



3 of 11

ANALYTICAL RESULTS  
FOR  
U.S. GEOLOGICAL SURVEY  
ENSECO-RMAL NO. 022848

**Enseco**  
A CORNING Company

JULY 13, 1992

Reviewed by:

Julieann L. Kramer

Mark Dymerski



## I. OVERVIEW

On May 19, 1992, Enseco-Rocky Mountain Analytical Laboratory received three aqueous sample from U.S. Geological Survey.

This report presents the analytical results as well as supporting information to aid in the evaluation and interpretation of the data and is arranged in the following order:

- I. Overview
- II. Sample Description Information/Analytical Test Requests
- III. Analytical Results
- IV. Quality Control Report

Sample 022848-0002 was reextracted and reanalyzed for Method 8270 due to low surrogate recovery for 2-fluorophenyl. The reextraction results showed acceptable surrogate recoveries; however, the reanalysis was performed outside of holding times. The original data has been reported since both sets of data exhibited consistent target compound results.

Method 8280 Dioxin analysis was performed by our sister laboratory Enseco California Analytical Laboratory under Enseco CAL project number 064208. Dioxin results are included as an appendix to the report provided by RMAL.

## II. SAMPLE DESCRIPTION INFORMATION/ANALYTICAL TEST REQUESTS

### Sample Description Information

The Sample Description Information lists all of the samples received in this project together with the internal laboratory identification number assigned for each sample. Each project received at Enseco - RMAL is assigned a unique six digit number. Samples within the project are numbered sequentially. The laboratory identification number is a combination of the six digit project code and the sample sequence number.

Also given in the Sample Description Information is the Sample Type (matrix), Date of Sampling (if known) and Date of Receipt at the laboratory.

### Analytical Test Requests

The Analytical Test Requests lists the analyses that were performed on each sample. The Custom Test column indicates where tests have been modified to conform to the specific requirements of this project.

**SAMPLE DESCRIPTION INFORMATION**  
for  
**U.S. Geological Survey**

Lab ID	Client ID	Matrix	Sampled		Received Date
			Date	Time	
022848-0001-SA	KAFB050120-2 - Sample	AQUEOUS	18 MAY 92	12:50	19 MAY 92
022848-0002-SA	KAFB050122-2 - <del>Sample</del> Sample Duplicate	AQUEOUS	18 MAY 92	12:50	19 MAY 92
022848-0003-TB	KAFB050121-2 - Trip Blank	AQUEOUS	18 MAY 92	07:05	19 MAY 92



ANALYTICAL TEST REQUESTS  
for  
U.S. Geological Survey

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Lab ID:	Group Code	Analysis Description	Custom Test?
022848		Volatiles Library Search (10 Compound TID)	N

### III. ANALYTICAL RESULTS

The analytical results for this project are presented in the following data tables. Each data table includes sample identification information, and when available and appropriate, dates sampled, received, authorized, prepared and analyzed. The authorization data is the date when the project was defined by the client such that laboratory work could begin. The date prepared is typically the date an extraction or digestion was initiated. For volatile organic compounds in water, the date prepared is the date the screening of the sample was performed.

Data sheets contain a listing of the parameters measured in each test, the analytical results and the Enseco reporting limit. Reporting limits are adjusted to reflect dilution of the sample, when appropriate. Solid and waste samples are reported on an "as received" basis, i.e. no correction is made for moisture content.

In addition, surrogate recovery data is presented for all GC/MS analyses. The surrogate recovery is an indication of the effect of the sample matrix on the performance of the method. The results from the Standard Enseco QA/QC Program, which generates data which are independent of matrix effects, are given in Section IV.

The analytical data reported are subject to the following limitations of the analytical methodology:

GC/MS

Volatile Organics

- a) The cis- and trans-isomers of 1,2-dichloroethene cannot be distinguished using EPA Method 624 or 8240. All dichloroethene present is reported as 1,2-dichloroethene (total).

Semivolatile Organics

- a) Benzo(b) and benzo(k) fluoranthene cannot be differentiated based on their mass spectra; retention times are almost identical. The isomer which is the closest in retention time to the sample is reported.
- b) 1,2-Diphenylhydrazine is measured as azobenzene.
- c) Diphenylamine cannot be distinguished from N-nitrosodiphenylamine.
- d) 3-Methylphenol and 4-methylphenol cannot be differentiated based on their mass spectra and retention times are almost identical. Results are reported as 3/4-methylphenol (or m&p-cresols).
- e) Several Appendix IX and Refinery List compounds are not consistently recovered using Method 8270, and reporting limits cannot be established. These compounds include: dimethoate, famphur, hexachlorophene, 4-nitroquinoline-1-oxide, 4-phenylenediamine, and benzenethiol.
- f) Two Refinery List compounds, pyridine and quinoline, are not recovered after alumina column cleanup.



## Metals

All nominal reporting limits for metals have been established from instrument detection limit (IDL) evaluations and represent the level above which reliable data can be routinely obtained. Low level standards are analyzed seven times on three non-consecutive days on each instrument. The standard deviations of the three runs are summed to yield the IDL. Nominal reporting limits are generally 2-5 times the IDL (consistent with the American Chemical Society definition for the Limit of Quantification). The ability to achieve these quoted reporting limits is verified each quarter. Reporting limits above the nominal levels are often submitted due to matrix interferences or elevated analyte levels.

Reporting limits for metals analyzed by Inductively Coupled Plasma (ICP) are typically raised only for dilution due to an analyte exceeding the instrument linear range. Background and interelement interferences are corrected automatically and do not require dilution.

Metals analyzed by Graphite Furnace Atomic Absorption (GFAA) are subject to matrix interferences. Consequently, Enseco protocol is to analyze a spiked aliquot with every sample. The severity of the interference, based upon analyte level and spike recovery, is assessed against specific criteria and the need for an elevated reporting limit or dilution is determined.

The analysis of mercury by Cold Vapor Atomic Absorption (CVAA) is generally free from matrix interferences. As with ICP, reporting limits are raised only for dilution due to a sample concentration exceeding the linear range of the instrument.

Reporting limits for metals analyzed by inductively coupled plasma - mass spectrometry (ICPMS) may be raised for dilution due to an analyte exceeding the linear range of the instrument or matrix interference. An internal standard is analyzed with each sample to measure the degree of matrix interference - a dilution is performed when appropriate. Isobaric and molecular interferences are corrected at the instrument and do not require dilution.

Volatile Organics  
Appendix IX List  
Method 8240

Client Name: U.S. Geological Survey  
Client ID: KAFB050120-2  
Lab ID: 022848-0001-SA  
Matrix: AQUEOUS  
Authorized: 19 MAY 92

Sampled: 18 MAY 92  
Prepared: 21 MAY 92

Received: 19 MAY 92  
Analyzed: 29 MAY 92

Parameter	Result	Units	Reporting Limit
Acetone	ND	ug/L	10
Acetonitrile	ND	ug/L	200
Acrolein	ND	ug/L	100
Acrylonitrile	ND	ug/L	100
Allyl chloride	ND	ug/L	10
Benzene	ND	ug/L	5.0
Bromodichloromethane	ND	ug/L	5.0
Bromoform	ND	ug/L	5.0
Bromomethane	ND	ug/L	10
2-Butanone (MEK)	ND	ug/L	10
Carbon disulfide	ND	ug/L	5.0
Carbon tetrachloride	ND	ug/L	5.0
Chlorobenzene	ND	ug/L	5.0
Chloroethane	ND	ug/L	10
Chloroform	ND	ug/L	5.0
Chloromethane	ND	ug/L	10
Chloroprene	ND	ug/L	5.0
Dibromochloromethane	ND	ug/L	5.0
1,2-Dibromo-3-chloro- propane (DBCP)	ND	ug/L	10
1,2-Dibromoethane (EDB)	ND	ug/L	10
Dibromomethane	ND	ug/L	5.0
trans-1,4-Dichloro- 2-butene	ND	ug/L	5.0
Dichlorodifluoromethane	ND	ug/L	20
1,1-Dichloroethane	ND	ug/L	5.0
1,2-Dichloroethane	ND	ug/L	5.0
1,1-Dichloroethene	ND	ug/L	5.0
1,2-Dichloroethene (total)	ND	ug/L	5.0
1,2-Dichloropropane	ND	ug/L	5.0
cis-1,3-Dichloropropene	ND	ug/L	5.0
trans-1,3-Dichloropropene	ND	ug/L	5.0
1,4-Dioxane	ND	ug/L	500
Ethylbenzene	ND	ug/L	5.0
Ethyl methacrylate	ND	ug/L	20
Iodomethane	ND	ug/L	5.0
Isobutanol	ND	ug/L	200
2-Hexanone	ND	ug/L	10
Methacrylonitrile	ND	ug/L	5.0
Methylene chloride	ND	ug/L	5.0

(continued on following page)

ND = Not detected  
NA = Not applicable

Reported By: Shawn Kassner

Approved By: Mark Pokorny

Volatile Organics  
Appendix IX List  
Method 8240

Client Name: U.S. Geological Survey  
Client ID: KAFB050120-2  
Lab ID: 022848-0001-SA  
Matrix: AQUEOUS  
Authorized: 19 MAY 92

Sampled: 18 MAY 92  
Prepared: 21 MAY 92

Received: 19 MAY 92  
Analyzed: 29 MAY 92

Parameter	Result	Units	Reporting Limit
Methyl methacrylate	ND	ug/L	20
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10
Propionitrile	ND	ug/L	5.0
Styrene	ND	ug/L	5.0
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0
Tetrachloroethene	ND	ug/L	5.0
Toluene	ND	ug/L	5.0
1,1,1-Trichloroethane	ND	ug/L	5.0
1,1,2-Trichloroethane	ND	ug/L	5.0
Trichloroethene	ND	ug/L	5.0
Trichlorofluoromethane	ND	ug/L	5.0
1,2,3-Trichloropropane	ND	ug/L	5.0
Vinyl acetate	ND	ug/L	10
Vinyl chloride	ND	ug/L	10
Xylenes (total)	ND	ug/L	5.0
<b>Surrogate</b>	<b>Recovery</b>		
Toluene-d8	99	%	
4-Bromofluorobenzene	100	%	
1,2-Dichloroethane-d4	95	%	

ND = Not detected  
NA = Not applicable

Reported By: Shawn Kassner

Approved By: Mark Pokorny

**TENTATIVELY IDENTIFIED COMPOUNDS**

**FOR**

**U.S. GEOLOGICAL SURVEY**

**SAMPLE NUMBER 022848-0001**

<u>Compound Name</u>	<u>Fraction</u>	<u>Confidence Level</u>	<u>Estimated Concentration ug/L</u>
Decamethyl Cyclopentasiloxane	VOA	2	5.1

**NOTES:**

Confidence Levels

- Level 3 - Confirmed Identification
- Level 2 - Confident Identification
- Level 1 - Tentative Identification

Please refer to the discussion for further details.

Volatile Organics  
Appendix IX List  
Method 8240

Client Name: U.S. Geological Survey  
Client ID: KAFB050122-2  
Lab ID: 022848-0002-SA  
Matrix: AQUEOUS  
Authorized: 19 MAY 92

Sampled: 18 MAY 92  
Prepared: 21 MAY 92

Received: 19 MAY 92  
Analyzed: 29 MAY 92

Parameter	Result	Units	Reporting Limit
Acetone	ND	ug/L	10
Acetonitrile	ND	ug/L	200
Acrolein	ND	ug/L	100
Acrylonitrile	ND	ug/L	100
Allyl chloride	ND	ug/L	10
Benzene	ND	ug/L	5.0
Bromodichloromethane	ND	ug/L	5.0
Bromoform	ND	ug/L	5.0
Bromomethane	ND	ug/L	10
2-Butanone (MEK)	ND	ug/L	10
Carbon disulfide	ND	ug/L	5.0
Carbon tetrachloride	ND	ug/L	5.0
Chlorobenzene	ND	ug/L	5.0
Chloroethane	ND	ug/L	10
Chloroform	ND	ug/L	5.0
Chloromethane	ND	ug/L	10
Chloroprene	ND	ug/L	5.0
Dibromochloromethane	ND	ug/L	5.0
1,2-Dibromo-3-chloro- propane (DBCP)	ND	ug/L	10
1,2-Dibromoethane (EDB)	ND	ug/L	10
Dibromomethane	ND	ug/L	5.0
trans-1,4-Dichloro- 2-butene	ND	ug/L	5.0
Dichlorodifluoromethane	ND	ug/L	20
1,1-Dichloroethane	ND	ug/L	5.0
1,2-Dichloroethane	ND	ug/L	5.0
1,1-Dichloroethene	ND	ug/L	5.0
1,2-Dichloroethene (total)	ND	ug/L	5.0
1,2-Dichloropropane	ND	ug/L	5.0
cis-1,3-Dichloropropene	ND	ug/L	5.0
trans-1,3-Dichloropropene	ND	ug/L	5.0
1,4-Dioxane	ND	ug/L	500
Ethylbenzene	ND	ug/L	5.0
Ethyl methacrylate	ND	ug/L	20
Iodomethane	ND	ug/L	5.0
Isobutanol	ND	ug/L	200
2-Hexanone	ND	ug/L	10
Methacrylonitrile	ND	ug/L	5.0
Methylene chloride	ND	ug/L	5.0

