
		0.99902	2U ug/l	17:57:36	24.857939 ug/l	99.43	18:00:16			
			2U ug/l	18:08:19	25.486822 ug/l	101.95	18:10:58			
			2U ug/l	18:14:23	25.017346 ug/l	100.07	18:17:02			
			2U ug/l	18:28:03	25.709436 ug/l	102.84	18:30:42			
			Limit = +/- 2 ug/l		ESAT Limit 22.5 - 27.5 ug/l	CRL Limit 100% +/- 10%		ESAT Limit 5.69 - 7.99 ug/l	CRL Limit 100% +/- 20%	

M. Mattox 5-3-00

Analyte	Preparation Blank	LCS Result	ESAT Limit	LCS % Recovery	Spike % Recovery	ESAT Spike Recovery Limit
As	2U ug/l	9.5 ug/l	8 - 11.62 ug/l	95.13%	95.19%	85% - 114.3%
Tl	1U ug/l	9.9 ug/l	8 - 12 ug/l	99.39%	98.26%	85% - 115%
Pb	2U ug/l	10.2 ug/l	8.65 - 11.87 ug/l	101.96%	98.82%	85% - 115%
Se	2U ug/l	8.6 ug/l	8.35 - 12 ug/l	86.54%	89.33%	85% - 115%
Sb	2U ug/l	9.9 ug/l	8 - 12ug/l	99.34%	88.47%	85% - 115%
	Limit = +/- IDL			CRL Limit = 100 +/- 20% LCS True Value = 10 ug/l	CRL Limit = 100 +/- 15% Spike True Value 50 ug/l	
Cd	0.1U ug/l	1.07 ug/l	0.81 - 1.2 ug/l	107.19%	100.81%	85% - 115%
	Limit = +/- 0.1 ug/l			Limit = 100 +/- 20% LCS True Value = 1.0 ug/l	Limit = 100 +/- 15% Spike True Value 5.0 ug/l	

See raw data cover sheets for actual values.

Analyte	ESAT Analytical Spike Limits	ESAT Duplicate Limits	CRL Duplicate Limits
As	90% - 108.56%	Dup. Diff. < 1.77 ug/l	Dup. Diff. < IDL, IDL = 2 ug/l
Tl	90% - 110%	Dup. Diff. < 1.00 ug/l	Dup. Diff. < IDL, IDL = 1 ug/l
Pb	90% - 107.42%	Dup. Diff. < 1.31 ug/l	Dup. Diff. < IDL, IDL = 2 ug/l
Se	90% - 110%	Dup. Diff. < 1.99 ug/l	Dup. Diff. < IDL, IDL = 2 ug/l
Sb	90% - 110%	Dup. Diff. > 1.22 ug/l(Actual Dup diff. 1.4 ug/l)	Dup. Diff. < IDL, IDL = 2 ug/l
			CRL Limit = +/- IDL
Cd	90% - 107.21%	Dup. Diff. < 0.1 ug/l	Dup. Diff. < IDL, IDL = 0.1 ug/l
			CRL Limit = +/- IDL

M. Mattel 5-3-00

Lockheed Martin Services Group
Environmental Services & Technologies Region 5
536 South Clark Street #1050 Chicago, IL 60605
Telephone 312-353-8302 Facsimile 312-353-8307

LOCKHEED MARTIN

Date: May 3, 2000

To: John Morris, EPA WAM

From: Marjorie Mattox, ESAT Chemist

Thru: Ziyad Rajabi, ESAT Team Manager

Copies: John Ganz, ESAT Inorganic Group Leader
Jay Thakkar, ESAT Contract RPO

Ref: TDF# 5104-286
WA# 05-00-4-04
Contract # 68D60002

SUBJECT: Data Set SF20000027: Metals Analyses of American Chemical Service site - 3 Samples
(2000BB01S01, D01, R01)
Using Method **GFAA for water**

Attached is the deliverable for Data Set 20000027, metals analysis of 3 water samples. Included in the deliverable is the case narrative and QC reports. The raw data can be found with data set 20000029. If you have any questions please feel free to contact ESAT.

M. Mattox 5-3-00

Parameter: GFAA
Method: GFAA for water
Site: American Chemical Service
Analyst: M. Mattox M. Mattox
Date: May 3, 2000 5-3-00

Data Set: 20000027
TDF: 5104-286
PWO: ESE51028
WAD: 05-00-4-04

NARRATIVE

Three (3) water samples from the American Chemical Service site (data set 20000027) were collected on March 30, 2000. The water samples are stated with the sample number and station identification as follows: 2000BB01S01 (ACS-GW01-001), 2000BB01D01 (ACS-GW01-101), and 2000BB01R01 (ACS-RB01-201). The samples were received properly preserved by CRL on March 31, 2000. These samples were assigned to ESAT for arsenic, lead, antimony, selenium, thallium, and cadmium analysis by GFAA.

The samples were digested with data set 20000029 following standard CRL GFAA digestion protocols on April 21, 2000 as batch 1171. The samples were redigested on April 27, 2000 as batch 1174 due to a low antimony spike recovery and a high lead LCS recovery on batch 1171. Therefore arsenic, selenium, cadmium and thallium results are reported using batch 1171. Lead and antimony results are reported using batch 1174.

Arsenic analysis was performed on 5100W due to problems with the 6000. The 6000 had a problem obtaining consistent values. The lowest possible detection limit obtainable was 2 ug/l. Aside from that all other QC was acceptable.

Analytical results were stored in the following database files:
H:\r5crl\vol3\metals\mmattox\20000027\5100W-As\042700
H:\r5crl\vol3\metals\mmattox\20000027\5100W-Sb\042700 and 042800
H:\r5crl\vol3\metals\mmattox\20000027\5100E-Cd\042400
H:\r5crl\vol3\metals\mmattox\20000027\5100E-Pb\042800
H:\r5crl\vol3\metals\mmattox\20000027\5100E-Se\042700
H:\r5crl\vol3\metals\mmattox\20000027\5100E-Tl\042800

This narrative is stored in H:\r5crl\vol3\metals\mmattox\20000027\Reports\GFAA Narrative
The spreadsheet is stored in H:\r5crl\vol3\metals\mmattox\20000027\Reports\GFAA Results.
The QC summary is stored in H:\r5crl\vol3\metals\mmattox\20000027\Reports\QC Summary.

The antimony duplicate difference was greater than the ESAT limit but less than the instrument detection limit. All results are non-detects, therefore all antimony results are usable. This data set was analyzed with data set 20000029. All other QC audits were in control; all water sample results are acceptable.

At this time RLIMS is not available, therefore WordPerfect reports were generated. Excel spreadsheet reports were also generated for each element analytical run and can be found with WordPerfect run data in the database files for each analytical run. Time must be allotted in the future to enter the data into RLIMS when it does become available.

CRL Data Review Qualification Codes

QUALIFIER	DESCRIPTION
B	This flag is used when the analyte is found in the associated ***B***lank as well as the sample. It indicates possible blank contamination and warns the user to take appropriate action while assessing the data. See the case narrative for a discussion of common lab contaminants and/or the relative concentration of contamination in the samples and blanks for relevance.
D	This flag is used when the analyte concentration results from a required ***D***ilution of the sample, extract or digestate.
E	This flag is used to identify analyte concentrations ***E***xceeding the upper calibration range of the analytical instrument after dilution of the sample, extract or digestate. The reported value is considered to be estimated
J	This flag is used when the analyte is estimated due to quality control limit(s) being exceeded. This flag accompanies all GC/MS tentatively identified compounds (TICs). This flag also applies to a suspected, unidentified interference. This flag is placed on affected detected results as well as non-detected (i.e., "U" flagged) results. (***J*** is the flag used in the Superfund CLP SOW and Data Review Functional Guidelines and is used by CRL for consistency.)
M	This flag is used when the analyte is confirmed to be qualitatively present in the sample, extract or digestate, at or above the CRL ***M***ethod Detection Limit (MDL) but below the CRL reporting limit (RL). This flag applies to all values in this concentration range and indicates the quantitated value is estimated due to its presence in this concentration range.
N	This flag applies to GC/MS Te***N***tatively Identified Compounds (TICs) that have a mass spectral library match.
Q	This flag applies to analyte data that are severely estimated due to quality control and/or ***Q***uantitation problems, but are confirmed to be qualitatively present in the sample. No value is reported with this qualification flag.
R	This flag applies to analyte data that are ***R***ejected and unusable due to severe quality control, quantitation and/or qualitative identification problems. No other qualification flags are reported for this analyte. No value is reported with this qualification flag.
U	This flag in used when the analyte was analyzed but ***U***ndetected in the sample. The CRL RL for the analyte accompanies this flag. As with sample results that are positive, the value is corrected for dry weight, dilution and/or sample weight or volume.

4/11/00

ENVIRONMENTAL PROTECTION AGENCY
REGION V
CENTRAL REGIONAL LABORATORY
FINAL RESULT REPORT FOR THE TEAM: METALS

DIVISION/BRANCH: SUPERFUND **SAMPLING DATE:** 3/30/00 **LAB ARRIVAL DATE:** 3/31/00 **DUE DATE:** 5/1/00
DU NUMBER: 50102D **DATASET NUMBER:** 20000027 **STUDY:** American Chemical Service **PRIORITY:** Routine **LABORATORY :**ESAT

	CRL LOG NUMBER	SAMPLE DESCRIPTION	WATER Antimony (ug/l)	WATER Arsenic (ug/l)	WATER Cadmium (ug/l)	WATER Lead (ug/l)	WATER Selenium (ug/l)	WATER Thallium (ug/l)
1	**2000BB01S01**	ACS-GW01-001	2U	4 M	0.1U	2U	2U	1U
2	**2000BB01D01**	ACS-GW01-101	2U	4 M	0.1U	2U	2U	1U
3	**2000BB01R01**	ACS-RB01-201	4U D	2U	0.1U	2U	2U	1U
DATE OF ANALYSIS		5-3-00	4/27, 4/28/00	4/27/00	4/24/00	4/28/00	4/27/00	4/28/00
ANALYST		M. Mattox	M. Mattox	M. Mattox	M. Mattox	M. Mattox	M. Mattox	M. Mattox

Reviewed by: J. Gary Date: 5/ 3/ 2000

METALS SAMPLE PREPARATION RECORD

Prepared by: M. MATTOX **Run Number:** 1171
Digestion Method: CLP BEAKER **Date:** 4-21-00

Vessel Number	Data Set Number	Sample Number	pH < 2?	Sample Description (Color, Clarity, Texture, Artifacts, etc...)		Remarks
			Y/N*	Before Prep.	After Prep.	
1	D. BLANK			clear	clear	
2	LCS					
3	20000027	2000BB01S01	Y			
4		S01D				
5		S01S				
6		D01				
7		R01				
8	20000029	2000L02S01				
9		S01D				
10		S01S				
11		S02				
12		S03				
13		S04				
14		D04				

* Please note: A minimum of 16 hours from time of sampling must elapse before pH of sample can be taken.
If pH > 2, record and date in the Remarks column the actual pH and the amount of acid added to bring pH to < 2.

Comments: SPIKES: 0.5 ml 5ppm As, Pb, Sb, Se, Tl
2.5 ml 100 ppb Cd

LCS: 0.1 ml 5ppm As, Pb, Sb, Se, Tl
0.5 ml 100ppb Cd

M. Mattox 5-3-00
M. Mattox 5-1-00

CRL Form 10/1999

METALS SAMPLE PREPARATION RECORD

Prepared by: M. MATTOX
Digestion Method: CLP BEAKER

Run Number: 1174
Date: 4-27-00

Redigest of 1171

Vessel Number	Data Set Number	Sample Number	pH < 2? Y/N*	Sample Description (Color, Clarity, Texture, Artifacts, etc...) Before Prep.	After Prep.	Remarks
1	D. BLANK			clear	clear	
2	LCS					
3	20000027	2000BB01S01	Y			
4		S01D				
5		S01S				
6		D01				
7		R01				
8	20000029	2000OL02S01				
9		S01D				
10		S01S				
11		S02				
12		S03				
13		S04				
14		D04				

* Please note: A minimum of 16 hours from time of sampling must elapse before pH of sample can be taken.
If pH > 2, record and date in the Remarks column the actual pH and the amount of acid added to bring pH to < 2.

Comments: SPIKES: 0.5 ml 5ppm As, Pb, Sb, Se, Tl
2.5 ml 100 ppb Cd

LCS: 0.1 ml 5ppm As, Pb, Sb, Se, Tl
0.5 ml 100 ppb Cd

CRL Form 10/1999

M. Mattox 5-3-00
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? Sample_ID	Superfund #	EL	Sam_Date	Sam_Time	Mean_ST	Mean_SA	Dilu	%Rec	Result		Limit	Comments
BLANK		Se	04/27/2000	10:21:53						Not used		
STANDARD 1		Se	04/27/2000	10:24:40						Not used		
STANDARD 2		Se	04/27/2000	10:27:29						Not used		
BLANK		Se	04/27/2000	10:32:15								
STANDARD 1		Se	04/27/2000	10:35:02								
STANDARD 2		Se	04/27/2000	10:37:51						R = 0.99832		
STANDARD 3		Se	04/27/2000	10:40:41								
STANDARD 4		Se	04/27/2000	10:43:32								
STANDARD 5		Se	04/27/2000	10:46:25								
LCB (0 ug/l)		Se	04/27/2000	10:49:14	-0.3184684	-0.3184684				2U ug/l	Limit = +/- 2 ug/l	
LCM (25 ug/l)		Se	04/27/2000	10:52:04	25.4507137	25.4507125				% R = 101.80	ESAT Limit = 22.5 - 27.5 ug/l	CRL Limit = 100 +/- 10%
RLC (7 ug/L)		Se	04/27/2000	10:54:56	6.42183119	6.42183089				% R = 91.74	ESAT Limit = 5.6 - 8.4 ug/l	CRL Limit = 100 +/- 20%
1171 D. BLANK		Se	04/27/2000	10:57:51	0.30925277	0.30925276			2U ug/l			
1171 D. BLANK		Se	04/27/2000	11:01:04	20.0251486	20.0251477		98.57				
1171 LCS		Se	04/27/2000	11:03:58	8.82266259	8.82266217				Not used		
1171 LCS		Se	04/27/2000	11:07:12	31.6320836	31.6320821		114		Not used		
2000BB01S01	20000027	Se	04/27/2000	11:10:05	-0.0285362	-0.0285362			2U ug/l			
2000BB01S01	20000027	Se	04/27/2000	11:13:21	18.2258059	18.2258051		91.27				
2000BB01S01D	20000027	Se	04/27/2000	11:16:14	-0.8991915	-0.8991915				Not used		
2000BB01S01D	20000027	Se	04/27/2000	11:19:29	16.8325726	16.8325718		88.65		Not used		
2000BB01S01S	20000027	Se	04/27/2000	11:22:21	8.89223852	44.4611905	5			Not used		
2000BB01S01S	20000027	Se	04/27/2000	11:25:37	31.1504047	155.752016	5	111.2		Not used		
LCB (0 ug/l)		Se	04/27/2000	11:28:28	1.02569536	1.02569531				2U ug/l	Limit = +/- 2 ug/l	
LCM (25 ug/l)		Se	04/27/2000	11:31:17	24.9116382	24.911637				% R = 99.65	ESAT Limit = 22.5 - 27.5 ug/l	CRL Limit = 100 +/- 10%
2000BB01D01	20000027	Se	04/27/2000	11:34:07	-1.9438151	-1.9438151			2U ug/l			
2000BB01D01	20000027	Se	04/27/2000	11:37:22	18.236228	18.2362271		100.9				
2000BB01R01	20000027	Se	04/27/2000	11:40:11	-0.688101	-0.6881009			2U ug/l			
2000BB01R01	20000027	Se	04/27/2000	11:43:25	20.6919804	20.6919794		106.9				
2000OL02S01	20000029	Se	04/27/2000	11:46:15	-0.2376417	-0.2376417			2U ug/l			
2000OL02S01	20000029	Se	04/27/2000	11:49:29	19.1270215	19.1270206		96.82				
2000OL02S01D	20000029	Se	04/27/2000	11:52:18	0.68055363	0.6805536				Not used		
2000OL02S01D	20000029	Se	04/27/2000	11:55:29	18.5696618	18.569661		89.44		Not used		
2000OL02S01S	20000029	Se	04/27/2000	11:58:18	8.23019061	41.1509511	5			Not used		
2000OL02S01S	20000029	Se	04/27/2000	12:01:28	31.0673903	155.336944	5	114.1		Not used		
LCB (0 ug/l)		Se	04/27/2000	12:04:18	-0.995693	-0.995693				2U ug/l	Limit = +/- 2 ug/l	
LCM (25 ug/l)		Se	04/27/2000	12:07:07	24.8763651	24.8763639				% R = 99.51	ESAT Limit = 22.5 - 27.5 ug/l	CRL Limit = 100 +/- 10%
2000OL02S02	20000029	Se	04/27/2000	12:09:55	-0.369776	-0.369776			2U ug/l			
2000OL02S02	20000029	Se	04/27/2000	12:13:04	18.7570576	18.7570567		95.63				
2000OL02S03	20000029	Se	04/27/2000	12:15:52	-1.4818977	-1.4818976			2U ug/l			
2000OL02S03	20000029	Se	04/27/2000	12:19:00	19.9246989	19.924698		107				
2000OL02S04	20000029	Se	04/27/2000	12:21:49	-2.8807278	-2.8807276				Not used		
2000OL02S04	20000029	Se	04/27/2000	12:24:57	16.9625796	16.9625788		99.21		Not used		
2000OL02D04	20000029	Se	04/27/2000	12:27:47	-2.057344	-2.0573439				Not used		
2000OL02D04	20000029	Se	04/27/2000	12:30:53	17.7112284	17.7112276		98.84		Not used		
LCB (0 ug/l)		Se	04/27/2000	12:33:44	1.24145413	1.24145407				2U ug/l	Limit = +/- 2 ug/l	
LCM (25 ug/l)		Se	04/27/2000	12:36:33	23.3736485	23.3736474				% R = 93.49	ESAT Limit = 22.5 - 27.5 ug/l	CRL Limit = 100 +/- 10%

LCM True Value = 25 ug/l
RLC True Value = 7 ug/l
LCS True Value = 10 ug/l
Spike True Value = 50 ug/l
Instrument Detection Limit = 2 ug/l
ESAT Analytical Spike Recovery Limit = 90% - 110%

Not used = Data which is rejected or not used due to unacceptable results which *do not meet acceptable criteria.*

M. Mattop 5-3-00

? Sample_ID	Superfund #	EL	Sam_Date	Sam_Time	Mean_ST	Mean_SA	Dilu	%Rec			Limit	Comments
BLANK		Se	04/27/2000	13:02:36						Not used		
STANDARD 1		Se	04/27/2000	13:05:24						Not used		
STANDARD 2		Se	04/27/2000	13:08:13						Not used		
STANDARD 3		Se	04/27/2000	13:11:03						Not used		
STANDARD 4		Se	04/27/2000	13:13:56						Not used		
STANDARD 5		Se	04/27/2000	13:16:48						Not used		
BLANK		Se	04/27/2000	13:19:37								
STANDARD 1		Se	04/27/2000	13:22:25								
STANDARD 2		Se	04/27/2000	13:25:14						R = 0.99975		
STANDARD 3		Se	04/27/2000	13:28:05								
STANDARD 4		Se	04/27/2000	13:30:56								
STANDARD 5		Se	04/27/2000	13:33:50								
LCB (0 ug/l)		Se	04/27/2000	13:36:40	-0.674453	-0.6744529				2U ug/l	Limit = +/- 2 ug/l	
LCM (25 ug/l)		Se	04/27/2000	13:39:30	23.1243161	23.124315				%R = 92.50	ESAT Limit = 22.5 - 27.5 ug/l	CRL Limit = 100 +/- 10%
RLC (7 ug/L)		Se	04/27/2000	13:42:22	6.5448243	6.54482399				%R = 93.50	ESAT Limit = 5.6 - 8.4 ug/l	CRL Limit = 100 +/- 20%
1171 LCS		Se	04/27/2000	13:45:18	8.65354247	8.65354206				%R = 86.54	ESAT Limit = 8.35 - 12 ug/l	CRL Limit = 100 +/- 20%
1171 LCS		Se	04/27/2000	13:48:34	28.7617674	28.761766		100.5				
2000BB01S01D	20000027	Se	04/27/2000	13:51:27	-1.1731646	-1.1731646			2U ug/l		Dup. diff. < 1.99 ug/l (ESAT Limit)	CRL Limit = Dup. diff. < IDL
2000BB01S01D	20000027	Se	04/27/2000	13:54:44	17.6953565	17.6953557		94.34				
2000BB01S01S	20000027	Se	04/27/2000	13:57:36	8.93265878	44.6632917	5			%R = 89.33	Esat Limit = 85% - 115%	CRL Limit = 100 +/- 15%
2000BB01S01S	20000027	Se	04/27/2000	14:00:52	30.2573246	151.286616	5	106.6				
2000OL02S01D	20000029	Se	04/27/2000	14:03:40	-0.8299624	-0.8299624			2U ug/l		Dup. diff. < 1.99 ug/l (ESAT Limit)	CRL Limit = Dup. diff. < IDL
2000OL02S01D	20000029	Se	04/27/2000	14:06:52	18.7865709	18.78657		98.08				
2000OL02S01S	20000029	Se	04/27/2000	14:09:41	9.03707359	45.1853658	5			%R = 90.37	Esat Limit = 85% - 115%	CRL Limit = 100 +/- 15%
2000OL02S01S	20000029	Se	04/27/2000	14:12:51	29.622328	148.111633	5	102.9				
LCB (0 ug/l)		Se	04/27/2000	14:15:42	-0.7515856	-0.7515855				2U ug/l	Limit = +/- 2 ug/l	
LCM (25 ug/l)		Se	04/27/2000	14:18:32	23.4519865	23.4519853				%R = 93.81	ESAT Limit = 22.5 - 27.5 ug/l	CRL Limit = 100 +/- 10%
2000OL02S04	20000029	Se	04/27/2000	14:21:19	-1.3647702	-1.3647701			2U ug/l			
2000OL02S04	20000029	Se	04/27/2000	14:24:27	17.7667037	17.7667028		95.65				
2000OL02D04	20000029	Se	04/27/2000	14:27:17	-2.3680975	-2.3680974				Not used		
2000OL02D04	20000029	Se	04/27/2000	14:30:24	16.801361	16.8013602		95.84		Not used		
LCB (0 ug/l)		Se	04/27/2000	14:33:17	-1.2133911	-1.2133911				2U ug/l	Limit = +/- 2 ug/l	
LCM (25 ug/l)		Se	04/27/2000	14:36:06	24.2860929	24.2860918				97.14	ESAT Limit = 22.5 - 27.5 ug/l	CRL Limit = 100 +/- 10%
LCB (0 ug/l)		Se	04/27/2000	14:39:19	-2.1354095	-2.1354094				Not used		
BLANK		Se	04/27/2000	14:42:06								
STANDARD 1		Se	04/27/2000	14:44:54								
STANDARD 2		Se	04/27/2000	14:47:43						R = 0.99867		
STANDARD 3		Se	04/27/2000	14:50:32								
STANDARD 4		Se	04/27/2000	14:53:24								
STANDARD 5		Se	04/27/2000	14:56:16								
LCB (0 ug/l)		Se	04/27/2000	14:59:06	-1.8604715	-1.8604714				2U ug/l	Limit = +/- 2 ug/l	
LCM (25 ug/l)		Se	04/27/2000	15:01:56	25.3582124	25.3582112				%R = 101.43	ESAT Limit = 22.5 - 27.5 ug/l	CRL Limit = 100 +/- 10%
RLC (7 ug/L)		Se	04/27/2000	15:04:48	7.75149834	7.75149798				%R = 110.74	ESAT Limit = 5.6 - 8.4 ug/l	CRL Limit = 100 +/- 20%
LCM (25 ug/l)		Se	04/27/2000	15:07:44	26.1234358	26.1234345				%R = 104.49	Limit = +/- 2 ug/l	
RLC (7 ug/L)		Se	04/27/2000	15:10:37	6.72859896	6.72859864				%R = 96.12	ESAT Limit = 22.5 - 27.5 ug/l	CRL Limit = 100 +/- 10%
2000OL02D04	20000029	Se	04/27/2000	15:13:28	-1.7422134	-1.7422133			2U ug/l			
2000OL02D04	20000029	Se	04/27/2000	15:16:37	19.0696964	19.0696954		104				
LCB (0 ug/l)		Se	04/27/2000	15:19:28	-1.2029884	-1.2029884				2U ug/l	Limit = +/- 2 ug/l	
LCM (25 ug/l)		Se	04/27/2000	15:22:16	25.6213861	25.6213849				%R = 102.49	ESAT Limit = 22.5 - 27.5 ug/l	CRL Limit = 100 +/- 10%

LCM True Value = 25 ug/l
RLC True Value = 7 ug/l
LCS True Value = 10 ug/l
Spike True Value = 50 ug/l
Instrument Detection Limit = 2 ug/l
ESAT Analytical Spike Recovery Limit = 90% - 110%

Not used = Data which is rejected or not used due to unacceptable results which do not meet acceptable criteria.

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Sample_ID	EL	Sam_Date	Sam_Time	Mean_ST	Mean_SA	Dilu	Rec
BLANK	Se	04/27/2000	10:21:53				
STANDARD 1	Se	04/27/2000	10:24:40	Not used			
STANDARD 2	Se	04/27/2000	10:27:29				
BLANK	Se	04/27/2000	10:32:15				
STANDARD 1	Se	04/27/2000	10:35:02				
STANDARD 2	Se	04/27/2000	10:37:51				
STANDARD 3	Se	04/27/2000	10:40:41				
STANDARD 4	Se	04/27/2000	10:43:32				
STANDARD 5	Se	04/27/2000	10:46:25				
LCB (0 ug/l)	Se	04/27/2000	10:49:14	-0.3184684	-0.3184684		
LCM (25 ug/l)	Se	04/27/2000	10:52:04	25.4507137	25.4507125		
RLC (7 ug/L)	Se	04/27/2000	10:54:56	6.42183119	6.42183089		
1171 D. BLANK	Se	04/27/2000	10:57:51	0.30925277	0.30925276		
1171 D. BLANK	Se	04/27/2000	11:01:04	20.0251486	20.0251477		98.57
1171 LCS	Se	04/27/2000	11:03:58	8.82266259	8.82266217		Not used
1171 LCS	Se	04/27/2000	11:07:12	31.6320836	31.6320821		114.0
2000BB01S01	Se	04/27/2000	11:10:05	-0.0285362	-0.0285362		
2000BB01S01	Se	04/27/2000	11:13:21	18.2258059	18.2258051		91.27
2000BB01S01D	Se	04/27/2000	11:16:14	-0.8991915	-0.8991915		
2000BB01S01D	Se	04/27/2000	11:19:29	16.8325726	16.8325718		88.65
2000BB01S01S	Se	04/27/2000	11:22:21	8.89223852	44.4611905	5	Not used
2000BB01S01S	Se	04/27/2000	11:25:37	31.1504047	155.752016	5	111.2
LCB (0 ug/l)	Se	04/27/2000	11:28:28	1.02569536	1.02569531		
LCM (25 ug/l)	Se	04/27/2000	11:31:17	24.9116382	24.9116370		
2000BB01D01	Se	04/27/2000	11:34:07	-1.9438151	-1.9438151		
2000BB01D01	Se	04/27/2000	11:37:22	18.2362280	18.2362271		100.9
2000BB01R01	Se	04/27/2000	11:40:11	-0.6881010	-0.6881009		
2000BB01R01	Se	04/27/2000	11:43:25	20.6919804	20.6919794		106.9
2000OL02S01	Se	04/27/2000	11:46:15	-0.2376417	-0.2376417		
2000OL02S01	Se	04/27/2000	11:49:29	19.1270215	19.1270206		96.82
2000OL02S01D	Se	04/27/2000	11:52:18	0.68055363	0.68055360		
2000OL02S01D	Se	04/27/2000	11:55:29	18.5696618	18.5696610		89.44
2000OL02S01S	Se	04/27/2000	11:58:18	8.23019061	41.1509511	5	Not used
2000OL02S01S	Se	04/27/2000	12:01:28	31.0673903	155.336944	5	114.1
LCB (0 ug/l)	Se	04/27/2000	12:04:18	-0.9956930	-0.9956930		
LCM (25 ug/l)	Se	04/27/2000	12:07:07	24.8763651	24.8763639		
2000OL02S02	Se	04/27/2000	12:09:55	-0.3697760	-0.3697760		
2000OL02S02	Se	04/27/2000	12:13:04	18.7570576	18.7570567		95.63
2000OL02S03	Se	04/27/2000	12:15:52	-1.4818977	-1.4818976		
2000OL02S03	Se	04/27/2000	12:19:00	19.9246989	19.9246980		107.0
2000OL02S04	Se	04/27/2000	12:21:49	-2.8807278	-2.8807276		
2000OL02S04	Se	04/27/2000	12:24:57	16.9625796	16.9625788		99.21
2000OL02D04	Se	04/27/2000	12:27:47	-2.0573440	-2.0573439		Not used
2000OL02D04	Se	04/27/2000	12:30:53	17.7112284	17.7112276		98.84
LCB (0 ug/l)	Se	04/27/2000	12:33:44	1.24145413	1.24145407		
LCM (25 ug/l)	Se	04/27/2000	12:36:33	23.3736485	23.3736474		
BLANK	Se	04/27/2000	13:02:36				
STANDARD 1	Se	04/27/2000	13:05:24	Not used			
STANDARD 2	Se	04/27/2000	13:08:13				
STANDARD 3	Se	04/27/2000	13:11:03				

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STANDARD 4	Se	04/27/2000	13:13:56				Not used
STANDARD 5	Se	04/27/2000	13:16:48				
BLANK	Se	04/27/2000	13:19:37				
STANDARD 1	Se	04/27/2000	13:22:25				
STANDARD 2	Se	04/27/2000	13:25:14				
STANDARD 3	Se	04/27/2000	13:28:05				
STANDARD 4	Se	04/27/2000	13:30:56				
STANDARD 5	Se	04/27/2000	13:33:50				
LCB (0 ug/l)	Se	04/27/2000	13:36:40	-0.6744530	-0.6744529		
LCM (25 ug/l)	Se	04/27/2000	13:39:30	23.1243161	23.1243150		
RLC (7 ug/L)	Se	04/27/2000	13:42:22	6.54482430	6.54482399		
1171 LCS	Se	04/27/2000	13:45:18	8.65354247	8.65354206		
1171 LCS	Se	04/27/2000	13:48:34	28.7617674	28.7617660		100.5
2000BB01S01D	Se	04/27/2000	13:51:27	-1.1731646	-1.1731646		
2000BB01S01D	Se	04/27/2000	13:54:44	17.6953565	17.6953557		94.34
2000BB01S01S	Se	04/27/2000	13:57:36	8.93265878	44.6632917	5	
2000BB01S01S	Se	04/27/2000	14:00:52	30.2573246	151.286616	5	106.6
2000OL02S01D	Se	04/27/2000	14:03:40	-0.8299624	-0.8299624		
2000OL02S01D	Se	04/27/2000	14:06:52	18.7865709	18.7865700		98.08
2000OL02S01S	Se	04/27/2000	14:09:41	9.03707359	45.1853658	5	
2000OL02S01S	Se	04/27/2000	14:12:51	29.6223280	148.111633	5	102.9
LCB (0 ug/l)	Se	04/27/2000	14:15:42	-0.7515856	-0.7515855		
LCM (25 ug/l)	Se	04/27/2000	14:18:32	23.4519865	23.4519853		
2000OL02S04	Se	04/27/2000	14:21:19	-1.3647702	-1.3647701		
2000OL02S04	Se	04/27/2000	14:24:27	17.7667037	17.7667028		95.65
2000OL02D04	Se	04/27/2000	14:27:17	-2.3680975	-2.3680974		
2000OL02D04	Se	04/27/2000	14:30:24	16.8013610	16.8013602		95.84 Not used
LCB (0 ug/l)	Se	04/27/2000	14:33:17	-1.2133911	-1.2133911		
LCM (25 ug/l)	Se	04/27/2000	14:36:06	24.2860929	24.2860918		
LCB (0 ug/l)	Se	04/27/2000	14:39:19	-2.1354095	-2.1354094		Not used
BLANK	Se	04/27/2000	14:42:06				
STANDARD 1	Se	04/27/2000	14:44:54				
STANDARD 2	Se	04/27/2000	14:47:43				
STANDARD 3	Se	04/27/2000	14:50:32				
STANDARD 4	Se	04/27/2000	14:53:24				
STANDARD 5	Se	04/27/2000	14:56:16				
LCB (0 ug/l)	Se	04/27/2000	14:59:06	-1.8604715	-1.8604714		
LCM (25 ug/l)	Se	04/27/2000	15:01:56	25.3582124	25.3582112		
RLC (7 ug/L)	Se	04/27/2000	15:04:48	7.75149834	7.75149798		
LCM (25 ug/l)	Se	04/27/2000	15:07:44	26.1234358	26.1234345		
RLC (7 ug/L)	Se	04/27/2000	15:10:37	6.72859896	6.72859864		
2000OL02D04	Se	04/27/2000	15:13:28	-1.7422134	-1.7422133		
2000OL02D04	Se	04/27/2000	15:16:37	19.0696964	19.0696954		104.0
LCB (0 ug/l)	Se	04/27/2000	15:19:28	-1.2029884	-1.2029884		
LCM (25 ug/l)	Se	04/27/2000	15:22:16	25.6213861	25.6213849		

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M. Mattox 5-1-00

Element	Instrument	QC Source	
[ ] Ag	[ ] 5100 A3	[ ] CLP-40	Analyst M. MATTOX
[ ] As	[X] 5100 A6	[ ] CLP-70	Date 4-27-00
[ ] Cd	[ ] 5000 A4	[ ] CLP-80	Lamp # 3130
[ ] Cr	[ ] 5000 A5	[ ] EPA-V-1	Energy 40
[ ] Pb	[ ]	[X] CLPF-CAL-1 GFAA AQC 1	Expansion /
[ ] Sb	[ ]	[ ]	Stock 925018
[X] Se		[ ]	[X] platform [X] MSC
[ ] Tl		[ ]	[ ] wall [ ] MSA

Blank	Slope	AQC	Digestion QC

Blank cup absorbance

M. Mattox 5-3-00
M. Mattox 5-1-00

?Sample_ID	Superfund #	EL	Sam_Date	Sam_Time	Mean_ST	Mean_SA	Dilu	%Rec	Result		Limit	Comments
BLANK		As	04/27/2000	12:08:46								
STANDARD 1		As	04/27/2000	12:11:36								
STANDARD 2		As	04/27/2000	12:14:27						R = 0.99945		
STANDARD 3		As	04/27/2000	12:17:21								
STANDARD 4		As	04/27/2000	12:20:16								
STANDARD 5		As	04/27/2000	12:23:11								
LCB (0 ug/l)		As	04/27/2000	12:26:04	-0.1951595	-0.1951595				2U ug/l	Limit = +/- 2 ug/l	
LCM (25 ug/l)		As	04/27/2000	12:28:55	25.2962434	25.2962422				%R = 101.18	ESAT Limit = 23.07 - 26.61 ug/l	CRL Limit = 100 +/- 10%
RLC (7 ug/L)		As	04/27/2000	12:31:53	6.7598431	6.75984278				%R = 96.57	ESAT Limit = 5.69 - 7.99 ug/l	CRL Limit = 100 +/- 20%
1171 D. BLANK		As	04/27/2000	12:34:51	-0.8086291	-0.8086291			2U ug/l		Limit = +/- 2 ug/l	
1171 D. BLANK		As	04/27/2000	12:37:48	19.5104763	19.5104754		101.5				
1171 LCS		As	04/27/2000	12:40:44	9.5125985	9.51259805				%R = 95.13	ESAT Limit = 8 - 11.62 ug/l	CRL Limit = 100 +/- 20%
1171 LCS		As	04/27/2000	12:43:43	29.0889318	29.0889304		97.88				
2000BB01S01	20000027	As	04/27/2000	12:46:41	3.86683494	3.86683476			4 ug/l			
2000BB01S01	20000027	As	04/27/2000	12:49:43	23.5024735	23.5024724		98.17				
2000BB01S01D	20000027	As	04/27/2000	12:52:44	4.22362524	4.22362504			4 ug/l		Dup. diff. < 1.77 (ESAT Limit)	CRL Limit = Dup. diff. < IDL
2000BB01S01D	20000027	As	04/27/2000	12:55:49	22.9455992	22.9455981		93.6				
2000BB01S01S	20000027	As	04/27/2000	12:58:48	10.2920713	51.4603541	5			%R = 95.19	ESAT Limit = 85% - 114.3%	CRL Limit = 100 +/- 15%
2000BB01S01S	20000027	As	04/27/2000	13:01:50	31.1296624	155.648305	5	104.1				
LCB (0 ug/l)		As	04/27/2000	13:04:42	-0.3380965	-0.3380965				2U ug/l	Limit = +/- 2 ug/l	
LCM (25 ug/l)		As	04/27/2000	13:07:34	24.8399239	24.8399227				%R = 99.36	ESAT Limit = 23.07 - 26.61 ug/l	CRL Limit = 100 +/- 10%
2000BB01D01	20000027	As	04/27/2000	13:10:31	4.20820348	4.20820328			4 ug/l			
2000BB01D01	20000027	As	04/27/2000	13:13:33	23.4687859	23.4687847		96.3				
2000BB01R01	20000027	As	04/27/2000	13:16:29	-0.1282741	-0.1282741			2U ug/l			
2000BB01R01	20000027	As	04/27/2000	13:19:31	18.4330005	18.4329996		92.8				
2000OL02S01	20000029	As	04/27/2000	13:22:29	1.63299017	1.63299009			2U ug/l			
2000OL02S01	20000029	As	04/27/2000	13:25:32	21.4903409	21.4903399		99.28				
2000OL02S01D	20000029	As	04/27/2000	13:28:28	1.60806801	1.60806793			2U ug/l		Dup. diff. < 1.77 (ESAT Limit)	CRL Limit = Dup. diff. < IDL
2000OL02S01D	20000029	As	04/27/2000	13:31:29	21.0195147	21.0195137		97.05				
2000OL02S01S	20000029	As	04/27/2000	13:34:26	10.1287518	50.643757	5			%R = 101.29	ESAT Limit = 85% - 114.3%	CRL Limit = 100 +/- 15%
2000OL02S01S	20000029	As	04/27/2000	13:37:27	30.3840129	151.920057	5	101.2				
LCB (0 ug/l)		As	04/27/2000	13:40:20	-0.8464806	-0.8464806				2U ug/l	Limit = +/- 2 ug/l	
LCM (25 ug/l)		As	04/27/2000	13:43:15	24.9845071	24.9845059				%R = 99.94	ESAT Limit = 23.07 - 26.61 ug/l	CRL Limit = 100 +/- 10%
2000OL02S02	20000029	As	04/27/2000	13:46:11	1.7387987	1.73879861				Not used		
2000OL02S02	20000029	As	04/27/2000	13:49:09	19.6031877	19.6031868		89.32		Not used		
2000OL02S03	20000029	As	04/27/2000	13:52:03	3.29091919	3.29091904			3 ug/l			
2000OL02S03	20000029	As	04/27/2000	13:54:58	22.5851309	22.5851298		96.47				
2000OL02S04	20000029	As	04/27/2000	13:57:51	0.99309833	0.99309828			2U ug/l			
2000OL02S04	20000029	As	04/27/2000	14:00:45	21.4922614	21.4922604		102.4				
2000OL02D04	20000029	As	04/27/2000	14:03:37	1.89061137	1.89061128			2U ug/l			
2000OL02D04	20000029	As	04/27/2000	14:06:27	20.0982479	20.098247		91.03				
LCB (0 ug/l)		As	04/27/2000	14:09:19	-0.3257431	-0.3257431				2U ug/l	Limit = +/- 2 ug/l	
LCM (25 ug/l)		As	04/27/2000	14:12:10	24.6571205	24.6571193				%R = 98.63	ESAT Limit = 23.07 - 26.61 ug/l	CRL Limit = 100 +/- 10%
LCB (0 ug/l)		As	04/27/2000	14:17:18	0.08328745	0.08328745				2U ug/l	Limit = +/- 2 ug/l	
LCM (25 ug/l)		As	04/27/2000	14:20:09	23.7581647	23.7581636				%R = 95.03	ESAT Limit = 23.07 - 26.61 ug/l	CRL Limit = 100 +/- 10%
RLC (7 ug/L)		As	04/27/2000	14:23:06	6.20340309	6.2034028				%R = 88.62	ESAT Limit = 5.69 - 7.99 ug/l	CRL Limit = 100 +/- 20%
2000OL02S02	20000029	As	04/27/2000	14:26:02	0.78164498	0.78164494			2U ug/l			
2000OL02S02	20000029	As	04/27/2000	14:29:00	19.5319859	19.531985		93.75				
LCB (0 ug/l)		As	04/27/2000	14:31:52	0.01193339	0.01193339				2U ug/l	Limit = +/- 2 ug/l	
LCM (25 ug/l)		As	04/27/2000	14:34:45	25.3272506	25.3272494				%R = 101.31	ESAT Limit = 23.07 - 26.61 ug/l	CRL Limit = 100 +/- 10%

LCM True Value = 25 ug/l
RLC True Value = 7 ug/l
LCS True Value = 10 ug/l
Spike True Value = 50 ug/l
Instrument Detection Limit = 2 ug/l
ESAT Analytical Spike Recovery Limit = 90% - 108.56%

2000BB01S01 Sample Result = 3.86683476 ug/l
2000BB01S01 Duplicate Result = 4.22362504 ug/l
2000BB01S01 Spike Result = 51.4603541 ug/l
Duplicate Difference = 0.35679028 ug/l
Spike Recovery = (51.4603541 - 3.86683476)/50 X 100 = 95.19%

Not used = Data which is rejected or not used due to unacceptable results which do not meet acceptable criteria.

M. Mattos 5-3-00

Sample_ID	EL	Sam_Date	Sam_Time	Mean_ST	Mean_SA	Dilu	Rec
BLANK	As	04/27/2000	12:08:46				
STANDARD 1	As	04/27/2000	12:11:36				
STANDARD 2	As	04/27/2000	12:14:27				
STANDARD 3	As	04/27/2000	12:17:21				
STANDARD 4	As	04/27/2000	12:20:16				
STANDARD 5	As	04/27/2000	12:23:11				
LCB (0 ug/l)	As	04/27/2000	12:26:04	-0.1951595	-0.1951595		
LCM (25 ug/l)	As	04/27/2000	12:28:55	25.2962434	25.2962422		
RLC (7 ug/L)	As	04/27/2000	12:31:53	6.75984310	6.75984278		
1171 D. BLANK	As	04/27/2000	12:34:51	-0.8086291	-0.8086291		
1171 D. BLANK	As	04/27/2000	12:37:48	19.5104763	19.5104754		101.5
1171 LCS	As	04/27/2000	12:40:44	9.51259850	9.51259805		
1171 LCS	As	04/27/2000	12:43:43	29.0889318	29.0889304		97.88
2000BB01S01	As	04/27/2000	12:46:41	3.86683494	3.86683476		
2000BB01S01	As	04/27/2000	12:49:43	23.5024735	23.5024724		98.17
2000BB01S01D	As	04/27/2000	12:52:44	4.22362524	4.22362504		
2000BB01S01D	As	04/27/2000	12:55:49	22.9455992	22.9455981		93.60
2000BB01S01S	As	04/27/2000	12:58:48	10.2920713	51.4603541	5	
2000BB01S01S	As	04/27/2000	13:01:50	31.1296624	155.648305	5	104.1
LCB (0 ug/l)	As	04/27/2000	13:04:42	-0.3380965	-0.3380965		
LCM (25 ug/l)	As	04/27/2000	13:07:34	24.8399239	24.8399227		
2000BB01D01	As	04/27/2000	13:10:31	4.20820348	4.20820328		
2000BB01D01	As	04/27/2000	13:13:33	23.4687859	23.4687847		96.30
2000BB01R01	As	04/27/2000	13:16:29	-0.1282741	-0.1282741		
2000BB01R01	As	04/27/2000	13:19:31	18.4330005	18.4329996		92.80
2000OL02S01	As	04/27/2000	13:22:29	1.63299017	1.63299009		
2000OL02S01	As	04/27/2000	13:25:32	21.4903409	21.4903399		99.28
2000OL02S01D	As	04/27/2000	13:28:28	1.60806801	1.60806793		
2000OL02S01D	As	04/27/2000	13:31:29	21.0195147	21.0195137		97.05
2000OL02S01S	As	04/27/2000	13:34:26	10.1287518	50.6437570	5	
2000OL02S01S	As	04/27/2000	13:37:27	30.3840129	151.920057	5	101.2
LCB (0 ug/l)	As	04/27/2000	13:40:20	-0.8464806	-0.8464806		
LCM (25 ug/l)	As	04/27/2000	13:43:15	24.9845071	24.9845059		
2000OL02S02	As	04/27/2000	13:46:11	1.73879870	1.73879861		
2000OL02S02	As	04/27/2000	13:49:09	19.6031877	19.6031868		89.32 Not used
2000OL02S03	As	04/27/2000	13:52:03	3.29091919	3.29091904		
2000OL02S03	As	04/27/2000	13:54:58	22.5851309	22.5851298		96.47
2000OL02S04	As	04/27/2000	13:57:51	0.99309833	0.99309828		
2000OL02S04	As	04/27/2000	14:00:45	21.4922614	21.4922604		102.4
2000OL02D04	As	04/27/2000	14:03:37	1.89061137	1.89061128		
2000OL02D04	As	04/27/2000	14:06:27	20.0982479	20.0982470		91.03
LCB (0 ug/l)	As	04/27/2000	14:09:19	-0.3257431	-0.3257431		
LCM (25 ug/l)	As	04/27/2000	14:12:10	24.6571205	24.6571193		
LCB (0 ug/l)	As	04/27/2000	14:17:18	0.08328745	0.08328745		
LCM (25 ug/l)	As	04/27/2000	14:20:09	23.7581647	23.7581636		
RLC (7 ug/L)	As	04/27/2000	14:23:06	6.20340309	6.20340280		
2000OL02S02	As	04/27/2000	14:26:02	0.78164498	0.78164494		
2000OL02S02	As	04/27/2000	14:29:00	19.5319859	19.5319850		93.75
LCB (0 ug/l)	As	04/27/2000	14:31:52	0.01193339	0.01193339		
LCM (25 ug/l)	As	04/27/2000	14:34:45	25.3272506	25.3272494		

M. Mattop 5-3-00
M. Mattop 5-1-00

Element	Instrument	QC Source
[ ] Ag	[X] 5100 A3	[ ] CLP-40
[X] As	[ ] 5100 A6	[ ] CLP-70
[ ] Cd	[ ] 5000 A4	[ ] CLP-80
[ ] Cr	[ ] 5000 A5	[ ] EPA-V-1
[ ] Pb	[ ]	[X] CLPF-CAL-1 GFAA AQC1
[ ] Sb	[ ]	[ ]
[ ] Se		[ ]
[ ] Tl		[ ]

Analyst M. MATTOX

Date 4-27-00

Lamp # 4426

Energy 55

Expansion /

Stock 929412

[X] platform [X] MSC

[ ] wall [ ] MSA

Blank	Slope	AQC	Digestion QC

Blank cup absorbance

M. Mattox 5-3-00

M. Mattox 5-1-00

?Sample_ID	Superfund #	EL	Sam_Date	Sam_Time	Mean_ST	Mean_SA	Dilu	Rec	Result		Limit	Comments
BLANK		Sb	04/27/2000	15:56:40						Not used		
STANDARD 1		Sb	04/27/2000	15:59:17						Not used		
STANDARD 2		Sb	04/27/2000	16:01:56						Not used		
STANDARD 3		Sb	04/27/2000	16:04:37						Not used		
STANDARD 4		Sb	04/27/2000	16:07:18						Not used		
STANDARD 5		Sb	04/27/2000	16:10:01						Not used		
LCB (0 ug/L)		Sb	04/27/2000	16:12:41	-0.7953965	-0.7953964				Not used		
LCM (25 ug/L)		Sb	04/27/2000	16:15:20	24.4261642	24.426163				Not used		
RLC (7 ug/L)		Sb	04/27/2000	16:18:04	6.87703133	6.87703101				Not used		
1171 D. BLANK		Sb	04/27/2000	16:20:50	-0.4615507	-0.4615507				Not used		
1171 D. BLANK		Sb	04/27/2000	16:23:37	18.0991311	18.0991302		92.8		Not used		
1171 LCS		Sb	04/27/2000	16:26:19	10.2738403	10.2738398				Not used		
1171 LCS		Sb	04/27/2000	16:29:06	27.6662625	27.6662612		86.96		Not used		
2000BB01S01	20000027	Sb	04/27/2000	16:31:49	-0.1580146	-0.1580146				Not used		
2000BB01S01	20000027	Sb	04/27/2000	16:34:38	16.3679654	16.3679647		82.62		Not used		
BLANK		Sb	04/27/2000	16:37:48								
STANDARD 1		Sb	04/27/2000	16:40:25								
STANDARD 2		Sb	04/27/2000	16:43:05						R = 0.99829		
STANDARD 3		Sb	04/27/2000	16:45:45								
STANDARD 4		Sb	04/27/2000	16:48:27								
STANDARD 5		Sb	04/27/2000	16:51:09								
LCB (0 ug/L)		Sb	04/27/2000	16:53:49	-1.8900866	-1.8900865				2U ug/l	Limit = +/- 2.0 ug/l	
LCM (25 ug/L)		*Sb*	*04/27/2000*	*16:56:29*	*27.1180301*	*27.1180288*				*%R = 108.47*	*ESAT Limit = 22.5 - 27.5 ug/l*	*CRL Limit = 100 +/- 10%*
RLC (7 ug/L)		Sb	04/27/2000	16:59:13	6.38356031	6.38356				%R = 91.19	ESAT Limit = 5.69 - 7.99 ug/l	CRL Limit = 100 +/- 20%
1171 D. BLANK		Sb	04/27/2000	17:01:58	-0.8838928	-0.8838928			2U ug/l		Limit = +/- 2.0 ug/l	
1171 D. BLANK		Sb	04/27/2000	17:04:44	17.9082598	17.908259		93.96				
1171 LCS		Sb	04/27/2000	17:07:26	9.93418703	9.93418656				%R = 99.34	ESAT Limit = 8 - 12 ug/l	CRL Limit = 100 +/- 20%
1171 LCS		Sb	04/27/2000	17:10:14	30.3663805	30.366379		102.1				
2000BB01S01	20000027	Sb	04/27/2000	17:12:56	-1.5228505	-1.5228505			2U ug/l			
2000BB01S01	20000027	Sb	04/27/2000	17:15:46	17.5027531	17.5027523		95.12				
2000BB01S01D	20000027	Sb	04/27/2000	17:18:30	-2.175131	-2.1751309				Not used		
2000BB01S01D	20000027	Sb	04/27/2000	17:21:21	17.5037375	17.5037366		98.39		Not used		
2000BB01S01S	20000027	Sb	04/27/2000	17:24:05	8.84718232	44.2359095	5			%R = 88.47	ESAT Limit = 100 +/- 15%	CRL Limit = 100 +/- 15%
2000BB01S01S	20000027	Sb	04/27/2000	17:26:57	28.2525182	141.262584	5	97.02				
LCB (0 ug/L)		Sb	04/27/2000	17:29:35	-0.9697701	-0.96977				2U ug/l	Limit = +/- 2.0 ug/l	
LCM (25 ug/L)		Sb	04/27/2000	17:32:16	24.8652193	24.8652181				%R = 99.46	ESAT Limit = 22.5 - 27.5 ug/l	CRL Limit = 100 +/- 10%
2000BB01D01	20000027	Sb	04/27/2000	17:35:03	-1.8681676	-1.8681675				Not used		
2000BB01D01	20000027	Sb	04/27/2000	17:37:57	16.8815765	16.8815757		93.74		Not used		
2000BB01R01	20000027	Sb	04/27/2000	17:40:40	-2.578254	-2.5782539				Not used		

LCM True Value = 25 ug/l
RLC True Value = 7 ug/l
LCS True Value = 10 ug/l
Spike True Value = 50 ug/l
Instrument Detection Limit = 2 ug/l
ESAT Analytical Spike Recovery Limit = 90% - 110%

Not used = Data which is rejected or not used due to unacceptable results which do not meet acceptable criteria.

M. Matto 5-3-00

Sample_ID	EL	Sam_Date	Sam_Time	Mean_ST	Mean_SA	Dilu	Rec
BLANK	Sb	04/27/2000	15:56:40				
STANDARD 1	Sb	04/27/2000	15:59:17				
STANDARD 2	Sb	04/27/2000	16:01:56				
STANDARD 3	Sb	04/27/2000	16:04:37				
STANDARD 4	Sb	04/27/2000	16:07:18				
STANDARD 5	Sb	04/27/2000	16:10:01				
LCB (0 ug/L)	Sb	04/27/2000	16:12:41	-0.7953965	-0.7953964		
LCM (25 ug/L)	Sb	04/27/2000	16:15:20	24.4261642	24.4261630		
RLC (7 ug/L)	Sb	04/27/2000	16:18:04	6.87703133	6.87703101		
1171 D. BLANK	Sb	04/27/2000	16:20:50	-0.4615507	-0.4615507		
1171 D. BLANK	Sb	04/27/2000	16:23:37	18.0991311	18.0991302		92.80
1171 LCS	Sb	04/27/2000	16:26:19	10.2738403	10.2738398		
1171 LCS	Sb	04/27/2000	16:29:06	27.6662625	27.6662612		86.96
2000BB01S01	Sb	04/27/2000	16:31:49	-0.1580146	-0.1580146		
2000BB01S01	Sb	04/27/2000	16:34:38	16.3679654	16.3679647		82.62
BLANK	Sb	04/27/2000	16:37:48				
STANDARD 1	Sb	04/27/2000	16:40:25				
STANDARD 2	Sb	04/27/2000	16:43:05				
STANDARD 3	Sb	04/27/2000	16:45:45				
STANDARD 4	Sb	04/27/2000	16:48:27				
STANDARD 5	Sb	04/27/2000	16:51:09				
LCB (0 ug/L)	Sb	04/27/2000	16:53:49	-1.8900866	-1.8900865		
LCM (25 ug/L)	Sb	04/27/2000	16:56:29	27.1180301	27.1180288		
RLC (7 ug/L)	Sb	04/27/2000	16:59:13	6.38356031	6.38356000		
1171 D. BLANK	Sb	04/27/2000	17:01:58	-0.8838928	-0.8838928		
1171 D. BLANK	Sb	04/27/2000	17:04:44	17.9082598	17.9082590		93.96
1171 LCS	Sb	04/27/2000	17:07:26	9.93418703	9.93418656		
1171 LCS	Sb	04/27/2000	17:10:14	30.3663805	30.3663790		102.1
2000BB01S01	Sb	04/27/2000	17:12:56	-1.5228505	-1.5228505		
2000BB01S01	Sb	04/27/2000	17:15:46	17.5027531	17.5027523		95.12
2000BB01S01D	Sb	04/27/2000	17:18:30	-2.1751310	-2.1751309		
2000BB01S01D	Sb	04/27/2000	17:21:21	17.5037375	17.5037366		98.39
2000BB01S01S	Sb	04/27/2000	17:24:05	8.84718232	44.2359095	5	
2000BB01S01S	Sb	04/27/2000	17:26:57	28.2525182	141.262584	5	97.02
LCB (0 ug/L)	Sb	04/27/2000	17:29:35	-0.9697701	-0.9697700		
LCM (25 ug/L)	Sb	04/27/2000	17:32:16	24.8652193	24.8652181		
2000BB01D01	Sb	04/27/2000	17:35:03	-1.8681676	-1.8681675		
2000BB01D01	Sb	04/27/2000	17:37:57	16.8815765	16.8815757		93.74
2000BB01R01	Sb	04/27/2000	17:40:40	-2.5782540	-2.5782539		

Not used

Not used

Not used

Not used

M. Mattox 5-3-00
M. Mattox 5-1-00

Element	Instrument	QC Source
[ ] Ag	[X] 5100 A3	[ ] CLP-40
[ ] As	[ ] 5100 A6	[ ] CLP-70
[ ] Cd	[ ] 5000 A4	[ ] CLP-80
[ ] Cr	[ ] 5000 A5	[ ] EPA-V-1
[ ] Pb	[ ]	[X] CLPF-CAL-1 GFAA AQC 1
[X] Sb	[ ]	[ ]
[ ] Se		[ ]
[ ] Tl		[ ]

Analyst M. MATTOX

Date 4-27-00

Lamp # 1719

Energy 52

Expansion /

Stock 835009

[X] platform [X] MSC

[ ] wall [ ] MSA

Blank	Slope	AQC	Digestion QC

Blank cup absorbance

M. Mattox 5-3-00
M. Mattox 5-1-00

?Sample_ID	EL	Sam_Date	Sam_Time	Mean_ST	Mean_SA	Dilu	% Rec	Result		Limit
BLANK	Sb	04/28/2000	10:07:29						Not used	
STANDARD 1	Sb	04/28/2000	10:10:07						Not used	
STANDARD 2	Sb	04/28/2000	10:12:46						Not used	
STANDARD 3	Sb	04/28/2000	10:15:27						Not used	
STANDARD 4	Sb	04/28/2000	10:18:08						Not used	
STANDARD 5	Sb	04/28/2000	10:20:51						Not used	
LCB (0 ug/L)	Sb	04/28/2000	10:23:31	-0.4185573	-0.4185572				Not used	
LCM (25 ug/L)	Sb	04/28/2000	10:26:11	24.1626272	24.1626261				Not used	
RLC (7 ug/L)	Sb	04/28/2000	10:28:54	7.65512429	7.65512393				Not used	
2000BB01S01D	Sb	04/28/2000	10:31:40	0.17996091	0.1799609				Not used	
2000BB01S01D	Sb	04/28/2000	10:34:26	15.7982598	15.798259		78.09		Not used	
2000BB01D01	Sb	04/28/2000	10:37:08	-0.0384219	-0.0384219				Not used	
2000BB01D01	Sb	04/28/2000	10:39:56	15.0449838	15.0449831		75.41		Not used	
2000BB01R01	Sb	04/28/2000	10:42:40	-0.4043324	-0.4043324				Not used	
2000BB01R01	Sb	04/28/2000	10:45:31	14.9728142	14.9728135		76.88		Not used	
2000OL02S01	Sb	04/28/2000	10:48:16	-0.5373804	-0.5373803				Not used	
2000OL02S01	Sb	04/28/2000	10:51:08	14.9501692	14.9501685		77.43		Not used	
2000OL02S01D	Sb	04/28/2000	10:53:52	-0.3442196	-0.3442196				Not used	
2000OL02S01D	Sb	04/28/2000	10:56:43	15.2624387	15.262438		78.03		Not used	
LCB (0 ug/L)	Sb	04/28/2000	10:59:21	-0.9413556	-0.9413556				Not used	
LCM (25 ug/L)	Sb	04/28/2000	11:02:00	21.1476697	21.1476687				Not used	
BLANK	Sb	04/28/2000	11:04:39						Not used	
STANDARD 1	Sb	04/28/2000	11:07:16						Not used	
STANDARD 2	Sb	04/28/2000	11:09:55						Not used	
STANDARD 3	Sb	04/28/2000	11:12:35						Not used	
STANDARD 4	Sb	04/28/2000	11:15:17						Not used	
STANDARD 5	Sb	04/28/2000	11:17:59						Not used	
LCB (0 ug/L)	Sb	04/28/2000	11:20:40	-1.7278393	-1.7278392				Not used	
LCM (25 ug/L)	Sb	04/28/2000	11:23:20	25.07866	25.0786588				Not used	
RLC (7 ug/L)	Sb	04/28/2000	11:26:03	7.1879865	7.18798616				Not used	
2000BB01S01D	Sb	04/28/2000	11:28:50	0.07198954	0.07198954				Not used	
2000BB01S01D	Sb	04/28/2000	11:31:38	16.9628856	16.9628848		84.45		Not used	
BLANK	Sb	04/28/2000	11:37:01						Not used	
STANDARD 1	Sb	04/28/2000	11:39:39						Not used	
STANDARD 2	Sb	04/28/2000	11:42:18						Not used	
STANDARD 3	Sb	04/28/2000	11:44:59						Not used	
STANDARD 4	Sb	04/28/2000	11:47:41						Not used	
STANDARD 5	Sb	04/28/2000	11:50:23						Not used	
BLANK	Sb	04/28/2000	11:53:59						Not used	
STANDARD 1	Sb	04/28/2000	11:56:37						Not used	
STANDARD 2	Sb	04/28/2000	11:59:17						Not used	
STANDARD 3	Sb	04/28/2000	12:01:58						Not used	
STANDARD 4	Sb	04/28/2000	12:04:39						Not used	
STANDARD 5	Sb	04/28/2000	12:07:21						Not used	
LCB (0 ug/L)	Sb	04/28/2000	12:10:02	-0.6580663	-0.6580663				Not used	
LCM (25 ug/L)	Sb	04/28/2000	12:12:41	25.4858668	25.4858656				Not used	
RLC (7 ug/L)	Sb	04/28/2000	12:15:25	7.03072326	7.03072293				Not used	
2000BB01S01D	Sb	04/28/2000	12:18:11	0.6361064	0.63610637				Not used	
2000BB01S01D	Sb	04/28/2000	12:20:57	17.7148345	17.7148336		85.39		Not used	
2000BB01D01	Sb	04/28/2000	12:23:39	-0.5467729	-0.5467729				Not used	
2000BB01D01	Sb	04/28/2000	12:26:26	17.2784326	17.2784318		89.12		Not used	
2000BB01R01	Sb	04/28/2000	12:29:09	-0.8089838	-0.8089838				Not used	
2000BB01R01	Sb	04/28/2000	12:31:59	17.0726024	17.0726016		89.4		Not used	
2000OL02S01	Sb	04/28/2000	12:34:43	-0.544633	-0.544633				Not used	
2000OL02S01	Sb	04/28/2000	12:37:34	16.4668511	16.4668503		85.05		Not used	
2000OL02S01D	Sb	04/28/2000	12:40:18	-0.7055557	-0.7055557				Not used	

Not used = Data which is rejected or not used due to unacceptable results which do not meet acceptable criteria.

