Cathy

GIANT REFINING CO.

November 28, 1990

Route 3, Box 7
Gallup, New Mexico
87301

505
722-3833

RECEIVED
DEC 3 1990
EID DIRECTOR'S OFFICE

Richard Mitzelfelt
Director
New Mexico Environmental Improvement Division
Harold Runnels Building
1190 St. Francis Drive
Santa Fe, New Mexico 87504-0968

RE: COMPLIANCE MONITORING
GIANT REFINING COMPANY
PERMIT NO. NMD000333211-2

Dear Mr. Mitzelfelt:

Giant Refining Company has completed the first phase of the Compliance Monitoring Program (CMP) as required by the Part B Permit Attachment G. Section 3.C and EID's August 2, 1990 memo requiring the CMP. As required by 40 CFR 264.99 (f), Giant analyzed the constituents identified in Appendix IX of 40 CFR 264 excluding dioxanes, furans, pesticides and herbicides. These deletions were approved by Dr. Bruce Swanson of your staff and was noted in EID's August 15, 1990 letter to Giant.

Attachment B indicates that all analytical results for the Appendix IX Volatile Organics, Semivolatile Organics, PCB's and the General Inorganics (including Cyanide and Sulfide) were nondetectable at the listed Enseco reporting limits. The analytical results for the Total Metals were also nondetectable except for Barium for MW-2, MW-4 and MW-5 and Lead for MW-4. Even these results are well below the maximum concentration Limits (MCL) listed in Attachment G, Table G-3 of Giant's Permit.

Attachment A includes the Calculation Sheets for Semi-Annual Evaluation of Indicator Parameters. These calculations continue to show variations in statistical increases.

As a result of the lack of evidence, in the Appendix IX analytical, that any contamination exists and fluctuations in the statistical increases for each well, Giant does not believe contamination exists. As a result, Giant Refining Company requests approval from the Director to return to detection monitoring.

If you have any questions, contact my office at (505) 722-3833.

Sincerely,

Claud C. Rosendale

Claud C. Rosendale
Environmental Manager

List of Attachments

A: Calculation Sheet for Semi-Annual Evaluation of Indicator Parameters for Annual Report

B: Enseco-Appendix IX Analytical

cc w/attachments

Kim Bullerdick, Giant Industries Arizona, Inc.
Lynn Prince, U.S. EPA, Region VI
File, Giant Refining Company

LIBRARY COPY

COMPLIANCE MONITORING REPORT
GIANT REFINING COMPANY
NOVEMBER 28, 1990

Kathy

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REFINING CO.

Route 3, Box 7
Gallup, New Mexico
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EID DIRECTOR'S OFFICE

November 28, 1990

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Director
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Attachment A includes the Calculation Sheets for Semi-Annual Evaluation of Indicator Parameters. These calculations continue to show variations in statistical increases.

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Environmental Manager

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B: Enseco-Appendix IX Analytical

cc w/attachments

Kim Bullerdick, Giant Industries Arizona, Inc.
Lynn Prince, U.S. EPA, Region VI
File, Giant Refining Company

Attachment A

Calculation Sheet for Semi-Annual Evaluation
of Indicator Parameters for Annual Report

Print Your Name: Claud C. Rosendale Your Telephone #: (505) 722-3833

Facility Name: Ciniza Refinery EPA ID#: NMD000333211-2

Date: 26 NOV 90 Parameter: pH

Well Number: MW-1 Up or Downgradient? (U or D): D

Please list the values calculated for the background parameters on the Background Indicator Parameter Calculation Sheet:

$\bar{X}_b$ = 8.51 S_b^2 = 0.015

W_b = .000937 t_b = 2.947

Please list the current values for this upgradient or downgradient monitoring well.

	Value	$(Value-X_m)^2$
1.	8.58	.0001
2.	8.57	.0000
3.	8.57	.0000
4.	8.56	.0001

Total #1: 34.28 Total #2: .0002

$\bar{X}_m$ = (Total #1)/4 = 8.57

t_m (TOC, TOX, S.C) = 4.541
t_m (pH) = 5.841

S_m^2 = (Total #2)/3 = .0000666

$W_m = S_m^2/n_m$ = .0000166

$$t^* = \frac{\bar{X}_m - \bar{X}_b}{\sqrt{W_m + W_b}} = \frac{8.57 - 8.51}{.0000166 + .000937} = 1.94$$

$$t_c = \frac{W_b \times t_b + W_m \times t_m}{W_b + W_m} = \frac{.000937 \times 2.947 + .0000166 \times 5.841}{.000937 + .0000166} = 2.997$$

For pH values, treat the value for t_c as if it is positive in all cases. If t^* is greater than t_c for any of the indicator parameters, you must immediately resample all monitoring wells for this unit. If the t^* value for the reevaluation is still greater than t_c, the RCRA unit served by the monitoring wells is in assessment, and you must notify EID within 7 days.

Claud C. Rosendale
please sign here

statqtr.88/bas

Calculation Sheet for Semi-Annual Evaluation
of Indicator Parameters for Annual Report

Print Your Name: Claud C. Rosendale Your Telephone #: (505) 722-3833

Facility Name: Ciniza Refinery EPA ID#: NMD000333211-2

Date: 26 NOV 90 Parameter: pH

Well Number: MW-2 Up or Downgradient? (U or D): D

Please list the values calculated for the background parameters on the Background Indicator Parameter Calculation Sheet:

$\bar{X}_b$ = 8.51 S_b^2 = 0.015

W_b = .000937 t_b = 2.947

Please list the current values for this upgradient or downgradient monitoring well.

	Value	$(Value-X_m)^2$
1.	8.62	.0000
2.	8.62	.0000
3.	8.62	.0000
4.	8.63	.0001

Total #1: 34.49 Total #2: .0001

$\bar{X}_m$ = (Total #1)/4 = 8.62

t_m (TOC, TOX, S.C) = 4.541
t_m (pH) = 5.841

S_m^2 = (Total #2)/3 = .0000333

$W_m = S_m^2/n_m$ = .0000083

$$t^* = \frac{\bar{X}_m - \bar{X}_b}{\sqrt{W_m + W_b}} = \frac{8.62 - 8.51}{.0000083 + .000937} = 3.58$$

$$t_c = \frac{W_b \times t_b + W_m \times t_m}{W_b + W_m} = \frac{.000937 \times 2.947 + .0000083 \times 5.841}{.000937 + .0000083} = 2.98$$

For pH values, treat the value for t_c as if it is positive in all cases. If is greater than t_c for any of the indicator parameters, you must immediately resample all monitoring wells for this unit. If the t^* value for the reevaluation is still greater than t_c, the RCRA unit served by the monitoring wells is in assessment, and you must notify EID within 7 days.

Claud C. Rosendale
please sign here

statqtr.88/bas

Calculation Sheet for Semi-Annual Evaluation
of Indicator Parameters for Annual Report

Print Your Name: Claud C. Rosendale Your Telephone #: (505) 722-3833

Facility Name: Ciniza Refinery EPA ID#: NMD000333211-2

Date: 26 NOV 90 Parameter: pH

Well Number: MW-4 Up or Downgradient? (U or D): U

Please list the values calculated for the background parameters on the Background Indicator Parameter Calculation Sheet:

$\bar{X}_b$ = 8.51 S_b^2 = 0.015

W_b = .000937 t_b = 2.947

Please list the current values for this upgradient or downgradient monitoring well.

	Value	$(Value-X_m)^2$
1.	8.42	.0001
2.	8.43	.0000
3.	8.43	.0000
4.	8.43	.0000
Total #1:	33.71	Total #2: .0001

$\bar{X}_m$ = (Total #1)/4 = 8.43

t_m (TOC,TOX, S.C) = 4.541
t_m (pH) = 5.841

S_m^2 = (Total #2)/3 = .0000333

$W_m = S_m^2/n_m$ = .0000083

$$t^* = \frac{\bar{X}_m - \bar{X}_b}{\sqrt{W_m + W_b}} = \frac{8.43 - 8.51}{.0000083 + .000937} = 2.60$$

$$t_o = \frac{W_b \times t_b + W_m \times t_m}{W_b + W_m} = \frac{.000937 \times 2.947 + .0000083 \times 5.841}{.0000083 + .000937} = 2.97$$

For pH values, treat the value for t_o as if it is positive in all cases. If t^* is greater than t_o for any of the indicator parameters, you must immediately resample all monitoring wells for this unit. If the t^* value for the reevaluation is still greater than t_o, the RCRA unit served by the monitoring wells is in assessment, and you must notify EID within 7 days.