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ND = Not detected  
NA = Not applicable

Reported By: Shawn Kassner

Approved By: Mark Pokorny

Volatile Organics  
Appendix IX List  
Method 8240

Client Name: U.S. Geological Survey  
Client ID: KAFB050122-2  
Lab ID: 022848-0002-SA  
Matrix: AQUEOUS  
Authorized: 19 MAY 92

Sampled: 18 MAY 92  
Prepared: 21 MAY 92

Received: 19 MAY 92  
Analyzed: 29 MAY 92

Parameter	Result	Units	Reporting Limit
Methyl methacrylate	ND	ug/L	20
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10
Propionitrile	ND	ug/L	5.0
Styrene	ND	ug/L	5.0
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0
Tetrachloroethene	ND	ug/L	5.0
Toluene	ND	ug/L	5.0
1,1,1-Trichloroethane	ND	ug/L	5.0
1,1,2-Trichloroethane	ND	ug/L	5.0
Trichloroethene	ND	ug/L	5.0
Trichlorofluoromethane	ND	ug/L	5.0
1,2,3-Trichloropropane	ND	ug/L	5.0
Vinyl acetate	ND	ug/L	10
Vinyl chloride	ND	ug/L	10
Xylenes (total)	ND	ug/L	5.0
Surrogate	Recovery		
Toluene-d8	99	%	
4-Bromofluorobenzene	97	%	
1,2-Dichloroethane-d4	96	%	

ND = Not detected  
NA = Not applicable

Reported By: Shawn Kassner

Approved By: Mark Pokorny

TENTATIVELY IDENTIFIED COMPOUNDS  
FOR  
U.S. GEOLOGICAL SURVEY

SAMPLE NUMBER 022848-0002

<u>Compound Name</u>	<u>Fraction</u>	<u>Confidence Level</u>	<u>Estimated Concentration ug/L</u>
None Detected	VOA		

NOTES:

Confidence Levels

- Level 3 - Confirmed Identification
- Level 2 - Confident Identification
- Level 1 - Tentative Identification

Please refer to the discussion for further details.

Volatile Organics  
Appendix IX List  
Method 8240

Client Name: U.S. Geological Survey  
Client ID: KAFB050121-2  
Lab ID: 022848-0003-TB  
Matrix: AQUEOUS  
Authorized: 19 MAY 92

Sampled: 18 MAY 92  
Prepared: 21 MAY 92

Received: 19 MAY 92  
Analyzed: 29 MAY 92

Parameter	Result	Units	Reporting Limit
Acetone	ND	ug/L	10
Acetonitrile	ND	ug/L	200
Acrolein	ND	ug/L	100
Acrylonitrile	ND	ug/L	100
Allyl chloride	ND	ug/L	10
Benzene	ND	ug/L	5.0
Bromodichloromethane	ND	ug/L	5.0
Bromoform	ND	ug/L	5.0
Bromomethane	ND	ug/L	10
2-Butanone (MEK)	ND	ug/L	10
Carbon disulfide	ND	ug/L	5.0
Carbon tetrachloride	ND	ug/L	5.0
Chlorobenzene	ND	ug/L	5.0
Chloroethane	ND	ug/L	10
Chloroform	ND	ug/L	5.0
Chloromethane	ND	ug/L	10
Chloroprene	ND	ug/L	5.0
Dibromochloromethane	ND	ug/L	5.0
1,2-Dibromo-3-chloro- propane (DBCP)	ND	ug/L	10
1,2-Dibromoethane (EDB)	ND	ug/L	10
Dibromomethane	ND	ug/L	5.0
trans-1,4-Dichloro- 2-butene	ND	ug/L	5.0
Dichlorodifluoromethane	ND	ug/L	20
1,1-Dichloroethane	ND	ug/L	5.0
1,2-Dichloroethane	ND	ug/L	5.0
1,1-Dichloroethene	ND	ug/L	5.0
1,2-Dichloroethene (total)	ND	ug/L	5.0
1,2-Dichloropropane	ND	ug/L	5.0
cis-1,3-Dichloropropene	ND	ug/L	5.0
trans-1,3-Dichloropropene	ND	ug/L	5.0
1,4-Dioxane	ND	ug/L	500
Ethylbenzene	ND	ug/L	5.0
Ethyl methacrylate	ND	ug/L	20
Iodomethane	ND	ug/L	5.0
Isobutanol	ND	ug/L	200
2-Hexanone	ND	ug/L	10
Methacrylonitrile	ND	ug/L	5.0
Methylene chloride	ND	ug/L	5.0

(continued on following page)

ND = Not detected  
NA = Not applicable

Reported By: Shawn Kassner

Approved By: Mark Pokorny



Volatile Organics  
Appendix IX List  
Method 8240

Client Name: U.S. Geological Survey  
Client ID: KAFB050121-2  
Lab ID: 022848-0003-TB  
Matrix: AQUEOUS  
Authorized: 19 MAY 92

Sampled: 18 MAY 92  
Prepared: 21 MAY 92

Received: 19 MAY 92  
Analyzed: 29 MAY 92

Parameter	Result	Units	Reporting Limit
Methyl methacrylate	ND	ug/L	20
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10
Propionitrile	ND	ug/L	5.0
Styrene	ND	ug/L	5.0
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0
Tetrachloroethene	ND	ug/L	5.0
Toluene	ND	ug/L	5.0
1,1,1-Trichloroethane	ND	ug/L	5.0
1,1,2-Trichloroethane	ND	ug/L	5.0
Trichloroethene	ND	ug/L	5.0
Trichlorofluoromethane	ND	ug/L	5.0
1,2,3-Trichloropropane	ND	ug/L	5.0
Vinyl acetate	ND	ug/L	10
Vinyl chloride	ND	ug/L	10
Xylenes (total)	ND	ug/L	5.0
Surrogate	Recovery		
Toluene-d8	99	%	
4-Bromofluorobenzene	98	%	
1,2-Dichloroethane-d4	96	%	

ND = Not detected  
NA = Not applicable

Reported By: Shawn Kassner

Approved By: Mark Pokorny

TENTATIVELY IDENTIFIED COMPOUNDS

FOR

U.S. GEOLOGICAL SURVEY

SAMPLE NUMBER 022848-0003

<u>Compound Name</u>	<u>Fraction</u>	<u>Confidence Level</u>	<u>Estimated Concentration ug/L</u>
None Detected	VOA		

NOTES:

Confidence Levels

- Level 3 - Confirmed Identification
- Level 2 - Confident Identification
- Level 1 - Tentative Identification

Please refer to the discussion for further details.

Semivolatile Organics  
Appendix IX List  
Method 8270

Client Name: U.S. Geological Survey  
Client ID: KAFB050120-2  
Lab ID: 022848-0001-SA  
Matrix: AQUEOUS  
Authorized: 19 MAY 92

Sampled: 18 MAY 92  
Prepared: 23 MAY 92

Received: 19 MAY 92  
Analyzed: 23 JUN 92

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/L	10
Acenaphthylene	ND	ug/L	10
Acetophenone	ND	ug/L	10
2-Acetylaminofluorene	ND	ug/L	100
4-Aminobiphenyl	ND	ug/L	10
Aniline	ND	ug/L	10
Anthracene	ND	ug/L	10
Aramite	ND	ug/L	10
Benzo(a)anthracene	ND	ug/L	10
Benzo(b)fluoranthene	ND	ug/L	10
Benzo(k)fluoranthene	ND	ug/L	10
Benzo(g,h,i)perylene	ND	ug/L	10
Benzo(a)pyrene	ND	ug/L	10
Benzy alcohol	ND	ug/L	10
4-Bromophenyl phenyl ether	ND	ug/L	10
Butyl benzyl phthalate	ND	ug/L	10
2-sec-Butyl-4,6-dinitro- phenol	ND	ug/L	10
4-Chloroaniline	ND	ug/L	10
bis(2-Chloroethoxy)- methane	ND	ug/L	10
bis(2-Chloroethyl) ether	ND	ug/L	10
bis(2-Chloroisopropyl)- ether	ND	ug/L	10
4-Chloro-3-methylphenol	ND	ug/L	10
2-Chloronaphthalene	ND	ug/L	10
2-Chlorophenol	ND	ug/L	10
4-Chlorophenyl phenyl ether	ND	ug/L	10
Chrysene	ND	ug/L	10
Dibenz(a,h)anthracene	ND	ug/L	10
Dibenzofuran	ND	ug/L	10
Di-n-butyl phthalate	ND	ug/L	10
1,2-Dichlorobenzene	ND	ug/L	10
1,3-Dichlorobenzene	ND	ug/L	10
1,4-Dichlorobenzene	ND	ug/L	10
3,3'-Dichlorobenzidine	ND	ug/L	20
2,4-Dichlorophenol	ND	ug/L	10
2,6-Dichlorophenol	ND	ug/L	10
Diethyl phthalate	ND	ug/L	10

(continued on following page)

ND = Not detected  
NA = Not applicable

Reported By: Philip Tallarico

Approved By: Mark Pokorny

Semivolatile Organics  
Appendix IX List  
Method 8270

Client Name: U.S. Geological Survey  
Client ID: KAFB050120-2  
Lab ID: 022848-0001-SA  
Matrix: AQUEOUS  
Authorized: 19 MAY 92

Sampled: 18 MAY 92  
Prepared: 23 MAY 92

Received: 19 MAY 92  
Analyzed: 23 JUN 92

Parameter	Result	Units	Reporting Limit
Dimethoate	ND	ug/L	--
p-Dimethylaminoazobenzene	ND	ug/L	10
7,12-Dimethylbenz(a)-anthracene	ND	ug/L	10
3,3'-Dimethylbenzidine	ND	ug/L	10
a,a-Dimethylphenethylamine	ND	ug/L	10
2,4-Dimethylphenol	ND	ug/L	10
Dimethyl phthalate	ND	ug/L	10
1,3-Dinitrobenzene	ND	ug/L	10
4,6-Dinitro-2-methylphenol	ND	ug/L	50
2,4-Dinitrophenol	ND	ug/L	50
2,4-Dinitrotoluene	ND	ug/L	10
2,6-Dinitrotoluene	ND	ug/L	10
Di-n-octyl phthalate	ND	ug/L	10
Diphenylamine	ND	ug/L	10
Disulfoton bis(2-Ethylhexyl) phthalate	10	ug/L	10
Ethyl methanesulfonate	ND	ug/L	10
Famphur	ND	ug/L	--
Fluoranthene	ND	ug/L	10
Fluorene	ND	ug/L	10
Hexachlorobenzene	ND	ug/L	10
Hexachlorobutadiene	ND	ug/L	10
Hexachlorocyclopentadiene	ND	ug/L	10
Hexachloroethane	ND	ug/L	10
Hexachlorophene	ND	ug/L	--
Hexachloropropene	ND	ug/L	10
Indeno(1,2,3-cd)pyrene	ND	ug/L	10
Isophorone	ND	ug/L	10
Isosafrole	ND	ug/L	20
Methapyrilene	ND	ug/L	10
3-Methylcholanthrene	ND	ug/L	10
Methyl methanesulfonate	ND	ug/L	10
2-Methylnaphthalene	ND	ug/L	10
Methyl parathion	ND	ug/L	50
2-Methylphenol	ND	ug/L	10
3/4-Methylphenol	ND	ug/L	10
Naphthalene	ND	ug/L	10

(continued on following page)

ND = Not detected  
NA = Not applicable

Reported By: Philip Tallarico

Approved By: Mark Pokorny

Semivolatile Organics  
Appendix IX List  
Method 8270

Client Name: U.S. Geological Survey  
Client ID: KAFB050120-2  
Lab ID: 022848-0001-SA  
Matrix: AQUEOUS  
Authorized: 19 MAY 92

Sampled: 18 MAY 92  
Prepared: 23 MAY 92

Received: 19 MAY 92  
Analyzed: 23 JUN 92

Parameter	Result	Units	Reporting Limit
1,4-Naphthoquinone	ND	ug/L	10
1-Naphthylamine	ND	ug/L	10
2-Naphthylamine	ND	ug/L	10
2-Nitroaniline	ND	ug/L	50
3-Nitroaniline	ND	ug/L	50
4-Nitroaniline	ND	ug/L	50
Nitrobenzene	ND	ug/L	10
2-Nitrophenol	ND	ug/L	10
4-Nitrophenol	ND	ug/L	50
4-Nitroquinoline-1-oxide	ND	ug/L	--
N-Nitroso-di-n-butylamine	ND	ug/L	10
N-Nitrosodiethylamine	ND	ug/L	10
N-Nitrosodimethylamine	ND	ug/L	10
N-Nitrosodiphenylamine	ND	ug/L	10
N-Nitroso-di-n-propylamine	ND	ug/L	10
N-Nitrosomethylethylamine	ND	ug/L	10
N-Nitrosomorpholine	ND	ug/L	10
N-Nitrosopiperidine	ND	ug/L	10
N-Nitrosopyrrolidine	ND	ug/L	10
5-Nitro-o-toluidine	ND	ug/L	10
Parathion	ND	ug/L	50
Pentachlorobenzene	ND	ug/L	10
Pentachloroethane	ND	ug/L	10
Pentachloronitrobenzene	ND	ug/L	50
Pentachlorophenol	ND	ug/L	50
Phenacetin	ND	ug/L	10
Phenanthrene	ND	ug/L	10
Phenol	ND	ug/L	10
4-Phenylenediamine	ND	ug/L	--
Phorate	ND	ug/L	100
2-Picoline	ND	ug/L	10
Pronamide	ND	ug/L	10
Pyrene	ND	ug/L	10
Pyridine	ND	ug/L	20
Safrole	ND	ug/L	10
Sulfotepp	ND	ug/L	50
1,2,4,5-Tetrachloro-benzene	ND	ug/L	10
2,3,4,6-Tetrachlorophenol	ND	ug/L	50
Thionazin	ND	ug/L	50

(continued on following page)

ND = Not detected  
NA = Not applicable

Reported By: Philip Tallarico

Approved By: Mark Pokorny

Semivolatile Organics  
Appendix IX List  
Method 8270

Client Name: U.S. Geological Survey  
Client ID: KAFB050120-2  
Lab ID: 022848-0001-SA  
Matrix: AQUEOUS  
Authorized: 19 MAY 92

Sampled: 18 MAY 92  
Prepared: 23 MAY 92

Received: 19 MAY 92  
Analyzed: 23 JUN 92

Parameter	Result	Units	Reporting Limit
2-Toluidine	ND	ug/L	10
1,2,4-Trichlorobenzene	ND	ug/L	10
2,4,5-Trichlorophenol	ND	ug/L	50
2,4,6-Trichlorophenol	ND	ug/L	10
0,0,0-Triethylphosphorothioate	ND	ug/L	10
1,3,5-Trinitrobenzene	ND	ug/L	10
Surrogate	Recovery		
Nitrobenzene-d5	78	%	
2-Fluorobiphenyl	76	%	
Terphenyl-d14	84	%	
Phenol-d5	75	%	
2-Fluorophenol	70	%	
2,4,6-Tribromophenol	88	%	

ND = Not detected  
NA = Not applicable

Reported By: Philip Tallarico

Approved By: Mark Pokorny

TENTATIVELY IDENTIFIED COMPOUNDS

FOR

U.S. GEOLOGICAL SURVEY

SAMPLE NUMBER 022848-0001

<u>Compound Name</u>	<u>Fraction</u>	<u>Confidence Level</u>	<u>Estimated Concentration ug/L</u>
None Detected	BNA		

NOTES:

Confidence Levels

- Level 3 - Confirmed Identification
- Level 2 - Confident Identification
- Level 1 - Tentative Identification

Please refer to the discussion for further details.

Semivolatile Organics  
Appendix IX List  
Method 8270

Client Name: U.S. Geological Survey

Client ID: KAFB050122-2

Lab ID: 022848-0002-SA

Matrix: AQUEOUS

Authorized: 19 MAY 92

Sampled: 18 MAY 92

Prepared: 23 MAY 92

Received: 19 MAY 92

Analyzed: 23 JUN 92

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/L	10
Acenaphthylene	ND	ug/L	10
Acetophenone	ND	ug/L	10
2-Acetylaminofluorene	ND	ug/L	100
4-Aminobiphenyl	ND	ug/L	10
Aniline	ND	ug/L	10
Anthracene	ND	ug/L	10
Aramite	ND	ug/L	10
Benzo(a)anthracene	ND	ug/L	10
Benzo(b)fluoranthene	ND	ug/L	10
Benzo(k)fluoranthene	ND	ug/L	10
Benzo(g,h,i)perylene	ND	ug/L	10
Benzo(a)pyrene	ND	ug/L	10
Benzyl alcohol	ND	ug/L	10
4-Bromophenyl phenyl ether	ND	ug/L	10
Butyl benzyl phthalate	ND	ug/L	10
2-sec-Butyl-4,6-dinitro- phenol	ND	ug/L	10
4-Chloroaniline	ND	ug/L	10
bis(2-Chloroethoxy)- methane	ND	ug/L	10
bis(2-Chloroethyl) ether	ND	ug/L	10
bis(2-Chloroisopropyl)- ether	ND	ug/L	10
4-Chloro-3-methylphenol	ND	ug/L	10
2-Chloronaphthalene	ND	ug/L	10
2-Chlorophenol	ND	ug/L	10
4-Chlorophenyl phenyl ether	ND	ug/L	10
Chrysene	ND	ug/L	10
Dibenz(a,h)anthracene	ND	ug/L	10
Dibenzofuran	ND	ug/L	10
Di-n-butyl phthalate	ND	ug/L	10
1,2-Dichlorobenzene	ND	ug/L	10
1,3-Dichlorobenzene	ND	ug/L	10
1,4-Dichlorobenzene	ND	ug/L	10
3,3'-Dichlorobenzidine	ND	ug/L	20
2,4-Dichlorophenol	ND	ug/L	10
2,6-Dichlorophenol	ND	ug/L	10
Diethyl phthalate	ND	ug/L	10

(continued on following page)

ND = Not detected  
NA = Not applicable

Reported By: Philip Tallarico

Approved By: Mark Pokorny



Semivolatile Organics  
Appendix IX List  
Method 8270

Client Name: U.S. Geological Survey  
Client ID: KAFB050122-2  
Lab ID: 022848-0002-SA  
Matrix: AQUEOUS  
Authorized: 19 MAY 92

Sampled: 18 MAY 92  
Prepared: 23 MAY 92

Received: 19 MAY 92  
Analyzed: 23 JUN 92

Parameter	Result	Units	Reporting Limit
Dimethoate	ND	ug/L	--
p-Dimethylaminoazobenzene	ND	ug/L	10
7,12-Dimethylbenz(a)-anthracene	ND	ug/L	10
3,3'-Dimethylbenzidine	ND	ug/L	10
a,a-Dimethylphenethylamine	ND	ug/L	10
2,4-Dimethylphenol	ND	ug/L	10
Dimethyl phthalate	ND	ug/L	10
1,3-Dinitrobenzene	ND	ug/L	10
4,6-Dinitro-2-methylphenol	ND	ug/L	50
2,4-Dinitrophenol	ND	ug/L	50
2,4-Dinitrotoluene	ND	ug/L	10
2,6-Dinitrotoluene	ND	ug/L	10
Di-n-octyl phthalate	ND	ug/L	10
Diphenylamine	ND	ug/L	10
Disulfoton bis(2-Ethylhexyl) phthalate	ND	ug/L	50
Ethyl methanesulfonate	ND	ug/L	10
Famphur	ND	ug/L	--
Fluoranthene	ND	ug/L	10
Fluorene	ND	ug/L	10
Hexachlorobenzene	ND	ug/L	10
Hexachlorobutadiene	ND	ug/L	10
Hexachlorocyclopentadiene	ND	ug/L	10
Hexachloroethane	ND	ug/L	10
Hexachlorophene	ND	ug/L	--
Hexachloropropene	ND	ug/L	10
Indeno(1,2,3-cd)pyrene	ND	ug/L	10
Isophorone	ND	ug/L	10
Isosafrole	ND	ug/L	20
Methapyrilene	ND	ug/L	10
3-Methylcholanthrene	ND	ug/L	10
Methyl methanesulfonate	ND	ug/L	10
2-Methylnaphthalene	ND	ug/L	10
Methyl parathion	ND	ug/L	50
2-Methylphenol	ND	ug/L	10
3/4-Methylphenol	ND	ug/L	10
Naphthalene	ND	ug/L	10

(continued on following page)

ND = Not detected  
NA = Not applicable

Reported By: Philip Tallarico

Approved By: Mark Pokorny

Semivolatile Organics  
Appendix IX List  
Method 8270

Client Name: U.S. Geological Survey  
Client ID: KAFB050122-2  
Lab ID: 022848-0002-SA  
Matrix: AQUEOUS  
Authorized: 19 MAY 92

Sampled: 18 MAY 92  
Prepared: 23 MAY 92

Received: 19 MAY 92  
Analyzed: 23 JUN 92

Parameter	Result	Units	Reporting Limit
1,4-Naphthoquinone	ND	ug/L	10
1-Naphthylamine	ND	ug/L	10
2-Naphthylamine	ND	ug/L	10
2-Nitroaniline	ND	ug/L	50
3-Nitroaniline	ND	ug/L	50
4-Nitroaniline	ND	ug/L	50
Nitrobenzene	ND	ug/L	10
2-Nitrophenol	ND	ug/L	10
4-Nitrophenol	ND	ug/L	50
4-Nitroquinoline-1-oxide	ND	ug/L	--
N-Nitroso-di-n-butylamine	ND	ug/L	10
N-Nitrosodiethylamine	ND	ug/L	10
N-Nitrosodimethylamine	ND	ug/L	10
N-Nitrosodiphenylamine	ND	ug/L	10
N-Nitroso-di-n-propylamine	ND	ug/L	10
N-Nitrosomethylethylamine	ND	ug/L	10
N-Nitrosomorpholine	ND	ug/L	10
N-Nitrosopiperidine	ND	ug/L	10
N-Nitrosopyrrolidine	ND	ug/L	10
5-Nitro-o-toluidine	ND	ug/L	10
Parathion	ND	ug/L	50
Pentachlorobenzene	ND	ug/L	10
Pentachloroethane	ND	ug/L	10
Pentachloronitrobenzene	ND	ug/L	50
Pentachlorophenol	ND	ug/L	50
Phenacetin	ND	ug/L	10
Phenanthrene	ND	ug/L	10
Phenol	ND	ug/L	10
4-Phenylenediamine	ND	ug/L	--
Phorate	ND	ug/L	100
2-Picoline	ND	ug/L	10
Pronamide	ND	ug/L	10
Pyrene	ND	ug/L	10
Pyridine	ND	ug/L	20
Safrole	ND	ug/L	10
Sulfotepp	ND	ug/L	50
1,2,4,5-Tetrachloro-benzene	ND	ug/L	10
2,3,4,6-Tetrachlorophenol	ND	ug/L	50
Thionazin	ND	ug/L	50

(continued on following page)

ND = Not detected  
NA = Not applicable

Reported By: Philip Tallarico

Approved By: Mark Pokorny

Semivolatile Organics  
 Appendix IX List  
 Method 8270

Client Name: U.S. Geological Survey  
 Client ID: KAFB050122-2  
 Lab ID: 022848-0002-SA  
 Matrix: AQUEOUS  
 Authorized: 19 MAY 92

Sampled: 18 MAY 92  
 Prepared: 23 MAY 92

Received: 19 MAY 92  
 Analyzed: 23 JUN 92

Parameter	Result	Units	Reporting Limit
2-Toluidine	ND	ug/L	10
1,2,4-Trichlorobenzene	ND	ug/L	10
2,4,5-Trichlorophenol	ND	ug/L	50
0,0,0-Triethylphosphorothioate	ND	ug/L	10
2,4,6-Trichlorophenol	ND	ug/L	10
1,3,5-Trinitrobenzene	ND	ug/L	10
Surrogate	Recovery		
Nitrobenzene-d5	87	%	
2-Fluorobiphenyl	88	%	
Terphenyl-d14	82	%	
Phenol-d5	27	%	
2-Fluorophenol	1.8	%	
2,4,6-Tribromophenol	13	%	

ND = Not detected  
 NA = Not applicable

Reported By: Philip Tallarico

Approved By: Mark Pokorny

TENTATIVELY IDENTIFIED COMPOUNDS

FOR

U.S. GEOLOGICAL SURVEY

SAMPLE NUMBER 022848-0002

<u>Compound Name</u>	<u>Fraction</u>	<u>Confidence Level</u>	<u>Estimated Concentration ug/L</u>
None Detected	BNA		

NOTES:

Confidence Levels

- Level 3 - Confirmed Identification
- Level 2 - Confident Identification
- Level 1 - Tentative Identification

Please refer to the discussion for further details.

Chlorinated Pesticides and PCB's  
Appendix IX List  
Method 8080

Client Name: U.S. Geological Survey  
Client ID: KAFB050120-2  
Lab ID: 022848-0001-SA  
Matrix: AQUEOUS  
Authorized: 19 MAY 92

Sampled: 18 MAY 92  
Prepared: 24 MAY 92

Received: 19 MAY 92  
Analyzed: 04 JUN 92

Parameter	Result	Units	Reporting Limit	
Aldrin	ND	ug/L	0.050	T
Aroclor 1016	ND	ug/L	1.0	
Aroclor 1221	ND	ug/L	1.0	
Aroclor 1232	ND	ug/L	1.0	
Aroclor 1242	ND	ug/L	1.0	
Aroclor 1248	ND	ug/L	1.0	
Aroclor 1254	ND	ug/L	1.0	
Aroclor 1260	ND	ug/L	1.0	
alpha-BHC	ND	ug/L	0.050	
beta-BHC	ND	ug/L	0.050	
delta-BHC	ND	ug/L	0.050	
gamma-BHC (Lindane)	ND	ug/L	0.050	
alpha-Chlordane	ND	ug/L	0.050	
gamma-Chlordane	ND	ug/L	0.050	
Chlorobenzilate	ND	ug/L	0.10	
4,4'-DDD	ND	ug/L	0.10	
4,4'-DDE	ND	ug/L	0.10	
4,4'-DDT	ND	ug/L	0.10	
Diallate	ND	ug/L	1.0	
Dieldrin	ND	ug/L	0.10	
Endosulfan I	ND	ug/L	0.050	
Endosulfan II	ND	ug/L	0.10	
Endosulfan sulfate	ND	ug/L	0.10	
Endrin	ND	ug/L	0.10	
Endrin aldehyde	ND	ug/L	0.10	
Heptachlor	ND	ug/L	0.050	
Heptachlor epoxide	ND	ug/L	0.050	
Isodrin	ND	ug/L	0.10	
Kepone	ND	ug/L	1.0	
Methoxychlor	ND	ug/L	0.50	
Toxaphene	ND	ug/L	5.0	
Surrogate	Recovery			
Dibutyl chlorendate	86	%		

Note T : Preferred values unless footnoted on secondary column test.

ND = Not detected  
NA = Not applicable

Reported By: Susan McCool

Approved By: Dave Roberts

Chlorinated Pesticides and PCB's  
Appendix IX List  
Method 8080

Client Name: U.S. Geological Survey  
Client ID: KAFB050122-2  
Lab ID: 022848-0002-SA  
Matrix: AQUEOUS  
Authorized: 19 MAY 92

Sampled: 18 MAY 92  
Prepared: 24 MAY 92

Received: 19 MAY 92  
Analyzed: 04 JUN 92

Parameter	Result	Units	Reporting Limit	
Aldrin	ND	ug/L	0.050	T
Aroclor 1016	ND	ug/L	1.0	
Aroclor 1221	ND	ug/L	1.0	
Aroclor 1232	ND	ug/L	1.0	
Aroclor 1242	ND	ug/L	1.0	
Aroclor 1248	ND	ug/L	1.0	
Aroclor 1254	ND	ug/L	1.0	
Aroclor 1260	ND	ug/L	1.0	
alpha-BHC	ND	ug/L	0.050	
beta-BHC	ND	ug/L	0.050	
delta-BHC	ND	ug/L	0.050	
gamma-BHC (Lindane)	ND	ug/L	0.050	
alpha-Chlordane	ND	ug/L	0.050	
gamma-Chlordane	ND	ug/L	0.050	
Chlorobenzilate	ND	ug/L	0.10	
4,4'-DDD	ND	ug/L	0.10	
4,4'-DDE	ND	ug/L	0.10	
4,4'-DDT	ND	ug/L	0.10	
Diallate	ND	ug/L	1.0	
Dieldrin	ND	ug/L	0.10	
Endosulfan I	ND	ug/L	0.050	
Endosulfan II	ND	ug/L	0.10	
Endosulfan sulfate	ND	ug/L	0.10	
Endrin	ND	ug/L	0.10	
Endrin aldehyde	ND	ug/L	0.10	
Heptachlor	ND	ug/L	0.050	
Heptachlor epoxide	ND	ug/L	0.050	
Isodrin	ND	ug/L	0.10	
Kepone	ND	ug/L	1.0	
Methoxychlor	ND	ug/L	0.50	
Toxaphene	ND	ug/L	5.0	
Surrogate	Recovery			
Dibutyl chlorendate	90	%		

Note T : Preferred values unless footnoted on secondary column test.

ND = Not detected  
NA = Not applicable

Reported By: Susan McCool

Approved By: Dave Roberts

Appendix IX Herbicides

Method 8150

Client Name: U.S. Geological Survey

Client ID: KAFB050120-2

Lab ID: 022848-0001-SA

Matrix: AQUEOUS

Authorized: 19 MAY 92

Sampled: 18 MAY 92

Prepared: 24 MAY 92

Received: 19 MAY 92

Analyzed: 03 JUN 92

Parameter	Result	Units	Reporting Limit	
2,4-D	ND	ug/L	1.2	T
2,4,5-TP (Silvex)	ND	ug/L	0.17	
2,4,5-T	ND	ug/L	0.20	
Surrogate	Recovery			
DCAA	94	%		

Note T : Preferred values unless footnoted on secondary column test.

ND = Not detected

NA = Not applicable

Reported By: Susan McCool

Approved By: Dave Roberts

Appendix IX Herbicides

Method 8150

Client Name: U.S. Geological Survey

Client ID: KAFB050122-2

Lab ID: 022848-0002-SA

Matrix: AQUEOUS

Authorized: 19 MAY 92

Sampled: 18 MAY 92

Prepared: 24 MAY 92

Received: 19 MAY 92

Analyzed: 03 JUN 92

Parameter	Result	Units	Reporting Limit	
2,4-D	ND	ug/L	1.2	T
2,4,5-T	ND	ug/L	0.20	
2,4,5-TP (Silvex)	ND	ug/L	0.17	
Surrogate	Recovery			
DCAA	90	%		

Note T : Preferred values unless footnoted on secondary column test.

ND = Not detected  
 NA = Not applicable

Reported By: Susan McCool

Approved By: Dave Roberts



Metals

Total Metals

*Sample*

Client Name: U.S. Geological Survey  
 Client ID: KAFB050120-2  
 Lab ID: 022848-0001-SA  
 Matrix: AQUEOUS  
 Authorized: 19 MAY 92

Sampled: 18 MAY 92  
 Prepared: See Below

Received: 19 MAY 92  
 Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/L	0.060	6010	03 JUN 92	09 JUN 92
Arsenic	ND	mg/L	0.010	7060	04 JUN 92	09 JUN 92
Barium	0.063	mg/L	0.010	6010	03 JUN 92	09 JUN 92
Beryllium	ND	mg/L	0.0020	6010	03 JUN 92	09 JUN 92
Cadmium	ND	mg/L	0.0050	6010	03 JUN 92	09 JUN 92
Chromium	ND	mg/L	0.010	6010	03 JUN 92	09 JUN 92
Cobalt	ND	mg/L	0.010	6010	03 JUN 92	09 JUN 92
Copper	ND	mg/L	0.020	6010	03 JUN 92	09 JUN 92
Lead	ND	mg/L	0.0050	7421	04 JUN 92	09 JUN 92
Mercury	ND	mg/L	0.00020	7470	28 MAY 92	28 MAY 92
Nickel	ND	mg/L	0.040	6010	03 JUN 92	09 JUN 92
Selenium	ND	mg/L	0.010	7740	04 JUN 92	09 JUN 92
Silver	ND	mg/L	0.010	6010	03 JUN 92	09 JUN 92
Thallium	ND	mg/L	0.0050	7841	04 JUN 92	09 JUN 92
Tin	ND	mg/L	0.10	6010	03 JUN 92	09 JUN 92
Vanadium	ND	mg/L	0.010	6010	03 JUN 92	09 JUN 92
Zinc	0.021	mg/L	0.020	6010	03 JUN 92	09 JUN 92

ND = Not detected  
 NA = Not applicable

Reported By: Scott Moroschan

Approved By: Dave Roberts

Metals

Total Metals

Client Name: U.S. Geological Survey  
 Client ID: KAFB050122-2  
 Lab ID: 022848-0002-SA  
 Matrix: AQUEOUS  
 Authorized: 19 MAY 92

Sampled: 18 MAY 92  
 Prepared: See Below

Received: 19 MAY 92  
 Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/L	0.060	6010	03 JUN 92	09 JUN 92
Arsenic	ND	mg/L	0.0050	7060	04 JUN 92	09 JUN 92
Barium	0.062	mg/L	0.010	6010	03 JUN 92	09 JUN 92
Beryllium	ND	mg/L	0.0020	6010	03 JUN 92	09 JUN 92
Cadmium	ND	mg/L	0.0050	6010	03 JUN 92	09 JUN 92
Chromium	ND	mg/L	0.010	6010	03 JUN 92	09 JUN 92
Cobalt	ND	mg/L	0.010	6010	03 JUN 92	09 JUN 92
Copper	ND	mg/L	0.020	6010	03 JUN 92	09 JUN 92
Lead	ND	mg/L	0.0050	7421	04 JUN 92	09 JUN 92
Mercury	ND	mg/L	0.00020	7470	28 MAY 92	28 MAY 92
Nickel	ND	mg/L	0.040	6010	03 JUN 92	09 JUN 92
Selenium	ND	mg/L	0.010	7740	04 JUN 92	09 JUN 92
Silver	ND	mg/L	0.010	6010	03 JUN 92	09 JUN 92
Thallium	ND	mg/L	0.0050	7841	04 JUN 92	09 JUN 92
Tin	ND	mg/L	0.10	6010	03 JUN 92	09 JUN 92
Vanadium	ND	mg/L	0.010	6010	03 JUN 92	09 JUN 92
Zinc	ND	mg/L	0.020	6010	03 JUN 92	09 JUN 92

ND = Not detected  
 NA = Not applicable

Reported By: Scott Moroschan

Approved By: Dave Roberts

Metals

Dissolved Metals

Client Name: U.S. Geological Survey  
 Client ID: KAFB050120-2  
 Lab ID: 022848-0001-SA  
 Matrix: AQUEOUS  
 Authorized: 19 MAY 92

Sampled: 18 MAY 92  
 Prepared: See Below

Received: 19 MAY 92  
 Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/L	0.060	6010	NA	18 JUN 92
Arsenic	ND	mg/L	0.0050	7060	NA	09 JUN 92
Barium	0.064	mg/L	0.010	6010	NA	18 JUN 92
Beryllium	ND	mg/L	0.0020	6010	NA	18 JUN 92
Cadmium	ND	mg/L	0.0050	6010	NA	18 JUN 92
Chromium	ND	mg/L	0.010	6010	NA	18 JUN 92
Cobalt	ND	mg/L	0.010	6010	NA	18 JUN 92
Copper	ND	mg/L	0.020	6010	NA	18 JUN 92
Lead	ND	mg/L	0.0050	7421	NA	09 JUN 92
Mercury	ND	mg/L	0.00020	7470	28 MAY 92	28 MAY 92
Nickel	ND	mg/L	0.040	6010	NA	18 JUN 92
Selenium	ND	mg/L	0.010	7740	NA	09 JUN 92
Silver	ND	mg/L	0.010	6010	NA	18 JUN 92
Thallium	ND	mg/L	0.010	7841	NA	09 JUN 92
Tin	ND	mg/L	0.10	6010	NA	18 JUN 92
Vanadium	ND	mg/L	0.010	6010	NA	18 JUN 92
Zinc	ND	mg/L	0.020	6010	NA	18 JUN 92

ND = Not detected  
 NA = Not applicable

Reported By: Scott Moroschan

Approved By: Dave Roberts

Metals

Dissolved Metals

Client Name: U.S. Geological Survey

Client ID: KAFB050122-2

Lab ID: 022848-0002-SA

Matrix: AQUEOUS

Authorized: 19 MAY 92

Sampled: 18 MAY 92

Prepared: See Below

Received: 19 MAY 92

Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/L	0.060	6010	NA	18 JUN 92
Arsenic	ND	mg/L	0.0050	7060	NA	09 JUN 92
Barium	0.065	mg/L	0.010	6010	NA	18 JUN 92
Beryllium	ND	mg/L	0.0020	6010	NA	18 JUN 92
Cadmium	ND	mg/L	0.0050	6010	NA	18 JUN 92
Chromium	ND	mg/L	0.010	6010	NA	18 JUN 92
Cobalt	ND	mg/L	0.010	6010	NA	18 JUN 92
Copper	ND	mg/L	0.020	6010	NA	18 JUN 92
Lead	ND	mg/L	0.010	7421	NA	09 JUN 92
Mercury	ND	mg/L	0.00020	7470	28 MAY 92	28 MAY 92
Nickel	ND	mg/L	0.040	6010	NA	18 JUN 92
Selenium	ND	mg/L	0.010	7740	NA	09 JUN 92
Silver	ND	mg/L	0.010	6010	NA	18 JUN 92
Thallium	ND	mg/L	0.010	7841	NA	09 JUN 92
Tin	ND	mg/L	0.10	6010	NA	18 JUN 92
Vanadium	ND	mg/L	0.010	6010	NA	18 JUN 92
Zinc	ND	mg/L	0.020	6010	NA	18 JUN 92

ND = Not detected  
NA = Not applicable

Reported By: Scott Moroschan

Approved By: Dave Roberts

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General Inorganics

Client Name: U.S. Geological Survey

Client ID: KAFB050120-2

Lab ID: 022848-0001-SA

Matrix: AQUEOUS

Authorized: 19 MAY 92

Sampled: 18 MAY 92

Prepared: See Below

Received: 19 MAY 92

Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Cyanide	ND	mg/L	0.010	9012	NA	25 MAY 92
Nitrate plus Nitrite	1.3	mg/L	0.050	353.2	NA	14 JUN 92
Sulfide, Total	ND	mg/L	0.050	376.2	NA	21 MAY 92

ND = Not detected  
NA = Not applicable

Reported By: Matt Coyle

Approved By: Kathryn Okonzak

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General Inorganics

Client Name: U.S. Geological Survey  
Client ID: KAFB050122-2  
Lab ID: 022848-0002-SA  
Matrix: AQUEOUS  
Authorized: 19 MAY 92

Sampled: 18 MAY 92  
Prepared: See Below

Received: 19 MAY 92  
Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Cyanide	ND	mg/L	0.010	9012	NA	25 MAY 92
Nitrate plus Nitrite	1.3	mg/L	0.050	353.2	NA	14 JUN 92
Sulfide, Total	ND	mg/L	0.050	376.2	NA	21 MAY 92

ND = Not detected  
NA = Not applicable

Reported By: Matt Coyle

Approved By: Kathryn Okonzak

#### IV. QUALITY CONTROL REPORT

The Enseco laboratories operate under a vigorous QA/QC program designed to ensure the generation of scientifically valid, legally defensible data by monitoring every aspect of laboratory operations. Routine QA/QC procedures include the use of approved methodologies, independent verification of analytical standards, use of duplicate Laboratory Control Samples to assess the precision and accuracy of the methodology on a routine basis, and a rigorous system of data review.

In addition, the Enseco laboratories maintain a comprehensive set of certifications from both state and federal governmental agencies which require frequent analyses of blind audit samples. Enseco - Rocky Mountain Analytical Laboratory is certified by the EPA under the EPA/CLP program for Organic analyses, under the USATHAMA (U.S. Army) program, by the Army Corps of Engineers, and the states of Colorado, New Jersey, Utah, and Florida, among others.

The standard laboratory QC package is designed to:

- 1) establish a strong, cost-effective QC program that ensures the generation of scientifically valid, legally defensible data
- 2) assess the laboratory's performance of the analytical method using control limits generated with a well-defined matrix
- 3) establish clear-cut guidelines for acceptability of analytical data so that QC decisions can be made immediately at the bench, and
- 4) provide a standard set of reportables which assures the client of the quality of his data.

The Enseco QC program is based upon monitoring the precision and accuracy of an analytical method by analyzing a set of Duplicate Control Samples (DCS) at frequent, well-defined intervals. Each DCS is a well-characterized matrix which is spiked with target compounds at 5-100 times the reporting limit, depending upon the methodology being monitored. The purpose of the DCS is not to duplicate the sample matrix, but rather to provide an interference-free, homogeneous matrix from which to gather data to establish control limits. These limits are used to determine whether data generated by the laboratory on any given day is in control.

Control limits for accuracy (percent recovery) are based on the average, historical percent recovery +/- 3 standard deviation units. Control limits for precision (relative percent difference) range from 0 (identical duplicate DCS results) to the average, historical relative percent difference + 3 standard deviation units. These control limits are fairly narrow based on the consistency of the matrix being monitored and are updated on a quarterly basis.

For each batch of samples analyzed, an additional control measure is taken in the form of a Single Control Sample (SCS). The SCS consists of a control matrix that is spiked with surrogate compounds appropriate to the method being used. In cases where no surrogate is available, (e.g., metals or conventional analyses) a single DCS serves as the control sample. An SCS is prepared for each sample lot for which the DCS pair are not analyzed. The recovery of the SCS is charted in exactly the same manner as described for the DCS, and provides a daily check on the performance of the method.

Accuracy for DCS and SCS is measured by Percent Recovery.

$$\% \text{ Recovery} = \frac{\text{Measured Concentration}}{\text{Actual Concentration}} \times 100$$

Precision for DCS is measured by Relative Percent Difference (RPD).

$$\text{RPD} = \frac{|\text{Measured Concentration DCS1} - \text{Measured Concentration DCS2}|}{(\text{Measured Concentration DCS1} + \text{Measured Concentration DCS2})/2} \times 100$$



All samples analyzed concurrently by the same test are assigned the same QC lot number. Projects which contain numerous samples, analyzed over several days, may have multiple QC lot numbers associated with each test. The QC information which follows includes a listing of the QC lot numbers associated with each of the samples reported, DCS and SCS (where applicable) recoveries from the QC lots associated with the samples, and control limits for these lots. The QC data is reported by test code, in the order that the tests are reported in the analytical results section of this report.

**QC LOT ASSIGNMENT REPORT**  
**Volatile Organics by GC/MS**

<b>Laboratory Sample Number</b>	<b>QC Matrix</b>	<b>QC Category</b>	<b>QC Lot Number (DCS)</b>	<b>QC Run Number (SCS/BLANK)</b>
022848-0001-SA	AQUEOUS	624-A	29 MAY 92-J	29 MAY 92-J
022848-0002-SA	AQUEOUS	624-A	29 MAY 92-J	29 MAY 92-J
022848-0003-TB	AQUEOUS	624-A	29 MAY 92-J	29 MAY 92-J

**DUPLICATE CONTROL SAMPLE REPORT**  
**Volatile Organics by GC/MS**

Analyte	Concentration Spiked	Concentration Measured		AVG	Accuracy Average(%)		Precision (RPD)		
		DCS1	DCS2		DCS	Limits	DCS	Limit	
Category: 624-A Matrix: AQUEOUS QC Lot: 29 MAY 92-J Concentration Units: ug/L									
1,1-Dichloroethene	50	41.9	41.5	41.7	83	56-138	1.0	20	
Trichloroethene	50	46.9	44.8	45.8	92	76-109	4.6	13	
Benzene	50	50.3	46.9	48.6	97	78-119	7.0	12	
Toluene	50	47.1	43.4	45.2	91	82-114	8.2	13	
Chlorobenzene	50	55.0	50.1	52.6	105	84-117	9.3	10	

Calculations are performed before rounding to avoid round-off errors in calculated results.



METHOD BLANK REPORT  
Volatile Organics by GC/MS

Analyte	Result	Units	Reporting Limit
Test: 8240CP-AP9-AP			
Matrix: AQUEOUS			
QC Lot: 29 MAY 92-J	QC Run: 29 MAY 92-J		
Acetone	ND	ug/L	10
Acetonitrile	ND	ug/L	200
Acrolein	ND	ug/L	100
Acrylonitrile	ND	ug/L	100
Allyl chloride	ND	ug/L	10
Benzene	ND	ug/L	5.0
Bromodichloromethane	ND	ug/L	5.0
Bromoform	ND	ug/L	5.0
Bromomethane	ND	ug/L	10
2-Butanone (MEK)	ND	ug/L	10
Carbon disulfide	ND	ug/L	5.0
Carbon tetrachloride	ND	ug/L	5.0
Chlorobenzene	ND	ug/L	5.0
Chloroethane	ND	ug/L	10
Chloroform	ND	ug/L	5.0
Chloromethane	ND	ug/L	10
Chloroprene	ND	ug/L	5.0
Dibromochloromethane	ND	ug/L	5.0
1,2-Dibromo-3-chloro- propane (DBCP)	3.6	ug/L	10
1,2-Dibromoethane (EDB)	ND	ug/L	10
Dibromomethane	ND	ug/L	5.0
trans-1,4-Dichloro- 2-butene	ND	ug/L	5.0
Dichlorodifluoromethane	ND	ug/L	20
1,1-Dichloroethane	ND	ug/L	5.0
1,2-Dichloroethane	ND	ug/L	5.0
1,1-Dichloroethene	ND	ug/L	5.0
1,2-Dichloroethene (total)	ND	ug/L	5.0
1,2-Dichloropropane	ND	ug/L	5.0
cis-1,3-Dichloropropene	ND	ug/L	5.0
trans-1,3-Dichloropropene	ND	ug/L	5.0
1,4-Dioxane	ND	ug/L	500
Ethylbenzene	ND	ug/L	5.0
Ethyl methacrylate	ND	ug/L	20
Iodomethane	ND	ug/L	5.0
Isobutanol	ND	ug/L	200
2-Hexanone	ND	ug/L	10
Methacrylonitrile	ND	ug/L	5.0
Methylene chloride	ND	ug/L	5.0

J

J = Result is detected below the reporting limit or is an estimated concentration.

**METHOD BLANK REPORT**  
**Volatile Organics by GC/MS (cont.)**

Analyte	Result	Units	Reporting Limit
Test: 8240CP-AP9-AP			
Matrix: AQUEOUS			
QC Lot: 29 MAY 92-J      QC Run: 29 MAY 92-J			
Methyl methacrylate	ND	ug/L	20
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10
Propionitrile	ND	ug/L	5.0
Styrene	ND	ug/L	5.0
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0
Tetrachloroethene	ND	ug/L	5.0
Toluene	ND	ug/L	5.0
1,1,1-Trichloroethane	ND	ug/L	5.0
1,1,2-Trichloroethane	ND	ug/L	5.0
Trichloroethene	ND	ug/L	5.0
Trichlorofluoromethane	ND	ug/L	5.0
1,2,3-Trichloropropane	ND	ug/L	5.0
Vinyl acetate	ND	ug/L	10
Vinyl chloride	ND	ug/L	10
Xylenes (total)	ND	ug/L	5.0

Test: 8240CP-AP9-AP  
 Matrix: AQUEOUS  
 QC Lot: 29 MAY 92-J      QC Run: 29 MAY 92-J

Acetone	ND	ug/L	10
Acetonitrile	ND	ug/L	200
Acrolein	ND	ug/L	100
Acrylonitrile	ND	ug/L	100
Allyl chloride	ND	ug/L	10
Benzene	ND	ug/L	5.0
Bromodichloromethane	ND	ug/L	5.0
Bromoform	ND	ug/L	5.0
Bromomethane	ND	ug/L	10
2-Butanone (MEK)	ND	ug/L	10
Carbon disulfide	ND	ug/L	5.0
Carbon tetrachloride	ND	ug/L	5.0
Chlorobenzene	ND	ug/L	5.0
Chloroethane	ND	ug/L	10
Chloroform	ND	ug/L	5.0
Chloromethane	ND	ug/L	10
Chloroprene	ND	ug/L	5.0
Dibromochloromethane	ND	ug/L	5.0

METHOD BLANK REPORT  
Volatile Organics by GC/MS (cont.)

Analyte	Result	Units	Reporting Limit
Test: 8240CP-AP9-AP			
Matrix: AQUEOUS			
QC Lot: 29 MAY 92-J    QC Run: 29 MAY 92-J			
1,2-Dibromo-3-chloro- propane (DBCP)	3.6	ug/L	10
1,2-Dibromoethane (EDB)	ND	ug/L	10
Dibromomethane	ND	ug/L	5.0
trans-1,4-Dichloro- 2-butene	ND	ug/L	5.0
Dichlorodifluoromethane	ND	ug/L	20
1,1-Dichloroethane	ND	ug/L	5.0
1,2-Dichloroethane	ND	ug/L	5.0
1,1-Dichloroethene	ND	ug/L	5.0
1,2-Dichloroethene (total)	ND	ug/L	5.0
1,2-Dichloropropane	ND	ug/L	5.0
cis-1,3-Dichloropropene	ND	ug/L	5.0
trans-1,3-Dichloropropene	ND	ug/L	5.0
1,4-Dioxane	ND	ug/L	500
Ethylbenzene	ND	ug/L	5.0
Ethyl methacrylate	ND	ug/L	20
Iodomethane	ND	ug/L	5.0
Isobutanol	ND	ug/L	200
2-Hexanone	ND	ug/L	10
Methacrylonitrile	ND	ug/L	5.0
Methylene chloride	ND	ug/L	5.0
Methyl methacrylate	ND	ug/L	20
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10
Propionitrile	ND	ug/L	5.0
Styrene	ND	ug/L	5.0
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0
Tetrachloroethene	ND	ug/L	5.0
Toluene	ND	ug/L	5.0
1,1,1-Trichloroethane	ND	ug/L	5.0
1,1,2-Trichloroethane	ND	ug/L	5.0
Trichloroethene	ND	ug/L	5.0
Trichlorofluoromethane	ND	ug/L	5.0
1,2,3-Trichloropropane	ND	ug/L	5.0
Vinyl acetate	ND	ug/L	10
Vinyl chloride	ND	ug/L	10
Xylenes (total)	ND	ug/L	5.0

J

J = Result is detected below the reporting limit or is an estimated concentration.

QC LOT ASSIGNMENT REPORT  
 Semivolatile Organics by GC/MS

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
022848-0001-SA	AQUEOUS	625-A	23 MAY 92-7A	23 MAY 92-7A
022848-0002-SA	AQUEOUS	625-A	23 MAY 92-7A	23 MAY 92-7A



DUPLICATE CONTROL SAMPLE REPORT  
 Semivolatile Organics by GC/MS

Analyte	Spiked	Concentration		AVG	Accuracy		Precision	
		DCS1	Measured DCS2		Average(%) DCS	Limits	(RPD) DCS	Limit
Category: 625-A								
Matrix: AQUEOUS								
QC Lot: 23 MAY 92-7A								
Concentration Units: ug/L								
Phenol	100	70.1	72.4	71.2	71	42-109	3.2	33
2-Chlorophenol	100	77.1	78.9	78.0	78	50-104	2.3	38
1,4-Dichlorobenzene	50	28.6	29.2	28.9	58	31-101	2.1	33
N-Nitroso-di- n-propylamine	50	40.1	38.3	39.2	78	49-109	4.6	30
1,2,4-Trichlorobenzene	50	28.0	28.5	28.2	57	29-100	1.8	33
4-Chloro-3-methylphenol	100	78.3	78.0	78.2	78	48-112	0.4	37
Acenaphthene	50	34.4	34.3	34.4	69	48- 99	0.3	27
4-Nitrophenol	100	70.1	7.42	38.8	39	29-124	162	53
2,4-Dinitrotoluene	50	36.8	34.0	35.4	71	52-104	7.9	26
Pentachlorophenol	100	60.3	3.74	32.0	32	25-132	177	49
Pyrene	50	40.1	39.5	39.8	80	51-116	1.5	26

Calculations are performed before rounding to avoid round-off errors in calculated results.

SINGLE CONTROL SAMPLE REPORT  
 Semivolatile Organics by GC/MS

Analyte	Concentration		Accuracy(%)	
	Spiked	Measured	SCS	Limits
Category: 625-A				
Matrix: AQUEOUS				
QC Lot: 23 MAY 92-7A				
QC Run: 23 MAY 92-7A				
Concentration Units: ug/L				
Nitrobenzene-d5	100	71.6	72	44-103
2-Fluorobiphenyl	100	65.3	65	41- 99
Terphenyl-d14	100	72.2	72	41-126
2-Fluorophenol	200	139	70	37-100
Phenol-d5	200	146	73	25-112
2,4,6-Tribromophenol	200	135	68	40-115

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT  
 Semivolatile Organics by GC/MS

Analyte	Result	Units	Reporting Limit
Test: 8270CP-AP9-A			
Matrix: AQUEOUS			
QC Lot: 23 MAY 92-7A QC Run: 23 MAY 92-7A			
Acenaphthene	ND	ug/L	10
Acenaphthylene	ND	ug/L	10
Acetophenone	ND	ug/L	10
2-Acetylaminofluorene	ND	ug/L	100
4-Aminobiphenyl	ND	ug/L	10
Aniline	ND	ug/L	10
Anthracene	ND	ug/L	10
Aramite	ND	ug/L	10
Benzo(a)anthracene	ND	ug/L	10
Benzo(b)fluoranthene	ND	ug/L	10
Benzo(k)fluoranthene	ND	ug/L	10
Benzo(g,h,i)perylene	ND	ug/L	10
Benzo(a)pyrene	ND	ug/L	10
Benzyl alcohol	ND	ug/L	10
4-Bromophenyl phenyl ether	ND	ug/L	10
Butyl benzyl phthalate	ND	ug/L	10
2-sec-Butyl-4,6-dinitro- phenol	ND	ug/L	10
4-Chloroaniline	ND	ug/L	10
bis(2-Chloroethoxy)- methane	ND	ug/L	10
bis(2-Chloroethyl) ether	ND	ug/L	10
bis(2-Chloroisopropyl)- ether	ND	ug/L	10
4-Chloro-3-methylphenol	ND	ug/L	10
2-Chloronaphthalene	ND	ug/L	10
2-Chlorophenol	ND	ug/L	10
4-Chlorophenyl phenyl ether	ND	ug/L	10
Chrysene	ND	ug/L	10
Dibenz(a,h)anthracene	ND	ug/L	10
Dibenzofuran	ND	ug/L	10
Di-n-butyl phthalate	ND	ug/L	10
1,2-Dichlorobenzene	ND	ug/L	10
1,3-Dichlorobenzene	ND	ug/L	10
1,4-Dichlorobenzene	ND	ug/L	10
3,3'-Dichlorobenzidine	ND	ug/L	20
2,4-Dichlorophenol	ND	ug/L	10
2,6-Dichlorophenol	ND	ug/L	10
Diethyl phthalate	ND	ug/L	10

METHOD BLANK REPORT  
Semivolatile Organics by GC/MS (cont.)

Analyte	Result	Units	Reporting Limit
Test: 8270CP-AP9-A			
Matrix: AQUEOUS			
QC Lot: 23 MAY 92-7A QC Run: 23 MAY 92-7A			
Dimethoate	ND	ug/L	--
p-Dimethylaminoazobenzene	ND	ug/L	10
7,12-Dimethylbenz(a)-anthracene	ND	ug/L	10
3,3'-Dimethylbenzidine	ND	ug/L	10
a,a-Dimethylphenethylamine	ND	ug/L	10
2,4-Dimethylphenol	ND	ug/L	10
Dimethyl phthalate	ND	ug/L	10
1,3-Dinitrobenzene	ND	ug/L	10
4,6-Dinitro-2-methylphenol	ND	ug/L	50
2,4-Dinitrophenol	ND	ug/L	50
2,4-Dinitrotoluene	ND	ug/L	10
2,6-Dinitrotoluene	ND	ug/L	10
Di-n-octyl phthalate	ND	ug/L	10
Diphenylamine	ND	ug/L	10
Disulfoton bis(2-Ethylhexyl) phthalate	ND	ug/L	50
Ethyl methanesulfonate	ND	ug/L	10
Famphur	ND	ug/L	--
Fluoranthene	ND	ug/L	10
Fluorene	ND	ug/L	10
Hexachlorobenzene	ND	ug/L	10
Hexachlorobutadiene	ND	ug/L	10
Hexachlorocyclopentadiene	ND	ug/L	10
Hexachloroethane	ND	ug/L	10
Hexachlorophene	ND	ug/L	--
Hexachloropropene	ND	ug/L	10
Indeno(1,2,3-cd)pyrene	ND	ug/L	10
Isophorone	ND	ug/L	10
Isosafrole	ND	ug/L	20
Methapyrilene	ND	ug/L	10
3-Methylcholanthrene	ND	ug/L	10
Methyl methanesulfonate	ND	ug/L	10
2-Methylnaphthalene	ND	ug/L	10
Methyl parathion	ND	ug/L	50
2-Methylphenol	ND	ug/L	10
3/4-Methylphenol	ND	ug/L	10
Naphthalene	ND	ug/L	10

METHOD BLANK REPORT  
Semivolatile Organics by GC/MS (cont.)

Analyte	Result	Units	Reporting Limit
Test: 8270CP-AP9-A			
Matrix: AQUEOUS			
QC Lot: 23 MAY 92-7A QC Run: 23 MAY 92-7A			
1,4-Naphthoquinone	ND	ug/L	10
1-Naphthylamine	ND	ug/L	10
2-Naphthylamine	ND	ug/L	10
2-Nitroaniline	ND	ug/L	50
3-Nitroaniline	ND	ug/L	50
4-Nitroaniline	ND	ug/L	50
Nitrobenzene	ND	ug/L	10
2-Nitrophenol	ND	ug/L	10
4-Nitrophenol	ND	ug/L	50
4-Nitroquinoline-1-oxide	ND	ug/L	--
N-Nitroso-di-n-butylamine	ND	ug/L	10
N-Nitrosodiethylamine	ND	ug/L	10
N-Nitrosodimethylamine	ND	ug/L	10
N-Nitrosodiphenylamine	ND	ug/L	10
N-Nitroso-di-n-propylamine	ND	ug/L	10
N-Nitrosomethylethylamine	ND	ug/L	10
N-Nitrosomorpholine	ND	ug/L	10
N-Nitrosopiperidine	ND	ug/L	10
N-Nitrosopyrrolidine	ND	ug/L	10
5-Nitro-o-toluidine	ND	ug/L	10
Parathion	ND	ug/L	50
Pentachlorobenzene	ND	ug/L	10
Pentachloroethane	ND	ug/L	10
Pentachloronitrobenzene	ND	ug/L	50
Pentachlorophenol	ND	ug/L	50
Phenacetin	ND	ug/L	10
Phenanthrene	ND	ug/L	10
Phenol	ND	ug/L	10
4-Phenylenediamine	ND	ug/L	--
Phorate	ND	ug/L	100
2-Picoline	ND	ug/L	10
Pronamide	ND	ug/L	10
Pyrene	ND	ug/L	10
Pyridine	ND	ug/L	20
Safrole	ND	ug/L	10
Sulfotepp	ND	ug/L	50
1,2,4,5-Tetrachlorobenzene	ND	ug/L	10
2,3,4,6-Tetrachlorophenol	ND	ug/L	50
Thionazin	ND	ug/L	50

METHOD BLANK REPORT  
 Semivolatile Organics by GC/MS (cont.)

Analyte	Result	Units	Reporting Limit
Test: 8270CP-AP9-A			
Matrix: AQUEOUS			
QC Lot: 23 MAY 92-7A QC Run: 23 MAY 92-7A			
2-Toluidine	ND	ug/L	10
1,2,4-Trichlorobenzene	ND	ug/L	10
2,4,5-Trichlorophenol	ND	ug/L	50
2,4,6-Trichlorophenol	ND	ug/L	10
0,0,0-Triethylphosphoro- thioate	ND	ug/L	10
1,3,5-Trinitrobenzene	ND	ug/L	10

QC LOT ASSIGNMENT REPORT  
 Semivolatile Organics by GC

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
022848-0001-SA	AQUEOUS	608-A	01 MAY 92-6A	24 MAY 92-6A
022848-0001-SA	AQUEOUS	615-A	18 MAY 92-7A	24 MAY 92-7A
022848-0002-SA	AQUEOUS	608-A	01 MAY 92-6A	24 MAY 92-6A
022848-0002-SA	AQUEOUS	615-A	18 MAY 92-7A	24 MAY 92-7A

DUPLICATE CONTROL SAMPLE REPORT  
 Semivolatile Organics by GC

Analyte	Concentration Spiked	Concentration Measured		AVG	Accuracy Average(%)		Precision (RPD)		
		DCS1	DCS2		DCS	Limits	DCS	Limit	
Category: 608-A									
Matrix: AQUEOUS									
QC Lot: 01 MAY 92-6A									
Concentration Units: ug/L									
gamma-BHC (Lindane)	0.200	0.189	0.195	0.192	96	56-111	3.1	12	
Heptachlor	0.200	0.194	0.201	0.198	99	50-121	3.5	21	
Aldrin	0.200	0.180	0.185	0.182	91	49-109	2.7	16	
Dieldrin	0.500	0.459	0.479	0.469	94	47-111	4.3	13	
Endrin	0.500	0.481	0.499	0.490	98	50-123	3.7	16	
4,4'-DDT	0.500	0.489	0.529	0.509	102	45-117	7.9	14	

Category: 615-A  
 Matrix: AQUEOUS  
 QC Lot: 18 MAY 92-7A  
 Concentration Units: ug/L

2,4-D	5.0	3.43	3.46	3.44	69	36-126	0.9	33
2,4,5-TP (Silvex)	1.0	0.811	0.844	0.828	83	52-135	4.0	28
2,4,5-T	1.0	0.790	0.807	0.798	80	41-158	2.1	34

Calculations are performed before rounding to avoid round-off errors in calculated results.



SINGLE CONTROL SAMPLE REPORT  
 Semivolatile Organics by GC

Analyte	Concentration		Accuracy(%)	
	Spiked	Measured	SCS	Limits

Category: 608-A  
 Matrix: AQUEOUS  
 QC Lot: 01 MAY 92-6A QC Run: 24 MAY 92-6A  
 Concentration Units: ug/L

Dibutyl chlorendate	1.00	0.741	74	41-135
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Category: 615-A  
 Matrix: AQUEOUS  
 QC Lot: 18 MAY 92-7A QC Run: 24 MAY 92-7A  
 Concentration Units: ug/L

DCAA	5.00	3.80	76	51-138
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Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT  
Semivolatile Organics by GC

Analyte	Result	Units	Reporting Limit
Test: 8080CP-AP9-A			
Matrix: AQUEOUS			
QC Lot: 01 MAY 92-6A QC Run: 24 MAY 92-6A			
Aldrin	ND	ug/L	0.050
Aroclor 1016	ND	ug/L	1.0
Aroclor 1221	ND	ug/L	1.0
Aroclor 1232	ND	ug/L	1.0
Aroclor 1242	ND	ug/L	1.0
Aroclor 1248	ND	ug/L	1.0
Aroclor 1254	ND	ug/L	1.0
Aroclor 1260	ND	ug/L	1.0
alpha-BHC	ND	ug/L	0.050
beta-BHC	ND	ug/L	0.050
delta-BHC	ND	ug/L	0.050
gamma-BHC (Lindane)	ND	ug/L	0.050
alpha-Chlordane	ND	ug/L	0.050
gamma-Chlordane	ND	ug/L	0.050
Chlorobenzilate	ND	ug/L	0.10
4,4'-DDD	ND	ug/L	0.10
4,4'-DDE	ND	ug/L	0.10
4,4'-DDT	ND	ug/L	0.10
Diallate	ND	ug/L	1.0
Dieldrin	ND	ug/L	0.10
Endosulfan I	ND	ug/L	0.050
Endosulfan II	ND	ug/L	0.10
Endosulfan sulfate	ND	ug/L	0.10
Endrin	ND	ug/L	0.10
Endrin aldehyde	ND	ug/L	0.10
Heptachlor	ND	ug/L	0.050
Heptachlor epoxide	ND	ug/L	0.050
Isodrin	ND	ug/L	0.10
Kepone	ND	ug/L	1.0
Methoxychlor	ND	ug/L	0.50
Toxaphene	ND	ug/L	5.0

Test: 8150-AP9-A  
Matrix: AQUEOUS  
QC Lot: 18 MAY 92-7A QC Run: 24 MAY 92-7A

2,4-D	ND	ug/L	1.2
2,4,5-TP (Silvex)	ND	ug/L	0.17
2,4,5-T	ND	ug/L	0.20

QC LOT ASSIGNMENT REPORT  
Metals Analysis and Preparation

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
022848-0001-SA	AQUEOUS	ICP-AT	03 JUN 92-T7	03 JUN 92-T7
022848-0001-SA	AQUEOUS	ICP-AD	18 JUN 92-M7	-
022848-0001-SA	AQUEOUS	AS-FAA-AD	09 JUN 92-G7	-
022848-0001-SA	AQUEOUS	AS-FAA-AT	04 JUN 92-H7	04 JUN 92-H7
022848-0001-SA	AQUEOUS	PB-FAA-AD	09 JUN 92-L7	-
022848-0001-SA	AQUEOUS	PB-FAA-AT	04 JUN 92-H7	04 JUN 92-H7
022848-0001-SA	AQUEOUS	SE-FAA-AD	09 JUN 92-L7	-
022848-0001-SA	AQUEOUS	SE-FAA-AT	04 JUN 92-H7	04 JUN 92-H7
022848-0001-SA	AQUEOUS	TL-FAA-AD	09 JUN 92-G7	-
022848-0001-SA	AQUEOUS	TL-FAA-AT	04 JUN 92-H7	04 JUN 92-H7
022848-0001-SA	AQUEOUS	HG-CVAA-AT	28 MAY 92-F7	28 MAY 92-F7
022848-0001-SA	AQUEOUS	HG-CVAA-AT	28 MAY 92-E7	28 MAY 92-E7
022848-0002-SA	AQUEOUS	ICP-AT	03 JUN 92-T7	03 JUN 92-T7
022848-0002-SA	AQUEOUS	ICP-AD	18 JUN 92-M7	-
022848-0002-SA	AQUEOUS	AS-FAA-AD	09 JUN 92-G7	-
022848-0002-SA	AQUEOUS	AS-FAA-AT	04 JUN 92-H7	04 JUN 92-H7
022848-0002-SA	AQUEOUS	PB-FAA-AD	09 JUN 92-L7	-
022848-0002-SA	AQUEOUS	PB-FAA-AT	04 JUN 92-H7	04 JUN 92-H7
022848-0002-SA	AQUEOUS	SE-FAA-AD	09 JUN 92-L7	-
022848-0002-SA	AQUEOUS	SE-FAA-AT	04 JUN 92-H7	04 JUN 92-H7
022848-0002-SA	AQUEOUS	TL-FAA-AD	09 JUN 92-G7	-
022848-0002-SA	AQUEOUS	TL-FAA-AT	04 JUN 92-H7	04 JUN 92-H7
022848-0002-SA	AQUEOUS	HG-CVAA-AT	28 MAY 92-F7	28 MAY 92-F7
022848-0002-SA	AQUEOUS	HG-CVAA-AT	28 MAY 92-E7	28 MAY 92-E7

DUPLICATE CONTROL SAMPLE REPORT  
Metals Analysis and Preparation

Analyte	Concentration			AVG	Accuracy		Precision		
	Spiked	DCS1	Measured DCS2		Average (%) DCS	Limits	(RPD) DCS	Limit	
Category: ICP-AT									
Matrix: AQUEOUS									
QC Lot: 03 JUN 92-T7									
Concentration Units: mg/L									
Aluminum	2.0	1.86	1.91	1.88	94	75-125	2.3	20	
Antimony	0.5	0.531	0.504	0.518	104	75-125	5.3	20	
Arsenic	0.5	0.409	0.439	0.424	85	75-125	7.1	20	
Barium	2.0	1.87	1.90	1.88	94	75-125	1.4	20	
Beryllium	0.05	0.0468	0.0478	0.0473	95	75-125	2.1	20	
Cadmium	0.05	0.0447	0.0442	0.0444	89	75-125	1.1	20	
Calcium	100	90.8	67.3	79.0	79	75-125	30	20	
Chromium	0.2	0.182	0.180	0.181	90	75-125	1.0	20	
Cobalt	0.5	0.427	0.433	0.430	86	75-125	1.3	20	
Copper	0.25	0.238	0.238	0.238	95	75-125	0.0	20	
Iron	1.0	1.06	1.02	1.04	104	75-125	4.4	20	
Lead	0.5	0.404	0.416	0.410	82	75-125	2.9	20	
Magnesium	50	48.0	35.4	41.7	83	75-125	30	20	
Manganese	0.5	0.453	0.457	0.455	91	75-125	0.9	20	
Nickel	0.5	0.437	0.441	0.439	88	75-125	0.9	20	
Potassium	50	46.5	34.2	40.4	81	75-125	30	20	
Silver	0.05	0.0438	0.0464	0.0451	90	75-125	5.9	20	
Sodium	100	98.7	72.5	85.6	86	75-125	31	20	
Vanadium	0.5	0.461	0.470	0.465	93	75-125	1.9	20	
Zinc	0.5	0.440	0.439	0.440	88	75-125	0.2	20	

Category: ICP-AD  
Matrix: AQUEOUS  
QC Lot: 18 JUN 92-M7  
Concentration Units: mg/L

Aluminum	1.0	0.945	0.958	0.951	95	85-115	1.3	10
Antimony	1.0	0.970	0.980	0.975	98	85-115	1.0	10
Arsenic	1.0	0.954	0.975	0.965	96	85-115	2.2	10
Barium	1.0	0.973	0.961	0.967	97	85-115	1.2	10
Beryllium	1.0	0.955	0.947	0.951	95	85-115	0.8	10
Cadmium	1.0	0.958	0.953	0.956	96	85-115	0.5	10
Calcium	20	20.1	20.1	20.1	101	85-115	0.3	10
Chromium	1.0	0.975	0.971	0.973	97	85-115	0.4	10
Cobalt	1.0	0.945	0.942	0.944	94	85-115	0.3	10
Copper	1.0	0.975	0.969	0.972	97	85-115	0.6	10
Iron	1.0	0.963	0.953	0.958	96	85-115	1.1	10
Lead	1.0	0.935	0.926	0.930	93	85-115	0.9	10
Magnesium	20	20.1	19.9	20.0	100	85-115	1.1	10

Calculations are performed before rounding to avoid round-off errors in calculated results.

DUPLICATE CONTROL SAMPLE REPORT  
 Metals Analysis and Preparation (cont.)

Analyte	Concentration Spiked	Concentration Measured		AVG	Accuracy Average(%)		Precision (RPD)		
		DCS1	DCS2		DCS	Limits	DCS	Limit	
Category: ICP-AD Matrix: AQUEOUS QC Lot: 18 JUN 92-M7 Concentration Units: mg/L									
Manganese	1.0	0.950	0.945	0.948	95	85-115	0.5	10	
Nickel	1.0	0.937	0.935	0.936	94	85-115	0.3	10	
Potassium	20	20.7	20.0	20.3	102	85-115	3.2	10	
Silver	1.0	0.963	0.956	0.959	96	85-115	0.8	10	
Sodium	200	212	196	204	102	85-115	7.8	10	
Vanadium	1.0	0.977	0.965	0.971	97	85-115	1.2	10	
Zinc	1.0	0.959	0.958	0.958	96	85-115	0.1	10	

Category: AS-FAA-AD  
 Matrix: AQUEOUS  
 QC Lot: 09 JUN 92-G7  
 Concentration Units: mg/L

Arsenic	0.03	0.0261	0.0303	0.0282	94	75-125	15	20
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Category: AS-FAA-AT  
 Matrix: AQUEOUS  
 QC Lot: 04 JUN 92-H7  
 Concentration Units: mg/L

Arsenic	0.03	0.0324	0.0344	0.0334	111	75-125	6.0	20
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Category: PB-FAA-AD  
 Matrix: AQUEOUS  
 QC Lot: 09 JUN 92-L7  
 Concentration Units: mg/L

Lead	0.03	0.0341	0.0346	0.0344	115	75-125	1.5	20
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Category: PB-FAA-AT  
 Matrix: AQUEOUS  
 QC Lot: 04 JUN 92-H7  
 Concentration Units: mg/L

Lead	0.03	0.0324	0.0330	0.0327	109	75-125	1.8	20
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Calculations are performed before rounding to avoid round-off errors in calculated results.

DUPLICATE CONTROL SAMPLE REPORT  
Metals Analysis and Preparation (cont.)

Analyte	Spiked	Concentration		AVG	Accuracy		Precision		
		DCS1	Measured DCS2		DCS	Average(%) Limits	(RPD) DCS Limit	DCS Limit	
Category: SE-FAA-AD Matrix: AQUEOUS QC Lot: 09 JUN 92-L7 Concentration Units: mg/L									
Selenium	0.03	0.0285	0.0239	0.0262	87	75-125	18	20	
Category: SE-FAA-AT Matrix: AQUEOUS QC Lot: 04 JUN 92-H7 Concentration Units: mg/L									
Selenium	0.03	0.0237	0.0234	0.0236	79	75-125	1.3	20	
Category: TL-FAA-AD Matrix: AQUEOUS QC Lot: 09 JUN 92-G7 Concentration Units: mg/L									
Thallium	0.03	0.0289	0.0272	0.0280	94	75-125	6.1	20	
Category: TL-FAA-AT Matrix: AQUEOUS QC Lot: 04 JUN 92-H7 Concentration Units: mg/L									
Thallium	0.03	0.0238	0.0283	0.0260	87	75-125	17	20	
Category: HG-CVAA-AT Matrix: AQUEOUS QC Lot: 28 MAY 92-F7 Concentration Units: mg/L									
Mercury	0.0010	0.000906	0.000849	0.000878	88	75-125	6.5	20	

Calculations are performed before rounding to avoid round-off errors in calculated results.

DUPLICATE CONTROL SAMPLE REPORT  
Metals Analysis and Preparation (cont.)

Analyte	Concentration			AVG	Accuracy		Precision	
	Spiked	DCS1	Measured DCS2		Average(%) DCS	Limits	(RPD) DCS	Limit
Category: HG-CVAA-AT Matrix: AQUEOUS QC Lot: 28 MAY 92-E7 Concentration Units: mg/L								
Mercury	0.0010	0.000887	0.000849	0.000868	87	75-125	4.4	20

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT  
 Metals Analysis and Preparation

Analyte	Result	Units	Reporting Limit
Test: ICP-AP9-AT			
Matrix: AQUEOUS			
QC Lot: 03 JUN 92-T7 QC Run: 03 JUN 92-T7			
Antimony	ND	mg/L	0.060
Barium	ND	mg/L	0.010
Beryllium	ND	mg/L	0.0020
Cadmium	ND	mg/L	0.0050
Chromium	ND	mg/L	0.010
Cobalt	ND	mg/L	0.010
Copper	ND	mg/L	0.020
Nickel	ND	mg/L	0.040
Silver	ND	mg/L	0.010
Tin	ND	mg/L	0.10
Vanadium	ND	mg/L	0.010
Zinc	ND	mg/L	0.020

Test: AS-FAA-AT  
 Matrix: AQUEOUS  
 QC Lot: 04 JUN 92-H7 QC Run: 04 JUN 92-H7

Arsenic	ND	mg/L	0.0050
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Test: PB-FAA-AT  
 Matrix: AQUEOUS  
 QC Lot: 04 JUN 92-H7 QC Run: 04 JUN 92-H7

Lead	ND	mg/L	0.0050
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Test: SE-FAA-AT  
 Matrix: AQUEOUS  
 QC Lot: 04 JUN 92-H7 QC Run: 04 JUN 92-H7

Selenium	ND	mg/L	0.0050
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METHOD BLANK REPORT  
Metals Analysis and Preparation (cont.)

Analyte	Result	Units	Reporting Limit
Test: TL-FAA-AT Matrix: AQUEOUS QC Lot: 04 JUN 92-H7    QC Run: 04 JUN 92-H7			
Thallium	ND	mg/L	0.0050
Test: HG-CVAA-AD Matrix: AQUEOUS QC Lot: 28 MAY 92-F7    QC Run: 28 MAY 92-F7			
Mercury	ND	mg/L	0.00020
Test: HG-CVAA-AT Matrix: AQUEOUS QC Lot: 28 MAY 92-E7    QC Run: 28 MAY 92-E7			
Mercury	ND	mg/L	0.00020

QC LOT ASSIGNMENT REPORT  
Wet Chemistry Analysis and Preparation

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
022848-0001-SA	AQUEOUS	CN-A	25 MAY 92-7B	25 MAY 92-7B
022848-0001-SA	AQUEOUS	S-A	21 MAY 92-7B	-
022848-0001-SA	AQUEOUS	N03-A	14 JUN 92-7K	-
022848-0002-SA	AQUEOUS	CN-A	25 MAY 92-7B	25 MAY 92-7B
022848-0002-SA	AQUEOUS	S-A	21 MAY 92-7B	-
022848-0002-SA	AQUEOUS	N03-A	14 JUN 92-7K	-

DUPLICATE CONTROL SAMPLE REPORT  
Wet Chemistry Analysis and Preparation

Analyte	Spiked	Concentration		AVG	Accuracy		Precision		
		DCS1	Measured DCS2		Average(%) DCS	Limits	(RPD) DCS	Limit	
Category: CN-A Matrix: AQUEOUS QC Lot: 25 MAY 92-7B Concentration Units: mg/L									
Cyanide	0.20	0.178	0.186	0.182	91	75-125	4.4	20	
Category: S-A Matrix: AQUEOUS QC Lot: 21 MAY 92-7B Concentration Units: mg/L									
Sulfide, Total	0.494	0.441	0.484	0.462	94	80-120	9.3	20	
Category: NO3-A Matrix: AQUEOUS QC Lot: 14 JUN 92-7K Concentration Units: mg/L									
Nitrate as N	2.0	1.96	1.96	1.96	98	91-109	0.0	10	

Calculations are performed before rounding to avoid round-off errors in calculated results.

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METHOD BLANK REPORT  
Wet Chemistry Analysis and Preparation

Analyte	Result	Units	Reporting Limit
Test: CNTOT-TEC-A			
Matrix: AQUEOUS			
QC Lot: 25 MAY 92-7B	QC Run: 25 MAY 92-7B		
Cyanide	ND	mg/L	0.010

## **Appendix IX Dioxins/Furans**

APPENDIX IX DIOXINS/FURANS

LOW RESOLUTION

Client Name: Enseco, Inc.  
 Client ID: Method Blank  
 Lab ID: 064208-0001-MB  
 Matrix: AQUEOUS  
 Authorized: 20 MAY 92

Sampled: NA  
 Prepared: 21 MAY 92

Received: NA  
 Analyzed: 22 MAY 92

Sample Amount 1.0 L  
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
<b>Furans</b>				
TCDFs (total)	ND	ng/L	0.015	
PeCDFs (total)	ND	ng/L	0.027	
HxCDFs (total)	ND	ng/L	0.051	
<b>Dioxins</b>				
TCDDs (total)	ND	ng/L	0.040	
2,3,7,8-TCDD	ND	ng/L	0.040	
PeCDDs (total)	ND	ng/L	0.055	
HxCDDs (total)	ND	ng/L	0.062	
<b>% Recovery</b>				
13C-2,3,7,8-TCDF	89			
13C-2,3,7,8-TCDD	90			
13C-1,2,3,7,8-PeCDD	92			
13C-1,2,3,6,7,8-HxCDD	93			

ND = Not detected  
 NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.  
 Rev 230787

APPENDIX IX DIOXINS/FURANS

LOW RESOLUTION

Client Name: Enseco, Inc.  
 Client ID: 22848-01  
 Lab ID: 064208-0001-SA  
 Matrix: AQUEOUS  
 Authorized: 20 MAY 92

Sampled: Unknown  
 Prepared: 21 MAY 92

Received: 20 MAY 92  
 Analyzed: 22 MAY 92

Sample Amount 0.507 L  
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
<b>Furans</b>				
TCDFs (total)	ND	ng/L	0.024	
PeCDFs (total)	ND	ng/L	0.040	
HxCDFs (total)	ND	ng/L	0.085	
<b>Dioxins</b>				
TCDDs (total)	ND	ng/L	0.039	
2,3,7,8-TCDD	ND	ng/L	0.039	
PeCDDs (total)	ND	ng/L	0.090	
HxCDDs (total)	ND	ng/L	0.090	
<b>% Recovery</b>				
13C-2,3,7,8-TCDF	96			
13C-2,3,7,8-TCDD	92			
13C-1,2,3,7,8-PeCDD	103			
13C-1,2,3,6,7,8-HxCDD	104			

ND = Not detected  
 NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.  
 Rev 230787

APPENDIX IX DIOXINS/FURANS

LOW RESOLUTION

Client Name: Enseco, Inc.  
 Client ID: 22848-02  
 Lab ID: 064208-0002-SA  
 Matrix: AQUEOUS  
 Authorized: 20 MAY 92

Sampled: Unknown  
 Prepared: 21 MAY 92

Received: 20 MAY 92  
 Analyzed: 22 MAY 92

Sample Amount 0.502 L  
 Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
<b>Furans</b>				
TCDFs (total)	ND	ng/L	0.020	
PeCDFs (total)	ND	ng/L	0.029	
HxCDFs (total)	ND	ng/L	0.078	
<b>Dioxins</b>				
TCDDs (total)	ND	ng/L	0.050	
2,3,7,8-TCDD	ND	ng/L	0.050	
PeCDDs (total)	ND	ng/L	0.079	
HxCDDs (total)	ND	ng/L	0.099	
<b>% Recovery</b>				
13C-2,3,7,8-TCDF	97			
13C-2,3,7,8-TCDD	91			
13C-1,2,3,7,8-PeCDD	95			
13C-1,2,3,6,7,8-HxCDD	103			

ND = Not detected  
 NA = Not applicable

Reported By: Emily Uebelhoer

Approved By: Shelly Eyraud

The cover letter is an integral part of this report.  
 Rev 230787



QC LOT ASSIGNMENT REPORT  
Special Services - Low Resolution Mass Spectrometry

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
064208-0001-SA	AQUEOUS	DXNFUR-A	20 MAY 92-B	-
064208-0001-MB	AQUEOUS	DXNFUR-A	20 MAY 92-B	-
064208-0002-SA	AQUEOUS	DXNFUR-A	20 MAY 92-B	-

DUPLICATE CONTROL SAMPLE REPORT  
Special Services - Low Resolution Mass Spectrometry

Analyte	Concentration Spiked	Concentration Measured		AVG	Accuracy Average(%)		Precision (RPD)	
		DCS1	DCS2		DCS	Limits	DCS	Limit
Category: DXNFUR-A								
Matrix: AQUEOUS								
QC Lot: 20 MAY 92-B								
Concentration Units: ng								
2,3,7,8-TCDF	10	11.0	11.0	11.0	110	60-140	0.0	50.0
2,3,4,7,8-PeCDF	10	9.40	10.0	9.70	97	60-140	6.2	50.0
1,2,3,4,7,8-HxCDF	10	9.40	10.0	9.70	97	60-140	6.2	50.0
1,2,3,4,6,7,8-HpCDF	10	9.80	9.00	9.40	94	60-140	8.5	50.0
OCDF	50	60.0	65.0	62.5	125	60-140	8.0	50.0
2,3,7,8-TCDD	10	9.90	12.0	11.0	110	60-140	19	50.0
1,2,3,7,8-PeCDD	10	10.0	11.0	10.5	105	60-140	9.5	50.0
1,2,3,4,7,8-HxCDD	10	9.50	11.0	10.2	103	60-140	15	50.0
1,2,3,4,6,7,8-HpCDD	10	9.40	9.60	9.50	95	60-140	2.1	50.0
OCDD	50	55.0	61.0	58.0	116	60-140	10	50.0

Calculations are performed before rounding to avoid round-off errors in calculated results.

# Appendix

ENSECO ANALYTICAL SERVICES REQUEST FORM

22848 -01

**Special Handling**

(Circle as appropriate and explain in record 5)

Hazardous material

SAMPLE  
KAFB 050120-2  
Station Name

Field ID  
USGS/WRD/NM  
Field Office

KAFB-IRP  
Project

TOM CROUCH  
MIKO ROYBAL  
Collector

**Site Type (circle one)**

- SW - Surface Water
- GW** - Ground Water
- ME - Meteorological
- LK - Lake
- ES - Estuary
- SP - Spring
- SS - Special Source

**File Deposition\***  
(Circle one)

- Q - WATSTORE
- X - Lab File

[Empty Box]  
For Laboratory Use Only

**Sample identification**

KAFB 050120-2 Station ID or Unique Number\*      46 35 3600 1 Project Account #

1992 Year\*      05 Month\*      18 Day\*      1250 Time\*      05 Month      18 Day      1445 Time      NM State Code\*      035 District/ User Code\*      001 County Code

**Analysis level codes and schedules**

Sample Medium**	Geologic Unit	Analysis Status**	Analysis Source**	Hydrologic Condition**	Sample Type**	Hydrologic Event**
6		(H) or 9	9		9	9
PARAMETER:	APPX IX-VOC	APPX IX-SEMIVOC	APPX IX-PESTICIDES	APPX IX-HERBICIDES		
METHOD:	SW5030/SW8240	SW3510/SW8270	SW3520/SW8080	SW3520/SW8150		
PARAMETER:	APPX IX-DIOXINS	APPX IX-METALS (TOTAL)	APPX IX-METALS (DISS)	APPX IX-CYANIDE		
METHOD:	SW3520/SW8280	SW3005/SW6010	SW3005/SW6010	SW9010		
PARAMETER:	APPX IX-SULFIDE	NITRATE & NITRITE	URANIUM, GROSS ALPHA & BETA	VOX		
METHOD:	SW 9030	E353.2	D2907, E908	SW5030/SW8010		

EXTRA SAMPLES

**Chain-of-Custody Record**

PROJECT NAME KIRTLAND AFB IRP PROJECT NO. 463536001 P.O. NO. \_\_\_\_\_

Relinquished by: (Signature) Miko Roybal Received by: (Signature) \_\_\_\_\_ Date 18 MAY 92 Time 1615

Relinquished by: (Signature) \_\_\_\_\_ Received by: (Signature) \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

Relinquished by: (Signature) \_\_\_\_\_ Received at lab by: (Signature) Robert M. Ruiz (ENSECO - RMM) Date 19 MAY 92 Time 0815hr

Relinquished from lab by: (Signature) \_\_\_\_\_ Received by: (Signature) \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

**Comments (Only 50 characters stored in NWIS)**

Record 5 SAMPLE FROM WELL AT SE CNR OF SEWAGE LAGOON

Record 6 \_\_\_\_\_

Total number of sample bottles for this request: 13

**SHIP TO:**

Enseco-Rocky Mountain Analytical  
4955 Yarrow Street  
Arvada, CO 80002  
(303) 421-6611

ATTENTION: TRACY CONROY / JULIE CRAMER

ENSECO ANALYTICAL SERVICES REQUEST FORM

22848 -02

**Special Handling** (Circle as appropriate and explain in record 5)  
 Hazardous material \_\_\_\_\_

**Site Type (circle one)**  
 SW - Surface Water    LK - Lake  
 GW - Ground Water    ES - Estuary  
 ME - Meteorological    SP - Spring  
 SS - Special Source

Field ID: \_\_\_\_\_  
 USGS/WRD/NM    KAFB-IRP    TOM CROUCH  
 Field Office    Project    Collector    (505) 262-5399  
 Station Name: KAFB 050122-2    Phone (FTS)

**File Deposition\*** (Circle one)  
 Q - WATSTORE  
 X - Lab File

**Sample identification**  
 Station ID or Unique Number\*: KAFB 050122-2  
 Project Account #: 46 35 3600 1

For Laboratory Use Only

Year: 1992    Month: 05    Day: 18    Time: 1250  
 Composite End Date: Month: 05    Day: 18    Time: 1445

State Code: NM    District/User Code: 035    County Code: 001

**Analysis level codes and schedules**

Sample Medium**	Geologic Unit	Analysis Status** (H) or 9	Analysis Source**	Hydrologic Condition**	Sample Type**	Hydrologic Event**
PARAMETER: APPX IX-VOC	APPX IX-SEMIVOC	APPX IX-PESTICIDES	APPX IX-HERBICIDES			
METHOD: SW5030/SW8240	SW3510/SW8270	SW3520/SW8080	SW3520/SW8150			
PARAMETER: APPX IX-DIOXINS	APPX IX-METALS (TOTAL)	APPX IX-METALS (DISS)	APPX IX-CYANIDE			
METHOD: SW3520/SW8280	SW3005/SW6010	SW3005/SW6010	SW9010			
PARAMETER: APPX IX-SULFIDE	NITRATE & NITRITE	URANIUM, GROSS ALPHA & BETA	VOL			
METHOD: SW 9030	E353.2	D2907, E900	SW5030/SW8010			

EXTRA SAMPLES

**Chain-of-Custody Record**

PROJECT NAME: KIRTLAND AFB IRP    PROJECT NO: 463536001    P.O. NO. \_\_\_\_\_

Relinquished by: (Signature) *MIKO ROYBAL*    Received by: (Signature) \_\_\_\_\_    Date: 18 MAY 92    Time: 1615

Relinquished by: (Signature) \_\_\_\_\_    Received by: (Signature) \_\_\_\_\_    Date: \_\_\_\_\_    Time: \_\_\_\_\_

Relinquished by: (Signature) \_\_\_\_\_    Received at lab by: (Signature) *Robert M. Roy*    Date: 19 MAY 92    Time: 0815 hrs

Relinquished from lab by: (Signature) \_\_\_\_\_    Received by: (Signature) \_\_\_\_\_    Date: \_\_\_\_\_    Time: \_\_\_\_\_

**Comments (Only 50 characters stored in NWIS)**

Record 5: SAMPLE FROM WELL AT SE CORN. OF SEWAGE LAGOON.

Record 6: \_\_\_\_\_

Total number of sample bottles for this request: 13

**SHIP TO:**  
 Enseco-Rocky Mountain Analytical  
 4955 Yarrow Street  
 Arvada, CO 80002  
 (303) 421-6611  
 ATTENTION: TRACY CONROY / JULIE CRAMER