M. Matlap 5-3-00

?Sample_ID	Superfund #	EL	Sam_Date	Sam_Time	Mean_ST	Mean_SA	Dilu	Rec	Result			Limit	Comments
BLANK		Sb	04/28/2000	12:58:26									
STANDARD 1		Sb	04/28/2000	13:01:04									
STANDARD 2		Sb	04/28/2000	13:03:42						R = 0.99811			
STANDARD 3		Sb	04/28/2000	13:06:23									
STANDARD 4		Sb	04/28/2000	13:09:04									
STANDARD 5		Sb	04/28/2000	13:11:46									
LCB (0 ug/L)		Sb	04/28/2000	13:14:27	-1.0822009	-1.0822009					2U ug/l	Limit = +/- 2.0 ug/l	
LCM (25 ug/L)		Sb	04/28/2000	13:17:06	26.4249514	26.4249501				105.6998	105.70	ESAT Limit = 22.5 - 27.5 ug/l	CRL Limit = 100 +/- 10%
RLC (7 ug/L)		Sb	04/28/2000	13:19:50	7.15235074	7.1523504				102.1764		ESAT Limit = 5.69 - 7.99 ug/l	CRL Limit = 100 +/- 20%
2000BB01S01D	20000027	Sb	04/28/2000	13:22:37	0.19703418	0.19703417					Not used		
2000BB01S01D	20000027	Sb	04/28/2000	13:25:23	17.9692376	17.9692367		88.86			Not used		
2000BB01D01	20000027	Sb	04/28/2000	13:28:06	-0.6923871	-0.6923871			2U ug/l				
2000BB01D01	20000027	Sb	04/28/2000	13:30:53	18.6249583	18.6249575		96.58					
2000BB01R01	20000027	Sb	04/28/2000	13:33:36	-0.0065075	-0.0065075					Not used		
2000BB01R01	20000027	Sb	04/28/2000	13:36:26	17.7438488	17.743848		88.75			Not used		
2000OL02S01	20000029	Sb	04/28/2000	13:39:09	-0.746625	-0.746625			2U ug/l				
2000OL02S01	20000029	Sb	04/28/2000	13:42:01	17.8519233	17.8519225		92.99					
2000OL02S01D	20000029	Sb	04/28/2000	13:44:45	-0.4905683	-0.4905682			2U ug/l			Dup. diff. < 1.22 (ESAT Limit)	CRL Limit = Dup. Diff. < IDL
2000OL02S01D	20000029	Sb	04/28/2000	13:47:38	17.5324239	17.532423		90.11					
LCB (0 ug/L)		Sb	04/28/2000	13:50:15	-0.5293754	-0.5293754					2U ug/l	Limit = +/- 2.0 ug/l	
LCM (25 ug/L)		Sb	04/28/2000	13:52:55	25.425522	25.4255208				101.7021	101.70	ESAT Limit = 22.5 - 27.5 ug/l	CRL Limit = 100 +/- 10%
2000OL02S01S	20000029	Sb	04/28/2000	13:55:41	11.046645	55.2332227	5				Not used		
2000OL02S01S	20000029	Sb	04/28/2000	13:58:32	28.9033901	144.516943	5	89.28			Not used		
2000OL02S02	20000029	Sb	04/28/2000	14:01:14	-0.1328502	-0.1328502					Not used		
2000OL02S02	20000029	Sb	04/28/2000	14:04:03	17.5413356	17.5413348		88.37			Not used		
2000OL02S03	20000029	Sb	04/28/2000	14:06:45	-0.4443043	-0.4443043					Not used		
2000OL02S03	20000029	Sb	04/28/2000	14:09:31	17.4374329	17.4374321		89.4			Not used		
2000OL02S04	20000029	Sb	04/28/2000	14:12:13	-0.5425089	-0.5425089			2U ug/l				
2000OL02S04	20000029	Sb	04/28/2000	14:14:59	17.6140832	17.6140824		90.78					
2000OL02D04	20000029	Sb	04/28/2000	14:17:39	0.3383581	0.33835808					Not used		
2000OL02D04	20000029	Sb	04/28/2000	14:20:23	18.294928	18.2949272		89.78			Not used		
LCB (0 ug/L)		Sb	04/28/2000	14:23:01	-1.3254133	-1.3254132					2U ug/l	Limit = +/- 2.0 ug/l	
LCM (25 ug/L)		Sb	04/28/2000	14:25:41	26.3088694	26.3088682				105.2355	105.24	ESAT Limit = 22.5 - 27.5 ug/l	CRL Limit = 100 +/- 10%
BLANK		Sb	04/28/2000	14:39:33							Not used		
STANDARD 1		Sb	04/28/2000	14:42:11							Not used		
STANDARD 2		Sb	04/28/2000	14:44:50							Not used		
STANDARD 3		Sb	04/28/2000	14:47:30							Not used		
STANDARD 4		Sb	04/28/2000	14:50:12							Not used		
STANDARD 5		Sb	04/28/2000	14:52:55							Not used		
LCB (0 ug/L)		Sb	04/28/2000	14:55:35	-0.5903623	-0.5903623					Not used		
LCM (25 ug/L)		Sb	04/28/2000	14:58:14	26.4876403	26.487639					Not used		
RLC (7 ug/L)		Sb	04/28/2000	15:00:58	7.61743217	7.61743181					Not used		
2000BB01S01D	20000027	Sb	04/28/2000	15:03:45	-0.2759648	-0.2759648					Not used		
2000BB01S01D	20000027	Sb	04/28/2000	15:06:33	16.2934253	16.2934245		82.84			Not used		
2000BB01R01	20000027	Sb	04/28/2000	15:09:18	-0.2152904	-0.2152904					Not used		
2000BB01R01	20000027	Sb	04/28/2000	15:12:09	15.6869774	15.6869767		79.51			Not used		
2000OL02S01S	20000029	Sb	04/28/2000	15:14:54	10.9194375	54.5971852	5				Not used		
2000OL02S01S	20000029	Sb	04/28/2000	15:17:46	25.7826621	128.913304	5	74.31			Not used		
2000OL02S02	20000029	Sb	04/28/2000	15:20:30	-0.5830423	-0.5830423					Not used		
2000OL02S02	20000029	Sb	04/28/2000	15:23:20	14.5714841	14.5714834		75.77			Not used		
2000OL02S03	20000029	Sb	04/28/2000	15:26:02	-1.313909	-1.3139089					Not used		
2000OL02S03	20000029	Sb	04/28/2000	15:28:50	15.0642276	15.0642269		81.89			Not used		
LCB (0 ug/L)		Sb	04/28/2000	15:31:28	-1.0503353	-1.0503352					Not used		
LCM (25 ug/L)		Sb	04/28/2000	15:34:07	22.6216454	22.6216443					Not used		
LCB (0 ug/L)		Sb	04/28/2000	15:40:36	-0.735	-0.7349999					Not used		
LCM (25 ug/L)		Sb	04/28/2000	15:43:16	22.6855759	22.6855748					Not used		

LCM True Value = 25 ug/l
RLC True Value = 7 ug/l
Spike True Value = 50 ug/l
Instrument Detection Limit = 2 ug/l
ESAT Analytical Spike Recovery Limit = 90% - 110%

Not used = Data which is rejected or not used due to unacceptable results which do not meet acceptable criteria.

M. Mattop 5-3-00

?Sample_ID	Superfund #	EL	Sam_Date	Sam_Tim	Mean_ST	Mean_SA	Dilu	% Re	Result		Limit	Comments
BLANK		Sb	04/28/2000	15:47:35						Not used		
STANDARD 1		Sb	04/28/2000	15:50:13						Not used		
STANDARD 2		Sb	04/28/2000	15:52:52						Not used		
STANDARD 3		Sb	04/28/2000	15:55:32						Not used		
STANDARD 4		Sb	04/28/2000	15:58:14						Not used		
STANDARD 5		Sb	04/28/2000	16:00:57						Not used		
LCB (0 ug/L)		Sb	04/28/2000	16:03:38	-1.3223504	-1.3223503				Not used		
LCM (25 ug/L)		Sb	04/28/2000	16:06:18	23.9763186	23.9763175				Not used		
RLC (7 ug/L)		Sb	04/28/2000	16:09:02	6.08053634	6.08053605				Not used		
2000BB01S01D	20000027	Sb	04/28/2000	16:11:48	-1.4109756	-1.4109755				Not used		
2000BB01S01D	20000027	Sb	04/28/2000	16:14:34	16.0070952	16.0070945		87.09		Not used		
2000BB01R01	20000027	Sb	04/28/2000	16:17:17	-1.1895584	-2.3791167	2			Not used		
2000BB01R01	20000027	Sb	04/28/2000	16:20:07	16.3048748	32.6097481	2	87.47		Not used		
2000OL02S01S	20000029	Sb	04/28/2000	16:22:51	-1.6320163	-8.1600811	5			Not used		*The analyst was repreparing the spike dilution when the autosampler reached this location.
BLANK		Sb	04/28/2000	17:05:55								
STANDARD 1		Sb	04/28/2000	17:08:33								
STANDARD 2		Sb	04/28/2000	17:11:12						R = 0.99902		
STANDARD 3		Sb	04/28/2000	17:13:52								
STANDARD 4		Sb	04/28/2000	17:16:34								
STANDARD 5		Sb	04/28/2000	17:19:16								
LCB (0 ug/L)		Sb	04/28/2000	17:21:57	-0.1127114	-0.1127114				2U ug/l	Limit = +/- 2.0 ug/l	
LCM (25 ug/L)		Sb	04/28/2000	17:24:36	26.9793542	26.9793529				%R = 107.92	ESAT Limit = 22.5 - 27.5 ug/l	CRL Limit = 100 +/- 10%
RLC (7 ug/L)		Sb	04/28/2000	17:27:20	6.76304017	6.76303985				%R = 96.61	ESAT Limit = 5.69 - 7.99 ug/l	CRL Limit = 100 +/- 20%
2000BB01S01D	20000027	Sb	04/28/2000	17:30:07	-0.1227249	-0.1227249			2U ug/l		Dup. diff. > 1.22 (ESAT Limit)	Dup. diff. <IDL (CRL Limit)
2000BB01S01D	20000027	Sb	04/28/2000	17:32:52	17.9233361	17.9233352		90.23				
2000BB01R01	20000027	Sb	04/28/2000	17:35:35	-0.1078395	-0.2156791	2		4U ug/l			
2000BB01R01	20000027	Sb	04/28/2000	17:38:24	18.1098581	36.2197145	2	91.08				
2000OL02S01S	20000029	Sb	04/28/2000	17:41:07	10.2632489	51.3162425	5			Not used		
2000OL02S01S	20000029	Sb	04/28/2000	17:43:58	26.4088243	132.044115	5	80.72		Not used		
2000OL02S02	20000029	Sb	04/28/2000	17:46:41	-0.6127609	-1.2255217	2		4U ug/l			
2000OL02S02	20000029	Sb	04/28/2000	17:49:30	18.0616182	36.1232348	2	93.37				
2000OL02S03	20000029	Sb	04/28/2000	17:52:11	-0.5656524	-1.1313048	2		4U ug/l			
2000OL02S03	20000029	Sb	04/28/2000	17:54:59	18.2620888	36.5241759	2	94.13				
LCB (0 ug/L)		Sb	04/28/2000	17:57:36	0.36751835	0.36751833				2U ug/l	Limit = +/- 2.0 ug/l	
LCM (25 ug/L)		Sb	04/28/2000	18:00:16	24.8579403	24.8579391				%R = 99.43	ESAT Limit = 22.5 - 27.5 ug/l	CRL Limit = 100 +/- 10%
2000OL02D04	20000029	Sb	04/28/2000	18:02:58	-0.8092036	-1.6184072	2		4U ug/l			
2000OL02D04	20000029	Sb	04/28/2000	18:05:41	18.709534	37.4190662	2	97.59				
LCB (0 ug/L)		Sb	04/28/2000	18:08:19	-0.3722075	-0.3722075				2U ug/l	Limit = +/- 2.0 ug/l	
LCM (25 ug/L)		Sb	04/28/2000	18:10:58	25.4868231	25.4868218				%R = 101.95	ESAT Limit = 22.5 - 27.5 ug/l	CRL Limit = 100 +/- 10%
LCB (0 ug/L)		Sb	04/28/2000	18:14:23	0.14870711	0.14870711				2U ug/l	Limit = +/- 2.0 ug/l	
LCM (25 ug/L)		Sb	04/28/2000	18:17:02	25.0173475	25.0173464				%R = 100.07	ESAT Limit = 22.5 - 27.5 ug/l	CRL Limit = 100 +/- 10%
RLC (7 ug/L)		Sb	04/28/2000	18:19:46	7.10528101	7.10528067				%R = 101.50	ESAT Limit = 5.69 - 7.99 ug/l	CRL Limit = 100 +/- 20%
2000OL02S01S	20000029	Sb	04/28/2000	18:22:33	9.78553445	48.9276699	5			%R = 97.86	ESAT Limit = 100 +/- 15%	CRL Limit = 100 +/- 15%
2000OL02S01S	20000029	Sb	04/28/2000	18:25:25	28.1554039	140.777012	5	91.84				
LCB (0 ug/L)		Sb	04/28/2000	18:28:03	-0.0118976	-0.0118976				2U ug/l	Limit = +/- 2.0 ug/l	
LCM (25 ug/L)		Sb	04/28/2000	18:30:42	25.7094368	25.7094356				%R = 102.84	ESAT Limit = 22.5 - 27.5 ug/l	CRL Limit = 100 +/- 10%

LCM True Value = 25 ug/l
RLC True Value = 7 ug/l
Spike True Value = 50 ug/l
Instrument Detection Limit = 2 ug/l
ESAT Analytical Spike Recovery Limit = 90% - 110%

Not used = Data which is rejected or not used due to unacceptable results which do not meet acceptable criteria.

M. Matta 5-3-00

Sample_ID	EL	Sam_Date	Sam_Time	Mean_ST	Mean_SA	Dilu	Rec
BLANK	Sb	04/28/2000	10:07:29				
STANDARD 1	Sb	04/28/2000	10:10:07				
STANDARD 2	Sb	04/28/2000	10:12:46				
STANDARD 3	Sb	04/28/2000	10:15:27				
STANDARD 4	Sb	04/28/2000	10:18:08				
STANDARD 5	Sb	04/28/2000	10:20:51				
LCB (0 ug/L)	Sb	04/28/2000	10:23:31	-0.4185573	-0.4185572		
LCM (25 ug/L)	Sb	04/28/2000	10:26:11	24.1626272	24.1626261		
RLC (7 ug/L)	Sb	04/28/2000	10:28:54	7.65512429	7.65512393		
2000BB01S01D	Sb	04/28/2000	10:31:40	0.17996091	0.17996090		
2000BB01S01D	Sb	04/28/2000	10:34:26	15.7982598	15.7982590		78.09
2000BB01D01	Sb	04/28/2000	10:37:08	-0.0384219	-0.0384219		
2000BB01D01	Sb	04/28/2000	10:39:56	15.0449838	15.0449831		75.41
2000BB01R01	Sb	04/28/2000	10:42:40	-0.4043324	-0.4043324		
2000BB01R01	Sb	04/28/2000	10:45:31	14.9728142	14.9728135		76.88
2000OL02S01	Sb	04/28/2000	10:48:16	-0.5373804	-0.5373803		
2000OL02S01	Sb	04/28/2000	10:51:08	14.9501692	14.9501685		77.43
2000OL02S01D	Sb	04/28/2000	10:53:52	-0.3442196	-0.3442196		
2000OL02S01D	Sb	04/28/2000	10:56:43	15.2624387	15.2624380		78.03
LCB (0 ug/L)	Sb	04/28/2000	10:59:21	-0.9413556	-0.9413556		
LCM (25 ug/L)	Sb	04/28/2000	11:02:00	21.1476697	21.1476687		
BLANK	Sb	04/28/2000	11:04:39				
STANDARD 1	Sb	04/28/2000	11:07:16				
STANDARD 2	Sb	04/28/2000	11:09:55				
STANDARD 3	Sb	04/28/2000	11:12:35				
STANDARD 4	Sb	04/28/2000	11:15:17				
STANDARD 5	Sb	04/28/2000	11:17:59				
LCB (0 ug/L)	Sb	04/28/2000	11:20:40	-1.7278393	-1.7278392		
LCM (25 ug/L)	Sb	04/28/2000	11:23:20	25.0786600	25.0786588		
RLC (7 ug/L)	Sb	04/28/2000	11:26:03	7.18798650	7.18798616		
2000BB01S01D	Sb	04/28/2000	11:28:50	0.07198954	0.07198954		
2000BB01S01D	Sb	04/28/2000	11:31:38	16.9628856	16.9628848		84.45
BLANK	Sb	04/28/2000	11:37:01				
STANDARD 1	Sb	04/28/2000	11:39:39				
STANDARD 2	Sb	04/28/2000	11:42:18				
STANDARD 3	Sb	04/28/2000	11:44:59				
STANDARD 4	Sb	04/28/2000	11:47:41				
STANDARD 5	Sb	04/28/2000	11:50:23				
BLANK	Sb	04/28/2000	11:53:59				
STANDARD 1	Sb	04/28/2000	11:56:37				
STANDARD 2	Sb	04/28/2000	11:59:17				
STANDARD 3	Sb	04/28/2000	12:01:58				
STANDARD 4	Sb	04/28/2000	12:04:39				
STANDARD 5	Sb	04/28/2000	12:07:21				
LCB (0 ug/L)	Sb	04/28/2000	12:10:02	-0.6580663	-0.6580663		
LCM (25 ug/L)	Sb	04/28/2000	12:12:41	25.4858668	25.4858656		
RLC (7 ug/L)	Sb	04/28/2000	12:15:25	7.03072326	7.03072293		
2000BB01S01D	Sb	04/28/2000	12:18:11	0.63610640	0.63610637		
2000BB01S01D	Sb	04/28/2000	12:20:57	17.7148345	17.7148336		85.39
2000BB01D01	Sb	04/28/2000	12:23:39	-0.5467729	-0.5467729		
2000BB01D01	Sb	04/28/2000	12:26:26	17.2784326	17.2784318		89.12

Not used

M. Mattlap 5-3-00 M. Mattlap 5-1-00

2000BB01R01	Sb	04/28/2000	12:29:09	-0.8089838	-0.8089838			
2000BB01R01	Sb	04/28/2000	12:31:59	17.0726024	17.0726016		89.40	
2000OL02S01	Sb	04/28/2000	12:34:43	-0.5446330	-0.5446330			
2000OL02S01	Sb	04/28/2000	12:37:34	16.4668511	16.4668503		85.05	Not used
2000OL02S01D	Sb	04/28/2000	12:40:18	-0.7055557	-0.7055557			
BLANK	Sb	04/28/2000	12:58:26					
STANDARD 1	Sb	04/28/2000	13:01:04					
STANDARD 2	Sb	04/28/2000	13:03:42					
STANDARD 3	Sb	04/28/2000	13:06:23					
STANDARD 4	Sb	04/28/2000	13:09:04					
STANDARD 5	Sb	04/28/2000	13:11:46					
LCB (0 ug/L)	Sb	04/28/2000	13:14:27	-1.0822009	-1.0822009			
LCM (25 ug/L)	Sb	04/28/2000	13:17:06	26.4249514	26.4249501			
RLC (7 ug/L)	Sb	04/28/2000	13:19:50	7.15235074	7.15235040			
2000BB01S01D	Sb	04/28/2000	13:22:37	0.19703418	0.19703417			
2000BB01S01D	Sb	04/28/2000	13:25:23	17.9692376	17.9692367		88.86	Not used
2000BB01D01	Sb	04/28/2000	13:28:06	-0.6923871	-0.6923871			
2000BB01D01	Sb	04/28/2000	13:30:53	18.6249583	18.6249575		96.58	
2000BB01R01	Sb	04/28/2000	13:33:36	-0.0065075	-0.0065075			
2000BB01R01	Sb	04/28/2000	13:36:26	17.7438488	17.7438480		88.75	Not used
2000OL02S01	Sb	04/28/2000	13:39:09	-0.7466250	-0.7466250			
2000OL02S01	Sb	04/28/2000	13:42:01	17.8519233	17.8519225		92.99	
2000OL02S01D	Sb	04/28/2000	13:44:45	-0.4905683	-0.4905682			
2000OL02S01D	Sb	04/28/2000	13:47:38	17.5324239	17.5324230		90.11	
LCB (0 ug/L)	Sb	04/28/2000	13:50:15	-0.5293754	-0.5293754			
LCM (25 ug/L)	Sb	04/28/2000	13:52:55	25.4255220	25.4255208			
2000OL02S01S	Sb	04/28/2000	13:55:41	11.0466450	55.2332227	5		
2000OL02S01S	Sb	04/28/2000	13:58:32	28.9033901	144.516943	5	89.28	
2000OL02S02	Sb	04/28/2000	14:01:14	-0.1328502	-0.1328502			
2000OL02S02	Sb	04/28/2000	14:04:03	17.5413356	17.5413348		88.37	Not used
2000OL02S03	Sb	04/28/2000	14:06:45	-0.4443043	-0.4443043			
2000OL02S03	Sb	04/28/2000	14:09:31	17.4374329	17.4374321		89.40	
2000OL02S04	Sb	04/28/2000	14:12:13	-0.5425089	-0.5425089			
2000OL02S04	Sb	04/28/2000	14:14:59	17.6140832	17.6140824		90.78	
2000OL02D04	Sb	04/28/2000	14:17:39	0.33835810	0.33835808			
2000OL02D04	Sb	04/28/2000	14:20:23	18.2949280	18.2949272		89.78	Not used
LCB (0 ug/L)	Sb	04/28/2000	14:23:01	-1.3254133	-1.3254132			
LCM (25 ug/L)	Sb	04/28/2000	14:25:41	26.3088694	26.3088682			
BLANK	Sb	04/28/2000	14:39:33					
STANDARD 1	Sb	04/28/2000	14:42:11					
STANDARD 2	Sb	04/28/2000	14:44:50					
STANDARD 3	Sb	04/28/2000	14:47:30					
STANDARD 4	Sb	04/28/2000	14:50:12					
STANDARD 5	Sb	04/28/2000	14:52:55					
LCB (0 ug/L)	Sb	04/28/2000	14:55:35	-0.5903623	-0.5903623			
LCM (25 ug/L)	Sb	04/28/2000	14:58:14	26.4876403	26.4876390			
RLC (7 ug/L)	Sb	04/28/2000	15:00:58	7.61743217	7.61743181			Not used
2000BB01S01D	Sb	04/28/2000	15:03:45	-0.2759648	-0.2759648			
2000BB01S01D	Sb	04/28/2000	15:06:33	16.2934253	16.2934245		82.84	
2000BB01R01	Sb	04/28/2000	15:09:18	-0.2152904	-0.2152904			
2000BB01R01	Sb	04/28/2000	15:12:09	15.6869774	15.6869767		79.51	
2000OL02S01S	Sb	04/28/2000	15:14:54	10.9194375	54.5971852	5		

M. Matta 5-3-00 M. Matta 5-1-00

2000OL02S01S	Sb	04/28/2000	15:17:46	25.7826621	128.913304	5	74.31	
2000OL02S02	Sb	04/28/2000	15:20:30	-0.5830423	-0.5830423			
2000OL02S02	Sb	04/28/2000	15:23:20	14.5714841	14.5714834		75.77	
2000OL02S03	Sb	04/28/2000	15:26:02	-1.3139090	-1.3139089			
2000OL02S03	Sb	04/28/2000	15:28:50	15.0642276	15.0642269		81.89	
LCB (0 ug/L)	Sb	04/28/2000	15:31:28	-1.0503353	-1.0503352			
LCM (25 ug/L)	Sb	04/28/2000	15:34:07	22.6216454	22.6216443			
LCB (0 ug/L)	Sb	04/28/2000	15:40:36	-0.7350000	-0.7349999			
LCM (25 ug/L)	Sb	04/28/2000	15:43:16	22.6855759	22.6855748			
BLANK	Sb	04/28/2000	15:47:35					Not used
STANDARD 1	Sb	04/28/2000	15:50:13					
STANDARD 2	Sb	04/28/2000	15:52:52					
STANDARD 3	Sb	04/28/2000	15:55:32					
STANDARD 4	Sb	04/28/2000	15:58:14					
STANDARD 5	Sb	04/28/2000	16:00:57					
LCB (0 ug/L)	Sb	04/28/2000	16:03:38	-1.3223504	-1.3223503			
LCM (25 ug/L)	Sb	04/28/2000	16:06:18	23.9763186	23.9763175			
RLC (7 ug/L)	Sb	04/28/2000	16:09:02	6.08053634	6.08053605			
2000BB01S01D	Sb	04/28/2000	16:11:48	-1.4109756	-1.4109755			
2000BB01S01D	Sb	04/28/2000	16:14:34	16.0070952	16.0070945		87.09	
2000BB01R01	Sb	04/28/2000	16:17:17	-1.1895584	-2.3791167	2		
2000BB01R01	Sb	04/28/2000	16:20:07	16.3048748	32.6097481	2	87.47	
2000OL02S01S	Sb	04/28/2000	16:22:51	-1.6320163	-8.1600811	5		
BLANK	Sb	04/28/2000	17:05:55					
STANDARD 1	Sb	04/28/2000	17:08:33					
STANDARD 2	Sb	04/28/2000	17:11:12					
STANDARD 3	Sb	04/28/2000	17:13:52					
STANDARD 4	Sb	04/28/2000	17:16:34					
STANDARD 5	Sb	04/28/2000	17:19:16					
LCB (0 ug/L)	Sb	04/28/2000	17:21:57	-0.1127114	-0.1127114			
LCM (25 ug/L)	Sb	04/28/2000	17:24:36	26.9793542	26.9793529			
RLC (7 ug/L)	Sb	04/28/2000	17:27:20	6.76304017	6.76303985			
2000BB01S01D	Sb	04/28/2000	17:30:07	-0.1227249	-0.1227249			
2000BB01S01D	Sb	04/28/2000	17:32:52	17.9233361	17.9233352		90.23	
2000BB01R01	Sb	04/28/2000	17:35:35	-0.1078395	-0.2156791	2		
2000BB01R01	Sb	04/28/2000	17:38:24	18.1098581	36.2197145	2	91.08	
2000OL02S01S	Sb	04/28/2000	17:41:07	10.2632489	51.3162425	5		
2000OL02S01S	Sb	04/28/2000	17:43:58	26.4088243	132.044115	5	80.72	Not used
2000OL02S02	Sb	04/28/2000	17:46:41	-0.6127609	-1.2255217	2		
2000OL02S02	Sb	04/28/2000	17:49:30	18.0616182	36.1232348	2	93.37	
2000OL02S03	Sb	04/28/2000	17:52:11	-0.5656524	-1.1313048	2		
2000OL02S03	Sb	04/28/2000	17:54:59	18.2620888	36.5241759	2	94.13	
LCB (0 ug/L)	Sb	04/28/2000	17:57:36	0.36751835	0.36751833			
LCM (25 ug/L)	Sb	04/28/2000	18:00:16	24.8579403	24.8579391			
2000OL02D04	Sb	04/28/2000	18:02:58	-0.8092036	-1.6184072	2		
2000OL02D04	Sb	04/28/2000	18:05:41	18.7095340	37.4190662	2	97.59	
LCB (0 ug/L)	Sb	04/28/2000	18:08:19	-0.3722075	-0.3722075			
LCM (25 ug/L)	Sb	04/28/2000	18:10:58	25.4868231	25.4868218			
LCB (0 ug/L)	Sb	04/28/2000	18:14:23	0.14870711	0.14870711			
LCM (25 ug/L)	Sb	04/28/2000	18:17:02	25.0173475	25.0173464			
RLC (7 ug/L)	Sb	04/28/2000	18:19:46	7.10528101	7.10528067			
2000OL02S01S	Sb	04/28/2000	18:22:33	9.78553445	48.9276699	5		

M. Mattox 5-3-00 M. Mattox 5-1-00

Element	Instrument	QC Source	
[ ] Ag	[X] 5100 A3	[ ] CLP-40	Analyst M. MATTOX
[ ] As	[ ] 5100 A6	[ ] CLP-70	Date 4-28-00
[ ] Cd	[ ] 5000 A4	[ ] CLP-80	Lamp # 1719
[ ] Cr	[ ] 5000 A5	[ ] EPA-V-1	Energy 51
[ ] Pb	[ ]	[X] CLPF-CAL-1 GFAA AQC 1	Expansion /
[X] Sb	[ ]	[ ]	Stock 835009
[ ] Se		[ ]	[X] platform [X] MSC
[ ] Tl		[ ]	[ ] wall [ ] MSA

Blank	Slope	AQC	Digestion QC

Blank cup absorbance

M. Mattox 5-3-00

M. Mattox 5-1-00

2000OL02S01S	Sb	04/28/2000	15:17:46	25.7826621	128.913304	5	74.31
2000OL02S02	Sb	04/28/2000	15:20:30	-0.5830423	-0.5830423		
2000OL02S02	Sb	04/28/2000	15:23:20	14.5714841	14.5714834		75.77
2000OL02S03	Sb	04/28/2000	15:26:02	-1.3139090	-1.3139089		
2000OL02S03	Sb	04/28/2000	15:28:50	15.0642276	15.0642269		81.89
LCB (0 ug/L)	Sb	04/28/2000	15:31:28	-1.0503353	-1.0503352		
LCM (25 ug/L)	Sb	04/28/2000	15:34:07	22.6216454	22.6216443		
LCB (0 ug/L)	Sb	04/28/2000	15:40:36	-0.7350000	-0.7349999		
LCM (25 ug/L)	Sb	04/28/2000	15:43:16	22.6855759	22.6855748		
BLANK	Sb	04/28/2000	15:47:35				
STANDARD 1	Sb	04/28/2000	15:50:13				
STANDARD 2	Sb	04/28/2000	15:52:52				
STANDARD 3	Sb	04/28/2000	15:55:32				
STANDARD 4	Sb	04/28/2000	15:58:14				
STANDARD 5	Sb	04/28/2000	16:00:57				
LCB (0 ug/L)	Sb	04/28/2000	16:03:38	-1.3223504	-1.3223503		
LCM (25 ug/L)	Sb	04/28/2000	16:06:18	23.9763186	23.9763175		
RLC (7 ug/L)	Sb	04/28/2000	16:09:02	6.08053634	6.08053605		
2000BB01S01D	Sb	04/28/2000	16:11:48	-1.4109756	-1.4109755		
2000BB01S01D	Sb	04/28/2000	16:14:34	16.0070952	16.0070945		87.09
2000BB01R01	Sb	04/28/2000	16:17:17	-1.1895584	-2.3791167	2	
2000BB01R01	Sb	04/28/2000	16:20:07	16.3048748	32.6097481	2	87.47
2000OL02S01S	Sb	04/28/2000	16:22:51	-1.6320163	-8.1600811	5	
BLANK	Sb	04/28/2000	17:05:55				
STANDARD 1	Sb	04/28/2000	17:08:33				
STANDARD 2	Sb	04/28/2000	17:11:12				
STANDARD 3	Sb	04/28/2000	17:13:52				
STANDARD 4	Sb	04/28/2000	17:16:34				
STANDARD 5	Sb	04/28/2000	17:19:16				
LCB (0 ug/L)	Sb	04/28/2000	17:21:57	-0.1127114	-0.1127114		
LCM (25 ug/L)	Sb	04/28/2000	17:24:36	26.9793542	26.9793529		
RLC (7 ug/L)	Sb	04/28/2000	17:27:20	6.76304017	6.76303985		
2000BB01S01D	Sb	04/28/2000	17:30:07	-0.1227249	-0.1227249		
2000BB01S01D	Sb	04/28/2000	17:32:52	17.9233361	17.9233352		90.23
2000BB01R01	Sb	04/28/2000	17:35:35	-0.1078395	-0.2156791	2	
2000BB01R01	Sb	04/28/2000	17:38:24	18.1098581	36.2197145	2	91.08
2000OL02S01S	Sb	04/28/2000	17:41:07	10.2632489	51.3162425	5	
2000OL02S01S	Sb	04/28/2000	17:43:58	26.4088243	132.044115	5	80.72
2000OL02S02	Sb	04/28/2000	17:46:41	-0.6127609	-1.2255217	2	
2000OL02S02	Sb	04/28/2000	17:49:30	18.0616182	36.1232348	2	93.37
2000OL02S03	Sb	04/28/2000	17:52:11	-0.5656524	-1.1313048	2	
2000OL02S03	Sb	04/28/2000	17:54:59	18.2620888	36.5241759	2	94.13
LCB (0 ug/L)	Sb	04/28/2000	17:57:36	0.36751835	0.36751833		
LCM (25 ug/L)	Sb	04/28/2000	18:00:16	24.8579403	24.8579391		
2000OL02D04	Sb	04/28/2000	18:02:58	-0.8092036	-1.6184072	2	
2000OL02D04	Sb	04/28/2000	18:05:41	18.7095340	37.4190662	2	97.59
LCB (0 ug/L)	Sb	04/28/2000	18:08:19	-0.3722075	-0.3722075		
LCM (25 ug/L)	Sb	04/28/2000	18:10:58	25.4868231	25.4868218		
LCB (0 ug/L)	Sb	04/28/2000	18:14:23	0.14870711	0.14870711		
LCM (25 ug/L)	Sb	04/28/2000	18:17:02	25.0173475	25.0173464		
RLC (7 ug/L)	Sb	04/28/2000	18:19:46	7.10528101	7.10528067		
2000OL02S01S	Sb	04/28/2000	18:22:33	9.78553445	48.9276699	5	

Not used

Not used

M. Mattox 5-3-00 M. Mattox 5-1-00

2000OL02S01S	Sb	04/28/2000	18:25:25	28.1554039	140.777012	5	91.84
LCB (0 ug/L)	Sb	04/28/2000	18:28:03	-0.0118976	-0.0118976		
LCM (25 ug/L)	Sb	04/28/2000	18:30:42	25.7094368	25.7094356		

M. Mattox 5-3-00
M. Mattox 5-1-00

? Sample_ID	Superfund #	EL	Sam_Date	Sam_Time	Mean_ST	Mean_SA	Dilu	%Rec	Result		Limit	Comments
BLANK		TI	04/28/2000	14:09:50						Not used		
STANDARD 1		TI	04/28/2000	14:12:25						Not used		
STANDARD 2		TI	04/28/2000	14:15:02						Not used		
STANDARD 3		TI	04/28/2000	14:17:38						Not used		
BLANK		TI	04/28/2000	14:24:43								
STANDARD 1		TI	04/28/2000	14:27:50								
STANDARD 2		TI	04/28/2000	14:30:59						R = 0.99963		
STANDARD 3		TI	04/28/2000	14:34:10								
STANDARD 4		TI	04/28/2000	14:37:19								
STANDARD 5		TI	04/28/2000	14:40:31								
LCB (0 ug/l)		TI	04/28/2000	14:43:41	-0.1259545	-0.1259545				1U ug/l	Limit = +/- 1 ug/l	
LCM (25 ug/l)		TI	04/28/2000	14:46:50	25.2329525	25.2329513				%R = 100.93	ESAT Limit = 22.5 - 27.5 ug/l	CRL Limit = 100 +/- 10%
RLC (4 ug/L)		TI	04/28/2000	14:50:02	4.39725332	4.39725311				%R = 109.93	ESAT Limit = 3.2 - 4.8 ug/l	CRL Limit = 100 +/- 20%
1171 D. BLANK		TI	04/28/2000	14:53:16	-0.0336099	-0.0336099			1U ug/l		Limit = +/- 1 ug/l	
1171 D. BLANK		TI	04/28/2000	14:56:51	21.1374684	21.1374674		105.8				
1171 LCS		TI	04/28/2000	15:00:03	9.93881671	9.93881624				%R = 99.39	ESAT Limit = 8 - 12 ug/l	CRL Limit = 100 +/- 20%
1171 LCS		TI	04/28/2000	15:03:37	29.5837098	29.5837083		98.22				
2000BB01S01	20000027	TI	04/28/2000	15:06:50	0.06520157	0.06520157			1U ug/l			
2000BB01S01	20000027	TI	04/28/2000	15:10:27	18.8257507	18.8257498		93.8				
2000BB01S01D	20000027	TI	04/28/2000	15:13:39	-0.229487	-0.229487			1U ug/l		Dup. diff. < 1.00 ug/l (ESAT Limit)	CRL Limit = Dup. diff. < IDL
2000BB01S01D	20000027	TI	04/28/2000	15:17:17	19.5174079	19.5174069		98.73				
2000BB01S01S	20000027	TI	04/28/2000	15:20:26	9.82644724	49.1322338	5			%R = 98.26	ESAT Limit = 100 +/- 15%	CRL Limit = 100 +/- 15%
2000BB01S01S	20000027	TI	04/28/2000	15:24:03	29.4168693	147.084339	5	97.95				
LCB (0 ug/l)		TI	04/28/2000	15:27:12	-0.2904773	-0.2904773				1U ug/l	Limit = +/- 1 ug/l	
LCM (25 ug/l)		TI	04/28/2000	15:30:23	25.7661524	25.7661511				%R = 103.06	ESAT Limit = 22.5 - 27.5 ug/l	CRL Limit = 100 +/- 10%
2000BB01D01	20000027	TI	04/28/2000	15:33:32	-0.1240222	-0.1240221			1U ug/l			
2000BB01D01	20000027	TI	04/28/2000	15:37:08	19.7228238	19.7228228		99.23				
2000BB01R01	20000027	TI	04/28/2000	15:40:17	-0.1854935	-0.1854935			1U ug/l			
2000BB01R01	20000027	TI	04/28/2000	15:43:53	19.6043126	19.6043117		98.94				
2000OL02S01	20000029	TI	04/28/2000	15:47:03	-0.5300601	-0.5300601			1U ug/l			
2000OL02S01	20000029	TI	04/28/2000	15:50:35	19.7111969	19.7111959		101.2				
2000OL02S01D	20000029	TI	04/28/2000	15:53:44	-0.2400691	-0.2400691			1U ug/l		Dup. diff. < 1.00 ug/l (ESAT Limit)	CRL Limit = Dup. diff. < IDL
2000OL02S01D	20000029	TI	04/28/2000	15:57:14	20.0822847	20.0822838		101.6				
2000OL02S01S	20000029	TI	04/28/2000	16:00:22	9.97521575	49.8760763	5			%R = 99.75	ESAT Limit = 100 +/- 15%	CRL Limit = 100 +/- 15%
2000OL02S01S	20000029	TI	04/28/2000	16:03:52	30.652761	153.263797	5	103.3				
LCB (0 ug/l)		TI	04/28/2000	16:07:01	-0.2591468	-0.2591468				1U ug/l	Limit = +/- 1 ug/l	
LCM (25 ug/l)		TI	04/28/2000	16:10:10	25.0999992	25.099998				%R = 100.40	ESAT Limit = 22.5 - 27.5 ug/l	CRL Limit = 100 +/- 10%
2000OL02S02	20000029	TI	04/28/2000	16:13:18	-0.0528507	-0.0528507			1U ug/l			
2000OL02S02	20000029	TI	04/28/2000	16:16:45	20.1260172	20.1260162		100.8				
2000OL02S03	20000029	TI	04/28/2000	16:19:53	-0.3270505	-0.3270504			1U ug/l			
2000OL02S03	20000029	TI	04/28/2000	16:23:20	20.064013	20.064012		101.9				
2000OL02S04	20000029	TI	04/28/2000	16:26:30	-0.7236635	-0.7236634			1U ug/l			
2000OL02S04	20000029	TI	04/28/2000	16:29:57	19.322964	19.3229631		100.2				
2000OL02D04	20000029	TI	04/28/2000	16:33:08	-0.7231623	-0.7231623			1U ug/l			
2000OL02D04	20000029	TI	04/28/2000	16:36:34	19.3772656	19.3772647		100.5				
LCB (0 ug/l)		TI	04/28/2000	16:39:45	-0.2378622	-0.2378622				1U ug/l	Limit = +/- 1 ug/l	
LCM (25 ug/l)		TI	04/28/2000	16:42:56	24.3045331	24.3045319				%R = 97.22	ESAT Limit = 22.5 - 27.5 ug/l	CRL Limit = 100 +/- 10%

LCM True Value = 25 ug/l
RLC True Value = 4 ug/l
LCS True Value = 10 ug/l
Spike True Value = 50 ug/l
Instrument Detection Limit = 1 ug/l
ESAT Analytical Spike Recovery Limit = 90% - 110%

Not used = Data which is rejected or not used due to unacceptable results which *do not meet acceptable criteria.*

M. Matter 5-3-00

Sample_ID	EL	Sam_Date	Sam_Time	Mean_ST	Mean_SA	Dilu	Rec
BLANK	Tl	04/28/2000	14:09:50				
STANDARD 1	Tl	04/28/2000	14:12:25				
STANDARD 2	Tl	04/28/2000	14:15:02				
STANDARD 3	Tl	04/28/2000	14:17:38				
BLANK	Tl	04/28/2000	14:24:43				
STANDARD 1	Tl	04/28/2000	14:27:50				
STANDARD 2	Tl	04/28/2000	14:30:59				
STANDARD 3	Tl	04/28/2000	14:34:10				
STANDARD 4	Tl	04/28/2000	14:37:19				
STANDARD 5	Tl	04/28/2000	14:40:31				
LCB (0 ug/l)	Tl	04/28/2000	14:43:41	-0.1259545	-0.1259545		
LCM (25 ug/l)	Tl	04/28/2000	14:46:50	25.2329525	25.2329513		
RLC (4 ug/L)	Tl	04/28/2000	14:50:02	4.39725332	4.39725311		
1171 D. BLANK	Tl	04/28/2000	14:53:16	-0.0336099	-0.0336099		
1171 D. BLANK	Tl	04/28/2000	14:56:51	21.1374684	21.1374674		105.8
1171 LCS	Tl	04/28/2000	15:00:03	9.93881671	9.93881624		
1171 LCS	Tl	04/28/2000	15:03:37	29.5837098	29.5837083		98.22
2000BB01S01	Tl	04/28/2000	15:06:50	0.06520157	0.06520157		
2000BB01S01	Tl	04/28/2000	15:10:27	18.8257507	18.8257498		93.80
2000BB01S01D	Tl	04/28/2000	15:13:39	-0.2294870	-0.2294870		
2000BB01S01D	Tl	04/28/2000	15:17:17	19.5174079	19.5174069		98.73
2000BB01S01S	Tl	04/28/2000	15:20:26	9.82644724	49.1322338	5	
2000BB01S01S	Tl	04/28/2000	15:24:03	29.4168693	147.084339	5	97.95
LCB (0 ug/l)	Tl	04/28/2000	15:27:12	-0.2904773	-0.2904773		
LCM (25 ug/l)	Tl	04/28/2000	15:30:23	25.7661524	25.7661511		
2000BB01D01	Tl	04/28/2000	15:33:32	-0.1240222	-0.1240221		
2000BB01D01	Tl	04/28/2000	15:37:08	19.7228238	19.7228228		99.23
2000BB01R01	Tl	04/28/2000	15:40:17	-0.1854935	-0.1854935		
2000BB01R01	Tl	04/28/2000	15:43:53	19.6043126	19.6043117		98.94
2000OL02S01	Tl	04/28/2000	15:47:03	-0.5300601	-0.5300601		
2000OL02S01	Tl	04/28/2000	15:50:35	19.7111969	19.7111959		101.2
2000OL02S01D	Tl	04/28/2000	15:53:44	-0.2400691	-0.2400691		
2000OL02S01D	Tl	04/28/2000	15:57:14	20.0822847	20.0822838		101.6
2000OL02S01S	Tl	04/28/2000	16:00:22	9.97521575	49.8760763	5	
2000OL02S01S	Tl	04/28/2000	16:03:52	30.6527610	153.263797	5	103.3
LCB (0 ug/l)	Tl	04/28/2000	16:07:01	-0.2591468	-0.2591468		
LCM (25 ug/l)	Tl	04/28/2000	16:10:10	25.0999992	25.0999980		
2000OL02S02	Tl	04/28/2000	16:13:18	-0.0528507	-0.0528507		
2000OL02S02	Tl	04/28/2000	16:16:45	20.1260172	20.1260162		100.8
2000OL02S03	Tl	04/28/2000	16:19:53	-0.3270505	-0.3270504		
2000OL02S03	Tl	04/28/2000	16:23:20	20.0640130	20.0640120		101.9
2000OL02S04	Tl	04/28/2000	16:26:30	-0.7236635	-0.7236634		
2000OL02S04	Tl	04/28/2000	16:29:57	19.3229640	19.3229631		100.2
2000OL02D04	Tl	04/28/2000	16:33:08	-0.7231623	-0.7231623		
2000OL02D04	Tl	04/28/2000	16:36:34	19.3772656	19.3772647		100.5
LCB (0 ug/l)	Tl	04/28/2000	16:39:45	-0.2378622	-0.2378622		
LCM (25 ug/l)	Tl	04/28/2000	16:42:56	24.3045331	24.3045319		

Not used

M. Mattox 5-3-00
M. Mattox 5-1-00

Element	Instrument	QC Source	
[ ] Ag	[ ] 5100 A3	[ ] CLP-40	Analyst M. MATTOX
[ ] As	[X] 5100 A6	[ ] CLP-70	Date 4-28-00
[ ] Cd	[ ] 5000 A4	[ ] CLP-80	Lamp # 1211
[ ] Cr	[ ] 5000 A5	[ ] EPA-V-1	Energy 58
[ ] Pb	[ ]	[X] CLPF-CAL-1 GFAA AQC 1	Expansion /
[ ] Sb	[ ]	[ ]	Stock 903602
[ ] Se		[ ]	[X] platform [X] MSC
[X] Tl		[ ]	[ ] wall [ ] MSA

Blank	Slope	AQC	Digestion QC

Blank cup absorbance

M. Mattox 5-3-00
M. Mattox 5-1-00

?Sample_ID	Superfund #	EL	Sam_Date	Sam_Time	Mean_ST	Mean_SA	Dilu	%Rec	Result		Limit	Comments
BLANK		Pb	04/28/2000	09:52:30								
STANDARD 1		Pb	04/28/2000	09:55:35								
STANDARD 2		Pb	04/28/2000	09:58:43						R = 0.99959		
STANDARD 3		Pb	04/28/2000	10:01:53								
STANDARD 4		Pb	04/28/2000	10:05:03								
STANDARD 5		Pb	04/28/2000	10:08:14								
LCB (0 ug/l)		Pb	04/28/2000	10:11:24	-0.7387154	-0.7387153				2U ug/l	Limit = +/- 2 ug/l	
LCM (25 ug/l)		Pb	04/28/2000	10:14:31	25.0242154	25.0242142				%R = 100.10	ESAT Limit = 23.71 - 27.17 ug/l	CRL Limit = 100 +/- 10%
RLC (7 ug/L)		Pb	04/28/2000	10:17:45	6.81610984	6.81610951				%R = 97.37	ESAT Limit = 5.6 - 8.4 ug/l	CRL Limit = 100 +/- 20%
1171 D. BLANK		Pb	04/28/2000	10:21:02	0.05077072	0.05077072			2U ug/l		Limit = +/- 2 ug/l	
1171 D. BLANK		Pb	04/28/2000	10:24:16	18.9478345	18.9478336		94.48				
1171 LCS		Pb	04/28/2000	10:27:28	10.1959522	10.1959517				%R = 101.96	ESAT Limit = 8.65 - 11.87 ug/l	CRL Limit = 100 +/- 20%
1171 LCS		Pb	04/28/2000	10:30:45	29.6053724	29.605371		97.04				
2000BB01S01	20000027	Pb	04/28/2000	10:33:58	0.59211055	0.59211052			2U ug/l			
2000BB01S01	20000027	Pb	04/28/2000	10:37:14	20.4246642	20.4246632		99.16				
2000BB01S01D	20000027	Pb	04/28/2000	10:40:28	-0.0399438	-0.0399438			2U ug/l		Dup. diff. < 1.31 ug/l (ESAT Limit)	CRL Limit = Dup. diff. < IDL
2000BB01S01D	20000027	Pb	04/28/2000	10:43:47	20.1561753	20.1561743		100.9				
2000BB01S01S	20000027	Pb	04/28/2000	10:47:00	9.8822799	49.4113971	5			%R = 98.82	ESAT Limit = 100 +/- 15%	CRL Limit = 100 +/- 15%
2000BB01S01S	20000027	Pb	04/28/2000	10:50:20	28.8655987	144.327987	5	94.91				
LCB (0 ug/l)		Pb	04/28/2000	10:53:27	0.15440497	0.15440497				2U ug/l	Limit = +/- 2 ug/l	
LCM (25 ug/l)		Pb	04/28/2000	10:56:36	26.4936685	26.4936672				%R = 105.97	ESAT Limit = 23.71 - 27.17 ug/l	CRL Limit = 100 +/- 10%
2000BB01D01	20000027	Pb	04/28/2000	10:59:49	0.42217863	0.42217861			2U ug/l			
2000BB01D01	20000027	Pb	04/28/2000	11:03:08	21.1845018	21.1845008		103.8				
2000BB01R01	20000027	Pb	04/28/2000	11:06:21	-0.0994142	-0.0994142			2U ug/l			
2000BB01R01	20000027	Pb	04/28/2000	11:09:40	20.1557743	20.1557733		101.2				
2000OL02S01	20000029	Pb	04/28/2000	11:12:52	1.25907039	1.25907033			2U ug/l			
2000OL02S01	20000029	Pb	04/28/2000	11:16:10	22.1086789	22.1086779		104.2				
2000OL02S01D	20000029	Pb	04/28/2000	11:19:21	1.44938658	1.44938651			2U ug/l		Dup. diff. < 1.31 ug/l (ESAT Limit)	CRL Limit = Dup. diff. < IDL
2000OL02S01D	20000029	Pb	04/28/2000	11:22:36	22.515408	22.515407		105.3				
2000OL02S01S	20000029	Pb	04/28/2000	11:25:47	10.5224778	52.6123869	5			%R = 105.22	ESAT Limit = 100 +/- 15%	CRL Limit = 100 +/- 15%
2000OL02S01S	20000029	Pb	04/28/2000	11:29:00	30.3021203	151.510594	5	98.89				
LCB (0 ug/l)		Pb	04/28/2000	11:32:11	-0.0103544	-0.0103544				2U ug/l	Limit = +/- 2 ug/l	
LCM (25 ug/l)		Pb	04/28/2000	11:35:20	26.7782298	26.7782285				%R = 107.11	ESAT Limit = 23.71 - 27.17 ug/l	CRL Limit = 100 +/- 10%
2000OL02S02	20000029	Pb	04/28/2000	11:38:30	0.41776542	0.4177654			2U ug/l			
2000OL02S02	20000029	Pb	04/28/2000	11:41:42	21.8545101	21.854509		107.1				
2000OL02S03	20000029	Pb	04/28/2000	11:44:51	0.48936488	0.48936486				Not used		
2000OL02S03	20000029	Pb	04/28/2000	11:48:03	21.9808885	21.9808875		107.4		Not used		
2000OL02S04	20000029	Pb	04/28/2000	11:51:13	0.90007902	0.90007898			2U ug/l			
2000OL02S04	20000029	Pb	04/28/2000	11:54:22	21.0839514	21.0839504		100.9				
2000OL02D04	20000029	Pb	04/28/2000	11:57:31	0.60332089	0.60332086			2U ug/l			
2000OL02D04	20000029	Pb	04/28/2000	12:00:38	22.0433246	22.0433235		107.2				

LCM True Value = 25 ug/l
RLC True Value = 7 ug/l
LCS True Value = 10 ug/l
Spike True Value = 50 ug/l
Instrument Detection Limit = 2 ug/l
ESAT Analytical Spike Recovery Limit = 90% - 107.42%

Not used = Data which is rejected or not used due to unacceptable results which do not meet acceptable criteria.