Claud C Rosendale
please sign here

statqtr.88/bas

Calculation Sheet for Semi-Annual Evaluation
of Indicator Parameters for Annual Report

Print Your Name: Claud C. Rosendale Your Telephone #: (505) 722-3833

Facility Name: Ciniza Refinery EPA ID#: NMD000333211-2

Date: 26 NOV 90 Parameter: pH

Well Number: MW-5 Up or Downgradient? (U or D): D

Please list the values calculated for the background parameters on the Background Indicator Parameter Calculation Sheet:

$\bar{X}_b$ = 8.51 S_b^2 = 0.015

W_b = .000937 t_b = 2.947

Please list the current values for this upgradient or downgradient monitoring well.

	Value	$(Value-X_m)^2$
1.	8.63	.0000
2.	8.63	.0000
3.	8.63	.0000
4.	8.62	.0001
Total #1:	34.51	Total #2: .0001

$\bar{X}_m$ = (Total #1)/4 = 8.63

t_m (TOC,TOX, S.C) = 4.541
t_m (pH) = 5.841

S_m^2 = (Total #2)/3 = .0000333

$W_m = S_m^2/n_m$ = .0000083

$$t^* = \frac{\bar{X}_m - \bar{X}_b}{\sqrt{W_m + W_b}} = \frac{8.63 - 8.51}{+ .000937} = 3.90$$

$$t_c = \frac{W_b \times t_b + W_m \times t_m}{W_b + W_m} = \frac{.000937 \times 2.947 + .0000083 \times 5.841}{.0000083 + .000937} = 2.97$$

For pH values, treat the value for t_c as if it is positive in all cases. If is greater than t_c for any of the indicator parameters, you must immediately resample all monitoring wells for this unit. If the t^* value for the reevaluation is still greater than t_c, the RCRA unit served by the monitoring wells is in assessment, and you must notify EID within 7 days.

Claud C. Rosendale
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statqtr.88/bas

Calculation Sheet for Semi-Annual Evaluation
of Indicator Parameters for Annual Report

Print Your Name: Claud C. Rosendale Your Telephone #: (505) 722-3833

Facility Name: Ciniza Refinery EPA ID#: NMD000333211-2

Date: 26 NOV 90 Parameter: Specific Conductance

Well Number: MW1 Up or Downgradient? (U or D): D

Please list the values calculated for the background parameters on the Background Indicator Parameter Calculation Sheet:

$\bar{X}_b$ = 984 S_b^2 = 1487

W_b = 92.9375 t_b = 2.602

Please list the current values for this upgradient or downgradient monitoring well.

	Value	$(Value-X_m)^2$
1.	1180	100
2.	1170	0
3.	1170	0
4.	1160	100

Total #1: 4680 Total #2: 200

$\bar{X}_m$ = (Total #1)/4 = 1170

t_m (TOC,TOX, S.C) = 4.541
t_m (pH) = 5.841

S_m^2 = (Total #2)/3 = 66.6667

$W_m = S_m^2/n_m$ = 16.6667

$$t^* = \frac{\bar{X}_m - \bar{X}_b}{\sqrt{W_m + W_b}} = \frac{1170 - 984}{16.6667 +} = 17.77$$

$$t_c = \frac{W_b \times t_b + W_m \times t_m}{W_b + W_m} = \frac{92.9375 \times 2.602 + 16.6667 \times 4.541}{92.9375 + 16.6667} = 2.897$$

For pH values, treat the value for t_c as if it is positive in all cases. If is greater than t_c for any of the indicator parameters, you must immediately resample all monitoring wells for this unit. If the t^* value for the reevaluation is still greater than t_c, the RCRA unit served by the monitoring wells is in assessment, and you must notify EID within 7 days.

Claud C. Rosendale
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statqtr.88/bas

Calculation Sheet for Semi-Annual Evaluation
of Indicator Parameters for Annual Report

Print Your Name: Claud C. Rosendale Your Telephone #: (505) 722-3833

Facility Name: Ciniza Refinery EPA ID#: NMD000333211-2

Date: 26 NOV 90 Parameter: Specific Conductance

Well Number: MW2 Up or Downgradient? (U or D): D

Please list the values calculated for the background parameters on the Background Indicator Parameter Calculation Sheet:

$\bar{X}_b$ = 984 S_b^2 = 1487

W_b = 92.9375 t_b = 2.602

Please list the current values for this upgradient or downgradient monitoring well.

	Value	$(Value-X_m)^2$
1.	1180	5
2.	1170	5
3.	1180	5
4.	1170	5

Total #1: 4700 Total #2: 20

$\bar{X}_m$ = (Total #1)/4 = 1175

t_m (TOC,TOX, S.C) = 4.541
t_m (pH) = 5.841

S_m^2 = (Total #2)/3 = 6.6667

$W_m = S_m^2/n_m$ = 1.6667

$$t^* = \frac{\bar{X}_m - \bar{X}_b}{\sqrt{W_m + W_b}} = \frac{1175 - 984}{1.6667 + 92.9375} = 19.637$$

$$t_o = \frac{W_b \times t_b + W_m \times t_m}{W_b + W_m} = \frac{92.9375 \times 2.602 + 1.6667 \times 2.602}{92.9375 + 1.6667} = 2.602$$

For pH values, treat the value for t_o as if it is positive in all cases. If t is greater than t_o for any of the indicator parameters, you must immediately resample all monitoring wells for this unit. If the t^* value for the reevaluation is still greater than t_o, the RCRA unit served by the monitoring wells is in assessment, and you must notify EID within 7 days.

Claud C Rosendale
please sign here

statqtr.88/bas

Calculation Sheet for Semi-Annual Evaluation
of Indicator Parameters for Annual Report

Print Your Name: Claud C. Rosendale Your Telephone #: (505) 722-3833

Facility Name: Ciniza Refinery EPA ID#: NMD000333211-2

Date: 26 NOV 90 Parameter: Specific conductance

Well Number: MW-4 Up or Downgradient? (U or D): U

Please list the values calculated for the background parameters on the Background Indicator Parameter Calculation Sheet:

$\bar{X}_b$ = 984 S_b^2 = 1487

W_b = 92.9375 t_b = 2.602

Please list the current values for this upgradient or downgradient monitori well.

	Value	$(Value-X_m)^2$
1.	1170	0
2.	1180	100
3.	1160	100
4.	1170	0

Total #1: 4680 Total #2: 200

$\bar{X}_m$ = (Total #1)/4 = 1170

t_m (TOC, TOX, S.C) = 4.541
t_m (pH) = 5.841

S_m^2 = (Total #2)/3 = 66.6667

$W_m = S_m^2/n_m$ = 16.6667

$$t^* = \frac{\bar{X}_m - \bar{X}_b}{\sqrt{W_m + W_b}} = \frac{1170 - 984}{16.6667 + 92.9375} = 17.77$$

$$t_c = \frac{W_b \times t_b + W_m \times t_m}{W_b + W_m} = \frac{92.9375 \times 2.602 + 16.6667 \times 4.541}{16.6667 + 92.9375} = 2.897$$

For pH values, treat the value for t_c as if it is positive in all cases. I is greater than t_c for any of the indicator parameters, you must immediatel resample all monitoring wells for this unit. If the t^* value for the reevaluation is still greater than t_c, the RCRA unit served by the monitori wells is in assessment, and you must notify EID within 7 days.

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Calculation Sheet for Semi-Annual Evaluation
of Indicator Parameters for Annual Report

Print Your Name: Claud C. Rosendale Your Telephone #: (505) 722-3833

Facility Name: Ciniza Refinery EPA ID#: NMD000333211-2

Date: 26 NOV 90 Parameter: Specific Conductance

Well Number: MW-5 Up or Downgradient? (U or D): D

Please list the values calculated for the background parameters on the Background Indicator Parameter Calculation Sheet:

$\bar{X}_b$ = 984 S_b^2 = 1487

W_b = 92.9375 t_b = 2.602

Please list the current values for this upgradient or downgradient monitoring well.

	Value	$(Value-X_m)^2$
1.	1170	100
2.	1160	0
3.	1160	0
4.	1150	100
Total #1:	4640	Total #2: 200

$\bar{X}_m$ = (Total #1)/4 = 1160

t_m (TOC,TOX, S.C) = 4.541
t_m (pH) = 5.841

S_m^2 = (Total #2)/3 = 66.6667

$W_m = S_m^2/n_m$ = 16.6667

$$t^* = \frac{\bar{X}_m - \bar{X}_b}{\sqrt{W_m + W_b}} = \frac{1160 - 984}{16.6667 + 92.9375} = 16.811$$

$$t_c = \frac{W_b \times t_b + W_m \times t_m}{W_b + W_m} = \frac{92.9375 \times 2.602 + 16.6667 \times 4.541}{92.9375 + 16.6667} = 2.897$$

For pH values, treat the value for t_c as if it is positive in all cases. If t is greater than t_c for any of the indicator parameters, you must immediately resample all monitoring wells for this unit. If the t^* value for the reevaluation is still greater than t_c, the RCRA unit served by the monitoring wells is in assessment, and you must notify EID within 7 days.

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statqtr.88/bas

Attachment B

Rocky Mountain
Analytical Laboratory

Enseco

ANALYTICAL RESULTS

FOR

GIANT REFINING

ENSECO-RMAL NO. 011630

NOVEMBER 15, 1990

MW Compliance

Reviewed by: J A Essey
Julie Essey

Susan Wyatt for
Sue Dalla

Enseco Incorporated
4955 Yarrow Street
Arvada, Colorado 80002
303/421-6611 Fax: 303/431-7171

Introduction

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:

- Sample Description Information
- Analytical Test Requests
- Analytical Results
- Quality Control Report

Metals Data Review

Enseco protocol states that samples analyzed by graphite furnace atomic absorption (GFAA), will have a spiked aliquot analyzed with each sample. If the spike recovery does not meet established criteria, the reporting limit for that analysis is raised proportionately. Poor spike recoveries of this type are typically due to interferences from the sample matrix.

In reviewing the GFAA metals data it is necessary to know what the nominal reporting limits are in order to determine whether or not those limits were raised due to matrix interference. The most common GFAA elements and their nominal reporting limits are listed in the table below. These are provided to facilitate the review of the GFAA metals data.

Common GFAA Elements

	Reporting Limit / Units			
Element	Aqueous (mg/L)	Soil (mg/kg)	Waste (mg/kg)	Leachate (mg/L)
Arsenic	0.005	0.5 **	0.5 **	0.05 **
Lead	0.005	0.5	0.5 **	0.05 **
Selenium	0.005	0.5	0.5	0.05
Thallium	0.005	0.5	0.5	0.05

** For the matrix listed, the preferred method for this element is by Method 6010

Mercury by cold vapor atomic absorption (CVAA), Method 245.1/7470/7471, and analytes performed by Method 200.7/6010 are not subject to the same type of interferences as GFAA metals and therefore do not require a spiked aliquot for each sample. The nominal reporting limits for analytes by these methods are given in the method blank report. Typically a raised reporting limit by these methods is also due to matrix interferences. However, for all methods mentioned here, a raised reporting limit may also be the result of target analyte concentrations or blank contamination.

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.

Enseco
A Corning Company

SAMPLE DESCRIPTION INFORMATION
for
Giant Refining

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
011630-0001-SA	MW-1	AQUEOUS	02 OCT 90	08:45	03 OCT 90
011630-0002-SA	MW-2	AQUEOUS	02 OCT 90	09:30	03 OCT 90
011630-0003-SA	MW-4	AQUEOUS	02 OCT 90	10:40	03 OCT 90
011630-0004-SA	MW-5	AQUEOUS	02 OCT 90	10:10	03 OCT 90
011630-0005-SA	Trip Blank	AQUEOUS			03 OCT 90

Enseco
A Corning Company

ANALYTICAL TEST REQUESTS
for
Giant Refining

Lab ID: 011630	Group Code	Analysis Description	Custom Test?
0001 - 0004	A	Volatile Organics	N
		Appendix IX List	N
		Screen - Volatile Organics	N
		Semivolatile Organics	N
		Appendix IX List	
		Prep - Semivolatile Organics by GC/MS	N
		Chlorinated Pesticides and PCB's	Y
		Appendix IX List	
		Prep - Organochlorine Pesticides/PCBs by GC	N
		Appendix IX Metals (Total) done by ICP	N
		Prep - Total Metals, ICP	N
		Arsenic, Furnace AA (Total)	N
		Prep - Total Metals, Furnace AA	N
		Lead, Furnace AA (Total)	N
		Selenium, Furnace AA (Total)	N
		Thallium, Furnace AA (Total)	N
		Mercury, Cold Vapor AA (Total)	N
		Prep - Mercury, Cold Vapor AA (Total)	N
		Cyanide, Total	N
		Sulfide, Total	N
0005	B	Volatile Organics	N
		Appendix IX List	N
		Screen - Volatile Organics	N

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.

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.

Enseco-RMAL is no longer routinely blank-correcting analytical data. Uncorrected analytical results are reported, along with associated blank results, for all organic and metals analyses. Analytical results and blank results are reported for conventional inorganic parameters as specified in the method. This policy is described in detail in the Enseco Incorporated Quality Assurance Program Plan for Environmental Chemical Monitoring, Revision 3.3, May, 1989.

The results from the Standard Enseco QA/QC Program, which generates data which are independent of matrix effects, is provided subsequently.

Enseco
A Corning Company

Volatile Organics
Appendix IX List
Method 8240

Client Name: Giant Refining
Client ID: MW-1
Lab ID: 011630-0001-SA
Matrix: AQUEOUS Sampled: 02 OCT 90 Received: 03 OCT 90
Authorized: 03 OCT 90 Prepared: 04 OCT 90 Analyzed: 04 OCT 90

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: Cesar Rojas Approved By: Jeff Lowry

Enseco
A Corning Company

Volatile Organics
Appendix IX List
Method 8240

Client Name: Giant Refining
Client ID: MW-1
Lab ID: 011630-0001-SA
Matrix: AQUEOUS
Authorized: 03 OCT 90

Sampled: 02 OCT 90
Prepared: 04 OCT 90

Received: 03 OCT 90
Analyzed: 04 OCT 90

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	108	%	--
4-Bromofluorobenzene	100	%	--
1,2-Dichloroethane-d4	103	%	--

ND = Not detected
NA = Not applicable

Reported By: Cesar Rojas

Approved By: Jeff Lowry

Enseco
A Corning Company

Volatile Organics
Appendix IX List
Method 8240

Client Name: Giant Refining
Client ID: MW-2
Lab ID: 011630-0002-SA
Matrix: AQUEOUS
Authorized: 03 OCT 90

Sampled: 02 OCT 90
Prepared: 04 OCT 90

Received: 03 OCT 90
Analyzed: 04 OCT 90

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: Stephanie Boehnke

Approved By: Jeff Lowry

Enseco
A Corning Company

Volatile Organics
Appendix IX List
Method 8240

Client Name: Giant Refining
Client ID: MW-2
Lab ID: 011630-0002-SA
Matrix: AQUEOUS Sampled: 02 OCT 90 Received: 03 OCT 90
Authorized: 03 OCT 90 Prepared: 04 OCT 90 Analyzed: 04 OCT 90

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	103	%	--
4-Bromofluorobenzene	95	%	--
1,2-Dichloroethane-d4	110	%	--

ND = Not detected
NA = Not applicable

Reported By: Stephanie Boehnke Approved By: Jeff Lowry

Enseco
A Corning Company

Volatile Organics
Appendix IX List
Method 8240

Client Name: Giant Refining
Client ID: MW-4
Lab ID: 011630-0003-SA
Matrix: AQUEOUS
Authorized: 03 OCT 90

Sampled: 02 OCT 90
Prepared: 04 OCT 90

Received: 03 OCT 90
Analyzed: 04 OCT 90

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: Cesar Rojas

Approved By: Jeff Lowry

Enseco
A Corning Company

Volatile Organics
Appendix IX List
Method 8240

Client Name: Giant Refining
Client ID: MW-4
Lab ID: 011630-0003-SA
Matrix: AQUEOUS
Authorized: 03 OCT 90