M. Mattox 5-3-00

?Sample_ID	Superfund #	EL	Sam_Date	Sam_Time	Mean_ST	Mean_SA	Dilu	%Rec	Result		Limit	Comments
LCB (0 ug/l)		Pb	04/28/2000	12:03:47	-0.1414399	-0.1414399				2U ug/l	Limit = +/- 2 ug/l	
LCM (25 ug/l)		Pb	04/28/2000	12:06:55	26.7560563	26.7560551				%R = 107.02	ESAT Limit = 23.71 - 27.17 ug/l	CRL Limit = 100 +/- 10%
LCB (0 ug/l)		Pb	04/28/2000	12:15:58	-0.5781172	-0.5781172				2U ug/l	Limit = +/- 2 ug/l	
LCM (25 ug/l)		Pb	04/28/2000	12:19:06	26.9985386	26.9985374				%R = 107.99	ESAT Limit = 23.71 - 27.17 ug/l	CRL Limit = 100 +/- 10%
RLC (7 ug/L)		Pb	04/28/2000	12:22:19	7.49735057	7.49735021				%R = 107.11	ESAT Limit = 5.6 - 8.4 ug/l	CRL Limit = 100 +/- 20%
2000OL02S02	20000029	Pb	04/28/2000	12:25:31	0.54254004	0.54254002				Not used		
2000OL02S02	20000029	Pb	04/28/2000	12:28:44	22.455528	22.4555269		109.5		Not used		
2000OL02S03	20000029	Pb	04/28/2000	12:31:54	0.50848736	0.50848733			2U ug/l			
2000OL02S03	20000029	Pb	04/28/2000	12:35:06	21.4863098	21.4863088		104.8				
2000OL02D04	20000029	Pb	04/28/2000	12:38:14	0.75328493	0.7532849				Not used		
2000OL02D04	20000029	Pb	04/28/2000	12:41:22	21.5405488	21.5405478		103.9		Not used		
LCB (0 ug/l)		Pb	04/28/2000	12:44:29	0.49806218	0.49806216				2U ug/l	Limit = +/- 2 ug/l	
LCM (25 ug/l)		Pb	04/28/2000	12:47:38	27.1404722	27.1404709				%R = 108.56	ESAT Limit = 23.71 - 27.17 ug/l	CRL Limit = 100 +/- 10%
LCB (0 ug/l)		Pb	04/28/2000	12:57:52	-0.4890653	-0.4890652				Not used		
LCM (25 ug/l)		Pb	04/28/2000	13:01:01	27.6511115	27.6511101				Not used		
BLANK		Pb	04/28/2000	13:04:08						Not used		
STANDARD 1		Pb	04/28/2000	13:07:15						Not used		
STANDARD 2		Pb	04/28/2000	13:10:22						Not used		
STANDARD 3		Pb	04/28/2000	13:13:32						Not used		
STANDARD 4		Pb	04/28/2000	13:16:42						Not used		
STANDARD 5		Pb	04/28/2000	13:19:53						Not used		
LCB (0 ug/l)		Pb	04/28/2000	13:23:03	-0.3864282	-0.3864282				Not used		
LCM (25 ug/l)		Pb	04/28/2000	13:26:12	25.2915794	25.2915782				Not used		
RLC (7 ug/L)		Pb	04/28/2000	13:29:27	6.82872593	6.82872561				Not used		
RLC (7 ug/L)		Pb	04/28/2000	13:32:42	7.03254678	7.03254645				Not used		
2000OL02S02	20000029	Pb	04/28/2000	13:35:54	0.78856023	0.78856019				Not used		
2000OL02S02	20000029	Pb	04/28/2000	13:39:06	20.5694768	20.5694759		98.9		Not used		
LCB (0 ug/l)		Pb	04/28/2000	13:42:14	-0.3273678	-0.3273677				Not used		
LCM (25 ug/l)		Pb	04/28/2000	13:45:24	25.3051721	25.3051709				Not used		

LCM True Value = 25 ug/l
RLC True Value = 7 ug/l
LCS True Value = 10 ug/l
Spike True Value = 50 ug/l
Instrument Detection Limit = 2 ug/l
ESAT Analytical Spike Recovery Limit = 90% - 107.42%

Not used = Data which is rejected or not used
due to unacceptable results which
do not meet acceptable criteria.

M. Mattos 5-3-00

Sample_ID	EL	Sam_Date	Sam_Time	Mean_ST	Mean_SA	Dilu	Rec
BLANK	Pb	04/28/2000	09:52:30				
STANDARD 1	Pb	04/28/2000	09:55:35				
STANDARD 2	Pb	04/28/2000	09:58:43				
STANDARD 3	Pb	04/28/2000	10:01:53				
STANDARD 4	Pb	04/28/2000	10:05:03				
STANDARD 5	Pb	04/28/2000	10:08:14				
LCB (0 ug/l)	Pb	04/28/2000	10:11:24	-0.7387154	-0.7387153		
LCM (25 ug/l)	Pb	04/28/2000	10:14:31	25.0242154	25.0242142		
RLC (7 ug/L)	Pb	04/28/2000	10:17:45	6.81610984	6.81610951		
1171 D. BLANK	Pb	04/28/2000	10:21:02	0.05077072	0.05077072		
1171 D. BLANK	Pb	04/28/2000	10:24:16	18.9478345	18.9478336		94.48
1171 LCS	Pb	04/28/2000	10:27:28	10.1959522	10.1959517		
1171 LCS	Pb	04/28/2000	10:30:45	29.6053724	29.6053710		97.04
2000BB01S01	Pb	04/28/2000	10:33:58	0.59211055	0.59211052		
2000BB01S01	Pb	04/28/2000	10:37:14	20.4246642	20.4246632		99.16
2000BB01S01D	Pb	04/28/2000	10:40:28	-0.0399438	-0.0399438		
2000BB01S01D	Pb	04/28/2000	10:43:47	20.1561753	20.1561743		100.9
2000BB01S01S	Pb	04/28/2000	10:47:00	9.88227990	49.4113971	5	
2000BB01S01S	Pb	04/28/2000	10:50:20	28.8655987	144.327987	5	94.91
LCB (0 ug/l)	Pb	04/28/2000	10:53:27	0.15440497	0.15440497		
LCM (25 ug/l)	Pb	04/28/2000	10:56:36	26.4936685	26.4936672		
2000BB01D01	Pb	04/28/2000	10:59:49	0.42217863	0.42217861		
2000BB01D01	Pb	04/28/2000	11:03:08	21.1845018	21.1845008		103.8
2000BB01R01	Pb	04/28/2000	11:06:21	-0.0994142	-0.0994142		
2000BB01R01	Pb	04/28/2000	11:09:40	20.1557743	20.1557733		101.2
2000OL02S01	Pb	04/28/2000	11:12:52	1.25907039	1.25907033		
2000OL02S01	Pb	04/28/2000	11:16:10	22.1086789	22.1086779		104.2
2000OL02S01D	Pb	04/28/2000	11:19:21	1.44938658	1.44938651		
2000OL02S01D	Pb	04/28/2000	11:22:36	22.5154080	22.5154070		105.3
2000OL02S01S	Pb	04/28/2000	11:25:47	10.5224778	52.6123869	5	
2000OL02S01S	Pb	04/28/2000	11:29:00	30.3021203	151.510594	5	98.89
LCB (0 ug/l)	Pb	04/28/2000	11:32:11	-0.0103544	-0.0103544		
LCM (25 ug/l)	Pb	04/28/2000	11:35:20	26.7782298	26.7782285		
2000OL02S02	Pb	04/28/2000	11:38:30	0.41776542	0.41776540		
2000OL02S02	Pb	04/28/2000	11:41:42	21.8545101	21.8545090		107.1
2000OL02S03	Pb	04/28/2000	11:44:51	0.48936488	0.48936486		
2000OL02S03	Pb	04/28/2000	11:48:03	21.9808885	21.9808875		107.4 Not used
2000OL02S04	Pb	04/28/2000	11:51:13	0.90007902	0.90007898		
2000OL02S04	Pb	04/28/2000	11:54:22	21.0839514	21.0839504		100.9
2000OL02D04	Pb	04/28/2000	11:57:31	0.60332089	0.60332086		
2000OL02D04	Pb	04/28/2000	12:00:38	22.0433246	22.0433235		107.2
LCB (0 ug/l)	Pb	04/28/2000	12:03:47	-0.1414399	-0.1414399		
LCM (25 ug/l)	Pb	04/28/2000	12:06:55	26.7560563	26.7560551		
LCB (0 ug/l)	Pb	04/28/2000	12:15:58	-0.5781172	-0.5781172		
LCM (25 ug/l)	Pb	04/28/2000	12:19:06	26.9985386	26.9985374		
RLC (7 ug/L)	Pb	04/28/2000	12:22:19	7.49735057	7.49735021		
2000OL02S02	Pb	04/28/2000	12:25:31	0.54254004	0.54254002		
2000OL02S02	Pb	04/28/2000	12:28:44	22.4555280	22.4555269		109.5 Not used
2000OL02S03	Pb	04/28/2000	12:31:54	0.50848736	0.50848733		
2000OL02S03	Pb	04/28/2000	12:35:06	21.4863098	21.4863088		104.8

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2000OL02D04	Pb	04/28/2000	12:38:14	0.75328493	0.75328490		Not used
2000OL02D04	Pb	04/28/2000	12:41:22	21.5405488	21.5405478	103.9	
LCB (0 ug/l)	Pb	04/28/2000	12:44:29	0.49806218	0.49806216		
LCM (25 ug/l)	Pb	04/28/2000	12:47:38	27.1404722	27.1404709		
LCB (0 ug/l)	Pb	04/28/2000	12:57:52	-0.4890653	-0.4890652		
LCM (25 ug/l)	Pb	04/28/2000	13:01:01	27.6511115	27.6511101		
BLANK	Pb	04/28/2000	13:04:08				
STANDARD 1	Pb	04/28/2000	13:07:15				
STANDARD 2	Pb	04/28/2000	13:10:22				
STANDARD 3	Pb	04/28/2000	13:13:32				
STANDARD 4	Pb	04/28/2000	13:16:42				
STANDARD 5	Pb	04/28/2000	13:19:53				
LCB (0 ug/l)	Pb	04/28/2000	13:23:03	-0.3864282	-0.3864282		Not used
LCM (25 ug/l)	Pb	04/28/2000	13:26:12	25.2915794	25.2915782		
RLC (7 ug/L)	Pb	04/28/2000	13:29:27	6.82872593	6.82872561		
RLC (7 ug/L)	Pb	04/28/2000	13:32:42	7.03254678	7.03254645		
2000OL02S02	Pb	04/28/2000	13:35:54	0.78856023	0.78856019		
2000OL02S02	Pb	04/28/2000	13:39:06	20.5694768	20.5694759	98.90	
LCB (0 ug/l)	Pb	04/28/2000	13:42:14	-0.3273678	-0.3273677		
LCM (25 ug/l)	Pb	04/28/2000	13:45:24	25.3051721	25.3051709		

M. Mattox 5-3-00
M. Mattox 5-1-00

Element	Instrument	QC Source
[ ] Ag	[ ] 5100 A3	[ ] CLP-40
[ ] As	[X] 5100 A6	[ ] CLP-70
[ ] Cd	[ ] 5000 A4	[ ] CLP-80
[ ] Cr	[ ] 5000 A5	[ ] EPA-V-1
[X] Pb	[ ]	[X] CLPF-CAL-1 GFAA AQC 1
[ ] Sb	[ ]	[ ]
[ ] Se		[ ]
[ ] Tl		[ ]

Analyst M. MATTOX

Date 4-28-00

Lamp # 1184

Energy 64

Expansion /

Stock 907505

[X] platform [X] MSC

[ ] wall [ ] MSA

Blank	Slope	AQC	Digestion QC

Blank cup absorbance

M. Mattox 5-3-00
M. Mattox 5-1-00

?Sample_ID	Superfund #	EL	Sam_Date	Sam_Time	Mean_ST	Mean_SA	Dilu	%Rec	Result		Limit	Comments
Calib Blank		Cd	04/24/2000	14:09:46						Not used		
STANDARD 1		Cd	04/24/2000	14:12:52						Not used		
STANDARD 2		Cd	04/24/2000	14:15:59						Not used		
STANDARD 3		Cd	04/24/2000	14:19:08						Not used		
STANDARD 4		Cd	04/24/2000	14:22:19						Not used		
STANDARD 5		Cd	04/24/2000	14:25:30						Not used		
LCB (0 ug/l)		Cd	04/24/2000	14:29:38	0.00792407	0.00792407				Not used		
LCM (1.25 ug/l)		Cd	04/24/2000	14:32:45	2.78329208	2.78329195				Not used		
Calib Blank		Cd	04/24/2000	14:35:53								
STANDARD 1		Cd	04/24/2000	14:38:59								
STANDARD 2		Cd	04/24/2000	14:42:07						R = 0.99985		
STANDARD 3		Cd	04/24/2000	14:45:17								
STANDARD 4		Cd	04/24/2000	14:48:27								
STANDARD 5		Cd	04/24/2000	14:51:39								
LCB (0 ug/l)		Cd	04/24/2000	14:54:48	0.00259716	0.00259716				0.1U ug/l	Limit = +/- 0.1 ug/l	
LCM (1.25 ug/l)		Cd	04/24/2000	14:57:57	1.2894923	1.28949224				%R = 103.16	ESAT Limit = 1.125 - 1.375 ug/l	CRL Limit = 100 +/- 10%
RLC (0.3 ug/L)		Cd	04/24/2000	15:01:09	0.30965784	0.30965783				%R = 103.22	ESAT Limit = 0.24 - 0.36 ug/l	CRL Limit = 100 +/- 20%
RLC (0.3 ug/L)		Cd	04/24/2000	15:04:24	0.30759896	0.30759895				%R = 102.53	ESAT Limit = 0.24 - 0.36 ug/l	CRL Limit = 100 +/- 20%
1171 D. BLANK		Cd	04/24/2000	15:07:39	-0.01634	-0.01634			0.1U ug/l		Limit = +/- 0.1 ug/l	
1171 D. BLANK		Cd	04/24/2000	15:10:53	0.9837993	0.98379925		100				
1171 LCS		Cd	04/24/2000	15:14:06	1.07185124	1.07185119				%R = 107.19	ESAT Limit = 0.81 - 1.2 ug/l	CRL Limit = 100 +/- 20%
1171 LCS		Cd	04/24/2000	15:17:22	2.06630402	2.06630392		99.44				
2000BB01S01	20000027	Cd	04/24/2000	15:20:38	-0.0096836	-0.0096836			0.1U ug/l			
2000BB01S01	20000027	Cd	04/24/2000	15:23:55	1.01863636	1.01863631		102.8				
2000BB01S01D	20000027	Cd	04/24/2000	15:27:09	-0.0039771	-0.0039771			0.1U ug/l		Dup. Diff. < 0.1ug/l (ESAT Limit)	CRL Limit = Dup. diff. <IDL
2000BB01S01D	20000027	Cd	04/24/2000	15:30:29	1.01895326	1.01895322		102.2				
2000BB01S01S	20000027	Cd	04/24/2000	15:33:44	1.00808591	5.04042932	5			%R = 100.81	ESAT Limit = 85% - 115%	CRL Limit = 100 +/- 15%
2000BB01S01S	20000027	Cd	04/24/2000	15:37:03	2.03117485	10.1558737	5	102.3				
LCB (0 ug/l)		Cd	04/24/2000	15:40:12	0.01666898	0.01666898				0.1U ug/l	Limit = +/- 0.1 ug/l	
LCM (1.25 ug/l)		Cd	04/24/2000	15:43:21	1.30169477	1.30169471				%R = 104.14	ESAT Limit = 1.125 - 1.375 ug/l	CRL Limit = 100 +/- 10%
2000BB01D01	20000027	Cd	04/24/2000	15:46:33	0.0170039	0.0170039			0.1U ug/l			
2000BB01D01	20000027	Cd	04/24/2000	15:49:53	1.04540125	1.0454012		102.8				
2000BB01R01	20000027	Cd	04/24/2000	15:53:06	-0.0229626	-0.0229626			0.1U ug/l			
2000BB01R01	20000027	Cd	04/24/2000	15:56:25	1.02736159	1.02736154		105				
2000OL02S01	20000029	Cd	04/24/2000	15:59:36	-0.0147991	-0.0147991			0.1U ug/l			
2000OL02S01	20000029	Cd	04/24/2000	16:02:54	1.0265025	1.02650245		104.1				
2000OL02S01D	20000029	Cd	04/24/2000	16:06:04	-0.0439483	-0.0439483			0.1U ug/l		Dup. Diff. < 0.1ug/l (ESAT Limit)	CRL Limit = Dup. diff. <IDL
2000OL02S01D	20000029	Cd	04/24/2000	16:09:21	1.00511753	1.00511748		104.9				
2000OL02S01S	20000029	Cd	04/24/2000	16:12:34	1.02185673	5.10928342	5			%R = 102.19	ESAT Limit = 85% - 115%	CRL Limit = 100 +/- 15%
2000OL02S01S	20000029	Cd	04/24/2000	16:15:50	2.05737917	10.2868953	5	103.5				
LCB (0 ug/l)		Cd	04/24/2000	16:18:59	0.00736947	0.00736947				0.1U ug/l	Limit = +/- 0.1 ug/l	
LCM (1.25 ug/l)		Cd	04/24/2000	16:22:08	1.32143164	1.32143158				%R = 105.71	ESAT Limit = 1.125 - 1.375 ug/l	CRL Limit = 100 +/- 10%
2000OL02S02	20000029	Cd	04/24/2000	16:25:18	-0.0315518	-0.0315518			0.1U ug/l			
2000OL02S02	20000029	Cd	04/24/2000	16:28:31	1.00676266	1.00676261		103.8				
2000OL02S03	20000029	Cd	04/24/2000	16:31:40	-0.0230204	-0.0230204			0.1U ug/l			
2000OL02S03	20000029	Cd	04/24/2000	16:34:50	1.01153893	1.01153888		103.4				
2000OL02S04	20000029	Cd	04/24/2000	16:37:59	-0.0385175	-0.0385175			0.1U ug/l			
2000OL02S04	20000029	Cd	04/24/2000	16:41:07	0.98725662	0.98725658		102.5				
2000OL02D04	20000029	Cd	04/24/2000	16:44:15	-0.0315295	-0.0315295			0.1U ug/l			
2000OL02D04	20000029	Cd	04/24/2000	16:47:22	1.0077263	1.00772625		103.9				
LCB (0 ug/l)		Cd	04/24/2000	16:50:30	0.00435716	0.00435716				0.1U ug/l	Limit = +/- 0.1 ug/l	
LCM (1.25 ug/l)		Cd	04/24/2000	16:53:37	1.32573849	1.32573843				%R = 106.06	ESAT Limit = 1.125 - 1.375 ug/l	CRL Limit = 100 +/- 10%

LCM True Value = 1.25 ug/l
RLC True Value = 0.30 ug/l
LCS True Value = 1.0 ug/l
Spike True Value = 5.0 ug/l
Instrument Detection Limit = 0.1 ug/l
ESAT Analytical Spike Recovery Limit = 90% - 107.21%

Not used = Data which is rejected or not used due to unacceptable results which do not meet acceptable criteria.

M. Mattop
5-3-00

Sample_ID	EL	Sam_Date	Sam_Time	Mean_ST	Mean_SA	Dilu	Rec
Calib Blank	Cd	04/24/2000	14:09:46				
STANDARD 1	Cd	04/24/2000	14:12:52				
STANDARD 2	Cd	04/24/2000	14:15:59				
STANDARD 3	Cd	04/24/2000	14:19:08				
STANDARD 4	Cd	04/24/2000	14:22:19				
STANDARD 5	Cd	04/24/2000	14:25:30				
LCB (0 ug/l)	Cd	04/24/2000	14:29:38	0.00792407	0.00792407		
LCM (1.25 ug/l)	Cd	04/24/2000	14:32:45	2.78329208	2.78329195		
Calib Blank	Cd	04/24/2000	14:35:53				
STANDARD 1	Cd	04/24/2000	14:38:59				
STANDARD 2	Cd	04/24/2000	14:42:07				
STANDARD 3	Cd	04/24/2000	14:45:17				
STANDARD 4	Cd	04/24/2000	14:48:27				
STANDARD 5	Cd	04/24/2000	14:51:39				
LCB (0 ug/l)	Cd	04/24/2000	14:54:48	0.00259716	0.00259716		
LCM (1.25 ug/l)	Cd	04/24/2000	14:57:57	1.28949230	1.28949224		
RLC (0.3 ug/L)	Cd	04/24/2000	15:01:09	0.30965784	0.30965783		
RLC (0.3 ug/L)	Cd	04/24/2000	15:04:24	0.30759896	0.30759895		
1171 D. BLANK	Cd	04/24/2000	15:07:39	-0.0163400	-0.0163400		
1171 D. BLANK	Cd	04/24/2000	15:10:53	0.98379930	0.98379925		100.0
1171 LCS	Cd	04/24/2000	15:14:06	1.07185124	1.07185119		
1171 LCS	Cd	04/24/2000	15:17:22	2.06630402	2.06630392		99.44
2000BB01S01	Cd	04/24/2000	15:20:38	-0.0096836	-0.0096836		
2000BB01S01	Cd	04/24/2000	15:23:55	1.01863636	1.01863631		102.8
2000BB01S01D	Cd	04/24/2000	15:27:09	-0.0039771	-0.0039771		
2000BB01S01D	Cd	04/24/2000	15:30:29	1.01895326	1.01895322		102.2
2000BB01S01S	Cd	04/24/2000	15:33:44	1.00808591	5.04042932	5	
2000BB01S01S	Cd	04/24/2000	15:37:03	2.03117485	10.1558737	5	102.3
LCB (0 ug/l)	Cd	04/24/2000	15:40:12	0.01666898	0.01666898		
LCM (1.25 ug/l)	Cd	04/24/2000	15:43:21	1.30169477	1.30169471		
2000BB01D01	Cd	04/24/2000	15:46:33	0.01700390	0.01700390		
2000BB01D01	Cd	04/24/2000	15:49:53	1.04540125	1.04540120		102.8
2000BB01R01	Cd	04/24/2000	15:53:06	-0.0229626	-0.0229626		
2000BB01R01	Cd	04/24/2000	15:56:25	1.02736159	1.02736154		105.0
2000OL02S01	Cd	04/24/2000	15:59:36	-0.0147991	-0.0147991		
2000OL02S01	Cd	04/24/2000	16:02:54	1.02650250	1.02650245		104.1
2000OL02S01D	Cd	04/24/2000	16:06:04	-0.0439483	-0.0439483		
2000OL02S01D	Cd	04/24/2000	16:09:21	1.00511753	1.00511748		104.9
2000OL02S01S	Cd	04/24/2000	16:12:34	1.02185673	5.10928342	5	
2000OL02S01S	Cd	04/24/2000	16:15:50	2.05737917	10.2868953	5	103.5
LCB (0 ug/l)	Cd	04/24/2000	16:18:59	0.00736947	0.00736947		
LCM (1.25 ug/l)	Cd	04/24/2000	16:22:08	1.32143164	1.32143158		
2000OL02S02	Cd	04/24/2000	16:25:18	-0.0315518	-0.0315518		
2000OL02S02	Cd	04/24/2000	16:28:31	1.00676266	1.00676261		103.8
2000OL02S03	Cd	04/24/2000	16:31:40	-0.0230204	-0.0230204		
2000OL02S03	Cd	04/24/2000	16:34:50	1.01153893	1.01153888		103.4
2000OL02S04	Cd	04/24/2000	16:37:59	-0.0385175	-0.0385175		
2000OL02S04	Cd	04/24/2000	16:41:07	0.98725662	0.98725658		102.5
2000OL02D04	Cd	04/24/2000	16:44:15	-0.0315295	-0.0315295		
2000OL02D04	Cd	04/24/2000	16:47:22	1.00772630	1.00772625		103.9

Not used

M. Mattox 5-3-00 M. Mattox 5-1-00

LCB (0 ug/l)	Cd	04/24/2000	16:50:30	0.00435716	0.00435716
LCM (1.25 ug/l)	Cd	04/24/2000	16:53:37	1.32573849	1.32573843

M. Mattox 5-3-00
M. Mattox 5-1-00

Element	Instrument	QC Source
[ ] Ag	[ ] 5100 A3	[ ] CLP-40
[ ] As	[X] 5100 A6	[ ] CLP-70
[X] Cd	[ ] 5000 A4	[ ] CLP-80
[ ] Cr	[ ] 5000 A5	[ ] EPA-V-1
[ ] Pb	[ ]	[X] CLPF-CAL-1 GFAA AQC 1
[ ] Sb	[ ]	[ ]
[ ] Se		[ ]
[ ] Tl		[ ]

Analyst M. MATTOX

Date 4-24-00

Lamp # 1074

Energy 69

Expansion /

Stock 810421

[X] platform [X] MSC

[ ] wall [ ] MSA

Blank	Slope	AQC	Digestion QC

Blank cup absorbance

M. Mattox 5-3-00

M. Mattox 5-1-00

CENTRAL REGIONAL LABORATORY

Data Checklist

Data Set SF 20000027 American Chemical Services ICP

- [x] Chain-of-Custody
- [ ] Analysis Request Form(s)*
- [ ] Sample Tags
- [x] Transmittal Report w/signatures of the following:
  - Analyst (s)
  - Data Management Coordinator

* Analysis Request Forms provide the data user a means to connect sample numbers with sampling locations

Prepared by: Sylvia Griffin 5/4/00
Data Management Coordinator

Rev. 5/4/00

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5 CENTRAL REGIONAL LABORATORY

536 SOUTH CLARK STREET

CHICAGO, ILLINOIS 60605

Date: APR 24 2000

Subject: Review of Region 5 Data for American Chemical Services Code:05J7

From: ESAT , Chemist
Region 5 Central Regional Laboratory

To:

Attached are the results for Site: American Chemical Services Code:05J7
CRL Data Set Number: 20000027
for analyses of : ICP
Results are reported for sample numbers: 2000BB01S01, 2000BB01D01 and 2000BB01R01

Results Status:
(x) Acceptable for Use for most elements
(x) Data Qualified, but Acceptable for use for Beryllium, Calcium, Magnesium and Sodium
( ) Data Unacceptable for Use

Sylvia Griffin APR 24 2000

CRL Data Management Coordinator and Date Received

Date Transmitted: APR 24 2000

Please have the US EPA project leader fill out the customer survey form on the Region 5 Intranet: http://www.r5intra.epa.gov/crl/qa.html, (← by clicking on this link, or call George Schupp, CRL Sample Coordinator, at 3-1226).

Please sign and date this form below and return it with any comments to:

Sylvia Griffin
Data Management Coordinator
Region 5 Central Regional Laboratory
ML - 10C

Received by and Date

Comments:

Lockheed Martin Services Group
Environmental Services & Technologies Region 5
536 South Clark Street #1050 Chicago, IL 60605
Telephone 312-353-8302 Facsimile 312-353-8307

LOCKHEED MARTIN

Date: April 5, 2000

To: John V. Morris, EPA WAM 4-20-00

From: Richard Dilg, ESAT Chemist

Thru: Ziyad Rajabi, ESAT Team Manager

Copies: John Ganz, ESAT Inorganic Group Leader
Jay Thakkar, ESAT Contract RPO

Ref: TDF# 5104-2886 6-23-00
WA# 05-00-4-04
Contract # 68D60002

SUBJECT: Data Set SF20000027: ICP Analyses for American Chemical Services samples using CRL Method **200.7**

Attached is the deliverable for Data Set SF20000027 ICP analysis of 3 water samples.

If you have any question please feel free to contact ESAT.

4-5-2000

Method Number: 200.7
Date Generated: April 5, 2000
Author: R.Dilg,Lockheed-ESAT

Site Name: American Chemical Services
Work Unit Number: 05-004-04
TDF Number: 5104-28~~8~~6 ACH 6-23-00
Charge Number: ESE-51-028
Batch ID No.: 20000027
Parameter: ICP

ICP NARRATIVE

This narrative covers the analysis of 3 water samples from the named site sampled for ICP metals analysis. Sample pH values were checked (see digestion log sheet) and all were found to be properly preserved.

Sample Nos.	Sample Station ID's	Sample collected	Analysis date
2000BB01R01	ACS-RB01-201	30-March-2000	4-April-2000
2000BB01D01	ACS-GW01-101	30-March-2000	4-April-2000
2000BB01S01	ACS-GW01-001	30-March-2000	4-April-2000

Routine CRL microwave digestion procedures were used to prepare the water sample for ICP analysis. The sample digests were analyzed using the JY138 ICP unit; the JYSED5 analysis run method was used. ICP analysis results for the water samples were captured to a JY results file named JYSED5.095.

ICP RUN RESULTS

One day analyte mdl's were determined on March 1, 2000. These newly determined values were used in reporting sample analysis results for this data case.

Because of recently issued CRL SOP's, a newly instituted check audit, the reporting limit (RL) check solution was prepared. Analysis of this check audit solution was performed twice during the analysis run, at the beginning of the run and also at the end.

Also for QA evaluation purposes, mid range and high AQC check audit acceptance criteria used were 100 ± 10 %R for check audits.

KP
4-5-2000

ICP RUN RESULTS (continued)

The following analytes will either not be addressed or only minimally mentioned in this case narrative:
Sn, Tl, As, Se, Sb, Mo, Pb, Cd, Ti, Y, Sr, Li

The following lists the case pertinent out-of-control QC audit check results:

RUN 1166:

Blanks:	Digest Blank 1:	Be234,	1.79	µg/L
		Fe259,	48.8	"
		Mg279,	11.1	"
		Ca315,	*	
		Ca393,	45.4	"
		Na588,	122.	"
	Instr Blank 2:	V 292,	- 3.9	"
		Ca315,	*	
		Cu324,	- 4.9	"
		Na588,	98.3	"
		K 766,	220.	"

* alternate analytes lines used to monitor these audits

AQC's:	AQC 1:	Mg279,	12.5	percent deviation
	AQC 2:	Cr205,	11.5	"
		Fe271,	*	
		Mg279,	17.2	"

Matrix Spike:	2000BB01S01:	Be234,	81.4 %R
		Mn257,	#
		Fe259,	#
		Fe271,	*
		Ca315,	#
		Ca393,	*

* alternate analytes lines used to monitor these audits
\# audit not valid; sample conc. > 2X spike conc.

Field Duplicate: 2000BB01D01 & 2000BB01S01 : Be234, dupl diff = 1.8 µg/L

Spiked Blank:	Be234,	77.4 %R
	Zn481,	*

* alternate analytes lines used to monitor these audits

RL check Soln: RL 1:
(See paragraph below regarding RL's)
RL 2:

PD
4-5-2000

ICP RUN RESULTS (continued)

A Word on CRL qualifying flags used for this data case:

Since Superfund analyses are reported to the analyte mdl value (and therefore the mdl value ***is*** the reporting level !), the only use for the RL value is for the purpose of generating an "M" flag. In effect the RL value establishes an upper bound or limit above which the determined analyte concentration no longer would need to be considered as estimated due to the (higher) level of statistical uncertainty normally prevalent at lower ranges of analyte concentration. The RL level chosen, however, is already known since it was established based on calculations from mdl analysis run data. Presently no "control" actions are associated with the observed RL analyte values actually determined during the analysis run. RL check solution values currently are being analyzed for purposes of generating a benchmark set of values which can be used to monitor the appropriateness of any given RL level of analyte concentration.

Because of the lack of choices of qualifying flags available to be used as mentioned in SOP HK005, flags were used to indicate that sample results were qualified as estimated but the strict description or definition for the flag used was not entirely true. The most notable example for this is the use of the "J" flag to note analyte values as being estimated (the true part) because of the duplicate audit results not meeting QA/QC criteria but the analyte value was in fact a "U" value (undetected) which violates (makes that part of the definition - " ...the analyte is confirmed to be qualitatively present in the sample..." - untrue) for the "J" flag. Both the "U" and the "J" flags were used in this instance since a more appropriate qualifying flag was not available.

Another ambiguously stated flag in SOP HK005 is the "B" flag. Although a "more than 10 times" rule was mentioned for blanks for considering data as useable, it was not clearly stated whether or not the "B" flag should be used. As a matter of fact, to this analyst, from reading the wording used in the SOP the flow or intent seems to imply (but is not specifically stated to do so) to always use the "B" flag regardless of the sample level if a control audit blank is above an MDL level ! This analyst used the "B" flag for those analyte cases where the MDL value was exceeded but the 10 times value was not exceeded.

AB
4-5-2000

ICP RUN RESULTS (continued)

Analyte specific comments:

All Tl, As, Sb, Cd, Pb, and Se results were not reported by ICP. See GFAA results for these analytes.

For Fe, the matrix spike audit was invalid and the digest blank was higher than the MDL but for 2000BB01R01 the Fe value was below the limit of detection. All sample Fe results, however, are usable.

For Zn, sample results for 2000BB01S01 and D01 are estimated due to possible higher bias indicated by values in this range. "M" flags were used. The Zn result for 2000BB01R01 is usable.

For Mg, the sample result for 2000BB01R01 is estimated due to possible high bias indicated from the middle check audit and the digest blank values. "B", "M", and "J" flags were used. These Mg results were the only ones reported using the Mg279 line data. The Mg sample results for 2000BB01S01 and D01 are usable; the Mg383 line results were used to report these values.

For Be, all sample results are estimated. The field duplicate audit value indicated poor laboratory precision and the matrix spike and spiked blank LCS recoveries indicated possible low bias. Also the digest blank value indicated a slight positive bias. "J" flags were used.

For Cr, the middle level check audit values indicated possible high bias but all Cr sample results are below the MDL value. All Cr sample results are usable.

For Cu and V, the analyst used professional judgement in assessing the data and did not flag or estimate the sample results for these two analytes. The negative instrument check audit values were within two times the MDL values and results were deemed usable. All Cu and V sample results are usable.

For Mn the matrix spike audit was invalid. All Mn sample results, however, are usable.

For Ca, sample results for 2000BB01S01 and D01 are usable. For 2000BB01R01, the Ca result is estimated due to possible high bias indicated from the digestion blank result; "M", "B", and "J" flags were used for this sample.

For Na, the results for 2000BB01S01 and D01 are usable. For 2000BB01R01, the Na result is estimated due to possible high bias indicated from the digest blank and second instrument blank check audit results; "B" and "J" flags were used.

For K, all K sample results are usable. The last instrument blank check audit indicated a level of K higher than the MDL value but K results for 2000BB01S01 and D01 were high enough as not to be significantly affected. The K result for 2000BB01R01 is less than the MDL value.

RP 4-5-2000

For this sample analysis run two "glitches" occurred. The first happened toward the latter part of the analysis run when for some inexplicable reason(s) the plasma shut off (became extinguished). The analyst was present when this occurred and in straight forward fashion the plasma was immediately restarted and the autosampler run was stopped and restarted with the retaking (re analyzing) of the sample being run when the plasma went out. No major apparent ill effects were noted with the exception of some relatively minor ones which may or may not have been attributable to the plasma going out. The alkali metal analytes gave higher than initial blank values for the final instrument blank audit check sample. V and Cu values for the final blank check were somewhat beyond MDL values but did not adversely affect sample results for these two analytes. Mid range check audit values for Cr and Mg lines were somewhat high but Cr results were usable and only the Mg result for 2000BB01R01 was impacted.

A second "glitch" in running analysis run 1166 was the inadvertent omission of saving the analysis run results to an ASCII formatted file. The final analyte concentration results, however, were not lost. These results had been stored as part of another text formatted results file that for the most part mimicked the summary sample results printed out on the raw data printout pages. This latter file then was used to essentially reconstruct the "B" worksheet found in the spreadsheet file "R1166_1" that was used to perform interelement corrections to raw analyte values. From this point on, further results' processing followed the routinely preformed route toward generating QA/QC summary reports as well as sample analysis reports.

Other Comments

As far as the deliverables are concerned the following were submitted:

- Raw data printouts for RUN 1166
- Analysis run log for RUN 1166
- QA analysis run summaries for the above RUN
- QA lab duplicate and matrix spike summaries
- individual worksheets showing raw and IEC corrected results
- a table showing a list of IEC factors used to correct raw ICP data

The last two items mentioned above were included since the interelement corrections were applied to the ICP values after the actual ICP analysis run. The QA run summaries, QA duplicate and matrix spike summaries, and the sample analysis data for the analytes reported all used results that were interelement corrected. The IEC corrections were made using matrix algebra methods and Lotus spreadsheet software.

R5CRL Files

The following pathways were used for storing analysis information to the R5CRL file server for this data set:

(Vol 3 on 'R5crl')[H:]\metals\Rdilg\20000027\Icp\JY138 Ultrace\Interim Lotus SS data
(Vol 3 on 'R5crl')[H:]\metals\Rdilg\20000027\Icp\JY138 Ultrace\narrative
(Vol 3 on 'R5crl')[H:]\metals\Rdilg\20000027\Icp\JY138 Ultrace\QA and sample reports
(Vol 3 on 'R5crl')[H:]\metals\Rdilg\20000027\Icp\JY138 Ultrace\Raw data

CRL Data Review Qualification Codes

QUALIFIER	DESCRIPTION
B	This flag is used when the analyte is found in the associated ***B***lank as well as the sample. It indicates possible blank contamination and warns the user to take appropriate action while assessing the data.
D	This flag is used when the analyte concentration results from a required ***D***ilution of the sample, extract or digestate.
E	This flag is used to identify analyte concentrations ***E***xceeding the upper calibration range of the analytical instrument after dilution of the sample, extract or digestate. .The reported value is considered to be estimated
J	This flag is used when the analyte is confirmed to be qualitatively present in the sample, extract or digestate, at or above the CRL reporting limit (RL) but the quantitated value is estimated due to quality control limit(s) being exceeded. This flag accompanies all GC/MS tentatively identified compounds (TICs). This flag also applies to a suspected, unidentified interference. (***J*** is the flag used in the Superfund CLP SOW and Data Review Functional Guidelines and is used by CRL for consistency.)
M	This flag is used when the analyte is confirmed to be qualitatively present in the sample, extract or digestate, at or above the CRL ***M***ethod Detection Limit (MDL) but below the CRL reporting limit (RL). This flag applies to all values in this concentration range and indicates the quantitated value is estimated due to its presence in this concentration range.
N	This flag applies to GC/MS Te***N***tatively Identified Compounds (TICs) that have a mass spectral library match.
Q	This flag applies to analyte data that are severely estimated due to quality control and/or ***Q***uantitation problems, but are confirmed to be qualitatively present in the sample. No value is reported with this qualification flag.
R	This flag applies to analyte data that are ***R***ejected and unusable due to severe quality control, quantitation and/or qualitative identification problems. No other qualification flags are reported for this analyte. No value is reported with this qualification flag.
U	This flag in used when the analyte was analyzed but ***U***ndetected in the sample. The CRL RL for the analyte accompanies this flag. As with sample results that are positive, the value is corrected for dry weight, dilution and/or sample weight or volume.

ESAT-5-014.6
Rev. 6/21/99

LOCKHEED MARTIN ESAT REGION 5
DATA SET CUSTODY TRANSFER FORM

DATA SET NUMBER 20000027
SITE NAME: AMERICAN CHEMICAL SERVICES
PARAMETER: ICP
MATRIX: WATER

CONTRACT # 68-D6-0002
WA NUMBER 05-00-4-04
TDF NUMBER 5104-285
PWO # ESE 51 028

SAMPLE NUMBERS: 2000 BB01 S01, D01, R01

NUMBER OF SAMPLES: 3

ESAT APPROVALS:

Analyst — Date 4-5-00
Second-Level QA Reviewer — M. Mattot — Date 4-17-00
Third-Level QA Reviewer — Date 4-20-2000
ESAT Team Manager — Date 4-20-00

COMMENTS: RLIMS UNAVAILABLE

The above identified data set was transferred from ESAT custody to the custody of the U.S. EPA Region V Central Regional Laboratory in its entirety on the indicated date relinquished.

Relinquished by — Date 4-20-2000
Received by — Date 20 Apr 00

EPA APPROVALS:

EPA WAM — Date 24 Apr 00

[ ] Reviewed
[ ] Unreviewed
[X] Accepted
[ ] Rejected
[ ] Returned: _____ Date

COMMENTS:

Section Chief — Date

[ ] Reviewed [ ] Unreviewed

ESAT RPO — Date

Griffin 4/24/00 4/24/00
DATA COORDINATOR/RECD/TRANSMTD

A COPY OF THIS CUSTODY TRANSFER FORM WITH A RECEIVED BY EPA SIGNATURE IS TO BE FILED IN THE TDF FILE. THE ORIGINAL CUSTODY TRANSFER ACCOMPANIES THE DATA SET TO BE APPROVED BY THE EPA AND A COMPLETED COPY RETURNED TO ESAT.

CRL Metals Data Review Checklist

Batch Number: 2000 0027 Facility: AMERICAN CHEMICAL SERVICES

Parameter: ICP

Package Overview:	Review:	
	Analyst	Peer
Raw Data Package Complete?	✓	✓
Results Reported Correctly?	✓	✓
Special Requests Done?	NA	NA
Calculations Checked?	✓	✓
Calibration Not Exceeded? (UPPER LINEAR RANGE NOT EXCEEDED)	✓	✓
Field QC Checked?	✓	✓
Quality Control:		
Holding Times Met?	✓	✓
Preservation Checked?	✓	✓
Proper Digestion Verified?	✓	✓
Initial Instrument Performance Checks Verified?	✓	✓
Calibration Verification Checked?	✓	✓
Sample-Specific QC (Internal Standards or Analytical Spikes) Okay?	NA	NA
Matrix QC Checked?	✓	✓
Digestion Blanks Checked?	✓	✓
Spiked Blank Checked?	✓	✓
LCS (if applicable) Checked?	✓	✓
Species QC (if applicable) Checked?	NA	NA
Final Check:		
Technical Review Done?	✓	✓
Narrative Complete? (See sect. 7 of data review SOP, HK005)	✓	✓

Analyst: [signature] Date: 4-5-2000

Peer Reviewer: M. Matta Date: 4-17-00

CRL Form Version 03.1/00

Comments Attached? (Y/N) _____

EPA CRL - REGION V
ICP FINAL RESULTS REPORT

REPORT PRODUCED ON: 04-Apr-00

SAMPLE ORGANIZATION:

SAMPLE BATCH ID: 20000027

LABORATORY: REGION 5 CRL

SAMPLE FACILITY: American Chemical Services

SAMPLE: 2000BB01R01

ANALYZED: 04-Apr-00

STATION: ACS-RB01-201

COMPOUND	AMOUNT				(Units)
Aluminum	26	U			(ug/L)
Barium	1.1	U			(ug/L)
Beryllium	1.6	U	J		(ug/L)
Calcium	70.1	M	B	J	(ug/L)
Chromium	3.4	U			(ug/L)
Cobalt	10.1	U			(ug/L)
Copper	4	U			(ug/L)
Iron	22.4	U			(ug/L)
Magnesium	17	M	B	J	(ug/L)
Manganese	3.2	U			(ug/L)
Nickel	19.4	U			(ug/L)
Potassium	71.7	U			(ug/L)
Silver	6.8	U			(ug/L)
Sodium	286		B	J	(ug/L)
Vanadium	3.9	U			(ug/L)
Zinc	10.3	U			(ug/L)

ANALYZED BY: 4-5-2000

EPA CRL - REGION V
ICP FINAL RESULTS REPORT

REPORT PRODUCED ON: 04-Apr-00

SAMPLE ORGANIZATION:

SAMPLE BATCH ID: 20000027

LABORATORY: REGION 5 CRL

SAMPLE FACILITY: American Chemical Services

SAMPLE: 2000BB01D01

ANALYZED: 04-Apr-00

STATION: ACS-GW01-101

COMPOUND	AMOUNT			(Units)
Aluminum	26	U		(ug/L)
Barium	53.6			(ug/L)
Beryllium	1.6	U	J	(ug/L)
Calcium	111000			(ug/L)
Chromium	3.4	U		(ug/L)
Cobalt	10.1	U		(ug/L)
Copper	4	U		(ug/L)
Iron	10600			(ug/L)
Magnesium	20700			(ug/L)
Manganese	719			(ug/L)
Nickel	19.4	U		(ug/L)
Potassium	3150			(ug/L)
Silver	6.8	U		(ug/L)
Sodium	34200			(ug/L)
Vanadium	3.9	U		(ug/L)
Zinc	11	M		(ug/L)

ANALYZED BY: 4-5-2000

EPA CRL - REGION V
ICP FINAL RESULTS REPORT

REPORT PRODUCED ON: 04-Apr-00

SAMPLE ORGANIZATION:

SAMPLE BATCH ID: 20000027

LABORATORY: REGION 5 CRL

SAMPLE FACILITY: American Chemical Services

SAMPLE: 2000BB01S01

ANALYZED: 04-Apr-00

STATION: ACS-GW01-001

COMPOUND	AMOUNT			(Units)
Aluminum	26	U		(ug/L)
Barium	50.7			(ug/L)
Beryllium	1.6	U	J	(ug/L)
Calcium	117000			(ug/L)
Chromium	3.4	U		(ug/L)
Cobalt	10.1	U		(ug/L)
Copper	4	U		(ug/L)
Iron	9940			(ug/L)
Magnesium	21700			(ug/L)
Manganese	780			(ug/L)
Nickel	19.4	U		(ug/L)
Potassium	3240			(ug/L)
Silver	6.8	U		(ug/L)
Sodium	34800			(ug/L)
Vanadium	3.9	U		(ug/L)
Zinc	15.6	M		(ug/L)

ANALYZED BY: 4-5-2000

N
4-5-2000

METALS SAMPLE PREPARATION RECORD

Prepared by: RD
Digestion Method: CRL MICROWAVE

Run Number: 1166
Date: 4-3-2000

Vessel Number	Data Set Number	Sample Number	pH < 2?	Sample Description (Color, Clarity, Texture, Artifacts, etc...)		Remarks
			Y/N*	Before Prep.	After Prep.	
53		DIGEST BLANK	NA			
56		SPIKED BLANK	NA			+5ml A,B,C; +1ml 10ppm Tl, Sb, Se,
54	2000027	2000 BB01 R01	Y	CLEAR	CLEAR	
70		D01				
71		S01				
72		S01 DUP				
73		S01 SPIKE				+5ml A,B,C; +1ml 10ppm Tl, Sb, Se,

* Please note: A minimum of 16 hours from time of sampling must elapse before pH of sample can be taken.
If pH > 2, record and date in the Remarks column the actual pH and the amount of acid added to bring pH to < 2.

Comments: 50ml ALIQUOTS

CXD
4-5-2000

ANALYSIS RUN LOG RUN 1166

Analysis Date	Time	Sample I D		
04-April-00	09:09:12 AM	INSTR BLK 1		
04-April-00	09:17:20 AM	SED5 AQC 1		
04-April-00	09:25:29 AM	HIGH AQC 1		
04-April-00	09:33:37 AM	WASH		
04-April-00	09:41:46 AM	RL CHECK 1		
04-April-00	09:49:55 AM	DIGEST BLK	RUN 1166	
04-April-00	09:58:10 AM	SPIKED BLNK	RUN 1166	
04-April-00	10:06:16 AM	2000BB01R01	20000027	
04-April-00	10:14:21 AM	2000BB01D01	20000027	
04-April-00	10:22:25 AM	2000BB01S01	20000027	
04-April-00	10:30:34 AM	2000BB01S01	DUP	20000027
04-April-00	10:38:38 AM	2000BB01S01	SPIKE	20000027
04-April-00	10:46:43 AM	RL CHECK 2		
04-April-00	11:03:06 AM	INSTR BLK 2		
04-April-00	11:11:10 AM	SED5 AQC 2		
04-April-00	11:19:15 AM	HIGH AQC 2		

QA CHECK AUDITS
corrected values

estimated mdl

Analyte	nm	ug/L	INSTR BLK 1 mg/L		DIGEST BLK mg/L		INSTR BLK 2 mg/L	
Sn	189.989	61.0	-0.13889	blank > idl	-0.04316		-0.01179	
Tl	190.864	94.8	0.02186		-0.05603		0.01905	
Tl	190.883	120.0	0.0356687		0.0794161		0.0913187	
As	193.759	62.0	-0.050818		-0.01776		-0.005621	
Se	196.090	42.0	0.0169079		0.0248511		0.0121148	
Mo	202.030	13.2	0.00556		0.00271		-0.00222	
Se	203.985	175.0	-0.004421		-0.033796		-0.006656	
Cr	205.552	3.4	-0.001393		0.0003386		-0.000189	
Sb	206.833	31.8	-0.016207		0.001953		-0.019438	
Zn	213.856	10.3	0.0012914		0.001634		0.0013321	
Sb	217.581	25.0	0.0075378		-0.015714		-0.005452	
Pb	220.353	33.8	-0.002255		0.0002621		0.0194996	
Co	228.616	10.1	-0.005087		-0.003554		-0.003656	
Cd	228.802	10.0	0.0013478		0.006171		0.0012702	
Ni	231.604	19.4	-0.002688		-0.017499		-0.009859	
Be	234.861	1.6	2.25E-008		0.00179	blank > idl	0.00147	
B	249.678	9.9	-0.006012		-0.00747		-0.009418	
Mn	257.610	3.2	-0.0006		-0.00073		-0.0018	
Fe	259.940	22.4	0.0016		0.048899	blank > idl	-0.004809	
Fe	271.441	177.0	-0.016348		0.0003457		0.0172034	
Mg	279.553	6.4	-0.00061		0.01111	blank > idl	-0.00243	
V	292.402	3.9	-0.002902		-0.002399		-0.00394	blank > idl
Al	308.215	131.0	-0.076306		0.020689		0.0001026	
Ca	315.887	43.9	0.02034		0.08602	blank > idl	0.26713	blank > idl
Cu	324.754	4.0	-0.000241		0.0025794		-0.004939	blank > idl
Ag	328.068	6.8	-0.001663		-0.000894		0.0023048	
Ti	334.941	2.0	9.93E-009		-7.2E-009		0.00074	
Y	371.030	2.4	9.93E-009		0.00038		-0.00062	
Mg	383.826	67.5	-0.02223		-0.01865		0	
Ca	393.366	25.0	0.00228		0.04541	blank > idl	-0.00988	
Al	396.152	26.0	-0.001932		0.0110957		0.0046409	
Sr	421.552	1.5	0.00021		0.00026		0.00043	
Zn	481.053	482.0	-0.00688		-0.09646		-0.02063	
Ba	493.409	1.1	-0.00032		0.00059		0.00032	
Na	588.995	59.3	-0.00307		0.12247	blank > idl	0.09834	blank > idl
Li	670.784	1.2	-0.00028		0.00027		0.00577	blank > idl
K	766.490	71.7	0.01048		0.02466		0.22014	blank > idl
K	769.896	81.3	-0.01213		-0.0174		0.24039	blank > idl

QA CHECK AUDITS
*corrected values

Analyte	nm	SED5 AQC 1 mg/L	percent deviation		SED5 AQC 2 mg/L	percent deviation	
Sn	189.989	5.2593903	5.19		5.0890901	1.78	
Tl	190.864	4.7287	-5.43		4.7095	-5.81	
Tl	190.883	4.5327158	-9.35		4.7721337	-4.56	
As	193.759	5.0606737	1.21		5.1753986	3.51	
Se	196.090	5.1952437	3.90		5.5300428	10.60	> 10%
Mo	202.030	5.3545913	7.09		5.2378911	4.76	
Se	203.985	4.8227542	-3.54		4.8171018	-3.66	
Cr	205.552	5.3066372	6.13		5.5791949	11.58	> 10%
Sb	206.833	4.8411281	-3.18		4.9493694	-1.01	
Zn	213.856	5.1425112	2.85		5.0904367	1.81	
Sb	217.581	4.7954484	-4.09		4.9228414	-1.54	
Pb	220.353	5.1413296	2.83		5.1762245	3.52	
Co	228.616	5.220236	4.40		5.3956979	7.91	
Cd	228.802	5.3670234	7.34		5.4597962	9.20	
Ni	231.604	4.9786348	-0.43		5.2376789	4.75	
Be	234.861	5.2321903	4.64		5.2394902	4.79	
B	249.678	5.0894096	1.79		5.1197397	2.39	
Mn	257.610	5.0560852	1.12		5.2328875	4.66	
Fe	259.940	5.1700945	3.40		5.1263374	2.53	
Fe	271.441	5.4040649	8.08		5.5557629	11.12	> 10%
Mg	279.553	5.6251	12.50	> 10%	5.8624	17.25	> 10%
V	292.402	5.1667507	3.34		5.3047323	6.09	
Al	308.215	5.0245434	0.49		5.2337826	4.68	
Ca	315.887	5.2056	4.11		5.3141	6.28	
Cu	324.754	5.0025041	0.05		4.895501	-2.09	
Ag	328.068	0.4982721	-0.35		0.5278482	5.57	
Ti	334.941	4.9969913	-0.06		4.969291	-0.61	
Y	371.030	5.0797913	1.60		5.1511911	3.02	
Mg	383.826	5.0083	0.17		5.032	0.64	
Ca	393.366	5.1056	2.11		5.1028	2.06	
Al	396.152	4.9312259	-1.38		4.8789267	-2.42	
Sr	421.552	5.2757	5.51		5.397	7.94	
Zn	481.053	4.9984	-0.03		4.9365	-1.27	
Ba	493.409	4.9303	-1.39		4.9014	-1.97	
Na	588.995	5.2763	5.53		5.0407	0.81	
Li	670.784	5.0449	0.90		4.7299	-5.40	
K	766.490	4.8887	-2.23		4.7779	-4.44	
K	769.896	4.8962	-2.08		4.8149	-3.70	

QA CHECK AUDITS
corrected values

Analyte	nm	HIGH AQC 1 mg/L	percent deviation	HIGH AQC 2 mg/L	percent deviation
Sn	189.989	-0.031478		0.0039014	
Tl	190.864	0.26033		0.32311	
Tl	190.883	0.0946714		0.1216986	
As	193.759	-0.07083		-0.063315	
Se	196.090	0.0376232		0.0155137	
Mo	202.030	0.0099802		0.0055392	
Se	203.985	-0.056351		-0.026703	
Cr	205.552	-0.000025		-0.002254	
Sb	206.833	-0.026226		-0.024379	
Zn	213.856	94.479041		95.928041	
Sb	217.581	0.004232		0.0062446	
Pb	220.353	0.0120999		0.031286	
Co	228.616	-0.003647		-0.001468	
Cd	228.802	0.005132		0.0025978	
Ni	231.604	-0.008089		-0.00899	
Be	234.861	-0.000028		-0.000029	
B	249.678	-0.023786		-0.026111	
Mn	257.610	-0.00002		0.0011786	
Fe	259.940	90.921984		92.154983	
Fe	271.441	99.853578	-0.15	106.83037	6.83
Mg	279.553	55.635		58.372	
V	292.402	-0.03409		-0.032305	
Al	308.215	98.192446	-1.81	100.79046	0.79
Ca	315.887	99.565	-0.44	104.85	4.85
Cu	324.754	-0.010841		-0.009662	
Ag	328.068	-0.00404		-0.003501	
Ti	334.941	0.0007202		0.0003492	
Y	371.030	-0.00002		0.0009092	
Mg	383.826	57.086	-4.86	57.874	-3.54
Ca	393.366	73.695		74.435	
Al	396.152	97.382708		98.107829	
Sr	421.552	0.00298		0.0034	
Zn	481.053	98.747	-1.25	100.96	0.96
Ba	493.409	0.00016		0.00048	
Na	588.995	100.94	0.94	98.514	-1.49
Li	670.784	0.00319		0.00168	
K	766.490	104.29	4.29	97.844	-2.16
K	769.896	106.88	6.88	103.34	3.34

QA LAB DUP and MATRIX SPIKE check audits

Analyte	nm	2000BB01S01 mg/L	2000BB01S01 mg/L	2000BB01S01 mg/L	2000BB01S01 ug/L	2000BB01S01 ug/L	2000BB01S01 ug/L	dup rpd % rpd	dup diff ug/L	estimated del lim ug/L	dup diff divided by est. del. lim	dup out
Sn	189.989	-0.07034108	-0.09591108	0.298638414	-70.341	-95.911	298.638	-30.8	25.57	61.0	0.42	
Tl	190.864	-0.02545	0.01615	0.19613	-25.450	16.150	196.130	-894.6	-41.60	94.8	-0.44	
Tl	190.883	0.0419959	0.109743473	0.296390825	41.996	109.743	296.391	89.3	-67.75	120.0	-0.56	
As	193.759	-0.03164278	-0.00987143	0.166346829	-31.643	-9.871	166.347	-104.9	-21.77	62.0	-0.35	
Se	196.090	-0.01391326	0.035782149	0.225014822	-13.913	35.782	225.015	454.5	-49.70	42.0	-1.18	*
Mo	202.030	0.009488841	0.006778834	0.116408365	9.489	6.779	116.408	33.3	2.71	13.2	0.21	
Se	203.985	-0.02372311	-0.04154333	0.063814372	-23.723	-41.543	63.814	-54.6	17.82	175.0	0.10	
Cr	205.552	-0.00091586	0.000105473	0.110320665	-0.916	0.105	110.321	-252.1	-1.02	3.4	-0.30	
Sb	206.833	-0.00673661	-0.03032013	0.208238681	-6.737	-30.320	208.239	-127.3	23.58	31.8	0.74	
Zn	213.856	0.015648867	0.009415266	0.418087187	15.649	9.415	418.087	49.7	6.23	10.3	0.60	
Sb	217.581	0.004176023	0.009382223	0.197384728	4.176	9.382	197.385	76.8	-5.21	25.0	-0.21	
Pb	220.353	0.008402889	-0.01706603	0.830590767	8.403	-17.066	830.591	-588.0	25.47	33.8	0.75	
Co	228.616	0.001801492	-0.00176564	0.111317428	1.801	-1.766	111.317	19901.8	3.57	10.1	0.35	
Cd	228.802	0.003122637	0.007686024	0.055844407	3.123	7.686	55.844	84.4	-4.56	10.0	-0.46	
Ni	231.604	0.001088269	-0.00547061	0.153243045	1.088	-5.471	153.243	-299.3	6.56	19.4	0.34	
Be	234.861	0.000898926	0.00178893	0.009048385	0.899	1.789	9.048	66.2	-0.89	1.6	-0.55	
B	249.678	0.121069336	0.119888024	0.941796046	121.069	119.888	941.796	1.0	1.18	9.9	0.12	
Mn	257.610	0.779998836	0.764648811	0.842479186	779.999	764.649	842.479	2.0	15.35	3.2	4.77	
Fe	259.940	9.938929932	10.01412815	10.75939435	9938.930	10014.128	10759.394	0.8	-75.20	22.4	-3.35	
Fe	271.441	10.64715211	10.60644594	11.19781964	10647.152	10606.446	11197.820	0.4	40.71	177.0	0.23	
Mg	279.553	22.993	22.498	48.256	22993.000	22498.000	48256.000	2.2	495.00	6.4	76.98	
V	292.402	-0.00445277	-0.00544104	0.041229599	-4.453	-5.441	41.230	-20.0	0.99	3.9	0.26	
Al	308.215	0.030913309	0.051644595	0.939569051	30.913	51.645	939.569	50.2	-20.73	131.0	-0.16	
Ca	315.887	117.27	114.4	163.82	117270.000	114400.000	163820.000	2.5	2870.00	43.9	65.41	
Cu	324.754	-0.00172305	-0.00172218	0.049649738	-1.723	-1.722	49.650	-0.1	-0.00	4.0	-0.00	
Ag	328.068	-0.00203755	-0.00291564	0.050495131	-2.038	-2.916	50.495	-35.5	0.88	6.8	0.13	
Tl	334.941	-0.00000116	0.000448833	0.094538363	-0.001	0.449	94.538	201.0	-0.45	2.0	-0.23	
Y	371.030	0.000378841	-0.00038117	0.048278358	0.379	-0.381	48.278	-65340.9	0.76	2.4	0.31	
Mg	383.826	21.718	21.845	46.806	21718.000	21845.000	46806.000	0.6	-127.00	67.5	-1.88	
Ca	393.366	87.873	90.38	+o********	87873.000	90380.000	+o********	2.8	-2507.00	25.0	-100.22	
Al	396.152	-0.00243133	-0.014777	0.791285644	-2.431	-14.777	791.286	-143.5	12.35	26.0	0.47	
Sr	421.552	0.25594	0.25724	1.2363	255.940	257.240	1236.300	0.5	-1.30	1.5	-0.87	
Zn	481.053	-0.18453	-0.07549	0.2647	-184.530	-75.490	264.700	-83.9	-109.04	482.0	-0.23	
Ba	493.409	0.05068	0.05048	0.24031	50.680	50.480	240.310	0.4	0.20	1.1	0.18	
Na	588.995	34.765	33.706	87.401	34765.000	33706.000	87401.000	3.1	1059.00	59.3	17.87	
Li	670.784	0.00171	0.00164	0.05208	1.710	1.640	52.080	4.2	0.07	1.2	0.06	
K	766.490	3.2356	3.1159	28.542	3235.600	3115.900	28542.000	3.8	119.70	71.7	1.67	
K	769.896	3.1424	3.226	29.131	3142.400	3226.000	29131.000	2.6	-83.60	81.3	-1.03	

Analyte	spk add ug/L	spk recovery % rec	spk out
Sn	400	92.24	
Tl	200	110.79	
Tl	200	127.20	N
As	200	98.99	
Se	200	119.46	N
Mo	100	106.92	
Se	200	43.77	N
Cr	100	111.24	
Sb	200	107.49	
Zn	400	100.61	
Sb	200	96.60	
Pb	800	102.77	
Co	100	109.52	
Cd	50	105.44	
Ni	150	101.44	
Be	10	81.49	N
B	800	102.59	
Mn	100	62.48	#
Fe	800	102.56	#
Fe	800	68.83	#
Mg	25000	101.05	
V	50	91.36	
Al	800	113.58	
Ca	50000	93.10	#
Cu	50	102.75	
Ag	50	105.07	
Tl	100	94.54	
Y	50	95.80	
Mg	25000	100.35	
Ca	50000	+o********	#
Al	800	99.21	
Sr	1000	98.04	
Zn	400	112.31	
Ba	200	94.82	
Na	50000	105.27	
Li	54	93.28	
K	25000	101.23	
K	25000	103.95	

+o******** = over range

* = duplicate out

N = spike out

= audit not valid;
sample conc. > 2X spike conc.