Sampled: 02 OCT 90
Prepared: 04 OCT 90

Received: 03 OCT 90
Analyzed: 04 OCT 90

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	107	%	--
4-Bromofluorobenzene	100	%	--
1,2-Dichloroethane-d4	103	%	--

ND = Not detected
NA = Not applicable

Reported By: Cesar Rojas

Approved By: Jeff Lowry

Enseco
A Corning Company

Volatile Organics
Appendix IX List
Method 8240

Client Name: Giant Refining
Client ID: MW-5
Lab ID: 011630-0004-SA
Matrix: AQUEOUS
Authorized: 03 OCT 90

Sampled: 02 OCT 90
Prepared: 04 OCT 90

Received: 03 OCT 90
Analyzed: 04 OCT 90

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: Stephanie Boehnke

Approved By: Jeff Lowry

Enseco
A Corning Company

Volatile Organics
Appendix IX List
Method 8240

Client Name: Giant Refining
Client ID: MW-5
Lab ID: 011630-0004-SA
Matrix: AQUEOUS
Authorized: 03 OCT 90

Sampled: 02 OCT 90
Prepared: 04 OCT 90

Received: 03 OCT 90
Analyzed: 04 OCT 90

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	93	%	--
1,2-Dichloroethane-d4	107	%	--

ND = Not detected
NA = Not applicable

Reported By: Stephanie Boehnke

Approved By: Jeff Lowry

Enseco
A Corning Company

Volatile Organics
Appendix IX List
Method 8240

Client Name: Giant Refining
Client ID: Trip Blank
Lab ID: 011630-0005-SA
Matrix: AQUEOUS
Authorized: 03 OCT 90

Sampled: Unknown
Prepared: 04 OCT 90

Received: 03 OCT 90
Analyzed: 04 OCT 90

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: Cesar Rojas

Approved By: Jeff Lowry

Enseco
A Corning Company

Volatile Organics
Appendix IX List
Method 8240

Client Name: Giant Refining
Client ID: Trip Blank
Lab ID: 011630-0005-SA
Matrix: AQUEOUS
Authorized: 03 OCT 90

Sampled: Unknown
Prepared: 04 OCT 90

Received: 03 OCT 90
Analyzed: 04 OCT 90

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	109	%	--
4-Bromofluorobenzene	99	%	--
1,2-Dichloroethane-d4	104	%	--

ND = Not detected
NA = Not applicable

Reported By: Cesar Rojas

Approved By: Jeff Lowry

Enseco
A Corning Company

Semivolatile Organics
Appendix IX List
Method 8270

Client Name: Giant Refining
Client ID: MW-1
Lab ID: 011630-0001-SA
Matrix: AQUEOUS Sampled: 02 OCT 90 Received: 03 OCT 90
Authorized: 03 OCT 90 Prepared: 08 OCT 90 Analyzed: 20 OCT 90

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: Donna Reinwald Approved By: Jeff Lowry

Enseco
A Corning Company

Semivolatile Organics
Appendix IX List
Method 8270

Client Name: Giant Refining
Client ID: MW-1
Lab ID: 011630-0001-SA
Matrix: AQUEOUS Sampled: 02 OCT 90 Received: 03 OCT 90
Authorized: 03 OCT 90 Prepared: 08 OCT 90 Analyzed: 20 OCT 90

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	ND	ug/L	50
bis(2-Ethylhexyl) phthalate	ND	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: Donna Reinwald Approved By: Jeff Lowry

Enseco
A Corning Company

Semivolatile Organics
Appendix IX List
Method 8270

Client Name: Giant Refining
Client ID: MW-1
Lab ID: 011630-0001-SA
Matrix: AQUEOUS Sampled: 02 OCT 90 Received: 03 OCT 90
Authorized: 03 OCT 90 Prepared: 08 OCT 90 Analyzed: 20 OCT 90

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-Tetrachlorobenzene	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: Donna Reinwald Approved By: Jeff Lowry

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Semivolatile Organics
Appendix IX List
Method 8270

Client Name: Giant Refining
Client ID: MW-1
Lab ID: 011630-0001-SA
Matrix: AQUEOUS Sampled: 02 OCT 90 Received: 03 OCT 90
Authorized: 03 OCT 90 Prepared: 08 OCT 90 Analyzed: 20 OCT 90

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
O,O,O-Triethylphosphorothioate	ND	ug/L	10
1,3,5-Trinitrobenzene	ND	ug/L	10
Surrogate	**Recovery**		
Nitrobenzene-d5	52	%	--
2-Fluorobiphenyl	55	%	--
Terphenyl-d14	84	%	--
Phenol-d5	48	%	--
2-Fluorophenol	46	%	--
2,4,6-Tribromophenol	70	%	--

ND = Not detected
NA = Not applicable

Reported By: Donna Reinwald Approved By: Jeff Lowry

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Semivolatile Organics
Appendix IX List
Method 8270

Client Name: Giant Refining
Client ID: MW-2
Lab ID: 011630-0002-SA
Matrix: AQUEOUS
Authorized: 03 OCT 90

Sampled: 02 OCT 90
Prepared: 08 OCT 90

Received: 03 OCT 90
Analyzed: 20 OCT 90

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: Donna Reinwald

Approved By: Jeff Lowry

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Semivolatile Organics
Appendix IX List
Method 8270

Client Name: Giant Refining
Client ID: MW-2
Lab ID: 011630-0002-SA
Matrix: AQUEOUS Sampled: 02 OCT 90 Received: 03 OCT 90
Authorized: 03 OCT 90 Prepared: 08 OCT 90 Analyzed: 20 OCT 90

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	ND	ug/L	50
bis(2-Ethylhexyl) phthalate	ND	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: Donna Reinwald Approved By: Jeff Lowry

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Semivolatile Organics
Appendix IX List
Method 8270

Client Name: Giant Refining
Client ID: MW-2
Lab ID: 011630-0002-SA
Matrix: AQUEOUS Sampled: 02 OCT 90 Received: 03 OCT 90
Authorized: 03 OCT 90 Prepared: 08 OCT 90 Analyzed: 20 OCT 90

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-Tetrachlorobenzene	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: Donna Reinwald Approved By: Jeff Lowry

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Semivolatile Organics
Appendix IX List
Method 8270

Client Name: Giant Refining
Client ID: MW-2
Lab ID: 011630-0002-SA
Matrix: AQUEOUS
Authorized: 03 OCT 90

Sampled: 02 OCT 90
Prepared: 08 OCT 90

Received: 03 OCT 90
Analyzed: 20 OCT 90

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
O,O,O-Triethylphosphorothioate	ND	ug/L	10
1,3,5-Trinitrobenzene	ND	ug/L	10

Surrogate	Recovery		
Nitrobenzene-d5	71	%	--
2-Fluorobiphenyl	71	%	--
Terphenyl-d14	85	%	--
Phenol-d5	64	%	--
2-Fluorophenol	64	%	--
2,4,6-Tribromophenol	74	%	--

ND = Not detected
NA = Not applicable

Reported By: Donna Reinwald

Approved By: Jeff Lowry

Enseco
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Semivolatile Organics
Appendix IX List
Method 8270

Client Name: Giant Refining
Client ID: MW-4
Lab ID: 011630-0003-SA
Matrix: AQUEOUS Sampled: 02 OCT 90 Received: 03 OCT 90
Authorized: 03 OCT 90 Prepared: 08 OCT 90 Analyzed: 20 OCT 90

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: Donna Reinwald Approved By: Jeff Lowry

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Semivolatile Organics
Appendix IX List
Method 8270

Client Name: Giant Refining
Client ID: MW-4
Lab ID: 011630-0003-SA
Matrix: AQUEOUS Sampled: 02 OCT 90 Received: 03 OCT 90
Authorized: 03 OCT 90 Prepared: 08 OCT 90 Analyzed: 20 OCT 90

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	ND	ug/L	50
bis(2-Ethylhexyl) phthalate	ND	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: Donna Reinwald Approved By: Jeff Lowry

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Semivolatile Organics
Appendix IX List
Method 8270