4-5-2000

(QA FIELD DUP check)

Analyte	nm	2000BB01S01 mg/L	2000BB01D01 mg/L	2000BB01S01 ug/L	2000BB01D01 ug/L	dup rpd % rpd	dup diff ug/L	estimated det lim ug/L	dup diff divided by est. det. lim	dup out	Analyte
Sn	189.989	-0.07034108	-0.09271114	-70.341	-92.711	-27.4	22.37	61.0	0.37		Sn
Tl	190.864	-0.02545	0.02447	-25.450	24.470	-10187.8	-49.92	94.8	-0.53		Tl
Tl	190.883	0.0419959	0.016130994	41.996	16.131	89.0	25.86	120.0	0.22		Tl
As	193.759	-0.03164278	-0.03410979	-31.643	-34.110	-7.5	2.47	62.0	0.04		As
Se	196.090	-0.01391328	0.006169135	-13.913	6.169	-518.6	-20.08	42.0	-0.48		Se
Mo	202.030	0.009488841	0.002708799	9.489	2.709	111.2	6.78	13.2	0.52		Mo
Se	203.985	-0.02372311	-0.05160654	-23.723	-51.607	-74.0	27.88	175.0	0.16		Se
Cr	205.552	-0.00091586	0.002377457	-0.916	2.377	450.6	-3.29	3.4	-0.97		Cr
Sb	206.833	-0.00673661	-0.00396179	-6.737	-3.962	-51.9	-2.77	31.8	-0.09		Sb
Zn	213.856	0.015648867	0.010977946	15.649	10.978	35.1	4.67	10.3	0.45		Zn
Sb	217.581	0.004176023	-0.00724498	4.176	-7.245	-744.3	11.42	25.0	0.46		Sb
Pb	220.353	0.008402889	0.014388494	8.403	14.388	52.5	-5.99	33.8	-0.18		Pb
Co	228.616	0.001801492	0.004455928	1.801	4.456	84.8	-2.65	10.1	-0.26		Co
Cd	228.802	0.003122637	0.01079635	3.123	10.796	110.3	-7.67	10.0	-0.77		Cd
Ni	231.604	0.001088269	-0.00438262	1.088	-4.383	-332.1	5.47	19.4	0.28		Ni
Be	234.861	0.000898926	-0.00090113	0.899	-0.901	-163521.4	1.80	1.6	1.12	*	Be
B	249.678	0.121069338	0.117494255	121.069	117.494	3.0	3.58	9.9	0.36		B
Mn	257.610	0.779998838	0.719318759	779.999	719.319	8.1	60.68	3.2	18.86		Mn
Fe	259.940	9.938929932	10.58511967	9938.930	10585.120	6.3	-646.19	22.4	-28.81		Fe
Fe	271.441	10.64715211	11.18073978	10647.152	11180.740	4.9	-533.59	177.0	-3.01		Fe
Mg	279.553	22.993	23.825	22993.000	23825.000	3.6	-832.00	6.4	-129.39		Mg
V	292.402	-0.00445277	-0.00614697	-4.453	-6.147	-32.0	1.69	3.9	0.44		V
Al	308.215	0.030913309	-0.01037452	30.913	-10.375	402.0	41.29	131.0	0.32		Al
Ca	315.887	117.27	111.19	117270.000	111190.000	5.3	6080.00	43.9	138.58		Ca
Cu	324.754	-0.00172305	-0.00057202	-1.723	-0.572	-100.3	-1.15	4.0	-0.29		Cu
Ag	328.068	-0.00203755	-0.00274074	-2.038	-2.741	-29.4	0.70	6.8	0.10		Ag
Ti	334.941	-0.00000116	-0.0004512	-0.001	-0.451	-199.0	0.45	2.0	0.23		Ti
Y	371.030	0.000378841	0.000378799	0.379	0.379	0.0	0.00	2.4	0.00		Y
Mg	383.826	21.718	20.74	21718.000	20740.000	4.6	978.00	67.5	14.50		Mg
Ca	393.366	87.873	89.181	87873.000	89181.000	1.5	-1308.00	25.0	-52.29		Ca
Al	396.152	-0.00243133	0.008304575	-2.431	8.305	365.6	-10.74	26.0	-0.41		Al
Sr	421.552	0.25594	0.24997	255.940	249.970	2.4	5.97	1.5	3.98		Sr
Zn	481.053	-0.18453	-0.05452	-184.530	-54.520	-108.8	-130.01	482.0	-0.27		Zn
Ba	493.409	0.05068	0.05361	50.680	53.610	5.6	-2.93	1.1	-2.70		Ba
Na	588.995	34.765	34.225	34765.000	34225.000	1.6	540.00	59.3	9.11		Na
Li	670.784	0.00171	0.00178	1.710	1.780	4.0	-0.07	1.2	-0.06		Li
K	766.490	3.2356	3.1516	3235.600	3151.600	2.6	84.00	71.7	1.17		K
K	769.896	3.1424	3.2303	3142.400	3230.300	2.8	-87.90	81.3	-1.08		K

* = duplicate out

QA CHECK AUDITS
corrected values

Analyte	nm	Spiked Blank LCS "true value" ug/L	Spiked Blank LCS "actual" ug/L	Spiked Blank LCS "actual" mg/L	Analyte	% recovery w/o blank subtraction	% recovery using digest blank 1
Sn	189.989	400	429.80	0.4297995	Sn	107.45	110.04
Tl	190.864	200	196.13	0.19613	Tl	98.07	128.57
Tl	190.883	200	261.85	0.2618523	Tl	130.93	69.67
As	193.759	200	164.09	0.1640938	As	82.05	110.82
Se	196.090	200	207.18	0.2071758	Se	103.59	88.00
Mo	202.030	100	111.27	0.1112695	Mo	111.27	97.56
Se	203.985	200	141.13	0.1411314	Se	70.57	123.95
Cr	205.552	100	103.02	0.1030243	Cr	103.02	99.67
Sb	206.833	200	179.80	0.179798	Sb	89.90	98.91
Zn	213.856	400	402.34	0.4023439	Zn	100.59	99.59
Sb	217.581	200	217.72	0.2177178	Sb	108.86	107.22
Pb	220.353	800	829.08	0.8290831	Pb	103.64	99.97
Co	228.616	100	97.82	0.0978171	Co	97.82	103.63
Cd	228.802	50	53.92	0.0539218	Cd	107.84	88.56
Ni	231.604	150	138.06	0.1380585	Ni	92.04	112.67
Be	234.861	10	7.92	0.0079194	Be	79.19	77.40
B	249.678	800	820.30	0.8202954	B	102.54	100.91
Mn	257.610	100	99.66	0.0996605	Mn	99.66	100.73
Fe	259.940	800	871.28	0.8712778	Fe	108.91	94.39
Fe	271.441	800	1054.31	1.0543108	Fe	131.79	99.97
Mg	279.553	25000	29546.00	29.546	Mg	118.18	99.96
V	292.402	50	53.00	0.0529971	V	105.99	104.53
Al	308.215	800	704.69	0.7046942	Al	88.09	97.06
Ca	315.887	50000	53953.00	53.953	Ca	107.91	99.84
Cu	324.754	50	51.82	0.0518248	Cu	103.65	95.02
Ag	328.068	50	48.69	0.048692	Ag	97.38	101.84
Ti	334.941	100	100.81	0.1008095	Ti	100.81	100.00
Y	371.030	50	51.63	0.0516295	Y	103.26	99.26
Mg	383.826	25000	25799.00	25.799	Mg	103.20	100.07
Ca	393.366	50000	48120.00	48.12	Ca	96.24	99.91
Al	396.152	800	845.89	0.8458877	Al	105.74	98.69
Sr	421.552	1000	1013.80	1.0138	Sr	101.38	99.97
Zn	481.053	400	-26.47	-0.02647	Zn	-6.62	-264.41
Ba	493.409	200	191.16	0.19116	Ba	95.58	99.69
Na	588.995	50000	54478.00	54.478	Na	108.96	99.78
Li	670.784	54	51.39	0.05139	Li	95.17	99.47
K	766.490	25000	25614.00	25.614	K	102.46	99.90
K	769.896	25000	25981.00	25.981	K	103.92	100.07

QA CHECK AUDITS RL check solution
corrected values

Analyte	nm	RL value "true" ug/L	RL value 1 "actual" ug/L	RL value 1 "actual" mg/L	Analyte	RL value 1 % recovery	RL value 2 "actual" ug/L	RL value 2 "actual" mg/L	Analyte	RL value 2 % recovery
Sn	189.989	200	167.71	0.1677099	Sn	83.9	170.34	0.1703399	Sn	85.2
Tl	190.864	300	264.75	0.26475	Tl	88.3	284.80	0.2848	Tl	94.9
Tl	190.883	300	392.76	0.3927643	Tl	130.9	387.66	0.387663	Tl	129.2
As	193.759	200	181.39	0.1813935	As	90.7	202.30	0.2022973	As	101.1
Se	196.090	200	238.51	0.2385147	Se	119.3	205.15	0.2051453	Se	102.6
Mo	202.030	50	65.58	0.0655798	Mo	131.2	60.03	0.0600298	Mo	120.1
Se	203.985	200	92.19	0.0921884	Se	46.1	158.57	0.158571	Se	79.3
Cr	205.552	30	36.41	0.0364073	Cr	121.4	34.09	0.0340901	Cr	113.6
Sb	206.833	100	85.87	0.0858726	Sb	85.9	87.16	0.0871586	Sb	87.2
Zn	213.856	50	58.76	0.0587571	Zn	117.5	58.77	0.0587709	Zn	117.5
Sb	217.581	100	108.70	0.1087048	Sb	108.7	96.10	0.0961027	Sb	96.1
Pb	220.353	100	110.49	0.110488	Pb	110.5	125.86	0.1258615	Pb	125.9
Co	228.616	30	31.49	0.031486	Co	105.0	28.55	0.0285505	Co	95.2
Cd	228.802	30	37.40	0.0374041	Cd	124.7	41.14	0.0411389	Cd	137.1
Ni	231.604	50	43.03	0.0430299	Ni	86.1	39.44	0.0394408	Ni	78.9
Be	234.861	5	5.88	0.0058799	Be	117.6	5.88	0.0058799	Be	117.6
B	249.678	40	39.32	0.0393171	B	98.3	46.21	0.046207	B	115.5
Mn	257.610	15	15.58	0.0155802	Mn	103.9	15.58	0.0155802	Mn	103.9
Fe	259.940	100	122.31	0.1223054	Fe	122.3	121.91	0.1219095	Fe	121.9
Fe	271.441	100	114.88	0.1148836	Fe	114.9	115.15	0.1151451	Fe	115.1
Mg	279.553	100	121.98	0.12198	Mg	122.0	126.23	0.12623	Mg	126.2
V	292.402	20	19.82	0.019821	V	99.1	21.38	0.0213768	V	106.9
Al	308.215	100	84.07	0.0840686	Al	84.1	143.48	0.1434817	Al	143.5
Ca	315.887	100	136.95	0.13695	Ca	137.0	116.61	0.11661	Ca	116.6
Cu	324.754	30	31.76	0.0317568	Cu	105.9	31.99	0.0319886	Cu	106.6
Ag	328.068	30	34.47	0.0344746	Ag	114.9	31.38	0.0313752	Ag	104.6
Ti	334.941	20	20.71	0.0207098	Ti	103.5	22.19	0.0221898	Ti	110.9
Y	371.030	10	10.55	0.0105498	Y	105.5	10.86	0.0108598	Y	108.6
Mg	383.826	100	94.50	0.0945	Mg	94.5	86.16	0.08616	Mg	86.2
Ca	393.366	100	125.34	0.12534	Ca	125.3	133.95	0.13395	Ca	134.0
Al	396.152	100	129.21	0.1292112	Al	129.2	132.92	0.1329234	Al	132.9
Sr	421.552	5	5.53	0.00553	Sr	110.6	5.53	0.00553	Sr	110.6
Zn	481.053	50	-13.75	-0.01375	Zn	-27.5	13.75	0.01375	Zn	27.5
Ba	493.409	5	5.13	0.00513	Ba	102.6	5.45	0.00545	Ba	109.0
Na	588.995	200	238.67	0.23867	Na	119.3	241.74	0.24174	Na	120.9
Li	670.784	20	21.00	0.021	Li	105.0	20.04	0.02004	Li	100.2
K	766.490	300	348.18	0.34818	K	116.1	327.21	0.32721	K	109.1
K	769.896	300	345.96	0.34596	K	115.3	297.45	0.29745	K	99.2

QB 4-5 pmc

"B" set of IEC CORRECTION FACTORS

mg/L of analyte per 1 mg/L of interferring element

Analyte	nm	Interferring element :	AS	SE 196 09	MO	CR	PB	CO	MN	FE 271.441	V	AL 308 215	AG	TI	Y
TI	190 883				0.0202791			0 0002866						-0.003543	
As	193 759			0.0013276	-0.000443	0 0014805			-0.000358		-0.016264	-0 00056			
Se	196.09				-0.002557				0.0002255		-0.002471		0.0004339		0.0012703
Mo	202 030														
Cr	205.552				0.0004958										
Sb	217.581				-0.000755		0.0004261	0.0002124	0 0000555	-0.000134	0.0012842				
Pb	220.353				-0.000178							-0.000076			
Co	228 616				-0 002387									0.0014683	
Cd	228 802		0.0017102					0.0001752							
Ni	231 604							0.0003174							
B	249.678									0.0004593					
Mn	257.610										-0.000018				
Fe	271.441							0.0929698	-0 002932		0.0073023				
V	292.402					-0.001755								0.0001307	
Al	308.215				0.0103767	0.003885			0.0001177		0 0159771			-0 021208	
Cu	324 754				0.0001936									-0.000539	0.0001472
Ag	328.068				-0 000221				0.0001809		-0.001543				0.0016643
Ti	334.941														
Y	371.03														

"C" set of IEC CORRECTION FACTORS

mg/L of analyte per 1 mg/L of interferring element

Analyte	nm	Interferring element :	SN	AS	MO	SE 203.985	CR	SB 206.833	ZN 213.856	CO	NI	BE	B	MN	FE 259.940	V	CU	AG	TI	Y	AL 396 152
Sn	189.989																				
As	193.759				-0.000443	0 0013276	0.0014805						0.0004506	-0.000358		-0.016264					-0.00056
Mo	202.030																				
Se	203.985		-0.001414		-0.011844		0.3567339	0.1353312		0.0011973			0.0003587	0.0009978				0.0003745		0.0005863	
Cr	205.552				0.0004958																
Sb	206.833				0.0004296		0.0107913		-0.000387		-0.000187		0.0000628						0.0002206		
Zn	213.856										0.0040249						0.0025071				
Pb	220.353				-0.000178																-0.000076
Co	228.616				-0.002387														0.0014683		
Cd	228.802			0.0017102						0.0001752											
Ni	231.604									0.0003174											
Be	234.861																				
B	249.678											0.0005228			0 0004593						
Mn	257 610															-0.000018					
Fe	259.940											0 0005777		-0 000167		0.0000422			-0.002761		
V	292.402						-0 001755												0.0001307		
Cu	324.754				0.0001936														-0 000539	0.0001472	
Ag	328.068				-0.000221									0.0001809		-0 001543				0.0016643	
Ti	334.941																				
Y	371.03																				
Al	396.152				0.0274278																

4-5-2000

RUN 1166

INSTR BLK 1

Analyte	nm	raw result from JY SED5	not algebraically IEC corrected	IEC corrected values algebraic "B" correct	IEC corrected values algebraic "C" correct	IEC corrected values algebraic "combo" correct	IEC corrected values arithmetic correct
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Sn	189.989	-0.13889	**********	**********	-0.13889	-0.13889	-0.13889
Tl	190.864	0.02186	0.02186	**********	**********	0.02186	0.02194102
Tl	190.883	0.03578	**********	0.03566872	**********	0.03566872	0.03566871
As	193.759	-0.05071	**********	-0.0508181	-0.0507454	-0.0508181	-0.0507736
Se	196.09	0.0169	**********	0.01690791	**********	0.01690791	0.01691741
Mo	202.030	0.00556	**********	0.00556001	0.00556002	0.00556001	0.00556
Se	203.985	-0.00699	**********	**********	-0.0044209	-0.0044209	-0.0044201
Cr	205.552	-0.00139	**********	-0.0013927	-0.0013927	-0.0013927	-0.0013928
Sb	206.833	-0.01622	**********	**********	-0.016207	-0.016207	-0.0162097
Zn	213.856	0.00128	**********	**********	0.00129145	0.00129145	0.00129143
Sb	217.581	0.00753	**********	0.00753781	**********	0.00753781	0.00753774
Pb	220.353	-0.00225	**********	-0.0022548	-0.0022491	-0.0022548	-0.0022548
Co	228.616	-0.0051	**********	-0.0050867	-0.0050867	-0.0050867	-0.0050867
Cd	228.802	0.00126	**********	0.0013478	0.00134769	0.0013478	0.00134762
Ni	231.604	-0.00269	**********	-0.0026884	-0.0026884	-0.0026884	-0.0026884
Be	234.861	0	**********	**********	0.00000002	0.00000002	0
B	249.678	-0.00602	**********	-0.0060125	-0.0060207	-0.0060125	-0.0060123
Mn	257.610	-0.0006	**********	-0.0006	-0.0006	-0.0006	-0.0006001
Fe	259.940	0.0016	**********	**********	0.00160004	0.00160004	0.00160002
Fe	271.441	-0.01684	**********	-0.0163476	**********	-0.0163476	-0.0163464
Mg	279.553	-0.00061	-0.00061	**********	**********	-0.00061	-0.00061
V	292.402	-0.0029	**********	-0.0029024	-0.0029024	-0.0029024	-0.0029024
Al	308.215	-0.0763	**********	-0.0763058	**********	-0.0763058	-0.0763059
Ca	315.887	0.02034	0.02034	**********	**********	0.02034	0.02034
Cu	324.754	-0.00024	**********	-0.0002411	-0.0002411	-0.0002411	-0.0002411
Ag	328.068	-0.00166	**********	-0.0016631	-0.0016631	-0.0016631	-0.0016631
Ti	334.941	0	**********	9.929E-009	0.00000002	9.929E-009	0
Y	371.03	0	**********	9.929E-009	0.00000002	9.929E-009	0
Mg	383.826	-0.02223	-0.02223	**********	**********	-0.02223	-0.02223
Ca	393.366	0.00228	0.00228	**********	**********	0.00228	0.00228
Al	396.152	-0.00178	**********	**********	-0.0019325	-0.0019325	-0.0019325
Sr	421.552	0.00021	0.00021	**********	**********	0.00021	0.00021
Zn	481.053	-0.00688	-0.00688	**********	**********	-0.00688	-0.00688
Ba	493.409	-0.00032	-0.00032	**********	**********	-0.00032	-0.00032
Na	588.995	-0.00307	-0.00307	**********	**********	-0.00307	-0.00307
Li	670.784	-0.00028	-0.00028	**********	**********	-0.00028	-0.00028
K	766.49	0.01048	0.01048	**********	**********	0.01048	0.01048
K	769.896	-0.01213	-0.01213	**********	**********	-0.01213	-0.01213

RUN 1166

4-5-2000

SED5 AQC 1

Analyte	nm	raw result from JY SED5	not algebraically IEC corrected	IEC corrected values algebraic "B" correct	IEC corrected values algebraic "C" correct	IEC corrected values algebraic "combo" correct	IEC corrected values arithmetic correct
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Sn	189.989	5.2594	**********	**********	5.25939025	5.25939025	5.2594
Tl	190.864	4.7287	4.7287	**********	**********	4.7287	4.650796
Tl	190.883	4.6251	**********	4.5327158	**********	4.5327158	4.53272442
As	193.759	4.9844	**********	5.06067368	5.05882316	5.06067368	5.0582949
Se	196.09	5.1766	**********	5.19524373	**********	5.19524373	5.18695294
Mo	202.030	5.3546	**********	5.35459131	5.35459026	5.35459131	5.3546
Se	203.985	7.3164	**********	**********	4.82275421	4.82275421	4.81395542
Cr	205.552	5.3093	**********	5.30663724	5.30663619	5.30663724	5.30664539
Sb	206.833	4.8992	**********	**********	4.84112815	4.84112815	4.84305489
Zn	213.856	5.1751	**********	**********	5.14251116	5.14251116	5.14251548
Sb	217.581	4.8009	**********	4.79544843	**********	4.79544843	4.78786841
Pb	220.353	5.14	**********	5.14132965	5.1413215	5.14132965	5.14134138
Co	228.616	5.2148	**********	5.22023601	5.22023497	5.22023601	5.22024369
Cd	228.802	5.3766	**********	5.36702336	5.36702548	5.36702336	5.36716241
Ni	231.604	4.9803	**********	4.97863476	4.97863372	4.97863476	4.97864469
Be	234.861	5.2322	**********	**********	5.23219025	5.23219025	5.2322
B	249.678	5.0919	**********	5.08940956	5.08678115	5.08940956	5.08644894
Mn	257.610	5.056	**********	5.05608515	5.05608411	5.05608515	5.0560932
Fe	259.940	5.1587	**********	**********	5.17009447	5.17009447	5.17010255
Fe	271.441	5.9123	**********	5.40406489	**********	5.40406489	5.40139496
Mg	279.553	5.6251	5.6251	**********	**********	5.6251	5.6251
V	292.402	5.1581	**********	5.16675067	5.16674962	5.16675067	5.16676302
Al	308.215	5.0779	**********	5.02454345	**********	5.02454345	5.02467756
Ca	315.887	5.2056	5.2056	**********	**********	5.2056	5.2056
Cu	324.754	5.0016	**********	5.00250407	5.00250303	5.00250407	5.00251126
Ag	328.068	0.49849	**********	0.4982721	0.49827105	0.4982721	0.49826586
Ti	334.941	4.997	**********	4.99699127	4.99699023	4.99699127	4.997
Y	371.03	5.0798	**********	5.07979128	5.07979024	5.07979128	5.0798
Mg	383.826	5.0083	5.0083	**********	**********	5.0083	5.0083
Ca	393.366	5.1056	5.1056	**********	**********	5.1056	5.1056
Al	396.152	5.0781	**********	**********	4.93122594	4.93122594	4.93123491
Sr	421.552	5.2757	5.2757	**********	**********	5.2757	5.2757
Zn	481.053	4.9984	4.9984	**********	**********	4.9984	4.9984
Ba	493.409	4.9303	4.9303	**********	**********	4.9303	4.9303
Na	588.995	5.2763	5.2763	**********	**********	5.2763	5.2763
Li	670.784	5.0449	5.0449	**********	**********	5.0449	5.0449
K	766.49	4.8887	4.8887	**********	**********	4.8887	4.8887
K	769.896	4.8962	4.8962	**********	**********	4.8962	4.8962

RUN 1166

VKN 4-5-2000

HIGH AQC 1

Analyte	nm	raw result from JY SED5	not algebraically IEC corrected	IEC corrected values algebraic "B" correct	IEC corrected values algebraic "C" correct	IEC corrected values algebraic "combo" correct	IEC corrected values arithmetic correct
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Sn	189.989	-0.03145	**********	**********	-0.0314783	-0.0314783	-0.03145
Tl	190.864	0.26033	0.26033	**********	**********	0.26033	0.12403157
Tl	190.883	0.09489	**********	0.09467141	**********	0.09467141	0.09469088
As	193.759	-0.12523	**********	-0.0708298	-0.0711584	-0.0708298	-0.071283
Se	196.09	0.0377	**********	0.03762325	**********	0.03762325	0.03771869
Mo	202.030	0.01	**********	0.0099802	0.00997175	0.0099802	0.01
Se	203.985	-0.05997	**********	**********	-0.0563507	-0.0563507	-0.0513993
Cr	205.552	0	**********	-0.0000248	-0.0000332	-0.0000248	-0.000005
Sb	206.833	-0.0628	**********	**********	-0.0262258	-0.0262258	0.01204068
Zn	213.856	94.479	**********	**********	94.479041	94.479041	94.4790596
Sb	217.581	-0.00922	**********	0.00423195	**********	0.00423195	0.00424486
Pb	220.353	0.00464	**********	0.01209986	0.01202975	0.01209986	0.01210982
Co	228.616	-0.00365	**********	-0.003647	-0.0036555	-0.003647	-0.0036272
Cd	228.802	0.00503	**********	0.00513196	0.00512407	0.00513196	0.0052448
Ni	231.604	-0.00807	**********	-0.0080886	-0.0080971	-0.0080886	-0.0080688
Be	234.861	0	**********	**********	-0.0000283	-0.0000283	0
B	249.678	0.02209	**********	-0.0237858	-0.0196925	-0.0237858	-0.0237757
Mn	257.610	0	**********	-0.0000204	-0.0000289	-0.0000204	-0.0000006
Fe	259.940	90.922	**********	**********	90.9219842	90.9219842	90.9220035
Fe	271.441	99.853	**********	99.8535781	**********	99.8535781	99.8535881
Mg	279.553	55.635	55.635	**********	**********	55.635	55.635
V	292.402	-0.03407	**********	-0.0340899	-0.0340984	-0.0340899	-0.0340701
Al	308.215	98.192	**********	98.1924465	**********	98.1924465	98.1924563
Ca	315.887	99.565	99.565	**********	**********	99.565	99.565
Cu	324.754	-0.01082	**********	-0.0108413	-0.0108498	-0.0108413	-0.0108215
Ag	328.068	-0.00397	**********	-0.0040402	-0.0040486	-0.0040402	-0.0040204
Ti	334.941	0.00074	**********	0.00072019	0.00071175	0.00072019	0.00074
Y	371.03	0	**********	-0.0000198	-0.0000283	-0.0000198	0
Mg	383.826	57.086	57.086	**********	**********	57.086	57.086
Ca	393.366	73.695	73.695	**********	**********	73.695	73.695
Al	396.152	97.383	**********	**********	97.382708	97.382708	97.3827257
Sr	421.552	0.00298	0.00298	**********	**********	0.00298	0.00298
Zn	481.053	98.747	98.747	**********	**********	98.747	98.747
Ba	493.409	0.00016	0.00016	**********	**********	0.00016	0.00016
Na	588.995	100.94	100.94	**********	**********	100.94	100.94
Li	670.784	0.00319	0.00319	**********	**********	0.00319	0.00319
K	766.49	104.29	104.29	**********	**********	104.29	104.29
K	769.896	106.88	106.88	**********	**********	106.88	106.88

4-5-2000

RUN 1166

WASH

Analyte	nm	raw result from JY SED5	not algebraically IEC corrected	IEC corrected values algebraic "B" correct	IEC corrected values algebraic "C" correct	IEC corrected values algebraic "combo" correct	IEC corrected values arithmetic correct
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Sn	189.989	0.00786	**********	**********	0.00786	0.00786	0.00786
Tl	190.864	0.00501	0.00501	**********	**********	0.00501	0.00502817
Tl	190.883	0.07519	**********	0.07510128	**********	0.07510128	0.07510128
As	193.759	-0.01163	**********	-0.0117084	-0.0116621	-0.0117084	-0.0116974
Se	196.09	0.03077	**********	0.03077504	**********	0.03077504	0.03078475
Mo	202.030	0.00445	**********	0.00444999	0.00445	0.00444999	0.00445
Se	203.985	0.00116	**********	**********	0.00405852	0.00405852	0.00406063
Cr	205.552	-0.00205	**********	-0.0020522	-0.0020522	-0.0020522	-0.0020522
Sb	206.833	-0.01553	**********	**********	-0.0155086	-0.0155086	-0.0155619
Zn	213.856	0.00898	**********	**********	0.00902424	0.00902424	0.00902424
Sb	217.581	0.0004	**********	0.00040205	**********	0.00040205	0.00040205
Pb	220.353	0.01044	**********	0.01044014	0.01044106	0.01044014	0.01044015
Co	228.616	-0.00073	**********	-0.0007199	-0.0007199	-0.0007199	-0.0007199
Cd	228.802	0.00251	**********	0.00253014	0.00253007	0.00253014	0.00253002
Ni	231.604	-0.01524	**********	-0.0152398	-0.0152398	-0.0152398	-0.0152398
Be	234.861	0	**********	**********	6.537E-010	6.537E-010	0
B	249.678	-0.00919	**********	-0.00919	-0.0091902	-0.00919	-0.00919
Mn	257.610	0	**********	-5.04E-008	-4.16E-008	-5.04E-008	-4.19E-008
Fe	259.940	0.0004	**********	**********	0.00040112	0.00040112	0.00040112
Fe	271.441	0	**********	0.00008389	**********	0.00008389	0.00008481
Mg	279.553	-0.00243	-0.00243	**********	**********	-0.00243	-0.00243
V	292.402	-0.00232	**********	-0.0023237	-0.0023236	-0.0023237	-0.0023236
Al	308.215	-0.00848	**********	-0.0084732	**********	-0.0084732	-0.0084733
Ca	315.887	0.01356	0.01356	**********	**********	0.01356	0.01356
Cu	324.754	0.00682	**********	0.00681929	0.00681929	0.00681929	0.00681929
Ag	328.068	0.00046	**********	0.00045688	0.00045688	0.00045688	0.00045689
Ti	334.941	0.00037	**********	0.00036999	0.00037	0.00036999	0.00037
Y	371.03	0.00031	**********	0.00030999	0.00031	0.00030999	0.00031
Mg	383.826	0.00556	0.00556	**********	**********	0.00556	0.00556
Ca	393.366	-0.00988	-0.00988	**********	**********	-0.00988	-0.00988
Al	396.152	0.00356	**********	**********	0.00343795	0.00343795	0.00343795
Sr	421.552	0	0	**********	**********	0	0
Zn	481.053	-0.13751	-0.13751	**********	**********	-0.13751	-0.13751
Ba	493.409	0.00032	0.00032	**********	**********	0.00032	0.00032
Na	588.995	0.02151	0.02151	**********	**********	0.02151	0.02151
Li	670.784	-0.00073	-0.00073	**********	**********	-0.00073	-0.00073
K	766.49	0.0307	0.0307	**********	**********	0.0307	0.0307
K	769.896	0.02782	0.02782	**********	**********	0.02782	0.02782

VN
4-5-2000

RUN 1166

RL CHECK 1

Analyte	nm	raw result from JY SED5	not algebraically IEC corrected	IEC corrected values algebraic "B" correct	IEC corrected values algebraic "C" correct	IEC corrected values algebraic "combo" correct	IEC corrected values arithmetic correct
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Sn	189.989	0.16771	**********	**********	0.16770988	0.16770988	0.16771
Tl	190.864	0.26475	0.26475	**********	**********	0.26475	0.26422331
Tl	190.883	0.39403	**********	0.39276435	**********	0.39276435	0.39276449
As	193.759	0.18136	**********	0.18139347	0.18159533	0.18139347	0.18140132
Se	196.09	0.23833	**********	0.23851466	**********	0.23851466	0.23846389
Mo	202.030	0.06558	**********	0.06557984	0.06557987	0.06557984	0.06558
Se	203.985	0.11587	**********	**********	0.09218837	0.09218837	0.09212317
Cr	205.552	0.03644	**********	0.03640734	0.03640736	0.03640734	0.03640749
Sb	206.833	0.08627	**********	**********	0.08587261	0.08587261	0.08586713
Zn	213.856	0.05901	**********	**********	0.05875707	0.05875707	0.05875714
Sb	217.581	0.10872	**********	0.10870475	**********	0.10870475	0.10869677
Pb	220.353	0.11047	**********	0.11048796	0.11049142	0.11048796	0.11048815
Co	228.616	0.03136	**********	0.03148597	0.031486	0.03148597	0.03148612
Cd	228.802	0.03772	**********	0.03740413	0.03740382	0.03740413	0.03740435
Ni	231.604	0.04304	**********	0.04302985	0.04302988	0.04302985	0.04303005
Be	234.861	0.00588	**********	**********	0.00587987	0.00587987	0.00588
B	249.678	0.03937	**********	0.03931708	0.03931063	0.03931708	0.03931277
Mn	257.610	0.01558	**********	0.0155802	0.01558023	0.0155802	0.01558036
Fe	259.940	0.12225	**********	**********	0.12230544	0.12230544	0.12230556
Fe	271.441	0.11791	**********	0.11488356	**********	0.11488356	0.11489221
Mg	279.553	0.12198	0.12198	**********	**********	0.12198	0.12198
V	292.402	0.01976	**********	0.01982102	0.01982105	0.01982102	0.01982123
Al	308.215	0.08477	**********	0.0840686	**********	0.0840686	0.08406959
Ca	315.887	0.13695	0.13695	**********	**********	0.13695	0.13695
Cu	324.754	0.03176	**********	0.03175677	0.0317568	0.03175677	0.03175692
Ag	328.068	0.03445	**********	0.03447458	0.0344746	0.03447458	0.03447463
Ti	334.941	0.02071	**********	0.02070984	0.02070987	0.02070984	0.02071
Y	371.03	0.01055	**********	0.01054984	0.01054987	0.01054984	0.01055
Mg	383.826	0.0945	0.0945	**********	**********	0.0945	0.0945
Ca	393.366	0.12534	0.12534	**********	**********	0.12534	0.12534
Al	396.152	0.13101	**********	**********	0.12921117	0.12921117	0.12921128
Sr	421.552	0.00553	0.00553	**********	**********	0.00553	0.00553
Zn	481.053	-0.01375	-0.01375	**********	**********	-0.01375	-0.01375
Ba	493.409	0.00513	0.00513	**********	**********	0.00513	0.00513
Na	588.995	0.23867	0.23867	**********	**********	0.23867	0.23867
Li	670.784	0.021	0.021	**********	**********	0.021	0.021
K	766.49	0.34818	0.34818	**********	**********	0.34818	0.34818
K	769.896	0.34596	0.34596	**********	**********	0.34596	0.34596

4-5-2000

RUN 1166

DIGEST BLK RUN 1166

Analyte	nm	raw result from JY SED5	not algebraically IEC corrected	IEC corrected values algebraic "B" correct	IEC corrected values algebraic "C" correct	IEC corrected values algebraic "combo" correct	IEC corrected values arithmetic correct
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Sn	189.989	-0.04316	**********	**********	-0.04316	-0.04316	-0.04316
Tl	190.864	-0.05603	-0.05603	**********	**********	-0.05603	-0.0559881
Tl	190.883	0.07947	**********	0.07941606	**********	0.07941606	0.07941606
As	193.759	-0.0177	**********	-0.01776	-0.0176841	-0.01776	-0.017762
Se	196.09	0.02485	**********	0.02485106	**********	0.02485106	0.02486039
Mo	202.030	0.00271	**********	0.00270999	0.00271001	0.00270999	0.00271
Se	203.985	-0.03339	**********	**********	-0.0337963	-0.0337963	-0.0337977
Cr	205.552	0.00034	**********	0.00033865	0.00033866	0.00033865	0.00033866
Sb	206.833	0.00196	**********	**********	0.00195302	0.00195302	0.00191561
Zn	213.856	0.00157	**********	**********	0.00163397	0.00163397	0.00163397
Sb	217.581	-0.01572	**********	-0.0157142	**********	-0.0157142	-0.0157168
Pb	220.353	0.00026	**********	0.00026205	0.00026133	0.00026205	0.00026206
Co	228.616	-0.00356	**********	-0.0035535	-0.0035535	-0.0035535	-0.0035535
Cd	228.802	0.00614	**********	0.00617099	0.00617087	0.00617099	0.00617089
Ni	231.604	-0.0175	**********	-0.0174989	-0.0174989	-0.0174989	-0.0174989
Be	234.861	0.00179	**********	**********	0.00179001	0.00179001	0.00179
B	249.678	-0.00747	**********	-0.0074702	-0.0074934	-0.0074702	-0.0074709
Mn	257.610	-0.00073	**********	-0.0007301	-0.00073	-0.0007301	-0.00073
Fe	259.940	0.0489	**********	**********	0.04889895	0.04889895	0.04889895
Fe	271.441	0	**********	0.00034574	**********	0.00034574	0.00034525
Mg	279.553	0.01111	0.01111	**********	**********	0.01111	0.01111
V	292.402	-0.0024	**********	-0.0023994	-0.0023994	-0.0023994	-0.0023994
Al	308.215	0.02068	**********	0.02068898	**********	0.02068898	0.02068899
Ca	315.887	0.08602	0.08602	**********	**********	0.08602	0.08602
Cu	324.754	0.00258	**********	0.00257941	0.00257942	0.00257941	0.00257942
Ag	328.068	-0.00089	**********	-0.0008936	-0.0008936	-0.0008936	-0.0008936
Ti	334.941	0	**********	-7.17E-009	4.94E-009	-7.17E-009	0
Y	371.03	0.00038	**********	0.00037999	0.00038	0.00037999	0.00038
Mg	383.826	-0.01865	-0.01865	**********	**********	-0.01865	-0.01865
Ca	393.366	0.04541	0.04541	**********	**********	0.04541	0.04541
Al	396.152	0.01117	**********	**********	0.01109568	0.01109568	0.01109567
Sr	421.552	0.00026	0.00026	**********	**********	0.00026	0.00026
Zn	481.053	-0.09646	-0.09646	**********	**********	-0.09646	-0.09646
Ba	493.409	0.00059	0.00059	**********	**********	0.00059	0.00059
Na	588.995	0.12247	0.12247	**********	**********	0.12247	0.12247
Li	670.784	0.00027	0.00027	**********	**********	0.00027	0.00027
K	766.49	0.02466	0.02466	**********	**********	0.02466	0.02466
K	769.896	-0.0174	-0.0174	**********	**********	-0.0174	-0.0174

4-5-2000

RUN 1166

SPIKED BLN RUN 1166

Analyte	nm	raw result from JY SED5	not algebraically IEC corrected	IEC corrected values algebraic "B" correct	IEC corrected values algebraic "C" correct	IEC corrected values algebraic "combo" correct	IEC corrected values arithmetic correct
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Sn	189.989	0.4298	**********	**********	0.42979948	0.42979948	0.4298
Ti	190.864	0.19613	0.19613	**********	**********	0.19613	0.19356281
Ti	190.883	0.26378	**********	0.26185225	**********	0.26185225	0.26185274
As	193.759	0.16318	**********	0.16409382	0.16389098	0.16409382	0.16380275
Se	196.09	0.20687	**********	0.20717582	**********	0.20717582	0.20679152
Mo	202.030	0.11127	**********	0.11126949	0.11126945	0.11126949	0.11127
Se	203.985	0.20085	**********	**********	0.14113139	0.14113139	0.1409695
Cr	205.552	0.10308	**********	0.10302434	0.1030243	0.10302434	0.10302484
Sb	206.833	0.18085	**********	**********	0.17979798	0.17979798	0.17978774
Zn	213.856	0.40303	**********	**********	0.4023439	0.4023439	0.40234434
Sb	217.581	0.21794	**********	0.21771777	**********	0.21771777	0.21770794
Pb	220.353	0.82901	**********	0.82908309	0.8290938	0.82908309	0.82908347
Co	228.616	0.0977	**********	0.09781708	0.09781704	0.09781708	0.09781757
Cd	228.802	0.05422	**********	0.05392175	0.05392206	0.05392175	0.05392382
Ni	231.604	0.13809	**********	0.13805846	0.13805841	0.13805846	0.13805899
Be	234.861	0.00792	**********	**********	0.00791944	0.00791944	0.00792
B	249.678	0.82078	**********	0.82029539	0.82037526	0.82029539	0.82028736
Mn	257.610	0.09966	**********	0.09966046	0.09966041	0.09966046	0.09966095
Fe	259.940	0.87099	**********	**********	0.87127776	0.87127776	0.87127821
Fe	271.441	1.0635	**********	1.0543108	**********	1.0543108	1.05431838
Mg	279.553	29.546	29.546	**********	**********	29.546	29.546
V	292.402	0.05283	**********	0.05299711	0.05299706	0.05299711	0.0529977
Al	308.215	0.70497	**********	0.70469419	**********	0.70469419	0.70469705
Ca	315.887	53.953	53.953	**********	**********	53.953	53.953
Cu	324.754	0.0518	**********	0.05182475	0.05182471	0.05182475	0.05182524
Ag	328.068	0.04869	**********	0.04869197	0.04869193	0.04869197	0.0486922
Ti	334.941	0.10081	**********	0.10080949	0.10080945	0.10080949	0.10081
Y	371.03	0.05163	**********	0.05162949	0.05162945	0.05162949	0.05163
Mg	383.826	25.799	25.799	**********	**********	25.799	25.799
Ca	393.366	48.12	48.12	**********	**********	48.12	48.12
Al	396.152	0.84894	**********	**********	0.84588766	0.84588766	0.8458881
Sr	421.552	1.0138	1.0138	**********	**********	1.0138	1.0138
Zn	481.053	-0.02647	-0.02647	**********	**********	-0.02647	-0.02647
Ba	493.409	0.19116	0.19116	**********	**********	0.19116	0.19116
Na	588.995	54.478	54.478	**********	**********	54.478	54.478
Li	670.784	0.05139	0.05139	**********	**********	0.05139	0.05139
K	766.49	25.614	25.614	**********	**********	25.614	25.614
K	769.896	25.981	25.981	**********	**********	25.981	25.981

4-5-2000

RUN 1166

2000BB01R01 20000027

Analyte	nm	raw result from JY SED5	not algebraically IEC corrected	IEC corrected values algebraic "B" correct	IEC corrected values algebraic "C" correct	IEC corrected values algebraic "combo" correct	IEC corrected values arithmetic correct
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Sn	189.989	-0.10231	**********	**********	-0.10231	-0.10231	-0.10231
Tl	190.864	0.0137	0.0137	**********	**********	0.0137	0.01366767
Tl	190.883	0.05543	**********	0.0550459	**********	0.0550459	0.05504592
As	193.759	-0.01956	**********	-0.0196742	-0.019496	-0.0196742	-0.0196438
Se	196.09	0.03806	**********	0.03809946	**********	0.03809946	0.03811255
Mo	202.030	0.01899	**********	0.01898999	0.01899002	0.01898999	0.01899
Se	203.985	-0.07672	**********	**********	-0.0735455	-0.0735455	-0.0735484
Cr	205.552	-0.00113	**********	-0.0011394	-0.0011394	-0.0011394	-0.0011394
Sb	206.833	-0.01979	**********	**********	-0.0197869	-0.0197869	-0.0197075
Zn	213.856	0	**********	**********	0.00003381	0.00003381	0.00003379
Sb	217.581	0.011	**********	0.01102368	**********	0.01102368	0.01102233
Pb	220.353	0.01105	**********	0.01105179	0.01105538	0.01105179	0.01105181
Co	228.616	-0.00356	**********	-0.0035147	-0.0035147	-0.0035147	-0.0035147
Cd	228.802	-0.0046	**********	-0.0045658	-0.004566	-0.0045658	-0.0045659
Ni	231.604	-0.00875	**********	-0.0087489	-0.0087489	-0.0087489	-0.0087489
Be	234.861	0.0009	**********	**********	0.00090002	0.00090002	0.0009
B	249.678	-0.00854	**********	-0.0085685	-0.0085501	-0.0085685	-0.0085688
Mn	257.610	-0.00292	**********	-0.0029201	-0.0029201	-0.0029201	-0.0029201
Fe	259.940	0.02103	**********	**********	0.02102917	0.02102917	0.02102915
Fe	271.441	0.06165	**********	0.06199559	**********	0.06199559	0.06199924
Mg	279.553	0.01703	0.01703	**********	**********	0.01703	0.01703
V	292.402	-0.00375	**********	-0.003752	-0.003752	-0.003752	-0.003752
Al	308.215	-0.02068	**********	-0.0208124	**********	-0.0208124	-0.0208124
Ca	315.887	0.10918	0.10918	**********	**********	0.10918	0.10918
Cu	324.754	0.00057	**********	0.00056626	0.00056629	0.00056626	0.00056627
Ag	328.068	-0.00003	**********	-0.0000317	-0.0000317	-0.0000317	-0.0000317
Ti	334.941	0	**********	-1.23E-008	0.00000002	-1.23E-008	0
Y	371.03	0.00038	**********	0.00037999	0.00038002	0.00037999	0.00038
Mg	383.826	-0.00848	-0.00848	**********	**********	-0.00848	-0.00848
Ca	393.366	0.07013	0.07013	**********	**********	0.07013	0.07013
Al	396.152	0.02638	**********	**********	0.02585917	0.02585917	0.02585915
Sr	421.552	0.00104	0.00104	**********	**********	0.00104	0.00104
Zn	481.053	0.2055	0.2055	**********	**********	0.2055	0.2055
Ba	493.409	0.00039	0.00039	**********	**********	0.00039	0.00039
Na	588.995	0.28618	0.28618	**********	**********	0.28618	0.28618
Li	670.784	0	0	**********	**********	0	0
K	766.49	0.02832	0.02832	**********	**********	0.02832	0.02832
K	769.896	0.0496	0.0496	**********	**********	0.0496	0.0496

4-5-2000

RUN 1166

2000BB01D01 20000027

Analyte	nm	raw result from JY SED5	not algebraically IEC corrected	IEC corrected values algebraic "B" correct	IEC corrected values algebraic "C" correct	IEC corrected values algebraic "combo" correct	IEC corrected values arithmetic correct
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Sn	189.989	-0.09271	**********	**********	-0.0927111	-0.0927111	-0.09271
Tl	190.864	0.02447	0.02447	**********	**********	0.02447	0.00809309
Tl	190.883	0.01619	**********	0.01613099	**********	0.01613099	0.01613217
As	193.759	-0.03425	**********	-0.0341098	-0.0340756	-0.0341098	-0.0341537
Se	196.09	0.00634	**********	0.00616913	**********	0.00616913	0.00613816
Mo	202.030	0.00271	**********	0.0027088	0.00270887	0.0027088	0.00271
Se	203.985	-0.05043	**********	**********	-0.0516065	-0.0516065	-0.0516124
Cr	205.552	0.00238	**********	0.00237746	0.00237753	0.00237746	0.00237866
Sb	206.833	-0.00393	**********	**********	-0.0039618	-0.0039618	-0.0039821
Zn	213.856	0.01096	**********	**********	0.01097795	0.01097795	0.01097906
Sb	217.581	-0.00871	**********	-0.007245	**********	-0.007245	-0.0072439
Pb	220.353	0.01439	**********	0.01438849	0.01438999	0.01438849	0.0143897
Co	228.616	0.00445	**********	0.00445593	0.004456	0.00445593	0.00445713
Cd	228.802	0.01074	**********	0.01079635	0.01079636	0.01079635	0.01079779
Ni	231.604	-0.00438	**********	-0.0043826	-0.0043825	-0.0043826	-0.0043814
Be	234.861	-0.0009	**********	**********	-0.0009011	-0.0009011	-0.0009
B	249.678	0.12263	**********	0.11749426	0.11776833	0.11749426	0.1174956
Mn	257.610	0.71932	**********	0.71931876	0.71931883	0.71931876	0.71931989
Fe	259.940	10.585	**********	**********	10.5851197	10.5851197	10.5851197
Fe	271.441	11.179	**********	11.1807398	**********	11.1807398	11.1807409
Mg	279.553	23.825	23.825	**********	**********	23.825	23.825
V	292.402	-0.00615	**********	-0.006147	-0.0061469	-0.006147	-0.0061458
Al	308.215	-0.01034	**********	-0.0103745	**********	-0.0103745	-0.0103733
Ca	315.887	111.19	111.19	**********	**********	111.19	111.19
Cu	324.754	-0.00057	**********	-0.000572	-0.000572	-0.000572	-0.0005708
Ag	328.068	-0.0026	**********	-0.0027407	-0.0027407	-0.0027407	-0.0027396
Ti	334.941	-0.00045	**********	-0.0004512	-0.0004511	-0.0004512	-0.00045
Y	371.03	0.00038	**********	0.0003788	0.00037887	0.0003788	0.00038
Mg	383.826	20.74	20.74	**********	**********	20.74	20.74
Ca	393.366	89.181	89.181	**********	**********	89.181	89.181
Al	396.152	0.00838	**********	**********	0.00830457	0.00830457	0.00830567
Sr	421.552	0.24997	0.24997	**********	**********	0.24997	0.24997
Zn	481.053	-0.05452	-0.05452	**********	**********	-0.05452	-0.05452
Ba	493.409	0.05361	0.05361	**********	**********	0.05361	0.05361
Na	588.995	34.225	34.225	**********	**********	34.225	34.225
Li	670.784	0.00178	0.00178	**********	**********	0.00178	0.00178
K	766.49	3.1516	3.1516	**********	**********	3.1516	3.1516
K	769.896	3.2303	3.2303	**********	**********	3.2303	3.2303

4-5-2000

RUN 1166

2000BB01S01 20000027

Analyte	nm	raw result from JY SED5	not algebraically IEC corrected	IEC corrected values algebraic "B" correct	IEC corrected values algebraic "C" correct	IEC corrected values algebraic "combo" correct	IEC corrected values arithmetic correct
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Sn	189.989	-0.07034	**********	**********	-0.0703411	-0.0703411	-0.07034
Tl	190.864	-0.02545	-0.02545	**********	**********	-0.02545	-0.0411706
Tl	190.883	0.04219	**********	0.0419959	**********	0.0419959	0.04199704
As	193.759	-0.03189	**********	-0.0316428	-0.031703	-0.0316428	-0.0317172
Se	196.09	-0.01375	**********	-0.0139133	**********	-0.0139133	-0.0139498
Mo	202.030	0.00949	**********	0.00948884	0.00948893	0.00948884	0.00949
Se	203.985	-0.02415	**********	**********	-0.0237231	-0.0237231	-0.0237254
Cr	205.552	-0.00091	**********	-0.0009159	-0.0009158	-0.0009159	-0.0009147
Sb	206.833	-0.00674	**********	**********	-0.0067366	-0.0067366	-0.0068074
Zn	213.856	0.01565	**********	**********	0.01564887	0.01564887	0.01564993
Sb	217.581	0.00278	**********	0.00417602	**********	0.00417602	0.00417443
Pb	220.353	0.0084	**********	0.00840289	0.00840044	0.00840289	0.00840405
Co	228.616	0.00178	**********	0.00180149	0.00180158	0.00180149	0.00180265
Cd	228.802	0.00307	**********	0.00312264	0.00312283	0.00312264	0.00312423
Ni	231.604	0.00109	**********	0.00108827	0.00108835	0.00108827	0.00108943
Be	234.861	0.0009	**********	**********	0.00089893	0.00089893	0.0009
B	249.678	0.12596	**********	0.12106934	0.12139419	0.12106934	0.12106994
Mn	257.610	0.78	**********	0.77999884	0.77999892	0.77999884	0.77999992
Fe	259.940	9.9388	**********	**********	9.93892993	9.93892993	9.93892994
Fe	271.441	10.645	**********	10.6471521	**********	10.6471521	10.6471536
Mg	279.553	22.993	22.993	**********	**********	22.993	22.993
V	292.402	-0.00445	**********	-0.0044528	-0.0044527	-0.0044528	-0.0044516
Al	308.215	0.03103	**********	0.03091331	**********	0.03091331	0.03091433
Ca	315.887	117.27	117.27	**********	**********	117.27	117.27
Cu	324.754	-0.00172	**********	-0.0017231	-0.001723	-0.0017231	-0.0017219
Ag	328.068	-0.00189	**********	-0.0020375	-0.0020375	-0.0020375	-0.0020365
Ti	334.941	0	**********	-0.0000012	-0.0000011	-0.0000012	0
Y	371.03	0.00038	**********	0.00037884	0.00037893	0.00037884	0.00038
Mg	383.826	21.718	21.718	**********	**********	21.718	21.718
Ca	393.366	87.873	87.873	**********	**********	87.873	87.873
Al	396.152	-0.00217	**********	**********	-0.0024313	-0.0024313	-0.0024303
Sr	421.552	0.25594	0.25594	**********	**********	0.25594	0.25594
Zn	481.053	-0.18453	-0.18453	**********	**********	-0.18453	-0.18453
Ba	493.409	0.05068	0.05068	**********	**********	0.05068	0.05068
Na	588.995	34.765	34.765	**********	**********	34.765	34.765
Li	670.784	0.00171	0.00171	**********	**********	0.00171	0.00171
K	766.49	3.2356	3.2356	**********	**********	3.2356	3.2356
K	769.896	3.1424	3.1424	**********	**********	3.1424	3.1424

4-5-2000

RUN 1166

Analyte	nm	2000BB01S01 DUP 20000027 raw result from JY SED5	not algebraically IEC corrected	IEC corrected values algebraic "B" correct	IEC corrected values algebraic "C" correct	IEC corrected values algebraic "combo" correct	IEC corrected values arithmetic correct
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Sn	189.989	-0.09591	**********	**********	-0.0959111	-0.0959111	-0.09591
Tl	190.864	0.01615	0.01615	**********	**********	0.01615	0.00054351
Ti	190.883	0.10988	**********	0.10974347	**********	0.10974347	0.10974461
As	193.759	-0.01004	**********	-0.0098714	-0.00986	-0.0098714	-0.0099639
Se	196.09	0.03595	**********	0.03578215	**********	0.03578215	0.03574759
Mo	202.030	0.00678	**********	0.00677883	0.00677893	0.00677883	0.00678
Se	203.985	-0.04475	**********	**********	-0.0415433	-0.0415433	-0.041547
Cr	205.552	0.00011	**********	0.00010547	0.00010557	0.00010547	0.00010664
Sb	206.833	-0.03031	**********	**********	-0.0303201	-0.0303201	-0.0303487
Zn	213.856	0.00939	**********	**********	0.00941527	0.00941527	0.00941633
Sb	217.581	0.00798	**********	0.00938222	**********	0.00938222	0.00937931
Pb	220.353	-0.01707	**********	-0.017066	-0.017071	-0.017066	-0.0170649
Co	228.616	-0.00178	**********	-0.0017656	-0.0017655	-0.0017656	-0.0017645
Cd	228.802	0.00767	**********	0.00768602	0.0076861	0.00768602	0.00768748
Ni	231.604	-0.00547	**********	-0.0054706	-0.0054705	-0.0054706	-0.0054694
Be	234.861	0.00179	**********	**********	0.00178893	0.00178893	0.00179
B	249.678	0.12476	**********	0.11988802	0.1201592	0.11988802	0.11988831
Mn	257.610	0.76465	**********	0.76464881	0.76464891	0.76464881	0.7646499
Fe	259.940	10.014	**********	**********	10.0141281	10.0141281	10.0141281
Fe	271.441	10.604	**********	10.6064459	**********	10.6064459	10.6064462
Mg	279.553	22.498	22.498	**********	**********	22.498	22.498
V	292.402	-0.00544	**********	-0.005441	-0.0054409	-0.005441	-0.0054399
Al	308.215	0.05171	**********	0.05164459	**********	0.05164459	0.05164566
Ca	315.887	114.4	114.4	**********	**********	114.4	114.4
Cu	324.754	-0.00172	**********	-0.0017222	-0.0017221	-0.0017222	-0.001721
Ag	328.068	-0.00277	**********	-0.0029156	-0.0029155	-0.0029156	-0.0029146
Ti	334.941	0.00045	**********	0.00044883	0.00044893	0.00044883	0.00045
Y	371.03	-0.00038	**********	-0.0003812	-0.0003811	-0.0003812	-0.00038
Mg	383.826	21.845	21.845	**********	**********	21.845	21.845
Ca	393.366	90.38	90.38	**********	**********	90.38	90.38
Al	396.152	-0.01459	**********	**********	-0.014777	-0.014777	-0.014776
Sr	421.552	0.25724	0.25724	**********	**********	0.25724	0.25724
Zn	481.053	-0.07549	-0.07549	**********	**********	-0.07549	-0.07549
Ba	493.409	0.05048	0.05048	**********	**********	0.05048	0.05048
Na	588.995	33.706	33.706	**********	**********	33.706	33.706
Li	670.784	0.00164	0.00164	**********	**********	0.00164	0.00164
K	766.49	3.1159	3.1159	**********	**********	3.1159	3.1159
K	769.896	3.226	3.226	**********	**********	3.226	3.226

UN
4-5-2000

RUN 1166

Analyte	2000BB01S01 nm	SPIKE	20000027 raw result from JY SED5 mg/L	not algebraically IEC corrected mg/L	IEC corrected values algebraic "B" correct mg/L	IEC corrected values algebraic "C" correct mg/L	IEC corrected values algebraic "combo" correct mg/L	IEC corrected values arithmetic correct mg/L
Sn	189.989		0.29864	**********	**********	0.29863841	0.29863841	0.29864
Tl	190.864		0.19613	0.19613	**********	**********	0.19613	0.17850271
Tl	190.883		0.29845	**********	0.29639082	**********	0.29639082	0.29639242
As	193.759		0.16526	**********	0.16634683	0.16605339	0.16634683	0.1658374
Se	196.09		0.22489	**********	0.22501482	**********	0.22501482	0.22460725
Mo	202.030		0.11641	**********	0.11640836	0.1164084	0.11640836	0.11641
Se	203.985		0.13091	**********	**********	0.06381437	0.06381437	0.06363981
Cr	205.552		0.11038	**********	0.11032066	0.1103207	0.11032066	0.11032229
Sb	206.833		0.20937	**********	**********	0.20823868	0.20823868	0.20834197
Zn	213.856		0.41883	**********	**********	0.41808719	0.41808719	0.41808864
Sb	217.581		0.19627	**********	0.19738473	**********	0.19738473	0.19737318
Pb	220.353		0.8305	**********	0.83059077	0.8305795	0.83059077	0.83059225
Co	228.616		0.11118	**********	0.11131743	0.11131746	0.11131743	0.11131904
Cd	228.802		0.05615	**********	0.05584441	0.05584494	0.05584441	0.0558479
Ni	231.604		0.15328	**********	0.15324304	0.15324308	0.15324304	0.15324471
Be	234.861		0.00905	**********	**********	0.00904838	0.00904838	0.00905
B	249.678		0.94694	**********	0.94179605	0.94199269	0.94179605	0.94178799
Mn	257.610		0.84248	**********	0.84247919	0.84247922	0.84247919	0.84248074
Fe	259.940		10.759	**********	**********	10.7593943	10.7593943	10.7593948
Fe	271.441		11.206	**********	11.1978196	**********	11.1978196	11.1978285
Mg	279.553		48.256	48.256	**********	**********	48.256	48.256
V	292.402		0.04105	**********	0.0412296	0.04122963	0.0412296	0.04123133
Al	308.215		0.93996	**********	0.93956905	**********	0.93956905	0.93957314
Ca	315.887		163.82	163.82	**********	**********	163.82	163.82
Cu	324.754		0.04963	**********	0.04964974	0.04964977	0.04964974	0.04965135
Ag	328.068		0.05064	**********	0.05049513	0.05049516	0.05049513	0.05049639
Ti	334.941		0.09454	**********	0.09453836	0.09453839	0.09453836	0.09454
Y	371.03		0.04828	**********	0.04827836	0.04827839	0.04827836	0.04828
Mg	383.826		46.806	46.806	**********	**********	46.806	46.806
Ca	393.366		+o********	+o********	**********	**********	+o********	0
Al	396.152		0.79448	**********	**********	0.79128564	0.79128564	0.79128713
Sr	421.552		1.2363	1.2363	**********	**********	1.2363	1.2363
Zn	481.053		0.2647	0.2647	**********	**********	0.2647	0.2647
Ba	493.409		0.24031	0.24031	**********	**********	0.24031	0.24031
Na	588.995		87.401	87.401	**********	**********	87.401	87.401
Li	670.784		0.05208	0.05208	**********	**********	0.05208	0.05208
K	766.49		28.542	28.542	**********	**********	28.542	28.542
K	769.896		29.131	29.131	**********	**********	29.131	29.131

RUN 1166

GN 4-5-2000

RL CHECK 2

Analyte	nm	raw result from JY SED5	not algebraically IEC corrected	IEC corrected values algebraic "B" correct	IEC corrected values algebraic "C" correct	IEC corrected values algebraic "combo" correct	IEC corrected values arithmetic correct
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Sn	189.989	0.17034	**********	**********	0.17033987	0.17033987	0.17034
Tl	190.864	0.2848	0.2848	**********	**********	0.2848	0.28429507
Tl	190.883	0.38881	**********	0.38766297	**********	0.38766297	0.38766312
As	193.759	0.20216	**********	0.20229733	0.20233245	0.20229733	0.20227085
Se	196.09	0.20497	**********	0.20514526	**********	0.20514526	0.20508837
Mo	202.030	0.06003	**********	0.06002984	0.06002986	0.06002984	0.06003
Se	203.985	0.18166	**********	**********	0.15857099	0.15857099	0.15851026
Cr	205.552	0.03412	**********	0.03409008	0.0340901	0.03409008	0.03409024
Sb	206.833	0.08753	**********	**********	0.08715857	0.08715857	0.08716377
Zn	213.856	0.05901	**********	**********	0.05877093	0.05877093	0.05877102
Sb	217.581	0.09613	**********	0.09610267	**********	0.09610267	0.09609465
Pb	220.353	0.12584	**********	0.12586149	0.12586071	0.12586149	0.12586167
Co	228.616	0.02844	**********	0.02855055	0.02855057	0.02855055	0.0285507
Cd	228.802	0.04149	**********	0.0411389	0.04113886	0.0411389	0.04113929
Ni	231.604	0.03945	**********	0.03944078	0.0394408	0.03944078	0.03944097
Be	234.861	0.00588	**********	**********	0.00587986	0.00587986	0.00588
B	249.678	0.04626	**********	0.04620696	0.0462008	0.04620696	0.04620277
Mn	257.610	0.01558	**********	0.01558022	0.01558025	0.01558022	0.01558039
Fe	259.940	0.12185	**********	**********	0.12190945	0.12190945	0.12190958
Fe	271.441	0.11791	**********	0.1151451	**********	0.1151451	0.11515229
Mg	279.553	0.12623	0.12623	**********	**********	0.12623	0.12623
V	292.402	0.02132	**********	0.02137676	0.02137678	0.02137676	0.02137697
Al	308.215	0.14411	**********	0.14348173	**********	0.14348173	0.14348266
Ca	315.887	0.11661	0.11661	**********	**********	0.11661	0.11661
Cu	324.754	0.03199	**********	0.0319886	0.03198862	0.0319886	0.03198875
Ag	328.068	0.03135	**********	0.03137523	0.03137525	0.03137523	0.03137529
Ti	334.941	0.02219	**********	0.02218984	0.02218986	0.02218984	0.02219
Y	371.03	0.01086	**********	0.01085984	0.01085986	0.01085984	0.01086
Mg	383.826	0.08616	0.08616	**********	**********	0.08616	0.08616
Ca	393.366	0.13395	0.13395	**********	**********	0.13395	0.13395
Al	396.152	0.13457	**********	**********	0.13292339	0.13292339	0.13292351
Sr	421.552	0.00553	0.00553	**********	**********	0.00553	0.00553
Zn	481.053	0.01375	0.01375	**********	**********	0.01375	0.01375
Ba	493.409	0.00545	0.00545	**********	**********	0.00545	0.00545
Na	588.995	0.24174	0.24174	**********	**********	0.24174	0.24174
Li	670.784	0.02004	0.02004	**********	**********	0.02004	0.02004
K	766.49	0.32721	0.32721	**********	**********	0.32721	0.32721
K	769.896	0.29745	0.29745	**********	**********	0.29745	0.29745

4-5-2000

RUN 1166

INSTR BLK 2

Analyte	nm	raw result from JY SED5	not algebraically IEC corrected	IEC corrected values algebraic "B" correct	IEC corrected values algebraic "C" correct	IEC corrected values algebraic "combo" correct	IEC corrected values arithmetic correct
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Sn	189.989	-0.01179	**********	**********	-0.01179	-0.01179	-0.01179
Tl	190.864	0.01905	0.01905	**********	**********	0.01905	0.01907949
Tl	190.883	0.09127	**********	0.09131869	**********	0.09131869	0.09131869
As	193.759	-0.00554	**********	-0.0056215	-0.0055898	-0.0056215	-0.0056147
Se	196.09	0.01213	**********	0.01211477	**********	0.01211477	0.01212739
Mo	202.030	-0.00222	**********	-0.00222	-0.00222	-0.00222	-0.00222
Se	203.985	-0.00932	**********	**********	-0.006656	-0.006656	-0.0066553
Cr	205.552	-0.00019	**********	-0.0001889	-0.0001889	-0.0001889	-0.0001889
Sb	206.833	-0.01944	**********	**********	-0.0194379	-0.0194379	-0.0194459
Zn	213.856	0.00128	**********	**********	0.00133207	0.00133207	0.00133207
Sb	217.581	-0.00545	**********	-0.0054517	**********	-0.0054517	-0.0054539
Pb	220.353	0.0195	**********	0.0194996	0.01949996	0.0194996	0.0194996
Co	228.616	-0.00365	**********	-0.0036564	-0.0036564	-0.0036564	-0.0036564
Cd	228.802	0.00126	**********	0.00127024	0.0012702	0.00127024	0.00127011
Ni	231.604	-0.00986	**********	-0.0098589	-0.0098588	-0.0098589	-0.0098588
Be	234.861	0.00147	**********	**********	0.00147001	0.00147001	0.00147
B	249.678	-0.00941	**********	-0.0094179	-0.0094086	-0.0094179	-0.0094185
Mn	257.610	-0.0018	**********	-0.0018001	-0.0018001	-0.0018001	-0.0018001
Fe	259.940	-0.00481	**********	**********	-0.0048089	-0.0048089	-0.0048089
Fe	271.441	0.01684	**********	0.01720342	**********	0.01720342	0.01720192
Mg	279.553	-0.00243	-0.00243	**********	**********	-0.00243	-0.00243
V	292.402	-0.00394	**********	-0.0039404	-0.0039404	-0.0039404	-0.0039404
Al	308.215	0	**********	0.00010262	**********	0.00010262	0.00010263
Ca	315.887	0.26713	0.26713	**********	**********	0.26713	0.26713
Cu	324.754	-0.00494	**********	-0.0049391	-0.0049391	-0.0049391	-0.0049391
Ag	328.068	0.00231	**********	0.00230478	0.00230479	0.00230478	0.00230479
Ti	334.941	0.00074	**********	0.00073999	0.00074001	0.00073999	0.00074
Y	371.03	-0.00062	**********	-0.00062	-0.00062	-0.00062	-0.00062
Mg	383.826	0	0	**********	**********	0	0
Ca	393.366	-0.00988	-0.00988	**********	**********	-0.00988	-0.00988
Al	396.152	0.00458	**********	**********	0.0046409	0.0046409	0.00464089
Sr	421.552	0.00043	0.00043	**********	**********	0.00043	0.00043
Zn	481.053	-0.02063	-0.02063	**********	**********	-0.02063	-0.02063
Ba	493.409	0.00032	0.00032	**********	**********	0.00032	0.00032
Na	588.995	0.09834	0.09834	**********	**********	0.09834	0.09834
Li	670.784	0.00577	0.00577	**********	**********	0.00577	0.00577
K	766.49	0.22014	0.22014	**********	**********	0.22014	0.22014
K	769.896	0.24039	0.24039	**********	**********	0.24039	0.24039

4-5-2000

RUN 1166

SED5 AQC 2

Analyte	nm	raw result from JY SED5	not algebraically IEC corrected	IEC corrected values algebraic "B" correct	IEC corrected values algebraic "C" correct	IEC corrected values algebraic "combo" correct	IEC corrected values arithmetic correct
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Sn	189.989	5.0891	**********	**********	5.08909014	5.08909014	5.0891
Tl	190.864	4.7095	4.7095	**********	**********	4.7095	4.62879701
Tl	190.883	4.8623	**********	4.77213374	**********	4.77213374	4.77214249
As	193.759	5.0976	**********	5.17539855	5.17383987	5.17539855	5.17284998
Se	196.09	5.5115	**********	5.5300428	**********	5.5300428	5.52149006
Mo	202.030	5.2379	**********	5.23789108	5.23789016	5.23789108	5.2379
Se	203.985	7.4247	**********	**********	4.81710182	4.81710182	4.80793654
Cr	205.552	5.5818	**********	5.57919489	5.57919397	5.57919489	5.57920325
Sb	206.833	5.0103	**********	**********	4.94936941	4.94936941	4.95127315
Zn	213.856	5.1238	**********	**********	5.09043673	5.09043673	5.0904409
Sb	217.581	4.9286	**********	4.9228414	**********	4.9228414	4.91525366
Pb	220.353	5.1749	**********	5.17622454	5.17619659	5.17622454	5.17623668
Co	228.616	5.3905	**********	5.39569792	5.395697	5.39569792	5.39570581
Cd	228.802	5.4696	**********	5.45979624	5.45979799	5.45979624	5.45993805
Ni	231.604	5.2394	**********	5.23767889	5.23767797	5.23767889	5.23768892
Be	234.861	5.2395	**********	**********	5.23949016	5.23949016	5.2395
B	249.678	5.1223	**********	5.11973968	5.11719733	5.11973968	5.11676773
Mn	257.610	5.2328	**********	5.23288746	5.23288654	5.23288746	5.23289569
Fe	259.940	5.115	**********	**********	5.12633741	5.12633741	5.12634557
Fe	271.441	6.0808	**********	5.55576291	**********	5.55576291	5.55306999
Mg	279.553	5.8624	5.8624	**********	**********	5.8624	5.8624
V	292.402	5.2956	**********	5.30473235	5.30473143	5.30473235	5.30474478
Al	308.215	5.2898	**********	5.23378256	**********	5.23378256	5.23392475
Ca	315.887	5.3141	5.3141	**********	**********	5.3141	5.3141
Cu	324.754	4.8946	**********	4.89550098	4.89550006	4.89550098	4.8955084
Ag	328.068	0.52803	**********	0.52784819	0.52784727	0.52784819	0.5278414
Ti	334.941	4.9693	**********	4.96929105	4.96929013	4.96929105	4.9693
Y	371.03	5.1512	**********	5.15119107	5.15119015	5.15119107	5.1512
Mg	383.826	5.032	5.032	**********	**********	5.032	5.032
Ca	393.366	5.1028	5.1028	**********	**********	5.1028	5.1028
Al	396.152	5.0226	**********	**********	4.87892666	4.87892666	4.87893574
Sr	421.552	5.397	5.397	**********	**********	5.397	5.397
Zn	481.053	4.9365	4.9365	**********	**********	4.9365	4.9365
Ba	493.409	4.9014	4.9014	**********	**********	4.9014	4.9014
Na	588.995	5.0407	5.0407	**********	**********	5.0407	5.0407
Li	670.784	4.7299	4.7299	**********	**********	4.7299	4.7299
K	766.49	4.7779	4.7779	**********	**********	4.7779	4.7779
K	769.896	4.8149	4.8149	**********	**********	4.8149	4.8149

RUN 1166

HIGH AQC 2

Analyte	nm	raw result from JY SED5	not algebraically IEC corrected	IEC corrected values algebraic "B" correct	IEC corrected values algebraic "C" correct	IEC corrected values algebraic "combo" correct	IEC corrected values arithmetic correct
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Sn	189.989	0.00393	**********	**********	0.0039014	0.0039014	0.00393
Tl	190.864	0.32311	0.32311	**********	**********	0.32311	0.17724758
Tl	190.883	0.12183	**********	0.12169857	**********	0.12169857	0.12171898
As	193.759	-0.11923	**********	-0.0633148	-0.0647612	-0.0633148	-0.064817
Se	196.09	0.0156	**********	0.01551366	**********	0.01551366	0.0156065
Mo	202.030	0.00556	**********	0.00553923	0.0055314	0.00553923	0.00556
Se	203.985	-0.03086	**********	**********	-0.0267033	-0.0267033	-0.0216717
Cr	205.552	-0.00223	**********	-0.0022535	-0.0022613	-0.0022535	-0.0022328
Sb	206.833	-0.06154	**********	**********	-0.0243788	-0.0243788	0.01474502
Zn	213.856	95.928	**********	**********	95.9280414	95.9280414	95.9280603
Sb	217.581	-0.00813	**********	0.00624464	**********	0.00624464	0.00625792
Pb	220.353	0.02363	**********	0.03128597	0.03107383	0.03128597	0.03129662
Co	228.616	-0.00146	**********	-0.0014681	-0.0014759	-0.0014681	-0.0014473
Cd	228.802	0.00251	**********	0.00259776	0.0025924	0.00259776	0.00271416
Ni	231.604	-0.00897	**********	-0.0089903	-0.0089981	-0.0089903	-0.0089695
Be	234.861	0	**********	**********	-0.0000286	-0.0000286	0
B	249.678	0.02297	**********	-0.0261107	-0.0193791	-0.0261107	-0.0261005
Mn	257.610	0.0012	**********	0.00117865	0.00117081	0.00117865	0.00119942
Fe	259.940	92.155	**********	**********	92.1549831	92.1549831	92.1550026
Fe	271.441	106.83	**********	106.830366	**********	106.830366	106.830375
Mg	279.553	58.372	58.372	**********	**********	58.372	58.372
V	292.402	-0.03228	**********	-0.0323048	-0.0323126	-0.0323048	-0.032284
Al	308.215	100.79	**********	100.790464	**********	100.790464	100.790474
Ca	315.887	104.85	104.85	**********	**********	104.85	104.85
Cu	324.754	-0.00964	**********	-0.0096618	-0.0096696	-0.0096618	-0.009641
Ag	328.068	-0.00343	**********	-0.0035011	-0.003509	-0.0035011	-0.0034803
Ti	334.941	0.00037	**********	0.00034923	0.0003414	0.00034923	0.00037
Y	371.03	0.00093	**********	0.00090923	0.0009014	0.00090923	0.00093
Mg	383.826	57.874	57.874	**********	**********	57.874	57.874
Ca	393.366	74.435	74.435	**********	**********	74.435	74.435
Al	396.152	98.108	**********	**********	98.1078295	98.1078295	98.1078475
Sr	421.552	0.0034	0.0034	**********	**********	0.0034	0.0034
Zn	481.053	100.96	100.96	**********	**********	100.96	100.96
Ba	493.409	0.00048	0.00048	**********	**********	0.00048	0.00048
Na	588.995	98.514	98.514	**********	**********	98.514	98.514
Li	670.784	0.00168	0.00168	**********	**********	0.00168	0.00168
K	766.49	97.844	97.844	**********	**********	97.844	97.844
K	769.896	103.34	103.34	**********	**********	103.34	103.34

466874

TO

GLEN REYOME
TOWN HALL
111 N. BROAD ST

GRIFFITH, IN 46319

FROM

INDIANA STATE BOARD OF HEALTH
1330 WEST MICHIGAN STREET
INDIANAPOLIS, IN 46206

RONALD A. WEISS
DIVISION OF WATER POLLUTION CONTROL

SUBJECT GROUNDWATER SURVEY - GRIFFITH, IN

MESSAGE

Enclosed are the results of the laboratory analyses of the groundwater samples collected August 11-12, 1981 in Griffith and outlying areas of Lake County.

Thanks you Glen, and Glen Slaney, for your assistance and hospitality, without which I'd still be lost, for some of those well locations in Griffith.

SIGNED

DATE Dec 29, 1981

REPLY

If you have any questions regarding these analyses, feel free to call me at 317/633-0745

Sincerely,

Ron Weiss

FOLLOW-UP DATE	REMOVE PART 2 AND FORWARD PARTS 1 AND 3. PART 3 WILL BE RETURNED WITH REPLY.	SIGNED	DATE

081 A W22-SS-3 State Form No. 1352

SPEEDIPLY® MCP® MLT 28 U.T.

LAKE COUNTY GROUNDWATER SURVEY RESULTS

WELL (River collector) / CONFINED FEEDING		Turbidity	pH (11)	CaCO3 H.	MO	Fe	Mn	Ca	Mg	Na	K	Cl	SO4	PO4	Ba	Cd	Cr (tot)	Pb	TCC	✓ Nitrate	COD
AMON MATHIS FARM	#1	7	7.3	229	123	1.8	.22	64	17	10	.8	15	93	.15					2.6	.2	<5
BITCHETT	#2	.1	7.7	164	76	<.05	.04	46	12	3	3.5	13	52	.09					2	4.2	<5
AGO	#3	.7	7.3	204	140	.47	.29	54	17	4	1.2	6	60	<.09					6.4	1.2	18
UNN	#4	2	7.5	126	72	1	.06	38	8	2	.2	8	53	.15					1.5	<.1	<5
SEVEAR - HOUSE	#5	5	7.2	344	188	1.1	.84	93	27	3	2.6	14	130	.09					4.3	2.7	10
SEVEAR - TENANT	#6	1	7.1	400	276	.2	.29	114	28	11	30	28	77	<.09					4.7	✓ 19	10
SEVEAR - BARN	#7	.5	7.0	560	302	.15	.80	166	39	7	20	32	180	<.09					7.5	✓ 25	17
RER SOD CO. - MIGRANT	#8	9	6.8	468	348	2.2	.96	118	42	30	38	59	150	<.09					10.7	.8	22
RER SOD CO. - HOME	#9	25	6.8	406	344	5.5	1.0	124	38	30	42	59	150	<.09					10.9	.9	25
RRY HAYDEN	#10	20	7.1	516	376	2.4	.05	121	52	8	1.6	9	140	<.09					1.2	<.1	<5
SHERMAN	#11	1	7.1	586	386	.31	.18	128	65	26	2.1	44	200	<.09					1.2	.5	<5
ANSON HOME	#12	40	7.1	516	378	5.4	.06	106	61	12	1.9	<5	150	<.09					2.9	<.1	<5
ETHERY HOME	#13	2	7.7	8	372	.35	<.02	<2	<.2	180	.2	<5	75	<.09					1.7	<.1	<5
Y CREEKMUR	#14	30	7.2	412	352	3.8	.04	83	50	14	1.7	7	86	<.09					2.9	<.1	<5

LAKE COUNTY GROUNDWATER SURVEY RESULTS

WELL S NEAR DUMP SITES		Turbidity	pH	CaCO3 H.	MO	Fe	Mn	Ca	Mg	Na	K	Cl	SO4	PO4	Ba	Cd	Cr (tot)	Pb	TCC	N (nitrate)	COD
EWELL ROGERS	#15	0.6	7.8	200	200	.77	.03	50	18	7	.7	<5	18	<.09	.050	<.002	.010	<.010	2		<5
ALESBURY ENG	#16	10	7.6	322	334	1.4	.02	74	34	19	2.3	<5	34	.15	.260	<.002	<.010	<.010	2.2		<5
MERICAN CHEMICAL	#17	.5	7.6	312	396	.14	<.02	59	40	63	5.7	5	60	<.09	.080	<.002	<.010	.010	1.0		<5
ERICAN CHEMICAL	#18	35	7.3	306	396	3.3	.03	58	39	65	6.8	<5	62	<.09	.110	<.002	.010	<.010	1.0		<5
LVESTER REDER	#19	30	7.3	398	312	3.7	.09	94	40	16	1.8	21	100	<.09	.150	<.002	.010	.020	1.5		<5
m EVANS	#20	20	7.3	474	388	2.6	.02	96	57	22	2.9	<5	130	<.09	.170	<.002	.010	<.010	1.0		<5
02 EDISON AVE	#21	25	7.3	790	456	3.3	.05	146	104	45	3.9	51	350	<.09	.070	<.002	.030	.010	1.2		<5
WARD LONG	#22	25	7.3	628	464	3.2	.03	122	79	26	3.1	<5	210	<.09	.070	<.002	.010	.010	1.5		<5
LEN SLANEY	#23	5	7.6	224	252	.92	<.02	50	24	14	1.7	<5	5	<.09	.200	<.002	<.010	<.010	1.4		<5
OSE HOME	#24	30	7.3	668	460	4.8	.03	123	87	37	3.9	<5	280	<.09	.050	<.002	.010	<.010	2.2		<5
ANK ROZICK	#25	8	7.6	240	168	1.1	.02	53	26	7	1.4	7	77	<.09	.040	<.002	.010	<.010	1.8		<5
JOHN PRICE	#26	6	7.7	236	120	.84	.08	54	24	12	.9	17	120	.15	.090	<.002	.010	<.010	1.9		<5
OUGLAS WALDRON	#27	8	7.7	204	224	1.1	<.02	51	18	12	1.2	<5	<5	.2	.130	<.002	.010	<.010	2.2		<5
ITIZEN'S TV	#28	5	7.8	220	316	1.0	<.02	49	26	37	2.5	<5	<5	.2	.190	<.002	.010	<.010	<1.0		<5
VIN HOME	#29	2	7.8	156	168	.64	.02	38	15	6	.9	<5	5	.15	.090	<.002	.010	<.010	<1.0		<5
RNEST VAN BYSSUM	#30	10	7.6	228	244	2.9	.04	62	18	11	1.0	<5	<5	.2	.090	<.002	.030	<.010	3.1		<5
AYWORTH HOME	#31	10	7.4	300	328	2.1	.02	75	27	13	1.4	<5	12	0.5	.150	<.002	.010	<.010	4.0		<5
RTHUR HEGEDUS	#32	20	7.4	500	392	3.5	.03	96	63	26	3.5	<5	200	<.09	.140	<.002	.010	<.010	2.4		24

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Dental		EPA	
Other			

INDIANA STATE BOARD OF HEALTH

Water & Sewage Laboratory Division
1330 West Michigan Street
INDIANAPOLIS, INDIANA 46206

Chemical Examination of Water

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Lab. No. C- H 991

Date Rec. AUG 13 1981

Date Rep. ~~OCT 21 1981~~

FILL IN THIS SPACE. USE SOFT PENCIL. Indiana State Board of Health is to mail report to	Also, mail copy of report to
(Name)	(Name)
(Street)	(Street)
INDIANA	INDIANA
(City or Town)	(City or Town)

Name of Utility or Organization Arthur Hegedus residence Supt.

City or Town 1009 S. Wood St GRIFFITH

Collected by: R. Weiss Date Collected 8/12/81 Hour pm

Where was sample collected? Tap on side of house Bottle No. 32

Name unusual conditions

FIELD INFORMATION		LABORATORY EXAMINATION					
Indicate all treatment this sample has received.	Check		Check	Do not Check mg/l		Check	Do not Check mg/l
No Treatment	✓	Odor			Arsenic as As		
Chlorination		Color			Barium as BA	✓	0.140
Plain sedimentation		Turbidity	✓	20.	Cadmium as Cd	✓	<0.002
Aerated and settled		pH	✓	7.4	Chromium (Total)	✓	0.010
Potassium Permanganate					Lead as Pb	✓	<0.010
Coagulant Aid		Hardness as CaCO3	✓	500	Mercury as Hg		
Prechlorinated		MO Alk. as CaCO3	✓	392	Selenium as Se		
Filtered		PP Alk. as CaCO3			Silver as Ag		
Postchlorinated					TOC	✓	2.4
Zeolite softened		Iron as Fe	✓	3.5	Fluorides (direct) as F		
Lime-soda softened		Manganese as Mn	✓	0.03	Nitrates as N		
Coagulated and settled					COD	✓	24.
Phosphate treatment		Calcium as Ca	✓	96	Organics		
Fluoride treatment		Magnesium as Mg	✓	63	Endrin		
		Sodium as Na	✓	26	Lindane		
		Potassium as K	✓	3.5	Methoxychlor		
					Toxaphene		
		Chlorides as Cl	✓	<5	2.4-D		
FIELD EXAMINATION		Sulphates as SO4	✓	200	2.4.5-TP		
pH		Phosphates as PO4	✓	<0.09			
[illegible] mg/l					Radionuclides		pCi/l
Iron mg/l		Alum as Al			Gross Alpha		
		Sp. Cond. µmhos/cm			Gross Beta		

REMARKS:

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Other			

INDIANA STATE BOARD OF HEALTH

Water & Sewage Laboratory Division
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INDIANAPOLIS, INDIANA 46206

Chemical Examination of Water

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Lab. No. C- 14990

Date Rec. AUG 13 1981

Date Rep. OCT 21 1981

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INDIANA

(City or Town)

Name of Utility or Organization Hayworth Residence Supt.

City or Town 4819 Wright Street GRIFFITH

Collected by: R Weiss Date Collected 8/12/81 Hour pm

Where was sample collected? tap on side of house Bottle No. 31

Name unusual conditions

FIELD INFORMATION		LABORATORY EXAMINATION					
Indicate all treatment this sample has received.	Check		Check	Do not Check mg/l		Check	Do not Check mg/l
No Treatment	✓	Odor			Arsenic as As		
Chlorination		Color			Barium as BA	✓	0.150
Plain sedimentation		Turbidity	✓	10.	Cadmium as Cd	✓	<0.002
Aerated and settled		pH	✓	7.4	Chromium (Total)	✓	0.010
Potassium Permanganate					Lead as Pb	✓	<0.010
Coagulant Aid		Hardness as CaCO3	✓	300	Mercury as Hg		
Prechlorinated		MO Alk. as CaCO3	✓	328	Selenium as Se		
Filtered		PP Alk. as CaCO3			Silver as Ag		
Postchlorinated					TOC	✓	4.0
Zeolite softened		Iron as Fe	✓	2.1	Fluorides (direct) as F		
Lime-soda softened		Manganese as Mn	✓	0.02	Nitrates as N		
Coagulated and settled					COD	✓	<5.
Phosphate treatment		Calcium as Ca	✓	75	Organics		
Fluoride treatment		Magnesium as Mg	✓	27	Endrin		
		Sodium as Na	✓	13.	Lindane		
		Potassium as K	✓	1.4	Methoxychlor		
					Toxaphene		
		Chlorides as Cl	✓	<5	2.4-D		
FIELD EXAMINATION		Sulphates as SO4	✓	12	2.4,5-TP		
pH		Phosphates as PO4	✓	0.5			
CO2 mg/l					Radionuclides		pCi/l
Iron mg/l		Alum as Al			Gross Alpha		
		Sp. Cond. µmhos/cm			Gross Beta		

REMARKS:

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Other			

INDIANA STATE BOARD OF HEALTH

Water & Sewage Laboratory Division
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INDIANAPOLIS, INDIANA 46206

Chemical Examination of Water

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Lab. No. C-14 989

Date Rec. AUG 13 1981

Date Rep. OCT 21 1981

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(Street)

INDIANA

(City or Town)

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(Name)

(Street)

INDIANA

(City or Town)

Name of Utility or Organization Ernesto Van Byssum Supt.

City or Town 1818 E. Elm St., GRIFFITH

Collected by: R. Weiss Date Collected 8/12/81 Hour pm

Where was sample collected? ~~on~~ tap outside house Bottle No. 30

Name unusual conditions

FIELD INFORMATION

Indicate all treatment this sample has received.

	Check
No Treatment	✓
Chlorination	
Plain sedimentation	
Aerated and settled	
Potassium Permanganate	
Coagulant Aid	
Prechlorinated	
Filtered	
Postchlorinated	
Zeolite softened	
Lime-soda softened	
Coagulated and settled	
Phosphate treatment	
Fluoride treatment	
FIELD EXAMINATION	
pH	
CO_2 mg/l	
Iron mg/l	

LABORATORY EXAMINATION

	Check	Do not Check mg/l		Check	Do not Check mg/l
Odor			Arsenic as As		
Color			Barium as BA	✓	0.030
Turbidity	✓	10	Cadmium as Cd	✓	<0.002
pH	✓	7.6	Chromium (Total)	✓	0.020
			Lead as Pb	✓	<0.010
Hardness as $CaCO_3$	✓	228	Mercury as Hg		
MO Alk. as $CaCO_3$	✓	244	Selenium as Se		
PP Alk. as $CaCO_3$			Silver as Ag		
			TDC	✓	3.1
Iron as Fe	✓	2.9	Fluorides (direct) as F		
Manganese as Mn	✓	0.04	Nitrates as N		
			COD	✓	<5
Calcium as Ca	✓	62	Organics		
Magnesium as Mg	✓	18	Endrin		
Sodium as Na	✓	11	Lindane		
Potassium as K	✓	1.0	Methoxychlor		
			Toxaphene		
Chlorides as Cl	✓	<5	2.4-D		
Sulphates as SO_4	✓	<5	2.4.5-TP		
Phosphates as PO_4	✓	0.2			
			Radionuclides		pCi/l
Alum as Al			Gross Alpha		
Sp. Cond. µmhos/cm			Gross Beta		

REMARKS:

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Branch		Eng. Div.	✓
Dental		EPA	
Other			

INDIANA STATE BOARD OF HEALTH

Water & Sewage Laboratory Division
1330 West Michigan Street
INDIANAPOLIS, INDIANA 46206

Chemical Examination of Water

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Lab. No. C-H 958

Date Rec. AUG 13 1981

Date Rep. ~~OCT 21 1981~~

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(Name)	(Name)
(Street)	(Street)
INDIANA	INDIANA
(City or Town)	(City or Town)

Name of Utility or Organization Lovin Residence Supt.

City or Town 617 E. Ash St. GRIFFITH

Collected by: R. Weiss Date Collected 8/12/81 Hour pm

Where was sample collected? at tap on house Bottle No. 29

Name unusual conditions

FIELD INFORMATION		LABORATORY EXAMINATION					
Indicate all treatment this sample has received.	Check		Check	Do not Check mg/l		Check	Do not Check mg/l
No Treatment	✓	Odor			Arsenic as As		
Chlorination		Color			Barium as BA	✓	0.090
Plain sedimentation		Turbidity	✓	2	Cadmium as Cd	✓	<0.002
Aerated and settled		pH	✓	7.8	Chromium (Total)	✓	0.010
Potassium Permanganate					Lead as Pb	✓	<0.010
Coagulant Aid		Hardness as CaCO3	✓	156	Mercury as Hg		
Prechlorinated		MO Alk. as CaCO3	✓	168	Selenium as Se		
Filtered		PP Alk. as CaCO3			Silver as Ag		
Postchlorinated					TOC	✓	<1.0
Zeolite softened		Iron as Fe	✓	0.64	Fluorides (direct) as F		
Lime-soda softened		Manganese as Mn	✓	0.02	Nitrates as N		
Coagulated and settled					COD	✓	<5
Phosphate treatment		Calcium as Ca	✓	33	Organics		
Fluoride treatment		Magnesium as Mg	✓	15	Endrin		
		Sodium as Na	✓	6	Lindane		
		Potassium as K	✓	0.9	Methoxychlor		
					Toxaphene		
		Chlorides as Cl	✓	<5	2.4-D		
FIELD EXAMINATION		Sulphates as SO4	✓	5	2.4,5-TP		
pH		Phosphates as PO4	✓	0.15			
CO2 mg/l					Radionuclides		pCi/l
Iron mg/l		Alum as Al			Gross Alpha		
		Sp. Cond. µmhos/cm			Gross Beta		

REMARKS:

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Check Space			
Branch		Eng. Div.	✓
Dental		EPA	
Other			

INDIANA STATE BOARD OF HEALTH

Water & Sewage Laboratory Division
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Chemical Examination of Water

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Lab. No. C.-H 987

Date Rec. AUG 13 1981

Date Rep.

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(City or Town)

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(City or Town)

Name of Utility or Organization Citizens TV Supt.

City or Town 827 Glen Park Ave GRIFFITH

Collected by: R. Weiss Date Collected 8/12/81 Hour p.m.

Where was sample collected? at tap on back of building Bottle No. 28

Name unusual conditions

FIELD INFORMATION		LABORATORY EXAMINATION					
Indicate all treatment this sample has received.	Check		Check	Do not Check mg/l		Check	Do not Check mg/l
No Treatment	✓	Odor			Arsenic as As		
Chlorination		Color			Barium as BA	✓	0.190
Plain sedimentation		Turbidity	✓	5	Cadmium as Cd	✓	<0.002
Aerated and settled		pH	✓	7.8	Chromium (Total)	✓	0.010
Potassium Permanganate					Lead as Pb	✓	<0.010
Coagulant Aid		Hardness as CaCO3	✓	228	Mercury as Hg		
Prechlorinated		MO Alk. as CaCO3	✓	316	Selenium as Se		
Filtered		PP Alk. as CaCO3			Silver as Ag		
Postchlorinated					TOC	✓	<1.0
Zeolite softened		Iron as Fe	✓	1.0	Fluorides (direct) as F		
Lime-soda softened		Manganese as Mn	✓	<0.02	Nitrates as N		
Coagulated and settled					COD	✓	<5
Phosphate treatment		Calcium as Ca	✓	49	Organics		
Fluoride treatment		Magnesium as Mg	✓	26	Endrin		
		Sodium as Na	✓	37	Lindane		
		Potassium as K	✓	2.5	Methoxychlor		
					Toxaphene		
		Chlorides as Cl	✓	<5	2.4-D		
FIELD EXAMINATION		Sulphates as SO4	✓	<5	2.4,5-TP		
pH		Phosphates as PO4	✓	0.2			
CO2 mg/l					Radionuclides		pCi/l
Iron mg/l		Alum as Al			Gross Alpha		
		Sp. Cond. µmhos/cm			Gross Beta		

REMARKS:

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Branch		Eng. Div.	✓
Dental		EPA	
Other			

INDIANA STATE BOARD OF HEALTH

Water & Sewage Laboratory Division
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INDIANAPOLIS, INDIANA 46206

Chemical Examination of Water

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Lab. No. C- it 986

Date Rec. AUG 13 1981

Date Rep. OCT 21 1981

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(Street)	(Street)
INDIANA	INDIANA
(City or Town)	(City or Town)

Name of Utility or Organization Douglas Waldron Home Supt.

City or Town 540 N. Clive Ave Gulfield

Collected by: R. Weiss Date Collected 8/12/81 Hour pm

Where was sample collected? at tap on silicf house Bottle No. 27

Name unusual conditions

FIELD INFORMATION		LABORATORY EXAMINATION					
Indicate all treatment this sample has received.	Check		Check	Do not Check mg/l		Check	Do not Check mg/l
No Treatment	✓	Odor			Arsenic as As		
Chlorination		Color			Barium as BA	✓	0.130
Plain sedimentation		Turbidity	✓	8	Cadmium as Cd	✓	<0.002
Aerated and settled		pH	✓	7.7	Chromium (Total)	✓	0.010
Potassium Permanganate					Lead as Pb	✓	<0.010
Coagulant Aid		Hardness as CaCO3	✓	204	Mercury as Hg		
Prechlorinated		MO Alk. as CaCO3	✓	224	Selenium as Se		
Filtered		PP Alk. as CaCO3			Silver as Ag		
Postchlorinated					TOC	✓	2.2
Zeolite softened		Iron as Fe	✓	1.1	Fluorides (direct) as F		
Lime-soda softened		Manganese as Mn	✓	<0.02	Nitrates as N		
Coagulated and settled					COD	✓	<5
Phosphate treatment		Calcium as Ca	✓	51	Organics		
Fluoride treatment		Magnesium as Mg	✓	18	Endrin		
		Sodium as Na	✓	12	Lindane		
		Potassium as K	✓	1.2	Methoxychlor		
					Toxaphene		
		Chlorides as Cl	✓	<5	2.4-D		
FIELD EXAMINATION		Sulphates as SO4	✓	<5	2.4.5-TP		
pH		Phosphates as PO4	✓	0.2			
CO2 mg/l					Radionuclides		pCi/l
Iron mg/l		Alum as Al			Gross Alpha		
		Sp. Cond. μmhos/cm			Gross Beta		

REMARKS:

State Form 4626

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Branch		Eng. Div.	✓
Dental		EPA	
Other			

INDIANA STATE BOARD OF HEALTH

Water & Sewage Laboratory Division
1330 West Michigan Street
INDIANAPOLIS, INDIANA 46206

Chemical Examination of Water

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Lab. No. C.- H 985

Date Rec. AUG 13 1981

Date Rep. OCT 21 1981

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(Street)

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(City or Town)

Name of Utility or Organization John Price Residence Supt.

City or Town 1105 S. Cline Ave GRIFFITH

Collected by: R. Weiss Date Collected 8/12/81 Hour pm

Where was sample collected? Faucet in kitchen Bottle No. 26

Name unusual conditions

FIELD INFORMATION		LABORATORY EXAMINATION					
Indicate all treatment this sample has received.	Check		Check	Do not Check mg/l		Check	Do not Check mg/l
No Treatment	✓	Odor			Arsenic as As		
Chlorination		Color			Barium as BA	✓	0.090
Plain sedimentation		Turbidity	✓	6	Cadmium as Cd	✓	<0.002
Aerated and settled		pH	✓	7.7	Chromium (Total)	✓	0.010
Potassium Permanganate					Lead as Pb	✓	<0.010
Coagulant Aid		Hardness as CaCO3	✓	236	Mercury as Hg		
Prechlorinated		MO Alk. as CaCO3	✓	120	Selenium as Se		
Filtered		PP Alk. as CaCO3			Silver as Ag		
Postchlorinated					TOC	✓	1.9
Zeolite softened		Iron as Fe	✓	0.84	Fluorides (direct) as F		
Lime-soda softened		Manganese as Mn	✓	0.08	Nitrates as N		
Coagulated and settled					COD	✓	<5
Phosphate treatment		Calcium as Ca	✓	54	Organics		
Fluoride treatment		Magnesium as Mg	✓	24	Endrin		
		Sodium as Na	✓	12	Lindane		
		Potassium as K	✓	0.9	Methoxychlor		
					Toxaphene		
		Chlorides as Cl	✓	17	2.4-D		
[illegible] EXAMINATION		Sulphates as SO4	✓	120	2.4.5-TP		
[illegible]		Phosphates as PO4	✓	0.15			
[illegible] mg/l					Radionuclides		pCi/l
Iron mg/l		Alum as Al			Gross Alpha		
		Sp. Cond. µmhos/cm			Gross Beta		

REMARKS

State Form 4626

Check Space			
Branch		Eng. Div.	✓
Dental		EPA	
Other			

INDIANA STATE BOARD OF HEALTH

Water & Sewage Laboratory Division
1330 West Michigan Street
INDIANAPOLIS, INDIANA 46206

Chemical Examination of Water

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Lab. No. C- 14 984

Date Rec. AUG 13 1981

Date Rep. OCT 21 1981

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(Name)	(Name)
(Street)	(Street)
INDIANA	INDIANA
(City or Town)	(City or Town)

Name of Utility or Organization FRANK ROZICK RESIDENCE Supt.

City or Town 1201 S. CLINE, GRIFFITH

Collected by: R Weiss Date Collected 8/12/81 Hour pm

Where was sample collected? At tap on house Bottle No. 25

Name unusual conditions

FIELD INFORMATION		LABORATORY EXAMINATION					
Indicate all treatment this sample has received.	Check		Check	Do not Check mg/l		Check	Do not Check mg/l
No Treatment	✓	Odor			Arsenic as As		
Chlorination		Color			Barium as BA	✓	0.040
Plain sedimentation		Turbidity	✓	8	Cadmium as Cd	✓	<0.002
Aerated and settled		pH	✓	7.6	Chromium (Total)	✓	0.010
Potassium Permanganate					Lead as Pb	✓	<0.010
Coagulant Aid		Hardness as CaCO3	✓	240	Mercury as Hg		
Prechlorinated		MO Alk. as CaCO3	✓	168	Selenium as Se		
Filtered		PP Alk. as CaCO3			Silver as Ag		
Postchlorinated					TOC	✓	1.5
Zeolite softened		Iron as Fe	✓	1.1	Fluorides (direct) as F		
Lime-soda softened		Manganese as Mn	✓	0.02	Nitrates as N		
Coagulated and settled					COD	✓	< 5
Phosphate treatment		Calcium as Ca	✓	53	Organics		
Fluoride treatment		Magnesium as Mg	✓	20	Endrin		
		Sodium as Na	✓	7	Lindane		
		Potassium as K	✓	1.4	Methoxychlor		
					Toxaphene		
		Chlorides as Cl	✓	7	2.4-D		
FIELD EXAMINATION		Sulphates as SO4	✓	77	2.4.5-TP		
pH		Phosphates as PO4	✓	<0.09			
CO2 mg/l					Radionuclides		pCi/l
Iron mg/l		Alum as Al			Gross Alpha		
		Sp. Cond. µmhos/cm			Gross Beta		

REMARKS:

Check Space			
Branch		Eng. Div.	✓
Dental		EPA	
Other			

INDIANA STATE BOARD OF HEALTH
Water & Sewage Laboratory Division
1330 West Michigan Street
INDIANAPOLIS, INDIANA 46206

Chemical Examination of Water

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Lab. No. C- 14 983
Date Rec. AUG 13 1981
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(Street)
INDIANA
(City or Town)

Name of Utility or Organization GOSE RESIDENCE Supt.
City or Town 1106 S. BROAD ST GRIFFITH
Collected by: R. Weiss Date Collected 8/12/81 Hour pm
Where was sample collected? at faucet in house Bottle No. 24
Name unusual conditions

FIELD INFORMATION

Indicate all treatment this sample has received.	Check
No Treatment	✓
Chlorination	
Plain sedimentation	
Aerated and settled	
Potassium Permanganate	
Coagulant Aid	
Prechlorinated	
Filtered	
Postchlorinated	
Zeolite softened	
Lime-soda softened	
Coagulated and settled	
Phosphate treatment	
Fluoride treatment	
FIELD EXAMINATION	
CO_2 mg/l	
Iron mg/l	

LABORATORY EXAMINATION

	Check	Do not Check mg/l		Check	Do not Check mg/l
Odor			Arsenic as As		
Color			Barium as BA	✓	0.050
Turbidity	✓	30.	Cadmium as Cd	✓	<0.002
pH	✓	7.3	Chromium (Total)	✓	0.010
			Lead as Pb	✓	<0.010
Hardness as $CaCO_3$	✓	668	Mercury as Hg		
MO Alk. as $CaCO_3$	✓	460	Selenium as Se		
PP Alk. as $CaCO_3$			Silver as Ag		
			TOC	✓	2.2
Iron as Fe	✓	4.3	Fluorides (direct) as F		
Manganese as Mn	✓	0.03	Nitrates as N		
			COD	✓	<5
Calcium as Ca	✓	123	Organics		
Magnesium as Mg	✓	37	Endrin		
Sodium as Na	✓	37	Lindane		
Potassium as K	✓	3.9	Methoxychlor		
			Toxaphene		
Chlorides as Cl	✓	<5	2.4-D		
Sulphates as SO_4	✓	250	2.4.5-TP		
Phosphates as PO_4	✓	<0.07			
			Radionuclides		pCi/l
Alum as Al			Gross Alpha		
Sp. Cond. μmhos/cm			Gross Beta		

REMARKS

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Check Space			
Branch		Eng. Div.	✓
Dental		EPA	
Other			

INDIANA STATE BOARD OF HEALTH

Water & Sewage Laboratory Division
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Chemical Examination of Water

Do not write in this space

Lab. No. C- H 982

Date Rec. AUG 13 1981

Date Rep. OCT 21 1981

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(Name)	(Name)
(Street)	(Street)
INDIANA	INDIANA
(City or Town)	(City or Town)

Name of Utility or Organization: GLEN SLANEY Supt.

City or Town: GRIFFITH - ACROSS FROM H. School

Collected by: R. Weiss Date Collected 8/12/81 Hour noon

Where was sample collected? at well tap in back yard Bottle No. 23

Name unusual conditions: Well used for watering lawn

FIELD INFORMATION

Indicate all treatment this sample has received.	Check
No Treatment	✓
Chlorination	
Plain sedimentation	
Aerated and settled	
Potassium Permanganate	
Coagulant Aid	
Prechlorinated	
Filtered	
Postchlorinated	
Zeolite softened	
Lime-soda softened	
Coagulated and settled	
Phosphate treatment	
Fluoride treatment	
FIELD EXAMINATION	
H	
CO_2 mg/l	
Iron mg/l	

LABORATORY EXAMINATION

	Check	Do not Check mg/l		Check	Do not Check mg/l
Odor			Arsenic as As		
Color			Barium as BA	✓	0.200
Turbidity	✓	5	Cadmium as Cd	✓	<0.002
pH	✓	7.6	Chromium (Total)	✓	<0.010
			Lead as Pb	✓	<0.010
Hardness as $CaCO_3$	✓	224	Mercury as Hg		
MO Alk. as $CaCO_3$	✓	252	Selenium as Se		
PP Alk. as $CaCO_3$			Silver as Ag		
			TOC	✓	1.4
Iron as Fe	✓	0.92	Fluorides (direct) as F		
Manganese as Mn	✓	<0.02	Nitrates as N		
			COD	✓	<5
Calcium as Ca	✓	50	Organics		
Magnesium as Mg	✓	24	Endrin		
Sodium as Na	✓	14	Lindane		
Potassium as K	✓	1.7	Methoxychlor		
			Toxaphene		
Chlorides as Cl	✓	<5	2,4-D		
Sulphates as SO_4	✓	5	2,4,5-TP		
Phosphates as PO_4	✓	<0.09			
			Radionuclides		pCi/l
Alum as Al			Gross Alpha		
Sp. Cond. µmhos/cm			Gross Beta		

REMARKS

State Form 4626

Check Space			
Branch		Eng. Div.	✓
Dental		EPA	
Other			

INDIANA STATE BOARD OF HEALTH

Water & Sewage Laboratory Division
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Chemical Examination of Water

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Lab. No. C- H 981

Date Rec. AUG 13 1981

Date Rep. [illegible]

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(Name)

(Street)

INDIANA

(City or Town)

Also, mail copy of report to

(Name)

(Street)

INDIANA

(City or Town)

Name of Utility or Organization Howard Long Residence Supt.

City or Town 1921 S. Colfax St. Griffith

Collected by: R Weiss Date Collected 8/12/81 Hour am

Where was sample collected? at faucet in kitchen Bottle No. 22

Name unusual conditions

FIELD INFORMATION		LABORATORY EXAMINATION					
Indicate all treatment this sample has received.	Check		Check	Do not Check mg/l		Check	Do not Check mg/l
No Treatment	✓	Odor			Arsenic as As		
Chlorination		Color			Barium as BA	✓	0.070
Plain sedimentation		Turbidity	✓	25.	Cadmium as Cd	✓	<0.002
Aerated and settled		pH	✓	7.3	Chromium (Total)	✓	0.010
Potassium Permanganate					Lead as Pb	✓	0.010
Coagulant Aid		Hardness as CaCO3	✓	628	Mercury as Hg		
Prechlorinated		MO Alk. as CaCO3	✓	464	Selenium as Se		
Filtered		PP Alk. as CaCO3			Silver as Ag		
Postchlorinated					TOC	✓	1.5
Zeolite softened		Iron as Fe	✓	3.2	Fluorides (direct) as F		
Lime-soda softened		Manganese as Mn	✓	0.03	Nitrates as N		
Coagulated and settled					COD	✓	<5
Phosphate treatment		Calcium as Ca	✓	122	Organics		
Fluoride treatment		Magnesium as Mg	✓	79	Endrin		
		Sodium as Na	✓	26.	Lindane		
		Potassium as K	✓	3.1	Methoxychlor		
					Toxaphene		
		Chlorides as Cl	✓	<5	2.4-D		
FIELD EXAMINATION		Sulphates as SO4	✓	210	2.4.5-TP		
pH		Phosphates as PO4	✓	<0.09			
CO2 mg/l					Radionuclides		pCi/l
Iron mg/l		Alum as Al			Gross Alpha		
		Sp. Cond. μmhos/cm			Gross Beta		

REMARKS:

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Branch		Eng. Div.	✓
Dental		EPA	
Other			

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Lab. No. C- H 980

Date Rec. AUG 13 1981

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(Name)	(Name)
(Street)	(Street)
INDIANA	INDIANA
(City or Town)	(City or Town)

Name of Utility or Organization Home at 1902 Edison Ave Supt.

City or Town outside GRIFFITH CITY LIMITS

Collected by: R Weiss Date Collected 8/12/81 Hour am

Where was sample collected? at tap outside on house Bottle No. 21

Name unusual conditions well west of Griffith landfill

FIELD INFORMATION		LABORATORY EXAMINATION					
Indicate all treatment this sample has received.	Check		Check	Do not Check mg/l		Check	Do not Check mg/l
No Treatment	✓	Odor			Arsenic as As		
Chlorination		Color			Barium as BA	✓	0.070
Plain sedimentation		Turbidity	✓	25	Cadmium as Cd	✓	<0.002
Aerated and settled		pH	✓	7.3	Chromium (Total)	✓	0.030
Potassium Permanganate					Lead as Pb	✓	0.010
Coagulant Aid		Hardness as CaCO3	✓	790	Mercury as Hg		
Prechlorinated		MO Alk. as CaCO3	✓	456	Selenium as Se		
Filtered		PP Alk. as CaCO3			Silver as Ag		
Postchlorinated					TOC	✓	1.2
Zeolite softened		Iron as Fe	✓	3.3	Fluorides (direct) as F		
Lime-soda softened		Manganese as Mn	✓	0.05	Nitrates as N		
Coagulated and settled					COD	✓	<5
Phosphate treatment		Calcium as Ca	✓	146	Organics		
Fluoride treatment		Magnesium as Mg	✓	104	Endrin		
		Sodium as Na	✓	45	Lindane		
		Potassium as K	✓	3.9	Methoxychlor		
					Toxaphene		
		Chlorides as Cl	✓	51.	2.4-D		
FIELD EXAMINATION		Sulphates as SO4	✓	350.	2.4,5-TP		
pH		Phosphates as PO4	✓	<0.09			
CO2 mg/l					Radionuclides		pCi/l
Iron mg/l		Alum as Al			Gross Alpha		
		Sp. Cond. µmhos/cm			Gross Beta		

REMARKS:

State Form 4626

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Branch		Eng. Div.	✓
Dental		EPA	
Other			

INDIANA STATE BOARD OF HEALTH

Water & Sewage Laboratory Division
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Chemical Examination of Water

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Lab. No. C- 14 979

Date Rec. AUG 13 1981

Date Rep. OCT 21 1981

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(Name)

(Street)

INDIANA

(City or Town)

Also, mail copy of report to

(Name)

(Street)

INDIANA

(City or Town)

Name of Utility or Organization Kim Evans residence Supt.

City or Town 1026 S. ABERGAST SO, GRIFFITH

Collected by: R. Weiss Date Collected 8/12/81 Hour am

Where was sample collected? at well serving residence - outside tap Bottle No. 20

Name unusual conditions located W. of Griffith landfill

FIELD INFORMATION

Indicate all treatment this sample has received.

	Check
No Treatment	✓
Chlorination	
Plain sedimentation	
Aerated and settled	
Potassium Permanganate	
Coagulant Aid	
Prechlorinated	
Filtered	
Postchlorinated	
Zeolite softened	
Lime-soda softened	
Coagulated and settled	
Phosphate treatment	
Fluoride treatment	

FIELD EXAMINATION

pH	
CO_2 mg/l	
Iron mg/l	

LABORATORY EXAMINATION

	Check	Do not Check mg/l		Check	Do not Check mg/l
Odor			Arsenic as As		
Color			Barium as BA	✓	0.170
Turbidity	✓	20.	Cadmium as Cd	✓	<0.002
pH	✓	7.3	Chromium (Total)	✓	0.010
			Lead as Pb	✓	<0.010
Hardness as $CaCO_3$	✓	474	Mercury as Hg		
MO Alk. as $CaCO_3$	✓	388	Selenium as Se		
PP Alk. as $CaCO_3$			Silver as Ag		
			TOC	✓	1.0
Iron as Fe	✓	2.6	Fluorides (direct) as F		
Manganese as Mn	✓	0.02	Nitrates as N		
			COD	✓	<5
Calcium as Ca	✓	96	Organics		
Magnesium as Mg	✓	57	Endrin		
Sodium as Na	✓	22.	Lindane		
Potassium as K	✓	2.9	Methoxychlor		
			Toxaphene		
Chlorides as Cl	✓	<5	2.4-D		
Sulphates as SO_4	✓	130	2.4,5-TP		
Phosphates as PO_4	✓	<0.09			
			Radionuclides		pCi/l
Alum as Al			Gross Alpha		
Sp. Cond. µmhos/cm			Gross Beta		

REMARKS

State Form 4626

Check Space			
Branch		Eng. Div.	✓
Dental		EPA	
Other			

INDIANA STATE BOARD OF HEALTH

Water & Sewage Laboratory Division
1330 West Michigan Street
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Chemical Examination of Water

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Lab. No. C- H 978

Date Rec. AUG 13 1981

Date Rep. OCT 21 1981

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(Name)

(Street)

INDIANA

(City or Town)

Name of Utility or Organization SYLVESTER REDER Supt.