Client Name: Giant Refining
Client ID: MW-4
Lab ID: 011630-0003-SA
Matrix: AQUEOUS Sampled: 02 OCT 90 Received: 03 OCT 90
Authorized: 03 OCT 90 Prepared: 08 OCT 90 Analyzed: 20 OCT 90

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-Tetrachlorobenzene	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: Donna Reinwald Approved By: Jeff Lowry

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Semivolatile Organics
Appendix IX List
Method 8270

Client Name: Giant Refining
Client ID: MW-4
Lab ID: 011630-0003-SA
Matrix: AQUEOUS
Authorized: 03 OCT 90

Sampled: 02 OCT 90
Prepared: 08 OCT 90

Received: 03 OCT 90
Analyzed: 20 OCT 90

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
O,O,O-Triethylphosphorothioate	ND	ug/L	10
1,3,5-Trinitrobenzene	ND	ug/L	10

Surrogate	Recovery		
Nitrobenzene-d5	80	%	--
2-Fluorobiphenyl	77	%	--
Terphenyl-d14	93	%	--
Phenol-d5	76	%	--
2-Fluorophenol	75	%	--
2,4,6-Tribromophenol	80	%	--

ND = Not detected
NA = Not applicable

Reported By: Donna Reinwald

Approved By: Jeff Lowry

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Semivolatile Organics
Appendix IX List
Method 8270

Client Name: Giant Refining
Client ID: MW-5
Lab ID: 011630-0004-SA
Matrix: AQUEOUS
Authorized: 03 OCT 90

Sampled: 02 OCT 90
Prepared: 08 OCT 90

Received: 03 OCT 90
Analyzed: 20 OCT 90

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-dinitrophenol	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: Donna Reinwald

Approved By: Jeff Lowry

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Semivolatile Organics
Appendix IX List
Method 8270

Client Name: Giant Refining
Client ID: MW-5
Lab ID: 011630-0004-SA
Matrix: AQUEOUS Sampled: 02 OCT 90 Received: 03 OCT 90
Authorized: 03 OCT 90 Prepared: 08 OCT 90 Analyzed: 20 OCT 90

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	ND	ug/L	50
bis(2-Ethylhexyl) phthalate	ND	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: Donna Reinwald Approved By: Jeff Lowry

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Semivolatile Organics
Appendix IX List
Method 8270

Client Name: Giant Refining
Client ID: MW-5
Lab ID: 011630-0004-SA
Matrix: AQUEOUS Sampled: 02 OCT 90 Received: 03 OCT 90
Authorized: 03 OCT 90 Prepared: 08 OCT 90 Analyzed: 20 OCT 90

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-Tetrachlorobenzene	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: Donna Reinwald Approved By: Jeff Lowry

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Semivolatile Organics
Appendix IX List
Method 8270

Client Name: Giant Refining
Client ID: MW-5
Lab ID: 011630-0004-SA
Matrix: AQUEOUS
Authorized: 03 OCT 90

Sampled: 02 OCT 90
Prepared: 08 OCT 90

Received: 03 OCT 90
Analyzed: 20 OCT 90

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	64	%	--
2-Fluorobiphenyl	63	%	--
Terphenyl-d14	88	%	--
Phenol-d5	60	%	--
2-Fluorophenol	60	%	--
2,4,6-Tribromophenol	72	%	--

ND = Not detected
NA = Not applicable

Reported By: Donna Reinwald

Approved By: Jeff Lowry

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Chlorinated Pesticides and PCB's
Appendix IX List
Method 8080

Client Name: Giant Refining
Client ID: MW-1
Lab ID: 011630-0001-SA
Matrix: AQUEOUS
Authorized: 03 OCT 90

Sampled: 02 OCT 90
Prepared: 04 OCT 90

Received: 03 OCT 90
Analyzed: 13 OCT 90

Parameter	Result	Units	Reporting Limit
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

Surrogate	Recovery		
Dibutyl chlorendate	56	%	--

ND = Not detected
NA = Not applicable

Reported By: Stephanie Boehnke

Approved By: Jeff Lowry

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Chlorinated Pesticides and PCB's
Appendix IX List
Method 8080

Client Name: Giant Refining
Client ID: MW-2
Lab ID: 011630-0002-SA
Matrix: AQUEOUS Sampled: 02 OCT 90 Received: 03 OCT 90
Authorized: 03 OCT 90 Prepared: 04 OCT 90 Analyzed: 13 OCT 90

Parameter	Result	Units	Reporting Limit
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
Surrogate	Recovery		
Dibutyl chlorendate	31	%	--

ND = Not detected
NA = Not applicable

Reported By: Stephanie Boehnke Approved By: Jeff Lowry

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A Corning Company

Chlorinated Pesticides and PCB's
Appendix IX List
Method 8080

Client Name: Giant Refining
Client ID: MW-4
Lab ID: 011630-0003-SA
Matrix: AQUEOUS Sampled: 02 OCT 90 Received: 03 OCT 90
Authorized: 03 OCT 90 Prepared: 04 OCT 90 Analyzed: 13 OCT 90

Parameter	Result	Units	Reporting Limit
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
Surrogate	Recovery		
Dibutyl chlorendate	68	%	--

ND = Not detected
NA = Not applicable

Reported By: Stephanie Boehnke Approved By: Jeff Lowry

Enseco
A Corning Company

Chlorinated Pesticides and PCB's
Appendix IX List
Method 8080

Client Name: Giant Refining
Client ID: MW-5
Lab ID: 011630-0004-SA
Matrix: AQUEOUS Sampled: 02 OCT 90 Received: 03 OCT 90
Authorized: 03 OCT 90 Prepared: 04 OCT 90 Analyzed: 13 OCT 90

Parameter	Result	Units	Reporting Limit
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
Surrogate	Recovery		
Dibutyl chlorendate	44	%	--

ND = Not detected
NA = Not applicable

Reported By: Stephanie Boehnke Approved By: Jeff Lowry

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A Corning Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: MW-1
Lab ID: 011630-0001-SA
Matrix: AQUEOUS
Authorized: 03 OCT 90

Sampled: 02 OCT 90
Prepared: See Below

Received: 03 OCT 90
Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/L	0.060	6010	23 OCT 90	30 OCT 90
Arsenic	ND	mg/L	0.0050	7060	23 OCT 90	31 OCT 90
Barium	ND	mg/L	0.010	6010	23 OCT 90	30 OCT 90
Beryllium	ND	mg/L	0.0020	6010	23 OCT 90	30 OCT 90
Cadmium	ND	mg/L	0.0050	6010	23 OCT 90	30 OCT 90
Chromium	ND	mg/L	0.010	6010	23 OCT 90	30 OCT 90
Cobalt	ND	mg/L	0.010	6010	23 OCT 90	30 OCT 90
Copper	ND	mg/L	0.020	6010	23 OCT 90	30 OCT 90
Lead	ND	mg/L	0.010	7421	23 OCT 90	30 OCT 90
Mercury	ND	mg/L	0.00020	7470	24 OCT 90	25 OCT 90
Nickel	ND	mg/L	0.040	6010	23 OCT 90	30 OCT 90
Selenium	ND	mg/L	0.0050	7740	23 OCT 90	06 NOV 90
Silver	ND	mg/L	0.010	6010	23 OCT 90	30 OCT 90
Thallium	ND	mg/L	0.010	7841	23 OCT 90	30 OCT 90
Tin	ND	mg/L	0.10	6010	23 OCT 90	30 OCT 90
Vanadium	ND	mg/L	0.010	6010	23 OCT 90	30 OCT 90
Zinc	ND	mg/L	0.020	6010	23 OCT 90	30 OCT 90

ND = Not detected
NA = Not applicable

Reported By: David Patterson

Approved By: John Laferty

Enseco
A Corning Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: MW-2
Lab ID: 011630-0002-SA
Matrix: AQUEOUS
Authorized: 03 OCT 90