City or Town ½ mile E of Griffith on County road P-3, GRIFFITH

Collected by: R. Weiss Date Collected 8/12/81 Hour am

Where was sample collected? Well at residence Bottle No. 19

Name unusual conditions

FIELD INFORMATION		LABORATORY EXAMINATION					
Indicate all treatment this sample has received.	Check		Check	Do not Check mg/l		Check	Do not Check mg/l
No Treatment	✓	Odor			Arsenic as As		
Chlorination		Color			Barium as BA	✓	0.150
Plain sedimentation		Turbidity	✓	30.	Cadmium as Cd	✓	<0.002
Aerated and settled		pH	✓	7.3	Chromium (Total)	✓	0.010
Potassium Permanganate					Lead as Pb	✓	0.020
Coagulant Aid		Hardness as CaCO3	✓	398	Mercury as Hg		
Prechlorinated		MO Alk. as CaCO3	✓	312	Selenium as Se		
Filtered		PP Alk. as CaCO3			Silver as Ag		
Postchlorinated					TOC	✓	1.5
Zeolite softened		Iron as Fe	✓	3.7	Fluorides (direct) as F		
Lime-soda softened		Manganese as Mn	✓	0.09	Nitrates as N		
Coagulated and settled					COD	✓	<5
Phosphate treatment		Calcium as Ca	✓	94	Organics		
Fluoride treatment		Magnesium as Mg	✓	40	Endrin		
		Sodium as Na	✓	16.	Lindane		
		Potassium as K	✓	1.8	Methoxychlor		
					Toxaphene		
		Chlorides as Cl	✓	21.	2.4-D		
[illegible] EXAMINATION		Sulphates as SO4	✓	100	2.4.5-TP		
[illegible]		Phosphates as PO4	✓	<0.05			
CO2 mg/l					Radionuclides		pCi/l
Iron mg/l		Alum as Al			Gross Alpha		
		Sp. Cond. μmhos/cm			Gross Beta		

REMARKS:

State Form 3626

Check Space			
Branch		Eng. Div.	✓
Dental		EPA	
Other			

INDIANA STATE BOARD OF HEALTH

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Chemical Examination of Water

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Lab. No. C-H 977

Date Rec. AUG 13 1981

Date Rep. OCT 21 1981

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(Name)

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INDIANA

(City or Town)

Also, mail copy of report to

(Name)

(Street)

INDIANA

(City or Town)

Name of Utility or Organization American Chemical Supt.

City or Town COLFAX So. GRIFFITH

Collected by: R. Weiss Date Collected 8/12/81 Hour am

Where was sample collected? Well for additive on 575 Plant Bottle No. 18

Name unusual conditions Near (South) of Griffith Landfill

FIELD INFORMATION		LABORATORY EXAMINATION					
Indicate all treatment this sample has received.	Check		Check	Do not Check mg/l		Check	Do not Check mg/l
No Treatment	✓	Odor			Arsenic as As		
Chlorination		Color			Barium as BA	✓	0.110
Plain sedimentation		Turbidity	✓	35.	Cadmium as Cd	✓	<0.002
Aerated and settled		pH	✓	7.3	Chromium (Total)	✓	0.010
Potassium Permanganate					Lead as Pb	✓	<0.010
Coagulant Aid		Hardness as CaCO3	✓	306	Mercury as Hg		
Prechlorinated		MO Alk. as CaCO3	✓	396	Selenium as Se		
Filtered		PP Alk. as CaCO3			Silver as Ag		
Postchlorinated					TOC	✓	1.0
Zeolite softened		Iron as Fe	✓	3.3	Fluorides (direct) as F		
Lime-soda softened		Manganese as Mn	✓	0.03	Nitrates as N		
Coagulated and settled					COD	✓	<5
Phosphate treatment		Calcium as Ca	✓	58	Organics		
Fluoride treatment		Magnesium as Mg	✓	39	Endrin		
		Sodium as Na	✓	65	Lindane		
		Potassium as K	✓	6.8	Methoxychlor		
					Toxaphene		
		Chlorides as Cl	✓	<5	2.4-D		
FIELD EXAMINATION		Sulphates as SO4	✓	62	2.4,5-TP		
pH		Phosphates as PO4	✓	<0.09			
Cl mg/l					Radionuclides		pCi/l
Iron mg/l		Alum as Al			Gross Alpha		
		Sp. Cond. μmhos/cm			Gross Beta		

REMARKS:

Check Space			
Branch		Eng. Div.	✓
Dental		EPA	
Other			

INDIANA STATE BOARD OF HEALTH

Water & Sewage Laboratory Division
1330 West Michigan Street
INDIANAPOLIS, INDIANA 46206

Chemical Examination of Water

Do not write in this space

Lab. No. C- H 976

Date Rec. AUG 13 1981

Date Rep. OCT 2 1 1981

FILL IN THIS SPACE. USE SOFT PENCIL.
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(Name)

(Street)

INDIANA

(City or Town)

Also, mail copy of report to

(Name)

(Street)

INDIANA

(City or Town)

Name of Utility or Organization: American Chemical Supt.

City or Town: COLFAX SQ. GRIFFITH

Collected by: R. Weiss Date Collected 8/12/81 Hour am

Where was sample collected? Well for boiler make up Bottle No. 17

Name unusual conditions: Near (S) of Griffith landfill

FIELD INFORMATION

Indicate all treatment this sample has received.

	Check
No Treatment	✓
Chlorination	
Plain sedimentation	
Aerated and settled	
Potassium Permanganate	
Coagulant Aid	
Prechlorinated	
Filtered	
Postchlorinated	
Zeolite softened	
Lime-soda softened	
Coagulated and settled	
Phosphate treatment	
Fluoride treatment	
FIELD EXAMINATION	
ClO2 mg/l	
Iron mg/l	

LABORATORY EXAMINATION

	Check	Do not Check mg/l		Check	Do not Check mg/l
Odor			Arsenic as As		
Color			Barium as BA	✓	0.080
Turbidity	✓	0.5	Cadmium as Cd	✓	<0.002
pH	✓	7.6	Chromium (Total)	✓	<0.010
			Lead as Pb	✓	0.010
Hardness as CaCO3	✓	312	Mercury as Hg		
MO Alk. as CaCO3	✓	396	Selenium as Se		
PP Alk. as CaCO3			Silver as Ag		
			TOC	✓	1.0
Iron as Fe	✓	0.14	Fluorides (direct) as F		
Manganese as Mn	✓	<0.02	Nitrates as N		
			COD	✓	<5
Calcium as Ca	✓	59	Organics		
Magnesium as Mg	✓	40	Endrin		
Sodium as Na	✓	63	Lindane		
Potassium as K	✓	5.7	Methoxychlor		
			Toxaphene		
Chlorides as Cl	✓	5	2.4-D		
Sulphates as SO4	✓	60.	2.4.5-TP		
Phosphates as PO4	✓	<0.09			
			Radionuclides		pCi/l
Alum as Al			Gross Alpha		
Sp. Cond. μmhos/cm			Gross Beta		

REMARKS

State Form 4626

Check Space			
Branch		Eng. Div.	✓
Dental		EPA	
Other			

INDIANA STATE BOARD OF HEALTH

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Chemical Examination of Water

Do not write in this space

Lab. No. C- H 975

Date Rec. AUG 13 1981

Date Rep. OCT 21 1981

FILL IN THIS SPACE. USE SOFT PENCIL. Indiana State Board of Health is to mail report to	Also, mail copy of report to
(Name)	(Name)
(Street)	(Street)
INDIANA	INDIANA
(City or Town)	(City or Town)

Name of Utility or Organization Salesbury Engineering Supt.

City or Town E. Main So. Griffith

Collected by: R. Weiss Date Collected 8/12/81 Hour am

Where was sample collected? tap on building Bottle No. 16

Name unusual conditions E of Griffith Landfill

FIELD INFORMATION		LABORATORY EXAMINATION					
Indicate all treatment this sample has received.	Check		Check	Do not Check mg/l		Check	Do not Check mg/l
No Treatment	✓	Odor			Arsenic as As		
Chlorination		Color			Barium as BA	✓	0.260
Plain sedimentation		Turbidity	✓	10.	Cadmium as Cd	✓	<0.002
Aerated and settled		pH	✓	7.6	Chromium (Total)	✓	<0.010
Potassium Permanganate					Lead as Pb	✓	<0.010
Coagulant Aid		Hardness as CaCO3	✓	322	Mercury as Hg		
Prechlorinated		MO Alk. as CaCO3	✓	334	Selenium as Se		
Filtered		PP Alk. as CaCO3			Silver as Ag		
Postchlorinated					TOC	✓	2.2
Zeolite softened		Iron as Fe	✓	1.4	Fluorides (direct) as F		
Lime-soda softened		Manganese as Mn	✓	0.02	Nitrates as N		
Coagulated and settled					COD	✓	<5
Phosphate treatment		Calcium as Ca	✓	74	Organics		
Fluoride treatment		Magnesium as Mg	✓	34	Endrin		
		Sodium as Na	✓	19.	Lindane		
		Potassium as K	✓	2.3	Methoxychlor		
					Toxaphene		
		Chlorides as Cl	✓	<5	2.4-D		
FIELD EXAMINATION		Sulphates as SO4	✓	34	2.4.5-TP		
[illegible]		Phosphates as PO4	✓	0.15			
[illegible]					Radionuclides		pCi/l
Iron mg/l		Alum as Al			Gross Alpha		
		Sp. Cond. µmhos/cm			Gross Beta		

REMARKS:

State Form 4626

Check Space			
Branch		Eng. Div.	✓
Dental		EPA	
Other			

INDIANA STATE BOARD OF HEALTH

Water & Sewage Laboratory Division
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Chemical Examination of Water

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Lab. No. C-11 974

Date Rec. AUG 13 1981

Date Rep. ~~OCT 21 1981~~

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(Name)	(Name)
(Street)	(Street)
INDIANA	INDIANA
(City or Town)	(City or Town)

Name of Utility or Organization Jewell Rogers home Supt.

City or Town 712 E. Elm. St. Griffith

Collected by: R Weiss Date Collected 8/12/81 Hour am

Where was sample collected? At house Bottle No. 15

Name unusual conditions

FIELD INFORMATION		LABORATORY EXAMINATION					
Indicate all treatment this sample has received.	Check		Check	Do not Check mg/l		Check	Do not Check mg/l
No Treatment	✓	Odor			Arsenic as As		
Chlorination		Color			Barium as BA	✓	0.050
Plain sedimentation		Turbidity	✓	0.6	Cadmium as Cd	✓	<0.002
Aerated and settled		pH	✓	7.8	Chromium (Total)	✓	0.010
Potassium Permanganate					Lead as Pb	✓	<0.010
Coagulant Aid		Hardness as CaCO3	✓	200	Mercury as Hg		
Prechlorinated		MO Alk. as CaCO3	✓	200	Selenium as Se		
Filtered		PP Alk. as CaCO3			Silver as Ag		
Postchlorinated					TOC	✓	2.0
Zeolite softened		Iron as Fe	✓	0.77	Fluorides (direct) as F		
Lime-soda softened		Manganese as Mn	✓	0.03	Nitrates as N		
Coagulated and settled					COD	✓	<5
Phosphate treatment		Calcium as Ca	✓	50	Organics		
Fluoride treatment		Magnesium as Mg	✓	13	Endrin		
		Sodium as Na	✓	7.	Lindane		
		Potassium as K	✓	0.7	Methoxychlor		
					Toxaphene		
		Chlorides as Cl	✓	<5	2.4-D		
FIELD EXAMINATION		Sulphates as SO4	✓	18	2.4.5-TP		
[illegible]		Phosphates as PO4	✓	0.09			
[illegible] mg/l					Radionuclides		pCi/l
Iron mg/l		Alum as Al			Gross Alpha		
		Sp. Cond. μmhos/cm			Gross Beta		

REMARKS: Landfill

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Other			

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Chemical Examination of Water

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Lab. No. C- 14 973

Date Rec. AUG 13 1981

Date Rep. OCT 21 1981

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(Name)

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INDIANA

(City or Town)

Name of Utility or Organization Roy Creekmur farm Supt.

City or Town near Hebron

Collected by: R. Weiss Date Collected 8/11/81 Hour afternoon

Where was sample collected? at house - from new well next to old well Bottle No. 14

Name unusual conditions

FIELD INFORMATION

Indicate all treatment this sample has received.

	Check
No Treatment	✓
Chlorination	
Plain sedimentation	
Aerated and settled	
Potassium Permanganate	
Coagulant Aid	
Prechlorinated	
Filtered	
Postchlorinated	
Zeolite softened	
Lime-soda softened	
Coagulated and settled	
Phosphate treatment	
Fluoride treatment	
FIELD EXAMINATION	
Cl mg/l	
Iron mg/l	

LABORATORY EXAMINATION

	Check	Do not Check mg/l		Check	Do not Check mg/l
Odor			Arsenic as As		
Color			Barium as BA		
Turbidity	✓	30.	Cadmium as Cd		
pH	✓	7.2	Chromium (Total)		
			Lead as Pb		
Hardness as $CaCO_3$	✓	412	Mercury as Hg		
MO Alk. as $CaCO_3$	✓	352	Selenium as Se		
PP Alk. as $CaCO_3$			Silver as Ag		
			TOC	✓	2.9
Iron as Fe	✓	3.8	Fluorides (direct) as F		
Manganese as Mn	✓	0.04	Nitrates as N	✓	<0.1
			COD	✓	<5
Calcium as Ca	✓	83	Organics		
Magnesium as Mg	✓	50	Endrin		
Sodium as Na	✓	14	Lindane		
Potassium as K	✓	1.7	Methoxychlor		
			Toxaphene		
Chlorides as Cl	✓	7	2.4-D		
Sulphates as SO_4	✓	86	2.4,5-TP		
Phosphates as PO_4	✓	<0.04			
			Radionuclides		pCi/l
Alum as Al			Gross Alpha		
Sp. Cond. μmhos/cm			Gross Beta		

REMARKS:

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Check Space			
Branch		Eng. Div.	✓
Dental		EPA	
Other			

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Chemical Examination of Water

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Lab. No. C- H 972

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(Name)

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INDIANA

(City or Town)

Name of Utility or Organization Nethery Residence Supt.

City or Town near HEBRON

Collected by: R Weiss Date Collected 8/11/81 Hour afternoon

Where was sample collected? North of Ron Sherman Farm Bottle No. 13

Name unusual conditions

FIELD INFORMATION		LABORATORY EXAMINATION					
Indicate all treatment this sample has received.	Check		Check	Do not Check mg/l		Check	Do not Check mg/l
No Treatment	✓	Odor			Arsenic as As		
Chlorination		Color			Barium as BA		
Plain sedimentation		Turbidity	✓	2	Cadmium as Cd		
Aerated and settled		pH	✓	7.7	Chromium (Total)		
Potassium Permanganate					Lead as Pb		
Coagulant Aid		Hardness as CaCO3	✓	8	Mercury as Hg		
Prechlorinated		MO Alk. as CaCO3	✓	372	Selenium as Se		
Filtered		PP Alk. as CaCO3			Silver as Ag		
Postchlorinated					TOC	✓	1.7
Zeolite softened		Iron as Fe	✓	0.35	Fluorides (direct) as F		
Lime-soda softened		Manganese as Mn	✓	<0.02	Nitrates as N	✓	<0.1
Coagulated and settled					COD	✓	<5
Phosphate treatment		Calcium as Ca	✓	<2	Organics		
Fluoride treatment		Magnesium as Mg	✓	<2	Endrin		
		Sodium as Na	✓	180	Lindane		
		Potassium as K	✓	0.2	Methoxychlor		
					Toxaphene		
		Chlorides as Cl	✓	<5	2.4-D		
[illegible] EXAMINATION		Sulphates as SO4	✓	75	2.4.5-TP		
[illegible]		Phosphates as PO4	✓	<0.09			
CO2 mg/l					Radionuclides		pCi/l
Iron mg/l		Alum as Al			Gross Alpha		
		Sp. Cond. µmhos/cm			Gross Beta		

REMARKS:

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Check Space			
Branch		Eng. Div.	✓
Dental		EPA	
Other			

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Lab. No. C-H 971

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Name of Utility or Organization Henson Residence Supt.

City or Town near Hebron

Collected by: R Weir Date Collected 8/11/81 Hour afternoon

Where was sample collected? North of Ron Sherman farm Bottle No. 12

Name unusual conditions Log of old well that is no longer used, This well drilled by Farmer 1973

FIELD INFORMATION

Indicate all treatment this sample has received.	Check
No Treatment	✓
Chlorination	
Plain sedimentation	
Aerated and settled	
Potassium Permanganate	
Coagulant Aid	
Prechlorinated	
Filtered	
Postchlorinated	
Zeolite softened	
Lime-soda softened	
Coagulated and settled	
Phosphate treatment	
Fluoride treatment	
FIELD EXAMINATION	
pH	
CO_2 mg/l	
Iron mg/l	

LABORATORY EXAMINATION

	Check	Do not Check mg/l		Check	Do not Check mg/l
Odor			Arsenic as As		
Color			Barium as BA		
Turbidity	—	40	Cadmium as Cd		
pH	✓	7.1	Chromium (Total)		
			Lead as Pb		
Hardness as $CaCO_3$	—	516	Mercury as Hg		
MO Alk. as $CaCO_3$	✓	378	Selenium as Se		
PP Alk. as $CaCO_3$			Silver as Ag		
			TOC	✓	2.9
Iron as Fe	—	5.4	Fluorides (direct) as F		
Manganese as Mn	—	0.06	Nitrates as N	✓	<0.1
			COD	✓	<5
Calcium as Ca	—	106	Organics		
Magnesium as Mg	—	61	Endrin		
Sodium as Na	—	12	Lindane		
Potassium as K	✓	1.9	Methoxychlor		
			Toxaphene		
Chlorides as Cl	✓	<5	2.4-D		
Sulphates as SO_4	✓	150	2.4,5-TP		
Phosphates as PO_4	✓	<0.09			
			Radionuclides		pCi/l
Alum as Al			Gross Alpha		
Sp. Cond. μmhos/cm			Gross Beta		

REMARKS:

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Branch		Eng. Div.	✓
Dental		EPA	
Other			

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Chemical Examination of Water

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Lab. No. C- H 970

Date Rec. AUG 13 1981

Date Rep. OCT 21 1981

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INDIANA

(City or Town)

Name of Utility or Organization Ron Sherman Farm Supt.

City or Town near Hebron

Collected by: R Weisz Date Collected 8/11/81 Hour afternoon

Where was sample collected? Well serving residence Bottle No. 11

Name unusual conditions old well not in use - log sheet OK another one

FIELD INFORMATION

Indicate all treatment this sample has received.

	Check
No Treatment	✓
Chlorination	
Plain sedimentation	
Aerated and settled	
Potassium Permanganate	
Coagulant Aid	
Prechlorinated	
Filtered	
Postchlorinated	
Zeolite softened	
Lime-soda softened	
Coagulated and settled	
Phosphate treatment	
Fluoride treatment	
FIELD EXAMINATION	
pH	
CO2 mg/l	
Iron mg/l	

LABORATORY EXAMINATION

	Check	Do not Check mg/l		Check	Do not Check mg/l
Odor			Arsenic as As		
Color			Barium as BA		
Turbidity	✓	1	Cadmium as Cd		
pH	✓	7.1	Chromium (Total)		
			Lead as Pb		
Hardness as CaCO3	✓	586	Mercury as Hg		
MO Alk. as CaCO3	✓	386	Selenium as Se		
PP Alk. as CaCO3			Silver as Ag		
			TOC	✓	1.2
Iron as Fe	✓	0.31	Fluorides (direct) as F		
Manganese as Mn	✓	0.18	Nitrates as N	✓	0.5
			COD	✓	<5
Calcium as Ca	✓	128	Organics		
Magnesium as Mg	✓	65	Endrin		
Sodium as Na	✓	26	Lindane		
Potassium as K	✓	2.1	Methoxychlor		
			Toxaphene		
Chlorides as Cl	✓	44	2.4-D		
Sulphates as SO4	✓	200	2.4,5-TP		
Phosphates as PO4	✓	<0.09			
			Radionuclides		pCi/l
Alum as Al			Gross Alpha		
Sp. Cond. µmhos/cm			Gross Beta		

REMARKS: Former confined feeding

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Check Space			
Branch		Eng. Div.	✓
Dental		EPA	
Other			

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Chemical Examination of Water

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Lab. No. C-H 969

Date Rec. AUG 13 1981

Date Rep. [illegible]

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INDIANA

(City or Town)

Also, mail copy of report to

(Name)

(Street)

INDIANA

(City or Town)

Name of Utility or Organization JERRY HAYDEN FARM Supt.

City or Town Near DINWIDDIE

Collected by: R Weiss Date Collected 8/11/81 Hour afternoon

Where was sample collected? New well at barn @ ¼ mile W of Carter School – South State Rd road Bottle No. 10

Name unusual conditions Well drilled recently by S Shelby

FIELD INFORMATION		LABORATORY EXAMINATION					
Indicate all treatment this sample has received.	Check		Check	Do not Check mg/l		Check	Do not Check mg/l
No Treatment	✓	Odor			Arsenic as As		
Chlorination		Color			Barium as BA		
Plain sedimentation		Turbidity	✓	20.	Cadmium as Cd		
Aerated and settled		pH	✓	7.1	Chromium (Total)		
Potassium Permanganate					Lead as Pb		
Coagulant Aid		Hardness as CaCO3	✓	516	Mercury as Hg		
Prechlorinated		MO Alk. as CaCO3	✓	376	Selenium as Se		
Filtered		PP Alk. as CaCO3			Silver as Ag		
Postchlorinated					TOC	✓	1.2
Zeolite softened		Iron as Fe	✓	2.4	Fluorides (direct) as F		
Lime-soda softened		Manganese as Mn	✓	0.05	Nitrates as N	✓	<0.1
Coagulated and settled					COD	✓	<5
Phosphate treatment		Calcium as Ca	✓	121	Organics		
Fluoride treatment		Magnesium as Mg	✓	52	Endrin		
		Sodium as Na	✓	8	Lindane		
		Potassium as K	✓	1.6	Methoxychlor		
					Toxaphene		
		Chlorides as Cl	✓	9	2.4-D		
FIELD EXAMINATION		Sulphates as SO4	✓	140	2.4,5-TP		
pH		Phosphates as PO4	✓	<0.09			
Cl mg/l					Radionuclides		pCi/l
Iron mg/l		Alum as Al			Gross Alpha		
		Sp. Cond. μmhos/cm			Gross Beta		

REMARKS: Confirmed reading

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Check Space

Branch		Eng. Div.	✓
Dental		EPA	
Other			

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Chemical Examination of Water

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Lab. No. C.-H 968

Date Rec. AUG 13 1981

Date Rep. OCT 21 1981

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Also, mail copy of report to

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(Street)

INDIANA

(City or Town)

Name of Utility or Organization HUBER SOD CO Supt.

City or Town SCHNEIDER

Collected by: R Weiss Date Collected 8/11/81 Hour afternoon

Where was sample collected? At house next to office Bottle No. 8

Name unusual conditions

FIELD INFORMATION

Indicate all treatment this sample has received.

	Check
No Treatment	✓
Chlorination	
Plain sedimentation	
Aerated and settled	
Potassium Permanganate	
Coagulant Aid	
Prechlorinated	
Filtered	
Postchlorinated	
Zeolite softened	
Lime-soda softened	
Coagulated and settled	
Phosphate treatment	
Fluoride treatment	
FIELD EXAMINATION	
pH	
CO2 mg/l	
Iron mg/l	

LABORATORY EXAMINATION

	Check	Do not Check mg/l		Check	Do not Check mg/l
Odor			Arsenic as As		
Color			Barium as BA		
Turbidity	✓	25.	Cadmium as Cd		
pH	✓	6.8	Chromium (Total)		
			Lead as Pb		
Hardness as CaCO3	✓	466	Mercury as Hg		
MO Alk. as CaCO3	✓	344	Selenium as Se		
PP Alk. as CaCO3			Silver as Ag		
			TOC	✓	10.9
Iron as Fe	✓	5.5	Fluorides (direct) as F		
Manganese as Mn	✓	1.0	Nitrates as N	✓	0.9
			COD	✓	25.
Calcium as Ca	✓	124	Organics		
Magnesium as Mg	✓	38	Endrin		
Sodium as Na	✓	30	Lindane		
Potassium as K	✓	42	Methoxychlor		
			Toxaphene		
Chlorides as Cl	✓	59	2.4-D		
Sulphates as SO4	✓	150	2.4,5-TP		
Phosphates as PO4	✓	0.09			
			Radionuclides		pCi/l
Alum as Al			Gross Alpha		
Sp. Cond. µmhos/cm			Gross Beta		

REMARKS:

State Form 4626

Check Space

Branch		Eng. Div.	✓
Dental		EPA	
Other			

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Chemical Examination of Water

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Lab. No. C- H 967

Date Rec. AUG 13 1981

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(City or Town)

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(Street)

INDIANA

(City or Town)

Name of Utility or Organization HUBER SOD CO Supt.

City or Town SCHNEIDER

Collected by: R. Weiss Date Collected 8/11/81 Hour afternoon

Where was sample collected? At migrant house. Bottle No. 8

Name unusual conditions

FIELD INFORMATION

Indicate all treatment this sample has received.

	Check
No Treatment	✓
Chlorination	
Plain sedimentation	
Aerated and settled	
Potassium Permanganate	
Coagulant Aid	
Prechlorinated	
Filtered	
Postchlorinated	
Zeolite softened	
Lime-soda softened	
Coagulated and settled	
Phosphate treatment	
Fluoride treatment	
FIELD EXAMINATION	
pH	
CO2 mg/l	
Iron mg/l	

LABORATORY EXAMINATION

	Check	Do not Check mg/l		Check	Do not Check mg/l
Odor			Arsenic as As		
Color			Barium as BA		
Turbidity	✓	9.	Cadmium as Cd		
pH	✓	6.8	Chromium (Total)		
			Lead as Pb		
Hardness as CaCO3	✓	468	Mercury as Hg		
MO Alk. as CaCO3	✓	348	Selenium as Se		
PP Alk. as CaCO3			Silver as Ag		
			TOC	✓	10.7
Iron as Fe	✓	2.2	Fluorides (direct) as F		
Manganese as Mn	✓	0.96	Nitrates as N	✓	0.8
			COD	✓	22.
Calcium as Ca	✓	118	Organics		
Magnesium as Mg	✓	42	Endrin		
Sodium as Na	✓	30.	Lindane		
Potassium as K	✓	38.	Methoxychlor		
			Toxaphene		
Chlorides as Cl	✓	59.	2.4-D		
Sulphates as SO4	✓	150	2.4,5-TP		
Phosphates as PO4	✓	<0.04			
			Radionuclides		pCi/l
Alum as Al			Gross Alpha		
Sp. Cond. μmhos/cm			Gross Beta		

REMARKS:

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Check Space			
Branch		Eng. Div.	✓
Dental		EPA	
Other			

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Chemical Examination of Water

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Lab. No. C-H 966

Date Rec. AUG 13 1981

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(Street)

INDIANA

(City or Town)

Name of Utility or Organization ROSEVEAR FARM Supt.

City or Town SHELBY

Collected by: R. Weiss Date Collected 8/11/81 Hour afternoon

Where was sample collected? At well next to confined stanchion Bottle No. 7

Name unusual conditions

FIELD INFORMATION		LABORATORY EXAMINATION					
Indicate all treatment this sample has received.	Check		Check	Do not Check mg/l		Check	Do not Check mg/l
No Treatment	✓	Odor			Arsenic as As		
Chlorination		Color			Barium as BA		
Plain sedimentation		Turbidity	✓	0.5	Cadmium as Cd		
Aerated and settled		pH	✓	7.0	Chromium (Total)		
Potassium Permanganate					Lead as Pb		
Coagulant Aid		Hardness as CaCO3	✓	560	Mercury as Hg		
Prechlorinated		MO Alk. as CaCO3	✓	302	Selenium as Se		
Filtered		PP Alk. as CaCO3			Silver as Ag		
Postchlorinated					TOC	✓	7.5
Zeolite softened		Iron as Fe	✓	0.15	Fluorides (direct) as F		
Lime-soda softened		Manganese as Mn	✓	0.80	Nitrates as N	✓	25.
Coagulated and settled					COD	✓	17.
Phosphate treatment		Calcium as Ca	✓	166	Organics		
Fluoride treatment		Magnesium as Mg	✓	39	Endrin		
		Sodium as Na	✓	7	Lindane		
		Potassium as K	✓	20	Methoxychlor		
					Toxaphene		
		Chlorides as Cl	✓	32	2.4-D		
FIELD EXAMINATION		Sulphates as SO4	✓	180	2.4.5-TP		
pH		Phosphates as PO4	✓	<0.09			
Cl mg/l					Radionuclides		pCi/l
Iron mg/l		Alum as Al			Gross Alpha		
		Sp. Cond. µmhos/cm			Gross Beta		

REMARKS: Confined feeding

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Check Space			
Branch		Eng. Div.	✓
Dental		EPA	
Other			

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Chemical Examination of Water

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Lab. No. C-4965

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Date Rep. OCT 21 1981

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(Street)

INDIANA

(City or Town)

Name of Utility or Organization ROSEVEAR FARM Supt.

City or Town SHELBY

Collected by: R Weiss Date Collected 8/11/81 Hour afternoon

Where was sample collected? At rented house near barn Bottle No. 6

Name unusual conditions House a few hundred yards from steer barn

FIELD INFORMATION

Indicate all treatment this sample has received.	Check
No Treatment	✓
Chlorination	
Plain sedimentation	
Aerated and settled	
Potassium Permanganate	
Coagulant Aid	
Prechlorinated	
Filtered	
Postchlorinated	
Zeolite softened	
Lime-soda softened	
Coagulated and settled	
Phosphate treatment	
Fluoride treatment	
FIELD EXAMINATION	
pH	
Cl2 mg/l	
Iron mg/l	

LABORATORY EXAMINATION

	Check	Do not Check mg/l		Check	Do not Check mg/l
Odor			Arsenic as As		
Color			Barium as BA		
Turbidity	✓	1	Cadmium as Cd		
pH	✓	7.1	Chromium (Total)		
			Lead as Pb		
Hardness as CaCO3	✓	400	Mercury as Hg		
MO Alk. as CaCO3	✓	276	Selenium as Se		
PP Alk. as CaCO3			Silver as Ag		
			TOC	✓	4.7
Iron as Fe	✓	0.20	Fluorides (direct) as F		
Manganese as Mn	✓	0.29	Nitrates as N	✓	19.
			COD	✓	10.
Calcium as Ca	✓	114	Organics		
Magnesium as Mg	✓	28	Endrin		
Sodium as Na	✓	11.	Lindane		
Potassium as K	✓	30.	Methoxychlor		
			Toxaphene		
Chlorides as Cl	✓	28	2.4-D		
Sulphates as SO4	✓	77	2.4,5-TP		
Phosphates as PO4	✓	<0.09			
			Radionuclides		pCi/l
Alum as Al			Gross Alpha		
Sp. Cond. µmhos/cm			Gross Beta		

REMARKS: Confirmed flooding

State Form 4626

Check Space

Branch		Eng. Div.	✓
Dental		EPA	
Other			

INDIANA STATE BOARD OF HEALTH

Water & Sewage Laboratory Division
1330 West Michigan Street
INDIANAPOLIS, INDIANA 46206

Chemical Examination of Water

Do not write in this space

Lab. No. C-14 964

Date Rec. AUG 13 1981

Date Rep. ~~OCT 21 1981~~

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INDIANA

(City or Town)

Also, mail copy of report to

(Name)

(Street)

INDIANA

(City or Town)

Name of Utility or Organization ROSEVEAR FARM Supt.

City or Town SHELBY

Collected by: R Weiss Date Collected 8/11/81 Hour afternoon

Where was sample collected? At house leased by SAM KINGMAN Bottle No. 5

Name unusual conditions House located some distance SW off confined feeding

FIELD INFORMATION

Indicate all treatment this sample has received.

	Check
No Treatment	✓
Chlorination	
Plain sedimentation	
Aerated and settled	
Potassium Permanganate	
Coagulant Aid	
Prechlorinated	
Filtered	
Postchlorinated	
Zeolite softened	
Lime-soda softened	
Coagulated and settled	
Phosphate treatment	
Fluoride treatment	
FIELD EXAMINATION	
pH	
CO_2 mg/l	
Iron mg/l	

LABORATORY EXAMINATION

	Check	Do not Check mg/l		Check	Do not Check mg/l
Odor			Arsenic as As		
Color			Barium as BA		
Turbidity	✓	5	Cadmium as Cd		
pH	✓	7.2	Chromium (Total)		
			Lead as Pb		
Hardness as $CaCO_3$	✓	344	Mercury as Hg		
MO Alk. as $CaCO_3$	✓	188	Selenium as Se		
PP Alk. as $CaCO_3$			Silver as Ag		
			TOC	✓	4.3
Iron as Fe	✓	1.1	Fluorides (direct) as F		
Manganese as Mn	✓	0.89	Nitrates as N	✓	2.7
			COD	✓	10.
Calcium as Ca	✓	93	Organics		
Magnesium as Mg	✓	27	Endrin		
Sodium as Na	✓	3	Lindane		
Potassium as K	✓	2.6	Methoxychlor		
			Toxaphene		
Chlorides as Cl	✓	14.	2.4-D		
Sulphates as SO_4	✓	130	2.4,5-TP		
Phosphates as PO_4	✓	0.09			
			Radionuclides		pCi/l
Alum as Al			Gross Alpha		
Sp. Cond. μmhos/cm			Gross Beta		

REMARKS: Rusty water clears up if left to running

Confined feeding

State Form 4626

Check Space			
Branch		Eng. Div.	✓
Dental		EPA	
Other			

INDIANA STATE BOARD OF HEALTH

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Chemical Examination of Water

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Lab. No. C. - H 963

Date Rec. AUG 13 1981

Date Rep. OCT 21 1981

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INDIANA

(City or Town)

Name of Utility or Organization BROWN RESIDENCE Supt.

City or Town SHELBY, IN

Collected by: R Weiss Date Collected Aug 11, 1981 Hour afternoon

Where was sample collected? Well tap on house Bottle No. 4

Name unusual conditions Well located north of mathis farm

FIELD INFORMATION

Indicate all treatment this sample has received.	Check
No Treatment	✓
Chlorination	
Plain sedimentation	
Aerated and settled	
Potassium Permanganate	
Coagulant Aid	
Prechlorinated	
Filtered	
Postchlorinated	
Zeolite softened	
Lime-soda softened	
Coagulated and settled	
Phosphate treatment	
Fluoride treatment	
FIELD EXAMINATION	
pH	
CO2 mg/l	
Iron mg/l	

LABORATORY EXAMINATION

	Check	Do not Check mg/l		Check	Do not Check mg/l
Odor			Arsenic as As		
Color			Barium as BA		
Turbidity	✓	2	Cadmium as Cd		
pH	✓	7.5	Chromium (Total)		
			Lead as Pb		
Hardness as CaCO3	✓	126	Mercury as Hg		
MO Alk. as CaCO3	✓	72	Selenium as Se		
PP Alk. as CaCO3			Silver as Ag		
			TOC	✓	1.5
Iron as Fe	✓	1.0	Fluorides (direct) as F		
Manganese as Mn	✓	0.06	Nitrates as N	✓	<0.1
			COD	✓	<5
Calcium as Ca	✓	38	Organics		
Magnesium as Mg	✓	8	Endrin		
Sodium as Na	✓	2	Lindane		
Potassium as K	✓	0.2	Methoxychlor		
			Toxaphene		
Chlorides as Cl	✓	8	2.4-D		
Sulphates as SO4	✓	53.	2.4,5-TP		
Phosphates as PO4	✓	0.15			
			Radionuclides		pCi/l
Alum as Al			Gross Alpha		
Sp. Cond. μmhos/cm			Gross Beta		

REMARKS:

Confirmed bacteria

State Form 4626

Check Space			
Branch		Eng. Div.	✓
Dental		EPA	
Other			

INDIANA STATE BOARD OF HEALTH

Water & Sewage Laboratory Division
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Chemical Examination of Water

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INDIANA

(City or Town)

Name of Utility or Organization CRAGO RESIDENCE Supt.

City or Town SHELBY, IN

Collected by: R Weiss Date Collected 8/11/81 Hour afternoon

Where was sample collected? Well tap on house Bottle No. 3

Name unusual conditions Well located on SW edge of Mathis farm

FIELD INFORMATION		LABORATORY EXAMINATION					
Indicate all treatment this sample has received.	Check		Check	Do not Check mg/l		Check	Do not Check mg/l
No Treatment	✓	Odor			Arsenic as As		
Chlorination		Color			Barium as BA		
Plain sedimentation		Turbidity	✓	0.7	Cadmium as Cd		
Aerated and settled		pH	✓	7.3	Chromium (Total)		
Potassium Permanganate					Lead as Pb		
Coagulant Aid		Hardness as CaCO3	✓	204	Mercury as Hg		
Prechlorinated		MO Alk. as CaCO3	✓	140	Selenium as Se		
Filtered		PP Alk. as CaCO3			Silver as Ag		
Postchlorinated					TOC	✓	6.4
Zeolite softened		Iron as Fe	✓	0.47	Fluorides (direct) as F		
Lime-soda softened		Manganese as Mn	✓	0.29	Nitrates as N	✓	1.2
Coagulated and settled					COD	✓	18.
Phosphate treatment		Calcium as Ca	✓	54	Organics		
Fluoride treatment		Magnesium as Mg	✓	17	Endrin		
		Sodium as Na	✓	4	Lindane		
		Potassium as K	✓	1.2	Methoxychlor		
					Toxaphene		
		Chlorides as Cl	✓	6	2.4-D		
FIELD EXAMINATION		Sulphates as SO4	✓	60	2.4.5-TP		
pH		Phosphates as PO4	✓	<0.09			
CO2 mg/l					Radionuclides		pCi/l
Iron mg/l		Alum as Al			Gross Alpha		
		Sp. Cond. µmhos/cm			Gross Beta		

REMARKS: Confined feeding

Check Space

Branch		Eng. Div.	✓
Dental		EPA	
Other			

INDIANA STATE BOARD OF HEALTH
Water & Sewage Laboratory Division
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Chemical Examination of Water

Do not write in this space

Lab. No. C.-H 961
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(Street)
INDIANA
(City or Town)

Name of Utility or Organization PRITCHETT RESIDENCE Supt.

City or Town SHELBY, IN

Collected by: R Weiss Date Collected 8/11/81 Hour afternoon

Where was sample collected? Well tap on side of house Bottle No. 2

Name unusual conditions Well c home located on south side of mathis farm

FIELD INFORMATION

Indicate all treatment this sample has received.

	Check
No Treatment	✓
Chlorination	
Plain sedimentation	
Aerated and settled	
Potassium Permanganate	
Coagulant Aid	
Prechlorinated	
Filtered	
Postchlorinated	
Zeolite softened	
Lime-soda softened	
Coagulated and settled	
Phosphate treatment	
Fluoride treatment	
FIELD EXAMINATION	
pH	
CO_2 mg/l	
Iron mg/l	

LABORATORY EXAMINATION

	Check	Do not Check mg/l		Check	Do not Check mg/l
Odor			Arsenic as As		
Color			Barium as BA		
Turbidity	✓	0.1	Cadmium as Cd		
pH	✓	7.7	Chromium (Total)		
			Lead as Pb		
Hardness as $CaCO_3$	✓	164	Mercury as Hg		
MO Alk. as $CaCO_3$	✓	76	Selenium as Se		
PP Alk. as $CaCO_3$			Silver as Ag		
			TOC	✓	2.0
Iron as Fe	✓	<0.05	Fluorides (direct) as F		
Manganese as Mn	✓	0.04	Nitrates as N	✓	9.2
			COD	✓	<5
Calcium as Ca	✓	46	Organics		
Magnesium as Mg	✓	12	Endrin		
Sodium as Na	✓	3	Lindane		
Potassium as K	✓	3.5	Methoxychlor		
			Toxaphene		
Chlorides as Cl	✓	13	2.4-D		
Sulphates as SO_4	✓	52	2.4,5-TP		
Phosphates as PO_4	✓	0.09			
			Radionuclides		pCi/l
Alum as Al			Gross Alpha		
Sp. Cond. μmhos/cm			Gross Beta		

REMARKS: Confined feeding

S.B.H. 44-02 Results are expressed in terms of mg/l ... pH and specific conductance

State Form 4626

Check Space			
Branch		Eng. Div.	✓
Dental		EPA	
Other			

INDIANA STATE BOARD OF HEALTH

Water & Sewage Laboratory Division
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Chemical Examination of Water

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Lab. No. C- H 960

Date Rec. AUG 13 1981

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(Street)	(Street)
INDIANA	INDIANA
(City or Town)	(City or Town)

Name of Utility or Organization RAMON MATHIS FARM Supt.

City or Town 23021 HARRISON ST, SHELBY, IN

Collected by: R Weisi Date Collected Aug 11, 1981 Hour afternoon

Where was sample collected? Well tap on rear of house Bottle No. 1

Name unusual conditions Confined feeding hog barn

FIELD INFORMATION

Indicate all treatment this sample has received.

	Check
No Treatment	✓
Chlorination	
Plain sedimentation	
Aerated and settled	
Potassium Permanganate	
Coagulant Aid	
Prechlorinated	
Filtered	
Postchlorinated	
Zeolite softened	
Lime-soda softened	
Coagulated and settled	
Phosphate treatment	
Fluoride treatment	
FIELD EXAMINATION	
pH	
CO_2 mg/l	
Iron mg/l	

LABORATORY EXAMINATION

	Check	Do not Check mg/l		Check	Do not Check mg/l
Odor			Arsenic as As		
Color			Barium as BA		
Turbidity	✓	7	Cadmium as Cd		
pH X	✓	7.3	Chromium (Total)		
			Lead as Pb		
Hardness as $CaCO_3$	✓	229	Mercury as Hg		
MO Alk. as $CaCO_3$	✓	123	Selenium as Se		
PP Alk. as $CaCO_3$			Silver as Ag		
			TOC	✓	2.6
Iron as Fe	✓	1.8	Fluorides (direct) as F		
Manganese as Mn X	✓	0.22	Nitrates as N	✓	0.2
			COD	✓	<5
Calcium as Ca	✓	64	Organics		
Magnesium as Mg	✓	17	Endrin		
Sodium as Na	✓	10	Lindane		
Potassium as K	✓	0.8	Methoxychlor		
			Toxaphene		
Chlorides as Cl X	✓	15	2.4-D		
Sulphates as SO_4	✓	93	2.4,5-TP		
Phosphates as PO_4	✓	0.15			
			Radionuclides		pCi/l
Alum as Al			Gross Alpha		
Sp. Cond. µmhos/cm			Gross Beta		

REMARKS: Confined feeding

LABORATORY REPORT

Seaway Industrial Laboratories, Inc.

AIR and WATER POLLUTION CONSULTANTS

542-544 CONKEY STREET
HAMMOND, INDIANA 46[illegible]
219-932-1770

CLIENT:

TOWN OF GRIFFITH
111 N. Broad Street
Griffith, IN. 46319

INVESTIGATION:

Microbiological analysis of Waste Water Effluent collected by Seaway Industrial Laboratories personnel on August 27 & 28, 1979.

Period Covered Aug.27 & 28 Time: as shown below	Date of Our Report September 28, 1979	Laboratory No. 8-2879-107

RESULTS:

SAMPLE IDENTIFICATION: Industrial Effluent from American Chemical Services. Colfax Avenue, Griffith, Indiana.

Sample Code Date & Time	Most Probable Number per 100 ml. of sample. Coliform	Fecal coliform	Fecal streptococci
A--3:00 P.M. August 27	Negative	Negative	Negative
B--8:00 P.M. August 27	Negative	Negative	Negative
C--1:00 A.M. August 28	Negative	Negative	Negative

Respectfully submitted,

SEAWAY INDUSTRIAL LABORATORIES, INC.

C. J. Cichon

C. J. Cichon, Microbiologist
/Wab

This report applies only to the sample, or samples investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without the written consent from these Laboratories.

LABORATORY REPORT

Seaway Industrial Laboratories, Inc.

AIR and WATER POLLUTION CONSULTANTS

542-544 CONKEY STREET
HAMMOND, INDIANA
219-932-1770

CLIENT:

TOWN OF GRIFFITH
111 N. Broad Street
Griffith, IN. 46319

INVESTIGATION:

Microbiological analysis of Waste Water Effluent collected by Seaway Industrial Laboratories personnel on August 27 & 28, 1979.

Period Covered	Date of Our Report	Laboratory No.
Aug.27 & 28 Time: as shown below	September 28, 1979	8-2879-107

RESULTS:

SAMPLE IDENTIFICATION: Industrial Effluent from American Chemical Services. Colfax Avenue, Griffith, Indiana.

Sample Code Date & Time	Most Probable Number per 100 ml. of sample. Coliform	Fecal coliform	Fecal streptococci
A--3:00 P.M. August 27	Negative	Negative	Negative
B--8:00 P.M. August 27	Negative	Negative	Negative
C--1:00 A.M. August 28	Negative	Negative	Negative

Respectfully submitted,

SEAWAY INDUSTRIAL LABORATORIES, INC.

C. J. Cichon

C. J. Cichon, Microbiologist
CJC/ab

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LABORATORY REPORT

Seaway Industrial Laboratories, Inc.

AIR and WATER POLLUTION CONSULTANTS

542-544 CONKEY STREET
HAMMOND, INDIANA 46320
219-932-1770

CLIENT:

TOWN OF GRIFFITH
111 N. Broad Street
Griffith, IN. 46319

INVESTIGATION:

Microbiological analysis of Waste Water Effluent collected by Seaway Industrial Laboratories on July 26 & 27, 1979. Laboratory report 2 of 2.

Period Covered	Date of Our Report	Laboratory No.
As shown below	August 22, 1979	7-2679-91

RESULTS:

SAMPLE IDENTIFICATION: Industrial Effluent from American Chemical Services. Colfax Avenue, Griffith, Indiana.

Sample Code Date & Time	MOST PROBABLE NUMBER per 100 ml. of sample Coliform	Fecal coliform	Fecal streptococci
A-- 1:30 PM July 26	Negative	Negative	400
B--10:15 PM July 26	Negative	Negative	Negative
C-- 8:30 AM July 27	1,100,000	1,100,000	120,000

Respectfully submitted,

SEAWAY INDUSTRIAL LABORATORIES, INC.

C. J. Cichon

C. J. Cichon, Director
CJC/ab

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LABORATORY REPORT

Seaway Industrial Laboratories, Inc.

AIR and WATER POLLUTION CONSULTANTS

542-544 CONKEY STREET
HAMMOND, INDIANA 46324
219-932-1770

CLIENT:
TOWN OF GRIFFITH
111 North Broad Street
Griffith, IN. 46319

INVESTIGATION:
Chemical analysis of Composite sample of Industrial Waste Water collected by Seaway Industrial Laboratories personnel on July 26 & 27, 1979.
Laboratory Report 1 of 2.

Period Covered	Date of Our Report	Laboratory No.
As shown below	August 22, 1979	7-2679-91

RESULTS:

SAMPLE IDENTIFICATION: Composite Sample of Industrial Effluent from American Chemical Services, Colfax Avenue, Griffith, Indiana.

Time of Sampling: From 9:30 A.M. July 26 to 9:30 A.M. July 27, 1979.

SAMPLE CODE: Sample "A" collected from 9:30 A.M. to 5:30 P.M., July 26, 1979.
Sample "B" collected from 6:30 P.M. July 26 to 2:30 A.M. July 27, 1979.
Sample "C" collected from 3:30 A.M. to 9:30 A.M. July 27, 1979.

CHEMICAL DETERMINATION	Sample A	Sample B	Sample C
pH	7.3	6.7	7.9
Chemical oxygen demand--mg/l	109.3	519.3	112.1
Biochemical oxygen demand--mg/l	133.0	663.3	168.3
Oils & Greases(Hexane solubles)--mg/l	25.3	43.0	8.5
Total solids--mg/l	847.0	946.0	895.0
Volatile solids--mg/l	340.0	353.0	243.0
Suspended solids--mg/l	24.0	27.0	19.5

Total available Residual Chlorine--mg/milliliter (Iodometric Method)

Collected at	9:30 AM	0.20		
"	1:30 PM	0.28		
"	3:30 PM	0.17		
"	6:30 PM		0.19	
"	9:30 PM		0.38	
"	12:00 MID		0.10	
"	3:00 AM		.034	
"	5:00 AM			.023
"	6:00 AM			.023
"	7:30 AM			.018
"	9:00 AM			.032

Respectfully submitted,
SEAWAY INDUSTRIAL LABORATORIES, INC.

C. J. Cichon, Director
CJC/ab

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LABORATORY REPORT

Seaway Industrial Laboratories, Inc.

AIR and WATER POLLUTION CONSULTANTS

542-544 CONKEY STREET
HAMMOND, INDIANA 46320
219-932-1770

CLIENT:
TOWN OF GRIFFITH
111 North Broad Street
Griffith, IN. 46319

INVESTIGATION:
Chemical analysis of Composite samples of Industrial Waste Water collected by Seaway Industrial Laboratories personnel on August 27 & 28, 1979.
Laboratory Report 1 of 2.

Period Covered	Date of Our Report	Laboratory No.
As shown below	September 18, 1979	8-2879-107

RESULTS:

SAMPLE IDENTIFICATION: Composite Sample of Industrial Effluent from American Chemical Services, Colfax Avenue, Griffith, Indiana.

Time of Sampling: From 8:00 A.M. August 27 to 7:00 A.M. August 28, 1979.

SAMPLE CODE: Sample "A" Collected from 8:00 A.M. to 4:00 P.M., August 27.
Sample "B" Collected from 5:00 P.M. to 12:00 MID.,August 27.
Sample "C" Collected from 1:00 A.M. to 7:00 A.M. August 28.

CHEMICAL DETERMINATION	Sample A	Sample B	Sample C
pH	6.7	6.8	6.2
Chemical oxygen demand--mg/l	1,127.6	541.9	598.0
Biochemical oxygen demand--mg/l	1,730.0	430.0	400.0
Oils & Greases (Hexane solubles)--mg/l	717.7	23.6	13.6
Total solids--mg/l	1,132	966	1,060
Volatile solids--mg/l	601	486	601
Suspended solids--mg/l	131	36.3	26.8
Total available Residual Chlorine--mg/ml (Iodometric Method)			
Time collected			
11:00 AM	0.273		
1:00 PM	0.113		
3:00 PM	0.305		
5:00 PM		0.214	
7:00 PM		0.355	
9:00 PM		0.210	
11:00 PM		0.282	
12:00 MID		0.260	
1:00 AM			1.845
3:00 AM			0.360
5:00 AM			0.169
7:00 AM			0.351

Respectfully submitted,

SEAWAY INDUSTRIAL LABORATORIES, INC.

C. J. Cichon

C. J. Cichon, Director

CJC/ab

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LABORATORY REPORT

Seaway Industrial Laboratories, Inc.

AIR and WATER POLLUTION CONSULTANTS

542-544 CONKEY STREET
HAMMOND, INDIANA 46320
219-932-1770

CLIENT:
TOWN OF GRIFFITH
111 North Broad Street
Griffith, IN. 46319

INVESTIGATION:
Chemical analysis of Composite samples of Industrial Waste Water collected by Seaway Industrial Laboratories personnel on August 27 & 28, 1979.
Laboratory Report 1 of 2.

Period Covered	Date of Our Report	Laboratory No.
As shown below	September 18, 1979	8-2879-107

RESULTS:

SAMPLE IDENTIFICATION: Composite Sample of Industrial Effluent from American Chemical Services, Colfax Avenue, Griffith, Indiana.

Time of Sampling: From 8:00 A.M. August 27 to 7:00 A.M. August 28, 1979.

SAMPLE CODE: Sample "A" Collected from 8:00 A.M. to 4:00 P.M., August 27.
Sample "B" Collected from 5:00 P.M. to 12:00 MID., August 27.
Sample "C" Collected from 1:00 A.M. to 7:00 A.M. August 28.

CHEMICAL DETERMINATION	Sample A	Sample B	Sample C
pH	6.7	6.8	6.2
Chemical oxygen demand--mg/l	1,127.6	541.9	598.0
Biochemical oxygen demand--mg/l	1,730.0	430.0	400.0
Oils & Greases (Hexane solubles)--mg/l	717.7	23.6	13.6
Total solids--mg/l	1,132	966	1,060
Volatile solids--mg/l	601	486	601
Suspended solids--mg/l	131	36.3	26.8
Total available Residual Chlorine--mg/ml (Iodometric Method)			
Time collected			
11:00 AM	0.273		
1:00 PM	0.113		
3:00 PM	0.305		
5:00 PM		0.214	
7:00 PM		0.355	
9:00 PM		0.210	
11:00 PM		0.282	
12:00 MID		0.260	
1:00 AM			1.845
3:00 AM			0.360
5:00 AM			0.169
7:00 AM			0.351

Respectfully submitted,

SEAWAY INDUSTRIAL LABORATORIES, INC.

C. J. Cichon

C. J. Cichon, Director
CJC/ab

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SALISBURY ENGINEERING INC.
P.O. BOX 270 1501 E. MAIN STREET GRIFFITH, INDIANA 46319
GRIFFITH PHONE (219) 923-6690 CHICAGO PHONE (312) 375-9092

June 29, 1974
File 2801

Town of Griffith
Griffith, Indiana 46319

ATTENTION: Mr. Glen Reyome

Subject: Sewer Borings
Griffith, Indiana

Gentlemen:

At your request, we have made borings at the locations along the sewer line north of the Grand Trunk Railroad and north along Colfax Avenue in the Town of Griffith, Indiana. This work consists of test borings and laboratory tests on cohesive samples. At your request, we are making copies of these available to all interested bidders on the sewer project.

Samples will be retained for thirty days unless directed otherwise by you.

If we may be of additional service on this project, please advise.

Very truly yours,

Salisbury Engineering Inc.

M. H. Salisbury, P.E.

MHS:dr

Enclosures

cc: Torrenga Engineering

SALISBURY ENGINEERING INC.
1501 E. MAIN STREET, GRIFFITH, IND.

LOG OF TEST BORING NO. 1

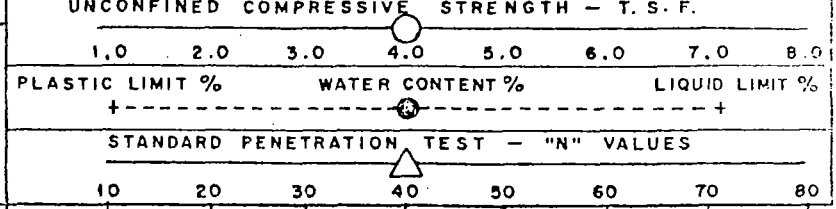
WATER LEVEL DATA		
4.3' AT COMPLETION	STARTED 6-18-74	LOCATION SEWER BORINGS, STA. 41+50
FT. IN. HR.	COMPLETED SAME	COLFAX AVENUE
FT. IN. HR.	DRILLER B. COOK	GRIFFITH, INDIANA
FT. IN. HR.	LOGGER	CLIENT TOWN OF GRIFFITH
	FILE NO. 2801	GRIFFITH, INDIANA

GROUND ELEVATION:

SOIL DEPTH	SOIL DESCRIPTION	SAMPLE DEPTH	TYPE	CONDITION	"N" VALUE
0.4	BLACKTOP				
	LOOSE BROWN MEDIUM SAND				
2.0		2.5			13
	LOOSE BLACK SILTY SAND WITH TRACES OF GRAVEL				
		5.0			7
5.5					
	LOOSE BROWN TO GRAY FINE SAND	7.5			8
8.0					
	MEDIUM TO DENSE GRAY FINE SAND	10.0			17
		12.5			23
		15.0			31
		17.5			33
17.5	BORING ENDED AT 17.5'				
		20.0			
		22.5			
		25.0			

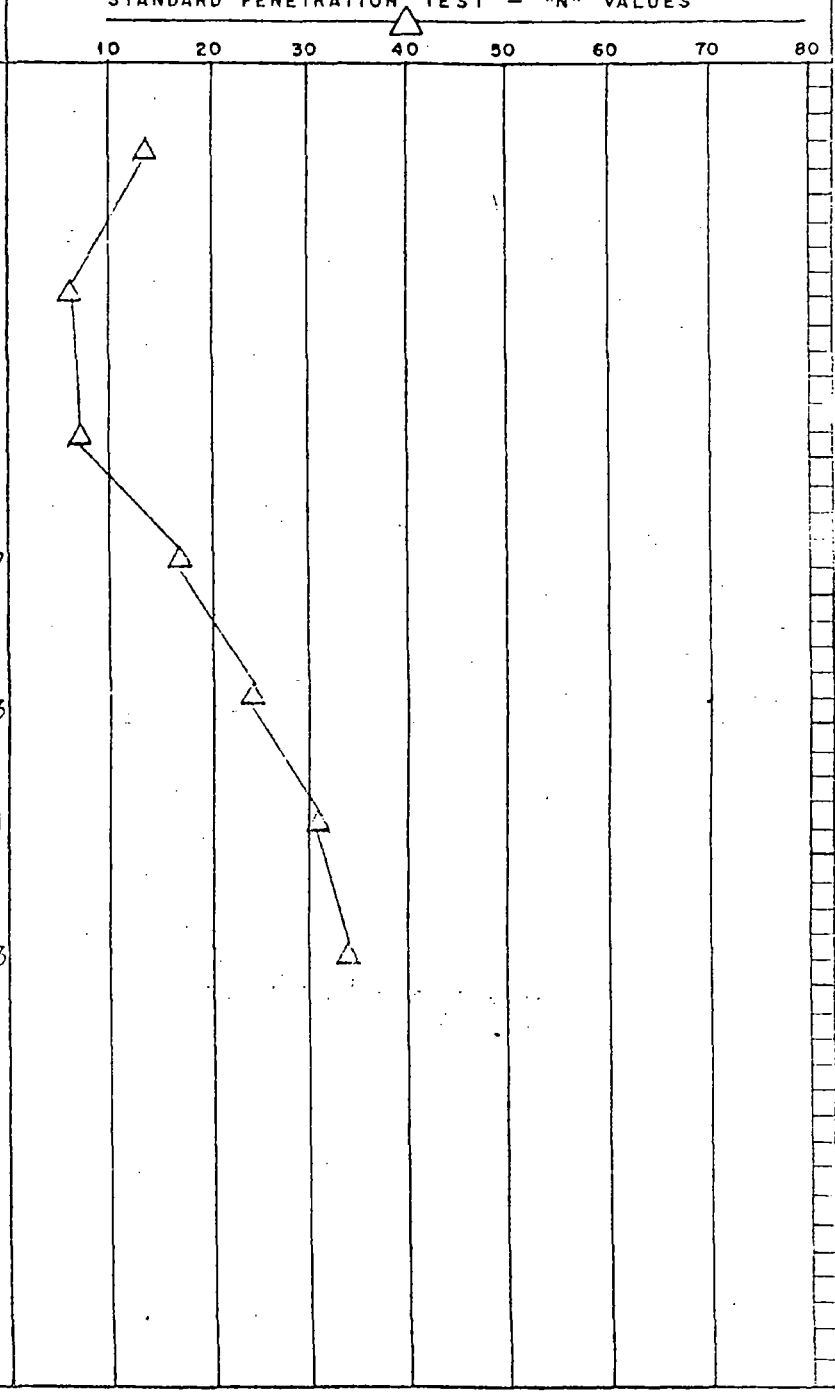
SAMPLE DATA

UNCONFINED COMPRESSIVE STRENGTH — T.S.F.



PLASTIC LIMIT % WATER CONTENT % LIQUID LIMIT %

STANDARD PENETRATION TEST — "N" VALUES



NOTES:

LEGEND:

SPLIT SPOON, SHELBY TUBE, PISTON, AUGER, ROCK CORE, CALIBRATED PENETROMETER

D - DISTURBED, COHESIONLESS SOIL OR AUGER SAMPLE

U - UNDISTURBED, SHELBY TUBE OR PISTON SAMPLE

I - SUFFICIENTLY COHESIVE TO HOLD SAMPLE INTACT

L - LOST, NO SAMPLE RECOVERY

"N" VALUES IN THE STANDARD PENETRATION TEST ARE BLOWS PER FOOT REQUIRED TO DRIVE A 2" O.D. SPLIT SPOON SAMPLER USING

SALISBURY ENGINEERING INC.
1501 E. MAIN STREET, GRIFFITH, IND.

LOG OF TEST BORING NO. 2

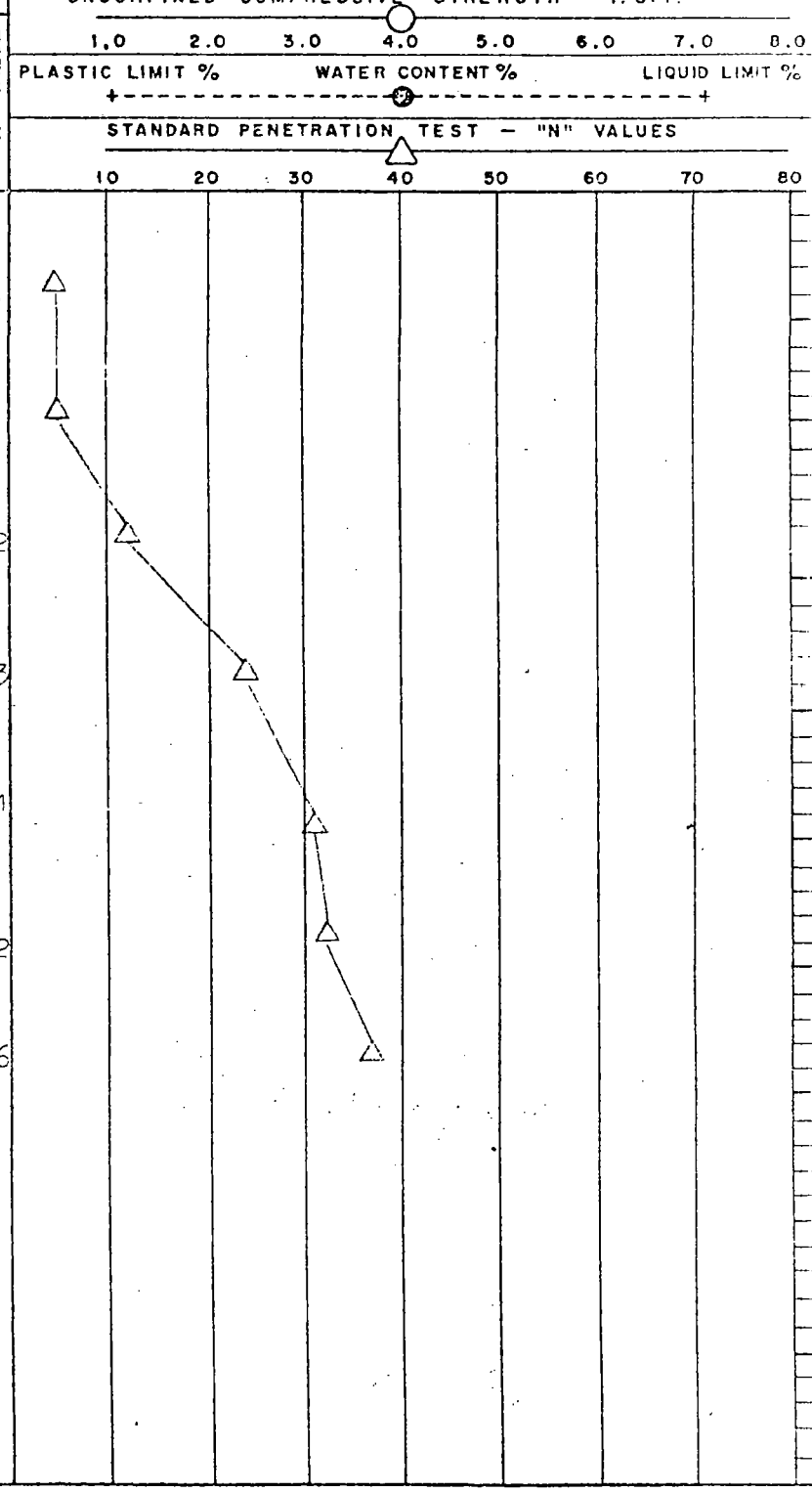
WATER LEVEL DATA		
5'10" AT COMPLETION	STARTED 6-18-74	LOCATION SEWER BORINGS, APPROX. STA.: 37+00
___ FT. ___ IN. ___ HR.	COMPLETED SAME	COLFAX AVENUE
___ FT. ___ IN. ___ HR.	DRILLER B. COOK	GRIFFITH, INDIANA
___ FT. ___ IN. ___ HR.	LOGGER	CLIENT TOWN OF GRIFFITH
	FILE NO. 2801	GRIFFITH, INDIANA

GROUND ELEVATION:

SOIL DEPTH	SOIL DESCRIPTION
0.8	BLACK SAND AND GRAVEL
2.0	LOOSE BROWN MEDIUM SAND
	LOOSE BLACK SILTY SAND WITH TRACES OF GRAVEL
4.6	MEDIUM GRAY FINE SAND BECOMING COARSE AT 6.2' WITH TRACES OF GRAVEL
9.3	MEDIUM TO DENSE GRAY FINE SAND
17.5	BORING ENDED AT 17.5'

SAMPLE DATA

SAMPLE DEPTH	TYPE	CONDITION	"N" VALUE
2.5			5
5.0			5
7.5			12
10.0			23
12.5			31
15.0			32
17.5			36
20.0			
22.5			
25.0			



NOTES:

LEGEND:

SPLIT SPOON, SHELBY TUBE, PISTON, AUGER, ROCK CORE, CALIBRATED PENETROMETER

D - DISTURBED, COHESIONLESS SOIL OR AUGER SAMPLE

U - UNDISTURBED, SHELBY TUBE OR PISTON SAMPLE

I - SUFFICIENTLY COHESIVE TO HOLD SAMPLE INTACT

L - LOST, NO SAMPLE RECOVERY

"N" VALUES ... STANDARD PENETRATION TEST ARE BLOWS PER FOOT REQUIRED TO DRIVE A 2" O.D. SPLIT SPOON SAMPLER USING

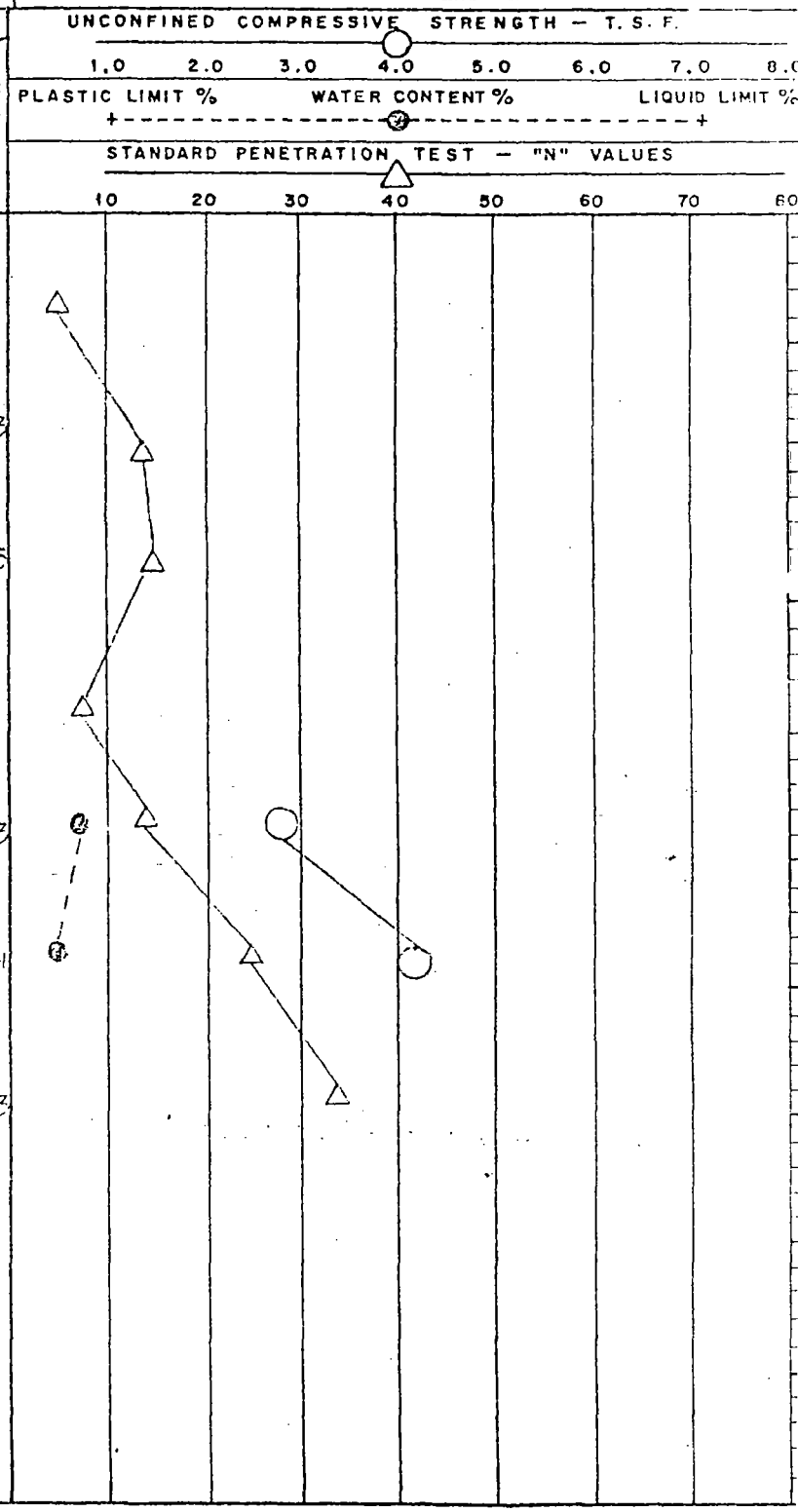
SALISBURY ENGINEERING INC.
1501 E. MAIN STREET, GRIFFITH, IND.

LOG OF TEST BORING NO. 3

WATER LEVEL DATA		
4'0" AT COMPLETION	STARTED 6-18-74	LOCATION SEWER BORINGS, APPROX. STA. 32+00
___ FT. ___ IN. ___ HR.	COMPLETED SAME	COLFAX AVENUE
___ FT. ___ IN. ___ HR.	DRILLER B. COOK	GRIFFITH, INDIANA
___ FT. ___ IN. ___ HR.	LOGGER	CLIENT TOWN OF GRIFFITH
	FILE NO. 2801	GRIFFITH, INDIANA

GROUND ELEVATION:

SOIL DEPTH	SOIL DESCRIPTION	SAMPLE DEPTH	TYPE	CONDITION	"N" VALUE
	BLACK SILTY FINE SAND				
2.0					5
2.4	LOOSE BROWN FINE SAND	2.5			
3.2	BLACK ORGANIC PEAT				
	MEDIUM GRAY FINE SAND				13
		5.0			
					15
		7.5			
9.3					
	LOOSE GRAY CLAYEY SAND				8
10.1		10.0			
	STIFF GRAY SANDY CLAY				13
		12.5			
					24
		15.0			
15.6					
	MEDIUM TO MEDIUM DENSE GRAY FINE SAND, TRACE OF SILT				
17.5		17.5			33
	BORING ENDED AT 17.5'				
		20.0			
		22.5			
		25.0			



NOTES:

LEGEND:

- SPLIT SPOON, - SHELBY TUBE, - PISTON, - AUGER, - ROCK CORE, - CALIBRATED PENETROMETER
- D - DISTURBED, COHESIONLESS SOIL OR AUGER SAMPLE
- U - UNDISTURBED, SHELBY TUBE OR PISTON SAMPLE
- I - SUFFICIENTLY COHESIVE TO HOLD SAMPLE INTACT
- L - LOST, NO SAMPLE RECOVERY
- "N" VALUES IN THE STANDARD PENETRATION TEST ARE BLOWS PER FOOT REQUIRED TO DRIVE A 2" O.D. SPLIT SPOON SAMPLER USING [illegible] DISTANCE OF 30"

SALISBURY ENGINEERING INC.
1501 E. MAIN STREET, GRIFFITH, IND.

LOG OF TEST BORING NO. 4

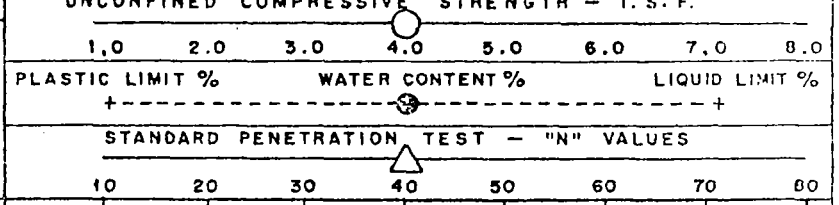
WATER LEVEL DATA		
3'4" AT COMPLETION.	STARTED 6-18-74	LOCATION SEWER BORINGS, APPROX. STA. 27+00 COLFAX AVENUE GRIFFITH, INDIANA
___FT. ___IN. ___HR.	COMPLETED SAME	
___FT. ___IN. ___HR.	DRILLER B. COOK	
___FT. ___IN. ___HR.	LOGGER	CLIENT TOWN OF GRIFFITH GRIFFITH, INDIANA
	FILE NO. 2801	

GROUND ELEVATION:

SOIL DEPTH	SOIL DESCRIPTION	SAMPLE DEPTH	TYPE	CONDITION	"N" VALUE
	LOOSE BROWN MEDIUM SAND				
1.0					6
	LOOSE BLACK SILTY SAND WITH TRACES OF GRAVEL	2.5			
3.0					
	LOOSE BROWN FINE SAND				
3.6					7
	MEDIUM GRAY FINE SAND	5.0			
					17
8.0		7.5			
	MEDIUM GRAY COARSE SAND WITH SOME GRAVEL				14
		10.0			
11.3					
	MEDIUM GRAY MEDIUM TO FINE SAND				24
		12.5			
13.8					
	STIFF GRAY CLAY				9
		15.0			
17.5					10
	BORING ENDED AT 17.5'	17.5			
		20.0			
		22.5			
		25.0			

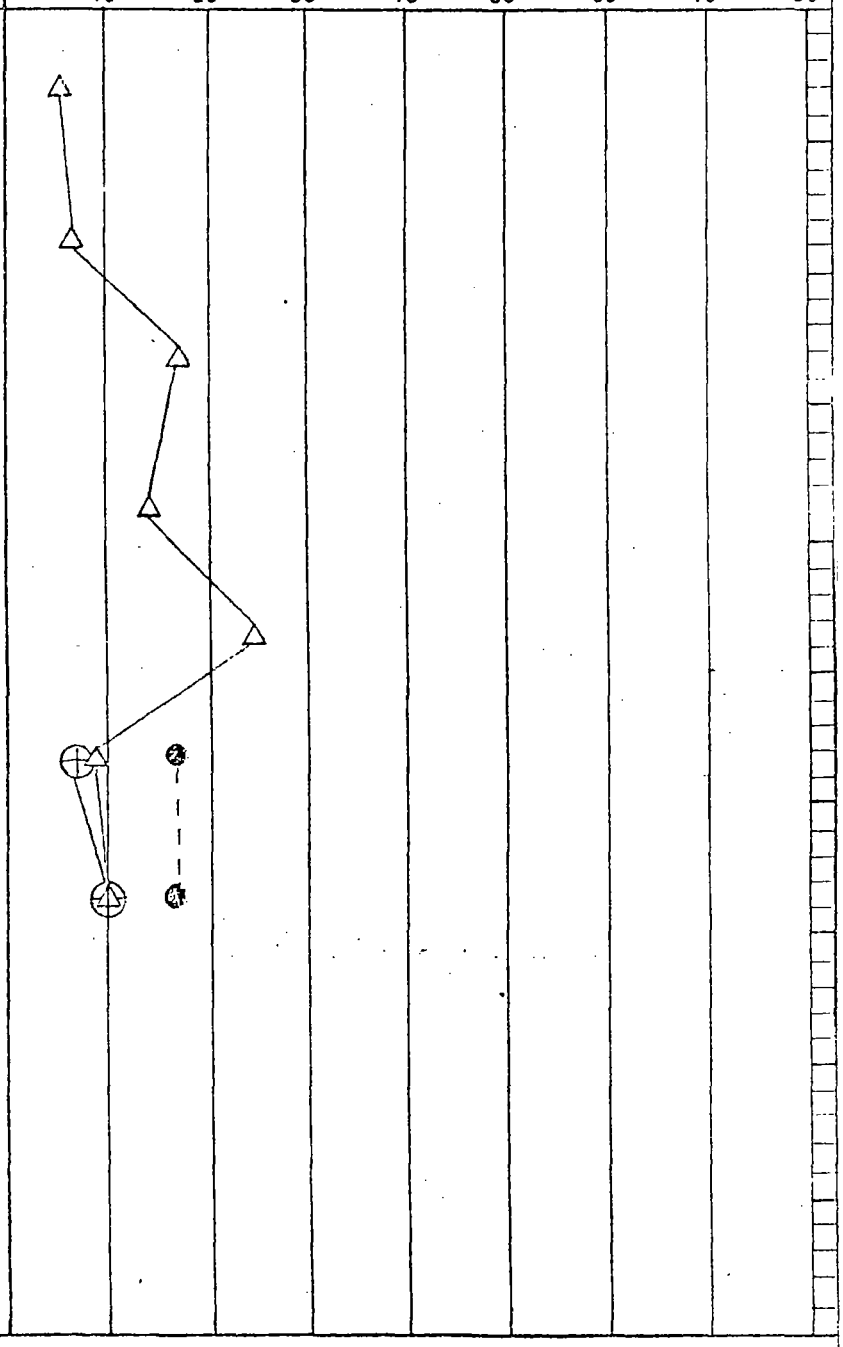
SAMPLE DATA

UNCONFINED COMPRESSIVE STRENGTH – T.S.F.



PLASTIC LIMIT % WATER CONTENT % LIQUID LIMIT %

STANDARD PENETRATION TEST – "N" VALUES



NOTES:

LEGEND:

- SPLIT SPOON, - SHELBY TUBE, - PISTON, A - AUGER, - ROCK CORE, - CALIBRATED PENETROMETER
- D - DISTURBED, COHESIONLESS SOIL OR AUGER SAMPLE
- U - UNDISTURBED, SHELBY TUBE OR PISTON SAMPLE
- I - SUFFICIENTLY COHESIVE TO HOLD SAMPLE INTACT
- L - LOST, NO SAMPLE RECOVERY

"N" VALUES IN THE STANDARD PENETRATION TEST ARE BLOWS PER FOOT REQUIRED TO DRIVE A 2" O.D. SPLIT SPOON SAMPLER USING [illegible] DISTANCE OF 30"

SALISBURY ENGINEERING INC.
1501 E. MAIN STREET, GRIFFITH, IND.

LOG OF TEST BORING NO. 5

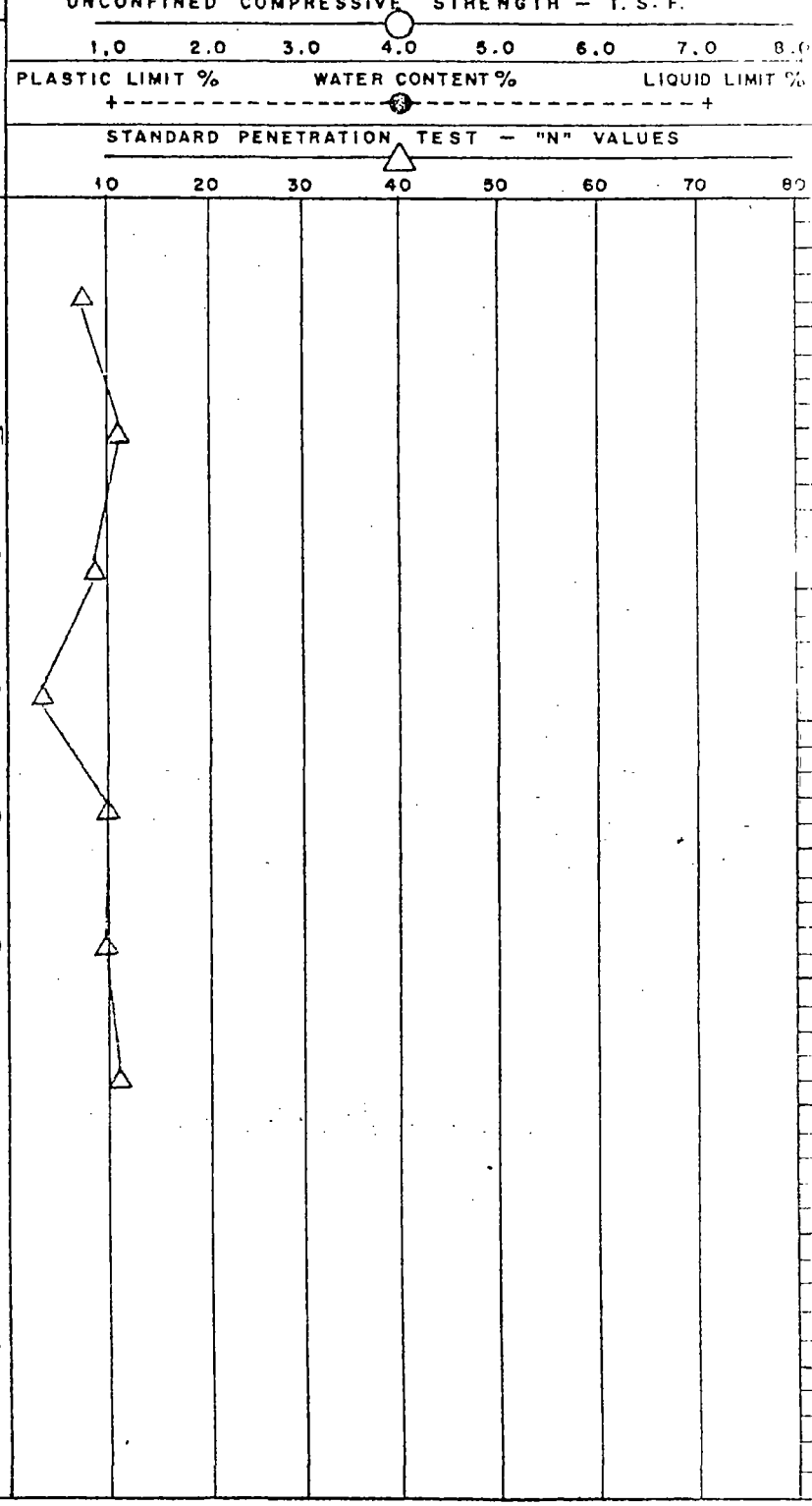
WATER LEVEL DATA		
5'5" AT COMPLETION	STARTED 6-19-74	LOCATION SEWER BORINGS, STATION 0+00
___FT. ___IN. ___HR.	COMPLETED SAME	COLFAX AVENUE
___FT. ___IN. ___HR.	DRILLER B. COOK	GRIFFITH, INDIANA
___FT. ___IN. ___HR.	LOGGER	CLIENT TOWN OF GRIFFITH
	FILE NO. 2801	GRIFFITH, INDIANA

GROUND ELEVATION:

SOIL DEPTH	SOIL DESCRIPTION	SAMPLE DEPTH	TYPE	CONDITION	"N" VALUE
	LOOSE DARK BROWN TO GRAY MEDIUM SAND, TRACES OF GRAVEL	2.5			8
		5.0			11
5.5	LOOSE GRAY MEDIUM SAND WITH SOME GRAVEL	7.5			9
		10.0			3
12.0		12.5			10
13.7	LOOSE GRAY TO BROWN FINE SAND				
	LOOSE GRAY MEDIUM TO FINE SAND	15.0			10
17.5		17.5			11
	BORING ENDED AT 17.5'	20.0			
		22.5			
		25.0			

SAMPLE DATA

UNCONFINED COMPRESSIVE STRENGTH – T. S. F.



NOTES:

LEGEND:

SPLIT SPOON, SHELBY TUBE, PISTON, A-AUGER, ROCK CORE, - CALIBRATED PENETROMETER

D - DISTURBED, COHESIONLESS SOIL OR AUGER SAMPLE

U - UNDISTURBED, SHELBY TUBE OR PISTON SAMPLE

I - SUFFICIENTLY COHESIVE TO HOLD SAMPLE INTACT

L - LOST, NO SAMPLE RECOVERY

"N" VALUES IN THE STANDARD PENETRATION TEST ARE BLOWS PER FOOT REQUIRED TO DRIVE A 2" O.D. SPLIT SPOON SAMPLER USING

EXHIBIT

SALISBURY ENGINEERING INC.
1501 E. MAIN STREET, GRIFFITH, IND.

LOG OF TEST BORING NO. 6

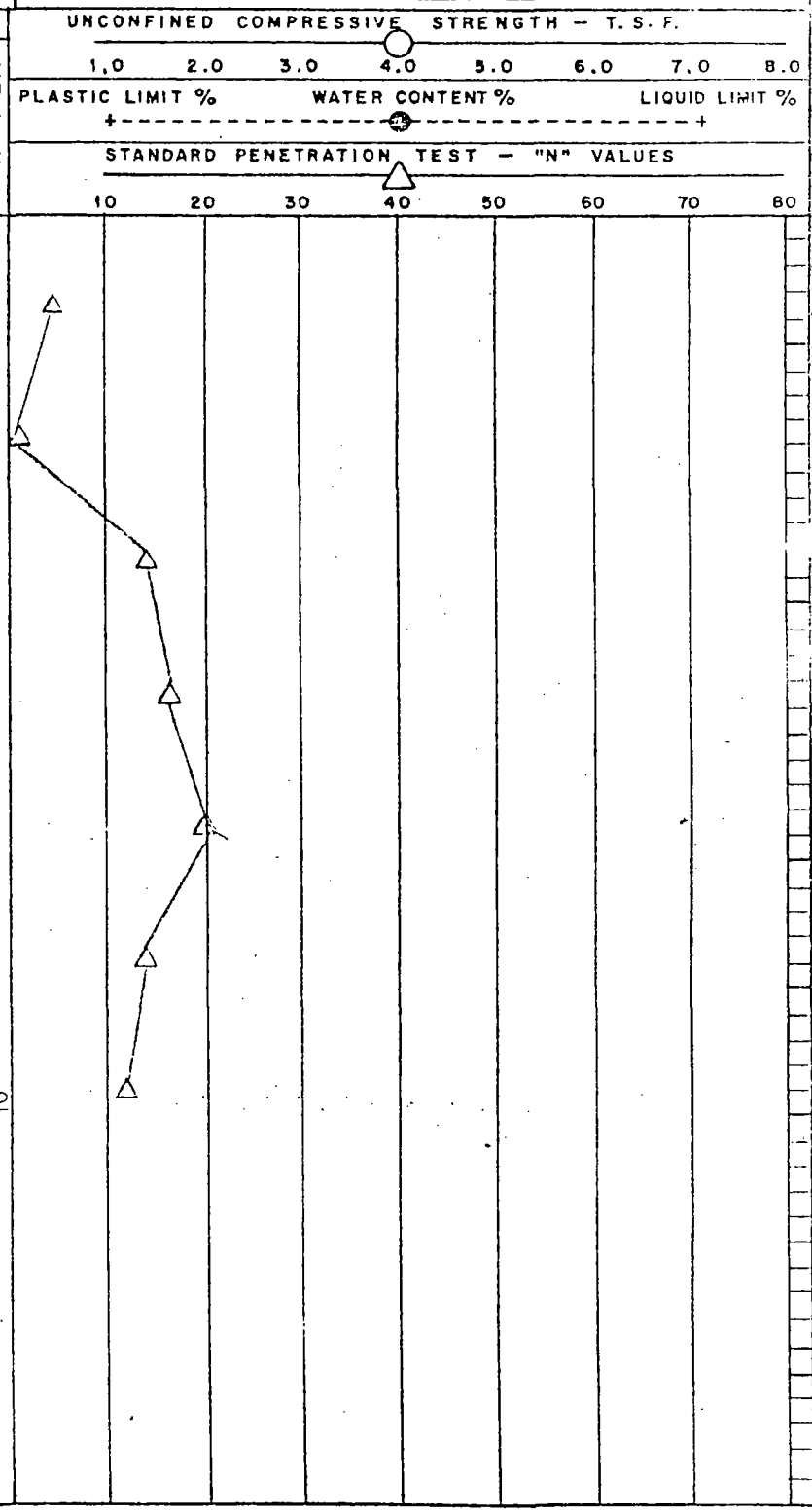
WATER LEVEL DATA		
___ FT. ___ IN. ___ HR.	STARTED 6-19-74	LOCATION SEWER BORINGS, STA. 6+00, 65' E. & 25' S. OF STAKE, COLFAX AVENUE, GRIFFITH, INDIANA
___ FT. ___ IN. ___ HR.	COMPLETED SAME	
___ FT. ___ IN. ___ HR.	DRILLER B. COOK	
	LOGGER	CLIENT TOWN OF GRIFFITH, GRIFFITH, INDIANA
	FILE NO. 2801	

GROUND ELEVATION:

SOIL DEPTH	SOIL DESCRIPTION
1.1	BLACK SANDY TOPSOIL
1.9	VERY LOOSE BROWN FINE SAND, WET AT 2.0'
3.2	LOOSE BROWN MEDIUM TO COARSE SAND
6.5	LOOSE BROWN AND GRAY FINE GRAVEL
7.1	MEDIUM GRAY MEDIUM SAND WITH TRACE OF GRAVEL
13.7	MEDIUM GRAY FINE SAND
17.5	MEDIUM GRAY MEDIUM SAND
	BORING ENDED AT 17.5'

SAMPLE DATA

SAMPLE DEPTH	TYPE	CONDITION	"N" VALUE
2.5			4
5.0			1
7.5			13
10.0			16
12.5			20
15.0			13
17.5			12
20.0			
22.5			
25.0			



NOTES:

LEGEND:

S - SPLIT SPOON, T - SHELBY TUBE, P - PISTON, A - AUGER, R - ROCK CORE, ⊕ - CALIBRATED PENETROMETER

D - DISTURBED, COHESIONLESS SOIL OR AUGER SAMPLE

U - UNDISTURBED, COHESIVE SHELBY TUBE OR PISTON SAMPLE

I - SUFFICIENTLY COHESIVE TO HOLD SAMPLE INTACT

L - LOST, NO SAMPLE RECOVERY

EXHIBIT

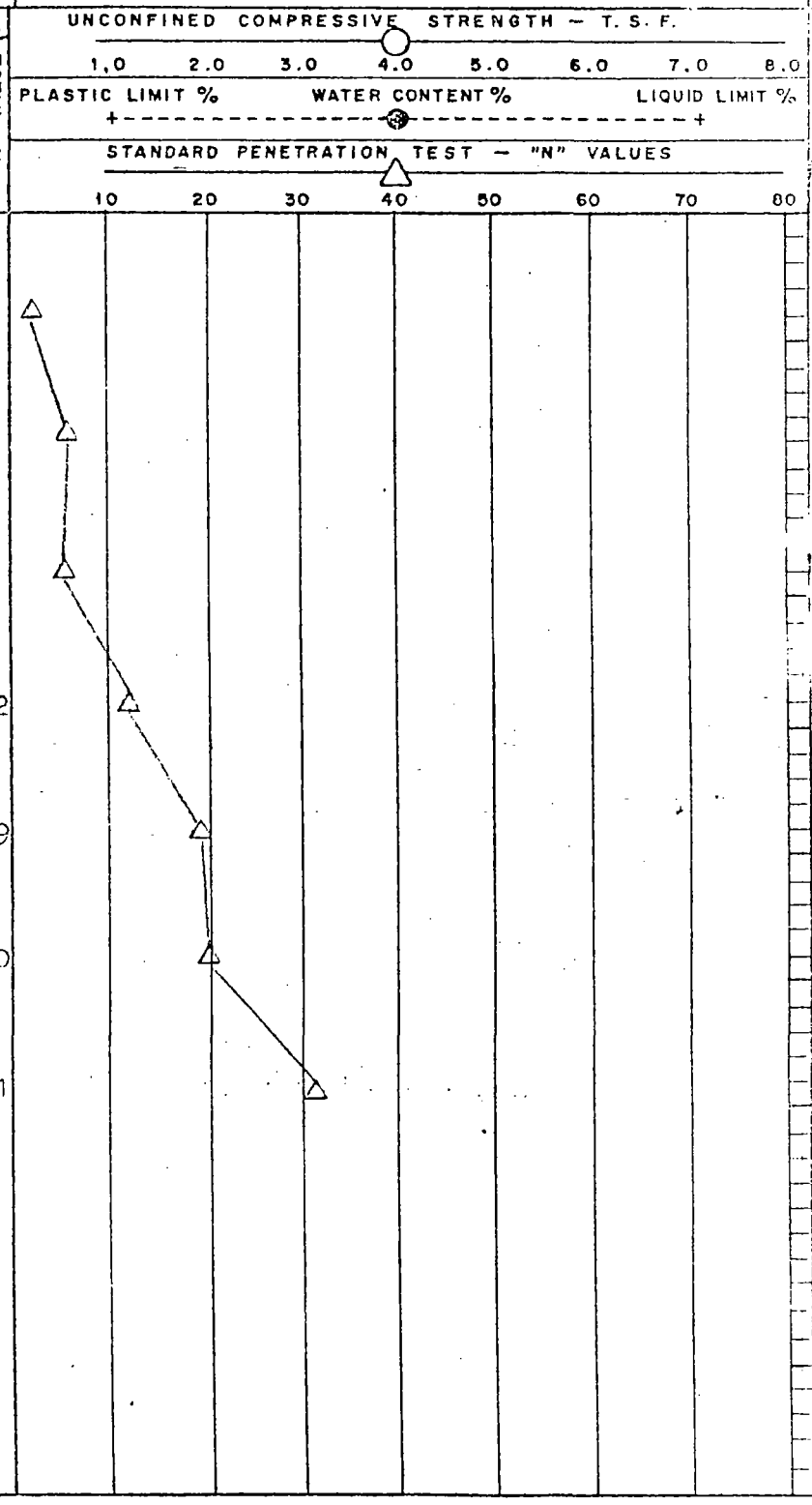
SALISBURY ENGINEERING INC.
1501 E. MAIN STREET, GRIFFITH, IND.

LOG OF TEST BORING NO. 7

WATER LEVEL DATA		
5'6" AT COMPLETION	STARTED 6-19-74	LOCATION - SEWER BORINGS, STA. 12+00, 17' S. OF STA.
___ FT. ___ IN. ___ HR.	COMPLETED SAME	COLFAX AVENUE
___ FT. ___ IN. ___ HR.	DRILLER B. COOK	GRIFFITH, INDIANA
___ FT. ___ IN. ___ HR.	LOGGER	CLIENT TOWN OF GRIFFITH
	FILE NO. 2801	GRIFFITH, INDIANA

GROUND ELEVATION:

SOIL DEPTH	SOIL DESCRIPTION	SAMPLE DEPTH	TYPE	CONDITION	"N" VALUE
0.5	BLACK SANDY TOPSOIL				
	VERY LOOSE LIGHT BROWN FINE SAND	2.5			2
3.0					
	LOOSE BROWN SAND AND GRAVEL				
4.8	LOOSE BROWN MEDIUM SAND	5.0			6
		7.5			6
9.9					
	MEDIUM GRAY FINE SAND BECOMING SLIGHTLY SILTY BELOW 11.3'	10.0			12
		12.5			19
13.9					
	MEDIUM GRAY MEDIUM SAND	15.0			20
17.5		17.5			31
	BORING ENDED AT 17.5'				
		20.0			
		22.5			
		25.0			



NOTES:

LEGEND:

- SPLIT SPOON, - SHELBY TUBE, - PISTON, A - AUGER, - ROCK CORE, - CALIBRATED PENETROMETER
- DISTURBED, COHESIONLESS SOIL OR AUGER SAMPLE
- UNDISTURBED, SHELBY TUBE OR PISTON SAMPLE
- SUFFICIENTLY COHESIVE TO HOLD SAMPLE INTACT
- L - LOST, NO SAMPLE RECOVERY

EXHIBIT

SALISBURY ENGINEERING INC.
511 EAST MAIN STREET, GRIFFITH, INDIANA

LABORATORY TEST SUMMARY

PROJECT LOCATION: Sewer Borings, Colfax Avenue, Griffith, Indiana

REPORTED TO: Town of Griffith, Griffith, Indiana

FILE 2801

DATE 6-26-74

SHEET 1 OF 1

T.B. NO.	3	3	4	4					
SAMPLE NO.(1)	5	6	6	7					
DEPTH, FEET	12.5	15.0	15.0	17.5					
'N' VALUE	13	24	9	10					
CONSISTENCY									
COLOR									
TEXTURE									
GROUP SYMBOL (2)									
MOISTURE %	17.6	15.6	17.0	17.0					
Qu. TSF	2.9	4.1	*0.8	*1.0					
STRAIN %	20.0	20.0							
MODE OF FAILURE: DIAG SHEAR	X	X							
MODE OF FAILURE: BULGE	X	X							
MODE OF FAILURE: VERT SHEAR									
DRY UNIT WT., PCF									
LIQUID LIMIT									
PLASTIC LIMIT									
P.I. (3)									

NOTES:

(1) ALL SAMPLES ARE SPLIT SPOON UNLESS OTHERWISE NOTED,
- A. P-PISTON SAMPLE
- B. ST-SHELBY TUBE SAMPLE

(2) GROUP SYMBOL BASED ON UNIFIED SOIL CLASSIFICATION SYSTEM.

(3) P.I.-PLASTICITY INDEX

QU-UNCONFINED COMPRESSIVE STRENGTH

'N' VALUE-INDICATES NUMBER OF BLOWS REQUIRED TO DRIVE 2" O.D. SPLIT SPOON SAMPLER ONE FOOT OR FRACTION THEREOF

REMARKS:

File

SALISBURY ENGINEERING INC.
P.O. BOX 270 1501 E. MAIN STREET GRIFFITH, INDIANA 46319
GRIFFITH PHONE (219) 923-6690 CHICAGO PHONE (312) 375-9092

August 28, 1974
File 2864

Town of Griffith
Griffith, Indiana 46319

ATTENTION: Mr. Glen Reyome
Director of Public Works

Subject: Test Borings
Refuse Area
Griffith, Indiana

Gentlemen:

Attached are the results of our recent test borings in your refuse area west of Colfax Street and north of the Chesapeake and Ohio Railway. We have taken four test borings at locations shown on the attached sketch with logs attached. In these test borings, we have taken two samples of water and performed chemical tests as requested by your engineer, Torrenga Engineering Co., with the results as follows.

Test Boring No.	2	4
B.O.D.	29 MG/L	66 MG/L
Chloride Ion	2426 MG/L	253 MG/L
Chromate	/ 0.1 MG/L	/ 0.1 MG/L
C.O.D.	222 MG/L	146 MG/L
Ion Exchange Transfer	1.39 Meq/100 ml	0.65 Meq/100 ml
Iron	48.3 MG/L	3.39 MG/L
PH	8.4	8.1

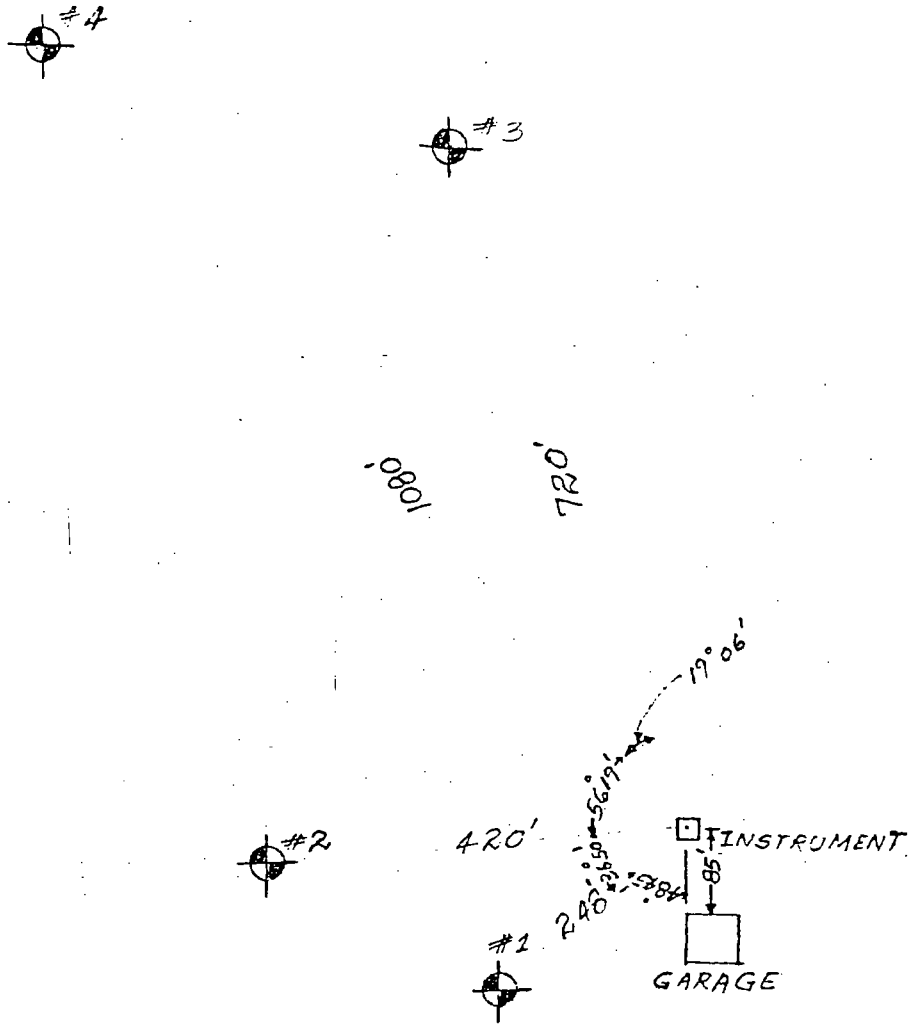
I trust this information is complete; however, if we may be of additional service, please advise.

Very truly yours,
Salisbury Engineering Inc.

M. H. Salisbury, P.E.

SALISBURY ENGINEERING INC.
611 E. MAIN STREET, GRIFFITH, IND.

BORING LOCATIONS



NOTE: BM ASSUMED IS 100 TOP OF GARAGE FLOOR

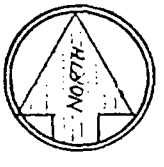
ELEVATION TB #1 93.9

TB #2 90.6

TP #1A7 TB #2 IS 4.45

TB #3 79.6

TB #4 82.4



SCALE 1" = 200'

Refuse Area
Griffith, Indiana

FILE [illegible] DATE [illegible]

EXHIBIT 2

SALISBURY ENGINEERING INC.
1501 E. MAIN STREET, GRIFFITH, IND.

LOG OF TEST BORING NO. 1

WATER LEVEL DATA		
22 FT. ___ IN. 0 HR.	STARTED 8-13-74	LOCATION REFUSE AREA
9 FT. 6 IN. 1/4 HR.	COMPLETED SAME	GRIFFITH, INDIANA
22 FT. 3 IN. 1 HR.	DRILLER ANDERSON, SZMUC	
FT. ___ IN. ___ HR.	INSPECTOR KOLLASCH	CLIENT TOWN OF GRIFFITH
	FILE NO. 2364	GRIFFITH, INDIANA

DESCRIPTION OF MATERIAL	CASING DEPTH	SAMPLE DATA: DEPTH	TYPE	CONDITION
CONSISTENCY COLOR TEXTURE				
SURFACE ELEVATION:				
BROWN MEDIUM SAND 0.3'				
MISC. RUBBLE AND RUBBISH		5, 10, 15, 20		
23.0'				
MEDIUM GRAY MEDIUM SAND, RUBBLE AND RUBBISH 27.0'		25	D	
VERY STIFF GRAY SILTY CLAY, TRACE OF SHALE AND FINE GRAVEL		30	I	
		35	I	
40.0'		40	I	
BORING ENDED AT 40.0'		45, 50		

UNCONFINED COMPRESSIVE STRENGTH - T.S.F.: 1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0

PLASTIC LIMIT % — WATER CONTENT % — LIQUID LIMIT %

STANDARD PENETRATION TEST - "N" VALUES: 10 20 30 40 50 60 70 80 90

NOTES:

□ - SPLIT SPOON, ▣ - SHELBY TUBE, ▥ - PISTON, ▨ - AUGER, ⊕ - CALIBRATED PENETROMETER

D - DISTURBED, COHESIONLES SOIL OR AUGER SAMPLE — I - SUFFICIENTLY COHESIVE TO HOLD SAMPLE INTACT

U - UNDISTURBED PISTON SAMPLE — L - LOST, NO SAMPLE RECOVERY

EXHIBIT 3

SALISBURY ENGINEERING INC.
1501 E. MAIN STREET, GRIFFITH, IND.

LOG OF TEST BORING NO. 2

WATER LEVEL DATA		
17 FT.	IN. 0	HR.
FT. 6	IN. 1/4	HR.
FT.	IN. 1	HR.
FT.	IN.	HR.

STARTED 8-13-74
COMPLETED SAME
DRILLER ANDERSON, SZMUC
INSPECTOR KOLLASCH
FILE NO. 2864

LOCATION REFUSE AREA
GRIFFITH, INDIANA

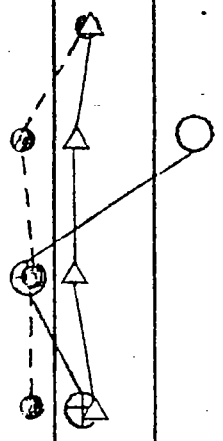
CLIENT TOWN OF GRIFFITH
GRIFFITH, INDIANA

DESCRIPTION OF MATERIAL		CASING DEPTH	SAMPLE DATA: DEPTH	TYPE	CONDITION
CONSISTENCY COLOR TEXTURE					
SURFACE ELEVATION:					
BROWN MEDIUM SAND	1.0				
RUBBLE AND RUBBISH	16.5'		5, 10, 15		
MEDIUM GRAY SAND AND SILT WITH SOME RUBBLE AND RUBBISH	22.5'		20	D	
VERY STIFF GRAY SILTY CLAY WITH TRACES OF SHALE AND FINE GRAVEL	35.0'		25, 30, 35	I, I, I	
BORING ENDED AT 35.0'			40, 45, 50		

UNCONFINED COMPRESSIVE STRENGTH - T.S.F.
1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0

PLASTIC LIMIT % WATER CONTENT % LIQUID LIMIT %

STANDARD PENETRATION TEST - "N" VALUES
10 20 30 40 50 60 70 80 90



NOTES:

- SPLIT SPOON, - SHELBY TUBE, - PISTON, - AUGER, - CALIBRATED PENETROMETER
- DISTURBED, COHESIONLES SOIL OR AUGER SAMPLE
- UNDISTURBED SHELBY TUBE OR PISTON SAMPLE
I - SUFFICIENTLY COHESIVE TO HOLD SAMPLE INTACT
L - LOST, NO SAMPLE RECOVERY

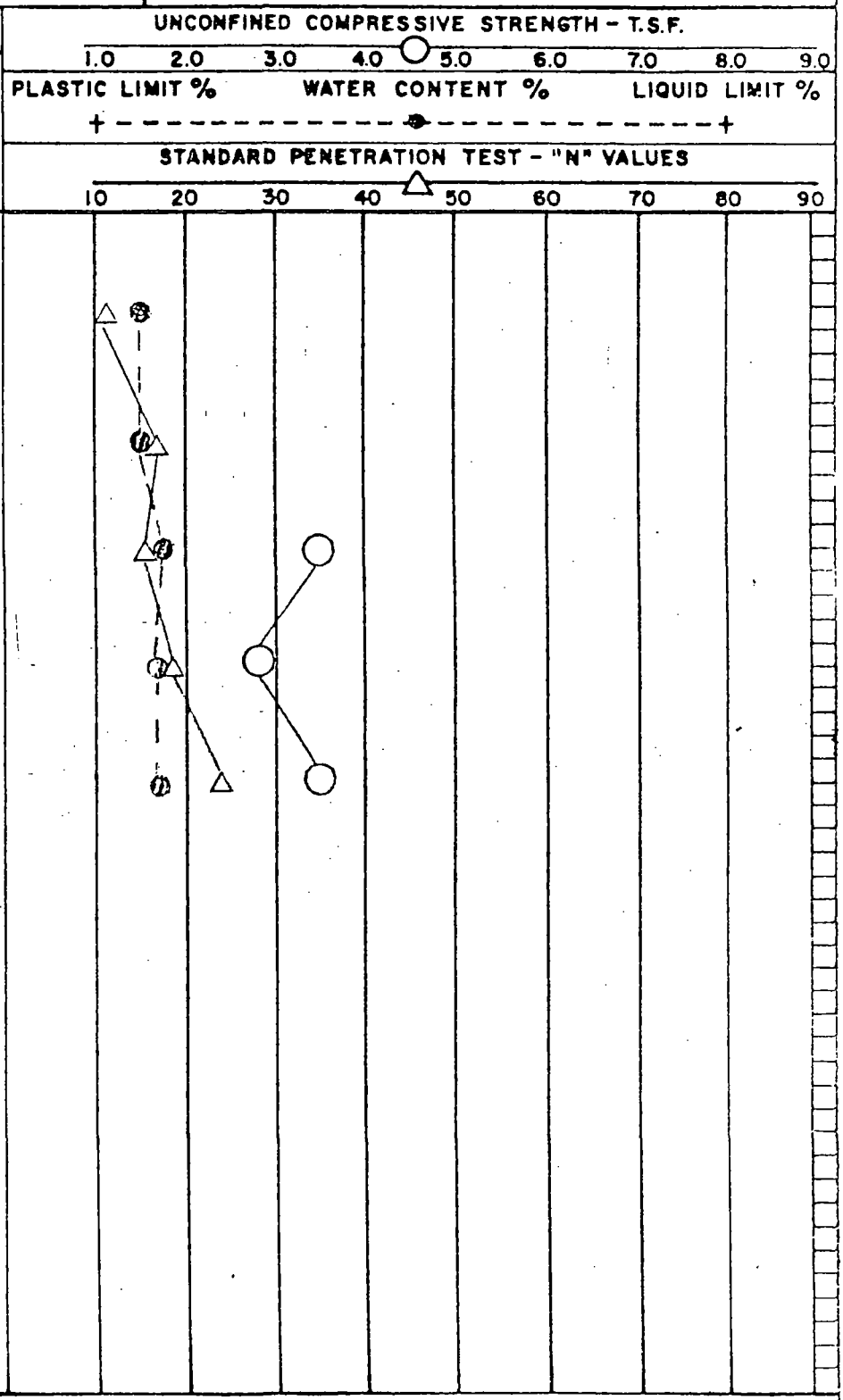
EXHIBIT 4

SALISBURY ENGINEERING INC.
1501 E. MAIN STREET, GRIFFITH, IND.

LOG OF TEST BORING NO. 3

WATER LEVEL DATA		
4 FT. ___ IN. 0 HR.	STARTED 8-13-74	LOCATION Refuse Area, Griffith, Indiana
___ FT. 10 IN. 1/4 HR.	COMPLETED Same	
___ FT. 6 IN. 1 HR.	DRILLER Anderson, Szmuc	
___ FT. ___ IN. ___ HR.	INSPECTOR Kollasch	CLIENT Town of Griffith, Griffith, Indiana
	FILE NO. 2864	

DESCRIPTION OF MATERIAL (CONSISTENCY, COLOR, TEXTURE)	CASING DEPTH	DEPTH	TYPE	CONDITION
SURFACE ELEVATION:				
Loose brown medium to coarse sand 4.0'				
Medium gray medium to coarse sand, trace of silt & clay binder, trace fine to coarse gravel 8.0'		5	D	
Medium gray medium sand with lenses of gray silt 14.0'		10	D	
Very stiff gray silty clay, traces of shale and fine gravel 25.0'		15	I	
		20	I	
		25	I	
Boring ended at 25.0'		30		
		35		
		40		
		45		
		50		



NOTES:

D - SPLIT SPOON, S - SHELBY TUBE, P - PISTON, A - AUGER, ⊕ - CALIBRATED PENETROMETER
D - DISTURBED, COHESIONLES SOIL OR AUGER SAMPLE
U - UNDISTURBED [illegible] TUBE OR PISTON SAMPLE
I - SUFFICIENTLY COHESIVE TO HOLD SAMPLE INTACT
L - LOST, NO SAMPLE RECOVERY

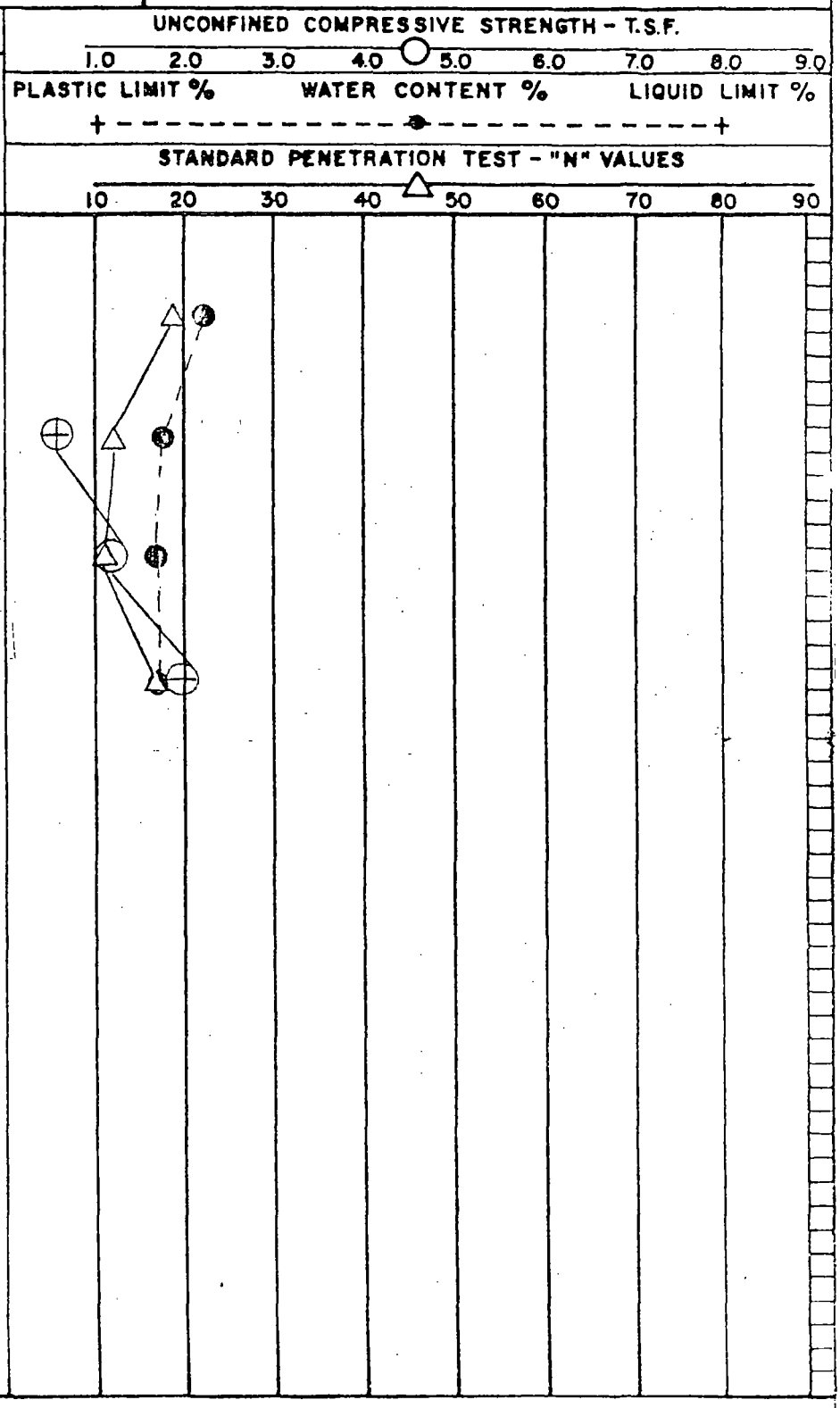
EXHIBIT 5

SALISBURY ENGINEERING INC.
1501 E. MAIN STREET, GRIFFITH, IND.