Sampled: 02 OCT 90
Prepared: See Below

Received: 03 OCT 90
Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/L	0.060	6010	23 OCT 90	30 OCT 90
Arsenic	ND	mg/L	0.0050	7060	23 OCT 90	31 OCT 90
Barium	0.019	mg/L	0.010	6010	23 OCT 90	30 OCT 90
Beryllium	ND	mg/L	0.0020	6010	23 OCT 90	30 OCT 90
Cadmium	ND	mg/L	0.0050	6010	23 OCT 90	30 OCT 90
Chromium	ND	mg/L	0.010	6010	23 OCT 90	30 OCT 90
Cobalt	ND	mg/L	0.010	6010	23 OCT 90	30 OCT 90
Copper	ND	mg/L	0.020	6010	23 OCT 90	30 OCT 90
Lead	ND	mg/L	0.010	7421	23 OCT 90	30 OCT 90
Mercury	ND	mg/L	0.00020	7470	24 OCT 90	25 OCT 90
Nickel	ND	mg/L	0.040	6010	23 OCT 90	30 OCT 90
Selenium	ND	mg/L	0.0050	7740	23 OCT 90	06 NOV 90
Silver	ND	mg/L	0.010	6010	23 OCT 90	30 OCT 90
Thallium	ND	mg/L	0.010	7841	23 OCT 90	30 OCT 90
Tin	ND	mg/L	0.10	6010	23 OCT 90	30 OCT 90
Vanadium	ND	mg/L	0.010	6010	23 OCT 90	30 OCT 90
Zinc	ND	mg/L	0.020	6010	23 OCT 90	30 OCT 90

ND = Not detected
NA = Not applicable

Reported By: David Patterson

Approved By: John Laferty

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Metals

Total Metals

Client Name: Giant Refining
Client ID: MW-4
Lab ID: 011630-0003-SA
Matrix: AQUEOUS Sampled: 02 OCT 90 Received: 03 OCT 90
Authorized: 03 OCT 90 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/L	0.060	6010	23 OCT 90	30 OCT 90
Arsenic	ND	mg/L	0.0050	7060	23 OCT 90	31 OCT 90
Barium	0.018	mg/L	0.010	6010	23 OCT 90	30 OCT 90
Beryllium	ND	mg/L	0.0020	6010	23 OCT 90	30 OCT 90
Cadmium	ND	mg/L	0.0050	6010	23 OCT 90	30 OCT 90
Chromium	ND	mg/L	0.010	6010	23 OCT 90	30 OCT 90
Cobalt	ND	mg/L	0.010	6010	23 OCT 90	30 OCT 90
Copper	ND	mg/L	0.020	6010	23 OCT 90	30 OCT 90
Lead	0.0071	mg/L	0.0050	7421	23 OCT 90	30 OCT 90
Mercury	ND	mg/L	0.00020	7470	24 OCT 90	25 OCT 90
Nickel	ND	mg/L	0.040	6010	23 OCT 90	30 OCT 90
Selenium	ND	mg/L	0.0050	7740	23 OCT 90	06 NOV 90
Silver	ND	mg/L	0.010	6010	23 OCT 90	30 OCT 90
Thallium	ND	mg/L	0.0050	7841	23 OCT 90	30 OCT 90
Tin	ND	mg/L	0.10	6010	23 OCT 90	30 OCT 90
Vanadium	ND	mg/L	0.010	6010	23 OCT 90	30 OCT 90
Zinc	ND	mg/L	0.020	6010	23 OCT 90	30 OCT 90

ND = Not detected
NA = Not applicable

Reported By: David Patterson Approved By: John Laferty

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Metals

Total Metals

Client Name: Giant Refining
Client ID: MW-5
Lab ID: 011630-0004-SA
Matrix: AQUEOUS Sampled: 02 OCT 90 Received: 03 OCT 90
Authorized: 03 OCT 90 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/L	0.060	6010	23 OCT 90	30 OCT 90
Arsenic	ND	mg/L	0.0050	7060	23 OCT 90	31 OCT 90
Barium	0.068	mg/L	0.010	6010	23 OCT 90	30 OCT 90
Beryllium	ND	mg/L	0.0020	6010	23 OCT 90	30 OCT 90
Cadmium	ND	mg/L	0.0050	6010	23 OCT 90	30 OCT 90
Chromium	ND	mg/L	0.010	6010	23 OCT 90	30 OCT 90
Cobalt	ND	mg/L	0.010	6010	23 OCT 90	30 OCT 90
Copper	ND	mg/L	0.020	6010	23 OCT 90	30 OCT 90
Lead	ND	mg/L	0.010	7421	23 OCT 90	30 OCT 90
Mercury	ND	mg/L	0.00020	7470	24 OCT 90	25 OCT 90
Nickel	ND	mg/L	0.040	6010	23 OCT 90	30 OCT 90
Selenium	ND	mg/L	0.0050	7740	23 OCT 90	06 NOV 90
Silver	ND	mg/L	0.010	6010	23 OCT 90	30 OCT 90
Thallium	ND	mg/L	0.010	7841	23 OCT 90	30 OCT 90
Tin	ND	mg/L	0.10	6010	23 OCT 90	30 OCT 90
Vanadium	ND	mg/L	0.010	6010	23 OCT 90	30 OCT 90
Zinc	ND	mg/L	0.020	6010	23 OCT 90	30 OCT 90

ND = Not detected
NA = Not applicable

Reported By: David Patterson Approved By: John Laferty

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General Inorganics

Client Name: Giant Refining
Client ID: MW-1
Lab ID: 011630-0001-SA
Matrix: AQUEOUS
Authorized: 03 OCT 90

Sampled: 02 OCT 90
Prepared: See Below

Received: 03 OCT 90
Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Cyanide	ND	mg/L	0.010	9012	NA	10 OCT 90
Sulfide, Total	ND	mg/L	0.050	9030M	NA	08 OCT 90

ND = Not detected
NA = Not applicable

Reported By: Blake Besser

Approved By: Toni Stovall

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General Inorganics

Client Name: Giant Refining
Client ID: MW-2
Lab ID: 011630-0002-SA
Matrix: AQUEOUS
Authorized: 03 OCT 90

Sampled: 02 OCT 90
Prepared: See Below

Received: 03 OCT 90
Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Cyanide	ND	mg/L	0.010	9012	NA	10 OCT 90
Sulfide, Total	ND	mg/L	0.050	9030M	NA	08 OCT 90

ND = Not detected
NA = Not applicable

Reported By: Blake Besser

Approved By: Toni Stovall

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General Inorganics

Client Name: Giant Refining
Client ID: MW-4
Lab ID: 011630-0003-SA
Matrix: AQUEOUS
Authorized: 03 OCT 90

Sampled: 02 OCT 90
Prepared: See Below

Received: 03 OCT 90
Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Cyanide	ND	mg/L	0.010	9012	NA	10 OCT 90
Sulfide, Total	ND	mg/L	0.050	9030M	NA	08 OCT 90

ND = Not detected
NA = Not applicable

Reported By: Blake Besser

Approved By: Toni Stovall

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A Corning Company

Client Name: Giant Refining
Client ID: MW-5
Lab ID: 011630-0004-SA
Matrix: AQUEOUS
Authorized: 03 OCT 90

Sampled: 02 OCT 90
Prepared: See Below

Received: 03 OCT 90
Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Cyanide	ND	mg/L	0.010	9012	NA	10 OCT 90
Sulfide, Total	ND	mg/L	0.050	9030M	NA	08 OCT 90

ND = Not detected
NA = Not applicable

Reported By: Blake Besser

Approved By: Toni Stovall

Quality Control Results

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 both Organic and Inorganic analyses, under the USATHAMA (U.S. Army) program, by the Army Corps of Engineers, and the states of Colorado, New Jersey, New York, 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 either representative target compounds or surrogate compounds appropriate to the method being used. An SCS is prepared for each sample lot for which the DCS pair are not analyzed.

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.

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QC LOT ASSIGNMENT REPORT
Volatile Organics by GC/MS

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
011630-0001-SA	AQUEOUS	624-A	03 OCT 90-B	03 OCT 90-B
011630-0002-SA	AQUEOUS	624-A	03 OCT 90-B	04 OCT 90-B
011630-0003-SA	AQUEOUS	624-A	03 OCT 90-B	03 OCT 90-B
011630-0004-SA	AQUEOUS	624-A	03 OCT 90-B	04 OCT 90-B
011630-0005-SA	AQUEOUS	624-A	03 OCT 90-B	03 OCT 90-B

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DUPLICATE CONTROL SAMPLE REPORT
Volatile Organics by GC/MS

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	Measured AVG	Accuracy Average(%) DCS	Accuracy Limits	Precisi (RPD) DCS	Precisi (RPD) Lim
Category: 624-A								
Matrix: AQUEOUS								
QC Lot: 03 OCT 90-B								
Concentration Units: ug/L								
1,1-Dichloroethene	50	38.1	33.5	35.8	72	61-145	13	
Trichloroethene	50	44.8	44.1	44.4	89	71-120	1.6	
Benzene	50	48.1	47.3	47.7	95	76-127	1.7	
Toluene	50	51.4	47.6	49.5	99	76-125	7.7	
Chlorobenzene	50	53.9	51.6	52.8	106	75-130	4.4	

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

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SINGLE CONTROL SAMPLE REPORT
Volatile Organics by GC/MS

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) SCS	Accuracy(%) Limits
Category: 624-A				
Matrix: AQUEOUS				
QC Lot: 03 OCT 90-B QC Run: 03 OCT 90-B				
Concentration Units: ug/L				
1,2-Dichloroethane-d4	50.0	53.9	108	76-114
4-Bromofluorobenzene	50.0	51.3	103	86-115
Toluene-d8	50.0	54.3	109	88-110
Category: 624-A				
Matrix: AQUEOUS				
QC Lot: 03 OCT 90-B QC Run: 04 OCT 90-B				
Concentration Units: ug/L				
1,2-Dichloroethane-d4	50.0	52.0	104	76-114
4-Bromofluorobenzene	50.0	49.3	99	86-115
Toluene-d8	50.0	49.8	100	88-110

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

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METHOD BLANK REPORT
Volatile Organics by GC/MS

Test: 8240CP-AP9-AP
Matrix: AQUEOUS
QC Lot: 03 OCT 90-B QC Run: 03 OCT 90-B

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

Analyte	Result	Units	Reporting Limit
Test: 8240CP-AP9-AP			
Matrix: AQUEOUS			
QC Lot: 03 OCT 90-B QC Run: 03 OCT 90-B			
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: 03 OCT 90-B QC Run: 04 OCT 90-B			
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

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

Test: 8240CP-AP9-AP
Matrix: AQUEOUS
QC Lot: 03 OCT 90-B QC Run: 04 OCT 90-B

Analyte	Result	Units	Reporting Limit
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
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

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

Test: 8240CP-AP9-AP
Matrix: AQUEOUS
QC Lot: 03 OCT 90-B QC Run: 03 OCT 90-B

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

Analyte	Result	Units	Reporting Limit
Test: 8240CP-AP9-AP			
Matrix: AQUEOUS			
QC Lot: 03 OCT 90-B QC Run: 03 OCT 90-B			
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

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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)
011630-0001-SA	AQUEOUS	625-A	08 OCT 90-A	08 OCT 90-B
011630-0002-SA	AQUEOUS	625-A	08 OCT 90-A	08 OCT 90-B
011630-0003-SA	AQUEOUS	625-A	08 OCT 90-A	08 OCT 90-B
011630-0004-SA	AQUEOUS	625-A	08 OCT 90-A	08 OCT 90-B

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DUPLICATE CONTROL SAMPLE REPORT
Semivolatile Organics by GC/MS

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	Measured AVG	Accuracy Average(%) DCS	Accuracy Limits	Precisi (RPD) DCS Lim
Category: 625-A							
Matrix: AQUEOUS							
QC Lot: 08 OCT 90-A							
Concentration Units: ug/L							
Phenol	100	63.1	80.7	71.9	72	12- 89	24
2-Chlorophenol	100	74.6	87.3	81.0	81	27-123	16
1,4-Dichlorobenzene	50	36.1	40.7	38.4	77	36- 97	12
N-Nitroso-di-n-propylamine	50	39.0	44.2	41.6	83	41-116	12
1,2,4-Trichlorobenzene	50	40.0	42.8	41.4	83	39- 98	6.3
4-Chloro-3-methylphenol	100	78.2	87.7	83.0	83	23- 97	11
Acenaphthene	50	36.9	39.0	38.0	76	46-118	5.5
4-Nitrophenol	100	56.0	65.4	60.7	61	10- 80	15
2,4-Dinitrotoluene	50	41.7	43.7	42.7	85	24- 96	4.7
Pentachlorophenol	100	73.3	83.4	78.4	78	9-103	13
Pyrene	50	42.2	44.3	43.2	87	26-127	4.9

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

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SINGLE CONTROL SAMPLE REPORT
Semivolatile Organics by GC/MS

Category: 625-A
Matrix: AQUEOUS
QC Lot: 08 OCT 90-A QC Run: 08 OCT 90-B
Concentration Units: ug/L

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) SCS	Accuracy(%) Limits
Nitrobenzene-d5	100	76.5	76	35-114
2-Fluorobiphenyl	100	76.4	76	43-116
Terphenyl-d14	100	78.2	78	33-141
2-Fluorophenol	200	148	74	21-100
Phenol-d5	200	143	72	10- 94
2,4,6-Tribromophenol	200	176	88	10-123

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

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METHOD BLANK REPORT
Semivolatile Organics by GC/MS

Test: 8270CP-AP9-A
Matrix: AQUEOUS
QC Lot: 08 OCT 90-A QC Run: 08 OCT 90-B

Analyte	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-dinitrophenol	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

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

Test: 8270CP-AP9-A
Matrix: AQUEOUS
QC Lot: 08 OCT 90-A QC Run: 08 OCT 90-B

Analyte	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	ND	ug/L	50
bis(2-Ethylhexyl) phthalate	ND	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

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

Test: 8270CP-AP9-A
Matrix: AQUEOUS
QC Lot: 08 OCT 90-A QC Run: 08 OCT 90-B

Analyte	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-Tetrachlorobenzene	ND	ug/L	10
2,3,4,6-Tetrachlorophenol	ND	ug/L	50
Thionazin	ND	ug/L	50

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

Test: 8270CP-AP9-A
Matrix: AQUEOUS
QC Lot: 08 OCT 90-A QC Run: 08 OCT 90-B

Analyte	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

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QC LOT ASSIGNMENT REPORT
Semivolatile Organics by GC

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
011630-0001-SA	AQUEOUS	608-A	04 OCT 90-A	04 OCT 90-A
011630-0002-SA	AQUEOUS	608-A	04 OCT 90-A	04 OCT 90-A
011630-0003-SA	AQUEOUS	608-A	04 OCT 90-A	04 OCT 90-A
011630-0004-SA	AQUEOUS	608-A	04 OCT 90-A	04 OCT 90-A

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DUPLICATE CONTROL SAMPLE REPORT
Semivolatile Organics by GC

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	Measured AVG	Accuracy Average(%) DCS	Accuracy Limits	Precisi (RPD) DCS Lim
Category: 608-A							
Matrix: AQUEOUS							
QC Lot: 04 OCT 90-A							
Concentration Units: ug/L							
gamma-BHC (Lindane)	0.200	0.169	0.171	0.170	85	56-123	1.2
Heptachlor	0.200	0.184	0.185	0.184	92	40-131	0.5
Aldrin	0.200	0.155	0.158	0.156	78	40-120	1.9
Dieldrin	0.500	0.404	0.415	0.410	82	52-126	2.7
Endrin	0.500	0.446	0.437	0.442	88	56-121	2.0
4,4'-DDT	0.500	0.411	0.428	0.420	84	38-127	4.1

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

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SINGLE CONTROL SAMPLE REPORT
Semivolatile Organics by GC

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) SCS	Accuracy(%) Limits
Category: 608-A				
Matrix: AQUEOUS				
QC Lot: 04 OCT 90-A QC Run: 04 OCT 90-A				
Concentration Units: ug/L				
Dibutyl chlorendate	1.00	0.757	76	48-136

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

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METHOD BLANK REPORT
Semivolatile Organics by GC

Analyte	Result	Units	Reporting Limit
Test: 8080CP-AP9-A			
Matrix: AQUEOUS			
QC Lot: 04 OCT 90-A QC Run: 04 OCT 90-A			
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

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QC LOT ASSIGNMENT REPORT
Metals Analysis and Preparation

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
011630-0001-SA	AQUEOUS	ICP-AT	23 OCT 90-D	23 OCT 90-D
011630-0001-SA	AQUEOUS	AS-FAA-AT	23 OCT 90-C	23 OCT 90-C
011630-0001-SA	AQUEOUS	PB-FAA-AT	23 OCT 90-C	23 OCT 90-C
011630-0001-SA	AQUEOUS	SE-FAA-AT	23 OCT 90-C	23 OCT 90-C
011630-0001-SA	AQUEOUS	TL-FAA-AT	23 OCT 90-C	23 OCT 90-C
011630-0001-SA	AQUEOUS	HG-CVAA-AT	24 OCT 90-A	24 OCT 90-A
011630-0002-SA	AQUEOUS	ICP-AT	23 OCT 90-D	23 OCT 90-D
011630-0002-SA	AQUEOUS	AS-FAA-AT	23 OCT 90-C	23 OCT 90-C
011630-0002-SA	AQUEOUS	PB-FAA-AT	23 OCT 90-C	23 OCT 90-C
011630-0002-SA	AQUEOUS	SE-FAA-AT	23 OCT 90-C	23 OCT 90-C
011630-0002-SA	AQUEOUS	TL-FAA-AT	23 OCT 90-C	23 OCT 90-C
011630-0002-SA	AQUEOUS	HG-CVAA-AT	24 OCT 90-A	24 OCT 90-A
011630-0003-SA	AQUEOUS	ICP-AT	23 OCT 90-D	23 OCT 90-D
011630-0003-SA	AQUEOUS	AS-FAA-AT	23 OCT 90-C	23 OCT 90-C
011630-0003-SA	AQUEOUS	PB-FAA-AT	23 OCT 90-C	23 OCT 90-C
011630-0003-SA	AQUEOUS	SE-FAA-AT	23 OCT 90-C	23 OCT 90-C
011630-0003-SA	AQUEOUS	TL-FAA-AT	23 OCT 90-C	23 OCT 90-C
011630-0003-SA	AQUEOUS	HG-CVAA-AT	24 OCT 90-A	24 OCT 90-A
011630-0004-SA	AQUEOUS	ICP-AT	23 OCT 90-D	23 OCT 90-D
011630-0004-SA	AQUEOUS	AS-FAA-AT	23 OCT 90-C	23 OCT 90-C
011630-0004-SA	AQUEOUS	PB-FAA-AT	23 OCT 90-C	23 OCT 90-C
011630-0004-SA	AQUEOUS	SE-FAA-AT	23 OCT 90-C	23 OCT 90-C
011630-0004-SA	AQUEOUS	TL-FAA-AT	23 OCT 90-C	23 OCT 90-C
011630-0004-SA	AQUEOUS	HG-CVAA-AT	24 OCT 90-A	24 OCT 90-A

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DUPLICATE CONTROL SAMPLE REPORT
Metals Analysis and Preparation

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	Measured AVG	Accuracy Average(%) DCS	Accuracy Average(%) Limits	Precis (RPD) DCS Li
Category: ICP-AT Matrix: AQUEOUS QC Lot: 23 OCT 90-D Concentration Units: mg/L							
Aluminum	2.0	2.00	1.98	1.99	100	75-125	1.1
Antimony	0.5	0.524	0.527	0.525	105	75-125	0.5
Arsenic	0.5	0.483	0.491	0.487	97	75-125	1.6
Barium	2.0	2.02	1.99	2.01	100	75-125	1.5
Beryllium	0.05	0.0512	0.0508	0.0510	102	75-125	0.8
Cadmium	0.05	0.0457	0.0422	0.0439	88	75-125	7.8
Calcium	100	99.4	100	99.8	100	75-125	0.9
Chromium	0.2	0.207	0.202	0.205	102	75-125	2.3
Cobalt	0.5	0.508	0.505	0.507	101	75-125	0.8
Copper	0.25	0.252	0.250	0.251	101	75-125	0.8
Iron	1.0	1.04	1.00	1.02	102	75-125	3.7
Lead	0.5	0.483	0.473	0.478	96	75-125	2.2
Magnesium	50	48.8	48.9	48.9	98	75-125	0.4
Manganese	0.5	0.513	0.504	0.508	102	75-125	1.8
Nickel	0.5	0.507	0.508	0.507	101	75-125	0.2
Potassium	50	49.0	47.6	48.3	97	75-125	2.9
Silver	0.05	0.0559	0.0544	0.0551	110	75-125	2.7
Sodium	100	100	99.5	99.7	100	75-125	0.5
Vanadium	0.5	0.513	0.508	0.511	102	75-125	1.0
Zinc	0.5	0.492	0.483	0.488	98	75-125	1.7
Category: AS-FAA-AT Matrix: AQUEOUS QC Lot: 23 OCT 90-C Concentration Units: mg/L							
Arsenic	0.04	0.0381	0.0376	0.0378	95	75-125	1.3
Category: PB-FAA-AT Matrix: AQUEOUS QC Lot: 23 OCT 90-C Concentration Units: mg/L							
Lead	0.02	0.0205	0.0215	0.0210	105	75-125	4.8

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

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

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	Measured AVG	Accuracy Average(%) DCS	Accuracy Limits	Precis (RPD) DCS Li
Category: SE-FAA-AT Matrix: AQUEOUS QC Lot: 23 OCT 90-C Concentration Units: mg/L							
Selenium	0.01	0.00970	0.00960	0.00965	97	75-125	1.0
Category: TL-FAA-AT Matrix: AQUEOUS QC Lot: 23 OCT 90-C Concentration Units: mg/L							
Thallium	0.05	0.0499	0.0510	0.0504	101	75-125	2.2
Category: HG-CVAA-AT Matrix: AQUEOUS QC Lot: 24 OCT 90-A Concentration Units: mg/L							
Mercury	0.0010	0.00110	0.00107	0.00108	109	75-125	2.9

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

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METHOD BLANK REPORT
Metals Analysis and Preparation

Analyte	Result	Units	Reporting Limit
Test: ICP-AP9-AT			
Matrix: AQUEOUS			
QC Lot: 23 OCT 90-D QC Run: 23 OCT 90-D			
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: 23 OCT 90-C QC Run: 23 OCT 90-C			
Arsenic	ND	mg/L	0.0050
Test: PB-FAA-AT			
Matrix: AQUEOUS			
QC Lot: 23 OCT 90-C QC Run: 23 OCT 90-C			
Lead	ND	mg/L	0.0050
Test: SE-FAA-AT			
Matrix: AQUEOUS			
QC Lot: 23 OCT 90-C QC Run: 23 OCT 90-C			
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: 23 OCT 90-C QC Run: 23 OCT 90-C			
Thallium	ND	mg/L	0.0050
Test: HG-CVAA-AT Matrix: AQUEOUS QC Lot: 24 OCT 90-A QC Run: 24 OCT 90-A			
Mercury	ND	mg/L	0.00020

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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)
011630-0001-SA	AQUEOUS	CN-A	10 OCT 90-B	10 OCT 90-B
011630-0001-SA	AQUEOUS	S-A	08 OCT 90-A	-
011630-0002-SA	AQUEOUS	CN-A	10 OCT 90-B	10 OCT 90-B
011630-0002-SA	AQUEOUS	S-A	08 OCT 90-A	-
011630-0003-SA	AQUEOUS	CN-A	10 OCT 90-B	10 OCT 90-B
011630-0003-SA	AQUEOUS	S-A	08 OCT 90-A	-
011630-0004-SA	AQUEOUS	CN-A	10 OCT 90-B	10 OCT 90-B
011630-0004-SA	AQUEOUS	S-A	08 OCT 90-A	-

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DUPLICATE CONTROL SAMPLE REPORT
Wet Chemistry Analysis and Preparation

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	Measured AVG	Accuracy Average(%) DCS	Accuracy Limits	Precisi (RPD) DCS	Lim
Category: CN-A Matrix: AQUEOUS QC Lot: 10 OCT 90-B Concentration Units: mg/L								
Cyanide	0.20	0.186	0.198	0.192	96	75-125	6.2	
Category: S-A Matrix: AQUEOUS QC Lot: 08 OCT 90-A Concentration Units: mg/L								
Sulfide, Total	0.449	0.453	0.415	0.434	97	80-120	8.8	

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: 10 OCT 90-B QC Run: 10 OCT 90-B			
Cyanide	ND	mg/L	0.010