LOG OF TEST BORING NO. 4

WATER LEVEL DATA		
FT. 6 IN. 0 HR.	STARTED 8-13-74	LOCATION REFUSE AREA GRIFFITH, INDIANA
FT. - IN. 1/4 HR.	COMPLETED SAME	
FT. 10 IN. 1/2 HR.	DRILLER ANDERSON, SZMUC	
FT. IN. HR.	INSPECTOR KOLLASCH	CLIENT TOWN OF GRIFFITH GRIFFITH, INDIANA
	FILE NO. 2864	

DESCRIPTION OF MATERIAL (CONSISTENCY, COLOR, TEXTURE)	CASING DEPTH	SAMPLE DATA: DEPTH	TYPE	CONDITION
SURFACE ELEVATION:				
BLACK SANDY TOPSOIL 0.5				
MEDIUM BROWN MEDIUM SAND 4.0'				
MEDIUM GRAY MEDIUM SAND, TRACE OF FINE GRAVEL 7.5'		5	D	
LOOSE FINE GRAVEL, TRACE GRAY MEDIUM SAND 9.0'				
MEDIUM GRAY COARSE SAND TRACE FINE GRAVEL, WITH LENS OF SILT AT 9.9'		10	D	
STIFF GRAY SILTY CLAY, TRACE OF SHALE AND FINE GRAVEL 18.0'		15	I	
VERY STIFF GRAY SILTY CLAY, TRACE SHALE & FINE GRAVEL		20	I	
BORING ENDED AT 20.0'		25		
		30		
		35		
		40		
		45		
		50		



NOTES:

- SPLIT SPOON, - SHELBY TUBE, - PISTON, - AUGER, - CALIBRATED PENETROMETER
- DISTURBED, COHESIONLES SOIL OR AUGER SAMPLE
- SUFFICIENTLY COHESIVE TO HOLD SAMPLE INTACT
- LOST, NO SAMPLE RECOVERY

SALISBURY ENGINEERING INC.
611 EAST MAIN STREET, GRIFFITH, INDIANA

LABORATORY TEST SUMMARY

PROJECT LOCATION: REFUSE AREA, GRIFFITH, INDIANA

FILE: 2864

DATE: 8-16-74

REPORTED TO: TOWN OF GRIFFITH, GRIFFITH, INDIANA

SHEET 1 OF 2

T.B. NO.	1	1	1	1	2	2	2	2	3
SAMPLE NO.(1)	1	2	3	4	1	2	3	4	1
DEPTH, FEET	25.0	30.0	35.0	40.0	20.0	25.0	30.0	35.0	5.0
'N' VALUE	14	26	26	28	23	22	22	23	16
CONSISTENCY									
COLOR									
TEXTURE									
GROUP SYMBOL (2)									
MOISTURE %	39.6	18.5	17.5	17.2	23.9	17.0	18.0	18.3	15.4
Qu. TSF		1.6	*2.8	3.9	-	*3.4	*1.8	*2.2	-
STRAIN %		20.0		20.0					
MODE OF FAILURE: DIAG SHEAR									
MODE OF FAILURE: BULGE		X		X					
MODE OF FAILURE: VERT SHEAR		X		X					
DRY UNIT WT., PCF									
LIQUID LIMIT									
PLASTIC LIMIT									
P.I. (3)									

NOTES:
(1) ALL SAMPLES ARE SPLIT SPOON UNLESS OTHERWISE NOTED,
A. P-PISTON SAMPLE
B. ST-SHELBY TUBE SAMPLE
(2) GROUP SYMBOL BASED ON UNIFIED SOIL CLASSIFICATION SYSTEM.
(3) P.I.-PLASTICITY INDEX
QU-UNCONFINED COMPRESSIVE STRENGTH
'N' VALUE-INDICATES NUMBER OF BLOWS REQUIRED TO DRIVE 2" O.D. SPLIT SPOON SAMPLER ONE FOOT OR FRACTION THEREOF USING [illegible] FALLING 30 IN.

REMARKS:

SALISBURY ENGINEERING INC.
611 EAST MAIN STREET, GRIFFITH, INDIANA

LABORATORY TEST SUMMARY

PROJECT LOCATION: REFUSE AREA, GRIFFITH, INDIANA

FILE: 2364

DATE: 8-16-74

REPORTED TO: TOWN OF GRIFFITH, GRIFFITH, INDIANA

SHEET 2 OF 2

T.B. NO.		3	3	3	3	4	4	4	4	
SAMPLE NO.(1)		2	3	4	5	1	2	3	4	
DEPTH, FEET		10.0	15.0	20.0	25.0	5.0	10.0	15.0	20.0	
'N' VALUE		17	16	19	23	19	12	11	17	
CONSISTENCY										
COLOR										
TEXTURE										
GROUP SYMBOL (2)										
MOISTURE %		15.6	18.4	17.2	17.1	22.5	18.2	17.9	17.5	
Qu. TSF		-	3.5	2.9	3.5		*0.6	1.1	*2.0	
STRAIN %			20.0	20.0	20.0			20.0		
MODE OF FAILURE	DIAG SHEAR		X	X				X		
	BULGE		X		X			X		
	VERT SHEAR		X	X				X		
DRY UNIT WT., PCF										
LIQUID LIMIT										
PLASTIC LIMIT										
P.I. (3)										

NOTES:

(1) ALL SAMPLES ARE SPLIT SPOON UNLESS OTHERWISE NOTED,
- A. P-PISTON SAMPLE
- B. ST-SHELBY TUBE SAMPLE

(2) GROUP SYMBOL BASED ON UNIFIED SOIL CLASSIFICATION SYSTEM.

(3) P.I.-PLASTICITY INDEX

QU-UNCONFINED COMPRESSIVE STRENGTH

'N' VALUE-INDICATES NUMBER OF BLOWS REQUIRED TO DRIVE 2" O.D. SPLIT SPOON SAMPLER ONE FOOT OR FRACTION THEREOF

REMARKS:

SALISBURY ENGINEERING INC.
P.O. BOX 270 1501 E. MAIN STREET GRIFFITH, INDIANA 46319
GRIFFITH PHONE (219) 923-6690 CHICAGO PHONE (312) 375-9092

November 22, 1976
File 2864

Town of Griffith
Griffith, Indiana 46319

ATTENTION: Mr. Glen Reyome

Subject: Test Boring in Excavation
Griffith Dump Site
Griffith, Indiana

Dear Mr. Reyome:

At your request, we have made one test boring in the excavation at the Griffith dump site. It is estimated that the elevation at the boring location was 32 feet below the top of the railroad tracks west of the dump. The boring was drilled 20 feet below the bottom of the excavation.

The soil found is a gray silty clay which has standard penetration blow counts (N value) of 18 to 24, unconfined compressive strength (Qu value) of 1.7 to 5.2 tsf, and natural moisture in a range of 16.2 to 18.9 percent. The clay with these properties is considered as a very stiff to hard soil, but not a hardpan. The hardpan would generally have higher N value, higher Qu value, and somewhat lower moisture.

The test boring log and the test results are enclosed with this letter. We hope that you will find them adequate for your present needs. Should you have any additional questions, please let us know.

Very truly yours,

SALISBURY ENGINEERING INC.

M. H. Salisbury, P.E.

MHS:PK:dr

Enclosures - 2

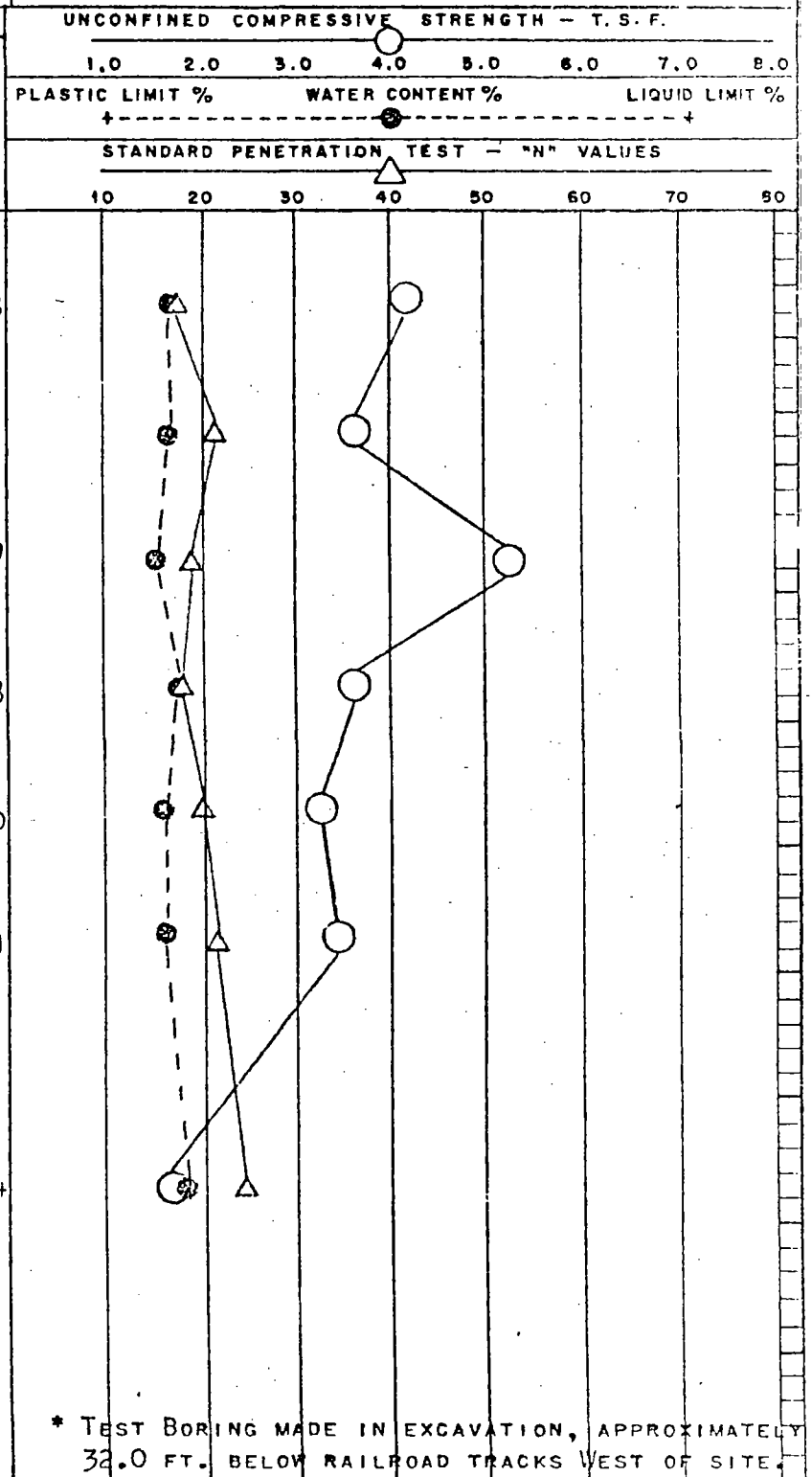
SALISBURY ENGINEERING INC.
1501 E. MAIN STREET, GRIFFITH, IND.

LOG OF TEST BORING NO. _____

WATER LEVEL DATA		
DRY FT. ___ IN. 0 HR.	STARTED 11-19-76	LOCATION GRIFFITH DUMP SITE, GRIFFITH, INDIANA
DRY FT. ___ IN. 1/4 HR.	COMPLETED SAME	
___ FT. ___ IN. ___ HR.	DRILLER SZMUC	
___ FT. ___ IN. ___ HR.	LOGGER ANDERSON	CLIENT TOWN OF GRIFFITH, GRIFFITH, INDIANA
	FILE NO. 2864	

GROUND ELEVATION: *

SOIL DEPTH	SOIL DESCRIPTION	SAMPLE DEPTH	TYPE	CONDITION	"N" VALUE
	VERY STIFF GRAY SILTY CLAY, TRACES OF FINE GRAVEL AND SHALE	2.5		I	18
		5.0		I	21
		7.5		I	19
		10.0		I	18
		12.5		I	20
		15.0		I	21
		17.5			
20.0		20.0		I	24
	TEST BORING ENDED AT 20.0'	22.5			
		25.0			



* TEST BORING MADE IN EXCAVATION, APPROXIMATELY 32.0 FT. BELOW RAILROAD TRACKS WEST OF SITE.

NOTES: EXCAVATION MADE TO A DEPTH OF 30.0 FT. BELOW GROUND LEVEL, EXTENDING APPROX. 5.0 FT. INTO CLAY.

LEGEND:

- SPLIT SPOON, - SHELBY TUBE, - PISTON, A - AUGER, - ROCK CORE, - CALIBRATED PENETROMETER
- DISTURBED, COHESIONLESS SOIL OR AUGER SAMPLE
- UNDISTURBED, SHELBY TUBE OR PISTON SAMPLE
- I - SUFFICIENTLY COHESIVE TO HOLD SAMPLE INTACT
- L - LOST, NO SAMPLE RECOVERY

EXHIBIT

SALISBURY ENGINEERING INC.
1501 E. MAIN STREET, GRIFFITH, IND.

LABORATORY TEST SUMMARY

CLIENT: TOWN OF GRIFFITH, GRIFFITH, INDIANA

PROJECT: GRIFFITH DUMP SITE, GRIFFITH, INDIANA

FILE 2864
DATE 11-22-76
SHEET 1 OF 1

T.B. NO.		1	1	1	1	1	1	1		
SAMPLE NO. (1)		1	2	3	4	5	6	7		
DEPTH, FEET		2.5	5.0	7.5	10.0	12.5	15.0	20.0		
"N" VALUE		18	21	19	18	20	21	24		
MOISTURE %		16.2	16.6	15.6	17.2	16.5	16.8	18.9		
Qu TSF		4.1	3.7	5.2	3.7	3.2	3.4	1.7		
STRAIN %		20.0	20.0	20.0	20.0	16.4	14.5	20.0		
MODE OF FAILURE	DIAG SHEAR	X	X	X	X	X	X	X		
	BULGE	X	X	X	X	X	X	X		
	VERT SHEAR	X	X	X	X	X	X	X		
DRY UNIT WT., PCF		125.3	120.2	120.4	115.7	125.1	119.4	117.5		
LIQUID LIMIT										
PLASTIC LIMIT										
P. I. (2)										
T.B. NO.										
SAMPLE NO. (1)										
DEPTH, FEET										
"N" VALUE										
MOISTURE %										
Qu TSF										
STRAIN %										
MODE OF FAILURE	DIAG SHEAR									
	BULGE									
	VERT SHEAR									
DRY UNIT WT., PCF										
LIQUID LIMIT										
PLASTIC LIMIT										
P. I. (2)										

NOTES:
(1) ALL SAMPLES ARE SPLIT SPOON UNLESS OTHERWISE NOTED
(A) P-PISTON SAMPLE (B) ST-SHELBY TUBE SAMPLE
(2) P.I.-PLASTICITY INDEX. Qu-UNCONFINED COMPRESSIVE STRENGTH * CALIBRATED PENETROMETER

SALISBURY ENGINEERING INC.
P.O. BOX 270 1501 E. MAIN STREET GRIFFITH, INDIANA 46319
GRIFFITH PHONE (219) 923-0690 CHICAGO PHONE (312) 375-9092

November 22, 1976
File 2864

DEC 10 9 48 AM '76
SANITARY ENGINEERING DIVISION
STATE BOARD OF HEALTH

Town of Griffith
Griffith, Indiana 46319

ATTENTION: Mr. Glen Reyome

Subject: Test Boring in Excavation
Griffith Dump Site
Griffith, Indiana

Dear Mr. Reyome:

At your request, we have made one test boring in the excavation at the Griffith dump site. It is estimated that the elevation at the boring location was 32 feet below the top of the railroad tracks west of the dump. The boring was drilled 20 feet below the bottom of the excavation.

The soil found is a gray silty clay which has standard penetration blow counts (N value) of 18 to 24, unconfined compressive strength (Qu value) of 1.7 to 5.2 tsf, and natural moisture in a range of 16.2 to 18.9 percent. The clay with these properties is considered as a very stiff to hard soil, but not a hardpan. The hardpan would generally have higher N value, higher Qu value, and somewhat lower moisture.

The test boring log and the test results are enclosed with this letter. We hope that you will find them adequate for your present needs. Should you have any additional questions, please let us know.

Very truly yours,

SALISBURY ENGINEERING INC.

M. H. Salisbury

M. H. Salisbury, P.E.

MHS:PK:dr

Enclosures - 2

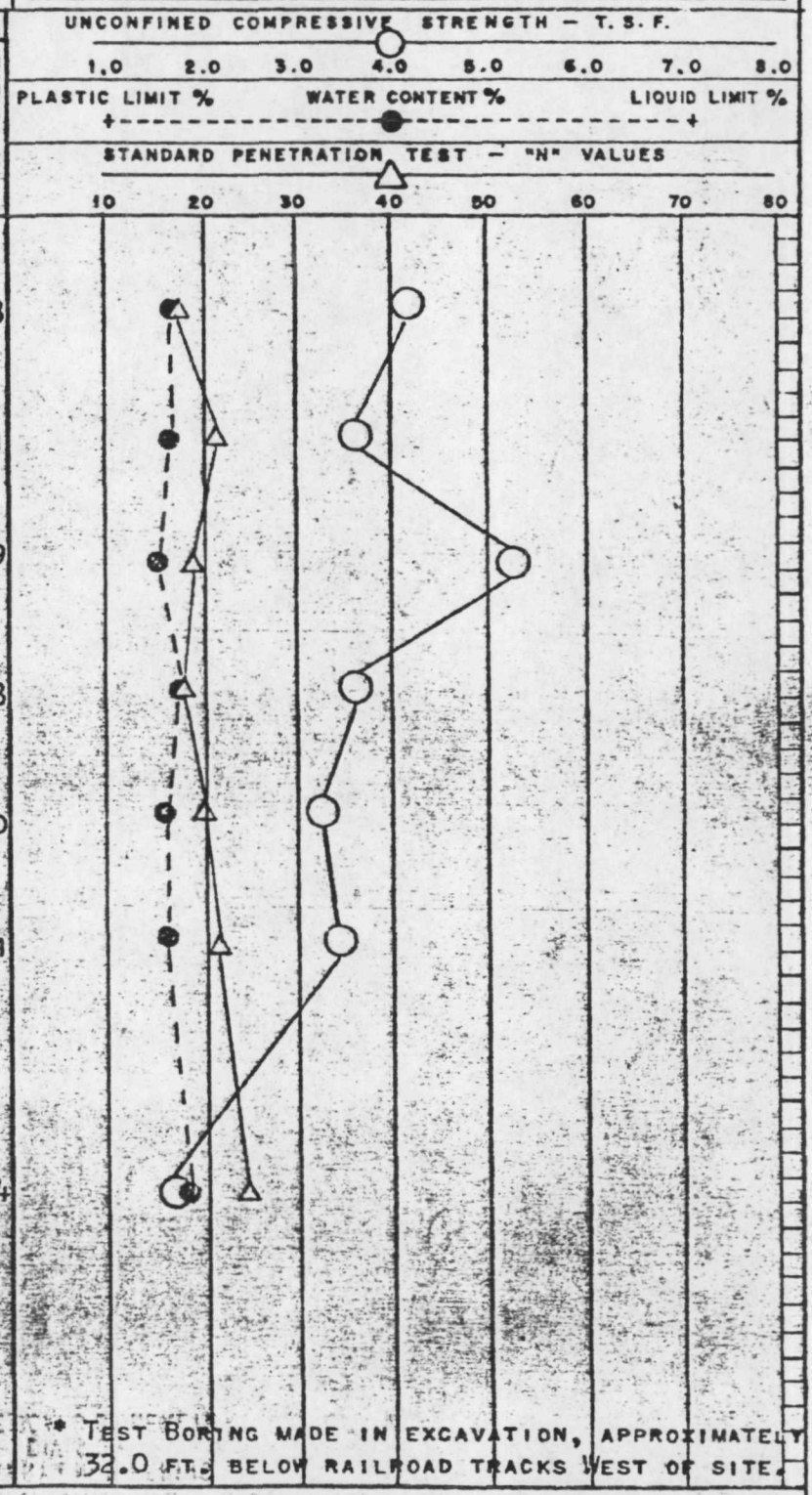
SALISBURY ENGINEERING INC.
1501 E. MAIN STREET, GRIFFITH, IND.

LOG OF TEST BORING NO. _____

WATER LEVEL DATA		
DRY FT. ___ IN. 0 HR.	STARTED 11-19-76	LOCATION GRIFFITH DUMP SITE
DRY FT. ___ IN. 1/4 HR.	COMPLETED SAME	GRIFFITH, INDIANA
___ FT. ___ IN. ___ HR.	DRILLER SZMUC	
___ FT. ___ IN. ___ HR.	LOGGER ANDERSON	CLIENT TOWN OF GRIFFITH
	FILE NO. 2864	GRIFFITH, INDIANA

GROUND ELEVATION: *

SOIL DEPTH	SOIL DESCRIPTION	SAMPLE DEPTH	TYPE	CONDITION	"N" VALUE
	VERY STIFF GRAY SILTY CLAY, TRACES OF FINE GRAVEL AND SHALE	2.5		I	18
		5.0		I	21
		7.5		I	19
		10.0		I	18
		12.5		I	20
		15.0		I	21
		17.5			
20.0		20.0		I	24
	TEST BORING ENDED AT 20.0'	22.5			
		25.0			



* TEST BORING MADE IN EXCAVATION, APPROXIMATELY 32.0 FT. BELOW RAILROAD TRACKS WEST OF SITE.

NOTES: EXCAVATION MADE TO A DEPTH OF 30.0 FT. BELOW GROUND LEVEL, EXTENDING APPROX. 5.0 FT. INTO CLAY.

LEGEND:

SPLIT SPOON, SHELBY TUBE, PISTON, AUGER, ROCK CORE, CALIBRATED PENETROMETER

D - DISTURBED, COHESIONLESS SOIL OR AUGER SAMPLE

U - UNDISTURBED, SHELBY TUBE OR PISTON SAMPLE

I - SUFFICIENTLY COHESIVE TO HOLD SAMPLE INTACT

L - LOST, NO SAMPLE RECOVERY

THE "N" VALUES IN THE STANDARD PENETRATION TEST ARE BLOWS PER FOOT REQUIRED TO DRIVE A 2" O.D. SPLIT SPOON SAMPLER USING A 140 POUND PIN WEIGHT FALLING FREE FOR A DISTANCE OF 30".

SALISBURY ENGINEERING INC.
1501 E. MAIN STREET, GRIFFITH, IND.

LABORATORY TEST SUMMARY

CLIENT: TOWN OF GRIFFITH, GRIFFITH, INDIANA

PROJECT: GRIFFITH DUMP SITE, GRIFFITH, INDIANA

FILE 2864
DATE 11-22-76
SHEET 1 OF 1

T.B. NO.		1	1	1	1	1	1	1		
SAMPLE NO. (1)		1	2	3	4	5	6	7		
DEPTH, FEET		2.5	5.0	7.5	10.0	12.5	15.0	20.0		
"N" VALUE		18	21	19	18	20	21	24		
MOISTURE %		16.2	16.6	15.6	17.2	16.5	16.8	18.9		
Qu TSF		4.1	3.7	5.2	3.7	3.2	3.4	1.7		
STRAIN %		20.0	20.0	20.0	20.0	16.4	14.5	20.0		
MODE OF FAILURE	DIAG SHEAR	X	X	X	X	X	X	X		
	BULGE	X	X	X	X	X	X	X		
	VERT SHEAR	X	X	X	X	X	X	X		
DRY UNIT WT., PCF		125.3	120.2	120.4	115.7	125.1	119.4	117.5		
LIQUID LIMIT										
PLASTIC LIMIT										
P.I. (2)										
T.B. NO.										
SAMPLE NO. (1)										
DEPTH, FEET										
"N" VALUE										
MOISTURE %										
Qu TSF										
STRAIN %										
MODE OF FAILURE	DIAG SHEAR									
	BULGE									
	VERT SHEAR									
DRY UNIT WT., PCF										
LIQUID LIMIT										
PLASTIC LIMIT										
P.I. (2)										

NOTES:
(1) ALL SAMPLES ARE SPLIT SPOON UNLESS OTHERWISE NOTED
(A) P-PISTON SAMPLE (B) ST-SHELBY TUBE SAMPLE
(2) P.I.-PLASTICITY INDEX, Qu-UNCONFINED COMPRESSIVE STRENGTH * CALIBRATED PENETROMETER
"N" VALUE - INDICATES NUMBER OF BLOWS REQUIRED TO DRIVE 2" O.D. SPLIT SPOON SAMPLER ONE FOOT OR FRACTION THEREOF USING A 140 LB. WEIGHT FALLING 30 IN.

SALISBURY ENGINEERING INC.
P.O. BOX 270 1501 E. MAIN STREET GRIFFITH, INDIANA 46319
GRIFFITH PHONE (219) 923-6690 CHICAGO PHONE (312) 375-9092

August 28, 1974
File 2864

1959 1974

Town of Griffith
Griffith, Indiana 46319

ATTENTION: Mr. Glen Reyome
Director of Public Works

Subject: Test Borings
Refuse Area
Griffith, Indiana

Gentlemen:

Attached are the results of our recent test borings in your refuse area west of Colfax Street and north of the Chesapeake and Ohio Railway. We have taken four test borings at locations shown on the attached sketch with logs attached. In these test borings, we have taken two samples of water and performed chemical tests as requested by your engineer, Torrenga Engineering Co., with the results as follows.

Test Boring No.	2	4
B.O.D.	29 MG/L	66 MG/L
Chloride Ion	2426 MG/L	253 MG/L
Chromate	/ 0.1 MG/L	/ 0.1 MG/L
C.O.D.	222 MG/L	146 MG/L
Ion Exchange Transfer	1.39 Meq/100 ml	0.65 Meq/100 ml
Iron	48.3 MG/L	3.39 MG/L
PH	8.4	8.1

I trust this information is complete; however, if we may be of additional service, please advise.

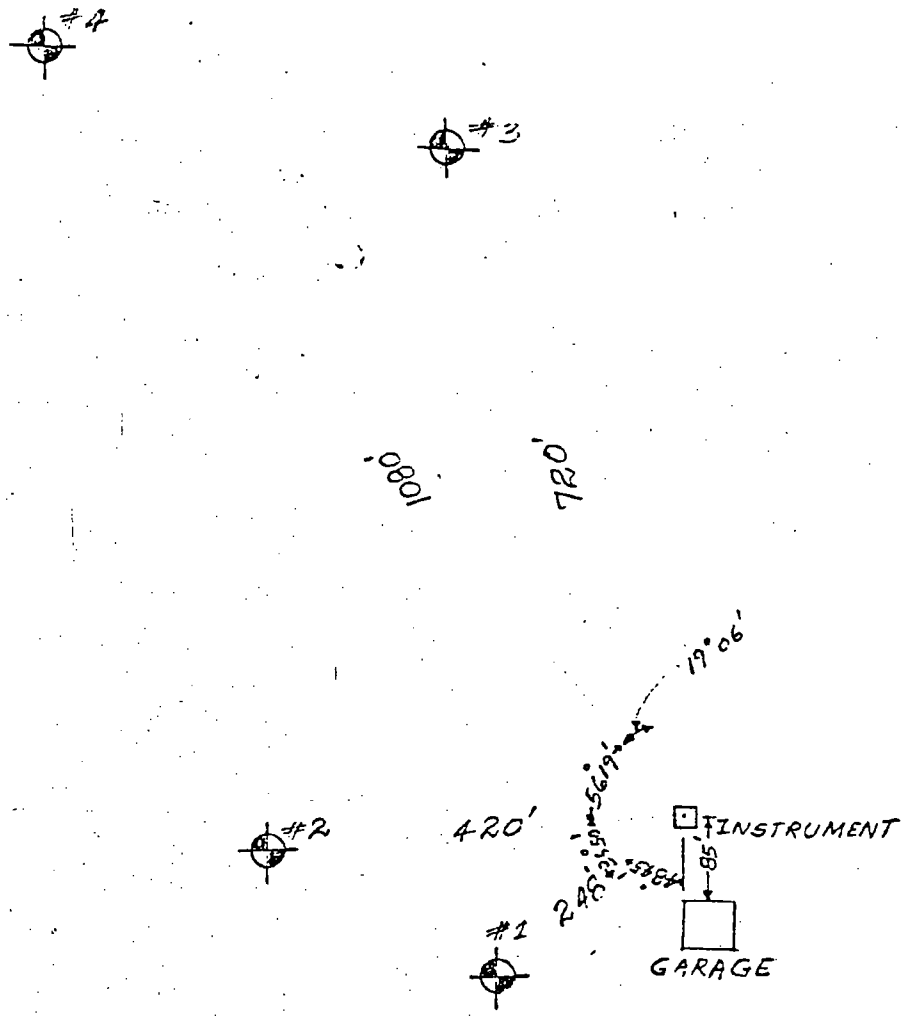
Very truly yours,
Salisbury Engineering Inc.

M H Salisbury

M. H. Salisbury, P.E.

MHS:dr

SALISBURY ENGINEERING INC. 611 E. MAIN STREET, GRIFFITH, IND.	BORING LOCATIONS



NOTE: BM ASSUMED IS 100 TOP OF GARAGE FLOOR

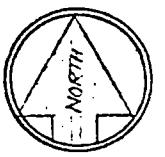
ELEVATION TB #1 93.9

TB #2 90.6

TP #1 AT TB #2 IS 4.45

TB #3 79.6

TB #4 82.4



SCALE 1" = 200'

Refuse Area
Griffith, Indiana

FILE 2864 DATE 8-26-74

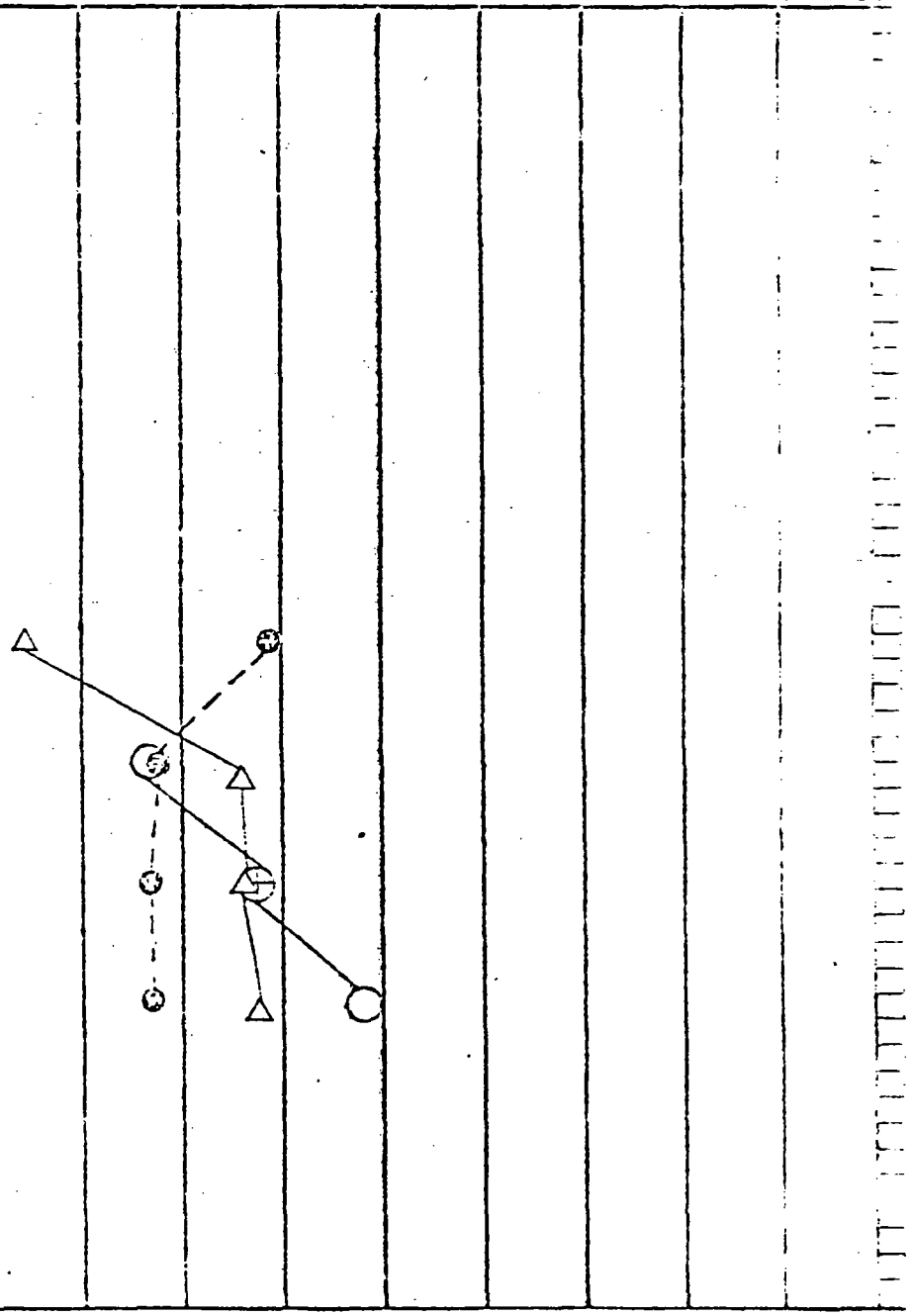
EXHIBIT

S. L. MOSBURY ENGINEERING INC.
1600 E. MAIN STREET, GRIFFITH, IND.

LOG OF TEST BORING NO. 1

WATER LEVEL DATA		
2 FT. ___ IN. 0 HR.	STARTED 8-13-74	LOCATION Refuse Area
4 FT. 2 IN. 3/4 HR.	COMPLETED Same	Griffith, Indiana
22 FT. 2 IN. 1 HR.	DRILLER Anderson, Szwic	
___ FT. ___ IN. ___ HR.	INSPECTOR Kollasch	CLIENT Town of Griffith
	FILE NO. 2264	Griffith, Indiana

DESCRIPTION OF MATERIAL	CASING DEPTH	DEPTH	SAMPLE DATA TYPE	SAMPLE DATA CONDITION	UNCONFINED COMPRESSIVE STRENGTH - T.S.F. (1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0) / PLASTIC LIMIT % — WATER CONTENT % — LIQUID LIMIT % / STANDARD PENETRATION TEST - "N" VALUES (10 20 30 40 50 60 70 80)
CONSISTENCY COLOR TEXTURE					
SURFACE ELEVATION:					
BROWN MEDIUM SAND 0.0'					
MISC. RUBBLE AND RUBBISH		5, 10, 15, 20			
23.0'					
MEDIUM GRAY MEDIUM SAND, RUBBLE AND RUBBISH 27.0'		25	D		
VERY STIFF GRAY SILTY CLAY, TRACE OF SHALE AND FINE GRAVEL		30	I		
		35	I		
40.0'		40	I		
BORING ENDED AT 40.0'		45			



NOTES:

3 of 8

⊡ - SPLIT SPOON, ⊡ - SHELBY TUBE, ⊡ - PISTON, ⊡ - AUGER, ⊕ - CALIBRATED PENETROMETER
D - DISTURBED, COHESIONLES SOIL OR AUGER SAMPLE I - SUFFICIENTLY COHESIVE TO HOLD SAMPLE INTACT
U - UNDISTURBED, SHELBY TUBE OR PISTON SAMPLE L - LOST, NO SAMPLE RECOVERY
THE "N" VALUES IN THE STANDARD PENETRATION TEST ARE BLOWS PER FOOT REQUIRED TO DRIVE A 2" O.D.
SPLIT SPOON WITH A 140 POUND RIN WEIGHT FALLING FREE FOR A DISTANCE OF 30"

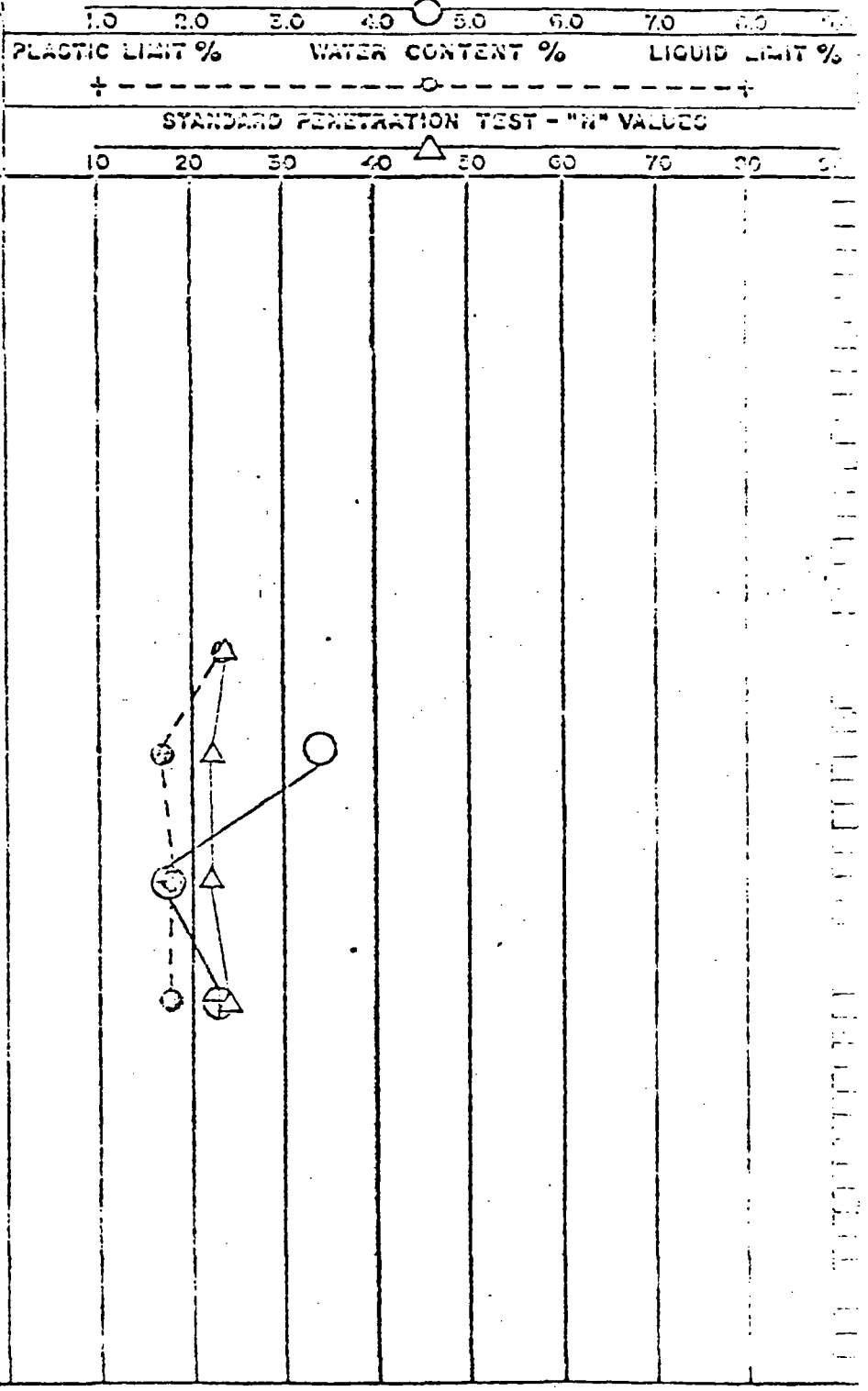
EXHIBIT

SALISBURY ENGINEERING INC.
501 E. MAIN STREET, GRIFFITH, IND.

LOG OF TEST BORING NO. 2

WATER LEVEL DATA		
FT. IN. 0 HR.	STARTED 6-13-74	LOCATION REFUSE AREA
FT. 5 IN. 1½ HR.	COMPLETED SAME	GRIFFITH, INDIANA
FT. IN. HR.	DRILLER ANDERSON, SZMUC	
FT. IN. HR.	INSPECTOR KOLLASCH	CLIENT TOWN OF GRIFFITH
	FILE NO. 2062	GRIFFITH, INDIANA

DESCRIPTION OF MATERIAL	CASING DEPTH	DEPTH	SAMPLE DATA TYPE	SAMPLE DATA CONDITION
CONSISTENCY COLOR TEXTURE				
SURFACE ELEVATION:				
BROWN MEDIUM SAND 1.0				
RUBBLE AND RUBBISH		5, 10, 15		
16.5'				
MEDIUM GRAY SAND AND SILT WITH SOME RUBBLE AND RUBBISH		20	/	D
22.5'				
VERY STIFF GRAY SILTY CLAY WITH TRACES OF SHALE AND FINE GRAVEL		25	/	I
		30	/	I
35.0'		35	/	I
BORING ENDED AT 35.0'		40, 45, 50		



NOTES:

4 of 6

S - SPLIT SPOON, ▭ - SHELBY TUBE, ▣ - PISTON, ▨ - AUGER, ⊕ - CALIBRATED PENETROMETER
D - DISTURBED, COHESIONLES SOIL OR AUGER SAMPLE I - SUFFICIENTLY COHESIVE TO HOLD SAMPLE INTACT
U - UNDISTURBED, SHELBY TUBE OR PISTON SAMPLE L - LOST, NO SAMPLE RECOVERY
THE "N" VALUES IN THE STANDARD PENETRATION TEST ARE BLOWS PER FOOT REQUIRED TO DRIVE A 2" O.D. SPLIT SPOON SAMPLER USING A 140 POUND PIN WEIGHT FALLING FREE FOR A DISTANCE OF 30"

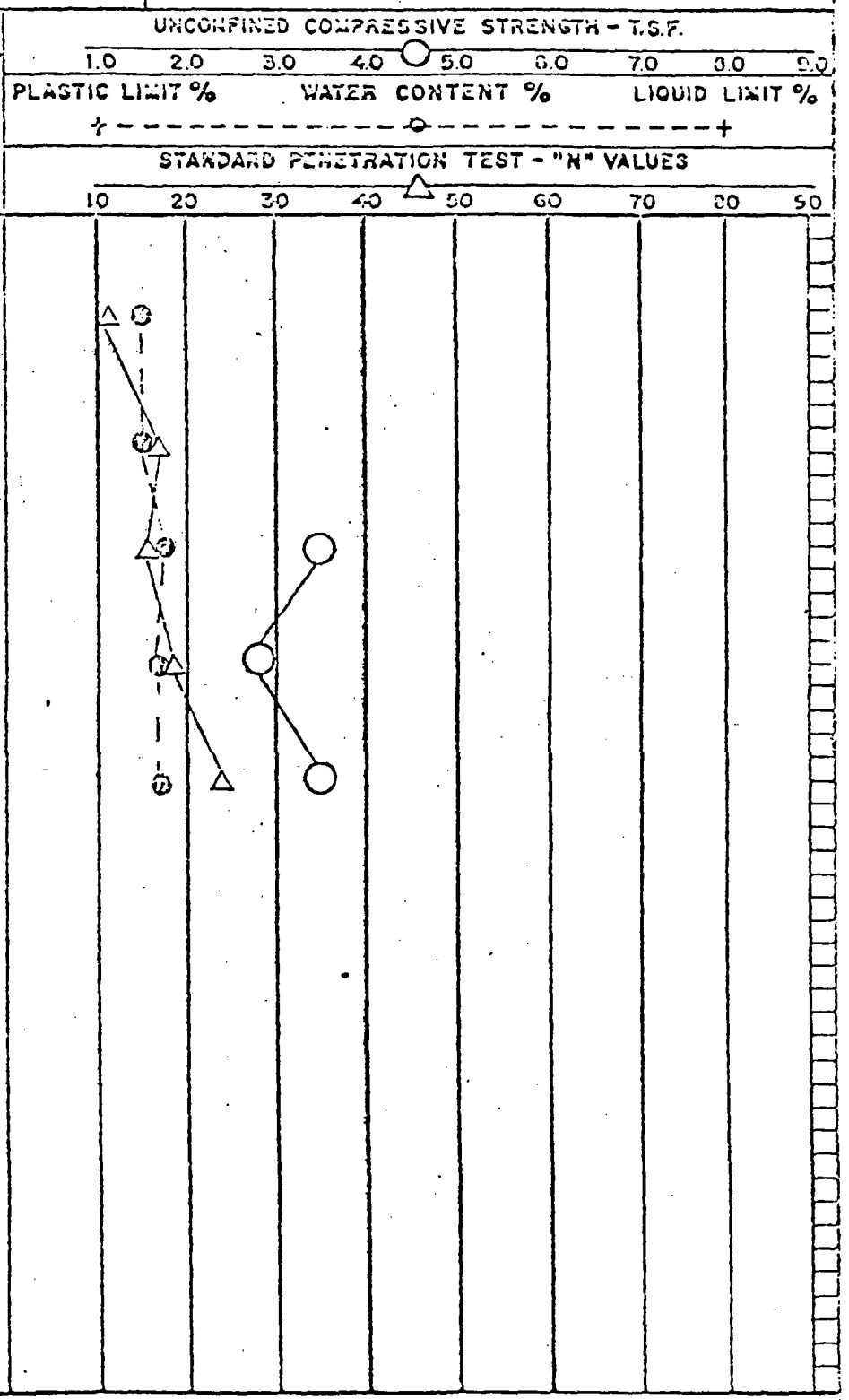
EXHIBIT 4

SALISBURY ENGINEERING INC.
1501 E. MAIN STREET, GRIFFITH, IND.

LOG OF TEST BORING NO. 3

WATER LEVEL DATA		
FT. IN. 0 HR.	STARTED 8-15-74	LOCATION Refuse Area, Griffith, Indiana
2 FT. 10 IN. 1/4 HR.	COMPLETED Same	
2 FT. 2 IN. 1 HR.	DRILLER Anderson, Szuhe	
FT. IN. HR.	INSPECTOR Hollasch	CLIENT Town of Griffith, Griffith, Indiana
	FILE NO. 2364	

DESCRIPTION OF MATERIAL CONSISTENCY COLOR TEXTURE SURFACE ELEVATION:	CASING DEPTH	SAMPLE DATA: DEPTH	TYPE	CONDITION
Loose brown medium to coarse sand 4.0'				
Medium gray medium to coarse sand, trace of silt & clay binder, trace fine to coarse gravel 8.0'		5	D	
Medium gray medium sand with lenses of gray silt 14.0'		10	D	
Very stiff gray silty clay, traces of shale and fine gravel 25.0'		15	I	
		20	I	
		25	I	
Boring ended at 25.0'		30		
		35		
		40		
		45		
		50		



NOTES:

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⊡ - SPLIT SPOON, ⊡ - SHELBY TUBE, ⊡ - PISTON, ⊡ - AUGER, ⊕ - CALIBRATED PENETROMETER
D - DISTURBED, COHESIONLES SOIL OR AUGER SAMPLE
I - SUFFICIENTLY COHESIVE TO HOLD SAMPLE INTACT
U - UNDISTURBED, SHELBY TUBE OR PISTON SAMPLE
L - LOST, NO SAMPLE RECOVERY
THE "N" VALUES IN THE STANDARD PENETRATION TEST ARE BLOWS PER FOOT REQUIRED TO DRIVE A 2" O.D. SPLIT SPOON SAMPLER USING A 140 POUND PIN WEIGHT FALLING FREE FOR A DISTANCE OF 30"

EXHIBIT C

SALISBURY ENGINEERING INC.
1501 E. MAIN STREET, GRIFFITH, IND.

LOG OF TEST BORING NO. 4

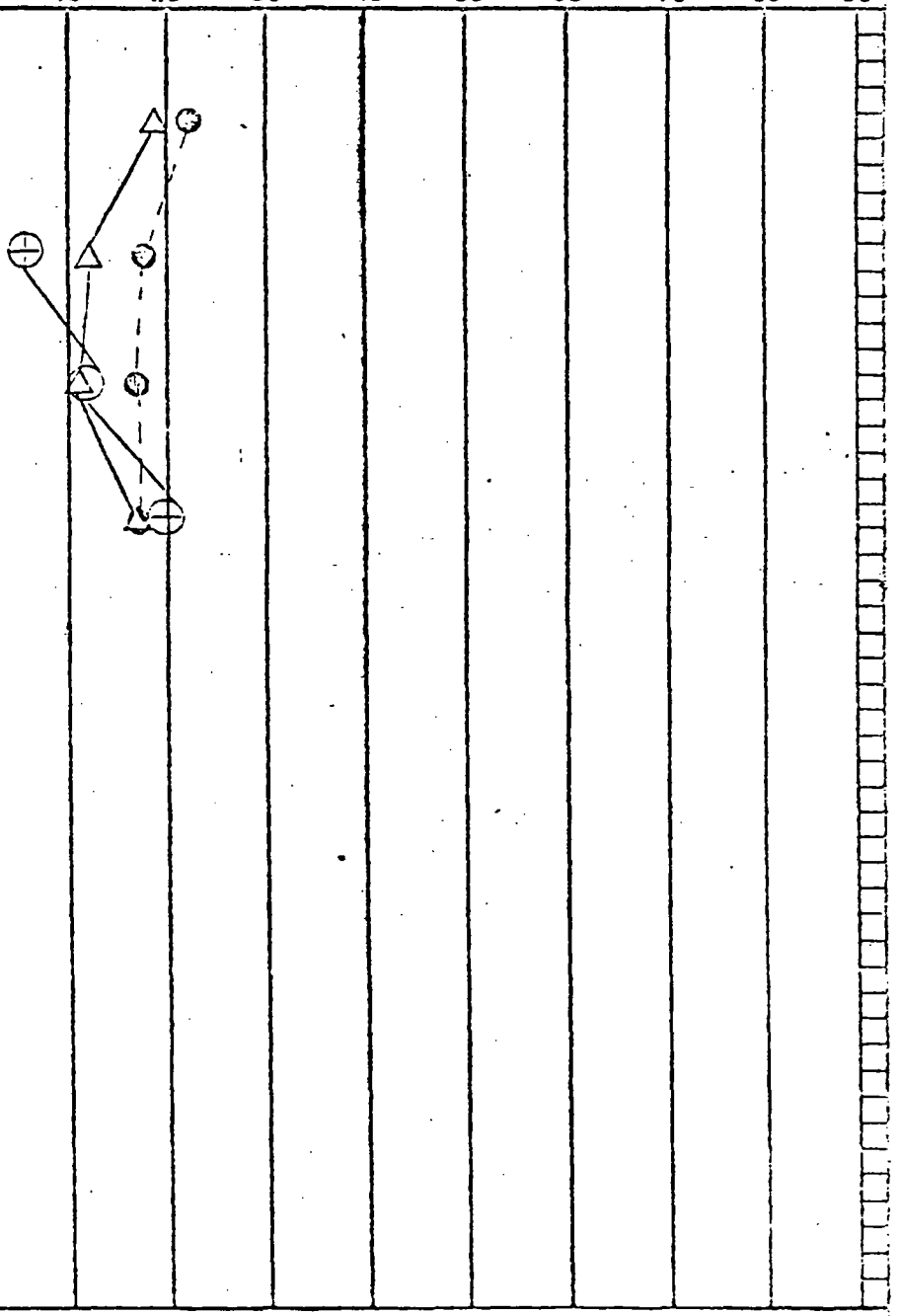
WATER LEVEL DATA		
3 FT. 6 IN. 0 HR.	STARTED 6-13-74	LOCATION REFUSE AREA GRIFFITH, INDIANA
4 FT. - IN. 1/4 HR.	COMPLETED SAME	
3 FT. 10 IN. 1/2 HR.	DRILLER ANDERSON, SZWIC	
FT. IN. HR.	INSPECTOR KOLLASCH	CLIENT TOWN OF GRIFFITH GRIFFITH, INDIANA
	FILE NO. 2664	

DESCRIPTION OF MATERIAL	CASING DEPTH	SAMPLE DATA: DEPTH	TYPE	CONDITION
CONSISTENCY COLOR TEXTURE				
SURFACE ELEVATION:				
BLACK SANDY TOPSOIL 0.2				
MEDIUM BROWN MEDIUM SAND 4.0'				
MEDIUM GRAY MEDIUM SAND, TRACE OF FINE GRAVEL 7.5'		5	D	
LOOSE FINE GRAVEL, TRACE GRAY MEDIUM SAND 9.0'				
MEDIUM GRAY COARSE SAND TRACE FINE GRAVEL, WITH LENS OF SILT AT 9.9'		10	D	
STIFF GRAY SILTY CLAY, TRACE OF SHALE AND FINE GRAVEL 18.0'		15	I	
VERY STIFF GRAY SILTY CLAY, TRACE SHALE & FINE GRAVEL		20	I	
BORING ENDED AT 20.0'		25		
		30		
		35		
		40		
		43		

UNCONFINED COMPRESSIVE STRENGTH - T.S.F.
1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0

PLASTIC LIMIT % WATER CONTENT % LIQUID LIMIT %

STANDARD PENETRATION TEST - "N" VALUES
10 20 30 40 50 60 70 80 90



NOTES:

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⊡ - SPLIT SPOON, ⊡ - SHELBY TUBE, ⊡ - PISTON, ⊡ - AUGER, ⊕ - CALIBRATED PENETROMETER
D - DISTURBED, COHESIONLESS SOIL OR AUGER SAMPLE I - SUFFICIENTLY COHESIVE TO HOLD SAMPLE INTACT
U - UNDISTURBED, SHELBY TUBE OR PISTON SAMPLE L - LOST, NO SAMPLE RECOVERY
THE "N" VALUES IN THE STANDARD PENETRATION TEST ARE BLOWS PER FOOT REQUIRED TO DRIVE A 2" O.D. SPLIT SPOON SAMPLER USING A 140 POUND PIN WEIGHT FALLING FREE FOR A DISTANCE OF 30"

SALISBURY ENGINEERING INC.
611 EAST MAIN STREET, GRIFFITH, INDIANA

LABORATORY TEST SUMMARY

PROJECT LOCATION Refuse Area
Griffith, Indiana

FILE 2864

DATE 8-16-74

REPORTED TO: Town of Griffith
Griffith, Indiana

SHEET 1 OF 2

T.B. NO.	1	1	1	1	2	2	2	2	3
SAMPLE NO.(1)	1	2	3	4	1	2	3	4	1
DEPTH, FEET	25.0	30.0	35.0	40.0	20.0	25.0	30.0	35.0	5.0
'N' VALUE	14	26	26	28	23	22	22	23	16
CONSISTENCY									
COLOR									
TEXTURE									
GROUP SYMBOL (2)									
MOISTURE %	39.6	18.5	17.5	17.2	23.9	17.0	18.0	18.3	15.4
Qu. TSF		1.6	*2.8	3.9	-	*3.4	*1.8	*2.2	-
STRAIN %		20.0		20.0					
MODE OF FAILURE: DIAG SHEAR									
MODE OF FAILURE: BULGE		X		X					
MODE OF FAILURE: VERT SHEAR		X		X					
DRY UNIT WT., PCF									
LIQUID LIMIT									
PLASTIC LIMIT									
P.I. (3)									

NOTES:
(1) ALL SAMPLES ARE SPLIT SPOON UNLESS OTHERWISE NOTED,
A. P-PISTON SAMPLE
B. ST-SHELBY TUBE SAMPLE
(2) GROUP SYMBOL BASED ON UNIFIED SOIL CLASSIFICATION SYSTEM.
(3) P.I.-PLASTICITY INDEX
QU-UNCONFINED COMPRESSIVE STRENGTH
'N' VALUE-INDICATES NUMBER OF BLOWS REQUIRED TO DRIVE 2" O.D. SPLIT SPOON SAMPLER ONE FOOT OR FRACTION THEREOF USING A 140 LB. WEIGHT FALLING 30 IN.
*-CALIBRATED PENETROMETER READING

REMARKS:

SALISBURY ENGINEERING INC.
611 EAST MAIN STREET, GRIFFITH, INDIANA

LABORATORY TEST SUMMARY

PROJECT LOCATION: REFUSE AREA, GRIFFITH, INDIANA

REPORTED TO: TOWN OF GRIFFITH, GRIFFITH, INDIANA

FILE 2864

DATE 8-16-74

SHEET 2 OF 2

T.B. NO.		3	3	3	3	4	4	4	4	
SAMPLE NO.(1)		2	3	4	5	1	2	3	4	
DEPTH, FEET		10.0	15.0	20.0	25.0	5.0	10.0	15.0	20.0	
'N' VALUE		17	16	19	23	19	12	11	17	
CONSISTENCY										
COLOR										
TEXTURE										
GROUP SYMBOL (2)										
MOISTURE %		15.6	18.4	17.2	17.1	22.5	18.2	17.9	17.5	
Qu. TSF		-	3.5	2.9	3.5		*0.6	1.1	*2.0	
STRAIN %			20.0	20.0	20.0			20.0		
MODE OF FAILURE	DIAG SHEAR		X	X				X		
	BULGE		X		X			X		
	VERT SHEAR		X	X				X		
DRY UNIT WT., PCF										
LIQUID LIMIT										
PLASTIC LIMIT										
P.I. (3)										

NOTES:

(1) ALL SAMPLES ARE SPLIT SPOON UNLESS OTHERWISE NOTED,
- A. P-PISTON SAMPLE
- B. ST-SHELBY TUBE SAMPLE

(2) GROUP SYMBOL BASED ON UNIFIED SOIL CLASSIFICATION SYSTEM.

(3) P.I.-PLASTICITY INDEX

QU-UNCONFINED COMPRESSIVE STRENGTH

'N' VALUE-INDICATES NUMBER OF BLOWS REQUIRED TO DRIVE 2" O.D. SPLIT SPOON SAMPLER ONE FOOT OR FRACTION THEREOF USING A 140 LB. WEIGHT FALLING 30 IN.

*-CALIBRATED PENETROMETER READING

REMARKS: