GRC rec'd 1991 04/11/91 AEZ

GIANT
REFINING CO.

Route 3, Box 7
Gallup, New Mexico
87301

505
722-3833

April 8, 1991

APR 1991
RECEIVED
HAZARDOUS WASTE
PROGRAM

Mr. Rich Mayer
U.S. Environmental Protection Agency
Region VI
1445 Ross Avenue Suite 1200
Dallas, Texas 75202-2733

RE: Phase I RFI Final Report

XIII

Dear Mr. Mayer:

The attached volumes are the Final Report for the Phase I RFI requirements for Giant Refining Company. The report is submitted as a requirement of HSWA Permit No. NMD000333211 and compliance with the March 26, 1991 Notice of Deficiencies.

The report consists of the Draft Report which has had modification to the Table of Contents and the cover sheets to each volume. Section 10 has been added and contains the response to the deficiencies.

If you have any questions, contact my office at (505) 722-0217.

Sincerely yours,

Claud Rosendale

Claud Rosendale
Environmental Manager
Ciniza Refinery

cc w/attachments (5 Volume Set - RFI Final Report): — 5 volumes in magazine file, one set only

David Boyer - Director; New Mexico Oil Conservation Division
Richard Mitzelfelt - Director; New Mexico Environmental Department
Kim Bullerdick - Corporate Counsel; Giant Industries of Arizona, Inc.
Linda Carleson - Head Librarian; Gallup Public Library
File - Giant Refining Company

RCRA FACILITY INVESTIGATION
PHASE I - FINAL REPORT
GIANT REFINING COMPANY
GALLUP, NEW MEXICO
APRIL 8, 1991
BOOK 1

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SECTION 1.0
INTRODUCTION

INTRODUCTION

This document outlines the specific activities that have been conducted for the Phase I RFI requirements for Giant Refining Company. All sampling, analytical and statistical calculations have been completed with the results incorporated in this report.

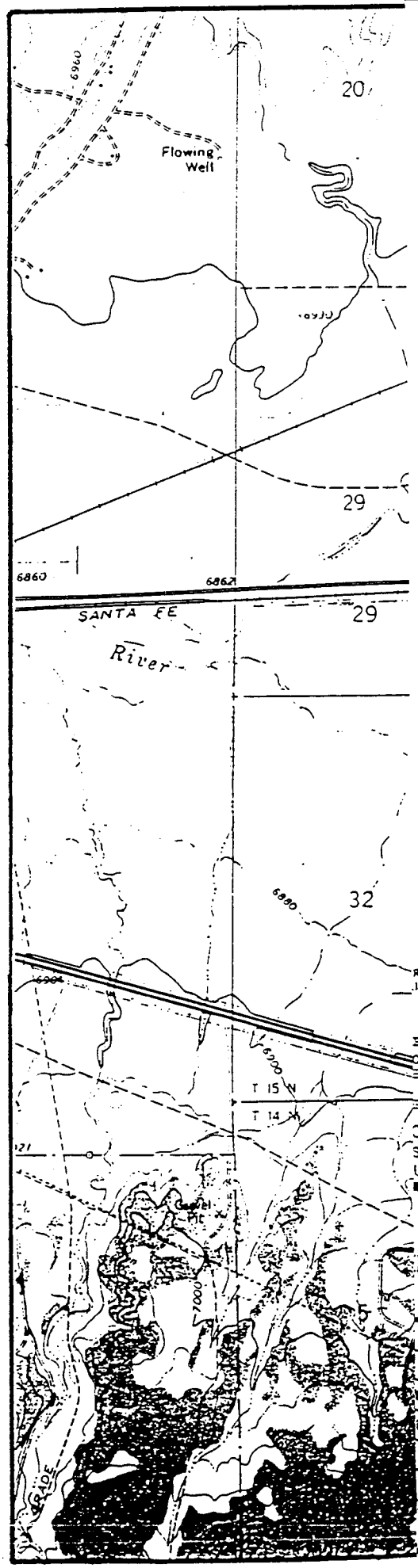
Soil samples were collected from SWMU's #6, #8, #9, and #10. Sample collection was conducted by Giant Refining Co. and Rodgers and Company from Albuquerque, New Mexico. Rodgers and Company used a drilling rig equipped with hollow stemmed augers to sample most of the angle borings. Giant Refining Co. sampled the vertical borings and the three angle borings around the tanks that were not accessible to the drilling rig. Giant used a backhoe, hand augers, and soil probes for sampling. Section 6.3 explains the sampling company technique and sampling notes for each individual boring. The soil samples were collected from June 25 to July 5, 1990. PRC Environmental Management Inc., a consultant for the EPA observed some of the sampling and participated by splitting several samples.

All soil samples were sent to Enseco-Rocky Mountain Analytical Laboratories in Arvada, Colorado for final testing. Section 4 explains all modifications of constituent requirements and reporting limits that were listed in the May 17, 1990 Generic Sampling Plan. Section 9 includes a copy of all original Enseco analytical data and QA/QC. Section 8 has the analytical data in a tabulated summary form.

Giant contracted American Liner Co. to inspect the contact waste-water collection system. Cook Construction Co., a division of American Liner Co., conducted the actual inspection. They used a vacuum truck equipped with a high pressure washer to clean the lines and sumps. A camera was used to video the lines. The final report and an edited version of the video tape (2 hours) is included in Section 5 of this document.

The statistical analysis and results are in Section 7. All statistical calculations were prepared by Mark Wilson, a math professor with the University of New Mexico. This section explains the methodology used in determining the background values for the metals and the actual comparisons of the background values to the sample results.

There was not any bench scale studies conducted at this phase of the project. They will be conducted in the corrective measures studies when alternatives and cost estimates are being evaluated.



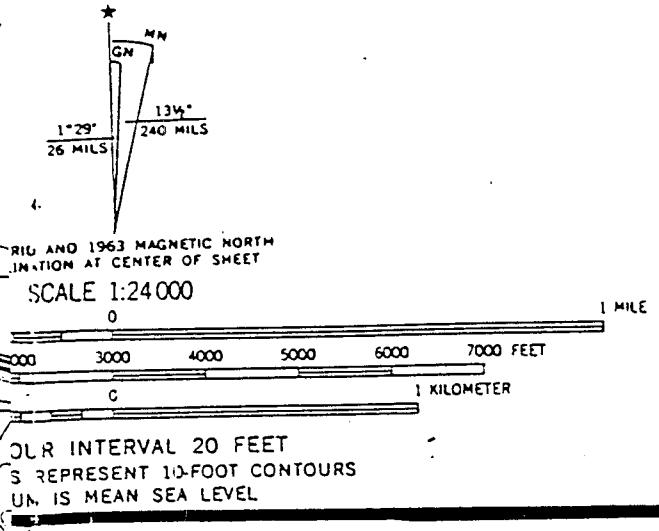
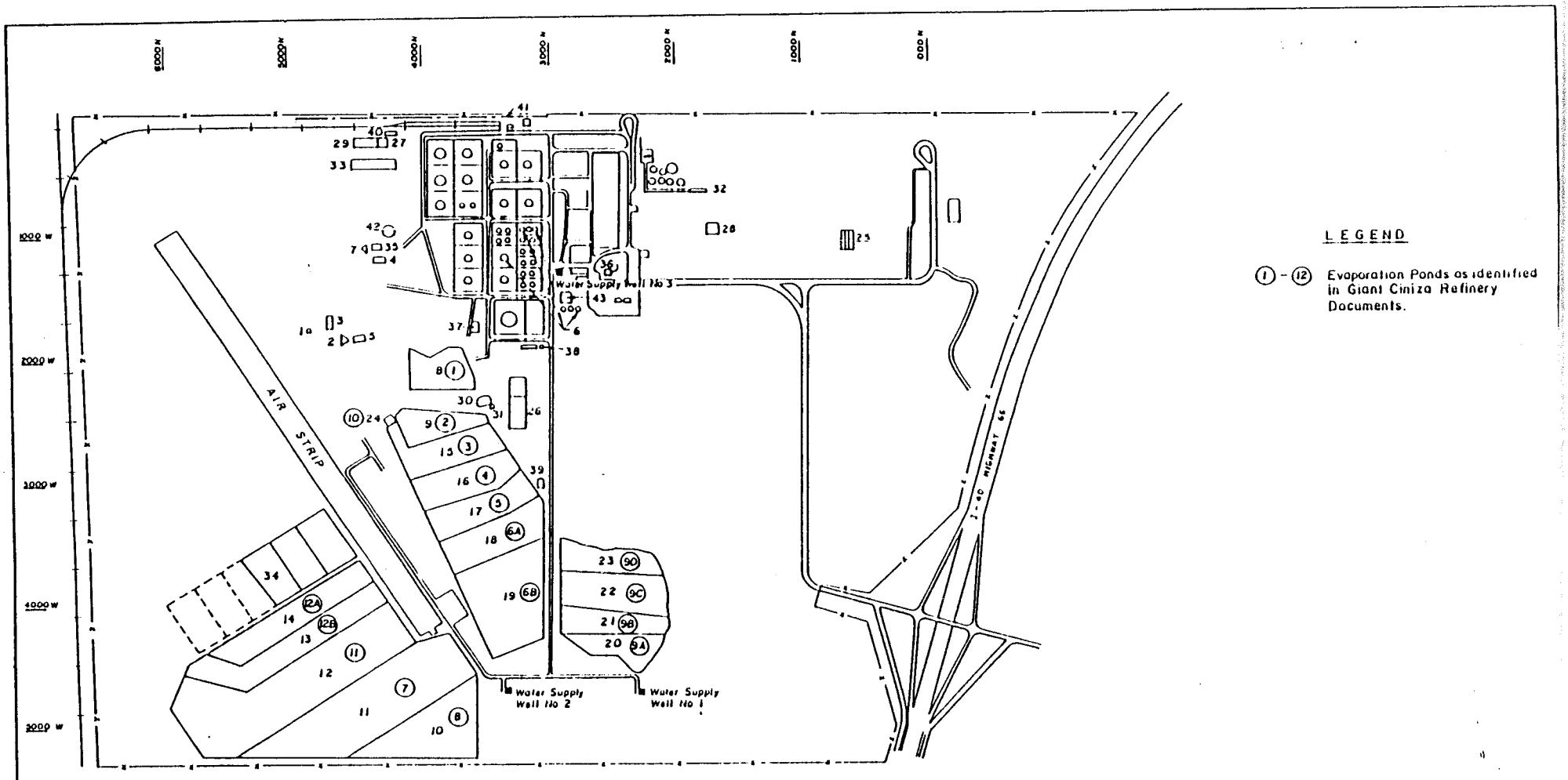


FIGURE I-1

NERAL LOCATION MAP, CINIZA REFINERY AREA

GIANT	
OCTOBER, 1985	
r: JCH	
BY:	
1:24,000	

FIGURE 1-2



1. Landfill
2. Landfill
3. Landfill
4. Landfill
5. Landfill
6. Tank Farm
7. Burn Pit
8. Aeration Basin
9. Evaporation Pond
10. Evaporation Pond
11. Evaporation Pond
12. Evaporation Pond
13. Evaporation Pond
14. Evaporation Pond
15. Evaporation Pond
16. Evaporation Pond
17. Evaporation Pond
18. Evaporation Pond
19. Evaporation Pond
20. Evaporation Pond
21. Evaporation Pond
22. Evaporation Pond
23. Evaporation Pond
24. Drainage Ditch
25. Sewage Lagoon
26. Sewage Lagoon
27. Sewage Lagoon
28. Sewage Lagoon
29. Railroad Rack Lagoon
30. Sludge Pit
31. Sludge Pit
32. Asphalt Pit
33. Inactive Land Treatment
34. Active Land Treatment
35. Inactive Container Storage
36. Active Container Storage
37. API Separator
38. Neutralization Tank
39. Secondary Oil Skimmer
40. Underground Storage Tanks
41. Drainage From Process Area
42. Fire Training Area
43. Empty Container Storage

Applied Earth Sciences		NAME		FIGURE
FILE No. 5202	MADE BY: R.G. DATE: 5-15-89 CHECKED BY: DATE:	GIANT REFINERY Gallup, New Mexico	SITE MAP	1

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to be the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Claud Rosendale 11-27-90

Claud Rosendale, Environmental Manager

GIANT REFINING CO. CINIZA REFINERY

GALLUP, NM

Please note that the enclosed diskettes are formatted on Lotus 1-2-3, with file names as follows:

A:\RFI06
A:\RFI08
A:\RFI09
A:\RFI10

These files include the tabulated analytical summary found in Section 8 of the RFI Draft Report.

Refer to Draft Report
Submitted November 27, 1990
For Diskette

Section 2.0
Quarterly Progress Reports

GIANT
REFINING CO.

Route 3, Box 7
Gallup, New Mexico
87301

505
722-3833

October 26, 1990

Mr. Rich Mayer
U. S. Environmental Protection Agency
Region 6
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733

RE: QUARTERLY PROGRESS REPORT

Dear Mr. Mayer:

Giant Refining Co. is submitting this quarterly progress report as required by the May 31, 1990 RFI Workplan approval letter and HSWA Permit condition C.4, page 11.

All soil sampling required by Phase I of the RFI has been completed and the analytical results from the sampling has been received by Giant. Mark Wilson, a professor at the University of New Mexico branch college, has been in contact with your office and is working on the statistical calculations required for reporting.

Phase I of the underground sewer system inspection has been completed and Giant is anticipating the arrival of the report and video tapes within the next two (2) weeks.

As soon as the statistical calculations are completed and the sewer system reports are received, Giant will submit the draft report to your office.

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Claud Rosendale

Claud Rosendale
Environmental Manager
Ciniza Refinery

CR:cam

cc: John Stokes, Giant Refining Co.
Carl Shook, Giant Industries Arizona, Inc.
Kim Bullerdick, Giant Industries Arizona, Inc.

GIANT
REFINING CO.

Route 3, Box 7
Gallup, New Mexico
87301

505
722-3833

July 9, 1990

Rich Mayer
U.S. Environmental Protection Agency
Region 6
1445 Ross Avenue, Suite 1200
Dallas, TX 75202-2733

RE: Status Report for Giant Refinery RFI

Dear Mr. Mayer:

The RCRA Facility Investigation Phase I sampling for Giant Refining Company's Ciniza Refinery was completed on July 5, 1990. All soil samples for SWMU's #6, #8, #9, and #10 have been collected and received at the contract laboratory. The only liquid required for this phase of the sampling was from the railroad rack lagoon if drainage was occurring. However, no drainage was occurring, therefore no sample was collected at this time. A sample may be collected from the lagoon at a later date to assure possible transfer of this liquid to the facility API Separator.

All sample points and corresponding sample numbers are specified on the attachments. A description of the sample numbering process is as follows:

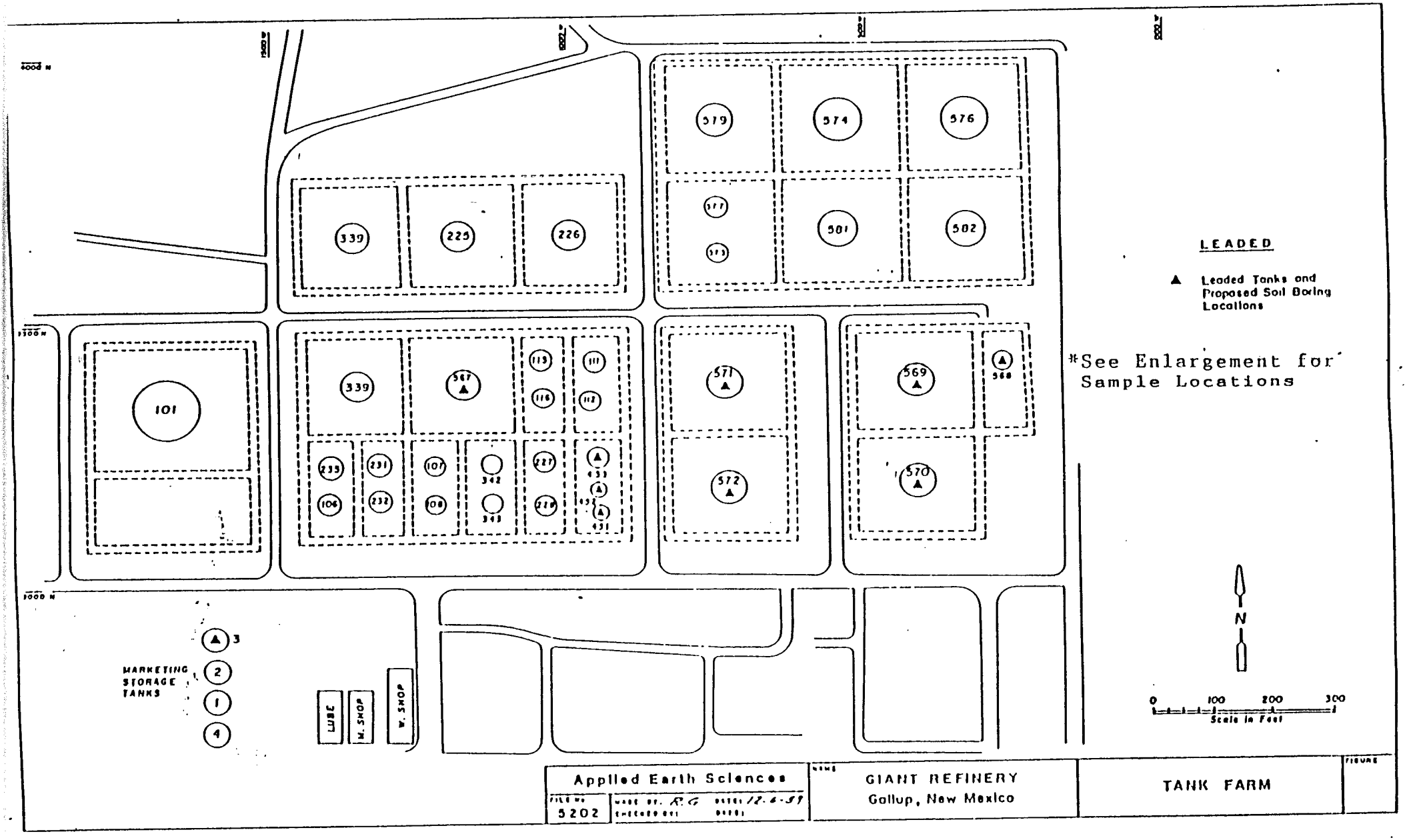
1	2	3	4	5
RFI	08	06	V	0.0

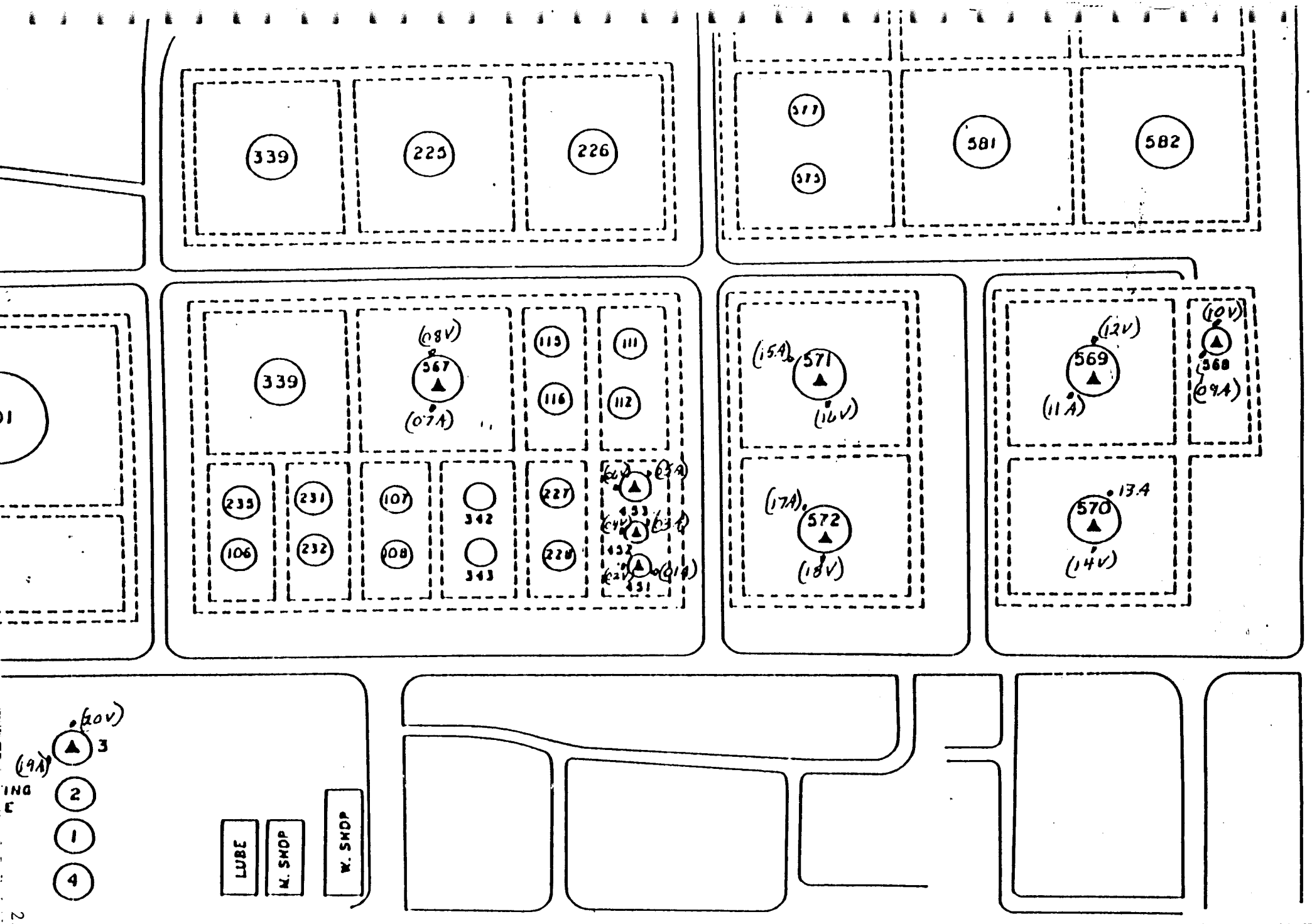
#1 = Sampling event
#2 = SWMU number
#3 = Specific sample hole number in each SWMU
#4 = Type sample
  V = Vertical
  A = Angle
  D = Duplicate
  E = Equipment rinse
#5 = Beginning depth of sample interval

The draft report will follow as required by the approved schedule.

Claud Rosendale
Environmental Manager
Ciniza Refinery

cc: w/attachments:
John Stokes - Refinery Manager; Giant Refining Co.
Kim Bullerdick- Corporate Counsel; Giant Ind. Inc.


4000 N
3500 N
3000 N
1500 W
1000 W
500 W
0 W
500 W
339
225
226
579
574
576
577
573
501
502
101
339
567
115
116
111
112
235
231
107
342
227
106
232
108
343
229
571
572
569
568
570
MARKETING STORAGE TANKS
3
2
1
4
LUBE
M. SHOP
W. SHOP
LEADED
Leaded Tanks and Proposed Soil Boring Locations
*See Enlargement for Sample Locations
N
0
100
200
300
Scale in Feet
Applied Earth Sciences
FILE NO.
5202
DRAWN BY R.G.
DATE 12-6-89
CHECKED BY
DATE
NAME
GIANT REFINERY
Gallup, New Mexico
TANK FARM
FIGURE



Applied Earth Sciences		NAME GIANT REFINERY Gallup, New Mexico
FILE No. 5202	MADE BY: R.G. DATE: 12-6-99 CHECKED BY: DATE:	

2.6

TANK SAMPLES

TANK #	TYPE	SAMPLE #
451	Angle	RFI0601A
	Vertical	RFI0602V
452	Angle	RFI0603A
	Vertical	RFI0604V
453	Angle	RFI0605A
	Vertical	RFI0606V
567	Angle	RFI0607A
	Vertical	RFI0608V
568	Angle	RFI0609A
	Vertical	RFI0610V
569	Angle	RFI0611A
	Vertical	RFI0612V
570	Angle	RFI0613A
	Vertical	RFI0614V
571	Angle	RFI0615A
	Vertical	RFI0616V
572	Angle	RFI0617A
	Vertical	RFI0618V
3	Angle	RFI0619A
	Vertical	RFI0620V

FIG.

Railroad Rock Lagoon and Fan Out Area SHT. 1

GIANT REFINERY
Gallup, New Mexico

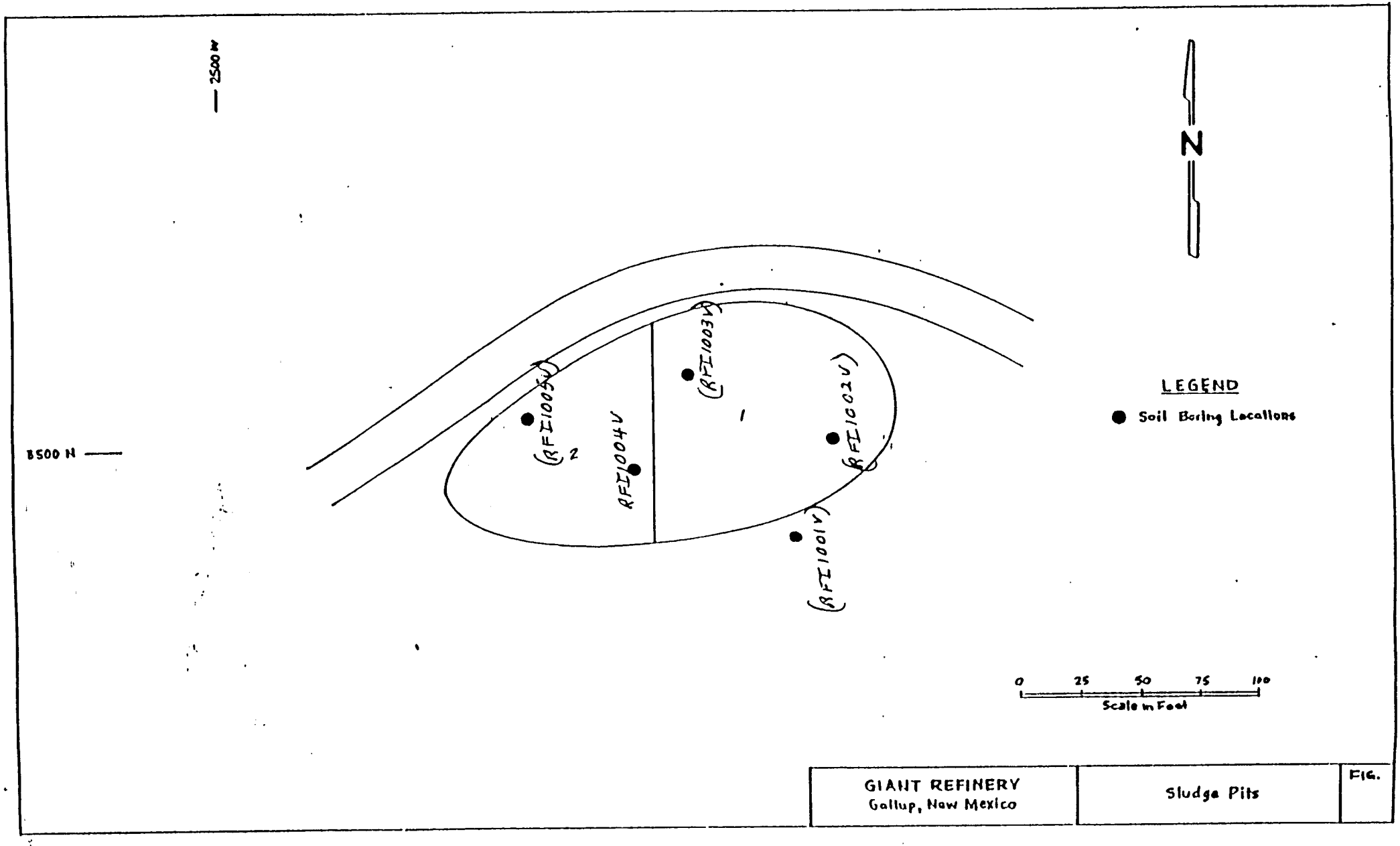
2.8

(See Sht. 1)
N
LEGEND
Proposed Soil Boring Locations
Proposed Surface Water Sample Locations
0
30
60
Scale in Feet
RFI0807V
RFI0808V
RFI0809V
RFI0810V
RFI0813V
RFI0812V
RFI0811V
N 515°
375 W
Railroad Rack Lagoon and Fan Out Area Sht. 2
GIANT REFINERY
Gallup, New Mexico

FIG

Inactive Land Treatment and Associated Drainage Ditch

GIANT REFINERY
Gallup, New Mexico



GIANT REFINERY Gallup, New Mexico	Sludge Pits	FIG.

Section 3.0
Project Notifications

GIANT
REFINING CO.

Route 3, Box 7
Gallup, New Mexico
87301

505
722-3833

June 11, 1990

Barbara Garrett
Legal Department
Gallup Independent
P. O. Box 1210
Gallup, New Mexico 87305

RE: PUBLIC NOTICE

Dear Ms. Garrett:

Please print the enclosed public notice in the Gallup Independent at the earliest possible date.

If you have any questions, contact me at (505) 722-3833 ext. 217.

Claud Rosendale
Environmental Manager
Ciniza Refinery

CCR:ctf

Enclosures

PUBLIC NOTICE FOR GIANT REFINING COMPANY'S RCRA FACILITY INVESTIGATION

ADDRESS: Giant Refining Company
Ciniza Refinery
Route 3, Box 7
Gallup, New Mexico 87301

LOCATION: Exit 39, I-40
Jamestown, New Mexico 87347
Sections 28 and 33
Township 15 North
Range 15 West
New Mexico Prime Meridian

Ciniza Refinery will be conducting a RCRA Facility Investigation (RFI) for all Solid Waste Management Units (SWMU) where the potential for contamination of regulated chemicals may exist. The RFI consist of collecting soil and water samples and analyzing them for specific parameters to determine if contamination exist. The RFI will begin on June 1990 and will conclude in 1992.

A copy of the RFI Workplan is available for public review at the Gallup Public Library, 115 West Hill, Gallup, New Mexico. All comments should be addressed to: Ciniza Refinery, ATTN: Claud Rosendale, Rt. 3, Box 7, Gallup, NM 87301.

Affidavit of Publication

STATE OF NEW MEXICO,
) ss
COUNTY OF McKINLEY

Barbara Garrett being duly sworn upon oath, deposes and says:

As Legal Clerk of the Gallup Independent, a newspaper published in and having a general circulation in McKinley County, New Mexico, and in the City of Gallup, therein: that this affiant makes this affidavit based upon personal knowledge of the facts herein sworn to. That the publication, a copy of which is hereto attached was published in said newspaper during the period and time of publication and said notice was published in the newspaper proper, and not in a supplement thereof,

for One (1) Time, the first publication being on the 16th day of June, 19 90 the second publication being on the _____ day of _____, 19 _____ the third publication on the _____ day of _____, 19 _____.

and the last publication being on the _____ day of _____, 19 _____.

That such newspaper, in which such notice or advertisement was published, is now and has been at all times material hereto, duly qualified for such purpose, and to publish legal notices and advertisements within the meaning of Chapter 12, of the statutes of the State of New Mexico, 1941 compilation.

Barbara Garrett
Affiant.

Sworn and subscribed to before me this 15th day of June A.D., 19 90

Linda Kay Delano
Notary Public.

My commission expires
8-29-93

LEGAL NOTICE

PUBLIC NOTICE FOR
GIANT REFINING COMPANY'S
RCRA FACILITY INVESTIGATION

ADDRESS:
Giant Refining Company
Ciniza Refinery
Route 3 Box 7
Gallup, New Mexico 87301

LOCATION:
Exit 39, I-40
Jamestown, New Mexico 87347
Sections 28 and 33
Township 15 North
Range 15 West
New Mexico Prime Meridian

Ciniza Refinery will be conducting a RCRA Facility Investigation (RFI) for all Solid Waste Management Units (SWMU) where the potential for contamination of regulated chemicals may exist. The RFI consist of collecting soil and water samples and analyzing them for specific parameters to determine if contamination exist. The RFI will begin on June 1990 and will conclude in 1992.

A copy of the RFI Workplan is available for public review at the Gallup Public Library, 115 West Hill, Gallup, New Mexico. All comments should be addressed to: Ciniza Refinery, ATTN: Claud Rosendale, Rt. 3, Box 7, Gallup, NM 87301.

Legal #5588 published in the Gallup Independent June 16, 1990.

997-9004-37

RECEIVED
JUN 19 1990
GIANT REFINING CO.
CINIZA REFINERY

GIANT
REFINING CO.

Route 3, Box 7
Gallup, New Mexico
87301

505
722-3833

June 11, 1990

Linda Carleson
Head Librarian
Gallup Public Library
115 W. Hill
Gallup, New Mexico 87301

RE: SUBMITTAL OF THE CINIZA REFINERY RFI

Dear Ms. Carleson:

Federal law requires the enclosed documents be placed on file for public review. A public notice will be placed in the Gallup Independent informing the public of the availability of these documents in the Gallup Public Library.

If you have any questions, contact me at (505) 722-3833 ext. 217.

Thank you,

Claud Rosendale

Claud Rosendale
Environmental Manager
Ciniza Refinery

CCR:ctf

Enclosures

Section 4.0

Modification to Constituent Requirements and Reporting Limits

Section 4.1

DISCUSSION

The list of analytical parameters and their reporting limits vary from those specified in Attachment C of the approved Generic Sampling Plan. The constituent variation for each SWMU is as follows:

SWMU #6 - No variation
SWMU #8 - Methylchrysene was requested but was not analyzed.
SWMU #9 - 1, 4-Dichloro-2-butane was requested but was not analyzed (see page 4.3).
SWMU #10- 1, 4-Dichloro-2-butane was requested but was not analyzed (see page 4.3).

The soils reporting limits for this report is outlined on the following pages of this section:

Volatile Organics-Priority Pollutant List, Method 8240------Page 4.6

Semivolatile Organics-Priority Pollutant List, Method 8270--Page 4.7

Volatile Organics-Refinery List, Method 8240----------Page 4.9

Semivolatile Organics-Refinery List-Method 8270----------Page 4.10

BTEX, Method 8020----------Page 4.11

Metals----------Page 4.12

These minimum detection limits may vary depending on interferences with analyses and the dilutions that are necessary to minimize or eliminate these interferences.

Rocky Mountain
Analytical Laboratory

Enseco Incorporated

Enseco

TO: FAX # 505-722-3833 ext 210

NAME Claud Rosendale

COMPANY Giant

CITY Gallup

FROM: NAME Julie Essay

COMPANY: Enseco-Rocky Mountain Analytical Lab

NUMBER OF PAGES (INCLUDING THIS COVER PAGE) 1

If you do not receive all pages, please phone (303) 421-6611 extension 145.

COMMENTS Compounds we do not do:

8270- Dibenzofurans - tetrachloro

- pentachloro

- hexachloro

Dibenz(a,j) acridine

8240 - 1,4-Dichloro-2-butane (We think this is a typo and does not exist).

Please respond as soon as possible.

Thank you
Julie

Our Facsimile Information:
8150 Pitney Bowes - 1-303-431-7171

OPERATOR _____ TIME _____ DATE _____

4955 Yarrow Street
Arvada, Colorado 80002
303 421-6611 Facsimile: 303 431-7171

Rocky Mountain
Analytical Laboratory

Enseco Incorporated

Enseco

TO: FAX # 505-722-3833 ext 210

NAME Cloud Rosendale

COMPANY Giant Refining

CITY Gallup

FROM: NAME Julie Essley

COMPANY: Enseco-Rocky Mountain Analytical Lab

NUMBER OF PAGES (INCLUDING THIS COVER PAGE) _____
If you do not receive all pages, please phone (303) 421-6611 extension 145.

COMMENTS Soils Reporting Limits
The medium reporting limits are those used for the soil samples for the RFI analysis

Our Facsimile Information:
8150 Pitney Bowes - 1-303-431-7171

OPERATOR _____ TIME _____ DATE _____

4955 Yarrow Street
Arvada, Colorado 80002
303-421-6611 Facsimile: 303-431-7171

Claud —

Regarding the "Radian" list of Components:

(1) 2-Chloronaphthane appears to be a typo. We can find no references for this name. We think it should be: 2-Chloronaphthalene

(2) Hexachloro-1,3-butadiene is equivalent to Hexachlorobutadiene

(3) 3-Methylphenol and 4-Methylphenol cannot be resolved on a capillary column and are therefore reported as 3/4-Methylphenol

05/01/90

Title: **Volatile Organics - Priority Pollutant List**
Method 8240

DRAFT

Pkge code: **CPVOA-PP-S**
Units: **ug/kg**
Matrix: **Soil**

Analyte	Reporting Limits Low	Medium
Acrolein	100	10000
Acrylonitrile	100	10000
Benzene	5	500
Bromodichloromethane	5	500
Bromoform	5	500
Bromomethane	10	1000
Carbon tetrachloride	5	500
Chlorobenzene	5	500
Chloroethane	10	1000
Chloroform	5	500
Chloromethane	10	1000
Dibromochloromethane	5	500
1,1-Dichloroethane	5	500
1,2-Dichloroethane	5	500
1,1-Dichloroethene	5	500
1,2-Dichloroethene^(total)	5	500
1,2-Dichloropropane	5	500
cis-1,3-Dichloropropene	5	500
trans-1,3-Dichloropropene	5	500
Ethylbenzene	5	500
Methylene chloride	5	500
1,1,2,2-Tetrachloroethane	5	500
Tetrachloroethene	5	500
1,1,1-Trichloroethane	5	500
1,1,2-Trichloroethane	5	500
Trichloroethene	5	500
Toluene	5	500
Vinyl chloride	10	1000
Add-on to 8240-Priority Pollutant		
trans-1,2-Dichloroethene	5	500
2-Chloroethylvinyl ether	--	--
Chloroethane	10	1000

05/01/90

Title: **Semivolatile Organics - Priority Pollutant List**
Method 8270

Pkge code: **CPBNA-PP-S**
Units: **ug/kg**
Matrix: **Soil**

DRAFT

Analyte	Reporting Limits Low	Medium
Acenaphthene	330	5000
Acenaphthylene	330	5000
Anthracene	330	5000
Benzidine	3300	50000
Benzo(a)anthracene	330	5000
Benzo(a)pyrene	330	5000
Benzo(b)fluoranthene	330	5000
Benzo(g,h,i)perylene	330	5000
Benzo(k)fluoranthene	330	5000
4-Bromophenyl^phenyl ether	330	5000
Butyl benzyl phthalate	330	5000
bis(2-Chloroethoxy)-^methane	330	5000
bis(2-chloroethyl) ether	330	5000
bis(2-Chloroisopropyl) ether	330	5000
4-Chloro-3-methylphenol	330	5000
2-Chloronaphthalene	330	5000
2-Chlorophenol	330	5000
4-Chlorophenyl^phenyl ether	330	5000
Chrysene	330	5000
Dibenz(a,h)anthracene	330	5000
Di-n-butyl phthalate	330	5000
1,2-Dichlorobenzene	330	5000
1,3-Dichlorobenzene	330	5000
1,4-Dichlorobenzene	330	5000
3,3'-Dichlorobenzidine	660	10000
2,4-Dichlorophenol	330	5000
Diethyl phthalate	330	5000
2,4-Dimethylphenol	330	5000
Dimethyl phthalate	330	5000
4,6-Dinitro-^2-methylphenol	1600	25000
2,4-Dinitrophenol	1600	25000
2,4-Dinitrotoluene	330	5000
2,6-Dinitrotoluene	330	5000
Di-n-octyl phthalate	330	5000
1,2-Diphenylhydrazine	330	5000

05/01/90

Page 2
CPBNA-PP-S

DRAFT

Analyte	Reporting Limits Low	Medium
bis(2-Ethylhexyl) ^phthalate	330	5000
Fluoranthene	330	5000
Fluorene	330	5000
Hexachlorobenzene	330	5000
Hexachlorobutadiene	330	5000
Hexachlorocyclopentadiene	330	5000
Hexachloroethane	330	5000
Indeno(1,2,3-cd)pyrene	330	5000
Isophorone	330	5000
Naphthalene	330	5000
Nitrobenzene	330	5000
2-Nitrophenol	330	5000
4-Nitrophenol	1600	25000
N-Nitrosodimethylamine	330	5000
N-Nitrosodiphenylamine	330	5000
N-Nitroso-di-^n-propylamine	330	5000
Pentachlorophenol	1600	25000
Phenanthrene	330	5000
Phenol	330	5000
Pyrene	330	5000
1,2,4-Trichlorobenzene	330	5000
2,4,6-Trichlorophenol	330	5000

05/01/90

DRAFT

Title: **Volatile Organics - Refinery List**
Method 8240

Pkge code: **CPVOA-REF-S**
Units: **ug/kg**
Matrix: **Soil**

Analyte	Reporting Limits Low	Reporting Limits Medium
Benzene	5	500
2-Butanone (MEK)	10	1000
Carbon disulfide	5	500
Chlorobenzene	5	500
Chloroform	5	500
1,2-Dibromoethane (EDB)	10	1000
1,2-Dichloroethane	5	500
1,4-Dioxane	500	50000
Ethylbenzene	5	500
Styrene	5	500
Toluene	5	500
Xylenes (total)	5	500

05/01/90

Title: **Semivolatile Organics - Refinery List**
Method 8270

DRAFT

Pkge code: **CPBNA-REF-S**
Units: **ug/kg**
Matrix: **Soil**

Analyte	Reporting Limits Low	Medium
Anthracene	330	5000
Benzenethiol	---	----
Benzo(a)anthracene	330	5000
Benzo(a)pyrene	330	5000
Benzo(b)fluoranthene	330	5000
Benzo(k)fluoranthene	330	5000
Butyl benzyl phthalate	330	5000
Chrysene	330	5000
Dibenz(a,h)anthracene	330	5000
Di-n-butyl phthalate	330	5000
1,2-Dichlorobenzene	330	5000
1,3-Dichlorobenzene	330	5000
1,4-Dichlorobenzene	330	5000
Diethyl phthalate	330	5000
7,12-Dimethylbenz(a)-^anthracene	330	5000
2,4-Dimethylphenol	330	5000
Dimethyl phthalate	330	5000
2,4-Dinitrophenol	1600	25000
Di-n-octyl phthalate	330	5000
bis(2-Ethylhexyl) ^phthalate	330	5000
Fluoranthene	330	5000
Indene	330	5000
1-Methylnaphthalene	330	5000
2-Methylphenol	330	5000
3/4-Methylphenol	330	5000
Naphthalene	330	5000
4-Nitrophenol	1600	25000
Phenanthrene	330	5000
Phenol	330	5000
Pyrene	330	5000
Pyridine	660	10000
Quinoline	1600	25000
Add-on to 8270-Refinery		
Methyl chrysene	--	--
Dibenz(a,h)acridine	--	--

05/01/90

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BTEX by Method 8020

Compound	Reporting Limits (ug/kg)
Benzene	50
Toluene	50
Ethylbenzene	50
Xylenes (total)	100

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ATTACHMENT I.a

Giant Refining
Background Metals
soils

Metals	Method	Reporting Limits (mg/kg)
Antimony	6010	6
Arsenic	7060	0.5
Barium	6010	1.0
Beryllum	6010	0.2
Cadmium	6010	0.5
Chromium	6010	1.0
Cobalt	6010	1.0
Copper	6010	2.0
Lead	6010	5.0
Mercury	7471	0.2
Nickle	6010	4.0
Potassium	6010	500
Selenium	7740	0.5
Vanadium	6010	1.0
Zinc	6010	2.0

Section 5.0
Contact Wastewater Collection System

SECTION 5.1

GENERAL DISCUSSION

In accordance with Section 12 and the Site Specific Investigation Schedule of the May 17, 1990 SWMU Site-specific Facility Investigative Workplan, Giant Refining Company has completed the first phase of the contact wastewater collection system (CWCS) inspection. The section of the CWCS that was inspected in Phase I of the RFI included the tank farm drainage system with all associated primary drainage lines.

The inspection consisted of using a Vactor system to clean the sewer boxes and underground lines. The inspection was conducted by inserting TV cameras inside the pipe and video taping the inside of the lines. The cameras were pulled through the lines by cables or mounted on self propelled mobile transporters. The actual video taping of the lines consists of ten (10), two (2) hour tapes with a total pipeline video inspection time of approximately sixteen (16) hours. This video was edited to a one (1), two (2) hour tape which introduces and highlights the entire project. The edited tape is included with this report as Tape #1. The original ten (10) tapes can be copied and submitted if requested.

FIGURE 5-1 lists all reference points used in the tape to designate specific pipeline designation. The four (4) inch lateral lines are designated by the adjacent tank number. The main line inspections were referenced by the CBZ or sump numbers. Additional detail for each of these lines may be found in Engineering Drawings EZ80-09-508-EP, EZ80-09-509-EP, EZ80-09-514-EP and EZ80-09-515-EP.

One incident occurred during the inspection. This was a small fire in CBZ-6 which started as a result of explosive vapors and equipment usage. The fire was contained in CBZ-6 and extinguished within five (5) minutes after ignition. There was not any associated injuries.

Although the inspection shows evidence of pitting and corrosion throughout the contact wastewater collection system, it does not show any evidence of leaks or exfiltration of hydrocarbons into the surrounding ground.

Ciniza R
Gallup, New Mexico

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Report on CCTV Inspections of Giant Refining Company's Ciniza Refinery, Tank Underground Drainage System Gallup, New Mexico

Inspected by:

Cook Construction Company, Inc.

Daniel W. Cook

Executive Vice President

Report by:

American Liner, Inc.

Eldon E. Brown, P.E.

President

November 1990

506 Carmony Lane, NE — Albuquerque, New Mexico 87107

(505)345-1897 — N.M.C.L. No. 12976

(505)344-7719 — N.M.C.L. No. 29460

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Transmital letter

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Introduction and Purpose of Inspection

In response to the environmental concerns of the Giant Refinery personnel, an agreement was structured to provide a CCTV inspection of the majority of the tank farm drainage system. The inspection was made to determine if there were any failures in the complex that could cause some pollution to the environs. This report was prepared to comment on the investigation.

Pipeline cleaning and TV inspection of the drainage network was accomplished between Sept. 18th, 1990 and Oct. 12th, 1990.

Personnel and Equipment

A. Personnel.

COOK CONSTRUCTION COMPANY, INC., is a member of the National Association of Sewer Service Companies and subscribes to the procedures of their Inspection Handbook for Sewer Collection Systems Rehabilitation and Recommended Specifications for Sewer Collection System Rehabilitation, copies of which are readily available for review by all agencies involved in pipeline rehabilitation work. Additionally, all employees are instructed in NASSCO's safety procedures and are required to view NASSCO's safety tapes.

An experienced four-man crew employed by COOK CONSTRUCTION COMPANY, INC., accomplished the actual inspection and necessary cleaning of the subject pipelines. Daniel W. Cook, an officer of COOK CONSTRUCTION COMPANY, INC., also visited the project site several times during the cleaning and TV inspection operation.

B. Equipment.

COOK CONSTRUCTION COMPANY, INC., owns and operates all equipment necessary to adequately and safely perform all portions of the pipeline cleaning and TV inspection necessary to evaluate the present condition of the lines.

The major equipment available include the following:

1. Cues,Inc. - Radial view camera (RVC-360" tm) TV inspections systems with self propelled mobile camera transporter, multi-conductor and low viscosity chemical sealing system.

    a. Radial view camera system multi-conductor, with 3" diameter solid state color sewer TV camera with a dome enclosed, 360 degree side viewing lens, remote adjustable optical focus, automatic light compensating iris and automatic white balance circutry, multi-conductor, NTSC color standard. Also associated cover, transportable cases, lens controller, focus control, and high intensity side viewing lighting system.

b. Self-propelled camera transported with transmission coupling for 8" to 15" pipe sizes. Also associated air motor drive, positive displacement pumps, quick disconnect valve at pump.

2. Peabody Myers - Series 2100 Vactor, with extension boom and 180 degree boom rotation, 1500 gallon capacity, telescopic/rotating front hose real, 0 to 8000 cfm centrifugal compressor with 0 to 114 psi pressures. 16 cu.yd. debris box.

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Index of Line Inspections

Phase I
Line #

1 4" line from tank #568 to Clean-out
This tank was not connected to the pipeline system inspected at this time.

2 4" line from tank #570 to Wye from tank #569
See tape-B; Segment 09, time interval; 01:25:16:59 to 01:29:06:22.

3 4" line from tank #569 to 6" Main at CBZ-1
See tape-B; Segment 10, time interval; 01:29:06:23 to 01:37:51:17.

4 4" line from tank #572 to Wye from tank #571
See tape-B; Segment 11, time interval; 01:37:52:00 to 01:44:36:18.

5 4" line from tank #571 to 6" Main at CBZ-2
See tape-B; Segment 12, time interval; 01:44:36:18 to 01:53:03:20.

6 6" Main from Clean-out to CBZ-1
This line does not exist as shown on drawings.

7 6" Main from CBZ-1 to CBZ-2
See tape-1; Segment 01, time interval; 00:00:00:00 to 00:22:02:17.

Phase II
Line #

1 4" line from tank #226 to 8" Main (CBZ-3)
See tape-C; Segment 03, time interval; 00:21:55:11 to 00:31:40:12.

2 4" line from tank #112 to Wye from tank 111
See tape-C; Segment 01, time interval; 00:00:00:00 to 00:10:50:00.

3 4" line from tank #111 to 8" Main CBZ-3
See tape-C; Segment 02, time interval; 00:10:50:08 to 00:21:55;00.

4 4" line from tank #116 to Wye from tank 115
See tape-C; Segment 04, time interval; 00:31:45:00 to 00:42:19:05.

5 4" line from tank #115 to 8" Main(Drop-in) No CB#
See tape-C; Segment 05, time interval; 00:42:20:23
to 00:49:06:00.

6 8" Main from CBZ-2 to CBZ-3
See tape-4; Segment 01, time interval; 00:00:00:00
to 00:06:53:00.

7 8" Main from CBZ-3 to CBZ-4
See tape-4; Segment 02, time interval; 00:06:53:28
to 00:22:23:28.

Phase III
Line #

1 4" line from tank #567 to 8" Main @ CBZ-4
Line not in service between tank and CBZ-4.

2 4" line from tank #225 to 8" Main @ CBZ-4
See tape-C; Segment 06, time interval; 00:49:06:05
to 01:02:59:01.

3 4" line from tank #338 to 10" Main @ CBZ-5
See tape-D; Segment 02, time interval; 00:10:08:00
to 00:15:27:05.

4 4" line from tank #339 to 10" Main @ CBZ-5
See tape-D; Segment 01, time interval; 00:00:00:00
to 00:10:07:20.

5 4" line from tank Booster and Charge pumps to
10" Main @ CBZ-6. See tape-A; Segment 12, time
interval; 01:40:14:00 to 01:41:06:02.

6 10" line from CBZ-4 to CBZ-5
See tape-5; Segment 01, time interval; 00:00:00:00
to 00:04:33:20.

7 10" line from CBZ-5 to CBZ-6
See tape-5; Segment 02, time interval; 00:04:34:00
to 00:15:08:06.

Phase IV
Line #

1 4" line from tank #453 to Wye from tank #452
See tape-A; Segment 07, time interval; 00:59:15:01
to 01:12:15:28.

2 4" line from tank #452 to Wye from tank #451
See tape-A; Segment 08, time interval; 01:12:15:30
to 01:16:14:00.

3 4" line from tank #451 to 10" Main @ CBZ-19
See tape-A; Segment 09, time interval; 01:16:14:30 to 01:20:37:00.

4 10" Main from CBZ-20 to CBZ-19
This line has been abandoned.

5 4" line from tank #227 to Wye from tank #228
See tape-B; Segment 01, time interval; 00:00:00:00 to 00:07:54:07.

6 4" line from tank #228 to 10" Main @ CBZ-18
See tape-B; Segment 02, time interval; 00:07:56:25 to 00:18:37:00.

7 4" line from tank #342 to Wye from tank #343
See tape-B; Segment 03, time interval; 00:18:37:00 to 00:28:26:23.

8 4" line from tank #343 to 10" Main CBZ-18
See tape-B; Segment 04, time interval; 00:28:26:24 to 00:38:42:00.

9 4" line from tank #107 to Wye from tank #108
See tape-B; Segment 05, time interval; 00:38:42:02 to 00:49:56:12.

10 4" line from tank #108 to 10" Main @ CBZ-17
See tape-B; Segment 06, time interval; 00:49:58:00 to 01:02:54:11.

11 4" line from tank #231 to Wye from tank #232
See tape-B; Segment 07, time interval 01:03:00:26 to 01:11:40:30.

12 4" line from tank #232 to 10" Main @ CBZ-16
See tape-B; Segment 08, time interval; 01:11:42:10 to 01:22:16:00.

13 4" line from tank #235 to Wye from tank 106
See tape-A; Segment 10, time interval; 01:20:37:23 to 01:30:34:23.

14 4" line from tank #106 to 10" Main @ CBZ-15
See tape-A; Segment 11, time interval; 01:30:34:33 to 01:40:12:19.

15 10" Main from CBZ-19 to CBZ-18
See tape-6; Segment 01, time interval; 00:00:54:00 to 00:05:43:28.

16 10" Main from CBZ-18 to CBZ-17
Not inspected at this time due to plant operations and large volumes of liquid in lines.

17 10" Main from CBZ-17 to CBZ-16
Not inspected at this time due to plant operations and large volumes of liquid in lines.

18 10" Main from CBZ-16 to CBZ-15
Not inspected at this time due to plant operations and large volumes of liquid in lines.

19 10" Main from CBZ-15 to CBZ-14
Not inspected at this time due to plant operations and large volumes of liquid in lines.

Phase V
Line #

1 4" line from tank #1 to Wye from tank #2
See tape-A; Segment 06, time interval; 00:53:09:24 to 00:58:00:00.

2 4" line from tank #2 to Wye from tank #3
See tape-A; Segment 06, time interval; 00:53:09:24 to 00:58:00:00.

3 4" line from tank #3 to CB No #
See tape-A; Segment 06, time interval; 00:53:09:24 to 00:58:00:00.

4 8" line from CB No.30 to CBZ-14
Not inspected at this time due to blockage of line approximately 40′ from tank #3.

5 10" Main from CBZ-14 to CBZ-6
See tape-3; Segment 01, time interval; 00:00:00:00 to 00:09:20:00.

6 10" Main from CBZ-6 to CBZ-26
Not inspected at this time due to plant operations and large volume of liquids in line.

Phase VI
Line #

1 4" line from tank #582 to CBZ-7
See tape-A; Segment 01, time interval; 00:00:00:00 to 00:04:36:10.

2 4" line from tank #581 to CBZ-8
See tape-A; Segment 02, time interval; 00:04:36:29 to 00:18:09:01.

3 4" line from tank #575 to Wye from tank 577
See tape-A; Segment 03, time interval; 00:18:10:01 to 00:37:07:19.

4 4" line from tank #577 to CBZ-8
See tape-A; Segment 04, time interval; 00:37:07:20 to 00:51:09:24.

5 8" Main from CBZ-7 to CBZ-8
See tape-2; Segment 06, time interval: 01:24:01:20 to 01:40:48:04.

6 8" Main from CBZ-8 to CBZ-9
See tape-1; Segment 02, time interval; 00:00:00:00 to 00:10:55:20.

7 4" line from tank #579 to CBZ-10
See tape-A; Segment 05, time interval: 00:51:12:00 to 00:53:09.

8 10" Main from CBZ-9 to CBZ-10
See tape-2; Segment 02, time interval; 00:10:57:00 to 00:16:33:20.

9 12" Main from CBZ-10 to CBZ-11
See tape-2; Segment 03, time interval; 00:16:34:00 to 00:40:45:00.

10 12" Main from CBZ-11 to CBZ-12
See tape-2; Segment 04, time interval; 00:56:44:10 to 01:11:56:26.

11 12" Main from CBZ-12 to CBZ-13
See tape-2; Segment 05, time interval; 01:11:56:29 to 01:24:00:20.

12 12" Main from CBZ-13 to CBZ-26
See tape-3; Segment 03, time interval; 00:20:21:13 to 00:30:10:00.

13 6" line from tank #101 to CBZ-26
Not inspected at this time due to plant operations and large volume of liquids in line.

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Phase VII
Line #

1 16" Main from CBZ-26 to CBZ-27
Not inspected at this time due to plant operations and large volume of liquids in line.

2 16" Main from CBZ-27 to Dishorge E.O.L.
Not inspected at this time due to plant operations and large volume of liquids in line.

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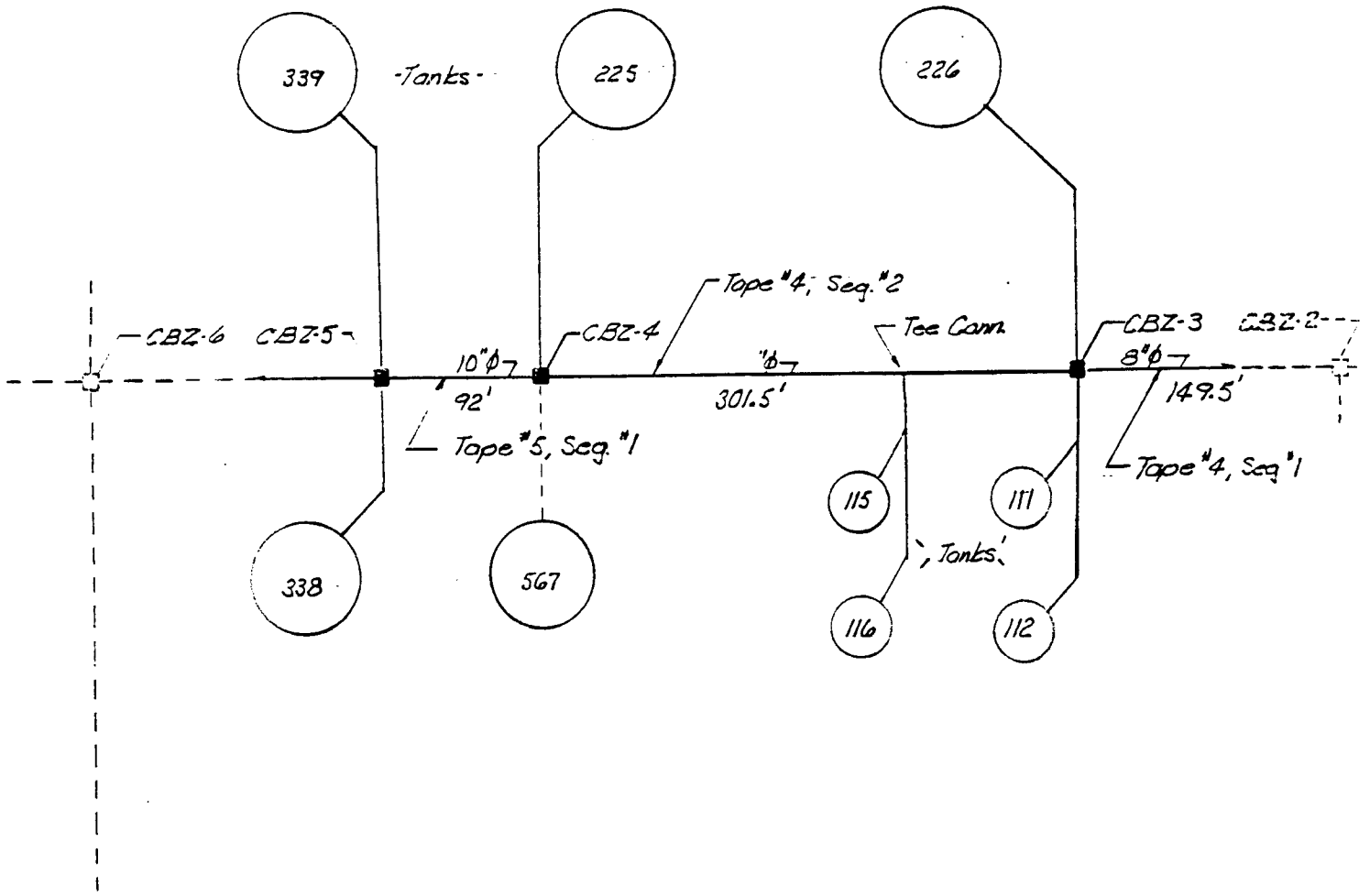

Tank Farm Drain System
CCTV - Tape Reference

(10)

Scale: 1" = 100'

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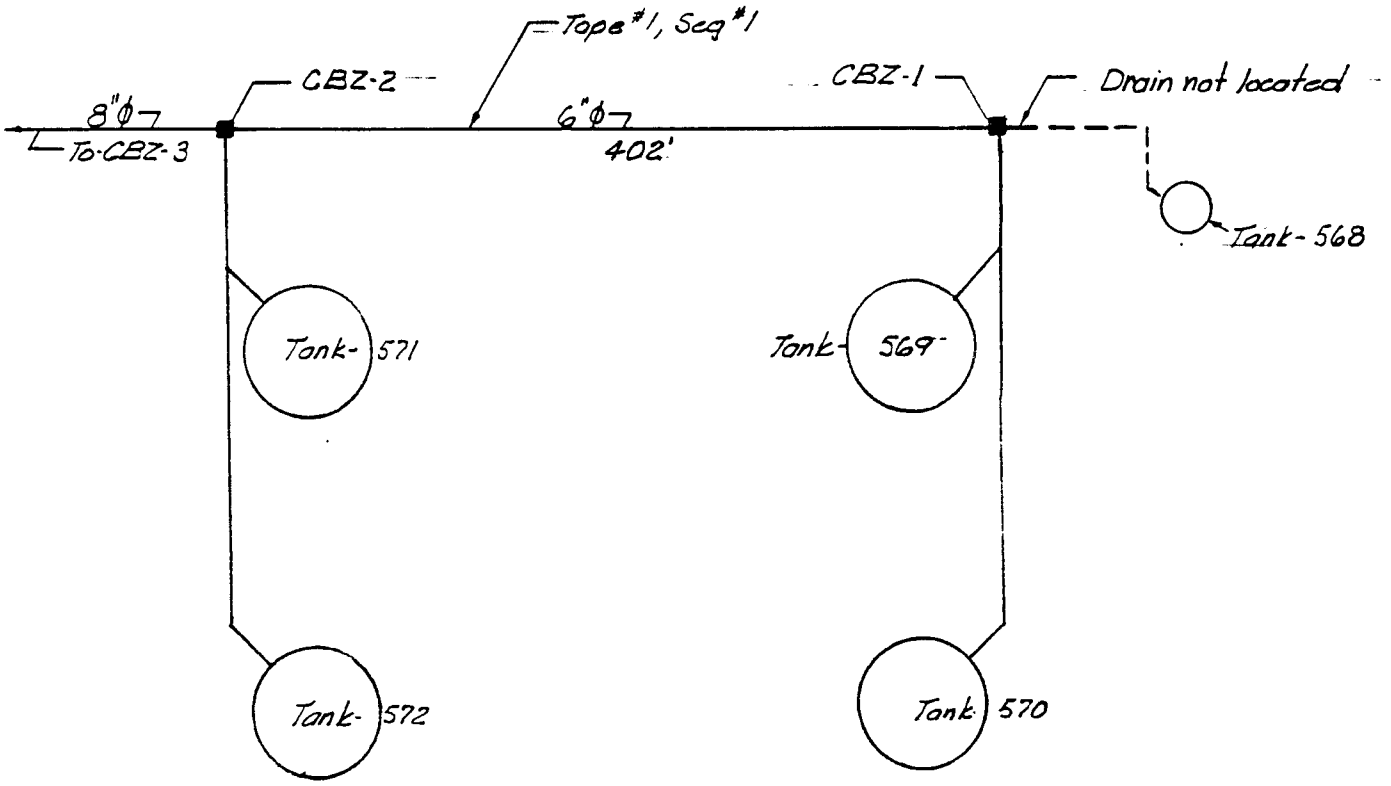

Tank Farm Drain System
CCTV - Tape Reference

(II) Scale: 1" = 100'

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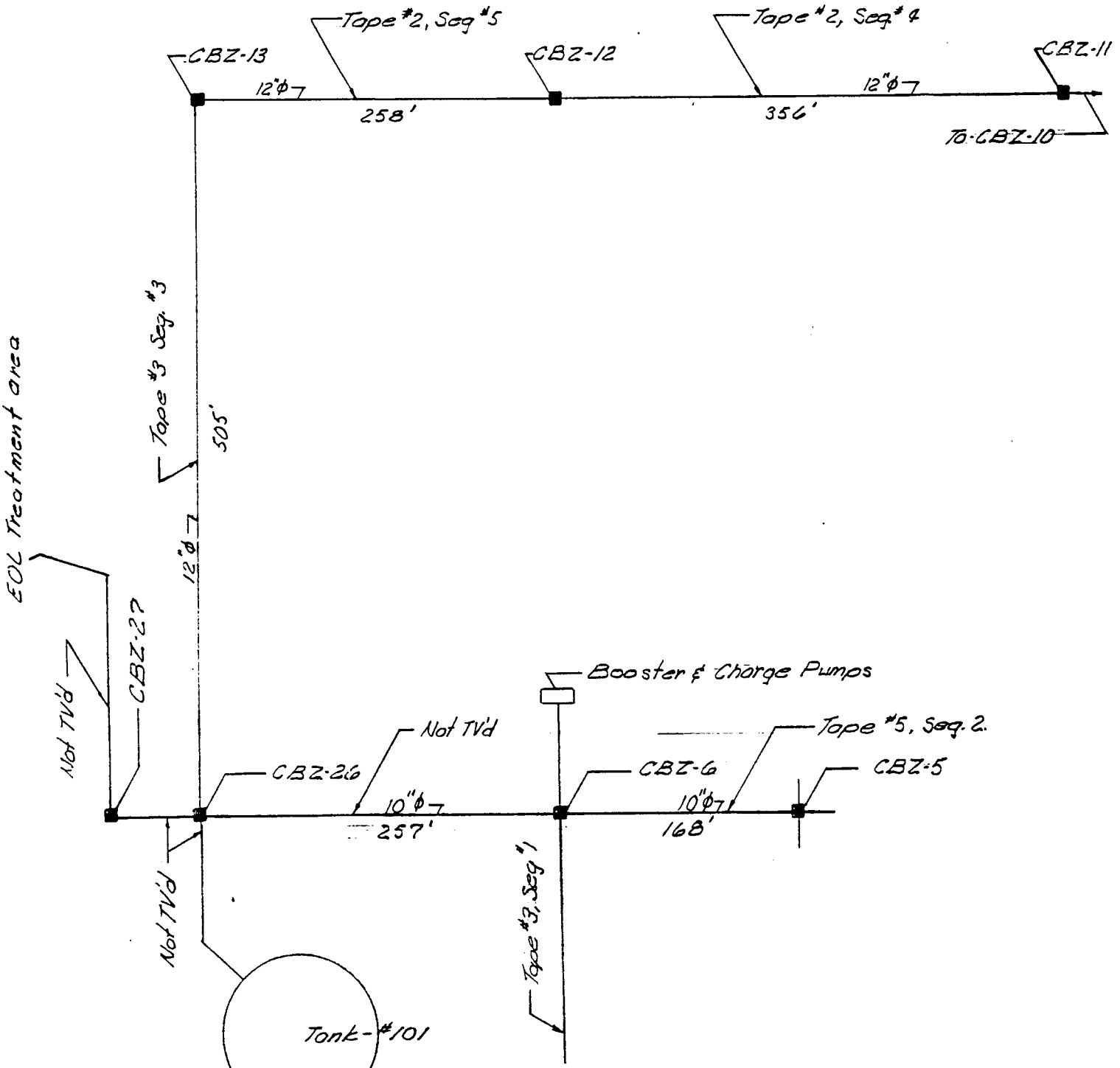

Tank Farm Drain System
CCTV - Tape Reference

Scale: 1" = 100'

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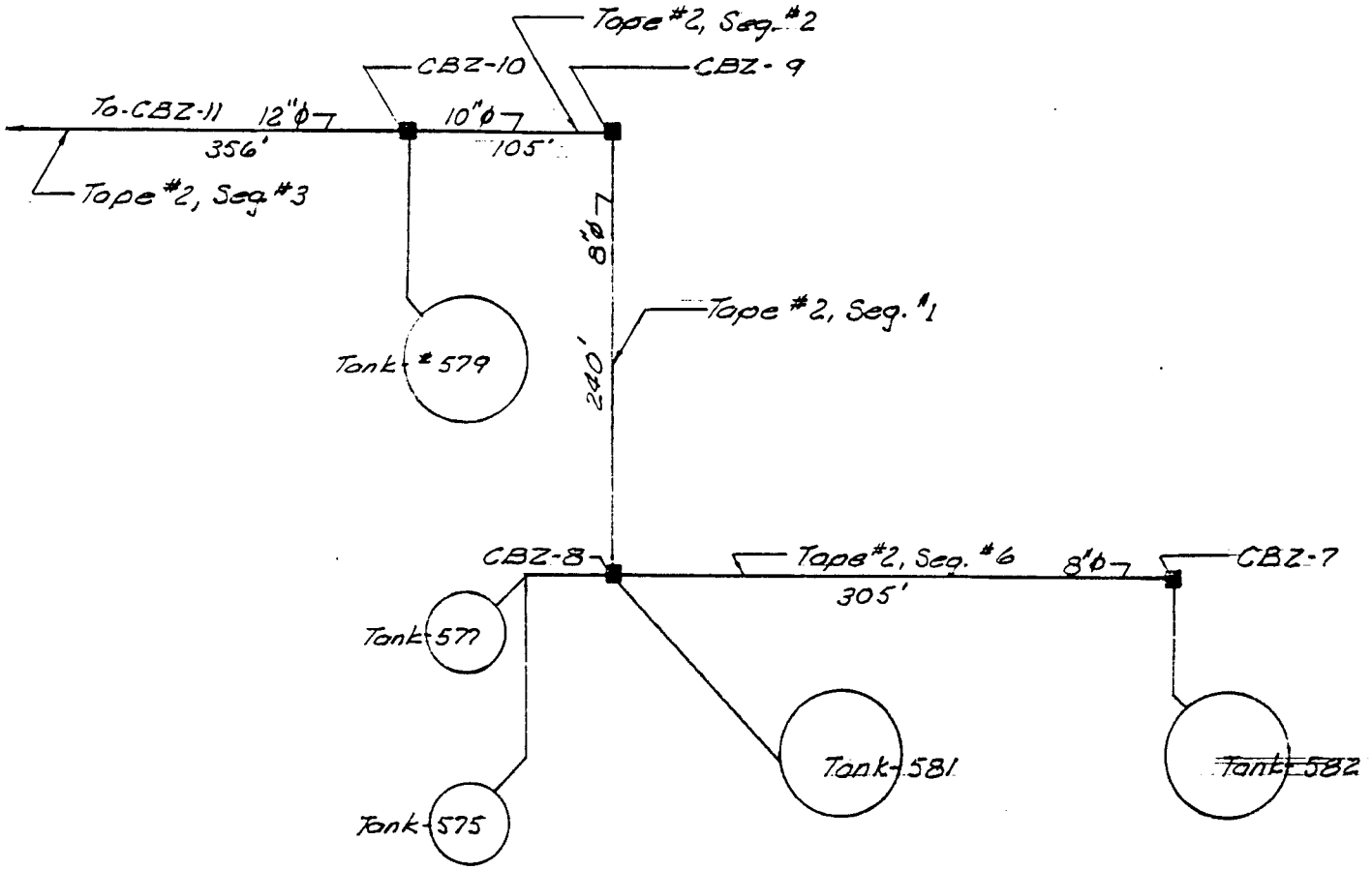
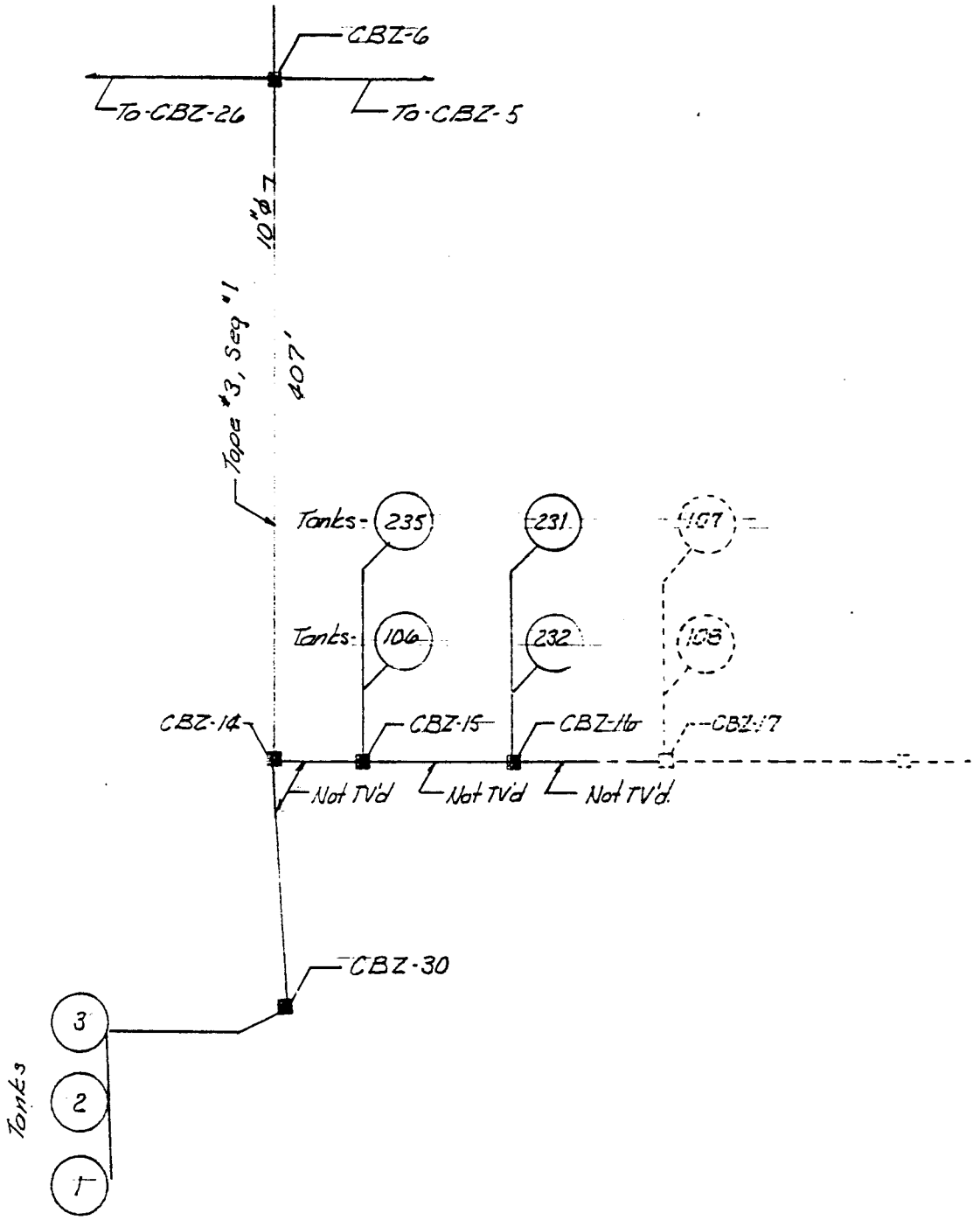
A pipe within a pipe



Tank Farm Drain System
CCTV - Tape Reference

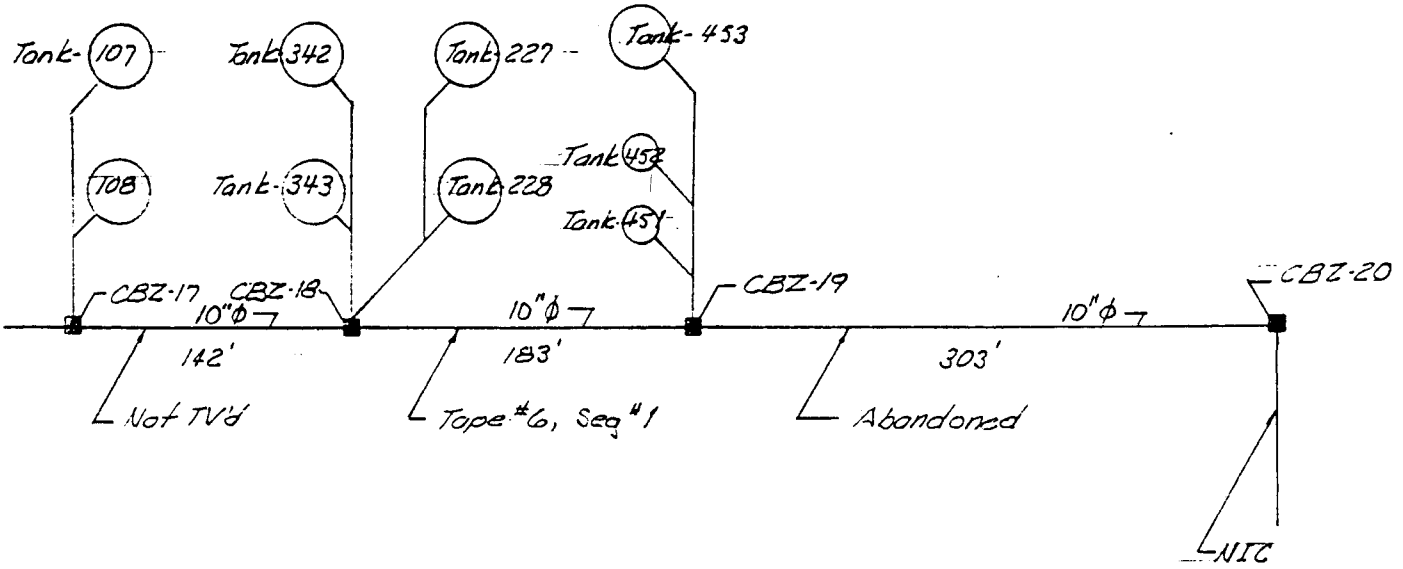
Scale: 1" = 100'



Tank Farm Drain System
CCTV - Tape Reference

Scale: 1" = 100'

U-LINER®
A pipe within a pipe



Tank Farm Drain System
CCTV - Tape Reference

Scale: 1" = 100'

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A pipe within a pipe

Photo #1
CBZ-#1 to CBZ-#2
Shows pitting in crown of pipe and build-up along flow line.

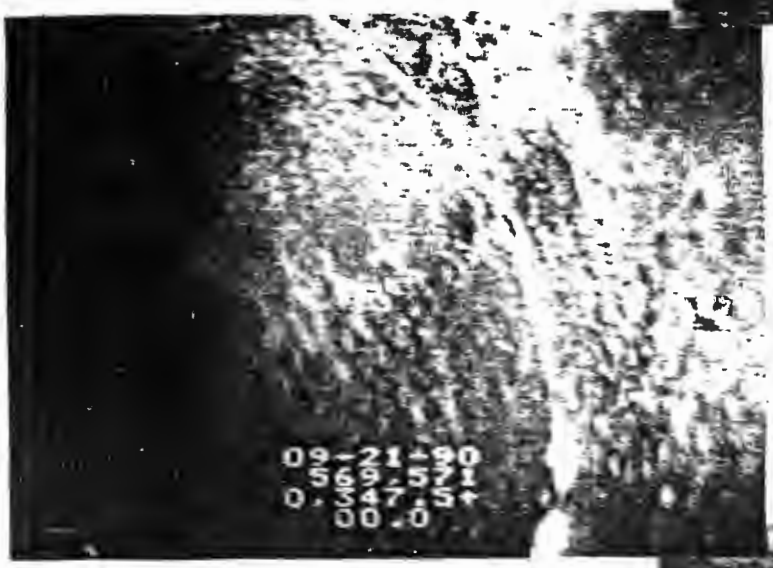
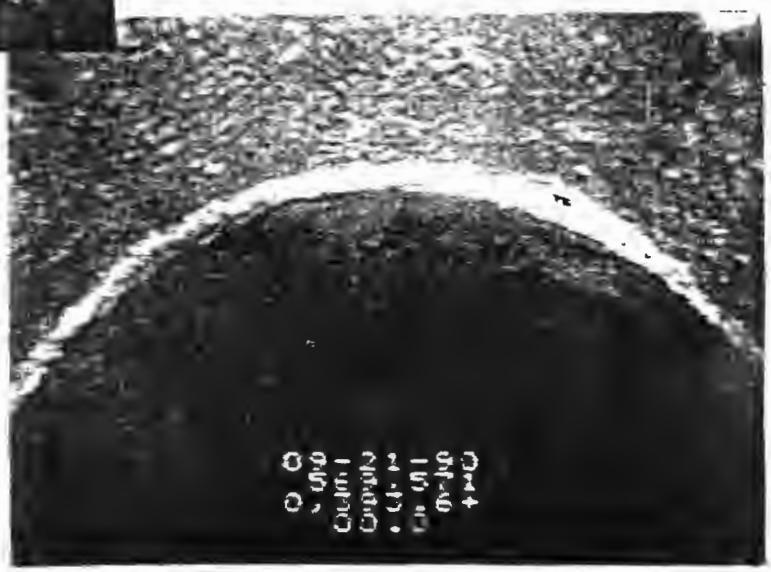


Photo #2
CBZ-#1 to CBZ-#2
Shows deterioration in walls of pipe adjacent to weld.

Photo #3
CBZ-#1 to CBZ-#2
Shows deterioration in crown of pipe adjacent to weld.



U-LINER®
A pipe within a pipe

Photo #4
CBZ-#8 to CBZ-#9
Shows pitting at pipe crown
and build-up in flow line.

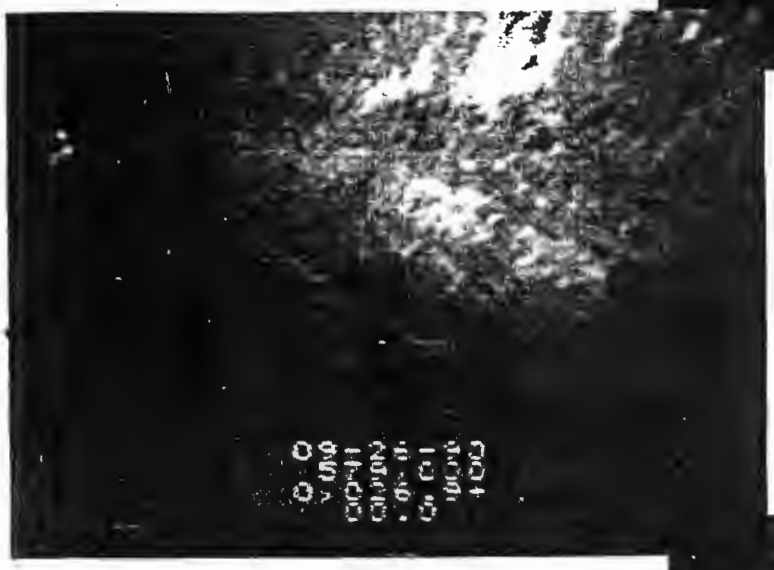


Photo #5
CBZ-#10 to CBZ-#11
Shows some flaking
and pitting along
pipe side walls.

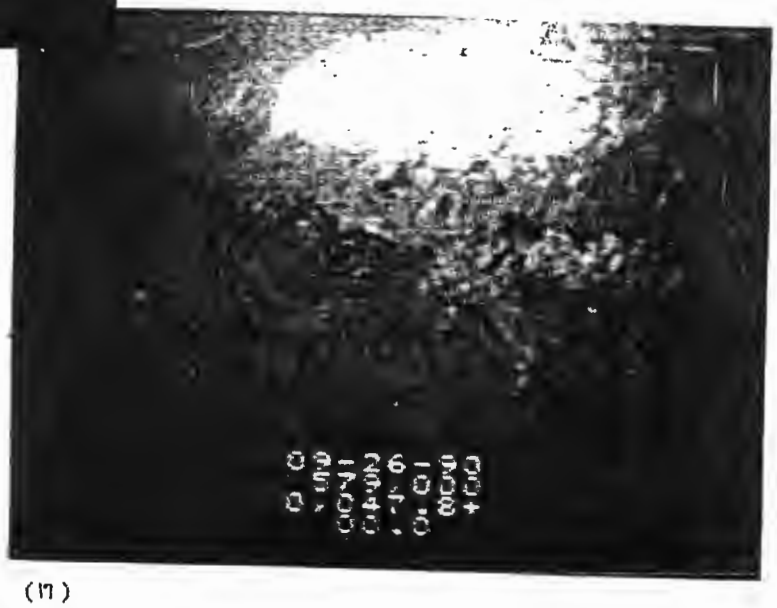


Photo #6
CBZ-#10 to CBZ-#11
Shows general decay of pipe
side walls at flow line.

U-LINER®
A pipe within a pipe

Photo #7
CBZ-#10 to CBZ-#11
Shows a corroded area on side of pipe.

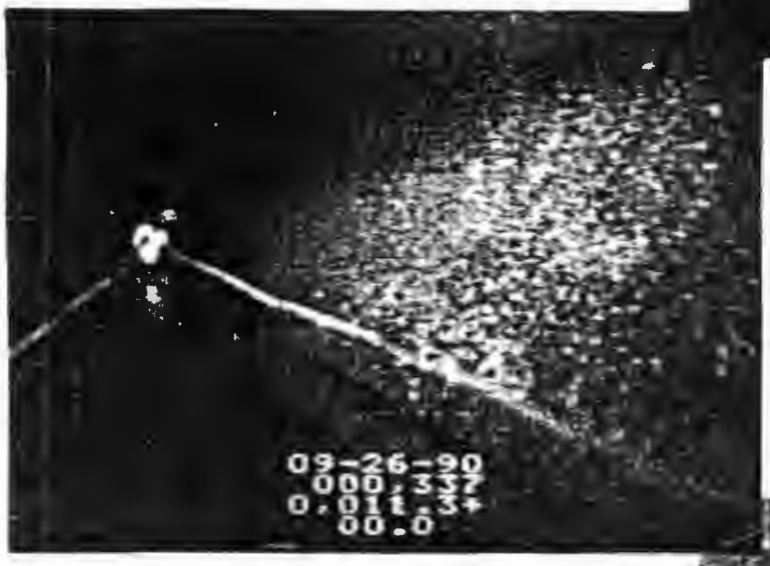
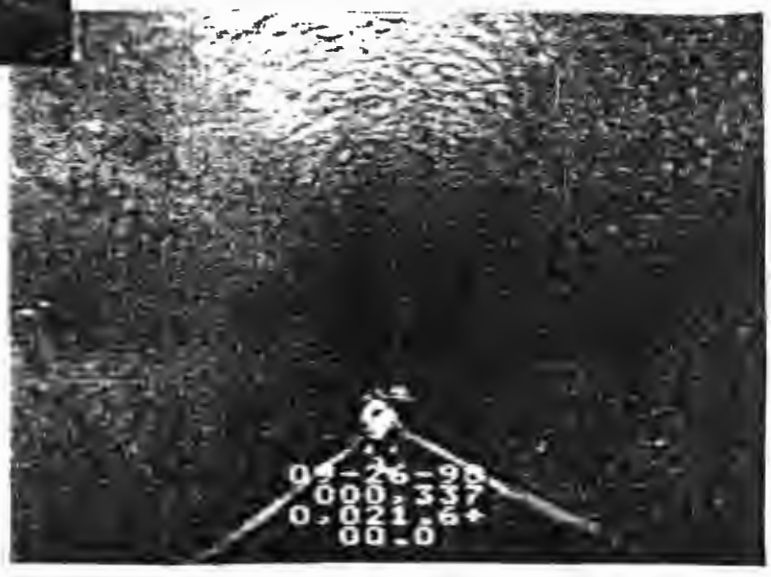


Photo #8
CBZ-#11 to CBZ-#12
Shows general deterio-ration in walls of pipe.

Photo #9
CBZ-#11 to CBZ-#12
Shows general deterioration in crown of pipe.



U-LINER®
A pipe within a pipe

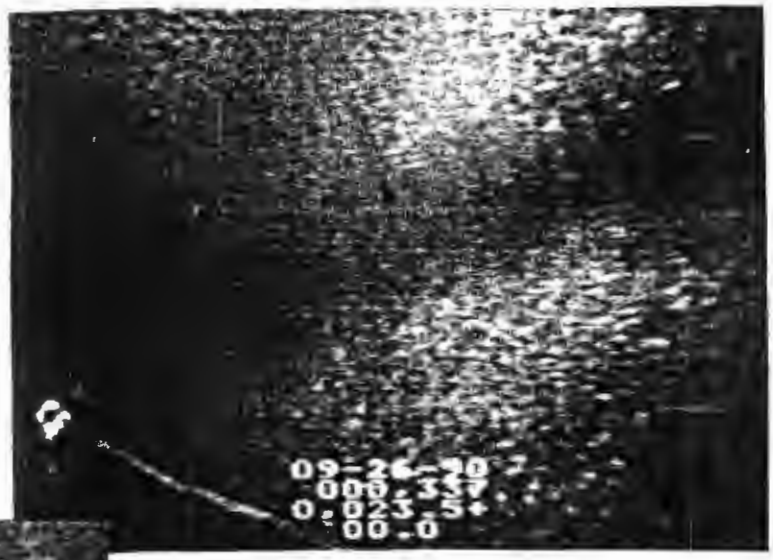


Photo #10
CBZ-#11 to CBZ-#12
Shows pitting on walls of pipe.

Photo #11
CBZ-#11 to CBZ-#12
Shows over all interior condition of pipe.

Photo #12
CBZ-#12 to CBZ-#13
Shows corrosion and build-up along pipe flow line.

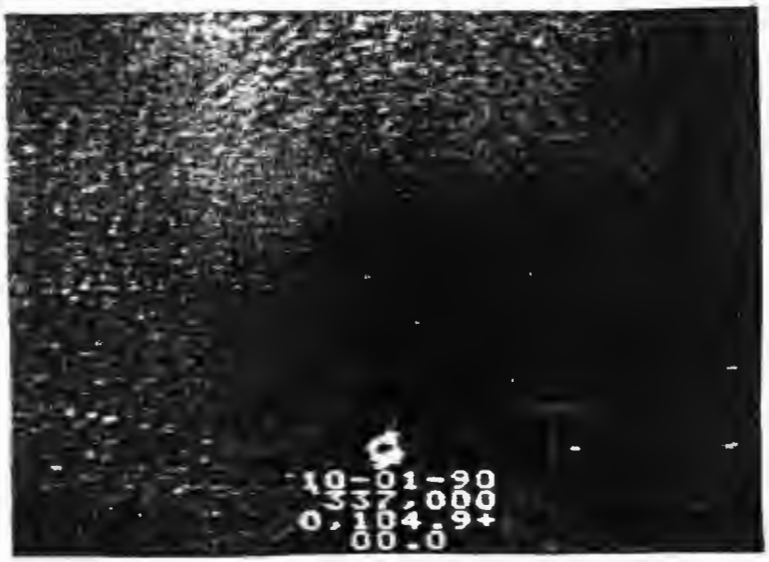


Photo #13
CBZ-#12 to CBZ-#13
Shows overall interior deterioration of pipe.

Photo #14
CBZ-#7 to CBZ-#8
Shows weld resistance to corrosion.

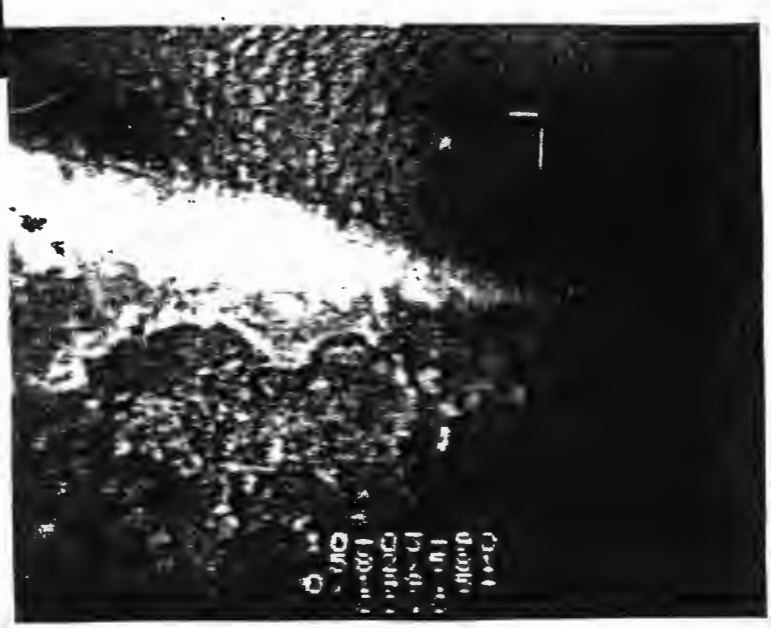


Photo #15
CBZ-#7 to CBZ-#8
Shows area of corrosion on pipe side wall.

Specific Line Evaluation

Each segment of the drainage net work was TV'ed, taped and analyzed. To narrate on each part of the pipeline within the drainage system would only result in a redundancy of physical condition statements. Consequently, the descriptions and statements below are relative to all drain pipelines and individual tank line drains respectively.

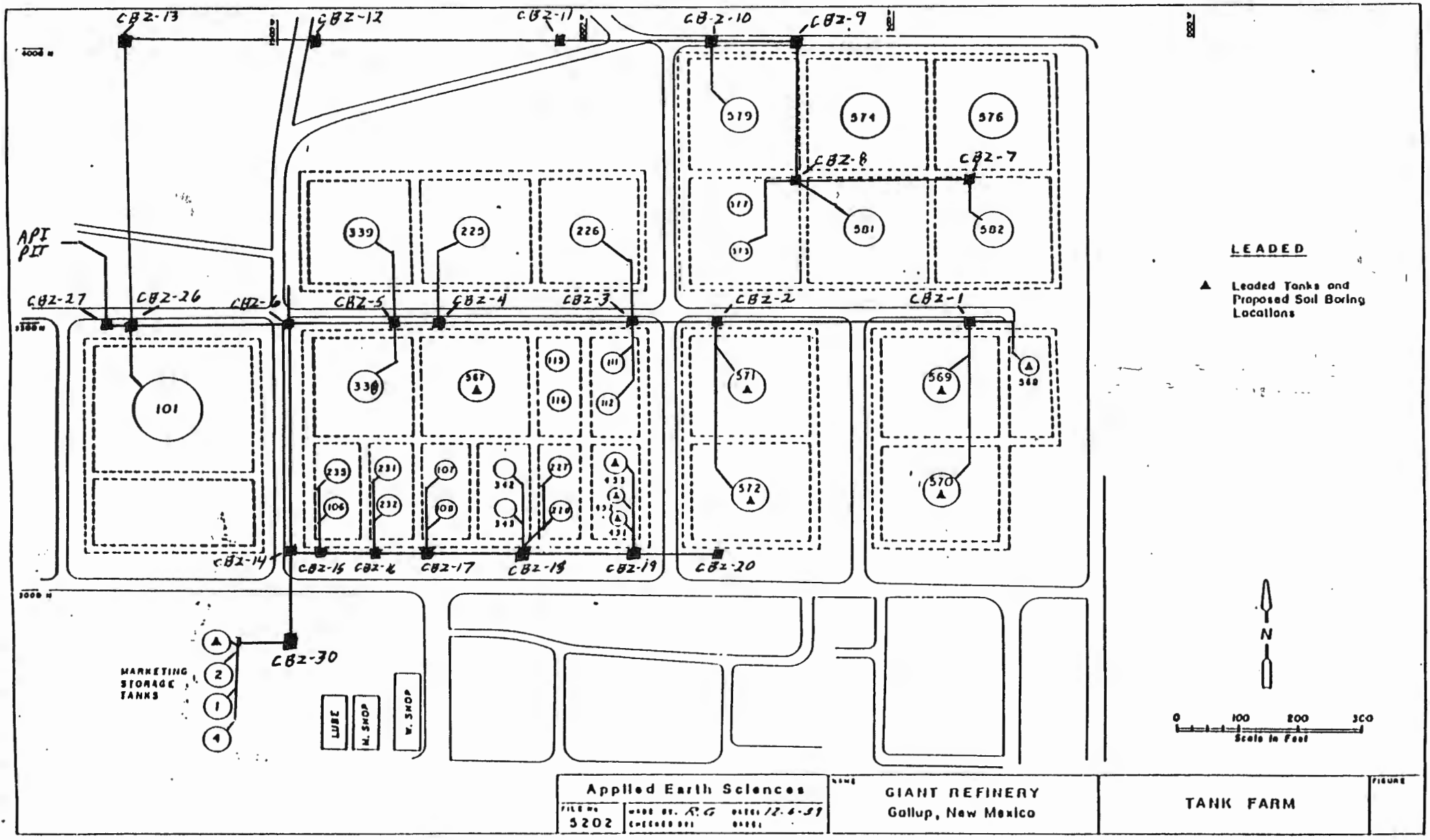
The most sever damage observed was the general deterioration of the inverts of most of the pipes. It appears that chemicals and abrasive action has reduced the pipe wall thickness.

All 6", 8", 10" and 12" lines in the collection system showed signs of deterioration. The pipes are corroded, pitted, and in places it appears that some electrolysis has dissolved some of the pipe shell. Also, the petroleum products have adhered to the walls and reduced the flow and capacity of the lines. At two locations, a wrench and a bar were observed within the drain lines. These appear to be tools previously used to try to unplug the lines.

It should be noted that some corrosion was evident at the welds, however the welded areas in general were in better condition than the pipe itself. This is probably due to an alloy introduced during the welding process.

At tanks # 1, 2 and 3, an obstruction in the line prevented complete cleaning and television. Also, the reduction in line size from 4" diameter to 1" diameter on the drain line between the booster pumps and CBZ - #6, obstructed the cleaning and television.

FIGURE 5-1


CBZ-13
CBZ-12
CBZ-11
CBZ-10
CBZ-9
CBZ-8
CBZ-7
CBZ-27
CBZ-26
CBZ-16
CBZ-5
CBZ-4
CBZ-3
CBZ-2
CBZ-1
CBZ-14
CBZ-15
CBZ-6
CBZ-17
CBZ-18
CBZ-19
CBZ-20
CBZ-30
API PIT
579
574
576
581
582
339
225
226
101
330
567
571
572
569
570
568
235
231
106
232
107
108
342
343
227
210
433
431
MARKETING STORAGE TANKS
LUBE
W. SHOP
W. SHOP
LEADED
Leaded Tanks and Proposed Soil Boring Locations
N
0
100
200
300
Scale in Feet
Applied Earth Sciences
FILE No. 5202
GIANT REFINERY
Gallup, New Mexico
TANK FARM

TO VIEW THE MAP AND/OR MAPS WITH THIS DOCUMENT, PLEASE CALL THE HAZARDOUS WASTE BUREAU AT 505-476-6000 TO MAKE AN APPOINTMENT

Refer to Draft Report
Submitted November 27, 1990
For Tape

RCRA FACILITY INVESTIGATION
PHASE I - FINAL REPORT
GIANT REFINING COMPANY
GALLUP, NEW MEXICO
APRIL 8, 1991
BOOK 2

Section 6.0
Soil Sampling Data

GIANT REFINING CO.

Route 3, Box 7
Gallup, New Mexico
87301

505
722-3833

June 15, 1990

Julie Essey
Enseco
4955 Yarrow Street
Arvada, CO 80002

RE: SAMPLE BOTTLE REQUEST

Dear Julie:

Giant Refining Co. requests that Enseco provide analytical support for Phase I of the RCRA Facility Investigation for its Ciniza Refinery. Invoices should reference RFE Number 997-9004-37. Review the following list and associated attachments for sample bottle shipment. The sample bottles must be received at Ciniza by June 21, 1990.

I. Solid Waste Management Unit #6

A. Number of sample containers for soil samples:
Soil samples: 60
Equipment Blanks: 2
Trip Blanks: 2
Field Duplicates: 5

B. Analytical Requirements
BTEX - 8020
Lead - 6010
Nickle - 6010

II. Solid Waste Management Unit #8

A. Number of sample containers for soil samples:
Soil Samples: 39
Equipment Blanks: 2
Trip Blanks: 2
Field Duplicates: 3

B. Analytical Requirements:
Skinner (Refinery) Volatiles (see attached) - 8240
Skinner (Refinery) Semi-Volatiles (see attached) - 8270
Background Metals - see attached

C. Number of sample containers for water samples:
Liquid samples: 1
Equipment Blanks: 0
Trip Blanks: 0
Field Duplicates: 1

D. Analytical Requirements:
pH - 9040
TDS - 160.1
BTEX - 8020
TPH - GC/FID

III. Solid Waste Management Unit #9

A. Number of sample containers for soil samples:
Soil Samples: 28
Equipment Blanks: 1
Trip Blanks: 1
Field Duplicates: 3

B. Analytical Requirements:
Priority Pollutant Volatiles (see attached) - 8240
Priority Pollutant Semi-Volatiles (see attached)- 8270
Background Metals - see attached

IV. Solid Waste Management Unit #10

A. Number of sample containers for soil samples:
Soil Samples: 22
Equipment Blanks: 1
Trip Blanks: 1
Field Duplicates: 2

B. Analytical Requirements:
Priority Pollutant Volatiles (see attached) - 8240
Priority Pollutant Semi-Volatiles (see attached)- 8270
Background Metals - see attached

Submit one completed analytical report for each of the four individual solid waste management units.
If you have any questions contact me at (505) 722-3833 ext. 217.

Sincerely,

Claud Rosendale

Claud Rosendale
Environmental Manager
Ciniza Refinery

CCR:ctf

Attachments

Background Metals

1. Antimony
2. Arsenic
3. Barium
4. Beryllium
5. Cadmium
6. Chromium
7. Cobalt
8. Copper
9. Lead
10. Mercury
11. Nickle
12. Potassium
13. Selenium
14. Vanadium
15. Zinc

LABORATORY

TECH NOTES

Analytical Services

RADIAN CORPORATION

Number 3
Revised, April 1990

GCMS TARGET LISTS MADE SIMPLE

NEW TCLP LIST INCLUDED

To simplify project planning and data review, *Tech Note 3* provides a table of gas chromatographic/mass spectrometric (GC/MS) volatile and semivolatile organic chemicals covered by EPA's major water and waste regulations. Pesticides normally analyzed by gas chromatographic methods have been omitted from the lists.

Be aware that the table of GC/MS target compounds can change as EPA amends its regulations or promulgates new ones. Note, also, that there are two separate TCLP lists – Toxicity and Land ban – for solvent wastes (F001-F005) and those containing dioxins (F020-F023; F026-F028). Stay aware of changes in regulations by referring to appropriate technical or trade journals or to the *Federal Register*.

In addition, call us for an update from time to time – we will be happy to advise you on changes to *Tech Note 3*. And as always, Radian's Marketing Managers and Client Service Coordinators will actively help you identify the best analysis methods and the most appropriate compound lists for your monitoring needs when you schedule work with Radian's Analytical Services Laboratories.

VOLATILE COMPOUNDS*

TEST PARAMETERS BY REGULATIONS

ANALYTE	CWA		RCRA					SUPERFUND
	NPDES[a]	624[b]	APPENDIX IX	8240[c]	SKINNER	TCLP		CLP[d]
						Toxicity	Land ban	
A								
Acetone			✓	✓			✓	✓
Acetonitrile			✓					
Acrolein	✓		✓	✓				
Acrylonitrile	✓		✓	✓				
Allyl chloride			✓					
B								
Benzene	✓	✓	✓	✓	✓	✓		✓
Bromodichloromethane	✓	✓	✓	✓				✓
Bromoform	✓	✓	✓	✓				✓
Bromomethane	✓	✓	✓	✓[e]				✓
Butyl Alcohol							✓	
C								
Carbon disulfide			✓	✓	✓		✓	✓
Carbon tetrachloride	✓	✓	✓	✓		✓	✓	✓

*This list of compounds, which is a comparison of lists and methods as performed at Radian, is current as of publication date. It should not be used as a substitute for consulting the most recent issue of *40 CFR* or SW846 methods for any changes.

[a] *40 CFR*, Pt. 122, Appendix D
[b] *40 CFR*, Pt. 136, Appendix A
[c] *SW-846, 3rd Edition*
[d] *CLP SOW* 7/88
[e] Listed as methyl bromide

(cont ►)

VOLATILE COMPOUNDS (cont.)

TEST PARAMETERS BY REGULATIONS

ANALYTE	CWA		RCRA					SUPERFL
	NPDES	624	APPENDIX IX	8240	SKINNER	TCLP		CLP
						Toxicity	Land ban	
Chlorobenzene	✓	✓	✓	✓	✓	✓	✓	✓
Chlorodibromomethane	✓ [f]	✓ [f]	✓ [f]	✓				✓
Chloroethane	✓	✓	✓	✓				✓
2-Chloroethylvinyl ether	✓	✓		✓				
Chloroform	✓	✓	✓	✓	✓	✓		✓
Chloromethane	✓	✓	✓	✓				✓
Chloropropene			✓					
D								
1,2 Dichlorobenzene	✓	✓						
1,3 Dichlorobenzene	✓	✓						
1,4 Dichlorobenzene	✓	✓						
1,2-Dibromo-3-chloropropane			✓					
Dibromomethane			✓ [a]	✓				
1,2-Dibromoethane			✓		✓ [h]			
1,4-Dichloro-2-butane				✓				
trans-1,4-Dichloro-2-butene			✓	✓				
Dichlorodifluoromethane			✓	✓				
1,1-Dichloroethane	✓	✓	✓	✓				✓
1,2-Dichloroethane	✓	✓	✓	✓	✓	✓		✓
1,1-Dichloroethylene	✓	✓	✓	✓		✓		✓
trans-1,2-dichloroethylene	✓	✓	✓	✓				✓
1,2-Dichloropropane	✓	✓	✓	✓				✓
cis-1,3-Dichloropropene	✓	✓	✓	✓				✓
trans-1,3-Dichloropropene	✓	✓	✓	✓				✓
1,4 Dioxane			✓		✓			
E								
Ethanol				✓				
Ethyl acetate							✓	
Ethyl benzene	✓	✓	✓	✓	✓		✓	✓
Ethyl ether							✓	
Ethyl methacrylate			✓	✓				
H								
2-Hexanone			✓	✓				✓

[f] Listed as dibromochloromethane
[a] Listed as methylene dibromide
[h] Listed as ethylene dibromide
[i] Listed as methyl iodide

(cont ►

VOLATILE COMPOUNDS (cont.)

TEST PARAMETERS BY REGULATIONS

ANALYTE	CWA		RCRA					SUPERFUN
	NPDES	624	APPENDIX IX	8240	SKINNER	TCLP		CLP
						Toxicity	Land ban	
I								
Iodomethane			✓[1]	✓				
Isobutanol							✓	
M								
Methacrylonitrile			✓					
Methanol							✓	
Methylene chloride	✓	✓	✓	✓			✓	✓
Methyl ethyl ketone			✓[1]	✓	✓	✓	✓	✓
Methyl isobutyl ketone			✓[k]	✓[k]			✓	✓
Methyl methacrylate			✓					
P								
Propionitrile			✓					
S								
Styrene			✓	✓	✓			✓
T								
1,1,1,2-Tetrachloroethane			✓					
1,1,2,2-Tetrachloroethane	✓	✓	✓	✓				✓
Tetrachloroethylene	✓	✓	✓	✓		✓	✓	✓
Toluene	✓	✓	✓	✓	✓		✓	✓
1,1,1-Trichloroethane	✓	✓	✓	✓			✓	✓
1,1,2-Trichloroethane	✓	✓	✓	✓				✓
Trichloroethylene	✓	✓	✓	✓		✓	✓	✓
Trichlorofluoromethane		✓	✓	✓			✓	
1,2,3-Trichloropropane			✓	✓				
1,1,2-Trichloro-2,2,1-trifluoroethane							✓	
V								
Vinyl acetate			✓	✓				✓
Vinyl chloride	✓	✓	✓	✓		✓		✓
X								
Xylenes			✓	✓	✓		✓	✓

[1] Listed as 2-butanone
[k] Listed as 4-methyl-2-pentanone

SEMIVOLATILE COMPOUNDS*

TEST PARAMETERS BY REGULATIONS

ANALYTE	CWA		RCRA					SUPERF
	NPDES	625[l]	APPENDIX IX	8270[m]	SKINNER	TCLP		CLP
						Toxicity	Land ban	
A								
Acenaphthene	✓	✓	✓	✓				✓
Acenaphthylene	✓	✓	✓	✓				✓
Acetophenone			✓	✓				
2-Acetylaminofluorene			✓					
4-Aminobiphenyl			✓	✓				
Aniline			✓	✓				
Anthracene	✓	✓	✓	✓	✓			✓
Aramite			✓					
B								
Benzenethiol					✓			
Benzidine	✓			✓				
Benzoic acid				✓				✓
Benzo(a)anthracene	✓	✓	✓	✓	✓			✓
Benzo(b)fluoranthene	✓	✓	✓	✓	✓			✓
Benzo(k)fluoranthene	✓	✓	✓	✓	✓			✓
Benzo(g,h,i)perylene	✓	✓	✓	✓				✓
Benzo(a)pyrene	✓	✓	✓	✓	✓			✓
Benzyl alcohol			✓	✓				✓
Bis(2-chloroethoxy)methane	✓	✓	✓	✓				✓
Bis(2-chloroethyl)ether	✓	✓	✓	✓				✓
Bis(2-chloroisopropyl)ether	✓[n]	✓		✓[o]				✓
Bis(2-ethylhexyl)phthalate	✓	✓	✓	✓	✓			✓
4-Bromophenyl phenyl ether	✓	✓	✓	✓				✓
Butyl benzyl phthalate	✓[p]	✓	✓	✓	✓			✓
C								
4-Chloroaniline			✓[q]	✓				✓
Chlorobenzilate			✓					
4-Chloro-3-methylphenol	✓[r]	✓	✓[r]	✓				✓
1-Chloronaphthane				✓				
2-Chloronaphthane	✓	✓	✓	✓				✓
2-Chlorophenol	✓	✓	✓	✓				✓
4-Chlorophenyl phenyl ether	✓	✓	✓	✓				✓

*This list of compounds, which is a comparison of lists and methods as performed at Radian, is current as of publication date. It should not be used as a substitute for consulting the most recent issue of *40 CFR* or methods for any changes. Chromatographicable pesticides are excluded from this list.

[l] *40 CFR*, Pt. 136, Appendix A.

[m] *SW-846, 3rd Edition*

[n] Listed as 2,2'-oxybis(1-chloropropane)

[o] Listed as bis(2-chloro-1 methylethyl)ether

[p] Listed as benzyl butyl phthlate

[q] Listed as p-chloraniline

[r] Listed as p-chloro-m-cresol

(cont'd)

SEMIVOLATILE COMPOUNDS (cont.)

ANALYTE	CWA		RCRA					SUPERFUND
	NPDES	625	APPENDIX IX	8270	SKINNER	TCLP		CLP[d]
						Toxicity	Land ban	
Chrysene	✓	✓	✓	✓	✓			✓
Cresol						✓		
Cyclohexanone							✓	
D								
Diallate			✓					
Dibenzo(a,h)acridine					✓			
Dibenzo(a,j)acridine				✓				
Dibenzo(a,h)anthracene	✓	✓	✓	✓	✓			✓
Dibenzofurans			✓	✓				✓
tetrachloro							*	
pentachloro								
hexachloro								
1,2-Dibromo-3-chloropropane			✓					
Di-n-butylphthalate	✓	✓	✓	✓	✓			✓
1,2-Dichlorobenzene	✓	✓	✓	✓	✓		✓	✓
1,3-Dichlorobenzene	✓	✓	✓	✓	✓			✓
1,4-Dichlorobenzene	✓	✓	✓	✓	✓	✓		✓
3,3'-Dichlorobenzidine	✓	✓	✓	✓				✓
2,4-Dichlorophenol	✓	✓	✓	✓				✓
2,6-Dichlorophenol			✓	✓				✓
Diethyl phthalate	✓	✓	✓	✓	✓			✓
p(Dimethylamino)azobenzene			✓	✓				
7,12-Dimethylbenz(a)anthracene			✓	✓	✓			
3,3'-Dimethylbenzidine			✓					
α,α-Dimethylphenethylamine			✓	✓				
2,4-Dimethylphenol	✓	✓	✓	✓	✓			✓
Dimethyl phthalate	✓	✓	✓	✓	✓			✓
m-Dinitrobenzene			✓					
4,6-Dinitro-2-methylphenol	✓	✓	✓[5]	✓[3]				✓
2,4-Dinitrophenol	✓	✓	✓	✓	✓			✓
2,4-Dinitrotoluene	✓	✓	✓	✓		✓		✓
2,6-Dinitrotoluene	✓	✓	✓	✓				✓
Di-n-octyl phthalate	✓	✓	✓	✓	✓			✓
Dioxins							*	
tetrachlorodibenzo-p-								
pentachlorodibenzo-p-								
hexachlorodibenzo-p-								
Diphenylamine			✓	✓				
1,2-Diphenylhydrazine	✓			✓				

[5] Listed as 4,6-dinitro-o-cresol
* Dioxin Wastes (F020, 021, 022, 023, 026, 027, 028)

(cont ►)

SEMIVOLATILE COMPOUNDS (cont.)

ANALYTE	CWA		RCRA					SUPERFUND
	NPDES	625	APPENDIX IX	8270	SKINNER	TCLP		CLP
						Toxicity	Land ban	
E								
Ethyl methanesulfonate			✓	✓				
F								
Fluoranthene	✓	✓	✓	✓	✓			✓
Fluorene	✓	✓	✓	✓				✓
H								
Hexachlorobenzene	✓	✓	✓	✓		✓		✓
Hexachloro-1,3-butadiene	✓	✓	✓	✓		✓		✓
Hexachlorocyclopentadiene	✓		✓	✓				✓
Hexachloroethane	✓	✓	✓	✓		✓		✓
Hexachlorophene			✓					
Hexachloropropene			✓					
2-Hexanone			✓					
I								
Indene					✓			
Indeno(1,2,3-cd)pyrene	✓	✓	✓	✓				✓
Isodrin			✓					
Isophorone	✓	✓	✓	✓				✓
Isosafrole			✓					
M								
Methapyrilene			✓					
3-Methylcholanthrene			✓	✓				
Methylchrysene					✓			
Methyl methanesulfonate			✓	✓				
1-Methylnaphthalene					✓			
2-Methylnaphthalene			✓	✓				✓
2-Methylphenol			✓[t]	✓	✓	✓[t]	✓[t]	✓
3-Methylphenol			✓[t]		✓	✓[t]	✓[t]	
4-Methylphenol			✓[t]	✓	✓	✓[t]	✓[t]	✓
N								
Naphthalene	✓	✓	✓	✓	✓			✓
1,4-Naphthoquinone			✓					

[t] Listed as o,m,p cresols
[u] Listed as o,m,p nitroanilines
[v] Listed as o nitrophenol

(cont ➡)

SEMIVOLATILE COMPOUNDS (cont.)

ANALYTE	CWA		RCRA					SUPERFUND
	NPDES	625	APPENDIX IX	8270	SKINNER	TCLP		CLP
						Toxicity	Land ban	
1-Naphthylamine			✓	✓				
2-Naphthylamine			✓	✓				
2-Nitroaniline			✓ u	✓				✓
3-Nitroaniline			✓ u	✓				✓
4-Nitroaniline			✓ u	✓				✓
Nitrobenzene	✓	✓	✓	✓		✓	✓	✓
5-Nitro-o-toluidine			✓					
2-Nitrophenol	✓	✓	✓ v	✓				✓
4-Nitrophenol	✓	✓	✓ w	✓	✓			✓
4-Nitroquinoline-1-oxide			✓					
N-Nitrosodiethylamine			✓					
N-Nitrosodimethylamine	✓		✓	✓				
N-Nitroso-di-n-butylamine			✓	✓				
N-Nitrosodi-n-propylamine	✓	✓	✓	✓				✓
N-Nitrosopiperidine			✓	✓				
N-Nitrosodiphenylamine	✓		✓	✓				✓
N-Nitrosomethylethylamine			✓					
N-Nitrosomorpholine			✓					
N-Nitrosopyrrolidine			✓					
P								
Pentachlorobenzene			✓	✓				
Pentachloroethane			✓					
Pentachloronitrobenzene			✓	✓				
Pentachlorophenol	✓	✓	✓	✓		✓	*	✓
Phenacetin			✓	✓				
Phenanthrene	✓	✓	✓	✓	✓			✓
Phenol	✓	✓	✓	✓	✓			✓
p-Phenylenediamine			✓					
2-Picoline			✓	✓				
Polychlorinated dibenzofurans			✓ x					
Polychlorinated dioxins			✓ x					
Pronamide			✓	✓				
Pyrene	✓	✓	✓	✓	✓			✓
Pyridine			✓		✓	✓	✓	
Q								
Quinoline					✓			

v Listed as p-nitrophenol
x Listed as polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans by Method SW8280, *SW-846, 3rd Edition*
* Dioxin Wastes (F020, 021, 022, 023, 026, 027, 028)

(cont ▶)

SEMIVOLATILE COMPOUNDS (cont.)

ANALYTE	CWA		RCRA					SUPERFUND
	NPDES[4]	625	APPENDIX IX	8270	SKINNER	TCLP		CLP
						Toxicity	Land ban	
S								
Safrole			✓					
T								
1,2,4,5-Tetrachlorobenzene			✓	✓				
2,3,4,6-Tetrachlorophenol			✓	✓			*	
o-Toluidine			✓					
1,2,4-Trichlorobenzene	✓	✓	✓	✓				✓
2,4,5-Trichlorophenol			✓	✓		✓	*	✓
2,4,6-Trichlorophenol	✓	✓	✓	✓		✓	*	✓
sym-Trinitrobenzene			✓					
0,0,0 Triethylphosphorothiate			✓					

* Dioxin Wastes (F020, 021, 022, 023, 026, 027, 029)

RADIAN
CORPORATION

Return Address:
P.O. Box 201088
Austin, Texas 78720-1088

Radian Laboratories:

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8501 Mo-Pac Blvd.
P.O. Box 201088
Austin, TX 78720-1088
(512)454-4797

MILWAUKEE
5103 West Beloit Rd.
Milwaukee, WI 53214
(414)643-2701

PERIMETER PARK
P.O. Box 13000
Research Triangle Park, NC 27709
(919)481-0212

SACRAMENTO
10395 Old Placerville Road
Sacramento, CA 95827
(916)362-5332

A company of The Hartford Steam Boiler Inspection and Insurance Co.

BULK RATE
U.S. POSTAGE PD
AUSTIN, TEXAS
PERMIT NO 268

6/25/90

TABLE 2

Field Equipment Checklist
Soil and Sludge Sampling

	ITEM	REMARKS
✓	PID Meter	yes Calibrated
✓	Site Specific SWMU Work Plan	
✓	Generic Sampling Plan	
✓	Site Map With Sample Locations	
✓	Sample Bottles	
✓	Ice Chests	
✓	Trip Blanks	
✓	Methanol	
✓	Deionized Water	
✓	Squeeze Bottles	
✓	Personal Protective Equipment	
✓	Chain of Custody and Sample Record Forms	
✓	Plastic Bags (to provide clean surfaces)	
✓	Disposable Gloves	
✓	Paper Towels	
✓	Tape (for labels and dispenser)	
✓	Sharpie, Pens, Pencils	
✓	Blue Ice or Ice	
✓	Zip-Lock Bags, 1 gallon	

6/26/90

TABLE 2

Field Equipment Checklist
Soil and Sludge Sampling

	ITEM	REMARKS
✓	PID Meter	YES Calibrated
✓	Site Specific SWMU Work Plan	
✓	Generic Sampling Plan	
✓	Site Map With Sample Locations	
✓	Sample Bottles	
✓	Ice Chests	
✓	Trip Blanks	
✓	Methanol	
✓	Deionized Water	
✓	Squeeze Bottles	
✓	Personal Protective Equipment	
✓	Chain of Custody and Sample Record Forms	
✓	Plastic Bags (to provide clean surfaces)	
✓	Disposable Gloves	
✓	Paper Towels	
✓	Tape (for labels and dispenser)	
✓	Sharpie, Pens, Pencils	
✓	Blue Ice or Ice	
✓	Zip-Lock Bags, 1 gallon	

Original Date 05/31/89
Revision Date 12/15/89

5/27/90

AWMA

TABLE 2

Field Equipment Checklist
Soil and Sludge Sampling

	ITEM		REMARKS
✓	PID Meter	✓	Calibrated
✓	Site Specific SWMU Work Plan		
✓	Generic Sampling Plan		
✓	Site Map With Sample Locations		
✓	Sample Bottles		
✓	Ice Chests		
✓	Trip Blanks		
✓	Methanol		
✓	Deionized Water		
✓	Squeeze Bottles		
✓	Personal Protective Equipment		
✓	Chain of Custody and Sample Record Forms		
✓	Plastic Bags (to provide clean surfaces)		
✓	Disposable Gloves		
✓	Paper Towels		
✓	Tape (for labels and dispenser)		
✓	Sharpie, Pens, Pencils		
✓	Blue Ice or Ice		
✓	Zip-Lock Bags, 1 gallon		

6-28-90

TABLE 2

Field Equipment Checklist
Soil and Sludge Sampling

	ITEM	REMARKS
✓	PID Meter	yes Calibrated
✓	Site Specific SWMU Work Plan	
✓	Generic Sampling Plan	
✓	Site Map With Sample Locations	
✓	Sample Bottles	
✓	Ice Chests	
✓	Trip Blanks	
✓	Methanol	
✓	Deionized Water	
✓	Squeeze Bottles	
✓	Personal Protective Equipment	
✓	Chain of Custody and Sample Record Forms	
✓	Plastic Bags (to provide clean surfaces)	
✓	Disposable Gloves	
✓	Paper Towels	
✓	Tape (for labels and dispenser)	
✓	Sharpie, Pens, Pencils	
✓	Blue Ice or Ice	
✓	Zip-Lock Bags, 1 gallon	

6-29-90

TABLE 2

Field Equipment Checklist
Soil and Sludge Sampling

	ITEM	REMARKS
✓	PID Meter	~~JLS~~ Calibrated
✓	Site Specific SWMU Work Plan	
✓	Generic Sampling Plan	
✓	Site Map With Sample Locations	
✓	Sample Bottles	
✓	Ice Chests	
✓	Trip Blanks	
✓	Methanol	
✓	Deionized Water	
✓	Squeeze Bottles	
✓	Personal Protective Equipment	
✓	Chain of Custody and Sample Record Forms	
✓	Plastic Bags (to provide clean surfaces)	
✓	Disposable Gloves	
✓	Paper Towels	
✓	Tape (for labels and dispenser)	
✓	Sharpie, Pens, Pencils	
✓	Blue Ice or Ice	
✓	Zip-Lock Bags, 1 gallon	

7/2/90

TABLE 2

Field Equipment Checklist
Soil and Sludge Sampling

	ITEM		REMARKS
✓	PID Meter	✓	Calibrated
✓	Site Specific SWMU Work Plan		
✓	Generic Sampling Plan		
✓	Site Map With Sample Locations		
✓	Sample Bottles		
✓	Ice Chests		
✓	Trip Blanks		
✓	Methanol		
✓	Deionized Water		
✓	Squeeze Bottles		
✓	Personal Protective Equipment		
✓	Chain of Custody and Sample Record Forms		
✓	Plastic Bags (to provide clean surfaces)		
✓	Disposable Gloves		
✓	Paper Towels		
✓	Tape (for labels and dispenser)		
✓	Sharpie, Pens, Pencils		
✓	Blue Ice or Ice		
✓	Zip-Lock Bags, 1 gallon		

7/5/90

TABLE 2

Field Equipment Checklist
Soil and Sludge Sampling

	ITEM		REMARKS
✓	PID Meter	✓	Calibrated
✓	Site Specific SWMU Work Plan		
✓	Generic Sampling Plan		
✓	Site Map With Sample Locations		
✓	Sample Bottles		
✓	Ice Chests		
✓	Trip Blanks		
✓	Methanol		
✓	Deionized Water		
✓	Squeeze Bottles		
✓	Personal Protective Equipment		
✓	Chain of Custody and Sample Record Forms		
✓	Plastic Bags (to provide clean surfaces)		
✓	Disposable Gloves		
✓	Paper Towels		
✓	Tape (for labels and dispenser)		
✓	Sharpie, Pens, Pencils		
✓	Blue Ice or Ice		
✓	Zip-Lock Bags, 1 gallon		

RFI 0601 Angle

Personnel: Danny, Philbert, Mark, Corrie, Chris, Mike*

Weather: Rainy
Windy 0-5 mph
Temperature 70

Terrain: Wet, some standing water around

Sampling: 07-05-90 Background PID 0.75
11:40 took sample at 0-½', soil was light brown, sand and rock PID 0.75
1:40 took sample at 3½-4', soil was brown and sandy clay PID 0.75
1:55 took sample at 7-7½', soil was rocky with granular sand PID 0.75

Sampling Method:
The first sample was taken with an open end auger before lunch. After lunch the backhoe dug a 7½' hole and set the culvert in it. The second sample was 3½' down and 2½' horizontally, with the closed end auger. Then it started raining on the last sample interval which is 7½' down and 5' horizontally. We used the open end auger.

*** Notes sample team leader**

RFI 0602

Personnel: Mark, Chris, Corrie, Danny, Philbert, Mike, Claud*

Weather: Clear
Wind 3-5 mph
Temperature 94

Terrain: brown soil with some rock

Sampling: 06-29-90 Background PID 1.0
12:15 took sample at 0-½', the soil looked dry rocky and sandy PID 1.0
12:25 took sample at 3½-4', the soil was dark brown and moist with some rocks PID 1.0
1:00 took sample at 7-7½', the soil looked brown, rocky and sandy PID 1.0

Sampling Method:
The first sample was taken with the open end auger. Then the backhoe dug down to the next interval where the sample was taken with the closed end auger. Again the backhoe dug down to the last interval where the closed end auger was used.

RFI 0603 Angle

Personnel: Danny, Corrie, Mark, Chris, Mike*

Weather: Cloudy
Wind 4-8 mph
Temperature 76

Terrain: brown soil with rocks

Sampling: 07-05-90 Background PID 1.0
10:30 took sample at 0-½', the soil was brown, moist and rocky PID 1.0
11:30 took sample at 3½-4', the soil was brown with sand and rock PID 1.0
11:55 took sample at 7-7½', the soil was very rocky with granular sand PID 1.0

Sampling Method:
The first sample was taken with an open end auger. Then the backhoe dug down to 7½', and the culvert was set in. At 3½' we augered 2½' horizontally and took the sample. The last sample was at the 7½' level and augered 5' horizontally.

Unusual Incidents:
During the last sample it was sprinkling down rain.

RFI 0604

Personnel: Mark, Chris, Corrie, Philbert, Danny, Mike, Claud*

Weather: Clear
Wind 3-5 mph
Temperature 96

Terrain: hard brown soil with rocks

Sampling: 06-29-90 Background PID 1.0
1:10 took sample at 0-½', the soil was brown rocky and sandy PID 1.0
1:15 took sample at 3½-4', the soil was brown rocky and sandy PID 1.0
1:25 took sample at 7-7½', the sample looked wet, brown, rocky, sandy soil PID 1.0

Sampling Method:
The first sample was taken with the open end auger. Then the backhoe dug down to the next interval where the closed end auger was used. Again the backhoe dug down to the last interval where the closed end auger was used to sample.

RFI 0605 Angle

Personnel: Danny, Philbert, Mark, Corrie, Chris, Mike*

Weather: Cloudy
Wind 4-8 mph
Temperature 74

Terrain: brown soil with rocks

Sampling: 07-05-90 Background PID 0.75
8:18 took sample at 0-½', soil was very moist and granular PID 0.75
8:45 took sample at 3½-4', soil was greyish rocky and granular sand PID 250
10:20 took sample at 7-7½', soil was rocky brown and granular sand PID 100

Sampling Method:
The first sample was taken with an open end auger. Then the backhoe dug down to 7½' and the culvert was set in. At the 3½ level we augered 2½ horizontally under the tank and took the sample with the closed end auger. For the 3rd sample at 7½, we augered 5' horizontally under the tank to get the next sample.

Unusual Incidents:
It had rained the night of 7-4-90.

RFI 0606

Personnel: Mark, Chris, Corrie, Danny, Philbert, Mike, Claud*

Weather: Clear
Wind 0-5
Temperature 93

Terrain: hard brown soil with a few rocks

Sampling: 06-29-90 Background PID 2.5
11:43 took sample at 0-½', the soil was dry and sandy PID 2.5
11:50 took sample at 3½-4', the soil was moist and very dark. PID 115
12:03 took sample at 7-7½', the sample looked like dark, moist sandy soil PID 130

Sampling Method:
The first sample was collected with the closed end auger. Then the backhoe dug down to the next interval where the closed end auger was used to sample. The backhoe then dug to the final internal and the sample was collected with the closed end auger.

RFI 0607 Angle

Personnel: Andy Jaramillo, Brian Hitchcock, Claud*, (Jeff, Jay) with PRC

Weather: Clear
Wind 0-5 mph
Temperature

Terrain: dark brown soil and very hard no weeds or brush

Sampling: 06-27-90 at about 6:45

Vert. depth	depth at 50°	PID	Background PID
0-½	0-0.65	1.0	1.0
3½-4	4.75-5.22	0.5	0.5
7-7½	9.14-9.8	1.0	0.5

Lithology:

0-4' Hard compacted brown clay
4-8½' Brown rocky, sand.
8½-10' Hard brown clay

Sampling Method:

Used Rodgers & Co. drilling rig with a hollow stemmed auger to collect the sample. Equipment was steam cleaned before drilling.

RFI 0608

Personnel: Mark, Chris, Corrie, Mike*, Danny, (Jeff and Jay) with PRC

Weather: Clear
Wind 0-5 mph
Temperature 84

Terrain: brown rocky soil around tank

Sampling: 06-27-90 Background PID 0.5
7:06 took sample 0-½', the soil was brown, sandy and rocky PID 0.5
8:06 took sample at 3½-4', this sample was split with PRC as a duplicate, the sample is rocky and sandy PID 1.5
8:23 took sample at 7-7½', the soil was still brown, rocky and sandy PID 1.5

Sampling Method:
The first sample was taken with the open end auger. Then the backhoe dug down to the next interval where the closed end auger was used. Again the backhoe dug down to the last interval where the closed end auger was used.

RFI 0609 Angle

Personnel: Andy Jaramillo, Brian Hitchcock, Claud*, (Jeff, Jay) with PRC

Weather: Few scattered clouds
Wind 3-7 mph
Temperature 96

Terrain: dark brown soil with some rocks

Sampling: 06-27-90 at about 1:25

Vert. depth	depth at 50°	PID	Background PID
0-½	0-0.65	1.5	1.0
3½-4	4.75-5.22	0.75	0.75
7-7½	9.14-9.8	0.75	0.75

Lithology: 0-10 Brown sandy granular soil

Sampling Method:
Used Rodgers & Co. drilling rig with a hollow stemmed auger to take the sample with. The augers were steam cleaned and the core was wire brushed, rinsed with tap water, then distilled water.

RFI 0610

Personnel: Mark, Chris, Danny, Corrie, Mike*

Weather: Scattered clouds
Wind 3-5 mph
Temperature 92

Terrain: brown soil with rocks

Sampling: 06-27-90 Background PID 1.5
12:00 took sample at 0-½', soil was brown and sandy with rocks PID 1.5
12:29 took sample at 3½-4', soil was moist and dark PID 1.5
12:48 took sample at 7-7½', soil was moist dark clay PID 55

Sampling Method:
The first sample was taken with an open end auger. Then the backhoe dug down to 3½' where the closed end auger to take the sample. Again the backhoe dug down to the last interval and sampled with the closed end auger.

RFI 0611 Angle

Personnel: Andy Jaramillo, Brian Hitchcock, Claud*, (Jeff & Jay) with PRC

Weather: Clear
Wind 0-3 mph
Temperature 95

Terrain: rocky with hard dark brown soil

Sampling: 06-27-90 at about 12:25

Vert. depth	depth at 50°	PID	Background PID
0-½	0-0.65	1.5	1.5
3½-4	4.75-5.22	25.0	1.0
7-7½	9.14-9.8	25.0	1.0

Lithology: 0-8 Brown sandy, rocky soil
8-10 Sandy compacted soil

Sampling Method:
Used Rodgers & Co. drilling rig with a hollow stemmed auger to sample with. The augers were steam cleaned and the core was wire brushed, rinsed with tap water, then distilled water.

RFI 0612

Personnel: Mark, Chris, Corrie, Danny, Philbert, Claud*, Mike

Weather: Clear
Wind 0-5 mph
Temperature 79

Terrain: brown hard soil with a few rocks

Sampling: 06-29-90 Background PID 1.0
9:35 took sample 0-½, the soil had some dry sand with some black looking soil PID 1.0
9:38 took sample 3½-4, the soil was greyish-brown, sandy and dry PID 100.0
9:50 took sample 7-7½, the soil was damp light brown granular clay PID 75.0

Sampling Method:
The first sample point was taken with the closed end hand auger. Then the backhoe dug down to the next interval where the next sample was extracted with the closed end auger. Again the backhoe dug down to the last interval where the final sample was taken with the closed end auger.

Unusual Incidents:
Welding on the sample station on the tank was occurring approximately 30' around the side of the tank during sampling.

RFI 0613 Angle

Personnel: Andy Jaramillo, Brian Hitchcock, Claud*, (Jeff, Jay) with PRC

Weather: Clear
Wind 0-3 mph N.W.
Temperature 90

Terrain: rocky with hard dark brown soil

Sampling: 06-27-90 at about 11:05

Vert. depth	depth at 50°	PID	Background PID
*0-½	0-0.65	1.0	1.0
3½-4	4.75-5.22	1.5	1.0
7-7½	9.14-9.8	2.5	1.0

*got a duplicate for Giant

Lithology: 0-10 brown, sandy soil with some rocks

Sampling Method:
Used Rodgers & Co. drilling rig with a hollow stemmed auger to collect the sample. The augers were steam cleaned and the core was wire brushed, rinsed with tap water then distilled water.

RFI 0614

Personnel: Mark, Chris, Corrie, Philbert, Danny, Mike, Claud*

Weather: Clear
Wind 0-5 mph
Temperature 87

Terrain: brown soil with a few rocks

Sampling: 06-29-90 Background PID 1.0
10:05 took sample at 0-½', the soil looked like clean dry sand PID 1.0
10:23 took sample at 3½-4', the soil was moist light brown granular sand PID 175
10:30 took sample at 7-7½', the soil was grey-brown granular and sandy PID 135

Sampling Method:
The first point was taken with open end auger, then the backhoe dug down to the next internal. At this internal the closed end auger was used. Again the backhoe was used to dig down to 7' where the last sample was taken with a closed end auger.

RFI 0615 Angle

Personnel: Andy Jaramillo, Brian Hitchcock, Claud*, (Jeff, Jay) with PRC

Weather: Clear
Wind 0-5 mph
Temperature: 80

Terrain: Rocky and hard dark soil

Sampling: 06-27-90 at about 8:35

Vert. Depth	Depth at 50°	PID	Background PID
0-½'	0-0.65	0.5	0.5
3½-4	4.75-5.22	1.0	1.0
*7-7½	9.14-9.8	1.0	1.0

*split a sample with PRC as a duplicate

Lithology:

0-3½ sandy, brown rocky
3½-4.0 compacted brown clay
5-10 sandy & rocky

Sampling Method:

Used Rodgers & Co. drilling rig equipped with a hollow stemmed auger to collect the sample. The augers were steam cleaned and the core was wire brushed, rinsed with tap water then distilled water.

RFI 0616

Personnel: Mark, Chris, Corrie, Danny, Mike*

Weather: Clear
Wind 0-5 mph
Temperature 86

Terrain: hard brown rocky soil around tank

Sampling: 06-27-90 Background PID 0.5
8:37 took sample 0-½', the soil was dry light brown sand PID 0.5
9:09 took sample at 3½-4', the soil was moist and brown sand PID 8.0
9:30 took sample at 7-7½', the soil was moist brown-greyish sandy and rocky PID 78.0

Sampling Method:
The first sample was taken with an open end auger. The the backhoe dug down to 3½' where the next sample was taken with the closed end auger. Again the backhoe dug down to the last interval, and the sample was taken with the closed end auger.

Unusual Incidents:
When the backhoe dug down about 2½', we found an electrical conduit. As a result, the backhoe dug a little closer to the tank.

RFI 0617 Angle

Personnel: Andy Jaramillo, Brian Hitchcock, Claud*, (Jeff, Jay) with PRC

Weather: Clear
Wind 0-5 mph
Temperature 85°

Terrain: dark brown soil and rocky

Sampling: 06-27-90 at about 10:25

Vert. depth	depth at 50°	PID	Background
0-½	0-0.65	1.5	1.5
3½-4	4.75-5.22	1.0	1.0
7-7½	9.14-9.8	1.0	1.0

Lithology: 0-10' brown sand, rocky soil

Sampling Method:
Used Rodgers & Co. drilling rig equipped with a hollow stemmed auger to collect the samples. All equipment was steam cleaned. The core was also rinsed with distilled water.

RFI 0618

Personnel: Mark, Chris, Corrie, Danny, Mike*

Weather: Clear
Wind 0-5 mph
Temperature 89

Terrain: brown soil with some rock

Sampling: 06-27-90 Background PID 1.0
9:49 took sample at 0-½', soil looked like clean brown rocky sand PID 1.0
10:00 took sample at 3½-4', soil was brown with sand and rocks and a little grey color PID 75
11:05 took sample at 7-7½', soil looks grey rocky and granular sand PID 50

Sampling Method:
The first sample was taken with an open end auger. Then the backhoe dug down to the next interval where the closed end auger took the sample. Again the backhoe dug to the last interval and sampled with the closed end auger.

RFI 0619 Angle

Personnel: Andy Jaramillo, Brian Hitchcock, Claud*, (Jeff, Jay) with PRC

Weather: Clear
Wind 0-5 mph
Temperature 72

Terrain: dark brown soil and rocky

Sampling: 06-27-90 at about 7:45

Vert. depth	depth at 50°	PID	Background PID
0-½	0-0.65	1.0	1.0
3½-4	4.75-5.22	0	0
7-7½	9.14-9.8	0	0

Lithology:

0-2' sandy, rocky brown
2-5' clay
5-7 sandy
7-10 clay

Sampling Method:

Used Rodgers & Co. drilling rig equipped with a hollow stemmed auger to collect the sample. The augers were steam cleaned and the core was wire brushed, rinsed with tap water then distilled water.

RFI 0620

Personnel: Mark, Chris, Corrie, Danny, Mike*

Weather: Clear
Wind 0-5 mph
Temperature

Terrain: hard light brown soil with rock

Sampling: 06-27-90 Background PID 1.0
1:00 took sample 0-½', soil was light colored and rocky PID 1.0
1:15 took sample 3½-4', soil was greyish and sandy PID 20.0
1:20 took sample at 7-7½', soil was greyish and sandy and rocky PID 110

Sampling Method:
The first sample was taken with an open end auger. Then the backhoe dug down to the next interval and sampled with the closed end auger. Again the backhoe to the last interval and sampled with the closed end auger.

RFI 0801 ANGLE

Personnel: Andy Jaramillo, Brian Hitchcock, Claud*

Weather: Clear
Wind 3-5 mph West
Temperature 92

Terrain: Medium height weeds & bushes with spots of bare ground

Sampling: 06-26-90 started at 11:45

Vertical	Angle	Background	PID
5-5½	6.53-7.18	2.0	3.0
8-8½	10.4-11.10	2.0	2.6
10½-11	13.7-14.36	2.0	2.0

Lithology:

0-8½	fine dry brown soil
8½-10	damp chunky soil with some black

Sampling Method:
Used Rodgers & Co. drilling rig with a hollow stemmed auger. 0-5' was drilled with a plug and no core. The core was inserted for the 5-15' sampling. The auger was steam cleaned with the core being cleaned with a wire brush, rinsed with tap water and distilled water.

RFI 0802 ANGLE

Personnel: Andy Jaramillo, Brian Hitchcock, Claud*, (Jeff & Barry) with PRC

Weather: Clear
Wind 0-5 mph
Temperature 80

Terrain: Medium height weeds & bushes with spots of bare ground

Sampling: 06-26-90 started at 10:00 finished at 11:15

Vertical	Angle	Background	PID
5-5½	6.53-7.18	1.5	2.0
8-8½	10.4-11.10	1.5	2.0
10½-11	13.7-14.36	1.5	3.0

Lithology:

0-8' Dry fine brown soil
9-10' Damp chunky brown soil
10-15' Damp chunky brown with black material interspersed

Sampling Method:

Used Rodgers & Co. drilling rig with a hollow stemmed auger. 0-5' was drilled with a plug and no core. The core was inserted for the 5-15' sampling. The auger was steam cleaned with the core being cleaned with a wire brush, rinsed with tap water and distilled water.

Unusual Incidents:

Inside slope of dike appears to have chunks of asphalt on surface. PRC collected an equipment rinse of the hollow stem core before the 10-15' sample was collected and there was sediment in the sample. PRC also collected a split on the 8' sample.

RFI 0803 ANGLE

Personnel: Andy Jaramillo, Brian Hitchcock, Claud*, (Jeff & Barry) with PRC

Weather: Clear
No Wind
Temperature 70

Terrain: Medium height weeds and bushes with spots of bare ground

Sampling: 06-26-90 started at 7:45 finished at 9:50

Vertical	Angle 50°	Background	PID
5-5½	6.53-7.18	1.0	2.0
8-8½	10.4-11.10	1.0	1.0
10½-11	13.7-14.36	1.0	1.0

Lithology:

0-8½' dry fine soil, light brown
8½-13½ damp chunky soil
13½-15 brown granular sand

Sampling Method:

Used Rodgers & Co. rig with a hollow stemmed auger. 0-5' was drilled with a plug and no core. The core was inserted for the 5-15' sampling. The auger was steam cleaned with the core being cleaned with a wire brush, rinsed with tap water and distilled water.

RFI 0804

Personnel: Danny, Philbert, Mark, Corrie, Mike, Claud*, (Jeff & Barry) with PRC

Weather: Partly cloudy
Wind 0-5 mph SW
Temperature 70

Terrain: Medium sized bushes and weeds

Sampling: 06-25-90 Background PID 2.0
9:40 took sample at 10½-11', the soil was light colored brown and dry PID 7½
10:00 took sample at 8-8½', the soil was light colored dry and brown PID 2.5
10:30 took sample at 5-5½', the soil was light colored brown PID 3.0

Sampling Method:
First of all the backhoe dug a hole to 8' and set the culvert in. Then we augered down from 8-10½' with the open end auger and sampled with the closed end auger. On the 8-8½' and 5-5½' sample we used the probes to collect the samples.

Unusual Incidents:
Between 8:30-9:30, Billy was scraping off weeds with the scraper approximately 100 yds. to the west.

RFI 0805

Personnel: Danny, Philbert, Mark, Corrie, Mike, Claud*, (Jeff & Barry) with PRC

Weather: Cloudy, with some sprinkles
Wind 10-15 mph
Temperature 87

Terrain: Medium sized bushes and weeds

Sampling: 06-25-90 Background PID 3.0
1:00 took sample at 10½-11', the soil was light brown and dry PID 4.0
1:15 took sample at 8-8½', the soil was light brown and dry PID 2.5
1:20 took sample at 5-5½', the soil was light brown and dry PID 5.5

Sampling Method:
First the backhoe dug an 8' hole and set the culvert in it. Then we augered down from 8' to 10½' where we took the first sample with the closed end auger. At the 8' and 5' level we used the hand held probes to take samples.

Unusual Incidents:
Before the culvert was set in this hole it was taken to the shop to have the 3" holes made into 5" holes.

RFI 0806

Personnel: Danny, Mark, Chris, Mike, Philbert, Corrie, Claud*, (Jeff & Barry) with PRC

Weather: Clear
No Wind
Temperature 84

Terrain: Medium sized bushes and weeds

Sampling: 06-26-90 Background PID 1.0
7:30 took sample at 8-8½', we split this sample with PRC, the soil was dark moist clay PID 1.0
8:15 took sample at 10½-11', the soil was moist and very hard dark clay PID 1.0
9:00 took sample at 5-5½', the soil was a moist thick dark clay PID 1.0

Sampling Method:
We sampled the 8' level first so we could split it with PRC. The sample was collected with a closed end auger. After that we augered on down from 8' to 10½', and sampled with the closed end auger. Then the last sample was taken at the 5' level with the closed end auger.

Unusual Incidents:
The hole for the culvert was dug the day before to speed up sampling.

RFI 0807

Personnel: Danny, Mark, Chris, Mike*, Philbert, Corrie

Weather: Clear
Wind 0-5 mph
Temperature 92

Terrain: Medium sized bushes 2-2½' tall

Sampling: 06-26-90 Background PID 1.5
9:45 took sample at 0-½', the soil had moist clay and sand PID 1.5
10:05 took sample at 2-2½', the soil was a moist clay PID 1.5
10:30 took sample at 4½-5', the soil was a brown moist clay PID 1.5

Sampling Method:
First we sampled the top six inches then we augered down to 2' where the next internal is. At that internal we took our sample with the closed end auger. Then we augered down to 4½' where the last sample was extracted with the closed end auger.

Unusual Incidents:
At about 10:53, Mark cut his hand and went to First Aid. Also about 10:31, after filling a 4 oz. VOA bottle it fell on the ground with the lid off. What we did was with a spoon, scrape off ½" of soil off the top and replaced it with new soil.

RFI 0808

Personnel: Danny, Mark, Chris, Mike*, Philbert, Corrie

Weather: Clear
Wind 0-5 mph
Temperature 93

Terrain: Medium sized bushes 2-2½' tall

Sampling: 06-26-90 Background PID 1.0
12:00 took sample at 0-½', the soil was sandy with some clay PID 1.0
12:23 took sample at 2-2½', the soil was a moist clay PID 1.0
12:50 took sample at 4½-5', the soil was a dark moist clay PID 1.0

Sampling Method:
First we sampled the top six inches then augered down to 2'. At this level we took a sample and when we cleaned the auger there seemed to be a film left on the inside of the closed end auger, so we cleaned it again as best as we could. Then we augered on down to 4½' and took the next sample with the closed end auger.

RFI 0809

Personnel: Danny, Mark, Chris, Mike*, Philbert, Corrie

Weather: Cloudy
Wind 0-5 mph
Temperature 85

Terrain: A few scattered bushes about 2' high

Sampling: 06-26-90 Background PID 1.0
1:05 took sample at 0-½', the soil was sandy with some clay PID 0.0
1:20 took sample at 2-2½', the soil was a moist clay PID 1.5
1:35 took sample at 4½-5', the soil was a dark moist clay PID 1.0

Sampling Method:
First we sampled the top six inches then augered down to 2' level. At that 2' level we took our sample with the closed end auger. Then we augered down to 4½' and took the last sample with a closed end auger.

RFI 0810

Personnel: Mark, Chris, Corrie, Philbert, Claud*, Danny, Mike

Weather: High thin scattered clouds
No wind
Temperature 72

Terrain: A few taller dead sunflowers but vegetation is minimal.

Sampling: 06-29-90 Background PID 0.75

7:10 took sample at 0-½', the soil was brown sandy and dry PID 0.75

7:11 took sample 2-2½', the soil was brown damp sticky soil PID 0.50

7:29 took sample 4½-5.0', the soil was dark brown and like clay PID 5.5

Sampling Method:
The first sample was taken with the open end auger. Then the backhoe dug down to 2' where the next sample was taken with the closed end auger. The backhoe then dug to 4½' and the final sample was collected with the closed end auger.

RFI 0811

Personnel: Mark, Chris, Corrie, Philbert, Claud*, Danny, Mike

Weather: High thin clouds
No wind
Temperature 80

Terrain: A few taller dead sunflowers but vegetation is minimal.

Sampling: 06-29-90 Background PID 0.75
8:10 took sample at 0-½' and took duplicate of sample, the soil was dry and sandy PID 0.75
8:15 took sample at 2-2½', the soil was dark brown damp and sticky PID 30
8:20 took sample at 4½-5', the soil was dry and sandy PID 11

Sampling Method:
The first sample was taken with an open end auger. Then the backhoe dug down 2' and we sampled with the closed end auger. Again the backhoe dug down to 5' where we sampled with an open end auger.

RFI 0812

Personnel: Mark. Chris, Corrie, Philbert, Claud*, Danny, Mike

Weather: High thin clouds
No wind
Temperature 82

Terrain: A few taller dead sunflowers but vegetation is minimal.

Sampling: 06-29-90 Background PID 1.5
8:30 took sample at 0-½', the soil was dry brown and sandy PID 1.5
8:38 took sample at 2-2½', the soil was brown damp and sticky PID 18
8:43 took sample at 4½-5', the soil was dark moist sticky clay PID 1.5

Sampling Method:
The first sample was taken with an open ended auger. Then the backhoe dug down to 2' and we took the sample with the closed end auger. The backhoe dug to 5' and the sample was collected with the closed end auger.

Unusual Incidents:
On the first sample the lid on the organics bottle was dropped. The lid was wiped off and dusted and put back on the bottle.

RFI 0813

Personnel: Mark, Chris, Corrie, Philbert, Claud*, Danny, Mike

Weather: High clouds thinning
No wind
Temperature 75

Terrain: A few taller dead sunflowers but vegetation is minimal.

Sampling: 06-29-90 Background PID 0.75

7:35 took sample at 0-½', the soil was light brown and sandy PID 0.75

7:49 took sample at 2-2½', the soil was brown moist and a little sticky PID 0.75

7:52 took sample and a duplicate at 4½-5', the soil was brown and clay like. PID 0.75

Sampling Method:
The first sample was taken with the open end auger. The backhoe dug down to the 2' sample point and we used the closed end auger. Then the backhoe dug down to 4½' and at the last sample point we used the open end auger.

RFI 0901

Personnel: Chris, Philbert, Mark, Corrie, Danny, Claud, Mike*

Weather: High thin clouds
Wind 0-5 mph
Temperature 75

Terrain: A few small bushes and weeds

Sampling: 07-02-90 Background PID 0.75

7:53 took sample at 0-½', soil was very sandy and dry PID 0.75
7:54 took sample at 3-3½', soil was still sandy and brown PID 0.75
7:56 sample of the rinse water was taken
8:03 took sample at 5-5½', soil was like clay PID 0.75
8:10 sample of the rinse water was taken
8:17 took sample at 7-7½', soil was a moist clay PID 0.75

Sampling Method:
The first sample was taken with an open end auger. The backhoe dug down to 3' where we took the next sample with the closed end auger. Then the backhoe dug to 5' where we sampled with an open end auger. Again the backhoe dug down to 7' where we took a sample with open end auger.

RFI 0902

Personnel: Danny, Chris, Mark, Corrie, Philbert, Mike*

Weather: High thin clouds
Wind 0-5 mph
Temperature 82

Terrain: A few small weeds

Sampling: 07-02-90 Background PID 0.75
9:10 took sample 0-½', the soil was like clean sand PID 0.75
9:20 took sample at 3-3½', the soil was brown and moist PID 0.75
9:28 took sample at 5-5½', the soil was clay PID 0.75
9:43 took sample at 7-7½', the soil was a hard clay PID 0.75

Sampling Method:
The first sample was taken with an open end auger. Then the backhoe dug down to 3' where the 2nd sample was taken with a closed end auger. The 3rd sample was dug down to 5' with the backhoe and sampled with an open end auger. The 4th sample point was dug down to 7' with the backhoe and extracted with the closed end auger.

RFI 0903

Personnel: Mark, Danny, Corrie, Chris, Mike*, Philbert

Weather: High thin clouds
Wind 0-5 mph
Temperature 85

Terrain: A few small weeds and bushes

Sampling: 07-02-90 Background PID 0.5
10:29 took sample at 0-½', the sample was dry and sandy PID 0.5
10:38 took sample at 3-3½', the sample was clay like and dry PID 0.5
10:50 took sample at 5-5½', the soil was dry clay PID 0.5
11:00 took sample at 7-7½', the soil was dry clay PID 0.5

Sampling Method:
The first sample was taken with the open end auger. The backhoe dug down to 3' where the closed end auger was used to sample. Then the backhoe dug down to 5' and the sample was collected with the open end auger. The last sample was dug down to 7' with the backhoe then sampled with the closed end auger.

RFI 0904

Personnel: Danny, Chris, Mark, Corrie, Philbert, Mike*

Weather: High thin clouds
Wind 0-5 mph
Temperature 78

Terrain: A few small weeds

Sampling: 07-02-90 Background PID 0.75

8:25 took sample at 0-½', the soil was dark brown sand with black asphalt chunks PID 0.75

8:40 took sample at 3-3½', the soil was moist and like soft clay PID 0.75

8:52 took sample at 5-5½', the soil was like clean hard clay PID 1.5

9:03 took sample at 7-7½', the soil was like hard clay PID 0.75

Sampling Method:

The first sample was taken with an open end auger. Then the backhoe dug down to 3' where the 2nd sample was taken with a closed end auger. The 3rd sample was dug down to 5' with the backhoe and sampled with an open end auger. The 4th sample point was dug down to 7' with the backhoe and extracted with the closed end auger.

RFI 0905

Personnel: Mark, Danny, Corrie, Chris, Mike*, Philbert

Weather: High thin clouds
Wind 0-5 mph
Temperature 83

Terrain: 07-02-90 Background PID 0.75

9:50 took sample at 0-½', the soil was dark brown with a touch of black PID 0.75

9:58 took sample at 3-3½', the soil was clean and dry PID 0.75

10:05 took sample at 5-5½', the soil was clean dry clay PID 0.75

10:05 took duplicate of sample at 5-5½'

10:13 took sample at 7-7½', the soil was like clay PID 0.75

Sampling Method:

The first sample was taken with the open end auger. Then the backhoe dug down to 3' where the 2nd sample was taken with the closed end auger. The 3rd sample was dug down to 5' with the backhoe then sampled with closed end auger. Then the backhoe dug down to 7' where we sampled with the closed end auger.

RFI 0906

Personnel: Mark, Danny, Corrie, Philbert, Chris, Mike*

Weather: Very few high clouds
Wind 0-5 mph
Temperature 90

Terrain: A few small scattered weeds and bushes

Sampling: 07-02-90 Background PID 0.5
12:03 took sample at 0-½', the soil was dark brown and black looking sand
12:06 took sample at 3-3½' and split it into two samples one as a duplicate. Soil was brown and sandy PID 0.5
12:13 took sample at 5-5½', the soil was dark brown and sandy PID 0.5
12:18 took sample at 7-7½', the soil was a dry clay PID 0.5

Sampling Method:
The first sample was taken with an open end auger. The backhoe then dug down 3' for the next sample with the closed end auger. The 3rd sample was dug down to 5' with the backhoe then sampled with the open end auger. The last sample was dug down to 7' with the backhoe then sampled with the closed end auger.

RFI 0907

Personnel: Philbert, Danny, Chris, Mike*, Mark, Corrie

Weather: Clear
Wind 0-5 mph
Temperature 92

Terrain: A few scattered weeds and bushes

Sampling: 07-02-90 Background PID 1.0
12:22 took sample at 0-½', the soil looked brown and dry
PID 3.5
12:42 took sample at 3-3½', the soil was sandy and dry
PID 1.0
12:46 took sample at 5-5½', the soil was sandy and dry
PID 1.0
12:58 took sample at 7-7½', the soil was a dry clay
PID 1.0

Sampling Method:
The first sample was taken with an open end auger. The backhoe then dug down to the 3' level for the next sample with the closed end auger. After the backhoe dug down again to 5' the sample was taken with an open end auger. The last sample was dug down to 7' with the backhoe then sampled with the closed end auger.

RFI 1001

Personnel: Mark, Chris, Corrie, Danny, Mike, Claud*, (Jeff, Jay) PRC

Weather: Clear
No Wind
Temp 73°

Terrain: A few scattered weeds less than a foot high. The sample was collected on level ground near an overflow pipe outlet from a 4-5' high bank.

Sampling: 06-28-90
Background PID 4.0

7:16 took first sample 0-½' and split it with EPA as a duplicate. PID 4.0. The soil was brown, dry and granular.

7:21 Started augering down to 3-3½'

7:30 took sample at 3-3½' PID 5.0 we took our sample, the soil was brown and very moist.

7:39 filled the hole.

Sampling Method:
The first sample was taken with the closed split spoon auger. The open end split spoon auger was used to auger down to the 3-3½' interval. The second sample was then taken with the closed split spoon auger.

RFI 1002

Personnel: Mark, Chris, Danny, Mike*, Jeff, Jay

Weather: Clear
Wind 0-5 mph
Temperature 87

Terrain: A few scattered bushes about a foot in height on level ground

Sampling: 6-28-90
Background 1.0
11:50 took top sample at 0-½', the soil was dry and brown. PID 1.0
11:58 took second sample 3-3½', the soil was brown with traces of black lines. PID 5.0
12:03 took third sample 6-6½', the soil is dark brown and a little moist. PID 3.0
12:13 took fourth sample 9-9½', the soil is dark brown and moist. PID 1.0
12:35 took last sample at 12½-13', the soil is brown damp clay. PID 0.5

Sampling Method:
The first sample was collected in an open end auger, then the backhoe dug down to 3' where the next sample was collected with the open end auger. The backhoe proceeded down to 6' level where the third sample was collected with a closed end auger. The backhoe again dug down to the next interval 9-9½' and the sample was collected with the closed end auger. The backhoe dug down to 12' and the open end auger was used to go down 6 more inches, here the closed auger was used to collect the 12½-13' sample.

Unusual Incidents:
At about 4½' there was a 4-6" wide darker brown, almost black layer.

RFI 1003

Personnel: Mark, Chris, Corrie, Danny, Claud*, Mike, (Jeff, Jay) with PRC

Weather: Clear
No Wind
Temperature 73

Terrain: A few scattered weeds about a foot in height on level ground.

Sampling: 06-28-90
Background PID 1.5

8:00 took first sample at 12½-13' interval and split it with PRC for a duplicate, and took another sample for a replicate for PRC. The soil was dark brown and a little moist. PID 1.5

8:21 took the second sample at 9-9½' interval, the soil was moist and dark brown. PID 10

8:35 took sample at 6-6½' interval, another background PID was taken at 8:30, it read 1.0 and the sample read 4.0. The soil was moist and dark brown.

8:43 took sample at 3-3½ interval, the soil was dark brown. PID 2.0

8:46 took sample at 0-½' interval, the soil was brown and dry. PID 1.0

Sampling Method:
The backhoe first dug down to 10', then we set a 4' diameter culvert, with precut holes for sampling, in the hole. The open end auger was used to auger from 10' to 12½' then the closed end auger was used to take the sample. Next we used the closed end auger to take the 9-9½' sample through one of the precut port holes. The third sample was done the same way at the 6-6½' interval, and again at 3-3½'. At 0-½' the open end auger was used to collect the sample.

RFI 1004

Personnel: Mark, Chris, Corrie, Danny, Philbert, Claud*, Mike, (Jeff, Jay) with PRC.

Weather: Clear
No Wind
Temperature 75°

Terrain: A few scattered small bushes about a foot high on level ground.

Sampling: 06-28-90
Background 1.0

8:53 took sample at 0-½', the soil was brown and a little moist. PID 1.0

9:01 took second sample at 3-3½', the soil looked dark like oily sludge and moist. PID 38

9:07 took sample at 6-6½', the soil looked like dark sticky sludge, the sample was split with PRC as a duplicate. PID 50

9:32 took sample at 9-9½', the soil looked like sludge but last few inches of the sample was clearing up. PID 150

9:45 took sample at 12½-13', the soil looked dark brown but clean. PID 20

Sampling Method:
The first sample was taken with an open end auger, then the backhoe dug down to 3-3½' and the closed end auger was used to sample. The backhoe dug down to the next depth of 6-6½' where the third sample was taken with the closed end auger. Then the backhoe dug down as far as it could to about 12', where we augered down 6" with open end auger and then took our sample with the closed end auger.

RFI 1005

Personnel: Corrie, Claud*, Philbert, Jeff, Jay

Weather: Clear
Wind 0-5 mph
Temperature 83

Terrain: A few scattered bushes about a foot in height on level ground.

Sampling: 06-28-90
Background PID 3.0

10:29 took 0-½' sample, the soil was dry and brown PID 3.0

10:48 took sample at 3-3½', the soil was dark brown and little moist, another background PID was taken with a reading of 1.5 and the sample also read 1.5.

11:01 took sample at 6-6½', the soil was like black sludge PID 42

11:15 took sample at 9-9½', the soil was clean and brown PID 2.5

11:30 took last sample at 12½-13', the soil was clean sticky brown clay. PID 3.5

Sampling Method:
The top sample was taken with the open end auger, then the backhoe dug down 3' where another sample was taken. At the 3' level, the closed end auger was used, and we split the sample with PRC as a duplicate. The backhoe then dug down to the 6' level, black sludge was very apparent from about 5'9" tp 7'10", where the sample was taken. Then the backhoe dug down to the 9' level and another sample was taken with closed end auger. On the final sample there was clean brown clay, but from about 10' to 11' was more black sludge.

Section 6.4
Calculation for Verticle Depth of Angle Samples

The angle bores were drilled at a fifty degree (50°) angle from verticle. The formula for angle depth is:

$$\text{Angle Depth} = \frac{\text{Verticle depth}}{\text{Sin } 50°}$$

Sin 50° = 0.766

Verticle Depths	=	Angle Depths
0.0' to 0.5'	=	0.0' to 0.7'
3.5' to 4.0'	=	4.6' to 5.2'
5.0' to 5.5'	=	6.5' to 7.2'
7.0' to 7.5'	=	9.1' to 9.8'
8.0' to 8.5'	=	10.4'to 11.1'
10.5'to 11.0'	=	13.7'to 14.4'

SECTION 7.0

Statistical Information for Soil Samples

SECTION 7.1

GENERAL REVIEW

This section includes the collection of information required, the methodology for statistical calculations and the actual statistical comparisons of background values to each individual sample.

Background samples were collected on April 28, 1987 and April 4 and 5, 1988. The analysis for each sampling event is listed on TABLE 7-1 and TABLE 7-2 respectively. All background samples were collected from a background plot which is specified in FIGURE 7-1. The exact location of each sample point is specifically listed on FIGURE 7-2 and FIGURE 7-3. The background plot and sample collection locations were approved by the New Mexico Environmental Improvement Division in a Land Treatment Demonstration Permit that was issued to Giant Refining Company on December 22, 1986.

It was Giant's plan to use equivalent vertical depths for background and sample comparisons. However, many of the individual sample points (1-2 foot, 2-3 foot, 3-4 foot, and 4-5 foot) for background collection was composited into one (1) sample for each of the two (2) sampling events. This allowed only two (2) samples to be used for calculating averages and tolerance limits. It is generally understood that a minimum of four (4) sets of analysis should be used to calculate background averages.

To achieve this goal, Giant combined the background analytical for each metal from all samples ranging in vertical depths of zero (0) to five (5) feet. These background averages were then compared to the results of all samples collected for the RFI samples that were in the zero (0) to five (5) foot interval range. Averages and tolerance limits were calculated on the background samples from the five (5) to six (6) foot intervals. These averages were used for statistical comparisons of all remaining RFI samples greater than five (5) feet in depth.

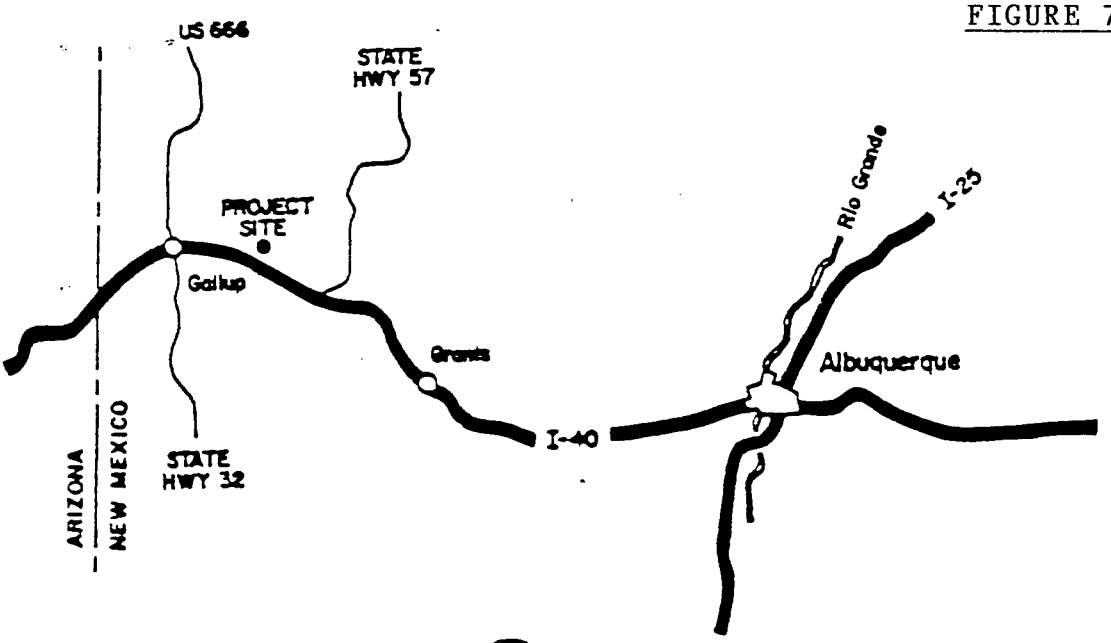
There were no background calculations computed for antimony, cadmium, mercury and selenium as all the original data was below the detection limits for each of these metals. However, there were some analytical results above detection limits for these metals. Section 7.3 lists all results that are greater than detection limits for each of these four (4) metals.

The background data for beryllium at the zero (0) to five (5) foot level is somewhat different as all analytical parameters equaled one (1). As a result, the upper tolerance limit is one (1) and there is no coefficient of variance.

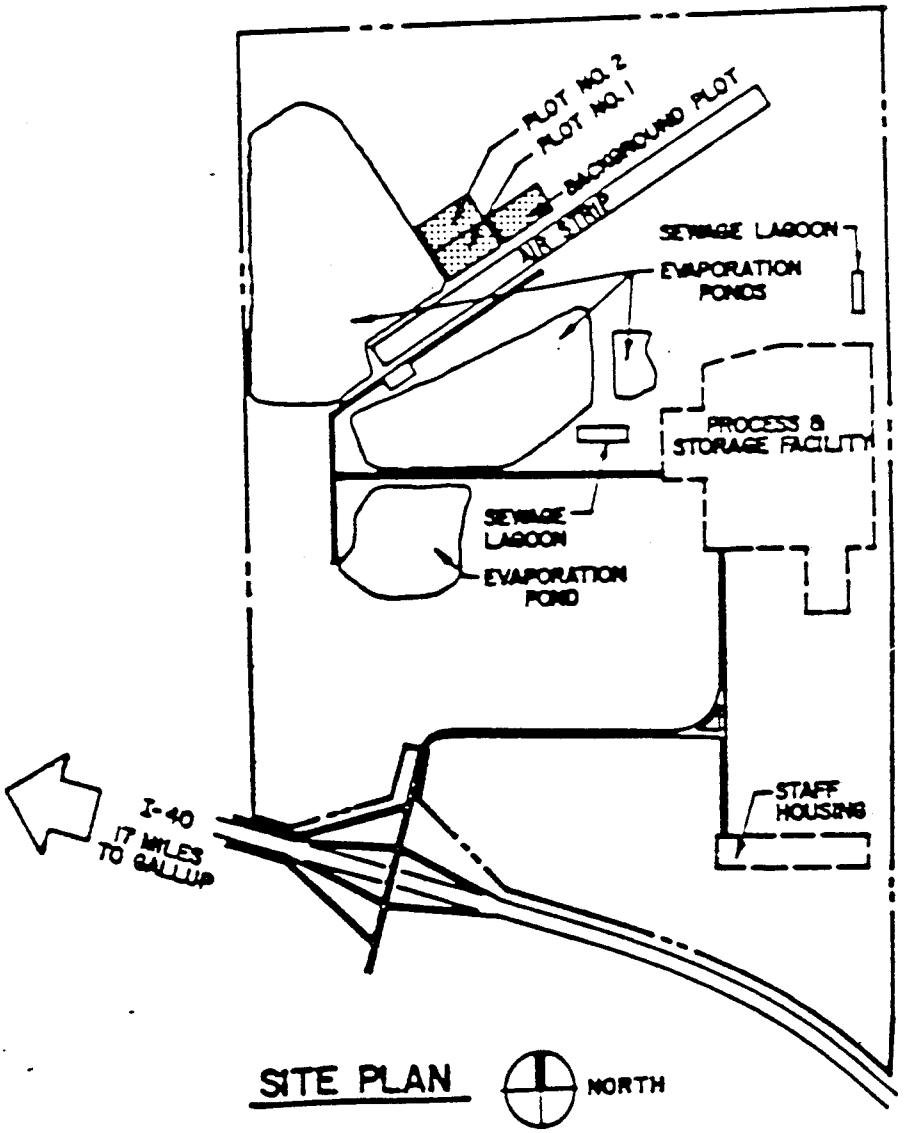
The background values for lead at the five (5) to six (6) foot level was calculated from the results of the April 28, 1987

sampling event. All lead analysis from this sample depth for the April 4 and 5, 1988 sampling event was reported as non detectable at a detection limit of 10 mg/kg.

FIGURE 7-1



VICINITY MAP NORTH



SITE PLAN NORTH

FIGURE 2.0

Lockwood, Andrews & Newnam, Inc.

GIANT REFINING COMPANY - GALLUP, NM
LAND TREATMENT DEMONSTRATION
VICINITY & SITE PLAN

FIGURE 7-2

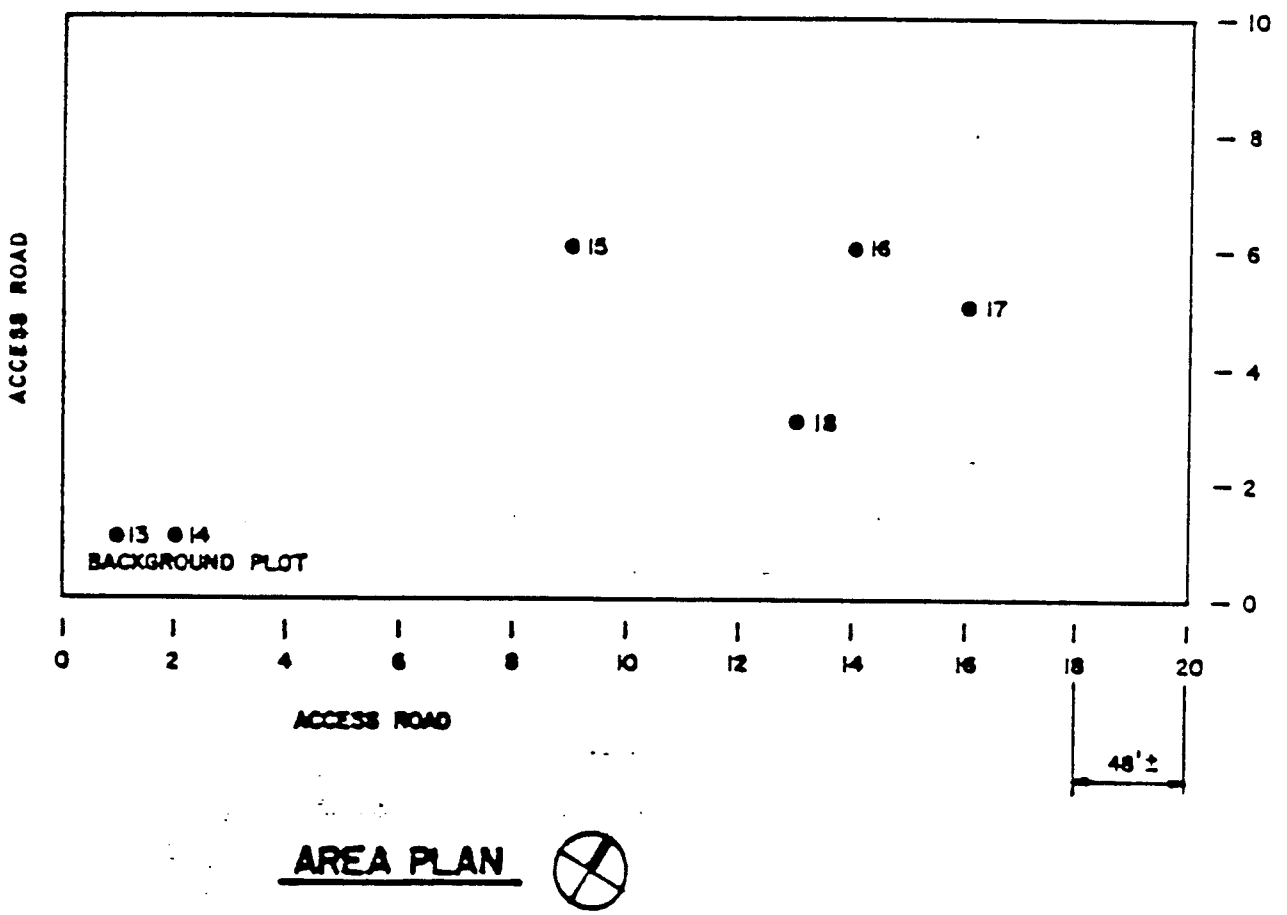
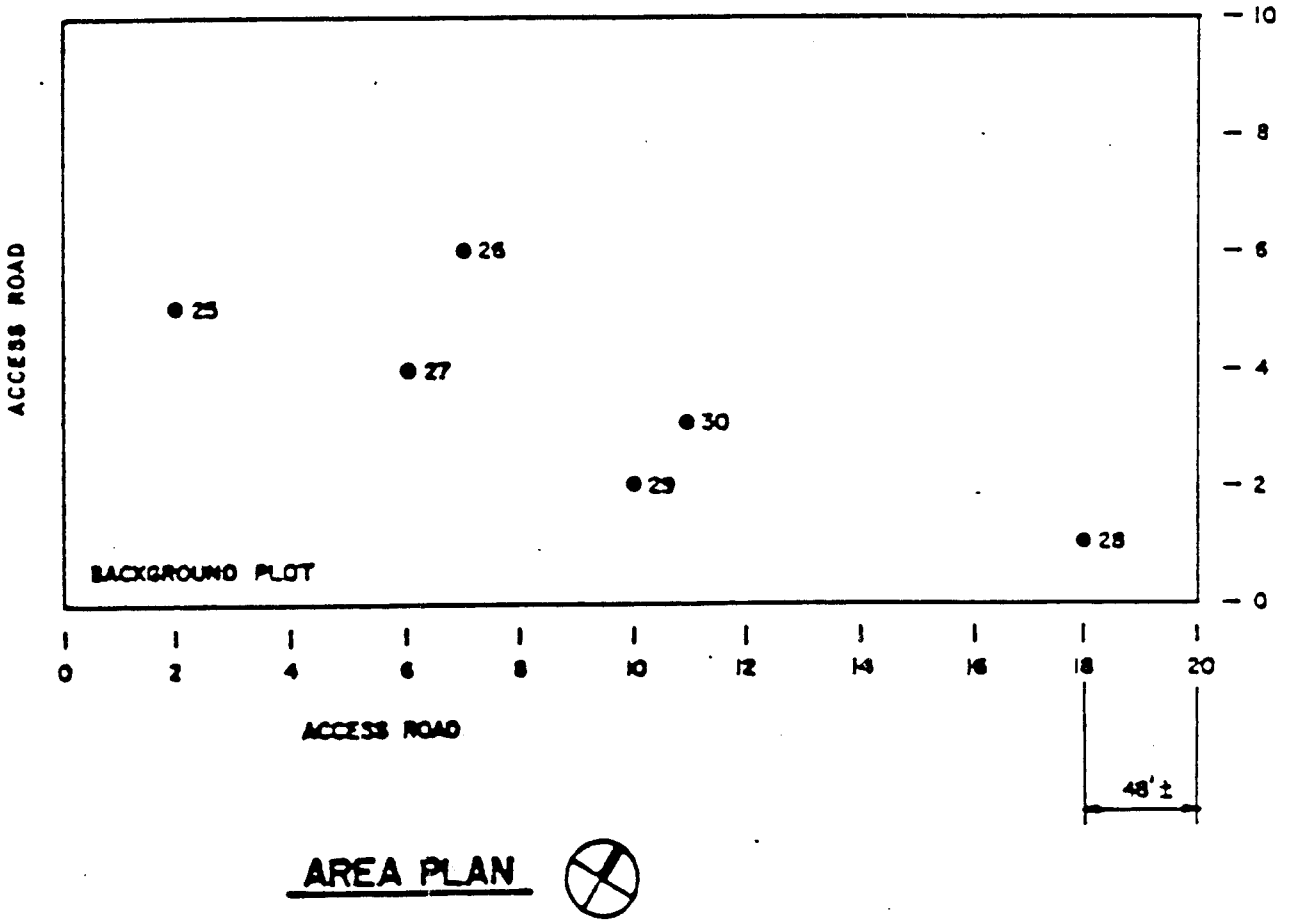


FIGURE 3.2

GIANT REFINING COMPANY-GALLUP, NM
LAND TREATMENT DEMONSTRATION
SAMPLE LOCATIONS-PRE DEMO EVENT, APR '87

Lockwood, Andrews & Newnam, Inc.

FIGURE 7-3



AREA PLAN

FIGURE 3.7

GIANT REFINING COMPANY-GALLUP, NM
LAND TREATMENT DEMONSTRATION
SAMPLE LOCATIONS-EVENT NO.5, APR '88

Lockwood, Andrews & Newnam, Inc.

TABLE 7-1

First sampling trip
after application
4-28-87

Background Plot Data

METALS	zone	0-1	0-1	1-2	2-3	3-4	4-5	5-6	5-6	5-6	5-6	5-6	5-6
	sample #	0745	0925	0750	0755	0800	805	810	0820	0900	0940	1035	1130
	comp holes	13-15	16-18	13-18	13-18	13-18	13-18	13	14	15	16	17	17
TOTAL METALS, mg/kg													
ANTIMONY		nd	nd					nd	nd	nd	nd	nd	nd
ARSENIC		3.8	4.4					6.2	5.8	7	6	2.8	7.2
BARIUM		300	250	280	230	300	370	180	280	250	170	320	280
BERYLLIUM		1	1					1.3	1.2	1.3	1	0.8	1.3
CADMIUM		nd	nd					nd	nd	nd	0.5	nd	nd
CHROMIUM		7	7	3	5	5	6	7	4	7	3	3	5
COBALT		2.9	3.7					4	2.1	3.7	2.2	0.5	2.6
COPPER		4.4	4.1					5.7	4.6	5.5	4.7	2.9	5.4
LEAD		12	13	9	11	9	11	12	11	12	9	9	10
MERCURY		0.06	nd					nd	nd	nd	nd	nd	nd
NICKEL		9	9					10	7	10	5	7	9
POTASSIUM		2100	2900					1700	1600	1700	1000	700	1500
SELENIUM		nd	nd					nd	nd	nd	nd	nd	nd
VANADIUM		13	15					16	13	15	11	8.7	13
ZINC		18	15	9	12	12	13	14	12	15	9	8	13

TABLE 7-2

Fifth sampling trip
after application
4-5-88 and 4-6-88

Background Plot Data

METALS	zone	0-1	0-1	1-2	2-3	3-4	4-5	5-6	5-6	5-6	5-6	5-6	5-6
	sample #	3701	3801	3912	4023	4134	4245	4356	4456	4556	4656	4756	4856
	comp holes	25-27	28-30	25-30	25-30	25-30	25-30	25	26	27	28	29	30
TOTAL METALS, mg/kg													
ANTIMONY		nd	nd					nd	nd	nd	nd	nd	nd
ARSENIC		0.5	0.4					0.6	nd	nd	0.6	1.1	nd
BARIUM		300	300	280	300	380	290	270	330	270	260	220	270
BERYLLIUM		1	1					1.1	1.2	1.2	1.3	1.2	0.8
CADMIUM		nd	nd					nd	nd	nd	nd	nd	nd
CHROMIUM		6	5	4	4	4	4	4	5	4	4	3	4
COBALT		3	2					2	3	3	3	3	2
COPPER		4	3					4	6	5	5	5	4
LEAD		12	10	11	12	1	10	nd	nd	nd	nd	nd	nd
MERCURY		nd	nd					nd	nd	nd	nd	nd	nd
NICKEL		8	7					7	9	8	8	7	6
POTASSIUM		1400	1400					1300	1300	1300	1400	1100	1300
SELENIUM		nd	nd					nd	nd	nd	nd	nd	nd
VANADIUM		13	11					13	12	11	13	12	13
ZINC		16	12	11	11	10	11	10	12	11	11	10	9

Statistical Analysis.

The statistical analysis is concerned with the problem of comparing observations of the concentrations of metals from compliance data with observations of concentrations from background data in order to determine if the concentrations of metals from the compliance data exceed, in a statistically significant fashion, the concentrations from the background data. The primary method used is that of the construction of a *tolerance interval* and the use of the resulting *upper tolerance limit*. The analysis was carried out in the following way:

1. The background data consisted, for each of the eleven metals analyzed, of from four to twelve values at each of two depths.

2. For each metal, at each of the two depths, the (one-sided) tolerance interval was constructed using the following technique:

   a) Calculate the mean, $\overline{X}$, and the standard deviation, SD, from the background data.

   b) Construct the one-sided upper tolerance limit as $TL = \overline{X} + KS$, where K is the one-sided normal tolerance factor found in Table 1.

   c) The tolerance interval is the interval [0, TL]. This interval will contain, with 95% confidence, 95% of random observations from the same distribution as the background data.

3. The observations forming the compliance data (for the same metal at the same depth) are now compared, one by one, with the upper tolerance limit, TL, found above. If an observation exceeds TL, this is interpreted as statistically significant evidence that the observation is from a distribution with a higher concentration of the metal and that, therefore, contamination has occured.

SECTION 7.3

CONDENSED ANALYTICAL AND DISCUSSIONS FOR ANTIMONY, CADMIUM, MERCURY AND SELENIUM

As indicated in Section 7.1 there was no background calculation or statistical comparisons computed for antimony, cadmium, mercury or selenium. This was a result of the background analytical being non-detectable (less than detection limits) for each of these metals. However, some of the samples did indicate analytical results at levels greater than detection limits. The following tables lists all samples with analytical results which exceeds the detection limits of the background samples.

RFI06 TANK FARM

No Analytical Applicable

RFI08-RAILROAD RACK LAGOON

Sample #	Metal	Units	Result	Sample Detection Limit
05V5.0	Cadmium	mg/kg	0.70	0.50
07V4.5	Cadmium	mg/kg	0.99	0.50

Antimony, mercury and selenium was not detected in any of the samples for this SWMU. The results for cadmium are very low and do not indicate any potential contamination.

RFI09 INACTIVE LAND TREATMENT AREA AND DRAINAGE DITCH

No Analytical Applicable

RFI10-TWO SLUDGE PITS

Sample #	Metal	Units	Result	Sample Detection Limit
01V3.0	Cadmium	mg/kg	0.70	0.50
03V12.5	Cadmium	mg/kg	0.73	0.50
04V3.0	Cadmium	mg/kg	0.56	0.50
04V6.0	Mercury	mg/kg	1.30	0.10
05V6.0	Cadmium	mg/kg	1.50	0.50
05V6.0	Mercury	mg/kg	2.90	0.69

Antimony and selenium was not detected in any of the samples for this SWMU. Cadmium and mercury was detected at various levels in several of the samples however, it appears the six (6) foot sample depths of samples 04 and 05 are the only areas of concern for these four metals.

Notes on the Statistical Analysis.

1. In order to construct the upper tolerance limit, the backgound data is assumed to be approximately normally distributed. This assumption was checked by calculating the coefficient of variation (CV) for each of the background data sets. If this value exceeds 1, then that fact indicates non-normality. In none of the data sets analyzed did the coefficient of variation exceed 1. It was therefore assumed that the values observed in the background wells were normally distributed. No other tests of normality were carried out.

2. If the standard deviation for the backgound data is zero, (i.e., all values are the same), then the tolerance interval approach is not particulary useful. In that case the upper tolerance limit is identical to the common value of the background data values and any observation coming from the compliance wells which exceeds that upper tolerance limit must be taken as evidence of contamination. This was the situation for beryllium at the shallow depth; the background data consisted of four values, all equal to 1 mg/kg. For this one data set an analysis of variance was also carried out; this test indicated no statistically significant difference in the concentrations of beryllium in the background data and the compliance data, even though many of the individual values from the compliance wells indicated contamination using the tolerance interval approach.

3. No detectable amounts of arsenic, cadmium, mercury or selenium were found in the background. Therefore, no tests were carried out for these elements.

4. The analytical results reported under the sample data column is reported in mg/kg.

Background Data for Arsenic: 0-5 foot level

Data: 3.8, 4.4, 0.5, 0.4
Mean: 2.27
SD: 1.84
The Upper Tolerance Limit = 11.73
The Coefficient of Variance = 0.81

Background Data for Arsenic: 5-6 foot level

Data: 6.2, 5.8, 7, 6, 2.8, 7.2, 0.6, 0.6, 1.1
Mean: 4.14
SD: 2.67
The Upper Tolerance Limit = 12.23
The Coefficient of Variance = 0.64

Background Data for Barium: 0-5 foot level

Data: 300, 250, 280, 230, 300, 370, 300, 300, 280, 300, 380, 290
Mean: 298.33
SD: 40.38
The Upper Tolerance Limit = 408.81
The Coefficient of Variance = 0.14

Background Data for Barium: 5-6 foot level

Data: 180, 280, 250, 170, 320, 280, 270, 330, 270, 260, 220, 270
Mean: 258.33
SD: 46.34
The Upper Tolerance Limit = 385.11
The Coefficient of Variance = 0.18

Background Data for Beryllium: 0-5 foot level

Data: 1, 1, 1, 1
Mean: 1.00
SD: 0.00
The Upper Tolerance Limit = 1.00
The Coefficient of Variance = 0.00

Background Data for Beryllium: 5-6 foot level

Data: 1.3, 1.2, 1.3, 1, 0.8, 1.3, 1.1, 1.2, 1.2, 1.3, 1.2, 0.8
Mean: 1.14
SD: 0.18
The Upper Tolerance Limit = 1.62
The Coefficient of Variance = 0.15

Background Data for Chromium: 0-5 foot level

Data: 7, 7, 3, 5, 5, 6, 6, 5, 4, 4, 4, 4
Mean: 5.00
SD: 1.22
The Upper Tolerance Limit = 8.35
The Coefficient of Variance = 0.24

Background Data for Chromium: 5-6 foot level

Data: 7, 4, 7, 3, 3, 5, 4, 5, 4, 4, 3, 4
Mean: 4.42
SD: 1.32
The Upper Tolerance Limit = 8.03
The Coefficient of Variance = 0.30

Background Data for Cobalt: 0-5 foot level

Data: 2.9, 3.7, 3, 2
Mean: 2.90
SD: 0.60
The Upper Tolerance Limit = 6.01
The Coefficient of Variance = 0.21

Background Data for Cobalt: 5-6 foot level

Data: 4, 2.1, 3.7, 2.2, 0.5, 2.6, 2, 3, 3, 3, 3, 2
Mean: 2.59
SD: 0.88
The Upper Tolerance Limit = 5.01
The Coefficient of Variance = 0.34

Background Data for Copper: 0-5 foot level

Data: 4.4, 4.1, 4, 3
Mean: 3.88
SD: 0.53
The Upper Tolerance Limit = 6.58
The Coefficient of Variance = 0.14

Background Data for Copper: 5-6 foot level

Data: 5.7, 4.6, 5.5, 4.7, 2.9, 5.4, 4, 6, 5, 5, 5, 4
Mean: 4.82
SD: 0.82
The Upper Tolerance Limit = 7.07
The Coefficient of Variance = 0.17

Background Data for Lead: 0-5 foot level

Data: 12, 13, 9, 11, 9, 11, 12, 10, 11, 12, 1, 10
Mean: 10.08
SD: 2.98
The Upper Tolerance Limit = 18.25
The Coefficient of Variance = 0.30

Background Data for Lead: 5-6 foot level

Data: 12, 11, 12, 9, 9, 10
Mean: 10.50
SD: 1.26
The Upper Tolerance Limit = 15.16
The Coefficient of Variance = 0.12

Background Data for Nickel: 0-5 foot level

Data: 9, 9, 8, 7
Mean: 8.25
SD: 0.83
The Upper Tolerance Limit = 12.52
The Coefficient of Variance = 0.10

Background Data for Nickel: 5-6 foot level

Data: 10, 7, 10, 5, 7, 9, 7, 9, 8, 8, 7, 6
Mean: 7.75
SD: 1.48
The Upper Tolerance Limit = 11.80
The Coefficient of Variance = 0.19

Background Data for Potassium: 0-5 foot level

Data: 2100, 2900, 1400, 1400
Mean: 1950.00
SD: 618.47
The Upper Tolerance Limit = 5132.01
The Coefficient of Variance = 0.32

Background Data for Potassium: 5-6 foot level

Data: 1700, 1600, 1700, 1000, 700, 1500, 1300, 1300, 1300, 1400
1100, 1300
Mean: 1325.00
SD: 280.25
The Upper Tolerance Limit = 2091.77
The Coefficient of Variance = 0.21

Background Data for Vanadium: 0-5 foot level

Data: 13, 15, 13, 11
Mean: 13.00
SD: 1.41
The Upper Tolerance Limit = 20.28
The Coefficient of Variance = 0.11

Background Data for Vanadium: 5-6 foot level

Data: 16, 13, 15, 11, 8.7, 13, 13, 12, 11, 11, 10, 9
Mean: 11.89
SD: 2.14
The Upper Tolerance Limit = 17.74
The Coefficient of Variance = 0.18

Background Data for Zinc: 0-5 foot level

Data: 18, 15, 9, 12, 12, 13, 16, 12, 11, 11, 10, 11
Mean: 12.50
SD: 2.50
The Upper Tolerance Limit = 19.34
The Coefficient of Variance = 0.20

Background Data for Zinc: 5-6 foot level

Data: 14, 12, 15, 9, 8, 13, 10, 12, 11, 11, 10, 9
Mean: 11.17
SD: 2.03
The Upper Tolerance Limit = 16.73
The Coefficient of Variance = 0.18

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Analysis of Variance for Beryllium (0 - 5 feet)

Background Data:

1.0	1.0	1.0	1.0

Data from Railroad Rack Lagoon:

1.0	1.0	3.0	0.8	0.9	0.6	1.0	0.8
0.9	1.1	1.1	1.0	1.2	0.9	1.1	0.8
0.9	0.8	0.9					

Data from Inactive Land Treatment Area and Drainage Ditch:

1.0	0.9	1.3	1.2	0.7	1.0	0.9	1.3
0.9	0.9	0.7					

Data from Sludge Pits:

1.2	0.8	0.8	1.1	1.1	0.6	1.0	0.7
1.0	1.1	1.0	0.9	1.0	0.7	0.9	0.8
0.9	0.9	0.7					

---------- Statistical Results Follow ----------

SS_Wells = 0.20
SS_Total = 5.60
SS_Error = 5.40
MS_Wells = 0.07
MS_Error = 0.11

Degrees of freedom: v1 = 3, v2 = 49
The calculated F-value is: F = 0.62

The tabulated F critical value is 2.800

Since 0.62 < 2.800 the test indicates no statistically significant difference among the wells.

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RFI#	METAL	SAMPLE DATA	NOTE
RFI0601a0.0	Lead	14.6	Within the tolerance limit.
	Nickel	5.3	Within the tolerance limit.
RFI0601a3.5	Lead	16.6	Within the tolerance limit.
	Nickel	6.6	Within the tolerance limit.
RFI0601a7.0	Lead	13.0	Within the tolerance limit.
	Nickel	nd	Within the tolerance limit.
RFI0602v0.0	Lead	nd	Within the tolerance limit.
	Nickel	nd	Within the tolerance limit.
RFI0602v3.5	Lead	9.5	Within the tolerance limit.
	Nickel	4.6	Within the tolerance limit.
RFI0602v7.0	Lead	nd	Within the tolerance limit.
	Nickel	nd	Within the tolerance limit.
RFI0603a0.0	Lead	27.7	Exceeds the tolerance limit by 51.8%.
	Nickel	nd	Within the tolerance limit.
RFI0603a3.5	Lead	6.5	Within the tolerance limit.
	Nickel	nd	Within the tolerance limit.
RFI0604v0.0	Lead	nd	Within the tolerance limit.
	Nickel	nd	Within the tolerance limit.
RFI0604v3.5	Lead	nd	Within the tolerance limit.
	Nickel	nd	Within the tolerance limit.
RFI0604v7.0	Lead	nd	Within the tolerance limit.
	Nickel	nd	Within the tolerance limit.
RFI0605a0.0	Lead	138	Exceeds the tolerance limit by 656.2%.
	Nickel	nd	Within the tolerance limit.
RFI0605a3.5	Lead	nd	Within the tolerance limit.
	Nickel	nd	Within the tolerance limit.
RFI0605a7.0	Lead	nd	Within the tolerance limit.
	Nickel	nd	Within the tolerance limit.
RFI0606v0.0	Lead	28.5	Exceeds the tolerance limit by 56.2%.
	Nickel	nd	Within the tolerance limit.
RFI0606v3.5	Lead	nd	Within the tolerance limit.
	Nickel	nd	Within the tolerance limit.

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RFI#	METAL	SAMPLE DATA	NOTE
RFI0606v7.0	Lead	7.0	Within the tolerance limit.
	Nickel	nd	Within the tolerance limit.
RFI0607a0.0	Lead	nd	Within the tolerance limit.
	Nickel	nd	Within the tolerance limit.
RFI0607a3.5	Lead	nd	Within the tolerance limit.
	Nickel	nd	Within the tolerance limit.
RFI0607a7.0	Lead	7.0	Within the tolerance limit.
	Nickel	6.0	Within the tolerance limit.
RFI0608v0.0	Lead	23.1	Exceeds the tolerance limit by 26.6%.
	Nickel	nd	Within the tolerance limit.
RFI0608v3.5	Lead	5.3	Within the tolerance limit.
	Nickel	nd	Within the tolerance limit.
RFI0608v7.0	Lead	14.2	Within the tolerance limit.
	Nickel	9.7	Within the tolerance limit.
RFI0609a0.0	Lead	10.6	Within the tolerance limit.
	Nickel	4.5	Within the tolerance limit.
RFI0609a3.5	Lead	8.0	Within the tolerance limit.
	Nickel	6.3	Within the tolerance limit.
RFI0609a7.0	Lead	8.3	Within the tolerance limit.
	Nickel	4.3	Within the tolerance limit.
RFI0610v0.0	Lead	129	Exceeds the tolerance limit by 606.8%.
	Nickel	15.2	Exceeds the tolerance limit by 21.4%.
RFI0610v3.5	Lead	nd	Within the tolerance limit.
	Nickel	nd	Within the tolerance limit.
RFI0610v7.0	Lead	10.3	Within the tolerance limit.
	Nickel	5.1	Within the tolerance limit.
RFI0611a0.0	Lead	44.6	Exceeds the tolerance limit by 144.4%.
	Nickel	nd	Within the tolerance limit.
RFI0611a3.5	Lead	21.4	Exceeds the tolerance limit by 17.3%.
	Nickel	6.2	Within the tolerance limit.
RFI0611a7.0	Lead	23.9	Exceeds the tolerance limit by 57.6%.
	Nickel	5.5	Within the tolerance limit.

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RFI#	METAL	SAMPLE DATA	NOTE
RFI0612v0.0	Lead	736	Exceeds the tolerance limit by 3932.9%.
	Nickel	41.3	Exceeds the tolerance limit by 230.0%.
RFI0612v3.5	Lead	11	Within the tolerance limit.
	Nickel	4.4	Within the tolerance limit.
RFI0612v7.0	Lead	9.4	Within the tolerance limit.
	Nickel	nd	Within the tolerance limit.
RFI0613a0.0	Lead	nd	Within the tolerance limit.
	Nickel	nd	Within the tolerance limit.
RFI0613d0.0	Lead	nd	Within the tolerance limit.
	Nickel	nd	Within the tolerance limit.
RFI0613a3.5	Lead	nd	Within the tolerance limit.
	Nickel	nd	Within the tolerance limit.
RFI0613a7.0	Lead	5.2	Within the tolerance limit.
	Nickel	nd	Within the tolerance limit.
RFI0614v0.0	Lead	57.4	Exceeds the tolerance limit by 214.5%.
	Nickel	10.3	Within the tolerance limit.
RFI0614v3.5	Lead	9.0	Within the tolerance limit.
	Nickel	5	Within the tolerance limit.
RFI0614v7.0	Lead	12	Within the tolerance limit.
	Nickel	7.3	Within the tolerance limit.
RFI0615a0.0	Lead	17	Within the tolerance limit.
	Nickel	nd	Within the tolerance limit.
RFI0615a3.5	Lead	6.7	Within the tolerance limit.
	Nickel	6.1	Within the tolerance limit.
RFI0615a7.0	Lead	nd	Within the tolerance limit.
	Nickel	nd	Within the tolerance limit.
RFI0616v0.0	Lead	238	Exceeds the tolerance limit by 1204.1%.
	Nickel	32.9	Exceeds the tolerance limit by 162.9%.
RFI0616v3.5	Lead	301	Exceeds the tolerance limit by 1549.3%.
	Nickel	58.2	Exceeds the tolerance limit by 365.0%.
RFI0616v7.0	Lead	55.3	Exceeds the tolerance limit by 264.7%.
	Nickel	6.5	Within the tolerance limit.

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RFI#	METAL	SAMPLE DATA	NOTE
RFI0617a0.0	Lead	nd	Within the tolerance limit.
	Nickel	nd	Within the tolerance limit.
RFI0617a3.5	Lead	nd	Within the tolerance limit.
	Nickel	nd	Within the tolerance limit.
RFI0617a7.0	Lead	nd	Within the tolerance limit.
	Nickel	nd	Within the tolerance limit.
RFI0618v0.0	Lead	14.8	Within the tolerance limit.
	Nickel	7.1	Within the tolerance limit.
RFI0618v3.5	Lead	12.3	Within the tolerance limit.
	Nickel	nd	Within the tolerance limit.
RFI0618v7.0	Lead	21.2	Exceeds the tolerance limit by 39.8%.
	Nickel	nd	Within the tolerance limit.
RFI0619a0.0	Lead	19.1	Exceeds the tolerance limit by 4.7%.
	Nickel	9.6	Within the tolerance limit.
RFI0619a3.5	Lead	nd	Within the tolerance limit.
	Nickel	nd	Within the tolerance limit.
RFI0619a7.0	Lead	8	Within the tolerance limit.
	Nickel	7.1	Within the tolerance limit.
RFI0820v0.0	Lead	21.6	Exceeds the tolerance limit by 18.4%.
	Nickel	49.8	Exceeds the tolerance limit by 297.9%.
RFI0820v3.5	Lead	9.9	Within the tolerance limit.
	Nickel	4.9	Within the tolerance limit.
RFI0820v7.0	Lead	7.8	Within the tolerance limit.
	Nickel	6.8	Within the tolerance limit.

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RFI#	METAL	SAMPLE DATA	NOTE
RFI0801a5.0	Arsenic	nd	Within the tolerance limit.
	Barium	275	Within the tolerance limit.
	Beryllium	.97	Within the tolerance limit.
	Chromium	7.9	Within the tolerance limit.
	Cobalt	2.7	Within the tolerance limit.
	Copper	4.5	Within the tolerance limit.
	Lead	7.1	Within the tolerance limit.
	Nickel	8.5	Within the tolerance limit.
	Potassium	1440	Within the tolerance limit.
	Vanadium	13.9	Within the tolerance limit.
	Zinc	12.6	Within the tolerance limit.
RFI0801a8.0	Arsenic	nd	Within the tolerance limit.
	Barium	432	Exceeds the tolerance limit by 12.2%.
	Beryllium	1.1	Within the tolerance limit.
	Chromium	10.9	Exceeds the tolerance limit by 35.8%.
	Cobalt	2.5	Within the tolerance limit.
	Copper	5.9	Within the tolerance limit.
	Lead	7.2	Within the tolerance limit.
	Nickel	10.1	Within the tolerance limit.
	Potassium	2480	Exceeds the tolerance limit by 18.6%.
	Vanadium	16.9	Within the tolerance limit.
	Zinc	16.4	Within the tolerance limit.
RFI0801a10.5	Arsenic	nd	Within the tolerance limit.
	Barium	308	Within the tolerance limit.
	Beryllium	1.1	Within the tolerance limit.
	Chromium	6.2	Within the tolerance limit.
	Cobalt	2.2	Within the tolerance limit.
	Copper	7	Within the tolerance limit.
	Lead	8.6	Within the tolerance limit.
	Nickel	7.3	Within the tolerance limit.
	Potassium	960	Within the tolerance limit.
	Vanadium	13.5	Within the tolerance limit.
	Zinc	11.2	Within the tolerance limit.
RFI0802a5.0	Arsenic	nd	Within the tolerance limit.
	Barium	232	Within the tolerance limit.
	Beryllium	1.1	Within the tolerance limit.
	Chromium	7.5	Within the tolerance limit.
	Cobalt	3.4	Within the tolerance limit.
	Copper	5.7	Within the tolerance limit.
	Lead	11.7	Within the tolerance limit.
	Nickel	8.8	Within the tolerance limit.
	Potassium	1400	Within the tolerance limit.
	Vanadium	15.0	Within the tolerance limit.
	Zinc	13.1	Within the tolerance limit.

RFI#	METAL	SAMPLE DATA	NOTE
RFI0802d5.0	Arsenic	nd	Within the tolerance limit.
	Barium	259	Within the tolerance limit.
	Beryllium	1.1	Within the tolerance limit.
	Chromium	8.7	Exceeds the tolerance limit by 8.4%.
	Cobalt	3.5	Within the tolerance limit.
	Copper	5.3	Within the tolerance limit.
	Lead	10.8	Within the tolerance limit.
	Nickel	9.7	Within the tolerance limit.
	Potassium	1610	Within the tolerance limit.
	Vanadium	15.9	Within the tolerance limit.
	Zinc	14.5	Within the tolerance limit.
RFI0802a8.0	Arsenic	nd	Within the tolerance limit.
	Barium	230	Within the tolerance limit.
	Beryllium	1.1	Within the tolerance limit.
	Chromium	9.5	Exceeds the tolerance limit by 18.3%.
	Cobalt	3	Within the tolerance limit.
	Copper	5.8	Within the tolerance limit.
	Lead	6.9	Within the tolerance limit.
	Nickel	9.2	Within the tolerance limit.
	Potassium	2390	Exceeds the tolerance limit by 14.3%.
	Vanadium	17.1	Within the tolerance limit.
	Zinc	16.9	Exceeds the tolerance limit by 1.0%.
RFI0802a10.5	Arsenic	nd	Within the tolerance limit.
	Barium	276	Within the tolerance limit.
	Beryllium	1.2	Within the tolerance limit.
	Chromium	8.4	Exceeds the tolerance limit by 4.6%.
	Cobalt	3.3	Within the tolerance limit.
	Copper	6.7	Within the tolerance limit.
	Lead	8.5	Within the tolerance limit.
	Nickel	9.3	Within the tolerance limit.
	Potassium	1350	Within the tolerance limit.
	Vanadium	15.8	Within the tolerance limit.
	Zinc	13.9	Within the tolerance limit.
RFI0803a5.0	Arsenic	nd	Within the tolerance limit.
	Barium	223	Within the tolerance limit.
	Beryllium	.9	Within the tolerance limit.
	Chromium	5.6	Within the tolerance limit.
	Cobalt	2.2	Within the tolerance limit.
	Copper	5.1	Within the tolerance limit.
	Lead	12.5	Within the tolerance limit.
	Nickel	6.7	Within the tolerance limit.
	Potassium	1320	Within the tolerance limit.
	Vanadium	14	Within the tolerance limit.
	Zinc	11.4	Within the tolerance limit.

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RFI#	METAL	SAMPLE DATA	NOTE
RFI0803a8.0	Arsenic	nd	Within the tolerance limit.
	Barium	242	Within the tolerance limit.
	Beryllium	1.2	Within the tolerance limit.
	Chromium	10.4	Exceeds the tolerance limit by 29.5%.
	Cobalt	3.6	Within the tolerance limit.
	Copper	8.9	Exceeds the tolerance limit by 25.8%.
	Lead	5.4	Within the tolerance limit.
	Nickel	9.7	Within the tolerance limit.
	Potassium	2820	Exceeds the tolerance limit by 34.8%.
	Vanadium	17.6	Within the tolerance limit.
	Zinc	17.3	Exceeds the tolerance limit by 3.4%.
RFI0803a10.5	Arsenic	nd	Within the tolerance limit.
	Barium	277	Within the tolerance limit.
	Beryllium	.67	Within the tolerance limit.
	Chromium	1.3	Within the tolerance limit.
	Cobalt	1.5	Within the tolerance limit.
	Copper	3.6	Within the tolerance limit.
	Lead	5.6	Within the tolerance limit.
	Nickel	4.7	Within the tolerance limit.
	Potassium	665	Within the tolerance limit.
	Vanadium	13.1	Within the tolerance limit.
	Zinc	8.3	Within the tolerance limit.
RFI0804v5.0	Arsenic	nd	Within the tolerance limit.
	Barium	291	Within the tolerance limit.
	Beryllium	.95	Within the tolerance limit.
	Chromium	6.4	Within the tolerance limit.
	Cobalt	2	Within the tolerance limit.
	Copper	4.8	Within the tolerance limit.
	Lead	13.3	Within the tolerance limit.
	Nickel	7.6	Within the tolerance limit.
	Potassium	980	Within the tolerance limit.
	Vanadium	15	Within the tolerance limit.
	Zinc	11.1	Within the tolerance limit.
RFI0804v8.0	Arsenic	nd	Within the tolerance limit.
	Barium	276	Within the tolerance limit.
	Beryllium	.95	Within the tolerance limit.
	Chromium	6.7	Within the tolerance limit.
	Cobalt	2.5	Within the tolerance limit.
	Copper	4.6	Within the tolerance limit.
	Lead	9.6	Within the tolerance limit.
	Nickel	7.5	Within the tolerance limit.
	Potassium	1030	Within the tolerance limit.
	Vanadium	15.5	Within the tolerance limit.
	Zinc	10.9	Within the tolerance limit.

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RFI#	METAL	SAMPLE DATA	NOTE
RFI0804v10.5	Arsenic	nd	Within the tolerance limit.
	Barium	216	Within the tolerance limit.
	Beryllium	1.1	Within the tolerance limit.
	Chromium	5.9	Within the tolerance limit.
	Cobalt	2.6	Within the tolerance limit.
	Copper	5.5	Within the tolerance limit.
	Lead	9.5	Within the tolerance limit.
	Nickel	6.8	Within the tolerance limit.
	Potassium	500	Within the tolerance limit.
	Vanadium	15.8	Within the tolerance limit.
	Zinc	11.4	Within the tolerance limit.
RFI0805v5.0	Arsenic	nd	Within the tolerance limit.
	Barium	302	Within the tolerance limit.
	Beryllium	.93	Within the tolerance limit.
	Chromium	6.2	Within the tolerance limit.
	Cobalt	2.1	Within the tolerance limit.
	Copper	4.7	Within the tolerance limit.
	Lead	9.3	Within the tolerance limit.
	Nickel	6.6	Within the tolerance limit.
	Potassium	60	Within the tolerance limit.
	Vanadium	14.8	Within the tolerance limit.
	Zinc	10.5	Within the tolerance limit.
RFI0805v8.0	Arsenic	nd	Within the tolerance limit.
	Barium	300	Within the tolerance limit.
	Beryllium	1.1	Within the tolerance limit.
	Chromium	8.3	Exceeds the tolerance limit by 3.4%.
	Cobalt	3.1	Within the tolerance limit.
	Copper	5.7	Within the tolerance limit.
	Lead	10.1	Within the tolerance limit.
	Nickel	9.1	Within the tolerance limit.
	Potassium	2110	Exceeds the tolerance limit by 0.9%.
	Vanadium	16.9	Within the tolerance limit.
	Zinc	15	Within the tolerance limit.
RFI0805v10.5	Arsenic	nd	Within the tolerance limit.
	Barium	226	Within the tolerance limit.
	Beryllium	.61	Within the tolerance limit.
	Chromium	3.8	Within the tolerance limit.
	Cobalt	1.5	Within the tolerance limit.
	Copper	3.8	Within the tolerance limit.
	Lead	6.1	Within the tolerance limit.
	Nickel	4.3	Within the tolerance limit.
	Potassium	610	Within the tolerance limit.
	Vanadium	11.5	Within the tolerance limit.
	Zinc	7.5	Within the tolerance limit.

RFI#	METAL	SAMPLE DATA	NOTE
RFI0806v5.0	Arsenic	nd	Within the tolerance limit.
	Barium	264	Within the tolerance limit.
	Beryllium	.77	Within the tolerance limit.
	Chromium	5.1	Within the tolerance limit.
	Cobalt	1.6	Within the tolerance limit.
	Copper	4.4	Within the tolerance limit.
	Lead	7.6	Within the tolerance limit.
	Nickel	5.7	Within the tolerance limit.
	Potassium	1140	Within the tolerance limit.
	Vanadium	13.2	Within the tolerance limit.
	Zinc	10	Within the tolerance limit.
RFI0806v8.0	Arsenic	nd	Within the tolerance limit.
	Barium	281	Within the tolerance limit.
	Beryllium	.99	Within the tolerance limit.
	Chromium	7.3	Within the tolerance limit.
	Cobalt	2.7	Within the tolerance limit.
	Copper	5.1	Within the tolerance limit.
	Lead	8.9	Within the tolerance limit.
	Nickel	8.5	Within the tolerance limit.
	Potassium	1830	Within the tolerance limit.
	Vanadium	15	Within the tolerance limit.
	Zinc	13.5	Within the tolerance limit.
RFI0806v10.5	Arsenic	nd	Within the tolerance limit.
	Barium	203	Within the tolerance limit.
	Beryllium	1.2	Within the tolerance limit.
	Chromium	7	Within the tolerance limit.
	Cobalt	3.5	Within the tolerance limit.
	Copper	6.3	Within the tolerance limit.
	Lead	10.8	Within the tolerance limit.
	Nickel	9.3	Within the tolerance limit.
	Potassium	1290	Within the tolerance limit.
	Vanadium	13.8	Within the tolerance limit.
	Zinc	13.2	Within the tolerance limit.
RFI0807v0.5	Arsenic	nd	Within the tolerance limit.
	Barium	258	Within the tolerance limit.
	Beryllium	1	Within the tolerance limit.
	Chromium	7.2	Within the tolerance limit.
	Cobalt	3.1	Within the tolerance limit.
	Copper	5.7	Within the tolerance limit.
	Lead	11.5	Within the tolerance limit.
	Nickel	9.3	Within the tolerance limit.
	Potassium	1370	Within the tolerance limit.
	Vanadium	14.7	Within the tolerance limit.
	Zinc	14.8	Within the tolerance limit.

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RFI#	METAL	SAMPLE DATA	NOTE
RFI0807v2.5	Arsenic	nd	Within the tolerance limit.
	Barium	257	Within the tolerance limit.
	Beryllium	.98	Within the tolerance limit.
	Chromium	7.2	Within the tolerance limit.
	Cobalt	2.9	Within the tolerance limit.
	Copper	5	Within the tolerance limit.
	Lead	9.9	Within the tolerance limit.
	Nickel	8.3	Within the tolerance limit.
	Potassium	1190	Within the tolerance limit.
	Vanadium	15	Within the tolerance limit.
	Zinc	12.5	Within the tolerance limit.
RFI0807v4.5	Arsenic	nd	Within the tolerance limit.
	Barium	604	Exceeds the tolerance limit by 47.7%.
	Beryllium	3	Exceeds the tolerance limit by 200.0%.
	Chromium	18	Exceeds the tolerance limit by 115.5%.
	Cobalt	7.8	Exceeds the tolerance limit by 29.8%.
	Copper	13.6	Exceeds the tolerance limit by 106.6%.
	Lead	27.6	Exceeds the tolerance limit by 51.2%.
	Nickel	20.9	Exceeds the tolerance limit by 67.0%.
	Potassium	3210	Within the tolerance limit.
	Vanadium	11.1	Within the tolerance limit.
	Zinc	30.3	Exceeds the tolerance limit by 56.7%.
RFI0808v0.5	Arsenic	nd	Within the tolerance limit.
	Barium	206	Within the tolerance limit.
	Beryllium	.83	Within the tolerance limit.
	Chromium	6.6	Within the tolerance limit.
	Cobalt	3.1	Within the tolerance limit.
	Copper	4.7	Within the tolerance limit.
	Lead	12.6	Within the tolerance limit.
	Nickel	8	Within the tolerance limit.
	Potassium	1470	Within the tolerance limit.
	Vanadium	13.2	Within the tolerance limit.
	Zinc	15.7	Within the tolerance limit.
RFI0808v2.5	Arsenic	nd	Within the tolerance limit.
	Barium	246	Within the tolerance limit.
	Beryllium	.91	Within the tolerance limit.
	Chromium	6.5	Within the tolerance limit.
	Cobalt	2.5	Within the tolerance limit.
	Copper	5.1	Within the tolerance limit.
	Lead	8.6	Within the tolerance limit.
	Nickel	7.4	Within the tolerance limit.
	Potassium	1060	Within the tolerance limit.
	Vanadium	14.1	Within the tolerance limit.
	Zinc	11.7	Within the tolerance limit.

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RFI#	METAL	SAMPLE DATA	NOTE
RFI0808v4.5	Arsenic	nd	Within the tolerance limit.
	Barium	210	Within the tolerance limit.
	Beryllium	.62	Within the tolerance limit.
	Chromium	4.5	Within the tolerance limit.
	Cobalt	1.5	Within the tolerance limit.
	Copper	3.3	Within the tolerance limit.
	Lead	8.6	Within the tolerance limit.
	Nickel	4.7	Within the tolerance limit.
	Potassium	704	Within the tolerance limit.
	Vanadium	12	Within the tolerance limit.
	Zinc	7.9	Within the tolerance limit.
RFI0809v0.5	Arsenic	nd	Within the tolerance limit.
	Barium	293	Within the tolerance limit.
	Beryllium	1	Within the tolerance limit.
	Chromium	8.5	Exceeds the tolerance limit by 1.8%.
	Cobalt	2.6	Within the tolerance limit.
	Copper	5.7	Within the tolerance limit.
	Lead	11.7	Within the tolerance limit.
	Nickel	8.4	Within the tolerance limit.
	Potassium	1580	Within the tolerance limit.
	Vanadium	16.2	Within the tolerance limit.
	Zinc	17.2	Within the tolerance limit.
RFI0809v2.5	Arsenic	nd	Within the tolerance limit.
	Barium	242	Within the tolerance limit.
	Beryllium	.83	Within the tolerance limit.
	Chromium	5.7	Within the tolerance limit.
	Cobalt	2.5	Within the tolerance limit.
	Copper	4.2	Within the tolerance limit.
	Lead	8.2	Within the tolerance limit.
	Nickel	7	Within the tolerance limit.
	Potassium	1050	Within the tolerance limit.
	Vanadium	13.3	Within the tolerance limit.
	Zinc	11	Within the tolerance limit.
RFI0809v4.5	Arsenic	nd	Within the tolerance limit.
	Barium	197	Within the tolerance limit.
	Beryllium	.86	Within the tolerance limit.
	Chromium	4.7	Within the tolerance limit.
	Cobalt	2.2	Within the tolerance limit.
	Copper	4.8	Within the tolerance limit.
	Lead	8.5	Within the tolerance limit.
	Nickel	3.3	Within the tolerance limit.
	Potassium	951	Within the tolerance limit.
	Vanadium	12.8	Within the tolerance limit.
	Zinc	8.9	Within the tolerance limit.

RFI#	METAL	SAMPLE DATA	NOTE
RFI0810v0.5	Arsenic	.51	Within the tolerance limit.
	Barium	277	Within the tolerance limit.
	Beryllium	1.1	Exceeds the tolerance limit by 10.0%.
	Chromium	5.5	Within the tolerance limit.
	Cobalt	2.1	Within the tolerance limit.
	Copper	5.4	Within the tolerance limit.
	Lead	10.1	Within the tolerance limit.
	Nickel	7.1	Within the tolerance limit.
	Potassium	980	Within the tolerance limit.
	Vanadium	11.8	Within the tolerance limit.
	Zinc	9.8	Within the tolerance limit.
RFI0810v2.5	Arsenic	nd	Within the tolerance limit.
	Barium	280	Within the tolerance limit.
	Beryllium	1.1	Exceeds the tolerance limit by 10.0%.
	Chromium	5.6	Within the tolerance limit.
	Cobalt	2.3	Within the tolerance limit.
	Copper	6	Within the tolerance limit.
	Lead	10.2	Within the tolerance limit.
	Nickel	7.8	Within the tolerance limit.
	Potassium	1000	Within the tolerance limit.
	Vanadium	11.7	Within the tolerance limit.
	Zinc	12	Within the tolerance limit.
RFI0810v4.5	Arsenic	nd	Within the tolerance limit.
	Barium	266	Within the tolerance limit.
	Beryllium	1	Within the tolerance limit.
	Chromium	3.8	Within the tolerance limit.
	Cobalt	1.4	Within the tolerance limit.
	Copper	5.2	Within the tolerance limit.
	Lead	7.7	Within the tolerance limit.
	Nickel	4.7	Within the tolerance limit.
	Potassium	837	Within the tolerance limit.
	Vanadium	10	Within the tolerance limit.
	Zinc	8.5	Within the tolerance limit.
RFI0811v0.5	Arsenic	.57	Within the tolerance limit.
	Barium	262	Within the tolerance limit.
	Beryllium	1.2	Exceeds the tolerance limit by 20.0%.
	Chromium	5.8	Within the tolerance limit.
	Cobalt	2.5	Within the tolerance limit.
	Copper	6.5	Within the tolerance limit.
	Lead	9.5	Within the tolerance limit.
	Nickel	7.7	Within the tolerance limit.
	Potassium	1550	Within the tolerance limit.
	Vanadium	12.8	Within the tolerance limit.
	Zinc	13.2	Within the tolerance limit.

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RFI#	METAL	SAMPLE DATA	NOTE
RFI0811d0.5	Arsenic	nd	Within the tolerance limit.
	Barium	176	Within the tolerance limit.
	Beryllium	.85	Within the tolerance limit.
	Chromium	4.8	Within the tolerance limit.
	Cobalt	2	Within the tolerance limit.
	Copper	4.4	Within the tolerance limit.
	Lead	6.4	Within the tolerance limit.
	Nickel	5.8	Within the tolerance limit.
	Potassium	831	Within the tolerance limit.
	Vanadium	10	Within the tolerance limit.
	Zinc	9.5	Within the tolerance limit.
RFI0811v2.5	Arsenic	nd	Within the tolerance limit.
	Barium	206	Within the tolerance limit.
	Beryllium	1.1	Exceeds the tolerance limit by 10.0%.
	Chromium	7.1	Within the tolerance limit.
	Cobalt	2.9	Within the tolerance limit.
	Copper	5.1	Within the tolerance limit.
	Lead	7.8	Within the tolerance limit.
	Nickel	8.2	Within the tolerance limit.
	Potassium	1310	Within the tolerance limit.
	Vanadium	13.1	Within the tolerance limit.
	Zinc	12.6	Within the tolerance limit.
RFI0811v4.5	Arsenic	nd	Within the tolerance limit.
	Barium	213	Within the tolerance limit.
	Beryllium	.75	Within the tolerance limit.
	Chromium	3.9	Within the tolerance limit.
	Cobalt	1.4	Within the tolerance limit.
	Copper	3.5	Within the tolerance limit.
	Lead	7	Within the tolerance limit.
	Nickel	4.4	Within the tolerance limit.
	Potassium	551	Within the tolerance limit.
	Vanadium	10	Within the tolerance limit.
	Zinc	7	Within the tolerance limit.
RFI0812v0.5	Arsenic	.53	Within the tolerance limit.
	Barium	244	Within the tolerance limit.
	Beryllium	.85	Within the tolerance limit.
	Chromium	6.1	Within the tolerance limit.
	Cobalt	1.9	Within the tolerance limit.
	Copper	4	Within the tolerance limit.
	Lead	15.6	Within the tolerance limit.
	Nickel	5.9	Within the tolerance limit.
	Potassium	747	Within the tolerance limit.
	Vanadium	12.5	Within the tolerance limit.
	Zinc	9.5	Within the tolerance limit.

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RFI#	METAL	SAMPLE DATA	NOTE
RFI0812v2.5	Arsenic	nd	Within the tolerance limit.
	Barium	159	Within the tolerance limit.
	Beryllium	.82	Within the tolerance limit.
	Chromium	4.5	Within the tolerance limit.
	Cobalt	1.9	Within the tolerance limit.
	Copper	4.4	Within the tolerance limit.
	Lead	7.8	Within the tolerance limit.
	Nickel	5.1	Within the tolerance limit.
	Potassium	728	Within the tolerance limit.
	Vanadium	8.9	Within the tolerance limit.
	Zinc	7.4	Within the tolerance limit.
RFI0812v4.5	Arsenic	nd	Within the tolerance limit.
	Barium	279	Within the tolerance limit.
	Beryllium	.92	Within the tolerance limit.
	Chromium	3.9	Within the tolerance limit.
	Cobalt	1.4	Within the tolerance limit.
	Copper	4.5	Within the tolerance limit.
	Lead	7.6	Within the tolerance limit.
	Nickel	5.2	Within the tolerance limit.
	Potassium	620	Within the tolerance limit.
	Vanadium	9.9	Within the tolerance limit.
	Zinc	7.8	Within the tolerance limit.
RFI0813v0.5	Arsenic	nd	Within the tolerance limit.
	Barium	260	Within the tolerance limit.
	Beryllium	1.1	Exceeds the tolerance limit by 10.0%.
	Chromium	6.8	Within the tolerance limit.
	Cobalt	2.7	Within the tolerance limit.
	Copper	5.3	Within the tolerance limit.
	Lead	11.5	Within the tolerance limit.
	Nickel	8	Within the tolerance limit.
	Potassium	1040	Within the tolerance limit.
	Vanadium	14.2	Within the tolerance limit.
	Zinc	12.3	Within the tolerance limit.
RFI0813v2.5	Arsenic	nd	Within the tolerance limit.
	Barium	237	Within the tolerance limit.
	Beryllium	.87	Within the tolerance limit.
	Chromium	5.7	Within the tolerance limit.
	Cobalt	2.1	Within the tolerance limit.
	Copper	4.2	Within the tolerance limit.
	Lead	8	Within the tolerance limit.
	Nickel	6.2	Within the tolerance limit.
	Potassium	793	Within the tolerance limit.
	Vanadium	11.9	Within the tolerance limit.
	Zinc	9.5	Within the tolerance limit.

RFI#	METAL	SAMPLE DATA	NOTE.
RFI0813v4.5	Arsenic	nd	Within the tolerance limit.
	Barium	183	Within the tolerance limit.
	Beryllium	.95	Within the tolerance limit.
	Chromium	5.1	Within the tolerance limit.
	Cobalt	2.2	Within the tolerance limit.
	Copper	4.9	Within the tolerance limit.
	Lead	7.6	Within the tolerance limit.
	Nickel	5.7	Within the tolerance limit.
	Potassium	1160	Within the tolerance limit.
	Vanadium	10.9	Within the tolerance limit.
	Zinc	9.3	Within the tolerance limit.
RFI0813d4.5	Arsenic	nd	Within the tolerance limit.
	Barium	218	Within the tolerance limit.
	Beryllium	.99	Within the tolerance limit.
	Chromium	5.9	Within the tolerance limit.
	Cobalt	2.2	Within the tolerance limit.
	Copper	5	Within the tolerance limit.
	Lead	7.1	Within the tolerance limit.
	Nickel	6.3	Within the tolerance limit.
	Potassium	1080	Within the tolerance limit.
	Vanadium	11.6	Within the tolerance limit.
	Zinc	9.8	Within the tolerance limit.
RFI0901v0.0	Arsenic	.86	Within the tolerance limit.
	Barium	316	Within the tolerance limit.
	Beryllium	.95	Within the tolerance limit.
	Chromium	13.9	Exceeds the tolerance limit by 66.4%.
	Cobalt	3.2	Within the tolerance limit.
	Copper	7.4	Exceeds the tolerance limit by 12.4%.
	Lead	13.4	Within the tolerance limit.
	Nickel	6.3	Within the tolerance limit.
	Potassium	1210	Within the tolerance limit.
	Vanadium	12.9	Within the tolerance limit.
	Zinc	19.7	Exceeds the tolerance limit by 1.9%.
RFI0901v3.0	Arsenic	nd	Within the tolerance limit.
	Barium	330	Within the tolerance limit.
	Beryllium	.88	Within the tolerance limit.
	Chromium	4.8	Within the tolerance limit.
	Cobalt	2.8	Within the tolerance limit.
	Copper	3.6	Within the tolerance limit.
	Lead	11.4	Within the tolerance limit.
	Nickel	5.2	Within the tolerance limit.
	Potassium	712	Within the tolerance limit.
	Vanadium	12.9	Within the tolerance limit.
	Zinc	6.9	Within the tolerance limit.

RFI#	METAL	SAMPLE DATA	NOTE
RFI0901v5.0	Arsenic	nd	Within the tolerance limit.
	Barium	332	Within the tolerance limit.
	Beryllium	1.1	Within the tolerance limit.
	Chromium	5.1	Within the tolerance limit.
	Cobalt	3.8	Within the tolerance limit.
	Copper	5.3	Within the tolerance limit.
	Lead	9.8	Within the tolerance limit.
	Nickel	5.7	Within the tolerance limit.
	Potassium	1400	Within the tolerance limit.
	Vanadium	14.1	Within the tolerance limit.
	Zinc	9.3	Within the tolerance limit.
RFI0901v7.0	Arsenic	nd	Within the tolerance limit.
	Barium	309	Within the tolerance limit.
	Beryllium	1.2	Within the tolerance limit.
	Chromium	5.4	Within the tolerance limit.
	Cobalt	4	Within the tolerance limit.
	Copper	5.7	Within the tolerance limit.
	Lead	13.2	Within the tolerance limit.
	Nickel	6.7	Within the tolerance limit.
	Potassium	963	Within the tolerance limit.
	Vanadium	14.7	Within the tolerance limit.
	Zinc	9.2	Within the tolerance limit.
RFI0902v0.0	Arsenic	nd	Within the tolerance limit.
	Barium	302	Within the tolerance limit.
	Beryllium	1.3	Exceeds the tolerance limit by 30.0%.
	Chromium	11.8	Exceeds the tolerance limit by 41.3%.
	Cobalt	5.8	Within the tolerance limit.
	Copper	8.1	Exceeds the tolerance limit by 23.1%.
	Lead	16.1	Within the tolerance limit.
	Nickel	11.4	Within the tolerance limit.
	Potassium	2110	Within the tolerance limit.
	Vanadium	20.1	Within the tolerance limit.
	Zinc	18.4	Within the tolerance limit.
RFI0902v3.0	Arsenic	nd	Within the tolerance limit.
	Barium	318	Within the tolerance limit.
	Beryllium	1.2	Exceeds the tolerance limit by 20.0%.
	Chromium	6.3	Within the tolerance limit.
	Cobalt	3.7	Within the tolerance limit.
	Copper	5.6	Within the tolerance limit.
	Lead	13.9	Within the tolerance limit.
	Nickel	6.8	Within the tolerance limit.
	Potassium	1220	Within the tolerance limit.
	Vanadium	16	Within the tolerance limit.
	Zinc	12.0	Within the tolerance limit.

RFI#	METAL	SAMPLE DATA	NOTE
RFI0902v5.0	Arsenic	nd	Within the tolerance limit.
	Barium	237	Within the tolerance limit.
	Beryllium	1.2	Within the tolerance limit.
	Chromium	7.2	Within the tolerance limit.
	Cobalt	4.4	Within the tolerance limit.
	Copper	5.7	Within the tolerance limit.
	Lead	13.4	Within the tolerance limit.
	Nickel	8.2	Within the tolerance limit.
	Potassium	1640	Within the tolerance limit.
	Vanadium	15.9	Within the tolerance limit.
	Zinc	12.3	Within the tolerance limit.
RFI0902v7.0	Arsenic	nd	Within the tolerance limit.
	Barium	262	Within the tolerance limit.
	Beryllium	.59	Within the tolerance limit.
	Chromium	2.3	Within the tolerance limit.
	Cobalt	2	Within the tolerance limit.
	Copper	nd	Within the tolerance limit.
	Lead	11.9	Within the tolerance limit.
	Nickel	nd	Within the tolerance limit.
	Potassium	nd	Within the tolerance limit.
	Vanadium	9.5	Within the tolerance limit.
	Zinc	5.7	Within the tolerance limit.
RFI0903v0.0	Arsenic	nd	Within the tolerance limit.
	Barium	214	Within the tolerance limit.
	Beryllium	.73	Within the tolerance limit.
	Chromium	4.9	Within the tolerance limit.
	Cobalt	1.6	Within the tolerance limit.
	Copper	4.5	Within the tolerance limit.
	Lead	6	Within the tolerance limit.
	Nickel	5.1	Within the tolerance limit.
	Potassium	991	Within the tolerance limit.
	Vanadium	10.1	Within the tolerance limit.
	Zinc	8.7	Within the tolerance limit.
RFI0903v3.0	Arsenic	nd	Within the tolerance limit.
	Barium	307	Within the tolerance limit.
	Beryllium	1	Within the tolerance limit.
	Chromium	6.1	Within the tolerance limit.
	Cobalt	2.1	Within the tolerance limit.
	Copper	4.8	Within the tolerance limit.
	Lead	8	Within the tolerance limit.
	Nickel	6.7	Within the tolerance limit.
	Potassium	955	Within the tolerance limit.
	Vanadium	13.1	Within the tolerance limit.
	Zinc	9.6	Within the tolerance limit.

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RFI#	METAL	SAMPLE DATA	NOTE
RFI0903v5.0	Arsenic	nd	Within the tolerance limit.
	Barium	334	Within the tolerance limit.
	Beryllium	1.2	Within the tolerance limit.
	Chromium	7.6	Within the tolerance limit.
	Cobalt	3.4	Within the tolerance limit.
	Copper	8.6	Exceeds the tolerance limit by 21.6%.
	Lead	9.9	Within the tolerance limit.
	Nickel	9.1	Within the tolerance limit.
	Potassium	1300	Within the tolerance limit.
	Vanadium	16.1	Within the tolerance limit.
	Zinc	13.4	Within the tolerance limit.
RFI0903v7.0	Arsenic	.58	Within the tolerance limit.
	Barium	224	Within the tolerance limit.
	Beryllium	1.1	Within the tolerance limit.
	Chromium	7.6	Within the tolerance limit.
	Cobalt	3.2	Within the tolerance limit.
	Copper	5.8	Within the tolerance limit.
	Lead	7.3	Within the tolerance limit.
	Nickel	8.2	Within the tolerance limit.
	Potassium	1860	Within the tolerance limit.
	Vanadium	14.9	Within the tolerance limit.
	Zinc	13.3	Within the tolerance limit.
RFI0904v0.0	Arsenic	2.1	Within the tolerance limit.
	Barium	406	Within the tolerance limit.
	Beryllium	.91	Within the tolerance limit.
	Chromium	42.3	Exceeds the tolerance limit by 406.5%.
	Cobalt	4.4	Within the tolerance limit.
	Copper	13.9	Exceeds the tolerance limit by 111.2%.
	Lead	29.7	Exceeds the tolerance limit by 62.7%.
	Nickel	10	Within the tolerance limit.
	Potassium	1250	Within the tolerance limit.
	Vanadium	16.4	Within the tolerance limit.
	Zinc	69.6	Exceeds the tolerance limit by 259.9%.
RFI0904v3.0	Arsenic	nd	Within the tolerance limit.
	Barium	275	Within the tolerance limit.
	Beryllium	1.3	Exceeds the tolerance limit by 30.0%.
	Chromium	6.7	Within the tolerance limit.
	Cobalt	4.1	Within the tolerance limit.
	Copper	6.5	Within the tolerance limit.
	Lead	13.8	Within the tolerance limit.
	Nickel	7.4	Within the tolerance limit.
	Potassium	1180	Within the tolerance limit.
	Vanadium	16.4	Within the tolerance limit.
	Zinc	11.1	Within the tolerance limit.

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RFI#	METAL	SAMPLE DATA	NOTE
RFI0904v5.0	Arsenic	nd	Within the tolerance limit.
	Barium	309	Within the tolerance limit.
	Beryllium	1.1	Within the tolerance limit.
	Chromium	5.2	Within the tolerance limit.
	Cobalt	3.4	Within the tolerance limit.
	Copper	5.2	Within the tolerance limit.
	Lead	12.4	Within the tolerance limit.
	Nickel	5.1	Within the tolerance limit.
	Potassium	983	Within the tolerance limit.
	Vanadium	12.8	Within the tolerance limit.
	Zinc	9.1	Within the tolerance limit.
RFI0904v7.0	Arsenic	nd	Within the tolerance limit.
	Barium	239	Within the tolerance limit.
	Beryllium	1.4	Within the tolerance limit.
	Chromium	8.1	Exceeds the tolerance limit by 0.9%.
	Cobalt	4.8	Within the tolerance limit.
	Copper	7.2	Exceeds the tolerance limit by 1.8%.
	Lead	16.4	Exceeds the tolerance limit by 8.1%.
	Nickel	7.8	Within the tolerance limit.
	Potassium	1560	Within the tolerance limit.
	Vanadium	18.1	Exceeds the tolerance limit by 2.1%.
	Zinc	14	Within the tolerance limit.
RFI0905v0.0	Arsenic	nd	Within the tolerance limit.
	Barium	285	Within the tolerance limit.
	Beryllium	1.2	Exceeds the tolerance limit by 20.0%.
	Chromium	8.1	Within the tolerance limit.
	Cobalt	4.6	Within the tolerance limit.
	Copper	5.5	Within the tolerance limit.
	Lead	14.9	Within the tolerance limit.
	Nickel	9.1	Within the tolerance limit.
	Potassium	1160	Within the tolerance limit.
	Vanadium	17.9	Within the tolerance limit.
	Zinc	12.1	Within the tolerance limit.
RFI0905v3.0	Arsenic	nd	Within the tolerance limit.
	Barium	418	Exceeds the tolerance limit by 2.2%.
	Beryllium	.77	Within the tolerance limit.
	Chromium	32.2	Exceeds the tolerance limit by 285.6%.
	Cobalt	5	Within the tolerance limit.
	Copper	11.9	Exceeds the tolerance limit by 80.8%.
	Lead	31	Exceeds the tolerance limit by 69.9%.
	Nickel	8.7	Within the tolerance limit.
	Potassium	1100	Within the tolerance limit.
	Vanadium	16.9	Within the tolerance limit.
	Zinc	55.6	Exceeds the tolerance limit by 187.5%.

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RFI#	METAL	SAMPLE DATA	NOTE
RFI0905v5.0	Arsenic	nd	Within the tolerance limit.
	Barium	333	Within the tolerance limit.
	Beryllium	.94	Within the tolerance limit.
	Chromium	6.1	Within the tolerance limit.
	Cobalt	3.5	Within the tolerance limit.
	Copper	3.5	Within the tolerance limit.
	Lead	13.7	Within the tolerance limit.
	Nickel	5.5	Within the tolerance limit.
	Potassium	825	Within the tolerance limit.
	Vanadium	15.5	Within the tolerance limit.
	Zinc	8.4	Within the tolerance limit.
RFI0905d5.0	Arsenic	nd	Within the tolerance limit.
	Barium	375	Within the tolerance limit.
	Beryllium	.91	Within the tolerance limit.
	Chromium	6.8	Within the tolerance limit.
	Cobalt	3.9	Within the tolerance limit.
	Copper	4.2	Within the tolerance limit.
	Lead	14.4	Within the tolerance limit.
	Nickel	6.9	Within the tolerance limit.
	Potassium	936	Within the tolerance limit.
	Vanadium	16.4	Within the tolerance limit.
	Zinc	10.1	Within the tolerance limit.
RFI0905v7.0	Arsenic	nd	Within the tolerance limit.
	Barium	313	Within the tolerance limit.
	Beryllium	1.3	Within the tolerance limit.
	Chromium	8.5	Exceeds the tolerance limit by 5.9%.
	Cobalt	4.5	Within the tolerance limit.
	Copper	6.4	Within the tolerance limit.
	Lead	12.8	Within the tolerance limit.
	Nickel	9.2	Within the tolerance limit.
	Potassium	1590	Within the tolerance limit.
	Vanadium	18.5	Exceeds the tolerance limit by 4.3%.
	Zinc	13.3	Within the tolerance limit.
RFI0906v0.0	Arsenic	1.7	Within the tolerance limit.
	Barium	289	Within the tolerance limit.
	Beryllium	.79	Within the tolerance limit.
	Chromium	7.8	Within the tolerance limit.
	Cobalt	2.3	Within the tolerance limit.
	Copper	14.3	Exceeds the tolerance limit by 117.3%.
	Lead	28.1	Exceeds the tolerance limit by 54.0%.
	Nickel	11.4	Within the tolerance limit.
	Potassium	989	Within the tolerance limit.
	Vanadium	14.5	Within the tolerance limit.
	Zinc	22.8	Exceeds the tolerance limit by 17.9%.

RFI#	METAL	SAMPLE DATA	NOTE
RFI0906v3.0	Arsenic	1.2	Within the tolerance limit.
	Barium	243	Within the tolerance limit.
	Beryllium	1.1	Exceeds the tolerance limit by 10.0%.
	Chromium	6.3	Within the tolerance limit.
	Cobalt	2.6	Within the tolerance limit.
	Copper	5.1	Within the tolerance limit.
	Lead	9.2	Within the tolerance limit.
	Nickel	7	Within the tolerance limit.
	Potassium	1110	Within the tolerance limit.
	Vanadium	14.5	Within the tolerance limit.
	Zinc	10.6	Within the tolerance limit.
RFI0906d3.0	Arsenic	nd	Within the tolerance limit.
	Barium	226	Within the tolerance limit.
	Beryllium	1.1	Exceeds the tolerance limit by 10.0%.
	Chromium	6.3	Within the tolerance limit.
	Cobalt	2.6	Within the tolerance limit.
	Copper	5.4	Within the tolerance limit.
	Lead	8.1	Within the tolerance limit.
	Nickel	7.2	Within the tolerance limit.
	Potassium	1120	Within the tolerance limit.
	Vanadium	14.2	Within the tolerance limit.
	Zinc	10.4	Within the tolerance limit.
RFI0906d5.0	Arsenic	nd	Within the tolerance limit.
	Barium	241	Within the tolerance limit.
	Beryllium	.97	Within the tolerance limit.
	Chromium	5.1	Within the tolerance limit.
	Cobalt	1.9	Within the tolerance limit.
	Copper	4.5	Within the tolerance limit.
	Lead	7.5	Within the tolerance limit.
	Nickel	5.3	Within the tolerance limit.
	Potassium	897	Within the tolerance limit.
	Vanadium	12.6	Within the tolerance limit.
	Zinc	8.4	Within the tolerance limit.
RFI0906d7.0	Arsenic	.53	Within the tolerance limit.
	Barium	319	Within the tolerance limit.
	Beryllium	.97	Within the tolerance limit.
	Chromium	4.1	Within the tolerance limit.
	Cobalt	1.7	Within the tolerance limit.
	Copper	4.9	Within the tolerance limit.
	Lead	8.1	Within the tolerance limit.
	Nickel	5	Within the tolerance limit.
	Potassium	838	Within the tolerance limit.
	Vanadium	13	Within the tolerance limit.
	Zinc	7.8	Within the tolerance limit.

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RFI#	METAL	SAMPLE DATA	NOTE
RFI0907v0.0	Arsenic	1.4	Within the tolerance limit.
	Barium	447	Exceeds the tolerance limit by 9.3%.
	Beryllium	.59	Within the tolerance limit.
	Chromium	102	Exceeds the tolerance limit by 1121.4%.
	Cobalt	1.2	Within the tolerance limit.
	Copper	10.5	Exceeds the tolerance limit by 59.5%.
	Lead	14	Within the tolerance limit.
	Nickel	6	Within the tolerance limit.
	Potassium	853	Within the tolerance limit.
	Vanadium	14.6	Within the tolerance limit.
	Zinc	157	Exceeds the tolerance limit by 711.8%.
RFI0907v3.0	Arsenic	.66	Within the tolerance limit.
	Barium	234	Within the tolerance limit.
	Beryllium	.97	Within the tolerance limit.
	Chromium	8.6	Exceeds the tolerance limit by 3.0%.
	Cobalt	2.9	Within the tolerance limit.
	Copper	5.5	Within the tolerance limit.
	Lead	9.1	Within the tolerance limit.
	Nickel	7.7	Within the tolerance limit.
	Potassium	1030	Within the tolerance limit.
	Vanadium	13.1	Within the tolerance limit.
	Zinc	14.3	Within the tolerance limit.
RFI0907v5.0	Arsenic	.61	Within the tolerance limit.
	Barium	208	Within the tolerance limit.
	Beryllium	.66	Within the tolerance limit.
	Chromium	16.2	Exceeds the tolerance limit by 101.8%.
	Cobalt	1.5	Within the tolerance limit.
	Copper	4.1	Within the tolerance limit.
	Lead	7.2	Within the tolerance limit.
	Nickel	4.7	Within the tolerance limit.
	Potassium	776	Within the tolerance limit.
	Vanadium	10.3	Within the tolerance limit.
	Zinc	23.8	Exceeds the tolerance limit by 42.2%.
RFI0907v7.0	Arsenic	.58	Within the tolerance limit.
	Barium	240	Within the tolerance limit.
	Beryllium	1	Within the tolerance limit.
	Chromium	7.6	Within the tolerance limit.
	Cobalt	2.5	Within the tolerance limit.
	Copper	5.1	Within the tolerance limit.
	Lead	7.5	Within the tolerance limit.
	Nickel	6.8	Within the tolerance limit.
	Potassium	1390	Within the tolerance limit.
	Vanadium	12.7	Within the tolerance limit.
	Zinc	13.4	Within the tolerance limit.

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RFI#	METAL	SAMPLE DATA	NOTE
RFI1001v0.0	Arsenic	.97	Within the tolerance limit.
	Barium	392	Within the tolerance limit.
	Beryllium	.7	Within the tolerance limit.
	Chromium	60.1	Exceeds the tolerance limit by 619.7%.
	Cobalt	2	Within the tolerance limit.
	Copper	10.3	Exceeds the tolerance limit by 56.5%.
	Lead	11.1	Within the tolerance limit.
	Nickel	7	Within the tolerance limit.
	Potassium	972	Within the tolerance limit.
	Vanadium	16.3	Within the tolerance limit.
	Zinc	81.3	Exceeds the tolerance limit by 320.4%.
RFI1001v3.0	Arsenic	nd	Within the tolerance limit.
	Barium	107	Within the tolerance limit.
	Beryllium	1	Within the tolerance limit.
	Chromium	6.1	Within the tolerance limit.
	Cobalt	3.6	Within the tolerance limit.
	Copper	5.9	Within the tolerance limit.
	Lead	5.5	Within the tolerance limit.
	Nickel	6.7	Within the tolerance limit.
	Potassium	1310	Within the tolerance limit.
	Vanadium	14	Within the tolerance limit.
	Zinc	14.7	Within the tolerance limit.
RFI1001d3.0	Arsenic	nd	Within the tolerance limit.
	Barium	105	Within the tolerance limit.
	Beryllium	1.1	Exceeds the tolerance limit by 10.0%.
	Chromium	7.8	Within the tolerance limit.
	Cobalt	4.6	Within the tolerance limit.
	Copper	7.1	Exceeds the tolerance limit by 7.9%.
	Lead	6.3	Within the tolerance limit.
	Nickel	9.1	Within the tolerance limit.
	Potassium	1660	Within the tolerance limit.
	Vanadium	16.3	Within the tolerance limit.
	Zinc	17.7	Within the tolerance limit.
RFI1002v0.0	Arsenic	.52	Within the tolerance limit.
	Barium	188	Within the tolerance limit.
	Beryllium	1	Within the tolerance limit.
	Chromium	7	Within the tolerance limit.
	Cobalt	4.3	Within the tolerance limit.
	Copper	6.4	Within the tolerance limit.
	Lead	13.8	Within the tolerance limit.
	Nickel	6.4	Within the tolerance limit.
	Potassium	806	Within the tolerance limit.
	Vanadium	15.4	Within the tolerance limit.
	Zinc	13.4	Within the tolerance limit.

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RFI#	METAL	SAMPLE DATA	NOTE
RFI1002v3.0	Arsenic	.79	Within the tolerance limit.
	Barium	231	Within the tolerance limit.
	Beryllium	.9	Within the tolerance limit.
	Chromium	117	Exceeds the tolerance limit by 1301.0%.
	Cobalt	4.4	Within the tolerance limit.
	Copper	16.5	Exceeds the tolerance limit by 150.7%.
	Lead	19.3	Exceeds the tolerance limit by 5.8%.
	Nickel	9.2	Within the tolerance limit.
	Potassium	1310	Within the tolerance limit.
	Vanadium	18.2	Within the tolerance limit.
	Zinc	228	Exceeds the tolerance limit by 1078.9%.
RFI1002v6.0	Arsenic	.58	Within the tolerance limit.
	Barium	332	Within the tolerance limit.
	Beryllium	.9	Within the tolerance limit.
	Chromium	6.7	Within the tolerance limit.
	Cobalt	3.9	Within the tolerance limit.
	Copper	5.2	Within the tolerance limit.
	Lead	13.5	Within the tolerance limit.
	Nickel	6.5	Within the tolerance limit.
	Potassium	841	Within the tolerance limit.
	Vanadium	18.3	Exceeds the tolerance limit by 3.2%.
	Zinc	11.2	Within the tolerance limit.
RFI1002v9.0	Arsenic	nd	Within the tolerance limit.
	Barium	201	Within the tolerance limit.
	Beryllium	1.4	Within the tolerance limit.
	Chromium	8	Within the tolerance limit.
	Cobalt	6	Exceeds the tolerance limit by 19.8%.
	Copper	7.7	Exceeds the tolerance limit by 8.9%.
	Lead	14.9	Within the tolerance limit.
	Nickel	9.5	Within the tolerance limit.
	Potassium	1380	Within the tolerance limit.
	Vanadium	16.5	Within the tolerance limit.
	Zinc	15.2	Within the tolerance limit.
RFI1002v12.5	Arsenic	nd	Within the tolerance limit.
	Barium	171	Within the tolerance limit.
	Beryllium	.87	Within the tolerance limit.
	Chromium	6.4	Within the tolerance limit.
	Cobalt	5.4	Exceeds the tolerance limit by 7.9%.
	Copper	7.7	Exceeds the tolerance limit by 8.9%.
	Lead	11.9	Within the tolerance limit.
	Nickel	8.5	Within the tolerance limit.
	Potassium	1410	Within the tolerance limit.
	Vanadium	18	Exceeds the tolerance limit by 1.5%.
	Zinc	15	Within the tolerance limit.

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RFI#	METAL	SAMPLE DATA	NOTE
RFI1002d12.5	Arsenic	nd	Within the tolerance limit.
	Barium	124	Within the tolerance limit.
	Beryllium	1.1	Within the tolerance limit.
	Chromium	6.1	Within the tolerance limit.
	Cobalt	3.9	Within the tolerance limit.
	Copper	7.8	Exceeds the tolerance limit by 10.3%.
	Lead	16	Exceeds the tolerance limit by 5.5%.
	Nickel	6.9	Within the tolerance limit.
	Potassium	1010	Within the tolerance limit.
	Vanadium	14	Within the tolerance limit.
	Zinc	12.4	Within the tolerance limit.
RFI1003v0.0	Arsenic	.65	Within the tolerance limit.
	Barium	317	Within the tolerance limit.
	Beryllium	.96	Within the tolerance limit.
	Chromium	9.5	Exceeds the tolerance limit by 13.8%.
	Cobalt	2.6	Within the tolerance limit.
	Copper	7.4	Exceeds the tolerance limit by 12.4%.
	Lead	8.4	Within the tolerance limit.
	Nickel	6.5	Within the tolerance limit.
	Potassium	1020	Within the tolerance limit.
	Vanadium	15.7	Within the tolerance limit.
	Zinc	16.4	Within the tolerance limit.
RFI1003v3.0	Arsenic	.9	Within the tolerance limit.
	Barium	292	Within the tolerance limit.
	Beryllium	.65	Within the tolerance limit.
	Chromium	6.1	Within the tolerance limit.
	Cobalt	2	Within the tolerance limit.
	Copper	4.3	Within the tolerance limit.
	Lead	5.5	Within the tolerance limit.
	Nickel	5.4	Within the tolerance limit.
	Potassium	856	Within the tolerance limit.
	Vanadium	15.2	Within the tolerance limit.
	Zinc	12.9	Within the tolerance limit.
RFI1003v6.0	Arsenic	.58	Within the tolerance limit.
	Barium	178	Within the tolerance limit.
	Beryllium	1	Within the tolerance limit.
	Chromium	6.5	Within the tolerance limit.
	Cobalt	2.8	Within the tolerance limit.
	Copper	6.1	Within the tolerance limit.
	Lead	6.5	Within the tolerance limit.
	Nickel	6.5	Within the tolerance limit.
	Potassium	1070	Within the tolerance limit.
	Vanadium	12.9	Within the tolerance limit.
	Zinc	13	Within the tolerance limit.

RFI#	METAL	SAMPLE DATA	NOTE
RFI1003v9.0	Arsenic	.52	Within the tolerance limit.
	Barium	152	Within the tolerance limit.
	Beryllium	1	Within the tolerance limit.
	Chromium	5.9	Within the tolerance limit.
	Cobalt	3.4	Within the tolerance limit.
	Copper	5.6	Within the tolerance limit.
	Lead	8.1	Within the tolerance limit.
	Nickel	6.8	Within the tolerance limit.
	Potassium	1340	Within the tolerance limit.
	Vanadium	14.3	Within the tolerance limit.
	Zinc	13.9	Within the tolerance limit.
RFI1003v12.5	Arsenic	nd	Within the tolerance limit.
	Barium	392	Exceeds the tolerance limit by 1.8%.
	Beryllium	1.1	Within the tolerance limit.
	Chromium	7.5	Within the tolerance limit.
	Cobalt	3.2	Within the tolerance limit.
	Copper	7	Within the tolerance limit.
	Lead	7.8	Within the tolerance limit.
	Nickel	8.5	Within the tolerance limit.
	Potassium	1410	Within the tolerance limit.
	Vanadium	17.5	Within the tolerance limit.
	Zinc	16.1	Within the tolerance limit.
RFI1004v0.0	Arsenic	.6	Within the tolerance limit.
	Barium	280	Within the tolerance limit.
	Beryllium	.93	Within the tolerance limit.
	Chromium	5.6	Within the tolerance limit.
	Cobalt	2.8	Within the tolerance limit.
	Copper	5.7	Within the tolerance limit.
	Lead	8.2	Within the tolerance limit.
	Nickel	6.1	Within the tolerance limit.
	Potassium	853	Within the tolerance limit.
	Vanadium	15.5	Within the tolerance limit.
	Zinc	14	Within the tolerance limit.
RFI1004v3.0	Arsenic	.64	Within the tolerance limit.
	Barium	195	Within the tolerance limit.
	Beryllium	.79	Within the tolerance limit.
	Chromium	11.6	Exceeds the tolerance limit by 38.9%.
	Cobalt	2.2	Within the tolerance limit.
	Copper	4.1	Within the tolerance limit.
	Lead	7	Within the tolerance limit.
	Nickel	5.3	Within the tolerance limit.
	Potassium	783	Within the tolerance limit.
	Vanadium	14.4	Within the tolerance limit.
	Zinc	15.2	Within the tolerance limit.

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RFI#	METAL	SAMPLE DATA	NOTE
RFI1004v6.0	Arsenic	2.4	Within the tolerance limit.
	Barium	422	Exceeds the tolerance limit by 9.6%.
	Beryllium	.8	Within the tolerance limit.
	Chromium	398	Exceeds the tolerance limit by 4857.1%.
	Cobalt	4.8	Within the tolerance limit.
	Copper	29	Exceeds the tolerance limit by 310.0%.
	Lead	50	Exceeds the tolerance limit by 229.7%.
	Nickel	9	Within the tolerance limit.
	Potassium	2320	Exceeds the tolerance limit by 10.9%.
	Vanadium	18.6	Exceeds the tolerance limit by 4.9%.
	Zinc	81.2	Exceeds the tolerance limit by 385.3%.
RFI1004v9.0	Arsenic	.56	Within the tolerance limit.
	Barium	213	Within the tolerance limit.
	Beryllium	1	Within the tolerance limit.
	Chromium	21.7	Exceeds the tolerance limit by 170.3%.
	Cobalt	3.8	Within the tolerance limit.
	Copper	6.2	Within the tolerance limit.
	Lead	12.5	Within the tolerance limit.
	Nickel	7.9	Within the tolerance limit.
	Potassium	1200	Within the tolerance limit.
	Vanadium	13.9	Within the tolerance limit.
	Zinc	12.5	Within the tolerance limit.
RFI1004v12.5	Arsenic	nd	Within the tolerance limit.
	Barium	164	Within the tolerance limit.
	Beryllium	1.1	Within the tolerance limit.
	Chromium	7.2	Within the tolerance limit.
	Cobalt	4.4	Within the tolerance limit.
	Copper	6.9	Within the tolerance limit.
	Lead	13.3	Within the tolerance limit.
	Nickel	8	Within the tolerance limit.
	Potassium	1210	Within the tolerance limit.
	Vanadium	13.7	Within the tolerance limit.
	Zinc	12.5	Within the tolerance limit.
RFI1005v0.0	Arsenic	nd	Within the tolerance limit.
	Barium	315	Within the tolerance limit.
	Beryllium	.88	Within the tolerance limit.
	Chromium	6.8	Within the tolerance limit.
	Cobalt	4	Within the tolerance limit.
	Copper	9.2	Exceeds the tolerance limit by 39.8%.
	Lead	13.2	Within the tolerance limit.
	Nickel	5.8	Within the tolerance limit.
	Potassium	850	Within the tolerance limit.
	Vanadium	14.5	Within the tolerance limit.
	Zinc	11.8	Within the tolerance limit.

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RFI#	METAL	SAMPLE DATA	NOTE
RFI1005v3.0	Arsenic	.52	Within the tolerance limit.
	Barium	321	Within the tolerance limit.
	Beryllium	.85	Within the tolerance limit.
	Chromium	6.3	Within the tolerance limit.
	Cobalt	4.4	Within the tolerance limit.
	Copper	4.6	Within the tolerance limit.
	Lead	11.8	Within the tolerance limit.
	Nickel	6.8	Within the tolerance limit.
	Potassium	834	Within the tolerance limit.
	Vanadium	14.1	Within the tolerance limit.
	Zinc	13.1	Within the tolerance limit.
RFI1005d3.0	Arsenic	.61	Within the tolerance limit.
	Barium	251	Within the tolerance limit.
	Beryllium	.68	Within the tolerance limit.
	Chromium	5.8	Within the tolerance limit.
	Cobalt	2.8	Within the tolerance limit.
	Copper	9.1	Exceeds the tolerance limit by 38.3%.
	Lead	11.1	Within the tolerance limit.
	Nickel	4.2	Within the tolerance limit.
	Potassium	531	Within the tolerance limit.
	Vanadium	13.3	Within the tolerance limit.
	Zinc	8.2	Within the tolerance limit.
RFI1005v6.0	Arsenic	27.9	Exceeds the tolerance limit by 128.1%.
	Barium	700	Exceeds the tolerance limit by 81.8%.
	Beryllium	.76	Within the tolerance limit.
	Chromium	4020	Exceeds the tolerance limit by 49969.3%
	Cobalt	8.4	Exceeds the tolerance limit by 67.8%.
	Copper	215	Exceeds the tolerance limit by 2940.0%.
	Lead	337	Exceeds the tolerance limit by 2122.3%.
	Nickel	19.2	Exceeds the tolerance limit by 62.8%.
	Potassium	3920	Exceeds the tolerance limit by 87.4%.
	Vanadium	24.2	Exceeds the tolerance limit by 36.4%.
	Zinc	538	Exceeds the tolerance limit by 3115.2%.
RFI1005v9.0	Arsenic	.58	Within the tolerance limit.
	Barium	48.7	Within the tolerance limit.
	Beryllium	1.4	Within the tolerance limit.
	Chromium	11.6	Exceeds the tolerance limit by 44.5%.
	Cobalt	5.7	Exceeds the tolerance limit by 13.8%.
	Copper	11.8	Exceeds the tolerance limit by 66.8%.
	Lead	16.1	Exceeds the tolerance limit by 6.2%.
	Nickel	11.3	Within the tolerance limit.
	Potassium	1450	Within the tolerance limit.
	Vanadium	18.7	Exceeds the tolerance limit by 5.4%.
	Zinc	17.9	Exceeds the tolerance limit by 7.0%.

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RFI#	METAL	SAMPLE DATA	NOTE
RFI1005v12.5	Arsenic	nd	Within the tolerance limit.
	Barium	187	Within the tolerance limit.
	Beryllium	1.2	Within the tolerance limit.
	Chromium	8.9	Exceeds the tolerance limit by 10.9%.
	Cobalt	5.1	Exceeds the tolerance limit by 1.9%.
	Copper	7.2	Exceeds the tolerance limit by 1.8%.
	Lead	14.2	Within the tolerance limit.
	Nickel	9.3	Within the tolerance limit.
	Potassium	1250	Within the tolerance limit.
	Vanadium	16.2	Within the tolerance limit.
	Zinc	14.3	Within the tolerance limit.
RFI1005d12.5	Arsenic	nd	Within the tolerance limit.
	Barium	124	Within the tolerance limit.
	Beryllium	1.1	Within the tolerance limit.
	Chromium	6.1	Within the tolerance limit.
	Cobalt	3.9	Within the tolerance limit.
	Copper	7.8	Exceeds the tolerance limit by 10.3%.
	Lead	16	Exceeds the tolerance limit by 5.5%.
	Nickel	6.9	Within the tolerance limit.
	Potassium	1010	Within the tolerance limit.
	Vanadium	14	Within the tolerance limit.
	Zinc	12.4	Within the tolerance limit.

Section 8.0

Tabulated Analytical Summary for Soil Samples

An explanation of the sample number designation method on the computer printouts is as follows:

1	2		3
RFI	06	-	Tank Farm

Sample Point #	01	[4]
Depth of Sample	A.3.5	[5+6]

#1=Sampling event
#2=SWMU number
#3=SWMU title
#4=specific sample bore number in each SWMU
#5=Type sample
V=Verticle
A=Angle
D=Duplicate
E=Equipment rinse
#6=Beginning depth of sample interval

RFI06 - Tank Farm

Sample point #		01	01	01	02	02	02	03	03	03
Depth of sample		A0.0	A3.5	A7.0	V0.0	V3.5	V7.0	A0.0	A3.5	A7.0
Parameter	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result
Benzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/kg	ND	ND	1500	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/kg	ND	ND	2100	ND	ND	ND	ND	ND	ND
Xylenes (total)	ug/kg	ND	640	25000	ND	ND	ND	ND	ND	ND
Lead	mg/kg	14.9	16.6	13.0	ND	9.5	ND	27.7	6.5	ND
Nickel	mg/kg	5.3	6.6	ND	ND	4.6	ND	ND	ND	ND

Sample point #		04	04	04	05	05	05	06	06	06
Depth of sample		V0.0	V3.5	V7.0	A0.0	A3.5	A7.0	V0.0	V3.5	V7.0
Parameter	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result
Benzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/kg	ND	ND	760	ND	11000	ND	150	1200	4600
Ethylbenzene	ug/kg	ND	ND	ND	ND	10000	ND	ND	ND	6500
Xylenes (total)	ug/kg	ND	ND	1700	ND	98000	260	220	6400	43000
Lead	mg/kg	ND	ND	ND	138	ND	ND	28.5	ND	7.0
Nickel	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND

Sample point #		07	07	07	08	08	08	09	09	09
Depth of sample		A0.0	A3.5	A7.0	V0.0	V3.5	V7.0	A0.0	A3.5	A7.0
Parameter	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result
Benzene	ug/kg	ND	ND	ND	ND	ND	1000	ND	ND	ND
Toluene	ug/kg	ND	ND	ND	ND	ND	3000	ND	ND	ND
Ethylbenzene	ug/kg	ND	ND	ND	ND	ND	2300	ND	ND	ND
Xylenes (total)	ug/kg	ND	ND	ND	ND	ND	45000	ND	ND	ND
Lead	mg/kg	ND	ND	7.0	23.1	5.3	14.2	10.6	8.0	8.3
Nickel	mg/kg	ND	ND	6.0	ND	ND	9.7	4.5	6.3	4.3

RFI06 - Tank Farm

Sample point #		10	10	10	11	11	11	12	12	12
Depth of sample		V0.0	V3.5	V7.0	A0.0	A3.5	A7.0	V0.0	V3.5	V7.0
Parameter	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result
Benzene	ug/kg	ND	ND	ND	ND	ND	7400	ND	17000	ND
Toluene	ug/kg	ND	600	1600	ND	73000	84000	1700	500000	46000
Ethylbenzene	ug/kg	ND	83	360	ND	16000	17000	280	150000	14000
Xylenes (total)	ug/kg	ND	2000	2700	ND	180000	140000	2900	1000000	100000
Lead	mg/kg	129	ND	10.3	44.6	21.4	23.9	736	11.0	9.4
Nickel	mg/kg	15.2	ND	5.4	ND	6.2	5.5	41.3	4.4	ND

Sample point #		13	13	13	13	14	14	14	15	15	15
Depth of sample		A0.0	D0.0	A3.5	A7.0	V0.0	V3.5	V7.0	A0.0	A3.5	A7.0
Parameter	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Benzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/kg	ND	ND	ND	ND	1000	ND	75000	ND	ND	ND
Ethylbenzene	ug/kg	ND	ND	ND	ND	ND	ND	55000	ND	ND	ND
Xylenes (total)	ug/kg	ND	ND	ND	ND	580	28000	330000	ND	ND	ND
Lead	mg/kg	ND	ND	ND	5.2	57.4	9.0	12.0	17.0	6.7	ND
Nickel	mg/kg	ND	ND	ND	ND	10.3	5.0	7.3	ND	6.1	ND

Sample point #		16	16	16	17	17	17	18	18	18
Depth of sample		V0.0	V3.5	V7.0	A0.0	A3.5	A7.0	V0.0	V3.5	V7.0
Parameter	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result
Benzene	ug/kg	ND	800	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/kg	260	2700	1500	ND	ND	ND	ND	ND	650
Ethylbenzene	ug/kg	ND	5800	2400	ND	ND	ND	ND	3600	2000
Xylenes (total)	ug/kg	210	32000	20000	ND	ND	ND	ND	110000	24000
Lead	mg/kg	238	301	55.3	ND	ND	ND	14.8	12.3	21.2
Nickel	mg/kg	32.9	58.2	6.5	ND	ND	ND	7.1	ND	ND

RFI06 - Tank Farm

Sample point #		19	19	19	20	20	20	TRIP	TRIP
Depth of sample		A0.0	A3.5	A7.0	V0.0	V3.5	V7.0	BLANK	BLANK
Parameter	Units	Result	Result	Result	Result	Result	Result	Result	Result
Benzene	ug/kg	ND	ND	160	ND	ND	ND	ND	ND
Toluene	ug/kg	ND	ND	ND	ND	4500	ND	ND	ND
Ethylbenzene	ug/kg	ND	ND	73	ND	5100	ND	ND	ND
Xylenes (total)	ug/kg	180000	ND	190	ND	95000	10000	ND	ND
Lead	mg/kg	19.1	ND	8.0	21.6	9.9	7.8		
Nickel	mg/kg	9.6	ND	7.1	49.8	4.9	6.8		

RFI08 - Railroad Rack Lagoon

Sample point number		01	01	01	02	02	02	02
Depth of sample		A05.0	A08.0	A10.5	A05.0	D05.0	A08.0	A10.5
Parameter	Units	Result	Result	Result	Result	Result	Result	Result
Method 8240								
Benzene	ug/kg	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	ug/kg	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND
Chloroform	ug/kg	ND	ND	ND	ND	ND	ND	ND
EDB (1,2-Dibromoethane)	ug/kg	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/kg	ND	ND	ND	ND	ND	ND	ND
1,4-Dioxane	ug/kg	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/kg	570	ND	ND	ND	ND	ND	590
2-Butanone (MEK)	ug/kg	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/kg	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/kg	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/kg	5200	ND	ND	ND	ND	500	ND
Method 8270								
Anthracene	ug/kg	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	ug/kg	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	ug/kg	ND	ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	ug/kg	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	ug/kg	ND	ND	ND	ND	ND	ND	ND
bis(2-Ethylhexyl) phthalate	ug/kg	ND	ND	ND	ND	ND	ND	ND
Butyl benzyl phthalate	ug/kg	ND	ND	ND	ND	ND	ND	ND
Chrysene	ug/kg	ND	ND	ND	ND	ND	ND	ND
Dibenz(a,h)anthracene	ug/kg	ND	ND	ND	ND	ND	ND	ND
Di-n-butyl phthalate	ug/kg	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND
Diethyl phthalate	ug/kg	ND	ND	ND	ND	ND	ND	ND
7,12-Dimethylbenz(a)-anthracene	ug/kg	ND	ND	ND	ND	ND	ND	ND
Dimethyl phthalate	ug/kg	ND	ND	ND	ND	ND	ND	ND
Di-n-octyl phthalate	ug/kg	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	ug/kg	ND	ND	ND	ND	ND	ND	ND
Indene	ug/kg	ND	ND	ND	ND	ND	ND	ND
1-Methylnaphthalene	ug/kg	19000	ND	ND	ND	ND	ND	ND
Naphthalene	ug/kg	7400	ND	ND	ND	ND	ND	ND
Phenanthrene	ug/kg	17000	ND	ND	ND	ND	ND	ND
Pyrene	ug/kg	ND	ND	ND	ND	ND	ND	ND
Pyridine	ug/kg	ND	ND	ND	ND	ND	ND	ND
Quinoline	ug/kg	ND	ND	ND	ND	ND	ND	ND
Benzenethiol	ug/kg	ND	ND	ND	ND	ND	ND	ND

RFI08 - Railroad Rack Lagoon

Sample point number		01	01	01	02	02	02	02
Depth of sample		A05.0	A08.0	A10.5	A05.0	D05.0	A08.0	A10.5
Parameter	Units	Result	Result	Result	Result	Result	Result	Result
Method 8270 (con't)								
Dibenz(a,h)acridine	ug/kg	ND	ND	ND	ND	ND	ND	ND
o-Cresol	ug/kg	ND	ND	ND	ND	ND	ND	ND
m & p-Cresol(s)	ug/kg	ND	ND	ND	ND	ND	ND	ND
2,4-Dimethylphenol	ug/kg	ND	ND	ND	ND	ND	ND	ND
2,4-Dinitrophenol	ug/kg	ND	ND	ND	ND	ND	ND	ND
4-Nitrophenol	ug/kg	ND	ND	ND	ND	ND	ND	ND
Phenol	ug/kg	ND	ND	ND	ND	ND	ND	ND
Total Metals								
Antimony	mg/kg	ND	ND	ND	ND	ND	ND	ND
Arsenic	mg/kg	ND	ND	ND	ND	ND	ND	ND
Barium	mg/kg	275	432	308	222	259	330	276
Beryllium	mg/kg	0.97	1.1	1.1	1.1	1.1	1.1	1.2
Cadmium	mg/kg	ND	ND	ND	ND	ND	ND	ND
Chromium	mg/kg	7.9	10.9	6.2	7.5	8.7	9.5	8.4
Cobalt	mg/kg	2.7	2.5	2.2	3.4	3.5	3.0	3.3
Copper	mg/kg	4.5	5.9	7.0	5.7	5.3	5.8	6.7
Lead	mg/kg	7.1	7.2	8.6	11.7	10.8	6.9	8.5
Mercury	mg/kg	ND	ND	ND	ND	ND	ND	ND
Nickel	mg/kg	8.5	10.1	7.3	8.8	9.7	9.2	9.3
Potassium	mg/kg	1440	2480	960	1400	1610	2390	1350
Selenium	mg/kg	ND	ND	ND	ND	ND	ND	ND
Vanadium	mg/kg	13.9	16.9	13.5	15.0	15.9	17.1	15.8
Zinc	mg/kg	12.6	16.4	11.2	13.1	14.5	16.9	13.9

RFI08 - Railroad Rack Lagoon

Sample point number		03	03	03	04	04	04	05	05	05
Depth of sample		A05.0	A08.0	A10.5	V05.0	V08.0	V10.5	V05.0	V08.0	V10.5
Parameter	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result
Method 8240										
Benzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
EDB (1,2-Dibromoethane)	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dioxane	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/kg	ND	ND	ND	ND	590	ND	ND	ND	ND
2-Butanone (MEK)	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/kg	6600	ND	ND	ND	4900	ND	ND	ND	ND
Method 8270										
Anthracene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
bis(2-Ethylhexyl) phthalate	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Butyl benzyl phthalate	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chrysene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibenz(a,h)anthracene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-n-butyl phthalate	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Diethyl phthalate	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
7,12-Dimethylbenz(a)-anthracene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dimethyl phthalate	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-n-octyl phthalate	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Indene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1-Methylnaphthalene	ug/kg	18000	ND	ND	ND	37000	ND	ND	ND	ND
Naphthalene	ug/kg	5600	ND	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	ug/kg	14000	ND	ND	ND	27000	ND	ND	ND	ND
Pyrene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pyridine	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Quinoline	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzenethiol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND

RFI08 - Railroad Rack Lagoon

Sample point number		03	03	03	04	04	04	05	05	05
Depth of sample		A05.0	A08.0	A10.5	V05.0	V08.0	V10.5	V05.0	V08.0	V10.5
Parameter	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result
Method 8270 (con't)										
Dibenz(a,h)acridine	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
o-Cresol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
m & p-Cresol(s)	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dimethylphenol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dinitrophenol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Nitrophenol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Metals										
Antimony	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Barium	mg/kg	223	242	277	291	276	216	302	300	226
Beryllium	mg/kg	0.90	1.2	0.67	0.95	0.95	1.1	0.93	1.1	0.61
Cadmium	mg/kg	ND	ND	ND	ND	ND	ND	0.70	ND	ND
Chromium	mg/kg	5.6	10.4	4.3	6.4	6.7	5.9	6.2	8.3	3.8
Cobalt	mg/kg	2.2	3.6	1.5	2.0	2.5	2.6	2.1	3.1	1.5
Copper	mg/kg	5.1	8.9	3.6	4.8	4.6	5.5	4.7	5.7	3.9
Lead	mg/kg	12.5	5.4	5.6	13.3	9.6	9.5	9.3	10.1	6.1
Mercury	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel	mg/kg	6.7	9.7	4.7	7.6	7.5	6.8	6.6	9.1	4.3
Potassium	mg/kg	1320	2820	665	990	1030	1500	1060	2110	610
Selenium	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium	mg/kg	14.0	17.6	13.1	15.0	15.5	15.8	14.8	16.9	11.5
Zinc	mg/kg	11.4	17.3	8.3	11.1	10.9	11.4	10.5	15.0	7.5

RFI08 - Railroad Rack Lagoon

Sample point number		06	06	06	07	07	07	08	08	08
Depth of sample		V05.0	V08.0	V10.5	V0.5	V2.5	V4.5	V0.5	V2.5	V4.5
Parameter	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result
Method 8240										
Benzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
EDB (1,2-Dibromoethane)	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dioxane	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone (MEK)	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Method 8270										
Anthracene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
bis(2-Ethylhexyl) phthalate	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Butyl benzyl phthalate	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chrysene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibenz(a,h)anthracene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-n-butyl phthalate	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Diethyl phthalate	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
7,12-Dimethylbenz(a)-anthracene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dimethyl phthalate	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-n-octyl phthalate	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Indene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1-Methylnaphthalene	ug/kg	ND	ND	ND	ND	25000	ND	ND	35000	ND
Naphthalene	ug/kg	ND	ND	ND	ND	14000	ND	ND	20000	ND
Phenanthrene	ug/kg	ND	ND	ND	ND	11000	ND	ND	18000	ND
Pyrene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pyridine	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Quinoline	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzenethiol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND

RFI08 - Railroad Rack Lagoon

Sample point number		06	06	06	07	07	07	08	08	08
Depth of sample		V05.0	V08.0	V10.5	V0.5	V2.5	V4.5	V0.5	V2.5	V4.5
Parameter	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result
Method 8270 (con't)										
Dibenz(a,h)acridine	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
o-Cresol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
m & p-Cresol(s)	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dimethylphenol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dinitrophenol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Nitrophenol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Metals										
Antimony	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Barium	mg/kg	264	281	203	258	257	604	206	246	210
Beryllium	mg/kg	0.77	0.99	1.2	1.0	0.98	3.0	0.83	0.91	0.62
Cadmium	mg/kg	ND	ND	ND	ND	ND	0.99	ND	ND	ND
Chromium	mg/kg	5.1	7.3	7.0	7.2	7.2	18.0	6.6	6.5	4.5
Cobalt	mg/kg	1.6	2.7	3.5	3.1	2.9	7.8	3.1	2.5	1.5
Copper	mg/kg	4.4	5.1	6.3	5.7	5.0	13.6	4.7	5.1	3.3
Lead	mg/kg	7.6	8.9	10.8	11.5	9.9	27.6	12.6	8.6	8.6
Mercury	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel	mg/kg	5.7	8.5	9.3	9.3	8.3	20.9	8.0	7.4	4.7
Potassium	mg/kg	1140	1830	1290	1370	1190	3210	1470	1060	704
Selenium	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium	mg/kg	13.2	15.0	13.8	14.7	15.0	41.1	13.2	14.1	12.0
Zinc	mg/kg	10.0	13.5	13.2	14.8	12.5	30.3	15.7	11.7	7.9

RFI08 - Railroad Rack Lagoon

Sample point number		09	09	09	10	10	10
Depth of sample		V0.5	V2.5	V4.5	V0.5	V2.5	V4.5
Parameter	Units	Result	Result	Result	Result	Result	Result
Method 8240							
Benzene	ug/kg	ND	ND	ND	ND	ND	ND
Carbon disulfide	ug/kg	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/kg	ND	ND	ND	ND	ND	ND
Chloroform	ug/kg	ND	ND	ND	ND	ND	ND
EDB (1,2-Dibromoethane)	ug/kg	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/kg	ND	ND	ND	ND	ND	ND
1,4-Dioxane	ug/kg	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/kg	ND	ND	ND	ND	ND	ND
2-Butanone (MEK)	ug/kg	ND	ND	ND	ND	ND	ND
Styrene	ug/kg	ND	ND	ND	ND	ND	ND
Toluene	ug/kg	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/kg	ND	ND	ND	ND	ND	ND
Method 8270							
Anthracene	ug/kg	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	ug/kg	ND	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	ug/kg	ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	ug/kg	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	ug/kg	ND	ND	ND	ND	ND	ND
bis(2-Ethylhexyl) phthalate	ug/kg	ND	ND	ND	ND	ND	ND
Butyl benzyl phthalate	ug/kg	ND	ND	ND	ND	ND	ND
Chrysene	ug/kg	ND	ND	ND	ND	ND	ND
Dibenz(a,h)anthracene	ug/kg	ND	ND	ND	ND	ND	ND
Di-n-butyl phthalate	ug/kg	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ND	ND
Diethyl phthalate	ug/kg	ND	ND	ND	ND	ND	ND
7,12-Dimethylbenz(a)-anthracene	ug/kg	ND	ND	ND	ND	ND	ND
Dimethyl phthalate	ug/kg	ND	ND	ND	ND	ND	ND
Di-n-octyl phthalate	ug/kg	ND	ND	ND	ND	ND	ND
Fluoranthene	ug/kg	ND	ND	ND	ND	ND	ND
Indene	ug/kg	ND	ND	ND	ND	ND	ND
1-Methylnaphthalene	ug/kg	ND	57000	ND	ND	ND	ND
Naphthalene	ug/kg	ND	24000	6700	ND	ND	ND
Phenanthrene	ug/kg	ND	25000	ND	ND	ND	ND
Pyrene	ug/kg	ND	ND	ND	ND	ND	ND
Pyridine	ug/kg	ND	ND	ND	ND	ND	ND
Quinoline	ug/kg	ND	ND	ND	ND	ND	ND
Benzenethiol	ug/kg	ND	ND	ND	ND	ND	ND

RFI08 - Railroad Rack Lagoon

Sample point number		09	09	09	10	10	10
Depth of sample		V0.5	V2.5	V4.5	V0.5	V2.5	V4.5
Parameter	Units	Result	Result	Result	Result	Result	Result
Method 8270 (con't)							
Dibenz(a,h)acridine	ug/kg	ND	ND	ND	ND	ND	ND
o-Cresol	ug/kg	ND	ND	ND	ND	ND	ND
m & p-Cresol(s)	ug/kg	ND	ND	ND	ND	ND	ND
2,4-Dimethylphenol	ug/kg	ND	ND	ND	ND	ND	ND
2,4-Dinitrophenol	ug/kg	ND	ND	ND	ND	ND	ND
4-Nitrophenol	ug/kg	ND	ND	ND	ND	ND	ND
Phenol	ug/kg	ND	ND	ND	ND	ND	ND
Total Metals							
Antimony	mg/kg	ND	ND	ND	ND	ND	ND
Arsenic	mg/kg	ND	ND	ND	0.51	ND	ND
Barium	mg/kg	293	242	197	277	280	266
Beryllium	mg/kg	1.0	0.83	0.86	1.1	1.1	1.0
Cadmium	mg/kg	ND	ND	ND	ND	ND	ND
Chromium	mg/kg	8.5	5.7	4.7	5.5	5.6	3.8
Cobalt	mg/kg	2.6	2.5	2.2	2.1	2.3	1.4
Copper	mg/kg	5.7	4.2	4.8	5.4	6.0	5.2
Lead	mg/kg	11.7	8.2	8.5	10.1	10.2	7.7
Mercury	mg/kg	ND	ND	ND	ND	ND	ND
Nickel	mg/kg	8.4	7.0	3.3	7.1	7.8	4.7
Potassium	mg/kg	1580	1050	951	980	1000	887
Selenium	mg/kg	ND	ND	ND	ND	ND	ND
Vanadium	mg/kg	16.2	13.3	12.8	11.8	11.7	10.0
Zinc	mg/kg	17.2	11.0	8.9	9.8	12.0	8.5

RFI08 - Railroad Rack Lagoon

Sample point number		11	11	11	11	12	12	12
Depth of sample		V0.5	D0.5	V2.5	V4.5	V0.5	V2.5	V4.5
Parameter	Units	Result	Result	Result	Result	Result	Result	Result
Method 8240								
Benzene	ug/kg	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	ug/kg	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND
Chloroform	ug/kg	ND	ND	ND	ND	ND	ND	ND
EDB (1,2-Dibromoethane)	ug/kg	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/kg	ND	ND	ND	ND	ND	ND	ND
1,4-Dioxane	ug/kg	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND
2-Butanone (MEK)	ug/kg	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/kg	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/kg	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	ug/kg	ND	ND	ND	ND	ND	ND	ND
Method 8270								
Anthracene	ug/kg	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	ug/kg	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	ug/kg	ND	ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	ug/kg	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	ug/kg	ND	ND	ND	ND	ND	ND	ND
bis(2-Ethylhexyl) phthalate	ug/kg	ND	ND	ND	ND	ND	ND	ND
Butyl benzyl phthalate	ug/kg	ND	ND	ND	ND	ND	ND	ND
Chrysene	ug/kg	ND	ND	ND	ND	ND	ND	ND
Dibenz(a,h)anthracene	ug/kg	ND	ND	ND	ND	ND	ND	ND
Di-n-butyl phthalate	ug/kg	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND
Diethyl phthalate	ug/kg	ND	ND	ND	ND	ND	ND	ND
7,12-Dimethylbenz(a)-anthracene	ug/kg	ND	ND	ND	ND	ND	ND	ND
Dimethyl phthalate	ug/kg	ND	ND	ND	ND	ND	ND	ND
Di-n-octyl phthalate	ug/kg	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	ug/kg	ND	ND	ND	ND	ND	ND	ND
Indene	ug/kg	ND	ND	ND	ND	ND	ND	ND
1-Methylnaphthalene	ug/kg	ND	ND	ND	71000	ND	ND	ND
Naphthalene	ug/kg	ND	ND	ND	27000	ND	ND	ND
Phenanthrene	ug/kg	ND	ND	ND	33000	ND	ND	ND
Pyrene	ug/kg	ND	ND	ND	ND	ND	ND	ND
Pyridine	ug/kg	ND	ND	ND	ND	ND	ND	ND
Quinoline	ug/kg	ND	ND	ND	ND	ND	ND	ND
Benzenethiol	ug/kg	ND	ND	ND	ND	ND	ND	ND

RFI08 - Railroad Rack Lagoon

Sample point number		11	11	11	11	12	12	12
Depth of sample		V0.5	D0.5	V2.5	V4.5	V0.5	V2.5	V4.5
Parameter	Units	Result	Result	Result	Result	Result	Result	Result
Method 8270 (con't)								
Dibenz(a,h)acridine	ug/kg	ND	ND	ND	ND	ND	ND	ND
o-Cresol	ug/kg	ND	ND	ND	ND	ND	ND	ND
m & p-Cresol(s)	ug/kg	ND	ND	ND	ND	ND	ND	ND
2,4-Dimethylphenol	ug/kg	ND	ND	ND	ND	ND	ND	ND
2,4-Dinitrophenol	ug/kg	ND	ND	ND	ND	ND	ND	ND
4-Nitrophenol	ug/kg	ND	ND	ND	ND	ND	ND	ND
Phenol	ug/kg	ND	ND	ND	ND	ND	ND	ND
Total Metals								
Antimony	mg/kg	ND	ND	ND	ND	ND	ND	ND
Arsenic	mg/kg	0.57	ND	ND	ND	0.58	ND	ND
Barium	mg/kg	262	176	206	213	244	159	279
Beryllium	mg/kg	1.2	0.85	1.1	0.75	0.85	0.82	0.92
Cadmium	mg/kg	ND	ND	ND	ND	ND	ND	ND
Chromium	mg/kg	5.8	4.8	7.1	3.9	6.1	4.5	3.9
Cobalt	mg/kg	2.5	2.0	2.9	1.4	1.9	1.9	1.4
Copper	mg/kg	6.5	4.4	5.1	3.5	4.0	4.4	4.5
Lead	mg/kg	9.5	6.4	7.8	7.0	15.6	7.8	7.6
Mercury	mg/kg	ND	ND	ND	ND	ND	ND	ND
Nickel	mg/kg	7.7	5.8	8.2	4.4	5.9	5.1	5.2
Potassium	mg/kg	1550	831	1310	551	747	723	620
Selenium	mg/kg	ND	ND	ND	ND	ND	ND	ND
Vanadium	mg/kg	12.8	10.0	13.1	10.0	12.5	8.9	9.9
Zinc	mg/kg	13.2	9.5	12.6	7.0	9.5	7.4	7.8

RFI08 - Railroad Rack Lagoon

Sample point number		13	13	13	13		07	TRIP
Depth of sample		V0.5	V2.5	V4.5	D4.5		E2.5	BLANK
Parameter	Units	Result	Result	Result	Result	Units	Result	Result
Method 8240								
Benzene	ug/kg	ND	ND	ND	ND	ug/L	ND	ND
Carbon disulfide	ug/kg	ND	ND	ND	ND	ug/L	7.8	ND
Chlorobenzene	ug/kg	ND	ND	ND	ND	ug/L	ND	ND
Chloroform	ug/kg	ND	ND	ND	ND	ug/L	ND	ND
EDB (1,2-Dibromoethane)	ug/kg	ND	ND	ND	ND	ug/L	ND	ND
1,2-Dichloroethane	ug/kg	ND	ND	ND	ND	ug/L	ND	ND
1,4-Dioxane	ug/kg	ND	ND	ND	ND	ug/L	ND	ND
Ethylbenzene	ug/kg	ND	ND	ND	ND	ug/L	ND	ND
2-Butanone (MEK)	ug/kg	ND	ND	ND	ND	ug/L	ND	ND
Styrene	ug/kg	ND	ND	ND	ND	ug/L	ND	ND
Toluene	ug/kg	ND	ND	950	ND	ug/L	ND	ND
Xylenes (Total)	ug/kg	ND	ND	1800	ND	ug/L	ND	ND
Method 8270								
Anthracene	ug/kg	ND	ND	ND	ND	ug/L	ND	
Benzo(a)anthracene	ug/kg	ND	ND	ND	ND	ug/L	ND	
Benzo(b)fluoranthene	ug/kg	ND	ND	ND	ND	ug/L	ND	
Benzo(k)fluoranthene	ug/kg	ND	ND	ND	ND	ug/L	ND	
Benzo(a)pyrene	ug/kg	ND	ND	ND	ND	ug/L	ND	
bis(2-Ethylhexyl) phthalate	ug/kg	ND	ND	ND	ND	ug/L	ND	
Butyl benzyl phthalate	ug/kg	ND	ND	ND	ND	ug/L	ND	
Chrysene	ug/kg	ND	ND	ND	ND	ug/L	ND	
Dibenz(a,h)anthracene	ug/kg	ND	ND	ND	ND	ug/L	ND	
Di-n-butyl phthalate	ug/kg	ND	ND	ND	ND	ug/L	ND	
1,2-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ug/L	ND	
1,3-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ug/L	ND	
1,4-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ug/L	ND	
Diethyl phthalate	ug/kg	ND	ND	ND	ND	ug/L	ND	
7,12-Dimethylbenz(a)-anthracene	ug/kg	ND	ND	ND	ND	ug/L	ND	
Dimethyl phthalate	ug/kg	ND	ND	ND	ND	ug/L	ND	
Di-n-octyl phthalate	ug/kg	ND	ND	ND	ND	ug/L	ND	
Fluoranthene	ug/kg	ND	ND	ND	ND	ug/L	ND	
Indene	ug/kg	ND	ND	ND	ND	ug/L	ND	
1-Methylnaphthalene	ug/kg	ND	ND	ND	ND	ug/L	ND	
Naphthalene	ug/kg	ND	ND	ND	ND	ug/L	ND	
Phenanthrene	ug/kg	ND	ND	ND	ND	ug/L	ND	
Pyrene	ug/kg	ND	ND	ND	ND	ug/L	ND	
Pyridine	ug/kg	ND	ND	ND	ND	ug/L	ND	
Quinoline	ug/kg	ND	ND	ND	ND	ug/L	ND	
Benzenethiol	ug/kg	ND	ND	ND	ND	ug/L	ND	

RFI08 - Railroad Rack Lagoon

Sample point number		13	13	13	13		07
Depth of sample		V0.5	V2.5	V4.5	D4.5		E2.5
Parameter	Units	Result	Result	Result	Result	Units	Result
Method 8270 (con't)							
Dibenz(a,h)acridine	ug/kg	ND	ND	ND	ND	ug/L	ND
o-Cresol	ug/kg	ND	ND	ND	ND	ug/L	ND
m & p-Cresol(s)	ug/kg	ND	ND	ND	ND	ug/L	ND
2,4-Dimethylphenol	ug/kg	ND	ND	ND	ND	ug/L	ND
2,4-Dinitrophenol	ug/kg	ND	ND	ND	ND	ug/L	ND
4-Nitrophenol	ug/kg	ND	ND	ND	ND	ug/L	ND
Phenol	ug/kg	ND	ND	ND	ND	ug/L	ND
Total Metals							
Antimony	mg/kg	ND	ND	ND	ND	mg/L	ND
Arsenic	mg/kg	ND	ND	ND	ND	mg/L	ND
Barium	mg/kg	260	237	183	218	mg/L	ND
Beryllium	mg/kg	1.1	0.87	0.95	0.99	mg/L	ND
Cadmium	mg/kg	ND	ND	ND	ND	mg/L	0.0056
Chromium	mg/kg	6.8	5.7	5.1	5.9	mg/L	ND
Cobalt	mg/kg	2.7	2.1	2.2	2.2	mg/L	ND
Copper	mg/kg	5.3	4.2	4.9	5.0	mg/L	ND
Lead	mg/kg	11.5	8.0	7.6	7.1	mg/L	ND
Mercury	mg/kg	ND	ND	ND	ND	mg/L	ND
Nickel	mg/kg	8.0	6.2	5.7	6.3	mg/L	ND
Potassium	mg/kg	1040	793	1160	1080	mg/L	ND
Selenium	mg/kg	ND	ND	ND	ND	mg/L	ND
Vanadium	mg/kg	14.2	11.9	10.9	11.6	mg/L	ND
Zinc	mg/kg	12.3	9.5	9.3	9.8	mg/L	ND

RFI09 - Inactive Land Treatment Area and Drainage Ditch

Sample point number		01	01	01	01	02	02	02	02
Depth of sample		V0.0	V3.0	V5.0	V7.0	V0.0	V3.0	V5.0	V7.0
Parameter	Units	Result	Result	Result	Result	Result	Result	Result	Result
Method 8240									
Chloromethane	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethene (cis/trans)	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
2-Chloroethyl vinyl ether	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Acrolein	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,4-Dichloro-2-butene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Ethanol	ug/kg	ND	16000	ND	24000	ND	23000	ND	ND
Iodomethane	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone (MEK)	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl acetate	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl methacrylate	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (total)	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND

RFI09 - Inactive Land Treatment Area and Drainage Ditch

Sample point number		01	01	01	01	02	02	02	02
Depth of sample		V0.0	V3.0	V5.0	V7.0	V0.0	V3.0	V5.0	V7.0
Parameter	Units	Result	Result	Result	Result	Result	Result	Result	Result
Method 8270									
Acenarthene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Acenarhthylene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Acetophenone	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
4-Aminobiphenyl	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Aniline	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Anthracene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(g,h,i)perylene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Benzyl alcohol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroethoxy)-methane	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroethyl) ether	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroisopropyl)-ether	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
bis(2-Ethylhexyl) phthalate	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
4-Bromophenyl phenyl ether	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Butyl benzyl phthalate	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
4-Chloroaniline	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
4-Chloro-3-methylphenol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
2-Chloronaphthalene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
2-Chlorophenol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
4-Chlorophenyl phenyl ether	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
o-Cresol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
m & p-Cresol(s)	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Chrysene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Dibenz(a,h)anthracene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Di-n-butyl phthalate	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
3,3-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dichlorophenol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
2,6-Dichlorophenol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Diethyl phthalate	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
p-Dimethylaminoazobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
7,12-Dimethylbenz(a)-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
anthracene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
a,a-Dimethylphenethyl-amine	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dimethylphenol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Dimethyl phthalate	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dinitrobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
4,6-Dinitro-o-cresol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dinitrophenol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dinitrotoluene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
2,6-Dinitrotoluene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Di-n-octyl phthalate	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Diphenylamine	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND

RFI09 - Inactive Land Treatment Area and Drainage Ditch

Sample point number		01	01	01	01	02	02	02	02
Depth of sample		V0.0	V3.0	V5.0	V7.0	V0.0	V3.0	V5.0	V7.0
Parameter	Units	Result	Result	Result	Result	Result	Result	Result	Result
Method 8270 (con't)									
Ethyl methanesulfonate	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Fluorene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Hexachloroethane	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Isophorone	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
3-Methylcholanthrene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Methyl methanesulfonate	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
2-Methylnaphthalene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
1-Naphthylamine	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
2-Naphthylamine	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
2-Nitroaniline	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
3-Nitroaniline	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
4-Nitroaniline	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Nitrobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
2-Nitrophenol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
4-Nitrophenol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
N-Nitroso-di-n-butylamine	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodimethylamine	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodiphenylamine	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
N-Nitroso-di-n-propylamine	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
N-Nitrosopiperidine	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Pentachlorobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Pentachloronitrobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Pentachlorophenol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Phenacetin	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Phenol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
2-Picoline	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Pronamide	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Pyrene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4,5-Tetrachloro-benzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
2,3,4,6-Tetrachlorophenol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
2,4,5-Trichlorophenol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trichlorophenol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Benzidine	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Benzoic acid	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
1-Chloronaphthalene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Diphenylhydrazine	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND

RFI09 - Inactive Land Treatment Area and Drainage Ditch

Sample point number		01	01	01	01	02	02	02	02
Depth of sample		V0.0	V3.0	V5.0	V7.0	V0.0	V3.0	V5.0	V7.0
Parameter	Units	Result	Result	Result	Result	Result	Result	Result	Result
Total Metals									
Antimony	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic	mg/kg	0.86	ND	ND	ND	ND	ND	ND	ND
Barium	mg/kg	316	330	332	309	302	318	237	262
Beryllium	mg/kg	0.95	0.88	1.1	1.2	1.3	1.2	1.2	0.59
Cadmium	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Chromium	mg/kg	13.9	4.8	5.4	5.4	11.8	6.3	7.2	2.3
Cobalt	mg/kg	3.2	2.8	3.8	4.0	5.8	3.7	4.4	2.0
Copper	mg/kg	7.4	3.6	5.3	5.7	8.1	5.6	5.7	ND
Lead	mg/kg	13.4	11.4	9.8	13.2	16.1	13.9	13.4	11.9
Mercury	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Nickel	mg/kg	6.3	5.2	5.7	6.7	11.4	6.8	8.2	ND
Potassium	mg/kg	1210	712	1400	963	2110	1220	1640	ND
Selenium	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium	mg/kg	12.9	12.9	14.1	14.7	20.4	16.0	15.9	9.5
Zinc	mg/kg	19.7	6.9	9.3	9.2	18.4	12.0	12.3	5.7

RFI09 - Inactive Land Treatment Area and Drainage Ditch

Sample point number		03	03	03	03	04	04	04	04
Depth of sample		V0.0	V3.0	V5.0	V7.0	V0.0	V3.0	V5.0	V7.0
Parameter	Units	Result	Result	Result	Result	Result	Result	Result	Result
Method 8240									
Chloromethane	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethene (cis/trans)	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
2-Chloroethyl vinyl ether	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Acrolein	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,4-Dichloro-2-butene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Ethanol	ug/kg	ND	ND	ND	ND	ND	20000	22000	12000
Iodomethane	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone (MEK)	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl acetate	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl methacrylate	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (total)	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND

RFI09 - Inactive Land Treatment Area and Drainage Ditch

Sample point number		03	03	03	03	04	04	04	04
Depth of sample		V0.0	V3.0	V5.0	V7.0	V0.0	V3.0	V5.0	V7.0
Parameter	Units	Result	Result	Result	Result	Result	Result	Result	Result
Method 8270									
Acenapthene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthylene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Acetophenone	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
4-Aminobiphenyl	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Aniline	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Anthracene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(g,h,i)perylene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Benzyl alcohol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroethoxy)-methane	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroethyl) ether	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroisopropyl)-ether	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
bis(2-Ethylhexyl) phthalate	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
4-Bromophenyl phenyl ether	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Butyl benzyl phthalate	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
4-Chloroaniline	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
4-Chloro-3-methylphenol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
2-Chloronaphthalene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
2-Chlorophenol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
4-Chlorophenyl phenyl ether	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
o-Cresol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
m & p-Cresol(s)	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Chrysene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Dibenz(a,h)anthracene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Di-n-butyl phthalate	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
3,3-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dichlorophenol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
2,6-Dichlorophenol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Diethyl phthalate	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
p-Dimethylaminoazobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
7,12-Dimethylbenz(a)-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
anthracene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
a,a-Dimethylphenethyl-amine	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dimethylphenol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Dimethyl phthalate	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dinitrobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
4,6-Dinitro-o-cresol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dinitrophenol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dinitrotoluene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
2,6-Dinitrotoluene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Di-n-octyl phthalate	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Diphenylamine	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND

RFI09 - Inactive Land Treatment Area and Drainage Ditch

Sample point number		03	03	03	03	04	04	04	04
Depth of sample		V0.0	V3.0	V5.0	V7.0	V0.0	V3.0	V5.0	V7.0
Parameter	Units	Result	Result	Result	Result	Result	Result	Result	Result
Method 8270 (con't)									
Ethyl methanesulfonate	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Fluorene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Hexachloroethane	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Isophorone	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
3-Methylcholanthrene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Methyl methanesulfonate	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
2-Methylnaphthalene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
1-Naphthylamine	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
2-Naphthylamine	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
2-Nitroaniline	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
3-Nitroaniline	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
4-Nitroaniline	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Nitrobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
2-Nitrophenol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
4-Nitrophenol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
N-Nitroso-di-n-butylamine	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodimethylamine	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodiphenylamine	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
N-Nitroso-di-n-propylamine	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
N-Nitrosopiperidine	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Pentachlorobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Pentachloronitrobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Pentachlorophenol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Phenacetin	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Phenol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
2-Picoline	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Pronamide	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Pyrene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4,5-Tetrachloro-benzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
2,3,4,6-Tetrachlorophenol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
2,4,5-Trichlorophenol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trichlorophenol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Benzidine	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
Benzoic acid	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
1-Chloronaphthalene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Diphenylhydrazine	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND

RFI09 - Inactive Land Treatment Area and Drainage Ditch

Sample point number		03	03	03	03	04	04	04	04
Depth of sample		V0.0	V3.0	V5.0	V7.0	V0.0	V3.0	V5.0	V7.0
Parameter	Units	Result	Result	Result	Result	Result	Result	Result	Result
Total Metals									
Antimony	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic	mg/kg	ND	ND	ND	0.58	2.1	ND	ND	ND
Barium	mg/kg	214	307	334	224	406	275	309	239
Beryllium	mg/kg	0.73	1.0	1.2	1.1	0.91	1.3	1.1	1.4
Cadmium	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Chromium	mg/kg	4.9	6.1	7.6	7.6	42.3	6.7	5.2	8.1
Cobalt	mg/kg	1.6	2.1	3.4	3.2	4.4	4.1	3.4	4.8
Copper	mg/kg	4.5	4.8	8.6	5.8	13.9	6.5	5.2	7.2
Lead	mg/kg	6.0	8.0	9.9	7.3	29.7	13.8	12.4	16.4
Mercury	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Nickel	mg/kg	5.1	6.7	9.1	8.2	10.0	7.4	5.1	7.8
Potassium	mg/kg	991	955	1300	1860	1250	1180	983	1560
Selenium	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium	mg/kg	10.1	13.1	16.1	14.9	16.4	16.4	12.8	18.1
Zinc	mg/kg	8.7	9.6	13.4	13.3	69.6	11.1	9.1	14.0

RFI09 - Inactive Land Treatment Area and Drainage Ditch

Sample point number		05	05	05	05	05
Depth of sample		V0.0	V3.0	V5.0	D5.0	V7.0
Parameter	Units	Result	Result	Result	Result	Result
Method 8240						
Chloromethane	ug/kg	ND	ND	ND	ND	ND
Bromomethane	ug/kg	ND	ND	ND	ND	ND
Vinyl chloride	ug/kg	ND	ND	ND	ND	ND
Chloroethane	ug/kg	ND	ND	ND	ND	ND
Methylene chloride	ug/kg	ND	ND	ND	ND	ND
1,1-Dichloroethene	ug/kg	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/kg	ND	ND	ND	ND	ND
1,2-Dichloroethene (cis/trans)	ug/kg	ND	ND	ND	ND	ND
Chloroform	ug/kg	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/kg	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ug/kg	ND	ND	ND	ND	ND
Carbon tetrachloride	ug/kg	ND	ND	ND	ND	ND
Bromodichloromethane	ug/kg	ND	ND	ND	ND	ND
1,2-Dichloropropane	ug/kg	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ug/kg	ND	ND	ND	ND	ND
Trichloroethene	ug/kg	ND	ND	ND	ND	ND
Dibromochloromethane	ug/kg	ND	ND	ND	ND	ND
1,1,2-Trichloroethene	ug/kg	ND	ND	ND	ND	ND
Benzene	ug/kg	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ug/kg	ND	ND	ND	ND	ND
2-Chloroethyl vinyl ether	ug/kg	ND	ND	ND	ND	ND
Bromoform	ug/kg	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/kg	ND	ND	ND	ND	ND
Tetrachloroethene	ug/kg	ND	ND	ND	ND	ND
Toluene	ug/kg	ND	ND	ND	ND	ND
Chlorobenzene	ug/kg	ND	ND	ND	ND	ND
Ethylbenzene	ug/kg	ND	ND	ND	ND	ND
Acetone	ug/kg	ND	ND	ND	ND	ND
Acrolein	ug/kg	ND	ND	ND	ND	ND
Acrylonitrile	ug/kg	ND	ND	ND	ND	ND
Carbon disulfide	ug/kg	ND	ND	ND	ND	ND
Dibromomethane	ug/kg	ND	ND	ND	ND	ND
trans-1,4-Dichloro-2-butene	ug/kg	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/kg	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ug/kg	ND	ND	ND	ND	ND
Ethanol	ug/kg	ND	ND	ND	ND	ND
Iodomethane	ug/kg	ND	ND	ND	ND	ND
2-Butanone (MEK)	ug/kg	ND	ND	ND	ND	ND
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	ND	ND	ND	ND
Styrene	ug/kg	ND	ND	ND	ND	ND
Trichlorofluoromethane	ug/kg	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	ug/kg	ND	ND	ND	ND	ND
Vinyl acetate	ug/kg	ND	ND	ND	ND	ND
Ethyl methacrylate	ug/kg	ND	ND	ND	ND	ND
Xylenes (total)	ug/kg	ND	ND	ND	ND	ND
2-Hexanone	ug/kg	ND	ND	ND	ND	ND

RFI09 - Inactive Land Treatment Area and Drainage Ditch

Sample point number		05	05	05	05	05
Depth of sample		V0.0	V3.0	V5.0	D5.0	V7.0
Parameter	Units	Result	Result	Result	Result	Result
Method 8270						
Acenapthene	ug/kg	ND	ND	ND	ND	ND
Acenaphthylene	ug/kg	ND	ND	ND	ND	ND
Acetophenone	ug/kg	ND	ND	ND	ND	ND
4-Aminobiphenyl	ug/kg	ND	ND	ND	ND	ND
Aniline	ug/kg	ND	ND	ND	ND	ND
Anthracene	ug/kg	ND	ND	ND	ND	ND
Benzo(a)anthracene	ug/kg	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	ug/kg	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	ug/kg	ND	ND	ND	ND	ND
Benzo(g,h,i)perylene	ug/kg	ND	ND	ND	ND	ND
Benzo(a)pyrene	ug/kg	ND	ND	ND	ND	ND
Benzyl alcohol	ug/kg	ND	ND	ND	ND	ND
bis(2-Chloroethoxy)-methane	ug/kg	ND	ND	ND	ND	ND
bis(2-Chloroethyl) ether	ug/kg	ND	ND	ND	ND	ND
bis(2-Chloroisopropyl)-ether	ug/kg	ND	ND	ND	ND	ND
bis(2-Ethylhexyl) phthalate	ug/kg	ND	ND	ND	ND	ND
4-Bromophenyl phenyl ether	ug/kg	ND	ND	ND	ND	ND
Butyl benzyl phthalate	ug/kg	ND	ND	ND	ND	ND
4-Chloroaniline	ug/kg	ND	ND	ND	ND	ND
4-Chloro-3-methylphenol	ug/kg	ND	ND	ND	ND	ND
2-Chloronaphthalene	ug/kg	ND	ND	ND	ND	ND
2-Chlorophenol	ug/kg	ND	ND	ND	ND	ND
4-Chlorophenyl phenyl ether	ug/kg	ND	ND	ND	ND	ND
o-Cresol	ug/kg	ND	ND	ND	ND	ND
m & p-Cresol(s)	ug/kg	ND	ND	ND	ND	ND
Chrysene	ug/kg	ND	ND	ND	ND	ND
Dibenz(a,h)anthracene	ug/kg	ND	ND	ND	ND	ND
Di-n-butyl phthalate	ug/kg	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ND
3,3-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ND
2,4-Dichlorophenol	ug/kg	ND	ND	ND	ND	ND
2,6-Dichlorophenol	ug/kg	ND	ND	ND	ND	ND
Diethyl phthalate	ug/kg	ND	ND	ND	ND	ND
p-Dimethylaminoazobenzene	ug/kg	ND	ND	ND	ND	ND
7,12-Dimethylbenz(a)-	ug/kg	ND	ND	ND	ND	ND
anthracene	ug/kg	ND	ND	ND	ND	ND
a,a-Dimethylphenethyl-amine	ug/kg	ND	ND	ND	ND	ND
2,4-Dimethylphenol	ug/kg	ND	ND	ND	ND	ND
Dimethyl phthalate	ug/kg	ND	ND	ND	ND	ND
1,3-Dinitrobenzene	ug/kg	ND	ND	ND	ND	ND
4,6-Dinitro-o-cresol	ug/kg	ND	ND	ND	ND	ND
2,4-Dinitrophenol	ug/kg	ND	ND	ND	ND	ND
2,4-Dinitrotoluene	ug/kg	ND	ND	ND	ND	ND
2,6-Dinitrotoluene	ug/kg	ND	ND	ND	ND	ND
Di-n-octyl phthalate	ug/kg	ND	ND	ND	ND	ND
Diphenylamine	ug/kg	ND	ND	ND	ND	ND

RFI09 - Inactive Land Treatment Area and Drainage Ditch

Sample point number		05	05	05	05	05
Depth of sample		V0.0	V3.0	V5.0	D5.0	V7.0
Parameter	Units	Result	Result	Result	Result	Result
Method 8270 (con't)						
Ethyl methanesulfonate	ug/kg	ND	ND	ND	ND	ND
Fluoranthene	ug/kg	ND	ND	ND	ND	ND
Fluorene	ug/kg	ND	ND	ND	ND	ND
Hexachlorobenzene	ug/kg	ND	ND	ND	ND	ND
Hexachlorobutadiene	ug/kg	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	ug/kg	ND	ND	ND	ND	ND
Hexachloroethane	ug/kg	ND	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene	ug/kg	ND	ND	ND	ND	ND
Isophorone	ug/kg	ND	ND	ND	ND	ND
3-Methylcholanthrene	ug/kg	ND	ND	ND	ND	ND
Methyl methanesulfonate	ug/kg	ND	ND	ND	ND	ND
2-Methylnaphthalene	ug/kg	ND	ND	ND	ND	ND
Naphthalene	ug/kg	ND	ND	ND	ND	ND
1-Naphthylamine	ug/kg	ND	ND	ND	ND	ND
2-Naphthylamine	ug/kg	ND	ND	ND	ND	ND
2-Nitroaniline	ug/kg	ND	ND	ND	ND	ND
3-Nitroaniline	ug/kg	ND	ND	ND	ND	ND
4-Nitroaniline	ug/kg	ND	ND	ND	ND	ND
Nitrobenzene	ug/kg	ND	ND	ND	ND	ND
2-Nitrophenol	ug/kg	ND	ND	ND	ND	ND
4-Nitrophenol	ug/kg	ND	ND	ND	ND	ND
N-Nitroso-di-n-butylamine	ug/kg	ND	ND	ND	ND	ND
N-Nitrosodimethylamine	ug/kg	ND	ND	ND	ND	ND
N-Nitrosodiphenylamine	ug/kg	ND	ND	ND	ND	ND
N-Nitroso-di-n-propylamine	ug/kg	ND	ND	ND	ND	ND
N-Nitrosopiperidine	ug/kg	ND	ND	ND	ND	ND
Pentachlorobenzene	ug/kg	ND	ND	ND	ND	ND
Pentachloronitrobenzene	ug/kg	ND	ND	ND	ND	ND
Pentachlorophenol	ug/kg	ND	ND	ND	ND	ND
Phenacetin	ug/kg	ND	ND	ND	ND	ND
Phenanthrene	ug/kg	ND	ND	ND	ND	ND
Phenol	ug/kg	ND	ND	ND	ND	ND
2-Picoline	ug/kg	ND	ND	ND	ND	ND
Pronamide	ug/kg	ND	ND	ND	ND	ND
Pyrene	ug/kg	ND	ND	ND	ND	ND
1,2,4,5-Tetrachloro-benzene	ug/kg	ND	ND	ND	ND	ND
2,3,4,6-Tetrachlorophenol	ug/kg	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	ug/kg	ND	ND	ND	ND	ND
2,4,5-Trichlorophenol	ug/kg	ND	ND	ND	ND	ND
2,4,6-Trichlorophenol	ug/kg	ND	ND	ND	ND	ND
Benzidine	ug/kg	ND	ND	ND	ND	ND
Benzoic acid	ug/kg	ND	ND	ND	ND	ND
1-Chloronaphthalene	ug/kg	ND	ND	ND	ND	ND
1,2-Diphenylhydrazine	ug/kg	ND	ND	ND	ND	ND

RFI09 - Inactive Land Treatment Area and Drainage Ditch

Sample point number		05	05	05	05	05
Depth of sample		V0.0	V3.0	V5.0	D5.0	V7.0
Parameter	Units	Result	Result	Result	Result	Result
Total Metals						
Antimony	mg/kg	ND	ND	ND	ND	ND
Arsenic	mg/kg	ND	ND	ND	ND	ND
Barium	mg/kg	285	418	333	375	313
Beryllium	mg/kg	1.2	0.77	0.94	0.91	1.3
Cadmium	mg/kg	ND	ND	ND	ND	ND
Chromium	mg/kg	8.1	32.2	6.1	6.8	8.5
Cobalt	mg/kg	4.6	5.0	3.5	3.9	4.5
Copper	mg/kg	5.5	11.9	3.5	4.2	6.4
Lead	mg/kg	14.9	31.0	13.7	14.4	12.8
Mercury	mg/kg	ND	ND	ND	ND	ND
Nickel	mg/kg	9.1	8.7	5.5	6.9	9.2
Potassium	mg/kg	1160	1100	825	936	1590
Selenium	mg/kg	ND	ND	ND	ND	ND
Vanadium	mg/kg	17.9	16.9	15.5	16.4	18.5
Zinc	mg/kg	12.1	55.6	8.4	10.1	13.3

RFI09 - Inactive Land Treatment Area and Drainage Ditch

Sample point number		06	06	06	06	06
Depth of sample		V0.0	V3.0	D3.0	V5.0	V7.0
Parameter	Units	Result	Result	Result	Result	Result
Method 8240						
Chloromethane	ug/kg	ND	ND	ND	ND	ND
Bromomethane	ug/kg	ND	ND	ND	ND	ND
Vinyl chloride	ug/kg	ND	ND	ND	ND	ND
Chloroethane	ug/kg	ND	ND	ND	ND	ND
Methylene chloride	ug/kg	ND	ND	ND	ND	ND
1,1-Dichloroethene	ug/kg	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/kg	ND	ND	ND	ND	ND
1,2-Dichloroethene (cis/trans)	ug/kg	ND	ND	ND	ND	ND
Chloroform	ug/kg	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/kg	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ug/kg	ND	ND	ND	ND	ND
Carbon tetrachloride	ug/kg	ND	ND	ND	ND	ND
Bromodichloromethane	ug/kg	ND	ND	ND	ND	ND
1,2-Dichloropropane	ug/kg	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ug/kg	ND	ND	ND	ND	ND
Trichloroethene	ug/kg	ND	ND	ND	ND	ND
Dibromochloromethane	ug/kg	ND	ND	ND	ND	ND
1,1,2-Trichloroethene	ug/kg	ND	ND	ND	ND	ND
Benzene	ug/kg	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ug/kg	ND	ND	ND	ND	ND
2-Chloroethyl vinyl ether	ug/kg	ND	ND	ND	ND	ND
Bromoform	ug/kg	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/kg	ND	ND	ND	ND	ND
Tetrachloroethene	ug/kg	ND	ND	ND	ND	ND
Toluene	ug/kg	ND	ND	ND	ND	ND
Chlorobenzene	ug/kg	ND	ND	ND	ND	ND
Ethylbenzene	ug/kg	ND	ND	ND	ND	ND
Acetone	ug/kg	ND	ND	ND	ND	ND
Acrolein	ug/kg	ND	ND	ND	ND	ND
Acrylonitrile	ug/kg	ND	ND	ND	ND	ND
Carbon disulfide	ug/kg	ND	ND	ND	ND	ND
Dibromomethane	ug/kg	ND	ND	ND	ND	ND
trans-1,4-Dichloro-2-butene	ug/kg	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/kg	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ug/kg	ND	ND	ND	ND	ND
Ethanol	ug/kg	ND	ND	ND	ND	ND
Iodomethane	ug/kg	ND	ND	ND	ND	ND
2-Butanone (MEK)	ug/kg	ND	ND	ND	ND	ND
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	ND	ND	ND	ND
Styrene	ug/kg	ND	ND	ND	ND	ND
Trichlorofluoromethane	ug/kg	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	ug/kg	ND	ND	ND	ND	ND
Vinyl acetate	ug/kg	ND	ND	ND	ND	ND
Ethyl methacrylate	ug/kg	ND	ND	ND	ND	ND
Xylenes (total)	ug/kg	ND	ND	ND	ND	ND
2-Hexanone	ug/kg	ND	ND	ND	ND	ND

RFI09 - Inactive Land Treatment Area and Drainage Ditch

Sample point number		06	06	06	06	06
Depth of sample		V0.0	V3.0	D3.0	V5.0	V7.0
Parameter	Units	Result	Result	Result	Result	Result
Method 8270						
Acenapthene	ug/kg	ND	ND	ND	ND	ND
Acenaphthylene	ug/kg	ND	ND	ND	ND	ND
Acetophenone	ug/kg	ND	ND	ND	ND	ND
4-Aminobiphenyl	ug/kg	ND	ND	ND	ND	ND
Aniline	ug/kg	ND	ND	ND	ND	ND
Anthracene	ug/kg	ND	ND	ND	ND	ND
Benzo(a)anthracene	ug/kg	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	ug/kg	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	ug/kg	ND	ND	ND	ND	ND
Benzo(g,h,i)perylene	ug/kg	ND	ND	ND	ND	ND
Benzo(a)pyrene	ug/kg	ND	ND	ND	ND	ND
Benzyl alcohol	ug/kg	ND	ND	ND	ND	ND
bis(2-Chloroethoxy)-methane	ug/kg	ND	ND	ND	ND	ND
bis(2-Chloroethyl) ether	ug/kg	ND	ND	ND	ND	ND
bis(2-Chloroisopropyl)-ether	ug/kg	ND	ND	ND	ND	ND
bis(2-Ethylhexyl) phthalate	ug/kg	ND	ND	ND	ND	ND
4-Bromophenyl phenyl ether	ug/kg	ND	ND	ND	ND	ND
Butyl benzyl phthalate	ug/kg	ND	ND	ND	ND	ND
4-Chloroaniline	ug/kg	ND	ND	ND	ND	ND
4-Chloro-3-methylphenol	ug/kg	ND	ND	ND	ND	ND
2-Chloronaphthalene	ug/kg	ND	ND	ND	ND	ND
2-Chlorophenol	ug/kg	ND	ND	ND	ND	ND
4-Chlorophenyl phenyl ether	ug/kg	ND	ND	ND	ND	ND
o-Cresol	ug/kg	ND	ND	ND	ND	ND
m & p-Cresol(s)	ug/kg	ND	ND	ND	ND	ND
Chrysene	ug/kg	26000	ND	ND	ND	ND
Dibenz(a,h)anthracene	ug/kg	ND	ND	ND	ND	ND
Di-n-butyl phthalate	ug/kg	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ND
3,3-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ND
2,4-Dichlorophenol	ug/kg	ND	ND	ND	ND	ND
2,6-Dichlorophenol	ug/kg	ND	ND	ND	ND	ND
Diethyl phthalate	ug/kg	ND	ND	ND	ND	ND
p-Dimethylaminoazobenzene	ug/kg	ND	ND	ND	ND	ND
7,12-Dimethylbenz(a)-	ug/kg	ND	ND	ND	ND	ND
anthracene	ug/kg	ND	ND	ND	ND	ND
a,a-Dimethylphenethyl-amine	ug/kg	ND	ND	ND	ND	ND
2,4-Dimethylphenol	ug/kg	ND	ND	ND	ND	ND
Dimethyl phthalate	ug/kg	ND	ND	ND	ND	ND
1,3-Dinitrobenzene	ug/kg	ND	ND	ND	ND	ND
4,6-Dinitro-o-cresol	ug/kg	ND	ND	ND	ND	ND
2,4-Dinitrophenol	ug/kg	ND	ND	ND	ND	ND
2,4-Dinitrotoluene	ug/kg	ND	ND	ND	ND	ND
2,6-Dinitrotoluene	ug/kg	ND	ND	ND	ND	ND
Di-n-octyl phthalate	ug/kg	ND	ND	ND	ND	ND
Diphenylamine	ug/kg	ND	ND	ND	ND	ND

RFI09 - Inactive Land Treatment Area and Drainage Ditch

Sample point number		06	06	06	06	06
Depth of sample		V0.0	V3.0	D3.0	V5.0	V7.0
Parameter	Units	Result	Result	Result	Result	Result
Method 8270 (con't)						
Ethyl methanesulfonate	ug/kg	ND	ND	ND	ND	ND
Fluoranthene	ug/kg	ND	ND	ND	ND	ND
Fluorene	ug/kg	ND	ND	ND	ND	ND
Hexachlorobenzene	ug/kg	ND	ND	ND	ND	ND
Hexachlorobutadiene	ug/kg	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	ug/kg	ND	ND	ND	ND	ND
Hexachloroethane	ug/kg	ND	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene	ug/kg	ND	ND	ND	ND	ND
Isophorone	ug/kg	ND	ND	ND	ND	ND
3-Methylcholanthrene	ug/kg	ND	ND	ND	ND	ND
Methyl methanesulfonate	ug/kg	ND	ND	ND	ND	ND
2-Methylnaphthalene	ug/kg	ND	ND	ND	ND	ND
Naphthalene	ug/kg	ND	ND	ND	ND	ND
1-Naphthylamine	ug/kg	ND	ND	ND	ND	ND
2-Naphthylamine	ug/kg	ND	ND	ND	ND	ND
2-Nitroaniline	ug/kg	ND	ND	ND	ND	ND
3-Nitroaniline	ug/kg	ND	ND	ND	ND	ND
4-Nitroaniline	ug/kg	ND	ND	ND	ND	ND
Nitrobenzene	ug/kg	ND	ND	ND	ND	ND
2-Nitrophenol	ug/kg	ND	ND	ND	ND	ND
4-Nitrophenol	ug/kg	ND	ND	ND	ND	ND
N-Nitroso-di-n-butylamine	ug/kg	ND	ND	ND	ND	ND
N-Nitrosodimethylamine	ug/kg	ND	ND	ND	ND	ND
N-Nitrosodiphenylamine	ug/kg	ND	ND	ND	ND	ND
N-Nitroso-di-n-propylamine	ug/kg	ND	ND	ND	ND	ND
N-Nitrosopiperidine	ug/kg	ND	ND	ND	ND	ND
Pentachlorobenzene	ug/kg	ND	ND	ND	ND	ND
Pentachloronitrobenzene	ug/kg	ND	ND	ND	ND	ND
Pentachlorophenol	ug/kg	ND	ND	ND	ND	ND
Phenacetin	ug/kg	ND	ND	ND	ND	ND
Phenanthrene	ug/kg	ND	ND	ND	ND	ND
Phenol	ug/kg	ND	ND	ND	ND	ND
2-Picoline	ug/kg	ND	ND	ND	ND	ND
Pronamide	ug/kg	ND	ND	ND	ND	ND
Pyrene	ug/kg	20000	ND	ND	ND	ND
1,2,4,5-Tetrachloro-benzene	ug/kg	ND	ND	ND	ND	ND
2,3,4,6-Tetrachlorophenol	ug/kg	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	ug/kg	ND	ND	ND	ND	ND
2,4,5-Trichlorophenol	ug/kg	ND	ND	ND	ND	ND
2,4,6-Trichlorophenol	ug/kg	ND	ND	ND	ND	ND
Benzidine	ug/kg	ND	ND	ND	ND	ND
Benzoic acid	ug/kg	ND	ND	ND	ND	ND
1-Chloronaphthalene	ug/kg	ND	ND	ND	ND	ND
1,2-Diphenylhydrazine	ug/kg	ND	ND	ND	ND	ND

RFI09 - Inactive Land Treatment Area and Drainage Ditch

Sample point number		06	06	06	06	06
Depth of sample		V0.0	V3.0	D3.0	V5.0	V7.0
Parameter	Units	Result	Result	Result	Result	Result
Total Metals						
Antimony	mg/kg	ND	ND	ND	ND	ND
Arsenic	mg/kg	1.7	1.2	ND	ND	0.53
Barium	mg/kg	299	243	226	241	319
Beryllium	mg/kg	0.79	1.1	1.1	0.97	0.97
Cadmium	mg/kg	ND	ND	ND	ND	ND
Chromium	mg/kg	7.8	6.3	6.3	5.1	4.1
Cobalt	mg/kg	2.3	2.6	2.6	1.9	1.7
Copper	mg/kg	14.3	5.4	5.4	4.5	4.9
Lead	mg/kg	28.1	9.2	8.1	7.5	8.1
Mercury	mg/kg	ND	ND	ND	ND	ND
Nickel	mg/kg	11.4	7.0	7.2	5.3	5.0
Potassium	mg/kg	989	1110	1120	997	938
Selenium	mg/kg	ND	ND	ND	ND	ND
Vanadium	mg/kg	14.5	14.5	14.2	12.6	13.0
Zinc	mg/kg	22.8	10.6	10.4	8.4	7.8

RFI09 - Inactive Land Treatment Area and Drainage Ditch

Sample point number		07	07	07	07		01
Depth of sample		V0.0	V3.0	V5.0	V7.0		E5.0
Parameter	Units	Result	Result	Result	Result	Units	Result
Method 8240							
Chloromethane	ug/kg	ND	ND	ND	ND	ug/L	ND
Bromomethane	ug/kg	ND	ND	ND	ND	ug/L	ND
Vinyl chloride	ug/kg	ND	ND	ND	ND	ug/L	ND
Chloroethane	ug/kg	ND	ND	ND	ND	ug/L	ND
Methylene chloride	ug/kg	ND	ND	ND	ND	ug/L	ND
1,1-Dichloroethene	ug/kg	ND	ND	ND	ND	ug/L	ND
1,1-Dichloroethane	ug/kg	ND	ND	ND	ND	ug/L	ND
1,2-Dichloroethene (cis/trans)	ug/kg	ND	ND	ND	ND	ug/L	ND
Chloroform	ug/kg	ND	ND	ND	ND	ug/L	ND
1,2-Dichloroethane	ug/kg	ND	ND	ND	ND	ug/L	ND
1,1,1-Trichloroethane	ug/kg	ND	ND	ND	ND	ug/L	ND
Carbon tetrachloride	ug/kg	ND	ND	ND	ND	ug/L	ND
Bromodichloromethane	ug/kg	ND	ND	ND	ND	ug/L	ND
1,2-Dichloropropane	ug/kg	ND	ND	ND	ND	ug/L	ND
trans-1,3-Dichloropropene	ug/kg	ND	ND	ND	ND	ug/L	ND
Trichloroethene	ug/kg	ND	ND	ND	ND	ug/L	ND
Dibromochloromethane	ug/kg	ND	ND	ND	ND	ug/L	ND
1,1,2-Trichloroethene	ug/kg	ND	ND	ND	ND	ug/L	ND
Benzene	ug/kg	ND	ND	ND	ND	ug/L	ND
cis-1,3-Dichloropropene	ug/kg	ND	ND	ND	ND	ug/L	ND
2-Chloroethyl vinyl ether	ug/kg	ND	ND	ND	ND	ug/L	ND
Bromoform	ug/kg	ND	ND	ND	ND	ug/L	ND
1,1,2,2-Tetrachloroethane	ug/kg	ND	ND	ND	ND	ug/L	ND
Tetrachloroethene	ug/kg	ND	ND	ND	ND	ug/L	ND
Toluene	ug/kg	ND	ND	ND	ND	ug/L	ND
Chlorobenzene	ug/kg	ND	ND	ND	ND	ug/L	ND
Ethylbenzene	ug/kg	ND	ND	ND	ND	ug/L	ND
Acetone	ug/kg	ND	ND	ND	ND	ug/L	12
Acrolein	ug/kg	ND	ND	ND	ND	ug/L	ND
Acrylonitrile	ug/kg	ND	ND	ND	ND	ug/L	ND
Carbon disulfide	ug/kg	ND	ND	ND	ND	ug/L	ND
Dibromomethane	ug/kg	ND	ND	ND	ND	ug/L	ND
trans-1,4-Dichloro-2-butene	ug/kg	ND	ND	ND	ND	ug/L	ND
Dichlorodifluoromethane	ug/kg	ND	ND	ND	ND	ug/L	ND
trans-1,2-Dichloroethene	ug/kg	ND	ND	ND	ND	ug/L	ND
Ethanol	ug/kg	ND	ND	ND	ND	ug/L	ND
Iodomethane	ug/kg	ND	ND	ND	ND	ug/L	ND
2-Butanone (MEK)	ug/kg	ND	ND	ND	ND	ug/L	ND
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	ND	ND	ND	ug/L	ND
Styrene	ug/kg	ND	ND	ND	ND	ug/L	ND
Trichlorofluoromethane	ug/kg	ND	ND	ND	ND	ug/L	ND
1,2,3-Trichloropropane	ug/kg	ND	ND	ND	ND	ug/L	ND
Vinyl acetate	ug/kg	ND	ND	ND	ND	ug/L	ND
Ethyl methacrylate	ug/kg	ND	ND	ND	ND	ug/L	ND
Xylenes (total)	ug/kg	ND	ND	ND	ND		
2-Hexanone	ug/kg	ND	ND	ND	ND	ug/L	ND

RFI09 - Inactive Land Treatment Area and Drainage Ditch

Sample point number		07	07	07	07		01
Depth of sample		V0.0	V3.0	V5.0	V7.0		E5.0
Parameter	Units	Result	Result	Result	Result	Units	Result
Method 8270							
Acenapthene	ug/kg	ND	ND	ND	ND	ug/L	ND
Acenaphthylene	ug/kg	ND	ND	ND	ND	ug/L	ND
Acetophenone	ug/kg	ND	ND	ND	ND	ug/L	ND
4-Aminobiphenyl	ug/kg	ND	ND	ND	ND	ug/L	ND
Aniline	ug/kg	ND	ND	ND	ND	ug/L	ND
Anthracene	ug/kg	ND	ND	ND	ND	ug/L	ND
Benzo(a)anthracene	ug/kg	ND	ND	ND	ND	ug/L	ND
Benzo(b)fluoranthene	ug/kg	ND	ND	ND	ND	ug/L	ND
Benzo(k)fluoranthene	ug/kg	ND	ND	ND	ND	ug/L	ND
Benzo(g,h,i)perylene	ug/kg	ND	ND	ND	ND	ug/L	ND
Benzo(a)pyrene	ug/kg	ND	ND	ND	ND	ug/L	ND
Benzyl alcohol	ug/kg	ND	ND	ND	ND	ug/L	ND
bis(2-Chloroethoxy)-methane	ug/kg	ND	ND	ND	ND	ug/L	ND
bis(2-Chloroethyl) ether	ug/kg	ND	ND	ND	ND	ug/L	ND
bis(2-Chloroisopropyl)-ether	ug/kg	ND	ND	ND	ND	ug/L	ND
bis(2-Ethylhexyl) phthalate	ug/kg	ND	ND	ND	ND	ug/L	ND
4-Bromophenyl phenyl ether	ug/kg	ND	ND	ND	ND	ug/L	ND
Butyl benzyl phthalate	ug/kg	ND	ND	ND	ND	ug/L	ND
4-Chloroaniline	ug/kg	ND	ND	ND	ND	ug/L	ND
4-Chloro-3-methylphenol	ug/kg	ND	ND	ND	ND	ug/L	ND
2-Chloronaphthalene	ug/kg	ND	ND	ND	ND	ug/L	ND
2-Chlorophenol	ug/kg	ND	ND	ND	ND	ug/L	ND
4-Chlorophenyl phenyl ether	ug/kg	ND	ND	ND	ND	ug/L	ND
o-Cresol	ug/kg	ND	ND	ND	ND	ug/L	ND
m & p-Cresol(s)	ug/kg	ND	ND	ND	ND	ug/L	ND
Chrysene	ug/kg	ND	ND	ND	ND	ug/L	ND
Dibenz(a,h)anthracene	ug/kg	ND	ND	ND	ND	ug/L	ND
Di-n-butyl phthalate	ug/kg	ND	ND	ND	ND	ug/L	ND
1,2-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ug/L	ND
1,3-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ug/L	ND
1,4-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ug/L	ND
3,3-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ug/L	ND
2,4-Dichlorophenol	ug/kg	ND	ND	ND	ND	ug/L	ND
2,6-Dichlorophenol	ug/kg	ND	ND	ND	ND	ug/L	ND
Diethyl phthalate	ug/kg	ND	ND	ND	ND	ug/L	ND
p-Dimethylaminoazobenzene	ug/kg	ND	ND	ND	ND	ug/L	ND
7,12-Dimethylbenz(a)-	ug/kg	ND	ND	ND	ND	ug/L	ND
anthracene	ug/kg	ND	ND	ND	ND	ug/L	ND
a,a-Dimethylphenethyl-amine	ug/kg	ND	ND	ND	ND	ug/L	ND
2,4-Dimethylphenol	ug/kg	ND	ND	ND	ND	ug/L	ND
Dimethyl phthalate	ug/kg	ND	ND	ND	ND	ug/L	ND
1,3-Dinitrobenzene	ug/kg	ND	ND	ND	ND	ug/L	ND
4,6-Dinitro-o-cresol	ug/kg	ND	ND	ND	ND	ug/L	ND
2,4-Dinitrophenol	ug/kg	ND	ND	ND	ND	ug/L	ND
2,4-Dinitrotoluene	ug/kg	ND	ND	ND	ND	ug/L	ND
2,6-Dinitrotoluene	ug/kg	ND	ND	ND	ND	ug/L	ND
Di-n-octyl phthalate	ug/kg	ND	ND	ND	ND	ug/L	ND
Diphenylamine	ug/kg	ND	ND	ND	ND	ug/L	ND

RFI09 - Inactive Land Treatment Area and Drainage Ditch

Sample point number		07	07	07	07		01
Depth of sample		V0.0	V3.0	V5.0	V7.0		E5.0
Parameter	Units	Result	Result	Result	Result	Units	Result
Method 8270 (con't)							
Ethyl methanesulfonate	ug/kg	ND	ND	ND	ND	ug/L	ND
Fluoranthene	ug/kg	ND	ND	ND	ND	ug/L	ND
Fluorene	ug/kg	ND	ND	ND	ND	ug/L	ND
Hexachlorobenzene	ug/kg	ND	ND	ND	ND	ug/L	ND
Hexachlorobutadiene	ug/kg	ND	ND	ND	ND	ug/L	ND
Hexachlorocyclopentadiene	ug/kg	ND	ND	ND	ND	ug/L	ND
Hexachloroethane	ug/kg	ND	ND	ND	ND	ug/L	ND
Indeno(1,2,3-cd)pyrene	ug/kg	ND	ND	ND	ND	ug/L	ND
Isophorone	ug/kg	ND	ND	ND	ND	ug/L	ND
3-Methylcholanthrene	ug/kg	ND	ND	ND	ND	ug/L	ND
Methyl methanesulfonate	ug/kg	ND	ND	ND	ND	ug/L	ND
2-Methylnaphthalene	ug/kg	ND	ND	ND	ND	ug/L	ND
Naphthalene	ug/kg	ND	ND	ND	ND	ug/L	ND
1-Naphthylamine	ug/kg	ND	ND	ND	ND	ug/L	ND
2-Naphthylamine	ug/kg	ND	ND	ND	ND	ug/L	ND
2-Nitroaniline	ug/kg	ND	ND	ND	ND	ug/L	ND
3-Nitroaniline	ug/kg	ND	ND	ND	ND	ug/L	ND
4-Nitroaniline	ug/kg	ND	ND	ND	ND	ug/L	ND
Nitrobenzene	ug/kg	ND	ND	ND	ND	ug/L	ND
2-Nitrophenol	ug/kg	ND	ND	ND	ND	ug/L	ND
4-Nitrophenol	ug/kg	ND	ND	ND	ND	ug/L	ND
N-Nitroso-di-n-butylamine	ug/kg	ND	ND	ND	ND	ug/L	ND
N-Nitrosodimethylamine	ug/kg	ND	ND	ND	ND	ug/L	ND
N-Nitrosodiphenylamine	ug/kg	ND	ND	ND	ND	ug/L	ND
N-Nitroso-di-n-propylamine	ug/kg	ND	ND	ND	ND	ug/L	ND
N-Nitrosopiperidine	ug/kg	ND	ND	ND	ND	ug/L	ND
Pentachlorobenzene	ug/kg	ND	ND	ND	ND	ug/L	ND
Pentachloronitrobenzene	ug/kg	ND	ND	ND	ND	ug/L	ND
Pentachlorophenol	ug/kg	ND	ND	ND	ND	ug/L	ND
Phenacetin	ug/kg	ND	ND	ND	ND	ug/L	ND
Phenanthrene	ug/kg	ND	ND	ND	ND	ug/L	ND
Phenol	ug/kg	ND	ND	ND	ND	ug/L	ND
2-Picoline	ug/kg	ND	ND	ND	ND	ug/L	ND
Pronamide	ug/kg	ND	ND	ND	ND	ug/L	ND
Pyrene	ug/kg	ND	ND	ND	ND	ug/L	ND
1,2,4,5-Tetrachloro-benzene	ug/kg	ND	ND	ND	ND	ug/L	ND
2,3,4,6-Tetrachlorophenol	ug/kg	ND	ND	ND	ND	ug/L	ND
1,2,4-Trichlorobenzene	ug/kg	ND	ND	ND	ND	ug/L	ND
2,4,5-Trichlorophenol	ug/kg	ND	ND	ND	ND	ug/L	ND
2,4,6-Trichlorophenol	ug/kg	ND	ND	ND	ND	ug/L	ND
Benzidine	ug/kg	ND	ND	ND	ND	ug/L	ND
Benzoic acid	ug/kg	ND	ND	ND	ND	ug/L	ND
1-Chloronaphthalene	ug/kg	ND	ND	ND	ND	ug/L	ND
1,2-Diphenylhydrazine	ug/kg	ND	ND	ND	ND	ug/L	ND

RFI09 - Inactive Land Treatment Area and Drainage

Sample point number		07	07	07	07		01
Depth of sample		V0.0	V3.0	V5.0	V7.0		E5.0
Parameter	Units	Result	Result	Result	Result	Units	Result
Total Metals							
Antimony	mg/kg	ND	ND	ND	ND	mg/L	ND
Arsenic	mg/kg	1.4	0.66	0.61	0.58	mg/L	ND
Barium	mg/kg	447	224	208	240	mg/L	ND
Beryllium	mg/kg	0.59	0.97	0.66	1.0	mg/L	ND
Cadmium	mg/kg	ND	ND	ND	ND	mg/L	ND
Chromium	mg/kg	102	8.6	16.2	7.6	mg/L	ND
Cobalt	mg/kg	1.2	2.9	1.5	2.5	mg/L	ND
Copper	mg/kg	10.5	5.5	4.1	5.1	mg/L	ND
Lead	mg/kg	14.0	9.1	7.2	7.5	mg/L	ND
Mercury	mg/kg	ND	ND	ND	ND	mg/L	ND
Nickel	mg/kg	6.0	7.7	4.7	6.8	mg/L	ND
Potassium	mg/kg	953	1030	776	1390	mg/L	ND
Selenium	mg/kg	ND	ND	ND	ND	mg/L	ND
Vanadium	mg/kg	14.6	13.1	10.3	12.7	mg/L	ND
Zinc	mg/kg	157	14.3	23.8	13.4	mg/L	ND

RFI10 - Sludge Pits

Sample point number		01	01	01	02	02	02	02	02	02
Depth of sample		V0.0	V3.0	D3.0	V0.0	V3.0	V6.0	V9.0	V12.5	D12.5
Parameter	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result
Method 8240										
Chloromethane	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethene (cis/trans)	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Chloroethyl vinyl ether	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	680
Chlorobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acrolein	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,4-Dichloro-2-butene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethanol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iodomethane	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone (MEK)	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl acetate	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (total)	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	990
2-Hexanone	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl methacrylate	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND

RFI10 - Sludge Pits

Sample point number		01	01	01	02	02	02	02	02	02
Depth of sample		V0.0	V3.0	D3.0	V0.0	V3.0	V6.0	V9.0	V12.5	D12.5
Parameter	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result
Method 8270										
Acenapthene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthylene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetophenone	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Aminobiphenyl	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aniline	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Anthracene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(g,h,i)perylene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzyl alcohol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroethoxy)-methane	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroethyl) ether	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroisopropyl)-ether	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
bis(2-Ethylhexyl) phthalate	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Bromophenyl phenyl ether	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Butyl benzyl phthalate	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Chloroaniline	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Chloro-3-methylphenol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Chloronaphthalene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Chlorophenol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Chlorophenyl phenyl ether	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
o-Cresol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	16000
m & p-Cresol(s)	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	28000
Chrysene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibenz(a,h)anthracene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-n-butyl phthalate	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
3,3-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dichlorophenol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,6-Dichlorophenol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Diethyl phthalate	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
p-Dimethylaminoazobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
7,12-Dimethylbenz(a)-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
anthracene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
a,a-Dimethylphenethyl-amine	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dimethylphenol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	5300
Dimethyl phthalate	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dinitrobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
4,6-Dinitro-o-cresol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dinitrophenol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dinitrotoluene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,6-Dinitrotoluene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-n-octyl phthalate	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Diphenylamine	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND

RFI10 - Sludge Pits

Sample point number		01	01	01	02	02	02	02	02	02
Depth of sample		V0.0	V3.0	D3.0	V0.0	V3.0	V6.0	V9.0	V12.5	D12.5
Parameter	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result
Method 8270 (con't)										
Ethyl methanesulfonate	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachloroethane	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isophorone	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
3-Methylcholanthrene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl methanesulfonate	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Methylnaphthalene	ug/kg	ND	ND	ND	ND	56000	ND	ND	ND	ND
Naphthalene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1-Naphthylamine	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Naphthylamine	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Nitroaniline	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
3-Nitroaniline	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Nitroaniline	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Nitrophenol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Nitrophenol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Nitroso-di-n-butylamine	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodimethylamine	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodiphenylamine	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Nitroso-di-n-propylamine	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Nitrosopiperidine	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pentachlorobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pentachloronitrobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pentachlorophenol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenacetin	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	ug/kg	ND	ND	ND	ND	28000	ND	ND	ND	ND
Phenol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	28000
2-Picoline	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pronamide	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pyrene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4,5-Tetrachloro-benzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,3,4,6-Tetrachlorophenol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4,5-Trichlorophenol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trichlorophenol	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzidine	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzoic acid	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1-Chloronaphthalene	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Diphenylhydrazine	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND

RFI10 - Sludge Pits

Sample point number		01	01	01	02	02	02	02	02	02
Depth of sample		V0.0	V3.0	D3.0	V0.0	V3.0	V6.0	V9.0	V12.5	D12.5
Parameter	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result
Total Metals										
Antimony	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic	mg/kg	0.97	ND	ND	0.52	0.79	0.58	ND	ND	ND
Barium	mg/kg	392	107	105	188	231	332	201	171	124
Beryllium	mg/kg	0.70	1.0	1.1	1.0	0.90	0.90	1.4	0.87	1.1
Cadmium	mg/kg	ND	0.70	ND	ND	ND	ND	ND	ND	ND
Chromium	mg/kg	60.1	6.1	7.3	7.0	117	6.7	8.0	6.4	6.1
Cobalt	mg/kg	2.0	3.6	4.6	4.3	4.4	3.9	6.0	5.4	3.9
Copper	mg/kg	10.3	5.9	7.4	6.4	16.5	5.2	7.7	7.7	7.8
Lead	mg/kg	11.1	5.5	6.3	13.8	19.3	13.5	14.9	11.9	16.0
Mercury	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel	mg/kg	7.0	6.7	9.1	6.4	9.2	6.5	9.5	8.5	6.9
Potassium	mg/kg	972	1310	1660	806	1310	841	1380	1410	1010
Selenium	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium	mg/kg	16.3	14.0	16.3	15.4	18.2	18.8	16.5	18.0	14.0
Zinc	mg/kg	81.3	14.7	17.7	13.4	228	11.2	15.2	15.0	12.4

RFI10 - Sludge Pits

Sample point number		03	03	03	03	03
Depth of sample		V0.0	V3.0	V6.0	V9.0	V12.5
Parameter	Units	Result	Result	Result	Result	Result
Method 8240						
Chloromethane	ug/kg	ND	ND	ND	ND	ND
Bromomethane	ug/kg	ND	ND	ND	ND	ND
Vinyl chloride	ug/kg	ND	ND	ND	ND	ND
Chloroethane	ug/kg	ND	ND	ND	ND	ND
Methylene chloride	ug/kg	ND	ND	ND	ND	ND
1,1-Dichloroethene	ug/kg	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/kg	ND	ND	ND	ND	ND
1,2-Dichloroethene (cis/trans)	ug/kg	ND	ND	ND	ND	ND
Chloroform	ug/kg	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/kg	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ug/kg	ND	ND	ND	ND	ND
Carbon tetrachloride	ug/kg	ND	ND	ND	ND	ND
Bromodichloromethane	ug/kg	ND	ND	ND	ND	ND
1,2-Dichloropropane	ug/kg	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ug/kg	ND	ND	ND	ND	ND
Trichloroethene	ug/kg	ND	ND	ND	ND	ND
Dibromochloromethane	ug/kg	ND	ND	ND	ND	ND
1,1,2-Trichloroethene	ug/kg	ND	ND	ND	ND	ND
Benzene	ug/kg	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ug/kg	ND	ND	ND	ND	ND
2-Chloroethyl vinyl ether	ug/kg	ND	ND	ND	ND	ND
Bromoform	ug/kg	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/kg	ND	ND	ND	ND	ND
Tetrachloroethene	ug/kg	ND	ND	ND	ND	ND
Toluene	ug/kg	ND	ND	ND	ND	ND
Chlorobenzene	ug/kg	ND	ND	ND	ND	ND
Ethylbenzene	ug/kg	ND	ND	ND	ND	ND
Acetone	ug/kg	ND	ND	ND	ND	ND
Acrolein	ug/kg	ND	ND	ND	ND	ND
Acrylonitrile	ug/kg	ND	ND	ND	ND	ND
Carbon disulfide	ug/kg	ND	ND	ND	ND	ND
Dibromomethane	ug/kg	ND	ND	ND	ND	ND
trans-1,4-Dichloro-2-butene	ug/kg	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/kg	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ug/kg	ND	ND	ND	ND	ND
Ethanol	ug/kg	ND	ND	ND	ND	ND
Iodomethane	ug/kg	ND	ND	ND	ND	ND
2-Butanone (MEK)	ug/kg	ND	ND	ND	ND	ND
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	ND	ND	ND	ND
Styrene	ug/kg	ND	ND	ND	ND	ND
Trichlorofluoromethane	ug/kg	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	ug/kg	ND	ND	ND	ND	ND
Vinyl acetate	ug/kg	ND	ND	ND	ND	ND
Xylenes (total)	ug/kg	ND	ND	ND	ND	ND
2-Hexanone	ug/kg	ND	ND	ND	ND	ND
Ethyl methacrylate	ug/kg	ND	ND	ND	ND	ND

RFI10 - Sludge Pits

Sample point number		03	03	03	03	03
Depth of sample		V0.0	V3.0	V6.0	V9.0	V12.5
Parameter	Units	Result	Result	Result	Result	Result
Method 8270						
Acenapthene	ug/kg	ND	ND	ND	ND	ND
Acenaphthylene	ug/kg	ND	ND	ND	ND	ND
Acetophenone	ug/kg	ND	ND	ND	ND	ND
4-Aminobiphenyl	ug/kg	ND	ND	ND	ND	ND
Aniline	ug/kg	ND	ND	ND	ND	ND
Anthracene	ug/kg	ND	ND	ND	ND	ND
Benzo(a)anthracene	ug/kg	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	ug/kg	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	ug/kg	ND	ND	ND	ND	ND
Benzo(g,h,i)perylene	ug/kg	ND	ND	ND	ND	ND
Benzo(a)pyrene	ug/kg	ND	ND	ND	ND	ND
Benzyl alcohol	ug/kg	ND	ND	ND	ND	ND
bis(2-Chloroethoxy)-methane	ug/kg	ND	ND	ND	ND	ND
bis(2-Chloroethyl) ether	ug/kg	ND	ND	ND	ND	ND
bis(2-Chloroisopropyl)-ether	ug/kg	ND	ND	ND	ND	ND
bis(2-Ethylhexyl) phthalate	ug/kg	ND	ND	ND	ND	ND
4-Bromophenyl phenyl ether	ug/kg	ND	ND	ND	ND	ND
Butyl benzyl phthalate	ug/kg	ND	ND	ND	ND	ND
4-Chloroaniline	ug/kg	ND	ND	ND	ND	ND
4-Chloro-3-methylphenol	ug/kg	ND	ND	ND	ND	ND
2-Chloronaphthalene	ug/kg	ND	ND	ND	ND	ND
2-Chlorophenol	ug/kg	ND	ND	ND	ND	ND
4-Chlorophenyl phenyl ether	ug/kg	ND	ND	ND	ND	ND
o-Cresol	ug/kg	ND	ND	ND	ND	ND
m & p-Cresol(s)	ug/kg	ND	ND	ND	ND	ND
Chrysene	ug/kg	ND	ND	ND	ND	ND
Dibenz(a,h)anthracene	ug/kg	ND	ND	ND	ND	ND
Di-n-butyl phthalate	ug/kg	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ND
3,3-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ND
2,4-Dichlorophenol	ug/kg	ND	ND	ND	ND	ND
2,6-Dichlorophenol	ug/kg	ND	ND	ND	ND	ND
Diethyl phthalate	ug/kg	ND	ND	ND	ND	ND
p-Dimethylaminoazobenzene	ug/kg	ND	ND	ND	ND	ND
7,12-Dimethylbenz(a)-	ug/kg	ND	ND	ND	ND	ND
anthracene	ug/kg	ND	ND	ND	ND	ND
a,a-Dimethylphenethyl-amine	ug/kg	ND	ND	ND	ND	ND
2,4-Dimethylphenol	ug/kg	ND	ND	ND	ND	ND
Dimethyl phthalate	ug/kg	ND	ND	ND	ND	ND
1,3-Dinitrobenzene	ug/kg	ND	ND	ND	ND	ND
4,6-Dinitro-o-cresol	ug/kg	ND	ND	ND	ND	ND
2,4-Dinitrophenol	ug/kg	ND	ND	ND	ND	ND
2,4-Dinitrotoluene	ug/kg	ND	ND	ND	ND	ND
2,6-Dinitrotoluene	ug/kg	ND	ND	ND	ND	ND
Di-n-octyl phthalate	ug/kg	ND	ND	ND	ND	ND
Diphenylamine	ug/kg	ND	ND	ND	ND	ND

RFI10 - Sludge Pits

Sample point number		03	03	03	03	03
Depth of sample		V0.0	V3.0	V6.0	V9.0	V12.5
Parameter	Units	Result	Result	Result	Result	Result
Method 8270 (con't)						
Ethyl methanesulfonate	ug/kg	ND	ND	ND	ND	ND
Fluoranthene	ug/kg	ND	ND	ND	ND	ND
Fluorene	ug/kg	ND	ND	ND	ND	ND
Hexachlorobenzene	ug/kg	ND	ND	ND	ND	ND
Hexachlorobutadiene	ug/kg	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	ug/kg	ND	ND	ND	ND	ND
Hexachloroethane	ug/kg	ND	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene	ug/kg	ND	ND	ND	ND	ND
Isophorone	ug/kg	ND	ND	ND	ND	ND
3-Methylcholanthrene	ug/kg	ND	ND	ND	ND	ND
Methyl methanesulfonate	ug/kg	ND	ND	ND	ND	ND
2-Methylnaphthalene	ug/kg	ND	ND	ND	ND	ND
Naphthalene	ug/kg	ND	ND	ND	ND	ND
1-Naphthylamine	ug/kg	ND	ND	ND	ND	ND
2-Naphthylamine	ug/kg	ND	ND	ND	ND	ND
2-Nitroaniline	ug/kg	ND	ND	ND	ND	ND
3-Nitroaniline	ug/kg	ND	ND	ND	ND	ND
4-Nitroaniline	ug/kg	ND	ND	ND	ND	ND
Nitrobenzene	ug/kg	ND	ND	ND	ND	ND
2-Nitrophenol	ug/kg	ND	ND	ND	ND	ND
4-Nitrophenol	ug/kg	ND	ND	ND	ND	ND
N-Nitroso-di-n-butylamine	ug/kg	ND	ND	ND	ND	ND
N-Nitrosodimethylamine	ug/kg	ND	ND	ND	ND	ND
N-Nitrosodiphenylamine	ug/kg	ND	ND	ND	ND	ND
N-Nitroso-di-n-propylamine	ug/kg	ND	ND	ND	ND	ND
N-Nitrosopiperidine	ug/kg	ND	ND	ND	ND	ND
Pentachlorobenzene	ug/kg	ND	ND	ND	ND	ND
Pentachloronitrobenzene	ug/kg	ND	ND	ND	ND	ND
Pentachlorophenol	ug/kg	ND	ND	ND	ND	ND
Phenacetin	ug/kg	ND	ND	ND	ND	ND
Phenanthrene	ug/kg	ND	ND	ND	ND	ND
Phenol	ug/kg	ND	ND	ND	ND	ND
2-Picoline	ug/kg	ND	ND	ND	ND	ND
Pronamide	ug/kg	ND	ND	ND	ND	ND
Pyrene	ug/kg	ND	ND	ND	ND	ND
1,2,4,5-Tetrachloro-benzene	ug/kg	ND	ND	ND	ND	ND
2,3,4,6-Tetrachlorophenol	ug/kg	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	ug/kg	ND	ND	ND	ND	ND
2,4,5-Trichlorophenol	ug/kg	ND	ND	ND	ND	ND
2,4,6-Trichlorophenol	ug/kg	ND	ND	ND	ND	ND
Benzidine	ug/kg	ND	ND	ND	ND	ND
Benzoic acid	ug/kg	ND	ND	ND	ND	ND
1-Chloronaphthalene	ug/kg	ND	ND	ND	ND	ND
1,2-Diphenylhydrazine	ug/kg	ND	ND	ND	ND	ND

RFI10 - Sludge Pits

Sample point number		03	03	03	03	03
Depth of sample		V0.0	V3.0	V6.0	V9.0	V12.5
Parameter	Units	Result	Result	Result	Result	Result
Total Metals						
Antimony	mg/kg	ND	ND	ND	ND	ND
Arsenic	mg/kg	0.65	0.90	0.58	0.52	ND
Barium	mg/kg	317	292	178	152	392
Beryllium	mg/kg	0.96	0.65	1.0	1.0	1.1
Cadmium	mg/kg	ND	ND	ND	ND	0.73
Chromium	mg/kg	9.5	6.1	6.5	5.9	7.5
Cobalt	mg/kg	2.6	2.0	2.8	3.4	3.2
Copper	mg/kg	7.4	4.3	6.1	5.6	7.0
Lead	mg/kg	8.4	5.5	6.5	8.1	7.8
Mercury	mg/kg	ND	ND	ND	ND	ND
Nickel	mg/kg	6.5	5.4	6.5	6.8	8.5
Potassium	mg/kg	1020	856	1070	1340	1410
Selenium	mg/kg	ND	ND	ND	ND	ND
Vanadium	mg/kg	15.7	15.2	12.9	14.3	17.5
Zinc	mg/kg	16.4	12.9	13.0	13.9	16.1

RFI10 - Sludge Pits

Sample point number		04	04	04	04	04
Depth of sample		V0.0	V3.0	V6.0	V9.0	V12.5
Parameter	Units	Result	Result	Result	Result	Result
Method 8240						
Chloromethane	ug/kg	ND	ND	ND	ND	ND
Bromomethane	ug/kg	ND	ND	ND	ND	ND
Vinyl chloride	ug/kg	ND	ND	ND	ND	ND
Chloroethane	ug/kg	ND	ND	ND	ND	ND
Methylene chloride	ug/kg	ND	ND	ND	ND	ND
1,1-Dichloroethene	ug/kg	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/kg	ND	ND	ND	ND	ND
1,2-Dichloroethene (cis/trans)	ug/kg	ND	ND	ND	ND	ND
Chloroform	ug/kg	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/kg	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ug/kg	ND	ND	ND	ND	ND
Carbon tetrachloride	ug/kg	ND	ND	ND	ND	ND
Bromodichloromethane	ug/kg	ND	ND	ND	ND	ND
1,2-Dichloropropane	ug/kg	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ug/kg	ND	ND	ND	ND	ND
Trichloroethene	ug/kg	ND	ND	ND	ND	ND
Dibromochloromethane	ug/kg	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ug/kg	ND	ND	ND	ND	ND
Benzene	ug/kg	ND	1700	ND	14000	ND
cis-1,3-Dichloropropene	ug/kg	ND	ND	ND	ND	ND
2-Chloroethyl vinyl ether	ug/kg	ND	ND	ND	ND	ND
Bromoform	ug/kg	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/kg	ND	ND	ND	ND	ND
Tetrachloroethene	ug/kg	ND	ND	ND	ND	ND
Toluene	ug/kg	ND	14000	220000	120000	ND
Chlorobenzene	ug/kg	ND	ND	ND	ND	ND
Ethylbenzene	ug/kg	ND	5600	81000	43000	ND
Acetone	ug/kg	ND	ND	ND	ND	ND
Acrolein	ug/kg	ND	ND	ND	ND	ND
Acrylonitrile	ug/kg	ND	ND	ND	ND	ND
Carbon disulfide	ug/kg	ND	ND	ND	ND	ND
Dibromomethane	ug/kg	ND	ND	ND	ND	ND
trans-1,4-Dichloro-2-butene	ug/kg	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/kg	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ug/kg	ND	ND	ND	ND	ND
Ethanol	ug/kg	ND	ND	ND	ND	ND
Iodomethane	ug/kg	ND	ND	ND	ND	ND
2-Butanone (MEK)	ug/kg	ND	ND	ND	ND	ND
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	ND	ND	ND	ND
Styrene	ug/kg	ND	ND	ND	ND	ND
Trichlorofluoromethane	ug/kg	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	ug/kg	ND	ND	ND	ND	ND
Vinyl acetate	ug/kg	ND	ND	ND	ND	ND
Xylenes (total)	ug/kg	ND	54000	470000	310000	ND
2-Hexanone	ug/kg	ND	ND	ND	ND	ND
Ethyl methacrylate	ug/kg	ND	ND	ND	ND	ND

RFI10 - Sludge Pits

Sample point number		04	04	04	04	04
Depth of sample		V0.0	V3.0	V6.0	V9.0	V12.5
Parameter	Units	Result	Result	Result	Result	Result
Method 8270						
Acenarthene	ug/kg	ND	ND	ND	ND	ND
Acenaphthylene	ug/kg	ND	ND	ND	ND	ND
Acetophenone	ug/kg	ND	ND	ND	ND	ND
4-Aminobiphenyl	ug/kg	ND	ND	ND	ND	ND
Aniline	ug/kg	ND	ND	ND	ND	ND
Anthracene	ug/kg	ND	ND	ND	ND	ND
Benzo(a)anthracene	ug/kg	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	ug/kg	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	ug/kg	ND	ND	ND	ND	ND
Benzo(g,h,i)perylene	ug/kg	ND	ND	ND	ND	ND
Benzo(a)pyrene	ug/kg	ND	ND	ND	ND	ND
Benzyl alcohol	ug/kg	ND	ND	ND	ND	ND
bis(2-Chloroethoxy)-methane	ug/kg	ND	ND	ND	ND	ND
bis(2-Chloroethyl) ether	ug/kg	ND	ND	ND	ND	ND
bis(2-Chloroisopropyl)-ether	ug/kg	ND	ND	ND	ND	ND
bis(2-Ethylhexyl) phthalate	ug/kg	ND	ND	ND	ND	ND
4-Bromophenyl phenyl ether	ug/kg	ND	ND	ND	ND	ND
Butyl benzyl phthalate	ug/kg	ND	ND	ND	ND	ND
4-Chloroaniline	ug/kg	ND	ND	ND	ND	ND
4-Chloro-3-methylphenol	ug/kg	ND	ND	ND	ND	ND
2-Chloronaphthalene	ug/kg	ND	ND	ND	ND	ND
2-Chlorophenol	ug/kg	ND	ND	ND	ND	ND
4-Chlorophenyl phenyl ether	ug/kg	ND	ND	ND	ND	ND
o-Cresol	ug/kg	ND	ND	16000	ND	ND
m & p-Cresol(s)	ug/kg	ND	ND	26000	ND	ND
Chrysene	ug/kg	ND	ND	ND	ND	ND
Dibenz(a,h)anthracene	ug/kg	ND	ND	ND	ND	ND
Di-n-butyl phthalate	ug/kg	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ND
3,3-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ND
2,4-Dichlorophenol	ug/kg	ND	ND	ND	ND	ND
2,6-Dichlorophenol	ug/kg	ND	ND	ND	ND	ND
Diethyl phthalate	ug/kg	ND	ND	ND	ND	ND
p-Dimethylaminoazobenzene	ug/kg	ND	ND	ND	ND	ND
7,12-Dimethylbenz(a)-	ug/kg	ND	ND	ND	ND	ND
anthracene	ug/kg	ND	ND	ND	ND	ND
a,a-Dimethylphenethyl-amine	ug/kg	ND	ND	ND	ND	ND
2,4-Dimethylphenol	ug/kg	ND	ND	27000	ND	ND
Dimethyl phthalate	ug/kg	ND	ND	ND	ND	ND
1,3-Dinitrobenzene	ug/kg	ND	ND	ND	ND	ND
4,6-Dinitro-o-cresol	ug/kg	ND	ND	ND	ND	ND
2,4-Dinitrophenol	ug/kg	ND	ND	ND	ND	ND
2,4-Dinitrotoluene	ug/kg	ND	ND	ND	ND	ND
2,6-Dinitrotoluene	ug/kg	ND	ND	ND	ND	ND
Di-n-octyl phthalate	ug/kg	ND	ND	ND	ND	ND
Diphenylamine	ug/kg	ND	ND	ND	ND	ND

RFI10 - Sludge Pits

Sample point number		04	04	04	04	04
North of sample		V0.0	V3.0	V6.0	V9.0	V12.5
Parameter	Units	Result	Result	Result	Result	Result
Method 8270 (con't)						
Ethyl methanesulfonate	ug/kg	ND	ND	ND	ND	ND
Fluoranthene	ug/kg	ND	ND	ND	ND	ND
Fluorene	ug/kg	ND	ND	13000	ND	ND
Hexachlorobenzene	ug/kg	ND	ND	ND	ND	ND
Hexachlorobutadiene	ug/kg	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	ug/kg	ND	ND	ND	ND	ND
Hexachloroethane	ug/kg	ND	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene	ug/kg	ND	ND	ND	ND	ND
Isophorone	ug/kg	ND	ND	ND	ND	ND
3-Methylcholanthrene	ug/kg	ND	ND	ND	ND	ND
Methyl methanesulfonate	ug/kg	ND	ND	ND	ND	ND
2-Methylnaphthalene	ug/kg	ND	ND	290000	ND	5000
Naphthalene	ug/kg	ND	ND	54000	ND	ND
1-Naphthylamine	ug/kg	ND	ND	ND	ND	ND
2-Naphthylamine	ug/kg	ND	ND	ND	ND	ND
2-Nitroaniline	ug/kg	ND	ND	ND	ND	ND
3-Nitroaniline	ug/kg	ND	ND	ND	ND	ND
4-Nitroaniline	ug/kg	ND	ND	ND	ND	ND
Nitrobenzene	ug/kg	ND	ND	ND	ND	ND
2-Nitrophenol	ug/kg	ND	ND	ND	ND	ND
4-Nitrophenol	ug/kg	ND	ND	ND	ND	ND
N-Nitroso-di-n-butylamine	ug/kg	ND	ND	ND	ND	ND
N-Nitrosodimethylamine	ug/kg	ND	ND	ND	ND	ND
N-Nitrosodiphenylamine	ug/kg	ND	ND	ND	ND	ND
N-Nitroso-di-n-propylamine	ug/kg	ND	ND	ND	ND	ND
N-Nitrosopiperidine	ug/kg	ND	ND	ND	ND	ND
Pentachlorobenzene	ug/kg	ND	ND	ND	ND	ND
Pentachloronitrobenzene	ug/kg	ND	ND	ND	ND	ND
Pentachlorophenol	ug/kg	ND	ND	ND	ND	ND
Phenacetin	ug/kg	ND	ND	ND	ND	ND
Phenanthrene	ug/kg	ND	ND	23000	ND	ND
Phenol	ug/kg	ND	ND	ND	ND	ND
2-Picoline	ug/kg	ND	ND	ND	ND	ND
Pronamide	ug/kg	ND	ND	ND	ND	ND
Pyrene	ug/kg	ND	ND	ND	ND	ND
1,2,4,5-Tetrachloro-benzene	ug/kg	ND	ND	ND	ND	ND
2,3,4,6-Tetrachlorophenol	ug/kg	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	ug/kg	ND	ND	ND	ND	ND
2,4,5-Trichlorophenol	ug/kg	ND	ND	ND	ND	ND
2,4,6-Trichlorophenol	ug/kg	ND	ND	ND	ND	ND
Benzidine	ug/kg	ND	ND	ND	ND	ND
Benzoic acid	ug/kg	ND	ND	ND	ND	ND
1-Chloronaphthalene	ug/kg	ND	ND	ND	ND	ND
1,2-Diphenylhydrazine	ug/kg	ND	ND	ND	ND	ND

RFI10 - Sludge Pits

Sample point number		04	04	04	04	04
Depth of sample		V0.0	V3.0	V6.0	V9.0	V12.5
Parameter	Units	Result	Result	Result	Result	Result
Total Metals						
Antimony	mg/kg	ND	ND	ND	ND	ND
Arsenic	mg/kg	0.60	0.64	2.4	0.56	ND
Barium	mg/kg	280	195	422	213	164
Beryllium	mg/kg	0.93	0.79	0.80	1.0	1.1
Cadmium	mg/kg	ND	0.56	ND	ND	ND
Chromium	mg/kg	5.6	11.6	398	21.7	7.2
Cobalt	mg/kg	2.8	2.2	4.8	3.8	4.4
Copper	mg/kg	5.7	4.1	29.0	6.2	6.9
Lead	mg/kg	8.2	7.0	50.0	12.5	13.3
Mercury	mg/kg	ND	ND	1.3	ND	ND
Nickel	mg/kg	6.1	5.3	9.0	7.9	8.0
Potassium	mg/kg	853	793	2320	1200	1210
Selenium	mg/kg	ND	ND	ND	ND	ND
Vanadium	mg/kg	15.5	14.4	18.6	13.9	13.7
Zinc	mg/kg	14.0	15.2	91.2	12.5	12.5

RFI10 - Sludge Pits

Sample point number		05	05	05	05	05	05	05
Depth of sample		V0.0	V3.0	D3.0	V6.0	V9.0	V12.5	D12.5
Parameter	Units	Result	Result	Result	Result	Result	Result	Result
Method 8240								
Chloromethane	ug/kg	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ug/kg	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ug/kg	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ug/kg	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	ug/kg	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ug/kg	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/kg	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethene (cis/trans)	ug/kg	ND	ND	ND	ND	ND	ND	ND
Chloroform	ug/kg	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/kg	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ug/kg	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	ug/kg	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	ug/kg	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ug/kg	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ug/kg	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ug/kg	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	ug/kg	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethene	ug/kg	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/kg	ND	ND	ND	37000	ND	ND	ND
cis-1,3-Dichloropropene	ug/kg	ND	ND	ND	ND	ND	ND	ND
2-Chloroethyl vinyl ether	ug/kg	ND	ND	ND	ND	ND	ND	ND
Bromoform	ug/kg	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/kg	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ug/kg	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/kg	ND	ND	ND	290000	2600	980	680
Chlorobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/kg	ND	ND	ND	76000	1200	ND	ND
Acetone	ug/kg	ND	ND	ND	ND	ND	ND	ND
Acrolein	ug/kg	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ug/kg	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	ug/kg	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	ug/kg	ND	ND	ND	ND	ND	ND	ND
trans-1,4-Dichloro-2-butene	ug/kg	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/kg	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ug/kg	ND	ND	ND	ND	ND	ND	ND
Ethanol	ug/kg	ND	ND	ND	ND	ND	ND	ND
Iodomethane	ug/kg	ND	ND	ND	ND	ND	ND	ND
2-Butanone (MEK)	ug/kg	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/kg	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ug/kg	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	ug/kg	ND	ND	ND	ND	ND	ND	ND
Vinyl acetate	ug/kg	ND	ND	ND	ND	ND	ND	ND
Xylenes (total)	ug/kg	ND	ND	ND	540000	9700	1700	980
2-Hexanone	ug/kg	ND	ND	ND	ND	ND	ND	ND
Ethyl methacrylate	ug/kg	ND	ND	ND	ND	ND	ND	ND

RFI10 - Sludge Pits

Sample point number		05	05	05	05	05	05	05
Depth of sample		V0.0	V3.0	D3.0	V6.0	V9.0	V12.5	D12.5
Parameter	Units	Result	Result	Result	Result	Result	Result	Result
Method 8270								
Acenarthene	ug/kg	ND	ND	ND	ND	ND	ND	ND
Acenaphthylene	ug/kg	ND	ND	ND	ND	ND	ND	ND
Acetophenone	ug/kg	ND	ND	ND	ND	ND	ND	ND
4-Aminobiphenyl	ug/kg	ND	ND	ND	ND	ND	ND	ND
Aniline	ug/kg	ND	ND	ND	ND	ND	ND	ND
Anthracene	ug/kg	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	ug/kg	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	ug/kg	ND	ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	ug/kg	ND	ND	ND	ND	ND	ND	ND
Benzo(g,h,i)perylene	ug/kg	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	ug/kg	ND	ND	ND	ND	ND	ND	ND
Benzyl alcohol	ug/kg	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroethoxy)-methane	ug/kg	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroethyl) ether	ug/kg	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroisopropyl)-ether	ug/kg	ND	ND	ND	ND	ND	ND	ND
bis(2-Ethylhexyl) phthalate	ug/kg	ND	ND	ND	ND	ND	ND	ND
4-Bromophenyl phenyl ether	ug/kg	ND	ND	ND	ND	ND	ND	ND
Butyl benzyl phthalate	ug/kg	ND	ND	ND	ND	ND	ND	ND
4-Chloroaniline	ug/kg	ND	ND	ND	ND	ND	ND	ND
4-Chloro-3-methylphenol	ug/kg	ND	ND	ND	ND	ND	ND	ND
2-Chloronaphthalene	ug/kg	ND	ND	ND	ND	ND	ND	ND
2-Chlorophenol	ug/kg	ND	ND	ND	ND	ND	ND	ND
4-Chlorophenyl phenyl ether	ug/kg	ND	ND	ND	ND	ND	ND	ND
o-Cresol	ug/kg	ND	ND	ND	ND	34000	19000	16000
m & p-Cresol(s)	ug/kg	ND	ND	ND	120000	68000	34000	28000
Chrysene	ug/kg	ND	ND	ND	ND	ND	ND	ND
Dibenz(a,h)anthracene	ug/kg	ND	ND	ND	ND	ND	ND	ND
Di-n-butyl phthalate	ug/kg	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND
3,3-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND
2,4-Dichlorophenol	ug/kg	ND	ND	ND	ND	ND	ND	ND
2,6-Dichlorophenol	ug/kg	ND	ND	ND	ND	ND	ND	ND
Diethyl phthalate	ug/kg	ND	ND	ND	ND	ND	ND	ND
p-Dimethylaminoazobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND
7,12-Dimethylbenz(a)-	ug/kg	ND	ND	ND	ND	ND	ND	ND
anthracene	ug/kg	ND	ND	ND	ND	ND	ND	ND
a,a-Dimethylphenethyl-amine	ug/kg	ND	ND	ND	ND	ND	ND	ND
2,4-Dimethylphenol	ug/kg	ND	ND	ND	ND	12000	7900	5300
Dimethyl phthalate	ug/kg	ND	ND	ND	ND	ND	ND	ND
1,3-Dinitrobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND
4,6-Dinitro-o-cresol	ug/kg	ND	ND	ND	ND	ND	ND	ND
2,4-Dinitrophenol	ug/kg	ND	ND	ND	ND	ND	ND	ND
2,4-Dinitrotoluene	ug/kg	ND	ND	ND	ND	ND	ND	ND
2,6-Dinitrotoluene	ug/kg	ND	ND	ND	ND	ND	ND	ND
Di-n-octyl phthalate	ug/kg	ND	ND	ND	ND	ND	ND	ND
Diphenylamine	ug/kg	ND	ND	ND	ND	ND	ND	ND

RFI10 - Sludge Pits

Sample point number		05	05	05	05	05	05	05
Depth of sample		V0.0	V3.0	D3.0	V6.0	V9.0	V12.5	D12.5
Parameter	Units	Result	Result	Result	Result	Result	Result	Result
Method 8270 (con't)								
Ethyl methanesulfonate	ug/kg	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	ug/kg	ND	ND	ND	ND	ND	ND	ND
Fluorene	ug/kg	ND	ND	ND	100000	ND	ND	ND
Hexachlorobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	ug/kg	ND	ND	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	ug/kg	ND	ND	ND	ND	ND	ND	ND
Hexachloroethane	ug/kg	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene	ug/kg	ND	ND	ND	ND	ND	ND	ND
Isophorone	ug/kg	ND	ND	ND	ND	ND	ND	ND
3-Methylcholanthrene	ug/kg	ND	ND	ND	ND	ND	ND	ND
Methyl methanesulfonate	ug/kg	ND	ND	ND	ND	ND	ND	ND
2-Methylnaphthalene	ug/kg	ND	ND	ND	1400000	ND	ND	ND
Naphthalene	ug/kg	ND	ND	ND	34000	ND	ND	ND
1-Naphthylamine	ug/kg	ND	ND	ND	ND	ND	ND	ND
2-Naphthylamine	ug/kg	ND	ND	ND	ND	ND	ND	ND
2-Nitroaniline	ug/kg	ND	ND	ND	ND	ND	ND	ND
3-Nitroaniline	ug/kg	ND	ND	ND	ND	ND	ND	ND
4-Nitroaniline	ug/kg	ND	ND	ND	ND	ND	ND	ND
Nitrobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND
2-Nitrophenol	ug/kg	ND	ND	ND	ND	ND	ND	ND
4-Nitrophenol	ug/kg	ND	ND	ND	ND	ND	ND	ND
N-Nitroso-di-n-butylamine	ug/kg	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodimethylamine	ug/kg	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodiphenylamine	ug/kg	ND	ND	ND	ND	ND	ND	ND
N-Nitroso-di-n-propylamine	ug/kg	ND	ND	ND	ND	ND	ND	ND
N-Nitrosopiperidine	ug/kg	ND	ND	ND	ND	ND	ND	ND
Pentachlorobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND
Pentachloronitrobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND
Pentachlorophenol	ug/kg	ND	ND	ND	ND	ND	ND	ND
Phenacetin	ug/kg	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	ug/kg	ND	ND	ND	250000	ND	ND	ND
Phenol	ug/kg	ND	ND	ND	ND	71000	32000	28000
2-Picoline	ug/kg	ND	ND	ND	ND	ND	ND	ND
Pronamide	ug/kg	ND	ND	ND	ND	ND	ND	ND
Pyrene	ug/kg	ND	ND	ND	ND	ND	ND	ND
1,2,4,5-Tetrachloro-benzene	ug/kg	ND	ND	ND	ND	ND	ND	ND
2,3,4,6-Tetrachlorophenol	ug/kg	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	ug/kg	ND	ND	ND	ND	ND	ND	ND
2,4,5-Trichlorophenol	ug/kg	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trichlorophenol	ug/kg	ND	ND	ND	ND	ND	ND	ND
Benzidine	ug/kg	ND	ND	ND	ND	ND	ND	ND
Benzoic acid	ug/kg	ND	ND	ND	ND	ND	ND	ND
1-Chloronaphthalene	ug/kg	ND	ND	ND	ND	ND	ND	ND
1,2-Diphenylhydrazine	ug/kg	ND	ND	ND	ND	ND	ND	ND

RFI10 - Sludge Pits

Sample point number		05	05	05	05	05	05	05
Depth of sample		V0.0	V3.0	D3.0	V6.0	V9.0	V12.5	D12.5
Parameter	Units	Result	Result	Result	Result	Result	Result	Result
Total Metals								
Antimony	mg/kg	ND	ND	ND	ND	ND	ND	ND
Arsenic	mg/kg	ND	0.52	0.61	27.9	0.58	ND	ND
Barium	mg/kg	315	321	251	700	48.7	187	124
Beryllium	mg/kg	0.88	0.85	0.68	0.76	1.4	1.2	1.1
Cadmium	mg/kg	ND	ND	ND	1.5	ND	ND	ND
Chromium	mg/kg	6.8	6.3	5.8	4020	11.6	9.9	6.1
Cobalt	mg/kg	4.0	4.4	2.8	8.4	5.7	5.1	3.9
Copper	mg/kg	9.2	4.6	9.1	215	11.8	7.2	7.8
Lead	mg/kg	13.2	11.8	11.1	337	16.1	14.2	16.0
Mercury	mg/kg	ND	ND	ND	2.9	ND	ND	ND
Nickel	mg/kg	5.8	6.8	4.2	19.2	11.3	9.3	6.9
Potassium	mg/kg	850	834	531	3920	1450	1250	1010
Selenium	mg/kg	ND	ND	ND	ND	ND	ND	ND
Vanadium	mg/kg	14.5	14.1	13.3	24.2	18.7	16.2	14.0
Zinc	mg/kg	11.8	13.1	8.2	538	17.9	14.3	12.4

RFI10 - Sludge Pits

Sample point number		02	TRIP
Depth of sample		E3.0	BLANK
Parameter	Units	Result	Result
Method 8240			
Chloromethane	ug/L	ND	ND
Bromomethane	ug/L	ND	ND
Vinyl chloride	ug/L	ND	ND
Chloroethane	ug/L	ND	ND
Methylene chloride	ug/L	ND	ND
1,1-Dichloroethene	ug/L	ND	ND
1,1-Dichloroethane	ug/L	ND	ND
1,2-Dichloroethene (cis/trans)	ug/L	ND	ND
Chloroform	ug/L	ND	ND
1,2-Dichloroethane	ug/L	ND	ND
1,1,1-Trichloroethane	ug/L	ND	ND
Carbon tetrachloride	ug/L	ND	ND
Bromodichloromethane	ug/L	ND	ND
1,2-Dichloropropane	ug/L	ND	ND
trans-1,3-Dichloropropene	ug/L	ND	ND
Trichloroethene	ug/L	ND	ND
Dibromochloromethane	ug/L	ND	ND
1,1,2-Trichloroethene	ug/L	ND	ND
Benzene	ug/L	ND	ND
cis-1,3-Dichloropropene	ug/L	ND	ND
2-Chloroethyl vinyl ether	ug/L	ND	ND
Bromoform	ug/L	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	ND	ND
Tetrachloroethene	ug/L	ND	ND
Toluene	ug/L	ND	ND
Chlorobenzene	ug/L	ND	ND
Ethylbenzene	ug/L	ND	ND
Acetone	ug/L	12	ND
Acrolein	ug/L	ND	ND
Acrylonitrile	ug/L	ND	ND
Carbon disulfide	ug/L	ND	ND
Dibromomethane	ug/L	ND	ND
trans-1,4-Dichloro-2-butene	ug/L	ND	ND
Dichlorodifluoromethane	ug/L	ND	ND
trans-1,2-Dichloroethene	ug/L	ND	ND
Ethanol	ug/L	ND	ND
Iodomethane	ug/L	ND	ND
2-Butanone (MEK)	ug/L	ND	ND
4-Methyl-2-pentanone (MIBK)	ug/L	ND	ND
Styrene	ug/L	ND	ND
Trichlorofluoromethane	ug/L	ND	ND
1,2,3-Trichloropropane	ug/L	ND	ND
Vinyl acetate	ug/L	ND	ND
Xylenes (total)	ug/L	ND	ND
2-Hexanone	ug/L	ND	ND
Ethyl methacrylate	ug/L	ND	ND

RFI10 - Sludge Pits

Sample point number		02	TRIP
Depth of sample		E3.0	BLANK
Parameter	Units	Result	Result
Method 8270			
Acenapthene	ug/L	ND	
Acenaphthylene	ug/L	ND	
Acetophenone	ug/L	ND	
4-Aminobiphenyl	ug/L	ND	
Aniline	ug/L	ND	
Anthracene	ug/L	ND	
Benzo(a)anthracene	ug/L	ND	
Benzo(b)fluoranthene	ug/L	ND	
Benzo(k)fluoranthene	ug/L	ND	
Benzo(g,h,i)perylene	ug/L	ND	
Benzo(a)pyrene	ug/L	ND	
Benzyl alcohol	ug/L	ND	
bis(2-Chloroethoxy)-methane	ug/L	ND	
bis(2-Chloroethyl) ether	ug/L	ND	
bis(2-Chloroisopropyl)-ether	ug/L	ND	
bis(2-Ethylhexyl) phthalate	ug/L	ND	
4-Bromophenyl phenyl ether	ug/L	ND	
Butyl benzyl phthalate	ug/L	ND	
4-Chloroaniline	ug/L	ND	
4-Chloro-3-methylphenol	ug/L	ND	
2-Chloronaphthalene	ug/L	ND	
2-Chlorophenol	ug/L	ND	
4-Chlorophenyl phenyl ether	ug/L	ND	
o-Cresol	ug/L	ND	
m & p-Cresol(s)	ug/L	ND	
Chrysene	ug/L	ND	
Dibenz(a,h)anthracene	ug/L	ND	
Di-n-butyl phthalate	ug/L	ND	
1,2-Dichlorobenzene	ug/L	ND	
1,3-Dichlorobenzene	ug/L	ND	
1,4-Dichlorobenzene	ug/L	ND	
3,3-Dichlorobenzene	ug/L	ND	
2,4-Dichlorophenol	ug/L	ND	
2,6-Dichlorophenol	ug/L	ND	
Diethyl phthalate	ug/L	ND	
p-Dimethylaminoazobenzene	ug/L	ND	
7,12-Dimethylbenz(a)-	ug/L	ND	
anthracene	ug/L	ND	
a,a-Dimethylphenethyl-amine	ug/L	ND	
2,4-Dimethylphenol	ug/L	ND	
Dimethyl phthalate	ug/L	ND	
1,3-Dinitrobenzene	ug/L	ND	
4,6-Dinitro-o-cresol	ug/L	ND	
2,4-Dinitrophenol	ug/L	ND	
2,4-Dinitrotoluene	ug/L	ND	
2,6-Dinitrotoluene	ug/L	ND	
Di-n-octyl phthalate	ug/L	ND	
Diphenylamine	ug/L	ND	

RFI10 - Sludge Pits

Sample point number		02	TRIP
Depth of sample		E3.0	BLANK
Parameter	Units	Result	Result
Method 8270 (con't)			
Ethyl methanesulfonate	ug/L	ND	
Fluoranthene	ug/L	ND	
Fluorene	ug/L	ND	
Hexachlorobenzene	ug/L	ND	
Hexachlorobutadiene	ug/L	ND	
Hexachlorocyclopentadiene	ug/L	ND	
Hexachloroethane	ug/L	ND	
Indeno(1,2,3-cd)pyrene	ug/L	ND	
Isophorone	ug/L	ND	
3-Methylcholanthrene	ug/L	ND	
Methyl methanesulfonate	ug/L	ND	
2-Methylnaphthalene	ug/L	ND	
Naphthalene	ug/L	ND	
1-Naphthylamine	ug/L	ND	
2-Naphthylamine	ug/L	ND	
2-Nitroaniline	ug/L	ND	
3-Nitroaniline	ug/L	ND	
4-Nitroaniline	ug/L	ND	
Nitrobenzene	ug/L	ND	
2-Nitrophenol	ug/L	ND	
4-Nitrophenol	ug/L	ND	
N-Nitroso-di-n-butylamine	ug/L	ND	
N-Nitrosodimethylamine	ug/L	ND	
N-Nitrosodiphenylamine	ug/L	ND	
N-Nitroso-di-n-propylamine	ug/L	ND	
N-Nitrosopiperidine	ug/L	ND	
Pentachlorobenzene	ug/L	ND	
Pentachloronitrobenzene	ug/L	ND	
Pentachlorophenol	ug/L	ND	
Phenacetin	ug/L	ND	
Phenanthrene	ug/L	ND	
Phenol	ug/L	ND	
2-Picoline	ug/L	ND	
Pronamide	ug/L	ND	
Pyrene	ug/L	ND	
1,2,4,5-Tetrachloro-benzene	ug/L	ND	
2,3,4,6-Tetrachlorophenol	ug/L	ND	
1,2,4-Trichlorobenzene	ug/L	ND	
2,4,5-Trichlorophenol	ug/L	ND	
2,4,6-Trichlorophenol	ug/L	ND	
Benzidine	ug/L	ND	
Benzoic acid	ug/L	ND	
1-Chloronaphthalene	ug/L	ND	
1,2-Diphenylhydrazine	ug/L	ND	

RFI10 - Sludge Pits

Sample point number		02	TRIP
Depth of sample		E3.0	BLANK
Parameter	Units	Result	Result
Total Metals			
Antimony	mg/L	ND	
Arsenic	mg/L	ND	
Barium	mg/L	ND	
Beryllium	mg/L	ND	
Cadmium	mg/L	ND	
Chromium	mg/L	ND	
Cobalt	mg/L	ND	
Copper	mg/L	ND	
Lead	mg/L	ND	
Mercury	mg/L	ND	
Nickel	mg/L	ND	
Potassium	mg/L	ND	
Selenium	mg/L	ND	
Vanadium	mg/L	ND	
Zinc	mg/L	ND	

RCRA FACILITY INVESTIGATION
PHASE I - FINAL REPORT
GIANT REFINING COMPANY
GALLUP, NEW MEXICO
APRIL 8, 1991
BOOK 3

This Booklet Includes
Section 9.0
9.1.1
9.1.2
9.1.3
9.1.4
9.2.1

Section 9.1.1
RMAL No. 010179

Rocky Mountain
Analytical Laboratory

Enseco

ANALYTICAL RESULTS

FOR

GIANT REFINING

ENSECO-RMAL NO. 010179

JULY 19, 1990

Reviewed by: J A Essey
Julie Essey

Sue Dalla
Sue Dalla

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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

All analyses at Enseco are performed so that the maximum concentration of sample consistent with the method is analyzed. Dilutions are at times required to achieve linearity of the specific parameter or to reduce matrix interferences. In this event, reporting limits are adjusted proportionately.

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
Giant Refining

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
010179-0001-SA	RFI0608V.5	SOIL	27 JUN 90	07:05	28 JUN 90
010179-0002-SA	RFI0608V4.0	SOIL	27 JUN 90	07:55	28 JUN 90
010179-0003-SA	RFI0608V7.5	SOIL	27 JUN 90	08:20	28 JUN 90
010179-0004-SA	RFI0616V.5	SOIL	27 JUN 90	08:44	28 JUN 90
010179-0005-SA	RFI0616V4.0	SOIL	27 JUN 90	09:00	28 JUN 90
010179-0006-SA	RFI0616V7.5	SOIL	27 JUN 90	09:31	28 JUN 90
010179-0007-SA	RFI0618V.5	SOIL	27 JUN 90	09:49	28 JUN 90
010179-0008-SA	RFI0618V4.0	SOIL	27 JUN 90	10:00	28 JUN 90
010179-0009-SA	RFI0618V7.5	SOIL	27 JUN 90	11:07	28 JUN 90
010179-0010-SA	RFI0610V.5	SOIL	27 JUN 90	12:01	28 JUN 90
010179-0011-SA	RFI0610V4.0	SOIL	27 JUN 90	12:31	28 JUN 90
010179-0012-SA	RFI0610V7.5	SOIL	27 JUN 90	12:44	28 JUN 90
010179-0013-SA	RFI0620V.5	SOIL	27 JUN 90	13:15	28 JUN 90
010179-0014-SA	RFI0620V4.0	SOIL	27 JUN 90	13:45	28 JUN 90
010179-0015-SA	RFI0620V7.5	SOIL	27 JUN 90	14:07	28 JUN 90
010179-0016-SA	RFI0609A0.0	SOIL	27 JUN 90	13:15	28 JUN 90
010179-0017-SA	RFI0609A3.5	SOIL	27 JUN 90	13:20	28 JUN 90
010179-0018-SA	RFI0609A7.0	SOIL	27 JUN 90	13:30	28 JUN 90
010179-0019-SA	TRIP BLANK	AQUEOUS			28 JUN 90

ANALYTICAL TEST REQUESTS
for
Giant Refining

Lab ID: 010179	Group Code	Analysis Description	Custom Test?
0001 - 0018	A	ICP Metals (Total)	Y
		Prep - Total Metals, ICP	N
		Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)	N
0019	B	Benzene, Toluene, Ethyl Benzene and Xylenes (BTEX)	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, April, 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

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI0608V.5
Lab ID: 010179-0001-SA Enseco ID: 1081273
Matrix: SOIL Sampled: 27 JUN 90 Received: 28 JUN 90
Authorized: 29 JUN 90 Prepared: NA Analyzed: 02 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	50
Toluene	ND	ug/kg	50
Ethylbenzene	ND	ug/kg	50
Xylenes (total)	ND	ug/kg	100

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah Approved By: Greg Gustina

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI0608V4.0
Lab ID: 010179-0002-SA
Enseco ID: 1081274
Matrix: SOIL
Sampled: 27 JUN 90
Received: 28 JUN 90
Authorized: 29 JUN 90
Prepared: NA
Analyzed: 02 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	50
Toluene	ND	ug/kg	50
Ethylbenzene	ND	ug/kg	50
Xylenes (total)	ND	ug/kg	100

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah

Approved By: Greg Gustina

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI0608V7.5
Lab ID: 010179-0003-SA Enseco ID: 1081276
Matrix: SOIL Sampled: 27 JUN 90 Received: 28 JUN 90
Authorized: 29 JUN 90 Prepared: NA Analyzed: 02 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	1000	ug/kg	500
Toluene	3000	ug/kg	500
Ethylbenzene	2300	ug/kg	500
Xylenes (total)	45000	ug/kg	1000

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah Approved By: Greg Gustina

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI0616V.5
Lab ID: 010179-0004-SA Enseco ID: 1081277
Matrix: SOIL Sampled: 27 JUN 90 Received: 28 JUN 90
Authorized: 29 JUN 90 Prepared: NA Analyzed: 02 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	50
Toluene	260	ug/kg	50
Ethylbenzene	ND	ug/kg	50
Xylenes (total)	210	ug/kg	100

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah Approved By: Greg Gustina

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI0616V4.0
Lab ID: 010179-0005-SA Enseco ID: 1081278
Matrix: SOIL Sampled: 27 JUN 90 Received: 28 JUN 90
Authorized: 29 JUN 90 Prepared: NA Analyzed: 02 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	800	ug/kg	500
Toluene	2700	ug/kg	500
Ethylbenzene	5800	ug/kg	500
Xylenes (total)	32000	ug/kg	1000

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah Approved By: Greg Gustina

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI0616V7.5
Lab ID: 010179-0006-SA Enseco ID: 1081279
Matrix: SOIL Sampled: 27 JUN 90 Received: 28 JUN 90
Authorized: 29 JUN 90 Prepared: NA Analyzed: 02 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	500
Toluene	1500	ug/kg	500
Ethylbenzene	2400	ug/kg	500
Xylenes (total)	20000	ug/kg	1000

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah Approved By: Greg Gustina

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI0618V.5
Lab ID: 010179-0007-SA Enseco ID: 1081280
Matrix: SOIL Sampled: 27 JUN 90 Received: 28 JUN 90
Authorized: 29 JUN 90 Prepared: NA Analyzed: 02 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	50
Toluene	ND	ug/kg	50
Ethylbenzene	ND	ug/kg	50
Xylenes (total)	ND	ug/kg	100

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah Approved By: Greg Gustina

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI0618V4.0
Lab ID: 010179-0008-SA
Enseco ID: 1081281
Matrix: SOIL
Sampled: 27 JUN 90
Received: 28 JUN 90
Authorized: 29 JUN 90
Prepared: NA
Analyzed: 03 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	2500
Toluene	ND	ug/kg	2500
Ethylbenzene	3600	ug/kg	2500
Xylenes (total)	110000	ug/kg	5000

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah

Approved By: Greg Gustina

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI0618V7.5
Lab ID: 010179-0009-SA Enseco ID: 1081283
Matrix: SOIL Sampled: 27 JUN 90 Received: 28 JUN 90
Authorized: 29 JUN 90 Prepared: NA Analyzed: 04 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	500
Toluene	650	ug/kg	500
Ethylbenzene	2000	ug/kg	500
Xylenes (total)	24000	ug/kg	1000

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah Approved By: Greg Gustina

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI0610V.5
Lab ID: 010179-0010-SA Enseco ID: 1081286
Matrix: SOIL Sampled: 27 JUN 90 Received: 28 JUN 90
Authorized: 29 JUN 90 Prepared: NA Analyzed: 02 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	50
Toluene	ND	ug/kg	50
Ethylbenzene	ND	ug/kg	50
Xylenes (total)	ND	ug/kg	100

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah Approved By: Greg Gustina

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI0610V4.0
Lab ID: 010179-0011-SA
Enseco ID: 1081287
Matrix: SOIL
Sampled: 27 JUN 90
Received: 28 JUN 90
Authorized: 29 JUN 90
Prepared: NA
Analyzed: 02 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	50
Toluene	600	ug/kg	50
Ethylbenzene	83	ug/kg	50
Xylenes (total)	2000	ug/kg	100

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah

Approved By: Greg Gustina

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI0610V7.5
Lab ID: 010179-0012-SA Enseco ID: 1081289
Matrix: SOIL Sampled: 27 JUN 90 Received: 28 JUN 90
Authorized: 29 JUN 90 Prepared: NA Analyzed: 02 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	50
Toluene	1600	ug/kg	50
Ethylbenzene	360	ug/kg	50
Xylenes (total)	2700	ug/kg	100

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah Approved By: Greg Gustina

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI0620V.5
Lab ID: 010179-0013-SA Enseco ID: 1081293
Matrix: SOIL Sampled: 27 JUN 90 Received: 28 JUN 90
Authorized: 29 JUN 90 Prepared: NA Analyzed: 03 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	50
Toluene	ND	ug/kg	50
Ethylbenzene	ND	ug/kg	50
Xylenes (total)	ND	ug/kg	100

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah Approved By: Greg Gustina

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI0620V4.0
Lab ID: 010179-0014-SA Enseco ID: 1081295
Matrix: SOIL Sampled: 27 JUN 90 Received: 28 JUN 90
Authorized: 29 JUN 90 Prepared: NA Analyzed: 05 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	2500
Toluene	4500	ug/kg	2500
Ethylbenzene	5100	ug/kg	2500
Xylenes (total)	95000	ug/kg	5000

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah Approved By: Greg Gustina

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI0620V7.5
Lab ID: 010179-0015-SA Enseco ID: 1081297
Matrix: SOIL Sampled: 27 JUN 90 Received: 28 JUN 90
Authorized: 29 JUN 90 Prepared: NA Analyzed: 03 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500
Xylenes (total)	10000	ug/kg	1000

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah Approved By: Greg Gustina

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI0609A0.0
Lab ID: 010179-0016-SA Enseco ID: 1081298
Matrix: SOIL Sampled: 27 JUN 90 Received: 28 JUN 90
Authorized: 29 JUN 90 Prepared: NA Analyzed: 03 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	50
Toluene	ND	ug/kg	50
Ethylbenzene	ND	ug/kg	50
Xylenes (total)	ND	ug/kg	100

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah Approved By: Greg Gustina

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI0609A3.5
Lab ID: 010179-0017-SA Enseco ID: 1081299
Matrix: SOIL Sampled: 27 JUN 90 Received: 28 JUN 90
Authorized: 29 JUN 90 Prepared: NA Analyzed: 03 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	50
Toluene	ND	ug/kg	50
Ethylbenzene	ND	ug/kg	50
Xylenes (total)	ND	ug/kg	100

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah Approved By: Greg Gustina

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI0609A7.0
Lab ID: 010179-0018-SA Enseco ID: 1081300
Matrix: SOIL Sampled: 27 JUN 90 Received: 28 JUN 90
Authorized: 29 JUN 90 Prepared: NA Analyzed: 03 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	50
Toluene	ND	ug/kg	50
Ethylbenzene	ND	ug/kg	50
Xylenes (total)	ND	ug/kg	100

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah Approved By: Greg Gustina

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTEX)

Method 8020

Client Name: Giant Refining
Client ID: TRIP BLANK
Lab ID: 010179-0019-SA Enseco ID: 1081301
Matrix: AQUEOUS Sampled: Unknown Received: 28 JUN 90
Authorized: 29 JUN 90 Prepared: NA Analyzed: 05 JUL 90

Parameter	Result	Units	Reporting Limit
Benzene	ND	ug/L	0.50
Toluene	ND	ug/L	0.50
Ethylbenzene	ND	ug/L	0.50
Xylenes (total)	ND	ug/L	1.0

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah Approved By: Greg Gustina

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0608V.5
Lab ID: 010179-0001-SA
Matrix: SOIL
Authorized: 29 JUN 90

Enseco ID: 1081273
Sampled: 27 JUN 90
Prepared: See Below

Received: 28 JUN 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	23.1	mg/kg	10.0	6010	12 JUL 90	13 JUL 90
Nickel	ND	mg/kg	8.0	6010	12 JUL 90	13 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Toni Lusk

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0608V4.0
Lab ID: 010179-0002-SA
Enseco ID: 1081274
Matrix: SOIL
Sampled: 27 JUN 90
Received: 28 JUN 90
Authorized: 29 JUN 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	5.3	mg/kg	5.0	6010	12 JUL 90	13 JUL 90
Nickel	ND	mg/kg	4.0	6010	12 JUL 90	13 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Toni Lusk

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0608V7.5
Lab ID: 010179-0003-SA
Enseco ID: 1081276
Matrix: SOIL
Sampled: 27 JUN 90
Received: 28 JUN 90
Authorized: 29 JUN 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	14.2	mg/kg	5.0	6010	12 JUL 90	13 JUL 90
Nickel	9.7	mg/kg	4.0	6010	12 JUL 90	13 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Toni Lusk

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0616V.5
Lab ID: 010179-0004-SA
Enseco ID: 1081277
Matrix: SOIL
Sampled: 27 JUN 90
Received: 28 JUN 90
Authorized: 29 JUN 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	238	mg/kg	10.0	6010	12 JUL 90	13 JUL 90
Nickel	32.9	mg/kg	8.0	6010	12 JUL 90	13 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Toni Lusk

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0616V4.0
Lab ID: 010179-0005-SA Enseco ID: 1081278
Matrix: SOIL Sampled: 27 JUN 90 Received: 28 JUN 90
Authorized: 29 JUN 90 Prepared: See Below Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	301	mg/kg	5.0	6010	12 JUL 90	13 JUL 90
Nickel	58.2	mg/kg	4.0	6010	12 JUL 90	13 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones Approved By: Toni Lusk

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0616V7.5
Lab ID: 010179-0006-SA
Matrix: SOIL
Authorized: 29 JUN 90

Enseco ID: 1081279
Sampled: 27 JUN 90
Prepared: See Below

Received: 28 JUN 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	55.3	mg/kg	5.0	6010	12 JUL 90	13 JUL 90
Nickel	6.5	mg/kg	4.0	6010	12 JUL 90	13 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Toni Lusk

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0618V.5
Lab ID: 010179-0007-SA
Matrix: SOIL
Authorized: 29 JUN 90

Enseco ID: 1081280
Sampled: 27 JUN 90
Prepared: See Below

Received: 28 JUN 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	14.8	mg/kg	5.0	6010	12 JUL 90	13 JUL 90
Nickel	7.1	mg/kg	4.0	6010	12 JUL 90	13 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Toni Lusk

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0618V4.0
Lab ID: 010179-0008-SA
Enseco ID: 1081281
Matrix: SOIL
Sampled: 27 JUN 90
Received: 28 JUN 90
Authorized: 29 JUN 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	12.3	mg/kg	10.0	6010	12 JUL 90	13 JUL 90
Nickel	ND	mg/kg	8.0	6010	12 JUL 90	13 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Toni Lusk

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0618V7.5
Lab ID: 010179-0009-SA
Enseco ID: 1081283
Matrix: SOIL
Sampled: 27 JUN 90
Received: 28 JUN 90
Authorized: 29 JUN 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	21.2	mg/kg	10.0	6010	12 JUL 90	13 JUL 90
Nickel	ND	mg/kg	8.0	6010	12 JUL 90	13 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones
Approved By: Toni Lusk

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0610V.5
Lab ID: 010179-0010-SA
Matrix: SOIL
Authorized: 29 JUN 90

Enseco ID: 1081286
Sampled: 27 JUN 90
Prepared: See Below

Received: 28 JUN 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	129	mg/kg	5.0	6010	12 JUL 90	13 JUL 90
Nickel	15.2	mg/kg	4.0	6010	12 JUL 90	13 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Toni Lusk

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0610V4.0
Lab ID: 010179-0011-SA
Enseco ID: 1081287
Matrix: SOIL
Sampled: 27 JUN 90
Received: 28 JUN 90
Authorized: 29 JUN 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	ND	mg/kg	10.0	6010	12 JUL 90	13 JUL 90
Nickel	ND	mg/kg	8.0	6010	12 JUL 90	13 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Toni Lusk

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0610V7.5
Lab ID: 010179-0012-SA
Matrix: SOIL
Authorized: 29 JUN 90

Enseco ID: 1081289
Sampled: 27 JUN 90
Prepared: See Below

Received: 28 JUN 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	10.3	mg/kg	5.0	6010	12 JUL 90	13 JUL 90
Nickel	5.4	mg/kg	4.0	6010	12 JUL 90	13 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Toni Lusk

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0620V.5
Lab ID: 010179-0013-SA
Enseco ID: 1081293
Matrix: SOIL
Sampled: 27 JUN 90
Received: 28 JUN 90
Authorized: 29 JUN 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	21.6	mg/kg	5.0	6010	12 JUL 90	13 JUL 90
Nickel	49.8	mg/kg	4.0	6010	12 JUL 90	13 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Toni Lusk

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0620V4.0
Lab ID: 010179-0014-SA
Enseco ID: 1081295
Matrix: SOIL
Sampled: 27 JUN 90
Received: 28 JUN 90
Authorized: 29 JUN 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	9.9	mg/kg	5.0	6010	12 JUL 90	13 JUL 90
Nickel	4.9	mg/kg	4.0	6010	12 JUL 90	13 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Toni Lusk

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0620V7.5
Lab ID: 010179-0015-SA
Enseco ID: 1081297
Matrix: SOIL
Sampled: 27 JUN 90
Received: 28 JUN 90
Authorized: 29 JUN 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	7.8	mg/kg	5.0	6010	12 JUL 90	13 JUL 90
Nickel	6.8	mg/kg	4.0	6010	12 JUL 90	13 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Toni Lusk

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0609A0.0
Lab ID: 010179-0016-SA
Matrix: SOIL
Authorized: 29 JUN 90

Enseco ID: 1081298
Sampled: 27 JUN 90
Prepared: See Below

Received: 28 JUN 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	10.6	mg/kg	5.0	6010	12 JUL 90	13 JUL 90
Nickel	4.5	mg/kg	4.0	6010	12 JUL 90	13 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Toni Lusk

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0609A3.5
Lab ID: 010179-0017-SA
Enseco ID: 1081299
Matrix: SOIL
Sampled: 27 JUN 90
Received: 28 JUN 90
Authorized: 29 JUN 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	8.0	mg/kg	5.0	6010	12 JUL 90	13 JUL 90
Nickel	6.3	mg/kg	4.0	6010	12 JUL 90	13 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Toni Lusk

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0609A7.0
Lab ID: 010179-0018-SA
Matrix: SOIL
Authorized: 29 JUN 90

Enseco ID: 1081300
Sampled: 27 JUN 90
Prepared: See Below

Received: 28 JUN 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	8.3	mg/kg	5.0	6010	12 JUL 90	13 JUL 90
Nickel	4.3	mg/kg	4.0	6010	12 JUL 90	13 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Toni Lusk

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.

QC LOT ASSIGNMENT REPORT
Volatile Organics by GC

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
010179-0001-SA	SOIL	8020-S	02 JUL 90-P	02 JUL 90-P
010179-0002-SA	SOIL	8020-S	02 JUL 90-P	02 JUL 90-P
010179-0003-SA	SOIL	8020-S	02 JUL 90-P	02 JUL 90-P
010179-0004-SA	SOIL	8020-S	02 JUL 90-P	02 JUL 90-P
010179-0005-SA	SOIL	8020-S	02 JUL 90-P	02 JUL 90-P
010179-0006-SA	SOIL	8020-S	02 JUL 90-P	02 JUL 90-P
010179-0007-SA	SOIL	8020-S	02 JUL 90-P	02 JUL 90-P
010179-0008-SA	SOIL	8020-S	03 JUL 90-P	03 JUL 90-P
010179-0009-SA	SOIL	8020-S	03 JUL 90-P	03 JUL 90-P
010179-0010-SA	SOIL	8020-S	02 JUL 90-P	02 JUL 90-P
010179-0011-SA	SOIL	8020-S	02 JUL 90-P	02 JUL 90-P
010179-0012-SA	SOIL	8020-S	02 JUL 90-P	02 JUL 90-P
010179-0013-SA	SOIL	8020-S	03 JUL 90-P	03 JUL 90-P
010179-0014-SA	SOIL	8020-S	05 JUL 90-L	05 JUL 90-L
010179-0015-SA	SOIL	8020-S	03 JUL 90-P	03 JUL 90-P
010179-0016-SA	SOIL	8020-S	03 JUL 90-P	03 JUL 90-P
010179-0017-SA	SOIL	8020-S	03 JUL 90-P	03 JUL 90-P
010179-0018-SA	SOIL	8020-S	03 JUL 90-P	03 JUL 90-P
010179-0019-SA	AQUEOUS	602-A	05 JUL 90-P	05 JUL 90-P

DUPLICATE CONTROL SAMPLE REPORT
Volatile Organics by GC

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	AVG	Accuracy Average(%) DCS	Accuracy Limits	Precision (RPD) DCS	Precision Limit
Category: 8020-S Matrix: SOIL QC Lot: 02 JUL 90-P Concentration Units: ug/kg								
Benzene	500	582	588	585	117	75-125	1.0	15
Toluene	500	542	546	544	109	75-125	0.7	15
Ethylbenzene	500	544	545	544	109	75-125	0.2	15
Xylenes (total)	500	535	539	537	107	75-125	0.7	15
1,3-Dichlorobenzene	500	519	538	528	106	75-125	3.6	15
Category: 8020-S Matrix: SOIL QC Lot: 03 JUL 90-P Concentration Units: ug/kg								
Benzene	500	581	578	580	116	75-125	0.5	15
Toluene	500	538	536	537	107	75-125	0.4	15
Ethylbenzene	500	546	539	542	109	75-125	1.3	15
Xylenes (total)	500	532	530	531	106	75-125	0.4	15
1,3-Dichlorobenzene	500	519	536	528	106	75-125	3.2	15
Category: 8020-S Matrix: SOIL QC Lot: 05 JUL 90-L Concentration Units: ug/kg								
Benzene	500	546	538	542	108	75-125	1.5	15
Toluene	500	568	561	564	113	75-125	1.2	15
Ethylbenzene	500	568	555	562	112	75-125	2.3	15
Xylenes (total)	500	572	560	566	113	75-125	2.1	15
1,3-Dichlorobenzene	500	561	541	551	110	75-125	3.6	15
Category: 602-A Matrix: AQUEOUS QC Lot: 05 JUL 90-P Concentration Units: ug/L								
Benzene	5.0	5.82	5.84	5.83	117	80-120	0.3	15
Toluene	5.0	5.38	5.40	5.39	108	80-120	0.4	15
Ethylbenzene	5.0	5.28	5.31	5.30	106	80-120	0.6	15
Xylenes (total)	5.0	5.30	5.32	5.31	106	80-120	0.4	15

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

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DUPLICATE CONTROL SAMPLE REPORT
Volatile Organics by GC (cont.)

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	Measured AVG	Accuracy Average(%) DCS	Accuracy Limits	Precision (RPD) DCS	Precision Limit
Category: 602-A								
Matrix: AQUEOUS								
QC Lot: 05 JUL 90-P								
Concentration Units: ug/L								
1,3-Dichlorobenzene	5.0	5.22	5.30	5.26	105	80-120	1.5	15

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

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SINGLE CONTROL SAMPLE REPORT
Volatile Organics by GC

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) SCS	Accuracy(%) Limits
Category: 8020-S Matrix: SOIL QC Lot: 02 JUL 90-P QC Run: 02 JUL 90-P Concentration Units: ug/kg				
a,a,a-Trifluorotoluene	3000	3030	101	20-160
Category: 8020-S Matrix: SOIL QC Lot: 03 JUL 90-P QC Run: 03 JUL 90-P Concentration Units: ug/kg				
a,a,a-Trifluorotoluene	3000	3030	101	20-160
Category: 8020-S Matrix: SOIL QC Lot: 05 JUL 90-L QC Run: 05 JUL 90-L Concentration Units: ug/kg				
a,a,a-Trifluorotoluene	500	483	97	20-160
Category: 602-A Matrix: AQUEOUS QC Lot: 05 JUL 90-P QC Run: 05 JUL 90-P Concentration Units: ug/L				
a,a,a-Trifluorotoluene	30.0	30.3	101	20-160

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

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METHOD BLANK REPORT
Volatile Organics by GC

Analyte	Result	Units	Reporting Limit
Test: 8020-BTEX-S			
Matrix: SOIL			
QC Lot: 02 JUL 90-P QC Run: 02 JUL 90-P			
Benzene	ND	ug/kg	50
Toluene	ND	ug/kg	50
Ethylbenzene	ND	ug/kg	50
Xylenes (total)	ND	ug/kg	100
Test: 8020-BTEX-S			
Matrix: SOIL			
QC Lot: 03 JUL 90-P QC Run: 03 JUL 90-P			
Benzene	ND	ug/kg	50
Toluene	ND	ug/kg	50
Ethylbenzene	ND	ug/kg	50
Xylenes (total)	ND	ug/kg	100
Test: 8020-BTEX-S			
Matrix: SOIL			
QC Lot: 05 JUL 90-L QC Run: 05 JUL 90-L			
Benzene	ND	ug/kg	50
Toluene	ND	ug/kg	50
Ethylbenzene	ND	ug/kg	50
Xylenes (total)	ND	ug/kg	100
Test: 602-BTEX-AP			
Matrix: AQUEOUS			
QC Lot: 05 JUL 90-P QC Run: 05 JUL 90-P			
Benzene	ND	ug/L	0.50
Toluene	ND	ug/L	0.50
Ethylbenzene	ND	ug/L	0.50
Xylenes (total)	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)
010179-0001-SA	SOIL	ICP-S	11 JUL 90-R	11 JUL 90-R
010179-0002-SA	SOIL	ICP-S	11 JUL 90-R	11 JUL 90-R
010179-0003-SA	SOIL	ICP-S	11 JUL 90-R	11 JUL 90-R
010179-0004-SA	SOIL	ICP-S	11 JUL 90-R	11 JUL 90-R
010179-0005-SA	SOIL	ICP-S	11 JUL 90-R	11 JUL 90-R
010179-0006-SA	SOIL	ICP-S	11 JUL 90-R	11 JUL 90-R
010179-0007-SA	SOIL	ICP-S	11 JUL 90-R	11 JUL 90-R
010179-0008-SA	SOIL	ICP-S	11 JUL 90-R	11 JUL 90-R
010179-0009-SA	SOIL	ICP-S	11 JUL 90-R	11 JUL 90-R
010179-0010-SA	SOIL	ICP-S	11 JUL 90-R	11 JUL 90-R
010179-0011-SA	SOIL	ICP-S	11 JUL 90-R	11 JUL 90-R
010179-0012-SA	SOIL	ICP-S	11 JUL 90-R	11 JUL 90-R
010179-0013-SA	SOIL	ICP-S	11 JUL 90-R	11 JUL 90-R
010179-0014-SA	SOIL	ICP-S	11 JUL 90-R	11 JUL 90-R
010179-0015-SA	SOIL	ICP-S	11 JUL 90-R	11 JUL 90-R
010179-0016-SA	SOIL	ICP-S	11 JUL 90-R	11 JUL 90-R
010179-0017-SA	SOIL	ICP-S	11 JUL 90-R	11 JUL 90-R
010179-0018-SA	SOIL	ICP-S	11 JUL 90-R	11 JUL 90-R

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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	Precision (RPD) DCS	Precision (RPD) Limit
Category: ICP-S								
Matrix: SOIL								
QC Lot: 11 JUL 90-R								
Concentration Units: mg/kg								
Aluminum	200	193	191	192	96	75-125	0.8	20
Antimony	50	42.1	44.5	43.3	87	75-125	5.5	20
Arsenic	50	40.5	36.7	38.6	77	75-125	9.9	20
Barium	200	173	173	173	87	75-125	0.2	20
Beryllium	5.0	4.67	4.62	4.65	93	75-125	0.9	20
Cadmium	5.0	4.59	3.98	4.28	86	75-125	14	20
Calcium	10000	8620	8750	8680	87	75-125	1.5	20
Chromium	20	18.8	18.3	18.6	93	75-125	2.5	20
Cobalt	50	41.7	38.1	39.9	80	75-125	9.1	20
Copper	25	23.3	21.7	22.5	90	75-125	7.1	20
Iron	100	94.1	93.5	93.8	94	75-125	0.7	20
Lead	50	42.2	38.2	40.2	80	75-125	10	20
Magnesium	5000	4350	4420	4380	88	75-125	1.5	20
Manganese	50	42.1	38.8	40.4	81	75-125	8.2	20
Nickel	50	41.9	38.5	40.2	80	75-125	8.3	20
Potassium	5000	4280	4350	4320	86	75-125	1.6	20
Silver	5.0	4.50	4.46	4.48	90	75-125	0.9	20
Sodium	10000	8710	8860	8780	88	75-125	1.8	20
Vanadium	50	47.8	47.7	47.8	96	75-125	0.3	20
Zinc	50	42.0	38.5	40.2	80	75-125	8.7	20

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

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METHOD BLANK REPORT
Metals Analysis and Preparation

Analyte	Result	Units	Reporting Limit
Test: ICP-S			
Matrix: SOIL			
QC Lot: 11 JUL 90-R QC Run: 11 JUL 90-R			
Lead	ND	mg/kg	5.0
Nickel	ND	mg/kg	4.0

Enseco - Rocky Mountain Analytical

4955 Yarrow Street
Arvada, Colorado 80002
303/421-6611 Facsimile: 303/431-7171

CHAIN OF CUSTODY

No.

Attn: Julie Essy

Enseco Client: Giant Refinery
Project: RFI
Sampling Co.: Giant
Sampling Site: Cirizo
Team Leader: M. McGaslin

Rma 10179

SAMPLE SAFE™ CONDITIONS

1. Packed by: _____ Seal # _____
2. Seal Intact Upon Receipt by Sampling Co.: (Yes) No
3. Condition of Contents: Good
4. Sealed for Shipping by: C Rosendale
5. Initial Contents Temp.: _____ °C Seal # _____
6. Sampling Status: Done Continuing Until _____
7. Seal Intact Upon Receipt by Laboratory: Yes No
8. Contents Temperature Upon Receipt by Lab: _____ °C
9. Condition of Contents: _____

	Date	Time	Sample ID/Description	Sample Type	No. Containers	Analysis Parameters	Remarks
1	6-27-90	7:05	RFI0608V.5 01	SOIL	2	BTEX, Lead, Nickel	
2	6-27-90	7:55	RFI0608V4.0 02	SOIL	2	BTEX, Lead, Nickel	
3	6-27-90	8:20	RFI0608V7.5 03	SOIL	2	BTEX, Lead, Nickel	
4	6-27-90	8:44	RFI0616V.5 04	SOIL	2	BTEX, Lead, Nickel	
5	6-27-90	9:00	RFI0616V4.0 05	SOIL	2	BTEX, Lead, Nickel	
6	6-27-90	9:31	RFI0616V7.5 06	SOIL	2	BTEX, Lead, Nickel	
7	6-27-90	9:49	RFI0618V.5 07	SOIL	2	BTEX, Lead, Nickel	
8	6-27-90	10:00	RFI0618V4.0 08	SOIL	2	BTEX, Lead, Nickel	
9	6-27-90	11:07	RFI0618V7.5 09	SOIL	2	BTEX, Lead, Nickel	

CUSTODY TRANSFERS PRIOR TO SHIPPING

	Relinquished by: (signed)	Received by: (signed)	Date	Time
1	C Rosendale		6-27-90	2:45pm
2				
3				

SHIPPING DETAILS

Delivered to Shipper by: C Rosendale
Method of Shipment: Fed Express Airbill #
Received for Lab: RMal Signed: Joseph A Mya Date/Time 6/28/90 0800
Enseco Project No. 10179

9.56

White and Pink Copies to Lab Yellow to Sampler

SS-001

Enseco - Rocky Mountain Analytical

4955 Yarrow Street
Arvada, Colorado 80002
303/421-6611 Facsimile: 303/431-7171

CHAIN OF CUSTODY

No.

Attn: Julio Essly

Enseco Client: Giant Refinery
Project: RFI
Sampling Co.: Giant
Sampling Site: Ginizg
Team Leader: M. McCaslin

10179

SAMPLE SAFE™ CONDITIONS

1. Packed by: _____ Seal # _____
2. Seal Intact Upon Receipt by Sampling Co.: (Yes) No
3. Condition of Contents: Good
4. Sealed for Shipping by: Chasendale
5. Initial Contents Temp.: _____ °C Seal # _____
6. Sampling Status: Done Continuing Until _____
7. Seal Intact Upon Receipt by Laboratory: Yes No
8. Contents Temperature Upon Receipt by Lab: _____ °C
9. Condition of Contents: _____

Date	Time	Sample ID/Description	Sample Type	No. Containers	Analysis Parameters	Remarks
6-27-90	12:01	RFI0610V.5 10	Soil	2	BTEX, Lead, Nickel	
6-27-90	12:31	RFI0610V4.0 11	Soil	2	BTEX, Lead, Nickel	
6-27-90	12:44	RFI0610V7.5 12	Soil	2	BTEX, Lead, Nickel	
6-27-90	1:15	RFI0620V.5 13	Soil	2	BTEX, Lead, Nickle	
6-27-90	1:45	RFI0620V4.0 14	Soil	2	BTEX, Lead, Nickle	
6-27-90	2:01	RFI0620V7.5 15	Soil	2	BTEX, Lead, Nickle	

CUSTODY TRANSFERS PRIOR TO SHIPPING

	Relinquished by: (signed)	Received by: (signed)	Date	Time
1	Chasendale		7-27-90	2:45 pm
2				
3				

SHIPPING DETAILS

Delivered to Shipper by: Chasendale
Method of Shipment: Fed Express Airbill # _____
Received for Lab: RMAL Signed: Joseph A Mac Date/Time 6/28/90 0800
Enseco Project No. 10179

White and Pink Copies to Lab Yellow to Sampler

SS-001

Enseco - Rocky Mountain Analytical

4955 Yarrow Street
Arvada, Colorado 80002
303/421-6611 Facsimile: 303/431-7171

CHAIN OF CUSTODY

No.

Attn: Julie Esdon

Enseco Client: Giant Refinery
Project: RFI
Sampling Co.: Rodgers & Co
Sampling Site: Cirizo
Team Leader: Chad Rosendale

10179

SAMPLE SAFE™ CONDITIONS

1. Packed by: _____ Seal # _____
2. Seal Intact Upon Receipt by Sampling Co.: (Yes) No
3. Condition of Contents: Good
4. Sealed for Shipping by: C Rosendale
5. Initial Contents Temp.: — °C Seal # —
6. Sampling Status: Done Continuing Until —
7. Seal Intact Upon Receipt by Laboratory: Yes No
8. Contents Temperature Upon Receipt by Lab: _____ °C
9. Condition of Contents: _____

Date	Time	Sample ID/Description	Sample Type	No. Containers	Analysis Parameters	Remarks
6-27-90	1315	RFI 0609A 0.0 16	Soil	2	BTEX Lead Nickel	
6-27-90	1320	RFI 0609A 3.5 17	Soil	2	BTEX Lead Nickel	
6-27-90	1330	RFI 0609A 7.0 18	Soil	2	BTEX Lead Nickel	
6-27-90	—	Trip Blank 19	Water	1	VOA	

CUSTODY TRANSFERS PRIOR TO SHIPPING

	Relinquished by: (signed)	Received by: (signed)	Date	Time
1	Chad Rosendale		6-27-90	2:45pm
2				
3				

SHIPPING DETAILS

Delivered to Shipper by: C Rosendale
Method of Shipment: Fed. Express Airbill #
Received for Lab: RMAC Signed: Joseph A Yazz Date/Time 6/28/90 0800
Enseco Project No. 10179

White and Pink Copies to Lab Yellow to Sampler

SS-001

Section 9.1.2
RMAL No. 010180

Rocky Mountain
Analytical Laboratory

Enseco

ANALYTICAL RESULTS

FOR

GIANT REFINING

ENSECO-RMAL NO. 010180

JULY 28, 1990

Reviewed by: J Essey
Julie Essey

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

I. OVERVIEW

On June 28, 1990, Enseco-Rocky Mountain Analytical Laboratory received 19 soil samples from Giant Refining.

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

All analyses at Enseco are performed so that the maximum concentration of sample consistent with the method is analyzed. Dilutions are at times required to avoid saturation of the detector, to achieve linearity for a specific target compound or to reduce matrix interferences. In this event, reporting limits are adjusted proportionately. Surrogate compounds may not be measurable in samples which have been diluted.

For this project, samples 010180-0009, -0010, and -0014 by Method 8020 were diluted due to elevated concentrations of target compounds. Likewise, several samples by Method 6010 were diluted; however, these dilutions were due to concentrations of calcium in the samples. The samples by Method 6010 which were diluted are 010180-0001 through -0005, -0007, -0008, -0011, -0012, -0015, -0017, and -0019. In all cases, the reporting limits were raised proportionately.

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.

Enseco
A CORNING Company

SAMPLE DESCRIPTION INFORMATION
for
Giant Refining

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
010180-0001-SA	RFI0617A0.0	SOIL	27 JUN 90	10:10	28 JUN 90
010180-0002-SA	RFI0617A3.5	SOIL	27 JUN 90	10:20	28 JUN 90
010180-0003-SA	RFI0617A7.0	SOIL	27 JUN 90	10:25	28 JUN 90
010180-0004-SA	RFI0613A0.0	SOIL	27 JUN 90	11:10	28 JUN 90
010180-0005-SA	RFI0613A3.5	SOIL	27 JUN 90	11:20	28 JUN 90
010180-0006-SA	RFI0613A7.0	SOIL	27 JUN 90	11:25	28 JUN 90
010180-0007-SA	RFI0613D0.0	SOIL	27 JUN 90	11:15	28 JUN 90
010180-0008-SA	RFI0611A0.0	SOIL	27 JUN 90	12:15	28 JUN 90
010180-0009-SA	RFI0611A3.5	SOIL	27 JUN 90	12:25	28 JUN 90
010180-0010-SA	RFI0611A7.0	SOIL	27 JUN 90	12:30	28 JUN 90
010180-0011-SA	RFI0607A0.0	SOIL	27 JUN 90	06:30	28 JUN 90
010180-0012-SA	RFI0607A3.5	SOIL	27 JUN 90	06:45	28 JUN 90
010180-0013-SA	RFI0607A7.5	SOIL	27 JUN 90	06:50	28 JUN 90
010180-0014-SA	RFI0619A0.0	SOIL	27 JUN 90	08:00	28 JUN 90
010180-0015-SA	RFI0619A3.5	SOIL	27 JUN 90	08:05	28 JUN 90
010180-0016-SA	RFI0619A7.0	SOIL	27 JUN 90	08:10	28 JUN 90
010180-0017-SA	RFI0615A0.0	SOIL	27 JUN 90	08:50	28 JUN 90
010180-0018-SA	RFI0615A3.5	SOIL	27 JUN 90	09:10	28 JUN 90
010180-0019-SA	RFI0615A7.0	SOIL	27 JUN 90	09:10	28 JUN 90

Enseco
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ANALYTICAL TEST REQUESTS
for
Giant Refining

Lab ID: 010180	Group Code	Analysis Description	Custom Test?
0001 - 0019	A	Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)	N
		ICP Metals (Total)	Y
		Prep - Total Metals, ICP	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.

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, April, 1989.

In addition, surrogate recovery data is presented for all GC/MS analyses. The surrogate recovery is an indication of the affect 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, is given in Section IV.

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

Metals

Arsenic, selenium and thallium are customarily determined by graphite furnace atomic absorption (GFAA). All mercury determinations are by cold vapor atomic absorption. All other metals are determined using Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP).

All metals nominal reporting limits are statistically determined by analyzing a reagent blank seven times on three non-consecutive days. The standard deviations from each group of analyses are then summed (reporting limit = three times the standard deviation of a blank). The ability to attain the quoted reporting limits is verified each quarter. Reporting limits above nominal values are often reported since sample matrix interferences must be compensated for by dilutions prior to analysis or by the use of Method of Standard Additions. All GFAA reporting limits and results are verified by spike recoveries and represent the lowest attainable for each sample matrix. The metals reporting limits reported should not be viewed as quantitation limits. As recommended by the American Chemical Society Subcommittee on Environmental Analytical Chemistry (Analytical Chemistry 1980, 52, 2242-49), the Limit of Quantitation (LOQ) is equal to ten times the standard deviation of a blank or 3.3 times the reporting limit.

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI0617A0.0
Lab ID: 010180-0001-SA Enseco ID: 1081264
Matrix: SOIL Sampled: 27 JUN 90 Received: 28 JUN 90
Authorized: 29 JUN 90 Prepared: NA Analyzed: 06 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	50
Toluene	ND	ug/kg	50
Ethylbenzene	ND	ug/kg	50
Xylenes (total)	ND	ug/kg	100

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah Approved By: Greg Gustina

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI0617A3.5
Lab ID: 010180-0002-SA Enseco ID: 1081265
Matrix: SOIL Sampled: 27 JUN 90 Received: 28 JUN 90
Authorized: 29 JUN 90 Prepared: NA Analyzed: 05 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	50
Toluene	ND	ug/kg	50
Ethylbenzene	ND	ug/kg	50
Xylenes (total)	ND	ug/kg	100

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah Approved By: Greg Gustina

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI0617A7.0
Lab ID: 010180-0003-SA
Enseco ID: 1081266
Matrix: SOIL
Sampled: 27 JUN 90
Received: 28 JUN 90
Authorized: 29 JUN 90
Prepared: NA
Analyzed: 05 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	50
Toluene	ND	ug/kg	50
Ethylbenzene	ND	ug/kg	50
Xylenes (total)	ND	ug/kg	100

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah

Approved By: Greg Gustina

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI0613A0.0
Lab ID: 010180-0004-SA
Enseco ID: 1081267
Matrix: SOIL
Sampled: 27 JUN 90
Received: 28 JUN 90
Authorized: 29 JUN 90
Prepared: NA
Analyzed: 03 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	50
Toluene	ND	ug/kg	50
Ethylbenzene	ND	ug/kg	50
Xylenes (total)	ND	ug/kg	100

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah

Approved By: Greg Gustina

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI0613A3.5
Lab ID: 010180-0005-SA Enseco ID: 1081268
Matrix: SOIL Sampled: 27 JUN 90 Received: 28 JUN 90
Authorized: 29 JUN 90 Prepared: NA Analyzed: 03 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	50
Toluene	ND	ug/kg	50
Ethylbenzene	ND	ug/kg	50
Xylenes (total)	ND	ug/kg	100

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah Approved By: Greg Gustina

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI0613A7.0
Lab ID: 010180-0006-SA
Enseco ID: 1081269
Matrix: SOIL
Sampled: 27 JUN 90
Received: 28 JUN 90
Authorized: 29 JUN 90
Prepared: NA
Analyzed: 03 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	50
Toluene	ND	ug/kg	50
Ethylbenzene	ND	ug/kg	50
Xylenes (total)	ND	ug/kg	100

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah

Approved By: Greg Gustina

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI0613D0.0
Lab ID: 010180-0007-SA Enseco ID: 1081270
Matrix: SOIL Sampled: 27 JUN 90 Received: 28 JUN 90
Authorized: 29 JUN 90 Prepared: NA Analyzed: 03 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	50
Toluene	ND	ug/kg	50
Ethylbenzene	ND	ug/kg	50
Xylenes (total)	ND	ug/kg	100

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah Approved By: Greg Gustina

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI0611A0.0
Lab ID: 010180-0008-SA Enseco ID: 1081271
Matrix: SOIL Sampled: 27 JUN 90 Received: 28 JUN 90
Authorized: 29 JUN 90 Prepared: NA Analyzed: 03 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	50
Toluene	ND	ug/kg	50
Ethylbenzene	ND	ug/kg	50
Xylenes (total)	ND	ug/kg	100

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah Approved By: Greg Gustina

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI0611A3.5
Lab ID: 010180-0009-SA Enseco ID: 1081272
Matrix: SOIL Sampled: 27 JUN 90 Received: 28 JUN 90
Authorized: 29 JUN 90 Prepared: NA Analyzed: 03 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	5000
Toluene	73000	ug/kg	5000
Ethylbenzene	16000	ug/kg	5000
Xylenes (total)	180000	ug/kg	10000

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah Approved By: Greg Gustina

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI0611A7.0
Lab ID: 010180-0010-SA Enseco ID: 1081275
Matrix: SOIL Sampled: 27 JUN 90 Received: 28 JUN 90
Authorized: 29 JUN 90 Prepared: NA Analyzed: 03 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	7400	ug/kg	5000
Toluene	84000	ug/kg	5000
Ethylbenzene	17000	ug/kg	5000
Xylenes (total)	140000	ug/kg	10000

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah Approved By: Greg Gustina

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI0607A0.0
Lab ID: 010180-0011-SA Enseco ID: 1081282
Matrix: SOIL Sampled: 27 JUN 90 Received: 28 JUN 90
Authorized: 29 JUN 90 Prepared: NA Analyzed: 03 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	50
Toluene	ND	ug/kg	50
Ethylbenzene	ND	ug/kg	50
Xylenes (total)	ND	ug/kg	100

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah Approved By: Greg Gustina

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI0607A3.5
Lab ID: 010180-0012-SA Enseco ID: 1081284
Matrix: SOIL Sampled: 27 JUN 90 Received: 28 JUN 90
Authorized: 29 JUN 90 Prepared: NA Analyzed: 03 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	50
Toluene	ND	ug/kg	50
Ethylbenzene	ND	ug/kg	50
Xylenes (total)	ND	ug/kg	100

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah Approved By: Greg Gustina

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI0607A7.5
Lab ID: 010180-0013-SA
Enseco ID: 1081285
Matrix: SOIL
Sampled: 27 JUN 90
Received: 28 JUN 90
Authorized: 29 JUN 90
Prepared: NA
Analyzed: 05 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	50
Toluene	ND	ug/kg	50
Ethylbenzene	ND	ug/kg	50
Xylenes (total)	ND	ug/kg	100

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah

Approved By: Greg Gustina

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI0619A0.0
Lab ID: 010180-0014-SA Enseco ID: 1081288
Matrix: SOIL Sampled: 27 JUN 90 Received: 28 JUN 90
Authorized: 29 JUN 90 Prepared: NA Analyzed: 03 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	5000
Toluene	ND	ug/kg	5000
Ethylbenzene	ND	ug/kg	5000
Xylenes (total)	180000	ug/kg	10000

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah Approved By: Greg Gustina

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI0619A3.5
Lab ID: 010180-0015-SA Enseco ID: 1081290
Matrix: SOIL Sampled: 27 JUN 90 Received: 28 JUN 90
Authorized: 29 JUN 90 Prepared: NA Analyzed: 05 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	50
Toluene	ND	ug/kg	50
Ethylbenzene	ND	ug/kg	50
Xylenes (total)	ND	ug/kg	100

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah Approved By: Greg Gustina

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI0619A7.0
Lab ID: 010180-0016-SA
Enseco ID: 1081291
Matrix: SOIL
Sampled: 27 JUN 90
Received: 28 JUN 90
Authorized: 29 JUN 90
Prepared: NA
Analyzed: 05 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	160	ug/kg	50
Toluene	ND	ug/kg	50
Ethylbenzene	73	ug/kg	50
Xylenes (total)	190	ug/kg	100

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah

Approved By: Greg Gustina

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI0615A0.0
Lab ID: 010180-0017-SA Enseco ID: 1081292
Matrix: SOIL Sampled: 27 JUN 90 Received: 28 JUN 90
Authorized: 29 JUN 90 Prepared: NA Analyzed: 03 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	50
Toluene	ND	ug/kg	50
Ethylbenzene	ND	ug/kg	50
Xylenes (total)	ND	ug/kg	100

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah Approved By: Greg Gustina

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI0615A3.5
Lab ID: 010180-0018-SA
Enseco ID: 1081294
Matrix: SOIL
Sampled: 27 JUN 90
Received: 28 JUN 90
Authorized: 29 JUN 90
Prepared: NA
Analyzed: 03 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	50
Toluene	ND	ug/kg	50
Ethylbenzene	ND	ug/kg	50
Xylenes (total)	ND	ug/kg	100

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah

Approved By: Greg Gustina

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI0615A7.0
Lab ID: 010180-0019-SA
Enseco ID: 1081296
Matrix: SOIL
Sampled: 27 JUN 90
Received: 28 JUN 90
Authorized: 29 JUN 90
Prepared: NA
Analyzed: 03 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	50
Toluene	ND	ug/kg	50
Ethylbenzene	ND	ug/kg	50
Xylenes (total)	ND	ug/kg	100

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah

Approved By: Greg Gustina

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0617A0.0
Lab ID: 010180-0001-SA
Enseco ID: 1081264
Matrix: SOIL
Sampled: 27 JUN 90
Received: 28 JUN 90
Authorized: 29 JUN 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	ND	mg/kg	25.0	6010	23 JUL 90	24 JUL 90
Nickel	ND	mg/kg	20.0	6010	23 JUL 90	24 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Roxanne Sullivan

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0617A3.5
Lab ID: 010180-0002-SA
Enseco ID: 1081265
Matrix: SOIL
Sampled: 27 JUN 90
Received: 28 JUN 90
Authorized: 29 JUN 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	ND	mg/kg	10.0	6010	23 JUL 90	24 JUL 90
Nickel	ND	mg/kg	8.0	6010	23 JUL 90	24 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Roxanne Sullivan

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0617A7.0
Lab ID: 010180-0003-SA
Matrix: SOIL
Authorized: 29 JUN 90

Enseco ID: 1081266
Sampled: 27 JUN 90
Prepared: See Below

Received: 28 JUN 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	ND	mg/kg	20.0	6010	23 JUL 90	24 JUL 90
Nickel	ND	mg/kg	16.0	6010	23 JUL 90	24 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Roxanne Sullivan

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0613A0.0
Lab ID: 010180-0004-SA
Matrix: SOIL
Authorized: 29 JUN 90

Enseco ID: 1081267
Sampled: 27 JUN 90
Prepared: See Below

Received: 28 JUN 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	ND	mg/kg	10.0	6010	23 JUL 90	24 JUL 90
Nickel	ND	mg/kg	8.0	6010	23 JUL 90	24 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Roxanne Sullivan

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0613A3.5
Lab ID: 010180-0005-SA
Matrix: SOIL
Authorized: 29 JUN 90

Enseco ID: 1081268
Sampled: 27 JUN 90
Prepared: See Below

Received: 28 JUN 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	ND	mg/kg	10.0	6010	23 JUL 90	24 JUL 90
Nickel	ND	mg/kg	8.0	6010	23 JUL 90	24 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Roxanne Sullivan

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0613A7.0
Lab ID: 010180-0006-SA
Enseco ID: 1081269
Matrix: SOIL
Sampled: 27 JUN 90
Received: 28 JUN 90
Authorized: 29 JUN 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	5.2	mg/kg	5.0	6010	23 JUL 90	24 JUL 90
Nickel	ND	mg/kg	4.0	6010	23 JUL 90	24 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Roxanne Sullivan

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0613D0.0
Lab ID: 010180-0007-SA
Enseco ID: 1081270
Matrix: SOIL
Sampled: 27 JUN 90
Received: 28 JUN 90
Authorized: 29 JUN 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	ND	mg/kg	10.0	6010	23 JUL 90	24 JUL 90
Nickel	ND	mg/kg	8.0	6010	23 JUL 90	24 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Roxanne Sullivan

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0611A0.0
Lab ID: 010180-0008-SA
Enseco ID: 1081271
Matrix: SOIL
Sampled: 27 JUN 90
Received: 28 JUN 90
Authorized: 29 JUN 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	44.6	mg/kg	10.0	6010	23 JUL 90	24 JUL 90
Nickel	ND	mg/kg	8.0	6010	23 JUL 90	24 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Roxanne Sullivan

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0611A3.5
Lab ID: 010180-0009-SA
Matrix: SOIL
Authorized: 29 JUN 90

Enseco ID: 1081272
Sampled: 27 JUN 90
Prepared: See Below

Received: 28 JUN 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	21.4	mg/kg	5.0	6010	23 JUL 90	24 JUL 90
Nickel	6.2	mg/kg	4.0	6010	23 JUL 90	24 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Roxanne Sullivan

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0611A7.0
Lab ID: 010180-0010-SA
Matrix: SOIL
Authorized: 29 JUN 90

Enseco ID: 1081275
Sampled: 27 JUN 90
Prepared: See Below

Received: 28 JUN 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	23.9	mg/kg	5.0	6010	23 JUL 90	24 JUL 90
Nickel	5.5	mg/kg	4.0	6010	23 JUL 90	24 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Roxanne Sullivan

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0607A0.0
Lab ID: 010180-0011-SA
Matrix: SOIL
Authorized: 29 JUN 90

Enseco ID: 1081282
Sampled: 27 JUN 90
Prepared: See Below

Received: 28 JUN 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	ND	mg/kg	10.0	6010	23 JUL 90	24 JUL 90
Nickel	ND	mg/kg	8.0	6010	23 JUL 90	24 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Roxanne Sullivan

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0607A3.5
Lab ID: 010180-0012-SA
Matrix: SOIL
Authorized: 29 JUN 90

Enseco ID: 1081284
Sampled: 27 JUN 90
Prepared: See Below

Received: 28 JUN 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	ND	mg/kg	15.0	6010	23 JUL 90	24 JUL 90
Nickel	ND	mg/kg	12.0	6010	23 JUL 90	24 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Roxanne Sullivan

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0607A7.5
Lab ID: 010180-0013-SA
Enseco ID: 1081285
Matrix: SOIL
Sampled: 27 JUN 90
Received: 28 JUN 90
Authorized: 29 JUN 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	7.0	mg/kg	5.0	6010	23 JUL 90	24 JUL 90
Nickel	6.0	mg/kg	4.0	6010	23 JUL 90	24 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Roxanne Sullivan

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0619A0.0
Lab ID: 010180-0014-SA
Matrix: SOIL
Authorized: 29 JUN 90

Enseco ID: 1081288
Sampled: 27 JUN 90
Prepared: See Below

Received: 28 JUN 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	19.1	mg/kg	5.0	6010	23 JUL 90	24 JUL 90
Nickel	9.6	mg/kg	4.0	6010	23 JUL 90	24 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Roxanne Sullivan

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0619A3.5
Lab ID: 010180-0015-SA
Enseco ID: 1081290
Matrix: SOIL
Sampled: 27 JUN 90
Received: 28 JUN 90
Authorized: 29 JUN 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	ND	mg/kg	15.0	6010	23 JUL 90	24 JUL 90
Nickel	ND	mg/kg	12.0	6010	23 JUL 90	24 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Roxanne Sullivan

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0619A7.0
Lab ID: 010180-0016-SA
Enseco ID: 1081291
Matrix: SOIL
Sampled: 27 JUN 90
Received: 28 JUN 90
Authorized: 29 JUN 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	8.0	mg/kg	5.0	6010	23 JUL 90	24 JUL 90
Nickel	7.1	mg/kg	4.0	6010	23 JUL 90	24 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Roxanne Sullivan

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0615A0.0
Lab ID: 010180-0017-SA
Enseco ID: 1081292
Matrix: SOIL
Sampled: 27 JUN 90
Received: 28 JUN 90
Authorized: 29 JUN 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	17.0	mg/kg	15.0	6010	23 JUL 90	24 JUL 90
Nickel	ND	mg/kg	12.0	6010	23 JUL 90	24 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Roxanne Sullivan

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0615A3.5
Lab ID: 010180-0018-SA
Enseco ID: 1081294
Matrix: SOIL
Sampled: 27 JUN 90
Received: 28 JUN 90
Authorized: 29 JUN 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	6.7	mg/kg	5.0	6010	23 JUL 90	24 JUL 90
Nickel	6.1	mg/kg	4.0	6010	23 JUL 90	24 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Roxanne Sullivan

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0615A7.0
Lab ID: 010180-0019-SA
Enseco ID: 1081296
Matrix: SOIL
Sampled: 27 JUN 90
Received: 28 JUN 90
Authorized: 29 JUN 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	ND	mg/kg	25.0	6010	23 JUL 90	24 JUL 90
Nickel	ND	mg/kg	20.0	6010	23 JUL 90	24 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Roxanne Sullivan

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 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 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.

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QC LOT ASSIGNMENT REPORT
Volatile Organics by GC

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
010180-0001-SA	SOIL	8020-S	06 JUL 90-L	06 JUL 90-L
010180-0002-SA	SOIL	8020-S	05 JUL 90-L	05 JUL 90-L
010180-0003-SA	SOIL	8020-S	05 JUL 90-L	05 JUL 90-L
010180-0004-SA	SOIL	8020-S	03 JUL 90-L	03 JUL 90-L
010180-0005-SA	SOIL	8020-S	03 JUL 90-L	03 JUL 90-L
010180-0006-SA	SOIL	8020-S	03 JUL 90-L	03 JUL 90-L
010180-0007-SA	SOIL	8020-S	03 JUL 90-L	03 JUL 90-L
010180-0008-SA	SOIL	8020-S	03 JUL 90-L	03 JUL 90-L
010180-0009-SA	SOIL	8020-S	03 JUL 90-P	03 JUL 90-P
010180-0010-SA	SOIL	8020-S	03 JUL 90-P	03 JUL 90-P
010180-0011-SA	SOIL	8020-S	03 JUL 90-L	03 JUL 90-L
010180-0012-SA	SOIL	8020-S	03 JUL 90-L	03 JUL 90-L
010180-0013-SA	SOIL	8020-S	05 JUL 90-L	05 JUL 90-L
010180-0014-SA	SOIL	8020-S	03 JUL 90-P	03 JUL 90-P
010180-0015-SA	SOIL	8020-S	05 JUL 90-L	05 JUL 90-L
010180-0016-SA	SOIL	8020-S	05 JUL 90-L	05 JUL 90-L
010180-0017-SA	SOIL	8020-S	03 JUL 90-L	03 JUL 90-L
010180-0018-SA	SOIL	8020-S	03 JUL 90-L	03 JUL 90-L
010180-0019-SA	SOIL	8020-S	03 JUL 90-L	03 JUL 90-L

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DUPLICATE CONTROL SAMPLE REPORT
Volatile Organics by GC

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	Measured AVG	Accuracy Average(%) DCS	Accuracy Average(%) Limits	Precision (RPD) DCS	Precision (RPD) Limit
Category: 8020-S Matrix: SOIL QC Lot: 06 JUL 90-L Concentration Units: ug/kg								
Benzene	500	523	526	524	105	75-125	0.6	15
Toluene	500	511	513	512	102	75-125	0.4	15
Ethylbenzene	500	552	551	552	110	75-125	0.2	15
Xylenes (total)	500	550	566	558	112	75-125	2.9	15
1,3-Dichlorobenzene	500	533	542	538	108	75-125	1.7	15
Category: 8020-S Matrix: SOIL QC Lot: 05 JUL 90-L Concentration Units: ug/kg								
Benzene	500	546	538	542	108	75-125	1.5	15
Toluene	500	568	561	564	113	75-125	1.2	15
Ethylbenzene	500	568	555	562	112	75-125	2.3	15
Xylenes (total)	500	572	560	566	113	75-125	2.1	15
1,3-Dichlorobenzene	500	561	541	551	110	75-125	3.6	15
Category: 8020-S Matrix: SOIL QC Lot: 03 JUL 90-L Concentration Units: ug/kg								
Benzene	500	553	553	553	111	75-125	0.0	15
Toluene	500	572	553	562	113	75-125	3.4	15
Ethylbenzene	500	566	574	570	114	75-125	1.4	15
Xylenes (total)	500	567	562	564	113	75-125	0.9	15
1,3-Dichlorobenzene	500	553	541	547	109	75-125	2.2	15
Category: 8020-S Matrix: SOIL QC Lot: 03 JUL 90-P Concentration Units: ug/kg								
Benzene	500	581	578	580	116	75-125	0.5	15
Toluene	500	538	536	537	107	75-125	0.4	15
Ethylbenzene	500	546	539	542	109	75-125	1.3	15
Xylenes (total)	500	532	530	531	106	75-125	0.4	15

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

DUPLICATE CONTROL SAMPLE REPORT
Volatile Organics by GC (cont.)

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	Measured AVG	Accuracy Average(%) DCS	Accuracy Limits	Precision (RPD) DCS	Precision Limit
Category: 8020-S								
Matrix: SOIL								
QC Lot: 03 JUL 90-P								
Concentration Units: ug/kg								
1,3-Dichlorobenzene	500	519	536	528	106	75-125	3.2	15

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

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SINGLE CONTROL SAMPLE REPORT
Volatile Organics by GC

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) SCS	Accuracy(%) Limits
Category: 8020-S Matrix: SOIL QC Lot: 06 JUL 90-L QC Run: 06 JUL 90-L Concentration Units: ug/kg				
a,a,a-Trifluorotoluene	500	485	97	20-160
Category: 8020-S Matrix: SOIL QC Lot: 05 JUL 90-L QC Run: 05 JUL 90-L Concentration Units: ug/kg				
a,a,a-Trifluorotoluene	500	483	97	20-160
Category: 8020-S Matrix: SOIL QC Lot: 03 JUL 90-L QC Run: 03 JUL 90-L Concentration Units: ug/kg				
a,a,a-Trifluorotoluene	500	487	97	20-160
Category: 8020-S Matrix: SOIL QC Lot: 03 JUL 90-P QC Run: 03 JUL 90-P Concentration Units: ug/kg				
a,a,a-Trifluorotoluene	3000	3030	101	20-160

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

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METHOD BLANK REPORT
Volatile Organics by GC

Analyte	Result	Units	Reporting Limit
Test: 8020-BTEX-S			
Matrix: SOIL			
QC Lot: 06 JUL 90-L QC Run: 06 JUL 90-L			
Benzene	ND	ug/kg	50
Toluene	ND	ug/kg	50
Ethylbenzene	ND	ug/kg	50
Xylenes (total)	ND	ug/kg	100
Test: 8020-BTEX-S			
Matrix: SOIL			
QC Lot: 05 JUL 90-L QC Run: 05 JUL 90-L			
Benzene	ND	ug/kg	50
Toluene	ND	ug/kg	50
Ethylbenzene	ND	ug/kg	50
Xylenes (total)	ND	ug/kg	100
Test: 8020-BTEX-S			
Matrix: SOIL			
QC Lot: 03 JUL 90-L QC Run: 03 JUL 90-L			
Benzene	ND	ug/kg	50
Toluene	ND	ug/kg	50
Ethylbenzene	ND	ug/kg	50
Xylenes (total)	ND	ug/kg	100
Test: 8020-BTEX-S			
Matrix: SOIL			
QC Lot: 03 JUL 90-P QC Run: 03 JUL 90-P			
Benzene	ND	ug/kg	50
Toluene	ND	ug/kg	50
Ethylbenzene	ND	ug/kg	50
Xylenes (total)	ND	ug/kg	100

Enseco
A CORNING Company

QC LOT ASSIGNMENT REPORT
Metals Analysis and Preparation

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
010180-0001-SA	SOIL	ICP-S	20 JUL 90-G	20 JUL 90-G
010180-0002-SA	SOIL	ICP-S	20 JUL 90-G	20 JUL 90-G
010180-0003-SA	SOIL	ICP-S	20 JUL 90-G	20 JUL 90-G
010180-0004-SA	SOIL	ICP-S	20 JUL 90-G	20 JUL 90-G
010180-0005-SA	SOIL	ICP-S	20 JUL 90-G	20 JUL 90-G
010180-0006-SA	SOIL	ICP-S	20 JUL 90-G	20 JUL 90-G
010180-0007-SA	SOIL	ICP-S	20 JUL 90-G	20 JUL 90-G
010180-0008-SA	SOIL	ICP-S	20 JUL 90-G	20 JUL 90-G
010180-0009-SA	SOIL	ICP-S	20 JUL 90-G	20 JUL 90-G
010180-0010-SA	SOIL	ICP-S	20 JUL 90-G	20 JUL 90-G
010180-0011-SA	SOIL	ICP-S	20 JUL 90-G	20 JUL 90-G
010180-0012-SA	SOIL	ICP-S	20 JUL 90-G	20 JUL 90-G
010180-0013-SA	SOIL	ICP-S	20 JUL 90-G	20 JUL 90-G
010180-0014-SA	SOIL	ICP-S	20 JUL 90-G	20 JUL 90-G
010180-0015-SA	SOIL	ICP-S	20 JUL 90-G	20 JUL 90-G
010180-0016-SA	SOIL	ICP-S	20 JUL 90-G	20 JUL 90-G
010180-0017-SA	SOIL	ICP-S	20 JUL 90-G	20 JUL 90-G
010180-0018-SA	SOIL	ICP-S	20 JUL 90-G	20 JUL 90-G
010180-0019-SA	SOIL	ICP-S	20 JUL 90-G	20 JUL 90-G

Enseco
A CORNING Company

DUPLICATE CONTROL SAMPLE REPORT
Metals Analysis and Preparation

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	Measured AVG	Accuracy Average(%) DCS	Accuracy Average(%) Limits	Precision (RPD) DCS	Precision (RPD) Limit
Category: ICP-S								
Matrix: SOIL								
QC Lot: 20 JUL 90-G								
Concentration Units: mg/kg								
Aluminum	200	186	190	188	94	75-125	2.0	20
Antimony	50	44.3	44.7	44.5	89	75-125	0.9	20
Arsenic	50	41.3	42.2	41.7	83	75-125	2.3	20
Barium	200	169	173	171	85	75-125	2.4	20
Beryllium	5.0	4.73	4.81	4.77	95	75-125	1.7	20
Cadmium	5.0	3.90	4.26	4.08	82	75-125	8.9	20
Calcium	10000	9610	9660	9640	96	75-125	0.6	20
Chromium	20	19.1	18.7	18.9	95	75-125	1.8	20
Cobalt	50	41.8	42.6	42.2	84	75-125	2.0	20
Copper	25	22.3	22.4	22.4	89	75-125	0.7	20
Iron	100	92.3	92.7	92.5	93	75-125	0.5	20
Lead	50	41.2	41.5	41.4	83	75-125	0.6	20
Magnesium	5000	4880	4930	4900	98	75-125	0.9	20
Manganese	50	43.4	43.7	43.5	87	75-125	0.6	20
Nickel	50	42.6	43.0	42.8	86	75-125	1.0	20
Potassium	5000	4580	4610	4600	92	75-125	0.7	20
Silver	5.0	4.98	4.98	4.98	100	75-125	0.0	20
Sodium	10000	9020	9090	9050	91	75-125	0.8	20
Vanadium	50	46.8	47.7	47.3	95	75-125	1.9	20
Zinc	50	40.8	41.2	41.0	82	75-125	1.1	20

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

Enseco
A CORNING Company

METHOD BLANK REPORT
Metals Analysis and Preparation

Analyte	Result	Units	Reporting Limit
Test: ICP-S			
Matrix: SOIL			
QC Lot: 20 JUL 90-G QC Run: 20 JUL 90-G			
Lead	ND	mg/kg	5.0
Nickel	ND	mg/kg	4.0

Enseco - Rocky Mountain Analytical

4955 Yarrow Street
Arvada, Colorado 80002
303/421-6611 Facsimile: 303/431-7171

CHAIN OF CUSTODY

No.

Attn: Julie Essey

Enseco Client: Giant Refinery
Project: RFI
Sampling Co.: Radian + Co
Sampling Site: Cin 129
Team Leader: Claud Rosendale

Rma # 10180

SAMPLE SAFE™ CONDITIONS

1. Packed by: _____ Seal # _____
2. Seal Intact Upon Receipt by Sampling Co.: Yes (Yes) No
3. Condition of Contents: Good
4. Sealed for Shipping by: C Rosendale
5. Initial Contents Temp.: — °C Seal # —
6. Sampling Status: Done, Continuing Until —
7. Seal Intact Upon Receipt by Laboratory: Yes No
8. Contents Temperature Upon Receipt by Lab: _____ °C
9. Condition of Contents: _____

Lab #	Date	Time	Sample ID/Description	Sample Type	No. Containers	Analysis Parameters	Remarks
01	6-27-90	1010	RFI 0617A 0.0 01	Soil	2	BTEX Lead Nickel	
02	6-27-90	1020	RFI 0617A 3.5 02	Soil	2	BTEX Lead Nickel	
03	6-27-90	1025	RFI 0617A 7.0 03	Soil	2	BTEX Lead Nickel	
04	6-27-90	1110	RFI 0613A 0.0 04	Soil	2	BTEX Lead Nickel	
05	6-27-90	1120	RFI 0613A 3.5 05	Soil	2	BTEX Lead Nickel	
06	6-27-90	1125	RFI 0613A 7.0 06	Soil	2	BTEX Lead Nickel	
07	6-27-90	1115	RFI 0613D 0.0 07	Soil	2	BTEX Lead Nickel	
08	6-27-90	1215	RFI 0611A 0.0 08	Soil	2	BTEX Lead Nickel	
09	6-27-90	1225	RFI 0611A 3.5 09	Soil	2	BTEX Lead Nickel	
10	6-27-90	1230	RFI 0611A 7.0 10	Soil	2	BTEX Lead Nickel	

CUSTODY TRANSFERS PRIOR TO SHIPPING

	Relinquished by: (signed)	Received by: (signed)	Date	Time
1	Claud Rosendale		6-27-90	2:45pm
2				

SHIPPING DETAILS

Delivered to Shipper by: C Rosendale
Method of Shipment: Fed Express Airbill #
Received for Lab: RMAC Signed: Joseph A. Myers Date/Time 6/28/90 0802
Enseco Project No.

White and Pink Copies to Lab Yellow to Sampler

SS-001

Enseco - Rocky Mountain Analytical

4955 Yarrow Street
Arvada, Colorado 80002
303/421-6611 Facsimile: 303/431-7171

CHAIN OF CUSTODY

No.

Attn: Julie Essey

Enseco Client: Giant Refinery

Project: RFI

Sampling Co.: Rodgers & Co

Sampling Site: Cinizo

Team Leader: Claud Rosendale

Rma# 10180

SAMPLE SAFE™ CONDITIONS

1. Packed by: _____ Seal # _____
2. Seal Intact Upon Receipt by Sampling Co.: Yes No
3. Condition of Contents: Good
4. Sealed for Shipping by: C Rosendale
5. Initial Contents Temp.: _____ °C Seal # _____
6. Sampling Status: Done Continuing Until _____
7. Seal Intact Upon Receipt by Laboratory: Yes No
8. Contents Temperature Upon Receipt by Lab: _____ °C
9. Condition of Contents: _____

	Date	Time	Sample ID/Description	Sample Type	No. Containers	Analysis Parameters	Remarks
11	6-27-90	0630	RFI0607A 0.0 11	Soil	2	BTEX Lead Nickel	
12	6-27-90	0645	RFI0607A 3.5 12	Soil	2	BTEX Lead Nickel	
13	6-27-90	0650	RFI0607A 7.5 13	Soil	2	BTEX Lead Nickel	
14	6-27-90	0800	RFI0619A 0.0 14	Soil	2	BTEX Lead Nickel	
15	6-27-90	0805	RFI0619A 3.5 15	Soil	2	BTEX Lead Nickel	
16	6-27-90	0810	RFI0619A 7.0 16	Soil	2	BTEX Lead Nickel	
17	6-27-90	0850	RFI0615A 0.0 17	Soil	2	BTEX Lead Nickel	
18	6-27-90	0910	RFI0615A 3.5 18	Soil	2	BTEX Lead Nickel	
19	6-27-90	0910	RFI0615A 7.0 19	Soil	2	BTEX Lead Nickel	

CUSTODY TRANSFERS PRIOR TO SHIPPING

	Relinquished by: (signed)	Received by: (signed)	Date	Time
1	Claud Rosendale		6-27-90	2:45pm
2				
3				

SHIPPING DETAILS

Delivered to Shipper by: C Rosendale

Method of Shipment: Fed Express Airbill #

Received for Lab: RMAL Signed: Joseph A Myers Date/Time 6/28/90 0800

Enseco Project No.

White and Pink Copies to Lab Yellow to Sampler

SS-001

Section 9.1.3
RMAL No. 010231

Rocky Mountain
Analytical Laboratory

Enseco

ANALYTICAL RESULTS

FOR

GIANT REFINING

ENSECO-RMAL NO. 010231

JULY 28, 1990

Reviewed by: J.A. Essey
Julie Essey

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

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.

I. OVERVIEW

On July 2, 1990, Enseco-Rocky Mountain Analytical Laboratory received 15 soil samples from Giant Refining.

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

All analyses at Enseco are performed so that the maximum concentration of sample consistent with the method is analyzed. Dilutions are at times required to avoid saturation of the detector, to achieve linearity for a specific target compound or to reduce matrix interferences. In this event, reporting limits are adjusted proportionately. Surrogate compounds may not be measurable in samples which have been diluted.

For this project, samples 010231-0001, through -0010, and -0015 by Method 8020 were diluted due to elevated concentrations of target and/or non-target compounds. Likewise, several samples by Method 6010 were diluted; however, these dilutions were due to concentrations of non-target analyte in the samples. The samples by Method 6010 which were diluted are 010231-0001, -0007, -0008, -0010, -0012, -0013, -0014, and -0015. In all cases, the reporting limits were raised proportionately.

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SAMPLE DESCRIPTION INFORMATION
for
Giant Refining

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
010231-0001-SA	RFI 0612V0.0	SOIL	29 JUN 90	09:35	02 JUL 90
010231-0002-SA	RFI 0612V3.5	SOIL	29 JUN 90	09:38	02 JUL 90
010231-0003-SA	RFI 0612V7.0	SOIL	29 JUN 90	09:58	02 JUL 90
010231-0004-SA	RFI 0614V0.0	SOIL	29 JUN 90	10:04	02 JUL 90
010231-0005-SA	RFI 0614V3.5	SOIL	29 JUN 90	10:23	02 JUL 90
010231-0006-SA	RFI 0614V7.0	SOIL	29 JUN 90	10:33	02 JUL 90
010231-0007-SA	RFI 0606V0.0	SOIL	29 JUN 90	11:43	02 JUL 90
010231-0008-SA	RFI 0606V3.5	SOIL	29 JUN 90	11:50	02 JUL 90
010231-0009-SA	RFI 0606V7.0	SOIL	29 JUN 90	12:03	02 JUL 90
010231-0010-SA	RFI 0602V0.0	SOIL	29 JUN 90	12:14	02 JUL 90
010231-0011-SA	RFI 0602V.35	SOIL	29 JUN 90	12:27	02 JUL 90
010231-0012-SA	RFI 0602V7.0	SOIL	29 JUN 90	13:00	02 JUL 90
010231-0013-SA	RFI 0604V0.0	SOIL	29 JUN 90	13:11	02 JUL 90
010231-0014-SA	RFI 0604V3.5	SOIL	29 JUN 90	13:15	02 JUL 90
010231-0015-SA	RFI 0604V7.0	SOIL	29 JUN 90	13:28	02 JUL 90

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ANALYTICAL TEST REQUESTS
for
Giant Refining

Lab ID: 010231	Group Code	Analysis Description	Custom Test?
0001 - 0015	A	Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)	N
		ICP Suite (Standard List)	Y
		Prep - Total Metals, ICP	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.

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, April, 1989.

In addition, surrogate recovery data is presented for all GC/MS analyses. The surrogate recovery is an indication of the affect 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, is given in Section IV.

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

Metals

Arsenic, selenium and thallium are customarily determined by graphite furnace atomic absorption (GFAA). All mercury determinations are by cold vapor atomic absorption. All other metals are determined using Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP).

All metals nominal reporting limits are statistically determined by analyzing a reagent blank seven times on three non-consecutive days. The standard deviations from each group of analyses are then summed (reporting limit = three times the standard deviation of a blank). The ability to attain the quoted reporting limits is verified each quarter. Reporting limits above nominal values are often reported since sample matrix interferences must be compensated for by dilutions prior to analysis or by the use of Method of Standard Additions. All GFAA reporting limits and results are verified by spike recoveries and represent the lowest attainable for each sample matrix. The metals reporting limits reported should not be viewed as quantitation limits. As recommended by the American Chemical Society Subcommittee on Environmental Analytical Chemistry (Analytical Chemistry 1980, 52, 2242-49), the Limit of Quantitation (LOQ) is equal to ten times the standard deviation of a blank or 3.3 times the reporting limit.

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Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI 0612V0.0
Lab ID: 010231-0001-SA Enseco ID: 1081760
Matrix: SOIL Sampled: 29 JUN 90 Received: 02 JUL 90
Authorized: 02 JUL 90 Prepared: NA Analyzed: 09 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	250
Toluene	1700	ug/kg	250
Ethylbenzene	280	ug/kg	250
Xylenes (total)	2900	ug/kg	500

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah Approved By: Anthony Allen

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI 0612V3.5
Lab ID: 010231-0002-SA Enseco ID: 1081761
Matrix: SOIL Sampled: 29 JUN 90 Received: 02 JUL 90
Authorized: 02 JUL 90 Prepared: NA Analyzed: 10 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	17000	ug/kg	10000
Toluene	500000	ug/kg	10000
Ethylbenzene	150000	ug/kg	10000
Xylenes (total)	1000000	ug/kg	20000

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah Approved By: Anthony Allen

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI 0612V7.0
Lab ID: 010231-0003-SA Enseco ID: 1081762
Matrix: SOIL Sampled: 29 JUN 90 Received: 02 JUL 90
Authorized: 02 JUL 90 Prepared: NA Analyzed: 09 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	2500
Toluene	46000	ug/kg	2500
Ethylbenzene	14000	ug/kg	2500
Xylenes (total)	100000	ug/kg	5000

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah Approved By: Anthony Allen

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI 0614V0.0
Lab ID: 010231-0004-SA Enseco ID: 1081763
Matrix: SOIL Sampled: 29 JUN 90 Received: 02 JUL 90
Authorized: 02 JUL 90 Prepared: NA Analyzed: 06 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	100
Toluene	1000	ug/kg	100
Ethylbenzene	ND	ug/kg	100
Xylenes (total)	580	ug/kg	200

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah Approved By: Anthony Allen

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI 0614V3.5
Lab ID: 010231-0005-SA Enseco ID: 1081764
Matrix: SOIL Sampled: 29 JUN 90 Received: 02 JUL 90
Authorized: 02 JUL 90 Prepared: NA Analyzed: 09 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	1000
Toluene	ND	ug/kg	1000
Ethylbenzene	ND	ug/kg	1000
Xylenes (total)	28000	ug/kg	2000

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah Approved By: Anthony Allen

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI 0614V7.0
Lab ID: 010231-0006-SA Enseco ID: 1081765
Matrix: SOIL Sampled: 29 JUN 90 Received: 02 JUL 90
Authorized: 02 JUL 90 Prepared: NA Analyzed: 09 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	5000
Toluene	75000	ug/kg	5000
Ethylbenzene	55000	ug/kg	5000
Xylenes (total)	330000	ug/kg	10000

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah Approved By: Anthony Allen

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI 0606V0.0
Lab ID: 010231-0007-SA Enseco ID: 1081766
Matrix: SOIL Sampled: 29 JUN 90 Received: 02 JUL 90
Authorized: 02 JUL 90 Prepared: NA Analyzed: 09 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	50
Toluene	150	ug/kg	50
Ethylbenzene	ND	ug/kg	50
Xylenes (total)	220	ug/kg	100

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah Approved By: Anthony Allen

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI 0606V3.5
Lab ID: 010231-0008-SA
Enseco ID: 1081767
Matrix: SOIL
Sampled: 29 JUN 90
Received: 02 JUL 90
Authorized: 02 JUL 90
Prepared: NA
Analyzed: 09 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	250
Toluene	1200	ug/kg	250
Ethylbenzene	ND	ug/kg	250
Xylenes (total)	6400	ug/kg	500

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah

Approved By: Anthony Allen

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI 0606V7.0
Lab ID: 010231-0009-SA Enseco ID: 1081768
Matrix: SOIL Sampled: 29 JUN 90 Received: 02 JUL 90
Authorized: 02 JUL 90 Prepared: NA Analyzed: 09 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	1000
Toluene	4600	ug/kg	1000
Ethylbenzene	6500	ug/kg	1000
Xylenes (total)	43000	ug/kg	2000

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah Approved By: Anthony Allen

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI 0602V0.0
Lab ID: 010231-0010-SA Enseco ID: 1081769
Matrix: SOIL Sampled: 29 JUN 90 Received: 02 JUL 90
Authorized: 02 JUL 90 Prepared: NA Analyzed: 06 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	50
Toluene	ND	ug/kg	50
Ethylbenzene	ND	ug/kg	50
Xylenes (total)	ND	ug/kg	100

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah Approved By: Anthony Allen

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI 0602V.35
Lab ID: 010231-0011-SA Enseco ID: 1081770
Matrix: SOIL Sampled: 29 JUN 90 Received: 02 JUL 90
Authorized: 02 JUL 90 Prepared: NA Analyzed: 06 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	50
Toluene	ND	ug/kg	50
Ethylbenzene	ND	ug/kg	50
Xylenes (total)	ND	ug/kg	100

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah Approved By: Anthony Allen

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI 0602V7.0
Lab ID: 010231-0012-SA Enseco ID: 1081771
Matrix: SOIL Sampled: 29 JUN 90 Received: 02 JUL 90
Authorized: 02 JUL 90 Prepared: NA Analyzed: 06 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	50
Toluene	ND	ug/kg	50
Ethylbenzene	ND	ug/kg	50
Xylenes (total)	ND	ug/kg	100

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah Approved By: Anthony Allen

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI 0604V0.0
Lab ID: 010231-0013-SA Enseco ID: 1081772
Matrix: SOIL Sampled: 29 JUN 90 Received: 02 JUL 90
Authorized: 02 JUL 90 Prepared: NA Analyzed: 06 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	50
Toluene	ND	ug/kg	50
Ethylbenzene	ND	ug/kg	50
Xylenes (total)	ND	ug/kg	100

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah Approved By: Anthony Allen

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI 0604V3.5
Lab ID: 010231-0014-SA
Enseco ID: 1081773
Matrix: SOIL
Sampled: 29 JUN 90
Received: 02 JUL 90
Authorized: 02 JUL 90
Prepared: NA
Analyzed: 06 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	50
Toluene	ND	ug/kg	50
Ethylbenzene	ND	ug/kg	50
Xylenes (total)	ND	ug/kg	100

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah

Approved By: Anthony Allen

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI 0604V7.0
Lab ID: 010231-0015-SA Enseco ID: 1081774
Matrix: SOIL Sampled: 29 JUN 90 Received: 02 JUL 90
Authorized: 02 JUL 90 Prepared: NA Analyzed: 06 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	500
Toluene	760	ug/kg	500
Ethylbenzene	ND	ug/kg	500
Xylenes (total)	1700	ug/kg	1000

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah Approved By: Anthony Allen

Enseco
A CORNING Company

Client Name: Giant Refining
Client ID: RFI 0612V0.0
Lab ID: 010231-0001-SA
Enseco ID: 1081760
Matrix: SOIL
Sampled: 29 JUN 90
Received: 02 JUL 90
Authorized: 02 JUL 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	736	mg/kg	10.0	6010	24 JUL 90	26 JUL 90
Nickel	41.3	mg/kg	8.0	6010	24 JUL 90	26 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones
Approved By: Will Pratt

Enseco
A CORNING Company

Client Name: Giant Refining
Client ID: RFI 0612V3.5
Lab ID: 010231-0002-SA
Enseco ID: 1081761
Matrix: SOIL
Sampled: 29 JUN 90
Received: 02 JUL 90
Authorized: 02 JUL 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	11.0	mg/kg	5.0	6010	24 JUL 90	26 JUL 90
Nickel	4.4	mg/kg	4.0	6010	24 JUL 90	26 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Will Pratt

Enseco
A CORNING Company

Client Name: Giant Refining
Client ID: RFI 0612V7.0
Lab ID: 010231-0003-SA
Enseco ID: 1081762
Matrix: SOIL
Sampled: 29 JUN 90
Received: 02 JUL 90
Authorized: 02 JUL 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	9.4	mg/kg	5.0	6010	24 JUL 90	26 JUL 90
Nickel	ND	mg/kg	4.0	6010	24 JUL 90	26 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Will Pratt

Enseco
A CORNING Company

Client Name: Giant Refining
Client ID: RFI 0614V0.0
Lab ID: 010231-0004-SA
Enseco ID: 1081763
Matrix: SOIL
Sampled: 29 JUN 90
Received: 02 JUL 90
Authorized: 02 JUL 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	57.4	mg/kg	5.0	6010	24 JUL 90	26 JUL 90
Nickel	10.3	mg/kg	4.0	6010	24 JUL 90	26 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Will Pratt

Enseco
A CORNING Company

Client Name: Giant Refining
Client ID: RFI 0614V3.5
Lab ID: 010231-0005-SA
Enseco ID: 1081764
Matrix: SOIL
Sampled: 29 JUN 90
Received: 02 JUL 90
Authorized: 02 JUL 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	9.0	mg/kg	5.0	6010	24 JUL 90	26 JUL 90
Nickel	5.0	mg/kg	4.0	6010	24 JUL 90	26 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Will Pratt

Enseco
A CORNING Company

Client Name: Giant Refining
Client ID: RFI 0614V7.0
Lab ID: 010231-0006-SA
Enseco ID: 1081765
Matrix: SOIL
Sampled: 29 JUN 90
Received: 02 JUL 90
Authorized: 02 JUL 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	12.0	mg/kg	5.0	6010	24 JUL 90	26 JUL 90
Nickel	7.3	mg/kg	4.0	6010	24 JUL 90	26 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Will Pratt

Enseco
A CORNING Company

Client Name: Giant Refining
Client ID: RFI 0606V0.0
Lab ID: 010231-0007-SA
Matrix: SOIL
Authorized: 02 JUL 90

Enseco ID: 1081766
Sampled: 29 JUN 90
Prepared: See Below

Received: 02 JUL 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	28.5	mg/kg	10.0	6010	24 JUL 90	26 JUL 90
Nickel	ND	mg/kg	8.0	6010	24 JUL 90	26 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Will Pratt

Enseco
A CORNING Company

Client Name: Giant Refining
Client ID: RFI 0606V3.5
Lab ID: 010231-0008-SA
Enseco ID: 1081767
Matrix: SOIL
Sampled: 29 JUN 90
Received: 02 JUL 90
Authorized: 02 JUL 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	ND	mg/kg	10.0	6010	24 JUL 90	26 JUL 90
Nickel	ND	mg/kg	8.0	6010	24 JUL 90	26 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Will Pratt

Enseco
A CORNING Company

Client Name: Giant Refining
Client ID: RFI 0606V7.0
Lab ID: 010231-0009-SA
Enseco ID: 1081768
Matrix: SOIL
Sampled: 29 JUN 90
Received: 02 JUL 90
Authorized: 02 JUL 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	7.0	mg/kg	5.0	6010	24 JUL 90	26 JUL 90
Nickel	ND	mg/kg	4.0	6010	24 JUL 90	26 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Will Pratt

Enseco
A CORNING Company

Client Name: Giant Refining
Client ID: RFI 0602V0.0
Lab ID: 010231-0010-SA
Enseco ID: 1081769
Matrix: SOIL
Sampled: 29 JUN 90
Received: 02 JUL 90
Authorized: 02 JUL 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	ND	mg/kg	15.0	6010	24 JUL 90	26 JUL 90
Nickel	ND	mg/kg	12.0	6010	24 JUL 90	26 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones
Approved By: Will Pratt

Enseco
A CORNING Company

Client Name: Giant Refining
Client ID: RFI 0602V.35
Lab ID: 010231-0011-SA
Matrix: SOIL
Authorized: 02 JUL 90

Enseco ID: 1081770
Sampled: 29 JUN 90
Prepared: See Below

Received: 02 JUL 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	9.5	mg/kg	5.0	6010	24 JUL 90	26 JUL 90
Nickel	4.6	mg/kg	4.0	6010	24 JUL 90	26 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Will Pratt

Enseco
A CORNING Company

Client Name: Giant Refining
Client ID: RFI 0602V7.0
Lab ID: 010231-0012-SA
Enseco ID: 1081771
Matrix: SOIL
Sampled: 29 JUN 90
Received: 02 JUL 90
Authorized: 02 JUL 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	ND	mg/kg	20.0	6010	24 JUL 90	26 JUL 90
Nickel	ND	mg/kg	16.0	6010	24 JUL 90	26 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Will Pratt

Enseco
A CORNING Company

Client Name: Giant Refining
Client ID: RFI 0604V0.0
Lab ID: 010231-0013-SA
Enseco ID: 1081772
Matrix: SOIL
Sampled: 29 JUN 90
Received: 02 JUL 90
Authorized: 02 JUL 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	ND	mg/kg	15.0	6010	24 JUL 90	26 JUL 90
Nickel	ND	mg/kg	12.0	6010	24 JUL 90	26 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Will Pratt

Enseco
A CORNING Company

Client Name: Giant Refining
Client ID: RFI 0604V3.5
Lab ID: 010231-0014-SA
Matrix: SOIL
Authorized: 02 JUL 90

Enseco ID: 1081773
Sampled: 29 JUN 90
Prepared: See Below

Received: 02 JUL 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	ND	mg/kg	10.0	6010	24 JUL 90	26 JUL 90
Nickel	ND	mg/kg	8.0	6010	24 JUL 90	26 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Will Pratt

Enseco
A CORNING Company

Client Name: Giant Refining
Client ID: RFI 0604V7.0
Lab ID: 010231-0015-SA
Enseco ID: 1081774
Matrix: SOIL
Sampled: 29 JUN 90
Received: 02 JUL 90
Authorized: 02 JUL 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	ND	mg/kg	20.0	6010	24 JUL 90	26 JUL 90
Nickel	ND	mg/kg	16.0	6010	24 JUL 90	26 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Will Pratt

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 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 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.

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QC LOT ASSIGNMENT REPORT
Volatile Organics by GC

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
010231-0001-SA	SOIL	8020-S	09 JUL 90-L	09 JUL 90-L
010231-0002-SA	SOIL	8020-S	09 JUL 90-L	09 JUL 90-L
010231-0003-SA	SOIL	8020-S	09 JUL 90-L	09 JUL 90-L
010231-0004-SA	SOIL	8020-S	06 JUL 90-L	06 JUL 90-L
010231-0005-SA	SOIL	8020-S	09 JUL 90-L	09 JUL 90-L
010231-0006-SA	SOIL	8020-S	09 JUL 90-L	09 JUL 90-L
010231-0007-SA	SOIL	8020-S	09 JUL 90-L	09 JUL 90-L
010231-0008-SA	SOIL	8020-S	09 JUL 90-L	09 JUL 90-L
010231-0009-SA	SOIL	8020-S	09 JUL 90-L	09 JUL 90-L
010231-0010-SA	SOIL	8020-S	06 JUL 90-L	06 JUL 90-L
010231-0011-SA	SOIL	8020-S	06 JUL 90-L	06 JUL 90-L
010231-0012-SA	SOIL	8020-S	06 JUL 90-L	06 JUL 90-L
010231-0013-SA	SOIL	8020-S	06 JUL 90-L	06 JUL 90-L
010231-0014-SA	SOIL	8020-S	06 JUL 90-L	06 JUL 90-L
010231-0015-SA	SOIL	8020-S	06 JUL 90-L	06 JUL 90-L

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DUPLICATE CONTROL SAMPLE REPORT
Volatile Organics by GC

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	Measured AVG	Accuracy Average(%) DCS	Accuracy Average(%) Limits	Precision (RPD) DCS	Precision (RPD) Limit
Category: 8020-S Matrix: SOIL QC Lot: 09 JUL 90-L Concentration Units: ug/kg								
Benzene	500	519	514	516	103	75-125	1.0	15
Toluene	500	514	507	510	102	75-125	1.4	15
Ethylbenzene	500	557	549	553	111	75-125	1.4	15
Xylenes (total)	500	555	553	554	111	75-125	0.4	15
1,3-Dichlorobenzene	500	554	537	546	109	75-125	3.1	15
Category: 8020-S Matrix: SOIL QC Lot: 06 JUL 90-L Concentration Units: ug/kg								
Benzene	500	523	526	524	105	75-125	0.6	15
Toluene	500	511	513	512	102	75-125	0.4	15
Ethylbenzene	500	552	551	552	110	75-125	0.2	15
Xylenes (total)	500	550	566	558	112	75-125	2.9	15
1,3-Dichlorobenzene	500	533	542	538	108	75-125	1.7	15

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

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SINGLE CONTROL SAMPLE REPORT
Volatile Organics by GC

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) SCS	Accuracy(%) Limits
Category: 8020-S Matrix: SOIL QC Lot: 09 JUL 90-L QC Run: 09 JUL 90-L Concentration Units: ug/kg				
a,a,a-Trifluorotoluene	500	482	96	20-160
Category: 8020-S Matrix: SOIL QC Lot: 06 JUL 90-L QC Run: 06 JUL 90-L Concentration Units: ug/kg				
a,a,a-Trifluorotoluene	500	485	97	20-160

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

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METHOD BLANK REPORT
Volatile Organics by GC

Analyte	Result	Units	Reporting Limit
Test: 8020-BTEX-S			
Matrix: SOIL			
QC Lot: 09 JUL 90-L QC Run: 09 JUL 90-L			
Benzene	ND	ug/kg	50
Toluene	ND	ug/kg	50
Ethylbenzene	ND	ug/kg	50
Xylenes (total)	ND	ug/kg	100
Test: 8020-BTEX-S			
Matrix: SOIL			
QC Lot: 06 JUL 90-L QC Run: 06 JUL 90-L			
Benzene	ND	ug/kg	50
Toluene	ND	ug/kg	50
Ethylbenzene	ND	ug/kg	50
Xylenes (total)	ND	ug/kg	100

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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)
010231-0001-SA	SOIL	ICP-S	24 JUL 90-D	24 JUL 90-D
010231-0002-SA	SOIL	ICP-S	24 JUL 90-D	04 JUL 90-D
010231-0003-SA	SOIL	ICP-S	24 JUL 90-D	04 JUL 90-D
010231-0004-SA	SOIL	ICP-S	24 JUL 90-D	04 JUL 90-D
010231-0005-SA	SOIL	ICP-S	24 JUL 90-D	04 JUL 90-D
010231-0006-SA	SOIL	ICP-S	24 JUL 90-D	04 JUL 90-D
010231-0007-SA	SOIL	ICP-S	24 JUL 90-D	04 JUL 90-D
010231-0008-SA	SOIL	ICP-S	24 JUL 90-D	04 JUL 90-D
010231-0009-SA	SOIL	ICP-S	24 JUL 90-D	04 JUL 90-D
010231-0010-SA	SOIL	ICP-S	24 JUL 90-D	04 JUL 90-D
010231-0011-SA	SOIL	ICP-S	24 JUL 90-D	04 JUL 90-D
010231-0012-SA	SOIL	ICP-S	24 JUL 90-D	04 JUL 90-D
010231-0013-SA	SOIL	ICP-S	24 JUL 90-D	04 JUL 90-D
010231-0014-SA	SOIL	ICP-S	24 JUL 90-D	04 JUL 90-D
010231-0015-SA	SOIL	ICP-S	24 JUL 90-D	04 JUL 90-D

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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	Precision (RPD) DCS	Precision (RPD) Limit
Category: ICP-S								
Matrix: SOIL								
QC Lot: 24 JUL 90-D								
Concentration Units: mg/kg								
Aluminum	200	202	202	202	101	75-125	0.0	20
Antimony	50	47.3	48.0	47.6	95	75-125	1.5	20
Arsenic	50	44.3	44.3	44.3	89	75-125	0.0	20
Barium	200	182	184	183	92	75-125	1.1	20
Beryllium	5.0	5.05	5.02	5.04	101	75-125	0.6	20
Cadmium	5.0	4.28	5.11	4.70	94	75-125	18	20
Calcium	10000	9890	9860	9880	99	75-125	0.3	20
Chromium	20	20.2	20.1	20.2	101	75-125	0.5	20
Cobalt	50	44.1	44.3	44.2	88	75-125	0.4	20
Copper	25	23.5	23.2	23.4	93	75-125	1.3	20
Iron	100	97.5	101	99.2	99	75-125	3.5	20
Lead	50	45.0	44.9	45.0	90	75-125	0.2	20
Magnesium	5000	5080	5060	5070	101	75-125	0.4	20
Manganese	50	45.1	47.8	46.4	93	75-125	5.8	20
Nickel	50	45.1	44.8	45.0	90	75-125	0.7	20
Potassium	5000	5020	5020	5020	100	75-125	0.0	20
Silver	5.0	5.16	5.25	5.20	104	75-125	1.7	20
Sodium	10000	10000	10000	10000	100	75-125	0.0	20
Vanadium	50	50.5	51.0	50.8	102	75-125	1.0	20
Zinc	50	44.5	44.5	44.5	89	75-125	0.0	20

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

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METHOD BLANK REPORT
Metals Analysis and Preparation

Analyte	Result	Units	Reporting Limit
Test: ICPOCP-ICPS-S			
Matrix: SOIL			
QC Lot: 24 JUL 90-D QC Run: 24 JUL 90-D			
Lead	ND	mg/kg	5.0
Nickel	ND	mg/kg	4.0

Test: ICPOCP-ICPS-S
Matrix: SOIL
QC Lot: 24 JUL 90-D QC Run: 04 JUL 90-D

Warning *** QI or QH record was not found.

Enseco - Rocky Mountain Analytical

4955 Yarrow Street
Arvada, Colorado 80002
303/421-6611 Facsimile: 303/431-7171

Attn: Julie Essey

CHAIN OF CUSTODY

No.

SAMPLE SAFE™ CONDITIONS

1. Packed by: _____ Seal # _____
2. Seal Intact Upon Receipt by Sampling Co.: (Yes) No
3. Condition of Contents: Good
4. Sealed for Shipping by: C Rosendale
5. Initial Contents Temp.: — °C Seal # —
6. Sampling Status: Done Continuing Until _____
7. Seal Intact Upon Receipt by Laboratory: Yes No
8. Contents Temperature Upon Receipt by Lab: _____ °C
9. Condition of Contents: _____

Enseco Client: Giant Refinery
Project: RFI
Sampling Co.: Giant
Sampling Site: Ginizza
Team Leader: C Rosendale

Date	Time	Sample ID/Description		Sample Type	No. Containers	Analysis Parameters	Remarks
6-29-90	9:35	RFI0612V0.0	01	Soil	2	BTEX, Lead, Nickel	
6-29-90	9:38	RFI0612V3.5	02	Soil	2	BTEX, Lead, Nickel	
6-29-90	9:50	RFI0612V7.0	03	Soil	2	BTEX, Lead, Nickel	
6-29-90	10:04	RFI0614V0.0	04	Soil	2	BTEX, Lead, Nickel	
6-29-90	10:23	RFI0614V3.5	05	Soil	2	BTEX, Lead, Nickel	
6-29-90	10:33	RFI0614V7.0	06	Soil	2	BTEX, Lead, Nickel	
6-29-90	11:43	RFI0606V0.0	07	Soil	2	BTEX, Lead, Nickel	
6-29-90	11:50	RFI0606V3.5	08	Soil	2	BTEX, Lead, Nickel	
6-29-90	12:03	RFI0606V7.0	09	Soil	2	BTEX, Lead, Nickel	
6-29-90	12:14	RFI0602V0.0	10	Soil	2	BTEX, Lead, Nickel	

CUSTODY TRANSFERS PRIOR TO SHIPPING

	Relinquished by: (signed)	Received by: (signed)	Date	Time
1	Chand Rosendale		6-29-90	2:00pm
2				
3				

SHIPPING DETAILS

Delivered to Shipper by: C Rosendale
Method of Shipment: Fed Express Airbill #
Received for Lab: RMAL Signed: Bob Ring Date/Time 2 July 90 0844
Enseco Project No. 10231

White and Pink Copies to Lab Yellow to Sampler

SS-001

9.166

Enseco - Rocky Mountain Analytical

4955 Yarrow Street
Arvada, Colorado 80002
303/421-6611 Facsimile: 303/431-7171

CHAIN OF CUSTODY

No.

Attn: Julie Essex

Enseco Client Giant Refinery

Project RFI

Sampling Co. Giant

Sampling Site Ciniza

Team Leader C Rosendale

SAMPLE SAFE™ CONDITIONS

1. Packed by: _____ Seal # _____
2. Seal Intact Upon Receipt by Sampling Co.: (Yes) No
3. Condition of Contents: Good
4. Sealed for Shipping by: C Rosendale
5. Initial Contents Temp.: — °C Seal # —
6. Sampling Status: Done Continuing Until —
7. Seal Intact Upon Receipt by Laboratory: Yes No
8. Contents Temperature Upon Receipt by Lab: _____ °C
9. Condition of Contents: _____

Date	Time	Sample ID/Description	Sample Type	No. Containers	Analysis Parameters	Remarks
6-29-90	12:27	RFID602V.35 11	Soil	2	BTEX, Lead Nickel	
6-29-90	1:00	RFID602V7.0 12	Soil	2	BTEX, Lead Nickel	
~~6-29-90~~	1:11	RFID604V0.0 13	Soil	2	BTEX, Lead Nickel	
6-29-90	1:15	RFID604V3.5 14	Soil	2	BTEX, Lead Nickel	
6-29-90	1:28	RFID604V7.0 15	Soil	2	BTEX, Lead Nickel	

CUSTODY TRANSFERS PRIOR TO SHIPPING

	Relinquished by: (signed)	Received by: (signed)	Date	Time
1	Chand Rosendale		6-29-90	2:00pm
2				
3				

SHIPPING DETAILS

Delivered to Shipper by: C. Rosendale

Method of Shipment: Fed Express Airbill #

Received for Lab: RMAL Signed: Bob Reid Date/Time 2 JULY 90 0800

Enseco Project No. 10231

White and Pink Copies to Lab Yellow to Sampler

SS 001

9.167

Section 9.1.4
RMAL No. 010274

Rocky Mountain
Analytical Laboratory

Enseco

ANALYTICAL RESULTS

FOR

GIANT REFINING

ENSECO-RMAL NO. 010274

AUGUST 2, 1990

Reviewed by: Julie Essey

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

All analyses at Enseco are performed so that the maximum concentration of sample consistent with the method is analyzed. Dilutions are at times required to avoid saturation of the detector, to achieve linearity for a specific target compound or to reduce matrix interferences. In this event, reporting limits are adjusted proportionately. Surrogate compounds may not be measurable in samples which have been diluted.

For this project, samples 010274-0002 and -0009 by Method 8020 were diluted due to elevated concentrations of target and/or non-target compounds. Likewise, several samples by Method 6010 were diluted; however, these dilutions were due to concentrations of calcium in the samples. The samples by Method 6010, which were diluted, are 010274-0001 through -0004 and -0006. In all cases, the reporting limits were raised proportionately.

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.

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SAMPLE DESCRIPTION INFORMATION
for
Giant Refining

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
010274-0001-SA	RFI0605A0.0	SOIL	05 JUL 90	08:17	06 JUL 90
010274-0002-SA	RFI0605A3.5	SOIL	05 JUL 90	08:45	06 JUL 90
010274-0003-SA	RFI0605A7.0	SOIL	05 JUL 90	10:20	06 JUL 90
010274-0004-SA	RFI0603A0.0	SOIL	05 JUL 90	10:30	06 JUL 90
010274-0005-SA	RFI0603A3.5	SOIL	05 JUL 90	11:30	06 JUL 90
010274-0006-SA	RFI0603A7.0	SOIL	05 JUL 90	11:55	06 JUL 90
010274-0007-SA	RFI0601A0.0	SOIL	05 JUL 90	11:40	06 JUL 90
010274-0008-SA	RFI0601A3.5	SOIL	05 JUL 90	13:40	06 JUL 90
010274-0009-SA	RFI0601A7.0	SOIL	05 JUL 90	14:00	06 JUL 90
010274-0010-SA	TRIP BLANK	AQUEOUS	05 JUL 90		06 JUL 90

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ANALYTICAL TEST REQUESTS
for
Giant Refining

Lab ID: 010274	Group Code	Analysis Description	Custom Test?
0001 - 0009	A	ICP Metals (Total)	Y
		Prep - Total Metals, ICP	N
		Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)	N
0010	B	Benzene, Toluene, Ethyl Benzene and Xylenes (BTEX)	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, April, 1989.

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

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Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI0605A0.0
Lab ID: 010274-0001-SA Enseco ID: 1082096
Matrix: SOIL Sampled: 05 JUL 90 Received: 06 JUL 90
Authorized: 06 JUL 90 Prepared: NA Analyzed: 09 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	50
Toluene	ND	ug/kg	50
Ethylbenzene	ND	ug/kg	50
Xylenes (total)	ND	ug/kg	100

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah Approved By: Anthony Allen

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI06J5A3.5
Lab ID: 010274-0002-SA
Enseco ID: 1082097
Matrix: SOIL
Sampled: 05 JUL 90
Received: 06 JUL 90
Authorized: 06 JUL 90
Prepared: NA
Analyzed: 10 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	2500
Toluene	11000	ug/kg	2500
Ethylbenzene	10000	ug/kg	2500
Xylenes (total)	98000	ug/kg	5000

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah

Approved By: Anthony Allen

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI0605A7.0
Lab ID: 010274-0003-SA Enseco ID: 1082098
Matrix: SOIL Sampled: 05 JUL 90 Received: 06 JUL 90
Authorized: 06 JUL 90 Prepared: NA Analyzed: 09 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	50
Toluene	ND	ug/kg	50
Ethylbenzene	ND	ug/kg	50
Xylenes (total)	260	ug/kg	100

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah Approved By: Anthony Allen

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI0603A0.0
Lab ID: 010274-0004-SA Enseco ID: 1082099
Matrix: SOIL Sampled: 05 JUL 90 Received: 06 JUL 90
Authorized: 06 JUL 90 Prepared: NA Analyzed: 09 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	50
Toluene	ND	ug/kg	50
Ethylbenzene	ND	ug/kg	50
Xylenes (total)	ND	ug/kg	100

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah Approved By: Anthony Allen

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI0603A3.5
Lab ID: 010274-0005-SA Enseco ID: 1082100
Matrix: SOIL Sampled: 05 JUL 90 Received: 06 JUL 90
Authorized: 06 JUL 90 Prepared: NA Analyzed: 09 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	50
Toluene	ND	ug/kg	50
Ethylbenzene	ND	ug/kg	50
Xylenes (total)	ND	ug/kg	100

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah Approved By: Anthony Allen

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI0603A7.0
Lab ID: 010274-0006-SA Enseco ID: 1082101
Matrix: SOIL Sampled: 05 JUL 90 Received: 06 JUL 90
Authorized: 06 JUL 90 Prepared: NA Analyzed: 09 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	50
Toluene	ND	ug/kg	50
Ethylbenzene	ND	ug/kg	50
Xylenes (total)	ND	ug/kg	100

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah Approved By: Anthony Allen

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI0601A0.0
Lab ID: 010274-0007-SA Enseco ID: 1082102
Matrix: SOIL Sampled: 05 JUL 90 Received: 06 JUL 90
Authorized: 06 JUL 90 Prepared: NA Analyzed: 09 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	50
Toluene	ND	ug/kg	50
Ethylbenzene	ND	ug/kg	50
Xylenes (total)	ND	ug/kg	100

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah Approved By: Anthony Allen

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI0601A3.5
Lab ID: 010274-0008-SA Enseco ID: 1082103
Matrix: SOIL Sampled: 05 JUL 90 Received: 06 JUL 90
Authorized: 06 JUL 90 Prepared: NA Analyzed: 09 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	50
Toluene	ND	ug/kg	50
Ethylbenzene	ND	ug/kg	50
Xylenes (total)	640	ug/kg	100

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah Approved By: Anthony Allen

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTX)

Method 8020

Client Name: Giant Refining
Client ID: RFI0601A7.0
Lab ID: 010274-0009-SA Enseco ID: 1082104
Matrix: SOIL Sampled: 05 JUL 90 Received: 06 JUL 90
Authorized: 06 JUL 90 Prepared: NA Analyzed: 09 JUL 90

Parameter	Result	Wet wt. Units	Reporting Limit
Benzene	ND	ug/kg	500
Toluene	1500	ug/kg	500
Ethylbenzene	2100	ug/kg	500
Xylenes (total)	25000	ug/kg	1000

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah Approved By: Anthony Allen

Enseco
A CORNING Company

Benzene, Toluene, Ethyl Benzene and Xylenes (BTEX)

Method 8020

Client Name: Giant Refining
Client ID: TRIP BLANK
Lab ID: 010274-0010-SA Enseco ID: 1082105
Matrix: AQUEOUS Sampled: 05 JUL 90 Received: 06 JUL 90
Authorized: 06 JUL 90 Prepared: NA Analyzed: 10 JUL 90

Parameter	Result	Units	Reporting Limit
Benzene	ND	ug/L	0.50
Toluene	ND	ug/L	0.50
Ethylbenzene	ND	ug/L	0.50
Xylenes (total)	ND	ug/L	1.0

ND = Not detected
NA = Not applicable

Reported By: Nathaniel Biah Approved By: Anthony Allen

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0605A0.0
Lab ID: 010274-0001-SA
Enseco ID: 1082096
Matrix: SOIL
Sampled: 05 JUL 90
Received: 06 JUL 90
Authorized: 06 JUL 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	138	mg/kg	10.0	6010	27 JUL 90	01 AUG 90
Nickel	ND	mg/kg	8.0	6010	27 JUL 90	01 AUG 90

ND = Not detected
NA = Not applicable

Reported By: David Patterson
Approved By: Mary Grehl

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0605A3.5
Lab ID: 010274-0002-SA
Enseco ID: 1082097
Matrix: SOIL
Sampled: 05 JUL 90
Received: 06 JUL 90
Authorized: 06 JUL 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	ND	mg/kg	25.0	6010	27 JUL 90	01 AUG 90
Nickel	ND	mg/kg	20.0	6010	27 JUL 90	01 AUG 90

ND = Not detected
NA = Not applicable

Reported By: David Patterson
Approved By: Mary Grehl

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0605A7.0
Lab ID: 010274-0003-SA Enseco ID: 1082098
Matrix: SOIL Sampled: 05 JUL 90 Received: 06 JUL 90
Authorized: 06 JUL 90 Prepared: See Below Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	ND	mg/kg	25.0	6010	27 JUL 90	01 AUG 90
Nickel	ND	mg/kg	20.0	6010	27 JUL 90	01 AUG 90

ND = Not detected
NA = Not applicable

Reported By: David Patterson Approved By: Mary Grehl

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0603A0.0
Lab ID: 010274-0004-SA
Enseco ID: 1082099
Matrix: SOIL
Sampled: 05 JUL 90
Received: 06 JUL 90
Authorized: 06 JUL 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	27.7	mg/kg	25.0	6010	27 JUL 90	01 AUG 90
Nickel	ND	mg/kg	20.0	6010	27 JUL 90	01 AUG 90

ND = Not detected
NA = Not applicable

Reported By: David Patterson
Approved By: Mary Grehl

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0603A3.5
Lab ID: 010274-0005-SA
Matrix: SOIL
Authorized: 06 JUL 90

Enseco ID: 1082100
Sampled: 05 JUL 90
Prepared: See Below

Received: 06 JUL 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	6.5	mg/kg	5.0	6010	27 JUL 90	01 AUG 90
Nickel	ND	mg/kg	4.0	6010	27 JUL 90	01 AUG 90

ND = Not detected
NA = Not applicable

Reported By: David Patterson

Approved By: Mary Grehl

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0603A7.0
Lab ID: 010274-0006-SA
Enseco ID: 1082101
Matrix: SOIL
Sampled: 05 JUL 90
Received: 06 JUL 90
Authorized: 06 JUL 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	ND	mg/kg	25.0	6010	27 JUL 90	01 AUG 90
Nickel	ND	mg/kg	20.0	6010	27 JUL 90	01 AUG 90

ND = Not detected
NA = Not applicable

Reported By: David Patterson
Approved By: Mary Grehl

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0601A0.0
Lab ID: 010274-0007-SA
Enseco ID: 1082102
Matrix: SOIL
Sampled: 05 JUL 90
Received: 06 JUL 90
Authorized: 06 JUL 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	14.9	mg/kg	5.0	6010	27 JUL 90	01 AUG 90
Nickel	5.3	mg/kg	4.0	6010	27 JUL 90	01 AUG 90

ND = Not detected
NA = Not applicable

Reported By: David Patterson
Approved By: Mary Grehl

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0601A3.5
Lab ID: 010274-0008-SA
Matrix: SOIL
Authorized: 06 JUL 90

Enseco ID: 1082103
Sampled: 05 JUL 90
Prepared: See Below

Received: 06 JUL 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	16.6	mg/kg	5.0	6010	27 JUL 90	01 AUG 90
Nickel	6.6	mg/kg	4.0	6010	27 JUL 90	01 AUG 90

ND = Not detected
NA = Not applicable

Reported By: David Patterson

Approved By: Mary Grehl

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0601A7.0
Lab ID: 010274-0009-SA
Enseco ID: 1082104
Matrix: SOIL
Sampled: 05 JUL 90
Received: 06 JUL 90
Authorized: 06 JUL 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Lead	13.0	mg/kg	5.0	6010	27 JUL 90	01 AUG 90
Nickel	ND	mg/kg	4.0	6010	27 JUL 90	01 AUG 90

ND = Not detected
NA = Not applicable

Reported By: David Patterson
Approved By: Mary Grehl

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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A CORNING Company

QC LOT ASSIGNMENT REPORT
Volatile Organics by GC

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
010274-0001-SA	SOIL	8020-S	09 JUL 90-R	09 JUL 90-R
010274-0002-SA	SOIL	8020-S	10 JUL 90-L	10 JUL 90-L
010274-0003-SA	SOIL	8020-S	09 JUL 90-R	09 JUL 90-R
010274-0004-SA	SOIL	8020-S	09 JUL 90-R	09 JUL 90-R
010274-0005-SA	SOIL	8020-S	09 JUL 90-R	09 JUL 90-R
010274-0006-SA	SOIL	8020-S	09 JUL 90-R	09 JUL 90-R
010274-0007-SA	SOIL	8020-S	09 JUL 90-R	09 JUL 90-R
010274-0008-SA	SOIL	8020-S	09 JUL 90-R	09 JUL 90-R
010274-0009-SA	SOIL	8020-S	09 JUL 90-R	09 JUL 90-R
010274-0010-SA	AQUEOUS	602-A	10 JUL 90-R	10 JUL 90-R

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DUPLICATE CONTROL SAMPLE REPORT
Volatile Organics by GC

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	Measured AVG	Accuracy Average(%) DCS	Accuracy Average(%) Limits	Precision (RPD) DCS	Precision (RPD) Limit
Category: 8020-S Matrix: SOIL QC Lot: 09 JUL 90-R Concentration Units: ug/kg								
Benzene	500	568	526	547	109	75-125	7.7	15
Toluene	500	535	491	513	103	75-125	8.6	15
Ethylbenzene	500	527	491	509	102	75-125	7.1	15
Xylenes (total)	500	543	498	520	104	75-125	8.6	15
1,3-Dichlorobenzene	500	552	510	531	106	75-125	7.9	15
Category: 8020-S Matrix: SOIL QC Lot: 10 JUL 90-L Concentration Units: ug/kg								
Benzene	500	525	500	512	103	75-125	4.9	15
Toluene	500	516	496	506	101	75-125	4.0	15
Ethylbenzene	500	552	531	542	108	75-125	3.9	15
Xylenes (total)	500	562	538	550	110	75-125	4.4	15
1,3-Dichlorobenzene	500	566	533	550	110	75-125	6.0	15
Category: 602-A Matrix: AQUEOUS QC Lot: 10 JUL 90-R Concentration Units: ug/L								
Benzene	5.0	4.71	4.97	4.84	97	80-120	5.4	15
Toluene	5.0	4.40	4.65	4.52	91	80-120	5.5	15
Ethylbenzene	5.0	4.44	4.75	4.60	92	80-120	6.7	15
Xylenes (total)	5.0	4.28	4.52	4.40	88	80-120	5.5	15
1,3-Dichlorobenzene	5.0	4.21	4.54	4.38	88	80-120	7.5	15

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

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SINGLE CONTROL SAMPLE REPORT
Volatile Organics by GC

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) SCS	Accuracy(%) Limits
Category: 8020-S Matrix: SOIL QC Lot: 09 JUL 90-R QC Run: 09 JUL 90-R Concentration Units: ug/kg				
a,a,a-Trifluorotoluene	500	612	122	20-160
Category: 8020-S Matrix: SOIL QC Lot: 10 JUL 90-L QC Run: 10 JUL 90-L Concentration Units: ug/kg				
a,a,a-Trifluorotoluene	500	479	96	20-160
Category: 602-A Matrix: AQUEOUS QC Lot: 10 JUL 90-R QC Run: 10 JUL 90-R Concentration Units: ug/L				
a,a,a-Trifluorotoluene	5.00	5.62	112	20-160

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

Enseco
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METHOD BLANK REPORT
Volatile Organics by GC

Analyte	Result	Units	Reporting Limit
Test: 8020-BTEX-S			
Matrix: SOIL			
QC Lot: 09 JUL 90-R QC Run: 09 JUL 90-R			
Benzene	ND	ug/kg	50
Toluene	ND	ug/kg	50
Ethylbenzene	ND	ug/kg	50
Xylenes (total)	ND	ug/kg	100
Test: 8020-BTEX-S			
Matrix: SOIL			
QC Lot: 10 JUL 90-L QC Run: 10 JUL 90-L			
Benzene	ND	ug/kg	50
Toluene	ND	ug/kg	50
Ethylbenzene	ND	ug/kg	50
Xylenes (total)	ND	ug/kg	100
Test: 602-BTEX-AP			
Matrix: AQUEOUS			
QC Lot: 10 JUL 90-R QC Run: 10 JUL 90-R			
Benzene	ND	ug/L	0.50
Toluene	ND	ug/L	0.50
Ethylbenzene	ND	ug/L	0.50
Xylenes (total)	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)
010274-0001-SA	SOIL	ICP-S	27 JUL 90-F	27 JUL 90-F
010274-0002-SA	SOIL	ICP-S	27 JUL 90-F	27 JUL 90-F
010274-0003-SA	SOIL	ICP-S	27 JUL 90-F	27 JUL 90-F
010274-0004-SA	SOIL	ICP-S	27 JUL 90-F	27 JUL 90-F
010274-0005-SA	SOIL	ICP-S	27 JUL 90-F	27 JUL 90-F
010274-0006-SA	SOIL	ICP-S	27 JUL 90-F	27 JUL 90-F
010274-0007-SA	SOIL	ICP-S	27 JUL 90-F	27 JUL 90-F
010274-0008-SA	SOIL	ICP-S	27 JUL 90-F	27 JUL 90-F
010274-0009-SA	SOIL	ICP-S	27 JUL 90-F	27 JUL 90-F

Enseco
A CORNING Company

DUPLICATE CONTROL SAMPLE REPORT
Metals Analysis and Preparation

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	AVG	Accuracy Average(%) DCS	Accuracy Limits	Precision (RPD) DCS	Precision Limit
Category: ICP-S								
Matrix: SOIL								
QC Lot: 27 JUL 90-F								
Concentration Units: mg/kg								
Aluminum	200	197	206	202	101	75-125	4.4	20
Antimony	50	44.8	48.4	46.6	93	75-125	7.7	20
Arsenic	50	44.4	46.2	45.3	91	75-125	3.9	20
Barium	200	175	185	180	90	75-125	5.3	20
Beryllium	5.0	4.80	4.95	4.88	98	75-125	3.0	20
Cadmium	5.0	3.78	4.06	3.92	78	75-125	7.2	20
Calcium	10000	9510	9940	9730	97	75-125	4.4	20
Chromium	20	19.3	20.3	19.8	99	75-125	5.1	20
Cobalt	50	41.9	43.6	42.8	86	75-125	4.0	20
Copper	25	22.7	23.8	23.3	93	75-125	4.6	20
Iron	100	96.2	109	103	103	75-125	13	20
Lead	50	42.8	43.7	43.3	87	75-125	2.1	20
Magnesium	5000	4880	5110	4990	100	75-125	4.6	20
Manganese	50	44.4	46.1	45.3	91	75-125	3.7	20
Nickel	50	45.8	46.0	45.9	92	75-125	0.4	20
Potassium	5000	4800	5000	4900	98	75-125	4.1	20
Silver	5.0	4.11	4.31	4.21	84	75-125	4.8	20
Sodium	10000	9540	9960	9750	97	75-125	4.3	20
Vanadium	50	48.2	50.0	49.1	98	75-125	3.6	20
Zinc	50	43.4	45.0	44.2	88	75-125	3.7	20

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

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METHOD BLANK REPORT
Metals Analysis and Preparation

Analyte	Result	Units	Reporting Limit
Test: ICP-S			
Matrix: SOIL			
QC Lot: 27 JUL 90-F QC Run: 27 JUL 90-F			
Lead	ND	mg/kg	5.0
Nickel	ND	mg/kg	4.0

Enseco

August 2, 1990

Mr. Claud Rosendale
Giant Refining
17 Miles East of Gallup
I-40, Exit 39
Gallup, NM 87301

Dear Mr. Rosendale:

Enclosed is the report for 10 samples we received at Enseco-Rocky Mountain Analytical Laboratory on July 6, 1990.

Included with the report is a quality control summary.

Please call if you have any questions.

Sincerely,

Julie Essey
Program Administrator

Reviewed by:

Sue Dalla
Manager
Program Administration

JE/SD/lw
Enclosures

RMAL #010274

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

9.205

Enseco - Rocky Mountain Analytical

4955 Yarrow Street
Arvada, Colorado 80002
303/421-6611 Facsimile: 303/431-7171

CHAIN OF CUSTODY

No.

Attn: Julie Essey

Enseco Client: Giant Refinery
Project: RFI
Sampling Co.: Giant
Sampling Site: Cinizo
Team Leader: M. McEaslin
MA#

SAMPLE SAFE™ CONDITIONS

1. Packed by: _____ Seal # _____
2. Seal Intact Upon Receipt by Sampling Co.: Yes (Yes) No
3. Condition of Contents: Good
4. Sealed for Shipping by: C. Rosendale
5. Initial Contents Temp.: — °C Seal # —
6. Sampling Status: (Done) Continuing Until —
7. Seal Intact Upon Receipt by Laboratory: Yes No
8. Contents Temperature Upon Receipt by Lab: _____ °C
9. Condition of Contents: _____

Date	Time	Sample ID/Description	Sample Type	No. Containers	Analysis Parameters	Remarks
7-5-90	8:17	RFI0605A0.0	Soil	2	BTEX, Lead, Nickel	
7-5-90	8:45	RFI0605A3.5	Soil	2	BTEX, Lead, Nickel	
7-5-90	10:20	RFI0605A7.0	Soil	2	BTEX, Lead, Nickel	
7-5-90	10:30	RFI0603A0.0	Soil	2	BTEX, Lead, Nickel	
7-5-90	11:30	RFI0603A3.5	Soil	2	BTEX, Lead, Nickel	
7-5-90	11:55	RFI0603A7.0	Soil	2	BTEX, Lead, Nickel	
7-5-90	11:40	RFI0601A0.0	Soil	2	BTEX Lead Nickel	
7-5-90	1:40	RFI0601A3.5	Soil	2	BTEX, Lead, Nickel	
7-5-90	2:00	RFI0601A7.0	Soil	2	BTEX, Lead, Nickel	
7-5-90		Trip Blank	Water	1	VOA BTEX per	C. Rosendale 7-6-90

CUSTODY TRANSFERS PRIOR TO SHIPPING

	Relinquished by: (signed)	Received by: (signed)	Date	Time
1	[signature]		7-5-90	2:45pm
2				
3				

SHIPPING DETAILS

Delivered to Shipper by: C. Rosendale
Method of Shipment: Fed Express Airbill #
Received for Lab: RMAL Signed: [signature] Date/Time 07-06-90 0800
Enseco Project No. 10274

White Pink C To L Ye Sar

SS

Section 9.2.1.
RMAL No. 010120

Rocky Mountain
Analytical Laboratory

Enseco

ANALYTICAL RESULTS

FOR

GIANT REFINING

ENSECO-RMAL NO. 010120

JULY 28, 1990

Reviewed by: Julie Essey

Sue Dalla

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

I. OVERVIEW

A. Standard Overview

On June 26, 1990, Enseco-Rocky Mountain Analytical Laboratory received six samples from Giant Refining.

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
   A. Standard Overview
   B. Regulatory Overview - Refinery
II. Sample Description Information/Analytical Test Requests
III. Analytical Results
IV. Quality Control Report

Standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. All laboratory QC samples analyzed in conjunction with the samples in this project were within established control limits.

Consistent with directives in the CLP protocol in SW-846 and other EPA methods, all GC/MS analyses were performed so that the maximum concentration of sample was analyzed. Some samples required dilutions to avoid saturation of the detector, to achieve linearity for a specific target compound or to reduce matrix interferences. As stated in Section 7.5.4 of Method 8270, 7.4.1.16 of Method 8240 and Exhibit E of the CLP protocol these dilutions be performed. The reporting limits for these samples are therefore proportionate to the dilution required. Surrogate compounds may not be measurable in samples which have been diluted.

Due to interferences originating from non-target compounds, dilutions were performed for sample 010120-0002 by Method 8270. The reporting limits were raised accordingly.

Sample 010120-0003 by Method 8270 was originally prepared within holding times. Because of sample surrogate recoveries below Enseco's established limits, the sample was reprepped. The reprep data produced better surrogate recoveries and was therefore reported. The reprep was performed outside of holding times.

All 8270 samples were prepped according to SW-846 using 2.0 grams of sample followed by a 50% partition then concentration to 1.0 mL for analysis. With this prep method nominal reporting limits are generally 10,000 ug/kg. After careful review of all chromatograms it has been determined that we can lower the nominal reporting limit to 5,000 ug/kg for this project.

The Duplicate Control Sample (DCS) QC Lot 06 JUL 90-A by Method 8270 had 4-Nitrophenol and 2,4-Dinitrophenol slightly above Enseco's established limits. The quantitation was rechecked and found to be correct. Based on a thorough review of the data, it was determined that the sample results were not affected. It should be noted that control limits are based on statistical data and do not always represent the best possible recoveries.

An analytical standard is not available for methyl chrysene. Furthermore, many isomers of this compound including methyl benzanthracenes and methyl triphenylenes exist. These isomers are indistinguishable under the analytical condition of Method 8270. A selected ion current profile at mass 242 was performed to determine if any compounds corresponding to the molecular structure of methyl chrysene were present. All peaks which met this criteria were summed. An estimated concentration of "total methyl chrysenes" was determined by comparing the sum of the peak areas to the internal standard and using a response factor 1.0. Both the identification and quantification are highly suspect.

Total methyl chrysenes were not detected for samples 010120-0001 through -0006.

B. Regulatory Overview - Refinery

In 1984, the EPA distributed several versions of a subset of Appendix VIII constituents to be used principally for delisting petroleum refinery wastes (K048-K052). This list, commonly referred to as the "Skinner" list has been adapted for use in land treatment demonstrations, site closures and other related activities associated with petroleum refining RCRA programs. In early 1985, a modified version of the Skinner list appeared in "Petitions to Delist Hazardous Waste, A Guidance Manual" (EPA/530-SW-85-003). This revised list, as shown in Table I, consists of 12 metals and 43 organic compounds and currently forms the basis for analytical work on samples collected at petroleum refineries.

The organic compounds have been classified as volatile and semivolatile (base/neutral/acid) compounds. Two of the "compounds" listed (dichlorobenzenes and cresols) are measured and reported in terms of their specific isomers. Analytical standards are not available for two of the compounds, dibenz(a,h)acridine and methyl chrysene. Therefore, these compounds cannot be measured and analytical results are not presented for these compounds. Two of the remaining compounds, benzenethiol and pyridine cannot be recovered consistently from environmental samples and consequently, method detection limits for these compounds cannot be established. This statement is made based on the results of a methods evaluation study sponsored by API.

Table 2 summarizes the analytical methods used to determine Appendix VIII refinery constituents. For the organic compounds, methods are listed for both the complete list and a subset of this list analyzed by alternate methods.

Between October, 1983 and July, 1985, the EPA released three methods manuals and a "Guidance Manual" which were compendiums of modified SW-846 methods specifically adapted for the analysis of Appendix VIII constituents in petroleum refining wastes. The most useful document was an October, 1984 draft methods manual which was released but never formally distributed by EPA. These documents did not contain many of the important details that are critical to the successful analysis of environmental samples relevant to petroleum refineries.

Thus, although the methods used by Enseco-RMAL in the analysis of petroleum refinery wastes are based on these various EPA documents, the actual details of each method have been modified in order to generate acceptable data. These modifications have been based on information given in numerous documents, some of which are cited in Table 3. In addition to the documents listed in the bibliography, Enseco-RMAL an ongoing dialogue with EPA/OSW to ensure that the latest EPA guidance is incorporated into the analytical approach.

The analytical data tables which follow present results for the Appendix VIII refinery hazardous constituents which are measurable.

TABLE 1. APPENDIX VIII HAZARDOUS CONSTITUENT SUBSET FOR PETROLEUM REFINERY STUDIES*

Metals

Antimony
Arsenic
Barium
Beryllium
Cadmium
Chromium
Cobalt
Lead
Mercury
Nickel
Selenium
Vanadium

Volatile Organics

Benzene
Carbon disulfide
Chlorobenzene
Chloroform
1,2-Dibromoethane
1,2-Dichloroethane
1,4-Dioxane
Methyl ethyl ketone
Styrene
Ethyl benzene
Toluene
Xylenes

Base/Neutral Organics

Anthracene
Benz(a)anthracene
Benzo(b)fluoranthene

Base/Neutral Organics (Cont.)

Benzo(k)fluoranthene
Benzo(a)pyrene
Bis(2-ethylhexyl)phthalate
Butyl benzyl phthalate
Chrysene
Dibenz(a,h)acridine[2]
Dibenz(a,h)anthracene
Di-n-butyl phthalate
Dichlorobenzenes[1]
Diethyl phthalate
7,12-Dimethylbenz(a)anthracene
Dimethyl phthalate
Di-n-octyl phthalate
Fluoranthene
Indene
Methyl chrysene[2]
1-Methylnaphthalene
Naphthalene
Phenanthrene
Pyrene
Pyridine[3]
Quinoline

Acid Organics

Benzenethiol[3]
Cresols[1]
2,4-Dimethylphenol
2,4-Dinitrophenol
4-Nitrophenol
Phenol

*"Petitions to Delist Hazardous Wastes, A Guidance Manual," EPA/530-SW-85-003, April, 1985.
1) Reported as ortho-, meta-, and para-isomers.
2) No analytical standard available.
3) Not consistently recoverable using standard analytical methods.

TABLE 2. SUMMARY OF ANALYTICAL METHODS FOR REFINERY CONSTITUENTS

Metals	Method
Antimony	7041
Arsenic	7060
Lead	7421
Mercury	7470
Selenium	7740
ICP Scan (Ba, Be, Cd, Cr, Co, Ni, V)	6010

	GC/MS Method	Screening Method
Volatile Organics	8240	8020[a]
Semivolatile Organics	8270	8310[b]

a) Volatile Aromatics
b) Polynuclear Aromatic Hydrocarbons

TABLE 3. BIBLIOGRAPHY

A. Documents Pertaining to Appendix VIII Constituents

(1) January, 1984 letter from Myles Morse pertaining to delisting petitions as well as land treatment demonstrations, including sampling procedures and data requirements.

(2) March, 1984 letter to delisting petitioners from Barbara Bush revising target parameters.

(3) April, 1984 memo from John Skinner to Permit Branch Chiefs concerning land treatment containing target parameters and analytical methods.

(4) May, 1984 memo from John Skinner clarifying previous memo.

(5) September, 1984 letter to Petitioners from Barbara Bush distributing Refinery Handbook.

(6) November, 1984 letter from Eileen Claussen to all delisting petitioners describing new RCRA requirements.

(7) May 3, 1985 RMAL Memo.

(8) January 8, 1985 RMAL letter to Eileen Claussen, EPA-OSW.

B. Documents Pertaining to Analytical Methods

(1) "Handbook for the Analysis of Petroleum Refinery Residuals and Waste", October, 1984 - prepared by Radian Corporation for EPA/OSW.

(2) "Evaluation of the Applicability of the SW-846 Manual To Support All RCRA Subtitle C Testing", December 20, 1984 - prepared by Rocky Mountain Analytical Laboratory for API.

(3) "Comments on the 'Handbook for the Analysis of Petroleum Refinery Residuals and Waste, October, 1984'", December 12, 1984 - Prepared by Rocky Mountain Analytical Laboratory for API.

(4) "Comments on the 'Handbook for the Analysis of Petroleum Refinery Residuals and Waste, April 2, 1984'", August 15, 1984 - Prepared by Rocky Mountain Analytical Laboratory for API.

(5) "Handbook for the Analysis of Petroleum Refinery Residuals and Waste", April 2, 1984 - prepared by S-Cubed for EPA/OSW.

(6) EPA document "Guidance for the Analysis of Refinery Wastes", July 5, 1985.

(7) "Recovery and Detection Limits of Organic Compounds in Petroleum Refinery Wastes", January 25, 1985.

(8) SW-846 - "Test Methods for Evaluating Solid Waste, Physical Chemical Methods" USEPA, 2nd Edition, 1982.

(9) 40 CFR 136 - "Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act."

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.

Enseco

July 28, 1990

Mr. Claud Rosendale
Giant Refining
17 Miles East of Gallup
I-40, Exit 39
Gallup, NM 87301

Dear Mr. Rosendale:

Enclosed is the report for six samples we received at Enseco-Rocky Mountain Analytical Laboratory on June 26, 1990.

Included with the report is a quality control summary.

Please call if you have any questions.

Sincerely,

Julie Essey
Program Administrator

Reviewed by:

Sue Dalla
Manager
Program Administration

JE/SD/ldc
Enclosures

RMAL #010120

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

Enseco
A CORNING Company

SAMPLE DESCRIPTION INFORMATION
for
Giant Refining

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
010120-0001-SA	RFI0804V10.5	SOIL	25 JUN 90	09:45	26 JUN 90
010120-0002-SA	RFI0804V08.0	SOIL	25 JUN 90	10:00	26 JUN 90
010120-0003-SA	RFI0804V05.0	SOIL	25 JUN 90	10:30	26 JUN 90
010120-0004-SA	RFI08505V10.5	SOIL	25 JUN 90	13:00	26 JUN 90
010120-0005-SA	RFI08505V08.0	SOIL	25 JUN 90	13:15	26 JUN 90
010120-0006-SA	RFI08505V05.0	SOIL	25 JUN 90	13:20	26 JUN 90

ANALYTICAL TEST REQUESTS
for
Giant Refining

Lab ID: 010120	Group Code	Analysis Description	Custom Test?
0001 - 0006	A	Refinery Hazardous Constituent Volatiles	Y
		GC Screen For Medium Level Soils	N
		Refinery Hazardous Constituent Semivolatiles	Y
		Prep - Semivolatile Organics by GC/MS	N
		Mercury, Cold Vapor AA	Y
		Prep - Mercury, Cold Vapor AA	N
		Arsenic, Furnace AA	N
		Prep - Total Metals, Furnace AA	N
		Selenium, Furnace AA	N
		ICP Metals (Total)	Y
		Prep - Total Metals, ICP	N

III. ANALYTICAL RESULTS

The analytical results for this project are presented in the following data tables. The results are presented by sample, by test, with tests reported in the following order: GC/MS, Chromatography, Metals and Inorganics.

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.

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, April, 1989.

In addition, surrogate recovery data is presented for all GC/MS analyses. The surrogate recovery is an indication of the affect 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, is 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 dichloroethylene cannot be distinguished using EPA Method 624. All dichloroethylene present is reported as trans-dichloroethylene.

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) N-Nitrosodiphenylamine decomposes in the gas chromatographic inlet to diphenylamine.

Metals

Arsenic, selenium and thallium are customarily determined by graphite furnace atomic absorption (GFAA). All mercury determinations are by cold vapor atomic absorption. All other metals are determined using Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP).

All metals nominal reporting limits are statistically determined by analyzing a reagent blank seven times on three non-consecutive days. The standard deviations from each group of analyses are then summed (reporting limit = three times the standard deviation of a blank). The ability to attain the quoted reporting limits is verified each quarter. Reporting limits above nominal values are often reported since sample matrix interferences must be compensated for by dilutions prior to analysis or by the use of Method of

Standard Additions. All GFAA reporting limits and results are verified by spike recoveries and represent the lowest attainable for each sample matrix. The metals reporting limits reported should not be viewed as quantitation limits. As recommended by the American Chemical Society Subcommittee on Environmental Analytical Chemistry (Analytical Chemistry 1980, 52, 2242-49), the Limit of Quantitation (LOQ) is equal to ten times the standard deviation of a blank or 3.3 times the reporting limit.

Enseco
A CORNING Company

Refinery Hazardous Constituent Volatiles

Method 8240

Client Name: Giant Refining
Client ID: RFI0804V10.5
Lab ID: 010120-0001-SA Enseco ID: 1080749
Matrix: SOIL Sampled: 25 JUN 90 Received: 26 JUN 90
Authorized: 26 JUN 90 Prepared: 27 JUN 90 Analyzed: 05 JUL 90

Parameter	Result	Units	Reporting Limit
Benzene	ND	ug/kg	500
Carbon disulfide	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Chloroform	ND	ug/kg	500
EDB (1,2-Dibromoethane)	ND	ug/kg	1000
1,2-Dichloroethane	ND	ug/kg	500
1,4-Dioxane	ND	ug/kg	50000
Ethylbenzene	ND	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Xylenes (total)	ND	ug/kg	500
Toluene-d8	97	%	--
4-Bromofluorobenzene	97	%	--
1,2-Dichloroethane-d4	99	%	--

ND = Not detected
NA = Not applicable

Reported By: Tim Miller Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Volatiles

Method 8240

Client Name: Giant Refining
Client ID: RFI0804V08.0
Lab ID: 010120-0002-SA
Enseco ID: 1080750
Matrix: SOIL
Sampled: 25 JUN 90
Received: 26 JUN 90
Authorized: 26 JUN 90
Prepared: 27 JUN 90
Analyzed: 05 JUL 90

Parameter	Result	Units	Reporting Limit
Benzene	ND	ug/kg	500
Carbon disulfide	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Chloroform	ND	ug/kg	500
EDB (1,2-Dibromoethane)	ND	ug/kg	1000
1,2-Dichloroethane	ND	ug/kg	500
1,4-Dioxane	ND	ug/kg	50000
Ethylbenzene	690	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Xylenes (total)	4800	ug/kg	500
Toluene-d8	101	%	--
4-Bromofluorobenzene	103	%	--
1,2-Dichloroethane-d4	94	%	--

ND = Not detected
NA = Not applicable

Reported By: Tim Miller
Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Volatiles

Method 8240

Client Name: Giant Refining
Client ID: RFI0804V05.0
Lab ID: 010120-0003-SA
Enseco ID: 1080751
Matrix: SOIL
Sampled: 25 JUN 90
Received: 26 JUN 90
Authorized: 26 JUN 90
Prepared: 27 JUN 90
Analyzed: 05 JUL 90

Parameter	Result	Units	Reporting Limit
Benzene	ND	ug/kg	500
Carbon disulfide	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Chloroform	ND	ug/kg	500
EDB (1,2-Dibromoethane)	ND	ug/kg	1000
1,2-Dichloroethane	ND	ug/kg	500
1,4-Dioxane	ND	ug/kg	50000
Ethylbenzene	ND	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Xylenes (total)	ND	ug/kg	500
Toluene-d8	99	%	--
4-Bromofluorobenzene	96	%	--
1,2-Dichloroethane-d4	99	%	--

ND = Not detected
NA = Not applicable

Reported By: Tim Miller

Approved By: Jeff Lowry

Refinery Hazardous Constituent Volatiles

Enseco
A CORNING Company

Method 8240

Client Name: Giant Refining
Client ID: RFI08505V10.5
Lab ID: 010120-0004-SA
Enseco ID: 1080752
Matrix: SOIL
Sampled: 25 JUN 90
Received: 26 JUN 90
Authorized: 26 JUN 90
Prepared: 27 JUN 90
Analyzed: 05 JUL 90

Parameter	Result	Units	Reporting Limit
Benzene	ND	ug/kg	500
Carbon disulfide	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Chloroform	ND	ug/kg	500
EDB (1,2-Dibromoethane)	ND	ug/kg	1000
1,2-Dichloroethane	ND	ug/kg	500
1,4-Dioxane	ND	ug/kg	50000
Ethylbenzene	ND	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Xylenes (total)	ND	ug/kg	500
Toluene-d8	100	%	--
4-Bromofluorobenzene	94	%	--
1,2-Dichloroethane-d4	101	%	--

ND = Not detected
NA = Not applicable

Reported By: Tim Miller

Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Volatiles

Method 8240

Client Name: Giant Refining
Client ID: RFI08505V08.0
Lab ID: 010120-0005-SA Enseco ID: 1080753
Matrix: SOIL Sampled: 25 JUN 90 Received: 26 JUN 90
Authorized: 26 JUN 90 Prepared: 27 JUN 90 Analyzed: 06 JUL 90

Parameter	Result	Units	Reporting Limit
Benzene	ND	ug/kg	500
Carbon disulfide	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Chloroform	ND	ug/kg	500
EDB (1,2-Dibromoethane)	ND	ug/kg	1000
1,2-Dichloroethane	ND	ug/kg	500
1,4-Dioxane	ND	ug/kg	50000
Ethylbenzene	ND	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Xylenes (total)	ND	ug/kg	500
Toluene-d8	99	%	--
4-Bromofluorobenzene	98	%	--
1,2-Dichloroethane-d4	95	%	--

ND = Not detected
NA = Not applicable

Reported By: Tim Miller Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Volatiles

Method 8240

Client Name: Giant Refining
Client ID: RFI08505V05.0
Lab ID: 010120-0006-SA
Enseco ID: 1080754
Matrix: SOIL
Sampled: 25 JUN 90
Received: 26 JUN 90
Authorized: 26 JUN 90
Prepared: 27 JUN 90
Analyzed: 06 JUL 90

Parameter	Result	Units	Reporting Limit
Benzene	ND	ug/kg	500
Carbon disulfide	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Chloroform	ND	ug/kg	500
EDB (1,2-Dibromoethane)	ND	ug/kg	1000
1,2-Dichloroethane	ND	ug/kg	500
1,4-Dioxane	ND	ug/kg	50000
Ethylbenzene	ND	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Xylenes (total)	ND	ug/kg	500
Toluene-d8	98	%	--
4-Bromofluorobenzene	97	%	--
1,2-Dichloroethane-d4	97	%	--

ND = Not detected
NA = Not applicable

Reported By: Tim Miller

Approved By: Jeff Lowry

Refinery Hazardous Constituent Semivolatiles

Enseco
A CORNING Company

Method 8270

Client Name: Giant Refining
Client ID: RFI0804V10.5
Lab ID: 010120-0001-SA
Enseco ID: 1080749
Matrix: SOIL
Sampled: 25 JUN 90
Received: 26 JUN 90
Authorized: 26 JUN 90
Prepared: 03 JUL 90
Analyzed: 16 JUL 90

Parameter	Result	Units	Reporting Limit
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Indene	ND	ug/kg	5000
1-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
Pyridine	ND	ug/kg	10000
Quinoline	ND	ug/kg	25000
Benzenethiol	ND	ug/kg	--
Dibenz(a,h)acridine	ND	ug/kg	--
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
2,4-Dinitrophenol	ND	ug/kg	25000
4-Nitrophenol	ND	ug/kg	25000
Phenol	ND	ug/kg	5000
Nitrobenzene-d5	86	%	--
2-Fluorobiphenyl	89	%	--
Terphenyl-d14	83	%	--
Phenol-d5	79	%	--
2-Fluorophenol	86	%	--

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Steve Siegel
Approved By: Jeff Lowry

Refinery Hazardous Constituent Semivolatiles (CONT.)

Enseco
A CORNING Company

Method 8270

Client Name: Giant Refining
Client ID: RFI0804V10.5
Lab ID: 010120-0001-SA
Enseco ID: 1080749
Matrix: SOIL
Sampled: 25 JUN 90
Received: 26 JUN 90
Authorized: 26 JUN 90
Prepared: 03 JUL 90
Analyzed: 16 JUL 90

Parameter	Result	Units	Reporting Limit
2,4,6-Tribromophenol	75	%	--

ND = Not detected
NA = Not applicable

Reported By: Steve Siegel

Approved By: Jeff Lowry

Refinery Hazardous Constituent Semivolatiles

Enseco
A CORNING Company

Method 8270

Client Name: Giant Refining
Client ID: RFI0804V08.0
Lab ID: 010120-0002-SA Enseco ID: 1080750
Matrix: SOIL Sampled: 25 JUN 90 Received: 26 JUN 90
Authorized: 26 JUN 90 Prepared: 03 JUL 90 Analyzed: 16 JUL 90

Parameter	Result	Units	Reporting Limit
Anthracene	ND	ug/kg	20000
Benzo(a)anthracene	ND	ug/kg	20000
Benzo(b)fluoranthene	ND	ug/kg	20000
Benzo(k)fluoranthene	ND	ug/kg	20000
Benzo(a)pyrene	ND	ug/kg	20000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	20000
Butyl benzyl phthalate	ND	ug/kg	20000
Chrysene	ND	ug/kg	20000
Dibenz(a,h)anthracene	ND	ug/kg	20000
Di-n-butyl phthalate	ND	ug/kg	20000
1,2-Dichlorobenzene	ND	ug/kg	20000
1,3-Dichlorobenzene	ND	ug/kg	20000
1,4-Dichlorobenzene	ND	ug/kg	20000
Diethyl phthalate	ND	ug/kg	20000
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	20000
Dimethyl phthalate	ND	ug/kg	20000
Di-n-octyl phthalate	ND	ug/kg	20000
Fluoranthene	ND	ug/kg	20000
Indene	ND	ug/kg	20000
1-Methylnaphthalene	37000	ug/kg	20000
Naphthalene	ND	ug/kg	20000
Phenanthrene	27000	ug/kg	20000
Pyrene	ND	ug/kg	20000
Pyridine	ND	ug/kg	40000
Quinoline	ND	ug/kg	100000
Benzenethiol	ND	ug/kg	--
Dibenz(a,h)acridine	ND	ug/kg	--
o-Cresol	ND	ug/kg	20000
m & p-Cresol(s)	ND	ug/kg	20000
2,4-Dimethylphenol	ND	ug/kg	20000
2,4-Dinitrophenol	ND	ug/kg	100000
4-Nitrophenol	ND	ug/kg	100000
Phenol	ND	ug/kg	20000
Nitrobenzene-d5	82	%	--
2-Fluorobiphenyl	89	%	--
Terphenyl-d14	76	%	--
Phenol-d5	78	%	--
2-Fluorophenol	78	%	--

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Steve Siegel Approved By: Jeff Lowry

Refinery Hazardous Constituent Semivolatiles (CONT.)

Enseco
A CORNING Company

Method 8270

Client Name: Giant Refining
Client ID: RFI0804V08.0
Lab ID: 010120-0002-SA
Enseco ID: 1080750
Matrix: SOIL
Sampled: 25 JUN 90
Received: 26 JUN 90
Authorized: 26 JUN 90
Prepared: 03 JUL 90
Analyzed: 16 JUL 90

Parameter	Result	Units	Reporting Limit
2,4,6-Tribromophenol	71	%	--

ND = Not detected
NA = Not applicable

Reported By: Steve Siegel

Approved By: Jeff Lowry

Refinery Hazardous Constituent Semivolatiles

Enseco
A CORNING Company

Method 8270

Client Name: Giant Refining
Client ID: RFI0804V05.0
Lab ID: 010120-0003-SA Enseco ID: 1080751
Matrix: SOIL Sampled: 25 JUN 90 Received: 26 JUN 90
Authorized: 26 JUN 90 Prepared: 17 JUL 90 Analyzed: 18 JUL 90

Parameter	Result	Units	Reporting Limit
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Indene	ND	ug/kg	5000
1-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
Pyridine	ND	ug/kg	10000
Quinoline	ND	ug/kg	25000
Benzenethiol	ND	ug/kg	--
Dibenz(a,h)acridine	ND	ug/kg	--
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
2,4-Dinitrophenol	ND	ug/kg	25000
4-Nitrophenol	ND	ug/kg	25000
Phenol	ND	ug/kg	5000
Nitrobenzene-d5	53	%	--
2-Fluorobiphenyl	64	%	--
Terphenyl-d14	70	%	--
Phenol-d5	58	%	--
2-Fluorophenol	68	%	--

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

Refinery Hazardous Constituent Semivolatiles (CONT.)

Enseco
A CORNING Company

Method 8270

Client Name: Giant Refining
Client ID: RFI0804V05.0
Lab ID: 010120-0003-SA
Enseco ID: 1080751
Matrix: SOIL
Sampled: 25 JUN 90
Received: 26 JUN 90
Authorized: 26 JUN 90
Prepared: 17 JUL 90
Analyzed: 18 JUL 90

Parameter	Result	Units	Reporting Limit
2,4,6-Tribromophenol	82	%	--

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski

Approved By: Jeff Lowry

Refinery Hazardous Constituent Semivolatiles

Enseco
A CORNING Company

Method 8270

Client Name: Giant Refining
Client ID: RFI08505V10.5
Lab ID: 010120-0004-SA Enseco ID: 1080752
Matrix: SOIL Sampled: 25 JUN 90 Received: 26 JUN 90
Authorized: 26 JUN 90 Prepared: 03 JUL 90 Analyzed: 16 JUL 90

Parameter	Result	Units	Reporting Limit
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Indene	ND	ug/kg	5000
1-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
Pyridine	ND	ug/kg	10000
Quinoline	ND	ug/kg	25000
Benzenethiol	ND	ug/kg	--
Dibenz(a,h)acridine	ND	ug/kg	--
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
2,4-Dinitrophenol	ND	ug/kg	25000
4-Nitrophenol	ND	ug/kg	25000
Phenol	ND	ug/kg	5000
Nitrobenzene-d5	78	%	--
2-Fluorobiphenyl	82	%	--
Terphenyl-d14	80	%	--
Phenol-d5	69	%	--
2-Fluorophenol	73	%	--

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Steve Siegel Approved By: Jeff Lowry

Refinery Hazardous Constituent Semivolatiles (CONT.)

Enseco
A CORNING Company

Method 8270

Client Name: Giant Refining
Client ID: RFI08505V10.5
Lab ID: 010120-0004-SA
Enseco ID: 1080752
Matrix: SOIL
Sampled: 25 JUN 90
Received: 26 JUN 90
Authorized: 26 JUN 90
Prepared: 03 JUL 90
Analyzed: 16 JUL 90

Parameter	Result	Units	Reporting Limit
2,4,6-Tribromophenol	71	%	--

ND = Not detected
NA = Not applicable

Reported By: Steve Siegel

Approved By: Jeff Lowry

Refinery Hazardous Constituent Semivolatiles

Enseco
A CORNING Company

Method 8270

Client Name: Giant Refining
Client ID: RFI08505V08.0
Lab ID: 010120-0005-SA Enseco ID: 1080753
Matrix: SOIL Sampled: 25 JUN 90 Received: 26 JUN 90
Authorized: 26 JUN 90 Prepared: 03 JUL 90 Analyzed: 16 JUL 90

Parameter	Result	Units	Reporting Limit
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Indene	ND	ug/kg	5000
1-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
Pyridine	ND	ug/kg	10000
Quinoline	ND	ug/kg	25000
Benzenethiol	ND	ug/kg	--
Dibenz(a,h)acridine	ND	ug/kg	--
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
2,4-Dinitrophenol	ND	ug/kg	25000
4-Nitrophenol	ND	ug/kg	25000
Phenol	ND	ug/kg	5000
Nitrobenzene-d5	84	%	--
2-Fluorobiphenyl	87	%	--
Terphenyl-d14	90	%	--
Phenol-d5	76	%	--
2-Fluorophenol	83	%	--

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Steve Siegel Approved By: Jeff Lowry

Refinery Hazardous Constituent Semivolatiles (CONT.)

Enseco
A CORNING Company

Method 8270

Client Name: Giant Refining
Client ID: RFI08505V08.0
Lab ID: 010120-0005-SA
Enseco ID: 1080753
Matrix: SOIL
Sampled: 25 JUN 90
Received: 26 JUN 90
Authorized: 26 JUN 90
Prepared: 03 JUL 90
Analyzed: 16 JUL 90

Parameter	Result	Units	Reporting Limit
2,4,6-Tribromophenol	76	%	--

ND = Not detected
NA = Not applicable

Reported By: Steve Siegel

Approved By: Jeff Lowry

Refinery Hazardous Constituent Semivolatiles

Method 8270

Client Name: Giant Refining
Client ID: RFI08505V05.0
Lab ID: 010120-0006-SA Enseco ID: 1080754
Matrix: SOIL Sampled: 25 JUN 90 Received: 26 JUN 90
Authorized: 26 JUN 90 Prepared: 03 JUL 90 Analyzed: 16 JUL 90

Parameter	Result	Units	Reporting Limit
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Indene	ND	ug/kg	5000
1-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
Pyridine	ND	ug/kg	10000
Quinoline	ND	ug/kg	25000
Benzenethiol	ND	ug/kg	--
Dibenz(a,h)acridine	ND	ug/kg	--
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
2,4-Dinitrophenol	ND	ug/kg	25000
4-Nitrophenol	ND	ug/kg	25000
Phenol	ND	ug/kg	5000
Nitrobenzene-d5	78	%	--
2-Fluorobiphenyl	85	%	--
Terphenyl-d14	74	%	--
Phenol-d5	72	%	--
2-Fluorophenol	76	%	--

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Steve Siegel Approved By: Jeff Lowry

Refinery Hazardous Constituent Semivolatiles (CONT.)

Enseco
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Method 8270

Client Name: Giant Refining
Client ID: RFI08505V05.0
Lab ID: 010120-0006-SA
Enseco ID: 1080754
Matrix: SOIL
Sampled: 25 JUN 90
Received: 26 JUN 90
Authorized: 26 JUN 90
Prepared: 03 JUL 90
Analyzed: 16 JUL 90

Parameter	Result	Units	Reporting Limit
2,4,6-Tribromophenol	77	%	--

ND = Not detected
NA = Not applicable

Reported By: Steve Siegel

Approved By: Jeff Lowry

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0804V10.5
Lab ID: 010120-0001-SA
Matrix: SOIL
Authorized: 26 JUN 90

Enseco ID: 1080749
Sampled: 25 JUN 90
Prepared: See Below

Received: 26 JUN 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	18 JUL 90	23 JUL 90
Arsenic	ND	mg/kg	0.50	7060	16 JUL 90	18 JUL 90
Barium	216	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Beryllium	1.1	mg/kg	0.20	6010	18 JUL 90	23 JUL 90
Cadmium	ND	mg/kg	0.50	6010	18 JUL 90	23 JUL 90
Chromium	5.9	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Cobalt	2.6	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Copper	5.5	mg/kg	2.0	6010	18 JUL 90	23 JUL 90
Lead	9.5	mg/kg	5.0	6010	18 JUL 90	23 JUL 90
Mercury	ND	mg/kg	0.10	7471	17 JUL 90	17 JUL 90
Nickel	6.8	mg/kg	4.0	6010	18 JUL 90	23 JUL 90
Potassium	1500	mg/kg	500	6010	18 JUL 90	23 JUL 90
Selenium	ND	mg/kg	1.0	7740	16 JUL 90	18 JUL 90
Vanadium	15.8	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Zinc	11.4	mg/kg	2.0	6010	18 JUL 90	23 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Fred Velasquez

Approved By: Toni Lusk

Enseco
A CORNING Company

Total Metals

Client Name: Giant Refining
Client ID: RFI0804V08.0
Lab ID: 010120-0002-SA
Matrix: SOIL
Authorized: 26 JUN 90

Enseco ID: 1080750
Sampled: 25 JUN 90
Prepared: See Below

Received: 26 JUN 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	18 JUL 90	23 JUL 90
Arsenic	ND	mg/kg	0.50	7060	16 JUL 90	18 JUL 90
Barium	276	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Beryllium	0.95	mg/kg	0.20	6010	18 JUL 90	23 JUL 90
Cadmium	ND	mg/kg	0.50	6010	18 JUL 90	23 JUL 90
Chromium	6.7	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Cobalt	2.5	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Copper	4.6	mg/kg	2.0	6010	18 JUL 90	23 JUL 90
Lead	9.6	mg/kg	5.0	6010	18 JUL 90	23 JUL 90
Mercury	ND	mg/kg	0.10	7471	17 JUL 90	17 JUL 90
Nickel	7.5	mg/kg	4.0	6010	18 JUL 90	23 JUL 90
Potassium	1030	mg/kg	500	6010	18 JUL 90	23 JUL 90
Selenium	ND	mg/kg	1.0	7740	16 JUL 90	18 JUL 90
Vanadium	15.5	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Zinc	10.9	mg/kg	2.0	6010	18 JUL 90	23 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Fred Velasquez

Approved By: Toni Lusk

Enseco
A CORNING Company

Total Metals

Client Name: Giant Refining
Client ID: RFI0804V05.0
Lab ID: 010120-0003-SA
Enseco ID: 1080751
Matrix: SOIL
Sampled: 25 JUN 90
Received: 26 JUN 90
Authorized: 26 JUN 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	18 JUL 90	23 JUL 90
Arsenic	ND	mg/kg	1.0	7060	16 JUL 90	18 JUL 90
Barium	291	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Beryllium	0.95	mg/kg	0.20	6010	18 JUL 90	23 JUL 90
Cadmium	ND	mg/kg	0.50	6010	18 JUL 90	23 JUL 90
Chromium	6.4	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Cobalt	2.0	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Copper	4.8	mg/kg	2.0	6010	18 JUL 90	23 JUL 90
Lead	13.3	mg/kg	5.0	6010	18 JUL 90	23 JUL 90
Mercury	ND	mg/kg	0.10	7471	17 JUL 90	17 JUL 90
Nickel	7.6	mg/kg	4.0	6010	18 JUL 90	23 JUL 90
Potassium	980	mg/kg	500	6010	18 JUL 90	23 JUL 90
Selenium	ND	mg/kg	1.0	7740	16 JUL 90	18 JUL 90
Vanadium	15.0	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Zinc	11.1	mg/kg	2.0	6010	18 JUL 90	23 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Fred Velasquez
Approved By: Toni Lusk

Enseco
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Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI08505V10.5
Lab ID: 010120-0004-SA
Matrix: SOIL
Authorized: 26 JUN 90

Enseco ID: 1080752
Sampled: 25 JUN 90
Prepared: See Below

Received: 26 JUN 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	18 JUL 90	23 JUL 90
Arsenic	ND	mg/kg	0.50	7060	16 JUL 90	18 JUL 90
Barium	226	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Beryllium	0.61	mg/kg	0.20	6010	18 JUL 90	23 JUL 90
Cadmium	ND	mg/kg	0.50	6010	18 JUL 90	23 JUL 90
Chromium	3.8	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Cobalt	1.5	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Copper	3.8	mg/kg	2.0	6010	18 JUL 90	23 JUL 90
Lead	6.1	mg/kg	5.0	6010	18 JUL 90	23 JUL 90
Mercury	ND	mg/kg	0.10	7471	17 JUL 90	17 JUL 90
Nickel	4.3	mg/kg	4.0	6010	18 JUL 90	23 JUL 90
Potassium	610	mg/kg	500	6010	18 JUL 90	23 JUL 90
Selenium	ND	mg/kg	1.0	7740	16 JUL 90	18 JUL 90
Vanadium	11.5	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Zinc	7.5	mg/kg	2.0	6010	18 JUL 90	23 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Fred Velasquez

Approved By: Toni Lusk

Metals

Enseco
A CORNING Company

Total Metals

Client Name: Giant Refining
Client ID: RFI08505V08.0
Lab ID: 010120-0005-SA
Matrix: SOIL
Authorized: 26 JUN 90

Enseco ID: 1080753
Sampled: 25 JUN 90
Prepared: See Below

Received: 26 JUN 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	18 JUL 90	23 JUL 90
Arsenic	ND	mg/kg	0.50	7060	16 JUL 90	18 JUL 90
Barium	300	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Beryllium	1.1	mg/kg	0.20	6010	18 JUL 90	23 JUL 90
Cadmium	ND	mg/kg	0.50	6010	18 JUL 90	23 JUL 90
Chromium	8.3	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Cobalt	3.1	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Copper	5.7	mg/kg	2.0	6010	18 JUL 90	23 JUL 90
Lead	10.1	mg/kg	5.0	6010	18 JUL 90	23 JUL 90
Mercury	ND	mg/kg	0.10	7471	17 JUL 90	17 JUL 90
Nickel	9.1	mg/kg	4.0	6010	18 JUL 90	23 JUL 90
Potassium	2110	mg/kg	500	6010	18 JUL 90	23 JUL 90
Selenium	ND	mg/kg	1.0	7740	16 JUL 90	18 JUL 90
Vanadium	16.9	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Zinc	15.0	mg/kg	2.0	6010	18 JUL 90	23 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Fred Velasquez

Approved By: Toni Lusk

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI08505V05.0
Lab ID: 010120-0006-SA
Matrix: SOIL
Authorized: 26 JUN 90

Enseco ID: 1080754
Sampled: 25 JUN 90
Prepared: See Below

Received: 26 JUN 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	18 JUL 90	23 JUL 90
Arsenic	ND	mg/kg	0.50	7060	16 JUL 90	18 JUL 90
Barium	302	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Beryllium	0.93	mg/kg	0.20	6010	18 JUL 90	23 JUL 90
Cadmium	0.70	mg/kg	0.50	6010	18 JUL 90	23 JUL 90
Chromium	6.2	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Cobalt	2.1	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Copper	4.7	mg/kg	2.0	6010	18 JUL 90	23 JUL 90
Lead	9.3	mg/kg	5.0	6010	18 JUL 90	23 JUL 90
Mercury	ND	mg/kg	0.10	7471	17 JUL 90	17 JUL 90
Nickel	6.6	mg/kg	4.0	6010	18 JUL 90	23 JUL 90
Potassium	1060	mg/kg	500	6010	18 JUL 90	23 JUL 90
Selenium	ND	mg/kg	1.0	7740	16 JUL 90	18 JUL 90
Vanadium	14.8	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Zinc	10.5	mg/kg	2.0	6010	18 JUL 90	23 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Fred Velasquez

Approved By: Toni Lusk

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 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 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.

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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)
010120-0001-SA	SOIL	8240-S	05 JUL 90-B	05 JUL 90-B2
010120-0002-SA	SOIL	8240-S	05 JUL 90-B	05 JUL 90-B2
010120-0003-SA	SOIL	8240-S	05 JUL 90-B	05 JUL 90-B2
010120-0004-SA	SOIL	8240-S	05 JUL 90-B	05 JUL 90-B2
010120-0005-SA	SOIL	8240-S	05 JUL 90-B	05 JUL 90-B2
010120-0006-SA	SOIL	8240-S	05 JUL 90-B	05 JUL 90-B2

Enseco
A CORNING Company

DUPLICATE CONTROL SAMPLE REPORT
Volatile Organics by GC/MS

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	AVG	Accuracy Average(%) DCS	Accuracy Limits	Precision (RPD) DCS	Precision Limit
Category: 8240-S								
Matrix: SOIL								
QC Lot: 05 JUL 90-B								
Concentration Units: ug/kg								
1,1-Dichloroethene	5000	5750	5700	5720	115	59-172	0.9	22
Trichloroethene	5000	5230	5120	5180	104	62-137	2.1	24
Benzene	5000	5420	5910	5660	113	66-142	8.6	21
Toluene	5000	5290	5170	5230	105	59-139	2.3	21
Chlorobenzene	5000	5220	5200	5210	104	60-133	0.4	21

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

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SINGLE CONTROL SAMPLE REPORT
Volatile Organics by GC/MS

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) SCS	Accuracy(%) Limits
Category: 8240-S				
Matrix: SOIL				
QC Lot: 05 JUL 90-B QC Run: 05 JUL 90-B2				
Concentration Units: ug/kg				
1,2-Dichloroethane-d4	5000	4860	97	70-121
4-Bromofluorobenzene	5000	4930	99	74-121
Toluene-d8	5000	4820	96	81-117

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

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METHOD BLANK REPORT
Volatile Organics by GC/MS

Test: 8240-REF-S
Matrix: SOIL
QC Lot: 05 JUL 90-B QC Run: 05 JUL 90-B2

Analyte	Result	Units	Reporting Limit
Benzene	ND	ug/kg	500
Carbon disulfide	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Chloroform	ND	ug/kg	500
EDB (1,2-Dibromoethane)	ND	ug/kg	1000
1,2-Dichloroethane	ND	ug/kg	500
1,4-Dioxane	ND	ug/kg	50000
Ethylbenzene	ND	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Xylenes (total)	ND	ug/kg	500

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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)
010120-0001-SA	SOIL	8270-S	03 JUL 90-B	03 JUL 90-C
010120-0002-SA	SOIL	8270-S	03 JUL 90-B	03 JUL 90-C
010120-0003-SA	SOIL	8270-S	17 JUL 90-A	17 JUL 90-A
010120-0004-SA	SOIL	8270-S	03 JUL 90-B	03 JUL 90-C
010120-0005-SA	SOIL	8270-S	03 JUL 90-B	03 JUL 90-C
010120-0006-SA	SOIL	8270-S	03 JUL 90-B	03 JUL 90-C

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DUPLICATE CONTROL SAMPLE REPORT
Semivolatile Organics by GC/MS

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	AVG	Accuracy Average(%) DCS	Accuracy Limits	Precision (RPD) DCS	Precision Limit
Category: 8270-S Matrix: SOIL QC Lot: 03 JUL 90-B Concentration Units: ug/kg								
Phenol	6670	5480	4900	5190	78	26- 90	11	35
2-Chlorophenol	6670	5260	4960	5110	77	25-102	5.9	50
1,4-Dichlorobenzene	3330	2180	2100	2140	64	28-104	3.7	27
N-Nitroso-di-n-propylamine	3330	2400	2400	2400	72	41-126	0.0	38
1,2,4-Trichlorobenzene	3330	2350	2390	2370	71	38-107	1.7	23
4-Chloro-3-methylphenol	6670	6160	5770	5960	89	26-103	6.5	33
Acenaphthene	3330	2380	2220	2300	69	31-137	7.0	19
4-Nitrophenol	6670	3900	4630	4260	64	11-114	17	50
2,4-Dinitrotoluene	3330	2840	2710	2780	83	28- 89	4.7	47
Pentachlorophenol	6670	3780	5770	4780	72	17-109	42	47
Pyrene	3330	3070	2840	2960	89	35-142	7.8	36
Category: 8270-S Matrix: SOIL QC Lot: 17 JUL 90-A Concentration Units: ug/kg								
Phenol	6670	4640	4020	4330	65	26- 90	14	35
2-Chlorophenol	6670	6030	5100	5560	83	25-102	17	50
1,4-Dichlorobenzene	3330	2440	2110	2280	68	28-104	15	27
N-Nitroso-di-n-propylamine	3330	2180	1870	2020	61	41-126	15	38
1,2,4-Trichlorobenzene	3330	3080	2690	2880	87	38-107	14	23
4-Chloro-3-methylphenol	6670	5790	5100	5440	82	26-103	13	33
Acenaphthene	3330	2920	2530	2720	82	31-137	14	19
4-Nitrophenol	6670	4150	3020	3580	54	11-114	32	50
2,4-Dinitrotoluene	3330	3370	3020	3200	96	28- 89	11	47
Pentachlorophenol	6670	2480	1530	2000	30	17-109	47	47
Pyrene	3330	3190	2950	3070	92	35-142	7.8	36

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

SINGLE CONTROL SAMPLE REPORT
Semivolatile Organics by GC/MS

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) SCS	Accuracy(%) Limits
Category: 8270-S				
Matrix: SOIL				
QC Lot: 03 JUL 90-B QC Run: 03 JUL 90-C				
Concentration Units: ug/kg				
Nitrobenzene-d5	1670	1050	63	23-120
2-Fluorobiphenyl	1670	1090	65	30-115
Terphenyl-d14	1670	1240	74	18-137
2-Fluorophenol	3330	2150	65	25-121
Phenol-d5	3330	2090	63	24-113
2,4,6-Tribromophenol	3330	2490	75	19-122
Category: 8270-S				
Matrix: SOIL				
QC Lot: 17 JUL 90-A QC Run: 17 JUL 90-A				
Concentration Units: ug/kg				
Nitrobenzene-d5	1670	1300	78	23-120
2-Fluorobiphenyl	1670	1340	80	30-115
Terphenyl-d14	1670	1390	83	18-137
2-Fluorophenol	3330	2460	74	25-121
Phenol-d5	3330	2430	73	24-113
2,4,6-Tribromophenol	3330	2100	63	19-122

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

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METHOD BLANK REPORT
Semivolatile Organics by GC/MS

Test: 8270-REF-S
Matrix: SOIL
QC Lot: 03 JUL 90-B QC Run: 03 JUL 90-C

Analyte	Result	Units	Reporting Limit
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Indene	ND	ug/kg	5000
1-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
Pyridine	ND	ug/kg	10000
Quinoline	ND	ug/kg	25000
Benzenethiol	ND	ug/kg	--
Dibenz(a,h)acridine	ND	ug/kg	--
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
2,4-Dinitrophenol	ND	ug/kg	25000
4-Nitrophenol	ND	ug/kg	25000
Phenol	ND	ug/kg	5000

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

Test: 8270-REF-S
Matrix: SOIL
QC Lot: 17 JUL 90-A QC Run: 17 JUL 90-A

Analyte	Result	Units	Reporting Limit
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Indene	ND	ug/kg	5000
1-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
Pyridine	ND	ug/kg	10000
Quinoline	ND	ug/kg	25000
Benzenethiol	ND	ug/kg	--
Dibenz(a,h)acridine	ND	ug/kg	--
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
2,4-Dinitrophenol	ND	ug/kg	25000
4-Nitrophenol	ND	ug/kg	25000
Phenol	ND	ug/kg	5000

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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)
010120-0001-SA	SOIL	HG-CVAA-S	17 JUL 90-A	17 JUL 90-A
010120-0001-SA	SOIL	AS-FAA-S	16 JUL 90-D	16 JUL 90-D
010120-0001-SA	SOIL	SE-FAA-S	16 JUL 90-D	16 JUL 90-D
010120-0001-SA	SOIL	ICP-S	18 JUL 90-D	18 JUL 90-D
010120-0002-SA	SOIL	HG-CVAA-S	17 JUL 90-A	17 JUL 90-A
010120-0002-SA	SOIL	AS-FAA-S	16 JUL 90-D	16 JUL 90-D
010120-0002-SA	SOIL	SE-FAA-S	16 JUL 90-D	16 JUL 90-D
010120-0002-SA	SOIL	ICP-S	18 JUL 90-D	18 JUL 90-D
010120-0003-SA	SOIL	HG-CVAA-S	17 JUL 90-A	17 JUL 90-A
010120-0003-SA	SOIL	AS-FAA-S	16 JUL 90-D	16 JUL 90-D
010120-0003-SA	SOIL	SE-FAA-S	16 JUL 90-D	16 JUL 90-D
010120-0003-SA	SOIL	ICP-S	18 JUL 90-D	18 JUL 90-D
010120-0004-SA	SOIL	HG-CVAA-S	17 JUL 90-A	17 JUL 90-A
010120-0004-SA	SOIL	AS-FAA-S	16 JUL 90-D	16 JUL 90-D
010120-0004-SA	SOIL	SE-FAA-S	16 JUL 90-D	16 JUL 90-D
010120-0004-SA	SOIL	ICP-S	18 JUL 90-D	18 JUL 90-D
010120-0005-SA	SOIL	HG-CVAA-S	17 JUL 90-A	17 JUL 90-A
010120-0005-SA	SOIL	AS-FAA-S	16 JUL 90-D	16 JUL 90-D
010120-0005-SA	SOIL	SE-FAA-S	16 JUL 90-D	16 JUL 90-D
010120-0005-SA	SOIL	ICP-S	18 JUL 90-D	18 JUL 90-D
010120-0006-SA	SOIL	HG-CVAA-S	17 JUL 90-B	17 JUL 90-B
010120-0006-SA	SOIL	AS-FAA-S	16 JUL 90-D	16 JUL 90-D
010120-0006-SA	SOIL	SE-FAA-S	16 JUL 90-D	16 JUL 90-D
010120-0006-SA	SOIL	ICP-S	18 JUL 90-D	18 JUL 90-D

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DUPLICATE CONTROL SAMPLE REPORT
Metals Analysis and Preparation

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	AVG	Accuracy Average(%) DCS	Accuracy Limits	Precision (RPD) DCS	Precision Limit
Category: HG-CVAA-S Matrix: SOIL QC Lot: 17 JUL 90-A Concentration Units: mg/kg								
Mercury	0.50	0.510	0.522	0.516	103	75-125	2.3	20
Category: AS-FAA-S Matrix: SOIL QC Lot: 16 JUL 90-D Concentration Units: mg/kg								
Arsenic	4.0	3.63	3.78	3.70	93	75-125	4.0	20
Category: SE-FAA-S Matrix: SOIL QC Lot: 16 JUL 90-D Concentration Units: mg/kg								
Selenium	1.0	0.920	1.04	0.980	98	75-125	12	20
Category: ICP-S Matrix: SOIL QC Lot: 18 JUL 90-D Concentration Units: mg/kg								
Aluminum	200	204	203	204	102	75-125	0.6	20
Antimony	50	47.5	45.9	46.7	93	75-125	3.3	20
Arsenic	50	44.7	44.5	44.6	89	75-125	0.5	20
Barium	200	183	181	182	91	75-125	0.9	20
Beryllium	5.0	4.95	5.04	4.99	100	75-125	1.8	20
Cadmium	5.0	4.20	4.14	4.17	83	75-125	1.6	20
Calcium	10000	10200	10100	10200	102	75-125	1.5	20
Chromium	20	20.2	19.7	19.9	100	75-125	2.4	20
Cobalt	50	44.8	44.7	44.7	89	75-125	0.3	20
Copper	25	24.0	23.9	24.0	96	75-125	0.6	20
Iron	100	97.7	97.3	97.5	97	75-125	0.4	20
Lead	50	46.0	44.1	45.0	90	75-125	4.3	20
Magnesium	5000	5210	5140	5180	104	75-125	1.4	20
Manganese	50	46.1	45.7	45.9	92	75-125	0.8	20
Nickel	50	45.8	45.4	45.6	91	75-125	0.7	20
Potassium	5000	5070	5050	5060	101	75-125	0.5	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 Spiked	Measured DCS1	Measured DCS2	AVG	Accuracy Average(%) DCS	Accuracy Limits	Precision (RPD) DCS	Precision Limit
Category: ICP-S Matrix: SOIL QC Lot: 18 JUL 90-D Concentration Units: mg/kg								
Silver	5.0	4.96	4.91	4.94	99	75-125	0.9	20
Sodium	10000	10100	10100	10100	101	75-125	0.3	20
Vanadium	50	50.7	50.6	50.6	101	75-125	0.3	20
Zinc	50	44.7	43.8	44.3	89	75-125	1.9	20
Category: HG-CVAA-S Matrix: SOIL QC Lot: 17 JUL 90-B Concentration Units: mg/kg								
Mercury	0.50	0.522	0.534	0.528	106	75-125	2.3	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: HG-CVAA-S			
Matrix: SOIL			
QC Lot: 17 JUL 90-A QC Run: 17 JUL 90-A			
Mercury	ND	mg/kg	0.10
Test: AS-FAA-S			
Matrix: SOIL			
QC Lot: 16 JUL 90-D QC Run: 16 JUL 90-D			
Arsenic	ND	mg/kg	0.50
Test: SE-FAA-S			
Matrix: SOIL			
QC Lot: 16 JUL 90-D QC Run: 16 JUL 90-D			
Selenium	ND	mg/kg	0.50
Test: ICP-S			
Matrix: SOIL			
QC Lot: 18 JUL 90-D QC Run: 18 JUL 90-D			
Antimony	ND	mg/kg	6.0
Barium	ND	mg/kg	1.0
Beryllium	ND	mg/kg	0.20
Cadmium	ND	mg/kg	0.50
Chromium	ND	mg/kg	1.0
Cobalt	ND	mg/kg	1.0
Copper	ND	mg/kg	2.0
Lead	ND	mg/kg	5.0
Nickel	ND	mg/kg	4.0
Potassium	ND	mg/kg	500
Vanadium	ND	mg/kg	1.0
Zinc	ND	mg/kg	2.0

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METHOD BLANK REPORT
Metals Analysis and Preparation (cont.)

Analyte	Result	Units	Reporting Limit
Test: HG-CVAA-S			
Matrix: SOIL			
QC Lot: 17 JUL 90-B QC Run: 17 JUL 90-B			
Mercury	ND	mg/kg	0.10

Enseco - Rocky Mountain Analytical

4955 Yarrow Street
Arvada, Colorado 80002
303/421-6611 Facsimile: 303/431-7171

CHAIN OF CUSTODY

No.

Attn: Julie Esser

Enseco Client Giant Refinery

Project RFI

Sampling Co. Giant Refining

Sampling Site Ciniza Refinery

Team Leader Claud Rosendale

RMAL # 10120

SAMPLE SAFE™ CONDITIONS

1. Packed by: _____ Seal # _____
2. Seal Intact Upon Receipt by Sampling Co.: Yes (circled) No
3. Condition of Contents: Good
4. Sealed for Shipping by: Claud Rosendale
5. Initial Contents Temp.: — °C Seal # —
6. Sampling Status: Done Continuing Until ?
7. Seal Intact Upon Receipt by Laboratory: Yes No
8. Contents Temperature Upon Receipt by Lab: _____ °C
9. Condition of Contents: _____

	Date	Time	Sample ID/Description	Sample Type	No. Containers	Analysis Parameters	Remarks
01	6-25-90	9:45	RFI 0804 V05.0	VOA	32	SEE Attached	
01	6-25-90	9:45	RFI0804 V05.0	metal. organic	30	SEE Attached	
02	6-25-90	10:00	RFI 0804 V08.0	VOA	32	SEE Attached	
02	6-25-90	10:00	RFI0804 V08.0	metal organic	30	SEE Attached	
03	6-25-90	10:30	RFI0804 V05.0	VOA	32	SEE Attached	
03	6-25-90	10:30	RFI0804 V05.0	metal. organic	30	SEE Attached	

CUSTODY TRANSFERS PRIOR TO SHIPPING

	Relinquished by: (signed)	Received by: (signed)	Date	Time
1	Claud Rosendale		6-25-90	2:15pm
2				
3				

SHIPPING DETAILS

Delivered to Shipper by: Claud Rosendale

Method of Shipment: Fed. Express Airbill #

Received for Lab: RMAL Signed: Joseph A Myers Date/Time 6/26/90 0806

Enseco Project No. 10120

White and Pink Copies to Lab Yellow to Sampler

SS-0

9.263

Enseco - Rocky Mountain Analytical

4955 Yarrow Street
Arvada, Colorado 80002
303/421-6611 Facsimile: 303/431-7171

CHAIN OF CUSTODY

No.

Attn: Julie Essex

Enseco Client: Giant Refinery
Project: RFI
Sampling Co.: Giant Refinery
Sampling Site: Ginza Refinery
Team Leader: Claud Rosendale

RMAL #10110

SAMPLE SAFE™ CONDITIONS

1. Packed by: _____ Seal # OK
2. Seal Intact Upon Receipt by Sampling Co.: (Yes) No
3. Condition of Contents: Good
4. Sealed for Shipping by: Claud Rosendale
5. Initial Contents Temp.: _____ °C Seal # _____
6. Sampling Status: Done Continuing Until ?
7. Seal Intact Upon Receipt by Laboratory: Yes No
8. Contents Temperature Upon Receipt by Lab: _____ °C
9. Condition of Contents: _____

RMA#	Date	Time	Sample ID/Description	Sample Type	No. Containers	Analysis Parameters	Remarks
10120			10120				
08	6-25-90	1:00	RIF09505V10.5 04 ~~01~~	V08	32	SEE Attached	
09	6-25-90	1:00	RIF09505V10.5 04 ~~01~~	metal organic	30	SEE Attached	
05	6-25-90	1:15	RIF09505V08.0 05 ~~02~~	V08	32	SEE Attached	
06	6-25-90	1:15	RIF09505V08.0 05 ~~02~~	metal organic	30	SEE Attached	
07	6-25-90	1:20	RIF09505V05.0 06 ~~03~~	V08	32	SEE Attached	
08	6-25-90	1:20	RIF09505V05.0 06 ~~03~~	metal organic	30	SEE Attached	
	~~6-25-90~~		08				
	~~6-25-90~~		per Claude Rosendale				
	6-25-90						

CUSTODY TRANSFERS PRIOR TO SHIPPING

	Relinquished by: (signed)	Received by: (signed)	Date	Time
1	Claud Rosendale		6-25-90	2:15
2				
3				

SHIPPING DETAILS

Delivered to Shipper by: Claud Rosendale
Method of Shipment: Fed express Airbill #
Received for Lab: RMAL Signed: Joseph A Myers Date/Time 6/26/90 0800
Enseco Project No. 10120

White and Pink Copies to Lab Yellow to Sampler

SS-001

9.264

RCRA FACILITY INVESTIGATION
PHASE I - FINAL REPORT
GIANT REFINING COMPANY
GALLUP, NEW MEXICO
APRIL 8, 1991
BOOK 4

This Booklet Includes
Section 9.0
9.2.2
9.2.3
9.3.1

Section 9.0
RMAL No. 010149

Rocky Mountain
Analytical Laboratory

Enseco

ANALYTICAL RESULTS

FOR

GIANT REFINING

ENSECO-RMAL NO. 010149

JULY 29, 1990

Reviewed by: Julie Essey

Julie Essey

Sue Dalla

Sue Dalla

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

I. OVERVIEW

A. Standard Overview

On June 27, 1990, Enseco-Rocky Mountain Analytical Laboratory received 24 samples from Giant Refining.

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
   A. Standard Overview
   B. Regulatory Overview - Refinery
II. Sample Description Information/Analytical Test Requests
III. Analytical Results
IV. Quality Control Report

The reporting limits by Method 8240 for samples 010149-0005, -0008, -0009, and -0012 were raised due to high concentrations of non-target compounds.

All 8270 samples were prepped according to SW-846 using 2.0 grams of sample followed by a 50% partition then concentration to 1.0 mL for analysis. With this prep method nominal reporting limits are generally 10,000 ug/kg. After careful review of all chromatograms it has been determined that we can lower the nominal reporting limit to 5,000 ug/kg for this project.

The initial semivolatile extraction by Method 8270 on sample 010149-0011 was performed within holding times. However, after assessing the original results, a reextraction was performed outside of holding times in order to improve the quality of the data. Reprep data was used.

An analytical standard is not available for methyl chrysene. Furthermore, many isomers of this compound, including methyl benzanthracenes and methyl triphenylenes, exist. These isomers are indistinguishable under the analytical condition of Method 8270. A selected ion current profile at mass

242 was performed to determine if any compounds corresponding to the molecular structure of methyl chrysene were present. All peaks which met this criteria were summed. An estimated concentration of "total methyl chrysenes" was determined by comparing the sum of the peak areas to the internal standard and using a response factor of 1.0. Both the identification and quantification are highly suspect.

Methyl chrysene was searched for by mass chromatograms and was not detected in any of the samples analyzed by Method 8270.

B. Regulatory Overview - Refinery

In 1984, the EPA distributed several versions of a subset of Appendix VIII constituents to be used principally for delisting petroleum refinery wastes (K048-K052). This list, commonly referred to as the "Skinner" list has been adapted for use in land treatment demonstrations, site closures and other related activities associated with petroleum refining RCRA programs. In early 1985, a modified version of the Skinner list appeared in "Petitions to Delist Hazardous Waste, A Guidance Manual" (EPA/530-SW-85-003). This revised list, as shown in Table I, consists of 12 metals and 43 organic compounds and currently forms the basis for analytical work on samples collected at petroleum refineries.

The organic compounds have been classified as volatile and semivolatile (base/neutral/acid) compounds. Two of the "compounds" listed (dichlorobenzenes and cresols) are measured and reported in terms of their specific isomers. Analytical standards are not available for two of the compounds, dibenz(a,h)acridine and methyl chrysene. Therefore, these compounds cannot be measured and analytical results are not presented for these compounds. Two of the remaining compounds, benzenethiol and pyridine cannot be recovered consistently from environmental samples and consequently, method detection limits for these compounds cannot be established. This statement is made based on the results of a methods evaluation study sponsored by API.

Table 2 summarizes the analytical methods used to determine Appendix VIII refinery constituents. For the organic compounds, methods are listed for both the complete list and a subset of this list analyzed by alternate methods.

Between October, 1983 and July, 1985, the EPA released three methods manuals and a "Guidance Manual" which were compendiums of modified SW-846 methods specifically adapted for the analysis of Appendix VIII constituents in petroleum refining wastes. The most useful document was an October, 1984 draft methods manual which was released but never formally distributed by EPA. These documents did not contain many of the important details that are critical to the successful analysis of environmental samples relevant to petroleum refineries.

Thus, although the methods used by Enseco-RMAL in the analysis of petroleum refinery wastes are based on these various EPA documents, the actual details of each method have been modified in order to generate acceptable data. These modifications have been based on information given in numerous documents, some of which are cited in Table 3. In addition to the documents listed in the bibliography, Enseco-RMAL an ongoing dialogue with EPA/OSW to ensure that the latest EPA guidance is incorporated into the analytical approach.

The analytical data tables which follow present results for the Appendix VIII refinery hazardous constituents which are measurable.

TABLE 1. APPENDIX VIII HAZARDOUS CONSTITUENT SUBSET FOR PETROLEUM REFINERY STUDIES*

Metals

Antimony
Arsenic
Barium
Beryllium
Cadmium
Chromium
Cobalt
Lead
Mercury
Nickel
Selenium
Vanadium

Volatile Organics

Benzene
Carbon disulfide
Chlorobenzene
Chloroform
1,2-Dibromoethane
1,2-Dichloroethane
1,4-Dioxane
Methyl ethyl ketone
Styrene
Ethyl benzene
Toluene
Xylenes

Base/Neutral Organics

Anthracene
Benz(a)anthracene
Benzo(b)fluoranthene

Base/Neutral Organics (Cont.)

Benzo(k)fluoranthene
Benzo(a)pyrene
Bis(2-ethylhexyl)phthalate
Butyl benzyl phthalate
Chrysene
Dibenz(a,h)acridine[2]
Dibenz(a,h)anthracene
Di-n-butyl phthalate
Dichlorobenzenes[1]
Diethyl phthalate
7,12-Dimethylbenz(a)anthracene
Dimethyl phthalate
Di-n-octyl phthalate
Fluoranthene
Indene
Methyl chrysene[2]
1-Methylnaphthalene
Naphthalene
Phenanthrene
Pyrene
Pyridine[3]
Quinoline

Acid Organics

Benzenethiol[3]
Cresols[1]
2,4-Dimethylphenol
2,4-Dinitrophenol
4-Nitrophenol
Phenol

*"Petitions to Delist Hazardous Wastes, A Guidance Manual," EPA/530-SW-85-003, April, 1985.
1) Reported as ortho-, meta-, and para-isomers.
2) No analytical standard available.
3) Not consistently recoverable using standard analytical methods.

TABLE 2. SUMMARY OF ANALYTICAL METHODS FOR REFINERY CONSTITUENTS

Metals	Method
Antimony	7041
Arsenic	7060
Lead	7421
Mercury	7470
Selenium	7740
ICP Scan (Ba, Be, Cd, Cr, Co, Ni, V)	6010

	GC/MS Method	Screening Method
Volatile Organics	8240	8020[a]
Semivolatile Organics	8270	8310[b]

a) Volatile Aromatics
b) Polynuclear Aromatic Hydrocarbons

TABLE 3. BIBLIOGRAPHY

A. Documents Pertaining to Appendix VIII Constituents

(1) January, 1984 letter from Myles Morse pertaining to delisting petitions as well as land treatment demonstrations, including sampling procedures and data requirements.

(2) March, 1984 letter to delisting petitioners from Barbara Bush revising target parameters.

(3) April, 1984 memo from John Skinner to Permit Branch Chiefs concerning land treatment containing target parameters and analytical methods.

(4) May, 1984 memo from John Skinner clarifying previous memo.

(5) September, 1984 letter to Petitioners from Barbara Bush distributing Refinery Handbook.

(6) November, 1984 letter from Eileen Claussen to all delisting petitioners describing new RCRA requirements.

(7) May 3, 1985 RMAL Memo.

(8) January 8, 1985 RMAL letter to Eileen Claussen, EPA-OSW.

B. Documents Pertaining to Analytical Methods

(1) "Handbook for the Analysis of Petroleum Refinery Residuals and Waste", October, 1984 - prepared by Radian Corporation for EPA/OSW.

(2) "Evaluation of the Applicability of the SW-846 Manual To Support All RCRA Subtitle C Testing", December 20, 1984 - prepared by Rocky Mountain Analytical Laboratory for API.

(3) "Comments on the 'Handbook for the Analysis of Petroleum Refinery Residuals and Waste, October, 1984'", December 12, 1984 - Prepared by Rocky Mountain Analytical Laboratory for API.

(4) "Comments on the 'Handbook for the Analysis of Petroleum Refinery Residuals and Waste, April 2, 1984'", August 15, 1984 - Prepared by Rocky Mountain Analytical Laboratory for API.

(5) "Handbook for the Analysis of Petroleum Refinery Residuals and Waste", April 2, 1984 - prepared by S-Cubed for EPA/OSW.

(6) EPA document "Guidance for the Analysis of Refinery Wastes", July 5, 1985.

(7) "Recovery and Detection Limits of Organic Compounds in Petroleum Refinery Wastes", January 25, 1985.

(8) SW-846 - "Test Methods for Evaluating Solid Waste, Physical Chemical Methods" USEPA, 2nd Edition, 1982.

(9) 40 CFR 136 - "Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act."

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.

Enseco

July 29, 1990

Mr. Claud Rosendale
Giant Refining
17 Miles East of Gallup
I-40, Exit 39
Gallup, NM 87301

Dear Mr. Rosendale:

Enclosed is the report for 24 samples we received at Enseco-Rocky Mountain Analytical Laboratory on June 27, 1990.

Included with the report is a quality control summary.

Please call if you have any questions.

Sincerely,

Julie Essey
Program Administrator

Reviewed by:

Sue Dalla
Manager
Program Administration

JE/SD/heg
Enclosures

RMAL #010149

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

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SAMPLE DESCRIPTION INFORMATION
for
Giant Refining

1,2+3
4+5
6+7
8+9

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
010149-0001-SA	RFI0806V08.0	SOIL	26 JUN 90	07:40	27 JUN 90
010149-0002-SA	RFI0806V10.5	SOIL	26 JUN 90	08:50	27 JUN 90
010149-0003-SA	RFI0806V05.0	SOIL	26 JUN 90	09:09	27 JUN 90
010149-0004-SA	RFI0807V0.5	SOIL	26 JUN 90	09:45	27 JUN 90
010149-0005-SA	RFI0807V2.5	SOIL	26 JUN 90	10:05	27 JUN 90
010149-0006-SA	RFI0807V4.5	SOIL	26 JUN 90	10:30	27 JUN 90
010149-0007-SA	RFI0808V0.5	SOIL	26 JUN 90	12:00	27 JUN 90
010149-0008-SA	RFI0808V2.5	SOIL	26 JUN 90	12:20	27 JUN 90
010149-0009-SA	RFI0808V4.5	SOIL	26 JUN 90	13:45	27 JUN 90
010149-0010-SA	RFI0807E2[illegible].5	AQUEOUS	26 JUN 90	10:40	27 JUN 90
010149-0011-SA	RFI0809V.5	SOIL	26 JUN 90	13:05	27 JUN 90
010149-0012-SA	RFI0809V2.5	SOIL	26 JUN 90	13:18	27 JUN 90
010149-0013-SA	RFI0809V4.5	SOIL	26 JUN 90	13:40	27 JUN 90
010149-0014-SA	TRIP BLANK	AQUEOUS			27 JUN 90
010149-0015-SA	RFI0803A05.0	SOIL	26 JUN 90	09:00	27 JUN 90
010149-0016-SA	RFI0803A08.0	SOIL	26 JUN 90	09:30	27 JUN 90
010149-0017-SA	RFI0803A10.5	SOIL	26 JUN 90	09:30	27 JUN 90
010149-0018-SA	RFI0802A05.0	SOIL	26 JUN 90	10:50	27 JUN 90
010149-0019-SA	RFI0802D05.0	SOIL	26 JUN 90	10:50	27 JUN 90
010149-0020-SA	RFI0802A08.0	SOIL	26 JUN 90	11:10	27 JUN 90
010149-0021-SA	RFI0802A10.5	SOIL	26 JUN 90	11:15	27 JUN 90
010149-0022-SA	RFI0801A05.0	SOIL	26 JUN 90	12:25	27 JUN 90
010149-0023-SA	RFI0801A08.0	SOIL	26 JUN 90	12:40	27 JUN 90
010149-0024-SA	RFI0801A10.5	SOIL	26 JUN 90	12:45	27 JUN 90

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ANALYTICAL TEST REQUESTS
for
Giant Refining

Lab ID: 010149	Group Code	Analysis Description	Custom Test?
0001 - 0009,	A	Refinery Hazardous Constituent Volatiles	Y
0011 - 0013,		GC Screen For Medium Level Soils	N
0015 - 0024		Refinery Hazardous Constituent Semivolatiles	Y
		Prep - Semivolatile Organics by GC/MS	N
		Refinery Total Metals done by ICP	Y
		Prep - Total Metals, ICP	N
		Mercury, Cold Vapor AA	Y
		Prep - Mercury, Cold Vapor AA	N
		Arsenic, Furnace AA	N
		Prep - Total Metals, Furnace AA	N
		Selenium, Furnace AA	N
0014	B	Refinery Hazardous Constituent Volatiles	N
		Prep-Volatile Organics by GC/MS	N
0010	C	Refinery Hazardous Constituent Semivolatiles	Y
		Prep - Semivolatile Organics by GC/MS	N
		Lead, Furnace AA (Total)	N
		Prep - Total Metals, Furnace AA	N
		Arsenic, Furnace AA (Total)	N
		Selenium, Furnace AA (Total)	N
		Mercury, Cold Vapor AA (Total)	N
		Prep - Mercury, Cold Vapor AA (Total)	N
		ICP Metals (Total)	Y
		Prep - Total Metals, ICP	N
		Refinery Hazardous Constituent Volatiles	N
		Prep-Volatile Organics by GC/MS	N

III. ANALYTICAL RESULTS

The analytical results for this project are presented in the following data tables. The results are presented by sample, by test, with tests reported in the following order: GC/MS, Chromatography, Metals and Inorganics.

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.

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, April, 1989.

In addition, surrogate recovery data is presented for all GC/MS analyses. The surrogate recovery is an indication of the affect 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, is 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 dichloroethylene cannot be distinguished using EPA Method 624. All dichloroethylene present is reported as trans-dichloroethylene.

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) N-Nitrosodiphenylamine decomposes in the gas chromatographic inlet to diphenylamine.

Metals

Arsenic, selenium and thallium are customarily determined by graphite furnace atomic absorption (GFAA). All mercury determinations are by cold vapor atomic absorption. All other metals are determined using Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP).

All metals nominal reporting limits are statistically determined by analyzing a reagent blank seven times on three non-consecutive days. The standard deviations from each group of analyses are then summed (reporting limit = three times the standard deviation of a blank). The ability to attain the quoted reporting limits is verified each quarter. Reporting limits above nominal values are often reported since sample matrix interferences must be compensated for by dilutions prior to analysis or by the use of Method of Standard Additions. All GFAA reporting limits and results are verified by spike recoveries and represent the lowest attainable for each sample matrix. The metals reporting limits reported should not be viewed as quantitation limits. As recommended by the American Chemical Society Subcommittee on Environmental Analytical Chemistry (Analytical Chemistry 1980, 52, 2242-49), the Limit of Quantitation (LOQ) is equal to ten times the standard deviation of a blank or 3.3 times the reporting limit.

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Refinery Hazardous Constituent Volatiles

Method 8240

Client Name: Giant Refining
Client ID: RFI0806V08.0
Lab ID: 010149-0001-SA Enseco ID: 1080904
Matrix: SOIL Sampled: 26 JUN 90 Received: 27 JUN 90
Authorized: 28 JUN 90 Prepared: 02 JUL 90 Analyzed: 05 JUL 90

Parameter	Result	Units	Reporting Limit
Benzene	ND	ug/kg	500
Carbon disulfide	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Chloroform	ND	ug/kg	500
EDB (1,2-Dibromoethane)	ND	ug/kg	1000
1,2-Dichloroethane	ND	ug/kg	500
1,4-Dioxane	ND	ug/kg	50000
Ethylbenzene	ND	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Xylenes (total)	ND	ug/kg	500
Toluene-d8	101	%	--
4-Bromofluorobenzene	100	%	--
1,2-Dichloroethane-d4	88	%	--

ND = Not detected
NA = Not applicable

Reported By: Terry Riddle Approved By: Jeff Lowry

Enseco
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Refinery Hazardous Constituent Volatiles

Method 8240

Client Name: Giant Refining
Client ID: RFI0806V10.5
Lab ID: 010149-0002-SA Enseco ID: 1080905
Matrix: SOIL Sampled: 26 JUN 90 Received: 27 JUN 90
Authorized: 28 JUN 90 Prepared: 02 JUL 90 Analyzed: 05 JUL 90

Parameter	Result	Units	Reporting Limit
Benzene	ND	ug/kg	500
Carbon disulfide	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Chloroform	ND	ug/kg	500
EDB (1,2-Dibromoethane)	ND	ug/kg	1000
1,2-Dichloroethane	ND	ug/kg	500
1,4-Dioxane	ND	ug/kg	50000
Ethylbenzene	ND	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Xylenes (total)	ND	ug/kg	500
Toluene-d8	100	%	--
4-Bromofluorobenzene	99	%	--
1,2-Dichloroethane-d4	90	%	--

ND = Not detected
NA = Not applicable

Reported By: Terry Riddle Approved By: Jeff Lowry

Enseco
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Refinery Hazardous Constituent Volatiles

Method 8240

Client Name: Giant Refining
Client ID: RFI0806V05.0
Lab ID: 010149-0003-SA Enseco ID: 1080906
Matrix: SOIL Sampled: 26 JUN 90 Received: 27 JUN 90
Authorized: 28 JUN 90 Prepared: 02 JUL 90 Analyzed: 05 JUL 90

Parameter	Result	Units	Reporting Limit
Benzene	ND	ug/kg	500
Carbon disulfide	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Chloroform	ND	ug/kg	500
EDB (1,2-Dibromoethane)	ND	ug/kg	1000
1,2-Dichloroethane	ND	ug/kg	500
1,4-Dioxane	ND	ug/kg	50000
Ethylbenzene	ND	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Xylenes (total)	ND	ug/kg	500
Toluene-d8	100	%	--
4-Bromofluorobenzene	98	%	--
1,2-Dichloroethane-d4	89	%	--

ND = Not detected
NA = Not applicable

Reported By: Terry Riddle Approved By: Jeff Lowry

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Refinery Hazardous Constituent Volatiles

Method 8240

Client Name: Giant Refining
Client ID: RFI0807V0.5
Lab ID: 010149-0004-SA
Enseco ID: 1080907
Matrix: SOIL
Sampled: 26 JUN 90
Received: 27 JUN 90
Authorized: 28 JUN 90
Prepared: 02 JUL 90
Analyzed: 05 JUL 90

Parameter	Result	Units	Reporting Limit
Benzene	ND	ug/kg	500
Carbon disulfide	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Chloroform	ND	ug/kg	500
EDB (1,2-Dibromoethane)	ND	ug/kg	1000
1,2-Dichloroethane	ND	ug/kg	500
1,4-Dioxane	ND	ug/kg	50000
Ethylbenzene	ND	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Xylenes (total)	ND	ug/kg	500
Toluene-d8	101	%	--
4-Bromofluorobenzene	95	%	--
1,2-Dichloroethane-d4	88	%	--

ND = Not detected
NA = Not applicable

Reported By: Terry Riddle

Approved By: Jeff Lowry

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Refinery Hazardous Constituent Volatiles

Method 8240

Client Name: Giant Refining
Client ID: RFI0807V2.5
Lab ID: 010149-0005-SA Enseco ID: 1080908
Matrix: SOIL Sampled: 26 JUN 90 Received: 27 JUN 90
Authorized: 28 JUN 90 Prepared: 02 JUL 90 Analyzed: 05 JUL 90

Parameter	Result	Units	Reporting Limit
Benzene	ND	ug/kg	1000
Carbon disulfide	ND	ug/kg	1000
Chlorobenzene	ND	ug/kg	1000
Chloroform	ND	ug/kg	1000
EDB (1,2-Dibromoethane)	ND	ug/kg	2000
1,2-Dichloroethane	ND	ug/kg	1000
1,4-Dioxane	ND	ug/kg	100000
Ethylbenzene	ND	ug/kg	1000
2-Butanone (MEK)	ND	ug/kg	2000
Styrene	ND	ug/kg	1000
Toluene	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	1000
Toluene-d8	102	%	--
4-Bromofluorobenzene	98	%	--
1,2-Dichloroethane-d4	92	%	--

ND = Not detected
NA = Not applicable

Reported By: Terry Riddle Approved By: Jeff Lowry

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Refinery Hazardous Constituent Volatiles

Method 8240

Client Name: Giant Refining
Client ID: RFI0807V4.5
Lab ID: 010149-0006-SA Enseco ID: 1080909
Matrix: SOIL Sampled: 26 JUN 90 Received: 27 JUN 90
Authorized: 28 JUN 90 Prepared: 02 JUL 90 Analyzed: 05 JUL 90

Parameter	Result	Units	Reporting Limit
Benzene	ND	ug/kg	500
Carbon disulfide	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Chloroform	ND	ug/kg	500
EDB (1,2-Dibromoethane)	ND	ug/kg	1000
1,2-Dichloroethane	ND	ug/kg	500
1,4-Dioxane	ND	ug/kg	50000
Ethylbenzene	ND	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Xylenes (total)	ND	ug/kg	500
Toluene-d8	100	%	--
4-Bromofluorobenzene	98	%	--
1,2-Dichloroethane-d4	86	%	--

ND = Not detected
NA = Not applicable

Reported By: Terry Riddle Approved By: Jeff Lowry

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A CORNING Company

Refinery Hazardous Constituent Volatiles

Method 8240

Client Name: Giant Refining
Client ID: RFI0808V0.5
Lab ID: 010149-0007-SA Enseco ID: 1080910
Matrix: SOIL Sampled: 26 JUN 90 Received: 27 JUN 90
Authorized: 28 JUN 90 Prepared: 02 JUL 90 Analyzed: 05 JUL 90

Parameter	Result	Units	Reporting Limit
Benzene	ND	ug/kg	500
Carbon disulfide	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Chloroform	ND	ug/kg	500
EDB (1,2-Dibromoethane)	ND	ug/kg	1000
1,2-Dichloroethane	ND	ug/kg	500
1,4-Dioxane	ND	ug/kg	50000
Ethylbenzene	ND	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Xylenes (total)	ND	ug/kg	500
Toluene-d8	100	%	--
4-Bromofluorobenzene	97	%	--
1,2-Dichloroethane-d4	85	%	--

ND = Not detected
NA = Not applicable

Reported By: Terry Riddle Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Volatiles

Method 8240

Client Name: Giant Refining
Client ID: RFI0808V2.5
Lab ID: 010149-0008-SA Enseco ID: 1080911
Matrix: SOIL Sampled: 26 JUN 90 Received: 27 JUN 90
Authorized: 28 JUN 90 Prepared: 02 JUL 90 Analyzed: 05 JUL 90

Parameter	Result	Units	Reporting Limit
Benzene	ND	ug/kg	5000
Carbon disulfide	ND	ug/kg	5000
Chlorobenzene	ND	ug/kg	5000
Chloroform	ND	ug/kg	5000
EDB (1,2-Dibromoethane)	ND	ug/kg	10000
1,2-Dichloroethane	ND	ug/kg	5000
1,4-Dioxane	ND	ug/kg	500000
Ethylbenzene	ND	ug/kg	5000
2-Butanone (MEK)	ND	ug/kg	10000
Styrene	ND	ug/kg	5000
Toluene	ND	ug/kg	5000
Xylenes (total)	ND	ug/kg	5000
Toluene-d8	102	%	--
4-Bromofluorobenzene	99	%	--
1,2-Dichloroethane-d4	87	%	--

ND = Not detected
NA = Not applicable

Reported By: Terry Riddle Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Volatiles

Method 8240

Client Name: Giant Refining
Client ID: RFI0808V4.5
Lab ID: 010149-0009-SA
Enseco ID: 1080912
Matrix: SOIL
Sampled: 26 JUN 90
Received: 27 JUN 90
Authorized: 28 JUN 90
Prepared: 02 JUL 90
Analyzed: 05 JUL 90

Parameter	Result	Units	Reporting Limit
Benzene	ND	ug/kg	1000
Carbon disulfide	ND	ug/kg	1000
Chlorobenzene	ND	ug/kg	1000
Chloroform	ND	ug/kg	1000
EDB (1,2-Dibromoethane)	ND	ug/kg	2000
1,2-Dichloroethane	ND	ug/kg	1000
1,4-Dioxane	ND	ug/kg	100000
Ethylbenzene	ND	ug/kg	1000
2-Butanone (MEK)	ND	ug/kg	2000
Styrene	ND	ug/kg	1000
Toluene	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	1000
Toluene-d8	99	%	--
4-Bromofluorobenzene	98	%	--
1,2-Dichloroethane-d4	105	%	--

ND = Not detected
NA = Not applicable

Reported By: Shawn Kassner
Approved By: Jeff Lowry

Enseco
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Refinery Hazardous Constituent Volatiles

Method 8240

Client Name: Giant Refining
Client ID: RFI0807E25.5
Lab ID: 010149-0010-SA Enseco ID: 1080913
Matrix: AQUEOUS Sampled: 26 JUN 90 Received: 27 JUN 90
Authorized: 28 JUN 90 Prepared: 05 JUL 90 Analyzed: 05 JUL 90

Parameter	Result	Units	Reporting Limit
Benzene	ND	ug/L	5.0
Carbon disulfide	7.8	ug/L	5.0
Chlorobenzene	ND	ug/L	5.0
Chloroform	ND	ug/L	5.0
EDB (1,2-Dibromoethane)	ND	ug/L	5.0
1,2-Dichloroethane	ND	ug/L	5.0
1,4-Dioxane	ND	ug/L	100
Ethylbenzene	ND	ug/L	5.0
2-Butanone (MEK)	ND	ug/L	10
Toluene	ND	ug/L	5.0
Styrene	ND	ug/L	5.0
Xylenes (total)	ND	ug/L	5.0
Toluene-d8	101	%	--
4-Bromofluorobenzene	100	%	--
1,2-Dichloroethane-d4	113	%	--

ND = Not detected
NA = Not applicable

Reported By: Shawn Kassner Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Volatiles

Method 8240

Client Name: Giant Refining
Client ID: RFI0809V.5
Lab ID: 010149-0011-SA Enseco ID: 1080914
Matrix: SOIL Sampled: 26 JUN 90 Received: 27 JUN 90
Authorized: 28 JUN 90 Prepared: 02 JUL 90 Analyzed: 05 JUL 90

Parameter	Result	Units	Reporting Limit
Benzene	ND	ug/kg	500
Carbon disulfide	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Chloroform	ND	ug/kg	500
EDB (1,2-Dibromoethane)	ND	ug/kg	1000
1,2-Dichloroethane	ND	ug/kg	500
1,4-Dioxane	ND	ug/kg	50000
Ethylbenzene	ND	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Xylenes (total)	ND	ug/kg	500
Toluene-d8	99	%	--
4-Bromofluorobenzene	100	%	--
1,2-Dichloroethane-d4	104	%	--

ND = Not detected
NA = Not applicable

Reported By: Shawn Kassner Approved By: Jeff Lowry

Refinery Hazardous Constituent Volatiles

Method 8240

Client Name: Giant Refining
Client ID: RFI0809V2.5
Lab ID: 010149-0012-SA
Matrix: SOIL
Authorized: 28 JUN 90

Enseco ID: 1080915
Sampled: 26 JUN 90
Prepared: 02 JUL 90

Received: 27 JUN 90
Analyzed: 05 JUL 90

Parameter	Result	Units	Reporting Limit
Benzene	ND	ug/kg	5000
Carbon disulfide	ND	ug/kg	5000
Chlorobenzene	ND	ug/kg	5000
Chloroform	ND	ug/kg	5000
EDB (1,2-Dibromoethane)	ND	ug/kg	10000
1,2-Dichloroethane	ND	ug/kg	5000
1,4-Dioxane	ND	ug/kg	500000
Ethylbenzene	ND	ug/kg	5000
2-Butanone (MEK)	ND	ug/kg	10000
Styrene	ND	ug/kg	5000
Toluene	ND	ug/kg	5000
Xylenes (total)	ND	ug/kg	5000
Toluene-d8	93	%	--
4-Bromofluorobenzene	98	%	--
1,2-Dichloroethane-d4	109	%	--

ND = Not detected
NA = Not applicable

Reported By: Shawn Kassner

Approved By: Jeff Lowry

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Refinery Hazardous Constituent Volatiles

Method 8240

Client Name: Giant Refining
Client ID: RFI0809V4.5
Lab ID: 010149-0013-SA Enseco ID: 1080916
Matrix: SOIL Sampled: 26 JUN 90 Received: 27 JUN 90
Authorized: 28 JUN 90 Prepared: 02 JUL 90 Analyzed: 05 JUL 90

Parameter	Result	Units	Reporting Limit
Benzene	ND	ug/kg	500
Carbon disulfide	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Chloroform	ND	ug/kg	500
EDB (1,2-Dibromoethane)	ND	ug/kg	1000
1,2-Dichloroethane	ND	ug/kg	500
1,4-Dioxane	ND	ug/kg	50000
Ethylbenzene	ND	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Xylenes (total)	ND	ug/kg	500
Toluene-d8	100	%	--
4-Bromofluorobenzene	100	%	--
1,2-Dichloroethane-d4	99	%	--

ND = Not detected
NA = Not applicable

Reported By: Michael Blades Approved By: Jeff Lowry

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Refinery Hazardous Constituent Volatiles

Method 8240

Client Name: Giant Refining
Client ID: TRIP BLANK
Lab ID: 010149-0014-SA Enseco ID: 1080917
Matrix: AQUEOUS Sampled: Unknown Received: 27 JUN 90
Authorized: 28 JUN 90 Prepared: 05 JUL 90 Analyzed: 05 JUL 90

Parameter	Result	Units	Reporting Limit
Benzene	ND	ug/L	5.0
Carbon disulfide	ND	ug/L	5.0
Chlorobenzene	ND	ug/L	5.0
Chloroform	ND	ug/L	5.0
EDB (1,2-Dibromoethane)	ND	ug/L	5.0
1,2-Dichloroethane	ND	ug/L	5.0
1,4-Dioxane	ND	ug/L	100
Ethylbenzene	ND	ug/L	5.0
2-Butanone (MEK)	ND	ug/L	10
Toluene	ND	ug/L	5.0
Styrene	ND	ug/L	5.0
Xylenes (total)	ND	ug/L	5.0
Toluene-d8	100	%	--
4-Bromofluorobenzene	98	%	--
1,2-Dichloroethane-d4	100	%	--

ND = Not detected
NA = Not applicable

Reported By: Michael Blades Approved By: Jeff Lowry

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Refinery Hazardous Constituent Volatiles

Method 8240

Client Name: Giant Refining
Client ID: RFI0803A05.0
Lab ID: 010149-0015-SA Enseco ID: 1080918
Matrix: SOIL Sampled: 26 JUN 90 Received: 27 JUN 90
Authorized: 28 JUN 90 Prepared: 02 JUL 90 Analyzed: 05 JUL 90

Parameter	Result	Units	Reporting Limit
Benzene	ND	ug/kg	1000
Carbon disulfide	ND	ug/kg	1000
Chlorobenzene	ND	ug/kg	1000
Chloroform	ND	ug/kg	1000
EDB (1,2-Dibromoethane)	ND	ug/kg	2000
1,2-Dichloroethane	ND	ug/kg	1000
1,4-Dioxane	ND	ug/kg	100000
Ethylbenzene	ND	ug/kg	1000
2-Butanone (MEK)	ND	ug/kg	2000
Styrene	ND	ug/kg	1000
Toluene	ND	ug/kg	1000
Xylenes (total)	6600	ug/kg	1000
Toluene-d8	100	%	--
4-Bromofluorobenzene	96	%	--
1,2-Dichloroethane-d4	100	%	--

ND = Not detected
NA = Not applicable

Reported By: Michael Blades Approved By: Jeff Lowry

Enseco
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Refinery Hazardous Constituent Volatiles

Method 8240

Client Name: Giant Refining
Client ID: RFI0803A08.0
Lab ID: 010149-0016-SA Enseco ID: 1080919
Matrix: SOIL Sampled: 26 JUN 90 Received: 27 JUN 90
Authorized: 28 JUN 90 Prepared: 02 JUL 90 Analyzed: 06 JUL 90

Parameter	Result	Units	Reporting Limit
Benzene	ND	ug/kg	500
Carbon disulfide	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Chloroform	ND	ug/kg	500
EDB (1,2-Dibromoethane)	ND	ug/kg	1000
1,2-Dichloroethane	ND	ug/kg	500
1,4-Dioxane	ND	ug/kg	50000
Ethylbenzene	ND	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Xylenes (total)	ND	ug/kg	500
Toluene-d8	98	%	--
4-Bromofluorobenzene	98	%	--
1,2-Dichloroethane-d4	94	%	--

ND = Not detected
NA = Not applicable

Reported By: Michael Blades Approved By: Jeff Lowry

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Refinery Hazardous Constituent Volatiles

Method 8240

Client Name: Giant Refining
Client ID: RFI0803A10.5
Lab ID: 010149-0017-SA Enseco ID: 1080920
Matrix: SOIL Sampled: 26 JUN 90 Received: 27 JUN 90
Authorized: 28 JUN 90 Prepared: 02 JUL 90 Analyzed: 06 JUL 90

Parameter	Result	Units	Reporting Limit
Benzene	ND	ug/kg	500
Carbon disulfide	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Chloroform	ND	ug/kg	500
EDB (1,2-Dibromoethane)	ND	ug/kg	1000
1,2-Dichloroethane	ND	ug/kg	500
1,4-Dioxane	ND	ug/kg	50000
Ethylbenzene	ND	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Xylenes (total)	ND	ug/kg	500
Toluene-d8	98	%	--
4-Bromofluorobenzene	98	%	--
1,2-Dichloroethane-d4	97	%	--

ND = Not detected
NA = Not applicable

Reported By: Michael Blades Approved By: Jeff Lowry

Enseco
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Refinery Hazardous Constituent Volatiles

Method 8240

Client Name: Giant Refining
Client ID: RFI0802A05.0
Lab ID: 010149-0018-SA
Enseco ID: 1080921
Matrix: SOIL
Sampled: 26 JUN 90
Received: 27 JUN 90
Authorized: 28 JUN 90
Prepared: 02 JUL 90
Analyzed: 06 JUL 90

Parameter	Result	Units	Reporting Limit
Benzene	ND	ug/kg	500
Carbon disulfide	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Chloroform	ND	ug/kg	500
EDB (1,2-Dibromoethane)	ND	ug/kg	1000
1,2-Dichloroethane	ND	ug/kg	500
1,4-Dioxane	ND	ug/kg	50000
Ethylbenzene	ND	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Xylenes (total)	ND	ug/kg	500
Toluene-d8	101	%	--
4-Bromofluorobenzene	99	%	--
1,2-Dichloroethane-d4	92	%	--

ND = Not detected
NA = Not applicable

Reported By: Michael Blades

Approved By: Jeff Lowry

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Refinery Hazardous Constituent Volatiles

Method 8240

Client Name: Giant Refining
Client ID: RFI0802D05.0
Lab ID: 010149-0019-SA Enseco ID: 1080922
Matrix: SOIL Sampled: 26 JUN 90 Received: 27 JUN 90
Authorized: 28 JUN 90 Prepared: 02 JUL 90 Analyzed: 06 JUL 90

Parameter	Result	Units	Reporting Limit
Benzene	ND	ug/kg	500
Carbon disulfide	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Chloroform	ND	ug/kg	500
EDB (1,2-Dibromoethane)	ND	ug/kg	1000
1,2-Dichloroethane	ND	ug/kg	500
1,4-Dioxane	ND	ug/kg	50000
Ethylbenzene	ND	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Xylenes (total)	ND	ug/kg	500
Toluene-d8	100	%	--
4-Bromofluorobenzene	97	%	--
1,2-Dichloroethane-d4	96	%	--

ND = Not detected
NA = Not applicable

Reported By: Michael Blades Approved By: Jeff Lowry

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Refinery Hazardous Constituent Volatiles

Method 8240

Client Name: Giant Refining
Client ID: RFI0802A08.0
Lab ID: 010149-0020-SA Enseco ID: 1080923
Matrix: SOIL Sampled: 26 JUN 90 Received: 27 JUN 90
Authorized: 28 JUN 90 Prepared: 02 JUL 90 Analyzed: 06 JUL 90

Parameter	Result	Units	Reporting Limit
Benzene	ND	ug/kg	500
Carbon disulfide	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Chloroform	ND	ug/kg	500
EDB (1,2-Dibromoethane)	ND	ug/kg	1000
1,2-Dichloroethane	ND	ug/kg	500
1,4-Dioxane	ND	ug/kg	50000
Ethylbenzene	ND	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Xylenes (total)	500	ug/kg	500
Toluene-d8	100	%	--
4-Bromofluorobenzene	96	%	--
1,2-Dichloroethane-d4	93	%	--

ND = Not detected
NA = Not applicable

Reported By: Michael Blades Approved By: Jeff Lowry

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Refinery Hazardous Constituent Volatiles

Method 8240

Client Name: Giant Refining
Client ID: RFI0802A10.5
Lab ID: 010149-0021-SA Enseco ID: 1080924
Matrix: SOIL Sampled: 26 JUN 90 Received: 27 JUN 90
Authorized: 28 JUN 90 Prepared: 02 JUL 90 Analyzed: 06 JUL 90

Parameter	Result	Units	Reporting Limit
Benzene	ND	ug/kg	500
Carbon disulfide	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Chloroform	ND	ug/kg	500
EDB (1,2-Dibromoethane)	ND	ug/kg	1000
1,2-Dichloroethane	ND	ug/kg	500
1,4-Dioxane	ND	ug/kg	50000
Ethylbenzene	590	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Xylenes (total)	ND	ug/kg	500
Toluene-d8	99	%	--
4-Bromofluorobenzene	103	%	--
1,2-Dichloroethane-d4	95	%	--

ND = Not detected
NA = Not applicable

Reported By: Terry Riddle Approved By: Jeff Lowry

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Refinery Hazardous Constituent Volatiles

Method 8240

Client Name: Giant Refining
Client ID: RFI0801A05.0
Lab ID: 010149-0022-SA Enseco ID: 1080925
Matrix: SOIL Sampled: 26 JUN 90 Received: 27 JUN 90
Authorized: 28 JUN 90 Prepared: 02 JUL 90 Analyzed: 06 JUL 90

Parameter	Result	Units	Reporting Limit
Benzene	ND	ug/kg	500
Carbon disulfide	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Chloroform	ND	ug/kg	500
EDB (1,2-Dibromoethane)	ND	ug/kg	1000
1,2-Dichloroethane	ND	ug/kg	500
1,4-Dioxane	ND	ug/kg	50000
Ethylbenzene	570	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Xylenes (total)	5200	ug/kg	500
Toluene-d8	100	%	--
4-Bromofluorobenzene	98	%	--
1,2-Dichloroethane-d4	96	%	--

ND = Not detected
NA = Not applicable

Reported By: Terry Riddle Approved By: Jeff Lowry

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Refinery Hazardous Constituent Volatiles

Method 8240

Client Name: Giant Refining
Client ID: RFI0801A08.0
Lab ID: 010149-0023-SA Enseco ID: 1080926
Matrix: SOIL Sampled: 26 JUN 90 Received: 27 JUN 90
Authorized: 28 JUN 90 Prepared: 02 JUL 90 Analyzed: 06 JUL 90

Parameter	Result	Units	Reporting Limit
Benzene	ND	ug/kg	500
Carbon disulfide	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Chloroform	ND	ug/kg	500
EDB (1,2-Dibromoethane)	ND	ug/kg	1000
1,2-Dichloroethane	ND	ug/kg	500
1,4-Dioxane	ND	ug/kg	50000
Ethylbenzene	ND	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Xylenes (total)	ND	ug/kg	500
Toluene-d8	99	%	--
4-Bromofluorobenzene	101	%	--
1,2-Dichloroethane-d4	92	%	--

ND = Not detected
NA = Not applicable

Reported By: Terry Riddle Approved By: Jeff Lowry

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Refinery Hazardous Constituent Volatiles

Method 8240

Client Name: Giant Refining
Client ID: RFI0801A10.5
Lab ID: 010149-0024-SA Enseco ID: 1080927
Matrix: SOIL Sampled: 26 JUN 90 Received: 27 JUN 90
Authorized: 28 JUN 90 Prepared: 02 JUL 90 Analyzed: 06 JUL 90

Parameter	Result	Units	Reporting Limit
Benzene	ND	ug/kg	500
Carbon disulfide	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Chloroform	ND	ug/kg	500
EDB (1,2-Dibromoethane)	ND	ug/kg	1000
1,2-Dichloroethane	ND	ug/kg	500
1,4-Dioxane	ND	ug/kg	50000
Ethylbenzene	ND	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Xylenes (total)	ND	ug/kg	500
Toluene-d8	101	%	--
4-Bromofluorobenzene	102	%	--
1,2-Dichloroethane-d4	94	%	--

ND = Not detected
NA = Not applicable

Reported By: Terry Riddle Approved By: Jeff Lowry

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Refinery Hazardous Constituent Semivolatiles

Method 8270

Client Name: Giant Refining
Client ID: RFI0806V08.0
Lab ID: 010149-0001-SA Enseco ID: 1080904
Matrix: SOIL Sampled: 26 JUN 90 Received: 27 JUN 90
Authorized: 28 JUN 90 Prepared: 03 JUL 90 Analyzed: 17 JUL 90

Parameter	Result	Units	Reporting Limit
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Indene	ND	ug/kg	5000
1-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
Pyridine	ND	ug/kg	10000
Quinoline	ND	ug/kg	25000
Benzenethiol	ND	ug/kg	--
Dibenz(a,h)acridine	ND	ug/kg	--
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
2,4-Dinitrophenol	ND	ug/kg	25000
4-Nitrophenol	ND	ug/kg	25000
Phenol	ND	ug/kg	5000
Nitrobenzene-d5	72	%	--
2-Fluorobiphenyl	74	%	--
Terphenyl-d14	81	%	--
Phenol-d5	58	%	--
2-Fluorophenol	60	%	--

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

Refinery Hazardous Constituent Semivolatiles (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI0806V08.0
Lab ID: 010149-0001-SA
Enseco ID: 1080904
Matrix: SOIL
Sampled: 26 JUN 90
Received: 27 JUN 90
Authorized: 28 JUN 90
Prepared: 03 JUL 90
Analyzed: 17 JUL 90

Parameter	Result	Units	Reporting Limit
2,4,6-Tribromophenol	54	%	--

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski

Approved By: Jeff Lowry

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Refinery Hazardous Constituent Semivolatiles

Method 8270

Client Name: Giant Refining
Client ID: RFI0806V10.5
Lab ID: 010149-0002-SA
Enseco ID: 1080905
Matrix: SOIL
Sampled: 26 JUN 90
Received: 27 JUN 90
Authorized: 28 JUN 90
Prepared: 03 JUL 90
Analyzed: 17 JUL 90

Parameter	Result	Units	Reporting Limit
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Indene	ND	ug/kg	5000
1-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
Pyridine	ND	ug/kg	10000
Quinoline	ND	ug/kg	25000
Benzenethiol	ND	ug/kg	--
Dibenz(a,h)acridine	ND	ug/kg	--
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
2,4-Dinitrophenol	ND	ug/kg	25000
4-Nitrophenol	ND	ug/kg	25000
Phenol	ND	ug/kg	5000
Nitrobenzene-d5	84	%	--
2-Fluorobiphenyl	87	%	--
Terphenyl-d14	94	%	--
Phenol-d5	66	%	--
2-Fluorophenol	72	%	--

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ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski
Approved By: Jeff Lowry

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Refinery Hazardous Constituent Semivolatiles (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI0806V10.5
Lab ID: 010149-0002-SA
Enseco ID: 1080905
Matrix: SOIL
Sampled: 26 JUN 90
Received: 27 JUN 90
Authorized: 28 JUN 90
Prepared: 03 JUL 90
Analyzed: 17 JUL 90

Parameter	Result	Units	Reporting Limit
2,4,6-Tribromophenol	60	%	--

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski

Approved By: Jeff Lowry

Enseco
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Refinery Hazardous Constituent Semivolatiles

Method 8270

Client Name: Giant Refining
Client ID: RFI0806V05.0
Lab ID: 010149-0003-SA Enseco ID: 1080906
Matrix: SOIL Sampled: 26 JUN 90 Received: 27 JUN 90
Authorized: 28 JUN 90 Prepared: 03 JUL 90 Analyzed: 17 JUL 90

Parameter	Result	Units	Reporting Limit
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Indene	ND	ug/kg	5000
1-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
Pyridine	ND	ug/kg	10000
Quinoline	ND	ug/kg	25000
Benzenethiol	ND	ug/kg	--
Dibenz(a,h)acridine	ND	ug/kg	--
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
2,4-Dinitrophenol	ND	ug/kg	25000
4-Nitrophenol	ND	ug/kg	25000
Phenol	ND	ug/kg	5000
Nitrobenzene-d5	108	%	--
2-Fluorobiphenyl	104	%	--
Terphenyl-d14	119	%	--
Phenol-d5	85	%	--
2-Fluorophenol	91	%	--

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ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Semivolatiles (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI0806V05.0
Lab ID: 010149-0003-SA Enseco ID: 1080906
Matrix: SOIL Sampled: 26 JUN 90 Received: 27 JUN 90
Authorized: 28 JUN 90 Prepared: 03 JUL 90 Analyzed: 17 JUL 90

Parameter	Result	Units	Reporting Limit
2,4,6-Tribromophenol	77	%	--

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Semivolatiles

Method 8270

Client Name: Giant Refining
Client ID: RFI0807V0.5
Lab ID: 010149-0004-SA Enseco ID: 1080907
Matrix: SOIL Sampled: 26 JUN 90 Received: 27 JUN 90
Authorized: 28 JUN 90 Prepared: 03 JUL 90 Analyzed: 17 JUL 90

Parameter	Result	Units	Reporting Limit
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Indene	ND	ug/kg	5000
1-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
Pyridine	ND	ug/kg	10000
Quinoline	ND	ug/kg	25000
Benzenethiol	ND	ug/kg	--
Dibenz(a,h)acridine	ND	ug/kg	--
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
2,4-Dinitrophenol	ND	ug/kg	25000
4-Nitrophenol	ND	ug/kg	25000
Phenol	ND	ug/kg	5000
Nitrobenzene-d5	95	%	--
2-Fluorobiphenyl	100	%	--
Terphenyl-d14	105	%	--
Phenol-d5	76	%	--
2-Fluorophenol	79	%	--

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ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

Refinery Hazardous Constituent Semivolatiles (CONT.)

Enseco
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Method 8270

Client Name: Giant Refining
Client ID: RFI0807V0.5
Lab ID: 010149-0004-SA
Enseco ID: 1080907
Matrix: SOIL
Sampled: 26 JUN 90
Received: 27 JUN 90
Authorized: 28 JUN 90
Prepared: 03 JUL 90
Analyzed: 17 JUL 90

Parameter	Result	Units	Reporting Limit
2,4,6-Tribromophenol	59	%	--

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski

Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Semivolatiles

Method 8270

Client Name: Giant Refining
Client ID: RFI0807V2.5
Lab ID: 010149-0005-SA Enseco ID: 1080908
Matrix: SOIL Sampled: 26 JUN 90 Received: 27 JUN 90
Authorized: 28 JUN 90 Prepared: 03 JUL 90 Analyzed: 17 JUL 90

Parameter	Result	Units	Reporting Limit
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Indene	ND	ug/kg	5000
1-Methylnaphthalene	25000	ug/kg	5000
Naphthalene	14000	ug/kg	5000
Phenanthrene	11000	ug/kg	5000
Pyrene	ND	ug/kg	5000
Pyridine	ND	ug/kg	10000
Quinoline	ND	ug/kg	25000
Benzenethiol	ND	ug/kg	--
Dibenz(a,h)acridine	ND	ug/kg	--
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
2,4-Dinitrophenol	ND	ug/kg	25000
4-Nitrophenol	ND	ug/kg	25000
Phenol	ND	ug/kg	5000
Nitrobenzene-d5	90	%	--
2-Fluorobiphenyl	95	%	--
Terphenyl-d14	101	%	--
Phenol-d5	76	%	--
2-Fluorophenol	80	%	--

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ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

Refinery Hazardous Constituent Semivolatiles (CONT.)

Enseco
A CORNING Company

Method 8270

Client Name: Giant Refining
Client ID: RFI0807V2.5
Lab ID: 010149-0005-SA
Enseco ID: 1080908
Matrix: SOIL
Sampled: 26 JUN 90
Received: 27 JUN 90
Authorized: 28 JUN 90
Prepared: 03 JUL 90
Analyzed: 17 JUL 90

Parameter	Result	Units	Reporting Limit
2,4,6-Tribromophenol	59	%	--

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski

Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Semivolatiles

Method 8270

Client Name: Giant Refining
Client ID: RFI0807V4.5
Lab ID: 010149-0006-SA Enseco ID: 1080909
Matrix: SOIL Sampled: 26 JUN 90 Received: 27 JUN 90
Authorized: 28 JUN 90 Prepared: 03 JUL 90 Analyzed: 17 JUL 90

Parameter	Result	Units	Reporting Limit
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Indene	ND	ug/kg	5000
1-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
Pyridine	ND	ug/kg	10000
Quinoline	ND	ug/kg	25000
Benzenethiol	ND	ug/kg	--
Dibenz(a,h)acridine	ND	ug/kg	--
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
2,4-Dinitrophenol	ND	ug/kg	25000
4-Nitrophenol	ND	ug/kg	25000
Phenol	ND	ug/kg	5000
Nitrobenzene-d5	98	%	--
2-Fluorobiphenyl	98	%	--
Terphenyl-d14	110	%	--
Phenol-d5	71	%	--
2-Fluorophenol	80	%	--

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ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

Refinery Hazardous Constituent Semivolatiles (CONT.)

Enseco
A CORNING Company

Method 8270

Client Name: Giant Refining
Client ID: RFI0807V4.5
Lab ID: 010149-0006-SA Enseco ID: 1080909
Matrix: SOIL Sampled: 26 JUN 90 Received: 27 JUN 90
Authorized: 28 JUN 90 Prepared: 03 JUL 90 Analyzed: 17 JUL 90

Parameter	Result	Units	Reporting Limit
2,4,6-Tribromophenol	59	%	--

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Semivolatiles

Method 8270

Client Name: Giant Refining
Client ID: RFI0808V0.5
Lab ID: 010149-0007-SA Enseco ID: 1080910
Matrix: SOIL Sampled: 26 JUN 90 Received: 27 JUN 90
Authorized: 28 JUN 90 Prepared: 03 JUL 90 Analyzed: 17 JUL 90

Parameter	Result	Units	Reporting Limit
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Indene	ND	ug/kg	5000
1-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
Pyridine	ND	ug/kg	10000
Quinoline	ND	ug/kg	25000
Benzenethiol	ND	ug/kg	--
Dibenz(a,h)acridine	ND	ug/kg	--
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
2,4-Dinitrophenol	ND	ug/kg	25000
4-Nitrophenol	ND	ug/kg	25000
Phenol	ND	ug/kg	5000
Nitrobenzene-d5	96	%	--
2-Fluorobiphenyl	97	%	--
Terphenyl-d14	108	%	--
Phenol-d5	66	%	--
2-Fluorophenol	72	%	--

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

Refinery Hazardous Constituent Semivolatiles (CONT.)

Enseco
A CORNING Company

Method 8270

Client Name: Giant Refining
Client ID: RFI0808V0.5
Lab ID: 010149-0007-SA Enseco ID: 1080910
Matrix: SOIL Sampled: 26 JUN 90 Received: 27 JUN 90
Authorized: 28 JUN 90 Prepared: 03 JUL 90 Analyzed: 17 JUL 90

Parameter	Result	Units	Reporting Limit
2,4,6-Tribromophenol	55	%	--

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Semivolatiles

Method 8270

Client Name: Giant Refining
Client ID: RFI0808V2.5
Lab ID: 010149-0008-SA Enseco ID: 1080911
Matrix: SOIL Sampled: 26 JUN 90 Received: 27 JUN 90
Authorized: 28 JUN 90 Prepared: 03 JUL 90 Analyzed: 17 JUL 90

Parameter	Result	Units	Reporting Limit
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Indene	ND	ug/kg	5000
1-Methylnaphthalene	35000	ug/kg	5000
Naphthalene	20000	ug/kg	5000
Phenanthrene	18000	ug/kg	5000
Pyrene	ND	ug/kg	5000
Pyridine	ND	ug/kg	10000
Quinoline	ND	ug/kg	25000
Benzenethiol	ND	ug/kg	--
Dibenz(a,h)acridine	ND	ug/kg	--
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
2,4-Dinitrophenol	ND	ug/kg	25000
4-Nitrophenol	ND	ug/kg	25000
Phenol	ND	ug/kg	5000
Nitrobenzene-d5	71	%	--
2-Fluorobiphenyl	84	%	--
Terphenyl-d14	87	%	--
Phenol-d5	68	%	--
2-Fluorophenol	69	%	--

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ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Semivolatiles (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI0808V2.5
Lab ID: 010149-0008-SA
Enseco ID: 1080911
Matrix: SOIL
Sampled: 26 JUN 90
Received: 27 JUN 90
Authorized: 28 JUN 90
Prepared: 03 JUL 90
Analyzed: 17 JUL 90

Parameter	Result	Units	Reporting Limit
2,4,6-Tribromophenol	54	%	--

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski

Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Semivolatiles

Method 8270

Client Name: Giant Refining
Client ID: RFI0808V4.5
Lab ID: 010149-0009-SA Enseco ID: 1080912
Matrix: SOIL Sampled: 26 JUN 90 Received: 27 JUN 90
Authorized: 28 JUN 90 Prepared: 03 JUL 90 Analyzed: 17 JUL 90

Parameter	Result	Units	Reporting Limit
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Indene	ND	ug/kg	5000
1-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
Pyridine	ND	ug/kg	10000
Quinoline	ND	ug/kg	25000
Benzenethiol	ND	ug/kg	--
Dibenz(a,h)acridine	ND	ug/kg	--
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
2,4-Dinitrophenol	ND	ug/kg	25000
4-Nitrophenol	ND	ug/kg	25000
Phenol	ND	ug/kg	5000
Nitrobenzene-d5	95	%	--
2-Fluorobiphenyl	100	%	--
Terphenyl-d14	103	%	--
Phenol-d5	76	%	--
2-Fluorophenol	82	%	--

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Semivolatiles (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI0808V4.5
Lab ID: 010149-0009-SA Enseco ID: 1080912
Matrix: SOIL Sampled: 26 JUN 90 Received: 27 JUN 90
Authorized: 28 JUN 90 Prepared: 03 JUL 90 Analyzed: 17 JUL 90

Parameter	Result	Units	Reporting Limit
2,4,6-Tribromophenol	65	%	--

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Semivolatiles

Method 8270

Client Name: Giant Refining
Client ID: RFI0807E25.5
Lab ID: 010149-0010-SA Enseco ID: 1080913
Matrix: AQUEOUS Sampled: 26 JUN 90 Received: 27 JUN 90
Authorized: 28 JUN 90 Prepared: 01 JUL 90 Analyzed: 12 JUL 90

Parameter	Result	Units	Reporting Limit
Anthracene	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(a)pyrene	ND	ug/L	10
bis(2-Ethylhexyl) phthalate	ND	ug/L	10
Butyl benzyl phthalate	ND	ug/L	10
Chrysene	ND	ug/L	10
Dibenz(a,h)anthracene	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
Diethyl phthalate	ND	ug/L	10
7,12-Dimethylbenz(a)-anthracene	ND	ug/L	10
Dimethyl phthalate	ND	ug/L	10
Di-n-octyl phthalate	ND	ug/L	10
Fluoranthene	ND	ug/L	10
Indene	ND	ug/L	10
1-Methylnaphthalene	ND	ug/L	10
Naphthalene	ND	ug/L	10
Phenanthrene	ND	ug/L	10
Pyrene	ND	ug/L	10
Pyridine	ND	ug/L	10
Quinoline	ND	ug/L	10
Benzenethiol	ND	ug/L	--
Dibenz(a,h)acridine	ND	ug/L	--
o-Cresol	ND	ug/L	10
m & p-Cresol(s)	ND	ug/L	10
2,4-Dimethylphenol	ND	ug/L	10
2,4-Dinitrophenol	ND	ug/L	50
4-Nitrophenol	ND	ug/L	50
Phenol	ND	ug/L	10
Nitrobenzene-d5	64	%	--
2-Fluorobiphenyl	55	%	--
Terphenyl-d14	73	%	--
Phenol-d5	60	%	--
2-Fluorophenol	60	%	--

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Semivolatiles (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI0807E25.5
Lab ID: 010149-0010-SA
Matrix: AQUEOUS
Authorized: 28 JUN 90

Enseco ID: 1080913
Sampled: 26 JUN 90
Prepared: 01 JUL 90

Received: 27 JUN 90
Analyzed: 12 JUL 90

Parameter	Result	Units	Reporting Limit
2,4,6-Tribromophenol	52	%	--

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski

Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Semivolatiles

Method 8270

Client Name: Giant Refining
Client ID: RFI0809V.5
Lab ID: 010149-0011-SA Enseco ID: 1080914
Matrix: SOIL Sampled: 26 JUN 90 Received: 27 JUN 90
Authorized: 28 JUN 90 Prepared: 18 JUL 90 Analyzed: 23 JUL 90

Parameter	Result	Units	Reporting Limit
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Indene	ND	ug/kg	5000
1-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
Pyridine	ND	ug/kg	10000
Quinoline	ND	ug/kg	25000
Benzenethiol	ND	ug/kg	--
Dibenz(a,h)acridine	ND	ug/kg	--
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
2,4-Dinitrophenol	ND	ug/kg	25000
4-Nitrophenol	ND	ug/kg	25000
Phenol	ND	ug/kg	5000
Nitrobenzene-d5	60	%	--
2-Fluorobiphenyl	64	%	--
Terphenyl-d14	56	%	--
Phenol-d5	71	%	--
2-Fluorophenol	71	%	--

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Semivolatiles (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI0809V.5
Lab ID: 010149-0011-SA
Enseco ID: 1080914
Matrix: SOIL
Sampled: 26 JUN 90
Received: 27 JUN 90
Authorized: 28 JUN 90
Prepared: 18 JUL 90
Analyzed: 23 JUL 90

Parameter	Result	Units	Reporting Limit
2,4,6-Tribromophenol	77	%	--

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis

Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Semivolatiles

Method 8270

Client Name: Giant Refining
Client ID: RFI0809V2.5
Lab ID: 010149-0012-SA Enseco ID: 1080915
Matrix: SOIL Sampled: 26 JUN 90 Received: 27 JUN 90
Authorized: 28 JUN 90 Prepared: 03 JUL 90 Analyzed: 17 JUL 90

Parameter	Result	Units	Reporting Limit
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Indene	ND	ug/kg	5000
1-Methylnaphthalene	57000	ug/kg	5000
Naphthalene	24000	ug/kg	5000
Phenanthrene	25000	ug/kg	5000
Pyrene	ND	ug/kg	5000
Pyridine	ND	ug/kg	10000
Quinoline	ND	ug/kg	25000
Benzenethiol	ND	ug/kg	--
Dibenz(a,h)acridine	ND	ug/kg	--
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
2,4-Dinitrophenol	ND	ug/kg	25000
4-Nitrophenol	ND	ug/kg	25000
Phenol	ND	ug/kg	5000
Nitrobenzene-d5	37	%	--
2-Fluorobiphenyl	42	%	--
Terphenyl-d14	45	%	--
Phenol-d5	66	%	--
2-Fluorophenol	69	%	--

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Semivolatiles (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI0809V2.5
Lab ID: 010149-0012-SA Enseco ID: 1080915
Matrix: SOIL Sampled: 26 JUN 90 Received: 27 JUN 90
Authorized: 28 JUN 90 Prepared: 03 JUL 90 Analyzed: 17 JUL 90

Parameter	Result	Units	Reporting Limit
2,4,6-Tribromophenol	73	%	--

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Semivolatiles

Method 8270

Client Name: Giant Refining
Client ID: RFI0809V4.5
Lab ID: 010149-0013-SA Enseco ID: 1080916
Matrix: SOIL Sampled: 26 JUN 90 Received: 27 JUN 90
Authorized: 28 JUN 90 Prepared: 03 JUL 90 Analyzed: 17 JUL 90

Parameter	Result	Units	Reporting Limit
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Indene	ND	ug/kg	5000
1-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	6700	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
Pyridine	ND	ug/kg	10000
Quinoline	ND	ug/kg	25000
Benzenethiol	ND	ug/kg	--
Dibenz(a,h)acridine	ND	ug/kg	--
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
2,4-Dinitrophenol	ND	ug/kg	25000
4-Nitrophenol	ND	ug/kg	25000
Phenol	ND	ug/kg	5000
Nitrobenzene-d5	79	%	--
2-Fluorobiphenyl	88	%	--
Terphenyl-d14	92	%	--
Phenol-d5	66	%	--
2-Fluorophenol	70	%	--

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

Enseco
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Refinery Hazardous Constituent Semivolatiles (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI0809V4.5
Lab ID: 010149-0013-SA Enseco ID: 1080916
Matrix: SOIL Sampled: 26 JUN 90 Received: 27 JUN 90
Authorized: 28 JUN 90 Prepared: 03 JUL 90 Analyzed: 17 JUL 90

Parameter	Result	Units	Reporting Limit
2,4,6-Tribromophenol	60	%	--

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Semivolatiles

Method 8270

Client Name: Giant Refining
Client ID: RFI0803A05.0
Lab ID: 010149-0015-SA Enseco ID: 1080918
Matrix: SOIL Sampled: 26 JUN 90 Received: 27 JUN 90
Authorized: 28 JUN 90 Prepared: 03 JUL 90 Analyzed: 18 JUL 90

Parameter	Result	Units	Reporting Limit
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Indene	ND	ug/kg	5000
1-Methylnaphthalene	18000	ug/kg	5000
Naphthalene	5600	ug/kg	5000
Phenanthrene	14000	ug/kg	5000
Pyrene	ND	ug/kg	5000
Pyridine	ND	ug/kg	10000
Quinoline	ND	ug/kg	25000
Benzenethiol	ND	ug/kg	--
Dibenz(a,h)acridine	ND	ug/kg	--
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
2,4-Dinitrophenol	ND	ug/kg	25000
4-Nitrophenol	ND	ug/kg	25000
Phenol	ND	ug/kg	5000
Nitrobenzene-d5	75	%	--
2-Fluorobiphenyl	86	%	--
Terphenyl-d14	89	%	--
Phenol-d5	74	%	--
2-Fluorophenol	77	%	--

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

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Refinery Hazardous Constituent Semivolatiles (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI0803A05.0
Lab ID: 010149-0015-SA Enseco ID: 1080918
Matrix: SOIL Sampled: 26 JUN 90 Received: 27 JUN 90
Authorized: 28 JUN 90 Prepared: 03 JUL 90 Analyzed: 18 JUL 90

Parameter	Result	Units	Reporting Limit
2,4,6-Tribromophenol	70	%	--

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Semivolatiles

Method 8270

Client Name: Giant Refining
Client ID: RFI0803A08.0
Lab ID: 010149-0016-SA Enseco ID: 1080919
Matrix: SOIL Sampled: 26 JUN 90 Received: 27 JUN 90
Authorized: 28 JUN 90 Prepared: 03 JUL 90 Analyzed: 18 JUL 90

Parameter	Result	Units	Reporting Limit
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Indene	ND	ug/kg	5000
1-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
Pyridine	ND	ug/kg	10000
Quinoline	ND	ug/kg	25000
Benzenethiol	ND	ug/kg	--
Dibenz(a,h)acridine	ND	ug/kg	--
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
2,4-Dinitrophenol	ND	ug/kg	25000
4-Nitrophenol	ND	ug/kg	25000
Phenol	ND	ug/kg	5000
Nitrobenzene-d5	90	%	--
2-Fluorobiphenyl	99	%	--
Terphenyl-d14	106	%	--
Phenol-d5	73	%	--
2-Fluorophenol	77	%	--

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

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Refinery Hazardous Constituent Semivolatiles (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI0803A08.0
Lab ID: 010149-0016-SA Enseco ID: 1080919
Matrix: SOIL Sampled: 26 JUN 90 Received: 27 JUN 90
Authorized: 28 JUN 90 Prepared: 03 JUL 90 Analyzed: 18 JUL 90

Parameter	Result	Units	Reporting Limit
2,4,6-Tribromophenol	82	%	--

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Semivolatiles

Method 8270

Client Name: Giant Refining
Client ID: RFI0803A10.5
Lab ID: 010149-0017-SA
Enseco ID: 1080920
Matrix: SOIL
Sampled: 26 JUN 90
Received: 27 JUN 90
Authorized: 28 JUN 90
Prepared: 03 JUL 90
Analyzed: 18 JUL 90

Parameter	Result	Units	Reporting Limit
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Indene	ND	ug/kg	5000
1-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
Pyridine	ND	ug/kg	10000
Quinoline	ND	ug/kg	25000
Benzenethiol	ND	ug/kg	--
Dibenz(a,h)acridine	ND	ug/kg	--
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
2,4-Dinitrophenol	ND	ug/kg	25000
4-Nitrophenol	ND	ug/kg	25000
Phenol	ND	ug/kg	5000
Nitrobenzene-d5	88	%	--
2-Fluorobiphenyl	95	%	--
Terphenyl-d14	102	%	--
Phenol-d5	71	%	--
2-Fluorophenol	78	%	--

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski
Approved By: Jeff Lowry

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Refinery Hazardous Constituent Semivolatiles (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI0803A10.5
Lab ID: 010149-0017-SA Enseco ID: 1080920
Matrix: SOIL Sampled: 26 JUN 90 Received: 27 JUN 90
Authorized: 28 JUN 90 Prepared: 03 JUL 90 Analyzed: 18 JUL 90

Parameter	Result	Units	Reporting Limit
2,4,6-Tribromophenol	70	%	--

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Semivolatiles

Method 8270

Client Name: Giant Refining
Client ID: RFI0802A05.0
Lab ID: 010149-0018-SA Enseco ID: 1080921
Matrix: SOIL Sampled: 26 JUN 90 Received: 27 JUN 90
Authorized: 28 JUN 90 Prepared: 03 JUL 90 Analyzed: 18 JUL 90

Parameter	Result	Units	Reporting Limit
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Indene	ND	ug/kg	5000
1-Methylnaphthalene.	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
Pyridine	ND	ug/kg	10000
Quinoline	ND	ug/kg	25000
Benzenethiol	ND	ug/kg	--
Dibenz(a,h)acridine	ND	ug/kg	--
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
2,4-Dinitrophenol	ND	ug/kg	25000
4-Nitrophenol	ND	ug/kg	25000
Phenol	ND	ug/kg	5000
Nitrobenzene-d5	91	%	--
2-Fluorobiphenyl	96	%	--
Terphenyl-d14	97	%	--
Phenol-d5	71	%	--
2-Fluorophenol	81	%	--

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ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

Enseco
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Refinery Hazardous Constituent Semivolatiles (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI0802A05.0
Lab ID: 010149-0018-SA Enseco ID: 1080921
Matrix: SOIL Sampled: 26 JUN 90 Received: 27 JUN 90
Authorized: 28 JUN 90 Prepared: 03 JUL 90 Analyzed: 18 JUL 90

Parameter	Result	Units	Reporting Limit
2,4,6-Tribromophenol	83	%	--

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Semivolatiles

Method 8270

Client Name: Giant Refining
Client ID: RFI0802D05.0
Lab ID: 010149-0019-SA Enseco ID: 1080922
Matrix: SOIL Sampled: 26 JUN 90 Received: 27 JUN 90
Authorized: 28 JUN 90 Prepared: 03 JUL 90 Analyzed: 18 JUL 90

Parameter	Result	Units	Reporting Limit
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Indene	ND	ug/kg	5000
1-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
Pyridine	ND	ug/kg	10000
Quinoline	ND	ug/kg	25000
Benzenethiol	ND	ug/kg	--
Dibenz(a,h)acridine	ND	ug/kg	--
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
2,4-Dinitrophenol	ND	ug/kg	25000
4-Nitrophenol	ND	ug/kg	25000
Phenol	ND	ug/kg	5000
Nitrobenzene-d5	93	%	--
2-Fluorobiphenyl	95	%	--
Terphenyl-d14	103	%	--
Phenol-d5	74	%	--
2-Fluorophenol	83	%	--

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Semivolatiles (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI0802D05.0
Lab ID: 010149-0019-SA Enseco ID: 1080922
Matrix: SOIL Sampled: 26 JUN 90 Received: 27 JUN 90
Authorized: 28 JUN 90 Prepared: 03 JUL 90 Analyzed: 18 JUL 90

Parameter	Result	Units	Reporting Limit
2,4,6-Tribromophenol	83	%	--

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Semivolatiles

Method 8270

Client Name: Giant Refining
Client ID: RFI0802A08.0
Lab ID: 010149-0020-SA
Enseco ID: 1080923
Matrix: SOIL
Sampled: 26 JUN 90
Received: 27 JUN 90
Authorized: 28 JUN 90
Prepared: 03 JUL 90
Analyzed: 18 JUL 90

Parameter	Result	Units	Reporting Limit
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Indene	ND	ug/kg	5000
1-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
Pyridine	ND	ug/kg	10000
Quinoline	ND	ug/kg	25000
Benzenethiol	ND	ug/kg	--
Dibenz(a,h)acridine	ND	ug/kg	--
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
2,4-Dinitrophenol	ND	ug/kg	25000
4-Nitrophenol	ND	ug/kg	25000
Phenol	ND	ug/kg	5000
Nitrobenzene-d5	83	%	--
2-Fluorobiphenyl	89	%	--
Terphenyl-d14	100	%	--
Phenol-d5	58	%	--
2-Fluorophenol	63	%	--

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski
Approved By: Jeff Lowry

Enseco
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Refinery Hazardous Constituent Semivolatiles (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI0802A08.0
Lab ID: 010149-0020-SA Enseco ID: 1080923
Matrix: SOIL Sampled: 26 JUN 90 Received: 27 JUN 90
Authorized: 28 JUN 90 Prepared: 03 JUL 90 Analyzed: 18 JUL 90

Parameter	Result	Units	Reporting Limit
2,4,6-Tribromophenol	63	%	--

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Semivolatiles

Method 8270

Client Name: Giant Refining
Client ID: RFI0802A10.5
Lab ID: 010149-0021-SA Enseco ID: 1080924
Matrix: SOIL Sampled: 26 JUN 90 Received: 27 JUN 90
Authorized: 28 JUN 90 Prepared: 03 JUL 90 Analyzed: 18 JUL 90

Parameter	Result	Units	Reporting Limit
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Indene	ND	ug/kg	5000
1-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
Pyridine	ND	ug/kg	10000
Quinoline	ND	ug/kg	25000
Benzenethiol	ND	ug/kg	--
Dibenz(a,h)acridine	ND	ug/kg	--
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
2,4-Dinitrophenol	ND	ug/kg	25000
4-Nitrophenol	ND	ug/kg	25000
Phenol	ND	ug/kg	5000
Nitrobenzene-d5	72	%	--
2-Fluorobiphenyl	86	%	--
Terphenyl-d14	91	%	--
Phenol-d5	52	%	--
2-Fluorophenol	59	%	--

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

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Refinery Hazardous Constituent Semivolatiles (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI0802A10.5
Lab ID: 010149-0021-SA
Enseco ID: 1080924
Matrix: SOIL
Sampled: 26 JUN 90
Received: 27 JUN 90
Authorized: 28 JUN 90
Prepared: 03 JUL 90
Analyzed: 18 JUL 90

Parameter	Result	Units	Reporting Limit
2,4,6-Tribromophenol	55	%	--

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski

Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Semivolatiles

Method 8270

Client Name: Giant Refining
Client ID: RFI0801A05.0
Lab ID: 010149-0022-SA Enseco ID: 1080925
Matrix: SOIL Sampled: 26 JUN 90 Received: 27 JUN 90
Authorized: 28 JUN 90 Prepared: 03 JUL 90 Analyzed: 18 JUL 90

Parameter	Result	Units	Reporting Limit
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Indene	ND	ug/kg	5000
1-Methylnaphthalene	19000	ug/kg	5000
Naphthalene	7400	ug/kg	5000
Phenanthrene	17000	ug/kg	5000
Pyrene	ND	ug/kg	5000
Pyridine	ND	ug/kg	10000
Quinoline	ND	ug/kg	25000
Benzenethiol	ND	ug/kg	--
Dibenz(a,h)acridine	ND	ug/kg	--
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
2,4-Dinitrophenol	ND	ug/kg	25000
4-Nitrophenol	ND	ug/kg	25000
Phenol	ND	ug/kg	5000
Nitrobenzene-d5	68	%	--
2-Fluorobiphenyl	91	%	--
Terphenyl-d14	96	%	--
Phenol-d5	63	%	--
2-Fluorophenol	73	%	--

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Semivolatiles (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI0801A05.0
Lab ID: 010149-0022-SA Enseco ID: 1080925
Matrix: SOIL Sampled: 26 JUN 90 Received: 27 JUN 90
Authorized: 28 JUN 90 Prepared: 03 JUL 90 Analyzed: 18 JUL 90

Parameter	Result	Units	Reporting Limit
2,4,6-Tribromophenol	62	%	--

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

Enseco
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Refinery Hazardous Constituent Semivolatiles

Method 8270

Client Name: Giant Refining
Client ID: RFI0801A08.0
Lab ID: 010149-0023-SA Enseco ID: 1080926
Matrix: SOIL Sampled: 26 JUN 90 Received: 27 JUN 90
Authorized: 28 JUN 90 Prepared: 03 JUL 90 Analyzed: 18 JUL 90

Parameter	Result	Units	Reporting Limit
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Indene	ND	ug/kg	5000
1-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
Pyridine	ND	ug/kg	10000
Quinoline	ND	ug/kg	25000
Benzenethiol	ND	ug/kg	--
Dibenz(a,h)acridine	ND	ug/kg	--
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
2,4-Dinitrophenol	ND	ug/kg	25000
4-Nitrophenol	ND	ug/kg	25000
Phenol	ND	ug/kg	5000
Nitrobenzene-d5	94	%	--
2-Fluorobiphenyl	107	%	--
Terphenyl-d14	111	%	--
Phenol-d5	62	%	--
2-Fluorophenol	73	%	--

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

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Refinery Hazardous Constituent Semivolatiles (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI0801A08.0
Lab ID: 010149-0023-SA
Enseco ID: 1080926
Matrix: SOIL
Sampled: 26 JUN 90
Received: 27 JUN 90
Authorized: 28 JUN 90
Prepared: 03 JUL 90
Analyzed: 18 JUL 90

Parameter	Result	Units	Reporting Limit
2,4,6-Tribromophenol	67	%	--

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski
Approved By: Jeff Lowry

Enseco
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Refinery Hazardous Constituent Semivolatiles

Method 8270

Client Name: Giant Refining
Client ID: RFI0801A10.5
Lab ID: 010149-0024-SA
Enseco ID: 1080927
Matrix: SOIL
Sampled: 26 JUN 90
Received: 27 JUN 90
Authorized: 28 JUN 90
Prepared: 03 JUL 90
Analyzed: 18 JUL 90

Parameter	Result	Units	Reporting Limit
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Indene	ND	ug/kg	5000
1-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
Pyridine	ND	ug/kg	10000
Quinoline	ND	ug/kg	25000
Benzenethiol	ND	ug/kg	--
Dibenz(a,h)acridine	ND	ug/kg	--
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
2,4-Dinitrophenol	ND	ug/kg	25000
4-Nitrophenol	ND	ug/kg	25000
Phenol	ND	ug/kg	5000
Nitrobenzene-d5	80	%	--
2-Fluorobiphenyl	94	%	--
Terphenyl-d14	93	%	--
Phenol-d5	54	%	--
2-Fluorophenol	64	%	--

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski
Approved By: Jeff Lowry

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Refinery Hazardous Constituent Semivolatiles (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI0801A10.5
Lab ID: 010149-0024-SA Enseco ID: 1080927
Matrix: SOIL Sampled: 26 JUN 90 Received: 27 JUN 90
Authorized: 28 JUN 90 Prepared: 03 JUL 90 Analyzed: 18 JUL 90

Parameter	Result	Units	Reporting Limit
2,4,6-Tribromophenol	66	%	--

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

Enseco
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Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0806V08.0
Lab ID: 010149-0001-SA
Matrix: SOIL
Authorized: 28 JUN 90

Enseco ID: 1080904
Sampled: 26 JUN 90
Prepared: See Below

Received: 27 JUN 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	18 JUL 90	23 JUL 90
Arsenic	ND	mg/kg	0.50	7060	16 JUL 90	18 JUL 90
Barium	281	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Beryllium	0.99	mg/kg	0.20	6010	18 JUL 90	23 JUL 90
Cadmium	ND	mg/kg	0.50	6010	18 JUL 90	23 JUL 90
Chromium	7.3	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Cobalt	2.7	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Copper	5.1	mg/kg	2.0	6010	18 JUL 90	23 JUL 90
Lead	8.9	mg/kg	5.0	6010	18 JUL 90	23 JUL 90
Mercury	ND	mg/kg	0.10	7471	17 JUL 90	18 JUL 90
Nickel	8.5	mg/kg	4.0	6010	18 JUL 90	23 JUL 90
Potassium	1830	mg/kg	500	6010	18 JUL 90	23 JUL 90
Selenium	ND	mg/kg	1.0	7740	16 JUL 90	18 JUL 90
Vanadium	15.0	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Zinc	13.5	mg/kg	2.0	6010	18 JUL 90	23 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Fred Velasquez

Approved By: Will Pratt

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Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0806V10.5
Lab ID: 010149-0002-SA
Matrix: SOIL
Authorized: 28 JUN 90

Enseco ID: 1080905
Sampled: 26 JUN 90
Prepared: See Below

Received: 27 JUN 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	18 JUL 90	23 JUL 90
Arsenic	ND	mg/kg	0.50	7060	16 JUL 90	18 JUL 90
Barium	203	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Beryllium	1.2	mg/kg	0.20	6010	18 JUL 90	23 JUL 90
Cadmium	ND	mg/kg	0.50	6010	18 JUL 90	23 JUL 90
Chromium	7.0	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Cobalt	3.5	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Copper	6.3	mg/kg	2.0	6010	18 JUL 90	23 JUL 90
Lead	10.8	mg/kg	5.0	6010	18 JUL 90	23 JUL 90
Mercury	ND	mg/kg	0.10	7471	17 JUL 90	18 JUL 90
Nickel	9.3	mg/kg	4.0	6010	18 JUL 90	23 JUL 90
Potassium	1290	mg/kg	500	6010	18 JUL 90	23 JUL 90
Selenium	ND	mg/kg	1.0	7740	16 JUL 90	18 JUL 90
Vanadium	13.8	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Zinc	13.2	mg/kg	2.0	6010	18 JUL 90	23 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Fred Velasquez

Approved By: Will Pratt

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Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0806V05.0
Lab ID: 010149-0003-SA
Matrix: SOIL
Authorized: 28 JUN 90

Enseco ID: 1080906
Sampled: 26 JUN 90
Prepared: See Below

Received: 27 JUN 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	18 JUL 90	23 JUL 90
Arsenic	ND	mg/kg	0.50	7060	16 JUL 90	18 JUL 90
Barium	264	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Beryllium	0.77	mg/kg	0.20	6010	18 JUL 90	23 JUL 90
Cadmium	ND	mg/kg	0.50	6010	18 JUL 90	23 JUL 90
Chromium	5.1	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Cobalt	1.6	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Copper	4.4	mg/kg	2.0	6010	18 JUL 90	23 JUL 90
Lead	7.6	mg/kg	5.0	6010	18 JUL 90	23 JUL 90
Mercury	ND	mg/kg	0.10	7471	17 JUL 90	18 JUL 90
Nickel	5.7	mg/kg	4.0	6010	18 JUL 90	23 JUL 90
Potassium	1140	mg/kg	500	6010	18 JUL 90	23 JUL 90
Selenium	ND	mg/kg	1.0	7740	16 JUL 90	18 JUL 90
Vanadium	13.2	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Zinc	10.0	mg/kg	2.0	6010	18 JUL 90	23 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Fred Velasquez

Approved By: Will. Pratt

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Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0807V0.5
Lab ID: 010149-0004-SA
Matrix: SOIL
Authorized: 28 JUN 90

Enseco ID: 1080907
Sampled: 26 JUN 90
Prepared: See Below

Received: 27 JUN 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	18 JUL 90	23 JUL 90
Arsenic	ND	mg/kg	0.50	7060	16 JUL 90	18 JUL 90
Barium	258	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Beryllium	1.0	mg/kg	0.20	6010	18 JUL 90	23 JUL 90
Cadmium	ND	mg/kg	0.50	6010	18 JUL 90	23 JUL 90
Chromium	7.2	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Cobalt	3.1	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Copper	5.7	mg/kg	2.0	6010	18 JUL 90	23 JUL 90
Lead	11.5	mg/kg	5.0	6010	18 JUL 90	23 JUL 90
Mercury	ND	mg/kg	0.10	7471	17 JUL 90	18 JUL 90
Nickel	9.3	mg/kg	4.0	6010	18 JUL 90	23 JUL 90
Potassium	1370	mg/kg	500	6010	18 JUL 90	23 JUL 90
Selenium	ND	mg/kg	1.0	7740	16 JUL 90	18 JUL 90
Vanadium	14.7	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Zinc	14.8	mg/kg	2.0	6010	18 JUL 90	23 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Fred Velasquez

Approved By: Will Pratt

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Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0807V2.5
Lab ID: 010149-0005-SA
Matrix: SOIL
Authorized: 28 JUN 90

Enseco ID: 1080908
Sampled: 26 JUN 90
Prepared: See Below

Received: 27 JUN 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	18 JUL 90	23 JUL 90
Arsenic	ND	mg/kg	0.50	7060	16 JUL 90	18 JUL 90
Barium	257	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Beryllium	0.98	mg/kg	0.20	6010	18 JUL 90	23 JUL 90
Cadmium	ND	mg/kg	0.50	6010	18 JUL 90	23 JUL 90
Chromium	7.2	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Cobalt	2.9	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Copper	5.0	mg/kg	2.0	6010	18 JUL 90	23 JUL 90
Lead	9.9	mg/kg	5.0	6010	18 JUL 90	23 JUL 90
Mercury	ND	mg/kg	0.10	7471	17 JUL 90	18 JUL 90
Nickel	8.3	mg/kg	4.0	6010	18 JUL 90	23 JUL 90
Potassium	1190	mg/kg	500	6010	18 JUL 90	23 JUL 90
Selenium	ND	mg/kg	1.0	7740	16 JUL 90	18 JUL 90
Vanadium	15.0	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Zinc	12.5	mg/kg	2.0	6010	18 JUL 90	23 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Fred Velasquez

Approved By: Will Pratt

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0807V4.5
Lab ID: 010149-0006-SA
Enseco ID: 1080909
Matrix: SOIL
Sampled: 26 JUN 90
Received: 27 JUN 90
Authorized: 28 JUN 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	18 JUL 90	23 JUL 90
Arsenic	ND	mg/kg	0.50	7060	16 JUL 90	18 JUL 90
Barium	604	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Beryllium	3.0	mg/kg	0.20	6010	18 JUL 90	23 JUL 90
Cadmium	0.99	mg/kg	0.50	6010	18 JUL 90	23 JUL 90
Chromium	18.0	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Cobalt	7.8	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Copper	13.6	mg/kg	2.0	6010	18 JUL 90	23 JUL 90
Lead	27.6	mg/kg	5.0	6010	18 JUL 90	23 JUL 90
Mercury	ND	mg/kg	0.10	7471	17 JUL 90	18 JUL 90
Nickel	20.9	mg/kg	4.0	6010	18 JUL 90	23 JUL 90
Potassium	3210	mg/kg	500	6010	18 JUL 90	23 JUL 90
Selenium	ND	mg/kg	1.0	7740	16 JUL 90	18 JUL 90
Vanadium	41.1	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Zinc	30.3	mg/kg	2.0	6010	18 JUL 90	23 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Fred Velasquez
Approved By: Will Pratt

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Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0808V0.5
Lab ID: 010149-0007-SA
Matrix: SOIL
Authorized: 28 JUN 90

Enseco ID: 1080910
Sampled: 26 JUN 90
Prepared: See Below

Received: 27 JUN 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	18 JUL 90	23 JUL 90
Arsenic	ND	mg/kg	0.50	7060	16 JUL 90	18 JUL 90
Barium	206	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Beryllium	0.83	mg/kg	0.20	6010	18 JUL 90	23 JUL 90
Cadmium	ND	mg/kg	0.50	6010	18 JUL 90	23 JUL 90
Chromium	6.6	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Cobalt	3.1	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Copper	4.7	mg/kg	2.0	6010	18 JUL 90	23 JUL 90
Lead	12.6	mg/kg	5.0	6010	18 JUL 90	23 JUL 90
Mercury	ND	mg/kg	0.10	7471	17 JUL 90	18 JUL 90
Nickel	8.0	mg/kg	4.0	6010	18 JUL 90	23 JUL 90
Potassium	1470	mg/kg	500	6010	18 JUL 90	23 JUL 90
Selenium	ND	mg/kg	0.50	7740	16 JUL 90	18 JUL 90
Vanadium	13.2	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Zinc	15.7	mg/kg	2.0	6010	18 JUL 90	23 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Fred Velasquez

Approved By: Will Pratt

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Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0808V2.5
Lab ID: 010149-0008-SA
Enseco ID: 1080911
Matrix: SOIL
Sampled: 26 JUN 90
Received: 27 JUN 90
Authorized: 28 JUN 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	18 JUL 90	23 JUL 90
Arsenic	ND	mg/kg	0.50	7060	16 JUL 90	18 JUL 90
Barium	246	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Beryllium	0.91	mg/kg	0.20	6010	18 JUL 90	23 JUL 90
Cadmium	ND	mg/kg	0.50	6010	18 JUL 90	23 JUL 90
Chromium	6.5	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Cobalt	2.5	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Copper	5.1	mg/kg	2.0	6010	18 JUL 90	23 JUL 90
Lead	8.6	mg/kg	5.0	6010	18 JUL 90	23 JUL 90
Mercury	ND	mg/kg	0.10	7471	17 JUL 90	18 JUL 90
Nickel	7.4	mg/kg	4.0	6010	18 JUL 90	23 JUL 90
Potassium	1060	mg/kg	500	6010	18 JUL 90	23 JUL 90
Selenium	ND	mg/kg	1.0	7740	16 JUL 90	18 JUL 90
Vanadium	14.1	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Zinc	11.7	mg/kg	2.0	6010	18 JUL 90	23 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Fred Velasquez
Approved By: Will Pratt

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0808V4.5
Lab ID: 010149-0009-SA
Enseco ID: 1080912
Matrix: SOIL
Sampled: 26 JUN 90
Received: 27 JUN 90
Authorized: 28 JUN 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	18 JUL 90	23 JUL 90
Arsenic	ND	mg/kg	0.50	7060	16 JUL 90	18 JUL 90
Barium	210	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Beryllium	0.62	mg/kg	0.20	6010	18 JUL 90	23 JUL 90
Cadmium	ND	mg/kg	0.50	6010	18 JUL 90	23 JUL 90
Chromium	4.5	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Cobalt	1.5	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Copper	3.3	mg/kg	2.0	6010	18 JUL 90	23 JUL 90
Lead	8.6	mg/kg	5.0	6010	18 JUL 90	23 JUL 90
Mercury	ND	mg/kg	0.10	7471	17 JUL 90	18 JUL 90
Nickel	4.7	mg/kg	4.0	6010	18 JUL 90	23 JUL 90
Potassium	704	mg/kg	500	6010	18 JUL 90	23 JUL 90
Selenium	ND	mg/kg	1.0	7740	16 JUL 90	18 JUL 90
Vanadium	12.0	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Zinc	7.9	mg/kg	2.0	6010	18 JUL 90	23 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Fred Velasquez
Approved By: Will Pratt

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0807E25.5
Lab ID: 010149-0010-SA
Enseco ID: 1080913
Matrix: AQUEOUS
Sampled: 26 JUN 90
Received: 27 JUN 90
Authorized: 28 JUN 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	16 JUL 90	17 JUL 90
Arsenic	ND	mg/L	0.0050	7060	16 JUL 90	19 JUL 90
Barium	ND	mg/L	0.010	6010	16 JUL 90	17 JUL 90
Beryllium	ND	mg/L	0.0020	6010	16 JUL 90	17 JUL 90
Cadmium	0.0056	mg/L	0.0055	6010	16 JUL 90	17 JUL 90
Chromium	ND	mg/L	0.010	6010	16 JUL 90	17 JUL 90
Cobalt	ND	mg/L	0.010	6010	16 JUL 90	17 JUL 90
Copper	ND	mg/L	0.020	6010	16 JUL 90	17 JUL 90
Lead	ND	mg/L	0.0050	7421	16 JUL 90	19 JUL 90
Mercury	ND	mg/L	0.00020	7470	17 JUL 90	18 JUL 90
Nickel	ND	mg/L	0.040	6010	16 JUL 90	17 JUL 90
Potassium	ND	mg/L	5.0	6010	16 JUL 90	17 JUL 90
Selenium	ND	mg/L	0.0050	7740	16 JUL 90	18 JUL 90
Vanadium	ND	mg/L	0.010	6010	16 JUL 90	17 JUL 90
Zinc	ND	mg/L	0.020	6010	16 JUL 90	17 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Will Pratt

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0809V.5
Lab ID: 010149-0011-SA
Matrix: SOIL
Authorized: 28 JUN 90

Enseco ID: 1080914
Sampled: 26 JUN 90
Prepared: See Below

Received: 27 JUN 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	18 JUL 90	23 JUL 90
Arsenic	ND	mg/kg	0.50	7060	16 JUL 90	18 JUL 90
Barium	293	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Beryllium	1.0	mg/kg	0.20	6010	18 JUL 90	23 JUL 90
Cadmium	ND	mg/kg	0.50	6010	18 JUL 90	23 JUL 90
Chromium	8.5	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Cobalt	2.6	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Copper	5.7	mg/kg	2.0	6010	18 JUL 90	23 JUL 90
Lead	11.7	mg/kg	5.0	6010	18 JUL 90	23 JUL 90
Mercury	ND	mg/kg	0.10	7471	17 JUL 90	18 JUL 90
Nickel	8.4	mg/kg	4.0	6010	18 JUL 90	23 JUL 90
Potassium	1580	mg/kg	500	6010	18 JUL 90	23 JUL 90
Selenium	ND	mg/kg	1.0	7740	16 JUL 90	18 JUL 90
Vanadium	16.2	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Zinc	17.2	mg/kg	2.0	6010	18 JUL 90	23 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Fred Velasquez

Approved By: Will Pratt

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0809V2.5
Lab ID: 010149-0012-SA
Matrix: SOIL
Authorized: 28 JUN 90

Enseco ID: 1080915
Sampled: 26 JUN 90
Prepared: See Below

Received: 27 JUN 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	18 JUL 90	23 JUL 90
Arsenic	ND	mg/kg	0.50	7060	16 JUL 90	18 JUL 90
Barium	242	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Beryllium	0.83	mg/kg	0.20	6010	18 JUL 90	23 JUL 90
Cadmium	ND	mg/kg	0.50	6010	18 JUL 90	23 JUL 90
Chromium	5.7	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Cobalt	2.5	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Copper	4.2	mg/kg	2.0	6010	18 JUL 90	23 JUL 90
Lead	8.2	mg/kg	5.0	6010	18 JUL 90	23 JUL 90
Mercury	ND	mg/kg	0.10	7471	17 JUL 90	18 JUL 90
Nickel	7.0	mg/kg	4.0	6010	18 JUL 90	23 JUL 90
Potassium	1050	mg/kg	500	6010	18 JUL 90	23 JUL 90
Selenium	ND	mg/kg	1.0	7740	16 JUL 90	18 JUL 90
Vanadium	13.3	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Zinc	11.0	mg/kg	2.0	6010	18 JUL 90	23 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Fred Velasquez

Approved By: Will Pratt

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0809V4.5
Lab ID: 010149-0013-SA
Enseco ID: 1080916
Matrix: SOIL
Sampled: 26 JUN 90
Received: 27 JUN 90
Authorized: 28 JUN 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	18 JUL 90	23 JUL 90
Arsenic	ND	mg/kg	0.50	7060	16 JUL 90	18 JUL 90
Barium	197	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Beryllium	0.86	mg/kg	0.20	6010	18 JUL 90	23 JUL 90
Cadmium	ND	mg/kg	0.50	6010	18 JUL 90	23 JUL 90
Chromium	4.7	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Cobalt	2.2	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Copper	4.8	mg/kg	2.0	6010	18 JUL 90	23 JUL 90
Lead	8.5	mg/kg	5.0	6010	18 JUL 90	23 JUL 90
Mercury	ND	mg/kg	0.10	7471	17 JUL 90	18 JUL 90
Nickel	5.3	mg/kg	4.0	6010	18 JUL 90	23 JUL 90
Potassium	951	mg/kg	500	6010	18 JUL 90	23 JUL 90
Selenium	ND	mg/kg	1.0	7740	16 JUL 90	18 JUL 90
Vanadium	12.8	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Zinc	8.9	mg/kg	2.0	6010	18 JUL 90	23 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Fred Velasquez
Approved By: Will Pratt

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0803A05.0
Lab ID: 010149-0015-SA
Matrix: SOIL
Authorized: 28 JUN 90

Enseco ID: 1080918
Sampled: 26 JUN 90
Prepared: See Below

Received: 27 JUN 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	18 JUL 90	23 JUL 90
Arsenic	ND	mg/kg	0.50	7060	16 JUL 90	18 JUL 90
Barium	223	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Beryllium	0.90	mg/kg	0.20	6010	18 JUL 90	23 JUL 90
Cadmium	ND	mg/kg	0.50	6010	18 JUL 90	23 JUL 90
Chromium	5.6	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Cobalt	2.2	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Copper	5.1	mg/kg	2.0	6010	18 JUL 90	23 JUL 90
Lead	12.5	mg/kg	5.0	6010	18 JUL 90	23 JUL 90
Mercury	ND	mg/kg	0.10	7471	17 JUL 90	18 JUL 90
Nickel	6.7	mg/kg	4.0	6010	18 JUL 90	23 JUL 90
Potassium	1320	mg/kg	500	6010	18 JUL 90	23 JUL 90
Selenium	ND	mg/kg	1.0	7740	16 JUL 90	18 JUL 90
Vanadium	14.0	mg/kg	1.0	6010	18 JUL 90	23 JUL 90
Zinc	11.4	mg/kg	2.0	6010	18 JUL 90	23 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Fred Velasquez

Approved By: Will Pratt

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A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0803A08.0
Lab ID: 010149-0016-SA
Enseco ID: 1080919
Matrix: SOIL
Sampled: 26 JUN 90
Received: 27 JUN 90
Authorized: 28 JUN 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	19 JUL 90	24 JUL 90
Arsenic	ND	mg/kg	0.50	7060	19 JUL 90	25 JUL 90
Barium	242	mg/kg	1.0	6010	19 JUL 90	24 JUL 90
Beryllium	1.2	mg/kg	0.20	6010	19 JUL 90	24 JUL 90
Cadmium	ND	mg/kg	0.50	6010	19 JUL 90	24 JUL 90
Chromium	10.4	mg/kg	1.2	6010	19 JUL 90	24 JUL 90
Cobalt	3.6	mg/kg	1.0	6010	19 JUL 90	24 JUL 90
Copper	8.9	mg/kg	2.0	6010	19 JUL 90	24 JUL 90
Lead	5.4	mg/kg	5.0	6010	19 JUL 90	24 JUL 90
Mercury	ND	mg/kg	0.10	7471	17 JUL 90	18 JUL 90
Nickel	9.7	mg/kg	4.0	6010	19 JUL 90	24 JUL 90
Potassium	2820	mg/kg	500	6010	19 JUL 90	24 JUL 90
Selenium	ND	mg/kg	0.50	7740	19 JUL 90	25 JUL 90
Vanadium	17.6	mg/kg	1.0	6010	19 JUL 90	24 JUL 90
Zinc	17.3	mg/kg	2.0	6010	19 JUL 90	24 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones
Approved By: Will Pratt

Enseco
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Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0803A10.5
Lab ID: 010149-0017-SA
Matrix: SOIL
Authorized: 28 JUN 90

Enseco ID: 1080920
Sampled: 26 JUN 90
Prepared: See Below

Received: 27 JUN 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	19 JUL 90	24 JUL 90
Arsenic	ND	mg/kg	0.50	7060	19 JUL 90	25 JUL 90
Barium	277	mg/kg	1.0	6010	19 JUL 90	24 JUL 90
Beryllium	0.67	mg/kg	0.20	6010	19 JUL 90	24 JUL 90
Cadmium	ND	mg/kg	0.50	6010	19 JUL 90	24 JUL 90
Chromium	4.3	mg/kg	1.2	6010	19 JUL 90	24 JUL 90
Cobalt	1.5	mg/kg	1.0	6010	19 JUL 90	24 JUL 90
Copper	3.6	mg/kg	2.0	6010	19 JUL 90	24 JUL 90
Lead	5.6	mg/kg	5.0	6010	19 JUL 90	24 JUL 90
Mercury	ND	mg/kg	0.10	7471	17 JUL 90	18 JUL 90
Nickel	4.7	mg/kg	4.0	6010	19 JUL 90	24 JUL 90
Potassium	665	mg/kg	500	6010	19 JUL 90	24 JUL 90
Selenium	ND	mg/kg	1.0	7740	19 JUL 90	25 JUL 90
Vanadium	13.1	mg/kg	1.0	6010	19 JUL 90	24 JUL 90
Zinc	8.3	mg/kg	2.0	6010	19 JUL 90	24 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Will Pratt

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Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0802A05.0
Lab ID: 010149-0018-SA
Matrix: SOIL
Authorized: 28 JUN 90

Enseco ID: 1080921
Sampled: 26 JUN 90
Prepared: See Below

Received: 27 JUN 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	19 JUL 90	24 JUL 90
Arsenic	ND	mg/kg	0.50	7060	19 JUL 90	25 JUL 90
Barium	232	mg/kg	1.0	6010	19 JUL 90	24 JUL 90
Beryllium	1.1	mg/kg	0.20	6010	19 JUL 90	24 JUL 90
Cadmium	ND	mg/kg	0.50	6010	19 JUL 90	24 JUL 90
Chromium	7.5	mg/kg	1.2	6010	19 JUL 90	24 JUL 90
Cobalt	3.4	mg/kg	1.0	6010	19 JUL 90	24 JUL 90
Copper	5.7	mg/kg	2.0	6010	19 JUL 90	24 JUL 90
Lead	11.7	mg/kg	5.0	6010	19 JUL 90	24 JUL 90
Mercury	ND	mg/kg	0.10	7471	17 JUL 90	18 JUL 90
Nickel	8.8	mg/kg	4.0	6010	19 JUL 90	24 JUL 90
Potassium	1400	mg/kg	500	6010	19 JUL 90	24 JUL 90
Selenium	ND	mg/kg	0.50	7740	19 JUL 90	25 JUL 90
Vanadium	15.0	mg/kg	1.0	6010	19 JUL 90	24 JUL 90
Zinc	13.1	mg/kg	2.0	6010	19 JUL 90	24 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Will Pratt

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0802D05.0
Lab ID: 010149-0019-SA
Matrix: SOIL
Authorized: 28 JUN 90

Enseco ID: 1080922
Sampled: 26 JUN 90
Prepared: See Below

Received: 27 JUN 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	19 JUL 90	24 JUL 90
Arsenic	ND	mg/kg	0.50	7060	19 JUL 90	25 JUL 90
Barium	259	mg/kg	1.0	6010	19 JUL 90	24 JUL 90
Beryllium	1.1	mg/kg	0.20	6010	19 JUL 90	24 JUL 90
Cadmium	ND	mg/kg	0.50	6010	19 JUL 90	24 JUL 90
Chromium	8.7	mg/kg	1.2	6010	19 JUL 90	24 JUL 90
Cobalt	3.5	mg/kg	1.0	6010	19 JUL 90	24 JUL 90
Copper	5.3	mg/kg	2.0	6010	19 JUL 90	24 JUL 90
Lead	10.8	mg/kg	5.0	6010	19 JUL 90	24 JUL 90
Mercury	ND	mg/kg	0.10	7471	17 JUL 90	18 JUL 90
Nickel	9.7	mg/kg	4.0	6010	19 JUL 90	24 JUL 90
Potassium	1610	mg/kg	500	6010	19 JUL 90	24 JUL 90
Selenium	ND	mg/kg	0.50	7740	19 JUL 90	25 JUL 90
Vanadium	15.9	mg/kg	1.0	6010	19 JUL 90	24 JUL 90
Zinc	14.5	mg/kg	2.0	6010	19 JUL 90	24 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Will Pratt

Enseco
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Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0802A08.0
Lab ID: 010149-0020-SA
Enseco ID: 1080923
Matrix: SOIL
Sampled: 26 JUN 90
Received: 27 JUN 90
Authorized: 28 JUN 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	19 JUL 90	24 JUL 90
Arsenic	ND	mg/kg	0.50	7060	19 JUL 90	25 JUL 90
Barium	330	mg/kg	1.0	6010	19 JUL 90	24 JUL 90
Beryllium	1.1	mg/kg	0.20	6010	19 JUL 90	24 JUL 90
Cadmium	ND	mg/kg	0.50	6010	19 JUL 90	24 JUL 90
Chromium	9.5	mg/kg	1.2	6010	19 JUL 90	24 JUL 90
Cobalt	3.0	mg/kg	1.0	6010	19 JUL 90	24 JUL 90
Copper	5.8	mg/kg	2.0	6010	19 JUL 90	24 JUL 90
Lead	6.9	mg/kg	5.0	6010	19 JUL 90	24 JUL 90
Mercury	ND	mg/kg	0.10	7471	17 JUL 90	18 JUL 90
Nickel	9.2	mg/kg	4.0	6010	19 JUL 90	24 JUL 90
Potassium	2390	mg/kg	500	6010	19 JUL 90	24 JUL 90
Selenium	ND	mg/kg	1.0	7740	19 JUL 90	25 JUL 90
Vanadium	17.1	mg/kg	1.0	6010	19 JUL 90	24 JUL 90
Zinc	16.9	mg/kg	2.0	6010	19 JUL 90	24 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Will Pratt

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0802A10.5
Lab ID: 010149-0021-SA
Enseco ID: 1080924
Matrix: SOIL
Sampled: 26 JUN 90
Received: 27 JUN 90
Authorized: 28 JUN 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	19 JUL 90	24 JUL 90
Arsenic	ND	mg/kg	0.50	7060	19 JUL 90	25 JUL 90
Barium	276	mg/kg	1.0	6010	19 JUL 90	24 JUL 90
Beryllium	1.2	mg/kg	0.20	6010	19 JUL 90	24 JUL 90
Cadmium	ND	mg/kg	0.50	6010	19 JUL 90	24 JUL 90
Chromium	8.4	mg/kg	1.2	6010	19 JUL 90	24 JUL 90
Cobalt	3.3	mg/kg	1.0	6010	19 JUL 90	24 JUL 90
Copper	6.7	mg/kg	2.0	6010	19 JUL 90	24 JUL 90
Lead	8.5	mg/kg	5.0	6010	19 JUL 90	24 JUL 90
Mercury	ND	mg/kg	0.10	7471	17 JUL 90	18 JUL 90
Nickel	9.3	mg/kg	4.0	6010	19 JUL 90	24 JUL 90
Potassium	1350	mg/kg	500	6010	19 JUL 90	24 JUL 90
Selenium	ND	mg/kg	1.0	7740	19 JUL 90	25 JUL 90
Vanadium	15.8	mg/kg	1.0	6010	19 JUL 90	24 JUL 90
Zinc	13.9	mg/kg	2.0	6010	19 JUL 90	24 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones
Approved By: Will Pratt

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0801A05.0
Lab ID: 010149-0022-SA
Matrix: SOIL
Authorized: 28 JUN 90

Enseco ID: 1080925
Sampled: 26 JUN 90
Prepared: See Below

Received: 27 JUN 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	19 JUL 90	24 JUL 90
Arsenic	ND	mg/kg	0.50	7060	19 JUL 90	25 JUL 90
Barium	275	mg/kg	1.0	6010	19 JUL 90	24 JUL 90
Beryllium	0.97	mg/kg	0.20	6010	19 JUL 90	24 JUL 90
Cadmium	ND	mg/kg	0.50	6010	19 JUL 90	24 JUL 90
Chromium	7.9	mg/kg	1.2	6010	19 JUL 90	24 JUL 90
Cobalt	2.7	mg/kg	1.0	6010	19 JUL 90	24 JUL 90
Copper	4.5	mg/kg	2.0	6010	19 JUL 90	24 JUL 90
Lead	7.1	mg/kg	5.0	6010	19 JUL 90	24 JUL 90
Mercury	ND	mg/kg	0.10	7471	17 JUL 90	18 JUL 90
Nickel	8.5	mg/kg	4.0	6010	19 JUL 90	24 JUL 90
Potassium	1440	mg/kg	500	6010	19 JUL 90	24 JUL 90
Selenium	ND	mg/kg	1.0	7740	19 JUL 90	25 JUL 90
Vanadium	13.9	mg/kg	1.0	6010	19 JUL 90	24 JUL 90
Zinc	12.6	mg/kg	2.0	6010	19 JUL 90	24 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Will Pratt

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0801A08.0
Lab ID: 010149-0023-SA
Matrix: SOIL
Authorized: 28 JUN 90

Enseco ID: 1080926
Sampled: 26 JUN 90
Prepared: See Below

Received: 27 JUN 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	19 JUL 90	24 JUL 90
Arsenic	ND	mg/kg	0.50	7060	19 JUL 90	25 JUL 90
Barium	432	mg/kg	1.0	6010	19 JUL 90	24 JUL 90
Beryllium	1.1	mg/kg	0.20	6010	19 JUL 90	24 JUL 90
Cadmium	ND	mg/kg	0.50	6010	19 JUL 90	24 JUL 90
Chromium	10.9	mg/kg	1.2	6010	19 JUL 90	24 JUL 90
Cobalt	2.5	mg/kg	1.0	6010	19 JUL 90	24 JUL 90
Copper	5.9	mg/kg	2.0	6010	19 JUL 90	24 JUL 90
Lead	7.2	mg/kg	5.0	6010	19 JUL 90	24 JUL 90
Mercury	ND	mg/kg	0.10	7471	17 JUL 90	18 JUL 90
Nickel	10.1	mg/kg	4.0	6010	19 JUL 90	24 JUL 90
Potassium	2480	mg/kg	500	6010	19 JUL 90	24 JUL 90
Selenium	ND	mg/kg	1.0	7740	19 JUL 90	25 JUL 90
Vanadium	16.9	mg/kg	1.0	6010	19 JUL 90	24 JUL 90
Zinc	16.4	mg/kg	2.0	6010	19 JUL 90	24 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Will Pratt

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Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI0801A10.5
Lab ID: 010149-0024-SA
Matrix: SOIL
Authorized: 28 JUN 90

Enseco ID: 1080927
Sampled: 26 JUN 90
Prepared: See Below

Received: 27 JUN 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	19 JUL 90	24 JUL 90
Arsenic	ND	mg/kg	0.50	7060	19 JUL 90	25 JUL 90
Barium	308	mg/kg	1.0	6010	19 JUL 90	24 JUL 90
Beryllium	1.1	mg/kg	0.20	6010	19 JUL 90	24 JUL 90
Cadmium	ND	mg/kg	0.50	6010	19 JUL 90	24 JUL 90
Chromium	6.2	mg/kg	1.2	6010	19 JUL 90	24 JUL 90
Cobalt	2.2	mg/kg	1.0	6010	19 JUL 90	24 JUL 90
Copper	7.0	mg/kg	2.0	6010	19 JUL 90	24 JUL 90
Lead	8.6	mg/kg	5.0	6010	19 JUL 90	24 JUL 90
Mercury	ND	mg/kg	0.10	7471	17 JUL 90	18 JUL 90
Nickel	7.3	mg/kg	4.0	6010	19 JUL 90	24 JUL 90
Potassium	960	mg/kg	500	6010	19 JUL 90	24 JUL 90
Selenium	ND	mg/kg	1.0	7740	19 JUL 90	25 JUL 90
Vanadium	13.5	mg/kg	1.0	6010	19 JUL 90	24 JUL 90
Zinc	11.2	mg/kg	2.0	6010	19 JUL 90	24 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Will Pratt

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 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 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.

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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)
010149-0001-SA	SOIL	8240-S	29 JUN 90-H	05 JUL 90-H
010149-0002-SA	SOIL	8240-S	29 JUN 90-H	05 JUL 90-H
010149-0003-SA	SOIL	8240-S	29 JUN 90-H	05 JUL 90-H
010149-0004-SA	SOIL	8240-S	29 JUN 90-H	05 JUL 90-H
010149-0005-SA	SOIL	8240-S	29 JUN 90-H	05 JUL 90-H
010149-0006-SA	SOIL	8240-S	29 JUN 90-H	05 JUL 90-H
010149-0007-SA	SOIL	8240-S	29 JUN 90-H	05 JUL 90-H
010149-0008-SA	SOIL	8240-S	29 JUN 90-H	05 JUL 90-H
010149-0009-SA	SOIL	8240-S	11 JUN 90-L	05 JUL 90-L
010149-0010-SA	AQUEOUS	624-A	04 JUL 90-L	05 JUL 90-L
010149-0011-SA	SOIL	8240-S	11 JUN 90-L	05 JUL 90-L
010149-0012-SA	SOIL	8240-S	11 JUN 90-L	05 JUL 90-L
010149-0013-SA	SOIL	8240-S	29 JUN 90-H	05 JUL 90-H2
010149-0014-SA	AQUEOUS	624-A	02 JUL 90-H	05 JUL 90-H2
010149-0015-SA	SOIL	8240-S	29 JUN 90-H	05 JUL 90-H2
010149-0016-SA	SOIL	8240-S	29 JUN 90-H	05 JUL 90-H2
010149-0017-SA	SOIL	8240-S	29 JUN 90-H	05 JUL 90-H2
010149-0018-SA	SOIL	8240-S	29 JUN 90-H	05 JUL 90-H2
010149-0019-SA	SOIL	8240-S	29 JUN 90-H	05 JUL 90-H2
010149-0020-SA	SOIL	8240-S	29 JUN 90-H	05 JUL 90-H2
010149-0021-SA	SOIL	8240-S	05 JUL 90-H	06 JUL 90-H
010149-0022-SA	SOIL	8240-S	05 JUL 90-H	06 JUL 90-H
010149-0023-SA	SOIL	8240-S	05 JUL 90-H	06 JUL 90-H
010149-0024-SA	SOIL	8240-S	05 JUL 90-H	06 JUL 90-H

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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 Average(%) Limits	Precision (RPD) DCS	Precision (RPD) Limit
Category: 8240-S Matrix: SOIL QC Lot: 29 JUN 90-H Concentration Units: ug/kg								
1,1-Dichloroethene	5000	4410	4990	4700	94	59-172	12	22
Trichloroethene	5000	5440	6060	5750	115	62-137	11	24
Benzene	5000	5840	6500	6170	123	66-142	11	21
Toluene	5000	5410	5980	5700	114	59-139	10	21
Chlorobenzene	5000	5710	5960	5840	117	60-133	4.3	21
Category: 8240-S Matrix: SOIL QC Lot: 11 JUN 90-L Concentration Units: ug/kg								
1,1-Dichloroethene	5000	5540	5640	5590	112	59-172	1.8	22
Trichloroethene	5000	5750	5890	5820	116	62-137	2.4	24
Benzene	5000	5330	5400	5360	107	66-142	1.3	21
Toluene	5000	5580	5450	5520	110	59-139	2.4	21
Chlorobenzene	5000	5620	5610	5620	112	60-133	0.2	21
Category: 624-A Matrix: AQUEOUS QC Lot: 04 JUL 90-L Concentration Units: ug/L								
1,1-Dichloroethene	50	43.0	42.0	42.5	85	61-145	2.4	14
Trichloroethene	50	48.8	47.0	47.9	96	71-120	3.8	14
Benzene	50	46.8	46.7	46.8	94	76-127	0.2	11
Toluene	50	44.8	47.5	46.2	92	76-125	5.9	13
Chlorobenzene	50	45.4	49.0	47.2	94	75-130	7.6	13
Category: 624-A Matrix: AQUEOUS QC Lot: 02 JUL 90-H Concentration Units: ug/L								
1,1-Dichloroethene	50	48.9	47.4	48.2	96	61-145	3.1	14
Trichloroethene	50	51.7	52.8	52.2	105	71-120	2.1	14
Benzene	50	56.7	57.1	56.9	114	76-127	0.7	11
Toluene	50	53.3	55.6	54.4	109	76-125	4.2	13

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

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DUPLICATE CONTROL SAMPLE REPORT
Volatile Organics by GC/MS (cont.)

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	Measured AVG	Accuracy Average(%) DCS	Accuracy Average(%) Limits	Precision (RPD) DCS	Precision (RPD) Limit
Category: 624-A								
Matrix: AQUEOUS								
QC Lot: 02 JUL 90-H								
Concentration Units: ug/L								
Chlorobenzene	50	54.4	55.8	55.1	110	75-130	2.5	13
Category: 8240-S								
Matrix: SOIL								
QC Lot: 05 JUL 90-H								
Concentration Units: ug/kg								
1,1-Dichloroethene	5000	5220	5570	5400	108	59-172	6.5	22
Trichloroethene	5000	5420	5530	5480	110	62-137	2.0	24
Benzene	5000	5300	5430	5360	107	66-142	2.4	21
Toluene	5000	5240	5260	5250	105	59-139	0.4	21
Chlorobenzene	5000	5580	5610	5600	112	60-133	0.5	21

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

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SINGLE CONTROL SAMPLE REPORT
Volatile Organics by GC/MS

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) SCS	Accuracy(%) Limits
Category: 8240-S				
Matrix: SOIL				
QC Lot: 29 JUN 90-H QC Run: 05 JUL 90-H				
Concentration Units: ug/kg				
1,2-Dichloroethane-d4	5000	4810	96	70-121
4-Bromofluorobenzene	5000	4880	98	74-121
Toluene-d8	5000	4940	99	81-117
Category: 8240-S				
Matrix: SOIL				
QC Lot: 11 JUN 90-L QC Run: 05 JUL 90-L				
Concentration Units: ug/kg				
1,2-Dichloroethane-d4	5000	4600	92	70-121
4-Bromofluorobenzene	5000	4660	93	74-121
Toluene-d8	5000	4930	99	81-117
Category: 624-A				
Matrix: AQUEOUS				
QC Lot: 04 JUL 90-L QC Run: 05 JUL 90-L				
Concentration Units: ug/L				
1,2-Dichloroethane-d4	50.0	46.0	92	76-114
4-Bromofluorobenzene	50.0	46.6	93	86-115
Toluene-d8	50.0	49.3	99	88-110
Category: 8240-S				
Matrix: SOIL				
QC Lot: 29 JUN 90-H QC Run: 05 JUL 90-H2				
Concentration Units: ug/kg				
1,2-Dichloroethane-d4	5000	5090	102	70-121
4-Bromofluorobenzene	5000	4980	100	74-121
Toluene-d8	5000	5070	101	81-117

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

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SINGLE CONTROL SAMPLE REPORT
Volatile Organics by GC/MS (cont.)

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) SCS	Accuracy(%) Limits
Category: 624-A				
Matrix: AQUEOUS				
QC Lot: 02 JUL 90-H QC Run: 05 JUL 90-H2				
Concentration Units: ug/L				
1,2-Dichloroethane-d4	50.0	50.9	102	76-114
4-Bromofluorobenzene	50.0	49.8	100	86-115
Toluene-d8	50.0	50.7	101	88-110
Category: 8240-S				
Matrix: SOIL				
QC Lot: 05 JUL 90-H QC Run: 06 JUL 90-H				
Concentration Units: ug/kg				
1,2-Dichloroethane-d4	5000	5020	100	70-121
4-Bromofluorobenzene	5000	4950	99	74-121
Toluene-d8	5000	4920	98	81-117

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

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METHOD BLANK REPORT
Volatile Organics by GC/MS

Analyte	Result	Units	Reporting Limit
Test: 8240-REF-S			
Matrix: SOIL			
QC Lot: 29 JUN 90-H QC Run: 05 JUL 90-H			
Benzene	ND	ug/kg	500
Carbon disulfide	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Chloroform	ND	ug/kg	500
EDB (1,2-Dibromoethane)	ND	ug/kg	1000
1,2-Dichloroethane	ND	ug/kg	500
1,4-Dioxane	ND	ug/kg	50000
Ethylbenzene	ND	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Xylenes (total)	ND	ug/kg	500
Test: 8240-REF-S			
Matrix: SOIL			
QC Lot: 11 JUN 90-L QC Run: 05 JUL 90-L			
Benzene	ND	ug/kg	500
Carbon disulfide	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Chloroform	ND	ug/kg	500
EDB (1,2-Dibromoethane)	ND	ug/kg	1000
1,2-Dichloroethane	ND	ug/kg	500
1,4-Dioxane	ND	ug/kg	50000
Ethylbenzene	ND	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Xylenes (total)	ND	ug/kg	500
Test: 624-REF-AP			
Matrix: AQUEOUS			
QC Lot: 04 JUL 90-L QC Run: 05 JUL 90-L			
Benzene	ND	ug/L	5.0
Carbon disulfide	ND	ug/L	5.0
Chlorobenzene	ND	ug/L	5.0
Chloroform	ND	ug/L	5.0
EDB (1,2-Dibromoethane)	ND	ug/L	5.0

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

Analyte	Result	Units	Reporting Limit
Test: 624-REF-AP			
Matrix: AQUEOUS			
QC Lot: 04 JUL 90-L QC Run: 05 JUL 90-L			
1,2-Dichloroethane	ND	ug/L	5.0
1,4-Dioxane	ND	ug/L	100
Ethylbenzene	ND	ug/L	5.0
2-Butanone (MEK)	ND	ug/L	10
Toluene	ND	ug/L	5.0
Styrene	ND	ug/L	5.0
Xylenes (total)	ND	ug/L	5.0
Test: 8240-REF-S			
Matrix: SOIL			
QC Lot: 29 JUN 90-H QC Run: 05 JUL 90-H2			
Benzene	ND	ug/kg	500
Carbon disulfide	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Chloroform	ND	ug/kg	500
EDB (1,2-Dibromoethane)	ND	ug/kg	1000
1,2-Dichloroethane	ND	ug/kg	500
1,4-Dioxane	ND	ug/kg	50000
Ethylbenzene	ND	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Xylenes (total)	ND	ug/kg	500
Test: 624-REF-AP			
Matrix: AQUEOUS			
QC Lot: 02 JUL 90-H QC Run: 05 JUL 90-H2			
Benzene	ND	ug/L	5.0
Carbon disulfide	ND	ug/L	5.0
Chlorobenzene	ND	ug/L	5.0
Chloroform	ND	ug/L	5.0
EDB (1,2-Dibromoethane)	ND	ug/L	5.0
1,2-Dichloroethane	ND	ug/L	5.0
1,4-Dioxane	ND	ug/L	100
Ethylbenzene	ND	ug/L	5.0
2-Butanone (MEK)	ND	ug/L	10
Toluene	ND	ug/L	5.0

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

Analyte	Result	Units	Reporting Limit
Test: 624-REF-AP			
Matrix: AQUEOUS			
QC Lot: 02 JUL 90-H QC Run: 05 JUL 90-H2			
Styrene	ND	ug/L	5.0
Xylenes (total)	ND	ug/L	5.0
Test: 8240-REF-S			
Matrix: SOIL			
QC Lot: 05 JUL 90-H QC Run: 06 JUL 90-H			
Benzene	ND	ug/kg	500
Carbon disulfide	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Chloroform	ND	ug/kg	500
EDB (1,2-Dibromoethane)	ND	ug/kg	1000
1,2-Dichloroethane	ND	ug/kg	500
1,4-Dioxane	ND	ug/kg	50000
Ethylbenzene	ND	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Xylenes (total)	ND	ug/kg	500

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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)
010149-0001-SA	SOIL	8270-S	03 JUL 90-A	03 JUL 90-B
010149-0002-SA	SOIL	8270-S	03 JUL 90-A	03 JUL 90-B
010149-0003-SA	SOIL	8270-S	03 JUL 90-A	03 JUL 90-B
010149-0004-SA	SOIL	8270-S	03 JUL 90-A	03 JUL 90-B
010149-0005-SA	SOIL	8270-S	03 JUL 90-A	03 JUL 90-B
010149-0006-SA	SOIL	8270-S	03 JUL 90-A	03 JUL 90-B
010149-0007-SA	SOIL	8270-S	03 JUL 90-A	03 JUL 90-B
010149-0008-SA	SOIL	8270-S	03 JUL 90-A	03 JUL 90-B
010149-0009-SA	SOIL	8270-S	03 JUL 90-A	03 JUL 90-B
010149-0010-SA	AQUEOUS	625-A	01 JUL 90-A	01 JUL 90-A
010149-0011-SA	SOIL	8270-S	17 JUL 90-A	18 JUL 90-A
010149-0012-SA	SOIL	8270-S	03 JUL 90-A	03 JUL 90-B
010149-0013-SA	SOIL	8270-S	03 JUL 90-A	03 JUL 90-B
010149-0015-SA	SOIL	8270-S	03 JUL 90-A	03 JUL 90-B
010149-0016-SA	SOIL	8270-S	03 JUL 90-A	03 JUL 90-B
010149-0017-SA	SOIL	8270-S	03 JUL 90-A	03 JUL 90-B
010149-0018-SA	SOIL	8270-S	03 JUL 90-A	03 JUL 90-B
010149-0019-SA	SOIL	8270-S	03 JUL 90-A	03 JUL 90-B
010149-0020-SA	SOIL	8270-S	03 JUL 90-A	03 JUL 90-B
010149-0021-SA	SOIL	8270-S	03 JUL 90-A	03 JUL 90-B
010149-0022-SA	SOIL	8270-S	03 JUL 90-A	03 JUL 90-B
010149-0023-SA	SOIL	8270-S	03 JUL 90-A	03 JUL 90-B
010149-0024-SA	SOIL	8270-S	03 JUL 90-A	03 JUL 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 Average(%) Limits	Precision (RPD) DCS	Precision (RPD) Limit
Category: 8270-S								
Matrix: SOIL								
QC Lot: 03 JUL 90-A								
Concentration Units: ug/kg								
Phenol	6670	5220	4630	4920	74	26- 90	12	35
2-Chlorophenol	6670	5270	4720	5000	75	25-102	11	50
1,4-Dichlorobenzene	3330	1930	2080	2000	60	28-104	7.5	27
N-Nitroso-di-n-propylamine	3330	2340	2190	2260	68	41-126	6.6	38
1,2,4-Trichlorobenzene	3330	2510	2340	2420	73	38-107	7.0	23
4-Chloro-3-methylphenol	6670	5620	4730	5180	78	26-103	17	33
Acenaphthene	3330	2320	2050	2180	66	31-137	12	19
4-Nitrophenol	6670	2430	1740	2080	31	11-114	33	50
2,4-Dinitrotoluene	3330	2660	2290	2480	74	28- 89	15	47
Pentachlorophenol	6670	2890	1720	2300	35	17-109	51	47
Pyrene	3330	3160	2440	2800	84	35-142	26	36
Category: 625-A								
Matrix: AQUEOUS								
QC Lot: 01 JUL 90-A								
Concentration Units: ug/L								
Phenol	100	58.6	73.6	66.1	66	12- 89	23	42
2-Chlorophenol	100	61.2	74.5	67.8	68	27-123	20	40
1,4-Dichlorobenzene	50	19.7	22.8	21.2	43	36- 97	15	28
N-Nitroso-di-n-propylamine	50	29.8	31.1	30.4	61	41-116	4.3	38
1,2,4-Trichlorobenzene	50	21.6	25.7	23.6	47	39- 98	17	28
4-Chloro-3-methylphenol	100	67.0	77.5	72.2	72	23- 97	15	42
Acenaphthene	50	23.3	26.6	25.0	50	46-118	13	31
4-Nitrophenol	100	51.0	66.7	58.8	59	10- 80	27	50
2,4-Dinitrotoluene	50	34.0	34.2	34.1	68	24- 96	0.6	38
Pentachlorophenol	100	5.39	13.5	9.44	9	9-103	86	50
Pyrene	50	33.3	35.5	34.4	69	26-127	6.4	31
Category: 8270-S								
Matrix: SOIL								
QC Lot: 17 JUL 90-A								
Concentration Units: ug/kg								
Phenol	6670	4640	4020	4330	65	26- 90	14	35
2-Chlorophenol	6670	6030	5100	5560	83	25-102	17	50

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

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DUPLICATE CONTROL SAMPLE REPORT
Semivolatile Organics by GC/MS (cont.)

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	Measured AVG	Accuracy Average(%) DCS	Accuracy Limits	Precision (RPD) DCS	Precision Limit
Category: 8270-S								
Matrix: SOIL								
QC Lot: 17 JUL 90-A								
Concentration Units: ug/kg								
1,4-Dichlorobenzene	3330	2440	2110	2280	68	28-104	15	27
N-Nitroso-di-n-propylamine	3330	2180	1870	2020	61	41-126	15	38
1,2,4-Trichlorobenzene	3330	3080	2690	2880	87	38-107	14	23
4-Chloro-3-methylphenol	6670	5790	5100	5440	82	26-103	13	33
Acenaphthene	3330	2920	2530	2720	82	31-137	14	19
4-Nitrophenol	6670	4150	3020	3580	54	11-114	32	50
2,4-Dinitrotoluene	3330	3370	3020	3200	96	28- 89	11	47
Pentachlorophenol	6670	2480	1530	2000	30	17-109	47	47
Pyrene	3330	3190	2950	3070	92	35-142	7.8	36

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/MS

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) SCS	Accuracy(%) Limits
Category: 8270-S				
Matrix: SOIL				
QC Lot: 03 JUL 90-A QC Run: 03 JUL 90-B				
Concentration Units: ug/kg				
Nitrobenzene-d5	1670	967	58	23-120
2-Fluorobiphenyl	1670	1070	64	30-115
Terphenyl-d14	1670	1130	68	18-137
2-Fluorophenol	3330	2170	65	25-121
Phenol-d5	3330	1910	57	24-113
2,4,6-Tribromophenol	3330	2040	61	19-122
Category: 625-A				
Matrix: AQUEOUS				
QC Lot: 01 JUL 90-A QC Run: 01 JUL 90-A				
Concentration Units: ug/L				
Nitrobenzene-d5	100	55.3	55	35-114
2-Fluorobiphenyl	100	58.3	58	43-116
Terphenyl-d14	100	70.3	70	33-141
2-Fluorophenol	200	115	58	21-100
Phenol-d5	200	114	57	10- 94
2,4,6-Tribromophenol	200	104	52	10-123
Category: 8270-S				
Matrix: SOIL				
QC Lot: 17 JUL 90-A QC Run: 18 JUL 90-A				
Concentration Units: ug/kg				
Nitrobenzene-d5	1670	1210	72	23-120
2-Fluorobiphenyl	1670	1210	72	30-115
Terphenyl-d14	1670	1290	77	18-137
2-Fluorophenol	3330	2320	70	25-121
Phenol-d5	3330	2400	72	24-113
2,4,6-Tribromophenol	3330	1450	44	19-122

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

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METHOD BLANK REPORT
Semivolatile Organics by GC/MS

Test: 8270-REF-S
Matrix: SOIL
QC Lot: 03 JUL 90-A QC Run: 03 JUL 90-B

Analyte	Result	Units	Reporting Limit
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Indene	ND	ug/kg	5000
1-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
Pyridine	ND	ug/kg	10000
Quinoline	ND	ug/kg	25000
Benzenethiol	ND	ug/kg	--
Dibenz(a,h)acridine	ND	ug/kg	--
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
2,4-Dinitrophenol	ND	ug/kg	25000
4-Nitrophenol	ND	ug/kg	25000
Phenol	ND	ug/kg	5000

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

Test: 625-REF-A
Matrix: AQUEOUS
QC Lot: 01 JUL 90-A QC Run: 01 JUL 90-A

Analyte	Result	Units	Reporting Limit
Anthracene	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(a)pyrene	ND	ug/L	10
bis(2-Ethylhexyl) phthalate	ND	ug/L	10
Butyl benzyl phthalate	ND	ug/L	10
Chrysene	ND	ug/L	10
Dibenz(a,h)anthracene	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
Diethyl phthalate	ND	ug/L	10
7,12-Dimethylbenz(a)-anthracene	ND	ug/L	10
Dimethyl phthalate	ND	ug/L	10
Di-n-octyl phthalate	ND	ug/L	10
Fluoranthene	ND	ug/L	10
Indene	ND	ug/L	10
1-Methylnaphthalene	ND	ug/L	10
Naphthalene	ND	ug/L	10
Phenanthrene	ND	ug/L	10
Pyrene	ND	ug/L	10
Pyridine	ND	ug/L	10
Quinoline	ND	ug/L	10
Benzenethiol	ND	ug/L	--
Dibenz(a,h)acridine	ND	ug/L	--
o-Cresol	ND	ug/L	10
m & p-Cresol(s)	ND	ug/L	10
2,4-Dimethylphenol	ND	ug/L	10
2,4-Dinitrophenol	ND	ug/L	50
4-Nitrophenol	ND	ug/L	50
Phenol	ND	ug/L	10

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

Test: 8270-REF-S
Matrix: SOIL
QC Lot: 17 JUL 90-A QC Run: 18 JUL 90-A

Analyte	Result	Units	Reporting Limit
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Indene	ND	ug/kg	5000
1-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
Pyridine	ND	ug/kg	10000
Quinoline	ND	ug/kg	25000
Benzenethiol	ND	ug/kg	--
Dibenz(a,h)acridine	ND	ug/kg	--
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
2,4-Dinitrophenol	ND	ug/kg	25000
4-Nitrophenol	ND	ug/kg	25000
Phenol	ND	ug/kg	5000

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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)
010149-0001-SA	SOIL	ICP-S	18 JUL 90-D	18 JUL 90-D
010149-0001-SA	SOIL	HG-CVAA-S	17 JUL 90-B	17 JUL 90-B
010149-0001-SA	SOIL	AS-FAA-S	16 JUL 90-D	16 JUL 90-D
010149-0001-SA	SOIL	SE-FAA-S	16 JUL 90-D	16 JUL 90-D
010149-0002-SA	SOIL	ICP-S	18 JUL 90-D	18 JUL 90-D
010149-0002-SA	SOIL	HG-CVAA-S	17 JUL 90-B	17 JUL 90-B
010149-0002-SA	SOIL	AS-FAA-S	16 JUL 90-D	16 JUL 90-D
010149-0002-SA	SOIL	SE-FAA-S	16 JUL 90-D	16 JUL 90-D
010149-0003-SA	SOIL	ICP-S	18 JUL 90-D	18 JUL 90-D
010149-0003-SA	SOIL	HG-CVAA-S	17 JUL 90-B	17 JUL 90-B
010149-0003-SA	SOIL	AS-FAA-S	16 JUL 90-D	16 JUL 90-D
010149-0003-SA	SOIL	SE-FAA-S	16 JUL 90-D	16 JUL 90-D
010149-0004-SA	SOIL	ICP-S	18 JUL 90-D	18 JUL 90-D
010149-0004-SA	SOIL	HG-CVAA-S	17 JUL 90-B	17 JUL 90-B
010149-0004-SA	SOIL	AS-FAA-S	16 JUL 90-D	16 JUL 90-D
010149-0004-SA	SOIL	SE-FAA-S	16 JUL 90-D	16 JUL 90-D
010149-0005-SA	SOIL	ICP-S	18 JUL 90-D	18 JUL 90-D
010149-0005-SA	SOIL	HG-CVAA-S	17 JUL 90-B	17 JUL 90-B
010149-0005-SA	SOIL	AS-FAA-S	16 JUL 90-D	16 JUL 90-D
010149-0005-SA	SOIL	SE-FAA-S	16 JUL 90-D	16 JUL 90-D
010149-0006-SA	SOIL	ICP-S	18 JUL 90-D	18 JUL 90-D
010149-0006-SA	SOIL	HG-CVAA-S	17 JUL 90-B	17 JUL 90-B
010149-0006-SA	SOIL	AS-FAA-S	16 JUL 90-D	16 JUL 90-D
010149-0006-SA	SOIL	SE-FAA-S	16 JUL 90-D	16 JUL 90-D
010149-0007-SA	SOIL	ICP-S	18 JUL 90-D	18 JUL 90-D
010149-0007-SA	SOIL	HG-CVAA-S	17 JUL 90-B	17 JUL 90-B
010149-0007-SA	SOIL	AS-FAA-S	16 JUL 90-D	16 JUL 90-D
010149-0007-SA	SOIL	SE-FAA-S	16 JUL 90-D	16 JUL 90-D
010149-0008-SA	SOIL	ICP-S	18 JUL 90-D	18 JUL 90-D
010149-0008-SA	SOIL	HG-CVAA-S	17 JUL 90-B	17 JUL 90-B
010149-0008-SA	SOIL	AS-FAA-S	16 JUL 90-D	16 JUL 90-D
010149-0008-SA	SOIL	SE-FAA-S	16 JUL 90-D	16 JUL 90-D
010149-0009-SA	SOIL	ICP-S	18 JUL 90-D	18 JUL 90-D
010149-0009-SA	SOIL	HG-CVAA-S	17 JUL 90-B	17 JUL 90-B
010149-0009-SA	SOIL	AS-FAA-S	16 JUL 90-D	16 JUL 90-D
010149-0009-SA	SOIL	SE-FAA-S	16 JUL 90-D	16 JUL 90-D
010149-0010-SA	AQUEOUS	PB-FAA-AT	16 JUL 90-D	16 JUL 90-D
010149-0010-SA	AQUEOUS	AS-FAA-AT	16 JUL 90-D	16 JUL 90-D
010149-0010-SA	AQUEOUS	SE-FAA-AT	16 JUL 90-D	16 JUL 90-D
010149-0010-SA	AQUEOUS	HG-CVAA-AT	17 JUL 90-D	17 JUL 90-D
010149-0010-SA	AQUEOUS	ICP-AT	16 JUL 90-D	16 JUL 90-D
010149-0011-SA	SOIL	ICP-S	18 JUL 90-D	18 JUL 90-D
010149-0011-SA	SOIL	HG-CVAA-S	17 JUL 90-B	17 JUL 90-B
010149-0011-SA	SOIL	AS-FAA-S	16 JUL 90-D	16 JUL 90-D
010149-0011-SA	SOIL	SE-FAA-S	16 JUL 90-D	16 JUL 90-D
010149-0012-SA	SOIL	ICP-S	18 JUL 90-D	18 JUL 90-D
010149-0012-SA	SOIL	HG-CVAA-S	17 JUL 90-B	17 JUL 90-B

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QC LOT ASSIGNMENT REPORT
Metals Analysis and Preparation (cont.)

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
010149-0012-SA	SOIL	AS-FAA-S	16 JUL 90-D	16 JUL 90-D
010149-0012-SA	SOIL	SE-FAA-S	16 JUL 90-D	16 JUL 90-D
010149-0013-SA	SOIL	ICP-S	18 JUL 90-D	18 JUL 90-D
010149-0013-SA	SOIL	HG-CVAA-S	17 JUL 90-B	17 JUL 90-B
010149-0013-SA	SOIL	AS-FAA-S	16 JUL 90-D	16 JUL 90-D
010149-0013-SA	SOIL	SE-FAA-S	16 JUL 90-D	16 JUL 90-D
010149-0015-SA	SOIL	ICP-S	18 JUL 90-D	18 JUL 90-D
010149-0015-SA	SOIL	HG-CVAA-S	17 JUL 90-B	17 JUL 90-B
010149-0015-SA	SOIL	AS-FAA-S	16 JUL 90-D	16 JUL 90-D
010149-0015-SA	SOIL	SE-FAA-S	16 JUL 90-D	16 JUL 90-D
010149-0016-SA	SOIL	ICP-S	19 JUL 90-F	19 JUL 90-F
010149-0016-SA	SOIL	HG-CVAA-S	17 JUL 90-B	17 JUL 90-B
010149-0016-SA	SOIL	AS-FAA-S	19 JUL 90-F	19 JUL 90-F
010149-0016-SA	SOIL	SE-FAA-S	19 JUL 90-F	19 JUL 90-F
010149-0017-SA	SOIL	ICP-S	19 JUL 90-F	19 JUL 90-F
010149-0017-SA	SOIL	HG-CVAA-S	17 JUL 90-B	17 JUL 90-B
010149-0017-SA	SOIL	AS-FAA-S	19 JUL 90-F	19 JUL 90-F
010149-0017-SA	SOIL	SE-FAA-S	19 JUL 90-F	19 JUL 90-F
010149-0018-SA	SOIL	ICP-S	19 JUL 90-F	19 JUL 90-F
010149-0018-SA	SOIL	HG-CVAA-S	17 JUL 90-B	17 JUL 90-B
010149-0018-SA	SOIL	AS-FAA-S	19 JUL 90-F	19 JUL 90-F
010149-0018-SA	SOIL	SE-FAA-S	19 JUL 90-F	19 JUL 90-F
010149-0019-SA	SOIL	ICP-S	19 JUL 90-F	19 JUL 90-F
010149-0019-SA	SOIL	HG-CVAA-S	17 JUL 90-B	17 JUL 90-B
010149-0019-SA	SOIL	AS-FAA-S	19 JUL 90-F	19 JUL 90-F
010149-0019-SA	SOIL	SE-FAA-S	19 JUL 90-F	19 JUL 90-F
010149-0020-SA	SOIL	ICP-S	19 JUL 90-F	19 JUL 90-F
010149-0020-SA	SOIL	HG-CVAA-S	17 JUL 90-B	17 JUL 90-B
010149-0020-SA	SOIL	AS-FAA-S	19 JUL 90-F	19 JUL 90-F
010149-0020-SA	SOIL	SE-FAA-S	19 JUL 90-F	19 JUL 90-F
010149-0021-SA	SOIL	ICP-S	19 JUL 90-F	19 JUL 90-F
010149-0021-SA	SOIL	HG-CVAA-S	17 JUL 90-C	17 JUL 90-C
010149-0021-SA	SOIL	AS-FAA-S	19 JUL 90-F	19 JUL 90-F
010149-0021-SA	SOIL	SE-FAA-S	19 JUL 90-F	19 JUL 90-F
010149-0022-SA	SOIL	ICP-S	19 JUL 90-F	19 JUL 90-F
010149-0022-SA	SOIL	HG-CVAA-S	17 JUL 90-C	17 JUL 90-C
010149-0022-SA	SOIL	AS-FAA-S	19 JUL 90-F	19 JUL 90-F
010149-0022-SA	SOIL	SE-FAA-S	19 JUL 90-F	19 JUL 90-F
010149-0023-SA	SOIL	ICP-S	19 JUL 90-F	19 JUL 90-F
010149-0023-SA	SOIL	HG-CVAA-S	17 JUL 90-C	17 JUL 90-C
010149-0023-SA	SOIL	AS-FAA-S	19 JUL 90-F	19 JUL 90-F
010149-0023-SA	SOIL	SE-FAA-S	19 JUL 90-F	19 JUL 90-F
010149-0024-SA	SOIL	ICP-S	19 JUL 90-F	19 JUL 90-F
010149-0024-SA	SOIL	HG-CVAA-S	17 JUL 90-C	17 JUL 90-C
010149-0024-SA	SOIL	AS-FAA-S	19 JUL 90-F	19 JUL 90-F
010149-0024-SA	SOIL	SE-FAA-S	19 JUL 90-F	19 JUL 90-F

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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	Precision (RPD) DCS	Precision (RPD) Limit
Category: ICP-S Matrix: SOIL QC Lot: 18 JUL 90-D Concentration Units: mg/kg								
Aluminum	200	204	203	204	102	75-125	0.6	20
Antimony	50	47.5	45.9	46.7	93	75-125	3.3	20
Arsenic	50	44.7	44.5	44.6	89	75-125	0.5	20
Barium	200	183	181	182	91	75-125	0.9	20
Beryllium	5.0	4.95	5.04	4.99	100	75-125	1.8	20
Cadmium	5.0	4.20	4.14	4.17	83	75-125	1.6	20
Calcium	10000	10200	10100	10200	102	75-125	1.5	20
Chromium	20	20.2	19.7	19.9	100	75-125	2.4	20
Cobalt	50	44.8	44.7	44.7	89	75-125	0.3	20
Copper	25	24.0	23.9	24.0	96	75-125	0.6	20
Iron	100	97.7	97.3	97.5	97	75-125	0.4	20
Lead	50	46.0	44.1	45.0	90	75-125	4.3	20
Magnesium	5000	5210	5140	5180	104	75-125	1.4	20
Manganese	50	46.1	45.7	45.9	92	75-125	0.8	20
Nickel	50	45.8	45.4	45.6	91	75-125	0.7	20
Potassium	5000	5070	5050	5060	101	75-125	0.5	20
Silver	5.0	4.96	4.91	4.94	99	75-125	0.9	20
Sodium	10000	10100	10100	10100	101	75-125	0.3	20
Vanadium	50	50.7	50.6	50.6	101	75-125	0.3	20
Zinc	50	44.7	43.8	44.3	89	75-125	1.9	20
Category: HG-CVAA-S Matrix: SOIL QC Lot: 17 JUL 90-B Concentration Units: mg/kg								
Mercury	0.50	0.522	0.534	0.528	106	75-125	2.3	20
Category: AS-FAA-S Matrix: SOIL QC Lot: 16 JUL 90-D Concentration Units: mg/kg								
Arsenic	4.0	3.63	3.78	3.70	93	75-125	4.0	20

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

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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 Average(%) Limits	Precision (RPD) DCS	Precision (RPD) Limit
Category: SE-FAA-S Matrix: SOIL QC Lot: 16 JUL 90-D Concentration Units: mg/kg								
Selenium	1.0	0.920	1.04	0.980	98	75-125	12	20
Category: PB-FAA-AT Matrix: AQUEOUS QC Lot: 16 JUL 90-D Concentration Units: mg/L								
Lead	0.02	0.0226	0.0217	0.0222	111	75-125	4.1	20
Category: AS-FAA-AT Matrix: AQUEOUS QC Lot: 16 JUL 90-D Concentration Units: mg/L								
Arsenic	0.04	0.0342	0.0351	0.0346	87	75-125	2.6	20
Category: SE-FAA-AT Matrix: AQUEOUS QC Lot: 16 JUL 90-D Concentration Units: mg/L								
Selenium	0.01	0.0106	0.0104	0.0105	105	75-125	1.9	20
Category: HG-CVAA-AT Matrix: AQUEOUS QC Lot: 17 JUL 90-D Concentration Units: mg/L								
Mercury	0.0010	0.00104	0.00103	0.00104	104	75-125	1.0	20

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

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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 Average(%) Limits	Precision (RPD) DCS	Precision (RPD) Limit
Category: ICP-AT								
Matrix: AQUEOUS								
QC Lot: 16 JUL 90-D								
Concentration Units: mg/L								
Aluminum	2.0	1.98	1.95	1.96	98	75-125	1.7	20
Antimony	0.5	0.470	0.458	0.464	93	75-125	2.6	20
Arsenic	0.5	0.468	0.448	0.458	92	75-125	4.5	20
Barium	2.0	1.80	1.77	1.79	89	75-125	1.9	20
Beryllium	0.05	0.0478	0.0476	0.0477	95	75-125	0.5	20
Cadmium	0.05	0.0499	0.0451	0.0475	95	75-125	10	20
Calcium	100	99.9	99.9	99.9	100	75-125	0.0	20
Chromium	0.2	0.190	0.188	0.189	95	75-125	0.9	20
Cobalt	0.5	0.449	0.438	0.443	89	75-125	2.3	20
Copper	0.25	0.243	0.244	0.244	97	75-125	0.7	20
Iron	1.0	0.957	0.965	0.961	96	75-125	0.8	20
Lead	0.5	0.446	0.442	0.444	89	75-125	0.8	20
Magnesium	50	50.7	50.7	50.7	101	75-125	0.1	20
Manganese	0.5	0.456	0.452	0.454	91	75-125	0.8	20
Nickel	0.5	0.449	0.448	0.449	90	75-125	0.4	20
Potassium	50	50.0	50.4	50.2	100	75-125	0.9	20
Silver	0.05	0.0514	0.0510	0.0512	102	75-125	0.8	20
Sodium	100	99.9	101	100	100	75-125	1.2	20
Vanadium	0.5	0.497	0.490	0.494	99	75-125	1.4	20
Zinc	0.5	0.455	0.448	0.452	90	75-125	1.7	20
Category: ICP-S								
Matrix: SOIL								
QC Lot: 19 JUL 90-F								
Concentration Units: mg/kg								
Aluminum	200	190	191	191	95	75-125	0.7	20
Antimony	50	44.9	44.4	44.7	89	75-125	1.2	20
Arsenic	50	42.2	41.4	41.8	84	75-125	1.9	20
Barium	200	170	173	172	86	75-125	1.2	20
Beryllium	5.0	4.71	4.72	4.72	94	75-125	0.3	20
Cadmium	5.0	4.39	3.90	4.14	83	75-125	12	20
Calcium	10000	9580	9670	9620	96	75-125	0.9	20
Chromium	20	19.0	19.3	19.1	96	75-125	1.6	20
Cobalt	50	42.0	42.3	42.1	84	75-125	0.8	20
Copper	25	22.3	22.6	22.5	90	75-125	1.0	20
Iron	100	91.4	91.7	91.5	92	75-125	0.4	20
Lead	50	41.3	42.1	41.7	83	75-125	2.0	20
Magnesium	5000	4880	4920	4900	98	75-125	0.8	20

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

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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	Precision (RPD) DCS	Precision Limit
Category: ICP-S Matrix: SOIL QC Lot: 19 JUL 90-F Concentration Units: mg/kg								
Manganese	50	43.1	43.4	43.3	87	75-125	0.7	20
Nickel	50	42.6	42.8	42.7	85	75-125	0.3	20
Potassium	5000	4530	4540	4540	91	75-125	0.2	20
Silver	5.0	5.02	5.06	5.04	101	75-125	0.9	20
Sodium	10000	8890	8930	8910	89	75-125	0.4	20
Vanadium	50	47.0	47.4	47.2	94	75-125	0.7	20
Zinc	50	40.9	41.4	41.1	82	75-125	1.2	20
Category: AS-FAA-S Matrix: SOIL QC Lot: 19 JUL 90-F Concentration Units: mg/kg								
Arsenic	4.0	4.01	4.04	4.02	101	75-125	0.8	20
Category: SE-FAA-S Matrix: SOIL QC Lot: 19 JUL 90-F Concentration Units: mg/kg								
Selenium	1.0	0.890	0.870	0.880	88	75-125	2.3	20
Category: HG-CVAA-S Matrix: SOIL QC Lot: 17 JUL 90-C Concentration Units: mg/kg								
Mercury	0.50	0.522	0.528	0.525	105	75-125	1.1	20

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

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METHOD BLANK REPORT
Metals Analysis and Preparation

Analyte	Result	Units	Reporting Limit
Test: ICP-REF-S			
Matrix: SOIL			
QC Lot: 18 JUL 90-D QC Run: 18 JUL 90-D			
Antimony	ND	mg/kg	6.0
Barium	ND	mg/kg	1.0
Beryllium	ND	mg/kg	0.20
Cadmium	ND	mg/kg	0.50
Chromium	ND	mg/kg	1.0
Cobalt	ND	mg/kg	1.0
Copper	ND	mg/kg	2.0
Lead	ND	mg/kg	5.0
Nickel	ND	mg/kg	4.0
Potassium	ND	mg/kg	500
Vanadium	ND	mg/kg	1.0
Zinc	ND	mg/kg	2.0
Test: HG-CVAA-S			
Matrix: SOIL			
QC Lot: 17 JUL 90-B QC Run: 17 JUL 90-B			
Mercury	ND	mg/kg	0.10
Test: AS-FAA-S			
Matrix: SOIL			
QC Lot: 16 JUL 90-D QC Run: 16 JUL 90-D			
Arsenic	ND	mg/kg	0.50
Test: SE-FAA-S			
Matrix: SOIL			
QC Lot: 16 JUL 90-D QC Run: 16 JUL 90-D			
Selenium	ND	mg/kg	0.50

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METHOD BLANK REPORT
Metals Analysis and Preparation (cont.)

Analyte	Result	Units	Reporting Limit
Test: PB-FAA-AT Matrix: AQUEOUS QC Lot: 16 JUL 90-D QC Run: 16 JUL 90-D			
Lead	ND	mg/L	0.0050
Test: AS-FAA-AT Matrix: AQUEOUS QC Lot: 16 JUL 90-D QC Run: 16 JUL 90-D			
Arsenic	ND	mg/L	0.0050
Test: SE-FAA-AT Matrix: AQUEOUS QC Lot: 16 JUL 90-D QC Run: 16 JUL 90-D			
Selenium	ND	mg/L	0.0050
Test: HG-CVAA-AT Matrix: AQUEOUS QC Lot: 17 JUL 90-D QC Run: 17 JUL 90-D			
Mercury	ND	mg/L	0.00020
Test: ICP-AT Matrix: AQUEOUS QC Lot: 16 JUL 90-D QC Run: 16 JUL 90-D			
Antimony	ND	mg/L	0.060
Barium	ND	mg/L	0.010
Beryllium	ND	mg/L	0.0020
Cadmium	0.0055	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
Potassium	ND	mg/L	5.0
Vanadium	ND	mg/L	0.010
Zinc	ND	mg/L	0.020

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METHOD BLANK REPORT
Metals Analysis and Preparation (cont.)

Analyte	Result	Units	Reporting Limit
Test: ICP-REF-S			
Matrix: SOIL			
QC Lot: 19 JUL 90-F QC Run: 19 JUL 90-F			
Antimony	ND	mg/kg	6.0
Barium	ND	mg/kg	1.0
Beryllium	ND	mg/kg	0.20
Cadmium	ND	mg/kg	0.50
Chromium	1.2	mg/kg	1.0
Cobalt	ND	mg/kg	1.0
Copper	ND	mg/kg	2.0
Lead	ND	mg/kg	5.0
Nickel	ND	mg/kg	4.0
Potassium	ND	mg/kg	500
Vanadium	ND	mg/kg	1.0
Zinc	ND	mg/kg	2.0
Test: AS-FAA-S			
Matrix: SOIL			
QC Lot: 19 JUL 90-F QC Run: 19 JUL 90-F			
Arsenic	ND	mg/kg	0.50
Test: SE-FAA-S			
Matrix: SOIL			
QC Lot: 19 JUL 90-F QC Run: 19 JUL 90-F			
Selenium	ND	mg/kg	0.50
Test: HG-CVAA-S			
Matrix: SOIL			
QC Lot: 17 JUL 90-C QC Run: 17 JUL 90-C			
Mercury	ND	mg/kg	0.10

Enseco - Rocky Mountain Analytical

4955 Yarrow Street
Arvada, Colorado 80002
303/421-6611 Facsimile: 303/431-7171

CHAIN OF CUSTODY

No. 1 of 3

Attn: Julie Essex

Enseco Client: Giant Refinery

Project: RFI

Sampling Co.: Giant

Sampling Site: Ciniza Refinery

Team Leader: Mike McCarty

SAMPLE SAFE™ CONDITIONS

1. Packed by: _____ Seal # _____
2. Seal Intact Upon Receipt by Sampling Co.: Yes (circled) No
3. Condition of Contents: Good
4. Sealed for Shipping by: Cloyd Rosendale
5. Initial Contents Temp.: _____ °C Seal # _____
6. Sampling Status: Done Continuing Until _____
7. Seal Intact Upon Receipt by Laboratory: Yes No
8. Contents Temperature Upon Receipt by Lab: _____ °C
9. Condition of Contents: _____

Date	Time	Sample ID/Description	Sample Type	No. Containers	Analysis Parameters	Remarks
06-26-90	7:40	RFID806V08.0	SOIL	2	SEE Attachment	
06-26-90	8:50	RFID806V00.5	SOIL	2	SEE Attachment	
06-26-90	9:09	RFID806V05.0	SOIL	2	SEE Attachment	
06-26-90	9:45	RFID806V0.5	SOIL	2	SEE Attachment	
06-26-90	10:05	RFID806V2.5	SOIL	2	SEE Attachment	
06-26-90	10:30	RFID806V4.5	SOIL	2	SEE Attachment	
06-26-90	12:00	RFID808V0.5	SOIL	2	SEE Attachment	
06-26-90	12:20	RFID808V2.5	SOIL	2	SEE Attachment	
06-26-90	12:45	RFID808V4.5	SOIL	2	SEE Attachment	
6-26-90	10:40	RFID807E25-5	Water	8	See Attached	

CUSTODY TRANSFERS PRIOR TO SHIPPING

	Relinquished by: (signed)	Received by: (signed)	Date	Time
1	Cloyd Rosendale		6-26-90	2:30 pm
2				
3				

SHIPPING DETAILS

Delivered to Shipper by: Cloyd Rosendale

Method of Shipment: Fed Express Airbill # _____

Received for Lab: RMAL Signed: Bob Rick Date/Time 27 JUN 90 0800

Enseco Project No. 10149

White and Pink Copies to Lab Yellow to Sampler

SS 001

Enseco - Rocky Mountain Analytical

4955 Yarrow Street
Arvada, Colorado 80002
303/421-6611 Facsimile: 303/431-7171

CHAIN OF CUSTODY

No. 2 of 3

Attn: Julie Essy

Enseco Client: Giant Refinery

Project: RFI

Sampling Co.: Giant

Sampling Site: Cipiza Refinery

Team Leader: Cland Rosendale

MA#

SAMPLE SAFE™ CONDITIONS

1. Packed by: _____ Seal # _____
2. Seal Intact Upon Receipt by Sampling Co.: Yes No
3. Condition of Contents: Good
4. Sealed for Shipping by: Cland Rosendale
5. Initial Contents Temp.: _____ °C Seal # _____
6. Sampling Status: Done Continuing Until _____
7. Seal Intact Upon Receipt by Laboratory: Yes No
8. Contents Temperature Upon Receipt by Lab: _____ °C
9. Condition of Contents: _____

Date	Time	Sample ID/Description	Sample Type	No. Containers	Analysis Parameters	Remarks
6-26-90	1:05	RFID809V.5	SOIL	2	SEE Attachment	
6-26-90	1:18	RFID809V2.5	SOIL	2	SEE Attachment	
6-26-90	1:40	RFID809V4.5	SOIL	2	SEE Attachment	
6-26-90	—	Trip Blank	Water	1	See Attachment	

CUSTODY TRANSFERS PRIOR TO SHIPPING

	Relinquished by: (signed)	Received by: (signed)	Date	Time
1	Cland Rosendale		6-26-90	2:30pm
2				
3				

SHIPPING DETAILS

Delivered to Shipper by: Cland Rosendale

Method of Shipment: Fed Express Airbill #: _____

Received for Lab: RMAL Signed: Bob Reid Date/Time: 27JUN90 0899

Enseco Project No.: 10149

White and Pink Copies to Lab Yellow to Sampler

SS-001

Enseco - Rocky Mountain Analytical

4955 Yarrow Street
Arvada, Colorado 80002
303/421-6611 Facsimile: 303/431-7171

CHAIN OF CUSTODY

No. 343

Attn: Julie Essey

Enseco Client: Giant Refinery

Project: RFI

Sampling Co.: ~~Giant Refinery~~ Rogers & Co.

Sampling Site: Ciniza Refinery

Team Leader: Claud Rosendale

SAMPLE SAFE™ CONDITIONS

1. Packed by: _____ Seal # _____
2. Seal Intact Upon Receipt by Sampling Co.: Yes No
3. Condition of Contents: Good
4. Sealed for Shipping by: Claud Rosendale
5. Initial Contents Temp.: _____ °C Seal # _____
6. Sampling Status: Done Continuing Until _____
7. Seal Intact Upon Receipt by Laboratory: Yes No
8. Contents Temperature Upon Receipt by Lab: _____ °C
9. Condition of Contents: _____

	Date	Time	Sample ID/Description	Sample Type	No. Containers	Analysis Parameters	Remarks
15	6-26-90	0900	RFI0803A05.0	Soil	2	See Attached	
16	6-26-90	0930	RFI0803A08.0	Soil	2	See Attached	
17	6-26-90	0930	RFI0803A10.5	Soil	2	See Attached	
18	6-26-90	1050	RFI0802A05.0	Soil	2	See Attached	
19	6-26-90	1050	RFI0802D05.0	Soil	2	See Attached	
20	6-26-90	1110	RFI0802A08.0	Soil	2	See Attached	
21	6-26-90	1115	RFI0802A10.5	Soil	2	See Attached	
22	6-26-90	1225	RFI0801A05.0	Soil	2	See Attached	
23	6-26-90	1240	RFI0801A08.0	Soil	2	See Attached	
24	6-26-90	1245	RFI0801A10.5	Soil	2	See Attached	

CUSTODY TRANSFERS PRIOR TO SHIPPING

	Relinquished by: (signed)	Received by: (signed)	Date	Time
1	Claud Rosendale		6-26-90	2:30 pm
2				
3				

SHIPPING DETAILS

Delivered to Shipper by: Claud Rosendale

Method of Shipment: Fed Express Airbill #: _____

Received for Lab: RMAL Signed: Bob Ruiz Date/Time: 27 JUN 90 0800

Enseco Project No. 10149

White and Yellow to Lab Yellow to Sampler

Section 9.0
RMAL No. 010230

Rocky Mountain
Analytical Laboratory

08

ANALYTICAL RESULTS
FOR
GIANT REFINING
ENSECO-RMAL NO. 010230

JULY 31, 1990

Enseco

Reviewed by: Julie Essey

Sue Dalla

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

Enseco

July 31, 1990

Mr. Claud Rosendale
Giant Refining
17 Miles East of Gallup
I-40, Exit 39
Gallup, NM 87301

Dear Mr. Rosendale:

Enclosed is the report for 14 soil samples we received at Enseco-Rocky Mountain Analytical Laboratory on July 2, 1990.

Included with the report is a quality control summary.

Please call if you have any questions.

Sincerely,

Julie Essey
Program Administrator

Reviewed by:

Sue Dalla
Manager
Program Administration

JE/SD/heg
Enclosures

RMAL #010230

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

Consistent with directives in the CLP protocol in SW-846 and other EPA methods, all GC/MS analyses were performed so that the maximum concentration of sample was analyzed. Some samples required dilutions to avoid saturation of the detector, to achieve linearity for a specific target compound or to reduce matrix interferences. As stated in Section 7.5.4 of Method 8270, 7.4.1.16 of Method 8240 and Exhibit E of the CLP protocol these dilutions be performed. The reporting limits for these samples are therefore proportionate to the dilution required. Surrogate compounds may not be measurable in samples which have been diluted.

Due to interferences originating from non-target compounds, dilutions were performed for sample 010230-0009 by Method 8240. The reporting limits were raised accordingly.

An analytical standard is not available for methyl chrysene. Furthermore, many isomers of this compound, including methyl benzanthracenes and methyl triphenylenes, exist. These isomers are indistinguishable under the analytical condition of Method 8270. A selected ion current profile at mass 242 was performed to determine is any compounds corresponding to the molecular structure of methyl chrysene were present. All peaks which met this criteria were summed. An estimated concentration of "total methyl chrysenes" was determined by comparing the sum of the peak areas to the internal standard and using a response factor of 1.0. Both the identification and quantification are highly suspect.

Total methyl chrysenes were not detected for this project.

The orginal preparation for sample 010230-0004 by Method 8270 was performed within holding times, however, assessing the results, a reextraction was performed to improve the quality of the data. The reprep data is reported. The reextraction was completed outside holding times.

The Duplicate Control Sample (DCS) QC Lot 23 JUL 90-A by Method 8270 had phenol and 2,4-Dinitrophenol above Enseco's established limits. The quantitation was rechecked and found to be correct. Based on a thorough review of the data, it was determined that the sample results were not affected. It should also be noted that control limits are statistically determined and do not always reflect best possible recoveries.

All 8270 samples were prepped according to SW-846 using 2.0 grams of sample followed by a 50% partition then concentration to 1.0 mL for analysis. With this prep method nominal reporting limits are generally 10000 ug/kg. After careful review of all chromatograms it has been determined that we can lower the nominal reporting limit to 5000 ug/kg for this project.

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.

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SAMPLE DESCRIPTION INFORMATION
for
Giant Refining

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
010230-0001-SA	RFI 0810V0.0	SOIL	29 JUN 90	07:10	02 JUL 90
010230-0002-SA	RFI 0810V2.0	SOIL	29 JUN 90	07:11	02 JUL 90
010230-0003-SA	RFI 0810V4.5	SOIL	29 JUN 90	07:24	02 JUL 90
010230-0004-SA	RFI 0813V0.0	SOIL	29 JUN 90	07:38	02 JUL 90
010230-0005-SA	RFI 0813V2.0	SOIL	29 JUN 90	07:49	02 JUL 90
010230-0006-SA	RFI 0813V4.5	SOIL	29 JUN 90	07:58	02 JUL 90
010230-0007-SA	RFI 0811V0.0	SOIL	29 JUN 90	08:04	02 JUL 90
010230-0008-SA	RFI 0811V2.0	SOIL	29 JUN 90	08:16	02 JUL 90
010230-0009-SA	RFI 0811V4.5	SOIL	29 JUN 90	08:24	02 JUL 90
010230-0010-SA	RFI 0813D4.5	SOIL	29 JUN 90	07:58	02 JUL 90
010230-0011-SA	RFI 0812V0.0	SOIL	29 JUN 90	08:30	02 JUL 90
010230-0012-SA	RFI 0812V2.0	SOIL	29 JUN 90	08:38	02 JUL 90
010230-0013-SA	RFI 0812V4.5	SOIL	29 JUN 90	08:44	02 JUL 90
010230-0014-SA	RFI 0811D0.0	SOIL	29 JUN 90	08:04	02 JUL 90

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ANALYTICAL TEST REQUESTS
for
Giant Refining

Lab ID: 010230	Group Code	Analysis Description	Custom Test?
0001 - 0014	A	ICP Suite (Standard List)	Y
		Prep - Total Metals, ICP	N
		Arsenic by Graphite Furnace AA	N
		Prep - Total Metals, Furnace AA	N
		Selenium by Graphite Furnace AA	N
		Mercury by Cold Vapor AA	N
		Prep - Mercury, Cold Vapor AA	N
		Refinery Hazardous Constituent Volatiles	Y
		GC Screen For Medium Level Soils	N
		Refinery Hazardous Constituent Semivolatiles	Y
		Prep - Semivolatile Organics by GC/MS	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, April, 1989.

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

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Refinery Hazardous Constituent Volatiles

Method 8240

Client Name: Giant Refining
Client ID: RFI 0810V0.0
Lab ID: 010230-0001-SA Enseco ID: 1081747
Matrix: SOIL Sampled: 29 JUN 90 Received: 02 JUL 90
Authorized: 02 JUL 90 Prepared: 05 JUL 90 Analyzed: 10 JUL 90

Parameter	Result	Units	Reporting Limit
Benzene	ND	ug/kg	500
Carbon disulfide	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Chloroform	ND	ug/kg	500
EDB (1,2-Dibromoethane)	ND	ug/kg	1000
1,2-Dichloroethane	ND	ug/kg	500
1,4-Dioxane	ND	ug/kg	50000
Ethylbenzene	ND	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Xylenes (total)	ND	ug/kg	500
Toluene-d8	102	%	--
4-Bromofluorobenzene	95	%	--
1,2-Dichloroethane-d4	105	%	--

ND = Not detected
NA = Not applicable

Reported By: Shawn Kassner Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Volatiles

Method 8240

Client Name: Giant Refining
Client ID: RFI 0810V2.0
Lab ID: 010230-0002-SA Enseco ID: 1081748
Matrix: SOIL Sampled: 29 JUN 90 Received: 02 JUL 90
Authorized: 02 JUL 90 Prepared: 05 JUL 90 Analyzed: 10 JUL 90

Parameter	Result	Units	Reporting Limit
Benzene	ND	ug/kg	500
Carbon disulfide	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Chloroform	ND	ug/kg	500
EDB (1,2-Dibromoethane)	ND	ug/kg	1000
1,2-Dichloroethane	ND	ug/kg	500
1,4-Dioxane	ND	ug/kg	50000
Ethylbenzene	ND	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Xylenes (total)	ND	ug/kg	500
Toluene-d8	97	%	--
4-Bromofluorobenzene	93	%	--
1,2-Dichloroethane-d4	103	%	--

ND = Not detected
NA = Not applicable

Reported By: Shawn Kassner Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Volatiles

Method 8240

Client Name: Giant Refining
Client ID: RFI 0810V4.5
Lab ID: 010230-0003-SA Enseco ID: 1081749
Matrix: SOIL Sampled: 29 JUN 90 Received: 02 JUL 90
Authorized: 02 JUL 90 Prepared: 05 JUL 90 Analyzed: 10 JUL 90

Parameter	Result	Units	Reporting Limit
Benzene	ND	ug/kg	500
Carbon disulfide	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Chloroform	ND	ug/kg	500
EDB (1,2-Dibromoethane)	ND	ug/kg	1000
1,2-Dichloroethane	ND	ug/kg	500
1,4-Dioxane	ND	ug/kg	50000
Ethylbenzene	ND	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Xylenes (total)	ND	ug/kg	500
Toluene-d8	95	%	--
4-Bromofluorobenzene	93	%	--
1,2-Dichloroethane-d4	104	%	--

ND = Not detected
NA = Not applicable

Reported By: Shawn Kassner Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Volatiles

Method 8240

Client Name: Giant Refining
Client ID: RFI 0813V0.0
Lab ID: 010230-0004-SA Enseco ID: 1081750
Matrix: SOIL Sampled: 29 JUN 90 Received: 02 JUL 90
Authorized: 02 JUL 90 Prepared: 05 JUL 90 Analyzed: 10 JUL 90

Parameter	Result	Units	Reporting Limit
Benzene	ND	ug/kg	500
Carbon disulfide	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Chloroform	ND	ug/kg	500
EDB (1,2-Dibromoethane)	ND	ug/kg	1000
1,2-Dichloroethane	ND	ug/kg	500
1,4-Dioxane	ND	ug/kg	50000
Ethylbenzene	ND	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Xylenes (total)	ND	ug/kg	500
Toluene-d8	100	%	--
4-Bromofluorobenzene	95	%	--
1,2-Dichloroethane-d4	102	%	--

ND = Not detected
NA = Not applicable

Reported By: Shawn Kassner Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Volatiles

Method 8240

Client Name: Giant Refining
Client ID: RFI 0813V2.0
Lab ID: 010230-0005-SA
Enseco ID: 1081751
Matrix: SOIL
Sampled: 29 JUN 90
Received: 02 JUL 90
Authorized: 02 JUL 90
Prepared: 05 JUL 90
Analyzed: 10 JUL 90

Parameter	Result	Units	Reporting Limit
Benzene	ND	ug/kg	500
Carbon disulfide	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Chloroform	ND	ug/kg	500
EDB (1,2-Dibromoethane)	ND	ug/kg	1000
1,2-Dichloroethane	ND	ug/kg	500
1,4-Dioxane	ND	ug/kg	50000
Ethylbenzene	ND	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Xylenes (total)	ND	ug/kg	500
Toluene-d8	96	%	--
4-Bromofluorobenzene	97	%	--
1,2-Dichloroethane-d4	105	%	--

ND = Not detected
NA = Not applicable

Reported By: Shawn Kassner

Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Volatiles

Method 8240

Client Name: Giant Refining
Client ID: RFI 0813V4.5
Lab ID: 010230-0006-SA
Enseco ID: 1081752
Matrix: SOIL
Sampled: 29 JUN 90
Received: 02 JUL 90
Authorized: 02 JUL 90
Prepared: 05 JUL 90
Analyzed: 11 JUL 90

Parameter	Result	Units	Reporting Limit
Benzene	ND	ug/kg	500
Carbon disulfide	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Chloroform	ND	ug/kg	500
EDB (1,2-Dibromoethane)	ND	ug/kg	1000
1,2-Dichloroethane	ND	ug/kg	500
1,4-Dioxane	ND	ug/kg	50000
Ethylbenzene	ND	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Toluene	950	ug/kg	500
Xylenes (total)	1800	ug/kg	500
Toluene-d8	101	%	--
4-Bromofluorobenzene	100	%	--
1,2-Dichloroethane-d4	90	%	--

ND = Not detected
NA = Not applicable

Reported By: Terry Riddle
Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Volatiles

Method 8240

Client Name: Giant Refining
Client ID: RFI 0811V0.0
Lab ID: 010230-0007-SA
Enseco ID: 1081753
Matrix: SOIL
Sampled: 29 JUN 90
Received: 02 JUL 90
Authorized: 02 JUL 90
Prepared: 05 JUL 90
Analyzed: 11 JUL 90

Parameter	Result	Units	Reporting Limit
Benzene	ND	ug/kg	500
Carbon disulfide	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Chloroform	ND	ug/kg	500
EDB (1,2-Dibromoethane)	ND	ug/kg	1000
1,2-Dichloroethane	ND	ug/kg	500
1,4-Dioxane	ND	ug/kg	50000
Ethylbenzene	ND	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Xylenes (total)	ND	ug/kg	500
Toluene-d8	98	%	--
4-Bromofluorobenzene	96	%	--
1,2-Dichloroethane-d4	88	%	--

ND = Not detected
NA = Not applicable

Reported By: Terry Riddle

Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Volatiles

Method 8240

Client Name: Giant Refining
Client ID: RFI 0811V2.0
Lab ID: 010230-0008-SA Enseco ID: 1081754
Matrix: SOIL Sampled: 29 JUN 90 Received: 02 JUL 90
Authorized: 02 JUL 90 Prepared: 05 JUL 90 Analyzed: 11 JUL 90

Parameter	Result	Units	Reporting Limit
Benzene	ND	ug/kg	500
Carbon disulfide	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Chloroform	ND	ug/kg	500
EDB (1,2-Dibromoethane)	ND	ug/kg	1000
1,2-Dichloroethane	ND	ug/kg	500
1,4-Dioxane	ND	ug/kg	50000
Ethylbenzene	ND	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Xylenes (total)	ND	ug/kg	500
Toluene-d8	100	%	--
4-Bromofluorobenzene	99	%	--
1,2-Dichloroethane-d4	90	%	--

ND = Not detected
NA = Not applicable

Reported By: Terry Riddle Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Volatiles

Method 8240

Client Name: Giant Refining
Client ID: RFI 0811V4.5
Lab ID: 010230-0009-SA
Enseco ID: 1081755
Matrix: SOIL
Sampled: 29 JUN 90
Received: 02 JUL 90
Authorized: 02 JUL 90
Prepared: 05 JUL 90
Analyzed: 11 JUL 90

Parameter	Result	Units	Reporting Limit
Benzene	ND	ug/kg	3400
Carbon disulfide	ND	ug/kg	3400
Chlorobenzene	ND	ug/kg	3400
Chloroform	ND	ug/kg	3400
EDB (1,2-Dibromoethane)	ND	ug/kg	6700
1,2-Dichloroethane	ND	ug/kg	3400
1,4-Dioxane	ND	ug/kg	340000
Ethylbenzene	ND	ug/kg	3400
2-Butanone (MEK)	ND	ug/kg	6700
Styrene	ND	ug/kg	3400
Toluene	ND	ug/kg	3400
Xylenes (total)	8700	ug/kg	3400
Toluene-d8	102	%	--
4-Bromofluorobenzene	103	%	--
1,2-Dichloroethane-d4	90	%	--

ND = Not detected
NA = Not applicable

Reported By: Terry Riddle
Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Volatiles

Method 8240

Client Name: Giant Refining
Client ID: RFI 0813D4.5
Lab ID: 010230-0010-SA
Enseco ID: 1081756
Matrix: SOIL
Sampled: 29 JUN 90
Received: 02 JUL 90
Authorized: 02 JUL 90
Prepared: 05 JUL 90
Analyzed: 11 JUL 90

Parameter	Result	Units	Reporting Limit
Benzene	ND	ug/kg	500
Carbon disulfide	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Chloroform	ND	ug/kg	500
EDB (1,2-Dibromoethane)	ND	ug/kg	1000
1,2-Dichloroethane	ND	ug/kg	500
1,4-Dioxane	ND	ug/kg	50000
Ethylbenzene	ND	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Xylenes (total)	ND	ug/kg	500
Toluene-d8	108	%	--
4-Bromofluorobenzene	104	%	--
1,2-Dichloroethane-d4	99	%	--

ND = Not detected
NA = Not applicable

Reported By: Tim Miller
Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Volatiles

Method 8240

Client Name: Giant Refining
Client ID: RFI 0812V0.0
Lab ID: 010230-0011-SA Enseco ID: 1081757
Matrix: SOIL Sampled: 29 JUN 90 Received: 02 JUL 90
Authorized: 02 JUL 90 Prepared: 05 JUL 90 Analyzed: 11 JUL 90

Parameter	Result	Units	Reporting Limit
Benzene	ND	ug/kg	500
Carbon disulfide	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Chloroform	ND	ug/kg	500
EDB (1,2-Dibromoethane)	ND	ug/kg	1000
1,2-Dichloroethane	ND	ug/kg	500
1,4-Dioxane	ND	ug/kg	50000
Ethylbenzene	ND	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Xylenes (total)	ND	ug/kg	500
Toluene-d8	108	%	--
4-Bromofluorobenzene	104	%	--
1,2-Dichloroethane-d4	100	%	--

ND = Not detected
NA = Not applicable

Reported By: Tim Miller Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Volatiles

Method 8240

Client Name: Giant Refining
Client ID: RFI 0812V2.0
Lab ID: 010230-0012-SA
Enseco ID: 1081758
Matrix: SOIL
Sampled: 29 JUN 90
Received: 02 JUL 90
Authorized: 02 JUL 90
Prepared: 05 JUL 90
Analyzed: 11 JUL 90

Parameter	Result	Units	Reporting Limit
Benzene	ND	ug/kg	500
Carbon disulfide	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Chloroform	ND	ug/kg	500
EDB (1,2-Dibromoethane)	ND	ug/kg	1000
1,2-Dichloroethane	ND	ug/kg	500
1,4-Dioxane	ND	ug/kg	50000
Ethylbenzene	ND	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Xylenes (total)	ND	ug/kg	500
Toluene-d8	106	%	--
4-Bromofluorobenzene	106	%	--
1,2-Dichloroethane-d4	103	%	--

ND = Not detected
NA = Not applicable

Reported By: Tim Miller

Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Volatiles

Method 8240

Client Name: Giant Refining
Client ID: RFI 0812V4.5
Lab ID: 010230-0013-SA Enseco ID: 1081783
Matrix: SOIL Sampled: 29 JUN 90 Received: 02 JUL 90
Authorized: 02 JUL 90 Prepared: 05 JUL 90 Analyzed: 11 JUL 90

Parameter	Result	Units	Reporting Limit
Benzene	ND	ug/kg	500
Carbon disulfide	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Chloroform	ND	ug/kg	500
EDB (1,2-Dibromoethane)	ND	ug/kg	1000
1,2-Dichloroethane	ND	ug/kg	500
1,4-Dioxane	ND	ug/kg	50000
Ethylbenzene	ND	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Xylenes (total)	ND	ug/kg	500
Toluene-d8	106	%	--
4-Bromofluorobenzene	100	%	--
1,2-Dichloroethane-d4	98	%	--

ND = Not detected
NA = Not applicable

Reported By: Tim Miller Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Volatiles

Method 8240

Client Name: Giant Refining
Client ID: RFI 0811D0.0
Lab ID: 010230-0014-SA
Matrix: SOIL
Authorized: 02 JUL 90

Enseco ID: 1081784
Sampled: 29 JUN 90
Prepared: 05 JUL 90

Received: 02 JUL 90
Analyzed: 11 JUL 90

Parameter	Result	Units	Reporting Limit
Benzene	ND	ug/kg	500
Carbon disulfide	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Chloroform	ND	ug/kg	500
EDB (1,2-Dibromoethane)	ND	ug/kg	1000
1,2-Dichloroethane	ND	ug/kg	500
1,4-Dioxane	ND	ug/kg	50000
Ethylbenzene	ND	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Xylenes (total)	ND	ug/kg	500
Toluene-d8	106	%	--
4-Bromofluorobenzene	101	%	--
1,2-Dichloroethane-d4	104	%	--

ND = Not detected
NA = Not applicable

Reported By: Tim Miller

Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Semivolatiles

Method 8270

Client Name: Giant Refining
Client ID: RFI 0810V0.0
Lab ID: 010230-0001-SA
Matrix: SOIL
Authorized: 02 JUL 90

Enseco ID: 1081747
Sampled: 29 JUN 90
Prepared: 03 JUL 90

Received: 02 JUL 90
Analyzed: 23 JUL 90

Parameter	Result	Units	Reporting Limit
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Indene	ND	ug/kg	5000
1-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
Pyridine	ND	ug/kg	10000
Quinoline	ND	ug/kg	25000
Benzenethiol	ND	ug/kg	--
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
2,4-Dinitrophenol	ND	ug/kg	25000
4-Nitrophenol	ND	ug/kg	25000
Phenol	ND	ug/kg	5000
Nitrobenzene-d5	118	%	--
2-Fluorobiphenyl	125	%	--
Terphenyl-d14	103	%	--
Phenol-d5	117	%	--
2-Fluorophenol	119	%	--
2,4,6-Tribromophenol	101	%	--

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis

Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Semivolatiles

Method 8270

Client Name: Giant Refining
Client ID: RFI 0810V2.0
Lab ID: 010230-0002-SA
Enseco ID: 1081748
Matrix: SOIL
Sampled: 29 JUN 90
Received: 02 JUL 90
Authorized: 02 JUL 90
Prepared: 03 JUL 90
Analyzed: 23 JUL 90

Parameter	Result	Units	Reporting Limit
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Indene	ND	ug/kg	5000
1-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
Pyridine	ND	ug/kg	10000
Quinoline	ND	ug/kg	25000
Benzenethiol	ND	ug/kg	--
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
2,4-Dinitrophenol	ND	ug/kg	25000
4-Nitrophenol	ND	ug/kg	25000
Phenol	ND	ug/kg	5000
Nitrobenzene-d5	98	%	--
2-Fluorobiphenyl	101	%	--
Terphenyl-d14	88	%	--
Phenol-d5	96	%	--
2-Fluorophenol	98	%	--
2,4,6-Tribromophenol	70	%	--

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis

Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Semivolatiles

Method 8270

Client Name: Giant Refining
Client ID: RFI 0810V4.5
Lab ID: 010230-0003-SA Enseco ID: 1081749
Matrix: SOIL Sampled: 29 JUN 90 Received: 02 JUL 90
Authorized: 02 JUL 90 Prepared: 03 JUL 90 Analyzed: 23 JUL 90

Parameter	Result	Units	Reporting Limit
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Indene	ND	ug/kg	5000
1-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
Pyridine	ND	ug/kg	10000
Quinoline	ND	ug/kg	25000
Benzenethiol	ND	ug/kg	--
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
2,4-Dinitrophenol	ND	ug/kg	25000
4-Nitrophenol	ND	ug/kg	25000
Phenol	ND	ug/kg	5000
Nitrobenzene-d5	78	%	--
2-Fluorobiphenyl	85	%	--
Terphenyl-d14	74	%	--
Phenol-d5	78	%	--
2-Fluorophenol	79	%	--
2,4,6-Tribromophenol	54	%	--

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Semivolatiles

Method 8270

Client Name: Giant Refining
Client ID: RFI 0813V0.0
Lab ID: 010230-0004-SA Enseco ID: 1081750
Matrix: SOIL Sampled: 29 JUN 90 Received: 02 JUL 90
Authorized: 02 JUL 90 Prepared: 23 JUL 90 Analyzed: 28 JUL 90

Parameter	Result	Units	Reporting Limit
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Indene	ND	ug/kg	5000
1-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
Pyridine	ND	ug/kg	10000
Quinoline	ND	ug/kg	25000
Benzenethiol	ND	ug/kg	--
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
2,4-Dinitrophenol	ND	ug/kg	25000
4-Nitrophenol	ND	ug/kg	25000
Phenol	ND	ug/kg	5000
Nitrobenzene-d5	42	%	--
2-Fluorobiphenyl	46	%	--
Terphenyl-d14	53	%	--
Phenol-d5	57	%	--
2-Fluorophenol	60	%	--
2,4,6-Tribromophenol	65	%	--

ND = Not detected
NA = Not applicable

Reported By: Mark Dymerski Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Semivolatiles

Method 8270

Client Name: Giant Refining
Client ID: RFI 0813V2.0
Lab ID: 010230-0005-SA Enseco ID: 1081751
Matrix: SOIL Sampled: 29 JUN 90 Received: 02 JUL 90
Authorized: 02 JUL 90 Prepared: 03 JUL 90 Analyzed: 23 JUL 90

Parameter	Result	Units	Reporting Limit
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Indene	ND	ug/kg	5000
1-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
Pyridine	ND	ug/kg	10000
Quinoline	ND	ug/kg	25000
Benzenethiol	ND	ug/kg	--
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
2,4-Dinitrophenol	ND	ug/kg	25000
4-Nitrophenol	ND	ug/kg	25000
Phenol	ND	ug/kg	5000
Nitrobenzene-d5	94	%	--
2-Fluorobiphenyl	96	%	--
Terphenyl-d14	81	%	--
Phenol-d5	90	%	--
2-Fluorophenol	94	%	--
2,4,6-Tribromophenol	59	%	--

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Semivolatiles

Method 8270

Client Name: Giant Refining
Client ID: RFI 0813V4.5
Lab ID: 010230-0006-SA Enseco ID: 1081752
Matrix: SOIL Sampled: 29 JUN 90 Received: 02 JUL 90
Authorized: 02 JUL 90 Prepared: 03 JUL 90 Analyzed: 23 JUL 90

Parameter	Result	Units	Reporting Limit
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Indene	ND	ug/kg	5000
1-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
Pyridine	ND	ug/kg	10000
Quinoline	ND	ug/kg	25000
Benzenethiol	ND	ug/kg	--
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
2,4-Dinitrophenol	ND	ug/kg	25000
4-Nitrophenol	ND	ug/kg	25000
Phenol	ND	ug/kg	5000
Nitrobenzene-d5	89	%	--
2-Fluorobiphenyl	90	%	--
Terphenyl-d14	78	%	--
Phenol-d5	90	%	--
2-Fluorophenol	92	%	--
2,4,6-Tribromophenol	47	%	--

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Semivolatiles

Method 8270

Client Name: Giant Refining
Client ID: RFI 0811V0.0
Lab ID: 010230-0007-SA Enseco ID: 1081753
Matrix: SOIL Sampled: 29 JUN 90 Received: 02 JUL 90
Authorized: 02 JUL 90 Prepared: 03 JUL 90 Analyzed: 23 JUL 90

Parameter	Result	Units	Reporting Limit
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Indene	ND	ug/kg	5000
1-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
Pyridine	ND	ug/kg	10000
Quinoline	ND	ug/kg	25000
Benzenethiol	ND	ug/kg	--
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
2,4-Dinitrophenol	ND	ug/kg	25000
4-Nitrophenol	ND	ug/kg	25000
Phenol	ND	ug/kg	5000
Nitrobenzene-d5	77	%	--
2-Fluorobiphenyl	80	%	--
Terphenyl-d14	72	%	--
Phenol-d5	78	%	--
2-Fluorophenol	77	%	--
2,4,6-Tribromophenol	44	%	--

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Semivolatiles

Method 8270

Client Name: Giant Refining
Client ID: RFI 0811V2.0
Lab ID: 010230-0008-SA Enseco ID: 1081754
Matrix: SOIL Sampled: 29 JUN 90 Received: 02 JUL 90
Authorized: 02 JUL 90 Prepared: 03 JUL 90 Analyzed: 24 JUL 90

Parameter	Result	Units	Reporting Limit
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Indene	ND	ug/kg	5000
1-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
Pyridine	ND	ug/kg	10000
Quinoline	ND	ug/kg	25000
Benzenethiol	ND	ug/kg	--
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
2,4-Dinitrophenol	ND	ug/kg	25000
4-Nitrophenol	ND	ug/kg	25000
Phenol	ND	ug/kg	5000
Nitrobenzene-d5	87	%	--
2-Fluorobiphenyl	93	%	--
Terphenyl-d14	105	%	--
Phenol-d5	87	%	--
2-Fluorophenol	87	%	--
2,4,6-Tribromophenol	88	%	--

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Semivolatiles

Method 8270

Client Name: Giant Refining
Client ID: RFI 0811V4.5
Lab ID: 010230-0009-SA Enseco ID: 1081755
Matrix: SOIL Sampled: 29 JUN 90 Received: 02 JUL 90
Authorized: 02 JUL 90 Prepared: 03 JUL 90 Analyzed: 24 JUL 90

Parameter	Result	Units	Reporting Limit
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Indene	ND	ug/kg	5000
1-Methylnaphthalene	71000	ug/kg	5000
Naphthalene	27000	ug/kg	5000
Phenanthrene	33000	ug/kg	5000
Pyrene	ND	ug/kg	5000
Pyridine	ND	ug/kg	10000
Quinoline	ND	ug/kg	25000
Benzenethiol	ND	ug/kg	--
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
2,4-Dinitrophenol	ND	ug/kg	25000
4-Nitrophenol	ND	ug/kg	25000
Phenol	ND	ug/kg	5000
Nitrobenzene-d5	96	%	--
2-Fluorobiphenyl	103	%	--
Terphenyl-d14	104	%	--
Phenol-d5	102	%	--
2-Fluorophenol	100	%	--
2,4,6-Tribromophenol	91	%	--

ND = Not detected
NA = Not applicable

Reported By: Donna Reinwald Approved By: Jeff Lowry

Enseco
A CORNING Company

Refinery Hazardous Constituent Semivolatiles

Method 8270

Client Name: Giant Refining
Client ID: RFI 0813D4.5
Lab ID: 010230-0010-SA Enseco ID: 1081756
Matrix: SOIL Sampled: 29 JUN 90 Received: 02 JUL 90
Authorized: 02 JUL 90 Prepared: 03 JUL 90 Analyzed: 24 JUL 90

Parameter	Result	Units	Reporting Limit
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Indene	ND	ug/kg	5000
1-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
Pyridine	ND	ug/kg	10000
Quinoline	ND	ug/kg	25000
Benzenethiol	ND	ug/kg	--
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
2,4-Dinitrophenol	ND	ug/kg	25000
4-Nitrophenol	ND	ug/kg	25000
Phenol	ND	ug/kg	5000
Nitrobenzene-d5	96	%	--
2-Fluorobiphenyl	99	%	--
Terphenyl-d14	117	%	--
Phenol-d5	94	%	--
2-Fluorophenol	95	%	--
2,4,6-Tribromophenol	86	%	--

ND = Not detected
NA = Not applicable

Reported By: Donna Reinwald Approved By: Jeff Lowry

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Refinery Hazardous Constituent Semivolatiles

Method 8270

Client Name: Giant Refining
Client ID: RFI 0812V0.0
Lab ID: 010230-0011-SA Enseco ID: 1081757
Matrix: SOIL Sampled: 29 JUN 90 Received: 02 JUL 90
Authorized: 02 JUL 90 Prepared: 03 JUL 90 Analyzed: 24 JUL 90

Parameter	Result	Units	Reporting Limit
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Indene	ND	ug/kg	5000
1-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
Pyridine	ND	ug/kg	10000
Quinoline	ND	ug/kg	25000
Benzenethiol	ND	ug/kg	--
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
2,4-Dinitrophenol	ND	ug/kg	25000
4-Nitrophenol	ND	ug/kg	25000
Phenol	ND	ug/kg	5000
Nitrobenzene-d5	85	%	--
2-Fluorobiphenyl	89	%	--
Terphenyl-d14	103	%	--
Phenol-d5	87	%	--
2-Fluorophenol	85	%	--
2,4,6-Tribromophenol	71	%	--

ND = Not detected
NA = Not applicable

Reported By: Donna Reinwald Approved By: Jeff Lowry

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Refinery Hazardous Constituent Semivolatiles

Method 8270

Client Name: Giant Refining
Client ID: RFI 0812V2.0
Lab ID: 010230-0012-SA Enseco ID: 1081758
Matrix: SOIL Sampled: 29 JUN 90 Received: 02 JUL 90
Authorized: 02 JUL 90 Prepared: 03 JUL 90 Analyzed: 24 JUL 90

Parameter	Result	Units	Reporting Limit
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Indene	ND	ug/kg	5000
1-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
Pyridine	ND	ug/kg	10000
Quinoline	ND	ug/kg	25000
Benzenethiol	ND	ug/kg	--
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
2,4-Dinitrophenol	ND	ug/kg	25000
4-Nitrophenol	ND	ug/kg	25000
Phenol	ND	ug/kg	5000
Nitrobenzene-d5	91	%	--
2-Fluorobiphenyl	94	%	--
Terphenyl-d14	116	%	--
Phenol-d5	91	%	--
2-Fluorophenol	89	%	--
2,4,6-Tribromophenol	78	%	--

ND = Not detected
NA = Not applicable

Reported By: Donna Reinwald Approved By: Jeff Lowry

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Refinery Hazardous Constituent Semivolatiles

Method 8270

Client Name: Giant Refining
Client ID: RFI 0812V4.5
Lab ID: 010230-0013-SA Enseco ID: 1081783
Matrix: SOIL Sampled: 29 JUN 90 Received: 02 JUL 90
Authorized: 02 JUL 90 Prepared: 03 JUL 90 Analyzed: 24 JUL 90

Parameter	Result	Units	Reporting Limit
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Indene	ND	ug/kg	5000
1-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
Pyridine	ND	ug/kg	10000
Quinoline	ND	ug/kg	25000
Benzenethiol	ND	ug/kg	--
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
2,4-Dinitrophenol	ND	ug/kg	25000
4-Nitrophenol	ND	ug/kg	25000
Phenol	ND	ug/kg	5000
Nitrobenzene-d5	85	%	--
2-Fluorobiphenyl	86	%	--
Terphenyl-d14	97	%	--
Phenol-d5	85	%	--
2-Fluorophenol	86	%	--
2,4,6-Tribromophenol	62	%	--

ND = Not detected
NA = Not applicable

Reported By: Donna Reinwald Approved By: Jeff Lowry

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Refinery Hazardous Constituent Semivolatiles

Method 8270

Client Name: Giant Refining
Client ID: RFI 0811D0.0
Lab ID: 010230-0014-SA Enseco ID: 1081784
Matrix: SOIL Sampled: 29 JUN 90 Received: 02 JUL 90
Authorized: 02 JUL 90 Prepared: 03 JUL 90 Analyzed: 24 JUL 90

Parameter	Result	Units	Reporting Limit
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Indene	ND	ug/kg	5000
1-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
Pyridine	ND	ug/kg	10000
Quinoline	ND	ug/kg	25000
Benzenethiol	ND	ug/kg	--
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
2,4-Dinitrophenol	ND	ug/kg	25000
4-Nitrophenol	ND	ug/kg	25000
Phenol	ND	ug/kg	5000
Nitrobenzene-d5	91	%	--
2-Fluorobiphenyl	93	%	--
Terphenyl-d14	100	%	--
Phenol-d5	93	%	--
2-Fluorophenol	92	%	--
2,4,6-Tribromophenol	72	%	--

ND = Not detected
NA = Not applicable

Reported By: Donna Reinwald Approved By: Jeff Lowry

Enseco
A CORNING Company

Total Metals

Client Name: Giant Refining
Client ID: RFI 0810V0.0
Lab ID: 010230-0001-SA
Enseco ID: 1081747
Matrix: SOIL
Sampled: 29 JUN 90
Received: 02 JUL 90
Authorized: 02 JUL 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	23 JUL 90	26 JUL 90
Arsenic	0.51	mg/kg	0.50	7060	23 JUL 90	26 JUL 90
Barium	277	mg/kg	1.0	6010	23 JUL 90	26 JUL 90
Beryllium	1.1	mg/kg	0.20	6010	23 JUL 90	26 JUL 90
Cadmium	ND	mg/kg	0.50	6010	23 JUL 90	26 JUL 90
Chromium	5.5	mg/kg	1.3	6010	23 JUL 90	26 JUL 90
Cobalt	2.1	mg/kg	1.0	6010	23 JUL 90	26 JUL 90
Copper	5.4	mg/kg	2.0	6010	23 JUL 90	26 JUL 90
Lead	10.1	mg/kg	5.0	6010	23 JUL 90	26 JUL 90
Mercury	ND	mg/kg	0.20	7471	18 JUL 90	20 JUL 90
Nickel	7.1	mg/kg	4.0	6010	23 JUL 90	26 JUL 90
Potassium	980	mg/kg	500	6010	23 JUL 90	26 JUL 90
Selenium	ND	mg/kg	0.50	7740	23 JUL 90	26 JUL 90
Vanadium	11.8	mg/kg	1.0	6010	23 JUL 90	26 JUL 90
Zinc	9.8	mg/kg	2.0	6010	23 JUL 90	26 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones
Approved By: John Laferty

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Total Metals

Client Name: Giant Refining
Client ID: RFI 0810V2.0
Lab ID: 010230-0002-SA
Enseco ID: 1081748
Matrix: SOIL
Sampled: 29 JUN 90
Received: 02 JUL 90
Authorized: 02 JUL 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	23 JUL 90	26 JUL 90
Arsenic	ND	mg/kg	0.50	7060	23 JUL 90	26 JUL 90
Barium	280	mg/kg	1.0	6010	23 JUL 90	26 JUL 90
Beryllium	1.1	mg/kg	0.20	6010	23 JUL 90	26 JUL 90
Cadmium	ND	mg/kg	0.50	6010	23 JUL 90	26 JUL 90
Chromium	5.6	mg/kg	1.3	6010	23 JUL 90	26 JUL 90
Cobalt	2.3	mg/kg	1.0	6010	23 JUL 90	26 JUL 90
Copper	6.0	mg/kg	2.0	6010	23 JUL 90	26 JUL 90
Lead	10.2	mg/kg	5.0	6010	23 JUL 90	26 JUL 90
Mercury	ND	mg/kg	0.20	7471	18 JUL 90	20 JUL 90
Nickel	7.8	mg/kg	4.0	6010	23 JUL 90	26 JUL 90
Potassium	1000	mg/kg	500	6010	23 JUL 90	26 JUL 90
Selenium	ND	mg/kg	0.50	7740	23 JUL 90	26 JUL 90
Vanadium	11.7	mg/kg	1.0	6010	23 JUL 90	26 JUL 90
Zinc	12.0	mg/kg	2.0	6010	23 JUL 90	26 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones
Approved By: John Laferty

Enseco
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Total Metals

Client Name: Giant Refining
Client ID: RFI 0810V4.5
Lab ID: 010230-0003-SA
Enseco ID: 1081749
Matrix: SOIL
Sampled: 29 JUN 90
Received: 02 JUL 90
Authorized: 02 JUL 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	23 JUL 90	26 JUL 90
Arsenic	ND	mg/kg	0.50	7060	23 JUL 90	26 JUL 90
Barium	266	mg/kg	1.0	6010	23 JUL 90	26 JUL 90
Beryllium	1.0	mg/kg	0.20	6010	23 JUL 90	26 JUL 90
Cadmium	ND	mg/kg	0.50	6010	23 JUL 90	26 JUL 90
Chromium	3.8	mg/kg	1.3	6010	23 JUL 90	26 JUL 90
Cobalt	1.4	mg/kg	1.0	6010	23 JUL 90	26 JUL 90
Copper	5.2	mg/kg	2.0	6010	23 JUL 90	26 JUL 90
Lead	7.7	mg/kg	5.0	6010	23 JUL 90	26 JUL 90
Mercury	ND	mg/kg	0.20	7471	18 JUL 90	20 JUL 90
Nickel	4.7	mg/kg	4.0	6010	23 JUL 90	26 JUL 90
Potassium	887	mg/kg	500	6010	23 JUL 90	26 JUL 90
Selenium	ND	mg/kg	0.50	7740	23 JUL 90	26 JUL 90
Vanadium	10.0	mg/kg	1.0	6010	23 JUL 90	26 JUL 90
Zinc	8.5	mg/kg	2.0	6010	23 JUL 90	26 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones
Approved By: John Laferty

Enseco
A CORNING Company

Total Metals

Client Name: Giant Refining
Client ID: RFI 0813V0.0
Lab ID: 010230-0004-SA
Enseco ID: 1081750
Matrix: SOIL
Sampled: 29 JUN 90
Received: 02 JUL 90
Authorized: 02 JUL 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	23 JUL 90	26 JUL 90
Arsenic	ND	mg/kg	1.0	7060	23 JUL 90	26 JUL 90
Barium	260	mg/kg	1.0	6010	23 JUL 90	26 JUL 90
Beryllium	1.1	mg/kg	0.20	6010	23 JUL 90	26 JUL 90
Cadmium	ND	mg/kg	0.50	6010	23 JUL 90	26 JUL 90
Chromium	6.8	mg/kg	1.3	6010	23 JUL 90	26 JUL 90
Cobalt	2.7	mg/kg	1.0	6010	23 JUL 90	26 JUL 90
Copper	5.3	mg/kg	2.0	6010	23 JUL 90	26 JUL 90
Lead	11.5	mg/kg	5.0	6010	23 JUL 90	26 JUL 90
Mercury	ND	mg/kg	0.20	7471	18 JUL 90	20 JUL 90
Nickel	8.0	mg/kg	4.0	6010	23 JUL 90	26 JUL 90
Potassium	1040	mg/kg	500	6010	23 JUL 90	26 JUL 90
Selenium	ND	mg/kg	0.50	7740	23 JUL 90	26 JUL 90
Vanadium	14.2	mg/kg	1.0	6010	23 JUL 90	26 JUL 90
Zinc	12.3	mg/kg	2.0	6010	23 JUL 90	26 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: John Laferty

Enseco
A CORNING Company

Total Metals

Client Name: Giant Refining
Client ID: RFI-0813V2.0
Lab ID: 010230-0005-SA
Enseco ID: 1081751
Matrix: SOIL
Sampled: 29 JUN 90
Received: 02 JUL 90
Authorized: 02 JUL 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	23 JUL 90	26 JUL 90
Arsenic	ND	mg/kg	0.50	7060	23 JUL 90	26 JUL 90
Barium	237	mg/kg	1.0	6010	23 JUL 90	26 JUL 90
Beryllium	0.87	mg/kg	0.20	6010	23 JUL 90	26 JUL 90
Cadmium	ND	mg/kg	0.50	6010	23 JUL 90	26 JUL 90
Chromium	5.7	mg/kg	1.3	6010	23 JUL 90	26 JUL 90
Cobalt	2.1	mg/kg	1.0	6010	23 JUL 90	26 JUL 90
Copper	4.2	mg/kg	2.0	6010	23 JUL 90	26 JUL 90
Lead	8.0	mg/kg	5.0	6010	23 JUL 90	26 JUL 90
Mercury	ND	mg/kg	0.20	7471	18 JUL 90	20 JUL 90
Nickel	6.2	mg/kg	4.0	6010	23 JUL 90	26 JUL 90
Potassium	793	mg/kg	500	6010	23 JUL 90	26 JUL 90
Selenium	ND	mg/kg	0.50	7740	23 JUL 90	26 JUL 90
Vanadium	11.9	mg/kg	1.0	6010	23 JUL 90	26 JUL 90
Zinc	9.5	mg/kg	2.0	6010	23 JUL 90	26 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones
Approved By: John Laferty

Enseco
A CORNING Company

Total Metals

Client Name: Giant Refining
Client ID: RFI 0813V4.5
Lab ID: 010230-0006-SA
Enseco ID: 1081752
Matrix: SOIL
Sampled: 29 JUN 90
Received: 02 JUL 90
Authorized: 02 JUL 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	23 JUL 90	26 JUL 90
Arsenic	ND	mg/kg	0.50	7060	23 JUL 90	26 JUL 90
Barium	183	mg/kg	1.0	6010	23 JUL 90	26 JUL 90
Beryllium	0.95	mg/kg	0.20	6010	23 JUL 90	26 JUL 90
Cadmium	ND	mg/kg	0.50	6010	23 JUL 90	26 JUL 90
Chromium	5.1	mg/kg	1.3	6010	23 JUL 90	26 JUL 90
Cobalt	2.2	mg/kg	1.0	6010	23 JUL 90	26 JUL 90
Copper	4.9	mg/kg	2.0	6010	23 JUL 90	26 JUL 90
Lead	7.6	mg/kg	5.0	6010	23 JUL 90	26 JUL 90
Mercury	ND	mg/kg	0.20	7471	18 JUL 90	20 JUL 90
Nickel	5.7	mg/kg	4.0	6010	23 JUL 90	26 JUL 90
Potassium	1160	mg/kg	500	6010	23 JUL 90	26 JUL 90
Selenium	ND	mg/kg	0.50	7740	23 JUL 90	26 JUL 90
Vanadium	10.9	mg/kg	1.0	6010	23 JUL 90	26 JUL 90
Zinc	9.3	mg/kg	2.0	6010	23 JUL 90	26 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones
Approved By: John Laferty

Enseco
A CORNING Company

Total Metals

Client Name: Giant Refining
Client ID: RFI 0811V0.0
Lab ID: 010230-0007-SA
Matrix: SOIL
Authorized: 02 JUL 90

Enseco ID: 1081753
Sampled: 29 JUN 90
Prepared: See Below

Received: 02 JUL 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	23 JUL 90	26 JUL 90
Arsenic	0.57	mg/kg	0.50	7060	23 JUL 90	26 JUL 90
Barium	262	mg/kg	1.0	6010	23 JUL 90	26 JUL 90
Beryllium	1.2	mg/kg	0.20	6010	23 JUL 90	26 JUL 90
Cadmium	ND	mg/kg	0.50	6010	23 JUL 90	26 JUL 90
Chromium	5.8	mg/kg	1.3	6010	23 JUL 90	26 JUL 90
Cobalt	2.5	mg/kg	1.0	6010	23 JUL 90	26 JUL 90
Copper	6.5	mg/kg	2.0	6010	23 JUL 90	26 JUL 90
Lead	9.5	mg/kg	5.0	6010	23 JUL 90	26 JUL 90
Mercury	ND	mg/kg	0.20	7471	18 JUL 90	20 JUL 90
Nickel	7.7	mg/kg	4.0	6010	23 JUL 90	26 JUL 90
Potassium	1550	mg/kg	500	6010	23 JUL 90	26 JUL 90
Selenium	ND	mg/kg	0.50	7740	23 JUL 90	26 JUL 90
Vanadium	12.8	mg/kg	1.0	6010	23 JUL 90	26 JUL 90
Zinc	13.2	mg/kg	2.0	6010	23 JUL 90	26 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: John Laferty

Enseco
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Total Metals

Client Name: Giant Refining
Client ID: RFI 0811V2.0
Lab ID: 010230-0008-SA
Enseco ID: 1081754
Matrix: SOIL
Sampled: 29 JUN 90
Received: 02 JUL 90
Authorized: 02 JUL 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	23 JUL 90	26 JUL 90
Arsenic	ND	mg/kg	0.50	7060	23 JUL 90	26 JUL 90
Barium	206	mg/kg	1.0	6010	23 JUL 90	26 JUL 90
Beryllium	1.1	mg/kg	0.20	6010	23 JUL 90	26 JUL 90
Cadmium	ND	mg/kg	0.50	6010	23 JUL 90	26 JUL 90
Chromium	7.1	mg/kg	1.3	6010	23 JUL 90	26 JUL 90
Cobalt	2.9	mg/kg	1.0	6010	23 JUL 90	26 JUL 90
Copper	5.1	mg/kg	2.0	6010	23 JUL 90	26 JUL 90
Lead	7.8	mg/kg	5.0	6010	23 JUL 90	26 JUL 90
Mercury	ND	mg/kg	0.20	7471	18 JUL 90	20 JUL 90
Nickel	8.2	mg/kg	4.0	6010	23 JUL 90	26 JUL 90
Potassium	1310	mg/kg	500	6010	23 JUL 90	26 JUL 90
Selenium	ND	mg/kg	0.50	7740	23 JUL 90	26 JUL 90
Vanadium	13.1	mg/kg	1.0	6010	23 JUL 90	26 JUL 90
Zinc	12.6	mg/kg	2.0	6010	23 JUL 90	26 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones
Approved By: John Laferty

Enseco
A CORNING Company

Total Metals

Client Name: Giant Refining
Client ID: RFI 0811V4.5
Lab ID: 010230-0009-SA
Enseco ID: 1081755
Matrix: SOIL
Sampled: 29 JUN 90
Received: 02 JUL 90
Authorized: 02 JUL 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	23 JUL 90	26 JUL 90
Arsenic	ND	mg/kg	0.50	7060	23 JUL 90	26 JUL 90
Barium	213	mg/kg	1.0	6010	23 JUL 90	26 JUL 90
Beryllium	0.75	mg/kg	0.20	6010	23 JUL 90	26 JUL 90
Cadmium	ND	mg/kg	0.50	6010	23 JUL 90	26 JUL 90
Chromium	3.9	mg/kg	1.3	6010	23 JUL 90	26 JUL 90
Cobalt	1.4	mg/kg	1.0	6010	23 JUL 90	26 JUL 90
Copper	3.5	mg/kg	2.0	6010	23 JUL 90	26 JUL 90
Lead	7.0	mg/kg	5.0	6010	23 JUL 90	26 JUL 90
Mercury	ND	mg/kg	0.20	7471	18 JUL 90	20 JUL 90
Nickel	4.4	mg/kg	4.0	6010	23 JUL 90	26 JUL 90
Potassium	551	mg/kg	500	6010	23 JUL 90	26 JUL 90
Selenium	ND	mg/kg	0.50	7740	23 JUL 90	26 JUL 90
Vanadium	10.0	mg/kg	1.0	6010	23 JUL 90	26 JUL 90
Zinc	7.0	mg/kg	2.0	6010	23 JUL 90	26 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones
Approved By: John Laferty

Enseco
A CORNING Company

Total Metals

Client Name: Giant Refining
Client ID: RFI 0813D4.5
Lab ID: 010230-0010-SA
Matrix: SOIL
Authorized: 02 JUL 90

Enseco ID: 1081756
Sampled: 29 JUN 90
Prepared: See Below

Received: 02 JUL 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	23 JUL 90	26 JUL 90
Arsenic	ND	mg/kg	0.50	7060	23 JUL 90	26 JUL 90
Barium	218	mg/kg	1.0	6010	23 JUL 90	26 JUL 90
Beryllium	0.99	mg/kg	0.20	6010	23 JUL 90	26 JUL 90
Cadmium	ND	mg/kg	0.50	6010	23 JUL 90	26 JUL 90
Chromium	5.9	mg/kg	1.3	6010	23 JUL 90	26 JUL 90
Cobalt	2.2	mg/kg	1.0	6010	23 JUL 90	26 JUL 90
Copper	5.0	mg/kg	2.0	6010	23 JUL 90	26 JUL 90
Lead	7.1	mg/kg	5.0	6010	23 JUL 90	26 JUL 90
Mercury	ND	mg/kg	0.20	7471	18 JUL 90	20 JUL 90
Nickel	6.3	mg/kg	4.0	6010	23 JUL 90	26 JUL 90
Potassium	1080	mg/kg	500	6010	23 JUL 90	26 JUL 90
Selenium	ND	mg/kg	0.50	7740	23 JUL 90	26 JUL 90
Vanadium	11.6	mg/kg	1.0	6010	23 JUL 90	26 JUL 90
Zinc	9.8	mg/kg	2.0	6010	23 JUL 90	26 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: John Laferty

Enseco
A CORNING Company

Total Metals

Client Name: Giant Refining
Client ID: RFI 0812V0.0
Lab ID: 010230-0011-SA
Enseco ID: 1081757
Matrix: SOIL
Sampled: 29 JUN 90
Received: 02 JUL 90
Authorized: 02 JUL 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	23 JUL 90	26 JUL 90
Arsenic	0.58	mg/kg	0.50	7060	23 JUL 90	26 JUL 90
Barium	244	mg/kg	1.0	6010	23 JUL 90	26 JUL 90
Beryllium	0.85	mg/kg	0.20	6010	23 JUL 90	26 JUL 90
Cadmium	ND	mg/kg	0.50	6010	23 JUL 90	26 JUL 90
Chromium	6.1	mg/kg	1.3	6010	23 JUL 90	26 JUL 90
Cobalt	1.9	mg/kg	1.0	6010	23 JUL 90	26 JUL 90
Copper	4.0	mg/kg	2.0	6010	23 JUL 90	26 JUL 90
Lead	15.6	mg/kg	5.0	6010	23 JUL 90	26 JUL 90
Mercury	ND	mg/kg	0.20	7471	18 JUL 90	20 JUL 90
Nickel	5.9	mg/kg	4.0	6010	23 JUL 90	26 JUL 90
Potassium	747	mg/kg	500	6010	23 JUL 90	26 JUL 90
Selenium	ND	mg/kg	0.50	7740	23 JUL 90	26 JUL 90
Vanadium	12.5	mg/kg	1.0	6010	23 JUL 90	26 JUL 90
Zinc	9.5	mg/kg	2.0	6010	23 JUL 90	26 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: John Laferty

Enseco
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Total Metals

Client Name: Giant Refining
Client ID: RFI 0812V2.0
Lab ID: 010230-0012-SA
Enseco ID: 1081758
Matrix: SOIL
Sampled: 29 JUN 90
Received: 02 JUL 90
Authorized: 02 JUL 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	23 JUL 90	26 JUL 90
Arsenic	ND	mg/kg	1.0	7060	23 JUL 90	26 JUL 90
Barium	159	mg/kg	1.0	6010	23 JUL 90	26 JUL 90
Beryllium	0.82	mg/kg	0.20	6010	23 JUL 90	26 JUL 90
Cadmium	ND	mg/kg	0.50	6010	23 JUL 90	26 JUL 90
Chromium	4.5	mg/kg	1.3	6010	23 JUL 90	26 JUL 90
Cobalt	1.9	mg/kg	1.0	6010	23 JUL 90	26 JUL 90
Copper	4.4	mg/kg	2.0	6010	23 JUL 90	26 JUL 90
Lead	7.8	mg/kg	5.0	6010	23 JUL 90	26 JUL 90
Mercury	ND	mg/kg	0.20	7471	18 JUL 90	20 JUL 90
Nickel	5.1	mg/kg	4.0	6010	23 JUL 90	26 JUL 90
Potassium	728	mg/kg	500	6010	23 JUL 90	26 JUL 90
Selenium	ND	mg/kg	0.50	7740	23 JUL 90	26 JUL 90
Vanadium	8.9	mg/kg	1.0	6010	23 JUL 90	26 JUL 90
Zinc	7.4	mg/kg	2.0	6010	23 JUL 90	26 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: John Laferty

Enseco
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Total Metals

Client Name: Giant Refining
Client ID: RFI 0812V4.5
Lab ID: 010230-0013-SA
Matrix: SOIL
Authorized: 02 JUL 90

Enseco ID: 1081783
Sampled: 29 JUN 90
Prepared: See Below

Received: 02 JUL 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	23 JUL 90	26 JUL 90
Arsenic	ND	mg/kg	0.50	7060	23 JUL 90	26 JUL 90
Barium	279	mg/kg	1.0	6010	23 JUL 90	26 JUL 90
Beryllium	0.92	mg/kg	0.20	6010	23 JUL 90	26 JUL 90
Cadmium	ND	mg/kg	0.50	6010	23 JUL 90	26 JUL 90
Chromium	3.9	mg/kg	1.3	6010	23 JUL 90	26 JUL 90
Cobalt	1.4	mg/kg	1.0	6010	23 JUL 90	26 JUL 90
Copper	4.5	mg/kg	2.0	6010	23 JUL 90	26 JUL 90
Lead	7.6	mg/kg	5.0	6010	23 JUL 90	26 JUL 90
Mercury	ND	mg/kg	0.20	7471	18 JUL 90	20 JUL 90
Nickel	5.2	mg/kg	4.0	6010	23 JUL 90	26 JUL 90
Potassium	620	mg/kg	500	6010	23 JUL 90	26 JUL 90
Selenium	ND	mg/kg	0.50	7740	23 JUL 90	26 JUL 90
Vanadium	9.9	mg/kg	1.0	6010	23 JUL 90	26 JUL 90
Zinc	7.8	mg/kg	2.0	6010	23 JUL 90	26 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: John Laferty

Enseco
A CORNING Company

Total Metals

Client Name: Giant Refining
Client ID: RFI 0811D0.0
Lab ID: 010230-0014-SA
Enseco ID: 1081784
Matrix: SOIL
Sampled: 29 JUN 90
Received: 02 JUL 90
Authorized: 02 JUL 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	23 JUL 90	26 JUL 90
Arsenic	ND	mg/kg	0.50	7060	23 JUL 90	26 JUL 90
Barium	176	mg/kg	1.0	6010	23 JUL 90	26 JUL 90
Beryllium	0.85	mg/kg	0.20	6010	23 JUL 90	26 JUL 90
Cadmium	ND	mg/kg	0.50	6010	23 JUL 90	26 JUL 90
Chromium	4.8	mg/kg	1.3	6010	23 JUL 90	26 JUL 90
Cobalt	2.0	mg/kg	1.0	6010	23 JUL 90	26 JUL 90
Copper	4.4	mg/kg	2.0	6010	23 JUL 90	26 JUL 90
Lead	6.4	mg/kg	5.0	6010	23 JUL 90	26 JUL 90
Mercury	ND	mg/kg	0.20	7471	18 JUL 90	20 JUL 90
Nickel	5.8	mg/kg	4.0	6010	23 JUL 90	26 JUL 90
Potassium	831	mg/kg	500	6010	23 JUL 90	26 JUL 90
Selenium	ND	mg/kg	0.50	7740	23 JUL 90	26 JUL 90
Vanadium	10.0	mg/kg	1.0	6010	23 JUL 90	26 JUL 90
Zinc	9.5	mg/kg	2.0	6010	23 JUL 90	26 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones
Approved By: John Laferty

Quality Control Results

The Enseco laboratories operate under a vigcrous 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
Metals Analysis and Preparation

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
010230-0001-SA	SOIL	ICP-S	23 JUL 90-D	23 JUL 90-D
010230-0001-SA	SOIL	AS-FAA-S	23 JUL 90-D	23 JUL 90-D
010230-0001-SA	SOIL	SE-FAA-S	23 JUL 90-D	23 JUL 90-D
010230-0001-SA	SOIL	HG-CVAA-S	19 JUL 90-B	19 JUL 90-B
010230-0002-SA	SOIL	ICP-S	23 JUL 90-D	23 JUL 90-D
010230-0002-SA	SOIL	AS-FAA-S	23 JUL 90-D	23 JUL 90-D
010230-0002-SA	SOIL	SE-FAA-S	23 JUL 90-D	23 JUL 90-D
010230-0002-SA	SOIL	HG-CVAA-S	19 JUL 90-B	19 JUL 90-B
010230-0003-SA	SOIL	ICP-S	23 JUL 90-D	23 JUL 90-D
010230-0003-SA	SOIL	AS-FAA-S	23 JUL 90-D	23 JUL 90-D
010230-0003-SA	SOIL	SE-FAA-S	23 JUL 90-D	23 JUL 90-D
010230-0003-SA	SOIL	HG-CVAA-S	19 JUL 90-B	19 JUL 90-B
010230-0004-SA	SOIL	ICP-S	23 JUL 90-D	23 JUL 90-D
010230-0004-SA	SOIL	AS-FAA-S	23 JUL 90-D	23 JUL 90-D
010230-0004-SA	SOIL	SE-FAA-S	23 JUL 90-D	23 JUL 90-D
010230-0004-SA	SOIL	HG-CVAA-S	19 JUL 90-B	19 JUL 90-B
010230-0005-SA	SOIL	ICP-S	23 JUL 90-D	23 JUL 90-D
010230-0005-SA	SOIL	AS-FAA-S	23 JUL 90-D	23 JUL 90-D
010230-0005-SA	SOIL	SE-FAA-S	23 JUL 90-D	23 JUL 90-D
010230-0005-SA	SOIL	HG-CVAA-S	19 JUL 90-B	19 JUL 90-B
010230-0006-SA	SOIL	ICP-S	23 JUL 90-D	23 JUL 90-D
010230-0006-SA	SOIL	AS-FAA-S	23 JUL 90-D	23 JUL 90-D
010230-0006-SA	SOIL	SE-FAA-S	23 JUL 90-D	23 JUL 90-D
010230-0006-SA	SOIL	HG-CVAA-S	19 JUL 90-B	19 JUL 90-B
010230-0007-SA	SOIL	ICP-S	23 JUL 90-D	23 JUL 90-D
010230-0007-SA	SOIL	AS-FAA-S	23 JUL 90-D	23 JUL 90-D
010230-0007-SA	SOIL	SE-FAA-S	23 JUL 90-D	23 JUL 90-D
010230-0007-SA	SOIL	HG-CVAA-S	19 JUL 90-B	19 JUL 90-B
010230-0008-SA	SOIL	ICP-S	23 JUL 90-D	23 JUL 90-D
010230-0008-SA	SOIL	AS-FAA-S	23 JUL 90-D	23 JUL 90-D
010230-0008-SA	SOIL	SE-FAA-S	23 JUL 90-D	23 JUL 90-D
010230-0008-SA	SOIL	HG-CVAA-S	19 JUL 90-B	19 JUL 90-B
010230-0009-SA	SOIL	ICP-S	23 JUL 90-D	23 JUL 90-D
010230-0009-SA	SOIL	AS-FAA-S	23 JUL 90-D	23 JUL 90-D
010230-0009-SA	SOIL	SE-FAA-S	23 JUL 90-D	23 JUL 90-D
010230-0009-SA	SOIL	HG-CVAA-S	19 JUL 90-B	19 JUL 90-B
010230-0010-SA	SOIL	ICP-S	23 JUL 90-D	23 JUL 90-D
010230-0010-SA	SOIL	AS-FAA-S	23 JUL 90-D	23 JUL 90-D
010230-0010-SA	SOIL	SE-FAA-S	23 JUL 90-D	23 JUL 90-D
010230-0010-SA	SOIL	HG-CVAA-S	19 JUL 90-B	19 JUL 90-B
010230-0011-SA	SOIL	ICP-S	23 JUL 90-D	23 JUL 90-D
010230-0011-SA	SOIL	AS-FAA-S	23 JUL 90-D	23 JUL 90-D
010230-0011-SA	SOIL	SE-FAA-S	23 JUL 90-D	23 JUL 90-D
010230-0011-SA	SOIL	HG-CVAA-S	19 JUL 90-B	19 JUL 90-B
010230-0012-SA	SOIL	ICP-S	23 JUL 90-D	23 JUL 90-D
010230-0012-SA	SOIL	AS-FAA-S	23 JUL 90-D	23 JUL 90-D
010230-0012-SA	SOIL	SE-FAA-S	23 JUL 90-D	23 JUL 90-D

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QC LOT ASSIGNMENT REPORT
Metals Analysis and Preparation (cont.)

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
010230-0012-SA	SOIL	HG-CVAA-S	19 JUL 90-B	19 JUL 90-B
010230-0013-SA	SOIL	ICP-S	23 JUL 90-D	23 JUL 90-D
010230-0013-SA	SOIL	AS-FAA-S	23 JUL 90-D	23 JUL 90-D
010230-0013-SA	SOIL	SE-FAA-S	23 JUL 90-D	23 JUL 90-D
010230-0013-SA	SOIL	HG-CVAA-S	19 JUL 90-B	19 JUL 90-B
010230-0014-SA	SOIL	ICP-S	23 JUL 90-D	23 JUL 90-D
010230-0014-SA	SOIL	AS-FAA-S	23 JUL 90-D	23 JUL 90-D
010230-0014-SA	SOIL	SE-FAA-S	23 JUL 90-D	23 JUL 90-D
010230-0014-SA	SOIL	HG-CVAA-S	19 JUL 90-B	19 JUL 90-B

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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	Precision (RPD) DCS	Precision (RPD) Limit
Category: ICP-S Matrix: SOIL QC Lot: 23 JUL 90-D Concentration Units: mg/kg								
Aluminum	200	189	191	190	95	75-125	1.1	20
Antimony	50	44.2	44.6	44.4	89	75-125	0.9	20
Arsenic	50	41.0	42.4	41.7	83	75-125	3.4	20
Barium	200	170	172	171	86	75-125	1.2	20
Beryllium	5.0	4.63	4.69	4.66	93	75-125	1.3	20
Cadmium	5.0	4.09	3.98	4.04	81	75-125	2.7	20
Calcium	10000	9400	9500	9450	95	75-125	1.1	20
Chromium	20	19.0	19.1	19.0	95	75-125	0.5	20
Cobalt	50	41.5	41.8	41.6	83	75-125	0.7	20
Copper	25	22.0	22.0	22.0	88	75-125	0.0	20
Iron	100	90.5	91.6	91.0	91	75-125	1.2	20
Lead	50	41.2	41.4	41.3	83	75-125	0.5	20
Magnesium	5000	4730	4810	4770	95	75-125	1.7	20
Manganese	50	43.1	43.5	43.3	87	75-125	0.9	20
Nickel	50	42.3	42.4	42.4	85	75-125	0.2	20
Potassium	5000	3920	4120	4020	80	75-125	5.0	20
Silver	5.0	4.68	4.83	4.76	95	75-125	3.2	20
Sodium	10000	8160	8510	8340	83	75-125	4.2	20
Vanadium	50	46.5	46.9	46.7	93	75-125	0.9	20
Zinc	50	40.9	41.3	41.1	82	75-125	1.0	20
Category: AS-FAA-S Matrix: SOIL QC Lot: 23 JUL 90-D Concentration Units: mg/kg								
Arsenic	4.0	3.57	3.38	3.48	87	75-125	5.5	20
Category: SE-FAA-S Matrix: SOIL QC Lot: 23 JUL 90-D Concentration Units: mg/kg								
Selenium	1.0	0.800	0.820	0.810	81	75-125	2.5	20

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

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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	Precision (RPD) DCS	Precision Limit
Category: HG-CVAA-S								
Matrix: SOIL								
QC Lot: 19 JUL 90-B								
Concentration Units: mg/kg								
Mercury	0.50	0.509	0.521	0.515	103	75-125	2.3	20

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

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METHOD BLANK REPORT
Metals Analysis and Preparation

Analyte	Result	Units	Reporting Limit
Test: ICPOCP-ICPS-S			
Matrix: SOIL			
QC Lot: 23 JUL 90-D QC Run: 23 JUL 90-D			
Antimony	ND	mg/kg	6.0
Barium	ND	mg/kg	1.0
Beryllium	ND	mg/kg	0.20
Cadmium	ND	mg/kg	0.50
Chromium	ND	mg/kg	1.0
Cobalt	ND	mg/kg	1.0
Copper	ND	mg/kg	2.0
Lead	ND	mg/kg	5.0
Nickel	ND	mg/kg	4.0
Potassium	ND	mg/kg	500
Vanadium	ND	mg/kg	1.0
Zinc	ND	mg/kg	2.0
Test: GF-ASCP-TAL-S			
Matrix: SOIL			
QC Lot: 23 JUL 90-D QC Run: 23 JUL 90-D			
Arsenic	ND	mg/kg	0.50
Test: GF-SECP-TAL-S			
Matrix: SOIL			
QC Lot: 23 JUL 90-D QC Run: 23 JUL 90-D			
Selenium	ND	mg/kg	0.50
Test: CV-HGCP-TAL-S			
Matrix: SOIL			
QC Lot: 19 JUL 90-B QC Run: 19 JUL 90-B			
Mercury	ND	mg/kg	0.20

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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)
010230-0001-SA	SOIL	8240-S	10 JUL 90-L	10 JUL 90-L
010230-0002-SA	SOIL	8240-S	10 JUL 90-L	10 JUL 90-L
010230-0003-SA	SOIL	8240-S	10 JUL 90-L	10 JUL 90-L
010230-0004-SA	SOIL	8240-S	10 JUL 90-L	10 JUL 90-L
010230-0005-SA	SOIL	8240-S	10 JUL 90-L	10 JUL 90-L
010230-0006-SA	SOIL	8240-S	10 JUL 90-H	11 JUL 90-H
010230-0007-SA	SOIL	8240-S	10 JUL 90-H	11 JUL 90-H
010230-0008-SA	SOIL	8240-S	10 JUL 90-H	11 JUL 90-H
010230-0009-SA	SOIL	8240-S	10 JUL 90-H	11 JUL 90-H
010230-0010-SA	SOIL	8240-S	11 JUL 90-B	11 JUL 90-B
010230-0011-SA	SOIL	8240-S	11 JUL 90-B	11 JUL 90-B
010230-0012-SA	SOIL	8240-S	11 JUL 90-B	11 JUL 90-B
010230-0013-SA	SOIL	8240-S	11 JUL 90-B	11 JUL 90-B
010230-0014-SA	SOIL	8240-S	11 JUL 90-B	11 JUL 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 Average(%) Limits	Precision (RPD) DCS	Precision (RPD) Limit
Category: 8240-S Matrix: SOIL QC Lot: 10 JUL 90-L Concentration Units: ug/kg								
1,1-Dichloroethene	5000	4400	4300	4350	87	59-172	2.3	22
Trichloroethene	5000	4960	5060	5010	100	62-137	2.0	24
Benzene	5000	4710	4870	4790	96	66-142	3.3	21
Toluene	5000	4820	4870	4840	97	59-139	1.0	21
Chlorobenzene	5000	5000	5070	5040	101	60-133	1.4	21
Category: 8240-S Matrix: SOIL QC Lot: 10 JUL 90-H Concentration Units: ug/kg								
1,1-Dichloroethene	5000	4940	5230	5080	102	59-172	5.7	22
Trichloroethene	5000	5100	5290	5200	104	62-137	3.7	24
Benzene	5000	5250	5340	5300	106	66-142	1.7	21
Toluene	5000	5030	5430	5230	105	59-139	7.6	21
Chlorobenzene	5000	5050	5320	5180	104	60-133	5.2	21
Category: 8240-S Matrix: SOIL QC Lot: 11 JUL 90-B Concentration Units: ug/kg								
1,1-Dichloroethene	5000	4800	5050	4920	99	59-172	5.1	22
Trichloroethene	5000	5210	5180	5200	104	62-137	0.6	24
Benzene	5000	5550	5200	5380	108	66-142	6.5	21
Toluene	5000	5680	6160	5920	118	59-139	8.1	21
Chlorobenzene	5000	5890	6120	6000	120	60-133	3.8	21

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

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SINGLE CONTROL SAMPLE REPORT
Volatile Organics by GC/MS

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) SCS	Accuracy(%) Limits
Category: 8240-S				
Matrix: SOIL				
QC Lot: 10 JUL 90-L QC Run: 10 JUL 90-L				
Concentration Units: ug/kg				
1,2-Dichloroethane-d4	5000	4760	95	70-121
4-Bromofluorobenzene	5000	4670	93	74-121
Toluene-d8	5000	4900	98	81-117
Category: 8240-S				
Matrix: SOIL				
QC Lot: 10 JUL 90-H QC Run: 11 JUL 90-H				
Concentration Units: ug/kg				
1,2-Dichloroethane-d4	5000	5230	105	70-121
4-Bromofluorobenzene	5000	5100	102	74-121
Toluene-d8	5000	4900	98	81-117
Category: 8240-S				
Matrix: SOIL				
QC Lot: 11 JUL 90-B QC Run: 11 JUL 90-B				
Concentration Units: ug/kg				
1,2-Dichloroethane-d4	5000	5070	101	70-121
4-Bromofluorobenzene	5000	5250	105	74-121
Toluene-d8	5000	5240	105	81-117

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

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METHOD BLANK REPORT
Volatile Organics by GC/MS

Analyte	Result	Units	Reporting Limit
Test: 8240-REF-S			
Matrix: SOIL			
QC Lot: 10 JUL 90-L QC Run: 10 JUL 90-L			
Benzene	ND	ug/kg	500
Carbon disulfide	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Chloroform	ND	ug/kg	500
EDB (1,2-Dibromoethane)	ND	ug/kg	1000
1,2-Dichloroethane	ND	ug/kg	500
1,4-Dioxane	ND	ug/kg	50000
Ethylbenzene	ND	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Xylenes (total)	ND	ug/kg	500
Test: 8240-REF-S			
Matrix: SOIL			
QC Lot: 10 JUL 90-H QC Run: 11 JUL 90-H			
Benzene	ND	ug/kg	500
Carbon disulfide	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Chloroform	ND	ug/kg	500
EDB (1,2-Dibromoethane)	ND	ug/kg	1000
1,2-Dichloroethane	ND	ug/kg	500
1,4-Dioxane	ND	ug/kg	50000
Ethylbenzene	ND	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Xylenes (total)	ND	ug/kg	500
Test: 8240-REF-S			
Matrix: SOIL			
QC Lot: 11 JUL 90-B QC Run: 11 JUL 90-B			
Benzene	ND	ug/kg	500
Carbon disulfide	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Chloroform	ND	ug/kg	500
EDB (1,2-Dibromoethane)	ND	ug/kg	1000

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

Analyte	Result	Units	Reporting Limit
Test: 8240-REF-S			
Matrix: SOIL			
QC Lot: 11 JUL 90-B QC Run: 11 JUL 90-B			
1,2-Dichloroethane	ND	ug/kg	500
1,4-Dioxane	ND	ug/kg	50000
Ethylbenzene	ND	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Xylenes (total)	ND	ug/kg	500

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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)
010230-0001-SA	SOIL	8270-S	03 JUL 90-B	03 JUL 90-C
010230-0002-SA	SOIL	8270-S	03 JUL 90-B	03 JUL 90-C
010230-0003-SA	SOIL	8270-S	03 JUL 90-B	03 JUL 90-C
010230-0004-SA	SOIL	8270-S	23 JUL 90-A	23 JUL 90-B
010230-0005-SA	SOIL	8270-S	03 JUL 90-B	03 JUL 90-C
010230-0006-SA	SOIL	8270-S	03 JUL 90-B	03 JUL 90-C
010230-0007-SA	SOIL	8270-S	03 JUL 90-B	03 JUL 90-C
010230-0008-SA	SOIL	8270-S	03 JUL 90-B	03 JUL 90-C
010230-0009-SA	SOIL	8270-S	03 JUL 90-B	03 JUL 90-C
010230-0010-SA	SOIL	8270-S	03 JUL 90-B	03 JUL 90-C
010230-0011-SA	SOIL	8270-S	03 JUL 90-B	03 JUL 90-C
010230-0012-SA	SOIL	8270-S	03 JUL 90-B	03 JUL 90-C
010230-0013-SA	SOIL	8270-S	03 JUL 90-B	03 JUL 90-C
010230-0014-SA	SOIL	8270-S	03 JUL 90-B	03 JUL 90-C

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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 Average(%) Limits	Precision (RPD) DCS	Precision (RPD) Limit
Category: 8270-S Matrix: SOIL QC Lot: 03 JUL 90-B Concentration Units: ug/kg								
Phenol	6670	5480	4900	5190	78	26- 90	11	35
2-Chlorophenol	6670	5260	4960	5110	77	25-102	5.9	50
1,4-Dichlorobenzene	3330	2180	2100	2140	64	28-104	3.7	27
N-Nitroso-di-n-propylamine	3330	2400	2400	2400	72	41-126	0.0	38
1,2,4-Trichlorobenzene	3330	2350	2390	2370	71	38-107	1.7	23
4-Chloro-3-methylphenol	6670	6160	5770	5960	89	26-103	6.5	33
Acenaphthene	3330	2380	2220	2300	69	31-137	7.0	19
4-Nitrophenol	6670	3900	4630	4260	64	11-114	17	50
2,4-Dinitrotoluene	3330	2840	2710	2780	83	28- 89	4.7	47
Pentachlorophenol	6670	3780	5770	4780	72	17-109	42	47
Pyrene	3330	3070	2840	2960	89	35-142	7.8	36
Category: 8270-S Matrix: SOIL QC Lot: 23 JUL 90-A Concentration Units: ug/kg								
Phenol	6670	6590	6870	6730	101	26- 90	4.2	35
2-Chlorophenol	6670	6120	6680	6400	96	25-102	8.8	50
1,4-Dichlorobenzene	3330	2410	2440	2420	73	28-104	1.2	27
N-Nitroso-di-n-propylamine	3330	2960	3060	3010	90	41-126	3.3	38
1,2,4-Trichlorobenzene	3330	2640	2660	2650	80	38-107	0.8	23
4-Chloro-3-methylphenol	6670	5760	5760	5760	86	26-103	0.0	33
Acenaphthene	3330	2630	2670	2650	80	31-137	1.5	19
4-Nitrophenol	6670	5160	5350	5260	79	11-114	3.6	50
2,4-Dinitrotoluene	3330	3470	3480	3480	104	28- 89	0.3	47
Pentachlorophenol	6670	6200	5840	6020	90	17-109	6.0	47
Pyrene	3330	3550	3490	3520	106	35-142	1.7	36

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/MS

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) SCS	Accuracy(%) Limits
Category: 8270-S				
Matrix: SOIL				
QC Lot: 03 JUL 90-B QC Run: 03 JUL 90-C				
Concentration Units: ug/kg				
Nitrobenzene-d5	1670	1050	63	23-120
2-Fluorobiphenyl	1670	1090	65	30-115
Terphenyl-d14	1670	1240	74	18-137
2-Fluorophenol	3330	2150	65	25-121
Phenol-d5	3330	2090	63	24-113
2,4,6-Tribromophenol	3330	2490	75	19-122
Category: 8270-S				
Matrix: SOIL				
QC Lot: 23 JUL 90-A QC Run: 23 JUL 90-B				
Concentration Units: ug/kg				
Nitrobenzene-d5	1670	1500	90	23-120
2-Fluorobiphenyl	1670	1490	89	30-115
Terphenyl-d14	1670	1860	111	18-137
2-Fluorophenol	3330	2880	86	25-121
Phenol-d5	3330	3000	90	24-113
2,4,6-Tribromophenol	3330	2520	76	19-122

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

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METHOD BLANK REPORT
Semivolatile Organics by GC/MS

Test: 8270-REF-S
Matrix: SOIL
QC Lot: 03 JUL 90-B QC Run: 03 JUL 90-C

Analyte	Result	Units	Reporting Limit
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Indene	ND	ug/kg	5000
1-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
Pyridine	ND	ug/kg	10000
Quinoline	ND	ug/kg	25000
Benzenethiol	ND	ug/kg	--
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
2,4-Dinitrophenol	ND	ug/kg	25000
4-Nitrophenol	ND	ug/kg	25000
Phenol	ND	ug/kg	5000

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

Test: 8270-REF-S
Matrix: SOIL
QC Lot: 23 JUL 90-A QC Run: 23 JUL 90-B

Analyte	Result	Units	Reporting Limit
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Indene	ND	ug/kg	5000
1-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
Pyridine	ND	ug/kg	10000
Quinoline	ND	ug/kg	25000
Benzenethiol	ND	ug/kg	--
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
2,4-Dinitrophenol	ND	ug/kg	25000
4-Nitrophenol	ND	ug/kg	25000
Phenol	ND	ug/kg	5000

Enseco - Rocky Mountain Analytical

4955 Yarrow Street
Arvada, Colorado 80002
303/421-6611 Facsimile: 303/431-7171

CHAIN OF CUSTODY

No.

Attn: Julie Essey

Enseco Client: Giant Refinery

Project: BFF

Sampling Co.: Giant

Sampling Site: Ciaizq

Team Leader: C Rosendale

SAMPLE SAFE™ CONDITIONS

1. Packed by: _____ Seal # _____
2. Seal Intact Upon Receipt by Sampling Co.: (Yes) No
3. Condition of Contents: Good
4. Sealed for Shipping by: C Rosendale
5. Initial Contents Temp.: — °C Seal # —
6. Sampling Status: (Done) Continuing Until _____
7. Seal Intact Upon Receipt by Laboratory: Yes No
8. Contents Temperature Upon Receipt by Lab: _____ °C
9. Condition of Contents: _____

Date	Time	Sample ID/Description		Sample Type	No. Containers	Analysis Parameters	Remarks
6-29-90	7:10	RFI 0810 V 0.0	01	SOIL	2	Metals, VOA, Organics	
6-29-90	7:11	RFI 0810 V 2.0	02	SOIL	2	Metals, VOA, Organics	
6-29-90	7:24	RFI 0810 V 4.5	03	SOIL	2	Metals, VOA, Organics	
6-29-90	7:38	RFI 0813 V 0.0	04	SOIL	2	Metals, VOA, Organics	
6-29-90	7:49	RFI 0813 V 2.0	05	SOIL	2	Metals, VOA, Organics	
6-29-90	7:58	RFI 0813 V 4.5	06	SOIL	2	Metals, VOA, Organics	
6-29-90	8:04	RFI 0811 V 0.0	07	SOIL	2	Metals, VOA, Organics	
6-29-90	8:16	RFI 0811 V 2.0	08	SOIL	2	Metals, VOA, Organics	
6-29-90	8:24	RFI 0811 V 4.5	09	SOIL	2	Metals, VOA, Organics	
6-29-90	7:58	RFI 0813 D 4.5	10	SOIL	2	Metals, VOA Organics	

CUSTODY TRANSFERS PRIOR TO SHIPPING

	Relinquished by: (signed)	Received by: (signed)	Date	Time
1	Chad Rosendale		6-29-90	1000
2				
3				

SHIPPING DETAILS

Delivered to Shipper by: C Rosendale

Method of Shipment: Fed Express Airbill #

Received for Lab: RMAL Signed: Bob Rich Date/Time 2 JUL 90 0900

Enseco Project No. 10230

9.472

White and Pink Copies to Lab Yellow to Sampler

SS-001

Enseco - Rocky Mountain Analytical

4955 Yarrow Street
Arvada, Colorado 80002
303/421-6611 Facsimile: 303/431-7171

CHAIN OF CUSTODY

No.

Attn: Julie Essey

Enseco Client: Giant Refinery

Project: RFI

Sampling Co.: Giant

Sampling Site: Ginizza

Team Leader: C Rosendale

SAMPLE SAFE™ CONDITIONS

1. Packed by: _____ Seal # _____
2. Seal Intact Upon Receipt by Sampling Co.: (Yes) No
3. Condition of Contents: Good
4. Sealed for Shipping by: C Rosendale
5. Initial Contents Temp.: — °C Seal # —
6. Sampling Status: (Done) Continuing Until _____
7. Seal Intact Upon Receipt by Laboratory: Yes No
8. Contents Temperature Upon Receipt by Lab: _____ °C
9. Condition of Contents: _____

Date	Time	Sample ID/Description	Sample Type	No. Containers	Analysis Parameters	Remarks
6-29-90	8:30	RFI 0812 V0.0 11	Soil 11	2	Metals, VOA, Organics	
6-29-90	8:38	RFI 0812 V2.0 12	Soil 12	2	Metals, VOA, Organics	
6-29-90	8:44	RFI 0812 V4.5 13	Soil 13	2	Metals, VOA, Organics	
6-29-90	8:04	RFI 0811 D0.0 14	Soil 14	2	Metals, VOA, Organics	

CUSTODY TRANSFERS PRIOR TO SHIPPING

	Relinquished by: (signed)	Received by: (signed)	Date	Time
1	Claud Rosendale		6-29-90	2:00pm
2				
3				

SHIPPING DETAILS

Delivered to Shipper by: C Rosendale

Method of Shipment: Fed Express Airbill #

Received for Lab: RMAL Signed: Bob Reid Date/Time 2 JUL 90 0800

Enseco Project No. 10230

White and Pink Copies to Lab Yellow to Sampler

SS 001

9,473

Section 9.0
RMAL No. 010258

Rocky Mountain
Analytical Laboratory

Enseco

ANALYTICAL RESULTS
FOR
GIANT REFINING
ENSECO-RMAL NO. 010258

AUGUST 3, 1990

Reviewed by: Julie Essey

Sue Dalla

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

Enseco

August 3, 1990

Mr. Claud Rosendale
Giant Refining
17 Miles East of Gallup
I-40, Exit 39
Gallup, NM 87301

Dear Mr. Rosendale:

Enclosed is the report for 18 samples we received at Enseco-Rocky Mountain Analytical Laboratory on July 5, 1990.

Included with the report is a quality control summary.

Please call if you have any questions.

Sincerely,

Julie Essey
Program Administrator

Reviewed by:

Sue Dalla
Manager
Program Administration

JE/SD/dmh
Enclosures

RMAL #010258

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

All analyses at Enseco are performed so that the maximum concentration of sample consistent with the method is analyzed. Dilutions are at times required to avoid saturation of the detector, to achieve linearity for a specific target compound or to reduce matrix interferences. In this event, reporting limits are adjusted proportionately. Surrogate compounds may not be measurable in samples which have been diluted.

Ethanol, by Method 8240, was found in the methanol blank associated with samples 010258-0002, -0004, -0007, -0008, and -0009. It was present at 25000 ug/kg. This value is comparable to what was detected in the samples and laboratory contamination is suspected. Also note that Enseco does not blank correct sample data.

The Duplicate Control Sample (DCS) QC Lot 08 JUL 90-A by Method 8270 had a recovery for 2,4-Dinitrotoluene above Enseco's established limits. The quantitation was rechecked and found to be correct. Based on a thorough review of the data, it was determined that the sample results were not affected. It should also be noted that control limits are based on statistical data and do not always reflect the best possible recoveries.

The Duplicate Control Sample (DCS) QC Lot 08 JUL 90-B by Method 8270 had the Relative Percent Difference (RPD) for 1,2,4-Trichlorobenzene and 4-Nitrophenol above Enseco's established limits. Based on a thorough review of the data, it was determined that the sample results were not affected.

All 8270 samples were prepped accordingly to SW-846 using 2.0 grams of sample followed by a 50 percent partition then concentration to 1.0 mL for analysis. With this prep method nominal reporting limits are generally 10000 ug/kg. After careful review of all chromatograms it has been determined that we can lower the nominal reporting limit to 5000 ug/kg for this project.

For this project, samples 010258-0013 and -0015 by Method 6010 were diluted due to concentrations of calcium in the samples. In both cases, the reporting limits were raised proportionately.

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.

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A CORNING Company

SAMPLE DESCRIPTION INFORMATION
for
Giant Refining

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
010258-0001-SA	RFI0901V0.0	SOIL	02 JUL 90	07:53	05 JUL 90
010258-0002-SA	RFI0901V3.0	SOIL	02 JUL 90	07:54	05 JUL 90
010258-0003-SA	RFI0901V5.0	SOIL	02 JUL 90	08:03	05 JUL 90
010258-0004-SA	RFI0901V7.0	SOIL	02 JUL 90	08:17	05 JUL 90
010258-0005-SA	RFI0901E5.0	AQUEOUS	02 JUL 90	08:00	05 JUL 90
010258-0006-SA	RFI0904V0.0	SOIL	02 JUL 90	08:25	05 JUL 90
010258-0007-SA	RFI0904V3.0	SOIL	02 JUL 90	08:40	05 JUL 90
010258-0008-SA	RFI0904V5.0	SOIL	02 JUL 90	08:51	05 JUL 90
010258-0009-SA	RFI0904V7.0	SOIL	02 JUL 90	09:03	05 JUL 90
010258-0010-SA	RFI0902V0.0	SOIL	02 JUL 90	09:10	05 JUL 90
010258-0011-SA	RFI0902V3.0	SOIL	02 JUL 90	09:20	05 JUL 90
010258-0012-SA	RFI0902V5.0	SOIL	02 JUL 90	09:28	05 JUL 90
010258-0013-SA	RFI0902V7.0	SOIL	02 JUL 90	09:45	05 JUL 90
010258-0014-SA	RFI0905V0.0	SOIL	02 JUL 90	09:50	05 JUL 90
010258-0015-SA	RFI0905V3.0	SOIL	02 JUL 90	09:58	05 JUL 90
010258-0016-SA	RFI0905V5.0	SOIL	02 JUL 90	10:06	05 JUL 90
010258-0017-SA	RFI0905V7.0	SOIL	02 JUL 90	10:14	05 JUL 90
010258-0018-SA	RFI0905D5.0	SOIL	02 JUL 90	10:06	05 JUL 90

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ANALYTICAL TEST REQUESTS
for
Giant Refining

Lab ID: 010258	Group Code	Analysis Description	Custom Test?
0001 - 0004, 0006 - 0018	A	ICP Suite (Standard List)	Y
		Prep - Total Metals, ICP	N
		Arsenic by Graphite Furnace AA	N
		Prep - Total Metals, Furnace AA	N
		Selenium by Graphite Furnace AA	N
		Mercury by Cold Vapor AA	N
		Prep - Mercury, Cold Vapor AA	N
		Appendix IX Semivolatile Organics	Y
		Prep - Semivolatile Organics by GC/MS	N
		Priority Pollutant Volatile Organics	Y
		GC Screen For Medium Level Soils	N
0005	B	Priority Pollutant Volatile Organics	Y
		Prep-Volatile Organics by GC/MS	N
		Target Analyte List Metals by ICP, Total	Y
		Prep - Total Metals, ICP	N
		Arsenic by Graphite Furnace AA, Total	N
		Prep - Total Metals, Furnace AA	N
		Selenium by Graphite Furnace AA, Total	N
		Lead by Graphite Furnace AA, Total	N
		Mercury by Cold Vapor AA, Total	N
		Prep - Mercury, Cold Vapor AA (Total)	N
		Appendix IX Semivolatile Organics	Y
		Prep - Semivolatile Organics by GC/MS	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, April, 1989.

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

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Priority Pollutant Volatile Organics

Method 8240

Client Name: Giant Refining
Client ID: RFI0901V0.0
Lab ID: 010258-0001-SA
Matrix: SOIL
Authorized: 05 JUL 90

Enseco ID: 1082061
Sampled: 02 JUL 90
Prepared: 11 JUL 90

Received: 05 JUL 90
Analyzed: 11 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500
Acetone	ND	ug/kg	5000
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Carbon disulfide	ND	ug/kg	500
Dibromomethane	ND	ug/kg	500
trans-1,4-Dichloro-2-butene	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	ND	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone	ND	ug/kg	5000
4-Methyl-2-pentanone	ND	ug/kg	1000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais

Approved By: Jeff Lowry

Enseco
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Priority Pollutant Volatile Organics (CONT.)

Method 8240

Client Name: Giant Refining
Client ID: RFI0901V0.0
Lab ID: 010258-0001-SA
Matrix: SOIL
Authorized: 05 JUL 90

Enseco ID: 1082061
Sampled: 02 JUL 90
Prepared: 11 JUL 90

Received: 05 JUL 90
Analyzed: 11 JUL 90

Parameter	Result	Units	Reporting Limit
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Ethyl methacrylate	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	500
2-Hexanone	ND	ug/kg	1000
Toluene-d8	96	%	--
4-Bromofluorobenzene	98	%	--
1,2-Dichloroethane-d4	95	%	--

ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais

Approved By: Jeff Lowry

Enseco
A CORNING Company

Priority Pollutant Volatile Organics

Method 8240

Client Name: Giant Refining
Client ID: RFI0901V3.0
Lab ID: 010258-0002-SA Enseco ID: 1082062
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 11 JUL 90 Analyzed: 11 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500
Acetone	ND	ug/kg	5000
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Carbon disulfide	ND	ug/kg	500
Dibromomethane	ND	ug/kg	500
trans-1,4-Dichloro-2-butene	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	16000	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone	ND	ug/kg	5000
4-Methyl-2-pentanone	ND	ug/kg	1000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais Approved By: Jeff Lowry

Enseco
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Priority Pollutant Volatile Organics (CONT.)

Method 8240

Client Name: Giant Refining
Client ID: RFI0901V3.0
Lab ID: 010258-0002-SA Enseco ID: 1082062
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 11 JUL 90 Analyzed: 11 JUL 90

Parameter	Result	Units	Reporting Limit
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Ethyl methacrylate	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	500
2-Hexanone	ND	ug/kg	1000
Toluene-d8	98	%	--
4-Bromofluorobenzene	105	%	--
1,2-Dichloroethane-d4	96	%	--

ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais Approved By: Jeff Lowry

Enseco
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Priority Pollutant Volatile Organics (CONT.)

Method 8240

Client Name: Giant Refining
Client ID: RFI0901V7.0
Lab ID: 010258-0004-SA Enseco ID: 1082064
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 11 JUL 90 Analyzed: 11 JUL 90

Parameter	Result	Units	Reporting Limit
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Ethyl methacrylate	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	500
2-Hexanone	ND	ug/kg	1000
Toluene-d8	99	%	--
4-Bromofluorobenzene	105	%	--
1,2-Dichloroethane-d4	96	%	--

ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais Approved By: Jeff Lowry

Enseco
A CORNING Company

Priority Pollutant Volatile Organics

Method 624

Client Name: Giant Refining
Client ID: RFI0901E5.0
Lab ID: 010258-0005-SA Enseco ID: 1082065
Matrix: AQUEOUS Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 11 JUL 90 Analyzed: 13 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/L	10
Bromomethane	ND	ug/L	10
Vinyl chloride	ND	ug/L	10
Chloroethane	ND	ug/L	10
Methylene chloride	ND	ug/L	5.0
1,1-Dichloroethene	ND	ug/L	5.0
1,1-Dichloroethane	ND	ug/L	5.0
1,2-Dichloroethene (cis/trans)	ND	ug/L	5.0
Chloroform	ND	ug/L	5.0
1,2-Dichloroethane	ND	ug/L	5.0
1,1,1-Trichloroethane	ND	ug/L	5.0
Carbon tetrachloride	ND	ug/L	5.0
Bromodichloromethane	ND	ug/L	5.0
1,2-Dichloropropane	ND	ug/L	5.0
trans-1,3-Dichloropropene	ND	ug/L	5.0
Trichloroethene	ND	ug/L	5.0
Dibromochloromethane	ND	ug/L	5.0
1,1,2-Trichloroethane	ND	ug/L	5.0
Benzene	ND	ug/L	5.0
cis-1,3-Dichloropropene	ND	ug/L	5.0
2-Chloroethyl vinyl ether	ND	ug/L	10
Bromoform	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
Chlorobenzene	ND	ug/L	5.0
Ethylbenzene	ND	ug/L	5.0
Acetone	ND	ug/L	50
Acrolein	ND	ug/L	100
Acrylonitrile	ND	ug/L	100
Carbon disulfide	ND	ug/L	5.0
Dibromomethane	ND	ug/L	5.0
trans-1,4-Dichloro-2-butene	ND	ug/L	5.0
Dichlorodifluoromethane	ND	ug/L	20
trans-1,2-Dichloroethene	ND	ug/L	5.0
Ethanol	ND	ug/L	100
Iodomethane	ND	ug/L	5.0
2-Butanone	ND	ug/L	50
4-Methyl-2-pentanone	ND	ug/L	10

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Michael Blades Approved By: Jeff Lowry

Enseco
A CORNING Company

Priority Pollutant Volatile Organics (CONT.)

Method 624

Client Name: Giant Refining
Client ID: RFI0901E5.0
Lab ID: 010258-0005-SA Enseco ID: 1082065
Matrix: AQUEOUS Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 11 JUL 90 Analyzed: 13 JUL 90

Parameter	Result	Units	Reporting Limit
Styrene	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
Xylenes (total)	ND	ug/L	5.0
Ethyl methacrylate	ND	ug/L	10
2-Hexanone	ND	ug/L	10
Toluene-d8	100	%	--
4-Bromofluorobenzene	99	%	--
1,2-Dichloroethane-d4	102	%	--

ND = Not detected
NA = Not applicable

Reported By: Michael Blades Approved By: Jeff Lowry

Enseco
A CORNING Company

Priority Pollutant Volatile Organics

Method 8240

Client Name: Giant Refining
Client ID: RFI0904V0.0
Lab ID: 010258-0006-SA
Matrix: SOIL
Authorized: 05 JUL 90

Enseco ID: 1082066
Sampled: 02 JUL 90
Prepared: 11 JUL 90

Received: 05 JUL 90
Analyzed: 12 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500
Acetone	ND	ug/kg	5000
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Carbon disulfide	ND	ug/kg	500
Dibromomethane	ND	ug/kg	500
trans-1,4-Dichloro-2-butene	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	ND	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone	ND	ug/kg	5000
4-Methyl-2-pentanone	ND	ug/kg	1000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais

Approved By: Jeff Lowry

Enseco
A CORNING Company

Priority Pollutant Volatile Organics (CONT.)

Method 8240

Client Name: Giant Refining
Client ID: RFI0904V0.0
Lab ID: 010258-0006-SA Enseco ID: 1082066
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 11 JUL 90 Analyzed: 12 JUL 90

Parameter	Result	Units	Reporting Limit
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Ethyl methacrylate	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	500
2-Hexanone	ND	ug/kg	1000
Toluene-d8	98	%	--
4-Bromofluorobenzene	107	%	--
1,2-Dichloroethane-d4	96	%	--

ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais Approved By: Jeff Lowry

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A CORNING Company

Priority Pollutant Volatile Organics

Method 8240

Client Name: Giant Refining
Client ID: RFI0904V3.0
Lab ID: 010258-0007-SA Enseco ID: 1082067
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 11 JUL 90 Analyzed: 12 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500
Acetone	ND	ug/kg	5000
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Carbon disulfide	ND	ug/kg	500
Dibromomethane	ND	ug/kg	500
trans-1,4-Dichloro-2-butene	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	20000	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone	ND	ug/kg	5000
4-Methyl-2-pentanone	ND	ug/kg	1000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics (CONT.)

Method 8240

Client Name: Giant Refining
Client ID: RFI0904V3.0
Lab ID: 010258-0007-SA Enseco ID: 1082067
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 11 JUL 90 Analyzed: 12 JUL 90

Parameter	Result	Units	Reporting Limit
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Ethyl methacrylate	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	500
2-Hexanone	ND	ug/kg	1000
Toluene-d8	100	%	--
4-Bromofluorobenzene	107	%	--
1,2-Dichloroethane-d4	95	%	--

ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics

Method 8240

Client Name: Giant Refining
Client ID: RFI0904V5.0
Lab ID: 010258-0008-SA
Matrix: SOIL
Authorized: 05 JUL 90

Enseco ID: 1082068
Sampled: 02 JUL 90
Prepared: 11 JUL 90

Received: 05 JUL 90
Analyzed: 12 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500
Acetone	ND	ug/kg	5000
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Carbon disulfide	ND	ug/kg	500
Dibromomethane	ND	ug/kg	500
trans-1,4-Dichloro-2-butene	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	22000	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone	ND	ug/kg	5000
4-Methyl-2-pentanone	ND	ug/kg	1000

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ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais

Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics (CONT.)

Method 8240

Client Name: Giant Refining
Client ID: RFI0904V5.0
Lab ID: 010258-0008-SA Enseco ID: 1082068
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 11 JUL 90 Analyzed: 12 JUL 90

Parameter	Result	Units	Reporting Limit
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	500
Ethyl methacrylate	ND	ug/kg	1000
2-Hexanone	ND	ug/kg	1000
Toluene-d8	98	%	--
4-Bromofluorobenzene	107	%	--
1,2-Dichloroethane-d4	96	%	--

ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics

Method 8240

Client Name: Giant Refining
Client ID: RFI0904V7.0
Lab ID: 010258-0009-SA
Enseco ID: 1082069
Matrix: SOIL
Sampled: 02 JUL 90
Received: 05 JUL 90
Authorized: 05 JUL 90
Prepared: 11 JUL 90
Analyzed: 12 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500
Acetone	ND	ug/kg	5000
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Carbon disulfide	ND	ug/kg	500
Dibromomethane	ND	ug/kg	500
trans-1,4-Dichloro-2-butene	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	12000	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone	ND	ug/kg	5000
4-Methyl-2-pentanone	ND	ug/kg	1000

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ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais
Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics (CONT.)

Method 8240

Client Name: Giant Refining
Client ID: RFI0904V7.0
Lab ID: 010258-0009-SA
Matrix: SOIL
Authorized: 05 JUL 90

Enseco ID: 1082069
Sampled: 02 JUL 90
Prepared: 11 JUL 90

Received: 05 JUL 90
Analyzed: 12 JUL 90

Parameter	Result	Units	Reporting Limit
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Ethyl methacrylate	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	500
2-Hexanone	ND	ug/kg	1000
Toluene-d8	100	%	--
4-Bromofluorobenzene	107	%	--
1,2-Dichloroethane-d4	97	%	--

ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais

Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics

Method 8240

Client Name: Giant Refining
Client ID: RFI0902V0.0
Lab ID: 010258-0010-SA Enseco ID: 1082070
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 11 JUL 90 Analyzed: 12 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500
Acetone	ND	ug/kg	5000
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Carbon disulfide	ND	ug/kg	500
Dibromomethane	ND	ug/kg	500
trans-1,4-Dichloro-2-butene	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	ND	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone	ND	ug/kg	5000
4-Methyl-2-pentanone	ND	ug/kg	1000

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ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics (CONT.)

Method 8240

Client Name: Giant Refining
Client ID: RFI0902V0.0
Lab ID: 010258-0010-SA
Enseco ID: 1082070
Matrix: SOIL
Sampled: 02 JUL 90
Received: 05 JUL 90
Authorized: 05 JUL 90
Prepared: 11 JUL 90
Analyzed: 12 JUL 90

Parameter	Result	Units	Reporting Limit
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Ethyl methacrylate	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	500
2-Hexanone	ND	ug/kg	1000
Toluene-d8	101	%	--
4-Bromofluorobenzene	109	%	--
1,2-Dichloroethane-d4	100	%	--

ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais
Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics

Method 8240

Client Name: Giant Refining
Client ID: RFI0902V3.0
Lab ID: 010258-0011-SA Enseco ID: 1082071
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 11 JUL 90 Analyzed: 12 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500
Acetone	ND	ug/kg	5000
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Carbon disulfide	ND	ug/kg	500
Dibromomethane	ND	ug/kg	500
trans-1,4-Dichloro-2-butene	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	23000	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone	ND	ug/kg	5000
4-Methyl-2-pentanone	ND	ug/kg	1000

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ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics (CONT.)

Method 8240

Client Name: Giant Refining
Client ID: RFI0902V3.0
Lab ID: 010258-0011-SA
Enseco ID: 1082071
Matrix: SOIL
Sampled: 02 JUL 90
Received: 05 JUL 90
Authorized: 05 JUL 90
Prepared: 11 JUL 90
Analyzed: 12 JUL 90

Parameter	Result	Units	Reporting Limit
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Ethyl methacrylate	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	500
2-Hexanone	ND	ug/kg	1000
Toluene-d8	100	%	--
4-Bromofluorobenzene	109	%	--
1,2-Dichloroethane-d4	99	%	--

ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais
Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics

Method 8240

Client Name: Giant Refining
Client ID: RFI0902V5.0
Lab ID: 010258-0012-SA Enseco ID: 1082072
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 11 JUL 90 Analyzed: 12 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500
Acetone	ND	ug/kg	5000
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Carbon disulfide	ND	ug/kg	500
Dibromomethane	ND	ug/kg	500
trans-1,4-Dichloro-2-butene	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	ND	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone	ND	ug/kg	5000
4-Methyl-2-pentanone	ND	ug/kg	1000

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ND = Not detected
NA = Not applicable

Reported By: Terry Riddle Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics (CONT.)

Method 8240

Client Name: Giant Refining
Client ID: RFI0902V5.0
Lab ID: 010258-0012-SA
Enseco ID: 1082072
Matrix: SOIL
Sampled: 02 JUL 90
Received: 05 JUL 90
Authorized: 05 JUL 90
Prepared: 11 JUL 90
Analyzed: 12 JUL 90

Parameter	Result	Units	Reporting Limit
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Ethyl methacrylate	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	500
2-Hexanone	ND	ug/kg	1000
Toluene-d8	100	%	--
4-Bromofluorobenzene	100	%	--
1,2-Dichloroethane-d4	99	%	--

ND = Not detected
NA = Not applicable

Reported By: Terry Riddle

Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics

Method 8240

Client Name: Giant Refining
Client ID: RFI0902V7.0
Lab ID: 010258-0013-SA Enseco ID: 1082073
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 11 JUL 90 Analyzed: 12 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500
Acetone	ND	ug/kg	5000
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Carbon disulfide	ND	ug/kg	500
Dibromomethane	ND	ug/kg	500
trans-1,4-Dichloro-2-butene	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	ND	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone	ND	ug/kg	5000
4-Methyl-2-pentanone	ND	ug/kg	1000

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ND = Not detected
NA = Not applicable

Reported By: Terry Riddle Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics (CONT.)

Method 8240

Client Name: Giant Refining
Client ID: RFI0902V7.0
Lab ID: 010258-0013-SA
Matrix: SOIL
Authorized: 05 JUL 90

Enseco ID: 1082073
Sampled: 02 JUL 90
Prepared: 11 JUL 90

Received: 05 JUL 90
Analyzed: 12 JUL 90

Parameter	Result	Units	Reporting Limit
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Ethyl methacrylate	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	500
2-Hexanone	ND	ug/kg	1000
Toluene-d8	101	%	--
4-Bromofluorobenzene	102	%	--
1,2-Dichloroethane-d4	99	%	--

ND = Not detected
NA = Not applicable

Reported By: Terry Riddle

Approved By: Jeff Lowry

Enseco
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Priority Pollutant Volatile Organics

Method 8240

Client Name: Giant Refining
Client ID: RFI0905V0.0
Lab ID: 010258-0014-SA Enseco ID: 1082074
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 11 JUL 90 Analyzed: 12 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500
Acetone	ND	ug/kg	5000
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Carbon disulfide	ND	ug/kg	500
Dibromomethane	ND	ug/kg	500
trans-1,4-Dichloro-2-butene	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	ND	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone	ND	ug/kg	5000
4-Methyl-2-pentanone	ND	ug/kg	1000

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ND = Not detected
NA = Not applicable

Reported By: Terry Riddle Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics (CONT.)

Method 8240

Client Name: Giant Refining
Client ID: RFI0905V0.0
Lab ID: 010258-0014-SA Enseco ID: 1082074
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 11 JUL 90 Analyzed: 12 JUL 90

Parameter	Result	Units	Reporting Limit
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Ethyl methacrylate	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	500
2-Hexanone	ND	ug/kg	1000
Toluene-d8	101	%	--
4-Bromofluorobenzene	100	%	--
1,2-Dichloroethane-d4	98	%	--

ND = Not detected
NA = Not applicable

Reported By: Terry Riddle Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics

Method 8240

Client Name: Giant Refining
Client ID: RFI0905V3.0
Lab ID: 010258-0015-SA Enseco ID: 1082075
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 11 JUL 90 Analyzed: 12 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500
Acetone	ND	ug/kg	5000
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Carbon disulfide	ND	ug/kg	500
Dibromomethane	ND	ug/kg	500
trans-1,4-Dichloro-2-butene	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	ND	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone	ND	ug/kg	5000
4-Methyl-2-pentanone	ND	ug/kg	1000

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ND = Not detected
NA = Not applicable

Reported By: Terry Riddle Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics (CONT.)

Method 8240

Client Name: Giant Refining
Client ID: RFI0905V3.0
Lab ID: 010258-0015-SA
Enseco ID: 1082075
Matrix: SOIL
Sampled: 02 JUL 90
Received: 05 JUL 90
Authorized: 05 JUL 90
Prepared: 11 JUL 90
Analyzed: 12 JUL 90

Parameter	Result	Units	Reporting Limit
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Ethyl methacrylate	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	500
2-Hexanone	ND	ug/kg	1000
Toluene-d8	102	%	--
4-Bromofluorobenzene	100	%	--
1,2-Dichloroethane-d4	97	%	--

ND = Not detected
NA = Not applicable

Reported By: Terry Riddle
Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics

Method 8240

Client Name: Giant Refining
Client ID: RFI0905V5.0
Lab ID: 010258-0016-SA
Matrix: SOIL
Authorized: 05 JUL 90

Enseco ID: 1082076
Sampled: 02 JUL 90
Prepared: 11 JUL 90

Received: 05 JUL 90
Analyzed: 12 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500
Acetone	ND	ug/kg	5000
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Carbon disulfide	ND	ug/kg	500
Dibromomethane	ND	ug/kg	500
trans-1,4-Dichloro-2-butene	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	ND	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone	ND	ug/kg	5000
4-Methyl-2-pentanone	ND	ug/kg	1000

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ND = Not detected
NA = Not applicable

Reported By: Terry Riddle

Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics (CONT.)

Method 8240

Client Name: Giant Refining
Client ID: RFI0905V5.0
Lab ID: 010258-0016-SA
Matrix: SOIL
Authorized: 05 JUL 90

Enseco ID: 1082076
Sampled: 02 JUL 90
Prepared: 11 JUL 90

Received: 05 JUL 90
Analyzed: 12 JUL 90

Parameter	Result	Units	Reporting Limit
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	500
Ethyl methacrylate	ND	ug/kg	1000
2-Hexanone	ND	ug/kg	1000
Toluene-d8	101	%	--
4-Bromofluorobenzene	98	%	--
1,2-Dichloroethane-d4	96	%	--

ND = Not detected
NA = Not applicable

Reported By: Terry Riddle

Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics

Method 8240

Client Name: Giant Refining
Client ID: RFI0905V7.0
Lab ID: 010258-0017-SA Enseco ID: 1082077
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 11 JUL 90 Analyzed: 12 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500
Acetone	ND	ug/kg	5000
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Carbon disulfide	ND	ug/kg	500
Dibromomethane	ND	ug/kg	500
trans-1,4-Dichloro-2-butene	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	ND	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone	ND	ug/kg	5000
4-Methyl-2-pentanone	ND	ug/kg	1000

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ND = Not detected
NA = Not applicable

Reported By: Terry Riddle Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics (CONT.)

Method 8240

Client Name: Giant Refining
Client ID: RFI0905V7.0
Lab ID: 010258-0017-SA
Matrix: SOIL
Authorized: 05 JUL 90

Enseco ID: 1082077
Sampled: 02 JUL 90
Prepared: 11 JUL 90

Received: 05 JUL 90
Analyzed: 12 JUL 90

Parameter	Result	Units	Reporting Limit
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Ethyl methacrylate	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	500
2-Hexanone	ND	ug/kg	1000
Toluene-d8	100	%	--
4-Bromofluorobenzene	96	%	--
1,2-Dichloroethane-d4	95	%	--

ND = Not detected
NA = Not applicable

Reported By: Terry Riddle

Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics

Method 8240

Client Name: Giant Refining
Client ID: RFI0905D5.0
Lab ID: 010258-0018-SA
Matrix: SOIL
Authorized: 05 JUL 90

Enseco ID: 1082078
Sampled: 02 JUL 90
Prepared: 11 JUL 90

Received: 05 JUL 90
Analyzed: 12 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500
Acetone	ND	ug/kg	5000
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Carbon disulfide	ND	ug/kg	500
Dibromomethane	ND	ug/kg	500
trans-1,4-Dichloro-2-butene	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	ND	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone	ND	ug/kg	5000
4-Methyl-2-pentanone	ND	ug/kg	1000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Terry Riddle

Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics (CONT.)

Method 8240

Client Name: Giant Refining
Client ID: RFI0905D5.0
Lab ID: 010258-0018-SA
Matrix: SOIL
Authorized: 05 JUL 90

Enseco ID: 1082078
Sampled: 02 JUL 90
Prepared: 11 JUL 90

Received: 05 JUL 90
Analyzed: 12 JUL 90

Parameter	Result	Units	Reporting Limit
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	500
Ethyl methacrylate	ND	ug/kg	1000
2-Hexanone	ND	ug/kg	1000
Toluene-d8	103	%	--
4-Bromofluorobenzene	100	%	--
1,2-Dichloroethane-d4	97	%	--

ND = Not detected
NA = Not applicable

Reported By: Terry Riddle

Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI0901V0.0
Lab ID: 010258-0001-SA
Matrix: SOIL
Authorized: 05 JUL 90

Enseco ID: 1082061
Sampled: 02 JUL 90
Prepared: 08 JUL 90

Received: 05 JUL 90
Analyzed: 23 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	5000
Acenaphthylene	ND	ug/kg	5000
Acetophenone	ND	ug/kg	5000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	5000
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(g,h,i)perylene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
Benzyl alcohol	ND	ug/kg	5000
bis(2-Chloroethoxy)-methane	ND	ug/kg	5000
bis(2-Chloroethyl) ether	ND	ug/kg	5000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
4-Bromophenyl phenyl ether	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
4-Chloroaniline	ND	ug/kg	5000
4-Chloro-3-methylphenol	ND	ug/kg	5000
2-Chloronaphthalene	ND	ug/kg	5000
2-Chlorophenol	ND	ug/kg	5000
4-Chlorophenyl phenyl ether	ND	ug/kg	5000
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
3,3'-Dichlorobenzidine	ND	ug/kg	10000
2,4-Dichlorophenol	ND	ug/kg	5000
2,6-Dichlorophenol	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
p-Dimethylaminoazobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski

Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI0901V0.0
Lab ID: 010258-0001-SA
Enseco ID: 1082061
Matrix: SOIL
Sampled: 02 JUL 90
Received: 05 JUL 90
Authorized: 05 JUL 90
Prepared: 08 JUL 90
Analyzed: 23 JUL 90

Parameter	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
a,a-Dimethylphenethylamine	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
1,3-Dinitrobenzene	ND	ug/kg	5000
4,6-Dinitro-o-cresol	ND	ug/kg	25000
2,4-Dinitrophenol	ND	ug/kg	25000
2,4-Dinitrotoluene	ND	ug/kg	5000
2,6-Dinitrotoluene	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Diphenylamine	ND	ug/kg	5000
Ethyl methanesulfonate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Fluorene	ND	ug/kg	5000
Hexachlorobenzene	ND	ug/kg	5000
Hexachlorobutadiene	ND	ug/kg	5000
Hexachlorocyclopentadiene	ND	ug/kg	5000
Hexachloroethane	ND	ug/kg	5000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	5000
Isophorone	ND	ug/kg	5000
3-Methylcholanthrene	ND	ug/kg	5000
Methyl methanesulfonate	ND	ug/kg	5000
2-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
1-Naphthylamine	ND	ug/kg	5000
2-Naphthylamine	ND	ug/kg	5000
2-Nitroaniline	ND	ug/kg	25000
3-Nitroaniline	ND	ug/kg	25000
4-Nitroaniline	ND	ug/kg	25000
Nitrobenzene	ND	ug/kg	5000
2-Nitrophenol	ND	ug/kg	5000
4-Nitrophenol	ND	ug/kg	25000
N-Nitroso-di-n-butylamine	ND	ug/kg	5000
N-Nitrosodimethylamine	ND	ug/kg	5000
N-Nitrosodiphenylamine	ND	ug/kg	5000
N-Nitroso-di-n-propylamine	ND	ug/kg	5000
N-Nitrosopiperidine	ND	ug/kg	5000
Pentachlorobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski
Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI0901V0.0
Lab ID: 010258-0001-SA
Matrix: SOIL
Authorized: 05 JUL 90

Enseco ID: 1082061
Sampled: 02 JUL 90
Prepared: 08 JUL 90

Received: 05 JUL 90
Analyzed: 23 JUL 90

Parameter	Result	Units	Reporting Limit
Pentachloronitrobenzene	ND	ug/kg	25000
Pentachlorophenol	ND	ug/kg	25000
Phenacetin	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Phenol	ND	ug/kg	5000
2-Picoline	ND	ug/kg	5000
Pronamide	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	5000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	25000
1,2,4-Trichlorobenzene	ND	ug/kg	5000
2,4,5-Trichlorophenol	ND	ug/kg	25000
2,4,6-Trichlorophenol	ND	ug/kg	5000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	5000
1-Chloronaphthalene	ND	ug/kg	--
1,2-Diphenylhydrazine	ND	ug/kg	5000
Nitrobenzene-d5	91	%	--
2-Fluorobiphenyl	98	%	--
Terphenyl-d14	100	%	--
Phenol-d5	88	%	--
2-Fluorophenol	91	%	--
2,4,6-Tribromophenol	85	%	--

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski

Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI0901V3.0
Lab ID: 010258-0002-SA
Matrix: SOIL
Authorized: 05 JUL 90

Enseco ID: 1082062
Sampled: 02 JUL 90
Prepared: 08 JUL 90

Received: 05 JUL 90
Analyzed: 23 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	5000
Acenaphthylene	ND	ug/kg	5000
Acetophenone	ND	ug/kg	5000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	5000
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(g,h,i)perylene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
Benzyl alcohol	ND	ug/kg	5000
bis(2-Chloroethoxy)-methane	ND	ug/kg	5000
bis(2-Chloroethyl) ether	ND	ug/kg	5000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
4-Bromophenyl phenyl ether	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
4-Chloroaniline	ND	ug/kg	5000
4-Chloro-3-methylphenol	ND	ug/kg	5000
2-Chloronaphthalene	ND	ug/kg	5000
2-Chlorophenol	ND	ug/kg	5000
4-Chlorophenyl phenyl ether	ND	ug/kg	5000
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
3,3'-Dichlorobenzidine	ND	ug/kg	10000
2,4-Dichlorophenol	ND	ug/kg	5000
2,6-Dichlorophenol	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
p-Dimethylaminoazobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski

Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI0901V3.0
Lab ID: 010258-0002-SA
Matrix: SOIL
Authorized: 05 JUL 90

Enseco ID: 1082062
Sampled: 02 JUL 90
Prepared: 08 JUL 90

Received: 05 JUL 90
Analyzed: 23 JUL 90

Parameter	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
a,a-Dimethylphenethylamine	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
1,3-Dinitrobenzene	ND	ug/kg	5000
4,6-Dinitro-o-cresol	ND	ug/kg	25000
2,4-Dinitrophenol	ND	ug/kg	25000
2,4-Dinitrotoluene	ND	ug/kg	5000
2,6-Dinitrotoluene	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Diphenylamine	ND	ug/kg	5000
Ethyl methanesulfonate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Fluorene	ND	ug/kg	5000
Hexachlorobenzene	ND	ug/kg	5000
Hexachlorobutadiene	ND	ug/kg	5000
Hexachlorocyclopentadiene	ND	ug/kg	5000
Hexachloroethane	ND	ug/kg	5000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	5000
Isophorone	ND	ug/kg	5000
3-Methylcholanthrene	ND	ug/kg	5000
Methyl methanesulfonate	ND	ug/kg	5000
2-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
1-Naphthylamine	ND	ug/kg	5000
2-Naphthylamine	ND	ug/kg	5000
2-Nitroaniline	ND	ug/kg	25000
3-Nitroaniline	ND	ug/kg	25000
4-Nitroaniline	ND	ug/kg	25000
Nitrobenzene	ND	ug/kg	5000
2-Nitrophenol	ND	ug/kg	5000
4-Nitrophenol	ND	ug/kg	25000
N-Nitroso-di-n-butylamine	ND	ug/kg	5000
N-Nitrosodimethylamine	ND	ug/kg	5000
N-Nitrosodiphenylamine	ND	ug/kg	5000
N-Nitroso-di-n-propylamine	ND	ug/kg	5000
N-Nitrosopiperidine	ND	ug/kg	5000
Pentachlorobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski
Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI0901V3.0
Lab ID: 010258-0002-SA Enseco ID: 1082062
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 23 JUL 90

Parameter	Result	Units	Reporting Limit
Pentachloronitrobenzene	ND	ug/kg	25000
Pentachlorophenol	ND	ug/kg	25000
Phenacetin	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Phenol	ND	ug/kg	5000
2-Picoline	ND	ug/kg	5000
Pronamide	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	5000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	25000
1,2,4-Trichlorobenzene	ND	ug/kg	5000
2,4,5-Trichlorophenol	ND	ug/kg	25000
2,4,6-Trichlorophenol	ND	ug/kg	5000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	5000
1-Chloronaphthalene	ND	ug/kg	--
1,2-Diphenylhydrazine	ND	ug/kg	5000
Nitrobenzene-d5	101	%	--
2-Fluorobiphenyl	114	%	--
Terphenyl-d14	127	%	--
Phenol-d5	99	%	--
2-Fluorophenol	101	%	--
2,4,6-Tribromophenol	69	%	--

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI0901V5.0
Lab ID: 010258-0003-SA Enseco ID: 1082063
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 23 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	5000
Acenaphthylene	ND	ug/kg	5000
Acetophenone	ND	ug/kg	5000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	5000
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(g,h,i)perylene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
Benzyl alcohol	ND	ug/kg	5000
bis(2-Chloroethoxy)-methane	ND	ug/kg	5000
bis(2-Chloroethyl) ether	ND	ug/kg	5000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
4-Bromophenyl phenyl ether	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
4-Chloroaniline	ND	ug/kg	5000
4-Chloro-3-methylphenol	ND	ug/kg	5000
2-Chloronaphthalene	ND	ug/kg	5000
2-Chlorophenol	ND	ug/kg	5000
4-Chlorophenyl phenyl ether	ND	ug/kg	5000
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
3,3'-Dichlorobenzidine	ND	ug/kg	10000
2,4-Dichlorophenol	ND	ug/kg	5000
2,6-Dichlorophenol	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
p-Dimethylaminoazobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI0901V5.0
Lab ID: 010258-0003-SA Enseco ID: 1082063
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 23 JUL 90

Parameter	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
a,a-Dimethylphenethylamine	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
1,3-Dinitrobenzene	ND	ug/kg	5000
4,6-Dinitro-o-cresol	ND	ug/kg	25000
2,4-Dinitrophenol	ND	ug/kg	25000
2,4-Dinitrotoluene	ND	ug/kg	5000
2,6-Dinitrotoluene	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Diphenylamine	ND	ug/kg	5000
Ethyl methanesulfonate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Fluorene	ND	ug/kg	5000
Hexachlorobenzene	ND	ug/kg	5000
Hexachlorobutadiene	ND	ug/kg	5000
Hexachlorocyclopentadiene	ND	ug/kg	5000
Hexachloroethane	ND	ug/kg	5000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	5000
Isophorone	ND	ug/kg	5000
3-Methylcholanthrene	ND	ug/kg	5000
Methyl methanesulfonate	ND	ug/kg	5000
2-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
1-Naphthylamine	ND	ug/kg	5000
2-Naphthylamine	ND	ug/kg	5000
2-Nitroaniline	ND	ug/kg	25000
3-Nitroaniline	ND	ug/kg	25000
4-Nitroaniline	ND	ug/kg	25000
Nitrobenzene	ND	ug/kg	5000
2-Nitrophenol	ND	ug/kg	5000
4-Nitrophenol	ND	ug/kg	25000
N-Nitroso-di-n-butylamine	ND	ug/kg	5000
N-Nitrosodimethylamine	ND	ug/kg	5000
N-Nitrosodiphenylamine	ND	ug/kg	5000
N-Nitroso-di-n-propylamine	ND	ug/kg	5000
N-Nitrosopiperidine	ND	ug/kg	5000
Pentachlorobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI0901V5.0
Lab ID: 010258-0003-SA
Enseco ID: 1082063
Matrix: SOIL
Sampled: 02 JUL 90
Received: 05 JUL 90
Authorized: 05 JUL 90
Prepared: 08 JUL 90
Analyzed: 23 JUL 90

Parameter	Result	Units	Reporting Limit
Pentachloronitrobenzene	ND	ug/kg	25000
Pentachlorophenol	ND	ug/kg	25000
Phenacetin	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Phenol	ND	ug/kg	5000
2-Picoline	ND	ug/kg	5000
Pronamide	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	5000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	25000
1,2,4-Trichlorobenzene	ND	ug/kg	5000
2,4,5-Trichlorophenol	ND	ug/kg	25000
2,4,6-Trichlorophenol	ND	ug/kg	5000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	5000
1-Chloronaphthalene	ND	ug/kg	--
1,2-Diphenylhydrazine	ND	ug/kg	5000
Nitrobenzene-d5	89	%	--
2-Fluorobiphenyl	101	%	--
Terphenyl-d14	118	%	--
Phenol-d5	86	%	--
2-Fluorophenol	90	%	--
2,4,6-Tribromophenol	69	%	--

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski
Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI0901V7.0
Lab ID: 010258-0004-SA Enseco ID: 1082064
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 23 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	5000
Acenaphthylene	ND	ug/kg	5000
Acetophenone	ND	ug/kg	5000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	5000
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(g,h,i)perylene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
Benzyl alcohol	ND	ug/kg	5000
bis(2-Chloroethoxy)-methane	ND	ug/kg	5000
bis(2-Chloroethyl) ether	ND	ug/kg	5000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
4-Bromophenyl phenyl ether	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
4-Chloroaniline	ND	ug/kg	5000
4-Chloro-3-methylphenol	ND	ug/kg	5000
2-Chloronaphthalene	ND	ug/kg	5000
2-Chlorophenol	ND	ug/kg	5000
4-Chlorophenyl phenyl ether	ND	ug/kg	5000
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
3,3'-Dichlorobenzidine	ND	ug/kg	10000
2,4-Dichlorophenol	ND	ug/kg	5000
2,6-Dichlorophenol	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
p-Dimethylaminoazobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI0901V7.0
Lab ID: 010258-0004-SA Enseco ID: 1082064
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 23 JUL 90

Parameter	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
a,a-Dimethylphenethylamine	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
1,3-Dinitrobenzene	ND	ug/kg	5000
4,6-Dinitro-o-cresol	ND	ug/kg	25000
2,4-Dinitrophenol	ND	ug/kg	25000
2,4-Dinitrotoluene	ND	ug/kg	5000
2,6-Dinitrotoluene	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Diphenylamine	ND	ug/kg	5000
Ethyl methanesulfonate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Fluorene	ND	ug/kg	5000
Hexachlorobenzene	ND	ug/kg	5000
Hexachlorobutadiene	ND	ug/kg	5000
Hexachlorocyclopentadiene	ND	ug/kg	5000
Hexachloroethane	ND	ug/kg	5000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	5000
Isophorone	ND	ug/kg	5000
3-Methylcholanthrene	ND	ug/kg	5000
Methyl methanesulfonate	ND	ug/kg	5000
2-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
1-Naphthylamine	ND	ug/kg	5000
2-Naphthylamine	ND	ug/kg	5000
2-Nitroaniline	ND	ug/kg	25000
3-Nitroaniline	ND	ug/kg	25000
4-Nitroaniline	ND	ug/kg	25000
Nitrobenzene	ND	ug/kg	5000
2-Nitrophenol	ND	ug/kg	5000
4-Nitrophenol	ND	ug/kg	25000
N-Nitroso-di-n-butylamine	ND	ug/kg	5000
N-Nitrosodimethylamine	ND	ug/kg	5000
N-Nitrosodiphenylamine	ND	ug/kg	5000
N-Nitroso-di-n-propylamine	ND	ug/kg	5000
N-Nitrosopiperidine	ND	ug/kg	5000
Pentachlorobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI0901V7.0
Lab ID: 010258-0004-SA Enseco ID: 1082064
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 23 JUL 90

Parameter	Result	Units	Reporting Limit
Pentachloronitrobenzene	ND	ug/kg	25000
Pentachlorophenol	ND	ug/kg	25000
Phenacetin	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Phenol	ND	ug/kg	5000
2-Picoline	ND	ug/kg	5000
Pronamide	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	5000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	25000
1,2,4-Trichlorobenzene	ND	ug/kg	5000
2,4,5-Trichlorophenol	ND	ug/kg	25000
2,4,6-Trichlorophenol	ND	ug/kg	5000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	5000
1-Chloronaphthalene	ND	ug/kg	--
1,2-Diphenylhydrazine	ND	ug/kg	5000
Nitrobenzene-d5	98	%	--
2-Fluorobiphenyl	114	%	--
Terphenyl-d14	124	%	--
Phenol-d5	98	%	--
2-Fluorophenol	100	%	--
2,4,6-Tribromophenol	71	%	--

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI0901E5.0
Lab ID: 010258-0005-SA Enseco ID: 1082065
Matrix: AQUEOUS Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 23 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/L	10
Acenaphthylene	ND	ug/L	10
Acetophenone	ND	ug/L	10
4-Aminobiphenyl	ND	ug/L	10
Aniline	ND	ug/L	10
Anthracene	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	20
bis(2-Chloroethoxy)-methane	ND	ug/L	10
bis(2-Chloroethyl) ether	ND	ug/L	10
bis(2-Chloroisopropyl)-ether	ND	ug/L	10
bis(2-Ethylhexyl) phthalate	ND	ug/L	10
4-Bromophenyl phenyl ether	ND	ug/L	10
Butyl benzyl phthalate	ND	ug/L	10
4-Chloroaniline	ND	ug/L	20
4-Chloro-3-methylphenol	ND	ug/L	20
2-Chloronaphthalene	ND	ug/L	10
2-Chlorophenol	ND	ug/L	10
4-Chlorophenyl phenyl ether	ND	ug/L	10
o-Cresol	ND	ug/L	10
m & p-Cresol(s)	ND	ug/L	10
Chrysene	ND	ug/L	10
Dibenz(a,h)anthracene	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
p-Dimethylaminoazobenzene	ND	ug/L	10

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI0901E5.0
Lab ID: 010258-0005-SA Enseco ID: 1082065
Matrix: AQUEOUS Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 23 JUL 90

Parameter	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	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-o-cresol	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
Ethyl methanesulfonate	ND	ug/L	10
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
Indeno(1,2,3-cd)pyrene	ND	ug/L	10
Isophorone	ND	ug/L	10
3-Methylcholanthrene	ND	ug/L	20
Methyl methanesulfonate	ND	ug/L	10
2-Methylnaphthalene	ND	ug/L	10
Naphthalene	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
N-Nitroso-di-n-butylamine	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-Nitrosopiperidine	ND	ug/L	10
Pentachlorobenzene	ND	ug/L	10

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI0901E5.0
Lab ID: 010258-0005-SA Enseco ID: 1082065
Matrix: AQUEOUS Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 23 JUL 90

Parameter	Result	Units	Reporting Limit
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
2-Picoline	ND	ug/L	10
Pronamide	ND	ug/L	20
Pyrene	ND	ug/L	10
1,2,4,5-Tetrachloro-benzene	ND	ug/L	10
2,3,4,6-Tetrachlorophenol	ND	ug/L	20
1,2,4-Trichlorobenzene	ND	ug/L	10
2,4,5-Trichlorophenol	ND	ug/L	50
2,4,6-Trichlorophenol	ND	ug/L	10
Benzidine	ND	ug/L	--
Benzoic acid	ND	ug/L	50
1-Chloronaphthalene	ND	ug/L	--
1,2-Diphenylhydrazine	ND	ug/L	50
Nitrobenzene-d5	67	%	--
2-Fluorobiphenyl	70	%	--
Terphenyl-d14	113	%	--
Phenol-d5	61	%	--
2-Fluorophenol	58	%	--
2,4,6-Tribromophenol	88	%	--

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI0904V0.0
Lab ID: 010258-0006-SA Enseco ID: 1082066
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 23 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	5000
Acenaphthylene	ND	ug/kg	5000
Acetophenone	ND	ug/kg	5000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	5000
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(g,h,i)perylene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
Benzyl alcohol	ND	ug/kg	5000
bis(2-Chloroethoxy)-methane	ND	ug/kg	5000
bis(2-Chloroethyl) ether	ND	ug/kg	5000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
4-Bromophenyl phenyl ether	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
4-Chloroaniline	ND	ug/kg	5000
4-Chloro-3-methylphenol	ND	ug/kg	5000
2-Chloronaphthalene	ND	ug/kg	5000
2-Chlorophenol	ND	ug/kg	5000
4-Chlorophenyl phenyl ether	ND	ug/kg	5000
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
3,3'-Dichlorobenzidine	ND	ug/kg	10000
2,4-Dichlorophenol	ND	ug/kg	5000
2,6-Dichlorophenol	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
p-Dimethylaminoazobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI0904V0.0
Lab ID: 010258-0006-SA Enseco ID: 1082066
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 23 JUL 90

Parameter	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
a,a-Dimethylphenethylamine	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
1,3-Dinitrobenzene	ND	ug/kg	5000
4,6-Dinitro-o-cresol	ND	ug/kg	25000
2,4-Dinitrophenol	ND	ug/kg	25000
2,4-Dinitrotoluene	ND	ug/kg	5000
2,6-Dinitrotoluene	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Diphenylamine	ND	ug/kg	5000
Ethyl methanesulfonate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Fluorene	ND	ug/kg	5000
Hexachlorobenzene	ND	ug/kg	5000
Hexachlorobutadiene	ND	ug/kg	5000
Hexachlorocyclopentadiene	ND	ug/kg	5000
Hexachloroethane	ND	ug/kg	5000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	5000
Isophorone	ND	ug/kg	5000
3-Methylcholanthrene	ND	ug/kg	5000
Methyl methanesulfonate	ND	ug/kg	5000
2-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
1-Naphthylamine	ND	ug/kg	5000
2-Naphthylamine	ND	ug/kg	5000
2-Nitroaniline	ND	ug/kg	25000
3-Nitroaniline	ND	ug/kg	25000
4-Nitroaniline	ND	ug/kg	25000
Nitrobenzene	ND	ug/kg	5000
2-Nitrophenol	ND	ug/kg	5000
4-Nitrophenol	ND	ug/kg	25000
N-Nitroso-di-n-butylamine	ND	ug/kg	5000
N-Nitrosodimethylamine	ND	ug/kg	5000
N-Nitrosodiphenylamine	ND	ug/kg	5000
N-Nitroso-di-n-propylamine	ND	ug/kg	5000
N-Nitrosopiperidine	ND	ug/kg	5000
Pentachlorobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI0904V0.0
Lab ID: 010258-0006-SA Enseco ID: 1082066
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 23 JUL 90

Parameter	Result	Units	Reporting Limit
Pentachloronitrobenzene	ND	ug/kg	25000
Pentachlorophenol	ND	ug/kg	25000
Phenacetin	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Phenol	ND	ug/kg	5000
2-Picoline	ND	ug/kg	5000
Pronamide	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	5000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	25000
1,2,4-Trichlorobenzene	ND	ug/kg	5000
2,4,5-Trichlorophenol	ND	ug/kg	25000
2,4,6-Trichlorophenol	ND	ug/kg	5000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	5000
1-Chloronaphthalene	ND	ug/kg	--
1,2-Diphenylhydrazine	ND	ug/kg	5000
Nitrobenzene-d5	88	%	--
2-Fluorobiphenyl	109	%	--
Terphenyl-d14	95	%	--
Phenol-d5	89	%	--
2-Fluorophenol	97	%	--
2,4,6-Tribromophenol	93	%	--

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI0904V3.0
Lab ID: 010258-0007-SA Enseco ID: 1082067
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 23 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	5000
Acenaphthylene	ND	ug/kg	5000
Acetophenone	ND	ug/kg	5000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	5000
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(g,h,i)perylene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
Benzyl alcohol	ND	ug/kg	5000
bis(2-Chloroethoxy)-methane	ND	ug/kg	5000
bis(2-Chloroethyl) ether	ND	ug/kg	5000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
4-Bromophenyl phenyl ether	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
4-Chloroaniline	ND	ug/kg	5000
4-Chloro-3-methylphenol	ND	ug/kg	5000
2-Chloronaphthalene	ND	ug/kg	5000
2-Chlorophenol	ND	ug/kg	5000
4-Chlorophenyl phenyl ether	ND	ug/kg	5000
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
3,3'-Dichlorobenzidine	ND	ug/kg	10000
2,4-Dichlorophenol	ND	ug/kg	5000
2,6-Dichlorophenol	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
p-Dimethylaminoazobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI0904V3.0
Lab ID: 010258-0007-SA Enseco ID: 1082067
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 23 JUL 90

Parameter	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
a,a-Dimethylphenethylamine	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
1,3-Dinitrobenzene	ND	ug/kg	5000
4,6-Dinitro-o-cresol	ND	ug/kg	25000
2,4-Dinitrophenol	ND	ug/kg	25000
2,4-Dinitrotoluene	ND	ug/kg	5000
2,6-Dinitrotoluene	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Diphenylamine	ND	ug/kg	5000
Ethyl methanesulfonate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Fluorene	ND	ug/kg	5000
Hexachlorobenzene	ND	ug/kg	5000
Hexachlorobutadiene	ND	ug/kg	5000
Hexachlorocyclopentadiene	ND	ug/kg	5000
Hexachloroethane	ND	ug/kg	5000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	5000
Isophorone	ND	ug/kg	5000
3-Methylcholanthrene	ND	ug/kg	5000
Methyl methanesulfonate	ND	ug/kg	5000
2-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
1-Naphthylamine	ND	ug/kg	5000
2-Naphthylamine	ND	ug/kg	5000
2-Nitroaniline	ND	ug/kg	25000
3-Nitroaniline	ND	ug/kg	25000
4-Nitroaniline	ND	ug/kg	25000
Nitrobenzene	ND	ug/kg	5000
2-Nitrophenol	ND	ug/kg	5000
4-Nitrophenol	ND	ug/kg	25000
N-Nitroso-di-n-butylamine	ND	ug/kg	5000
N-Nitrosodimethylamine	ND	ug/kg	5000
N-Nitrosodiphenylamine	ND	ug/kg	5000
N-Nitroso-di-n-propylamine	ND	ug/kg	5000
N-Nitrosopiperidine	ND	ug/kg	5000
Pentachlorobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI0904V3.0
Lab ID: 010258-0007-SA Enseco ID: 1082067
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 23 JUL 90

Parameter	Result	Units	Reporting Limit
Pentachloronitrobenzene	ND	ug/kg	25000
Pentachlorophenol	ND	ug/kg	25000
Phenacetin	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Phenol	ND	ug/kg	5000
2-Picoline	ND	ug/kg	5000
Pronamide	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	5000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	25000
1,2,4-Trichlorobenzene	ND	ug/kg	5000
2,4,5-Trichlorophenol	ND	ug/kg	25000
2,4,6-Trichlorophenol	ND	ug/kg	5000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	5000
1-Chloronaphthalene	ND	ug/kg	--
1,2-Diphenylhydrazine	ND	ug/kg	5000
Nitrobenzene-d5	88	%	--
2-Fluorobiphenyl	99	%	--
Terphenyl-d14	101	%	--
Phenol-d5	85	%	--
2-Fluorophenol	91	%	--
2,4,6-Tribromophenol	66	%	--

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI0904V5.0
Lab ID: 010258-0008-SA Enseco ID: 1082068
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 23 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	5000
Acenaphthylene	ND	ug/kg	5000
Acetophenone	ND	ug/kg	5000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	5000
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(g,h,i)perylene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
Benzyl alcohol	ND	ug/kg	5000
bis(2-Chloroethoxy)-methane	ND	ug/kg	5000
bis(2-Chloroethyl) ether	ND	ug/kg	5000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
4-Bromophenyl phenyl ether	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
4-Chloroaniline	ND	ug/kg	5000
4-Chloro-3-methylphenol	ND	ug/kg	5000
2-Chloronaphthalene	ND	ug/kg	5000
2-Chlorophenol	ND	ug/kg	5000
4-Chlorophenyl phenyl ether	ND	ug/kg	5000
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
3,3'-Dichlorobenzidine	ND	ug/kg	10000
2,4-Dichlorophenol	ND	ug/kg	5000
2,6-Dichlorophenol	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
p-Dimethylaminoazobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI0904V5.0
Lab ID: 010258-0008-SA Enseco ID: 1082068
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 23 JUL 90

Parameter	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
a,a-Dimethylphenethylamine	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
1,3-Dinitrobenzene	ND	ug/kg	5000
4,6-Dinitro-o-cresol	ND	ug/kg	25000
2,4-Dinitrophenol	ND	ug/kg	25000
2,4-Dinitrotoluene	ND	ug/kg	5000
2,6-Dinitrotoluene	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Diphenylamine	ND	ug/kg	5000
Ethyl methanesulfonate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Fluorene	ND	ug/kg	5000
Hexachlorobenzene	ND	ug/kg	5000
Hexachlorobutadiene	ND	ug/kg	5000
Hexachlorocyclopentadiene	ND	ug/kg	5000
Hexachloroethane	ND	ug/kg	5000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	5000
Isophorone	ND	ug/kg	5000
3-Methylcholanthrene	ND	ug/kg	5000
Methyl methanesulfonate	ND	ug/kg	5000
2-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
1-Naphthylamine	ND	ug/kg	5000
2-Naphthylamine	ND	ug/kg	5000
2-Nitroaniline	ND	ug/kg	25000
3-Nitroaniline	ND	ug/kg	25000
4-Nitroaniline	ND	ug/kg	25000
Nitrobenzene	ND	ug/kg	5000
2-Nitrophenol	ND	ug/kg	5000
4-Nitrophenol	ND	ug/kg	25000
N-Nitroso-di-n-butylamine	ND	ug/kg	5000
N-Nitrosodimethylamine	ND	ug/kg	5000
N-Nitrosodiphenylamine	ND	ug/kg	5000
N-Nitroso-di-n-propylamine	ND	ug/kg	5000
N-Nitrosopiperidine	ND	ug/kg	5000
Pentachlorobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI0904V5.0
Lab ID: 010258-0008-SA Enseco ID: 1082068
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 23 JUL 90

Parameter	Result	Units	Reporting Limit
Pentachloronitrobenzene	ND	ug/kg	25000
Pentachlorophenol	ND	ug/kg	25000
Phenacetin	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Phenol	ND	ug/kg	5000
2-Picoline	ND	ug/kg	5000
Pronamide	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	5000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	25000
1,2,4-Trichlorobenzene	ND	ug/kg	5000
2,4,5-Trichlorophenol	ND	ug/kg	25000
2,4,6-Trichlorophenol	ND	ug/kg	5000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	5000
1-Chloronaphthalene	ND	ug/kg	--
1,2-Diphenylhydrazine	ND	ug/kg	5000
Nitrobenzene-d5	87	%	--
2-Fluorobiphenyl	109	%	--
Terphenyl-d14	107	%	--
Phenol-d5	87	%	--
2-Fluorophenol	92	%	--
2,4,6-Tribromophenol	65	%	--

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI0904V7.0
Lab ID: 010258-0009-SA Enseco ID: 1082069
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 23 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	5000
Acenaphthylene	ND	ug/kg	5000
Acetophenone	ND	ug/kg	5000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	5000
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(g,h,i)perylene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
Benzyl alcohol	ND	ug/kg	5000
bis(2-Chloroethoxy)-methane	ND	ug/kg	5000
bis(2-Chloroethyl) ether	ND	ug/kg	5000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
4-Bromophenyl phenyl ether	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
4-Chloroaniline	ND	ug/kg	5000
4-Chloro-3-methylphenol	ND	ug/kg	5000
2-Chloronaphthalene	ND	ug/kg	5000
2-Chlorophenol	ND	ug/kg	5000
4-Chlorophenyl phenyl ether	ND	ug/kg	5000
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
3,3'-Dichlorobenzidine	ND	ug/kg	10000
2,4-Dichlorophenol	ND	ug/kg	5000
2,6-Dichlorophenol	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
p-Dimethylaminoazobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI0904V7.0
Lab ID: 010258-0009-SA Enseco ID: 1082069
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 23 JUL 90

Parameter	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
a,a-Dimethylphenethylamine	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
1,3-Dinitrobenzene	ND	ug/kg	5000
4,6-Dinitro-o-cresol	ND	ug/kg	25000
2,4-Dinitrophenol	ND	ug/kg	25000
2,4-Dinitrotoluene	ND	ug/kg	5000
2,6-Dinitrotoluene	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Diphenylamine	ND	ug/kg	5000
Ethyl methanesulfonate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Fluorene	ND	ug/kg	5000
Hexachlorobenzene	ND	ug/kg	5000
Hexachlorobutadiene	ND	ug/kg	5000
Hexachlorocyclopentadiene	ND	ug/kg	5000
Hexachloroethane	ND	ug/kg	5000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	5000
Isophorone	ND	ug/kg	5000
3-Methylcholanthrene	ND	ug/kg	5000
Methyl methanesulfonate	ND	ug/kg	5000
2-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
1-Naphthylamine	ND	ug/kg	5000
2-Naphthylamine	ND	ug/kg	5000
2-Nitroaniline	ND	ug/kg	25000
3-Nitroaniline	ND	ug/kg	25000
4-Nitroaniline	ND	ug/kg	25000
Nitrobenzene	ND	ug/kg	5000
2-Nitrophenol	ND	ug/kg	5000
4-Nitrophenol	ND	ug/kg	25000
N-Nitroso-di-n-butylamine	ND	ug/kg	5000
N-Nitrosodimethylamine	ND	ug/kg	5000
N-Nitrosodiphenylamine	ND	ug/kg	5000
N-Nitroso-di-n-propylamine	ND	ug/kg	5000
N-Nitrosopiperidine	ND	ug/kg	5000
Pentachlorobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI0904V7.0
Lab ID: 010258-0009-SA Enseco ID: 1082069
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 23 JUL 90

Parameter	Result	Units	Reporting Limit
Pentachloronitrobenzene	ND	ug/kg	25000
Pentachlorophenol	ND	ug/kg	25000
Phenacetin	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Phenol	ND	ug/kg	5000
2-Picoline	ND	ug/kg	5000
Pronamide	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	5000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	25000
1,2,4-Trichlorobenzene	ND	ug/kg	5000
2,4,5-Trichlorophenol	ND	ug/kg	25000
2,4,6-Trichlorophenol	ND	ug/kg	5000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	5000
1-Chloronaphthalene	ND	ug/kg	--
1,2-Diphenylhydrazine	ND	ug/kg	5000
Nitrobenzene-d5	81	%	--
2-Fluorobiphenyl	100	%	--
Terphenyl-d14	105	%	--
Phenol-d5	78	%	--
2-Fluorophenol	85	%	--
2,4,6-Tribromophenol	60	%	--

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI0902V0.0
Lab ID: 010258-0010-SA Enseco ID: 1082070
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 24 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	5000
Acenaphthylene	ND	ug/kg	5000
Acetophenone	ND	ug/kg	5000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	5000
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(g,h,i)perylene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
Benzyl alcohol	ND	ug/kg	5000
bis(2-Chloroethoxy)-methane	ND	ug/kg	5000
bis(2-Chloroethyl) ether	ND	ug/kg	5000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
4-Bromophenyl phenyl ether	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
4-Chloroaniline	ND	ug/kg	5000
4-Chloro-3-methylphenol	ND	ug/kg	5000
2-Chloronaphthalene	ND	ug/kg	5000
2-Chlorophenol	ND	ug/kg	5000
4-Chlorophenyl phenyl ether	ND	ug/kg	5000
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
3,3'-Dichlorobenzidine	ND	ug/kg	10000
2,4-Dichlorophenol	ND	ug/kg	5000
2,6-Dichlorophenol	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
p-Dimethylaminoazobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI0902V0.0
Lab ID: 010258-0010-SA Enseco ID: 1082070
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 24 JUL 90

Parameter	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
a,a-Dimethylphenethylamine	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
1,3-Dinitrobenzene	ND	ug/kg	5000
4,6-Dinitro-o-cresol	ND	ug/kg	25000
2,4-Dinitrophenol	ND	ug/kg	25000
2,4-Dinitrotoluene	ND	ug/kg	5000
2,6-Dinitrotoluene	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Diphenylamine	ND	ug/kg	5000
Ethyl methanesulfonate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Fluorene	ND	ug/kg	5000
Hexachlorobenzene	ND	ug/kg	5000
Hexachlorobutadiene	ND	ug/kg	5000
Hexachlorocyclopentadiene	ND	ug/kg	5000
Hexachloroethane	ND	ug/kg	5000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	5000
Isophorone	ND	ug/kg	5000
3-Methylcholanthrene	ND	ug/kg	5000
Methyl methanesulfonate	ND	ug/kg	5000
2-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
1-Naphthylamine	ND	ug/kg	5000
2-Naphthylamine	ND	ug/kg	5000
2-Nitroaniline	ND	ug/kg	25000
3-Nitroaniline	ND	ug/kg	25000
4-Nitroaniline	ND	ug/kg	25000
Nitrobenzene	ND	ug/kg	5000
2-Nitrophenol	ND	ug/kg	5000
4-Nitrophenol	ND	ug/kg	25000
N-Nitroso-di-n-butylamine	ND	ug/kg	5000
N-Nitrosodimethylamine	ND	ug/kg	5000
N-Nitrosodiphenylamine	ND	ug/kg	5000
N-Nitroso-di-n-propylamine	ND	ug/kg	5000
N-Nitrosopiperidine	ND	ug/kg	5000
Pentachlorobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI0902V0.0
Lab ID: 010258-0010-SA Enseco ID: 1082070
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 24 JUL 90

Parameter	Result	Units	Reporting Limit
Pentachloronitrobenzene	ND	ug/kg	25000
Pentachlorophenol	ND	ug/kg	25000
Phenacetin	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Phenol	ND	ug/kg	5000
2-Picoline	ND	ug/kg	5000
Pronamide	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	5000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	25000
1,2,4-Trichlorobenzene	ND	ug/kg	5000
2,4,5-Trichlorophenol	ND	ug/kg	25000
2,4,6-Trichlorophenol	ND	ug/kg	5000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	5000
1-Chloronaphthalene	ND	ug/kg	--
1,2-Diphenylhydrazine	ND	ug/kg	5000
Nitrobenzene-d5	96	%	--
2-Fluorobiphenyl	101	%	--
Terphenyl-d14	115	%	--
Phenol-d5	100	%	--
2-Fluorophenol	102	%	--
2,4,6-Tribromophenol	79	%	--

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI0902V3.0
Lab ID: 010258-0011-SA Enseco ID: 1082071
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 24 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	5000
Acenaphthylene	ND	ug/kg	5000
Acetophenone	ND	ug/kg	5000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	5000
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(g,h,i)perylene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
Benzyl alcohol	ND	ug/kg	5000
bis(2-Chloroethoxy)-methane	ND	ug/kg	5000
bis(2-Chloroethyl) ether	ND	ug/kg	5000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
4-Bromophenyl phenyl ether	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
4-Chloroaniline	ND	ug/kg	5000
4-Chloro-3-methylphenol	ND	ug/kg	5000
2-Chloronaphthalene	ND	ug/kg	5000
2-Chlorophenol	ND	ug/kg	5000
4-Chlorophenyl phenyl ether	ND	ug/kg	5000
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
3,3'-Dichlorobenzidine	ND	ug/kg	10000
2,4-Dichlorophenol	ND	ug/kg	5000
2,6-Dichlorophenol	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
p-Dimethylaminoazobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI0902V3.0
Lab ID: 010258-0011-SA Enseco ID: 1082071
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 24 JUL 90

Parameter	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
a,a-Dimethylphenethylamine	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
1,3-Dinitrobenzene	ND	ug/kg	5000
4,6-Dinitro-o-cresol	ND	ug/kg	25000
2,4-Dinitrophenol	ND	ug/kg	25000
2,4-Dinitrotoluene	ND	ug/kg	5000
2,6-Dinitrotoluene	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Diphenylamine	ND	ug/kg	5000
Ethyl methanesulfonate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Fluorene	ND	ug/kg	5000
Hexachlorobenzene	ND	ug/kg	5000
Hexachlorobutadiene	ND	ug/kg	5000
Hexachlorocyclopentadiene	ND	ug/kg	5000
Hexachloroethane	ND	ug/kg	5000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	5000
Isophorone	ND	ug/kg	5000
3-Methylcholanthrene	ND	ug/kg	5000
Methyl methanesulfonate	ND	ug/kg	5000
2-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
1-Naphthylamine	ND	ug/kg	5000
2-Naphthylamine	ND	ug/kg	5000
2-Nitroaniline	ND	ug/kg	25000
3-Nitroaniline	ND	ug/kg	25000
4-Nitroaniline	ND	ug/kg	25000
Nitrobenzene	ND	ug/kg	5000
2-Nitrophenol	ND	ug/kg	5000
4-Nitrophenol	ND	ug/kg	25000
N-Nitroso-di-n-butylamine	ND	ug/kg	5000
N-Nitrosodimethylamine	ND	ug/kg	5000
N-Nitrosodiphenylamine	ND	ug/kg	5000
N-Nitroso-di-n-propylamine	ND	ug/kg	5000
N-Nitrosopiperidine	ND	ug/kg	5000
Pentachlorobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI0902V3.0
Lab ID: 010258-0011-SA Enseco ID: 1082071
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 24 JUL 90

Parameter	Result	Units	Reporting Limit
Pentachloronitrobenzene	ND	ug/kg	25000
Pentachlorophenol	ND	ug/kg	25000
Phenacetin	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Phenol	ND	ug/kg	5000
2-Picoline	ND	ug/kg	5000
Pronamide	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	5000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	25000
1,2,4-Trichlorobenzene	ND	ug/kg	5000
2,4,5-Trichlorophenol	ND	ug/kg	25000
2,4,6-Trichlorophenol	ND	ug/kg	5000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	5000
1-Chloronaphthalene	ND	ug/kg	--
1,2-Diphenylhydrazine	ND	ug/kg	5000
Nitrobenzene-d5	88	%	--
2-Fluorobiphenyl	93	%	--
Terphenyl-d14	102	%	--
Phenol-d5	93	%	--
2-Fluorophenol	96	%	--
2,4,6-Tribromophenol	68	%	--

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI0902V5.0
Lab ID: 010258-0012-SA Enseco ID: 1082072
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 24 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	5000
Acenaphthylene	ND	ug/kg	5000
Acetophenone	ND	ug/kg	5000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	5000
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(g,h,i)perylene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
Benzyl alcohol	ND	ug/kg	5000
bis(2-Chloroethoxy)-methane	ND	ug/kg	5000
bis(2-Chloroethyl) ether	ND	ug/kg	5000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
4-Bromophenyl phenyl ether	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
4-Chloroaniline	ND	ug/kg	5000
4-Chloro-3-methylphenol	ND	ug/kg	5000
2-Chloronaphthalene	ND	ug/kg	5000
2-Chlorophenol	ND	ug/kg	5000
4-Chlorophenyl phenyl ether	ND	ug/kg	5000
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
3,3'-Dichlorobenzidine	ND	ug/kg	10000
2,4-Dichlorophenol	ND	ug/kg	5000
2,6-Dichlorophenol	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
p-Dimethylaminoazobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI0902V5.0
Lab ID: 010258-0012-SA Enseco ID: 1082072
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 24 JUL 90

Parameter	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
a,a-Dimethylphenethylamine	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
1,3-Dinitrobenzene	ND	ug/kg	5000
4,6-Dinitro-o-cresol	ND	ug/kg	25000
2,4-Dinitrophenol	ND	ug/kg	25000
2,4-Dinitrotoluene	ND	ug/kg	5000
2,6-Dinitrotoluene	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Diphenylamine	ND	ug/kg	5000
Ethyl methanesulfonate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Fluorene	ND	ug/kg	5000
Hexachlorobenzene	ND	ug/kg	5000
Hexachlorobutadiene	ND	ug/kg	5000
Hexachlorocyclopentadiene	ND	ug/kg	5000
Hexachloroethane	ND	ug/kg	5000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	5000
Isophorone	ND	ug/kg	5000
3-Methylcholanthrene	ND	ug/kg	5000
Methyl methanesulfonate	ND	ug/kg	5000
2-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
1-Naphthylamine	ND	ug/kg	5000
2-Naphthylamine	ND	ug/kg	5000
2-Nitroaniline	ND	ug/kg	25000
3-Nitroaniline	ND	ug/kg	25000
4-Nitroaniline	ND	ug/kg	25000
Nitrobenzene	ND	ug/kg	5000
2-Nitrophenol	ND	ug/kg	5000
4-Nitrophenol	ND	ug/kg	25000
N-Nitroso-di-n-butylamine	ND	ug/kg	5000
N-Nitrosodimethylamine	ND	ug/kg	5000
N-Nitrosodiphenylamine	ND	ug/kg	5000
N-Nitroso-di-n-propylamine	ND	ug/kg	5000
N-Nitrosopiperidine	ND	ug/kg	5000
Pentachlorobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI0902V5.0
Lab ID: 010258-0012-SA Enseco ID: 1082072
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 24 JUL 90

Parameter	Result	Units	Reporting Limit
Pentachloronitrobenzene	ND	ug/kg	25000
Pentachlorophenol	ND	ug/kg	25000
Phenacetin	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Phenol	ND	ug/kg	5000
2-Picoline	ND	ug/kg	5000
Pronamide	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	5000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	25000
1,2,4-Trichlorobenzene	ND	ug/kg	5000
2,4,5-Trichlorophenol	ND	ug/kg	25000
2,4,6-Trichlorophenol	ND	ug/kg	5000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	5000
1-Chloronaphthalene	ND	ug/kg	--
1,2-Diphenylhydrazine	ND	ug/kg	5000
Nitrobenzene-d5	89	%	--
2-Fluorobiphenyl	95	%	--
Terphenyl-d14	109	%	--
Phenol-d5	93	%	--
2-Fluorophenol	93	%	--
2,4,6-Tribromophenol	73	%	--

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI0902V7.0
Lab ID: 010258-0013-SA
Matrix: SOIL
Authorized: 05 JUL 90

Enseco ID: 1082073
Sampled: 02 JUL 90
Prepared: 08 JUL 90

Received: 05 JUL 90
Analyzed: 24 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	5000
Acenaphthylene	ND	ug/kg	5000
Acetophenone	ND	ug/kg	5000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	5000
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(g,h,i)perylene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
Benzyl alcohol	ND	ug/kg	5000
bis(2-Chloroethoxy)-methane	ND	ug/kg	5000
bis(2-Chloroethyl) ether	ND	ug/kg	5000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
4-Bromophenyl phenyl ether	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
4-Chloroaniline	ND	ug/kg	5000
4-Chloro-3-methylphenol	ND	ug/kg	5000
2-Chloronaphthalene	ND	ug/kg	5000
2-Chlorophenol	ND	ug/kg	5000
4-Chlorophenyl phenyl ether	ND	ug/kg	5000
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
3,3'-Dichlorobenzidine	ND	ug/kg	10000
2,4-Dichlorophenol	ND	ug/kg	5000
2,6-Dichlorophenol	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
p-Dimethylaminoazobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski
Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI0902V7.0
Lab ID: 010258-0013-SA Enseco ID: 1082073
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 24 JUL 90

Parameter	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
a,a-Dimethylphenethylamine	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
1,3-Dinitrobenzene	ND	ug/kg	5000
4,6-Dinitro-o-cresol	ND	ug/kg	25000
2,4-Dinitrophenol	ND	ug/kg	25000
2,4-Dinitrotoluene	ND	ug/kg	5000
2,6-Dinitrotoluene	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Diphenylamine	ND	ug/kg	5000
Ethyl methanesulfonate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Fluorene	ND	ug/kg	5000
Hexachlorobenzene	ND	ug/kg	5000
Hexachlorobutadiene	ND	ug/kg	5000
Hexachlorocyclopentadiene	ND	ug/kg	5000
Hexachloroethane	ND	ug/kg	5000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	5000
Isophorone	ND	ug/kg	5000
3-Methylcholanthrene	ND	ug/kg	5000
Methyl methanesulfonate	ND	ug/kg	5000
2-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
1-Naphthylamine	ND	ug/kg	5000
2-Naphthylamine	ND	ug/kg	5000
2-Nitroaniline	ND	ug/kg	25000
3-Nitroaniline	ND	ug/kg	25000
4-Nitroaniline	ND	ug/kg	25000
Nitrobenzene	ND	ug/kg	5000
2-Nitrophenol	ND	ug/kg	5000
4-Nitrophenol	ND	ug/kg	25000
N-Nitroso-di-n-butylamine	ND	ug/kg	5000
N-Nitrosodimethylamine	ND	ug/kg	5000
N-Nitrosodiphenylamine	ND	ug/kg	5000
N-Nitroso-di-n-propylamine	ND	ug/kg	5000
N-Nitrosopiperidine	ND	ug/kg	5000
Pentachlorobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI0902V7.0
Lab ID: 010258-0013-SA Enseco ID: 1082073
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 24 JUL 90

Parameter	Result	Units	Reporting Limit
Pentachloronitrobenzene	ND	ug/kg	25000
Pentachlorophenol	ND	ug/kg	25000
Phenacetin	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Phenol	ND	ug/kg	5000
2-Picoline	ND	ug/kg	5000
Pronamide	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	5000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	25000
1,2,4-Trichlorobenzene	ND	ug/kg	5000
2,4,5-Trichlorophenol	ND	ug/kg	25000
2,4,6-Trichlorophenol	ND	ug/kg	5000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	5000
1-Chloronaphthalene	ND	ug/kg	--
1,2-Diphenylhydrazine	ND	ug/kg	5000
Nitrobenzene-d5	85	%	--
2-Fluorobiphenyl	92	%	--
Terphenyl-d14	101	%	--
Phenol-d5	87	%	--
2-Fluorophenol	90	%	--
2,4,6-Tribromophenol	68	%	--

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI0905V0.0
Lab ID: 010258-0014-SA
Enseco ID: 1082074
Matrix: SOIL
Sampled: 02 JUL 90
Received: 05 JUL 90
Authorized: 05 JUL 90
Prepared: 08 JUL 90
Analyzed: 24 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	5000
Acenaphthylene	ND	ug/kg	5000
Acetophenone	ND	ug/kg	5000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	5000
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(g,h,i)perylene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
Benzyl alcohol	ND	ug/kg	5000
bis(2-Chloroethoxy)-methane	ND	ug/kg	5000
bis(2-Chloroethyl) ether	ND	ug/kg	5000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
4-Bromophenyl phenyl ether	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
4-Chloroaniline	ND	ug/kg	5000
4-Chloro-3-methylphenol	ND	ug/kg	5000
2-Chloronaphthalene	ND	ug/kg	5000
2-Chlorophenol	ND	ug/kg	5000
4-Chlorophenyl phenyl ether	ND	ug/kg	5000
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
3,3'-Dichlorobenzidine	ND	ug/kg	10000
2,4-Dichlorophenol	ND	ug/kg	5000
2,6-Dichlorophenol	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
p-Dimethylaminoazobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski
Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI0905V0.0
Lab ID: 010258-0014-SA Enseco ID: 1082074
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 24 JUL 90

Parameter	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
a,a-Dimethylphenethylamine	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
1,3-Dinitrobenzene	ND	ug/kg	5000
4,6-Dinitro-o-cresol	ND	ug/kg	25000
2,4-Dinitrophenol	ND	ug/kg	25000
2,4-Dinitrotoluene	ND	ug/kg	5000
2,6-Dinitrotoluene	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Diphenylamine	ND	ug/kg	5000
Ethyl methanesulfonate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Fluorene	ND	ug/kg	5000
Hexachlorobenzene	ND	ug/kg	5000
Hexachlorobutadiene	ND	ug/kg	5000
Hexachlorocyclopentadiene	ND	ug/kg	5000
Hexachloroethane	ND	ug/kg	5000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	5000
Isophorone	ND	ug/kg	5000
3-Methylcholanthrene	ND	ug/kg	5000
Methyl methanesulfonate	ND	ug/kg	5000
2-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
1-Naphthylamine	ND	ug/kg	5000
2-Naphthylamine	ND	ug/kg	5000
2-Nitroaniline	ND	ug/kg	25000
3-Nitroaniline	ND	ug/kg	25000
4-Nitroaniline	ND	ug/kg	25000
Nitrobenzene	ND	ug/kg	5000
2-Nitrophenol	ND	ug/kg	5000
4-Nitrophenol	ND	ug/kg	25000
N-Nitroso-di-n-butylamine	ND	ug/kg	5000
N-Nitrosodimethylamine	ND	ug/kg	5000
N-Nitrosodiphenylamine	ND	ug/kg	5000
N-Nitroso-di-n-propylamine	ND	ug/kg	5000
N-Nitrosopiperidine	ND	ug/kg	5000
Pentachlorobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI0905V0.0
Lab ID: 010258-0014-SA Enseco ID: 1082074
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 24 JUL 90

Parameter	Result	Units	Reporting Limit
Pentachloronitrobenzene	ND	ug/kg	25000
Pentachlorophenol	ND	ug/kg	25000
Phenacetin	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Phenol	ND	ug/kg	5000
2-Picoline	ND	ug/kg	5000
Pronamide	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	5000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	25000
1,2,4-Trichlorobenzene	ND	ug/kg	5000
2,4,5-Trichlorophenol	ND	ug/kg	25000
2,4,6-Trichlorophenol	ND	ug/kg	5000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	5000
1-Chloronaphthalene	ND	ug/kg	--
1,2-Diphenylhydrazine	ND	ug/kg	5000
Nitrobenzene-d5	87	%	--
2-Fluorobiphenyl	99	%	--
Terphenyl-d14	113	%	--
Phenol-d5	92	%	--
2-Fluorophenol	94	%	--
2,4,6-Tribromophenol	72	%	--

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI0905V3.0
Lab ID: 010258-0015-SA Enseco ID: 1082075
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 24 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	5000
Acenaphthylene	ND	ug/kg	5000
Acetophenone	ND	ug/kg	5000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	5000
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(g,h,i)perylene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
Benzyl alcohol	ND	ug/kg	5000
bis(2-Chloroethoxy)-methane	ND	ug/kg	5000
bis(2-Chloroethyl) ether	ND	ug/kg	5000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
4-Bromophenyl phenyl ether	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
4-Chloroaniline	ND	ug/kg	5000
4-Chloro-3-methylphenol	ND	ug/kg	5000
2-Chloronaphthalene	ND	ug/kg	5000
2-Chlorophenol	ND	ug/kg	5000
4-Chlorophenyl phenyl ether	ND	ug/kg	5000
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
3,3'-Dichlorobenzidine	ND	ug/kg	10000
2,4-Dichlorophenol	ND	ug/kg	5000
2,6-Dichlorophenol	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
p-Dimethylaminoazobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI0905V3.0
Lab ID: 010258-0015-SA Enseco ID: 1082075
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 24 JUL 90

Parameter	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
a,a-Dimethylphenethylamine	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
1,3-Dinitrobenzene	ND	ug/kg	5000
4,6-Dinitro-o-cresol	ND	ug/kg	25000
2,4-Dinitrophenol	ND	ug/kg	25000
2,4-Dinitrotoluene	ND	ug/kg	5000
2,6-Dinitrotoluene	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Diphenylamine	ND	ug/kg	5000
Ethyl methanesulfonate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Fluorene	ND	ug/kg	5000
Hexachlorobenzene	ND	ug/kg	5000
Hexachlorobutadiene	ND	ug/kg	5000
Hexachlorocyclopentadiene	ND	ug/kg	5000
Hexachloroethane	ND	ug/kg	5000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	5000
Isophorone	ND	ug/kg	5000
3-Methylcholanthrene	ND	ug/kg	5000
Methyl methanesulfonate	ND	ug/kg	5000
2-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
1-Naphthylamine	ND	ug/kg	5000
2-Naphthylamine	ND	ug/kg	5000
2-Nitroaniline	ND	ug/kg	25000
3-Nitroaniline	ND	ug/kg	25000
4-Nitroaniline	ND	ug/kg	25000
Nitrobenzene	ND	ug/kg	5000
2-Nitrophenol	ND	ug/kg	5000
4-Nitrophenol	ND	ug/kg	25000
N-Nitroso-di-n-butylamine	ND	ug/kg	5000
N-Nitrosodimethylamine	ND	ug/kg	5000
N-Nitrosodiphenylamine	ND	ug/kg	5000
N-Nitroso-di-n-propylamine	ND	ug/kg	5000
N-Nitrosopiperidine	ND	ug/kg	5000
Pentachlorobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI0905V3.0
Lab ID: 010258-0015-SA
Matrix: SOIL
Authorized: 05 JUL 90

Enseco ID: 1082075
Sampled: 02 JUL 90
Prepared: 08 JUL 90

Received: 05 JUL 90
Analyzed: 24 JUL 90

Parameter	Result	Units	Reporting Limit
Pentachloronitrobenzene	ND	ug/kg	25000
Pentachlorophenol	ND	ug/kg	25000
Phenacetin	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Phenol	ND	ug/kg	5000
2-Picoline	ND	ug/kg	5000
Pronamide	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	5000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	25000
1,2,4-Trichlorobenzene	ND	ug/kg	5000
2,4,5-Trichlorophenol	ND	ug/kg	25000
2,4,6-Trichlorophenol	ND	ug/kg	5000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	5000
1-Chloronaphthalene	ND	ug/kg	--
1,2-Diphenylhydrazine	ND	ug/kg	5000
Nitrobenzene-d5	81	%	--
2-Fluorobiphenyl	90	%	--
Terphenyl-d14	70	%	--
Phenol-d5	82	%	--
2-Fluorophenol	82	%	--
2,4,6-Tribromophenol	74	%	--

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski

Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI0905V5.0
Lab ID: 010258-0016-SA Enseco ID: 1082076
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 25 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	5000
Acenaphthylene	ND	ug/kg	5000
Acetophenone	ND	ug/kg	5000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	5000
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(g,h,i)perylene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
Benzyl alcohol	ND	ug/kg	5000
bis(2-Chloroethoxy)-methane	ND	ug/kg	5000
bis(2-Chloroethyl) ether	ND	ug/kg	5000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
4-Bromophenyl phenyl ether	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
4-Chloroaniline	ND	ug/kg	5000
4-Chloro-3-methylphenol	ND	ug/kg	5000
2-Chloronaphthalene	ND	ug/kg	5000
2-Chlorophenol	ND	ug/kg	5000
4-Chlorophenyl phenyl ether	ND	ug/kg	5000
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
3,3'-Dichlorobenzidine	ND	ug/kg	10000
2,4-Dichlorophenol	ND	ug/kg	5000
2,6-Dichlorophenol	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
p-Dimethylaminoazobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI0905V5.0
Lab ID: 010258-0016-SA Enseco ID: 1082076
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 25 JUL 90

Parameter	Result	Units	Reporting Limit
Pentachloronitrobenzene	ND	ug/kg	25000
Pentachlorophenol	ND	ug/kg	25000
Phenacetin	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Phenol	ND	ug/kg	5000
2-Picoline	ND	ug/kg	5000
Pronamide	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	5000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	25000
1,2,4-Trichlorobenzene	ND	ug/kg	5000
2,4,5-Trichlorophenol	ND	ug/kg	25000
2,4,6-Trichlorophenol	ND	ug/kg	5000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	5000
1-Chloronaphthalene	ND	ug/kg	--
1,2-Diphenylhydrazine	ND	ug/kg	5000
Nitrobenzene-d5	101	%	--
2-Fluorobiphenyl	106	%	--
Terphenyl-d14	100	%	--
Phenol-d5	103	%	--
2-Fluorophenol	104	%	--
2,4,6-Tribromophenol	76	%	--

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI0905V7.0
Lab ID: 010258-0017-SA Enseco ID: 1082077
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 25 JUL 90

Parameter	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
a,a-Dimethylphenethylamine	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
1,3-Dinitrobenzene	ND	ug/kg	5000
4,6-Dinitro-o-cresol	ND	ug/kg	25000
2,4-Dinitrophenol	ND	ug/kg	25000
2,4-Dinitrotoluene	ND	ug/kg	5000
2,6-Dinitrotoluene	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Diphenylamine	ND	ug/kg	5000
Ethyl methanesulfonate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Fluorene	ND	ug/kg	5000
Hexachlorobenzene	ND	ug/kg	5000
Hexachlorobutadiene	ND	ug/kg	5000
Hexachlorocyclopentadiene	ND	ug/kg	5000
Hexachloroethane	ND	ug/kg	5000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	5000
Isophorone	ND	ug/kg	5000
3-Methylcholanthrene	ND	ug/kg	5000
Methyl methanesulfonate	ND	ug/kg	5000
2-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
1-Naphthylamine	ND	ug/kg	5000
2-Naphthylamine	ND	ug/kg	5000
2-Nitroaniline	ND	ug/kg	25000
3-Nitroaniline	ND	ug/kg	25000
4-Nitroaniline	ND	ug/kg	25000
Nitrobenzene	ND	ug/kg	5000
2-Nitrophenol	ND	ug/kg	5000
4-Nitrophenol	ND	ug/kg	25000
N-Nitroso-di-n-butylamine	ND	ug/kg	5000
N-Nitrosodimethylamine	ND	ug/kg	5000
N-Nitrosodiphenylamine	ND	ug/kg	5000
N-Nitroso-di-n-propylamine	ND	ug/kg	5000
N-Nitrosopiperidine	ND	ug/kg	5000
Pentachlorobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI0905V7.0
Lab ID: 010258-0017-SA Enseco ID: 1082077
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 25 JUL 90

Parameter	Result	Units	Reporting Limit
Pentachloronitrobenzene	ND	ug/kg	25000
Pentachlorophenol	ND	ug/kg	25000
Phenacetin	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Phenol	ND	ug/kg	5000
2-Picoline	ND	ug/kg	5000
Pronamide	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	5000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	25000
1,2,4-Trichlorobenzene	ND	ug/kg	5000
2,4,5-Trichlorophenol	ND	ug/kg	25000
2,4,6-Trichlorophenol	ND	ug/kg	5000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	5000
1-Chloronaphthalene	ND	ug/kg	--
1,2-Diphenylhydrazine	ND	ug/kg	5000
Nitrobenzene-d5	86	%	--
2-Fluorobiphenyl	89	%	--
Terphenyl-d14	86	%	--
Phenol-d5	85	%	--
2-Fluorophenol	88	%	--
2,4,6-Tribromophenol	61	%	--

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI0905D5.0
Lab ID: 010258-0018-SA Enseco ID: 1082078
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 25 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	5000
Acenaphthylene	ND	ug/kg	5000
Acetophenone	ND	ug/kg	5000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	5000
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(g,h,i)perylene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
Benzyl alcohol	ND	ug/kg	5000
bis(2-Chloroethoxy)-methane	ND	ug/kg	5000
bis(2-Chloroethyl) ether	ND	ug/kg	5000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
4-Bromophenyl phenyl ether	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
4-Chloroaniline	ND	ug/kg	5000
4-Chloro-3-methylphenol	ND	ug/kg	5000
2-Chloronaphthalene	ND	ug/kg	5000
2-Chlorophenol	ND	ug/kg	5000
4-Chlorophenyl phenyl ether	ND	ug/kg	5000
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
3,3'-Dichlorobenzidine	ND	ug/kg	10000
2,4-Dichlorophenol	ND	ug/kg	5000
2,6-Dichlorophenol	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
p-Dimethylaminoazobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI0905D5.0
Lab ID: 010258-0018-SA Enseco ID: 1082078
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 25 JUL 90

Parameter	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
a,a-Dimethylphenethylamine	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
1,3-Dinitrobenzene	ND	ug/kg	5000
4,6-Dinitro-o-cresol	ND	ug/kg	25000
2,4-Dinitrophenol	ND	ug/kg	25000
2,4-Dinitrotoluene	ND	ug/kg	5000
2,6-Dinitrotoluene	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Diphenylamine	ND	ug/kg	5000
Ethyl methanesulfonate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Fluorene	ND	ug/kg	5000
Hexachlorobenzene	ND	ug/kg	5000
Hexachlorobutadiene	ND	ug/kg	5000
Hexachlorocyclopentadiene	ND	ug/kg	5000
Hexachloroethane	ND	ug/kg	5000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	5000
Isophorone	ND	ug/kg	5000
3-Methylcholanthrene	ND	ug/kg	5000
Methyl methanesulfonate	ND	ug/kg	5000
2-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
1-Naphthylamine	ND	ug/kg	5000
2-Naphthylamine	ND	ug/kg	5000
2-Nitroaniline	ND	ug/kg	25000
3-Nitroaniline	ND	ug/kg	25000
4-Nitroaniline	ND	ug/kg	25000
Nitrobenzene	ND	ug/kg	5000
2-Nitrophenol	ND	ug/kg	5000
4-Nitrophenol	ND	ug/kg	25000
N-Nitroso-di-n-butylamine	ND	ug/kg	5000
N-Nitrosodimethylamine	ND	ug/kg	5000
N-Nitrosodiphenylamine	ND	ug/kg	5000
N-Nitroso-di-n-propylamine	ND	ug/kg	5000
N-Nitrosopiperidine	ND	ug/kg	5000
Pentachlorobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI0905D5.0
Lab ID: 010258-0018-SA Enseco ID: 1082078
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 25 JUL 90

Parameter	Result	Units	Reporting Limit
Pentachloronitrobenzene	ND	ug/kg	25000
Pentachlorophenol	ND	ug/kg	25000
Phenacetin	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Phenol	ND	ug/kg	5000
2-Picoline	ND	ug/kg	5000
Pronamide	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	5000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	25000
1,2,4-Trichlorobenzene	ND	ug/kg	5000
2,4,5-Trichlorophenol	ND	ug/kg	25000
2,4,6-Trichlorophenol	ND	ug/kg	5000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	5000
1-Chloronaphthalene	ND	ug/kg	--
1,2-Diphenylhydrazine	ND	ug/kg	5000
Nitrobenzene-d5	87	%	--
2-Fluorobiphenyl	96	%	--
Terphenyl-d14	91	%	--
Phenol-d5	87	%	--
2-Fluorophenol	88	%	--
2,4,6-Tribromophenol	60	%	--

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

Enseco
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Total Metals

Client Name: Giant Refining
Client ID: RFI0901V0.0
Lab ID: 010258-0001-SA
Enseco ID: 1082061
Matrix: SOIL
Sampled: 02 JUL 90
Received: 05 JUL 90
Authorized: 05 JUL 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	25 JUL 90	30 JUL 90
Arsenic	0.86	mg/kg	0.50	7060	25 JUL 90	01 AUG 90
Barium	316	mg/kg	1.0	6010	25 JUL 90	30 JUL 90
Beryllium	0.95	mg/kg	0.20	6010	25 JUL 90	30 JUL 90
Cadmium	ND	mg/kg	0.50	6010	25 JUL 90	30 JUL 90
Chromium	13.9	mg/kg	1.0	6010	25 JUL 90	30 JUL 90
Cobalt	3.2	mg/kg	1.0	6010	25 JUL 90	30 JUL 90
Copper	7.4	mg/kg	2.0	6010	25 JUL 90	30 JUL 90
Lead	13.5	mg/kg	5.0	6010	25 JUL 90	30 JUL 90
Mercury	ND	mg/kg	0.10	7471	18 JUL 90	19 JUL 90
Nickel	6.3	mg/kg	4.0	6010	25 JUL 90	30 JUL 90
Potassium	1210	mg/kg	500	6010	25 JUL 90	30 JUL 90
Selenium	ND	mg/kg	0.50	7740	25 JUL 90	29 JUL 90
Vanadium	12.9	mg/kg	1.0	6010	25 JUL 90	30 JUL 90
Zinc	19.7	mg/kg	2.0	6010	25 JUL 90	30 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Dave Roberts
Approved By: Pam Rosas

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Total Metals

Client Name: Giant Refining
Client ID: RFI0901V3.0
Lab ID: 010258-0002-SA
Enseco ID: 1082062
Matrix: SOIL
Sampled: 02 JUL 90
Received: 05 JUL 90
Authorized: 05 JUL 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	25 JUL 90	30 JUL 90
Arsenic	ND	mg/kg	1.0	7060	25 JUL 90	01 AUG 90
Barium	330	mg/kg	1.0	6010	25 JUL 90	30 JUL 90
Beryllium	0.88	mg/kg	0.20	6010	25 JUL 90	30 JUL 90
Cadmium	ND	mg/kg	0.50	6010	25 JUL 90	30 JUL 90
Chromium	4.8	mg/kg	1.0	6010	25 JUL 90	30 JUL 90
Cobalt	2.8	mg/kg	1.0	6010	25 JUL 90	30 JUL 90
Copper	3.6	mg/kg	2.0	6010	25 JUL 90	30 JUL 90
Lead	11.4	mg/kg	5.0	6010	25 JUL 90	30 JUL 90
Mercury	ND	mg/kg	0.10	7471	18 JUL 90	19 JUL 90
Nickel	5.2	mg/kg	4.0	6010	25 JUL 90	30 JUL 90
Potassium	712	mg/kg	500	6010	25 JUL 90	30 JUL 90
Selenium	ND	mg/kg	0.50	7740	25 JUL 90	29 JUL 90
Vanadium	12.9	mg/kg	1.0	6010	25 JUL 90	30 JUL 90
Zinc	6.9	mg/kg	2.0	6010	25 JUL 90	30 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Dave Roberts

Approved By: Pam Rosas

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Total Metals

Client Name: Giant Refining
Client ID: RFI0901V5.0
Lab ID: 010258-0003-SA
Enseco ID: 1082063
Matrix: SOIL
Sampled: 02 JUL 90
Received: 05 JUL 90
Authorized: 05 JUL 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	25 JUL 90	30 JUL 90
Arsenic	ND	mg/kg	0.50	7060	25 JUL 90	01 AUG 90
Barium	332	mg/kg	1.0	6010	25 JUL 90	30 JUL 90
Beryllium	1.1	mg/kg	0.20	6010	25 JUL 90	30 JUL 90
Cadmium	ND	mg/kg	0.50	6010	25 JUL 90	30 JUL 90
Chromium	5.4	mg/kg	1.0	6010	25 JUL 90	30 JUL 90
Cobalt	3.8	mg/kg	1.0	6010	25 JUL 90	30 JUL 90
Copper	5.3	mg/kg	2.0	6010	25 JUL 90	30 JUL 90
Lead	9.8	mg/kg	5.0	6010	25 JUL 90	30 JUL 90
Mercury	ND	mg/kg	0.10	7471	18 JUL 90	19 JUL 90
Nickel	5.7	mg/kg	4.0	6010	25 JUL 90	30 JUL 90
Potassium	1400	mg/kg	500	6010	25 JUL 90	30 JUL 90
Selenium	ND	mg/kg	0.50	7740	25 JUL 90	29 JUL 90
Vanadium	14.1	mg/kg	1.0	6010	25 JUL 90	30 JUL 90
Zinc	9.3	mg/kg	2.0	6010	25 JUL 90	30 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Dave Roberts

Approved By: Pam Rosas

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Total Metals

Client Name: Giant Refining
Client ID: RFI0901V7.0
Lab ID: 010258-0004-SA
Enseco ID: 1082064
Matrix: SOIL
Sampled: 02 JUL 90
Received: 05 JUL 90
Authorized: 05 JUL 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	25 JUL 90	30 JUL 90
Arsenic	ND	mg/kg	0.50	7060	25 JUL 90	01 AUG 90
Barium	309	mg/kg	1.0	6010	25 JUL 90	30 JUL 90
Beryllium	1.2	mg/kg	0.20	6010	25 JUL 90	30 JUL 90
Cadmium	ND	mg/kg	0.50	6010	25 JUL 90	30 JUL 90
Chromium	5.4	mg/kg	1.0	6010	25 JUL 90	30 JUL 90
Cobalt	4.0	mg/kg	1.0	6010	25 JUL 90	30 JUL 90
Copper	5.7	mg/kg	2.0	6010	25 JUL 90	30 JUL 90
Lead	13.2	mg/kg	5.0	6010	25 JUL 90	30 JUL 90
Mercury	ND	mg/kg	0.10	7471	18 JUL 90	19 JUL 90
Nickel	6.7	mg/kg	4.0	6010	25 JUL 90	30 JUL 90
Potassium	963	mg/kg	500	6010	25 JUL 90	30 JUL 90
Selenium	ND	mg/kg	0.50	7740	25 JUL 90	29 JUL 90
Vanadium	14.7	mg/kg	1.0	6010	25 JUL 90	30 JUL 90
Zinc	9.2	mg/kg	2.0	6010	25 JUL 90	30 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Dave Roberts
Approved By: Pam Rosas

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Total Metals

Client Name: Giant Refining
Client ID: RFI0901E5.0
Lab ID: 010258-0005-SA
Enseco ID: 1082065
Matrix: AQUEOUS
Sampled: 02 JUL 90
Received: 05 JUL 90
Authorized: 05 JUL 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	17 JUL 90	18 JUL 90
Arsenic	ND	mg/L	0.0050	7060	23 JUL 90	25 JUL 90
Barium	ND	mg/L	0.010	6010	17 JUL 90	18 JUL 90
Beryllium	ND	mg/L	0.0020	6010	17 JUL 90	18 JUL 90
Cadmium	ND	mg/L	0.0050	6010	17 JUL 90	18 JUL 90
Chromium	ND	mg/L	0.010	6010	17 JUL 90	18 JUL 90
Cobalt	ND	mg/L	0.010	6010	17 JUL 90	18 JUL 90
Copper	ND	mg/L	0.020	6010	17 JUL 90	18 JUL 90
Lead	ND	mg/L	0.0050	7421	23 JUL 90	01 AUG 90
Mercury	ND	mg/L	0.00020	7470	20 JUL 90	24 JUL 90
Nickel	ND	mg/L	0.040	6010	17 JUL 90	18 JUL 90
Potassium	ND	mg/L	5.0	6010	17 JUL 90	18 JUL 90
Selenium	ND	mg/L	0.0050	7740	23 JUL 90	25 JUL 90
Vanadium	ND	mg/L	0.010	6010	17 JUL 90	18 JUL 90
Zinc	ND	mg/L	0.020	6010	17 JUL 90	18 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones
Approved By: Pam Rosas

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Total Metals

Client Name: Giant Refining
Client ID: RFI0904V0.0
Lab ID: 010258-0006-SA
Enseco ID: 1082066
Matrix: SOIL
Sampled: 02 JUL 90
Received: 05 JUL 90
Authorized: 05 JUL 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	25 JUL 90	30 JUL 90
Arsenic	2.1	mg/kg	1.0	7060	25 JUL 90	01 AUG 90
Barium	406	mg/kg	1.0	6010	25 JUL 90	30 JUL 90
Beryllium	0.91	mg/kg	0.20	6010	25 JUL 90	30 JUL 90
Cadmium	ND	mg/kg	0.50	6010	25 JUL 90	30 JUL 90
Chromium	42.3	mg/kg	1.0	6010	25 JUL 90	30 JUL 90
Cobalt	4.4	mg/kg	1.0	6010	25 JUL 90	30 JUL 90
Copper	13.9	mg/kg	2.0	6010	25 JUL 90	30 JUL 90
Lead	29.7	mg/kg	5.0	6010	25 JUL 90	30 JUL 90
Mercury	ND	mg/kg	0.10	7471	18 JUL 90	19 JUL 90
Nickel	10.0	mg/kg	4.0	6010	25 JUL 90	30 JUL 90
Potassium	1250	mg/kg	500	6010	25 JUL 90	30 JUL 90
Selenium	ND	mg/kg	0.50	7740	25 JUL 90	29 JUL 90
Vanadium	16.4	mg/kg	1.0	6010	25 JUL 90	30 JUL 90
Zinc	69.6	mg/kg	2.0	6010	25 JUL 90	30 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Dave Roberts
Approved By: Pam Rosas

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Total Metals

Client Name: Giant Refining
Client ID: RFI0904V3.0
Lab ID: 010258-0007-SA
Matrix: SOIL
Authorized: 05 JUL 90

Enseco ID: 1082067
Sampled: 02 JUL 90
Prepared: See Below

Received: 05 JUL 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	25 JUL 90	30 JUL 90
Arsenic	ND	mg/kg	0.50	7060	25 JUL 90	01 AUG 90
Barium	275	mg/kg	1.0	6010	25 JUL 90	30 JUL 90
Beryllium	1.3	mg/kg	0.20	6010	25 JUL 90	30 JUL 90
Cadmium	ND	mg/kg	0.50	6010	25 JUL 90	30 JUL 90
Chromium	6.7	mg/kg	1.0	6010	25 JUL 90	30 JUL 90
Cobalt	4.1	mg/kg	1.0	6010	25 JUL 90	30 JUL 90
Copper	6.5	mg/kg	2.0	6010	25 JUL 90	30 JUL 90
Lead	13.8	mg/kg	5.0	6010	25 JUL 90	30 JUL 90
Mercury	ND	mg/kg	0.10	7471	18 JUL 90	19 JUL 90
Nickel	7.4	mg/kg	4.0	6010	25 JUL 90	30 JUL 90
Potassium	1180	mg/kg	500	6010	25 JUL 90	30 JUL 90
Selenium	ND	mg/kg	0.50	7740	25 JUL 90	29 JUL 90
Vanadium	16.4	mg/kg	1.0	6010	25 JUL 90	30 JUL 90
Zinc	11.1	mg/kg	2.0	6010	25 JUL 90	30 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Dave Roberts

Approved By: Pam Rosas

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Total Metals

Client Name: Giant Refining
Client ID: RFI0904V5.0
Lab ID: 010258-0008-SA
Enseco ID: 1082068
Matrix: SOIL
Sampled: 02 JUL 90
Received: 05 JUL 90
Authorized: 05 JUL 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	25 JUL 90	30 JUL 90
Arsenic	ND	mg/kg	1.0	7060	25 JUL 90	01 AUG 90
Barium	309	mg/kg	1.0	6010	25 JUL 90	30 JUL 90
Beryllium	1.1	mg/kg	0.20	6010	25 JUL 90	30 JUL 90
Cadmium	ND	mg/kg	0.50	6010	25 JUL 90	30 JUL 90
Chromium	5.2	mg/kg	1.0	6010	25 JUL 90	30 JUL 90
Cobalt	3.4	mg/kg	1.0	6010	25 JUL 90	30 JUL 90
Copper	5.2	mg/kg	2.0	6010	25 JUL 90	30 JUL 90
Lead	12.4	mg/kg	5.0	6010	25 JUL 90	30 JUL 90
Mercury	ND	mg/kg	0.10	7471	18 JUL 90	19 JUL 90
Nickel	5.1	mg/kg	4.0	6010	25 JUL 90	30 JUL 90
Potassium	983	mg/kg	500	6010	25 JUL 90	30 JUL 90
Selenium	ND	mg/kg	0.50	7740	25 JUL 90	29 JUL 90
Vanadium	12.8	mg/kg	1.0	6010	25 JUL 90	30 JUL 90
Zinc	9.1	mg/kg	2.0	6010	25 JUL 90	30 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Dave Roberts
Approved By: Pam Rosas

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Total Metals

Client Name: Giant Refining
Client ID: RFI0904V7.0
Lab ID: 010258-0009-SA
Enseco ID: 1082069
Matrix: SOIL
Sampled: 02 JUL 90
Received: 05 JUL 90
Authorized: 05 JUL 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	25 JUL 90	30 JUL 90
Arsenic	ND	mg/kg	0.50	7060	25 JUL 90	01 AUG 90
Barium	239	mg/kg	1.0	6010	25 JUL 90	30 JUL 90
Beryllium	1.4	mg/kg	0.20	6010	25 JUL 90	30 JUL 90
Cadmium	ND	mg/kg	0.50	6010	25 JUL 90	30 JUL 90
Chromium	8.1	mg/kg	1.0	6010	25 JUL 90	30 JUL 90
Cobalt	4.8	mg/kg	1.0	6010	25 JUL 90	30 JUL 90
Copper	7.2	mg/kg	2.0	6010	25 JUL 90	30 JUL 90
Lead	16.4	mg/kg	5.0	6010	25 JUL 90	30 JUL 90
Mercury	ND	mg/kg	0.10	7471	18 JUL 90	19 JUL 90
Nickel	7.8	mg/kg	4.0	6010	25 JUL 90	30 JUL 90
Potassium	1560	mg/kg	500	6010	25 JUL 90	30 JUL 90
Selenium	ND	mg/kg	0.50	7740	25 JUL 90	29 JUL 90
Vanadium	18.1	mg/kg	1.0	6010	25 JUL 90	30 JUL 90
Zinc	14.0	mg/kg	2.0	6010	25 JUL 90	30 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Dave Roberts
Approved By: Pam Rosas

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Total Metals

Client Name: Giant Refining
Client ID: RFI0902V0.0
Lab ID: 010258-0010-SA
Matrix: SOIL
Authorized: 05 JUL 90

Enseco ID: 1082070
Sampled: 02 JUL 90
Prepared: See Below

Received: 05 JUL 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	25 JUL 90	30 JUL 90
Arsenic	ND	mg/kg	0.50	7060	25 JUL 90	01 AUG 90
Barium	302	mg/kg	1.0	6010	25 JUL 90	30 JUL 90
Beryllium	1.3	mg/kg	0.20	6010	25 JUL 90	30 JUL 90
Cadmium	ND	mg/kg	0.50	6010	25 JUL 90	30 JUL 90
Chromium	11.8	mg/kg	1.0	6010	25 JUL 90	30 JUL 90
Cobalt	5.8	mg/kg	1.0	6010	25 JUL 90	30 JUL 90
Copper	8.1	mg/kg	2.0	6010	25 JUL 90	30 JUL 90
Lead	16.1	mg/kg	5.0	6010	25 JUL 90	30 JUL 90
Mercury	ND	mg/kg	0.10	7471	18 JUL 90	19 JUL 90
Nickel	11.4	mg/kg	4.0	6010	25 JUL 90	30 JUL 90
Potassium	2110	mg/kg	500	6010	25 JUL 90	30 JUL 90
Selenium	ND	mg/kg	1.0	7740	25 JUL 90	29 JUL 90
Vanadium	20.4	mg/kg	1.0	6010	25 JUL 90	30 JUL 90
Zinc	18.4	mg/kg	2.0	6010	25 JUL 90	30 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Dave Roberts

Approved By: Pam Rosas

Enseco
A CORNING Company

Total Metals

Client Name: Giant Refining
Client ID: RFI0902V3.0
Lab ID: 010258-0011-SA
Enseco ID: 1082071
Matrix: SOIL
Sampled: 02 JUL 90
Received: 05 JUL 90
Authorized: 05 JUL 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	25 JUL 90	31 JUL 90
Arsenic	ND	mg/kg	1.0	7060	25 JUL 90	01 AUG 90
Barium	318	mg/kg	1.0	6010	25 JUL 90	31 JUL 90
Beryllium	1.2	mg/kg	0.20	6010	25 JUL 90	31 JUL 90
Cadmium	ND	mg/kg	0.50	6010	25 JUL 90	31 JUL 90
Chromium	6.3	mg/kg	1.0	6010	25 JUL 90	31 JUL 90
Cobalt	3.7	mg/kg	1.0	6010	25 JUL 90	31 JUL 90
Copper	5.6	mg/kg	2.0	6010	25 JUL 90	31 JUL 90
Lead	13.9	mg/kg	5.0	6010	25 JUL 90	31 JUL 90
Mercury	ND	mg/kg	0.10	7471	18 JUL 90	19 JUL 90
Nickel	6.8	mg/kg	4.0	6010	25 JUL 90	31 JUL 90
Potassium	1220	mg/kg	500	6010	25 JUL 90	31 JUL 90
Selenium	ND	mg/kg	0.50	7740	25 JUL 90	29 JUL 90
Vanadium	16.0	mg/kg	1.0	6010	25 JUL 90	31 JUL 90
Zinc	12.0	mg/kg	2.0	6010	25 JUL 90	31 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Dave Roberts
Approved By: Pam Rosas

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Total Metals

Client Name: Giant Refining
Client ID: RFI0902V5.0
Lab ID: 010258-0012-SA
Enseco ID: 1082072
Matrix: SOIL
Sampled: 02 JUL 90
Received: 05 JUL 90
Authorized: 05 JUL 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	25 JUL 90	31 JUL 90
Arsenic	ND	mg/kg	0.50	7060	25 JUL 90	01 AUG 90
Barium	237	mg/kg	1.0	6010	25 JUL 90	31 JUL 90
Beryllium	1.2	mg/kg	0.20	6010	25 JUL 90	31 JUL 90
Cadmium	ND	mg/kg	0.50	6010	25 JUL 90	31 JUL 90
Chromium	7.2	mg/kg	1.0	6010	25 JUL 90	31 JUL 90
Cobalt	4.4	mg/kg	1.0	6010	25 JUL 90	31 JUL 90
Copper	5.7	mg/kg	2.0	6010	25 JUL 90	31 JUL 90
Lead	13.4	mg/kg	5.0	6010	25 JUL 90	31 JUL 90
Mercury	ND	mg/kg	0.10	7471	18 JUL 90	19 JUL 90
Nickel	8.2	mg/kg	4.0	6010	25 JUL 90	31 JUL 90
Potassium	1640	mg/kg	500	6010	25 JUL 90	31 JUL 90
Selenium	ND	mg/kg	0.50	7740	25 JUL 90	29 JUL 90
Vanadium	15.9	mg/kg	1.0	6010	25 JUL 90	31 JUL 90
Zinc	12.3	mg/kg	2.0	6010	25 JUL 90	31 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Dave Roberts
Approved By: Pam Rosas

Enseco
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Total Metals

Client Name: Giant Refining
Client ID: RFI0902V7.0
Lab ID: 010258-0013-SA
Enseco ID: 1082073
Matrix: SOIL
Sampled: 02 JUL 90
Received: 05 JUL 90
Authorized: 05 JUL 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	12.0	6010	25 JUL 90	31 JUL 90
Arsenic	ND	mg/kg	1.0	7060	25 JUL 90	01 AUG 90
Barium	262	mg/kg	2.0	6010	25 JUL 90	31 JUL 90
Beryllium	0.59	mg/kg	0.40	6010	25 JUL 90	31 JUL 90
Cadmium	ND	mg/kg	1.0	6010	25 JUL 90	31 JUL 90
Chromium	2.3	mg/kg	2.0	6010	25 JUL 90	31 JUL 90
Cobalt	2.0	mg/kg	2.0	6010	25 JUL 90	31 JUL 90
Copper	ND	mg/kg	4.0	6010	25 JUL 90	31 JUL 90
Lead	11.9	mg/kg	10.0	6010	25 JUL 90	31 JUL 90
Mercury	ND	mg/kg	0.10	7471	18 JUL 90	19 JUL 90
Nickel	ND	mg/kg	8.0	6010	25 JUL 90	31 JUL 90
Potassium	ND	mg/kg	1000	6010	25 JUL 90	31 JUL 90
Selenium	ND	mg/kg	0.50	7740	25 JUL 90	29 JUL 90
Vanadium	9.5	mg/kg	2.0	6010	25 JUL 90	31 JUL 90
Zinc	5.7	mg/kg	4.0	6010	25 JUL 90	31 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Dave Roberts
Approved By: Pam Rosas

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Total Metals

Client Name: Giant Refining
Client ID: RFI0905V0.0
Lab ID: 010258-0014-SA
Enseco ID: 1082074
Matrix: SOIL
Sampled: 02 JUL 90
Received: 05 JUL 90
Authorized: 05 JUL 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	25 JUL 90	31 JUL 90
Arsenic	ND	mg/kg	1.0	7060	25 JUL 90	01 AUG 90
Barium	285	mg/kg	1.0	6010	25 JUL 90	31 JUL 90
Beryllium	1.2	mg/kg	0.20	6010	25 JUL 90	31 JUL 90
Cadmium	ND	mg/kg	0.50	6010	25 JUL 90	31 JUL 90
Chromium	8.1	mg/kg	1.0	6010	25 JUL 90	31 JUL 90
Cobalt	4.6	mg/kg	1.0	6010	25 JUL 90	31 JUL 90
Copper	5.5	mg/kg	2.0	6010	25 JUL 90	31 JUL 90
Lead	14.9	mg/kg	5.0	6010	25 JUL 90	31 JUL 90
Mercury	ND	mg/kg	0.10	7471	18 JUL 90	19 JUL 90
Nickel	9.1	mg/kg	4.0	6010	25 JUL 90	31 JUL 90
Potassium	1160	mg/kg	500	6010	25 JUL 90	31 JUL 90
Selenium	ND	mg/kg	0.50	7740	25 JUL 90	29 JUL 90
Vanadium	17.9	mg/kg	1.0	6010	25 JUL 90	31 JUL 90
Zinc	12.1	mg/kg	2.0	6010	25 JUL 90	31 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Dave Roberts
Approved By: Pam Rosas

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Total Metals

Client Name: Giant Refining
Client ID: RFI0905V3.0
Lab ID: 010258-0015-SA
Matrix: SOIL
Authorized: 05 JUL 90

Enseco ID: 1082075
Sampled: 02 JUL 90
Prepared: See Below

Received: 05 JUL 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	12.0	6010	25 JUL 90	31 JUL 90
Arsenic	ND	mg/kg	2.5	7060	25 JUL 90	01 AUG 90
Barium	418	mg/kg	2.0	6010	25 JUL 90	31 JUL 90
Beryllium	0.77	mg/kg	0.40	6010	25 JUL 90	31 JUL 90
Cadmium	ND	mg/kg	1.0	6010	25 JUL 90	31 JUL 90
Chromium	32.2	mg/kg	2.0	6010	25 JUL 90	31 JUL 90
Cobalt	5.0	mg/kg	2.0	6010	25 JUL 90	31 JUL 90
Copper	11.9	mg/kg	4.0	6010	25 JUL 90	31 JUL 90
Lead	31.0	mg/kg	10.0	6010	25 JUL 90	31 JUL 90
Mercury	ND	mg/kg	0.10	7471	18 JUL 90	19 JUL 90
Nickel	8.7	mg/kg	8.0	6010	25 JUL 90	31 JUL 90
Potassium	1100	mg/kg	1000	6010	25 JUL 90	31 JUL 90
Selenium	ND	mg/kg	1.0	7740	25 JUL 90	29 JUL 90
Vanadium	16.9	mg/kg	2.0	6010	25 JUL 90	31 JUL 90
Zinc	55.6	mg/kg	4.0	6010	25 JUL 90	31 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Dave Roberts

Approved By: Pam Rosas

Enseco
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Total Metals

Client Name: Giant Refining
Client ID: RFI0905V5.0
Lab ID: 010258-0016-SA
Enseco ID: 1082076
Matrix: SOIL
Sampled: 02 JUL 90
Received: 05 JUL 90
Authorized: 05 JUL 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	25 JUL 90	31 JUL 90
Arsenic	ND	mg/kg	1.0	7060	25 JUL 90	01 AUG 90
Barium	333	mg/kg	1.0	6010	25 JUL 90	31 JUL 90
Beryllium	0.94	mg/kg	0.20	6010	25 JUL 90	31 JUL 90
Cadmium	ND	mg/kg	0.50	6010	25 JUL 90	31 JUL 90
Chromium	6.1	mg/kg	1.0	6010	25 JUL 90	31 JUL 90
Cobalt	3.5	mg/kg	1.0	6010	25 JUL 90	31 JUL 90
Copper	3.7	mg/kg	2.0	6010	25 JUL 90	31 JUL 90
Lead	13.7	mg/kg	5.0	6010	25 JUL 90	31 JUL 90
Mercury	ND	mg/kg	0.10	7471	18 JUL 90	19 JUL 90
Nickel	5.5	mg/kg	4.0	6010	25 JUL 90	31 JUL 90
Potassium	825	mg/kg	500	6010	25 JUL 90	31 JUL 90
Selenium	ND	mg/kg	0.50	7740	25 JUL 90	29 JUL 90
Vanadium	15.5	mg/kg	1.0	6010	25 JUL 90	31 JUL 90
Zinc	8.4	mg/kg	2.0	6010	25 JUL 90	31 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Dave Roberts
Approved By: Pam Rosas

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Total Metals

Client Name: Giant Refining
Client ID: RFI0905V7.0
Lab ID: 010258-0017-SA
Matrix: SOIL
Authorized: 05 JUL 90

Enseco ID: 1082077
Sampled: 02 JUL 90
Prepared: See Below

Received: 05 JUL 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	25 JUL 90	31 JUL 90
Arsenic	ND	mg/kg	0.50	7060	25 JUL 90	01 AUG 90
Barium	313	mg/kg	1.0	6010	25 JUL 90	31 JUL 90
Beryllium	1.3	mg/kg	0.20	6010	25 JUL 90	31 JUL 90
Cadmium	ND	mg/kg	0.50	6010	25 JUL 90	31 JUL 90
Chromium	8.5	mg/kg	1.0	6010	25 JUL 90	31 JUL 90
Cobalt	4.5	mg/kg	1.0	6010	25 JUL 90	31 JUL 90
Copper	6.4	mg/kg	2.0	6010	25 JUL 90	31 JUL 90
Lead	12.8	mg/kg	5.0	6010	25 JUL 90	31 JUL 90
Mercury	ND	mg/kg	0.10	7471	18 JUL 90	19 JUL 90
Nickel	9.2	mg/kg	4.0	6010	25 JUL 90	31 JUL 90
Potassium	1590	mg/kg	500	6010	25 JUL 90	31 JUL 90
Selenium	ND	mg/kg	0.50	7740	25 JUL 90	29 JUL 90
Vanadium	18.5	mg/kg	1.0	6010	25 JUL 90	31 JUL 90
Zinc	13.3	mg/kg	2.0	6010	25 JUL 90	31 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Dave Roberts

Approved By: Pam Rosas

Enseco
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Total Metals

Client Name: Giant Refining
Client ID: RFI0905D5.0
Lab ID: 010258-0018-SA
Matrix: SOIL
Authorized: 05 JUL 90

Enseco ID: 1082078
Sampled: 02 JUL 90
Prepared: See Below

Received: 05 JUL 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	25 JUL 90	31 JUL 90
Arsenic	ND	mg/kg	1.0	7060	25 JUL 90	01 AUG 90
Barium	375	mg/kg	1.0	6010	25 JUL 90	31 JUL 90
Beryllium	0.91	mg/kg	0.20	6010	25 JUL 90	31 JUL 90
Cadmium	ND	mg/kg	0.50	6010	25 JUL 90	31 JUL 90
Chromium	6.8	mg/kg	1.0	6010	25 JUL 90	31 JUL 90
Cobalt	3.9	mg/kg	1.0	6010	25 JUL 90	31 JUL 90
Copper	4.2	mg/kg	2.0	6010	25 JUL 90	31 JUL 90
Lead	14.4	mg/kg	5.0	6010	25 JUL 90	31 JUL 90
Mercury	ND	mg/kg	0.10	7471	18 JUL 90	19 JUL 90
Nickel	6.9	mg/kg	4.0	6010	25 JUL 90	31 JUL 90
Potassium	936	mg/kg	500	6010	25 JUL 90	31 JUL 90
Selenium	ND	mg/kg	0.50	7740	25 JUL 90	29 JUL 90
Vanadium	16.4	mg/kg	1.0	6010	25 JUL 90	31 JUL 90
Zinc	10.1	mg/kg	2.0	6010	25 JUL 90	31 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Dave Roberts

Approved By: Pam Rosas

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)
010258-0001-SA	SOIL	8240-S	18 JUN 90-D	11 JUL 90-D
010258-0002-SA	SOIL	8240-S	18 JUN 90-D	11 JUL 90-D
010258-0003-SA	SOIL	8240-S	18 JUN 90-D	11 JUL 90-D
010258-0004-SA	SOIL	8240-S	18 JUN 90-D	11 JUL 90-D
010258-0005-SA	AQUEOUS	624-A	11 JUL 90-H	12 JUL 90-H2
010258-0006-SA	SOIL	8240-S	18 JUN 90-D	11 JUL 90-D
010258-0007-SA	SOIL	8240-S	18 JUN 90-D	11 JUL 90-D
010258-0008-SA	SOIL	8240-S	18 JUN 90-D	11 JUL 90-D
010258-0009-SA	SOIL	8240-S	18 JUN 90-D	11 JUL 90-D
010258-0010-SA	SOIL	8240-S	18 JUN 90-D	11 JUL 90-D
010258-0011-SA	SOIL	8240-S	18 JUN 90-D	11 JUL 90-D
010258-0012-SA	SOIL	8240-S	10 JUL 90-H	12 JUL 90-H
010258-0013-SA	SOIL	8240-S	10 JUL 90-H	12 JUL 90-H
010258-0014-SA	SOIL	8240-S	10 JUL 90-H	12 JUL 90-H
010258-0015-SA	SOIL	8240-S	10 JUL 90-H	12 JUL 90-H
010258-0016-SA	SOIL	8240-S	10 JUL 90-H	12 JUL 90-H
010258-0017-SA	SOIL	8240-S	10 JUL 90-H	12 JUL 90-H
010258-0018-SA	SOIL	8240-S	10 JUL 90-H	12 JUL 90-H

DUPLICATE CONTROL SAMPLE REPORT
Volatile Organics by GC/MS

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	Measured AVG	Accuracy Average(%) DCS	Accuracy Average(%) Limits	Precision (RPD) DCS	Precision (RPD) Limit
Category: 8240-S Matrix: SOIL QC Lot: 18 JUN 90-D Concentration Units: ug/kg								
1,1-Dichloroethene	5000	5370	4890	5130	103	59-172	9.4	22
Trichloroethene	5000	5540	5380	5460	109	62-137	2.9	24
Benzene	5000	5680	5790	5740	115	66-142	1.9	21
Toluene	5000	5340	5470	5400	108	59-139	2.4	21
Chlorobenzene	5000	5440	5570	5500	110	60-133	2.4	21
Category: 624-A Matrix: AQUEOUS QC Lot: 11 JUL 90-H Concentration Units: ug/L								
1,1-Dichloroethene	50	47.2	44.8	46.0	92	61-145	5.2	14
Trichloroethene	50	54.3	50.6	52.4	105	71-120	7.1	14
Benzene	50	58.3	54.4	56.4	113	76-127	6.9	11
Toluene	50	54.6	51.7	53.2	106	76-125	5.5	13
Chlorobenzene	50	56.5	52.3	54.4	109	75-130	7.7	13
Category: 8240-S Matrix: SOIL QC Lot: 10 JUL 90-H Concentration Units: ug/kg								
1,1-Dichloroethene	5000	4940	5230	5080	102	59-172	5.7	22
Trichloroethene	5000	5100	5290	5200	104	62-137	3.7	24
Benzene	5000	5250	5340	5300	106	66-142	1.7	21
Toluene	5000	5030	5430	5230	105	59-139	7.6	21
Chlorobenzene	5000	5050	5320	5180	104	60-133	5.2	21

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

SINGLE CONTROL SAMPLE REPORT
Volatile Organics by GC/MS

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) SCS	Accuracy(%) Limits
Category: 8240-S				
Matrix: SOIL				
QC Lot: 18 JUN 90-D QC Run: 11 JUL 90-D				
Concentration Units: ug/kg				
1,2-Dichloroethane-d4	5000	5000	100	70-121
4-Bromofluorobenzene	5000	4900	98	74-121
Toluene-d8	5000	4910	98	81-117
Category: 624-A				
Matrix: AQUEOUS				
QC Lot: 11 JUL 90-H QC Run: 12 JUL 90-H2				
Concentration Units: ug/L				
1,2-Dichloroethane-d4	50.0	49.7	99	76-114
4-Bromofluorobenzene	50.0	49.8	100	86-115
Toluene-d8	50.0	48.9	98	88-110
Category: 8240-S				
Matrix: SOIL				
QC Lot: 10 JUL 90-H QC Run: 12 JUL 90-H				
Concentration Units: ug/kg				
1,2-Dichloroethane-d4	5000	5050	101	70-121
4-Bromofluorobenzene	5000	5030	101	74-121
Toluene-d8	5000	5060	101	81-117

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

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METHOD BLANK REPORT
Volatile Organics by GC/MS

Test: 8240-PP-S
Matrix: SOIL
QC Lot: 18 JUN 90-D QC Run: 11 JUL 90-D

Analyte	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500
Acetone	ND	ug/kg	5000
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Carbon disulfide	ND	ug/kg	500
Dibromomethane	ND	ug/kg	500
trans-1,4-Dichloro-2-butene	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	ND	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone	ND	ug/kg	5000
4-Methyl-2-pentanone	ND	ug/kg	1000

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

Analyte	Result	Units	Reporting Limit
Test: 8240-PP-S			
Matrix: SOIL			
QC Lot: 18 JUN 90-D QC Run: 11 JUL 90-D			
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	500
Ethyl methacrylate	ND	ug/kg	1000
2-Hexanone	ND	ug/kg	1000
Test: 624-PP-AP			
Matrix: AQUEOUS			
QC Lot: 11 JUL 90-H QC Run: 12 JUL 90-H2			
Chloromethane	ND	ug/L	10
Bromomethane	ND	ug/L	10
Vinyl chloride	ND	ug/L	10
Chloroethane	ND	ug/L	10
Methylene chloride	ND	ug/L	5.0
1,1-Dichloroethene	ND	ug/L	5.0
1,1-Dichloroethane	ND	ug/L	5.0
1,2-Dichloroethene (cis/trans)	ND	ug/L	5.0
Chloroform	ND	ug/L	5.0
1,2-Dichloroethane	ND	ug/L	5.0
1,1,1-Trichloroethane	ND	ug/L	5.0
Carbon tetrachloride	ND	ug/L	5.0
Bromodichloromethane	ND	ug/L	5.0
1,2-Dichloropropane	ND	ug/L	5.0
trans-1,3-Dichloropropene	ND	ug/L	5.0
Trichloroethene	ND	ug/L	5.0
Dibromochloromethane	ND	ug/L	5.0
1,1,2-Trichloroethane	ND	ug/L	5.0
Benzene	ND	ug/L	5.0
cis-1,3-Dichloropropene	ND	ug/L	5.0
2-Chloroethyl vinyl ether	ND	ug/L	10
Bromoform	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
Chlorobenzene	ND	ug/L	5.0
Ethylbenzene	ND	ug/L	5.0

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

Analyte	Result	Units	Reporting Limit
Test: 624-PP-AP			
Matrix: AQUEOUS			
QC Lot: 11 JUL 90-H QC Run: 12 JUL 90-H2			
Acetone	ND	ug/L	50
Acrolein	ND	ug/L	100
Acrylonitrile	ND	ug/L	100
Carbon disulfide	ND	ug/L	5.0
Dibromomethane	ND	ug/L	5.0
trans-1,4-Dichloro-2-butene	ND	ug/L	5.0
Dichlorodifluoromethane	ND	ug/L	20
trans-1,2-Dichloroethene	ND	ug/L	5.0
Ethanol	ND	ug/L	100
Iodomethane	ND	ug/L	5.0
2-Butanone	ND	ug/L	50
4-Methyl-2-pentanone	ND	ug/L	10
Styrene	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
Xylenes (total)	ND	ug/L	5.0
Ethyl methacrylate	ND	ug/L	10
2-Hexanone	ND	ug/L	10
Test: 8240-PP-S			
Matrix: SOIL			
QC Lot: 10 JUL 90-H QC Run: 12 JUL 90-H			
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500

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

Test: 8240-PP-S
Matrix: SOIL
QC Lot: 10 JUL 90-H QC Run: 12 JUL 90-H

Analyte	Result	Units	Reporting Limit
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500
Acetone	ND	ug/kg	5000
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Carbon disulfide	ND	ug/kg	500
Dibromomethane	ND	ug/kg	500
trans-1,4-Dichloro-2-butene	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	ND	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone	ND	ug/kg	5000
4-Methyl-2-pentanone	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	500
Ethyl methacrylate	ND	ug/kg	1000
2-Hexanone	ND	ug/kg	1000

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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)
010258-0001-SA	SOIL	8270-S	08 JUL 90-A	08 JUL 90-A
010258-0002-SA	SOIL	8270-S	08 JUL 90-A	08 JUL 90-A
010258-0003-SA	SOIL	8270-S	08 JUL 90-A	08 JUL 90-A
010258-0004-SA	SOIL	8270-S	08 JUL 90-A	08 JUL 90-A
010258-0005-SA	AQUEOUS	625-A	08 JUL 90-B	08 JUL 90-B
010258-0006-SA	SOIL	8270-S	08 JUL 90-A	08 JUL 90-A
010258-0007-SA	SOIL	8270-S	08 JUL 90-A	08 JUL 90-A
010258-0008-SA	SOIL	8270-S	08 JUL 90-A	08 JUL 90-A
010258-0009-SA	SOIL	8270-S	08 JUL 90-A	08 JUL 90-A
010258-0010-SA	SOIL	8270-S	08 JUL 90-A	08 JUL 90-A
010258-0011-SA	SOIL	8270-S	08 JUL 90-A	08 JUL 90-A
010258-0012-SA	SOIL	8270-S	08 JUL 90-A	08 JUL 90-A
010258-0013-SA	SOIL	8270-S	08 JUL 90-A	08 JUL 90-A
010258-0014-SA	SOIL	8270-S	08 JUL 90-A	08 JUL 90-A
010258-0015-SA	SOIL	8270-S	08 JUL 90-A	08 JUL 90-A
010258-0016-SA	SOIL	8270-S	08 JUL 90-A	08 JUL 90-A
010258-0017-SA	SOIL	8270-S	08 JUL 90-A	08 JUL 90-A
010258-0018-SA	SOIL	8270-S	08 JUL 90-A	08 JUL 90-A

DUPLICATE CONTROL SAMPLE REPORT
Semivolatile Organics by GC/MS

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	AVG	Accuracy Average(%) DCS	Accuracy Limits	Precision (RPD) DCS	Precision Limit
Category: 8270-S Matrix: SOIL QC Lot: 08 JUL 90-A Concentration Units: ug/kg								
Phenol	6670	5010	5590	5300	79	26- 90	11	35
2-Chlorophenol	6670	5980	5600	5790	87	25-102	6.6	50
1,4-Dichlorobenzene	3330	2450	2240	2340	70	28-104	9.0	27
N-Nitroso-di-n-propylamine	3330	2970	2690	2830	85	41-126	9.9	38
1,2,4-Trichlorobenzene	3330	2710	2510	2610	78	38-107	7.7	23
4-Chloro-3-methylphenol	6670	6710	6470	6590	99	26-103	3.6	33
Acenaphthene	3330	2710	2650	2680	80	31-137	2.2	19
4-Nitrophenol	6670	5570	7340	6460	97	11-114	27	50
2,4-Dinitrotoluene	3330	3300	3080	3190	96	28- 89	6.9	47
Pentachlorophenol	6670	7400	6690	7040	106	17-109	10	47
Pyrene	3330	2840	2690	2760	83	35-142	5.4	36
Category: 625-A Matrix: AQUEOUS QC Lot: 08 JUL 90-B Concentration Units: ug/L								
Phenol	100	73.2	70.0	71.6	72	12- 89	4.5	42
2-Chlorophenol	100	83.9	83.1	83.5	84	27-123	1.0	40
1,4-Dichlorobenzene	50.0	31.1	31.9	31.5	63	36- 97	2.5	28
N-Nitroso-di-n-propylamine	50.0	54.7	43.3	49.0	98	41-116	23	38
1,2,4-Trichlorobenzene	50.0	25.6	35.0	30.3	61	39- 98	31	28
4-Chloro-3-methylphenol	100	82.2	76.0	79.1	79	23- 97	7.8	42
Acenaphthene	50.0	36.0	37.4	36.7	73	46-118	3.8	31
4-Nitrophenol	100	94.5	84.0	89.2	89	10- 80	12	50
2,4-Dinitrotoluene	50.0	44.7	46.9	45.8	92	24- 96	4.8	38
Pentachlorophenol	100	46.7	40.8	43.8	44	9-103	13	50
Pyrene	50.0	41.6	42.1	41.8	84	26-127	1.2	31

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/MS

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) SCS	Accuracy(%) Limits
Category: 8270-S				
Matrix: SOIL				
QC Lot: 08 JUL 90-A QC Run: 08 JUL 90-A				
Concentration Units: ug/kg				
Nitrobenzene-d5	1670	1240	74	23-120
2-Fluorobiphenyl	1670	1400	84	30-115
Terphenyl-d14	1670	1550	93	18-137
2-Fluorophenol	3330	2650	80	25-121
Phenol-d5	3330	2460	74	24-113
2,4,6-Tribromophenol	3330	2800	84	19-122
Category: 625-A				
Matrix: AQUEOUS				
QC Lot: 08 JUL 90-B QC Run: 08 JUL 90-B				
Concentration Units: ug/L				
Nitrobenzene-d5	100	80.0	80	35-114
2-Fluorobiphenyl	100	69.4	69	43-116
Terphenyl-d14	100	62.0	62	33-141
2-Fluorophenol	200	125	62	21-100
Phenol-d5	200	130	65	10- 94
2,4,6-Tribromophenol	200	95.6	48	10-123

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

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

Test: 8270-AP9-S
Matrix: SOIL
QC Lot: 08 JUL 90-A QC Run: 08 JUL 90-A

Analyte	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
a,a-Dimethylphenethylamine	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
1,3-Dinitrobenzene	ND	ug/kg	5000
4,6-Dinitro-o-cresol	ND	ug/kg	25000
2,4-Dinitrophenol	ND	ug/kg	25000
2,4-Dinitrotoluene	ND	ug/kg	5000
2,6-Dinitrotoluene	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Diphenylamine	ND	ug/kg	5000
Ethyl methanesulfonate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Fluorene	ND	ug/kg	5000
Hexachlorobenzene	ND	ug/kg	5000
Hexachlorobutadiene	ND	ug/kg	5000
Hexachlorocyclopentadiene	ND	ug/kg	5000
Hexachloroethane	ND	ug/kg	5000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	5000
Isophorone	ND	ug/kg	5000
3-Methylcholanthrene	ND	ug/kg	5000
Methyl methanesulfonate	ND	ug/kg	5000
2-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
1-Naphthylamine	ND	ug/kg	5000
2-Naphthylamine	ND	ug/kg	5000
2-Nitroaniline	ND	ug/kg	25000
3-Nitroaniline	ND	ug/kg	25000
4-Nitroaniline	ND	ug/kg	25000
Nitrobenzene	ND	ug/kg	5000
2-Nitrophenol	ND	ug/kg	5000
4-Nitrophenol	ND	ug/kg	25000
N-Nitroso-di-n-butylamine	ND	ug/kg	5000
N-Nitrosodimethylamine	ND	ug/kg	5000
N-Nitrosodiphenylamine	ND	ug/kg	5000
N-Nitroso-di-n-propylamine	ND	ug/kg	5000
N-Nitrosopiperidine	ND	ug/kg	5000
Pentachlorobenzene	ND	ug/kg	5000

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

Analyte	Result	Units	Reporting Limit
Test: 8270-AP9-S			
Matrix: SOIL			
QC Lot: 08 JUL 90-A QC Run: 08 JUL 90-A			
Pentachloronitrobenzene	ND	ug/kg	25000
Pentachlorophenol	ND	ug/kg	25000
Phenacetin	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Phenol	ND	ug/kg	5000
2-Picoline	ND	ug/kg	5000
Pronamide	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	5000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	25000
1,2,4-Trichlorobenzene	ND	ug/kg	5000
2,4,5-Trichlorophenol	ND	ug/kg	25000
2,4,6-Trichlorophenol	ND	ug/kg	5000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	5000
1-Chloronaphthalene	ND	ug/kg	--
1,2-Diphenylhydrazine	ND	ug/kg	5000
Test: 625-AP9-A			
Matrix: AQUEOUS			
QC Lot: 08 JUL 90-B QC Run: 08 JUL 90-B			
Acenaphthene	ND	ug/L	10
Acenaphthylene	ND	ug/L	10
Acetophenone	ND	ug/L	10
4-Aminobiphenyl	ND	ug/L	10
Aniline	ND	ug/L	10
Anthracene	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	20
bis(2-Chloroethoxy)-methane	ND	ug/L	10
bis(2-Chloroethyl) ether	ND	ug/L	10
bis(2-Chloroisopropyl)-ether	ND	ug/L	10

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

Test: 625-AP9-A
Matrix: AQUEOUS
QC Lot: 08 JUL 90-B QC Run: 08 JUL 90-B

Analyte	Result	Units	Reporting Limit
bis(2-Ethylhexyl) phthalate	ND	ug/L	10
4-Bromophenyl phenyl ether	ND	ug/L	10
Butyl benzyl phthalate	ND	ug/L	10
4-Chloroaniline	ND	ug/L	20
4-Chloro-3-methylphenol	ND	ug/L	20
2-Chloronaphthalene	ND	ug/L	10
2-Chlorophenol	ND	ug/L	10
4-Chlorophenyl phenyl ether	ND	ug/L	10
o-Cresol	ND	ug/L	10
m & p-Cresol(s)	ND	ug/L	10
Chrysene	ND	ug/L	10
Dibenz(a,h)anthracene	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
p-Dimethylaminoazobenzene	ND	ug/L	10
7,12-Dimethylbenz(a)-anthracene	ND	ug/L	10
a,a-Dimethylphenethyl-amine	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-o-cresol	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
Ethyl methanesulfonate	ND	ug/L	10
Fluoranthene	ND	ug/L	10
Fluorene	ND	ug/L	10
Hexachlorobenzene	ND	ug/L	10

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

Test: 625-AP9-A
Matrix: AQUEOUS
QC Lot: 08 JUL 90-B QC Run: 08 JUL 90-B

Analyte	Result	Units	Reporting Limit
Hexachlorobutadiene	ND	ug/L	10
Hexachlorocyclopentadiene	ND	ug/L	10
Hexachloroethane	ND	ug/L	10
Indeno(1,2,3-cd)pyrene	ND	ug/L	10
Isophorone	ND	ug/L	10
3-Methylcholanthrene	ND	ug/L	20
Methyl methanesulfonate	ND	ug/L	10
2-Methylnaphthalene	ND	ug/L	10
Naphthalene	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
N-Nitroso-di-n-butylamine	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-Nitrosopiperidine	ND	ug/L	10
Pentachlorobenzene	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
2-Picoline	ND	ug/L	10
Pronamide	ND	ug/L	20
Pyrene	ND	ug/L	10
1,2,4,5-Tetrachlorobenzene	ND	ug/L	10
2,3,4,6-Tetrachlorophenol	ND	ug/L	20
1,2,4-Trichlorobenzene	ND	ug/L	10
2,4,5-Trichlorophenol	ND	ug/L	50
2,4,6-Trichlorophenol	ND	ug/L	10
Benzidine	ND	ug/L	--
Benzoic acid	ND	ug/L	50
1-Chloronaphthalene	ND	ug/L	--

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

Analyte	Result	Units	Reporting Limit
Test: 625-AP9-A			
Matrix: AQUEOUS			
QC Lot: 08 JUL 90-B QC Run: 08 JUL 90-B			
1,2-Diphenylhydrazine	ND	ug/L	50

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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)
010258-0001-SA	SOIL	ICP-S	25 JUL 90-L	25 JUL 90-L
010258-0001-SA	SOIL	AS-FAA-S	25 JUL 90-F	25 JUL 90-F
010258-0001-SA	SOIL	SE-FAA-S	25 JUL 90-F	25 JUL 90-F
010258-0001-SA	SOIL	HG-CVAA-S	18 JUL 90-A	18 JUL 90-A
010258-0002-SA	SOIL	ICP-S	25 JUL 90-L	25 JUL 90-L
010258-0002-SA	SOIL	AS-FAA-S	25 JUL 90-F	25 JUL 90-F
010258-0002-SA	SOIL	SE-FAA-S	25 JUL 90-F	25 JUL 90-F
010258-0002-SA	SOIL	HG-CVAA-S	18 JUL 90-A	18 JUL 90-A
010258-0003-SA	SOIL	ICP-S	25 JUL 90-L	25 JUL 90-L
010258-0003-SA	SOIL	AS-FAA-S	25 JUL 90-F	25 JUL 90-F
010258-0003-SA	SOIL	SE-FAA-S	25 JUL 90-F	25 JUL 90-F
010258-0003-SA	SOIL	HG-CVAA-S	18 JUL 90-A	18 JUL 90-A
010258-0004-SA	SOIL	ICP-S	25 JUL 90-L	25 JUL 90-L
010258-0004-SA	SOIL	AS-FAA-S	25 JUL 90-F	25 JUL 90-F
010258-0004-SA	SOIL	SE-FAA-S	25 JUL 90-F	25 JUL 90-F
010258-0004-SA	SOIL	HG-CVAA-S	18 JUL 90-A	18 JUL 90-A
010258-0005-SA	AQUEOUS	ICP-AT	17 JUL 90-E	17 JUL 90-E
010258-0005-SA	AQUEOUS	AS-FAA-AT	23 JUL 90-E	23 JUL 90-E
010258-0005-SA	AQUEOUS	SE-FAA-AT	23 JUL 90-E	23 JUL 90-E
010258-0005-SA	AQUEOUS	PB-FAA-AT	23 JUL 90-E	23 JUL 90-E
010258-0005-SA	AQUEOUS	HG-CVAA-AT	20 JUL 90-A	20 JUL 90-A
010258-0006-SA	SOIL	ICP-S	25 JUL 90-L	25 JUL 90-L
010258-0006-SA	SOIL	AS-FAA-S	25 JUL 90-F	25 JUL 90-F
010258-0006-SA	SOIL	SE-FAA-S	25 JUL 90-F	25 JUL 90-F
010258-0006-SA	SOIL	HG-CVAA-S	18 JUL 90-A	18 JUL 90-A
010258-0007-SA	SOIL	ICP-S	25 JUL 90-L	25 JUL 90-L
010258-0007-SA	SOIL	AS-FAA-S	25 JUL 90-F	25 JUL 90-F
010258-0007-SA	SOIL	SE-FAA-S	25 JUL 90-F	25 JUL 90-F
010258-0007-SA	SOIL	HG-CVAA-S	18 JUL 90-A	18 JUL 90-A
010258-0008-SA	SOIL	ICP-S	25 JUL 90-L	25 JUL 90-L
010258-0008-SA	SOIL	AS-FAA-S	25 JUL 90-F	25 JUL 90-F
010258-0008-SA	SOIL	SE-FAA-S	25 JUL 90-F	25 JUL 90-F
010258-0008-SA	SOIL	HG-CVAA-S	18 JUL 90-A	18 JUL 90-A
010258-0009-SA	SOIL	ICP-S	25 JUL 90-L	25 JUL 90-L
010258-0009-SA	SOIL	AS-FAA-S	25 JUL 90-F	25 JUL 90-F
010258-0009-SA	SOIL	SE-FAA-S	25 JUL 90-F	25 JUL 90-F
010258-0009-SA	SOIL	HG-CVAA-S	18 JUL 90-A	18 JUL 90-A
010258-0010-SA	SOIL	ICP-S	25 JUL 90-L	25 JUL 90-L
010258-0010-SA	SOIL	AS-FAA-S	25 JUL 90-F	25 JUL 90-F
010258-0010-SA	SOIL	SE-FAA-S	25 JUL 90-F	25 JUL 90-F
010258-0010-SA	SOIL	HG-CVAA-S	18 JUL 90-A	18 JUL 90-A
010258-0011-SA	SOIL	ICP-S	25 JUL 90-L	25 JUL 90-L
010258-0011-SA	SOIL	AS-FAA-S	25 JUL 90-F	25 JUL 90-F
010258-0011-SA	SOIL	SE-FAA-S	25 JUL 90-F	25 JUL 90-F
010258-0011-SA	SOIL	HG-CVAA-S	18 JUL 90-A	18 JUL 90-A
010258-0012-SA	SOIL	ICP-S	25 JUL 90-L	25 JUL 90-L
010258-0012-SA	SOIL	AS-FAA-S	25 JUL 90-F	25 JUL 90-F

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QC LOT ASSIGNMENT REPORT
Metals Analysis and Preparation (cont.)

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
010258-0012-SA	SOIL	SE-FAA-S	25 JUL 90-F	25 JUL 90-F
010258-0012-SA	SOIL	HG-CVAA-S	18 JUL 90-A	18 JUL 90-A
010258-0013-SA	SOIL	ICP-S	25 JUL 90-L	25 JUL 90-L
010258-0013-SA	SOIL	AS-FAA-S	25 JUL 90-F	25 JUL 90-F
010258-0013-SA	SOIL	SE-FAA-S	25 JUL 90-F	25 JUL 90-F
010258-0013-SA	SOIL	HG-CVAA-S	18 JUL 90-A	18 JUL 90-A
010258-0014-SA	SOIL	ICP-S	25 JUL 90-L	25 JUL 90-L
010258-0014-SA	SOIL	AS-FAA-S	25 JUL 90-F	25 JUL 90-F
010258-0014-SA	SOIL	SE-FAA-S	25 JUL 90-F	25 JUL 90-F
010258-0014-SA	SOIL	HG-CVAA-S	18 JUL 90-A	18 JUL 90-A
010258-0015-SA	SOIL	ICP-S	25 JUL 90-L	25 JUL 90-L
010258-0015-SA	SOIL	AS-FAA-S	25 JUL 90-F	25 JUL 90-F
010258-0015-SA	SOIL	SE-FAA-S	25 JUL 90-F	25 JUL 90-F
010258-0015-SA	SOIL	HG-CVAA-S	18 JUL 90-A	18 JUL 90-A
010258-0016-SA	SOIL	ICP-S	25 JUL 90-L	25 JUL 90-L
010258-0016-SA	SOIL	AS-FAA-S	25 JUL 90-F	25 JUL 90-F
010258-0016-SA	SOIL	SE-FAA-S	25 JUL 90-F	25 JUL 90-F
010258-0016-SA	SOIL	HG-CVAA-S	18 JUL 90-A	18 JUL 90-A
010258-0017-SA	SOIL	ICP-S	25 JUL 90-L	25 JUL 90-L
010258-0017-SA	SOIL	AS-FAA-S	25 JUL 90-F	25 JUL 90-F
010258-0017-SA	SOIL	SE-FAA-S	25 JUL 90-F	25 JUL 90-F
010258-0017-SA	SOIL	HG-CVAA-S	18 JUL 90-A	18 JUL 90-A
010258-0018-SA	SOIL	ICP-S	25 JUL 90-L	25 JUL 90-L
010258-0018-SA	SOIL	AS-FAA-S	25 JUL 90-F	25 JUL 90-F
010258-0018-SA	SOIL	SE-FAA-S	25 JUL 90-F	25 JUL 90-F
010258-0018-SA	SOIL	HG-CVAA-S	18 JUL 90-A	18 JUL 90-A

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DUPLICATE CONTROL SAMPLE REPORT
Metals Analysis and Preparation

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	AVG	Accuracy Average(%) DCS	Accuracy Average(%) Limits	Precision (RPD) DCS	Precision (RPD) Limit
Category: ICP-S								
Matrix: SOIL								
QC Lot: 25 JUL 90-L								
Concentration Units: mg/kg								
Aluminum	200	191	197	194	97	75-125	3.3	20
Antimony	50	49.9	48.8	49.4	99	75-125	2.3	20
Arsenic	50	44.7	48.6	46.6	93	75-125	8.3	20
Barium	200	173	178	176	88	75-125	3.0	20
Beryllium	5.0	5.12	5.22	5.17	103	75-125	1.9	20
Cadmium	5.0	3.98	3.90	3.94	79	75-125	2.0	20
Calcium	10000	9620	9930	9770	98	75-125	3.2	20
Chromium	20	18.6	19.1	18.9	94	75-125	2.9	20
Cobalt	50	43.3	45.1	44.2	88	75-125	4.2	20
Copper	25	23.2	24.3	23.7	95	75-125	4.8	20
Iron	100	90.4	92.8	91.6	92	75-125	2.6	20
Lead	50	45.0	46.3	45.6	91	75-125	2.8	20
Magnesium	5000	4790	4990	4890	98	75-125	4.2	20
Manganese	50	44.3	45.4	44.9	90	75-125	2.6	20
Nickel	50	43.9	45.8	44.9	90	75-125	4.4	20
Potassium	5000	4550	4850	4700	94	75-125	6.4	20
Silver	5.0	4.84	4.94	4.89	98	75-125	2.0	20
Sodium	10000	9430	9840	9640	96	75-125	4.2	20
Vanadium	50	47.7	49.1	48.4	97	75-125	2.9	20
Zinc	50	44.0	45.7	44.8	90	75-125	3.7	20
Category: AS-FAA-S								
Matrix: SOIL								
QC Lot: 25 JUL 90-F								
Concentration Units: mg/kg								
Arsenic	4.0	3.67	3.60	3.64	91	75-125	1.9	20
Category: SE-FAA-S								
Matrix: SOIL								
QC Lot: 25 JUL 90-F								
Concentration Units: mg/kg								
Selenium	1	0.890	0.790	0.840	84	75-125	12	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 Spiked	Measured DCS1	Measured DCS2	AVG	Accuracy Average(%) DCS	Accuracy Limits	Precision (RPD) DCS	Precision Limit
Category: HG-CVAA-S Matrix: SOIL QC Lot: 18 JUL 90-A Concentration Units: mg/kg								
Mercury	0.50	0.491	0.507	0.499	100	75-125	3.2	20
Category: ICP-AT Matrix: AQUEOUS QC Lot: 17 JUL 90-E Concentration Units: mg/L								
Aluminum	2.0	1.94	1.98	1.96	98	75-125	2.3	20
Antimony	0.5	0.469	0.487	0.478	96	75-125	3.8	20
Arsenic	0.5	0.453	0.471	0.462	92	75-125	3.9	20
Barium	2.0	1.76	1.80	1.78	89	75-125	1.9	20
Beryllium	0.05	0.0462	0.0473	0.0468	94	75-125	2.3	20
Cadmium	0.05	0.0449	0.0474	0.0462	92	75-125	5.5	20
Calcium	100	97.1	98.4	97.7	98	75-125	1.4	20
Chromium	0.2	0.187	0.186	0.187	93	75-125	0.4	20
Cobalt	0.5	0.437	0.448	0.442	88	75-125	2.6	20
Copper	0.25	0.230	0.235	0.233	93	75-125	2.3	20
Iron	1.0	0.934	0.942	0.938	94	75-125	0.9	20
Lead	0.5	0.442	0.461	0.452	90	75-125	4.3	20
Magnesium	50	49.1	49.8	49.4	99	75-125	1.4	20
Manganese	0.5	0.436	0.446	0.441	88	75-125	2.4	20
Nickel	0.5	0.447	0.457	0.452	90	75-125	2.2	20
Potassium	50	47.8	48.2	48.0	96	75-125	1.0	20
Silver	0.05	0.0502	0.0498	0.0500	100	75-125	0.8	20
Sodium	100	95.3	96.6	96.0	96	75-125	1.4	20
Vanadium	0.5	0.478	0.487	0.482	96	75-125	1.8	20
Zinc	0.5	0.452	0.464	0.458	92	75-125	2.5	20
Category: AS-FAA-AT Matrix: AQUEOUS QC Lot: 23 JUL 90-E Concentration Units: mg/L								
Arsenic	0.04	0.0364	0.0378	0.0371	93	75-125	3.8	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 Spiked	Measured DCS1	Measured DCS2	Measured AVG	Accuracy Average(%) DCS	Accuracy Limits	Precision (RPD) DCS	Precision Limit
Category: SE-FAA-AT Matrix: AQUEOUS QC Lot: 23 JUL 90-E Concentration Units: mg/L								
Selenium	0.01	0.00880	0.00950	0.00915	92	75-125	7.7	20
Category: PB-FAA-AT Matrix: AQUEOUS QC Lot: 23 JUL 90-E Concentration Units: mg/L								
Lead	0.02	0.0197	0.0209	0.0203	102	75-125	5.9	20
Category: HG-CVAA-AT Matrix: AQUEOUS QC Lot: 20 JUL 90-A Concentration Units: mg/L								
Mercury	0.0010	0.00101	0.00107	0.00104	104	75-125	5.8	20

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

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METHOD BLANK REPORT
Metals Analysis and Preparation

Analyte	Result	Units	Reporting Limit
Test: ICPOCP-ICPS-S			
Matrix: SOIL			
QC Lot: 25 JUL 90-L QC Run: 25 JUL 90-L			
Antimony	ND	mg/kg	6.0
Barium	ND	mg/kg	1.0
Beryllium	ND	mg/kg	0.20
Cadmium	ND	mg/kg	0.50
Chromium	ND	mg/kg	1.0
Cobalt	ND	mg/kg	1.0
Copper	ND	mg/kg	2.0
Lead	ND	mg/kg	5.0
Nickel	ND	mg/kg	4.0
Potassium	ND	mg/kg	500
Vanadium	ND	mg/kg	1.0
Zinc	ND	mg/kg	2.0
Test: GF-ASCP-TAL-S			
Matrix: SOIL			
QC Lot: 25 JUL 90-F QC Run: 25 JUL 90-F			
Arsenic	ND	mg/kg	0.50
Test: GF-SECP-TAL-S			
Matrix: SOIL			
QC Lot: 25 JUL 90-F QC Run: 25 JUL 90-F			
Selenium	ND	mg/kg	0.50
Test: CV-HGCP-TAL-S			
Matrix: SOIL			
QC Lot: 18 JUL 90-A QC Run: 18 JUL 90-A			
Mercury	ND	mg/kg	0.10

METHOD BLANK REPORT
Metals Analysis and Preparation (cont.)

Analyte	Result	Units	Reporting Limit
Test: ICPOCP-TAL-AT			
Matrix: AQUEOUS			
QC Lot: 17 JUL 90-E QC Run: 17 JUL 90-E			
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
Potassium	ND	mg/L	5.0
Vanadium	ND	mg/L	0.010
Zinc	ND	mg/L	0.020
Test: GF-ASCP-TAL-AT			
Matrix: AQUEOUS			
QC Lot: 23 JUL 90-E QC Run: 23 JUL 90-E			
Arsenic	ND	mg/L	0.0050
Test: GF-SECP-TAL-AT			
Matrix: AQUEOUS			
QC Lot: 23 JUL 90-E QC Run: 23 JUL 90-E			
Selenium	ND	mg/L	0.0050
Test: GF-PBCP-TAL-AT			
Matrix: AQUEOUS			
QC Lot: 23 JUL 90-E QC Run: 23 JUL 90-E			
Lead	ND	mg/L	0.0050
Test: CV-HGCP-TAL-AT			
Matrix: AQUEOUS			
QC Lot: 20 JUL 90-A QC Run: 20 JUL 90-A			
Mercury	ND	mg/L	0.00020

Enseco - Rocky Mountain Analytical

4955 Yarrow Street
Arvada, Colorado 80002
303/421-6611 Facsimile: 303/431-7171

CHAIN OF CUSTODY

No.

Attn: Julie Essey

Enseco Client: Giant Refinery

Project: RFI

Sampling Co.: Giant

Sampling Site: Ciniza

Team Leader: M. McLaslin

RMAL #10258

SAMPLE SAFE™ CONDITIONS

1. Packed by: _____ Seal # _____
2. Seal Intact Upon Receipt by Sampling Co.: (Yes) No
3. Condition of Contents: Good
4. Sealed for Shipping by: C Rosenda le
5. Initial Contents Temp.: _____ °C Seal # —
6. Sampling Status: (Done) Continuing Until _____
7. Seal Intact Upon Receipt by Laboratory: Yes No
8. Contents Temperature Upon Receipt by Lab: _____ °C
9. Condition of Contents: _____

	Date	Time	Sample ID/Description	Sample Type	No. Containers	Analysis Parameters	Remarks
1	7-2-90	7:53	RFI090N0.0	Soil	2	Metals, 8240, 8270	
2	7-2-90	7:54	RFI0901V3.0	Soil	2	Metals, 8240, 8270	
03	7-2-90	8:03	RFI0901V5.0	Soil	2	Metals, 8240, 8270	
04	7-2-90	8:17	RFI0901V7.0	Soil	2	Metals, 8240, 8270	
05	7-2-90	8:00	RFI0901E5.0	Water	6	~~Metals, 8240, 8270~~ SEE Attached	
06	7-2-90	8:25	RFI0904V0.0	Soil	2	Metals, 8240, 8270	
07	7-2-90	8:46	RFI0904V3.0	Soil	2	Metals, 8240, 8270	
08	7-2-90	8:51	RFI0904V5.0	Soil	2	Metal, 8240, 8270	
09	7-2-90	9:03	RFI0904V7.0	Soil	2	Metals, 8240, 8270	
10	7-2-90	9:00	RFI0902V0.0	Soil	2	Metals, 8240, 8270	

CUSTODY TRANSFERS PRIOR TO SHIPPING

	Relinquished by: (signed)	Received by: (signed)	Date	Time
1	C Rosenda le		7-2-90	1:45pm
2		Joseph A Myers	7-3-90	0800
3				

SHIPPING DETAILS

Delivered to Shipper by: C Rosenda le

Method of Shipment: Fed Express Airbill # _____

Received for Lab: RMAL Signed: Joseph A Myers Date/Time 7-3-90 0800

Enseco Project No. _____

9.610

White and Pink Copies to Lab Yellow to Sampler

SS-001

Enseco - Rocky Mountain Analytical
4955 Yarrow Street
Arvada, Colorado 80002
303/421-6611 Facsimile: 303/431-7171

CHAIN OF CUSTODY

No.

Attn: Julie Essey

Enseco Client: Giant ~~Gard~~

Project: RFI

Sampling Co.: Giant

Sampling Site: Cinizq

Team Leader: M. McCaslin

RMAL # 10258

SAMPLE SAFE™ CONDITIONS

1. Packed by: _____ Seal # _____
2. Seal Intact Upon Receipt by Sampling Co.: (Yes) No
3. Condition of Contents: Good
4. Sealed for Shipping by: C Rosenda le
5. Initial Contents Temp.: _____ °C Seal # _____
6. Sampling Status: (Done) Continuing Until _____
7. Seal Intact Upon Receipt by Laboratory: Yes No
8. Contents Temperature Upon Receipt by Lab: _____ °C
9. Condition of Contents: _____

	Date	Time	Sample ID/Description	Sample Type	No. Containers	Analysis Parameters	Remarks
1	7-2-90	9:20	RFI0902V3.0	Soil	2	Metals, 8240, 8270	
2	7-2-90	9:28	RFI0902V5.0	Soil	2	Metals, 8240, 8270	
3	7-2-90	9:45	RFI0902V7.0	Soil	2	Metals, 8240, 8270	
4	7-2-90	9:50	RFI0905 V0.0	Soil	2	Metals, 8240, 8270	
5	7-2-90	9:58	RFI0905V3.0	Soil	2	metals, 8240, 8270	
6	7-2-90	10:06	RFI0905V5.0	Soil	2	Metals, 8240, 8270	
7	7-2-90	10:14	RFI0905V7.0	Soil	2	Metals, 8240, 8270	
8	7-2-90	10:06	RFI0905D5.0	Soil	2	Metals, 8240, 8270	
9	7-2-90	10:29	RFI0903V0.0	Soil	2	Metals, 8240, 8270	
10	7-2-90	10:38	RFI0903V3.0	Soil	2	metals, 8240, 8270	

CUSTODY TRANSFERS PRIOR TO SHIPPING

	Relinquished by: (signed)	Received by: (signed)	Date	Time
1	C Rosenda le	Joseph A Mass	7-2-90	1:45pm
2	Joseph A Mass		7-3-90	0800
3				

SHIPPING DETAILS

Delivered to Shipper by: C Rosenda le

Method of Shipment: Fed Express Airbill #

Received for Lab: RMAL Signed: Joseph A Mass Date/Time 7-3-90 0800

Enseco Project No.

White and Pink Copies to Lab Yellow to Sampler

SS-001

RCRA FACILITY INVESTIGATION
PHASE I - FINAL REPORT
GIANT REFINING COMPANY
GALLUP, NEW MEXICO
APRIL 8, 1991
BOOK 5

This Booklet Includes
Section 9.0
9.3.2
9.4.1
9.4.2
and
Section 10.0

Section 9.0
RMAL No. 010259

Rocky Mountain
Analytical Laboratory

Enseco

ANALYTICAL RESULTS

FOR

GIANT REFINING

ENSECO-RMAL NO. 010259

AUGUST 2, 1990

Reviewed by: J A Essey
Julie Essey

Sue Dalla
Sue Dalla

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

Enseco

August 2, 1990

Mr. Claud Rosendale
Giant Refining
17 Miles East of Gallup
I-40, Exit 39
Gallup, NM 87301

Dear Mr. Rosendale:

Enclosed is the report for 13 samples we received at Enseco-Rocky Mountain Analytical Laboratory on July 5, 1990.

Included with the report is a quality control summary.

Please call if you have any questions.

Sincerely,

Julie Essey
Program Administrator

Reviewed by:

Sue Dalla
Manager
Program Administration

JE/SD/lw
Enclosures

RMAL #010259

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

Consistent with directives in the CLP protocol in SW-846 and other EPA methods, all GC/MS analyses were performed so that the maximum concentration of sample was analyzed. Some samples required dilutions to avoid saturation of the detector, to achieve linearity for a specific target compound or to reduce matrix interferences. As stated in Section 7.5.4 of Method 8270, 7.4.1.16 of Method 8240 and Exhibit E of the CLP protocol these dilutions be performed. The reporting limits for these samples are therefore proportionate to the dilution required. Surrogate compounds may not be measurable in samples which have been diluted.

Due to interferences originating from non-target and/or target compounds, dilutions were performed for sample 010259-0005 by Method 8270. The reporting limits were raised accordingly.

All 8270 samples were prepped according to SW-846 using 2.0 grams of sample followed by a 50% partition then concentration to 1.0 mL for analysis. With this prep method nominal reporting limits are generally 10,000 ug/kg. After careful review of all chromatograms it has been determined that we can lower the nominal reporting limit to 5,000 ug/kg for this project.

Prep blank contamination from chromium by Method 6010, made it necessary to raise the reporting limits for the corresponding samples prepared with that method blank. For this project the reporting limits by Method 6010 were raised for 010259-0001 through 0013 due to prep blank contamination. It should be noted that Enseco no longer blank corrects sample data.

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.

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SAMPLE DESCRIPTION INFORMATION
for
Giant Refining

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
010259-0001-SA	RFI 0903V0.0	SOIL	02 JUL 90	10:29	05 JUL 90
010259-0002-SA	RFI 0903V3.0	SOIL	02 JUL 90	10:38	05 JUL 90
010259-0003-SA	RFI 0903V5.0	SOIL	02 JUL 90	10:50	05 JUL 90
010259-0004-SA	RFI 0903V7.0	SOIL	02 JUL 90	11:01	05 JUL 90
010259-0005-SA	RFI 0906V0.0	SOIL	02 JUL 90	12:01	05 JUL 90
010259-0006-SA	RFI 0906V3.0	SOIL	02 JUL 90	12:06	05 JUL 90
010259-0007-SA	RFI 0906V5.0	SOIL	02 JUL 90	12:13	05 JUL 90
010259-0008-SA	RFI 0906V7.0	SOIL	02 JUL 90	12:19	05 JUL 90
010259-0009-SA	RFI 0906D3.0	SOIL	02 JUL 90	12:06	05 JUL 90
010259-0010-SA	RFI 0907V0.0	SOIL	02 JUL 90	12:22	05 JUL 90
010259-0011-SA	RFI 0907V3.0	SOIL	02 JUL 90	12:42	05 JUL 90
010259-0012-SA	RFI 0907V5.0	SOIL	02 JUL 90	12:46	05 JUL 90
010259-0013-SA	RFI 0907V7.0	SOIL	02 JUL 90	12:58	05 JUL 90

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ANALYTICAL TEST REQUESTS
for
Giant Refining

Lab ID: 010259	Group Code	Analysis Description	Custom Test?
0001 - 0013	A	ICP Suite (Standard List)	Y
		Prep - Total Metals, ICP	N
		Arsenic by Graphite Furnace AA	N
		Prep - Total Metals, Furnace AA	N
		Selenium by Graphite Furnace AA	N
		Mercury by Cold Vapor AA	N
		Prep - Mercury, Cold Vapor AA	N
		Appendix IX Semivolatile Organics	Y
		Prep - Semivolatile Organics by GC/MS	N
		Priority Pollutant Volatile Organics	Y
		GC Screen For Medium Level Soils	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, April, 1989.

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

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Priority Pollutant Volatile Organics

Method 8240

Client Name: Giant Refining
Client ID: RFI 0903V0.0
Lab ID: 010259-0001-SA Enseco ID: 1082049
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 11 JUL 90 Analyzed: 13 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500
Acetone	ND	ug/kg	5000
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Carbon disulfide	ND	ug/kg	500
Dibromomethane	ND	ug/kg	500
trans-1,4-Dichloro-2-butene	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	ND	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone	ND	ug/kg	5000
4-Methyl-2-pentanone	ND	ug/kg	1000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics (CONT.)

Method 8240

Client Name: Giant Refining
Client ID: RFI 0903V0.0
Lab ID: 010259-0001-SA
Matrix: SOIL
Authorized: 05 JUL 90

Enseco ID: 1082049
Sampled: 02 JUL 90
Prepared: 11 JUL 90

Received: 05 JUL 90
Analyzed: 13 JUL 90

Parameter	Result	Units	Reporting Limit
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	500
Ethyl methacrylate	ND	ug/kg	1000
2-Hexanone	ND	ug/kg	1000
Toluene-d8	99	%	--
4-Bromofluorobenzene	98	%	--
1,2-Dichloroethane-d4	94	%	--

ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais

Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics

Method 8240

Client Name: Giant Refining
Client ID: RFI 0903V3.0
Lab ID: 010259-0002-SA Enseco ID: 1082079
Matrix: SOIL Sampled: 02 JUL 90 Received: 03 JUL 90
Authorized: 05 JUL 90 Prepared: 11 JUL 90 Analyzed: 13 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500
Acetone	ND	ug/kg	5000
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Carbon disulfide	ND	ug/kg	500
Dibromomethane	ND	ug/kg	500
trans-1,4-Dichloro-2-butene	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	ND	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone	ND	ug/kg	5000
4-Methyl-2-pentanone	ND	ug/kg	1000

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ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics (CONT.)

Method 8240

Client Name: Giant Refining
Client ID: RFI 0903V3.0
Lab ID: 010259-0002-SA Enseco ID: 1082079
Matrix: SOIL Sampled: 02 JUL 90 Received: 03 JUL 90
Authorized: 05 JUL 90 Prepared: 11 JUL 90 Analyzed: 13 JUL 90

Parameter	Result	Units	Reporting Limit
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	500
Ethyl methacrylate	ND	ug/kg	1000
2-Hexanone	ND	ug/kg	1000
Toluene-d8	97	%	--
4-Bromofluorobenzene	103	%	--
1,2-Dichloroethane-d4	102	%	--

ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics

Method 8240

Client Name: Giant Refining
Client ID: RFI 0903V5.0
Lab ID: 010259-0003-SA Enseco ID: 1082080
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 11 JUL 90 Analyzed: 13 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500
Acetone	ND	ug/kg	5000
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Carbon disulfide	ND	ug/kg	500
Dibromomethane	ND	ug/kg	500
trans-1,4-Dichloro-2-butene	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	ND	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone	ND	ug/kg	5000
4-Methyl-2-pentanone	ND	ug/kg	1000

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ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics (CONT.)

Method 8240

Client Name: Giant Refining
Client ID: RFI 0903V5.0
Lab ID: 010259-0003-SA Enseco ID: 1082080
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 11 JUL 90 Analyzed: 13 JUL 90

Parameter	Result	Units	Reporting Limit
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	500
Ethyl methacrylate	ND	ug/kg	1000
2-Hexanone	ND	ug/kg	1000
Toluene-d8	97	%	--
4-Bromofluorobenzene	104	%	--
1,2-Dichloroethane-d4	100	%	--

ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics

Method 8240

Client Name: Giant Refining
Client ID: RFI 0903V7.0
Lab ID: 010259-0004-SA Enseco ID: 1082081
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 11 JUL 90 Analyzed: 13 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500
Acetone	ND	ug/kg	5000
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Carbon disulfide	ND	ug/kg	500
Dibromomethane	ND	ug/kg	500
trans-1,4-Dichloro-2-butene	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	ND	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone	ND	ug/kg	5000
4-Methyl-2-pentanone	ND	ug/kg	1000

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ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics (CONT.)

Method 8240

Client Name: Giant Refining
Client ID: RFI 0903V7.0
Lab ID: 010259-0004-SA
Enseco ID: 1082081
Matrix: SOIL
Sampled: 02 JUL 90
Received: 05 JUL 90
Authorized: 05 JUL 90
Prepared: 11 JUL 90
Analyzed: 13 JUL 90

Parameter	Result	Units	Reporting Limit
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	500
Ethyl methacrylate	ND	ug/kg	1000
2-Hexanone	ND	ug/kg	1000
Toluene-d8	101	%	--
4-Bromofluorobenzene	104	%	--
1,2-Dichloroethane-d4	105	%	--

ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais
Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics

Method 8240

Client Name: Giant Refining
Client ID: RFI 0906V0.0
Lab ID: 010259-0005-SA Enseco ID: 1082082
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 11 JUL 90 Analyzed: 13 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500
Acetone	ND	ug/kg	5000
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Carbon disulfide	ND	ug/kg	500
Dibromomethane	ND	ug/kg	500
trans-1,4-Dichloro-2-butene	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	ND	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone	ND	ug/kg	5000
4-Methyl-2-pentanone	ND	ug/kg	1000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics (CONT.)

Method 8240

Client Name: Giant Refining
Client ID: RFI 0906V0.0
Lab ID: 010259-0005-SA Enseco ID: 1082082
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 11 JUL 90 Analyzed: 13 JUL 90

Parameter	Result	Units	Reporting Limit
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	500
Ethyl methacrylate	ND	ug/kg	1000
2-Hexanone	ND	ug/kg	1000
Toluene-d8	102	%	--
4-Bromofluorobenzene	99	%	--
1,2-Dichloroethane-d4	99	%	--

ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics

Method 8240

Client Name: Giant Refining
Client ID: RFI 0906V3.0
Lab ID: 010259-0006-SA Enseco ID: 1082083
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 11 JUL 90 Analyzed: 13 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500
Acetone	ND	ug/kg	5000
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Carbon disulfide	ND	ug/kg	500
Dibromomethane	ND	ug/kg	500
trans-1,4-Dichloro-2-butene	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	ND	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone	ND	ug/kg	5000
4-Methyl-2-pentanone	ND	ug/kg	1000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics (CONT.)

Method 8240

Client Name: Giant Refining
Client ID: RFI 0906V3.0
Lab ID: 010259-0006-SA
Enseco ID: 1082083
Matrix: SOIL
Sampled: 02 JUL 90
Received: 05 JUL 90
Authorized: 05 JUL 90
Prepared: 11 JUL 90
Analyzed: 13 JUL 90

Parameter	Result	Units	Reporting Limit
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	500
Ethyl methacrylate	ND	ug/kg	1000
2-Hexanone	ND	ug/kg	1000
Toluene-d8	93	%	--
4-Bromofluorobenzene	97	%	--
1,2-Dichloroethane-d4	104	%	--

ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais
Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics

Method 8240

Client Name: Giant Refining
Client ID: RFI 0906V5.0
Lab ID: 010259-0007-SA Enseco ID: 1082084
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 11 JUL 90 Analyzed: 13 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500
Acetone	ND	ug/kg	5000
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Carbon disulfide	ND	ug/kg	500
Dibromomethane	ND	ug/kg	500
trans-1,4-Dichloro-2-butene	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	ND	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone	ND	ug/kg	5000
4-Methyl-2-pentanone	ND	ug/kg	1000

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ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics (CONT.)

Method 8240

Client Name: Giant Refining
Client ID: RFI 0906V5.0
Lab ID: 010259-0007-SA Enseco ID: 1082084
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 11 JUL 90 Analyzed: 13 JUL 90

Parameter	Result	Units	Reporting Limit
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	500
Ethyl methacrylate	ND	ug/kg	1000
2-Hexanone	ND	ug/kg	1000
Toluene-d8	102	%	--
4-Bromofluorobenzene	103	%	--
1,2-Dichloroethane-d4	104	%	--

ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics

Method 8240

Client Name: Giant Refining
Client ID: RFI 0906V7.0
Lab ID: 010259-0008-SA Enseco ID: 1082085
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 11 JUL 90 Analyzed: 13 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500
Acetone	ND	ug/kg	5000
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Carbon disulfide	ND	ug/kg	500
Dibromomethane	ND	ug/kg	500
trans-1,4-Dichloro-2-butene	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	ND	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone	ND	ug/kg	5000
4-Methyl-2-pentanone	ND	ug/kg	1000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics (CONT.)

Method 8240

Client Name: Giant Refining
Client ID: RFI 0906V7.0
Lab ID: 010259-0008-SA Enseco ID: 1082085
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 11 JUL 90 Analyzed: 13 JUL 90

Parameter	Result	Units	Reporting Limit
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	500
Ethyl methacrylate	ND	ug/kg	1000
2-Hexanone	ND	ug/kg	1000
Toluene-d8	100	%	--
4-Bromofluorobenzene	99	%	--
1,2-Dichloroethane-d4	111	%	--

ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics

Method 8240

Client Name: Giant Refining
Client ID: RFI 0906D3.0
Lab ID: 010259-0009-SA Enseco ID: 1082086
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 11 JUL 90 Analyzed: 13 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500
Acetone	ND	ug/kg	5000
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Carbon disulfide	ND	ug/kg	500
Dibromomethane	ND	ug/kg	500
trans-1,4-Dichloro-2-butene	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	ND	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone	ND	ug/kg	5000
4-Methyl-2-pentanone	ND	ug/kg	1000

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ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics (CONT.)

Method 8240

Client Name: Giant Refining
Client ID: RFI 0906D3.0
Lab ID: 010259-0009-SA Enseco ID: 1082086
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 11 JUL 90 Analyzed: 13 JUL 90

Parameter	Result	Units	Reporting Limit
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	500
Ethyl methacrylate	ND	ug/kg	1000
2-Hexanone	ND	ug/kg	1000
Toluene-d8	96	%	--
4-Bromofluorobenzene	98	%	--
1,2-Dichloroethane-d4	104	%	--

ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics

Method 8240

Client Name: Giant Refining
Client ID: RFI 0907V0.0
Lab ID: 010259-0010-SA Enseco ID: 1082087
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 11 JUL 90 Analyzed: 13 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500
Acetone	ND	ug/kg	5000
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Carbon disulfide	ND	ug/kg	500
Dibromomethane	ND	ug/kg	500
trans-1,4-Dichloro-2-butene	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	ND	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone	ND	ug/kg	5000
4-Methyl-2-pentanone	ND	ug/kg	1000

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ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics (CONT.)

Method 8240

Client Name: Giant Refining
Client ID: RFI 0907V0.0
Lab ID: 010259-0010-SA Enseco ID: 1082087
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 11 JUL 90 Analyzed: 13 JUL 90

Parameter	Result	Units	Reporting Limit
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	500
Ethyl methacrylate	ND	ug/kg	1000
2-Hexanone	ND	ug/kg	1000
Toluene-d8	101	%	--
4-Bromofluorobenzene	102	%	--
1,2-Dichloroethane-d4	109	%	--

ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics

Method 8240

Client Name: Giant Refining
Client ID: RFI 0907V3.0
Lab ID: 010259-0011-SA Enseco ID: 1082088
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 11 JUL 90 Analyzed: 13 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500
Acetone	ND	ug/kg	5000
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Carbon disulfide	ND	ug/kg	500
Dibromomethane	ND	ug/kg	500
trans-1,4-Dichloro-2-butene	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	ND	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone	ND	ug/kg	5000
4-Methyl-2-pentanone	ND	ug/kg	1000

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ND = Not detected
NA = Not applicable

Reported By: Terry Riddle Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics (CONT.)

Method 8240

Client Name: Giant Refining
Client ID: RFI 0907V3.0
Lab ID: 010259-0011-SA Enseco ID: 1082088
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 11 JUL 90 Analyzed: 13 JUL 90

Parameter	Result	Units	Reporting Limit
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	500
Ethyl methacrylate	ND	ug/kg	1000
2-Hexanone	ND	ug/kg	1000
Toluene-d8	104	%	--
4-Bromofluorobenzene	101	%	--
1,2-Dichloroethane-d4	90	%	--

ND = Not detected
NA = Not applicable

Reported By: Terry Riddle Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics

Method 8240

Client Name: Giant Refining
Client ID: RFI 0907V5.0
Lab ID: 010259-0012-SA Enseco ID: 1082089
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 11 JUL 90 Analyzed: 13 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500
Acetone	ND	ug/kg	5000
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Carbon disulfide	ND	ug/kg	500
Dibromomethane	ND	ug/kg	500
trans-1,4-Dichloro-2-butene	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	ND	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone	ND	ug/kg	5000
4-Methyl-2-pentanone	ND	ug/kg	1000

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ND = Not detected
NA = Not applicable

Reported By: Terry Riddle Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics (CONT.)

Method 8240

Client Name: Giant Refining
Client ID: RFI 0907V5.0
Lab ID: 010259-0012-SA Enseco ID: 1082089
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 11 JUL 90 Analyzed: 13 JUL 90

Parameter	Result	Units	Reporting Limit
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	500
Ethyl methacrylate	ND	ug/kg	1000
2-Hexanone	ND	ug/kg	1000
Toluene-d8	100	%	--
4-Bromofluorobenzene	98	%	--
1,2-Dichloroethane-d4	90	%	--

ND = Not detected
NA = Not applicable

Reported By: Terry Riddle Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics

Method 8240

Client Name: Giant Refining
Client ID: RFI 0907V7.0
Lab ID: 010259-0013-SA Enseco ID: 1082090
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 11 JUL 90 Analyzed: 13 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500
Acetone	ND	ug/kg	5000
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Carbon disulfide	ND	ug/kg	500
Dibromomethane	ND	ug/kg	500
trans-1,4-Dichloro-2-butene	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	ND	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone	ND	ug/kg	5000
4-Methyl-2-pentanone	ND	ug/kg	1000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Terry Riddle Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics (CONT.)

Method 8240

Client Name: Giant Refining
Client ID: RFI 0907V7.0
Lab ID: 010259-0013-SA Enseco ID: 1082090
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 11 JUL 90 Analyzed: 13 JUL 90

Parameter	Result	Units	Reporting Limit
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	500
Ethyl methacrylate	ND	ug/kg	1000
2-Hexanone	ND	ug/kg	1000
Toluene-d8	103	%	--
4-Bromofluorobenzene	101	%	--
1,2-Dichloroethane-d4	92	%	--

ND = Not detected
NA = Not applicable

Reported By: Terry Riddle Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI 0903V0.0
Lab ID: 010259-0001-SA Enseco ID: 1082049
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 30 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	5000
Acenaphthylene	ND	ug/kg	5000
Acetophenone	ND	ug/kg	5000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	5000
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(g,h,i)perylene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
Benzyl alcohol	ND	ug/kg	5000
bis(2-Chloroethoxy)-methane	ND	ug/kg	5000
bis(2-Chloroethyl) ether	ND	ug/kg	5000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
4-Bromophenyl phenyl ether	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
4-Chloroaniline	ND	ug/kg	5000
4-Chloro-3-methylphenol	ND	ug/kg	5000
2-Chloronaphthalene	ND	ug/kg	5000
2-Chlorophenol	ND	ug/kg	5000
4-Chlorophenyl phenyl ether	ND	ug/kg	5000
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
3,3'-Dichlorobenzidine	ND	ug/kg	10000
2,4-Dichlorophenol	ND	ug/kg	5000
2,6-Dichlorophenol	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
p-Dimethylaminoazobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Cheryl Jones Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI 0903V0.0
Lab ID: 010259-0001-SA Enseco ID: 1082049
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 30 JUL 90

Parameter	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
a,a-Dimethylphenethylamine	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
1,3-Dinitrobenzene	ND	ug/kg	5000
4,6-Dinitro-o-cresol	ND	ug/kg	25000
2,4-Dinitrophenol	ND	ug/kg	25000
2,4-Dinitrotoluene	ND	ug/kg	5000
2,6-Dinitrotoluene	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Diphenylamine	ND	ug/kg	5000
Ethyl methanesulfonate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Fluorene	ND	ug/kg	5000
Hexachlorobenzene	ND	ug/kg	5000
Hexachlorobutadiene	ND	ug/kg	5000
Hexachlorocyclopentadiene	ND	ug/kg	5000
Hexachloroethane	ND	ug/kg	5000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	5000
Isophorone	ND	ug/kg	5000
3-Methylcholanthrene	ND	ug/kg	5000
Methyl methanesulfonate	ND	ug/kg	5000
2-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
1-Naphthylamine	ND	ug/kg	5000
2-Naphthylamine	ND	ug/kg	5000
2-Nitroaniline	ND	ug/kg	25000
3-Nitroaniline	ND	ug/kg	25000
4-Nitroaniline	ND	ug/kg	25000
Nitrobenzene	ND	ug/kg	5000
2-Nitrophenol	ND	ug/kg	5000
4-Nitrophenol	ND	ug/kg	25000
N-Nitroso-di-n-butylamine	ND	ug/kg	5000
N-Nitrosodimethylamine	ND	ug/kg	5000
N-Nitrosodiphenylamine	ND	ug/kg	5000
N-Nitroso-di-n-propylamine	ND	ug/kg	5000
N-Nitrosopiperidine	ND	ug/kg	5000
Pentachlorobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Cheryl Jones Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI 0903V0.0
Lab ID: 010259-0001-SA Enseco ID: 1082049
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 30 JUL 90

Parameter	Result	Units	Reporting Limit
Pentachloronitrobenzene	ND	ug/kg	25000
Pentachlorophenol	ND	ug/kg	25000
Phenacetin	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Phenol	ND	ug/kg	5000
2-Picoline	ND	ug/kg	5000
Pronamide	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	5000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	25000
1,2,4-Trichlorobenzene	ND	ug/kg	5000
2,4,5-Trichlorophenol	ND	ug/kg	25000
2,4,6-Trichlorophenol	ND	ug/kg	5000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	5000
1-Chloronaphthalene	ND	ug/kg	--
1,2-Diphenylhydrazine	ND	ug/kg	5000
Nitrobenzene-d5	84	%	--
2-Fluorobiphenyl	94	%	--
Terphenyl-d14	100	%	--
Phenol-d5	102	%	--
2-Fluorophenol	90	%	--
2,4,6-Tribromophenol	72	%	--

ND = Not detected
NA = Not applicable

Reported By: Cheryl Jones Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI 0903V3.0
Lab ID: 010259-0002-SA Enseco ID: 1082079
Matrix: SOIL Sampled: 02 JUL 90 Received: 03 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 30 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	5000
Acenaphthylene	ND	ug/kg	5000
Acetophenone	ND	ug/kg	5000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	5000
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(g,h,i)perylene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
Benzyl alcohol	ND	ug/kg	5000
bis(2-Chloroethoxy)-methane	ND	ug/kg	5000
bis(2-Chloroethyl) ether	ND	ug/kg	5000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
4-Bromophenyl phenyl ether	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
4-Chloroaniline	ND	ug/kg	5000
4-Chloro-3-methylphenol	ND	ug/kg	5000
2-Chloronaphthalene	ND	ug/kg	5000
2-Chlorophenol	ND	ug/kg	5000
4-Chlorophenyl phenyl ether	ND	ug/kg	5000
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
3,3'-Dichlorobenzidine	ND	ug/kg	10000
2,4-Dichlorophenol	ND	ug/kg	5000
2,6-Dichlorophenol	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
p-Dimethylaminoazobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Cheryl Jones Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI 0903V3.0
Lab ID: 010259-0002-SA Enseco ID: 1082079
Matrix: SOIL Sampled: 02 JUL 90 Received: 03 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 30 JUL 90

Parameter	Result	Units	Reporting Limit
Pentachloronitrobenzene	ND	ug/kg	25000
Pentachlorophenol	ND	ug/kg	25000
Phenacetin	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Phenol	ND	ug/kg	5000
2-Picoline	ND	ug/kg	5000
Pronamide	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	5000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	25000
1,2,4-Trichlorobenzene	ND	ug/kg	5000
2,4,5-Trichlorophenol	ND	ug/kg	25000
2,4,6-Trichlorophenol	ND	ug/kg	5000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	5000
1-Chloronaphthalene	ND	ug/kg	--
1,2-Diphenylhydrazine	ND	ug/kg	5000
Nitrobenzene-d5	92	%	--
2-Fluorobiphenyl	99	%	--
Terphenyl-d14	107	%	--
Phenol-d5	100	%	--
2-Fluorophenol	99	%	--
2,4,6-Tribromophenol	78	%	--

ND = Not detected
NA = Not applicable

Reported By: Cheryl Jones Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI 0903V5.0
Lab ID: 010259-0003-SA Enseco ID: 1082080
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 30 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	5000
Acenaphthylene	ND	ug/kg	5000
Acetophenone	ND	ug/kg	5000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	5000
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(g,h,i)perylene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
Benzyl alcohol	ND	ug/kg	5000
bis(2-Chloroethoxy)-methane	ND	ug/kg	5000
bis(2-Chloroethyl) ether	ND	ug/kg	5000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
4-Bromophenyl phenyl ether	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
4-Chloroaniline	ND	ug/kg	5000
4-Chloro-3-methylphenol	ND	ug/kg	5000
2-Chloronaphthalene	ND	ug/kg	5000
2-Chlorophenol	ND	ug/kg	5000
4-Chlorophenyl phenyl ether	ND	ug/kg	5000
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
3,3'-Dichlorobenzidine	ND	ug/kg	10000
2,4-Dichlorophenol	ND	ug/kg	5000
2,6-Dichlorophenol	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
p-Dimethylaminoazobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Cheryl Jones Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI 0903V5.0
Lab ID: 010259-0003-SA
Enseco ID: 1082080
Matrix: SOIL
Sampled: 02 JUL 90
Received: 05 JUL 90
Authorized: 05 JUL 90
Prepared: 08 JUL 90
Analyzed: 30 JUL 90

Parameter	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
a,a-Dimethylphenethylamine	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
1,3-Dinitrobenzene	ND	ug/kg	5000
4,6-Dinitro-o-cresol	ND	ug/kg	25000
2,4-Dinitrophenol	ND	ug/kg	25000
2,4-Dinitrotoluene	ND	ug/kg	5000
2,6-Dinitrotoluene	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Diphenylamine	ND	ug/kg	5000
Ethyl methanesulfonate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Fluorene	ND	ug/kg	5000
Hexachlorobenzene	ND	ug/kg	5000
Hexachlorobutadiene	ND	ug/kg	5000
Hexachlorocyclopentadiene	ND	ug/kg	5000
Hexachloroethane	ND	ug/kg	5000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	5000
Isophorone	ND	ug/kg	5000
3-Methylcholanthrene	ND	ug/kg	5000
Methyl methanesulfonate	ND	ug/kg	5000
2-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
1-Naphthylamine	ND	ug/kg	5000
2-Naphthylamine	ND	ug/kg	5000
2-Nitroaniline	ND	ug/kg	25000
3-Nitroaniline	ND	ug/kg	25000
4-Nitroaniline	ND	ug/kg	25000
Nitrobenzene	ND	ug/kg	5000
2-Nitrophenol	ND	ug/kg	5000
4-Nitrophenol	ND	ug/kg	25000
N-Nitroso-di-n-butylamine	ND	ug/kg	5000
N-Nitrosodimethylamine	ND	ug/kg	5000
N-Nitrosodiphenylamine	ND	ug/kg	5000
N-Nitroso-di-n-propylamine	ND	ug/kg	5000
N-Nitrosopiperidine	ND	ug/kg	5000
Pentachlorobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Cheryl Jones
Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI 0903V5.0
Lab ID: 010259-0003-SA Enseco ID: 1082080
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 30 JUL 90

Parameter	Result	Units	Reporting Limit
Pentachloronitrobenzene	ND	ug/kg	25000
Pentachlorophenol	ND	ug/kg	25000
Phenacetin	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Phenol	ND	ug/kg	5000
2-Picoline	ND	ug/kg	5000
Pronamide	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	5000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	25000
1,2,4-Trichlorobenzene	ND	ug/kg	5000
2,4,5-Trichlorophenol	ND	ug/kg	25000
2,4,6-Trichlorophenol	ND	ug/kg	5000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	5000
1-Chloronaphthalene	ND	ug/kg	--
1,2-Diphenylhydrazine	ND	ug/kg	5000
Nitrobenzene-d5	87	%	--
2-Fluorobiphenyl	89	%	--
Terphenyl-d14	96	%	--
Phenol-d5	90	%	--
2-Fluorophenol	89	%	--
2,4,6-Tribromophenol	70	%	--

ND = Not detected
NA = Not applicable

Reported By: Cheryl Jones Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI 0903V7.0
Lab ID: 010259-0004-SA Enseco ID: 1082081
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 30 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	5000
Acenaphthylene	ND	ug/kg	5000
Acetophenone	ND	ug/kg	5000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	5000
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(g,h,i)perylene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
Benzyl alcohol	ND	ug/kg	5000
bis(2-Chloroethoxy)-methane	ND	ug/kg	5000
bis(2-Chloroethyl) ether	ND	ug/kg	5000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
4-Bromophenyl phenyl ether	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
4-Chloroaniline	ND	ug/kg	5000
4-Chloro-3-methylphenol	ND	ug/kg	5000
2-Chloronaphthalene	ND	ug/kg	5000
2-Chlorophenol	ND	ug/kg	5000
4-Chlorophenyl phenyl ether	ND	ug/kg	5000
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
3,3'-Dichlorobenzidine	ND	ug/kg	10000
2,4-Dichlorophenol	ND	ug/kg	5000
2,6-Dichlorophenol	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
p-Dimethylaminoazobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Cheryl Jones Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI 0903V7.0
Lab ID: 010259-0004-SA Enseco ID: 1082081
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 30 JUL 90

Parameter	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
a,a-Dimethylphenethylamine	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
1,3-Dinitrobenzene	ND	ug/kg	5000
4,6-Dinitro-o-cresol	ND	ug/kg	25000
2,4-Dinitrophenol	ND	ug/kg	25000
2,4-Dinitrotoluene	ND	ug/kg	5000
2,6-Dinitrotoluene	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Diphenylamine	ND	ug/kg	5000
Ethyl methanesulfonate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Fluorene	ND	ug/kg	5000
Hexachlorobenzene	ND	ug/kg	5000
Hexachlorobutadiene	ND	ug/kg	5000
Hexachlorocyclopentadiene	ND	ug/kg	5000
Hexachloroethane	ND	ug/kg	5000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	5000
Isophorone	ND	ug/kg	5000
3-Methylcholanthrene	ND	ug/kg	5000
Methyl methanesulfonate	ND	ug/kg	5000
2-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
1-Naphthylamine	ND	ug/kg	5000
2-Naphthylamine	ND	ug/kg	5000
2-Nitroaniline	ND	ug/kg	25000
3-Nitroaniline	ND	ug/kg	25000
4-Nitroaniline	ND	ug/kg	25000
Nitrobenzene	ND	ug/kg	5000
2-Nitrophenol	ND	ug/kg	5000
4-Nitrophenol	ND	ug/kg	25000
N-Nitroso-di-n-butylamine	ND	ug/kg	5000
N-Nitrosodimethylamine	ND	ug/kg	5000
N-Nitrosodiphenylamine	ND	ug/kg	5000
N-Nitroso-di-n-propylamine	ND	ug/kg	5000
N-Nitrosopiperidine	ND	ug/kg	5000
Pentachlorobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Cheryl Jones Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI 0903V7.0
Lab ID: 010259-0004-SA Enseco ID: 1082081
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 30 JUL 90

Parameter	Result	Units	Reporting Limit
Pentachloronitrobenzene	ND	ug/kg	25000
Pentachlorophenol	ND	ug/kg	25000
Phenacetin	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Phenol	ND	ug/kg	5000
2-Picoline	ND	ug/kg	5000
Pronamide	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	5000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	25000
1,2,4-Trichlorobenzene	ND	ug/kg	5000
2,4,5-Trichlorophenol	ND	ug/kg	25000
2,4,6-Trichlorophenol	ND	ug/kg	5000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	5000
1-Chloronaphthalene	ND	ug/kg	--
1,2-Diphenylhydrazine	ND	ug/kg	5000
Nitrobenzene-d5	90	%	--
2-Fluorobiphenyl	89	%	--
Terphenyl-d14	94	%	--
Phenol-d5	89	%	--
2-Fluorophenol	89	%	--
2,4,6-Tribromophenol	65	%	--

ND = Not detected
NA = Not applicable

Reported By: Cheryl Jones Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI 0906V0.0
Lab ID: 010259-0005-SA Enseco ID: 1082082
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 30 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	10000
Acenaphthylene	ND	ug/kg	10000
Acetophenone	ND	ug/kg	10000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	10000
Anthracene	ND	ug/kg	10000
Benzo(a)anthracene	ND	ug/kg	10000
Benzo(b)fluoranthene	ND	ug/kg	10000
Benzo(k)fluoranthene	ND	ug/kg	10000
Benzo(g,h,i)perylene	ND	ug/kg	10000
Benzo(a)pyrene	ND	ug/kg	10000
Benzyl alcohol	ND	ug/kg	10000
bis(2-Chloroethoxy)-methane	ND	ug/kg	10000
bis(2-Chloroethyl) ether	ND	ug/kg	10000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	10000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	10000
4-Bromophenyl phenyl ether	ND	ug/kg	10000
Butyl benzyl phthalate	ND	ug/kg	10000
4-Chloroaniline	ND	ug/kg	10000
4-Chloro-3-methylphenol	ND	ug/kg	10000
2-Chloronaphthalene	ND	ug/kg	10000
2-Chlorophenol	ND	ug/kg	10000
4-Chlorophenyl phenyl ether	ND	ug/kg	10000
o-Cresol	ND	ug/kg	10000
m & p-Cresol(s)	ND	ug/kg	10000
Chrysene	26000	ug/kg	10000
Dibenz(a,h)anthracene	ND	ug/kg	10000
Di-n-butyl phthalate	ND	ug/kg	10000
1,2-Dichlorobenzene	ND	ug/kg	10000
1,3-Dichlorobenzene	ND	ug/kg	10000
1,4-Dichlorobenzene	ND	ug/kg	10000
3,3'-Dichlorobenzidine	ND	ug/kg	20000
2,4-Dichlorophenol	ND	ug/kg	10000
2,6-Dichlorophenol	ND	ug/kg	10000
Diethyl phthalate	ND	ug/kg	10000
p-Dimethylaminoazobenzene	ND	ug/kg	10000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Cheryl Jones Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI 0906V0.0
Lab ID: 010259-0005-SA Enseco ID: 1082082
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 30 JUL 90

Parameter	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	10000
a,a-Dimethylphenethylamine	ND	ug/kg	10000
2,4-Dimethylphenol	ND	ug/kg	10000
Dimethyl phthalate	ND	ug/kg	10000
1,3-Dinitrobenzene	ND	ug/kg	10000
4,6-Dinitro-o-cresol	ND	ug/kg	50000
2,4-Dinitrophenol	ND	ug/kg	50000
2,4-Dinitrotoluene	ND	ug/kg	10000
2,6-Dinitrotoluene	ND	ug/kg	10000
Di-n-octyl phthalate	ND	ug/kg	10000
Diphenylamine	ND	ug/kg	10000
Ethyl methanesulfonate	ND	ug/kg	10000
Fluoranthene	ND	ug/kg	10000
Fluorene	ND	ug/kg	10000
Hexachlorobenzene	ND	ug/kg	10000
Hexachlorobutadiene	ND	ug/kg	10000
Hexachlorocyclopentadiene	ND	ug/kg	10000
Hexachloroethane	ND	ug/kg	10000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	10000
Isophorone	ND	ug/kg	10000
3-Methylcholanthrene	ND	ug/kg	10000
Methyl methanesulfonate	ND	ug/kg	10000
2-Methylnaphthalene	ND	ug/kg	10000
Naphthalene	ND	ug/kg	10000
1-Naphthylamine	ND	ug/kg	10000
2-Naphthylamine	ND	ug/kg	10000
2-Nitroaniline	ND	ug/kg	50000
3-Nitroaniline	ND	ug/kg	50000
4-Nitroaniline	ND	ug/kg	50000
Nitrobenzene	ND	ug/kg	10000
2-Nitrophenol	ND	ug/kg	10000
4-Nitrophenol	ND	ug/kg	50000
N-Nitroso-di-n-butylamine	ND	ug/kg	10000
N-Nitrosodimethylamine	ND	ug/kg	10000
N-Nitrosodiphenylamine	ND	ug/kg	10000
N-Nitroso-di-n-propylamine	ND	ug/kg	10000
N-Nitrosopiperidine	ND	ug/kg	10000
Pentachlorobenzene	ND	ug/kg	10000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Cheryl Jones Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI 0906V0.0
Lab ID: 010259-0005-SA Enseco ID: 1082082
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 30 JUL 90

Parameter	Result	Units	Reporting Limit
Pentachloronitrobenzene	ND	ug/kg	50000
Pentachlorophenol	ND	ug/kg	50000
Phenacetin	ND	ug/kg	10000
Phenanthrene	ND	ug/kg	10000
Phenol	ND	ug/kg	10000
2-Picoline	ND	ug/kg	10000
Pronamide	ND	ug/kg	10000
Pyrene	20000	ug/kg	10000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	10000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	50000
1,2,4-Trichlorobenzene	ND	ug/kg	10000
2,4,5-Trichlorophenol	ND	ug/kg	50000
2,4,6-Trichlorophenol	ND	ug/kg	10000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	10000
1-Chloronaphthalene	ND	ug/kg	--
1,2-Diphenylhydrazine	ND	ug/kg	10000
Nitrobenzene-d5	94	%	--
2-Fluorobiphenyl	96	%	--
Terphenyl-d14	95	%	--
Phenol-d5	95	%	--
2-Fluorophenol	97	%	--
2,4,6-Tribromophenol	86	%	--

ND = Not detected
NA = Not applicable

Reported By: Cheryl Jones Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI 0906V3.0
Lab ID: 010259-0006-SA Enseco ID: 1082083
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 30 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	5000
Acenaphthylene	ND	ug/kg	5000
Acetophenone	ND	ug/kg	5000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	5000
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(g,h,i)perylene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
Benzyl alcohol	ND	ug/kg	5000
bis(2-Chloroethoxy)-methane	ND	ug/kg	5000
bis(2-Chloroethyl) ether	ND	ug/kg	5000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
4-Bromophenyl phenyl ether	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
4-Chloroaniline	ND	ug/kg	5000
4-Chloro-3-methylphenol	ND	ug/kg	5000
2-Chloronaphthalene	ND	ug/kg	5000
2-Chlorophenol	ND	ug/kg	5000
4-Chlorophenyl phenyl ether	ND	ug/kg	5000
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
3,3'-Dichlorobenzidine	ND	ug/kg	10000
2,4-Dichlorophenol	ND	ug/kg	5000
2,6-Dichlorophenol	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
p-Dimethylaminoazobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Cheryl Jones Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI 0906V3.0
Lab ID: 010259-0006-SA Enseco ID: I082083
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 30 JUL 90

Parameter	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
a,a-Dimethylphenethylamine	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
1,3-Dinitrobenzene	ND	ug/kg	5000
4,6-Dinitro-o-cresol	ND	ug/kg	25000
2,4-Dinitrophenol	ND	ug/kg	25000
2,4-Dinitrotoluene	ND	ug/kg	5000
2,6-Dinitrotoluene	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Diphenylamine	ND	ug/kg	5000
Ethyl methanesulfonate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Fluorene	ND	ug/kg	5000
Hexachlorobenzene	ND	ug/kg	5000
Hexachlorobutadiene	ND	ug/kg	5000
Hexachlorocyclopentadiene	ND	ug/kg	5000
Hexachloroethane	ND	ug/kg	5000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	5000
Isophorone	ND	ug/kg	5000
3-Methylcholanthrene	ND	ug/kg	5000
Methyl methanesulfonate	ND	ug/kg	5000
2-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
1-Naphthylamine	ND	ug/kg	5000
2-Naphthylamine	ND	ug/kg	5000
2-Nitroaniline	ND	ug/kg	25000
3-Nitroaniline	ND	ug/kg	25000
4-Nitroaniline	ND	ug/kg	25000
Nitrobenzene	ND	ug/kg	5000
2-Nitrophenol	ND	ug/kg	5000
4-Nitrophenol	ND	ug/kg	25000
N-Nitroso-di-n-butylamine	ND	ug/kg	5000
N-Nitrosodimethylamine	ND	ug/kg	5000
N-Nitrosodiphenylamine	ND	ug/kg	5000
N-Nitroso-di-n-propylamine	ND	ug/kg	5000
N-Nitrosopiperidine	ND	ug/kg	5000
Pentachlorobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Cheryl Jones Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI 0906V3.0
Lab ID: 010259-0006-SA Enseco ID: 1082083
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 30 JUL 90

Parameter	Result	Units	Reporting Limit
Pentachloronitrobenzene	ND	ug/kg	25000
Pentachlorophenol	ND	ug/kg	25000
Phenacetin	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Phenol	ND	ug/kg	5000
2-Picoline	ND	ug/kg	5000
Pronamide	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	5000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	25000
1,2,4-Trichlorobenzene	ND	ug/kg	5000
2,4,5-Trichlorophenol	ND	ug/kg	25000
2,4,6-Trichlorophenol	ND	ug/kg	5000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	5000
1-Chloronaphthalene	ND	ug/kg	--
1,2-Diphenylhydrazine	ND	ug/kg	5000
Nitrobenzene-d5	86	%	--
2-Fluorobiphenyl	91	%	--
Terphenyl-d14	88	%	--
Phenol-d5	88	%	--
2-Fluorophenol	87	%	--
2,4,6-Tribromophenol	83	%	--

ND = Not detected
NA = Not applicable

Reported By: Cheryl Jones Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI 0906V5.0
Lab ID: 010259-0007-SA Enseco ID: 1082084
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 30 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	5000
Acenaphthylene	ND	ug/kg	5000
Acetophenone	ND	ug/kg	5000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	5000
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(g,h,i)perylene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
Benzyl alcohol	ND	ug/kg	5000
bis(2-Chloroethoxy)-methane	ND	ug/kg	5000
bis(2-Chloroethyl) ether	ND	ug/kg	5000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
4-Bromophenyl phenyl ether	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
4-Chloroaniline	ND	ug/kg	5000
4-Chloro-3-methylphenol	ND	ug/kg	5000
2-Chloronaphthalene	ND	ug/kg	5000
2-Chlorophenol	ND	ug/kg	5000
4-Chlorophenyl phenyl ether	ND	ug/kg	5000
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
3,3'-Dichlorobenzidine	ND	ug/kg	10000
2,4-Dichlorophenol	ND	ug/kg	5000
2,6-Dichlorophenol	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
p-Dimethylaminoazobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Cheryl Jones Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI 0906V5.0
Lab ID: 010259-0007-SA Enseco ID: 1082084
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 30 JUL 90

Parameter	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
a,a-Dimethylphenethylamine	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
1,3-Dinitrobenzene	ND	ug/kg	5000
4,6-Dinitro-o-cresol	ND	ug/kg	25000
2,4-Dinitrophenol	ND	ug/kg	25000
2,4-Dinitrotoluene	ND	ug/kg	5000
2,6-Dinitrotoluene	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Diphenylamine	ND	ug/kg	5000
Ethyl methanesulfonate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Fluorene	ND	ug/kg	5000
Hexachlorobenzene	ND	ug/kg	5000
Hexachlorobutadiene	ND	ug/kg	5000
Hexachlorocyclopentadiene	ND	ug/kg	5000
Hexachloroethane	ND	ug/kg	5000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	5000
Isophorone	ND	ug/kg	5000
3-Methylcholanthrene	ND	ug/kg	5000
Methyl methanesulfonate	ND	ug/kg	5000
2-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
1-Naphthylamine	ND	ug/kg	5000
2-Naphthylamine	ND	ug/kg	5000
2-Nitroaniline	ND	ug/kg	25000
3-Nitroaniline	ND	ug/kg	25000
4-Nitroaniline	ND	ug/kg	25000
Nitrobenzene	ND	ug/kg	5000
2-Nitrophenol	ND	ug/kg	5000
4-Nitrophenol	ND	ug/kg	25000
N-Nitroso-di-n-butylamine	ND	ug/kg	5000
N-Nitrosodimethylamine	ND	ug/kg	5000
N-Nitrosodiphenylamine	ND	ug/kg	5000
N-Nitroso-di-n-propylamine	ND	ug/kg	5000
N-Nitrosopiperidine	ND	ug/kg	5000
Pentachlorobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Cheryl Jones Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI 0906V5.0
Lab ID: 010259-0007-SA Enseco ID: 1082084
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 30 JUL 90

Parameter	Result	Units	Reporting Limit
Pentachloronitrobenzene	ND	ug/kg	25000
Pentachlorophenol	ND	ug/kg	25000
Phenacetin	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Phenol	ND	ug/kg	5000
2-Picoline	ND	ug/kg	5000
Pronamide	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	5000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	25000
1,2,4-Trichlorobenzene	ND	ug/kg	5000
2,4,5-Trichlorophenol	ND	ug/kg	25000
2,4,6-Trichlorophenol	ND	ug/kg	5000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	5000
1-Chloronaphthalene	ND	ug/kg	--
1,2-Diphenylhydrazine	ND	ug/kg	5000
Nitrobenzene-d5	87	%	--
2-Fluorobiphenyl	91	%	--
Terphenyl-d14	89	%	--
Phenol-d5	88	%	--
2-Fluorophenol	87	%	--
2,4,6-Tribromophenol	80	%	--

ND = Not detected
NA = Not applicable

Reported By: Cheryl Jones Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI 0906V7.0
Lab ID: 010259-0008-SA
Enseco ID: 1082085
Matrix: SOIL
Sampled: 02 JUL 90
Received: 05 JUL 90
Authorized: 05 JUL 90
Prepared: 08 JUL 90
Analyzed: 30 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	5000
Acenaphthylene	ND	ug/kg	5000
Acetophenone	ND	ug/kg	5000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	5000
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(g,h,i)perylene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
Benzyl alcohol	ND	ug/kg	5000
bis(2-Chloroethoxy)-methane	ND	ug/kg	5000
bis(2-Chloroethyl) ether	ND	ug/kg	5000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
4-Bromophenyl phenyl ether	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
4-Chloroaniline	ND	ug/kg	5000
4-Chloro-3-methylphenol	ND	ug/kg	5000
2-Chloronaphthalene	ND	ug/kg	5000
2-Chlorophenol	ND	ug/kg	5000
4-Chlorophenyl phenyl ether	ND	ug/kg	5000
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
3,3'-Dichlorobenzidine	ND	ug/kg	10000
2,4-Dichlorophenol	ND	ug/kg	5000
2,6-Dichlorophenol	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
p-Dimethylaminoazobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Cheryl Jones
Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI 0906V7.0
Lab ID: 010259-0008-SA
Matrix: SOIL
Authorized: 05 JUL 90

Enseco ID: 1082085
Sampled: 02 JUL 90
Prepared: 08 JUL 90

Received: 05 JUL 90
Analyzed: 30 JUL 90

Parameter	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
a,a-Dimethylphenethylamine	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
1,3-Dinitrobenzene	ND	ug/kg	5000
4,6-Dinitro-o-cresol	ND	ug/kg	25000
2,4-Dinitrophenol	ND	ug/kg	25000
2,4-Dinitrotoluene	ND	ug/kg	5000
2,6-Dinitrotoluene	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Diphenylamine	ND	ug/kg	5000
Ethyl methanesulfonate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Fluorene	ND	ug/kg	5000
Hexachlorobenzene	ND	ug/kg	5000
Hexachlorobutadiene	ND	ug/kg	5000
Hexachlorocyclopentadiene	ND	ug/kg	5000
Hexachloroethane	ND	ug/kg	5000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	5000
Isophorone	ND	ug/kg	5000
3-Methylcholanthrene	ND	ug/kg	5000
Methyl methanesulfonate	ND	ug/kg	5000
2-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
1-Naphthylamine	ND	ug/kg	5000
2-Naphthylamine	ND	ug/kg	5000
2-Nitroaniline	ND	ug/kg	25000
3-Nitroaniline	ND	ug/kg	25000
4-Nitroaniline	ND	ug/kg	25000
Nitrobenzene	ND	ug/kg	5000
2-Nitrophenol	ND	ug/kg	5000
4-Nitrophenol	ND	ug/kg	25000
N-Nitroso-di-n-butylamine	ND	ug/kg	5000
N-Nitrosodimethylamine	ND	ug/kg	5000
N-Nitrosodiphenylamine	ND	ug/kg	5000
N-Nitroso-di-n-propylamine	ND	ug/kg	5000
N-Nitrosopiperidine	ND	ug/kg	5000
Pentachlorobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Cheryl Jones

Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI 0906V7.0
Lab ID: 010259-0008-SA
Enseco ID: 1082085
Matrix: SOIL
Sampled: 02 JUL 90
Received: 05 JUL 90
Authorized: 05 JUL 90
Prepared: 08 JUL 90
Analyzed: 30 JUL 90

Parameter	Result	Units	Reporting Limit
Pentachloronitrobenzene	ND	ug/kg	25000
Pentachlorophenol	ND	ug/kg	25000
Phenacetin	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Phenol	ND	ug/kg	5000
2-Picoline	ND	ug/kg	5000
Pronamide	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	5000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	25000
1,2,4-Trichlorobenzene	ND	ug/kg	5000
2,4,5-Trichlorophenol	ND	ug/kg	25000
2,4,6-Trichlorophenol	ND	ug/kg	5000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	5000
1-Chloronaphthalene	ND	ug/kg	--
1,2-Diphenylhydrazine	ND	ug/kg	5000
Nitrobenzene-d5	87	%	--
2-Fluorobiphenyl	92	%	--
Terphenyl-d14	85	%	--
Phenol-d5	88	%	--
2-Fluorophenol	85	%	--
2,4,6-Tribromophenol	79	%	--

ND = Not detected
NA = Not applicable

Reported By: Cheryl Jones
Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI 0906D3.0
Lab ID: 010259-0009-SA Enseco ID: 1082086
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 30 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	5000
Acenaphthylene	ND	ug/kg	5000
Acetophenone	ND	ug/kg	5000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	5000
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(g,h,i)perylene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
Benzyl alcohol	ND	ug/kg	5000
bis(2-Chloroethoxy)-methane	ND	ug/kg	5000
bis(2-Chloroethyl) ether	ND	ug/kg	5000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
4-Bromophenyl phenyl ether	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
4-Chloroaniline	ND	ug/kg	5000
4-Chloro-3-methylphenol	ND	ug/kg	5000
2-Chloronaphthalene	ND	ug/kg	5000
2-Chlorophenol	ND	ug/kg	5000
4-Chlorophenyl phenyl ether	ND	ug/kg	5000
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
3,3'-Dichlorobenzidine	ND	ug/kg	10000
2,4-Dichlorophenol	ND	ug/kg	5000
2,6-Dichlorophenol	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
p-Dimethylaminoazobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Cheryl Jones Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI 0906D3.0
Lab ID: 010259-0009-SA Enseco ID: 1082086
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 30 JUL 90

Parameter	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
a,a-Dimethylphenethylamine	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
1,3-Dinitrobenzene	ND	ug/kg	5000
4,6-Dinitro-o-cresol	ND	ug/kg	25000
2,4-Dinitrophenol	ND	ug/kg	25000
2,4-Dinitrotoluene	ND	ug/kg	5000
2,6-Dinitrotoluene	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Diphenylamine	ND	ug/kg	5000
Ethyl methanesulfonate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Fluorene	ND	ug/kg	5000
Hexachlorobenzene	ND	ug/kg	5000
Hexachlorobutadiene	ND	ug/kg	5000
Hexachlorocyclopentadiene	ND	ug/kg	5000
Hexachloroethane	ND	ug/kg	5000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	5000
Isophorone	ND	ug/kg	5000
3-Methylcholanthrene	ND	ug/kg	5000
Methyl methanesulfonate	ND	ug/kg	5000
2-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
1-Naphthylamine	ND	ug/kg	5000
2-Naphthylamine	ND	ug/kg	5000
2-Nitroaniline	ND	ug/kg	25000
3-Nitroaniline	ND	ug/kg	25000
4-Nitroaniline	ND	ug/kg	25000
Nitrobenzene	ND	ug/kg	5000
2-Nitrophenol	ND	ug/kg	5000
4-Nitrophenol	ND	ug/kg	25000
N-Nitroso-di-n-butylamine	ND	ug/kg	5000
N-Nitrosodimethylamine	ND	ug/kg	5000
N-Nitrosodiphenylamine	ND	ug/kg	5000
N-Nitroso-di-n-propylamine	ND	ug/kg	5000
N-Nitrosopiperidine	ND	ug/kg	5000
Pentachlorobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Cheryl Jones Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI 0906D3.0
Lab ID: 010259-0009-SA
Enseco ID: 1082086
Matrix: SOIL
Sampled: 02 JUL 90
Received: 05 JUL 90
Authorized: 05 JUL 90
Prepared: 08 JUL 90
Analyzed: 30 JUL 90

Parameter	Result	Units	Reporting Limit
Pentachloronitrobenzene	ND	ug/kg	25000
Pentachlorophenol	ND	ug/kg	25000
Phenacetin	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Phenol	ND	ug/kg	5000
2-Picoline	ND	ug/kg	5000
Pronamide	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	5000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	25000
1,2,4-Trichlorobenzene	ND	ug/kg	5000
2,4,5-Trichlorophenol	ND	ug/kg	25000
2,4,6-Trichlorophenol	ND	ug/kg	5000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	5000
1-Chloronaphthalene	ND	ug/kg	--
1,2-Diphenylhydrazine	ND	ug/kg	5000
Nitrobenzene-d5	92	%	--
2-Fluorobiphenyl	95	%	--
Terphenyl-d14	89	%	--
Phenol-d5	92	%	--
2-Fluorophenol	90	%	--
2,4,6-Tribromophenol	78	%	--

ND = Not detected
NA = Not applicable

Reported By: Cheryl Jones
Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI 0907V0.0
Lab ID: 010259-0010-SA Enseco ID: 1082087
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 30 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	5000
Acenaphthylene	ND	ug/kg	5000
Acetophenone	ND	ug/kg	5000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	5000
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(g,h,i)perylene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
Benzyl alcohol	ND	ug/kg	5000
bis(2-Chloroethoxy)-methane	ND	ug/kg	5000
bis(2-Chloroethyl) ether	ND	ug/kg	5000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
4-Bromophenyl phenyl ether	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
4-Chloroaniline	ND	ug/kg	5000
4-Chloro-3-methylphenol	ND	ug/kg	5000
2-Chloronaphthalene	ND	ug/kg	5000
2-Chlorophenol	ND	ug/kg	5000
4-Chlorophenyl phenyl ether	ND	ug/kg	5000
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
3,3'-Dichlorobenzidine	ND	ug/kg	10000
2,4-Dichlorophenol	ND	ug/kg	5000
2,6-Dichlorophenol	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
p-Dimethylaminoazobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Cheryl Jones Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI 0907V0.0
Lab ID: 010259-0010-SA Enseco ID: 1082087
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 30 JUL 90

Parameter	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
a,a-Dimethylphenethylamine	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
1,3-Dinitrobenzene	ND	ug/kg	5000
4,6-Dinitro-o-cresol	ND	ug/kg	25000
2,4-Dinitrophenol	ND	ug/kg	25000
2,4-Dinitrotoluene	ND	ug/kg	5000
2,6-Dinitrotoluene	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Diphenylamine	ND	ug/kg	5000
Ethyl methanesulfonate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Fluorene	ND	ug/kg	5000
Hexachlorobenzene	ND	ug/kg	5000
Hexachlorobutadiene	ND	ug/kg	5000
Hexachlorocyclopentadiene	ND	ug/kg	5000
Hexachloroethane	ND	ug/kg	5000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	5000
Isophorone	ND	ug/kg	5000
3-Methylcholanthrene	ND	ug/kg	5000
Methyl methanesulfonate	ND	ug/kg	5000
2-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
1-Naphthylamine	ND	ug/kg	5000
2-Naphthylamine	ND	ug/kg	5000
2-Nitroaniline	ND	ug/kg	25000
3-Nitroaniline	ND	ug/kg	25000
4-Nitroaniline	ND	ug/kg	25000
Nitrobenzene	ND	ug/kg	5000
2-Nitrophenol	ND	ug/kg	5000
4-Nitrophenol	ND	ug/kg	25000
N-Nitroso-di-n-butylamine	ND	ug/kg	5000
N-Nitrosodimethylamine	ND	ug/kg	5000
N-Nitrosodiphenylamine	ND	ug/kg	5000
N-Nitroso-di-n-propylamine	ND	ug/kg	5000
N-Nitrosopiperidine	ND	ug/kg	5000
Pentachlorobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Cheryl Jones Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI 0907V0.0
Lab ID: 010259-0010-SA Enseco ID: 1082087
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 30 JUL 90

Parameter	Result	Units	Reporting Limit
Pentachloronitrobenzene	ND	ug/kg	25000
Pentachlorophenol	ND	ug/kg	25000
Phenacetin	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Phenol	ND	ug/kg	5000
2-Picoline	ND	ug/kg	5000
Pronamide	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	5000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	25000
1,2,4-Trichlorobenzene	ND	ug/kg	5000
2,4,5-Trichlorophenol	ND	ug/kg	25000
2,4,6-Trichlorophenol	ND	ug/kg	5000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	5000
1-Chloronaphthalene	ND	ug/kg	--
1,2-Diphenylhydrazine	ND	ug/kg	5000
Nitrobenzene-d5	85	%	--
2-Fluorobiphenyl	87	%	--
Terphenyl-d14	78	%	--
Phenol-d5	86	%	--
2-Fluorophenol	86	%	--
2,4,6-Tribromophenol	88	%	--

ND = Not detected
NA = Not applicable

Reported By: Cheryl Jones Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI 0907V3.0
Lab ID: 010259-0011-SA Enseco ID: 1082088
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 30 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	5000
Acenaphthylene	ND	ug/kg	5000
Acetophenone	ND	ug/kg	5000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	5000
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(g,h,i)perylene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
Benzyl alcohol	ND	ug/kg	5000
bis(2-Chloroethoxy)-methane	ND	ug/kg	5000
bis(2-Chloroethyl) ether	ND	ug/kg	5000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
4-Bromophenyl phenyl ether	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
4-Chloroaniline	ND	ug/kg	5000
4-Chloro-3-methylphenol	ND	ug/kg	5000
2-Chloronaphthalene	ND	ug/kg	5000
2-Chlorophenol	ND	ug/kg	5000
4-Chlorophenyl phenyl ether	ND	ug/kg	5000
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
3,3'-Dichlorobenzidine	ND	ug/kg	10000
2,4-Dichlorophenol	ND	ug/kg	5000
2,6-Dichlorophenol	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
p-Dimethylaminoazobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Cheryl Jones Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI 0907V3.0
Lab ID: 010259-0011-SA Enseco ID: 1082088
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 30 JUL 90

Parameter	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
a,a-Dimethylphenethylamine	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
1,3-Dinitrobenzene	ND	ug/kg	5000
4,6-Dinitro-o-cresol	ND	ug/kg	25000
2,4-Dinitrophenol	ND	ug/kg	25000
2,4-Dinitrotoluene	ND	ug/kg	5000
2,6-Dinitrotoluene	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Diphenylamine	ND	ug/kg	5000
Ethyl methanesulfonate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Fluorene	ND	ug/kg	5000
Hexachlorobenzene	ND	ug/kg	5000
Hexachlorobutadiene	ND	ug/kg	5000
Hexachlorocyclopentadiene	ND	ug/kg	5000
Hexachloroethane	ND	ug/kg	5000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	5000
Isophorone	ND	ug/kg	5000
3-Methylcholanthrene	ND	ug/kg	5000
Methyl methanesulfonate	ND	ug/kg	5000
2-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
1-Naphthylamine	ND	ug/kg	5000
2-Naphthylamine	ND	ug/kg	5000
2-Nitroaniline	ND	ug/kg	25000
3-Nitroaniline	ND	ug/kg	25000
4-Nitroaniline	ND	ug/kg	25000
Nitrobenzene	ND	ug/kg	5000
2-Nitrophenol	ND	ug/kg	5000
4-Nitrophenol	ND	ug/kg	25000
N-Nitroso-di-n-butylamine	ND	ug/kg	5000
N-Nitrosodimethylamine	ND	ug/kg	5000
N-Nitrosodiphenylamine	ND	ug/kg	5000
N-Nitroso-di-n-propylamine	ND	ug/kg	5000
N-Nitrosopiperidine	ND	ug/kg	5000
Pentachlorobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Cheryl Jones Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI 0907V3.0
Lab ID: 010259-0011-SA Enseco ID: 1082088
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 30 JUL 90

Parameter	Result	Units	Reporting Limit
Pentachloronitrobenzene	ND	ug/kg	25000
Pentachlorophenol	ND	ug/kg	25000
Phenacetin	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Phenol	ND	ug/kg	5000
2-Picoline	ND	ug/kg	5000
Pronamide	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	5000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	25000
1,2,4-Trichlorobenzene	ND	ug/kg	5000
2,4,5-Trichlorophenol	ND	ug/kg	25000
2,4,6-Trichlorophenol	ND	ug/kg	5000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	5000
1-Chloronaphthalene	ND	ug/kg	--
1,2-Diphenylhydrazine	ND	ug/kg	5000
Nitrobenzene-d5	91	%	--
2-Fluorobiphenyl	97	%	--
Terphenyl-d14	83	%	--
Phenol-d5	93	%	--
2-Fluorophenol	91	%	--
2,4,6-Tribromophenol	97	%	--

ND = Not detected
NA = Not applicable

Reported By: Cheryl Jones Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI 0907V5.0
Lab ID: 010259-0012-SA Enseco ID: 1082089
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 30 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	5000
Acenaphthylene	ND	ug/kg	5000
Acetophenone	ND	ug/kg	5000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	5000
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(g,h,i)perylene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
Benzyl alcohol	ND	ug/kg	5000
bis(2-Chloroethoxy)-methane	ND	ug/kg	5000
bis(2-Chloroethyl) ether	ND	ug/kg	5000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
4-Bromophenyl phenyl ether	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
4-Chloroaniline	ND	ug/kg	5000
4-Chloro-3-methylphenol	ND	ug/kg	5000
2-Chloronaphthalene	ND	ug/kg	5000
2-Chlorophenol	ND	ug/kg	5000
4-Chlorophenyl phenyl ether	ND	ug/kg	5000
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
3,3'-Dichlorobenzidine	ND	ug/kg	10000
2,4-Dichlorophenol	ND	ug/kg	5000
2,6-Dichlorophenol	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
p-Dimethylaminoazobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Cheryl Jones Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI 0907V5.0
Lab ID: 010259-0012-SA Enseco ID: 1082089
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 30 JUL 90

Parameter	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
a,a-Dimethylphenethylamine	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
1,3-Dinitrobenzene	ND	ug/kg	5000
4,6-Dinitro-o-cresol	ND	ug/kg	25000
2,4-Dinitrophenol	ND	ug/kg	25000
2,4-Dinitrotoluene	ND	ug/kg	5000
2,6-Dinitrotoluene	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Diphenylamine	ND	ug/kg	5000
Ethyl methanesulfonate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Fluorene	ND	ug/kg	5000
Hexachlorobenzene	ND	ug/kg	5000
Hexachlorobutadiene	ND	ug/kg	5000
Hexachlorocyclopentadiene	ND	ug/kg	5000
Hexachloroethane	ND	ug/kg	5000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	5000
Isophorone	ND	ug/kg	5000
3-Methylcholanthrene	ND	ug/kg	5000
Methyl methanesulfonate	ND	ug/kg	5000
2-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
1-Naphthylamine	ND	ug/kg	5000
2-Naphthylamine	ND	ug/kg	5000
2-Nitroaniline	ND	ug/kg	25000
3-Nitroaniline	ND	ug/kg	25000
4-Nitroaniline	ND	ug/kg	25000
Nitrobenzene	ND	ug/kg	5000
2-Nitrophenol	ND	ug/kg	5000
4-Nitrophenol	ND	ug/kg	25000
N-Nitroso-di-n-butylamine	ND	ug/kg	5000
N-Nitrosodimethylamine	ND	ug/kg	5000
N-Nitrosodiphenylamine	ND	ug/kg	5000
N-Nitroso-di-n-propylamine	ND	ug/kg	5000
N-Nitrosopiperidine	ND	ug/kg	5000
Pentachlorobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Cheryl Jones Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI 0907V5.0
Lab ID: 010259-0012-SA Enseco ID: 1082089
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 30 JUL 90

Parameter	Result	Units	Reporting Limit
Pentachloronitrobenzene	ND	ug/kg	25000
Pentachlorophenol	ND	ug/kg	25000
Phenacetin	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Phenol	ND	ug/kg	5000
2-Picoline	ND	ug/kg	5000
Pronamide	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	5000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	25000
1,2,4-Trichlorobenzene	ND	ug/kg	5000
2,4,5-Trichlorophenol	ND	ug/kg	25000
2,4,6-Trichlorophenol	ND	ug/kg	5000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	5000
1-Chloronaphthalene	ND	ug/kg	--
1,2-Diphenylhydrazine	ND	ug/kg	5000
Nitrobenzene-d5	87	%	--
2-Fluorobiphenyl	90	%	--
Terphenyl-d14	79	%	--
Phenol-d5	87	%	--
2-Fluorophenol	85	%	--
2,4,6-Tribromophenol	88	%	--

ND = Not detected
NA = Not applicable

Reported By: Cheryl Jones Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI 0907V7.0
Lab ID: 010259-0013-SA Enseco ID: 1082090
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 31 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	5000
Acenaphthylene	ND	ug/kg	5000
Acetophenone	ND	ug/kg	5000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	5000
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(g,h,i)perylene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
Benzyl alcohol	ND	ug/kg	5000
bis(2-Chloroethoxy)-methane	ND	ug/kg	5000
bis(2-Chloroethyl) ether	ND	ug/kg	5000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
4-Bromophenyl phenyl ether	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
4-Chloroaniline	ND	ug/kg	5000
4-Chloro-3-methylphenol	ND	ug/kg	5000
2-Chloronaphthalene	ND	ug/kg	5000
2-Chlorophenol	ND	ug/kg	5000
4-Chlorophenyl phenyl ether	ND	ug/kg	5000
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
3,3'-Dichlorobenzidine	ND	ug/kg	10000
2,4-Dichlorophenol	ND	ug/kg	5000
2,6-Dichlorophenol	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
p-Dimethylaminoazobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Cheryl Jones Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI 0907V7.0
Lab ID: 010259-0013-SA Enseco ID: 1082090
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 31 JUL 90

Parameter	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
a,a-Dimethylphenethylamine	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
1,3-Dinitrobenzene	ND	ug/kg	5000
4,6-Dinitro-o-cresol	ND	ug/kg	25000
2,4-Dinitrophenol	ND	ug/kg	25000
2,4-Dinitrotoluene	ND	ug/kg	5000
2,6-Dinitrotoluene	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Diphenylamine	ND	ug/kg	5000
Ethyl methanesulfonate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Fluorene	ND	ug/kg	5000
Hexachlorobenzene	ND	ug/kg	5000
Hexachlorobutadiene	ND	ug/kg	5000
Hexachlorocyclopentadiene	ND	ug/kg	5000
Hexachloroethane	ND	ug/kg	5000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	5000
Isophorone	ND	ug/kg	5000
3-Methylcholanthrene	ND	ug/kg	5000
Methyl methanesulfonate	ND	ug/kg	5000
2-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
1-Naphthylamine	ND	ug/kg	5000
2-Naphthylamine	ND	ug/kg	5000
2-Nitroaniline	ND	ug/kg	25000
3-Nitroaniline	ND	ug/kg	25000
4-Nitroaniline	ND	ug/kg	25000
Nitrobenzene	ND	ug/kg	5000
2-Nitrophenol	ND	ug/kg	5000
4-Nitrophenol	ND	ug/kg	25000
N-Nitroso-di-n-butylamine	ND	ug/kg	5000
N-Nitrosodimethylamine	ND	ug/kg	5000
N-Nitrosodiphenylamine	ND	ug/kg	5000
N-Nitroso-di-n-propylamine	ND	ug/kg	5000
N-Nitrosopiperidine	ND	ug/kg	5000
Pentachlorobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Cheryl Jones Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI 0907V7.0
Lab ID: 010259-0013-SA Enseco ID: 1082090
Matrix: SOIL Sampled: 02 JUL 90 Received: 05 JUL 90
Authorized: 05 JUL 90 Prepared: 08 JUL 90 Analyzed: 31 JUL 90

Parameter	Result	Units	Reporting Limit
Pentachloronitrobenzene	ND	ug/kg	25000
Pentachlorophenol	ND	ug/kg	25000
Phenacetin	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Phenol	ND	ug/kg	5000
2-Picoline	ND	ug/kg	5000
Pronamide	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	5000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	25000
1,2,4-Trichlorobenzene	ND	ug/kg	5000
2,4,5-Trichlorophenol	ND	ug/kg	25000
2,4,6-Trichlorophenol	ND	ug/kg	5000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	5000
1-Chloronaphthalene	ND	ug/kg	--
1,2-Diphenylhydrazine	ND	ug/kg	5000
Nitrobenzene-d5	86	%	--
2-Fluorobiphenyl	89	%	--
Terphenyl-d14	75	%	--
Phenol-d5	86	%	--
2-Fluorophenol	85	%	--
2,4,6-Tribromophenol	87	%	--

ND = Not detected
NA = Not applicable

Reported By: Cheryl Jones Approved By: Jeff Lowry

Enseco
A CORNING Company

Total Metals

Client Name: Giant Refining
Client ID: RFI 0903V0.0
Lab ID: 010259-0001-SA
Matrix: SOIL
Authorized: 05 JUL 90

Enseco ID: 1082049
Sampled: 02 JUL 90
Prepared: See Below

Received: 05 JUL 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	26 JUL 90	27 JUL 90
Arsenic	ND	mg/kg	0.50	7060	26 JUL 90	27 JUL 90
Barium	214	mg/kg	1.0	6010	26 JUL 90	27 JUL 90
Beryllium	0.73	mg/kg	0.20	6010	26 JUL 90	27 JUL 90
Cadmium	ND	mg/kg	0.50	6010	26 JUL 90	27 JUL 90
Chromium	4.9	mg/kg	1.1	6010	26 JUL 90	27 JUL 90
Cobalt	1.6	mg/kg	1.0	6010	26 JUL 90	27 JUL 90
Copper	4.5	mg/kg	2.0	6010	26 JUL 90	27 JUL 90
Lead	6.0	mg/kg	5.0	6010	26 JUL 90	27 JUL 90
Mercury	ND	mg/kg	0.10	7471	19 JUL 90	20 JUL 90
Nickel	5.1	mg/kg	4.0	6010	26 JUL 90	27 JUL 90
Potassium	991	mg/kg	500	6010	26 JUL 90	27 JUL 90
Selenium	ND	mg/kg	0.50	7740	26 JUL 90	27 JUL 90
Vanadium	10.1	mg/kg	1.0	6010	26 JUL 90	27 JUL 90
Zinc	8.7	mg/kg	2.0	6010	26 JUL 90	27 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Mary Grehl

Enseco
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Total Metals

Client Name: Giant Refining
Client ID: RFI 0903V3.0
Lab ID: 010259-0002-SA
Enseco ID: 1082079
Matrix: SOIL
Sampled: 02 JUL 90
Received: 05 JUL 90
Authorized: 05 JUL 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	26 JUL 90	27 JUL 90
Arsenic	ND	mg/kg	0.50	7060	26 JUL 90	27 JUL 90
Barium	307	mg/kg	1.0	6010	26 JUL 90	27 JUL 90
Beryllium	1.0	mg/kg	0.20	6010	26 JUL 90	27 JUL 90
Cadmium	ND	mg/kg	0.50	6010	26 JUL 90	27 JUL 90
Chromium	6.1	mg/kg	1.1	6010	26 JUL 90	27 JUL 90
Cobalt	2.1	mg/kg	1.0	6010	26 JUL 90	27 JUL 90
Copper	4.8	mg/kg	2.0	6010	26 JUL 90	27 JUL 90
Lead	8.0	mg/kg	5.0	6010	26 JUL 90	27 JUL 90
Mercury	ND	mg/kg	0.10	7471	19 JUL 90	20 JUL 90
Nickel	6.7	mg/kg	4.0	6010	26 JUL 90	27 JUL 90
Potassium	955	mg/kg	500	6010	26 JUL 90	27 JUL 90
Selenium	ND	mg/kg	0.50	7740	26 JUL 90	27 JUL 90
Vanadium	13.1	mg/kg	1.0	6010	26 JUL 90	27 JUL 90
Zinc	9.6	mg/kg	2.0	6010	26 JUL 90	27 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones
Approved By: Mary Grehl

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Total Metals

Client Name: Giant Refining
Client ID: RFI 0903V5.0
Lab ID: 010259-0003-SA
Enseco ID: 1082080
Matrix: SOIL
Sampled: 02 JUL 90
Received: 05 JUL 90
Authorized: 05 JUL 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	26 JUL 90	27 JUL 90
Arsenic	ND	mg/kg	1.0	7060	26 JUL 90	27 JUL 90
Barium	334	mg/kg	1.0	6010	26 JUL 90	27 JUL 90
Beryllium	1.2	mg/kg	0.20	6010	26 JUL 90	27 JUL 90
Cadmium	ND	mg/kg	0.50	6010	26 JUL 90	27 JUL 90
Chromium	7.6	mg/kg	1.1	6010	26 JUL 90	27 JUL 90
Cobalt	3.4	mg/kg	1.0	6010	26 JUL 90	27 JUL 90
Copper	8.6	mg/kg	2.0	6010	26 JUL 90	27 JUL 90
Lead	9.9	mg/kg	5.0	6010	26 JUL 90	27 JUL 90
Mercury	ND	mg/kg	0.10	7471	19 JUL 90	20 JUL 90
Nickel	9.1	mg/kg	4.0	6010	26 JUL 90	27 JUL 90
Potassium	1300	mg/kg	500	6010	26 JUL 90	27 JUL 90
Selenium	ND	mg/kg	0.50	7740	26 JUL 90	27 JUL 90
Vanadium	16.1	mg/kg	1.0	6010	26 JUL 90	27 JUL 90
Zinc	13.4	mg/kg	2.0	6010	26 JUL 90	27 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones
Approved By: Mary Grehl

Enseco
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Total Metals

Client Name: Giant Refining
Client ID: RFI 0903V7.0
Lab ID: 010259-0004-SA
Enseco ID: 1082081
Matrix: SOIL
Sampled: 02 JUL 90
Received: 05 JUL 90
Authorized: 05 JUL 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	26 JUL 90	27 JUL 90
Arsenic	0.58	mg/kg	0.50	7060	26 JUL 90	29 JUL 90
Barium	224	mg/kg	1.0	6010	26 JUL 90	27 JUL 90
Beryllium	1.1	mg/kg	0.20	6010	26 JUL 90	27 JUL 90
Cadmium	ND	mg/kg	0.50	6010	26 JUL 90	27 JUL 90
Chromium	7.6	mg/kg	1.1	6010	26 JUL 90	27 JUL 90
Cobalt	3.2	mg/kg	1.0	6010	26 JUL 90	27 JUL 90
Copper	5.8	mg/kg	2.0	6010	26 JUL 90	27 JUL 90
Lead	7.3	mg/kg	5.0	6010	26 JUL 90	27 JUL 90
Mercury	ND	mg/kg	0.10	7471	19 JUL 90	20 JUL 90
Nickel	8.2	mg/kg	4.0	6010	26 JUL 90	27 JUL 90
Potassium	1860	mg/kg	500	6010	26 JUL 90	27 JUL 90
Selenium	ND	mg/kg	1.0	7740	26 JUL 90	27 JUL 90
Vanadium	14.9	mg/kg	1.0	6010	26 JUL 90	27 JUL 90
Zinc	13.3	mg/kg	2.0	6010	26 JUL 90	27 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones
Approved By: Mary Grehl

Enseco
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Total Metals

Client Name: Giant Refining
Client ID: RFI 0906V0.0
Lab ID: 010259-0005-SA
Enseco ID: 1082082
Matrix: SOIL
Sampled: 02 JUL 90
Received: 05 JUL 90
Authorized: 05 JUL 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	26 JUL 90	27 JUL 90
Arsenic	1.7	mg/kg	0.50	7060	26 JUL 90	29 JUL 90
Barium	289	mg/kg	1.0	6010	26 JUL 90	27 JUL 90
Beryllium	0.79	mg/kg	0.20	6010	26 JUL 90	27 JUL 90
Cadmium	ND	mg/kg	0.50	6010	26 JUL 90	27 JUL 90
Chromium	7.8	mg/kg	1.1	6010	26 JUL 90	27 JUL 90
Cobalt	2.3	mg/kg	1.0	6010	26 JUL 90	27 JUL 90
Copper	14.3	mg/kg	2.0	6010	26 JUL 90	27 JUL 90
Lead	28.1	mg/kg	5.0	6010	26 JUL 90	27 JUL 90
Mercury	ND	mg/kg	0.10	7471	19 JUL 90	20 JUL 90
Nickel	11.4	mg/kg	4.0	6010	26 JUL 90	27 JUL 90
Potassium	989	mg/kg	500	6010	26 JUL 90	27 JUL 90
Selenium	ND	mg/kg	1.0	7740	26 JUL 90	27 JUL 90
Vanadium	14.5	mg/kg	1.0	6010	26 JUL 90	27 JUL 90
Zinc	22.8	mg/kg	2.0	6010	26 JUL 90	27 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones
Approved By: Mary Grehl

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Total Metals

Client Name: Giant Refining
Client ID: RFI 0906V3.0
Lab ID: 010259-0006-SA
Enseco ID: 1082083
Matrix: SOIL
Sampled: 02 JUL 90
Received: 05 JUL 90
Authorized: 05 JUL 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	26 JUL 90	27 JUL 90
Arsenic	1.2	mg/kg	0.50	7060	26 JUL 90	29 JUL 90
Barium	243	mg/kg	1.0	6010	26 JUL 90	27 JUL 90
Beryllium	1.1	mg/kg	0.20	6010	26 JUL 90	27 JUL 90
Cadmium	ND	mg/kg	0.50	6010	26 JUL 90	27 JUL 90
Chromium	6.3	mg/kg	1.1	6010	26 JUL 90	27 JUL 90
Cobalt	2.6	mg/kg	1.0	6010	26 JUL 90	27 JUL 90
Copper	5.4	mg/kg	2.0	6010	26 JUL 90	27 JUL 90
Lead	9.2	mg/kg	5.0	6010	26 JUL 90	27 JUL 90
Mercury	ND	mg/kg	0.10	7471	19 JUL 90	20 JUL 90
Nickel	7.0	mg/kg	4.0	6010	26 JUL 90	27 JUL 90
Potassium	1110	mg/kg	500	6010	26 JUL 90	27 JUL 90
Selenium	ND	mg/kg	1.0	7740	26 JUL 90	27 JUL 90
Vanadium	14.5	mg/kg	1.0	6010	26 JUL 90	27 JUL 90
Zinc	10.6	mg/kg	2.0	6010	26 JUL 90	27 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Mary Grehl

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Total Metals

Client Name: Giant Refining
Client ID: RFI 0906V5.0
Lab ID: 010259-0007-SA
Matrix: SOIL
Authorized: 05 JUL 90

Enseco ID: 1082084
Sampled: 02 JUL 90
Prepared: See Below

Received: 05 JUL 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	26 JUL 90	27 JUL 90
Arsenic	ND	mg/kg	0.50	7060	26 JUL 90	29 JUL 90
Barium	241	mg/kg	1.0	6010	26 JUL 90	27 JUL 90
Beryllium	0.97	mg/kg	0.20	6010	26 JUL 90	27 JUL 90
Cadmium	ND	mg/kg	0.50	6010	26 JUL 90	27 JUL 90
Chromium	5.1	mg/kg	1.1	6010	26 JUL 90	27 JUL 90
Cobalt	1.9	mg/kg	1.0	6010	26 JUL 90	27 JUL 90
Copper	4.5	mg/kg	2.0	6010	26 JUL 90	27 JUL 90
Lead	7.5	mg/kg	5.0	6010	26 JUL 90	27 JUL 90
Mercury	ND	mg/kg	0.10	7471	19 JUL 90	20 JUL 90
Nickel	5.3	mg/kg	4.0	6010	26 JUL 90	27 JUL 90
Potassium	897	mg/kg	500	6010	26 JUL 90	27 JUL 90
Selenium	ND	mg/kg	0.50	7740	26 JUL 90	27 JUL 90
Vanadium	12.6	mg/kg	1.0	6010	26 JUL 90	27 JUL 90
Zinc	8.4	mg/kg	2.0	6010	26 JUL 90	27 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Mary Grehl

Enseco
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Total Metals

Client Name: Giant Refining
Client ID: RFI 0906D3.0
Lab ID: 010259-0009-SA
Matrix: SOIL
Authorized: 05 JUL 90

Enseco ID: 1082086
Sampled: 02 JUL 90
Prepared: See Below

Received: 05 JUL 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	26 JUL 90	27 JUL 90
Arsenic	ND	mg/kg	1.0	7060	26 JUL 90	29 JUL 90
Barium	226	mg/kg	1.0	6010	26 JUL 90	27 JUL 90
Beryllium	1.1	mg/kg	0.20	6010	26 JUL 90	27 JUL 90
Cadmium	ND	mg/kg	0.50	6010	26 JUL 90	27 JUL 90
Chromium	6.3	mg/kg	1.1	6010	26 JUL 90	27 JUL 90
Cobalt	2.6	mg/kg	1.0	6010	26 JUL 90	27 JUL 90
Copper	5.4	mg/kg	2.0	6010	26 JUL 90	27 JUL 90
Lead	8.1	mg/kg	5.0	6010	26 JUL 90	27 JUL 90
Mercury	ND	mg/kg	0.10	7471	19 JUL 90	20 JUL 90
Nickel	7.2	mg/kg	4.0	6010	26 JUL 90	27 JUL 90
Potassium	1120	mg/kg	500	6010	26 JUL 90	27 JUL 90
Selenium	ND	mg/kg	0.50	7740	26 JUL 90	27 JUL 90
Vanadium	14.2	mg/kg	1.0	6010	26 JUL 90	27 JUL 90
Zinc	10.4	mg/kg	2.0	6010	26 JUL 90	27 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Mary Grehl

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Total Metals

Client Name: Giant Refining
Client ID: RFI 0907V0.0
Lab ID: 010259-0010-SA
Matrix: SOIL
Authorized: 05 JUL 90

Enseco ID: 1082087
Sampled: 02 JUL 90
Prepared: See Below

Received: 05 JUL 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	26 JUL 90	27 JUL 90
Arsenic	1.4	mg/kg	0.50	7060	26 JUL 90	29 JUL 90
Barium	447	mg/kg	1.0	6010	26 JUL 90	27 JUL 90
Beryllium	0.59	mg/kg	0.20	6010	26 JUL 90	27 JUL 90
Cadmium	ND	mg/kg	0.50	6010	26 JUL 90	27 JUL 90
Chromium	102	mg/kg	1.1	6010	26 JUL 90	27 JUL 90
Cobalt	1.2	mg/kg	1.0	6010	26 JUL 90	27 JUL 90
Copper	10.5	mg/kg	2.0	6010	26 JUL 90	27 JUL 90
Lead	14.0	mg/kg	5.0	6010	26 JUL 90	27 JUL 90
Mercury	ND	mg/kg	0.10	7471	19 JUL 90	20 JUL 90
Nickel	6.0	mg/kg	4.0	6010	26 JUL 90	27 JUL 90
Potassium	853	mg/kg	500	6010	26 JUL 90	27 JUL 90
Selenium	ND	mg/kg	1.0	7740	26 JUL 90	27 JUL 90
Vanadium	14.6	mg/kg	1.0	6010	26 JUL 90	27 JUL 90
Zinc	157	mg/kg	2.0	6010	26 JUL 90	27 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Mary Grehl

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Total Metals

Client Name: Giant Refining
Client ID: RFI 0907V3.0
Lab ID: 010259-0011-SA
Matrix: SOIL
Authorized: 05 JUL 90

Enseco ID: 1082088
Sampled: 02 JUL 90
Prepared: See Below

Received: 05 JUL 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	26 JUL 90	27 JUL 90
Arsenic	0.66	mg/kg	0.50	7060	26 JUL 90	29 JUL 90
Barium	234	mg/kg	1.0	6010	26 JUL 90	27 JUL 90
Beryllium	0.97	mg/kg	0.20	6010	26 JUL 90	27 JUL 90
Cadmium	ND	mg/kg	0.50	6010	26 JUL 90	27 JUL 90
Chromium	8.6	mg/kg	1.1	6010	26 JUL 90	27 JUL 90
Cobalt	2.9	mg/kg	1.0	6010	26 JUL 90	27 JUL 90
Copper	5.5	mg/kg	2.0	6010	26 JUL 90	27 JUL 90
Lead	9.1	mg/kg	5.0	6010	26 JUL 90	27 JUL 90
Mercury	ND	mg/kg	0.10	7471	19 JUL 90	20 JUL 90
Nickel	7.7	mg/kg	4.0	6010	26 JUL 90	27 JUL 90
Potassium	1030	mg/kg	500	6010	26 JUL 90	27 JUL 90
Selenium	ND	mg/kg	1.0	7740	26 JUL 90	27 JUL 90
Vanadium	13.1	mg/kg	1.0	6010	26 JUL 90	27 JUL 90
Zinc	14.3	mg/kg	2.0	6010	26 JUL 90	27 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Mary Grehl

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Total Metals

Client Name: Giant Refining
Client ID: RFI 0907V5.0
Lab ID: 010259-0012-SA
Enseco ID: 1082089
Matrix: SOIL
Sampled: 02 JUL 90
Received: 05 JUL 90
Authorized: 05 JUL 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	26 JUL 90	27 JUL 90
Arsenic	0.61	mg/kg	0.50	7060	26 JUL 90	29 JUL 90
Barium	208	mg/kg	1.0	6010	26 JUL 90	27 JUL 90
Beryllium	0.66	mg/kg	0.20	6010	26 JUL 90	27 JUL 90
Cadmium	ND	mg/kg	0.50	6010	26 JUL 90	27 JUL 90
Chromium	16.2	mg/kg	1.1	6010	26 JUL 90	27 JUL 90
Cobalt	1.5	mg/kg	1.0	6010	26 JUL 90	27 JUL 90
Copper	4.1	mg/kg	2.0	6010	26 JUL 90	27 JUL 90
Lead	7.2	mg/kg	5.0	6010	26 JUL 90	27 JUL 90
Mercury	ND	mg/kg	0.10	7471	19 JUL 90	20 JUL 90
Nickel	4.7	mg/kg	4.0	6010	26 JUL 90	27 JUL 90
Potassium	776	mg/kg	500	6010	26 JUL 90	27 JUL 90
Selenium	ND	mg/kg	0.50	7740	26 JUL 90	27 JUL 90
Vanadium	10.3	mg/kg	1.0	6010	26 JUL 90	27 JUL 90
Zinc	23.8	mg/kg	2.0	6010	26 JUL 90	27 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones
Approved By: Mary Grehl

Enseco
A CORNING Company

Total Metals

Client Name: Giant Refining
Client ID: RFI 0907V7.0
Lab ID: 010259-0013-SA
Enseco ID: 1082090
Matrix: SOIL
Sampled: 02 JUL 90
Received: 05 JUL 90
Authorized: 05 JUL 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	26 JUL 90	27 JUL 90
Arsenic	0.58	mg/kg	0.50	7060	26 JUL 90	29 JUL 90
Barium	240	mg/kg	1.0	6010	26 JUL 90	27 JUL 90
Beryllium	1.0	mg/kg	0.20	6010	26 JUL 90	27 JUL 90
Cadmium	ND	mg/kg	0.50	6010	26 JUL 90	27 JUL 90
Chromium	7.6	mg/kg	1.1	6010	26 JUL 90	27 JUL 90
Cobalt	2.5	mg/kg	1.0	6010	26 JUL 90	27 JUL 90
Copper	5.1	mg/kg	2.0	6010	26 JUL 90	27 JUL 90
Lead	7.5	mg/kg	5.0	6010	26 JUL 90	27 JUL 90
Mercury	ND	mg/kg	0.10	7471	19 JUL 90	20 JUL 90
Nickel	6.8	mg/kg	4.0	6010	26 JUL 90	27 JUL 90
Potassium	1390	mg/kg	500	6010	26 JUL 90	27 JUL 90
Selenium	ND	mg/kg	0.50	7740	26 JUL 90	27 JUL 90
Vanadium	12.7	mg/kg	1.0	6010	26 JUL 90	27 JUL 90
Zinc	13.4	mg/kg	2.0	6010	26 JUL 90	27 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Mary Grehl

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)
010259-0001-SA	SOIL	8240-S	10 JUL 90-L	13 JUL 90-L
010259-0002-SA	SOIL	8240-S	10 JUL 90-L	13 JUL 90-L
010259-0003-SA	SOIL	8240-S	10 JUL 90-L	13 JUL 90-L
010259-0004-SA	SOIL	8240-S	10 JUL 90-L	13 JUL 90-L
010259-0005-SA	SOIL	8240-S	10 JUL 90-L	13 JUL 90-L
010259-0006-SA	SOIL	8240-S	10 JUL 90-L	13 JUL 90-L
010259-0007-SA	SOIL	8240-S	10 JUL 90-L	13 JUL 90-L
010259-0008-SA	SOIL	8240-S	10 JUL 90-L	13 JUL 90-L
010259-0009-SA	SOIL	8240-S	10 JUL 90-L	13 JUL 90-L
010259-0010-SA	SOIL	8240-S	10 JUL 90-L	13 JUL 90-L
010259-0011-SA	SOIL	8240-S	13 JUL 90-H	13 JUL 90-H
010259-0012-SA	SOIL	8240-S	13 JUL 90-H	13 JUL 90-H
010259-0013-SA	SOIL	8240-S	13 JUL 90-H	13 JUL 90-H

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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 Average(%) Limits	Precision (RPD) DCS	Precision (RPD) Limit
Category: 8240-S Matrix: SOIL QC Lot: 10 JUL 90-L Concentration Units: ug/kg								
1,1-Dichloroethene	5000	4400	4300	4350	87	59-172	2.3	22
Trichloroethene	5000	4960	5060	5010	100	62-137	2.0	24
Benzene	5000	4710	4870	4790	96	66-142	3.3	21
Toluene	5000	4820	4870	4840	97	59-139	1.0	21
Chlorobenzene	5000	5000	5070	5040	101	60-133	1.4	21
Category: 8240-S Matrix: SOIL QC Lot: 13 JUL 90-H Concentration Units: ug/kg								
1,1-Dichloroethene	5000	5330	5360	5340	107	59-172	0.6	22
Trichloroethene	5000	4880	5060	4970	99	62-137	3.6	24
Benzene	5000	5050	5170	5110	102	66-142	2.3	21
Toluene	5000	5560	5760	5660	113	59-139	3.5	21
Chlorobenzene	5000	5130	5330	5230	105	60-133	3.8	21

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

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SINGLE CONTROL SAMPLE REPORT
Volatile Organics by GC/MS

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) SCS	Accuracy(%) Limits
Category: 8240-S				
Matrix: SOIL				
QC Lot: 10 JUL 90-L QC Run: 13 JUL 90-L				
Concentration Units: ug/kg				
1,2-Dichloroethane-d4	5000	5410	108	70-121
4-Bromofluorobenzene	5000	4900	98	74-121
Toluene-d8	5000	4990	100	81-117
Category: 8240-S				
Matrix: SOIL				
QC Lot: 13 JUL 90-H QC Run: 13 JUL 90-H				
Concentration Units: ug/kg				
1,2-Dichloroethane-d4	5000	4820	96	70-121
4-Bromofluorobenzene	5000	5010	100	74-121
Toluene-d8	5000	5100	102	81-117

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

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METHOD BLANK REPORT
Volatile Organics by GC/MS

Test: 8240-PP-S
Matrix: SOIL
QC Lot: 10 JUL 90-L QC Run: 13 JUL 90-L

Analyte	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500
Acetone	ND	ug/kg	5000
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Carbon disulfide	ND	ug/kg	500
Dibromomethane	ND	ug/kg	500
trans-1,4-Dichloro-2-butene	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	ND	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone	ND	ug/kg	5000
4-Methyl-2-pentanone	ND	ug/kg	1000

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

Analyte	Result	Units	Reporting Limit
Test: 8240-PP-S			
Matrix: SOIL			
QC Lot: 10 JUL 90-L QC Run: 13 JUL 90-L			
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	500
Ethyl methacrylate	ND	ug/kg	1000
2-Hexanone	ND	ug/kg	1000
Test: 8240-PP-S			
Matrix: SOIL			
QC Lot: 13 JUL 90-H QC Run: 13 JUL 90-H			
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500

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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)
010259-0001-SA	SOIL	8270-S	08 JUL 90-A	08 JUL 90-A
010259-0002-SA	SOIL	8270-S	08 JUL 90-A	08 JUL 90-A
010259-0003-SA	SOIL	8270-S	08 JUL 90-A	08 JUL 90-A
010259-0004-SA	SOIL	8270-S	08 JUL 90-B	08 JUL 90-B
010259-0005-SA	SOIL	8270-S	08 JUL 90-B	08 JUL 90-B
010259-0006-SA	SOIL	8270-S	08 JUL 90-B	08 JUL 90-B
010259-0007-SA	SOIL	8270-S	08 JUL 90-B	08 JUL 90-B
010259-0008-SA	SOIL	8270-S	08 JUL 90-B	08 JUL 90-B
010259-0009-SA	SOIL	8270-S	08 JUL 90-B	08 JUL 90-B
010259-0010-SA	SOIL	8270-S	08 JUL 90-B	08 JUL 90-B
010259-0011-SA	SOIL	8270-S	08 JUL 90-B	08 JUL 90-B
010259-0012-SA	SOIL	8270-S	08 JUL 90-B	08 JUL 90-B
010259-0013-SA	SOIL	8270-S	08 JUL 90-B	08 JUL 90-B

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SINGLE CONTROL SAMPLE REPORT
Semivolatile Organics by GC/MS

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) SCS	Accuracy(%) Limits
Category: 8270-S				
Matrix: SOIL				
QC Lot: 08 JUL 90-A QC Run: 08 JUL 90-A				
Concentration Units: ug/kg				
Nitrobenzene-d5	1670	1240	74	23-120
2-Fluorobiphenyl	1670	1400	84	30-115
Terphenyl-d14	1670	1550	93	18-137
2-Fluorophenol	3330	2650	80	25-121
Phenol-d5	3330	2460	74	24-113
2,4,6-Tribromophenol	3330	2800	84	19-122
Category: 8270-S				
Matrix: SOIL				
QC Lot: 08 JUL 90-B QC Run: 08 JUL 90-B				
Concentration Units: ug/kg				
Nitrobenzene-d5	1670	1320	79	23-120
2-Fluorobiphenyl	1670	1330	80	30-115
Terphenyl-d14	1670	1490	89	18-137
2-Fluorophenol	3330	2540	76	25-121
Phenol-d5	3330	2530	76	24-113
2,4,6-Tribromophenol	3330	2940	88	19-122

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

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

Test: 8270-AP9-S
Matrix: SOIL
QC Lot: 08 JUL 90-B QC Run: 08 JUL 90-B

Analyte	Result	Units	Reporting Limit
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
4-Bromophenyl phenyl ether	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
4-Chloroaniline	ND	ug/kg	5000
4-Chloro-3-methylphenol	ND	ug/kg	5000
2-Chloronaphthalene	ND	ug/kg	5000
2-Chlorophenol	ND	ug/kg	5000
4-Chlorophenyl phenyl ether	ND	ug/kg	5000
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
3,3'-Dichlorobenzidine	ND	ug/kg	10000
2,4-Dichlorophenol	ND	ug/kg	5000
2,6-Dichlorophenol	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
p-Dimethylaminoazobenzene	ND	ug/kg	5000
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
a,a-Dimethylphenethyl-amine	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
1,3-Dinitrobenzene	ND	ug/kg	5000
4,6-Dinitro-o-cresol	ND	ug/kg	25000
2,4-Dinitrophenol	ND	ug/kg	25000
2,4-Dinitrotoluene	ND	ug/kg	5000
2,6-Dinitrotoluene	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Diphenylamine	ND	ug/kg	5000
Ethyl methanesulfonate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Fluorene	ND	ug/kg	5000
Hexachlorobenzene	ND	ug/kg	5000

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

Test: 8270-AP9-S
Matrix: SOIL
QC Lot: 08 JUL 90-B QC Run: 08 JUL 90-B

Analyte	Result	Units	Reporting Limit
Hexachlorobutadiene	ND	ug/kg	5000
Hexachlorocyclopentadiene	ND	ug/kg	5000
Hexachloroethane	ND	ug/kg	5000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	5000
Isophorone	ND	ug/kg	5000
3-Methylcholanthrene	ND	ug/kg	5000
Methyl methanesulfonate	ND	ug/kg	5000
2-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
1-Naphthylamine	ND	ug/kg	5000
2-Naphthylamine	ND	ug/kg	5000
2-Nitroaniline	ND	ug/kg	25000
3-Nitroaniline	ND	ug/kg	25000
4-Nitroaniline	ND	ug/kg	25000
Nitrobenzene	ND	ug/kg	5000
2-Nitrophenol	ND	ug/kg	5000
4-Nitrophenol	ND	ug/kg	25000
N-Nitroso-di-n-butylamine	ND	ug/kg	5000
N-Nitrosodimethylamine	ND	ug/kg	5000
N-Nitrosodiphenylamine	ND	ug/kg	5000
N-Nitroso-di-n-propylamine	ND	ug/kg	5000
N-Nitrosopiperidine	ND	ug/kg	5000
Pentachlorobenzene	ND	ug/kg	5000
Pentachloronitrobenzene	ND	ug/kg	25000
Pentachlorophenol	ND	ug/kg	25000
Phenacetin	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Phenol	ND	ug/kg	5000
2-Picoline	ND	ug/kg	5000
Pronamide	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
1,2,4,5-Tetrachlorobenzene	ND	ug/kg	5000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	25000
1,2,4-Trichlorobenzene	ND	ug/kg	5000
2,4,5-Trichlorophenol	ND	ug/kg	25000
2,4,6-Trichlorophenol	ND	ug/kg	5000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	5000
1-Chloronaphthalene	ND	ug/kg	--

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

Analyte	Result	Units	Reporting Limit
Test: 8270-AP9-S			
Matrix: SOIL			
QC Lot: 08 JUL 90-B QC Run: 08 JUL 90-B			
1,2-Diphenylhydrazine	ND	ug/kg	5000

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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)
010259-0001-SA	SOIL	ICP-S	26 JUL 90-B	26 JUL 90-B
010259-0001-SA	SOIL	AS-FAA-S	26 JUL 90-C	26 JUL 90-C
010259-0001-SA	SOIL	SE-FAA-S	26 JUL 90-C	26 JUL 90-C
010259-0001-SA	SOIL	HG-CVAA-S	19 JUL 90-C	19 JUL 90-C
010259-0002-SA	SOIL	ICP-S	26 JUL 90-B	26 JUL 90-B
010259-0002-SA	SOIL	AS-FAA-S	26 JUL 90-C	26 JUL 90-C
010259-0002-SA	SOIL	SE-FAA-S	26 JUL 90-C	26 JUL 90-C
010259-0002-SA	SOIL	HG-CVAA-S	19 JUL 90-C	19 JUL 90-C
010259-0003-SA	SOIL	ICP-S	26 JUL 90-B	26 JUL 90-B
010259-0003-SA	SOIL	AS-FAA-S	26 JUL 90-C	26 JUL 90-C
010259-0003-SA	SOIL	SE-FAA-S	26 JUL 90-C	26 JUL 90-C
010259-0003-SA	SOIL	HG-CVAA-S	19 JUL 90-C	19 JUL 90-C
010259-0004-SA	SOIL	ICP-S	26 JUL 90-B	26 JUL 90-B
010259-0004-SA	SOIL	AS-FAA-S	26 JUL 90-C	26 JUL 90-C
010259-0004-SA	SOIL	SE-FAA-S	26 JUL 90-C	26 JUL 90-C
010259-0004-SA	SOIL	HG-CVAA-S	19 JUL 90-C	19 JUL 90-C
010259-0005-SA	SOIL	ICP-S	26 JUL 90-B	26 JUL 90-B
010259-0005-SA	SOIL	AS-FAA-S	26 JUL 90-C	26 JUL 90-C
010259-0005-SA	SOIL	SE-FAA-S	26 JUL 90-C	26 JUL 90-C
010259-0005-SA	SOIL	HG-CVAA-S	19 JUL 90-C	19 JUL 90-C
010259-0006-SA	SOIL	ICP-S	26 JUL 90-B	26 JUL 90-B
010259-0006-SA	SOIL	AS-FAA-S	26 JUL 90-C	26 JUL 90-C
010259-0006-SA	SOIL	SE-FAA-S	26 JUL 90-C	26 JUL 90-C
010259-0006-SA	SOIL	HG-CVAA-S	19 JUL 90-C	19 JUL 90-C
010259-0007-SA	SOIL	ICP-S	26 JUL 90-B	26 JUL 90-B
010259-0007-SA	SOIL	AS-FAA-S	26 JUL 90-C	26 JUL 90-C
010259-0007-SA	SOIL	SE-FAA-S	26 JUL 90-C	26 JUL 90-C
010259-0007-SA	SOIL	HG-CVAA-S	19 JUL 90-C	19 JUL 90-C
010259-0008-SA	SOIL	ICP-S	26 JUL 90-B	26 JUL 90-B
010259-0008-SA	SOIL	AS-FAA-S	26 JUL 90-C	26 JUL 90-C
010259-0008-SA	SOIL	SE-FAA-S	26 JUL 90-C	26 JUL 90-C
010259-0008-SA	SOIL	HG-CVAA-S	19 JUL 90-C	19 JUL 90-C
010259-0009-SA	SOIL	ICP-S	26 JUL 90-B	26 JUL 90-B
010259-0009-SA	SOIL	AS-FAA-S	26 JUL 90-C	26 JUL 90-C
010259-0009-SA	SOIL	SE-FAA-S	26 JUL 90-C	26 JUL 90-C
010259-0009-SA	SOIL	HG-CVAA-S	19 JUL 90-C	19 JUL 90-C
010259-0010-SA	SOIL	ICP-S	26 JUL 90-B	26 JUL 90-B
010259-0010-SA	SOIL	AS-FAA-S	26 JUL 90-C	26 JUL 90-C
010259-0010-SA	SOIL	SE-FAA-S	26 JUL 90-C	26 JUL 90-C
010259-0010-SA	SOIL	HG-CVAA-S	19 JUL 90-C	19 JUL 90-C
010259-0011-SA	SOIL	ICP-S	26 JUL 90-B	26 JUL 90-B
010259-0011-SA	SOIL	AS-FAA-S	26 JUL 90-C	26 JUL 90-C
010259-0011-SA	SOIL	SE-FAA-S	26 JUL 90-C	26 JUL 90-C
010259-0011-SA	SOIL	HG-CVAA-S	19 JUL 90-C	19 JUL 90-C
010259-0012-SA	SOIL	ICP-S	26 JUL 90-B	26 JUL 90-B
010259-0012-SA	SOIL	AS-FAA-S	26 JUL 90-C	26 JUL 90-C
010259-0012-SA	SOIL	SE-FAA-S	26 JUL 90-C	26 JUL 90-C

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QC LOT ASSIGNMENT REPORT
Metals Analysis and Preparation (cont.)

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
010259-0012-SA	SOIL	HG-CVAA-S	19 JUL 90-C	19 JUL 90-C
010259-0013-SA	SOIL	ICP-S	26 JUL 90-B	26 JUL 90-B
010259-0013-SA	SOIL	AS-FAA-S	26 JUL 90-C	26 JUL 90-C
010259-0013-SA	SOIL	SE-FAA-S	26 JUL 90-C	26 JUL 90-C
010259-0013-SA	SOIL	HG-CVAA-S	19 JUL 90-C	19 JUL 90-C

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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	Precision (RPD) DCS	Precision (RPD) Limit
Category: ICP-S								
Matrix: SOIL								
QC Lot: 26 JUL 90-B								
Concentration Units: mg/kg								
Aluminum	200	180	189	184	92	75-125	4.9	20
Antimony	50	41.8	44.0	42.9	86	75-125	5.1	20
Arsenic	50	42.4	41.6	42.0	84	75-125	1.8	20
Barium	200	161	169	165	82	75-125	4.5	20
Beryllium	5.0	4.39	4.56	4.48	90	75-125	3.7	20
Cadmium	5.0	3.75	4.12	3.93	79	75-125	9.4	20
Calcium	10000	8970	9340	9160	92	75-125	4.0	20
Chromium	20	18.2	19.4	18.8	94	75-125	6.4	20
Cobalt	50	40.1	41.7	40.9	82	75-125	3.9	20
Copper	25	21.9	22.4	22.2	89	75-125	2.1	20
Iron	100	86.2	92.9	89.5	90	75-125	7.5	20
Lead	50	39.2	42.4	40.8	82	75-125	7.9	20
Magnesium	5000	4600	4790	4690	94	75-125	3.9	20
Manganese	50	40.9	42.5	41.7	83	75-125	3.7	20
Nickel	50	40.9	42.5	41.7	83	75-125	3.7	20
Potassium	5000	4450	4630	4540	91	75-125	4.0	20
Silver	5.0	4.64	4.79	4.71	94	75-125	3.3	20
Sodium	10000	8840	9120	8980	90	75-125	3.2	20
Vanadium	50	44.5	46.4	45.5	91	75-125	4.2	20
Zinc	50	39.7	42.6	41.2	82	75-125	7.0	20
Category: AS-FAA-S								
Matrix: SOIL								
QC Lot: 26 JUL 90-C								
Concentration Units: mg/kg								
Arsenic	4	3.27	3.38	3.32	83	75-125	3.3	20
Category: SE-FAA-S								
Matrix: SOIL								
QC Lot: 26 JUL 90-C								
Concentration Units: mg/kg								
Selenium	1	0.840	0.860	0.850	85	75-125	2.4	20

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

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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	Precision (RPD) DCS	Precision Limit
Category: HG-CVAA-S								
Matrix: SOIL								
QC Lot: 19 JUL 90-C								
Concentration Units: mg/kg								
Mercury	0.50	0.589	0.578	0.584	117	75-125	1.9	20

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

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METHOD BLANK REPORT
Metals Analysis and Preparation

Analyte	Result	Units	Reporting Limit
Test: ICPOCP-ICPS-S			
Matrix: SOIL			
QC Lot: 26 JUL 90-B QC Run: 26 JUL 90-B			
Antimony	ND	mg/kg	6.0
Barium	ND	mg/kg	1.0
Beryllium	ND	mg/kg	0.20
Cadmium	ND	mg/kg	0.50
Chromium	1.1	mg/kg	1.0
Cobalt	ND	mg/kg	1.0
Copper	ND	mg/kg	2.0
Lead	ND	mg/kg	5.0
Nickel	ND	mg/kg	4.0
Potassium	ND	mg/kg	500
Vanadium	ND	mg/kg	1.0
Zinc	ND	mg/kg	2.0
Test: GF-ASCP-TAL-S			
Matrix: SOIL			
QC Lot: 26 JUL 90-C QC Run: 26 JUL 90-C			
Arsenic	ND	mg/kg	0.50
Test: GF-SECP-TAL-S			
Matrix: SOIL			
QC Lot: 26 JUL 90-C QC Run: 26 JUL 90-C			
Selenium	ND	mg/kg	0.50
Test: CV-HGCP-TAL-S			
Matrix: SOIL			
QC Lot: 19 JUL 90-C QC Run: 19 JUL 90-C			
Mercury	ND	mg/kg	0.10

Appendix

Enseco - Rocky Mountain Analytical

4955 Yarrow Street
Arvada, Colorado 80002
303/421-6611 Facsimile: 303/431-7171

CHAIN OF CUSTODY

No.

Attn: Julie Essey

Enseco Client: Giant ~~Bond~~

Project: RFI

Sampling Co.: Giant

Sampling Site: Cinizo

Team Leader: M. McCaslin

RMA# 10259

SAMPLE SAFE™ CONDITIONS

1. Packed by: _____ Seal # _____
2. Seal Intact Upon Receipt by Sampling Co.: (Yes) No
3. Condition of Contents: Good
4. Sealed for Shipping by: C Rosendale
5. Initial Contents Temp.: — °C Seal # —
6. Sampling Status: (Done) Continuing Until _____
7. Seal Intact Upon Receipt by Laboratory: Yes No
8. Contents Temperature Upon Receipt by Lab: _____ °C
9. Condition of Contents: _____

Date	Time	Sample ID/Description	Sample Type	No. Containers	Analysis Parameters	Remarks
7-2-90	9:20	RFI0902V3.0	Soil	2	Metals, 8240, 8270	
7-2-90	9:28	RFI0902V5.0	Soil	2	Metals, 8240, 8270	
7-2-90	9:45	RFI0902V7.0	Soil	2	Metals, 8240, 8270	
7-2-90	9:50	RFI0905 V0.0	Soil	2	Metals, 8240, 8270	
7-2-90	9:58	RFI0905V3.0	Soil	2	Metals, 8240, 8270	
7-2-90	10:06	RFI0905V5.0	Soil	2	Metals, 8240, 8270	
7-2-90	10:14	RFI0905V7.0	Soil	2	Metals, 8240, 8270	
7-2-90	10:06	RFI0905V5.0	Soil	2	Metals, 8240, 8270	
7-2-90	10:29	RFI0903V0.0	Soil	2	Metals, 8240, 8270	
7-2-90	10:38	RFI0903V3.0	Soil	2	Metals, 8240, 8270	

CUSTODY TRANSFERS PRIOR TO SHIPPING

	Relinquished by: (signed)	Received by: (signed)	Date	Time
1	C Rosendale	Joseph A Myers	7-2-90	1:45pm
2	Joseph A Myers		7-3-90	0800
3				

SHIPPING DETAILS

Delivered to Shipper by: C Rosendale

Method of Shipment: Fed Express Airbill # _____

Received for Lab: RMAL Signed: Joseph A Myers Date/Time 7-3-90 0800

Enseco Project No. 10259

White and Pink Copies to Lab Yellow to Sampler SS-001

Enseco - Rocky Mountain Analytical

4955 Yarrow Street
Arvada, Colorado 80002
303/421-6611 Facsimile: 303/431-7171

Attn: Julie Essey

CHAIN OF CUSTODY

No.

Enseco Client: Giant Refinery
Project: RFI
Sampling Co.: Giant
Sampling Site: Cinizo
Team Leader: M. McCaslin
RMAL # 10259

SAMPLE SAFE™ CONDITIONS

1. Packed by: _____ Seal # _____
2. Seal Intact Upon Receipt by Sampling Co.: (Yes) No
3. Condition of Contents: Good
4. Sealed for Shipping by: C Rosendale
5. Initial Contents Temp.: _____ °C Seal # _____
6. Sampling Status: (Done) Continuing Until _____
7. Seal Intact Upon Receipt by Laboratory: Yes No
8. Contents Temperature Upon Receipt by Lab: _____ °C
9. Condition of Contents: _____

Date	Time	Sample ID/Description	Sample Type	No. Containers	Analysis Parameters	Remarks
7-2-90	10:50	RFI0903V5.0	Soil	2	Metals, 8240, 8270	
7-2-90	11:01	RFI0903V7.0	Soil	2	Metals, 8240, 8270	
7-2-90	12:04	RFI0906V0.0	Soil	2	Metals, 8240, 8270	
7-2-90	12:06	RFI0906V3.0	Soil	2	Metals, 8240, 8270	
7-2-90	12:13	RFI0906V5.0	Soil	2	Metals, 8240, 8270	
7-2-90	12:19	RFI0906V7.0	Soil	2	Metals, 8240, 8270	
7-2-90	12:06	RFI0906D3.0	Soil	2	Metals, 8240, 8270	
7-2-90	12:22	RFI0907V0.0	Soil	2	Metals, 8240, 8270	
7-2-90	12:42	RFI0907V3.0	Soil	2	Metals, 8240, 8270	
7-2-90	12:46	RFI0907V5.0	Soil	2	Metals, 8240, 8270	

CUSTODY TRANSFERS PRIOR TO SHIPPING

	Relinquished by: (signed)	Received by: (signed)	Date	Time
1	Chad Rosendale		7-2-90	1:45pm
2		Joseph G Mass	7-3-90	0800
3				

SHIPPING DETAILS

Delivered to Shipper by: C Rosendale
Method of Shipment: Fed. Express Airbill #
Received for Lab: RMAL Signed: Joseph G Mass Date/Time 7-3-90 0800
Enseco Project No.

Enseco - Rocky Mountain Analytical

4955 Yarrow Street
Arvada, Colorado 80002
303/421-6611 Facsimile: 303/431-7171

CHAIN OF CUSTODY

No.

Attn: Julie Essey

Enseco Client: Giant Refinery

Project: RFI

Sampling Co.: Giant

Sampling Site: Cisiza

Team Leader: M. McCoslin

RMAL #10259

SAMPLE SAFE™ CONDITIONS

1. Packed by: _____ Seal # _____
2. Seal Intact Upon Receipt by Sampling Co.: Yes (Yes) No
3. Condition of Contents: Good
4. Sealed for Shipping by: C Rosendale
5. Initial Contents Temp.: — °C Seal # —
6. Sampling Status: (Done) Continuing Until _____
7. Seal Intact Upon Receipt by Laboratory: Yes No
8. Contents Temperature Upon Receipt by Lab: _____ °C
9. Condition of Contents: _____

Date	Time	Sample ID/Description	Sample Type	No. Containers	Analysis Parameters	Remarks
7-2-90	12:58	RFI09D7V7.D	Soil	2	Metals, 8240, 8270	

CUSTODY TRANSFERS PRIOR TO SHIPPING

	Relinquished by: (signed)	Received by: (signed)	Date	Time
1	C Rosendale		7-2-90	1:45pm
2		Joseph G Myers	7-3-90	0800
3				

SHIPPING DETAILS

Delivered to Shipper by: C Rosendale

Method of Shipment: Fed Express Airbill #

Received for Lab: RMAL Signed: Joseph G Myers Date/Time 7-3-90 0800

Enseco Project No.

9.719

Section 9.0
RMAL No. 010190

Rocky Mountain
Analytical Laboratory

Enseco

ANALYTICAL RESULTS

FOR

GIANT REFINING

ENSECO-RMAL NO. 010190

JULY 30, 1990

Reviewed by: Julie Essey

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

Consistent with directives in the CLP protocol in SW-846 and other EPA methods, all GC/MS analyses were performed so that the maximum concentration of sample was analyzed. Some samples required dilutions to avoid saturation of the detector, to achieve linearity for a specific target compound or to reduce matrix interferences. As stated in Section 7.5.4 of Method 8270, 7.4.1.16 of Method 8240 and Exhibit E of the CLP protocol these dilutions be performed. The reporting limits for these samples are therefore proportionate to the dilution required. Surrogate compounds may not be measurable in samples which have been diluted.

Due to interferences originating from non-target compounds, dilutions were performed for sample 010190-0010 by Method 8270. The reporting limits were raised accordingly.

All 8270 samples were prepped accordingly to SW-846 using 2.0 grams of sample followed by a 50 percent partition then concentration to 1.0 mL for analysis. With this prep method nominal reporting limits are generally 10000 ug/kg. After careful review of all chromatograms it has been determined that we can lower the nominal reporting limit to 5000 ug/kg for this project.

An analytical standard is not available for methyl chrysene. Furthermore, many isomers of this compound, including methyl benzanthracenes and methyl triphenylenes, exist. These isomers are indistinguishable under the analytical condition of Method 8270. A selected ion current profile at mass 242 was performed to determine is any compounds corresponding to the molecular structure of methyl chrysene were present. All peaks which met this criteria

were summed. An estimated concentration of "total methyl chrysenes" was determined by comparing the sum of the peak areas to the internal standard and using a response factor of 1.0. Both the identification and quantification are highly suspect.

Total methyl chrysenes were not detected in any samples analyzed by Method 8270 for this project.

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 Inductively Coupled Plasma (ICP), 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.

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SAMPLE DESCRIPTION INFORMATION
for
Giant Refining

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
010190-0001-SA	RFI1001V0.0	SOIL	28 JUN 90	07:15	29 JUN 90
010190-0002-SA	RFI1001V3.0	SOIL	28 JUN 90	07:34	29 JUN 90
010190-0003-SA	RFI1001D3.0	SOIL	28 JUN 90	07:34	29 JUN 90
010190-0004-SA	RFI1003V12.5	SOIL	28 JUN 90	08:01	29 JUN 90
010190-0005-SA	RFI1003V9.0	SOIL	28 JUN 90	08:24	29 JUN 90
010190-0006-SA	RFI1003V6.0	SOIL	28 JUN 90	08:35	29 JUN 90
010190-0007-SA	RFI1003V3.0	SOIL	28 JUN 90	08:45	29 JUN 90
010190-0008-SA	RFI1003V0.0	SOIL	28 JUN 90	08:50	29 JUN 90
010190-0009-SA	RFI1004V0.0	SOIL	28 JUN 90	08:53	29 JUN 90
010190-0010-SA	RFI1004V3.0	SOIL	28 JUN 90	09:01	29 JUN 90

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ANALYTICAL TEST REQUESTS
for
Giant Refining

Lab ID: 010190	Group Code	Analysis Description	Custom Test?
0001 - 0010	A	Mercury, Cold Vapor AA	Y
		Prep - Mercury, Cold Vapor AA	N
		Arsenic, Furnace AA	N
		Prep - Total Metals, Furnace AA	N
		Selenium, Furnace AA	N
		ICP Metals (Total)	Y
		Prep - Total Metals, ICP	N
		Priority Pollutant Volatile Organics	Y
		GC Screen For Medium Level Soils	N
		Appendix IX Semivolatile Organics	Y
		Prep - Semivolatile Organics by GC/MS	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, April, 1989.

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

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Priority Pollutant Volatile Organics

Method 8240

Client Name: Giant Refining
Client ID: RFI1001V0.0
Lab ID: 010190-0001-SA Enseco ID: 1081313
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 05 JUL 90 Analyzed: 10 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500
Acetone	ND	ug/kg	5000
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Carbon disulfide	ND	ug/kg	500
Dibromomethane	ND	ug/kg	500
trans-1,4-Dichloro-2-butene	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	ND	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Michael Blades Approved By: Jeff Lowry

Enseco
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Priority Pollutant Volatile Organics (CONT.)

Method 8240

Client Name: Giant Refining
Client ID: RFI1001V0.0
Lab ID: 010190-0001-SA Enseco ID: 1081313
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 05 JUL 90 Analyzed: 10 JUL 90

Parameter	Result	Units	Reporting Limit
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	500
2-Hexanone	ND	ug/kg	1000
Ethyl methacrylate	ND	ug/kg	1000
Toluene-d8	101	%	--
4-Bromofluorobenzene	96	%	--
1,2-Dichloroethane-d4	99	%	--

ND = Not detected
NA = Not applicable

Reported By: Michael Blades Approved By: Jeff Lowry

Enseco
A CORNING Company

Priority Pollutant Volatile Organics

Method 8240

Client Name: Giant Refining
Client ID: RFI1001V3.0
Lab ID: 010190-0002-SA Enseco ID: 1081314
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 05 JUL 90 Analyzed: 10 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500
Acetone	ND	ug/kg	5000
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Carbon disulfide	ND	ug/kg	500
Dibromomethane	ND	ug/kg	500
trans-1,4-Dichloro-2-butene	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	ND	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Michael Blades Approved By: Jeff Lowry

Enseco
A CORNING Company

Priority Pollutant Volatile Organics (CONT.)

Method 8240

Client Name: Giant Refining
Client ID: RFI1001V3.0
Lab ID: 010190-0002-SA
Matrix: SOIL
Authorized: 29 JUN 90

Enseco ID: 1081314
Sampled: 28 JUN 90
Prepared: 05 JUL 90

Received: 29 JUN 90
Analyzed: 10 JUL 90

Parameter	Result	Units	Reporting Limit
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	500
2-Hexanone	ND	ug/kg	1000
Ethyl methacrylate	ND	ug/kg	1000
Toluene-d8	101	%	--
4-Bromofluorobenzene	96	%	--
1,2-Dichloroethane-d4	98	%	--

ND = Not detected
NA = Not applicable

Reported By: Michael Blades

Approved By: Jeff Lowry

Enseco
A CORNING Company

Priority Pollutant Volatile Organics

Method 8240

Client Name: Giant Refining
Client ID: RFI1001D3.0
Lab ID: 010190-0003-SA Enseco ID: 1081315
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 05 JUL 90 Analyzed: 10 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500
Acetone	ND	ug/kg	5000
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Carbon disulfide	ND	ug/kg	500
Dibromomethane	ND	ug/kg	500
trans-1,4-Dichloro-2-butene	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	ND	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Michael Blades Approved By: Jeff Lowry

Enseco
A CORNING Company

Priority Pollutant Volatile Organics (CONT.)

Method 8240

Client Name: Giant Refining
Client ID: RFI1001D3.0
Lab ID: 010190-0003-SA Enseco ID: 1081315
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 05 JUL 90 Analyzed: 10 JUL 90

Parameter	Result	Units	Reporting Limit
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	500
2-Hexanone	ND	ug/kg	1000
Ethyl methacrylate	ND	ug/kg	1000
Toluene-d8	102	%	--
4-Bromofluorobenzene	99	%	--
1,2-Dichloroethane-d4	97	%	--

ND = Not detected
NA = Not applicable

Reported By: Michael Blades Approved By: Jeff Lowry

Enseco
A CORNING Company

Priority Pollutant Volatile Organics

Method 8240

Client Name: Giant Refining
Client ID: RFI1003V12.5
Lab ID: 010190-0004-SA Enseco ID: 1081316
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 05 JUL 90 Analyzed: 10 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500
Acetone	ND	ug/kg	5000
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Carbon disulfide	ND	ug/kg	500
Dibromomethane	ND	ug/kg	500
trans-1,4-Dichloro-2-butene	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	ND	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Michael Blades Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics (CONT.)

Method 8240

Client Name: Giant Refining
Client ID: RFI1003V12.5
Lab ID: 010190-0004-SA Enseco ID: 1081316
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 05 JUL 90 Analyzed: 10 JUL 90

Parameter	Result	Units	Reporting Limit
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	500
2-Hexanone	ND	ug/kg	1000
Ethyl methacrylate	ND	ug/kg	1000
Toluene-d8	98	%	--
4-Bromofluorobenzene	96	%	--
1,2-Dichloroethane-d4	100	%	--

ND = Not detected
NA = Not applicable

Reported By: Michael Blades Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics

Method 8240

Client Name: Giant Refining
Client ID: RFI1003V9.0
Lab ID: 010190-0005-SA Enseco ID: 1081317
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 05 JUL 90 Analyzed: 10 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500
Acetone	ND	ug/kg	5000
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Carbon disulfide	ND	ug/kg	500
trans-1,4-Dichlo[illegible]-2-butene	ND	ug/kg	500
Dibromomethane	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	ND	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	5000

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ND = Not detected
NA = Not applicable

Reported By: Michael Blades Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics (CONT.)

Method 8240

Client Name: Giant Refining
Client ID: RFI1003V9.0
Lab ID: 010190-0005-SA Enseco ID: 1081317
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 05 JUL 90 Analyzed: 10 JUL 90

Parameter	Result	Units	Reporting Limit
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	500
2-Hexanone	ND	ug/kg	1000
Ethyl methacrylate	ND	ug/kg	1000
Toluene-d8	99	%	--
4-Bromofluorobenzene	99	%	--
1,2-Dichloroethane-d4	99	%	--

ND = Not detected
NA = Not applicable

Reported By: Michael Blades Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics

Method 8240

Client Name: Giant Refining
Client ID: RFI1003V6.0
Lab ID: 010190-0006-SA Enseco ID: 1081318
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 05 JUL 90 Analyzed: 10 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500
Acetone	ND	ug/kg	5000
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Carbon disulfide	ND	ug/kg	500
Dibromomethane	ND	ug/kg	500
trans-1,4-Dichloro-2-butene	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	ND	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	5000

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ND = Not detected
NA = Not applicable

Reported By: Terry Riddle Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics (CONT.)

Method 8240

Client Name: Giant Refining
Client ID: RFI1003V6.0
Lab ID: 010190-0006-SA Enseco ID: 1081318
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 05 JUL 90 Analyzed: 10 JUL 90

Parameter	Result	Units	Reporting Limit
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	500
2-Hexanone	ND	ug/kg	1000
Ethyl methacrylate	ND	ug/kg	1000
Toluene-d8	100	%	--
4-Bromofluorobenzene	101	%	--
1,2-Dichloroethane-d4	93	%	--

ND = Not detected
NA = Not applicable

Reported By: Terry Riddle Approved By: Jeff Lowry

Enseco
A CORNING Company

Priority Pollutant Volatile Organics

Method 8240

Client Name: Giant Refining
Client ID: RFI1003V3.0
Lab ID: 010190-0007-SA
Enseco ID: 1081319
Matrix: SOIL
Sampled: 28 JUN 90
Received: 29 JUN 90
Authorized: 29 JUN 90
Prepared: 05 JUL 90
Analyzed: 10 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500
Acetone	ND	ug/kg	5000
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Carbon disulfide	ND	ug/kg	500
Dibromomethane	ND	ug/kg	500
trans-1,4-Dichloro-2-butene	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	ND	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Terry Riddle
Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics (CONT.)

Method 8240

Client Name: Giant Refining
Client ID: RFI1003V3.0
Lab ID: 010190-0007-SA Enseco ID: 1081319
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 05 JUL 90 Analyzed: 10 JUL 90

Parameter	Result	Units	Reporting Limit
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	500
2-Hexanone	ND	ug/kg	1000
Ethyl methacrylate	ND	ug/kg	1000
Toluene-d8	102	%	--
4-Bromofluorobenzene	102	%	--
1,2-Dichloroethane-d4	93	%	--

ND = Not detected
NA = Not applicable

Reported By: Terry Riddle Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics

Method 8240

Client Name: Giant Refining
Client ID: RFI1003V0.0
Lab ID: 010190-0008-SA Enseco ID: 1081320
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 05 JUL 90 Analyzed: 10 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500
Acetone	ND	ug/kg	5000
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Carbon disulfide	ND	ug/kg	500
trans-1,4-Dichloro-2-butene	ND	ug/kg	500
Dibromomethane	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	ND	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	5000

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ND = Not detected
NA = Not applicable

Reported By: Terry Riddle Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics (CONT.)

Method 8240

Client Name: Giant Refining
Client ID: RFI1003V0.0
Lab ID: 010190-0008-SA
Enseco ID: 1081320
Matrix: SOIL
Sampled: 28 JUN 90
Received: 29 JUN 90
Authorized: 29 JUN 90
Prepared: 05 JUL 90
Analyzed: 10 JUL 90

Parameter	Result	Units	Reporting Limit
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	500
2-Hexanone	ND	ug/kg	1000
Ethyl methacrylate	ND	ug/kg	1000
Toluene-d8	101	%	--
4-Bromofluorobenzene	98	%	--
1,2-Dichloroethane-d4	93	%	--

ND = Not detected
NA = Not applicable

Reported By: Terry Riddle
Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics

Method 8240

Client Name: Giant Refining
Client ID: RFI1004V0.0
Lab ID: 010190-0009-SA
Enseco ID: 1081321
Matrix: SOIL
Sampled: 28 JUN 90
Received: 29 JUN 90
Authorized: 29 JUN 90
Prepared: 05 JUL 90
Analyzed: 10 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500
Acetone	ND	ug/kg	5000
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Carbon disulfide	ND	ug/kg	500
Dibromomethane	ND	ug/kg	500
trans-1,4-Dichloro-2-butene	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	ND	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	5000

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ND = Not detected
NA = Not applicable

Reported By: Terry Riddle
Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics (CONT.)

Method 8240

Client Name: Giant Refining
Client ID: RFI1004V0.0
Lab ID: 010190-0009-SA Enseco ID: 1081321
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 05 JUL 90 Analyzed: 10 JUL 90

Parameter	Result	Units	Reporting Limit
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	500
2-Hexanone	ND	ug/kg	1000
Ethyl methacrylate	ND	ug/kg	1000
Toluene-d8	104	%	--
4-Bromofluorobenzene	100	%	--
1,2-Dichloroethane-d4	92	%	--

ND = Not detected
NA = Not applicable

Reported By: Terry Riddle Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics

Method 8240

Client Name: Giant Refining
Client ID: RFI1004V3.0
Lab ID: 010190-0010-SA Enseco ID: 1081322
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 05 JUL 90 Analyzed: 10 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	1700	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	14000	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	5600	ug/kg	500
Acetone	ND	ug/kg	5000
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Carbon disulfide	ND	ug/kg	500
Dibromomethane	ND	ug/kg	500
trans-1,4-Dichloro-2-butene	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	ND	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	5000

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ND = Not detected
NA = Not applicable

Reported By: Michael Blades Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics (CONT.)

Method 8240

Client Name: Giant Refining
Client ID: RFI1004V3.0
Lab ID: 010190-0010-SA Enseco ID: 1081322
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 05 JUL 90 Analyzed: 10 JUL 90

Parameter	Result	Units	Reporting Limit
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Xylenes (total)	54000	ug/kg	500
2-Hexanone	ND	ug/kg	1000
Ethyl methacrylate	ND	ug/kg	5000
Toluene-d8	107	%	--
4-Bromofluorobenzene	102	%	--
1,2-Dichloroethane-d4	105	%	--

ND = Not detected
NA = Not applicable

Reported By: Michael Blades Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI1001V0.0
Lab ID: 010190-0001-SA Enseco ID: 1081313
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 08 JUL 90 Analyzed: 15 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	5000
Acenaphthylene	ND	ug/kg	5000
Acetophenone	ND	ug/kg	5000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	5000
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(g,h,i)perylene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
Benzyl alcohol	ND	ug/kg	5000
bis(2-Chloroethoxy)-methane	ND	ug/kg	5000
bis(2-Chloroethyl) ether	ND	ug/kg	5000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
4-Bromophenyl phenyl ether	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
4-Chloroaniline	ND	ug/kg	5000
4-Chloro-3-methylphenol	ND	ug/kg	5000
2-Chloronaphthalene	ND	ug/kg	5000
2-Chlorophenol	ND	ug/kg	5000
4-Chlorophenyl phenyl ether	ND	ug/kg	5000
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
3,3'-Dichlorobenzidine	ND	ug/kg	10000
2,4-Dichlorophenol	ND	ug/kg	5000
2,6-Dichlorophenol	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
p-Dimethylaminoazobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI1001V0.0
Lab ID: 010190-0001-SA Enseco ID: 1081313
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 08 JUL 90 Analyzed: 15 JUL 90

Parameter	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
a,a-Dimethylphenethylamine	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
1,3-Dinitrobenzene	ND	ug/kg	5000
4,6-Dinitro-o-cresol	ND	ug/kg	25000
2,4-Dinitrophenol	ND	ug/kg	25000
2,4-Dinitrotoluene	ND	ug/kg	5000
2,6-Dinitrotoluene	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Diphenylamine	ND	ug/kg	5000
Ethyl methanesulfonate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Fluorene	ND	ug/kg	5000
Hexachlorobenzene	ND	ug/kg	5000
Hexachlorobutadiene	ND	ug/kg	5000
Hexachlorocyclopentadiene	ND	ug/kg	5000
Hexachloroethane	ND	ug/kg	5000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	5000
Isophorone	ND	ug/kg	5000
3-Methylcholanthrene	ND	ug/kg	5000
Methyl methanesulfonate	ND	ug/kg	5000
2-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
1-Naphthylamine	ND	ug/kg	5000
2-Naphthylamine	ND	ug/kg	5000
2-Nitroaniline	ND	ug/kg	25000
3-Nitroaniline	ND	ug/kg	25000
4-Nitroaniline	ND	ug/kg	25000
Nitrobenzene	ND	ug/kg	5000
2-Nitrophenol	ND	ug/kg	5000
4-Nitrophenol	ND	ug/kg	25000
N-Nitroso-di-n-butylamine	ND	ug/kg	5000
N-Nitrosodimethylamine	ND	ug/kg	5000
N-Nitrosodiphenylamine	ND	ug/kg	5000
N-Nitroso-di-n-propylamine	ND	ug/kg	5000
N-Nitrosopiperidine	ND	ug/kg	5000
Pentachlorobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI1001V0.0
Lab ID: 010190-0001-SA Enseco ID: 1081313
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 08 JUL 90 Analyzed: 15 JUL 90

Parameter	Result	Units	Reporting Limit
Pentachloronitrobenzene	ND	ug/kg	25000
Pentachlorophenol	ND	ug/kg	25000
Phenacetin	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Phenol	ND	ug/kg	5000
2-Picoline	ND	ug/kg	5000
Pronamide	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	5000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	25000
1,2,4-Trichlorobenzene	ND	ug/kg	5000
2,4,5-Trichlorophenol	ND	ug/kg	25000
2,4,6-Trichlorophenol	ND	ug/kg	5000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	5000
1-Chloronaphthalene	ND	ug/kg	10000
1,2-Diphenylhydrazine	ND	ug/kg	5000
Nitrobenzene-d5	80	%	--
2-Fluorobiphenyl	87	%	--
Terphenyl-d14	87	%	--
Phenol-d5	78	%	--
2-Fluorophenol	80	%	--
2,4,6-Tribromophenol	86	%	--

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI1001V3.0
Lab ID: 010190-0002-SA
Matrix: SOIL
Authorized: 29 JUN 90

Enseco ID: 1081314
Sampled: 28 JUN 90
Prepared: 08 JUL 90

Received: 29 JUN 90
Analyzed: 16 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	5000
Acenaphthylene	ND	ug/kg	5000
Acetophenone	ND	ug/kg	5000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	5000
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(g,h,i)perylene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
Benzyl alcohol	ND	ug/kg	5000
bis(2-Chloroethoxy)-methane	ND	ug/kg	5000
bis(2-Chloroethyl) ether	ND	ug/kg	5000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
4-Bromophenyl phenyl ether	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
4-Chloroaniline	ND	ug/kg	5000
4-Chloro-3-methylphenol	ND	ug/kg	5000
2-Chloronaphthalene	ND	ug/kg	5000
2-Chlorophenol	ND	ug/kg	5000
4-Chlorophenyl phenyl ether	ND	ug/kg	5000
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
3,3'-Dichlorobenzidine	ND	ug/kg	10000
2,4-Dichlorophenol	ND	ug/kg	5000
2,6-Dichlorophenol	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
p-Dimethylaminoazobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis

Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI1001V3.0
Lab ID: 010190-0002-SA Enseco ID: 1081314
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 08 JUL 90 Analyzed: 16 JUL 90

Parameter	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
a,a-Dimethylphenethylamine	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
1,3-Dinitrobenzene	ND	ug/kg	5000
4,6-Dinitro-o-cresol	ND	ug/kg	25000
2,4-Dinitrophenol	ND	ug/kg	25000
2,4-Dinitrotoluene	ND	ug/kg	5000
2,6-Dinitrotoluene	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Diphenylamine	ND	ug/kg	5000
Ethyl methanesulfonate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Fluorene	ND	ug/kg	5000
Hexachlorobenzene	ND	ug/kg	5000
Hexachlorobutadiene	ND	ug/kg	5000
Hexachlorocyclopentadiene	ND	ug/kg	5000
Hexachloroethane	ND	ug/kg	5000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	5000
Isophorone	ND	ug/kg	5000
3-Methylcholanthrene	ND	ug/kg	5000
Methyl methanesulfonate	ND	ug/kg	5000
2-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
1-Naphthylamine	ND	ug/kg	5000
2-Naphthylamine	ND	ug/kg	5000
2-Nitroaniline	ND	ug/kg	25000
3-Nitroaniline	ND	ug/kg	25000
4-Nitroaniline	ND	ug/kg	25000
Nitrobenzene	ND	ug/kg	5000
2-Nitrophenol	ND	ug/kg	5000
4-Nitrophenol	ND	ug/kg	25000
N-Nitroso-di-n-butylamine	ND	ug/kg	5000
N-Nitrosodimethylamine	ND	ug/kg	5000
N-Nitrosodiphenylamine	ND	ug/kg	5000
N-Nitroso-di-n-propylamine	ND	ug/kg	5000
N-Nitrosopiperidine	ND	ug/kg	5000
Pentachlorobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI1001V3.0
Lab ID: 010190-0002-SA Enseco ID: 1081314
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 08 JUL 90 Analyzed: 16 JUL 90

Parameter	Result	Units	Reporting Limit
Pentachloronitrobenzene	ND	ug/kg	25000
Pentachlorophenol	ND	ug/kg	25000
Phenacetin	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Phenol	ND	ug/kg	5000
2-Picoline	ND	ug/kg	5000
Pronamide	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	5000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	25000
1,2,4-Trichlorobenzene	ND	ug/kg	5000
2,4,5-Trichlorophenol	ND	ug/kg	25000
2,4,6-Trichlorophenol	ND	ug/kg	5000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	5000
1-Chloronaphthalene	ND	ug/kg	10000
1,2-Diphenylhydrazine	ND	ug/kg	5000
Nitrobenzene-d5	93	%	--
2-Fluorobiphenyl	103	%	--
Terphenyl-d14	118	%	--
Phenol-d5	90	%	--
2-Fluorophenol	90	%	--
2,4,6-Tribromophenol	88	%	--

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI1001D3.0
Lab ID: 010190-0003-SA Enseco ID: 1081315
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 08 JUL 90 Analyzed: 16 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	5000
Acenaphthylene	ND	ug/kg	5000
Acetophenone	ND	ug/kg	5000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	5000
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(g,h,i)perylene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
Benzyl alcohol	ND	ug/kg	5000
bis(2-Chloroethoxy)-methane	ND	ug/kg	5000
bis(2-Chloroethyl) ether	ND	ug/kg	5000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
4-Bromophenyl phenyl ether	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
4-Chloroaniline	ND	ug/kg	5000
4-Chloro-3-methylphenol	ND	ug/kg	5000
2-Chloronaphthalene	ND	ug/kg	5000
2-Chlorophenol	ND	ug/kg	5000
4-Chlorophenyl phenyl ether	ND	ug/kg	5000
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
3,3'-Dichlorobenzidine	ND	ug/kg	10000
2,4-Dichlorophenol	ND	ug/kg	5000
2,6-Dichlorophenol	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
p-Dimethylaminoazobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI1001D3.0
Lab ID: 010190-0003-SA Enseco ID: 1081315
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 08 JUL 90 Analyzed: 16 JUL 90

Parameter	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
a,a-Dimethylphenethylamine	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
1,3-Dinitrobenzene	ND	ug/kg	5000
4,6-Dinitro-o-cresol	ND	ug/kg	25000
2,4-Dinitrophenol	ND	ug/kg	25000
2,4-Dinitrotoluene	ND	ug/kg	5000
2,6-Dinitrotoluene	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Diphenylamine	ND	ug/kg	5000
Ethyl methanesulfonate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Fluorene	ND	ug/kg	5000
Hexachlorobenzene	ND	ug/kg	5000
Hexachlorobutadiene	ND	ug/kg	5000
Hexachlorocyclopentadiene	ND	ug/kg	5000
Hexachloroethane	ND	ug/kg	5000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	5000
Isophorone	ND	ug/kg	5000
3-Methylcholanthrene	ND	ug/kg	5000
Methyl methanesulfonate	ND	ug/kg	5000
2-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
1-Naphthylamine	ND	ug/kg	5000
2-Naphthylamine	ND	ug/kg	5000
2-Nitroaniline	ND	ug/kg	25000
3-Nitroaniline	ND	ug/kg	25000
4-Nitroaniline	ND	ug/kg	25000
Nitrobenzene	ND	ug/kg	5000
2-Nitrophenol	ND	ug/kg	5000
4-Nitrophenol	ND	ug/kg	25000
N-Nitroso-di-n-butylamine	ND	ug/kg	5000
N-Nitrosodimethylamine	ND	ug/kg	5000
N-Nitrosodiphenylamine	ND	ug/kg	5000
N-Nitroso-di-n-propylamine	ND	ug/kg	5000
N-Nitrosopiperidine	ND	ug/kg	5000
Pentachlorobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI1001D3.0
Lab ID: 010190-0003-SA Enseco ID: 1081315
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 08 JUL 90 Analyzed: 16 JUL 90

Parameter	Result	Units	Reporting Limit
Pentachloronitrobenzene	ND	ug/kg	25000
Pentachlorophenol	ND	ug/kg	25000
Phenacetin	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Phenol	ND	ug/kg	5000
2-Picoline	ND	ug/kg	5000
Pronamide	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	5000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	25000
1,2,4-Trichlorobenzene	ND	ug/kg	5000
2,4,5-Trichlorophenol	ND	ug/kg	25000
2,4,6-Trichlorophenol	ND	ug/kg	5000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	5000
1-Chloronaphthalene	ND	ug/kg	10000
1,2-Diphenylhydrazine	ND	ug/kg	5000
Nitrobenzene-d5	91	%	--
2-Fluorobiphenyl	97	%	--
Terphenyl-d14	107	%	--
Phenol-d5	89	%	--
2-Fluorophenol	90	%	--
2,4,6-Tribromophenol	68	%	--

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI1003V12.5
Lab ID: 010190-0004-SA
Enseco ID: 1081316
Matrix: SOIL
Sampled: 28 JUN 90
Received: 29 JUN 90
Authorized: 29 JUN 90
Prepared: 08 JUL 90
Analyzed: 16 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	5000
Acenaphthylene	ND	ug/kg	5000
Acetophenone	ND	ug/kg	5000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	5000
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(g,h,i)perylene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
Benzyl alcohol	ND	ug/kg	5000
bis(2-Chloroethoxy)-methane	ND	ug/kg	5000
bis(2-Chloroethyl) ether	ND	ug/kg	5000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
4-Bromophenyl phenyl ether	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
4-Chloroaniline	ND	ug/kg	5000
4-Chloro-3-methylphenol	ND	ug/kg	5000
2-Chloronaphthalene	ND	ug/kg	5000
2-Chlorophenol	ND	ug/kg	5000
4-Chlorophenyl phenyl ether	ND	ug/kg	5000
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
3,3'-Dichlorobenzidine	ND	ug/kg	10000
2,4-Dichlorophenol	ND	ug/kg	5000
2,6-Dichlorophenol	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
p-Dimethylaminoazobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis
Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI1003V12.5
Lab ID: 010190-0004-SA Enseco ID: 1081316
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 08 JUL 90 Analyzed: 16 JUL 90

Parameter	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
a,a-Dimethylphenethylamine	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
1,3-Dinitrobenzene	ND	ug/kg	5000
4,6-Dinitro-o-cresol	ND	ug/kg	25000
2,4-Dinitrophenol	ND	ug/kg	25000
2,4-Dinitrotoluene	ND	ug/kg	5000
2,6-Dinitrotoluene	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Diphenylamine	ND	ug/kg	5000
Ethyl methanesulfonate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Fluorene	ND	ug/kg	5000
Hexachlorobenzene	ND	ug/kg	5000
Hexachlorobutadiene	ND	ug/kg	5000
Hexachlorocyclopentadiene	ND	ug/kg	5000
Hexachloroethane	ND	ug/kg	5000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	5000
Isophorone	ND	ug/kg	5000
3-Methylcholanthrene	ND	ug/kg	5000
Methyl methanesulfonate	ND	ug/kg	5000
2-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
1-Naphthylamine	ND	ug/kg	5000
2-Naphthylamine	ND	ug/kg	5000
2-Nitroaniline	ND	ug/kg	25000
3-Nitroaniline	ND	ug/kg	25000
4-Nitroaniline	ND	ug/kg	25000
Nitrobenzene	ND	ug/kg	5000
2-Nitrophenol	ND	ug/kg	5000
4-Nitrophenol	ND	ug/kg	25000
N-Nitroso-di-n-butylamine	ND	ug/kg	5000
N-Nitrosodimethylamine	ND	ug/kg	5000
N-Nitrosodiphenylamine	ND	ug/kg	5000
N-Nitroso-di-n-propylamine	ND	ug/kg	5000
N-Nitrosopiperidine	ND	ug/kg	5000
Pentachlorobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI1003V12.5
Lab ID: 010190-0004-SA
Matrix: SOIL
Authorized: 29 JUN 90

Enseco ID: 1081316
Sampled: 28 JUN 90
Prepared: 08 JUL 90

Received: 29 JUN 90
Analyzed: 16 JUL 90

Parameter	Result	Units	Reporting Limit
Pentachloronitrobenzene	ND	ug/kg	25000
Pentachlorophenol	ND	ug/kg	25000
Phenacetin	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Phenol	ND	ug/kg	5000
2-Picoline	ND	ug/kg	5000
Pronamide	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	5000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	25000
1,2,4-Trichlorobenzene	ND	ug/kg	5000
2,4,5-Trichlorophenol	ND	ug/kg	25000
2,4,6-Trichlorophenol	ND	ug/kg	5000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	5000
1-Chloronaphthalene	ND	ug/kg	10000
1,2-Diphenylhydrazine	ND	ug/kg	5000
Nitrobenzene-d5	92	%	--
2-Fluorobiphenyl	97	%	--
Terphenyl-d14	110	%	--
Phenol-d5	89	%	--
2-Fluorophenol	92	%	--
2,4,6-Tribromophenol	65	%	--

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis

Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI1003V9.0
Lab ID: 010190-0005-SA Enseco ID: 1081317
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 08 JUL 90 Analyzed: 16 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	5000
Acenaphthylene	ND	ug/kg	5000
Acetophenone	ND	ug/kg	5000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	5000
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(g,h,i)perylene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
Benzyl alcohol	ND	ug/kg	5000
bis(2-Chloroethoxy)-methane	ND	ug/kg	5000
bis(2-Chloroethyl) ether	ND	ug/kg	5000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
4-Bromophenyl phenyl ether	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
4-Chloroaniline	ND	ug/kg	5000
4-Chloro-3-methylphenol	ND	ug/kg	5000
2-Chloronaphthalene	ND	ug/kg	5000
2-Chlorophenol	ND	ug/kg	5000
4-Chlorophenyl phenyl ether	ND	ug/kg	5000
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
3,3'-Dichlorobenzidine	ND	ug/kg	10000
2,4-Dichlorophenol	ND	ug/kg	5000
2,6-Dichlorophenol	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
p-Dimethylaminoazobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI1003V9.0
Lab ID: 010190-0005-SA
Matrix: SOIL
Authorized: 29 JUN 90

Enseco ID: 1081317
Sampled: 28 JUN 90
Prepared: 08 JUL 90

Received: 29 JUN 90
Analyzed: 16 JUL 90

Parameter	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
a,a-Dimethylphenethylamine	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
1,3-Dinitrobenzene	ND	ug/kg	5000
4,6-Dinitro-o-cresol	ND	ug/kg	25000
2,4-Dinitrophenol	ND	ug/kg	25000
2,4-Dinitrotoluene	ND	ug/kg	5000
2,6-Dinitrotoluene	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Diphenylamine	ND	ug/kg	5000
Ethyl methanesulfonate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Fluorene	ND	ug/kg	5000
Hexachlorobenzene	ND	ug/kg	5000
Hexachlorobutadiene	ND	ug/kg	5000
Hexachlorocyclopentadiene	ND	ug/kg	5000
Hexachloroethane	ND	ug/kg	5000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	5000
Isophorone	ND	ug/kg	5000
3-Methylcholanthrene	ND	ug/kg	5000
Methyl methanesulfonate	ND	ug/kg	5000
2-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
1-Naphthylamine	ND	ug/kg	5000
2-Naphthylamine	ND	ug/kg	5000
2-Nitroaniline	ND	ug/kg	25000
3-Nitroaniline	ND	ug/kg	25000
4-Nitroaniline	ND	ug/kg	25000
Nitrobenzene	ND	ug/kg	5000
2-Nitrophenol	ND	ug/kg	5000
4-Nitrophenol	ND	ug/kg	25000
N-Nitroso-di-n-butylamine	ND	ug/kg	5000
N-Nitrosodimethylamine	ND	ug/kg	5000
N-Nitrosodiphenylamine	ND	ug/kg	5000
N-Nitroso-di-n-propylamine	ND	ug/kg	5000
N-Nitrosopiperidine	ND	ug/kg	5000
Pentachlorobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis

Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI1003V9.0
Lab ID: 010190-0005-SA
Matrix: SOIL
Authorized: 29 JUN 90

Enseco ID: 1081317
Sampled: 28 JUN 90
Prepared: 08 JUL 90

Received: 29 JUN 90
Analyzed: 16 JUL 90

Parameter	Result	Units	Reporting Limit
Pentachloronitrobenzene	ND	ug/kg	25000
Pentachlorophenol	ND	ug/kg	25000
Phenacetin	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Phenol	ND	ug/kg	5000
2-Picoline	ND	ug/kg	5000
Pronamide	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	5000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	25000
1,2,4-Trichlorobenzene	ND	ug/kg	5000
2,4,5-Trichlorophenol	ND	ug/kg	25000
2,4,6-Trichlorophenol	ND	ug/kg	5000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	5000
1-Chloronaphthalene	ND	ug/kg	10000
1,2-Diphenylhydrazine	ND	ug/kg	5000
Nitrobenzene-d5	84	%	--
2-Fluorobiphenyl	92	%	--
Terphenyl-d14	104	%	--
Phenol-d5	84	%	--
2-Fluorophenol	86	%	--
2,4,6-Tribromophenol	61	%	--

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis

Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI1003V6.0
Lab ID: 010190-0006-SA
Matrix: SOIL
Authorized: 29 JUN 90

Enseco ID: 1081318
Sampled: 28 JUN 90
Prepared: 08 JUL 90

Received: 29 JUN 90
Analyzed: 16 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	5000
Acenaphthylene	ND	ug/kg	5000
Acetophenone	ND	ug/kg	5000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	5000
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(g,h,i)perylene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
Benzyl alcohol	ND	ug/kg	5000
bis(2-Chloroethoxy)-methane	ND	ug/kg	5000
bis(2-Chloroethyl) ether	ND	ug/kg	5000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
4-Bromophenyl phenyl ether	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
4-Chloroaniline	ND	ug/kg	5000
4-Chloro-3-methylphenol	ND	ug/kg	5000
2-Chloronaphthalene	ND	ug/kg	5000
2-Chlorophenol	ND	ug/kg	5000
4-Chlorophenyl phenyl ether	ND	ug/kg	5000
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
3,3'-Dichlorobenzidine	ND	ug/kg	10000
2,4-Dichlorophenol	ND	ug/kg	5000
2,6-Dichlorophenol	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
p-Dimethylaminoazobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis

Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI1003V6.0
Lab ID: 010190-0006-SA
Matrix: SOIL
Authorized: 29 JUN 90

Enseco ID: 1081318
Sampled: 28 JUN 90
Prepared: 08 JUL 90

Received: 29 JUN 90
Analyzed: 16 JUL 90

Parameter	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
a,a-Dimethylphenethylamine	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
1,3-Dinitrobenzene	ND	ug/kg	5000
4,6-Dinitro-o-cresol	ND	ug/kg	25000
2,4-Dinitrophenol	ND	ug/kg	25000
2,4-Dinitrotoluene	ND	ug/kg	5000
2,6-Dinitrotoluene	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Diphenylamine	ND	ug/kg	5000
Ethyl methanesulfonate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Fluorene	ND	ug/kg	5000
Hexachlorobenzene	ND	ug/kg	5000
Hexachlorobutadiene	ND	ug/kg	5000
Hexachlorocyclopentadiene	ND	ug/kg	5000
Hexachloroethane	ND	ug/kg	5000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	5000
Isophorone	ND	ug/kg	5000
3-Methylcholanthrene	ND	ug/kg	5000
Methyl methanesulfonate	ND	ug/kg	5000
2-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
1-Naphthylamine	ND	ug/kg	5000
2-Naphthylamine	ND	ug/kg	5000
2-Nitroaniline	ND	ug/kg	25000
3-Nitroaniline	ND	ug/kg	25000
4-Nitroaniline	ND	ug/kg	25000
Nitrobenzene	ND	ug/kg	5000
2-Nitrophenol	ND	ug/kg	5000
4-Nitrophenol	ND	ug/kg	25000
N-Nitroso-di-n-butylamine	ND	ug/kg	5000
N-Nitrosodimethylamine	ND	ug/kg	5000
N-Nitrosodiphenylamine	ND	ug/kg	5000
N-Nitroso-di-n-propylamine	ND	ug/kg	5000
N-Nitrosopiperidine	ND	ug/kg	5000
Pentachlorobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis

Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI1003V6.0
Lab ID: 010190-0006-SA
Matrix: SOIL
Authorized: 29 JUN 90

Enseco ID: 1081318
Sampled: 28 JUN 90
Prepared: 08 JUL 90

Received: 29 JUN 90
Analyzed: 16 JUL 90

Parameter	Result	Units	Reporting Limit
Pentachloronitrobenzene	ND	ug/kg	25000
Pentachlorophenol	ND	ug/kg	25000
Phenacetin	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Phenol	ND	ug/kg	5000
2-Picoline	ND	ug/kg	5000
Pronamide	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	5000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	25000
1,2,4-Trichlorobenzene	ND	ug/kg	5000
2,4,5-Trichlorophenol	ND	ug/kg	25000
2,4,6-Trichlorophenol	ND	ug/kg	5000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	5000
1-Chloronaphthalene	ND	ug/kg	10000
1,2-Diphenylhydrazine	ND	ug/kg	5000
Nitrobenzene-d5	76	%	--
2-Fluorobiphenyl	83	%	--
Terphenyl-d14	95	%	--
Phenol-d5	78	%	--
2-Fluorophenol	78	%	--
2,4,6-Tribromophenol	62	%	--

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis

Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI1003V3.0
Lab ID: 010190-0007-SA
Matrix: SOIL
Authorized: 29 JUN 90

Enseco ID: 1081319
Sampled: 28 JUN 90
Prepared: 08 JUL 90

Received: 29 JUN 90
Analyzed: 16 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	5000
Acenaphthylene	ND	ug/kg	5000
Acetophenone	ND	ug/kg	5000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	5000
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(g,h,i)perylene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
Benzyl alcohol	ND	ug/kg	5000
bis(2-Chloroethoxy)-methane	ND	ug/kg	5000
bis(2-Chloroethyl) ether	ND	ug/kg	5000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
4-Bromophenyl phenyl ether	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
4-Chloroaniline	ND	ug/kg	5000
4-Chloro-3-methylphenol	ND	ug/kg	5000
2-Chloronaphthalene	ND	ug/kg	5000
2-Chlorophenol	ND	ug/kg	5000
4-Chlorophenyl phenyl ether	ND	ug/kg	5000
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
3,3'-Dichlorobenzidine	ND	ug/kg	10000
2,4-Dichlorophenol	ND	ug/kg	5000
2,6-Dichlorophenol	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
p-Dimethylaminoazobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis

Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI1003V3.0
Lab ID: 010190-0007-SA
Matrix: SOIL
Authorized: 29 JUN 90

Enseco ID: 1081319
Sampled: 28 JUN 90
Prepared: 08 JUL 90

Received: 29 JUN 90
Analyzed: 16 JUL 90

Parameter	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
a,a-Dimethylphenethylamine	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
1,3-Dinitrobenzene	ND	ug/kg	5000
4,6-Dinitro-o-cresol	ND	ug/kg	25000
2,4-Dinitrophenol	ND	ug/kg	25000
2,4-Dinitrotoluene	ND	ug/kg	5000
2,6-Dinitrotoluene	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Diphenylamine	ND	ug/kg	5000
Ethyl methanesulfonate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Fluorene	ND	ug/kg	5000
Hexachlorobenzene	ND	ug/kg	5000
Hexachlorobutadiene	ND	ug/kg	5000
Hexachlorocyclopentadiene	ND	ug/kg	5000
Hexachloroethane	ND	ug/kg	5000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	5000
Isophorone	ND	ug/kg	5000
3-Methylcholanthrene	ND	ug/kg	5000
Methyl methanesulfonate	ND	ug/kg	5000
2-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
1-Naphthylamine	ND	ug/kg	5000
2-Naphthylamine	ND	ug/kg	5000
2-Nitroaniline	ND	ug/kg	25000
3-Nitroaniline	ND	ug/kg	25000
4-Nitroaniline	ND	ug/kg	25000
Nitrobenzene	ND	ug/kg	5000
2-Nitrophenol	ND	ug/kg	5000
4-Nitrophenol	ND	ug/kg	25000
N-Nitroso-di-n-butylamine	ND	ug/kg	5000
N-Nitrosodimethylamine	ND	ug/kg	5000
N-Nitrosodiphenylamine	ND	ug/kg	5000
N-Nitroso-di-n-propylamine	ND	ug/kg	5000
N-Nitrosopiperidine	ND	ug/kg	5000
Pentachlorobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis

Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI1003V3.0
Lab ID: 010190-0007-SA
Matrix: SOIL
Authorized: 29 JUN 90

Enseco ID: 1081319
Sampled: 28 JUN 90
Prepared: 08 JUL 90

Received: 29 JUN 90
Analyzed: 16 JUL 90

Parameter	Result	Units	Reporting Limit
Pentachloronitrobenzene	ND	ug/kg	25000
Pentachlorophenol	ND	ug/kg	25000
Phenacetin	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Phenol	ND	ug/kg	5000
2-Picoline	ND	ug/kg	5000
Pronamide	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	5000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	25000
1,2,4-Trichlorobenzene	ND	ug/kg	5000
2,4,5-Trichlorophenol	ND	ug/kg	25000
2,4,6-Trichlorophenol	ND	ug/kg	5000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	5000
1-Chloronaphthalene	ND	ug/kg	10000
1,2-Diphenylhydrazine	ND	ug/kg	5000
Nitrobenzene-d5	76	%	--
2-Fluorobiphenyl	82	%	--
Terphenyl-d14	91	%	--
Phenol-d5	76	%	--
2-Fluorophenol	77	%	--
2,4,6-Tribromophenol	59	%	--

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis

Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI1003V0.0
Lab ID: 010190-0008-SA
Matrix: SOIL
Authorized: 29 JUN 90

Enseco ID: 1081320
Sampled: 28 JUN 90
Prepared: 08 JUL 90

Received: 29 JUN 90
Analyzed: 16 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	5000
Acenaphthylene	ND	ug/kg	5000
Acetophenone	ND	ug/kg	5000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	5000
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(g,h,i)perylene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
Benzyl alcohol	ND	ug/kg	5000
bis(2-Chloroethoxy)-methane	ND	ug/kg	5000
bis(2-Chloroethyl) ether	ND	ug/kg	5000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
4-Bromophenyl phenyl ether	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
4-Chloroaniline	ND	ug/kg	5000
4-Chloro-3-methylphenol	ND	ug/kg	5000
2-Chloronaphthalene	ND	ug/kg	5000
2-Chlorophenol	ND	ug/kg	5000
4-Chlorophenyl phenyl ether	ND	ug/kg	5000
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
3,3'-Dichlorobenzidine	ND	ug/kg	10000
2,4-Dichlorophenol	ND	ug/kg	5000
2,6-Dichlorophenol	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
p-Dimethylaminoazobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis

Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI1003V0.0
Lab ID: 010190-0008-SA Enseco ID: 1081320
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 08 JUL 90 Analyzed: 16 JUL 90

Parameter	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
a,a-Dimethylphenethylamine	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
1,3-Dinitrobenzene	ND	ug/kg	5000
4,6-Dinitro-o-cresol	ND	ug/kg	25000
2,4-Dinitrophenol	ND	ug/kg	25000
2,4-Dinitrotoluene	ND	ug/kg	5000
2,6-Dinitrotoluene	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Diphenylamine	ND	ug/kg	5000
Ethyl methanesulfonate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Fluorene	ND	ug/kg	5000
Hexachlorobenzene	ND	ug/kg	5000
Hexachlorobutadiene	ND	ug/kg	5000
Hexachlorocyclopentadiene	ND	ug/kg	5000
Hexachloroethane	ND	ug/kg	5000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	5000
Isophorone	ND	ug/kg	5000
3-Methylcholanthrene	ND	ug/kg	5000
Methyl methanesulfonate	ND	ug/kg	5000
2-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
1-Naphthylamine	ND	ug/kg	5000
2-Naphthylamine	ND	ug/kg	5000
2-Nitroaniline	ND	ug/kg	25000
3-Nitroaniline	ND	ug/kg	25000
4-Nitroaniline	ND	ug/kg	25000
Nitrobenzene	ND	ug/kg	5000
2-Nitrophenol	ND	ug/kg	5000
4-Nitrophenol	ND	ug/kg	25000
N-Nitroso-di-n-butylamine	ND	ug/kg	5000
N-Nitrosodimethylamine	ND	ug/kg	5000
N-Nitrosodiphenylamine	ND	ug/kg	5000
N-Nitroso-di-n-propylamine	ND	ug/kg	5000
N-Nitrosopiperidine	ND	ug/kg	5000
Pentachlorobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI1003V0.0
Lab ID: 010190-0008-SA
Matrix: SOIL
Authorized: 29 JUN 90

Enseco ID: 1081320
Sampled: 28 JUN 90
Prepared: 08 JUL 90

Received: 29 JUN 90
Analyzed: 16 JUL 90

Parameter	Result	Units	Reporting Limit
Pentachloronitrobenzene	ND	ug/kg	25000
Pentachlorophenol	ND	ug/kg	25000
Phenacetin	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Phenol	ND	ug/kg	5000
2-Picoline	ND	ug/kg	5000
Pronamide	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	5000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	25000
1,2,4-Trichlorobenzene	ND	ug/kg	5000
2,4,5-Trichlorophenol	ND	ug/kg	25000
2,4,6-Trichlorophenol	ND	ug/kg	5000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	5000
1-Chloronaphthalene	ND	ug/kg	10000
1,2-Diphenylhydrazine	ND	ug/kg	5000
Nitrobenzene-d5	82	%	--
2-Fluorobiphenyl	89	%	--
Terphenyl-d14	103	%	--
Phenol-d5	82	%	--
2-Fluorophenol	85	%	--
2,4,6-Tribromophenol	69	%	--

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis

Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI1004V0.0
Lab ID: 010190-0009-SA Enseco ID: 1081321
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 08 JUL 90 Analyzed: 16 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	5000
Acenaphthylene	ND	ug/kg	5000
Acetophenone	ND	ug/kg	5000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	5000
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(g,h,i)perylene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
Benzyl alcohol	ND	ug/kg	5000
bis(2-Chloroethoxy)-methane	ND	ug/kg	5000
bis(2-Chloroethyl) ether	ND	ug/kg	5000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
4-Bromophenyl phenyl ether	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
4-Chloroaniline	ND	ug/kg	5000
4-Chloro-3-methylphenol	ND	ug/kg	5000
2-Chloronaphthalene	ND	ug/kg	5000
2-Chlorophenol	ND	ug/kg	5000
4-Chlorophenyl phenyl ether	ND	ug/kg	5000
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
3,3'-Dichlorobenzidine	ND	ug/kg	10000
2,4-Dichlorophenol	ND	ug/kg	5000
2,6-Dichlorophenol	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
p-Dimethylaminoazobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI1004V0.0
Lab ID: 010190-0009-SA Enseco ID: 1081321
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 08 JUL 90 Analyzed: 16 JUL 90

Parameter	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
a,a-Dimethylphenethylamine	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
1,3-Dinitrobenzene	ND	ug/kg	5000
4,6-Dinitro-o-cresol	ND	ug/kg	25000
2,4-Dinitrophenol	ND	ug/kg	25000
2,4-Dinitrotoluene	ND	ug/kg	5000
2,6-Dinitrotoluene	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Diphenylamine	ND	ug/kg	5000
Ethyl methanesulfonate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Fluorene	ND	ug/kg	5000
Hexachlorobenzene	ND	ug/kg	5000
Hexachlorobutadiene	ND	ug/kg	5000
Hexachlorocyclopentadiene	ND	ug/kg	5000
Hexachloroethane	ND	ug/kg	5000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	5000
Isophorone	ND	ug/kg	5000
3-Methylcholanthrene	ND	ug/kg	5000
Methyl methanesulfonate	ND	ug/kg	5000
2-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
1-Naphthylamine	ND	ug/kg	5000
2-Naphthylamine	ND	ug/kg	5000
2-Nitroaniline	ND	ug/kg	25000
3-Nitroaniline	ND	ug/kg	25000
4-Nitroaniline	ND	ug/kg	25000
Nitrobenzene	ND	ug/kg	5000
2-Nitrophenol	ND	ug/kg	5000
4-Nitrophenol	ND	ug/kg	25000
N-Nitroso-di-n-butylamine	ND	ug/kg	5000
N-Nitrosodimethylamine	ND	ug/kg	5000
N-Nitrosodiphenylamine	ND	ug/kg	5000
N-Nitroso-di-n-propylamine	ND	ug/kg	5000
N-Nitrosopiperidine	ND	ug/kg	5000
Pentachlorobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI1004V0.0
Lab ID: 010190-0009-SA
Enseco ID: 1081321
Matrix: SOIL
Sampled: 28 JUN 90
Received: 29 JUN 90
Authorized: 29 JUN 90
Prepared: 08 JUL 90
Analyzed: 16 JUL 90

Parameter	Result	Units	Reporting Limit
Pentachloronitrobenzene	ND	ug/kg	25000
Pentachlorophenol	ND	ug/kg	25000
Phenacetin	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Phenol	ND	ug/kg	5000
2-Picoline	ND	ug/kg	5000
Pronamide	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	5000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	25000
1,2,4-Trichlorobenzene	ND	ug/kg	5000
2,4,5-Trichlorophenol	ND	ug/kg	25000
2,4,6-Trichlorophenol	ND	ug/kg	5000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	5000
1-Chloronaphthalene	ND	ug/kg	10000
1,2-Diphenylhydrazine	ND	ug/kg	5000
Nitrobenzene-d5	73	%	--
2-Fluorobiphenyl	79	%	--
Terphenyl-d14	90	%	--
Phenol-d5	72	%	--
2-Fluorophenol	74	%	--
2,4,6-Tribromophenol	60	%	--

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis

Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI1004V3.0
Lab ID: 010190-0010-SA
Matrix: SOIL
Authorized: 29 JUN 90

Enseco ID: 1081322
Sampled: 28 JUN 90
Prepared: 08 JUL 90

Received: 29 JUN 90
Analyzed: 16 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	25000
Acenaphthylene	ND	ug/kg	25000
Acetophenone	ND	ug/kg	25000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	25000
Anthracene	ND	ug/kg	25000
Benzo(a)anthracene	ND	ug/kg	25000
Benzo(b)fluoranthene	ND	ug/kg	25000
Benzo(k)fluoranthene	ND	ug/kg	25000
Benzo(g,h,i)perylene	ND	ug/kg	25000
Benzo(a)pyrene	ND	ug/kg	25000
Benzyl alcohol	ND	ug/kg	25000
bis(2-Chloroethoxy)-methane	ND	ug/kg	25000
bis(2-Chloroethyl) ether	ND	ug/kg	25000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	25000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	25000
4-Bromophenyl phenyl ether	ND	ug/kg	25000
Butyl benzyl phthalate	ND	ug/kg	25000
4-Chloroaniline	ND	ug/kg	25000
4-Chloro-3-methylphenol	ND	ug/kg	25000
2-Chloronaphthalene	ND	ug/kg	25000
2-Chlorophenol	ND	ug/kg	25000
4-Chlorophenyl phenyl ether	ND	ug/kg	25000
o-Cresol	ND	ug/kg	25000
m & p-Cresol(s)	ND	ug/kg	25000
Chrysene	ND	ug/kg	25000
Dibenz(a,h)anthracene	ND	ug/kg	25000
Di-n-butyl phthalate	ND	ug/kg	25000
1,2-Dichlorobenzene	ND	ug/kg	25000
1,3-Dichlorobenzene	ND	ug/kg	25000
1,4-Dichlorobenzene	ND	ug/kg	25000
3,3'-Dichlorobenzidine	ND	ug/kg	50000
2,4-Dichlorophenol	ND	ug/kg	25000
2,6-Dichlorophenol	ND	ug/kg	25000
Diethyl phthalate	ND	ug/kg	25000
p-Dimethylaminoazobenzene	ND	ug/kg	25000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis

Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI1004V3.0
Lab ID: 010190-0010-SA Enseco ID: 1081322
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 08 JUL 90 Analyzed: 16 JUL 90

Parameter	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	25000
a,a-Dimethylphenethylamine	ND	ug/kg	25000
2,4-Dimethylphenol	ND	ug/kg	25000
Dimethyl phthalate	ND	ug/kg	25000
1,3-Dinitrobenzene	ND	ug/kg	25000
4,6-Dinitro-o-cresol	ND	ug/kg	120000
2,4-Dinitrophenol	ND	ug/kg	120000
2,4-Dinitrotoluene	ND	ug/kg	25000
2,6-Dinitrotoluene	ND	ug/kg	25000
Di-n-octyl phthalate	ND	ug/kg	25000
Diphenylamine	ND	ug/kg	25000
Ethyl methanesulfonate	ND	ug/kg	25000
Fluoranthene	ND	ug/kg	25000
Fluorene	ND	ug/kg	25000
Hexachlorobenzene	ND	ug/kg	25000
Hexachlorobutadiene	ND	ug/kg	25000
Hexachlorocyclopentadiene	ND	ug/kg	25000
Hexachloroethane	ND	ug/kg	25000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	25000
Isophorone	ND	ug/kg	25000
3-Methylcholanthrene	ND	ug/kg	25000
Methyl methanesulfonate	ND	ug/kg	25000
2-Methylnaphthalene	ND	ug/kg	25000
Naphthalene	ND	ug/kg	25000
1-Naphthylamine	ND	ug/kg	25000
2-Naphthylamine	ND	ug/kg	25000
2-Nitroaniline	ND	ug/kg	120000
3-Nitroaniline	ND	ug/kg	120000
4-Nitroaniline	ND	ug/kg	120000
Nitrobenzene	ND	ug/kg	25000
2-Nitrophenol	ND	ug/kg	25000
4-Nitrophenol	ND	ug/kg	120000
N-Nitroso-di-n-butylamine	ND	ug/kg	25000
N-Nitrosodimethylamine	ND	ug/kg	25000
N-Nitrosodiphenylamine	ND	ug/kg	25000
N-Nitroso-di-n-propylamine	ND	ug/kg	25000
N-Nitrosopiperidine	ND	ug/kg	25000
Pentachlorobenzene	ND	ug/kg	25000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI1004V3.0
Lab ID: 010190-0010-SA Enseco ID: 1081322
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 08 JUL 90 Analyzed: 16 JUL 90

Parameter	Result	Units	Reporting Limit
Pentachloronitrobenzene	ND	ug/kg	120000
Pentachlorophenol	ND	ug/kg	120000
Phenacetin	ND	ug/kg	25000
Phenanthrene	ND	ug/kg	25000
Phenol	ND	ug/kg	25000
2-Picoline	ND	ug/kg	25000
Pronamide	ND	ug/kg	25000
Pyrene	ND	ug/kg	25000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	25000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	120000
1,2,4-Trichlorobenzene	ND	ug/kg	25000
2,4,5-Trichlorophenol	ND	ug/kg	120000
2,4,6-Trichlorophenol	ND	ug/kg	25000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	25000
1-Chloronaphthalene	ND	ug/kg	48000
1,2-Diphenylhydrazine	ND	ug/kg	25000
Nitrobenzene-d5	68	%	--
2-Fluorobiphenyl	84	%	--
Terphenyl-d14	84	%	--
Phenol-d5	65	%	--
2-Fluorophenol	70	%	--
2,4,6-Tribromophenol	66	%	--

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis Approved By: Jeff Lowry

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Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI1001V0.0
Lab ID: 010190-0001-SA
Matrix: SOIL
Authorized: 29 JUN 90

Enseco ID: 1081313
Sampled: 28 JUN 90
Prepared: See Below

Received: 29 JUN 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	12 JUL 90	16 JUL 90
Arsenic	0.97	mg/kg	0.50	7060	12 JUL 90	17 JUL 90
Barium	372	mg/kg	1.0	6010	12 JUL 90	16 JUL 90
Beryllium	0.70	mg/kg	0.20	6010	12 JUL 90	16 JUL 90
Cadmium	ND	mg/kg	0.50	6010	12 JUL 90	16 JUL 90
Chromium	60.1	mg/kg	1.0	6010	12 JUL 90	16 JUL 90
Cobalt	2.0	mg/kg	1.0	6010	12 JUL 90	16 JUL 90
Copper	10.3	mg/kg	2.0	6010	12 JUL 90	16 JUL 90
Lead	11.1	mg/kg	5.0	6010	12 JUL 90	16 JUL 90
Mercury	ND	mg/kg	0.10	7471	12 JUL 90	13 JUL 90
Nickel	7.0	mg/kg	4.0	6010	12 JUL 90	16 JUL 90
Potassium	972	mg/kg	500	6010	12 JUL 90	16 JUL 90
Selenium	ND	mg/kg	1.0	7740	12 JUL 90	17 JUL 90
Vanadium	16.3	mg/kg	1.0	6010	12 JUL 90	16 JUL 90
Zinc	81.3	mg/kg	2.0	6010	12 JUL 90	16 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Roxanne Sullivan

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Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI1001V3.0
Lab ID: 010190-0002-SA
Matrix: SOIL
Authorized: 29 JUN 90

Enseco ID: 1081314
Sampled: 28 JUN 90
Prepared: See Below

Received: 29 JUN 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	12 JUL 90	16 JUL 90
Arsenic	ND	mg/kg	1.0	7060	12 JUL 90	17 JUL 90
Barium	107	mg/kg	1.0	6010	12 JUL 90	16 JUL 90
Beryllium	1.0	mg/kg	0.20	6010	12 JUL 90	16 JUL 90
Cadmium	0.70	mg/kg	0.50	6010	12 JUL 90	16 JUL 90
Chromium	6.1	mg/kg	1.0	6010	12 JUL 90	16 JUL 90
Cobalt	3.6	mg/kg	1.0	6010	12 JUL 90	16 JUL 90
Copper	5.9	mg/kg	2.0	6010	12 JUL 90	16 JUL 90
Lead	5.5	mg/kg	5.0	6010	12 JUL 90	16 JUL 90
Mercury	ND	mg/kg	0.10	7471	12 JUL 90	13 JUL 90
Nickel	6.7	mg/kg	4.0	6010	12 JUL 90	16 JUL 90
Potassium	1310	mg/kg	500	6010	12 JUL 90	16 JUL 90
Selenium	ND	mg/kg	1.0	7740	12 JUL 90	17 JUL 90
Vanadium	14.0	mg/kg	1.0	6010	12 JUL 90	16 JUL 90
Zinc	14.7	mg/kg	2.0	6010	12 JUL 90	16 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Roxanne Sullivan

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Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI1001D3.0
Lab ID: 010190-0003-SA
Matrix: SOIL
Authorized: 29 JUN 90

Enseco ID: 1081315
Sampled: 28 JUN 90
Prepared: See Below

Received: 29 JUN 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	12 JUL 90	16 JUL 90
Arsenic	ND	mg/kg	0.50	7060	12 JUL 90	17 JUL 90
Barium	105	mg/kg	1.0	6010	12 JUL 90	16 JUL 90
Beryllium	1.1	mg/kg	0.20	6010	12 JUL 90	16 JUL 90
Cadmium	ND	mg/kg	0.50	6010	12 JUL 90	16 JUL 90
Chromium	7.8	mg/kg	1.0	6010	12 JUL 90	16 JUL 90
Cobalt	4.6	mg/kg	1.0	6010	12 JUL 90	16 JUL 90
Copper	7.4	mg/kg	2.0	6010	12 JUL 90	16 JUL 90
Lead	6.3	mg/kg	5.0	6010	12 JUL 90	16 JUL 90
Mercury	ND	mg/kg	0.10	7471	12 JUL 90	13 JUL 90
Nickel	9.1	mg/kg	4.0	6010	12 JUL 90	16 JUL 90
Potassium	1660	mg/kg	500	6010	12 JUL 90	16 JUL 90
Selenium	ND	mg/kg	1.0	7740	12 JUL 90	17 JUL 90
Vanadium	16.3	mg/kg	1.0	6010	12 JUL 90	16 JUL 90
Zinc	17.7	mg/kg	2.0	6010	12 JUL 90	16 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Roxanne Sullivan

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Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI1003V12.5
Lab ID: 010190-0004-SA
Matrix: SOIL
Authorized: 29 JUN 90

Enseco ID: 1081316
Sampled: 28 JUN 90
Prepared: See Below

Received: 29 JUN 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	12 JUL 90	16 JUL 90
Arsenic	ND	mg/kg	1.0	7060	12 JUL 90	17 JUL 90
Barium	392	mg/kg	1.0	6010	12 JUL 90	16 JUL 90
Beryllium	1.1	mg/kg	0.20	6010	12 JUL 90	16 JUL 90
Cadmium	0.73	mg/kg	0.50	6010	12 JUL 90	16 JUL 90
Chromium	7.5	mg/kg	1.0	6010	12 JUL 90	16 JUL 90
Cobalt	3.2	mg/kg	1.0	6010	12 JUL 90	16 JUL 90
Copper	7.0	mg/kg	2.0	6010	12 JUL 90	16 JUL 90
Lead	7.8	mg/kg	5.0	6010	12 JUL 90	16 JUL 90
Mercury	ND	mg/kg	0.10	7471	12 JUL 90	13 JUL 90
Nickel	8.5	mg/kg	4.0	6010	12 JUL 90	16 JUL 90
Potassium	1410	mg/kg	500	6010	12 JUL 90	16 JUL 90
Selenium	ND	mg/kg	0.50	7740	12 JUL 90	17 JUL 90
Vanadium	17.5	mg/kg	1.0	6010	12 JUL 90	16 JUL 90
Zinc	16.1	mg/kg	2.0	6010	12 JUL 90	16 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Roxanne Sullivan

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Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI1003V9.0
Lab ID: 010190-0005-SA
Matrix: SOIL
Authorized: 29 JUN 90

Enseco ID: 1081317
Sampled: 28 JUN 90
Prepared: See Below

Received: 29 JUN 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	12 JUL 90	16 JUL 90
Arsenic	0.52	mg/kg	0.50	7060	12 JUL 90	17 JUL 90
Barium	152	mg/kg	1.0	6010	12 JUL 90	16 JUL 90
Beryllium	1.0	mg/kg	0.20	6010	12 JUL 90	16 JUL 90
Cadmium	ND	mg/kg	0.50	6010	12 JUL 90	16 JUL 90
Chromium	5.9	mg/kg	1.0	6010	12 JUL 90	16 JUL 90
Cobalt	3.4	mg/kg	1.0	6010	12 JUL 90	16 JUL 90
Copper	5.6	mg/kg	2.0	6010	12 JUL 90	16 JUL 90
Lead	8.1	mg/kg	5.0	6010	12 JUL 90	16 JUL 90
Mercury	ND	mg/kg	0.10	7471	12 JUL 90	13 JUL 90
Nickel	6.8	mg/kg	4.0	6010	12 JUL 90	16 JUL 90
Potassium	1340	mg/kg	500	6010	12 JUL 90	16 JUL 90
Selenium	ND	mg/kg	0.50	7740	12 JUL 90	17 JUL 90
Vanadium	14.3	mg/kg	1.0	6010	12 JUL 90	16 JUL 90
Zinc	13.9	mg/kg	2.0	6010	12 JUL 90	16 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Roxanne Sullivan

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Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI1003V6.0
Lab ID: 010190-0006-SA
Enseco ID: 1081318
Matrix: SOIL
Sampled: 28 JUN 90
Received: 29 JUN 90
Authorized: 29 JUN 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	12 JUL 90	16 JUL 90
Arsenic	0.58	mg/kg	0.50	7060	12 JUL 90	17 JUL 90
Barium	178	mg/kg	1.0	6010	12 JUL 90	16 JUL 90
Beryllium	1.0	mg/kg	0.20	6010	12 JUL 90	16 JUL 90
Cadmium	ND	mg/kg	0.50	6010	12 JUL 90	16 JUL 90
Chromium	6.5	mg/kg	1.0	6010	12 JUL 90	16 JUL 90
Cobalt	2.8	mg/kg	1.0	6010	12 JUL 90	16 JUL 90
Copper	6.1	mg/kg	2.0	6010	12 JUL 90	16 JUL 90
Lead	6.5	mg/kg	5.0	6010	12 JUL 90	16 JUL 90
Mercury	ND	mg/kg	0.10	7471	12 JUL 90	13 JUL 90
Nickel	6.5	mg/kg	4.0	6010	12 JUL 90	16 JUL 90
Potassium	1070	mg/kg	500	6010	12 JUL 90	16 JUL 90
Selenium	ND	mg/kg	0.50	7740	12 JUL 90	17 JUL 90
Vanadium	12.9	mg/kg	1.0	6010	12 JUL 90	16 JUL 90
Zinc	13.0	mg/kg	2.0	6010	12 JUL 90	16 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones
Approved By: Roxanne Sullivan

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Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI1003V3.0
Lab ID: 010190-0007-SA
Enseco ID: 1081319
Matrix: SOIL
Sampled: 28 JUN 90
Received: 29 JUN 90
Authorized: 29 JUN 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	12 JUL 90	16 JUL 90
Arsenic	0.90	mg/kg	0.50	7060	12 JUL 90	17 JUL 90
Barium	292	mg/kg	1.0	6010	12 JUL 90	16 JUL 90
Beryllium	0.65	mg/kg	0.20	6010	12 JUL 90	16 JUL 90
Cadmium	ND	mg/kg	0.50	6010	12 JUL 90	16 JUL 90
Chromium	6.1	mg/kg	1.0	6010	12 JUL 90	16 JUL 90
Cobalt	2.0	mg/kg	1.0	6010	12 JUL 90	16 JUL 90
Copper	4.3	mg/kg	2.0	6010	12 JUL 90	16 JUL 90
Lead	5.5	mg/kg	5.0	6010	12 JUL 90	16 JUL 90
Mercury	ND	mg/kg	0.10	7471	12 JUL 90	13 JUL 90
Nickel	5.4	mg/kg	4.0	6010	12 JUL 90	16 JUL 90
Potassium	856	mg/kg	500	6010	12 JUL 90	16 JUL 90
Selenium	ND	mg/kg	0.50	7740	12 JUL 90	17 JUL 90
Vanadium	15.2	mg/kg	1.0	6010	12 JUL 90	16 JUL 90
Zinc	12.9	mg/kg	2.0	6010	12 JUL 90	16 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones
Approved By: Roxanne Sullivan

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Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI1003V0.0
Lab ID: 010190-0008-SA
Matrix: SOIL
Authorized: 29 JUN 90

Enseco ID: 1081320
Sampled: 28 JUN 90
Prepared: See Below

Received: 29 JUN 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	12 JUL 90	16 JUL 90
Arsenic	0.65	mg/kg	0.50	7060	12 JUL 90	17 JUL 90
Barium	317	mg/kg	1.0	6010	12 JUL 90	16 JUL 90
Beryllium	0.96	mg/kg	0.20	6010	12 JUL 90	16 JUL 90
Cadmium	ND	mg/kg	0.50	6010	12 JUL 90	16 JUL 90
Chromium	9.5	mg/kg	1.0	6010	12 JUL 90	16 JUL 90
Cobalt	2.6	mg/kg	1.0	6010	12 JUL 90	16 JUL 90
Copper	7.4	mg/kg	2.0	6010	12 JUL 90	16 JUL 90
Lead	8.4	mg/kg	5.0	6010	12 JUL 90	16 JUL 90
Mercury	ND	mg/kg	0.10	7471	12 JUL 90	13 JUL 90
Nickel	6.5	mg/kg	4.0	6010	12 JUL 90	16 JUL 90
Potassium	1020	mg/kg	500	6010	12 JUL 90	16 JUL 90
Selenium	ND	mg/kg	1.0	7740	12 JUL 90	17 JUL 90
Vanadium	15.7	mg/kg	1.0	6010	12 JUL 90	16 JUL 90
Zinc	16.4	mg/kg	2.0	6010	12 JUL 90	16 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Roxanne Sullivan

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Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI1004V0.0
Lab ID: 010190-0009-SA
Enseco ID: 1081321
Matrix: SOIL
Sampled: 28 JUN 90
Received: 29 JUN 90
Authorized: 29 JUN 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	12 JUL 90	16 JUL 90
Arsenic	0.60	mg/kg	0.50	7060	12 JUL 90	17 JUL 90
Barium	280	mg/kg	1.0	6010	12 JUL 90	16 JUL 90
Beryllium	0.93	mg/kg	0.20	6010	12 JUL 90	16 JUL 90
Cadmium	ND	mg/kg	0.50	6010	12 JUL 90	16 JUL 90
Chromium	5.6	mg/kg	1.0	6010	12 JUL 90	16 JUL 90
Cobalt	2.8	mg/kg	1.0	6010	12 JUL 90	16 JUL 90
Copper	5.7	mg/kg	2.0	6010	12 JUL 90	16 JUL 90
Lead	8.2	mg/kg	5.0	6010	12 JUL 90	16 JUL 90
Mercury	ND	mg/kg	0.10	7471	12 JUL 90	13 JUL 90
Nickel	6.1	mg/kg	4.0	6010	12 JUL 90	16 JUL 90
Potassium	853	mg/kg	500	6010	12 JUL 90	16 JUL 90
Selenium	ND	mg/kg	1.0	7740	12 JUL 90	17 JUL 90
Vanadium	15.5	mg/kg	1.0	6010	12 JUL 90	16 JUL 90
Zinc	14.0	mg/kg	2.0	6010	12 JUL 90	16 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones
Approved By: Roxanne Sullivan

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Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI1004V3.0
Lab ID: 010190-0010-SA
Matrix: SOIL
Authorized: 29 JUN 90

Enseco ID: 1081322
Sampled: 28 JUN 90
Prepared: See Below

Received: 29 JUN 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	12 JUL 90	16 JUL 90
Arsenic	0.64	mg/kg	0.50	7060	12 JUL 90	17 JUL 90
Barium	195	mg/kg	1.0	6010	12 JUL 90	16 JUL 90
Beryllium	0.79	mg/kg	0.20	6010	12 JUL 90	16 JUL 90
Cadmium	0.56	mg/kg	0.50	6010	12 JUL 90	16 JUL 90
Chromium	11.6	mg/kg	1.0	6010	12 JUL 90	16 JUL 90
Cobalt	2.2	mg/kg	1.0	6010	12 JUL 90	16 JUL 90
Copper	4.1	mg/kg	2.0	6010	12 JUL 90	16 JUL 90
Lead	7.0	mg/kg	5.0	6010	12 JUL 90	16 JUL 90
Mercury	ND	mg/kg	0.10	7471	12 JUL 90	13 JUL 90
Nickel	5.3	mg/kg	4.0	6010	12 JUL 90	16 JUL 90
Potassium	783	mg/kg	500	6010	12 JUL 90	16 JUL 90
Selenium	ND	mg/kg	1.0	7740	12 JUL 90	17 JUL 90
Vanadium	14.4	mg/kg	1.0	6010	12 JUL 90	16 JUL 90
Zinc	15.2	mg/kg	2.0	6010	12 JUL 90	16 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Roxanne Sullivan

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)
010190-0001-SA	SOIL	8240-S	05 JUL 90-H	09 JUL 90-H2
010190-0002-SA	SOIL	8240-S	05 JUL 90-H	09 JUL 90-H2
010190-0003-SA	SOIL	8240-S	05 JUL 90-H	09 JUL 90-H2
010190-0004-SA	SOIL	8240-S	05 JUL 90-H	09 JUL 90-H2
010190-0005-SA	SOIL	8240-S	05 JUL 90-H	09 JUL 90-H2
010190-0006-SA	SOIL	8240-S	05 JUL 90-H	10 JUL 90-H
010190-0007-SA	SOIL	8240-S	05 JUL 90-H	10 JUL 90-H
010190-0008-SA	SOIL	8240-S	05 JUL 90-H	10 JUL 90-H
010190-0009-SA	SOIL	8240-S	10 JUL 90-H	10 JUL 90-H
010190-0010-SA	SOIL	8240-S	10 JUL 90-H	10 JUL 90-H

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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 Average(%) Limits	Precision (RPD) DCS	Precision (RPD) Limit
Category: 8240-S Matrix: SOIL QC Lot: 05 JUL 90-H Concentration Units: ug/kg								
1,1-Dichloroethene	5000	5220	5570	5400	108	59-172	6.5	22
Trichloroethene	5000	5420	5530	5480	110	62-137	2.0	24
Benzene	5000	5300	5430	5360	107	66-142	2.4	21
Toluene	5000	5240	5260	5250	105	59-139	0.4	21
Chlorobenzene	5000	5580	5610	5600	112	60-133	0.5	21
Category: 8240-S Matrix: SOIL QC Lot: 10 JUL 90-H Concentration Units: ug/kg								
1,1-Dichloroethene	5000	4940	5230	5080	102	59-172	5.7	22
Trichloroethene	5000	5100	5290	5200	104	62-137	3.7	24
Benzene	5000	5250	5340	5300	106	66-142	1.7	21
Toluene	5000	5030	5430	5230	105	59-139	7.6	21
Chlorobenzene	5000	5050	5320	5180	104	60-133	5.2	21

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

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SINGLE CONTROL SAMPLE REPORT
Volatile Organics by GC/MS

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) SCS	Accuracy(%) Limits
Category: 8240-S Matrix: SOIL QC Lot: 05 JUL 90-H QC Run: 09 JUL 90-H2 Concentration Units: ug/kg				
1,2-Dichloroethane-d4	5000	5120	102	70-121
4-Bromofluorobenzene	5000	4890	98	74-121
Toluene-d8	5000	5000	100	81-117
Category: 8240-S Matrix: SOIL QC Lot: 05 JUL 90-H QC Run: 10 JUL 90-H Concentration Units: ug/kg				
1,2-Dichloroethane-d4	5000	4760	95	70-121
4-Bromofluorobenzene	5000	5020	100	74-121
Toluene-d8	5000	5050	101	81-117
Category: 8240-S Matrix: SOIL QC Lot: 10 JUL 90-H QC Run: 10 JUL 90-H Concentration Units: ug/kg				
1,2-Dighloroethane-d4	5000	4760	95	70-121
4-Bromofluorobenzene	5000	5020	100	74-121
Toluene-d8	5000	5050	101	81-117

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

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METHOD BLANK REPORT
Volatile Organics by GC/MS

Test: 8240-PP-S
Matrix: SOIL
QC Lot: 05 JUL 90-H QC Run: 09 JUL 90-H2

Analyte	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500
Acetone	ND	ug/kg	5000
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Carbon disulfide	ND	ug/kg	500
Dibromomethane	ND	ug/kg	500
trans-1,4-Dichloro-2-butene	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	ND	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	5000
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	1000

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

Analyte	Result	Units	Reporting Limit
Test: 8240-PP-S			
Matrix: SOIL			
QC Lot: 05 JUL 90-H QC Run: 09 JUL 90-H2			
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	500
2-Hexanone	ND	ug/kg	1000
Ethyl methacrylate	ND	ug/kg	5000
Test: 8240-PP-S			
Matrix: SOIL			
QC Lot: 05 JUL 90-H QC Run: 10 JUL 90-H			
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500

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

Analyte	Result	Units	Reporting Limit
Test: 8240-PP-S			
Matrix: SOIL			
QC Lot: 05 JUL 90-H QC Run: 10 JUL 90-H			
Acetone	ND	ug/kg	5000
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Carbon disulfide	ND	ug/kg	500
Dibromomethane	ND	ug/kg	500
trans-1,4-Dichloro-2-butene	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	ND	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	5000
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	500
2-Hexanone	ND	ug/kg	1000
Ethyl methacrylate	ND	ug/kg	5000
Test: 8240-PP-S			
Matrix: SOIL			
QC Lot: 10 JUL 90-H QC Run: 10 JUL 90-H			
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500

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

Test: 8240-PP-S
Matrix: SOIL
QC Lot: 10 JUL 90-H QC Run: 10 JUL 90-H

Analyte	Result	Units	Reporting Limit
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500
Acetone	ND	ug/kg	5000
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Carbon disulfide	ND	ug/kg	500
Dibromomethane	ND	ug/kg	500
trans-1,4-Dichloro-2-butene	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	ND	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone (MEK)	ND	ug/kg	5000
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	500
2-Hexanone	ND	ug/kg	1000
Ethyl methacrylate	ND	ug/kg	5000

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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)
010190-0001-SA	SOIL	8270-S	08 JUL 90-B	08 JUL 90-B
010190-0002-SA	SOIL	8270-S	08 JUL 90-B	08 JUL 90-B
010190-0003-SA	SOIL	8270-S	08 JUL 90-B	08 JUL 90-B
010190-0004-SA	SOIL	8270-S	08 JUL 90-B	08 JUL 90-B
010190-0005-SA	SOIL	8270-S	08 JUL 90-B	08 JUL 90-B
010190-0006-SA	SOIL	8270-S	08 JUL 90-B	08 JUL 90-B
010190-0007-SA	SOIL	8270-S	08 JUL 90-B	08 JUL 90-B
010190-0008-SA	SOIL	8270-S	08 JUL 90-B	08 JUL 90-B
010190-0009-SA	SOIL	8270-S	08 JUL 90-B	08 JUL 90-B
010190-0010-SA	SOIL	8270-S	08 JUL 90-B	08 JUL 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	Precision (RPD) DCS	Precision Limit
Category: 8270-S								
Matrix: SOIL								
QC Lot: 08 JUL 90-B								
Concentration Units: ug/kg								
Phenol	6670	5580	5740	5660	85	26- 90	2.8	35
2-Chlorophenol	6670	5560	5730	5640	85	25-102	3.0	50
1,4-Dichlorobenzene	3330	2190	2280	2240	67	28-104	4.0	27
N-Nitroso-di-n-propylamine	3330	2670	2760	2720	82	41-126	3.3	38
1,2,4-Trichlorobenzene	3330	2520	2620	2570	77	38-107	3.9	23
4-Chloro-3-methylphenol	6670	6280	6760	6520	98	26-103	7.4	33
Acenaphthene	3330	2550	2730	2640	79	31-137	6.8	19
4-Nitrophenol	6670	6740	7040	6890	103	11-114	4.4	50
2,4-Dinitrotoluene	3330	2980	3120	3050	92	28- 89	4.6	47
Pentachlorophenol	6670	6110	6200	6160	92	17-109	1.5	47
Pyrene	3330	2610	2860	2740	82	35-142	9.1	36

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/MS

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) SCS	Accuracy(%) Limits
Category: 8270-S				
Matrix: SOIL				
QC Lot: 08 JUL 90-B QC Run: 08 JUL 90-B				
Concentration Units: ug/kg				
Nitrobenzene-d5	1670	1320	79	23-120
2-Fluorobiphenyl	1670	1330	80	30-115
Terphenyl-d14	1670	1490	89	18-137
2-Fluorophenol	3330	2540	76	25-121
Phenol-d5	3330	2530	76	24-113
2,4,6-Tribromophenol	3330	2940	88	19-122

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

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METHOD BLANK REPORT
Semivolatile Organics by GC/MS

Test: 8270-AP9-S
Matrix: SOIL
QC Lot: 08 JUL 90-B QC Run: 08 JUL 90-B

Analyte	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	5000
Acenaphthylene	ND	ug/kg	5000
Acetophenone	ND	ug/kg	5000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	5000
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(g,h,i)perylene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
Benzyl alcohol	ND	ug/kg	5000
bis(2-Chloroethoxy)-methane	ND	ug/kg	5000
bis(2-Chloroethyl) ether	ND	ug/kg	5000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
4-Bromophenyl phenyl ether	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
4-Chloroaniline	ND	ug/kg	5000
4-Chloro-3-methylphenol	ND	ug/kg	5000
2-Chloronaphthalene	ND	ug/kg	5000
2-Chlorophenol	ND	ug/kg	5000
4-Chlorophenyl phenyl ether	ND	ug/kg	5000
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
3,3'-Dichlorobenzidine	ND	ug/kg	10000
2,4-Dichlorophenol	ND	ug/kg	5000
2,6-Dichlorophenol	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
p-Dimethylaminoazobenzene	ND	ug/kg	5000

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

Test: 8270-AP9-S
Matrix: SOIL
QC Lot: 08 JUL 90-B QC Run: 08 JUL 90-B

Analyte	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
a,a-Dimethylphenethylamine	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
1,3-Dinitrobenzene	ND	ug/kg	5000
4,6-Dinitro-o-cresol	ND	ug/kg	25000
2,4-Dinitrophenol	ND	ug/kg	25000
2,4-Dinitrotoluene	ND	ug/kg	5000
2,6-Dinitrotoluene	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Diphenylamine	ND	ug/kg	5000
Ethyl methanesulfonate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Fluorene	ND	ug/kg	5000
Hexachlorobenzene	ND	ug/kg	5000
Hexachlorobutadiene	ND	ug/kg	5000
Hexachlorocyclopentadiene	ND	ug/kg	5000
Hexachloroethane	ND	ug/kg	5000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	5000
Isophorone	ND	ug/kg	5000
3-Methylcholanthrene	ND	ug/kg	5000
Methyl methanesulfonate	ND	ug/kg	5000
2-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
1-Naphthylamine	ND	ug/kg	5000
2-Naphthylamine	ND	ug/kg	5000
2-Nitroaniline	ND	ug/kg	25000
3-Nitroaniline	ND	ug/kg	25000
4-Nitroaniline	ND	ug/kg	25000
Nitrobenzene	ND	ug/kg	5000
2-Nitrophenol	ND	ug/kg	5000
4-Nitrophenol	ND	ug/kg	25000
N-Nitroso-di-n-butylamine	ND	ug/kg	5000
N-Nitrosodimethylamine	ND	ug/kg	5000
N-Nitrosodiphenylamine	ND	ug/kg	5000
N-Nitroso-di-n-propylamine	ND	ug/kg	5000
N-Nitrosopiperidine	ND	ug/kg	5000
Pentachlorobenzene	ND	ug/kg	5000

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

Analyte	Result	Units	Reporting Limit
Test: 8270-AP9-S			
Matrix: SOIL			
QC Lot: 08 JUL 90-B QC Run: 08 JUL 90-B			
Pentachloronitrobenzene	ND	ug/kg	25000
Pentachlorophenol	ND	ug/kg	25000
Phenacetin	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Phenol	ND	ug/kg	5000
2-Picoline	ND	ug/kg	5000
Pronamide	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	5000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	25000
1,2,4-Trichlorobenzene	ND	ug/kg	5000
2,4,5-Trichlorophenol	ND	ug/kg	25000
2,4,6-Trichlorophenol	ND	ug/kg	5000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	5000
1-Chloronaphthalene	ND	ug/kg	--
1,2-Diphenylhydrazine	ND	ug/kg	5000

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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)
010190-0001-SA	SOIL	HG-CVAA-S	12 JUL 90-A	12 JUL 90-A
010190-0001-SA	SOIL	AS-FAA-S	12 JUL 90-A	12 JUL 90-A
010190-0001-SA	SOIL	SE-FAA-S	12 JUL 90-A	12 JUL 90-A
010190-0001-SA	SOIL	ICP-S	12 JUL 90-A	12 JUL 90-A
010190-0002-SA	SOIL	HG-CVAA-S	12 JUL 90-A	12 JUL 90-A
010190-0002-SA	SOIL	AS-FAA-S	12 JUL 90-A	12 JUL 90-A
010190-0002-SA	SOIL	SE-FAA-S	12 JUL 90-A	12 JUL 90-A
010190-0002-SA	SOIL	ICP-S	12 JUL 90-A	12 JUL 90-A
010190-0003-SA	SOIL	HG-CVAA-S	12 JUL 90-A	12 JUL 90-A
010190-0003-SA	SOIL	AS-FAA-S	12 JUL 90-A	12 JUL 90-A
010190-0003-SA	SOIL	SE-FAA-S	12 JUL 90-A	12 JUL 90-A
010190-0003-SA	SOIL	ICP-S	12 JUL 90-A	12 JUL 90-A
010190-0004-SA	SOIL	HG-CVAA-S	12 JUL 90-A	12 JUL 90-A
010190-0004-SA	SOIL	AS-FAA-S	12 JUL 90-A	12 JUL 90-A
010190-0004-SA	SOIL	SE-FAA-S	12 JUL 90-A	12 JUL 90-A
010190-0004-SA	SOIL	ICP-S	12 JUL 90-A	12 JUL 90-A
010190-0005-SA	SOIL	HG-CVAA-S	12 JUL 90-A	12 JUL 90-A
010190-0005-SA	SOIL	AS-FAA-S	12 JUL 90-A	12 JUL 90-A
010190-0005-SA	SOIL	SE-FAA-S	12 JUL 90-A	12 JUL 90-A
010190-0005-SA	SOIL	ICP-S	12 JUL 90-A	12 JUL 90-A
010190-0006-SA	SOIL	HG-CVAA-S	12 JUL 90-A	12 JUL 90-A
010190-0006-SA	SOIL	AS-FAA-S	12 JUL 90-A	12 JUL 90-A
010190-0006-SA	SOIL	SE-FAA-S	12 JUL 90-A	12 JUL 90-A
010190-0006-SA	SOIL	ICP-S	12 JUL 90-A	12 JUL 90-A
010190-0007-SA	SOIL	HG-CVAA-S	12 JUL 90-A	12 JUL 90-A
010190-0007-SA	SOIL	AS-FAA-S	12 JUL 90-A	12 JUL 90-A
010190-0007-SA	SOIL	SE-FAA-S	12 JUL 90-A	12 JUL 90-A
010190-0007-SA	SOIL	ICP-S	12 JUL 90-A	12 JUL 90-A
010190-0008-SA	SOIL	HG-CVAA-S	12 JUL 90-A	12 JUL 90-A
010190-0008-SA	SOIL	AS-FAA-S	12 JUL 90-A	12 JUL 90-A
010190-0008-SA	SOIL	SE-FAA-S	12 JUL 90-A	12 JUL 90-A
010190-0008-SA	SOIL	ICP-S	12 JUL 90-A	12 JUL 90-A
010190-0009-SA	SOIL	HG-CVAA-S	12 JUL 90-A	12 JUL 90-A
010190-0009-SA	SOIL	AS-FAA-S	12 JUL 90-A	12 JUL 90-A
010190-0009-SA	SOIL	SE-FAA-S	12 JUL 90-A	12 JUL 90-A
010190-0009-SA	SOIL	ICP-S	12 JUL 90-A	12 JUL 90-A
010190-0010-SA	SOIL	HG-CVAA-S	12 JUL 90-A	12 JUL 90-A
010190-0010-SA	SOIL	AS-FAA-S	12 JUL 90-A	12 JUL 90-A
010190-0010-SA	SOIL	SE-FAA-S	12 JUL 90-A	12 JUL 90-A
010190-0010-SA	SOIL	ICP-S	12 JUL 90-A	12 JUL 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	Precision (RPD) DCS	Precision (RPD) Limit
Category: HG-CVAA-S Matrix: SOIL QC Lot: 12 JUL 90-A Concentration Units: mg/kg								
Mercury	0.50	0.503	0.526	0.514	103	75-125	4.5	20
Category: AS-FAA-S Matrix: SOIL QC Lot: 12 JUL 90-A Concentration Units: mg/kg								
Arsenic	4.0	3.32	3.65	3.48	87	75-125	9.5	20
Category: SE-FAA-S Matrix: SOIL QC Lot: 12 JUL 90-A Concentration Units: mg/kg								
Selenium	1.0	0.830	0.820	0.825	83	75-125	1.2	20
Category: ICP-S Matrix: SOIL QC Lot: 12 JUL 90-A Concentration Units: mg/kg								
Aluminum	200	204	205	205	102	75-125	0.2	20
Antimony	50	47.5	47.0	47.2	94	75-125	1.0	20
Arsenic	50	44.3	42.7	43.5	87	75-125	3.5	20
Barium	200	183	182	182	91	75-125	0.8	20
Beryllium	5.0	4.91	5.02	4.96	99	75-125	2.4	20
Cadmium	5.0	4.22	4.13	4.18	84	75-125	2.2	20
Calcium	10000	8960	9040	9000	90	75-125	0.9	20
Chromium	20	20.0	19.7	19.8	99	75-125	1.4	20
Cobalt	50	41.1	41.4	41.2	82	75-125	0.7	20
Copper	25	21.9	22.6	22.3	89	75-125	3.0	20
Iron	100	98.8	98.0	98.4	98	75-125	0.9	20
Lead	50	40.5	41.3	40.9	82	75-125	1.9	20
Magnesium	5000	4620	4650	4630	93	75-125	0.8	20
Manganese	50	42.0	42.3	42.1	84	75-125	0.7	20
Nickel	50	41.2	41.2	41.2	82	75-125	0.0	20
Potassium	5000	4560	4640	4600	92	75-125	1.8	20

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

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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	Precision (RPD) DCS	Precision Limit
Category: ICP-S								
Matrix: SOIL								
QC Lot: 12 JUL 90-A								
Concentration Units: mg/kg								
Silver	5.0	4.49	4.73	4.61	92	75-125	5.2	20
Sodium	10000	9570	9780	9680	97	75-125	2.2	20
Vanadium	50	50.6	50.5	50.6	101	75-125	0.1	20
Zinc	50	41.9	41.5	41.7	83	75-125	0.9	20

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

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METHOD BLANK REPORT
Metals Analysis and Preparation

Analyte	Result	Units	Reporting Limit
Test: HG-CVAA-S			
Matrix: SOIL			
QC Lot: 12 JUL 90-A QC Run: 12 JUL 90-A			
Mercury	ND	mg/kg	0.10
Test: AS-FAA-S			
Matrix: SOIL			
QC Lot: 12 JUL 90-A QC Run: 12 JUL 90-A			
Arsenic	ND	mg/kg	0.50
Test: SE-FAA-S			
Matrix: SOIL			
QC Lot: 12 JUL 90-A QC Run: 12 JUL 90-A			
Selenium	ND	mg/kg	0.50
Test: ICP-S			
Matrix: SOIL			
QC Lot: 12 JUL 90-A QC Run: 12 JUL 90-A			
Antimony	ND	mg/kg	6.0
Barium	ND	mg/kg	1.0
Beryllium	ND	mg/kg	0.20
Cadmium	ND	mg/kg	0.50
Chromium	ND	mg/kg	1.0
Cobalt	ND	mg/kg	1.0
Copper	ND	mg/kg	2.0
Lead	ND	mg/kg	5.0
Nickel	ND	mg/kg	4.0
Potassium	ND	mg/kg	500
Vanadium	ND	mg/kg	1.0
Zinc	ND	mg/kg	2.0

Enseco - Rocky Mountain Analytical

4955 Yarrow Street
Arvada, Colorado 80002
303/421-6611 Facsimile: 303/431-7171

CHAIN OF CUSTODY

Attn: Julie Essey

Enseco Client: Giant Refinery

Project: RFI

Sampling Co.: Giant

Sampling Site: Cinizo

Team Leader: C Rosendale

RMAL # 10190

SAMPLE SAFE™ CONDITIONS

1. Packed by: _____ Seal # _____
2. Seal Intact Upon Receipt by Sampling Co.: (Yes) No
3. Condition of Contents: Good
4. Sealed for Shipping by: C Rosendale
5. Initial Contents Temp.: — °C Seal # —
6. Sampling Status: (Done) Continuing Until _____
7. Seal Intact Upon Receipt by Laboratory: Yes No
8. Contents Temperature Upon Receipt by Lab: _____ °C
9. Condition of Contents: _____

#	Date	Time	Sample ID/Description	Sample Type	No. Containers	Analysis Parameters	Remarks
01	6-28-90	7:15	RFI1001V0.0	SOIL	2	Metals, 8240, 8270	
02	6-28-90	7:34	RFI1001V3.0	SOIL	2	Metals, 8240, 8270	
03	6-28-90	7:34	RFI1001D3.0	SOIL	2	Metals, 8240, 8270	
04	6-28-90	8:01	RFI1003V12.5	SOIL	2	Metals, 8240, 8270	
05	6-28-90	8:24	RFI1003V9.0	SOIL	2	Metals, 8240, 8270	
06	6-28-90	8:35	RFI1003V6.0	SOIL	2	Metals, 8240, 8270	
07	6-28-90	8:45	RFI1003V3.0	SOIL	2	Metals, 8240, 8270	
08	6-28-90	8:50	RFI1003V0.0	SOIL	2	Metals, 8240, 8270	
09	6-28-90	8:53	RFI1004V0.0	SOIL	2	Metals, 8240, 8270	
0	6-28-90	9:01	RFI1004V3.0	SOIL	2	Metals 8240, 8270	

CUSTODY TRANSFERS PRIOR TO SHIPPING

	Relinquished by: (signed)	Received by: (signed)	Date	Time
1	C Rosendale		6-28-90	2:00pm
2				
3				

SHIPPING DETAILS

Delivered to Shipper by: C Rosendale

Method of Shipment: Fed Express Airbill # _____

Received for Lab: RMAL Signed: Bob Reid Date/Time 29 JUN 90 0800

Enseco Project No. 10190

9-808

Section 9.0
RMAL No. 010192

Rocky Mountain
Analytical Laboratory

Enseco

ANALYTICAL RESULTS

FOR

GIANT REFINING

ENSECO-RMAL NO. 010192

AUGUST 2, 1990

Reviewed by: J. A. Essey
Julie Essey

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

Consistent with directives in the CLP protocol in SW-846 and other EPA methods, all GC/MS analyses were performed so that the maximum concentration of sample was analyzed. Some samples required dilutions to avoid saturation of the detector, to achieve linearity for a specific target compound or to reduce matrix interferences. As stated in Section 7.5.4 of Method 8270, 7.4.1.16 of Method 8240 and Exhibit E of the CLP protocol these dilutions must be performed. The reporting limits for these samples are therefore proportionate to the dilution required. Surrogate compounds may not be measurable in samples which have been diluted.

Due to interferences originating from non-target and/or target compounds, dilutions were performed for samples 010192-0001 through -0003 and -0006 through -0007 by Method 8240. Likewise, dilutions were made to samples 010192-0001, -0006, and -0011 by Method 8270. Because of these dilutions, the surrogates by Method 8270 were not recoverable for sample 010192-0006 and are, therefore, reported as ND (not detected). In all cases, the reporting limits were raised accordingly.

All 8270 samples were prepped according to SW-846 using 2.0 grams of sample followed by a 50% partition then concentration to 1.0 mL for analysis. With this prep method nominal reporting limits are generally 10000 ug/kg. After careful review of all chromatogram it has been determined that we can lower the nominal reporting limit to 5000 ug/kg for this project.

The Duplicate Control Sample (DCS) QC Lot 08 JUL 90-C by Method 8270 had 2,4-Dinitrophenol slightly above Enseco's established limits. The quantitation was rechecked and found to be correct. Based on a thorough review of the data, it was determined that the sample results were not affected. It should be noted that control limits are based on statistical data and do not always represent the best possible recoveries.

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 Inductively Coupled Plasma (ICP), 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.

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SAMPLE DESCRIPTION INFORMATION
for
Giant Refining

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
010192-0001-SA	RFI1004V6.0	SOIL	28 JUN 90	09:07	29 JUN 90
010192-0002-SA	RFI1004V9.0	SOIL	28 JUN 90	09:32	29 JUN 90
010192-0003-SA	RFI1004V12.5	SOIL	28 JUN 90	09:45	29 JUN 90
010192-0004-SA	RFI1005V0.0	SOIL	28 JUN 90	10:26	29 JUN 90
010192-0005-SA	RFI1005V3.0	SOIL	28 JUN 90	10:55	29 JUN 90
010192-0006-SA	RFI1005V6.0	SOIL	28 JUN 90	11:03	29 JUN 90
010192-0007-SA	RFI1005V9.0	SOIL	28 JUN 90	11:18	29 JUN 90
010192-0008-SA	RFI1005V12.5	SOIL	28 JUN 90	11:34	29 JUN 90
010192-0009-SA	RFI100503.0	SOIL	28 JUN 90	10:55	29 JUN 90
010192-0010-SA	RFI1002V0.0	SOIL	28 JUN 90	11:50	29 JUN 90
010192-0011-SA	RFI1002V3.0	SOIL	28 JUN 90	11:58	29 JUN 90
010192-0012-SA	RFI1002V6.0	SOIL	28 JUN 90	12:03	29 JUN 90
010192-0013-SA	RFI1002V9.0	SOIL	28 JUN 90	12:13	29 JUN 90
010192-0014-SA	RFI1002V12.5	SOIL	28 JUN 90	12:40	29 JUN 90
010192-0015-SA	RFI1005D12.5	SOIL	28 JUN 90	11:34	29 JUN 90
010192-0016-SA	RFI1002E3.0	AQUEOUS	28 JUN 90	12:00	29 JUN 90
010192-0017-SA	TRIP BLANK	AQUEOUS	28 JUN 90		29 JUN 90

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ANALYTICAL TEST REQUESTS
for
Giant Refining

Lab ID: 010192	Group Code	Analysis Description	Custom Test?
0001 - 0015	A	Mercury, Cold Vapor AA	Y
		Prep - Mercury, Cold Vapor AA	N
		Arsenic, Furnace AA	N
		Prep - Total Metals, Furnace AA	N
		Selenium, Furnace AA	N
		ICP Metals (Total)	Y
		Prep - Total Metals, ICP	N
		Priority Pollutant Volatile Organics	Y
		GC Screen For Medium Level Soils	N
		Appendix IX Semivolatile Organics	Y
		Prep - Semivolatile Organics by GC/MS	N
0016	B	Prep - Total Metals, Furnace AA	N
		Arsenic, Furnace AA (Total)	N
		Selenium, Furnace AA (Total)	N
		Mercury, Cold Vapor AA (Total)	N
		Prep - Mercury, Cold Vapor AA (Total)	N
		ICP Metals (Total)	Y
		Prep - Total Metals, ICP	N
		Prep - Semivolatile Organics by GC/MS	N
		Priority Pollutant Volatile Organics	Y
		Prep-Volatile Organics by GC/MS	N
		Appendix IX Semivolatile Organics	Y
		Lead, Furnace AA (Total)	N
0017	C	Prep-Volatile Organics by GC/MS	N
		Priority Pollutant Volatile Organics	Y

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, April, 1989.

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

Enseco
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Priority Pollutant Volatile Organics

Method 8240

Client Name: Giant Refining
Client ID: RFI1004V6.0
Lab ID: 010192-0001-SA
Enseco ID: 1081323
Matrix: SOIL
Sampled: 28 JUN 90
Received: 29 JUN 90
Authorized: 29 JUN 90
Prepared: 05 JUL 90
Analyzed: 11 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	100000
Bromomethane	ND	ug/kg	100000
Vinyl chloride	ND	ug/kg	100000
Chloroethane	ND	ug/kg	100000
Methylene chloride	ND	ug/kg	50000
1,1-Dichloroethene	ND	ug/kg	50000
1,1-Dichloroethane	ND	ug/kg	50000
1,2-Dichloroethene (cis/trans)	ND	ug/kg	50000
Chloroform	ND	ug/kg	50000
1,2-Dichloroethane	ND	ug/kg	50000
1,1,1-Trichloroethane	ND	ug/kg	50000
Carbon tetrachloride	ND	ug/kg	50000
Bromodichloromethane	ND	ug/kg	50000
1,2-Dichloropropane	ND	ug/kg	50000
trans-1,3-Dichloropropene	ND	ug/kg	50000
Trichloroethene	ND	ug/kg	50000
Dibromochloromethane	ND	ug/kg	50000
1,1,2-Trichloroethane	ND	ug/kg	50000
Benzene	ND	ug/kg	50000
cis-1,3-Dichloropropene	ND	ug/kg	50000
2-Chloroethyl vinyl ether	ND	ug/kg	100000
Bromoform	ND	ug/kg	50000
1,1,2,2-Tetrachloroethane	ND	ug/kg	50000
Tetrachloroethene	ND	ug/kg	50000
Toluene	220000	ug/kg	50000
Chlorobenzene	ND	ug/kg	50000
Ethylbenzene	81000	ug/kg	50000
Acetone	ND	ug/kg	500000
Carbon disulfide	ND	ug/kg	50000
Acrolein	ND	ug/kg	1000000
Acrylonitrile	ND	ug/kg	1000000
Dibromomethane	ND	ug/kg	50000
trans-1,4-Dichloro-2-butene	ND	ug/kg	50000
Dichlorodifluoromethane	ND	ug/kg	200000
trans-1,2-Dichloroethene	ND	ug/kg	50000
Ethanol	ND	ug/kg	1000000
Iodomethane	ND	ug/kg	50000
2-Butanone	ND	ug/kg	500000

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ND = Not detected
NA = Not applicable

Reported By: Terry Riddle
Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics (CONT.)

Method 8240

Client Name: Giant Refining
Client ID: RFI1004V6.0
Lab ID: 010192-0001-SA Enseco ID: 1081323
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 05 JUL 90 Analyzed: 11 JUL 90

Parameter	Result	Units	Reporting Limit
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	100000
Styrene	ND	ug/kg	50000
Trichlorofluoromethane	ND	ug/kg	50000
1,2,3-Trichloropropane	ND	ug/kg	50000
Vinyl acetate	ND	ug/kg	100000
Xylenes (total)	470000	ug/kg	50000
2-Hexanone	ND	ug/kg	100000
Ethyl methacrylate	ND	ug/kg	100000
Toluene-d8	100	%	--
4-Bromofluorobenzene	96	%	--
1,2-Dichloroethane-d4	97	%	--

ND = Not detected
NA = Not applicable

Reported By: Terry Riddle Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics

Method 8240

Client Name: Giant Refining
Client ID: RFI1004V9.0
Lab ID: 010192-0002-SA Enseco ID: 1081324
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 05 JUL 90 Analyzed: 11 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	25000
Bromomethane	ND	ug/kg	25000
Vinyl chloride	ND	ug/kg	25000
Chloroethane	ND	ug/kg	25000
Methylene chloride	ND	ug/kg	12000
1,1-Dichloroethene	ND	ug/kg	12000
1,1-Dichloroethane	ND	ug/kg	12000
1,2-Dichloroethene (cis/trans)	ND	ug/kg	12000
Chloroform	ND	ug/kg	12000
1,2-Dichloroethane	ND	ug/kg	12000
1,1,1-Trichloroethane	ND	ug/kg	12000
Carbon tetrachloride	ND	ug/kg	12000
Bromodichloromethane	ND	ug/kg	12000
1,2-Dichloropropane	ND	ug/kg	12000
trans-1,3-Dichloropropene	ND	ug/kg	12000
Trichloroethene	ND	ug/kg	12000
Dibromochloromethane	ND	ug/kg	12000
1,1,2-Trichloroethane	ND	ug/kg	12000
Benzene	14000	ug/kg	12000
cis-1,3-Dichloropropene	ND	ug/kg	12000
2-Chloroethyl vinyl ether	ND	ug/kg	25000
Bromoform	ND	ug/kg	12000
1,1,2,2-Tetrachloroethane	ND	ug/kg	12000
Tetrachloroethene	ND	ug/kg	12000
Toluene	120000	ug/kg	12000
Chlorobenzene	ND	ug/kg	12000
Ethylbenzene	43000	ug/kg	12000
Acetone	ND	ug/kg	120000
Carbon disulfide	ND	ug/kg	12000
Acrolein	ND	ug/kg	250000
Acrylonitrile	ND	ug/kg	250000
Dibromomethane	ND	ug/kg	12000
trans-1,4-Dichloro-2-butene	ND	ug/kg	12000
Dichlorodifluoromethane	ND	ug/kg	50000
trans-1,2-Dichloroethene	ND	ug/kg	12000
Ethanol	ND	ug/kg	250000
Iodomethane	ND	ug/kg	12000
2-Butanone	ND	ug/kg	120000

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ND = Not detected
NA = Not applicable

Reported By: Terry Riddle Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics (CONT.)

Method 8240

Client Name: Giant Refining
Client ID: RFI1004V9.0
Lab ID: 010192-0002-SA Enseco ID: 1081324
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 05 JUL 90 Analyzed: 11 JUL 90

Parameter	Result	Units	Reporting Limit
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	25000
Styrene	ND	ug/kg	12000
Trichlorofluoromethane	ND	ug/kg	12000
1,2,3-Trichloropropane	ND	ug/kg	12000
Vinyl acetate	ND	ug/kg	25000
Xylenes (total)	310000	ug/kg	12000
2-Hexanone	ND	ug/kg	25000
Ethyl methacrylate	ND	ug/kg	25000
Toluene-d8	101	%	--
4-Bromofluorobenzene	95	%	--
1,2-Dichloroethane-d4	87	%	--

ND = Not detected
NA = Not applicable

Reported By: Terry Riddle Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics

Method 8240

Client Name: Giant Refining
Client ID: RFI1004V12.5
Lab ID: 010192-0003-SA
Matrix: SOIL
Authorized: 29 JUN 90

Enseco ID: 1081325
Sampled: 28 JUN 90
Prepared: 05 JUL 90

Received: 29 JUN 90
Analyzed: 08 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	4000
Bromomethane	ND	ug/kg	4000
Vinyl chloride	ND	ug/kg	4000
Chloroethane	ND	ug/kg	4000
Methylene chloride	ND	ug/kg	2000
1,1-Dichloroethene	ND	ug/kg	2000
1,1-Dichloroethane	ND	ug/kg	2000
1,2-Dichloroethene (cis/trans)	ND	ug/kg	2000
Chloroform	ND	ug/kg	2000
1,2-Dichloroethane	ND	ug/kg	2000
1,1,1-Trichloroethane	ND	ug/kg	2000
Carbon tetrachloride	ND	ug/kg	2000
Bromodichloromethane	ND	ug/kg	2000
1,2-Dichloropropane	ND	ug/kg	2000
trans-1,3-Dichloropropene	ND	ug/kg	2000
Trichloroethene	ND	ug/kg	2000
Dibromochloromethane	ND	ug/kg	2000
1,1,2-Trichloroethane	ND	ug/kg	2000
Benzene	ND	ug/kg	2000
cis-1,3-Dichloropropene	ND	ug/kg	2000
2-Chloroethyl vinyl ether	ND	ug/kg	4000
Bromoform	ND	ug/kg	2000
1,1,2,2-Tetrachloroethane	ND	ug/kg	2000
Tetrachloroethene	ND	ug/kg	2000
Toluene	ND	ug/kg	2000
Chlorobenzene	ND	ug/kg	2000
Ethylbenzene	ND	ug/kg	2000
Acetone	ND	ug/kg	20000
Carbon disulfide	ND	ug/kg	2000
Acrolein	ND	ug/kg	40000
Acrylonitrile	ND	ug/kg	40000
Dibromomethane	ND	ug/kg	2000
trans-1,4-Dichloro-2-butene	ND	ug/kg	2000
Dichlorodifluoromethane	ND	ug/kg	8000
trans-1,2-Dichloroethene	ND	ug/kg	2000
Ethanol	ND	ug/kg	40000
Iodomethane	ND	ug/kg	2000
2-Butanone	ND	ug/kg	20000

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ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais

Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics (CONT.)

Method 8240

Client Name: Giant Refining
Client ID: RFI1004V12.5
Lab ID: 010192-0003-SA
Matrix: SOIL
Authorized: 29 JUN 90

Enseco ID: 1081325
Sampled: 28 JUN 90
Prepared: 05 JUL 90

Received: 29 JUN 90
Analyzed: 08 JUL 90

Parameter	Result	Units	Reporting Limit
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	4000
Styrene	ND	ug/kg	2000
Trichlorofluoromethane	ND	ug/kg	2000
1,2,3-Trichloropropane	ND	ug/kg	2000
Vinyl acetate	ND	ug/kg	4000
Xylenes (total)	ND	ug/kg	2000
2-Hexanone	ND	ug/kg	4000
Ethyl methacrylate	ND	ug/kg	4000
Toluene-d8	97	%	--
4-Bromofluorobenzene	100	%	--
1,2-Dichloroethane-d4	95	%	--

ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais

Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics

Method 8240

Client Name: Giant Refining
Client ID: RFI1005V0.0
Lab ID: 010192-0004-SA Enseco ID: 1081326
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 05 JUL 90 Analyzed: 08 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500
Acetone	ND	ug/kg	5000
Carbon disulfide	ND	ug/kg	500
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Dibromomethane	ND	ug/kg	500
trans-1,4-Dichloro-2-butene	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	ND	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone	ND	ug/kg	5000

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ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics (CONT.)

Method 8240

Client Name: Giant Refining
Client ID: RFI1005V0.0
Lab ID: 010192-0004-SA Enseco ID: 1081326
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 05 JUL 90 Analyzed: 08 JUL 90

Parameter	Result	Units	Reporting Limit
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	500
2-Hexanone	ND	ug/kg	1000
Ethyl methacrylate	ND	ug/kg	1000
Toluene-d8	97	%	--
4-Bromofluorobenzene	103	%	--
1,2-Dichloroethane-d4	100	%	--

ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics

Method 8240

Client Name: Giant Refining
Client ID: RFI1005V3.0
Lab ID: 010192-0005-SA Enseco ID: 1081327
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 05 JUL 90 Analyzed: 08 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500
Acetone	ND	ug/kg	5000
Carbon disulfide	ND	ug/kg	500
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Dibromomethane	ND	ug/kg	500
trans-1,4-Dichloro-2-butene	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	ND	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone	ND	ug/kg	5000

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ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics (CONT.)

Method 8240

Client Name: Giant Refining
Client ID: RFI1005V3.0
Lab ID: 010192-0005-SA Enseco ID: 1081327
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 05 JUL 90 Analyzed: 08 JUL 90

Parameter	Result	Units	Reporting Limit
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	500
2-Hexanone	ND	ug/kg	1000
Ethyl methacrylate	ND	ug/kg	1000
Toluene-d8	96	%	--
4-Bromofluorobenzene	107	%	--
1,2-Dichloroethane-d4	93	%	--

ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics

Method 8240

Client Name: Giant Refining
Client ID: RFI1005V6.0
Lab ID: 010192-0006-SA Enseco ID: 1081328
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 05 JUL 90 Analyzed: 11 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	67000
Bromomethane	ND	ug/kg	67000
Vinyl chloride	ND	ug/kg	67000
Chloroethane	ND	ug/kg	67000
Methylene chloride	ND	ug/kg	34000
1,1-Dichloroethene	ND	ug/kg	34000
1,1-Dichloroethane	ND	ug/kg	34000
1,2-Dichloroethene (cis/trans)	ND	ug/kg	34000
Chloroform	ND	ug/kg	34000
1,2-Dichloroethane	ND	ug/kg	34000
1,1,1-Trichloroethane	ND	ug/kg	34000
Carbon tetrachloride	ND	ug/kg	34000
Bromodichloromethane	ND	ug/kg	34000
1,2-Dichloropropane	ND	ug/kg	34000
trans-1,3-Dichloropropene	ND	ug/kg	34000
Trichloroethene	ND	ug/kg	34000
Dibromochloromethane	ND	ug/kg	34000
1,1,2-Trichloroethane	ND	ug/kg	34000
Benzene	37000	ug/kg	34000
cis-1,3-Dichloropropene	ND	ug/kg	34000
2-Chloroethyl vinyl ether	ND	ug/kg	67000
Bromoform	ND	ug/kg	34000
1,1,2,2-Tetrachloroethane	ND	ug/kg	34000
Tetrachloroethene	ND	ug/kg	34000
Toluene	290000	ug/kg	34000
Chlorobenzene	ND	ug/kg	34000
Ethylbenzene	76000	ug/kg	34000
Acetone	ND	ug/kg	340000
Carbon disulfide	ND	ug/kg	34000
Acrolein	ND	ug/kg	670000
Acrylonitrile	ND	ug/kg	670000
Dibromomethane	ND	ug/kg	34000
trans-1,4-Dichloro-2-butene	ND	ug/kg	34000
Dichlorodifluoromethane	ND	ug/kg	130000
trans-1,2-Dichloroethene	ND	ug/kg	34000
Ethanol	ND	ug/kg	670000
Iodomethane	ND	ug/kg	34000
2-Butanone	ND	ug/kg	340000

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ND = Not detected
NA = Not applicable

Reported By: Terry Riddle Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics (CONT.)

Method 8240

Client Name: Giant Refining
Client ID: RFI1005V6.0
Lab ID: 010192-0006-SA Enseco ID: 1081328
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 05 JUL 90 Analyzed: 11 JUL 90

Parameter	Result	Units	Reporting Limit
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	67000
Styrene	ND	ug/kg	34000
Trichlorofluoromethane	ND	ug/kg	34000
1,2,3-Trichloropropane	ND	ug/kg	34000
Vinyl acetate	ND	ug/kg	67000
Xylenes (total)	540000	ug/kg	34000
2-Hexanone	ND	ug/kg	67000
Ethyl methacrylate	ND	ug/kg	67000
Toluene-d8	101	%	--
4-Bromofluorobenzene	99	%	--
1,2-Dichloroethane-d4	95	%	--

ND = Not detected
NA = Not applicable

Reported By: Terry Riddle Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics

Method 8240

Client Name: Giant Refining
Client ID: RFI1005V9.0
Lab ID: 010192-0007-SA Enseco ID: 1081329
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 05 JUL 90 Analyzed: 08 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	2000
Bromomethane	ND	ug/kg	2000
Vinyl chloride	ND	ug/kg	2000
Chloroethane	ND	ug/kg	2000
Methylene chloride	ND	ug/kg	1000
1,1-Dichloroethene	ND	ug/kg	1000
1,1-Dichloroethane	ND	ug/kg	1000
1,2-Dichloroethene (cis/trans)	ND	ug/kg	1000
Chloroform	ND	ug/kg	1000
1,2-Dichloroethane	ND	ug/kg	1000
1,1,1-Trichloroethane	ND	ug/kg	1000
Carbon tetrachloride	ND	ug/kg	1000
Bromodichloromethane	ND	ug/kg	1000
1,2-Dichloropropane	ND	ug/kg	1000
trans-1,3-Dichloropropene	ND	ug/kg	1000
Trichloroethene	ND	ug/kg	1000
Dibromochloromethane	ND	ug/kg	1000
1,1,2-Trichloroethane	ND	ug/kg	1000
Benzene	ND	ug/kg	1000
cis-1,3-Dichloropropene	ND	ug/kg	1000
2-Chloroethyl vinyl ether	ND	ug/kg	2000
Bromoform	ND	ug/kg	1000
1,1,2,2-Tetrachloroethane	ND	ug/kg	1000
Tetrachloroethene	ND	ug/kg	1000
Toluene	2600	ug/kg	1000
Chlorobenzene	ND	ug/kg	1000
Ethylbenzene	1200	ug/kg	1000
Acetone	ND	ug/kg	10000
Carbon disulfide	ND	ug/kg	1000
Acrolein	ND	ug/kg	20000
Acrylonitrile	ND	ug/kg	20000
Dibromomethane	ND	ug/kg	1000
trans-1,4-Dichloro-2-butene	ND	ug/kg	1000
Dichlorodifluoromethane	ND	ug/kg	4000
trans-1,2-Dichloroethene	ND	ug/kg	1000
Ethanol	ND	ug/kg	20000
Iodomethane	ND	ug/kg	1000
2-Butanone	ND	ug/kg	10000

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ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics (CONT.)

Method 8240

Client Name: Giant Refining
Client ID: RFI1005V9.0
Lab ID: 010192-0007-SA Enseco ID: 1081329
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 05 JUL 90 Analyzed: 08 JUL 90

Parameter	Result	Units	Reporting Limit
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	2000
Styrene	ND	ug/kg	1000
Trichlorofluoromethane	ND	ug/kg	1000
1,2,3-Trichloropropane	ND	ug/kg	1000
Vinyl acetate	ND	ug/kg	2000
Xylenes (total)	9700	ug/kg	1000
2-Hexanone	ND	ug/kg	2000
Ethyl methacrylate	ND	ug/kg	2000
Toluene-d8	97	%	--
4-Bromofluorobenzene	106	%	--
1,2-Dichloroethane-d4	98	%	--

ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics

Method 8240

Client Name: Giant Refining
Client ID: RFI1005V12.5
Lab ID: 010192-0008-SA
Enseco ID: 1081330
Matrix: SOIL
Sampled: 28 JUN 90
Received: 29 JUN 90
Authorized: 29 JUN 90
Prepared: 05 JUL 90
Analyzed: 08 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	980	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500
Acetone	ND	ug/kg	5000
Carbon disulfide	ND	ug/kg	500
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Dibromomethane	ND	ug/kg	500
trans-1,4-Dichloro-2-butene	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	ND	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone	ND	ug/kg	5000

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ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais
Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics (CONT.)

Method 8240

Client Name: Giant Refining
Client ID: RFI1005V12.5
Lab ID: 010192-0008-SA Enseco ID: 1081330
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 05 JUL 90 Analyzed: 08 JUL 90

Parameter	Result	Units	Reporting Limit
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Xylenes (total)	1700	ug/kg	500
2-Hexanone	ND	ug/kg	1000
Ethyl methacrylate	ND	ug/kg	1000
Toluene-d8	97	%	--
4-Bromofluorobenzene	109	%	--
1,2-Dichloroethane-d4	97	%	--

ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics

Method 8240

Client Name: Giant Refining
Client ID: RFI100503.0
Lab ID: 010192-0009-SA Enseco ID: 1081331
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 05 JUL 90 Analyzed: 09 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500
Acetone	ND	ug/kg	5000
Carbon disulfide	ND	ug/kg	500
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Dibromomethane	ND	ug/kg	500
trans-1,4-Dichloro-2-butene	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	ND	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone	ND	ug/kg	5000

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ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics (CONT.)

Method 8240

Client Name: Giant Refining
Client ID: RFI100503.0
Lab ID: 010192-0009-SA Enseco ID: 1081331
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 05 JUL 90 Analyzed: 09 JUL 90

Parameter	Result	Units	Reporting Limit
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	500
2-Hexanone	ND	ug/kg	1000
Ethyl methacrylate	ND	ug/kg	1000
Toluene-d8	98	%	--
4-Bromofluorobenzene	110	%	--
1,2-Dichloroethane-d4	102	%	--

ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics

Method 8240

Client Name: Giant Refining
Client ID: RFI1002V0.0
Lab ID: 010192-0010-SA Enseco ID: 1081332
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 05 JUL 90 Analyzed: 09 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500
Acetone	ND	ug/kg	5000
Carbon disulfide	ND	ug/kg	500
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Dibromomethane	ND	ug/kg	500
trans-1,4-Dichloro-2-butene	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	ND	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone	ND	ug/kg	5000

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ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics (CONT.)

Method 8240

Client Name: Giant Refining
Client ID: RFI1002V0.0
Lab ID: 010192-0010-SA
Enseco ID: 1081332
Matrix: SOIL
Sampled: 28 JUN 90
Received: 29 JUN 90
Authorized: 29 JUN 90
Prepared: 05 JUL 90
Analyzed: 09 JUL 90

Parameter	Result	Units	Reporting Limit
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	500
2-Hexanone	ND	ug/kg	1000
Ethyl methacrylate	ND	ug/kg	1000
Toluene-d8	96	%	--
4-Bromofluorobenzene	112	%	--
1,2-Dichloroethane-d4	97	%	--

ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais
Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics

Method 8240

Client Name: Giant Refining
Client ID: RFI1002V3.0
Lab ID: 010192-0011-SA Enseco ID: 1081333
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 05 JUL 90 Analyzed: 09 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500
Acetone	ND	ug/kg	5000
Carbon disulfide	ND	ug/kg	500
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Dibromomethane	ND	ug/kg	500
trans-1,4-Dichloro-2-butene	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	ND	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone	ND	ug/kg	5000

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ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics (CONT.)

Method 8240

Client Name: Giant Refining
Client ID: RFI1002V3.0
Lab ID: 010192-0011-SA Enseco ID: 1081333
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 05 JUL 90 Analyzed: 09 JUL 90

Parameter	Result	Units	Reporting Limit
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	500
2-Hexanone	ND	ug/kg	1000
Ethyl methacrylate	ND	ug/kg	1000
Toluene-d8	96	%	--
4-Bromofluorobenzene	111	%	--
1,2-Dichloroethane-d4	97	%	--

ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics

Method 8240

Client Name: Giant Refining
Client ID: RFI1002V6.0
Lab ID: 010192-0012-SA Enseco ID: 1081334
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 05 JUL 90 Analyzed: 09 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500
Acetone	ND	ug/kg	5000
Carbon disulfide	ND	ug/kg	500
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Dibromomethane	ND	ug/kg	500
trans-1,4-Dichloro-2-butene	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	ND	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone	ND	ug/kg	5000

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ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics (CONT.)

Method 8240

Client Name: Giant Refining
Client ID: RFI1002V6.0
Lab ID: 010192-0012-SA Enseco ID: 1081334
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 05 JUL 90 Analyzed: 09 JUL 90

Parameter	Result	Units	Reporting Limit
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	500
2-Hexanone	ND	ug/kg	1000
Ethyl methacrylate	ND	ug/kg	1000
Toluene-d8	96	%	--
4-Bromofluorobenzene	100	%	--
1,2-Dichloroethane-d4	100	%	--

ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics

Method 8240

Client Name: Giant Refining
Client ID: RFI1002V9.0
Lab ID: 010192-0013-SA Enseco ID: 1081336
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 05 JUL 90 Analyzed: 09 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500
Acetone	ND	ug/kg	5000
Carbon disulfide	ND	ug/kg	500
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Dibromomethane	ND	ug/kg	500
trans-1,4-Dichloro-2-butene	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	ND	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone	ND	ug/kg	5000

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ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics (CONT.)

Method 8240

Client Name: Giant Refining
Client ID: RFI1002V9.0
Lab ID: 010192-0013-SA
Enseco ID: 1081336
Matrix: SOIL
Sampled: 28 JUN 90
Received: 29 JUN 90
Authorized: 29 JUN 90
Prepared: 05 JUL 90
Analyzed: 09 JUL 90

Parameter	Result	Units	Reporting Limit
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	500
2-Hexanone	ND	ug/kg	1000
Ethyl methacrylate	ND	ug/kg	1000
Toluene-d8	98	%	--
4-Bromofluorobenzene	105	%	--
1,2-Dichloroethane-d4	100	%	--

ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais
Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics

Method 8240

Client Name: Giant Refining
Client ID: RFI1002V12.5
Lab ID: 010192-0014-SA
Matrix: SOIL
Authorized: 29 JUN 90

Enseco ID: 1081337
Sampled: 28 JUN 90
Prepared: 05 JUL 90

Received: 29 JUN 90
Analyzed: 09 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500
Acetone	ND	ug/kg	5000
Carbon disulfide	ND	ug/kg	500
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Dibromomethane	ND	ug/kg	500
trans-1,4-Dichloro-2-butene	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	ND	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone	ND	ug/kg	5000

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ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais

Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics (CONT.)

Method 8240

Client Name: Giant Refining
Client ID: RFI1002V12.5
Lab ID: 010192-0014-SA
Enseco ID: 1081337
Matrix: SOIL
Sampled: 28 JUN 90
Received: 29 JUN 90
Authorized: 29 JUN 90
Prepared: 05 JUL 90
Analyzed: 09 JUL 90

Parameter	Result	Units	Reporting Limit
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	500
2-Hexanone	ND	ug/kg	1000
Ethyl methacrylate	ND	ug/kg	1000
Toluene-d8	99	%	--
4-Bromofluorobenzene	102	%	--
1,2-Dichloroethane-d4	99	%	--

ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais
Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics

Method 8240

Client Name: Giant Refining
Client ID: RFI1005D12.5
Lab ID: 010192-0015-SA Enseco ID: 1081339
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 05 JUL 90 Analyzed: 09 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	680	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500
Acetone	ND	ug/kg	5000
Carbon disulfide	ND	ug/kg	500
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Dibromomethane	ND	ug/kg	500
trans-1,4-Dichloro-2-butene	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	ND	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics (CONT.)

Method 8240

Client Name: Giant Refining
Client ID: RFI1005D12.5
Lab ID: 010192-0015-SA
Matrix: SOIL
Authorized: 29 JUN 90

Enseco ID: 1081339
Sampled: 28 JUN 90
Prepared: 05 JUL 90

Received: 29 JUN 90
Analyzed: 09 JUL 90

Parameter	Result	Units	Reporting Limit
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Xylenes (total)	980	ug/kg	500
2-Hexanone	ND	ug/kg	1000
Ethyl methacrylate	ND	ug/kg	1000
Toluene-d8	97	%	--
4-Bromofluorobenzene	104	%	--
1,2-Dichloroethane-d4	94	%	--

ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais

Approved By: Jeff Lowry

Enseco
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Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI1005D12.5
Lab ID: 010192-0015-SA
Enseco ID: 1081339
Matrix: SOIL
Sampled: 28 JUN 90
Received: 29 JUN 90
Authorized: 29 JUN 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	27 JUL 90	30 JUL 90
Arsenic	ND	mg/kg	0.50	7060	27 JUL 90	30 JUL 90
Barium	124	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Beryllium	1.1	mg/kg	0.20	6010	27 JUL 90	30 JUL 90
Cadmium	ND	mg/kg	0.50	6010	27 JUL 90	30 JUL 90
Chromium	6.1	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Cobalt	3.9	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Copper	7.8	mg/kg	2.0	6010	27 JUL 90	30 JUL 90
Lead	16.0	mg/kg	5.0	6010	27 JUL 90	30 JUL 90
Mercury	ND	mg/kg	0.10	7471	18 JUL 90	19 JUL 90
Nickel	6.9	mg/kg	4.0	6010	27 JUL 90	30 JUL 90
Potassium	1010	mg/kg	500	6010	27 JUL 90	30 JUL 90
Selenium	ND	mg/kg	1.0	7740	27 JUL 90	26 JUL 90
Vanadium	14.0	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Zinc	12.4	mg/kg	2.0	6010	27 JUL 90	30 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Dave Roberts
Approved By: Dave Roberts

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Priority Pollutant Volatile Organics

Method 624

Client Name: Giant Refining
Client ID: RFI1002E3.0
Lab ID: 010192-0016-SA Enseco ID: 1081342
Matrix: AQUEOUS Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 06 JUL 90 Analyzed: 09 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/L	10
Bromomethane	ND	ug/L	10
Vinyl chloride	ND	ug/L	10
Chloroethane	ND	ug/L	10
Methylene chloride	ND	ug/L	5.0
1,1-Dichloroethene	ND	ug/L	5.0
1,1-Dichloroethane	ND	ug/L	5.0
1,2-Dichloroethene (cis/trans)	ND	ug/L	5.0
Chloroform	ND	ug/L	5.0
1,2-Dichloroethane	ND	ug/L	5.0
1,1,1-Trichloroethane	ND	ug/L	5.0
Carbon tetrachloride	ND	ug/L	5.0
Bromodichloromethane	ND	ug/L	5.0
1,2-Dichloropropane	ND	ug/L	5.0
trans-1,3-Dichloropropene	ND	ug/L	5.0
Trichloroethene	ND	ug/L	5.0
Dibromochloromethane	ND	ug/L	5.0
1,1,2-Trichloroethane	ND	ug/L	5.0
Benzene	ND	ug/L	5.0
cis-1,3-Dichloropropene	ND	ug/L	5.0
2-Chloroethyl vinyl ether	ND	ug/L	10
Bromoform	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
Chlorobenzene	ND	ug/L	5.0
Ethylbenzene	ND	ug/L	5.0
Acetone	12	ug/L	10
Acrolein	ND	ug/L	100
Acrylonitrile	ND	ug/L	100
Carbon disulfide	ND	ug/L	5.0
Dibromomethane	ND	ug/L	5.0
trans-1,4-Dichloro-2-butene	ND	ug/L	5.0
Dichlorodifluoromethane	ND	ug/L	10
trans-1,2-Dichloroethene	ND	ug/L	5.0
Ethanol	ND	ug/L	100
Iodomethane	ND	ug/L	5.0
2-Butanone (MEK)	ND	ug/L	10

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics (CONT.)

Method 624

Client Name: Giant Refining
Client ID: RFI1002E3.0
Lab ID: 010192-0016-SA Enseco ID: 1081342
Matrix: AQUEOUS Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 06 JUL 90 Analyzed: 09 JUL 90

Parameter	Result	Units	Reporting Limit
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10
Styrene	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
Xylenes (total)	ND	ug/L	5.0
2-Hexanone	ND	ug/L	10
Ethyl methacrylate	ND	ug/L	10
Toluene-d8	98	%	--
4-Bromofluorobenzene	106	%	--
1,2-Dichloroethane-d4	101	%	--

ND = Not detected
NA = Not applicable

Reported By: Keith Beauvais Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics

Method 624

Client Name: Giant Refining
Client ID: TRIP BLANK
Lab ID: 010192-0017-SA Enseco ID: 1081343
Matrix: AQUEOUS Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 06 JUL 90 Analyzed: 10 JUL 90

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/L	10
Bromomethane	ND	ug/L	10
Vinyl chloride	ND	ug/L	10
Chloroethane	ND	ug/L	10
Methylene chloride	ND	ug/L	5.0
1,1-Dichloroethene	ND	ug/L	5.0
1,1-Dichloroethane	ND	ug/L	5.0
1,2-Dichloroethene (cis/trans)	ND	ug/L	5.0
Chloroform	ND	ug/L	5.0
1,2-Dichloroethane	ND	ug/L	5.0
1,1,1-Trichloroethane	ND	ug/L	5.0
Carbon tetrachloride	ND	ug/L	5.0
Bromodichloromethane	ND	ug/L	5.0
1,2-Dichloropropane	ND	ug/L	5.0
trans-1,3-Dichloropropene	ND	ug/L	5.0
Trichloroethene	ND	ug/L	5.0
Dibromochloromethane	ND	ug/L	5.0
1,1,2-Trichloroethane	ND	ug/L	5.0
Benzene	ND	ug/L	5.0
cis-1,3-Dichloropropene	ND	ug/L	5.0
2-Chloroethyl vinyl ether	ND	ug/L	10
Bromoform	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
Chlorobenzene	ND	ug/L	5.0
Ethylbenzene	ND	ug/L	5.0
Acetone	ND	ug/L	50
Acrolein	ND	ug/L	100
Acrylonitrile	ND	ug/L	100
Carbon disulfide	ND	ug/L	5.0
Dibromomethane	ND	ug/L	5.0
trans-1,4-Dichloro-2-butene	ND	ug/L	5.0
Dichlorodifluoromethane	ND	ug/L	20
Ethanol	ND	ug/L	100
Iodomethane	ND	ug/L	5.0
2-Butanone (MEK)	ND	ug/L	50
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Shawn Kassner Approved By: Jeff Lowry

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Priority Pollutant Volatile Organics (CONT.)

Method 624

Client Name: Giant Refining
Client ID: TRIP BLANK
Lab ID: 010192-0017-SA Enseco ID: 1081343
Matrix: AQUEOUS Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 06 JUL 90 Analyzed: 10 JUL 90

Parameter	Result	Units	Reporting Limit
Styrene	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
Xylenes (total)	ND	ug/L	5.0
trans-1,2-Dichloroethene	ND	ug/L	5.0
Ethyl methacrylate	ND	ug/L	10
2-Hexanone	ND	ug/L	10
Toluene-d8	100	%	--
4-Bromofluorobenzene	98	%	--
1,2-Dichloroethane-d4	105	%	--

ND = Not detected
NA = Not applicable

Reported By: Shawn Kassner Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI1004V6.0
Lab ID: 010192-0001-SA Enseco ID: 1081323
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 08 JUL 90 Analyzed: 29 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	10000
Acenaphthylene	ND	ug/kg	10000
Acetophenone	ND	ug/kg	10000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	10000
Anthracene	ND	ug/kg	10000
Benzo(a)anthracene	ND	ug/kg	10000
Benzo(b)fluoranthene	ND	ug/kg	10000
Benzo(k)fluoranthene	ND	ug/kg	10000
Benzo(g,h,i)perylene	ND	ug/kg	10000
Benzo(a)pyrene	ND	ug/kg	10000
Benzyl alcohol	ND	ug/kg	10000
bis(2-Chloroethoxy)-methane	ND	ug/kg	10000
bis(2-Chloroethyl) ether	ND	ug/kg	10000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	10000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	10000
4-Bromophenyl phenyl ether	ND	ug/kg	10000
Butyl benzyl phthalate	ND	ug/kg	10000
4-Chloroaniline	ND	ug/kg	10000
4-Chloro-3-methylphenol	ND	ug/kg	10000
2-Chloronaphthalene	ND	ug/kg	10000
2-Chlorophenol	ND	ug/kg	10000
4-Chlorophenyl phenyl ether	ND	ug/kg	10000
o-Cresol	16000	ug/kg	10000
m & p-Cresol(s)	26000	ug/kg	10000
Chrysene	ND	ug/kg	10000
Dibenz(a,h)anthracene	ND	ug/kg	10000
Di-n-butyl phthalate	ND	ug/kg	10000
1,2-Dichlorobenzene	ND	ug/kg	10000
1,3-Dichlorobenzene	ND	ug/kg	10000
1,4-Dichlorobenzene	ND	ug/kg	10000
3,3'-Dichlorobenzidine	ND	ug/kg	20000
2,4-Dichlorophenol	ND	ug/kg	10000
2,6-Dichlorophenol	ND	ug/kg	10000
Diethyl phthalate	ND	ug/kg	10000
p-Dimethylaminoazobenzene	ND	ug/kg	10000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI1004V6.0
Lab ID: 010192-0001-SA Enseco ID: 1081323
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 08 JUL 90 Analyzed: 29 JUL 90

Parameter	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	10000
a,a-Dimethylphenethylamine	ND	ug/kg	10000
2,4-Dimethylphenol	27000	ug/kg	10000
Dimethyl phthalate	ND	ug/kg	10000
1,3-Dinitrobenzene	ND	ug/kg	10000
4,6-Dinitro-o-cresol	ND	ug/kg	50000
2,4-Dinitrophenol	ND	ug/kg	50000
2,4-Dinitrotoluene	ND	ug/kg	10000
2,6-Dinitrotoluene	ND	ug/kg	10000
Di-n-octyl phthalate	ND	ug/kg	10000
Diphenylamine	ND	ug/kg	10000
Ethyl methanesulfonate	ND	ug/kg	10000
Fluoranthene	ND	ug/kg	10000
Fluorene	13000	ug/kg	10000
Hexachlorobenzene	ND	ug/kg	10000
Hexachlorobutadiene	ND	ug/kg	10000
Hexachlorocyclopentadiene	ND	ug/kg	10000
Hexachloroethane	ND	ug/kg	10000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	10000
Isophorone	ND	ug/kg	10000
3-Methylcholanthrene	ND	ug/kg	10000
Methyl methanesulfonate	ND	ug/kg	10000
2-Methylnaphthalene	290000	ug/kg	10000
Naphthalene	54000	ug/kg	10000
1-Naphthylamine	ND	ug/kg	10000
2-Naphthylamine	ND	ug/kg	10000
2-Nitroaniline	ND	ug/kg	50000
3-Nitroaniline	ND	ug/kg	50000
4-Nitroaniline	ND	ug/kg	50000
Nitrobenzene	ND	ug/kg	10000
2-Nitrophenol	ND	ug/kg	10000
4-Nitrophenol	ND	ug/kg	50000
N-Nitroso-di-n-butylamine	ND	ug/kg	10000
N-Nitrosodimethylamine	ND	ug/kg	10000
N-Nitrosodiphenylamine	ND	ug/kg	10000
N-Nitroso-di-n-propylamine	ND	ug/kg	10000
N-Nitrosopiperidine	ND	ug/kg	10000
Pentachlorobenzene	ND	ug/kg	10000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI1004V6.0
Lab ID: 010192-0001-SA Enseco ID: 1081323
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 08 JUL 90 Analyzed: 29 JUL 90

Parameter	Result	Units	Reporting Limit
Pentachloronitrobenzene	ND	ug/kg	50000
Pentachlorophenol	ND	ug/kg	50000
Phenacetin	ND	ug/kg	10000
Phenanthrene	23000	ug/kg	10000
Phenol	ND	ug/kg	10000
2-Picoline	ND	ug/kg	10000
Pronamide	ND	ug/kg	10000
Pyrene	ND	ug/kg	10000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	10000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	50000
1,2,4-Trichlorobenzene	ND	ug/kg	10000
2,4,5-Trichlorophenol	ND	ug/kg	50000
2,4,6-Trichlorophenol	ND	ug/kg	10000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	10000
1,2-Diphenylhydrazine	ND	ug/kg	10000
1-Chloronaphthalene	ND	ug/kg	--
Nitrobenzene-d5	88	%	--
2-Fluorobiphenyl	94	%	--
Terphenyl-d14	86	%	--
Phenol-d5	85	%	--
2-Fluorophenol	81	%	--
2,4,6-Tribromophenol	83	%	--

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI1004V9.0
Lab ID: 010192-0002-SA Enseco ID: 1081324
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 08 JUL 90 Analyzed: 29 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	5000
Acenaphthylene	ND	ug/kg	5000
Acetophenone	ND	ug/kg	5000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	5000
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(g,h,i)perylene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
Benzyl alcohol	ND	ug/kg	5000
bis(2-Chloroethoxy)-methane	ND	ug/kg	5000
bis(2-Chloroethyl) ether	ND	ug/kg	5000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
4-Bromophenyl phenyl ether	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
4-Chloroaniline	ND	ug/kg	5000
4-Chloro-3-methylphenol	ND	ug/kg	5000
2-Chloronaphthalene	ND	ug/kg	5000
2-Chlorophenol	ND	ug/kg	5000
4-Chlorophenyl phenyl ether	ND	ug/kg	5000
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
3,3'-Dichlorobenzidine	ND	ug/kg	10000
2,4-Dichlorophenol	ND	ug/kg	5000
2,6-Dichlorophenol	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
p-Dimethylaminoazobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI1004V9.0
Lab ID: 010192-0002-SA Enseco ID: 1081324
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 08 JUL 90 Analyzed: 29 JUL 90

Parameter	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
a,a-Dimethylphenethylamine	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
1,3-Dinitrobenzene	ND	ug/kg	5000
4,6-Dinitro-o-cresol	ND	ug/kg	25000
2,4-Dinitrophenol	ND	ug/kg	25000
2,4-Dinitrotoluene	ND	ug/kg	5000
2,6-Dinitrotoluene	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Diphenylamine	ND	ug/kg	5000
Ethyl methanesulfonate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Fluorene	ND	ug/kg	5000
Hexachlorobenzene	ND	ug/kg	5000
Hexachlorobutadiene	ND	ug/kg	5000
Hexachlorocyclopentadiene	ND	ug/kg	5000
Hexachloroethane	ND	ug/kg	5000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	5000
Isophorone	ND	ug/kg	5000
3-Methylcholanthrene	ND	ug/kg	5000
Methyl methanesulfonate	ND	ug/kg	5000
2-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
1-Naphthylamine	ND	ug/kg	5000
2-Naphthylamine	ND	ug/kg	5000
2-Nitroaniline	ND	ug/kg	25000
3-Nitroaniline	ND	ug/kg	25000
4-Nitroaniline	ND	ug/kg	25000
Nitrobenzene	ND	ug/kg	5000
2-Nitrophenol	ND	ug/kg	5000
4-Nitrophenol	ND	ug/kg	25000
N-Nitroso-di-n-butylamine	ND	ug/kg	5000
N-Nitrosodimethylamine	ND	ug/kg	5000
N-Nitrosodiphenylamine	ND	ug/kg	5000
N-Nitroso-di-n-propylamine	ND	ug/kg	5000
N-Nitrosopiperidine	ND	ug/kg	5000
Pentachlorobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI1004V9.0
Lab ID: 010192-0002-SA Enseco ID: 1081324
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 08 JUL 90 Analyzed: 29 JUL 90

Parameter	Result	Units	Reporting Limit
Pentachloronitrobenzene	ND	ug/kg	25000
Pentachlorophenol	ND	ug/kg	25000
Phenacetin	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Phenol	ND	ug/kg	5000
2-Picoline	ND	ug/kg	5000
Pronamide	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	5000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	25000
1,2,4-Trichlorobenzene	ND	ug/kg	5000
2,4,5-Trichlorophenol	ND	ug/kg	25000
2,4,6-Trichlorophenol	ND	ug/kg	5000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	5000
1,2-Diphenylhydrazine	ND	ug/kg	5000
1-Chloronaphthalene	ND	ug/kg	--
Nitrobenzene-d5	104	%	--
2-Fluorobiphenyl	102	%	--
Terphenyl-d14	107	%	--
Phenol-d5	95	%	--
2-Fluorophenol	91	%	--
2,4,6-Tribromophenol	79	%	--

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI1004V12.5
Lab ID: 010192-0003-SA Enseco ID: 1081325
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 08 JUL 90 Analyzed: 29 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	5000
Acenaphthylene	ND	ug/kg	5000
Acetophenone	ND	ug/kg	5000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	5000
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(g,h,i)perylene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
Benzyl alcohol	ND	ug/kg	5000
bis(2-Chloroethoxy)-methane	ND	ug/kg	5000
bis(2-Chloroethyl) ether	ND	ug/kg	5000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
4-Bromophenyl phenyl ether	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
4-Chloroaniline	ND	ug/kg	5000
4-Chloro-3-methylphenol	ND	ug/kg	5000
2-Chloronaphthalene	ND	ug/kg	5000
2-Chlorophenol	ND	ug/kg	5000
4-Chlorophenyl phenyl ether	ND	ug/kg	5000
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
3,3'-Dichlorobenzidine	ND	ug/kg	10000
2,4-Dichlorophenol	ND	ug/kg	5000
2,6-Dichlorophenol	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
p-Dimethylaminoazobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI1004V12.5
Lab ID: 010192-0003-SA Enseco ID: 1081325
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 08 JUL 90 Analyzed: 29 JUL 90

Parameter	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
a,a-Dimethylphenethylamine	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
1,3-Dinitrobenzene	ND	ug/kg	5000
4,6-Dinitro-o-cresol	ND	ug/kg	25000
2,4-Dinitrophenol	ND	ug/kg	25000
2,4-Dinitrotoluene	ND	ug/kg	5000
2,6-Dinitrotoluene	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Diphenylamine	ND	ug/kg	5000
Ethyl methanesulfonate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Fluorene	ND	ug/kg	5000
Hexachlorobenzene	ND	ug/kg	5000
Hexachlorobutadiene	ND	ug/kg	5000
Hexachlorocyclopentadiene	ND	ug/kg	5000
Hexachloroethane	ND	ug/kg	5000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	5000
Isophorone	ND	ug/kg	5000
3-Methylcholanthrene	ND	ug/kg	5000
Methyl methanesulfonate	ND	ug/kg	5000
2-Methylnaphthalene	5000	ug/kg	5000
Naphthalene	ND	ug/kg	5000
1-Naphthylamine	ND	ug/kg	5000
2-Naphthylamine	ND	ug/kg	5000
2-Nitroaniline	ND	ug/kg	25000
3-Nitroaniline	ND	ug/kg	25000
4-Nitroaniline	ND	ug/kg	25000
Nitrobenzene	ND	ug/kg	5000
2-Nitrophenol	ND	ug/kg	5000
4-Nitrophenol	ND	ug/kg	25000
N-Nitroso-di-n-butylamine	ND	ug/kg	5000
N-Nitrosodimethylamine	ND	ug/kg	5000
N-Nitrosodiphenylamine	ND	ug/kg	5000
N-Nitroso-di-n-propylamine	ND	ug/kg	5000
N-Nitrosopiperidine	ND	ug/kg	5000
Pentachlorobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI1004V12.5
Lab ID: 010192-0003-SA Enseco ID: 1081325
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 08 JUL 90 Analyzed: 29 JUL 90

Parameter	Result	Units	Reporting Limit
Pentachloronitrobenzene	ND	ug/kg	25000
Pentachlorophenol	ND	ug/kg	25000
Phenacetin	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Phenol	ND	ug/kg	5000
2-Picoline	ND	ug/kg	5000
Pronamide	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	5000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	25000
1,2,4-Trichlorobenzene	ND	ug/kg	5000
2,4,5-Trichlorophenol	ND	ug/kg	25000
2,4,6-Trichlorophenol	ND	ug/kg	5000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	5000
1,2-Diphenylhydrazine	ND	ug/kg	5000
1-Chloronaphthalene	ND	ug/kg	--
Nitrobenzene-d5	105	%	--
2-Fluorobiphenyl	107	%	--
Terphenyl-d14	109	%	--
Phenol-d5	103	%	--
2-Fluorophenol	101	%	--
2,4,6-Tribromophenol	88	%	--

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI1005V0.0
Lab ID: 010192-0004-SA Enseco ID: 1081326
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 08 JUL 90 Analyzed: 30 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	5000
Acenaphthylene	ND	ug/kg	5000
Acetophenone	ND	ug/kg	5000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	5000
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(g,h,i)perylene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
Benzyl alcohol	ND	ug/kg	5000
bis(2-Chloroethoxy)-methane	ND	ug/kg	5000
bis(2-Chloroethyl) ether	ND	ug/kg	5000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
4-Bromophenyl phenyl ether	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
4-Chloroaniline	ND	ug/kg	5000
4-Chloro-3-methylphenol	ND	ug/kg	5000
2-Chloronaphthalene	ND	ug/kg	5000
2-Chlorophenol	ND	ug/kg	5000
4-Chlorophenyl phenyl ether	ND	ug/kg	5000
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
3,3'-Dichlorobenzidine	ND	ug/kg	10000
2,4-Dichlorophenol	ND	ug/kg	5000
2,6-Dichlorophenol	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
p-Dimethylaminoazobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI1005V0.0
Lab ID: 010192-0004-SA Enseco ID: 1081326
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 08 JUL 90 Analyzed: 30 JUL 90

Parameter	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
a,a-Dimethylphenethylamine	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
1,3-Dinitrobenzene	ND	ug/kg	5000
4,6-Dinitro-o-cresol	ND	ug/kg	25000
2,4-Dinitrophenol	ND	ug/kg	25000
2,4-Dinitrotoluene	ND	ug/kg	5000
2,6-Dinitrotoluene	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Diphenylamine	ND	ug/kg	5000
Ethyl methanesulfonate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Fluorene	ND	ug/kg	5000
Hexachlorobenzene	ND	ug/kg	5000
Hexachlorobutadiene	ND	ug/kg	5000
Hexachlorocyclopentadiene	ND	ug/kg	5000
Hexachloroethane	ND	ug/kg	5000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	5000
Isophorone	ND	ug/kg	5000
3-Methylcholanthrene	ND	ug/kg	5000
Methyl methanesulfonate	ND	ug/kg	5000
2-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
1-Naphthylamine	ND	ug/kg	5000
2-Naphthylamine	ND	ug/kg	5000
2-Nitroaniline	ND	ug/kg	25000
3-Nitroaniline	ND	ug/kg	25000
4-Nitroaniline	ND	ug/kg	25000
Nitrobenzene	ND	ug/kg	5000
2-Nitrophenol	ND	ug/kg	5000
4-Nitrophenol	ND	ug/kg	25000
N-Nitroso-di-n-butylamine	ND	ug/kg	5000
N-Nitrosodimethylamine	ND	ug/kg	5000
N-Nitrosodiphenylamine	ND	ug/kg	5000
N-Nitroso-di-n-propylamine	ND	ug/kg	5000
N-Nitrosopiperidine	ND	ug/kg	5000
Pentachlorobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI1005V0.0
Lab ID: 010192-0004-SA
Matrix: SOIL
Authorized: 29 JUN 90

Enseco ID: 1081326
Sampled: 28 JUN 90
Prepared: 08 JUL 90

Received: 29 JUN 90
Analyzed: 30 JUL 90

Parameter	Result	Units	Reporting Limit
Pentachloronitrobenzene	ND	ug/kg	25000
Pentachlorophenol	ND	ug/kg	25000
Phenacetin	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Phenol	ND	ug/kg	5000
2-Picoline	ND	ug/kg	5000
Pronamide	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	5000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	25000
1,2,4-Trichlorobenzene	ND	ug/kg	5000
2,4,5-Trichlorophenol	ND	ug/kg	25000
2,4,6-Trichlorophenol	ND	ug/kg	5000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	5000
1,2-Diphenylhydrazine	ND	ug/kg	5000
1-Chloronaphthalene	ND	ug/kg	--
Nitrobenzene-d5	87	%	--
2-Fluorobiphenyl	90	%	--
Terphenyl-d14	99	%	--
Phenol-d5	84	%	--
2-Fluorophenol	81	%	--
2,4,6-Tribromophenol	71	%	--

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis

Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI1005V3.0
Lab ID: 010192-0005-SA Enseco ID: 1081327
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 08 JUL 90 Analyzed: 30 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	5000
Acenaphthylene	ND	ug/kg	5000
Acetophenone	ND	ug/kg	5000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	5000
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(g,h,i)perylene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
Benzyl alcohol	ND	ug/kg	5000
bis(2-Chloroethoxy)-methane	ND	ug/kg	5000
bis(2-Chloroethyl) ether	ND	ug/kg	5000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
4-Bromophenyl phenyl ether	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
4-Chloroaniline	ND	ug/kg	5000
4-Chloro-3-methylphenol	ND	ug/kg	5000
2-Chloronaphthalene	ND	ug/kg	5000
2-Chlorophenol	ND	ug/kg	5000
4-Chlorophenyl phenyl ether	ND	ug/kg	5000
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
3,3'-Dichlorobenzidine	ND	ug/kg	10000
2,4-Dichlorophenol	ND	ug/kg	5000
2,6-Dichlorophenol	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
p-Dimethylaminoazobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI1005V3.0
Lab ID: 010192-0005-SA Enseco ID: 1081327
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 08 JUL 90 Analyzed: 30 JUL 90

Parameter	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
a,a-Dimethylphenethylamine	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
1,3-Dinitrobenzene	ND	ug/kg	5000
4,6-Dinitro-o-cresol	ND	ug/kg	25000
2,4-Dinitrophenol	ND	ug/kg	25000
2,4-Dinitrotoluene	ND	ug/kg	5000
2,6-Dinitrotoluene	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Diphenylamine	ND	ug/kg	5000
Ethyl methanesulfonate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Fluorene	ND	ug/kg	5000
Hexachlorobenzene	ND	ug/kg	5000
Hexachlorobutadiene	ND	ug/kg	5000
Hexachlorocyclopentadiene	ND	ug/kg	5000
Hexachloroethane	ND	ug/kg	5000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	5000
Isophorone	ND	ug/kg	5000
3-Methylcholanthrene	ND	ug/kg	5000
Methyl methanesulfonate	ND	ug/kg	5000
2-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
1-Naphthylamine	ND	ug/kg	5000
2-Naphthylamine	ND	ug/kg	5000
2-Nitroaniline	ND	ug/kg	25000
3-Nitroaniline	ND	ug/kg	25000
4-Nitroaniline	ND	ug/kg	25000
Nitrobenzene	ND	ug/kg	5000
2-Nitrophenol	ND	ug/kg	5000
4-Nitrophenol	ND	ug/kg	25000
N-Nitroso-di-n-butylamine	ND	ug/kg	5000
N-Nitrosodimethylamine	ND	ug/kg	5000
N-Nitrosodiphenylamine	ND	ug/kg	5000
N-Nitroso-di-n-propylamine	ND	ug/kg	5000
N-Nitrosopiperidine	ND	ug/kg	5000
Pentachlorobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI1005V3.0
Lab ID: 010192-0005-SA
Enseco ID: 1081327
Matrix: SOIL
Sampled: 28 JUN 90
Received: 29 JUN 90
Authorized: 29 JUN 90
Prepared: 08 JUL 90
Analyzed: 30 JUL 90

Parameter	Result	Units	Reporting Limit
Pentachloronitrobenzene	ND	ug/kg	25000
Pentachlorophenol	ND	ug/kg	25000
Phenacetin	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Phenol	ND	ug/kg	5000
2-Picoline	ND	ug/kg	5000
Pronamide	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	5000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	25000
1,2,4-Trichlorobenzene	ND	ug/kg	5000
2,4,5-Trichlorophenol	ND	ug/kg	25000
2,4,6-Trichlorophenol	ND	ug/kg	5000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	5000
1,2-Diphenylhydrazine	ND	ug/kg	5000
1-Chloronaphthalene	ND	ug/kg	--
Nitrobenzene-d5	96	%	--
2-Fluorobiphenyl	99	%	--
Terphenyl-d14	97	%	--
Phenol-d5	81	%	--
2-Fluorophenol	84	%	--
2,4,6-Tribromophenol	86	%	--

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis

Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI1005V6.0
Lab ID: 010192-0006-SA Enseco ID: 1081328
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 08 JUL 90 Analyzed: 30 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	100000
Acenaphthylene	ND	ug/kg	100000
Acetophenone	ND	ug/kg	100000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	100000
Anthracene	ND	ug/kg	100000
Benzo(a)anthracene	ND	ug/kg	100000
Benzo(b)fluoranthene	ND	ug/kg	100000
Benzo(k)fluoranthene	ND	ug/kg	100000
Benzo(g,h,i)perylene	ND	ug/kg	100000
Benzo(a)pyrene	ND	ug/kg	100000
Benzyl alcohol	ND	ug/kg	100000
bis(2-Chloroethoxy)-methane	ND	ug/kg	100000
bis(2-Chloroethyl) ether	ND	ug/kg	100000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	100000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	100000
4-Bromophenyl phenyl ether	ND	ug/kg	100000
Butyl benzyl phthalate	ND	ug/kg	100000
4-Chloroaniline	ND	ug/kg	100000
4-Chloro-3-methylphenol	ND	ug/kg	100000
2-Chloronaphthalene	ND	ug/kg	100000
2-Chlorophenol	ND	ug/kg	100000
4-Chlorophenyl phenyl ether	ND	ug/kg	100000
o-Cresol	ND	ug/kg	100000
m & p-Cresol(s)	120000	ug/kg	100000
Chrysene	ND	ug/kg	100000
Dibenz(a,h)anthracene	ND	ug/kg	100000
Di-n-butyl phthalate	ND	ug/kg	100000
1,2-Dichlorobenzene	ND	ug/kg	100000
1,3-Dichlorobenzene	ND	ug/kg	100000
1,4-Dichlorobenzene	ND	ug/kg	100000
3,3'-Dichlorobenzidine	ND	ug/kg	200000
2,4-Dichlorophenol	ND	ug/kg	100000
2,6-Dichlorophenol	ND	ug/kg	100000
Diethyl phthalate	ND	ug/kg	100000
p-Dimethylaminoazobenzene	ND	ug/kg	100000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI1005V6.0
Lab ID: 010192-0006-SA Enseco ID: 1081328
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 08 JUL 90 Analyzed: 30 JUL 90

Parameter	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	100000
a,a-Dimethylphenethylamine	ND	ug/kg	100000
2,4-Dimethylphenol	ND	ug/kg	100000
Dimethyl phthalate	ND	ug/kg	100000
1,3-Dinitrobenzene	ND	ug/kg	100000
4,6-Dinitro-o-cresol	ND	ug/kg	500000
2,4-Dinitrophenol	ND	ug/kg	500000
2,4-Dinitrotoluene	ND	ug/kg	100000
2,6-Dinitrotoluene	ND	ug/kg	100000
Di-n-octyl phthalate	ND	ug/kg	100000
Diphenylamine	ND	ug/kg	100000
Ethyl methanesulfonate	ND	ug/kg	100000
Fluoranthene	ND	ug/kg	100000
Fluorene	100000	ug/kg	100000
Hexachlorobenzene	ND	ug/kg	100000
Hexachlorobutadiene	ND	ug/kg	100000
Hexachlorocyclopentadiene	ND	ug/kg	100000
Hexachloroethane	ND	ug/kg	100000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	100000
Isophorone	ND	ug/kg	100000
3-Methylcholanthrene	ND	ug/kg	100000
Methyl methanesulfonate	ND	ug/kg	100000
2-Methylnaphthalene	1400000	ug/kg	100000
Naphthalene	340000	ug/kg	100000
1-Naphthylamine	ND	ug/kg	100000
2-Naphthylamine	ND	ug/kg	100000
2-Nitroaniline	ND	ug/kg	500000
3-Nitroaniline	ND	ug/kg	500000
4-Nitroaniline	ND	ug/kg	500000
Nitrobenzene	ND	ug/kg	100000
2-Nitrophenol	ND	ug/kg	100000
4-Nitrophenol	ND	ug/kg	500000
N-Nitroso-di-n-butylamine	ND	ug/kg	100000
N-Nitrosodimethylamine	ND	ug/kg	100000
N-Nitrosodiphenylamine	ND	ug/kg	100000
N-Nitroso-di-n-propylamine	ND	ug/kg	100000
N-Nitrosopiperidine	ND	ug/kg	100000
Pentachlorobenzene	ND	ug/kg	100000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI1005V6.0
Lab ID: 010192-0006-SA
Enseco ID: 1081328
Matrix: SOIL
Sampled: 28 JUN 90
Received: 29 JUN 90
Authorized: 29 JUN 90
Prepared: 08 JUL 90
Analyzed: 30 JUL 90

Parameter	Result	Units	Reporting Limit
Pentachloronitrobenzene	ND	ug/kg	500000
Pentachlorophenol	ND	ug/kg	500000
Phenacetin	ND	ug/kg	100000
Phenanthrene	250000	ug/kg	100000
Phenol	ND	ug/kg	100000
2-Picoline	ND	ug/kg	100000
Pronamide	ND	ug/kg	100000
Pyrene	ND	ug/kg	100000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	100000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	500000
1,2,4-Trichlorobenzene	ND	ug/kg	100000
2,4,5-Trichlorophenol	ND	ug/kg	500000
2,4,6-Trichlorophenol	ND	ug/kg	100000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	100000
1,2-Diphenylhydrazine	ND	ug/kg	100000
1-Chloronaphthalene	ND	ug/kg	--
Nitrobenzene-d5	ND	%	--
2-Fluorobiphenyl	ND	%	--
Terphenyl-d14	ND	%	--
Phenol-d5	ND	%	--
2-Fluorophenol	ND	%	--
2,4,6-Tribromophenol	ND	%	--

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis
Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI1005V9.0
Lab ID: 010192-0007-SA Enseco ID: 1081329
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 08 JUL 90 Analyzed: 30 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	5000
Acenaphthylene	ND	ug/kg	5000
Acetophenone	ND	ug/kg	5000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	5000
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(g,h,i)perylene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
Benzyl alcohol	ND	ug/kg	5000
bis(2-Chloroethoxy)-methane	ND	ug/kg	5000
bis(2-Chloroethyl) ether	ND	ug/kg	5000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
4-Bromophenyl phenyl ether	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
4-Chloroaniline	ND	ug/kg	5000
4-Chloro-3-methylphenol	ND	ug/kg	5000
2-Chloronaphthalene	ND	ug/kg	5000
2-Chlorophenol	ND	ug/kg	5000
4-Chlorophenyl phenyl ether	ND	ug/kg	5000
o-Cresol	34000	ug/kg	5000
m & p-Cresol(s)	68000	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
3,3'-Dichlorobenzidine	ND	ug/kg	10000
2,4-Dichlorophenol	ND	ug/kg	5000
2,6-Dichlorophenol	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
p-Dimethylaminoazobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Donna Reinwald Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI1005V9.0
Lab ID: 010192-0007-SA Enseco ID: 1081329
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 08 JUL 90 Analyzed: 30 JUL 90

Parameter	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
a,a-Dimethylphenethylamine	ND	ug/kg	5000
2,4-Dimethylphenol	12000	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
1,3-Dinitrobenzene	ND	ug/kg	5000
4,6-Dinitro-o-cresol	ND	ug/kg	25000
2,4-Dinitrophenol	ND	ug/kg	25000
2,4-Dinitrotoluene	ND	ug/kg	5000
2,6-Dinitrotoluene	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Diphenylamine	ND	ug/kg	5000
Ethyl methanesulfonate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Fluorene	ND	ug/kg	5000
Hexachlorobenzene	ND	ug/kg	5000
Hexachlorobutadiene	ND	ug/kg	5000
Hexachlorocyclopentadiene	ND	ug/kg	5000
Hexachloroethane	ND	ug/kg	5000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	5000
Isophorone	ND	ug/kg	5000
3-Methylcholanthrene	ND	ug/kg	5000
Methyl methanesulfonate	ND	ug/kg	5000
2-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
1-Naphthylamine	ND	ug/kg	5000
2-Naphthylamine	ND	ug/kg	5000
2-Nitroaniline	ND	ug/kg	25000
3-Nitroaniline	ND	ug/kg	25000
4-Nitroaniline	ND	ug/kg	25000
Nitrobenzene	ND	ug/kg	5000
2-Nitrophenol	ND	ug/kg	5000
4-Nitrophenol	ND	ug/kg	25000
N-Nitroso-di-n-butylamine	ND	ug/kg	5000
N-Nitrosodimethylamine	ND	ug/kg	5000
N-Nitrosodiphenylamine	ND	ug/kg	5000
N-Nitroso-di-n-propylamine	ND	ug/kg	5000
N-Nitrosopiperidine	ND	ug/kg	5000
Pentachlorobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Donna Reinwald Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI1005V9.0
Lab ID: 010192-0007-SA Enseco ID: 1081329
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 08 JUL 90 Analyzed: 30 JUL 90

Parameter	Result	Units	Reporting Limit
Pentachloronitrobenzene	ND	ug/kg	25000
Pentachlorophenol	ND	ug/kg	25000
Phenacetin	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Phenol	71000	ug/kg	5000
2-Picoline	ND	ug/kg	5000
Pronamide	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	5000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	25000
1,2,4-Trichlorobenzene	ND	ug/kg	5000
2,4,5-Trichlorophenol	ND	ug/kg	25000
2,4,6-Trichlorophenol	ND	ug/kg	5000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	5000
1,2-Diphenylhydrazine	ND	ug/kg	5000
1-Chloronaphthalene	ND	ug/kg	--
Nitrobenzene-d5	92	%	--
2-Fluorobiphenyl	97	%	--
Terphenyl-d14	100	%	--
Phenol-d5	94	%	--
2-Fluorophenol	90	%	--
2,4,6-Tribromophenol	88	%	--

ND = Not detected
NA = Not applicable

Reported By: Donna Reinwald Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI1005V12.5
Lab ID: 010192-0008-SA Enseco ID: 1081330
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 08 JUL 90 Analyzed: 30 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	5000
Acenaphthylene	ND	ug/kg	5000
Acetophenone	ND	ug/kg	5000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	5000
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(g,h,i)perylene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
Benzyl alcohol	ND	ug/kg	5000
bis(2-Chloroethoxy)-methane	ND	ug/kg	5000
bis(2-Chloroethyl) ether	ND	ug/kg	5000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
4-Bromophenyl phenyl ether	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
4-Chloroaniline	ND	ug/kg	5000
4-Chloro-3-methylphenol	ND	ug/kg	5000
2-Chloronaphthalene	ND	ug/kg	5000
2-Chlorophenol	ND	ug/kg	5000
4-Chlorophenyl phenyl ether	ND	ug/kg	5000
o-Cresol	19000	ug/kg	5000
m & p-Cresol(s)	34000	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
3,3'-Dichlorobenzidine	ND	ug/kg	10000
2,4-Dichlorophenol	ND	ug/kg	5000
2,6-Dichlorophenol	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
p-Dimethylaminoazobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Donna Reinwald Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

: Name: Giant Refining
: ID: RFI1005V12.5
ID: 010192-0008-SA Enseco ID: 1081330
ix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
ized: 29 JUN 90 Prepared: 08 JUL 90 Analyzed: 30 JUL 90

eter	Result	Units	Reporting Limit
2-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
imethylphenethylamine	ND	ug/kg	5000
-Dimethylphenol	7900	ug/kg	5000
hyl phthalate	ND	ug/kg	5000
initrobenzene	ND	ug/kg	5000
initro-o-cresol	ND	ug/kg	25000
-Dinitrophenol	ND	ug/kg	25000
initrotoluene	ND	ug/kg	5000
initrotoluene	ND	ug/kg	5000
n-octyl phthalate	ND	ug/kg	5000
enylamine	ND	ug/kg	5000
methanesulfonate	ND	ug/kg	5000
anthene	ND	ug/kg	5000
rene	ND	ug/kg	5000
chlorobenzene	ND	ug/kg	5000
ilorobutadiene	ND	ug/kg	5000
ilorocyclopentadiene	ND	ug/kg	5000
achloroethane	ND	ug/kg	5000
(1,2,3-cd)pyrene	ND	ug/kg	5000
rone	ND	ug/kg	5000
ethylcholanthrene	ND	ug/kg	5000
yl methanesulfonate	ND	ug/kg	5000
ylnaphthalene	ND	ug/kg	5000
alene	ND	ug/kg	5000
aphthylamine	ND	ug/kg	5000
nthylamine	ND	ug/kg	5000
oaniline	ND	ug/kg	25000
roaniline	ND	ug/kg	25000
itroaniline	ND	ug/kg	25000
benzene	ND	ug/kg	5000
ophenol	ND	ug/kg	5000
itrophenol	ND	ug/kg	25000
itroso-di-n-butylamine	ND	ug/kg	5000
osodimethylamine	ND	ug/kg	5000
osodiphenylamine	ND	ug/kg	5000
itroso-di-n-propylamine	ND	ug/kg	5000
osopiperidine	ND	ug/kg	5000
chlorobenzene	ND	ug/kg	5000

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lot detected
= Not applicable

ed By: Donna Reinwald Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI1005V12.5
Lab ID: 010192-0008-SA Enseco ID: 1081330
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 08 JUL 90 Analyzed: 30 JUL 90

Parameter	Result	Units	Reporting Limit
Pentachloronitrobenzene	ND	ug/kg	25000
Pentachlorophenol	ND	ug/kg	25000
Phenacetin	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Phenol	32000	ug/kg	5000
2-Picoline	ND	ug/kg	5000
Pronamide	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	5000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	25000
1,2,4-Trichlorobenzene	ND	ug/kg	5000
2,4,5-Trichlorophenol	ND	ug/kg	25000
2,4,6-Trichlorophenol	ND	ug/kg	5000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	5000
1,2-Diphenylhydrazine	ND	ug/kg	5000
1-Chloronaphthalene	ND	ug/kg	--
Nitrobenzene-d5	82	%	--
2-Fluorobiphenyl	88	%	--
Terphenyl-d14	87	%	--
Phenol-d5	84	%	--
2-Fluorophenol	86	%	--
2,4,6-Tribromophenol	75	%	--

ND = Not detected
NA = Not applicable

Reported By: Donna Reinwald Approved By: Jeff Lowry

Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI100503.0
Lab ID: 010192-0009-SA Enseco ID: 1081331
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 08 JUL 90 Analyzed: 30 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	5000
Acenaphthylene	ND	ug/kg	5000
Acetophenone	ND	ug/kg	5000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	5000
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(g,h,i)perylene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
Benzyl alcohol	ND	ug/kg	5000
bis(2-Chloroethoxy)-methane	ND	ug/kg	5000
bis(2-Chloroethyl) ether	ND	ug/kg	5000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
4-Bromophenyl phenyl ether	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
4-Chloroaniline	ND	ug/kg	5000
4-Chloro-3-methylphenol	ND	ug/kg	5000
2-Chloronaphthalene	ND	ug/kg	5000
2-Chlorophenol	ND	ug/kg	5000
4-Chlorophenyl phenyl ether	ND	ug/kg	5000
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
3,3'-Dichlorobenzidine	ND	ug/kg	10000
2,4-Dichlorophenol	ND	ug/kg	5000
2,6-Dichlorophenol	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
p-Dimethylaminoazobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Donna Reinwald Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI100503.0
Lab ID: 010192-0009-SA Enseco ID: 1081331
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 08 JUL 90 Analyzed: 30 JUL 90

Parameter	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
a,a-Dimethylphenethylamine	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
1,3-Dinitrobenzene	ND	ug/kg	5000
4,6-Dinitro-o-cresol	ND	ug/kg	25000
2,4-Dinitrophenol	ND	ug/kg	25000
2,4-Dinitrotoluene	ND	ug/kg	5000
2,6-Dinitrotoluene	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Diphenylamine	ND	ug/kg	5000
Ethyl methanesulfonate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Fluorene	ND	ug/kg	5000
Hexachlorobenzene	ND	ug/kg	5000
Hexachlorobutadiene	ND	ug/kg	5000
Hexachlorocyclopentadiene	ND	ug/kg	5000
Hexachloroethane	ND	ug/kg	5000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	5000
Isophorone	ND	ug/kg	5000
3-Methylcholanthrene	ND	ug/kg	5000
Methyl methanesulfonate	ND	ug/kg	5000
2-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
1-Naphthylamine	ND	ug/kg	5000
2-Naphthylamine	ND	ug/kg	5000
2-Nitroaniline	ND	ug/kg	25000
3-Nitroaniline	ND	ug/kg	25000
4-Nitroaniline	ND	ug/kg	25000
Nitrobenzene	ND	ug/kg	5000
2-Nitrophenol	ND	ug/kg	5000
4-Nitrophenol	ND	ug/kg	25000
N-Nitroso-di-n-butylamine	ND	ug/kg	5000
N-Nitrosodimethylamine	ND	ug/kg	5000
N-Nitrosodiphenylamine	ND	ug/kg	5000
N-Nitroso-di-n-propylamine	ND	ug/kg	5000
N-Nitrosopiperidine	ND	ug/kg	5000
Pentachlorobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Donna Reinwald Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI100503.0
Lab ID: 010192-0009-SA Enseco ID: 1081331
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 08 JUL 90 Analyzed: 30 JUL 90

Parameter	Result	Units	Reporting Limit
Pentachloronitrobenzene	ND	ug/kg	25000
Pentachlorophenol	ND	ug/kg	25000
Phenacetin	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Phenol	ND	ug/kg	5000
2-Picoline	ND	ug/kg	5000
Pronamide	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	5000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	25000
1,2,4-Trichlorobenzene	ND	ug/kg	5000
2,4,5-Trichlorophenol	ND	ug/kg	25000
2,4,6-Trichlorophenol	ND	ug/kg	5000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	5000
1,2-Diphenylhydrazine	ND	ug/kg	5000
1-Chloronaphthalene	ND	ug/kg	--
Nitrobenzene-d5	80	%	--
2-Fluorobiphenyl	81	%	--
Terphenyl-d14	85	%	--
Phenol-d5	75	%	--
2-Fluorophenol	78	%	--
2,4,6-Tribromophenol	71	%	--

ND = Not detected
NA = Not applicable

Reported By: Donna Reinwald Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI1002V0.0
Lab ID: 010192-0010-SA
Matrix: SOIL
Authorized: 29 JUN 90

Enseco ID: 1081332
Sampled: 28 JUN 90
Prepared: 08 JUL 90

Received: 29 JUN 90
Analyzed: 31 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	5000
Acenaphthylene	ND	ug/kg	5000
Acetophenone	ND	ug/kg	5000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	5000
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(g,h,i)perylene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
Benzyl alcohol	ND	ug/kg	5000
bis(2-Chloroethoxy)-methane	ND	ug/kg	5000
bis(2-Chloroethyl) ether	ND	ug/kg	5000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
4-Bromophenyl phenyl ether	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
4-Chloroaniline	ND	ug/kg	5000
4-Chloro-3-methylphenol	ND	ug/kg	5000
2-Chloronaphthalene	ND	ug/kg	5000
2-Chlorophenol	ND	ug/kg	5000
4-Chlorophenyl phenyl ether	ND	ug/kg	5000
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
3,3'-Dichlorobenzidine	ND	ug/kg	10000
2,4-Dichlorophenol	ND	ug/kg	5000
2,6-Dichlorophenol	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
p-Dimethylaminoazobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis

Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI1002V0.0
Lab ID: 010192-0010-SA
Matrix: SOIL
Authorized: 29 JUN 90

Enseco ID: 1081332
Sampled: 28 JUN 90
Prepared: 08 JUL 90

Received: 29 JUN 90
Analyzed: 31 JUL 90

Parameter	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
a,a-Dimethylphenethylamine	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
1,3-Dinitrobenzene	ND	ug/kg	5000
4,6-Dinitro-o-cresol	ND	ug/kg	25000
2,4-Dinitrophenol	ND	ug/kg	25000
2,4-Dinitrotoluene	ND	ug/kg	5000
2,6-Dinitrotoluene	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Diphenylamine	ND	ug/kg	5000
Ethyl methanesulfonate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Fluorene	ND	ug/kg	5000
Hexachlorobenzene	ND	ug/kg	5000
Hexachlorobutadiene	ND	ug/kg	5000
Hexachlorocyclopentadiene	ND	ug/kg	5000
Hexachloroethane	ND	ug/kg	5000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	5000
Isophorone	ND	ug/kg	5000
3-Methylcholanthrene	ND	ug/kg	5000
Methyl methanesulfonate	ND	ug/kg	5000
2-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
1-Naphthylamine	ND	ug/kg	5000
2-Naphthylamine	ND	ug/kg	5000
2-Nitroaniline	ND	ug/kg	25000
3-Nitroaniline	ND	ug/kg	25000
4-Nitroaniline	ND	ug/kg	25000
Nitrobenzene	ND	ug/kg	5000
2-Nitrophenol	ND	ug/kg	5000
4-Nitrophenol	ND	ug/kg	25000
N-Nitroso-di-n-butylamine	ND	ug/kg	5000
N-Nitrosodimethylamine	ND	ug/kg	5000
N-Nitrosodiphenylamine	ND	ug/kg	5000
N-Nitroso-di-n-propylamine	ND	ug/kg	5000
N-Nitrosopiperidine	ND	ug/kg	5000
Pentachlorobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis

Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI1002V0.0
Lab ID: 010192-0010-SA Enseco ID: 1081332
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 08 JUL 90 Analyzed: 31 JUL 90

Parameter	Result	Units	Reporting Limit
Pentachloronitrobenzene	ND	ug/kg	25000
Pentachlorophenol	ND	ug/kg	25000
Phenacetin	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Phenol	ND	ug/kg	5000
2-Picoline	ND	ug/kg	5000
Pronamide	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	5000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	25000
1,2,4-Trichlorobenzene	ND	ug/kg	5000
2,4,5-Trichlorophenol	ND	ug/kg	25000
2,4,6-Trichlorophenol	ND	ug/kg	5000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	5000
1,2-Diphenylhydrazine	ND	ug/kg	5000
1-Chloronaphthalene	ND	ug/kg	--
Nitrobenzene-d5	78	%	--
2-Fluorobiphenyl	84	%	--
Terphenyl-d14	88	%	--
Phenol-d5	75	%	--
2-Fluorophenol	77	%	--
2,4,6-Tribromophenol	84	%	--

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI1002V3.0
Lab ID: 010192-0011-SA Enseco ID: 1081333
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 08 JUL 90 Analyzed: 31 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	10000
Acenaphthylene	ND	ug/kg	10000
Acetophenone	ND	ug/kg	10000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	10000
Anthracene	ND	ug/kg	10000
Benzo(a)anthracene	ND	ug/kg	10000
Benzo(b)fluoranthene	ND	ug/kg	10000
Benzo(k)fluoranthene	ND	ug/kg	10000
Benzo(g,h,i)perylene	ND	ug/kg	10000
Benzo(a)pyrene	ND	ug/kg	10000
Benzyl alcohol	ND	ug/kg	10000
bis(2-Chloroethoxy)-methane	ND	ug/kg	10000
bis(2-Chloroethyl) ether	ND	ug/kg	10000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	10000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	10000
4-Bromophenyl phenyl ether	ND	ug/kg	10000
Butyl benzyl phthalate	ND	ug/kg	10000
4-Chloroaniline	ND	ug/kg	10000
4-Chloro-3-methylphenol	ND	ug/kg	10000
2-Chloronaphthalene	ND	ug/kg	10000
2-Chlorophenol	ND	ug/kg	10000
4-Chlorophenyl phenyl ether	ND	ug/kg	10000
o-Cresol	ND	ug/kg	10000
m & p-Cresol(s)	ND	ug/kg	10000
Chrysene	ND	ug/kg	10000
Dibenz(a,h)anthracene	ND	ug/kg	10000
Di-n-butyl phthalate	ND	ug/kg	10000
1,2-Dichlorobenzene	ND	ug/kg	10000
1,3-Dichlorobenzene	ND	ug/kg	10000
1,4-Dichlorobenzene	ND	ug/kg	10000
3,3'-Dichlorobenzidine	ND	ug/kg	20000
2,4-Dichlorophenol	ND	ug/kg	10000
2,6-Dichlorophenol	ND	ug/kg	10000
Diethyl phthalate	ND	ug/kg	10000
p-Dimethylaminoazobenzene	ND	ug/kg	10000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI1002V3.0
Lab ID: 010192-0011-SA Enseco ID: 1081333
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 08 JUL 90 Analyzed: 31 JUL 90

Parameter	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	10000
a,a-Dimethylphenethylamine	ND	ug/kg	10000
2,4-Dimethylphenol	ND	ug/kg	10000
Dimethyl phthalate	ND	ug/kg	10000
1,3-Dinitrobenzene	ND	ug/kg	10000
4,6-Dinitro-o-cresol	ND	ug/kg	50000
2,4-Dinitrophenol	ND	ug/kg	50000
2,4-Dinitrotoluene	ND	ug/kg	10000
2,6-Dinitrotoluene	ND	ug/kg	10000
Di-n-octyl phthalate	ND	ug/kg	10000
Diphenylamine	ND	ug/kg	10000
Ethyl methanesulfonate	ND	ug/kg	10000
Fluoranthene	ND	ug/kg	10000
Fluorene	ND	ug/kg	10000
Hexachlorobenzene	ND	ug/kg	10000
Hexachlorobutadiene	ND	ug/kg	10000
Hexachlorocyclopentadiene	ND	ug/kg	10000
Hexachloroethane	ND	ug/kg	10000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	10000
Isophorone	ND	ug/kg	10000
3-Methylcholanthrene	ND	ug/kg	10000
Methyl methanesulfonate	ND	ug/kg	10000
2-Methylnaphthalene	56000	ug/kg	10000
Naphthalene	ND	ug/kg	10000
1-Naphthylamine	ND	ug/kg	10000
2-Naphthylamine	ND	ug/kg	10000
2-Nitroaniline	ND	ug/kg	50000
3-Nitroaniline	ND	ug/kg	50000
4-Nitroaniline	ND	ug/kg	50000
Nitrobenzene	ND	ug/kg	10000
2-Nitrophenol	ND	ug/kg	10000
4-Nitrophenol	ND	ug/kg	50000
N-Nitroso-di-n-butylamine	ND	ug/kg	10000
N-Nitrosodimethylamine	ND	ug/kg	10000
N-Nitrosodiphenylamine	ND	ug/kg	10000
N-Nitroso-di-n-propylamine	ND	ug/kg	10000
N-Nitrosopiperidine	ND	ug/kg	10000
Pentachlorobenzene	ND	ug/kg	10000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI1002V3.0
Lab ID: 010192-0011-SA Enseco ID: 1081333
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 08 JUL 90 Analyzed: 31 JUL 90

Parameter	Result	Units	Reporting Limit
Pentachloronitrobenzene	ND	ug/kg	50000
Pentachlorophenol	ND	ug/kg	50000
Phenacetin	ND	ug/kg	10000
Phenanthrene	28000	ug/kg	10000
Phenol	ND	ug/kg	10000
2-Picoline	ND	ug/kg	10000
Pronamide	ND	ug/kg	10000
Pyrene	ND	ug/kg	10000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	10000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	50000
1,2,4-Trichlorobenzene	ND	ug/kg	10000
2,4,5-Trichlorophenol	ND	ug/kg	50000
2,4,6-Trichlorophenol	ND	ug/kg	10000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	10000
1,2-Diphenylhydrazine	ND	ug/kg	10000
1-Chloronaphthalene	ND	ug/kg	--
Nitrobenzene-d5	70	%	--
2-Fluorobiphenyl	82	%	--
Terphenyl-d14	84	%	--
Phenol-d5	70	%	--
2-Fluorophenol	69	%	--
2,4,6-Tribromophenol	81	%	--

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI1002V6.0
Lab ID: 010192-0012-SA Enseco ID: 1081334
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 08 JUL 90 Analyzed: 31 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	5000
Acenaphthylene	ND	ug/kg	5000
Acetophenone	ND	ug/kg	5000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	5000
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(g,h,i)perylene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
Benzyl alcohol	ND	ug/kg	5000
bis(2-Chloroethoxy)-methane	ND	ug/kg	5000
bis(2-Chloroethyl) ether	ND	ug/kg	5000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
4-Bromophenyl phenyl ether	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
4-Chloroaniline	ND	ug/kg	5000
4-Chloro-3-methylphenol	ND	ug/kg	5000
2-Chloronaphthalene	ND	ug/kg	5000
2-Chlorophenol	ND	ug/kg	5000
4-Chlorophenyl phenyl ether	ND	ug/kg	5000
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
3,3'-Dichlorobenzidine	ND	ug/kg	10000
2,4-Dichlorophenol	ND	ug/kg	5000
2,6-Dichlorophenol	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
p-Dimethylaminoazobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI1002V6.0
Lab ID: 010192-0012-SA Enseco ID: 1081334
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 08 JUL 90 Analyzed: 31 JUL 90

Parameter	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
a,a-Dimethylphenethylamine	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
1,3-Dinitrobenzene	ND	ug/kg	5000
4,6-Dinitro-o-cresol	ND	ug/kg	25000
2,4-Dinitrophenol	ND	ug/kg	25000
2,4-Dinitrotoluene	ND	ug/kg	5000
2,6-Dinitrotoluene	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Diphenylamine	ND	ug/kg	5000
Ethyl methanesulfonate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Fluorene	ND	ug/kg	5000
Hexachlorobenzene	ND	ug/kg	5000
Hexachlorobutadiene	ND	ug/kg	5000
Hexachlorocyclopentadiene	ND	ug/kg	5000
Hexachloroethane	ND	ug/kg	5000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	5000
Isophorone	ND	ug/kg	5000
3-Methylcholanthrene	ND	ug/kg	5000
Methyl methanesulfonate	ND	ug/kg	5000
2-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
1-Naphthylamine	ND	ug/kg	5000
2-Naphthylamine	ND	ug/kg	5000
2-Nitroaniline	ND	ug/kg	25000
3-Nitroaniline	ND	ug/kg	25000
4-Nitroaniline	ND	ug/kg	25000
Nitrobenzene	ND	ug/kg	5000
2-Nitrophenol	ND	ug/kg	5000
4-Nitrophenol	ND	ug/kg	25000
N-Nitroso-di-n-butylamine	ND	ug/kg	5000
N-Nitrosodimethylamine	ND	ug/kg	5000
N-Nitrosodiphenylamine	ND	ug/kg	5000
N-Nitroso-di-n-propylamine	ND	ug/kg	5000
N-Nitrosopiperidine	ND	ug/kg	5000
Pentachlorobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI1002V6.0
Lab ID: 010192-0012-SA Enseco ID: 1081334
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 08 JUL 90 Analyzed: 31 JUL 90

Parameter	Result	Units	Reporting Limit
Pentachloronitrobenzene	ND	ug/kg	25000
Pentachlorophenol	ND	ug/kg	25000
Phenacetin	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Phenol	ND	ug/kg	5000
2-Picoline	ND	ug/kg	5000
Pronamide	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	5000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	25000
1,2,4-Trichlorobenzene	ND	ug/kg	5000
2,4,5-Trichlorophenol	ND	ug/kg	25000
2,4,6-Trichlorophenol	ND	ug/kg	5000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	5000
1,2-Diphenylhydrazine	ND	ug/kg	5000
1-Chloronaphthalene	ND	ug/kg	--
Nitrobenzene-d5	79	%	--
2-Fluorobiphenyl	84	%	--
Terphenyl-d14	90	%	--
Phenol-d5	75	%	--
2-Fluorophenol	74	%	--
2,4,6-Tribromophenol	66	%	--

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI1002V9.0
Lab ID: 010192-0013-SA Enseco ID: 1081336
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 08 JUL 90 Analyzed: 31 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	5000
Acenaphthylene	ND	ug/kg	5000
Acetophenone	ND	ug/kg	5000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	5000
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(g,h,i)perylene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
Benzyl alcohol	ND	ug/kg	5000
bis(2-Chloroethoxy)-methane	ND	ug/kg	5000
bis(2-Chloroethyl) ether	ND	ug/kg	5000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
4-Bromophenyl phenyl ether	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
4-Chloroaniline	ND	ug/kg	5000
4-Chloro-3-methylphenol	ND	ug/kg	5000
2-Chloronaphthalene	ND	ug/kg	5000
2-Chlorophenol	ND	ug/kg	5000
4-Chlorophenyl phenyl ether	ND	ug/kg	5000
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
3,3'-Dichlorobenzidine	ND	ug/kg	10000
2,4-Dichlorophenol	ND	ug/kg	5000
2,6-Dichlorophenol	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
p-Dimethylaminoazobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI1002V9.0
Lab ID: 010192-0013-SA Enseco ID: 1081336
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 08 JUL 90 Analyzed: 31 JUL 90

Parameter	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
a,a-Dimethylphenethylamine	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
1,3-Dinitrobenzene	ND	ug/kg	5000
4,6-Dinitro-o-cresol	ND	ug/kg	25000
2,4-Dinitrophenol	ND	ug/kg	25000
2,4-Dinitrotoluene	ND	ug/kg	5000
2,6-Dinitrotoluene	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Diphenylamine	ND	ug/kg	5000
Ethyl methanesulfonate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Fluorene	ND	ug/kg	5000
Hexachlorobenzene	ND	ug/kg	5000
Hexachlorobutadiene	ND	ug/kg	5000
Hexachlorocyclopentadiene	ND	ug/kg	5000
Hexachloroethane	ND	ug/kg	5000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	5000
Isophorone	ND	ug/kg	5000
3-Methylcholanthrene	ND	ug/kg	5000
Methyl methanesulfonate	ND	ug/kg	5000
2-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
1-Naphthylamine	ND	ug/kg	5000
2-Naphthylamine	ND	ug/kg	5000
2-Nitroaniline	ND	ug/kg	25000
3-Nitroaniline	ND	ug/kg	25000
4-Nitroaniline	ND	ug/kg	25000
Nitrobenzene	ND	ug/kg	5000
2-Nitrophenol	ND	ug/kg	5000
4-Nitrophenol	ND	ug/kg	25000
N-Nitroso-di-n-butylamine	ND	ug/kg	5000
N-Nitrosodimethylamine	ND	ug/kg	5000
N-Nitrosodiphenylamine	ND	ug/kg	5000
N-Nitroso-di-n-propylamine	ND	ug/kg	5000
N-Nitrosopiperidine	ND	ug/kg	5000
Pentachlorobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI1002V9.0
Lab ID: 010192-0013-SA Enseco ID: 1081336
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 08 JUL 90 Analyzed: 31 JUL 90

Parameter	Result	Units	Reporting Limit
Pentachloronitrobenzene	ND	ug/kg	25000
Pentachlorophenol	ND	ug/kg	25000
Phenacetin	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Phenol	ND	ug/kg	5000
2-Picoline	ND	ug/kg	5000
Pronamide	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	5000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	25000
1,2,4-Trichlorobenzene	ND	ug/kg	5000
2,4,5-Trichlorophenol	ND	ug/kg	25000
2,4,6-Trichlorophenol	ND	ug/kg	5000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	5000
1,2-Diphenylhydrazine	ND	ug/kg	5000
1-Chloronaphthalene	ND	ug/kg	--
Nitrobenzene-d5	93	%	--
2-Fluorobiphenyl	96	%	--
Terphenyl-d14	104	%	--
Phenol-d5	87	%	--
2-Fluorophenol	85	%	--
2,4,6-Tribromophenol	74	%	--

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI1002V12.5
Lab ID: 010192-0014-SA Enseco ID: 1081337
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 08 JUL 90 Analyzed: 31 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	5000
Acenaphthylene	ND	ug/kg	5000
Acetophenone	ND	ug/kg	5000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	5000
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(g,h,i)perylene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
Benzyl alcohol	ND	ug/kg	5000
bis(2-Chloroethoxy)-methane	ND	ug/kg	5000
bis(2-Chloroethyl) ether	ND	ug/kg	5000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
4-Bromophenyl phenyl ether	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
4-Chloroaniline	ND	ug/kg	5000
4-Chloro-3-methylphenol	ND	ug/kg	5000
2-Chloronaphthalene	ND	ug/kg	5000
2-Chlorophenol	ND	ug/kg	5000
4-Chlorophenyl phenyl ether	ND	ug/kg	5000
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
3,3'-Dichlorobenzidine	ND	ug/kg	10000
2,4-Dichlorophenol	ND	ug/kg	5000
2,6-Dichlorophenol	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
p-Dimethylaminoazobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI1002V12.5
Lab ID: 010192-0014-SA
Matrix: SOIL
Authorized: 29 JUN 90

Enseco ID: 1081337
Sampled: 28 JUN 90
Prepared: 08 JUL 90

Received: 29 JUN 90
Analyzed: 31 JUL 90

Parameter	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
a,a-Dimethylphenethylamine	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
1,3-Dinitrobenzene	ND	ug/kg	5000
4,6-Dinitro-o-cresol	ND	ug/kg	25000
2,4-Dinitrophenol	ND	ug/kg	25000
2,4-Dinitrotoluene	ND	ug/kg	5000
2,6-Dinitrotoluene	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Diphenylamine	ND	ug/kg	5000
Ethyl methanesulfonate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Fluorene	ND	ug/kg	5000
Hexachlorobenzene	ND	ug/kg	5000
Hexachlorobutadiene	ND	ug/kg	5000
Hexachlorocyclopentadiene	ND	ug/kg	5000
Hexachloroethane	ND	ug/kg	5000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	5000
Isophorone	ND	ug/kg	5000
3-Methylcholanthrene	ND	ug/kg	5000
Methyl methanesulfonate	ND	ug/kg	5000
2-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
1-Naphthylamine	ND	ug/kg	5000
2-Naphthylamine	ND	ug/kg	5000
2-Nitroaniline	ND	ug/kg	25000
3-Nitroaniline	ND	ug/kg	25000
4-Nitroaniline	ND	ug/kg	25000
Nitrobenzene	ND	ug/kg	5000
2-Nitrophenol	ND	ug/kg	5000
4-Nitrophenol	ND	ug/kg	25000
N-Nitroso-di-n-butylamine	ND	ug/kg	5000
N-Nitrosodimethylamine	ND	ug/kg	5000
N-Nitrosodiphenylamine	ND	ug/kg	5000
N-Nitroso-di-n-propylamine	ND	ug/kg	5000
N-Nitrosopiperidine	ND	ug/kg	5000
Pentachlorobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis

Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI1002V12.5
Lab ID: 010192-0014-SA Enseco ID: 1081337
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 08 JUL 90 Analyzed: 31 JUL 90

Parameter	Result	Units	Reporting Limit
Pentachloronitrobenzene	ND	ug/kg	25000
Pentachlorophenol	ND	ug/kg	25000
Phenacetin	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Phenol	ND	ug/kg	5000
2-Picoline	ND	ug/kg	5000
Pronamide	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	5000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	25000
1,2,4-Trichlorobenzene	ND	ug/kg	5000
2,4,5-Trichlorophenol	ND	ug/kg	25000
2,4,6-Trichlorophenol	ND	ug/kg	5000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	5000
1,2-Diphenylhydrazine	ND	ug/kg	5000
1-Chloronaphthalene	ND	ug/kg	--
Nitrobenzene-d5	66	%	--
2-Fluorobiphenyl	67	%	--
Terphenyl-d14	74	%	--
Phenol-d5	58	%	--
2-Fluorophenol	61	%	--
2,4,6-Tribromophenol	50	%	--

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI1005D12.5
Lab ID: 010192-0015-SA Enseco ID: 1081339
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 08 JUL 90 Analyzed: 31 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	5000
Acenaphthylene	ND	ug/kg	5000
Acetophenone	ND	ug/kg	5000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	5000
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(g,h,i)perylene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
Benzyl alcohol	ND	ug/kg	5000
bis(2-Chloroethoxy)-methane	ND	ug/kg	5000
bis(2-Chloroethyl) ether	ND	ug/kg	5000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
4-Bromophenyl phenyl ether	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
4-Chloroaniline	ND	ug/kg	5000
4-Chloro-3-methylphenol	ND	ug/kg	5000
2-Chloronaphthalene	ND	ug/kg	5000
2-Chlorophenol	ND	ug/kg	5000
4-Chlorophenyl phenyl ether	ND	ug/kg	5000
o-Cresol	16000	ug/kg	5000
m & p-Cresol(s)	28000	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
3,3'-Dichlorobenzidine	ND	ug/kg	10000
2,4-Dichlorophenol	ND	ug/kg	5000
2,6-Dichlorophenol	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
p-Dimethylaminoazobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI1005D12.5
Lab ID: 010192-0015-SA Enseco ID: 1081339
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 08 JUL 90 Analyzed: 31 JUL 90

Parameter	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
a,a-Dimethylphenethylamine	ND	ug/kg	5000
2,4-Dimethylphenol	5300	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
1,3-Dinitrobenzene	ND	ug/kg	5000
4,6-Dinitro-o-cresol	ND	ug/kg	25000
2,4-Dinitrophenol	ND	ug/kg	25000
2,4-Dinitrotoluene	ND	ug/kg	5000
2,6-Dinitrotoluene	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Diphenylamine	ND	ug/kg	5000
Ethyl methanesulfonate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Fluorene	ND	ug/kg	5000
Hexachlorobenzene	ND	ug/kg	5000
Hexachlorobutadiene	ND	ug/kg	5000
Hexachlorocyclopentadiene	ND	ug/kg	5000
Hexachloroethane	ND	ug/kg	5000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	5000
Isophorone	ND	ug/kg	5000
3-Methylcholanthrene	ND	ug/kg	5000
Methyl methanesulfonate	ND	ug/kg	5000
2-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
1-Naphthylamine	ND	ug/kg	5000
2-Naphthylamine	ND	ug/kg	5000
2-Nitroaniline	ND	ug/kg	25000
3-Nitroaniline	ND	ug/kg	25000
4-Nitroaniline	ND	ug/kg	25000
Nitrobenzene	ND	ug/kg	5000
2-Nitrophenol	ND	ug/kg	5000
4-Nitrophenol	ND	ug/kg	25000
N-Nitroso-di-n-butylamine	ND	ug/kg	5000
N-Nitrosodimethylamine	ND	ug/kg	5000
N-Nitrosodiphenylamine	ND	ug/kg	5000
N-Nitroso-di-n-propylamine	ND	ug/kg	5000
N-Nitrosopiperidine	ND	ug/kg	5000
Pentachlorobenzene	ND	ug/kg	5000

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI1005D12.5
Lab ID: 010192-0015-SA Enseco ID: 1081339
Matrix: SOIL Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 08 JUL 90 Analyzed: 31 JUL 90

Parameter	Result	Units	Reporting Limit
Pentachloronitrobenzene	ND	ug/kg	25000
Pentachlorophenol	ND	ug/kg	25000
Phenacetin	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Phenol	28000	ug/kg	5000
2-Picoline	ND	ug/kg	5000
Pronamide	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	5000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	25000
1,2,4-Trichlorobenzene	ND	ug/kg	5000
2,4,5-Trichlorophenol	ND	ug/kg	25000
2,4,6-Trichlorophenol	ND	ug/kg	5000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	5000
1,2-Diphenylhydrazine	ND	ug/kg	5000
1-Chloronaphthalene	ND	ug/kg	--
Nitrobenzene-d5	80	%	--
2-Fluorobiphenyl	81	%	--
Terphenyl-d14	86	%	--
Phenol-d5	74	%	--
2-Fluorophenol	75	%	--
2,4,6-Tribromophenol	58	%	--

ND = Not detected
NA = Not applicable

Reported By: Scott Frencis Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics

Method 8270

Client Name: Giant Refining
Client ID: RFI1002E3.0
Lab ID: 010192-0016-SA
Enseco ID: 1081342
Matrix: AQUEOUS
Sampled: 28 JUN 90
Received: 29 JUN 90
Authorized: 29 JUN 90
Prepared: 03 JUL 90
Analyzed: 31 JUL 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/L	10
Acenaphthylene	ND	ug/L	10
Acetophenone	ND	ug/L	10
4-Aminobiphenyl	ND	ug/L	10
Aniline	ND	ug/L	10
Anthracene	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	20
bis(2-Chloroethoxy)-methane	ND	ug/L	10
bis(2-Chloroethyl) ether	ND	ug/L	10
bis(2-Chloroisopropyl)-ether	ND	ug/L	10
bis(2-Ethylhexyl) phthalate	ND	ug/L	10
4-Bromophenyl phenyl ether	ND	ug/L	10
Butyl benzyl phthalate	ND	ug/L	10
4-Chloroaniline	ND	ug/L	20
4-Chloro-3-methylphenol	ND	ug/L	20
2-Chloronaphthalene	ND	ug/L	10
2-Chlorophenol	ND	ug/L	10
4-Chlorophenyl phenyl ether	ND	ug/L	10
o-Cresol	ND	ug/L	10
m & p-Cresol(s)	ND	ug/L	10
Chrysene	ND	ug/L	10
Dibenz(a,h)anthracene	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
p-Dimethylaminoazobenzene	ND	ug/L	10

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski
Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI1002E3.0
Lab ID: 010192-0016-SA Enseco ID: 1081342
Matrix: AQUEOUS Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 03 JUL 90 Analyzed: 31 JUL 90

Parameter	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	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-o-cresol	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
Ethyl methanesulfonate	ND	ug/L	10
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
Indeno(1,2,3-cd)pyrene	ND	ug/L	10
Isophorone	ND	ug/L	10
3-Methylcholanthrene	ND	ug/L	20
Methyl methanesulfonate	ND	ug/L	10
2-Methylnaphthalene	ND	ug/L	10
Naphthalene	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
N-Nitroso-di-n-butylamine	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-Nitrosopiperidine	ND	ug/L	10
Pentachlorobenzene	ND	ug/L	10

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

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Appendix IX Semivolatile Organics (CONT.)

Method 8270

Client Name: Giant Refining
Client ID: RFI1002E3.0
Lab ID: 010192-0016-SA Enseco ID: 1081342
Matrix: AQUEOUS Sampled: 28 JUN 90 Received: 29 JUN 90
Authorized: 29 JUN 90 Prepared: 03 JUL 90 Analyzed: 31 JUL 90

Parameter	Result	Units	Reporting Limit
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
2-Picoline	ND	ug/L	10
Pronamide	ND	ug/L	20
Pyrene	ND	ug/L	10
1,2,4,5-Tetrachloro-benzene	ND	ug/L	10
2,3,4,6-Tetrachlorophenol	ND	ug/L	20
1,2,4-Trichlorobenzene	ND	ug/L	10
2,4,5-Trichlorophenol	ND	ug/L	50
2,4,6-Trichlorophenol	ND	ug/L	10
Benzidine	ND	ug/L	--
Benzoic acid	ND	ug/L	50
1-Chloronaphthalene	ND	ug/L	--
1,2-Diphenylhydrazine	ND	ug/L	50
Nitrobenzene-d5	65	%	--
2-Fluorobiphenyl	65	%	--
Terphenyl-d14	79	%	--
Phenol-d5	54	%	--
2-Fluorophenol	50	%	--
2,4,6-Tribromophenol	56	%	--

ND = Not detected
NA = Not applicable

Reported By: Angie Poturalski Approved By: Jeff Lowry

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Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI1004V6.0
Lab ID: 010192-0001-SA
Matrix: SOIL
Authorized: 29 JUN 90

Enseco ID: 1081323
Sampled: 28 JUN 90
Prepared: See Below

Received: 29 JUN 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	27 JUL 90	30 JUL 90
Arsenic	2.4	mg/kg	0.50	7060	27 JUL 90	30 JUL 90
Barium	422	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Beryllium	0.80	mg/kg	0.20	6010	27 JUL 90	30 JUL 90
Cadmium	ND	mg/kg	0.50	6010	27 JUL 90	30 JUL 90
Chromium	398	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Cobalt	4.8	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Copper	29.0	mg/kg	2.0	6010	27 JUL 90	30 JUL 90
Lead	50.0	mg/kg	5.0	6010	27 JUL 90	30 JUL 90
Mercury	1.3	mg/kg	0.10	7471	18 JUL 90	19 JUL 90
Nickel	9.0	mg/kg	4.0	6010	27 JUL 90	30 JUL 90
Potassium	2320	mg/kg	500	6010	27 JUL 90	30 JUL 90
Selenium	ND	mg/kg	1.0	7740	20 JUL 90	26 JUL 90
Vanadium	18.6	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Zinc	81.2	mg/kg	2.0	6010	27 JUL 90	30 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Dave Roberts

Approved By: Dave Roberts

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Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI1004V9.0
Lab ID: 010192-0002-SA
Matrix: SOIL
Authorized: 29 JUN 90

Enseco ID: 1081324
Sampled: 28 JUN 90
Prepared: See Below

Received: 29 JUN 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	27 JUL 90	30 JUL 90
Arsenic	0.56	mg/kg	0.50	7060	27 JUL 90	30 JUL 90
Barium	213	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Beryllium	1.0	mg/kg	0.20	6010	27 JUL 90	30 JUL 90
Cadmium	ND	mg/kg	0.50	6010	27 JUL 90	30 JUL 90
Chromium	21.7	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Cobalt	3.8	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Copper	6.2	mg/kg	2.0	6010	27 JUL 90	30 JUL 90
Lead	12.5	mg/kg	5.0	6010	27 JUL 90	30 JUL 90
Mercury	ND	mg/kg	0.10	7471	18 JUL 90	19 JUL 90
Nickel	7.9	mg/kg	4.0	6010	27 JUL 90	30 JUL 90
Potassium	1200	mg/kg	500	6010	27 JUL 90	30 JUL 90
Selenium	ND	mg/kg	1.0	7740	20 JUL 90	26 JUL 90
Vanadium	13.9	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Zinc	12.5	mg/kg	2.0	6010	27 JUL 90	30 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Dave Roberts

Approved By: Dave Roberts

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Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI1004V12.5
Lab ID: 010192-0003-SA
Matrix: SOIL
Authorized: 29 JUN 90

Enseco ID: 1081325
Sampled: 28 JUN 90
Prepared: See Below

Received: 29 JUN 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	27 JUL 90	30 JUL 90
Arsenic	ND	mg/kg	1.0	7060	27 JUL 90	30 JUL 90
Barium	164	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Beryllium	1.1	mg/kg	0.20	6010	27 JUL 90	30 JUL 90
Cadmium	ND	mg/kg	0.50	6010	27 JUL 90	30 JUL 90
Chromium	7.2	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Cobalt	4.4	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Copper	6.9	mg/kg	2.0	6010	27 JUL 90	30 JUL 90
Lead	13.3	mg/kg	5.0	6010	27 JUL 90	30 JUL 90
Mercury	ND	mg/kg	0.10	7471	18 JUL 90	19 JUL 90
Nickel	8.0	mg/kg	4.0	6010	27 JUL 90	30 JUL 90
Potassium	1210	mg/kg	500	6010	27 JUL 90	30 JUL 90
Selenium	ND	mg/kg	1.0	7740	20 JUL 90	26 JUL 90
Vanadium	13.7	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Zinc	12.5	mg/kg	2.0	6010	27 JUL 90	30 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Dave Roberts

Approved By: Dave Roberts

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Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI1005V0.0
Lab ID: 010192-0004-SA
Matrix: SOIL
Authorized: 29 JUN 90

Enseco ID: 1081326
Sampled: 28 JUN 90
Prepared: See Below

Received: 29 JUN 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	27 JUL 90	30 JUL 90
Arsenic	ND	mg/kg	1.0	7060	27 JUL 90	30 JUL 90
Barium	315	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Beryllium	0.88	mg/kg	0.20	6010	27 JUL 90	30 JUL 90
Cadmium	ND	mg/kg	0.50	6010	27 JUL 90	30 JUL 90
Chromium	6.8	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Cobalt	4.0	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Copper	9.2	mg/kg	2.0	6010	27 JUL 90	30 JUL 90
Lead	13.2	mg/kg	5.0	6010	27 JUL 90	30 JUL 90
Mercury	ND	mg/kg	0.10	7471	18 JUL 90	19 JUL 90
Nickel	5.8	mg/kg	4.0	6010	27 JUL 90	30 JUL 90
Potassium	850	mg/kg	500	6010	27 JUL 90	30 JUL 90
Selenium	ND	mg/kg	1.0	7740	20 JUL 90	26 JUL 90
Vanadium	14.5	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Zinc	11.8	mg/kg	2.0	6010	27 JUL 90	30 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Dave Roberts

Approved By: Dave Roberts

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Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI1005V3.0
Lab ID: 010192-0005-SA
Matrix: SOIL
Authorized: 29 JUN 90

Enseco ID: 1081327
Sampled: 28 JUN 90
Prepared: See Below

Received: 29 JUN 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	27 JUL 90	30 JUL 90
Arsenic	0.52	mg/kg	0.50	7060	27 JUL 90	30 JUL 90
Barium	321	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Beryllium	0.85	mg/kg	0.20	6010	27 JUL 90	30 JUL 90
Cadmium	ND	mg/kg	0.50	6010	27 JUL 90	30 JUL 90
Chromium	6.3	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Cobalt	4.4	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Copper	4.6	mg/kg	2.0	6010	27 JUL 90	30 JUL 90
Lead	11.8	mg/kg	5.0	6010	27 JUL 90	30 JUL 90
Mercury	ND	mg/kg	0.10	7471	18 JUL 90	19 JUL 90
Nickel	6.8	mg/kg	4.0	6010	27 JUL 90	30 JUL 90
Potassium	834	mg/kg	500	6010	27 JUL 90	30 JUL 90
Selenium	ND	mg/kg	1.0	7740	20 JUL 90	26 JUL 90
Vanadium	14.1	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Zinc	13.1	mg/kg	2.0	6010	27 JUL 90	30 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Dave Roberts

Approved By: Dave Roberts

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI1005V6.0
Lab ID: 010192-0006-SA
Matrix: SOIL
Authorized: 29 JUN 90

Enseco ID: 1081328
Sampled: 28 JUN 90
Prepared: See Below

Received: 29 JUN 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	27 JUL 90	30 JUL 90
Arsenic	27.9	mg/kg	5.0	7060	27 JUL 90	30 JUL 90
Barium	700	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Beryllium	0.76	mg/kg	0.20	6010	27 JUL 90	30 JUL 90
Cadmium	1.5	mg/kg	0.50	6010	27 JUL 90	30 JUL 90
Chromium	4020	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Cobalt	8.4	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Copper	215	mg/kg	2.0	6010	27 JUL 90	30 JUL 90
Lead	337	mg/kg	5.0	6010	27 JUL 90	30 JUL 90
Mercury	2.9	mg/kg	0.69	7471	20 JUL 90	24 JUL 90
Nickel	19.2	mg/kg	4.0	6010	27 JUL 90	30 JUL 90
Potassium	3920	mg/kg	500	6010	27 JUL 90	30 JUL 90
Selenium	ND	mg/kg	5.0	7740	20 JUL 90	26 JUL 90
Vanadium	24.2	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Zinc	538	mg/kg	2.0	6010	27 JUL 90	30 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Dave Roberts

Approved By: Dave Roberts

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI1005V9.0
Lab ID: 010192-0007-SA
Matrix: SOIL
Authorized: 29 JUN 90

Enseco ID: 1081329
Sampled: 28 JUN 90
Prepared: See Below

Received: 29 JUN 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	27 JUL 90	30 JUL 90
Arsenic	0.58	mg/kg	0.50	7060	27 JUL 90	30 JUL 90
Barium	48.7	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Beryllium	1.4	mg/kg	0.20	6010	27 JUL 90	30 JUL 90
Cadmium	ND	mg/kg	0.50	6010	27 JUL 90	30 JUL 90
Chromium	11.6	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Cobalt	5.7	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Copper	11.8	mg/kg	2.0	6010	27 JUL 90	30 JUL 90
Lead	16.1	mg/kg	5.0	6010	27 JUL 90	30 JUL 90
Mercury	ND	mg/kg	0.10	7471	18 JUL 90	19 JUL 90
Nickel	11.3	mg/kg	4.0	6010	27 JUL 90	30 JUL 90
Potassium	1450	mg/kg	500	6010	27 JUL 90	30 JUL 90
Selenium	ND	mg/kg	1.0	7740	20 JUL 90	26 JUL 90
Vanadium	18.7	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Zinc	17.9	mg/kg	2.0	6010	27 JUL 90	30 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Dave Roberts

Approved By: Dave Roberts

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI1005V12.5
Lab ID: 010192-0008-SA
Matrix: SOIL
Authorized: 29 JUN 90

Enseco ID: 1081330
Sampled: 28 JUN 90
Prepared: See Below

Received: 29 JUN 90
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	27 JUL 90	30 JUL 90
Arsenic	ND	mg/kg	1.0	7060	27 JUL 90	30 JUL 90
Barium	187	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Beryllium	1.2	mg/kg	0.20	6010	27 JUL 90	30 JUL 90
Cadmium	ND	mg/kg	0.50	6010	27 JUL 90	30 JUL 90
Chromium	8.9	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Cobalt	5.1	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Copper	7.2	mg/kg	2.0	6010	27 JUL 90	30 JUL 90
Lead	14.2	mg/kg	5.0	6010	27 JUL 90	30 JUL 90
Mercury	ND	mg/kg	0.10	7471	18 JUL 90	19 JUL 90
Nickel	9.3	mg/kg	4.0	6010	27 JUL 90	30 JUL 90
Potassium	1250	mg/kg	500	6010	27 JUL 90	30 JUL 90
Selenium	ND	mg/kg	1.0	7740	20 JUL 90	26 JUL 90
Vanadium	16.2	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Zinc	14.3	mg/kg	2.0	6010	27 JUL 90	30 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Dave Roberts

Approved By: Dave Roberts

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Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI1002V0.0
Lab ID: 010192-0010-SA
Enseco ID: 1081332
Matrix: SOIL
Sampled: 28 JUN 90
Received: 29 JUN 90
Authorized: 29 JUN 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	27 JUL 90	30 JUL 90
Arsenic	0.52	mg/kg	0.50	7060	27 JUL 90	30 JUL 90
Barium	188	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Beryllium	1.0	mg/kg	0.20	6010	27 JUL 90	30 JUL 90
Cadmium	ND	mg/kg	0.50	6010	27 JUL 90	30 JUL 90
Chromium	7.0	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Cobalt	4.3	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Copper	6.4	mg/kg	2.0	6010	27 JUL 90	30 JUL 90
Lead	13.8	mg/kg	5.0	6010	27 JUL 90	30 JUL 90
Mercury	ND	mg/kg	0.10	7471	18 JUL 90	19 JUL 90
Nickel	6.4	mg/kg	4.0	6010	27 JUL 90	30 JUL 90
Potassium	806	mg/kg	500	6010	27 JUL 90	30 JUL 90
Selenium	ND	mg/kg	1.0	7740	20 JUL 90	26 JUL 90
Vanadium	15.4	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Zinc	13.4	mg/kg	2.0	6010	27 JUL 90	30 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Dave Roberts

Approved By: Dave Roberts

Enseco
A CORNING Company

Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI1002V3.0
Lab ID: 010192-0011-SA
Enseco ID: 1081333
Matrix: SOIL
Sampled: 28 JUN 90
Received: 29 JUN 90
Authorized: 29 JUN 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	27 JUL 90	30 JUL 90
Arsenic	0.79	mg/kg	0.50	7060	27 JUL 90	30 JUL 90
Barium	231	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Beryllium	0.90	mg/kg	0.20	6010	27 JUL 90	30 JUL 90
Cadmium	ND	mg/kg	0.50	6010	27 JUL 90	30 JUL 90
Chromium	117	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Cobalt	4.4	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Copper	16.5	mg/kg	2.0	6010	27 JUL 90	30 JUL 90
Lead	19.3	mg/kg	5.0	6010	27 JUL 90	30 JUL 90
Mercury	ND	mg/kg	0.10	7471	18 JUL 90	19 JUL 90
Nickel	9.2	mg/kg	4.0	6010	27 JUL 90	30 JUL 90
Potassium	1310	mg/kg	500	6010	27 JUL 90	30 JUL 90
Selenium	ND	mg/kg	1.0	7740	20 JUL 90	26 JUL 90
Vanadium	18.2	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Zinc	228	mg/kg	2.0	6010	27 JUL 90	30 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Dave Roberts
Approved By: Dave Roberts

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Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI1002V6.0
Lab ID: 010192-0012-SA
Enseco ID: 1081334
Matrix: SOIL
Sampled: 28 JUN 90
Received: 29 JUN 90
Authorized: 29 JUN 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	27 JUL 90	30 JUL 90
Arsenic	0.58	mg/kg	0.50	7060	27 JUL 90	30 JUL 90
Barium	332	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Beryllium	0.90	mg/kg	0.20	6010	27 JUL 90	30 JUL 90
Cadmium	ND	mg/kg	0.50	6010	27 JUL 90	30 JUL 90
Chromium	6.7	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Cobalt	3.9	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Copper	5.2	mg/kg	2.0	6010	27 JUL 90	30 JUL 90
Lead	13.5	mg/kg	5.0	6010	27 JUL 90	30 JUL 90
Mercury	ND	mg/kg	0.10	7471	18 JUL 90	19 JUL 90
Nickel	6.5	mg/kg	4.0	6010	27 JUL 90	30 JUL 90
Potassium	841	mg/kg	500	6010	27 JUL 90	30 JUL 90
Selenium	ND	mg/kg	1.0	7740	20 JUL 90	26 JUL 90
Vanadium	18.8	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Zinc	11.2	mg/kg	2.0	6010	27 JUL 90	30 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Dave Roberts
Approved By: Dave Roberts

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Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI1002V9.0
Lab ID: 010192-0013-SA
Enseco ID: 1081336
Matrix: SOIL
Sampled: 28 JUN 90
Received: 29 JUN 90
Authorized: 29 JUN 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	27 JUL 90	30 JUL 90
Arsenic	ND	mg/kg	1.0	7060	27 JUL 90	30 JUL 90
Barium	201	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Beryllium	1.4	mg/kg	0.20	6010	27 JUL 90	30 JUL 90
Cadmium	ND	mg/kg	0.50	6010	27 JUL 90	30 JUL 90
Chromium	8.0	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Cobalt	6.0	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Copper	7.7	mg/kg	2.0	6010	27 JUL 90	30 JUL 90
Lead	14.9	mg/kg	5.0	6010	27 JUL 90	30 JUL 90
Mercury	ND	mg/kg	0.10	7471	18 JUL 90	19 JUL 90
Nickel	9.5	mg/kg	4.0	6010	27 JUL 90	30 JUL 90
Potassium	1380	mg/kg	500	6010	27 JUL 90	30 JUL 90
Selenium	ND	mg/kg	1.0	7740	20 JUL 90	26 JUL 90
Vanadium	16.5	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Zinc	15.2	mg/kg	2.0	6010	27 JUL 90	30 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Dave Roberts
Approved By: Dave Roberts

Enseco
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Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI1002V12.5
Lab ID: 010192-0014-SA
Enseco ID: 1081337
Matrix: SOIL
Sampled: 28 JUN 90
Received: 29 JUN 90
Authorized: 29 JUN 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	27 JUL 90	30 JUL 90
Arsenic	ND	mg/kg	0.50	7060	27 JUL 90	30 JUL 90
Barium	171	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Beryllium	0.87	mg/kg	0.20	6010	27 JUL 90	30 JUL 90
Cadmium	ND	mg/kg	0.50	6010	27 JUL 90	30 JUL 90
Chromium	6.4	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Cobalt	5.4	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Copper	7.7	mg/kg	2.0	6010	27 JUL 90	30 JUL 90
Lead	11.9	mg/kg	5.0	6010	27 JUL 90	30 JUL 90
Mercury	ND	mg/kg	0.10	7471	18 JUL 90	19 JUL 90
Nickel	8.5	mg/kg	4.0	6010	27 JUL 90	30 JUL 90
Potassium	1410	mg/kg	500	6010	27 JUL 90	30 JUL 90
Selenium	ND	mg/kg	1.0	7740	20 JUL 90	26 JUL 90
Vanadium	18.0	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Zinc	15.0	mg/kg	2.0	6010	27 JUL 90	30 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Dave Roberts
Approved By: Dave Roberts

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Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI1005D12.5
Lab ID: 010192-0015-SA
Enseco ID: 1081339
Matrix: SOIL
Sampled: 28 JUN 90
Received: 29 JUN 90
Authorized: 29 JUN 90
Prepared: See Below
Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	6.0	6010	27 JUL 90	30 JUL 90
Arsenic	ND	mg/kg	0.50	7060	27 JUL 90	30 JUL 90
Barium	124	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Beryllium	1.1	mg/kg	0.20	6010	27 JUL 90	30 JUL 90
Cadmium	ND	mg/kg	0.50	6010	27 JUL 90	30 JUL 90
Chromium	6.1	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Cobalt	3.9	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Copper	7.8	mg/kg	2.0	6010	27 JUL 90	30 JUL 90
Lead	16.0	mg/kg	5.0	6010	27 JUL 90	30 JUL 90
Mercury	ND	mg/kg	0.10	7471	18 JUL 90	19 JUL 90
Nickel	6.9	mg/kg	4.0	6010	27 JUL 90	30 JUL 90
Potassium	1010	mg/kg	500	6010	27 JUL 90	30 JUL 90
Selenium	ND	mg/kg	1.0	7740	20 JUL 90	26 JUL 90
Vanadium	14.0	mg/kg	1.0	6010	27 JUL 90	30 JUL 90
Zinc	12.4	mg/kg	2.0	6010	27 JUL 90	30 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Dave Roberts
Approved By: Dave Roberts

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Metals

Total Metals

Client Name: Giant Refining
Client ID: RFI1002E3.0
Lab ID: 010192-0016-SA
Enseco ID: 1081342
Matrix: AQUEOUS
Sampled: 28 JUN 90
Received: 29 JUN 90
Authorized: 29 JUN 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	16 JUL 90	17 JUL 90
Arsenic	ND	mg/L	0.0050	7060	16 JUL 90	19 JUL 90
Barium	ND	mg/L	0.010	6010	16 JUL 90	17 JUL 90
Beryllium	ND	mg/L	0.0020	6010	16 JUL 90	17 JUL 90
Cadmium	ND	mg/L	0.0055	6010	16 JUL 90	17 JUL 90
Chromium	ND	mg/L	0.010	6010	16 JUL 90	17 JUL 90
Cobalt	ND	mg/L	0.010	6010	16 JUL 90	17 JUL 90
Copper	ND	mg/L	0.020	6010	16 JUL 90	17 JUL 90
Lead	ND	mg/L	0.0050	7421	16 JUL 90	19 JUL 90
Mercury	ND	mg/L	0.00020	7470	17 JUL 90	18 JUL 90
Nickel	ND	mg/L	0.040	6010	16 JUL 90	17 JUL 90
Potassium	ND	mg/L	5.0	6010	16 JUL 90	17 JUL 90
Selenium	ND	mg/L	0.0050	7740	16 JUL 90	18 JUL 90
Vanadium	ND	mg/L	0.010	6010	16 JUL 90	17 JUL 90
Zinc	ND	mg/L	0.020	6010	16 JUL 90	17 JUL 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Mary Grehl

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)
010192-0001-SA	SOIL	8240-S	10 JUL 90-H	11 JUL 90-H
010192-0002-SA	SOIL	8240-S	10 JUL 90-H	11 JUL 90-H
010192-0003-SA	SOIL	8240-S	09 JUL 90-L	08 JUL 90-L
010192-0004-SA	SOIL	8240-S	09 JUL 90-L	08 JUL 90-L
010192-0005-SA	SOIL	8240-S	09 JUL 90-L	08 JUL 90-L
010192-0006-SA	SOIL	8240-S	10 JUL 90-H	11 JUL 90-H
010192-0007-SA	SOIL	8240-S	09 JUL 90-L	08 JUL 90-L
010192-0008-SA	SOIL	8240-S	09 JUL 90-L	08 JUL 90-L
010192-0009-SA	SOIL	8240-S	09 JUL 90-L	08 JUL 90-L
010192-0010-SA	SOIL	8240-S	09 JUL 90-L	08 JUL 90-L
010192-0011-SA	SOIL	8240-S	09 JUL 90-L	08 JUL 90-L
010192-0012-SA	SOIL	8240-S	09 JUL 90-L	08 JUL 90-L
010192-0013-SA	SOIL	8240-S	09 JUL 90-L	08 JUL 90-L
010192-0014-SA	SOIL	8240-S	09 JUL 90-L	08 JUL 90-L
010192-0015-SA	SOIL	8240-S	09 JUL 90-L	08 JUL 90-L
010192-0016-SA	AQUEOUS	624-A	08 JUL 90-L	08 JUL 90-L
010192-0017-SA	AQUEOUS	624-A	08 JUL 90-L	10 JUL 90-L

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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 Average(%) Limits	Precision (RPD) DCS	Precision (RPD) Limit
Category: 8240-S Matrix: SOIL QC Lot: 10 JUL 90-H Concentration Units: ug/kg								
1,1-Dichloroethene	5000	4940	5230	5080	102	59-172	5.7	22
Trichloroethene	5000	5100	5290	5200	104	62-137	3.7	24
Benzene	5000	5250	5340	5300	106	66-142	1.7	21
Toluene	5000	5030	5430	5230	105	59-139	7.6	21
Chlorobenzene	5000	5050	5320	5180	104	60-133	5.2	21
Category: 8240-S Matrix: SOIL QC Lot: 09 JUL 90-L Concentration Units: ug/kg								
1,1-Dichloroethene	5000	4400	4010	4200	84	59-172	9.3	22
Trichloroethene	5000	5410	5510	5460	109	62-137	1.8	24
Benzene	5000	5610	5540	5580	112	66-142	1.3	21
Toluene	5000	5200	4930	5060	101	59-139	5.3	21
Chlorobenzene	5000	5430	5020	5220	105	60-133	7.8	21
Category: 624-A Matrix: AQUEOUS QC Lot: 08 JUL 90-L Concentration Units: ug/L								
1,1-Dichloroethene	50	42.1	43.6	42.8	86	61-145	3.5	14
Trichloroethene	50	51.5	51.6	51.6	103	71-120	0.2	14
Benzene	50	52.8	52.4	52.6	105	76-127	0.8	11
Toluene	50	51.4	51.9	51.6	103	76-125	1.0	13
Chlorobenzene	50	51.7	51.3	51.5	103	75-130	0.8	13

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

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SINGLE CONTROL SAMPLE REPORT
Volatile Organics by GC/MS

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) SCS	Accuracy(%) Limits
Category: 8240-S Matrix: SOIL QC Lot: 10 JUL 90-H QC Run: 11 JUL 90-H Concentration Units: ug/kg				
1,2-Dichloroethane-d4	5000	5230	105	70-121
4-Bromofluorobenzene	5000	5100	102	74-121
Toluene-d8	5000	4900	98	81-117
Category: 8240-S Matrix: SOIL QC Lot: 09 JUL 90-L QC Run: 08 JUL 90-L Concentration Units: ug/kg				
1,2-Dichloroethane-d4	5000	4900	98	70-121
4-Bromofluorobenzene	5000	5170	103	74-121
Toluene-d8	5000	4940	99	81-117
Category: 624-A Matrix: AQUEOUS QC Lot: 08 JUL 90-L QC Run: 08 JUL 90-L Concentration Units: ug/L				
1,2-Dichloroethane-d4	50.0	49.0	98	76-114
4-Bromofluorobenzene	50.0	51.7	103	86-115
Toluene-d8	50.0	49.4	99	88-110
Category: 624-A Matrix: AQUEOUS QC Lot: 08 JUL 90-L QC Run: 10 JUL 90-L Concentration Units: ug/L				
1,2-Dichloroethane-d4	50.0	47.6	95	76-114
4-Bromofluorobenzene	50.0	46.7	93	86-115
Toluene-d8	50.0	49.0	98	88-110

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

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METHOD BLANK REPORT
Volatile Organics by GC/MS

Test: 8240-PP-S
Matrix: SOIL
QC Lot: 10 JUL 90-H QC Run: 11 JUL 90-H

Analyte	Result	Units	Reporting Limit
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500
Acetone	ND	ug/kg	5000
Carbon disulfide	ND	ug/kg	500
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Dibromomethane	ND	ug/kg	500
trans-1,4-Dichloro-2-butene	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	ND	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone	ND	ug/kg	5000
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	1000

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

Analyte	Result	Units	Reporting Limit
Test: 8240-PP-S			
Matrix: SOIL			
QC Lot: 10 JUL 90-H QC Run: 11 JUL 90-H			
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	500
2-Hexanone	ND	ug/kg	1000
Ethyl methacrylate	ND	ug/kg	1000
Test: 8240-PP-S			
Matrix: SOIL			
QC Lot: 09 JUL 90-L QC Run: 08 JUL 90-L			
Chloromethane	ND	ug/kg	1000
Bromomethane	ND	ug/kg	1000
Vinyl chloride	ND	ug/kg	1000
Chloroethane	ND	ug/kg	1000
Methylene chloride	ND	ug/kg	500
1,1-Dichloroethene	ND	ug/kg	500
1,1-Dichloroethane	ND	ug/kg	500
1,2-Dichloroethene (cis/trans)	ND	ug/kg	500
Chloroform	ND	ug/kg	500
1,2-Dichloroethane	ND	ug/kg	500
1,1,1-Trichloroethane	ND	ug/kg	500
Carbon tetrachloride	ND	ug/kg	500
Bromodichloromethane	ND	ug/kg	500
1,2-Dichloropropane	ND	ug/kg	500
trans-1,3-Dichloropropene	ND	ug/kg	500
Trichloroethene	ND	ug/kg	500
Dibromochloromethane	ND	ug/kg	500
1,1,2-Trichloroethane	ND	ug/kg	500
Benzene	ND	ug/kg	500
cis-1,3-Dichloropropene	ND	ug/kg	500
2-Chloroethyl vinyl ether	ND	ug/kg	1000
Bromoform	ND	ug/kg	500
1,1,2,2-Tetrachloroethane	ND	ug/kg	500
Tetrachloroethene	ND	ug/kg	500
Toluene	ND	ug/kg	500
Chlorobenzene	ND	ug/kg	500
Ethylbenzene	ND	ug/kg	500

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

Analyte	Result	Units	Reporting Limit
Test: 8240-PP-S			
Matrix: SOIL			
QC Lot: 09 JUL 90-L QC Run: 08 JUL 90-L			
Acetone	ND	ug/kg	5000
Carbon disulfide	ND	ug/kg	500
Acrolein	ND	ug/kg	10000
Acrylonitrile	ND	ug/kg	10000
Dibromomethane	ND	ug/kg	500
trans-1,4-Dichloro-2-butene	ND	ug/kg	500
Dichlorodifluoromethane	ND	ug/kg	2000
trans-1,2-Dichloroethene	ND	ug/kg	500
Ethanol	ND	ug/kg	10000
Iodomethane	ND	ug/kg	500
2-Butanone	ND	ug/kg	5000
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	1000
Styrene	ND	ug/kg	500
Trichlorofluoromethane	ND	ug/kg	500
1,2,3-Trichloropropane	ND	ug/kg	500
Vinyl acetate	ND	ug/kg	1000
Xylenes (total)	ND	ug/kg	500
2-Hexanone	ND	ug/kg	1000
Ethyl methacrylate	ND	ug/kg	1000
Test: 624-PP-AP			
Matrix: AQUEOUS			
QC Lot: 08 JUL 90-L QC Run: 08 JUL 90-L			
Chloromethane	ND	ug/L	10
Bromomethane	ND	ug/L	10
Vinyl chloride	ND	ug/L	10
Chloroethane	ND	ug/L	10
Methylene chloride	ND	ug/L	5.0
1,1-Dichloroethene	ND	ug/L	5.0
1,1-Dichloroethane	ND	ug/L	5.0
1,2-Dichloroethene (cis/trans)	ND	ug/L	5.0
Chloroform	ND	ug/L	5.0
1,2-Dichloroethane	ND	ug/L	5.0
1,1,1-Trichloroethane	ND	ug/L	5.0
Carbon tetrachloride	ND	ug/L	5.0
Bromodichloromethane	ND	ug/L	5.0

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

Test: 624-PP-AP
Matrix: AQUEOUS
QC Lot: 08 JUL 90-L QC Run: 08 JUL 90-L

Analyte	Result	Units	Reporting Limit
1,2-Dichloropropane	ND	ug/L	5.0
trans-1,3-Dichloropropene	ND	ug/L	5.0
Trichloroethene	ND	ug/L	5.0
Dibromochloromethane	ND	ug/L	5.0
1,1,2-Trichloroethane	ND	ug/L	5.0
Benzene	ND	ug/L	5.0
cis-1,3-Dichloropropene	ND	ug/L	5.0
2-Chloroethyl vinyl ether	ND	ug/L	10
Bromoform	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
Chlorobenzene	ND	ug/L	5.0
Ethylbenzene	ND	ug/L	5.0
Acetone	ND	ug/L	10
Acrolein	ND	ug/L	100
Acrylonitrile	ND	ug/L	100
Carbon disulfide	ND	ug/L	5.0
Dibromomethane	ND	ug/L	5.0
trans-1,4-Dichloro-2-butene	ND	ug/L	5.0
Dichlorodifluoromethane	ND	ug/L	10
trans-1,2-Dichloroethene	ND	ug/L	5.0
Ethanol	ND	ug/L	100
Iodomethane	ND	ug/L	5.0
2-Butanone (MEK)	ND	ug/L	50
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10
Styrene	ND	ug/L	5.0
Trichlorofluoromethane	ND	ug/L	500
1,2,3-Trichloropropane	ND	ug/L	5.0
Vinyl acetate	ND	ug/L	10
Xylenes (total)	ND	ug/L	5.0
2-Hexanone	ND	ug/L	10
Ethyl methacrylate	ND	ug/L	10

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

Test: 624-PP-AP
Matrix: AQUEOUS
QC Lot: 08 JUL 90-L QC Run: 10 JUL 90-L

Analyte	Result	Units	Reporting Limit
Chloromethane	ND	ug/L	10
Bromomethane	ND	ug/L	10
Vinyl chloride	ND	ug/L	10
Chloroethane	ND	ug/L	10
Methylene chloride	ND	ug/L	5.0
1,1-Dichloroethene	ND	ug/L	5.0
1,1-Dichloroethane	ND	ug/L	5.0
1,2-Dichloroethene (cis/trans)	ND	ug/L	5.0
Chloroform	ND	ug/L	5.0
1,2-Dichloroethane	ND	ug/L	5.0
1,1,1-Trichloroethane	ND	ug/L	5.0
Carbon tetrachloride	ND	ug/L	5.0
Bromodichloromethane	ND	ug/L	5.0
1,2-Dichloropropane	ND	ug/L	5.0
trans-1,3-Dichloropropene	ND	ug/L	5.0
Trichloroethene	ND	ug/L	5.0
Dibromochloromethane	ND	ug/L	5.0
1,1,2-Trichloroethane	ND	ug/L	5.0
Benzene	ND	ug/L	5.0
cis-1,3-Dichloropropene	ND	ug/L	5.0
2-Chloroethyl vinyl ether	ND	ug/L	10
Bromoform	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
Chlorobenzene	ND	ug/L	5.0
Ethylbenzene	ND	ug/L	5.0
Acetone	ND	ug/L	50
Acrolein	ND	ug/L	100
Acrylonitrile	ND	ug/L	100
Carbon disulfide	ND	ug/L	5.0
Dibromomethane	ND	ug/L	5.0
trans-1,4-Dichloro-2-butene	ND	ug/L	5.0
Dichlorodifluoromethane	ND	ug/L	20
Ethanol	ND	ug/L	100
Iodomethane	ND	ug/L	5.0
2-Butanone (MEK)	ND	ug/L	50
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10

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

Analyte	Result	Units	Reporting Limit
Test: 624-PP-AP			
Matrix: AQUEOUS			
QC Lot: 08 JUL 90-L QC Run: 10 JUL 90-L			
Styrene	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
Xylenes (total)	ND	ug/L	5.0
trans-1,2-Dichloroethene	ND	ug/L	5.0
Ethyl methacrylate	ND	ug/L	10
2-Hexanone	ND	ug/L	10

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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)
010192-0001-SA	SOIL	8270-S	08 JUL 90-C	08 JUL 90-C
010192-0002-SA	SOIL	8270-S	08 JUL 90-C	08 JUL 90-C
010192-0003-SA	SOIL	8270-S	08 JUL 90-C	08 JUL 90-C
010192-0004-SA	SOIL	8270-S	08 JUL 90-C	08 JUL 90-C
010192-0005-SA	SOIL	8270-S	08 JUL 90-C	08 JUL 90-C
010192-0006-SA	SOIL	8270-S	08 JUL 90-C	08 JUL 90-C
010192-0007-SA	SOIL	8270-S	08 JUL 90-C	08 JUL 90-C
010192-0008-SA	SOIL	8270-S	08 JUL 90-C	08 JUL 90-C
010192-0009-SA	SOIL	8270-S	08 JUL 90-C	08 JUL 90-C
010192-0010-SA	SOIL	8270-S	08 JUL 90-C	08 JUL 90-C
010192-0011-SA	SOIL	8270-S	08 JUL 90-C	08 JUL 90-C
010192-0012-SA	SOIL	8270-S	08 JUL 90-C	08 JUL 90-C
010192-0013-SA	SOIL	8270-S	08 JUL 90-C	08 JUL 90-C
010192-0014-SA	SOIL	8270-S	08 JUL 90-C	08 JUL 90-C
010192-0015-SA	SOIL	8270-S	08 JUL 90-C	08 JUL 90-C
010192-0016-SA	AQUEOUS	625-A	03 JUL 90-A	03 JUL 90-A

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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	Precision (RPD) DCS	Precision Limit
Category: 8270-S Matrix: SOIL QC Lot: 08 JUL 90-C Concentration Units: ug/kg								
Phenol	6670	5550	5310	5430	81	26- 90	4.4	35
2-Chlorophenol	6670	5650	5390	5520	83	25-102	4.7	50
1,4-Dichlorobenzene	3330	2230	2100	2160	65	28-104	6.0	27
N-Nitroso-di-n-propylamine	3330	2670	2550	2610	78	41-126	4.6	38
1,2,4-Trichlorobenzene	3330	2560	2410	2480	75	38-107	6.0	23
4-Chloro-3-methylphenol	6670	6390	5980	6180	93	26-103	6.6	33
Acenaphthene	3330	2650	2480	2560	77	31-137	6.6	19
4-Nitrophenol	6670	6830	6310	6570	99	11-114	7.9	50
2,4-Dinitrotoluene	3330	3090	2940	3020	91	28- 89	5.0	47
Pentachlorophenol	6670	6230	5620	5920	89	17-109	10	47
Pyrene	3330	2840	2610	2720	82	35-142	8.4	36
Category: 625-A Matrix: AQUEOUS QC Lot: 03 JUL 90-A Concentration Units: ug/L								
Phenol	100	85.3	78.8	82.0	82	12- 89	7.9	42
2-Chlorophenol	100	89.2	78.5	83.8	84	27-123	13	40
1,4-Dichlorobenzene	50.0	31.4	30.8	31.1	62	36- 97	1.9	28
N-Nitroso-di-n-propylamine	50.0	48.1	46.0	47.0	94	41-116	4.5	38
1,2,4-Trichlorobenzene	50.0	32.7	33.3	33.0	66	39- 98	1.8	28
4-Chloro-3-methylphenol	100	99.3	95.7	97.5	98	23- 97	3.7	42
Acenaphthene	50.0	37.7	37.7	37.7	75	46-118	0.0	31
4-Nitrophenol	100	98.5	99.4	99.0	99	10- 80	0.9	50
2,4-Dinitrotoluene	50.0	49.5	49.6	49.6	99	24- 96	0.2	38
Pentachlorophenol	100	108	68.8	88.4	88	9-103	44	50
Pyrene	50.0	47.4	47.5	47.4	95	26-127	0.2	31

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/MS

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) SCS	Accuracy(%) Limits
Category: 8270-S				
Matrix: SOIL				
QC Lot: 08 JUL 90-C QC Run: 08 JUL 90-C				
Concentration Units: ug/kg				
Nitrobenzene-d5	1670	1330	80	23-120
2-Fluorobiphenyl	1670	1370	82	30-115
Terphenyl-d14	1670	1550	93	18-137
2-Fluorophenol	3330	2590	78	25-121
Phenol-d5	3330	2580	77	24-113
2,4,6-Tribromophenol	3330	3210	96	19-122
Category: 625-A				
Matrix: AQUEOUS				
QC Lot: 03 JUL 90-A QC Run: 03 JUL 90-A				
Concentration Units: ug/L				
Nitrobenzene-d5	100	86.0	86	35-114
2-Fluorobiphenyl	100	74.2	74	43-116
Terphenyl-d14	100	98.2	98	33-141
2-Fluorophenol	200	120	60	21-100
Phenol-d5	200	120	60	10- 94
2,4,6-Tribromophenol	200	159	80	10-123

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

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METHOD BLANK REPORT
Semivolatile Organics by GC/MS

Test: 8270-AP9-S
Matrix: SOIL
QC Lot: 08 JUL 90-C QC Run: 08 JUL 90-C

Analyte	Result	Units	Reporting Limit
Acenaphthene	ND	ug/kg	5000
Acenaphthylene	ND	ug/kg	5000
Acetophenone	ND	ug/kg	5000
4-Aminobiphenyl	ND	ug/kg	--
Aniline	ND	ug/kg	5000
Anthracene	ND	ug/kg	5000
Benzo(a)anthracene	ND	ug/kg	5000
Benzo(b)fluoranthene	ND	ug/kg	5000
Benzo(k)fluoranthene	ND	ug/kg	5000
Benzo(g,h,i)perylene	ND	ug/kg	5000
Benzo(a)pyrene	ND	ug/kg	5000
Benzyl alcohol	ND	ug/kg	5000
bis(2-Chloroethoxy)-methane	ND	ug/kg	5000
bis(2-Chloroethyl) ether	ND	ug/kg	5000
bis(2-Chloroisopropyl)-ether	ND	ug/kg	5000
bis(2-Ethylhexyl) phthalate	ND	ug/kg	5000
4-Bromophenyl phenyl ether	ND	ug/kg	5000
Butyl benzyl phthalate	ND	ug/kg	5000
4-Chloroaniline	ND	ug/kg	5000
4-Chloro-3-methylphenol	ND	ug/kg	5000
2-Chloronaphthalene	ND	ug/kg	5000
2-Chlorophenol	ND	ug/kg	5000
4-Chlorophenyl phenyl ether	ND	ug/kg	5000
o-Cresol	ND	ug/kg	5000
m & p-Cresol(s)	ND	ug/kg	5000
Chrysene	ND	ug/kg	5000
Dibenz(a,h)anthracene	ND	ug/kg	5000
Di-n-butyl phthalate	ND	ug/kg	5000
1,2-Dichlorobenzene	ND	ug/kg	5000
1,3-Dichlorobenzene	ND	ug/kg	5000
1,4-Dichlorobenzene	ND	ug/kg	5000
3,3'-Dichlorobenzidine	ND	ug/kg	10000
2,4-Dichlorophenol	ND	ug/kg	5000
2,6-Dichlorophenol	ND	ug/kg	5000
Diethyl phthalate	ND	ug/kg	5000
p-Dimethylaminoazobenzene	ND	ug/kg	5000

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

Test: 8270-AP9-S
Matrix: SOIL
QC Lot: 08 JUL 90-C QC Run: 08 JUL 90-C

Analyte	Result	Units	Reporting Limit
7,12-Dimethylbenz(a)-anthracene	ND	ug/kg	5000
a,a-Dimethylphenethylamine	ND	ug/kg	5000
2,4-Dimethylphenol	ND	ug/kg	5000
Dimethyl phthalate	ND	ug/kg	5000
1,3-Dinitrobenzene	ND	ug/kg	5000
4,6-Dinitro-o-cresol	ND	ug/kg	25000
2,4-Dinitrophenol	ND	ug/kg	25000
2,4-Dinitrotoluene	ND	ug/kg	5000
2,6-Dinitrotoluene	ND	ug/kg	5000
Di-n-octyl phthalate	ND	ug/kg	5000
Diphenylamine	ND	ug/kg	5000
Ethyl methanesulfonate	ND	ug/kg	5000
Fluoranthene	ND	ug/kg	5000
Fluorene	ND	ug/kg	5000
Hexachlorobenzene	ND	ug/kg	5000
Hexachlorobutadiene	ND	ug/kg	5000
Hexachlorocyclopentadiene	ND	ug/kg	5000
Hexachloroethane	ND	ug/kg	5000
Indeno(1,2,3-cd)pyrene	ND	ug/kg	5000
Isophorone	ND	ug/kg	5000
3-Methylcholanthrene	ND	ug/kg	5000
Methyl methanesulfonate	ND	ug/kg	5000
2-Methylnaphthalene	ND	ug/kg	5000
Naphthalene	ND	ug/kg	5000
1-Naphthylamine	ND	ug/kg	5000
2-Naphthylamine	ND	ug/kg	5000
2-Nitroaniline	ND	ug/kg	25000
3-Nitroaniline	ND	ug/kg	25000
4-Nitroaniline	ND	ug/kg	25000
Nitrobenzene	ND	ug/kg	5000
2-Nitrophenol	ND	ug/kg	5000
4-Nitrophenol	ND	ug/kg	25000
N-Nitroso-di-n-butylamine	ND	ug/kg	5000
N-Nitrosodimethylamine	ND	ug/kg	5000
N-Nitrosodiphenylamine	ND	ug/kg	5000
N-Nitroso-di-n-propylamine	ND	ug/kg	5000
N-Nitrosopiperidine	ND	ug/kg	5000
Pentachlorobenzene	ND	ug/kg	5000

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

Analyte	Result	Units	Reporting Limit
Test: 8270-AP9-S			
Matrix: SOIL			
QC Lot: 08 JUL 90-C QC Run: 08 JUL 90-C			
Pentachloronitrobenzene	ND	ug/kg	25000
Pentachlorophenol	ND	ug/kg	25000
Phenacetin	ND	ug/kg	5000
Phenanthrene	ND	ug/kg	5000
Phenol	ND	ug/kg	5000
2-Picoline	ND	ug/kg	5000
Pronamide	ND	ug/kg	5000
Pyrene	ND	ug/kg	5000
1,2,4,5-Tetrachloro-benzene	ND	ug/kg	5000
2,3,4,6-Tetrachlorophenol	ND	ug/kg	25000
1,2,4-Trichlorobenzene	ND	ug/kg	5000
2,4,5-Trichlorophenol	ND	ug/kg	25000
2,4,6-Trichlorophenol	ND	ug/kg	5000
Benzidine	ND	ug/kg	--
Benzoic acid	ND	ug/kg	5000
1,2-Diphenylhydrazine	ND	ug/kg	5000
1-Chloronaphthalene	ND	ug/kg	--
Test: 625-AP9-A			
Matrix: AQUEOUS			
QC Lot: 03 JUL 90-A QC Run: 03 JUL 90-A			
Acenaphthene	ND	ug/L	10
Acenaphthylene	ND	ug/L	10
Acetophenone	ND	ug/L	10
4-Aminobiphenyl	ND	ug/L	10
Aniline	ND	ug/L	10
Anthracene	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	20
bis(2-Chloroethoxy)-methane	ND	ug/L	10
bis(2-Chloroethyl) ether	ND	ug/L	10
bis(2-Chloroisopropyl)-ether	ND	ug/L	10

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

Test: 625-AP9-A
Matrix: AQUEOUS
QC Lot: 03 JUL 90-A QC Run: 03 JUL 90-A

Analyte	Result	Units	Reporting Limit
bis(2-Ethylhexyl) phthalate	ND	ug/L	10
4-Bromophenyl phenyl ether	ND	ug/L	10
Butyl benzyl phthalate	ND	ug/L	10
4-Chloroaniline	ND	ug/L	20
4-Chloro-3-methylphenol	ND	ug/L	20
2-Chloronaphthalene	ND	ug/L	10
2-Chlorophenol	ND	ug/L	10
4-Chlorophenyl phenyl ether	ND	ug/L	10
o-Cresol	ND	ug/L	10
m & p-Cresol(s)	ND	ug/L	10
Chrysene	ND	ug/L	10
Dibenz(a,h)anthracene	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
p-Dimethylaminoazobenzene	ND	ug/L	10
7,12-Dimethylbenz(a)-anthracene	ND	ug/L	10
a,a-Dimethylphenethyl-amine	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-o-cresol	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
Ethyl methanesulfonate	ND	ug/L	10
Fluoranthene	ND	ug/L	10
Fluorene	ND	ug/L	10
Hexachlorobenzene	ND	ug/L	10

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

Test: 625-AP9-A
Matrix: AQUEOUS
QC Lot: 03 JUL 90-A QC Run: 03 JUL 90-A

Analyte	Result	Units	Reporting Limit
Hexachlorobutadiene	ND	ug/L	10
Hexachlorocyclopentadiene	ND	ug/L	10
Hexachloroethane	ND	ug/L	10
Indeno(1,2,3-cd)pyrene	ND	ug/L	10
Isophorone	ND	ug/L	10
3-Methylcholanthrene	ND	ug/L	20
Methyl methanesulfonate	ND	ug/L	10
2-Methylnaphthalene	ND	ug/L	10
Naphthalene	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
N-Nitroso-di-n-butylamine	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-Nitrosopiperidine	ND	ug/L	10
Pentachlorobenzene	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
2-Picoline	ND	ug/L	10
Pronamide	ND	ug/L	20
Pyrene	ND	ug/L	10
1,2,4,5-Tetrachlorobenzene	ND	ug/L	10
2,3,4,6-Tetrachlorophenol	ND	ug/L	20
1,2,4-Trichlorobenzene	ND	ug/L	10
2,4,5-Trichlorophenol	ND	ug/L	50
2,4,6-Trichlorophenol	ND	ug/L	10
Benzidine	ND	ug/L	--
Benzoic acid	ND	ug/L	50
1-Chloronaphthalene	ND	ug/L	--

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

Analyte	Result	Units	Reporting Limit
Test: 625-AP9-A			
Matrix: AQUEOUS			
QC Lot: 03 JUL 90-A QC Run: 03 JUL 90-A			
1,2-Diphenylhydrazine	ND	ug/L	50

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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)
010192-0001-SA	SOIL	HG-CVAA-S	18 JUL 90-B	18 JUL 90-B
010192-0001-SA	SOIL	AS-FAA-S	27 JUL 90-R	27 JUL 90-R
010192-0001-SA	SOIL	SE-FAA-S	20 JUL 90-F	20 JUL 90-F
010192-0001-SA	SOIL	ICP-S	27 JUL 90-R	27 JUL 90-R
010192-0002-SA	SOIL	HG-CVAA-S	18 JUL 90-B	18 JUL 90-B
010192-0002-SA	SOIL	AS-FAA-S	27 JUL 90-R	27 JUL 90-R
010192-0002-SA	SOIL	SE-FAA-S	20 JUL 90-F	20 JUL 90-F
010192-0002-SA	SOIL	ICP-S	27 JUL 90-R	27 JUL 90-R
010192-0003-SA	SOIL	HG-CVAA-S	18 JUL 90-B	18 JUL 90-B
010192-0003-SA	SOIL	AS-FAA-S	27 JUL 90-R	27 JUL 90-R
010192-0003-SA	SOIL	SE-FAA-S	20 JUL 90-F	20 JUL 90-F
010192-0003-SA	SOIL	ICP-S	27 JUL 90-R	27 JUL 90-R
010192-0004-SA	SOIL	HG-CVAA-S	18 JUL 90-B	18 JUL 90-B
010192-0004-SA	SOIL	AS-FAA-S	27 JUL 90-R	27 JUL 90-R
010192-0004-SA	SOIL	SE-FAA-S	20 JUL 90-F	20 JUL 90-F
010192-0004-SA	SOIL	ICP-S	27 JUL 90-R	27 JUL 90-R
010192-0005-SA	SOIL	HG-CVAA-S	18 JUL 90-B	18 JUL 90-B
010192-0005-SA	SOIL	AS-FAA-S	27 JUL 90-R	27 JUL 90-R
010192-0005-SA	SOIL	SE-FAA-S	20 JUL 90-F	20 JUL 90-F
010192-0005-SA	SOIL	ICP-S	27 JUL 90-R	27 JUL 90-R
010192-0006-SA	SOIL	HG-CVAA-S	20 JUL 90-C	20 JUL 90-C
010192-0006-SA	SOIL	AS-FAA-S	27 JUL 90-R	27 JUL 90-R
010192-0006-SA	SOIL	SE-FAA-S	20 JUL 90-F	20 JUL 90-F
010192-0006-SA	SOIL	ICP-S	27 JUL 90-R	27 JUL 90-R
010192-0007-SA	SOIL	HG-CVAA-S	18 JUL 90-B	18 JUL 90-B
010192-0007-SA	SOIL	AS-FAA-S	27 JUL 90-R	27 JUL 90-R
010192-0007-SA	SOIL	SE-FAA-S	20 JUL 90-F	20 JUL 90-F
010192-0007-SA	SOIL	ICP-S	27 JUL 90-R	27 JUL 90-R
010192-0008-SA	SOIL	HG-CVAA-S	18 JUL 90-B	18 JUL 90-B
010192-0008-SA	SOIL	AS-FAA-S	27 JUL 90-R	27 JUL 90-R
010192-0008-SA	SOIL	SE-FAA-S	20 JUL 90-F	20 JUL 90-F
010192-0008-SA	SOIL	ICP-S	27 JUL 90-R	27 JUL 90-R
010192-0009-SA	SOIL	HG-CVAA-S	18 JUL 90-B	18 JUL 90-B
010192-0009-SA	SOIL	AS-FAA-S	27 JUL 90-R	27 JUL 90-R
010192-0009-SA	SOIL	SE-FAA-S	20 JUL 90-F	20 JUL 90-F
010192-0009-SA	SOIL	ICP-S	27 JUL 90-R	27 JUL 90-R
010192-0010-SA	SOIL	HG-CVAA-S	18 JUL 90-C	18 JUL 90-C
010192-0010-SA	SOIL	AS-FAA-S	27 JUL 90-R	27 JUL 90-R
010192-0010-SA	SOIL	SE-FAA-S	20 JUL 90-F	20 JUL 90-F
010192-0010-SA	SOIL	ICP-S	27 JUL 90-R	27 JUL 90-R
010192-0011-SA	SOIL	HG-CVAA-S	18 JUL 90-C	18 JUL 90-C
010192-0011-SA	SOIL	AS-FAA-S	27 JUL 90-R	27 JUL 90-R
010192-0011-SA	SOIL	SE-FAA-S	20 JUL 90-F	20 JUL 90-F
010192-0011-SA	SOIL	ICP-S	27 JUL 90-R	27 JUL 90-R
010192-0012-SA	SOIL	HG-CVAA-S	18 JUL 90-C	18 JUL 90-C
010192-0012-SA	SOIL	AS-FAA-S	27 JUL 90-R	27 JUL 90-R
010192-0012-SA	SOIL	SE-FAA-S	20 JUL 90-F	20 JUL 90-F

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QC LOT ASSIGNMENT REPORT
Metals Analysis and Preparation (cont.)

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
010192-0012-SA	SOIL	ICP-S	27 JUL 90-R	27 JUL 90-R
010192-0013-SA	SOIL	HG-CVAA-S	18 JUL 90-C	18 JUL 90-C
010192-0013-SA	SOIL	AS-FAA-S	27 JUL 90-R	27 JUL 90-R
010192-0013-SA	SOIL	SE-FAA-S	20 JUL 90-F	20 JUL 90-F
010192-0013-SA	SOIL	ICP-S	27 JUL 90-R	27 JUL 90-R
010192-0014-SA	SOIL	HG-CVAA-S	18 JUL 90-C	18 JUL 90-C
010192-0014-SA	SOIL	AS-FAA-S	27 JUL 90-R	27 JUL 90-R
010192-0014-SA	SOIL	SE-FAA-S	20 JUL 90-F	20 JUL 90-F
010192-0014-SA	SOIL	ICP-S	27 JUL 90-R	27 JUL 90-R
010192-0015-SA	SOIL	HG-CVAA-S	18 JUL 90-C	18 JUL 90-C
010192-0015-SA	SOIL	AS-FAA-S	27 JUL 90-R	27 JUL 90-R
010192-0015-SA	SOIL	SE-FAA-S	20 JUL 90-F	20 JUL 90-F
010192-0015-SA	SOIL	ICP-S	27 JUL 90-R	27 JUL 90-R
010192-0016-SA	AQUEOUS	AS-FAA-AT	16 JUL 90-D	16 JUL 90-D
010192-0016-SA	AQUEOUS	SE-FAA-AT	16 JUL 90-D	16 JUL 90-D
010192-0016-SA	AQUEOUS	HG-CVAA-AT	17 JUL 90-D	17 JUL 90-D
010192-0016-SA	AQUEOUS	ICP-AT	16 JUL 90-D	16 JUL 90-D
010192-0016-SA	AQUEOUS	PB-FAA-AT	16 JUL 90-D	16 JUL 90-D

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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	Precision (RPD) DCS	Precision (RPD) Limit
Category: HG-CVAA-S Matrix: SOIL QC Lot: 18 JUL 90-B Concentration Units: mg/kg								
Mercury	0.50	0.524	0.535	0.530	106	75-125	2.1	20
Category: AS-FAA-S Matrix: SOIL QC Lot: 27 JUL 90-R Concentration Units: mg/kg								
Arsenic	4	3.68	3.93	3.80	95	75-125	6.6	20
Category: SE-FAA-S Matrix: SOIL QC Lot: 20 JUL 90-F Concentration Units: mg/kg								
Selenium	1.0	1.16	1.22	1.19	119	75-125	5.0	20
Category: ICP-S Matrix: SOIL QC Lot: 27 JUL 90-R Concentration Units: mg/kg								
Aluminum	200	196	200	198	99	75-125	2.0	20
Antimony	50	47.8	47.4	47.6	95	75-125	0.8	20
Arsenic	50	44.2	45.1	44.6	89	75-125	2.0	20
Barium	200	176	179	177	89	75-125	1.7	20
Beryllium	5.0	5.20	5.30	5.25	105	75-125	1.9	20
Cadmium	5.0	3.87	4.03	3.95	79	75-125	4.1	20
Calcium	10000	9770	9940	9860	99	75-125	1.7	20
Chromium	20	19.1	19.6	19.4	97	75-125	2.6	20
Cobalt	50	42.4	43.9	43.2	86	75-125	3.5	20
Copper	25	23.4	23.7	23.6	94	75-125	1.3	20
Iron	100	96.4	100	98.2	98	75-125	3.7	20
Lead	50	41.9	43.4	42.6	85	75-125	3.5	20
Magnesium	5000	4850	4880	4860	97	75-125	0.6	20
Manganese	50	43.9	45.4	44.6	89	75-125	3.4	20
Nickel	50	43.5	44.5	44.0	88	75-125	2.3	20
Potassium	5000	4820	4740	4780	96	75-125	1.7	20

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

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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 Average(%) Limits	Precision (RPD) DCS	Precision (RPD) Limit
Category: ICP-S Matrix: SOIL QC Lot: 27 JUL 90-R Concentration Units: mg/kg								
Silver	5.0	4.90	5.01	4.96	99	75-125	2.2	20
Sodium	10000	9660	9730	9700	97	75-125	0.7	20
Vanadium	50	47.9	49.1	48.5	97	75-125	2.5	20
Zinc	50	42.5	43.5	43.0	86	75-125	2.3	20
Category: HG-CVAA-S Matrix: SOIL QC Lot: 20 JUL 90-C Concentration Units: mg/kg								
Mercury	0.50	0.497	0.477	0.487	97	75-125	4.1	20
Category: HG-CVAA-S Matrix: SOIL QC Lot: 18 JUL 90-C Concentration Units: mg/kg								
Mercury	0.50	0.551	0.546	0.548	110	75-125	0.9	20
Category: AS-FAA-AT Matrix: AQUEOUS QC Lot: 16 JUL 90-D Concentration Units: mg/L								
Arsenic	0.04	0.0342	0.0351	0.0346	87	75-125	2.6	20
Category: SE-FAA-AT Matrix: AQUEOUS QC Lot: 16 JUL 90-D Concentration Units: mg/L								
Selenium	0.01	0.0106	0.0104	0.0105	105	75-125	1.9	20

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

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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 Average(%) Limits	Precision (RPD) DCS	Precision (RPD) Limit
Category: HG-CVAA-AT Matrix: AQUEOUS QC Lot: 17 JUL 90-D Concentration Units: mg/L								
Mercury	0.0010	0.00104	0.00103	0.00104	104	75-125	1.0	20
Category: ICP-AT Matrix: AQUEOUS QC Lot: 16 JUL 90-D Concentration Units: mg/L								
Aluminum	2.0	1.98	1.95	1.96	98	75-125	1.7	20
Antimony	0.5	0.470	0.458	0.464	93	75-125	2.6	20
Arsenic	0.5	0.468	0.448	0.458	92	75-125	4.5	20
Barium	2.0	1.80	1.77	1.79	89	75-125	1.9	20
Beryllium	0.05	0.0478	0.0476	0.0477	95	75-125	0.5	20
Cadmium	0.05	0.0499	0.0451	0.0475	95	75-125	10	20
Calcium	100	99.9	99.9	99.9	100	75-125	0.0	20
Chromium	0.2	0.190	0.188	0.189	95	75-125	0.9	20
Cobalt	0.5	0.449	0.438	0.443	89	75-125	2.3	20
Copper	0.25	0.243	0.244	0.244	97	75-125	0.7	20
Iron	1.0	0.957	0.965	0.961	96	75-125	0.8	20
Lead	0.5	0.446	0.442	0.444	89	75-125	0.8	20
Magnesium	50	50.7	50.7	50.7	101	75-125	0.1	20
Manganese	0.5	0.456	0.452	0.454	91	75-125	0.8	20
Nickel	0.5	0.449	0.448	0.449	90	75-125	0.4	20
Potassium	50	50.0	50.4	50.2	100	75-125	0.9	20
Silver	0.05	0.0514	0.0510	0.0512	102	75-125	0.8	20
Sodium	100	99.9	101	100	100	75-125	1.2	20
Vanadium	0.5	0.497	0.490	0.494	99	75-125	1.4	20
Zinc	0.5	0.455	0.448	0.452	90	75-125	1.7	20
Category: PB-FAA-AT Matrix: AQUEOUS QC Lot: 16 JUL 90-D Concentration Units: mg/L								
Lead	0.02	0.0226	0.0217	0.0222	111	75-125	4.1	20

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

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METHOD BLANK REPORT
Metals Analysis and Preparation

Analyte	Result	Units	Reporting Limit
Test: HG-CVAA-S			
Matrix: SOIL			
QC Lot: 18 JUL 90-B QC Run: 18 JUL 90-B			
Mercury	ND	mg/kg	0.10
Test: AS-FAA-S			
Matrix: SOIL			
QC Lot: 27 JUL 90-R QC Run: 27 JUL 90-R			
Arsenic	ND	mg/kg	0.50
Test: SE-FAA-S			
Matrix: SOIL			
QC Lot: 20 JUL 90-F QC Run: 20 JUL 90-F			
Selenium	ND	mg/kg	0.50
Test: ICP-S			
Matrix: SOIL			
QC Lot: 27 JUL 90-R QC Run: 27 JUL 90-R			
Antimony	ND	mg/kg	6.0
Barium	ND	mg/kg	1.0
Beryllium	ND	mg/kg	0.20
Cadmium	ND	mg/kg	0.50
Chromium	ND	mg/kg	1.0
Cobalt	ND	mg/kg	1.0
Copper	ND	mg/kg	2.0
Lead	ND	mg/kg	5.0
Nickel	ND	mg/kg	4.0
Potassium	ND	mg/kg	500
Vanadium	ND	mg/kg	1.0
Zinc	ND	mg/kg	2.0

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METHOD BLANK REPORT
Metals Analysis and Preparation (cont.)

Analyte	Result	Units	Reporting Limit
Test: HG-CVAA-S Matrix: SOIL QC Lot: 20 JUL 90-C QC Run: 20 JUL 90-C			
Mercury	ND	mg/kg	0.10
Test: HG-CVAA-S Matrix: SOIL QC Lot: 18 JUL 90-C QC Run: 18 JUL 90-C			
Mercury	ND	mg/kg	0.10
Test: AS-FAA-AT Matrix: AQUEOUS QC Lot: 16 JUL 90-D QC Run: 16 JUL 90-D			
Arsenic	ND	mg/L	0.0050
Test: SE-FAA-AT Matrix: AQUEOUS QC Lot: 16 JUL 90-D QC Run: 16 JUL 90-D			
Selenium	ND	mg/L	0.0050
Test: HG-CVAA-AT Matrix: AQUEOUS QC Lot: 17 JUL 90-D QC Run: 17 JUL 90-D			
Mercury	ND	mg/L	0.00020
Test: ICP-AT Matrix: AQUEOUS QC Lot: 16 JUL 90-D QC Run: 16 JUL 90-D			
Antimony	ND	mg/L	0.060
Barium	ND	mg/L	0.010
Beryllium	ND	mg/L	0.0020
Cadmium	0.0055	mg/L	0.0050
Chromium	ND	mg/L	0.010
Cobalt	ND	mg/L	0.010

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METHOD BLANK REPORT
Metals Analysis and Preparation (cont.)

Analyte	Result	Units	Reporting Limit
Test: ICP-AT			
Matrix: AQUEOUS			
QC Lot: 16 JUL 90-D QC Run: 16 JUL 90-D			
Copper	ND	mg/L	0.020
Nickel	ND	mg/L	0.040
Potassium	ND	mg/L	5.0
Vanadium	ND	mg/L	0.010
Zinc	ND	mg/L	0.020
Test: PB-FAA-AT			
Matrix: AQUEOUS			
QC Lot: 16 JUL 90-D QC Run: 16 JUL 90-D			
Lead	ND	mg/L	0.0050

Enseco - Rocky Mountain Analytical

4955 Yarrow Street
Arvada, Colorado 80002
303/421-6611 Facsimile: 303/431-7171

CHAIN OF CUSTODY

No.

Attn: Julie Essef

Enseco Client: Giant Refinery

Project: RFI

Sampling Co.: Giant

Sampling Site: Cinizo

Team Leader: Claud Rosendale

RMAL # 10192

SAMPLE SAFE™ CONDITIONS

1. Packed by: _____ Seal # _____
2. Seal Intact Upon Receipt by Sampling Co.: (Yes) No
3. Condition of Contents: Good
4. Sealed for Shipping by: C Rosendale
5. Initial Contents Temp.: _____ °C Seal # —
6. Sampling Status: (Done) Continuing Until _____
7. Seal Intact Upon Receipt by Laboratory: Yes No
8. Contents Temperature Upon Receipt by Lab: _____ °C
9. Condition of Contents: _____

#	Date	Time	Sample ID/Description	Sample Type	No. Containers	Analysis Parameters	Remarks
01	6-28-90	9:07	RFI 1004 V 6.0	SOIL	2	Metals, 8240, 8270	
02	6-28-90	9:32	RFI 1004 V 9.0	SOIL	2	Metals, 8240, 8270	
03	6-28-90	9:45	RFI 1004 V 12.5	SOIL	2	Metals, 8240, 8270	
04	6-28-90	10:26	RFI 1005 V 0.0	SOIL	2	Metals, 8240, 8270	
05	6-28-90	10:55	RFI 1005 V 3.0	SOIL	2	Metals, 8240, 8270	
06	6-28-90	11:03	RFI 1005 V 6.0	SOIL	2	Metals, 8240, 8270	
07	6-28-90	11:18	RFI 1005 V 9.0	SOIL	2	Metals, 8240, 8270	
08	6-28-90	11:34	RFI 1005 V 12.5	SOIL	2	Metals, 8240, 8270	
09	6-28-90	10:55	RFI 1005 D 3.0	SOIL	2	Metals, 8240, 8270	
10	6-28-90	11:50	RFI 1002 V 0.0	SOIL	2	Metals, 8240, 8270	

CUSTODY TRANSFERS PRIOR TO SHIPPING

	Relinquished by: (signed)	Received by: (signed)	Date	Time
1	Claud Rosendale		6-28-90	2:00 pm
2				
3				

SHIPPING DETAILS

Delivered to Shipper by: Claud Rosendale

Method of Shipment: Fed Express Airbill #

Received for Lab: RMAL Signed: Bob Raidy Date/Time 29 JUN 90 8:00

Enseco Project No. 10192

Enseco - Rocky Mountain Analytical

4955 Yarrow Street
Arvada, Colorado 80002
303/421-6611 Facsimile: 303/431-7171

CHAIN OF CUSTODY

No.

Attn: Julie Essey

Enseco Client: Giant Refinery

Project: RFI

Sampling Co.: Giant

Sampling Site: Gallup

Team Leader: C Rosendale

RMAL # 10192

SAMPLE SAFE™ CONDITIONS

1. Packed by: _____ Seal # _____
2. Seal Intact Upon Receipt by Sampling Co.: (Yes) No
3. Condition of Contents: Good
4. Sealed for Shipping by: C Rosendale
5. Initial Contents Temp.: — °C Seal # —
6. Sampling Status: (Done) Continuing Until _____
7. Seal Intact Upon Receipt by Laboratory: Yes No
8. Contents Temperature Upon Receipt by Lab: _____ °C
9. Condition of Contents: _____

#	Date	Time	Sample ID/Description	Sample Type	No. Containers	Analysis Parameters	Remarks
11	6-28-90	11:58	RFI 1002 V3.0	SOIL	2	Metals, 8240, 8270	
12	6-28-90	12:03	RFI 1002 V6.0	SOIL	2	Metals, 8240, 8270	
13	6-28-90	12:13	RFI 1002 V9.0	SOIL	2	Metals, 8240, 8270	
14	6-28-90	12:40	RFI 1002 V12.5	SOIL	2	Metals, 8240, 8270	
15	6-28-90	10:34	RFI 1005D 12.5	SOIL	2	Metals, 8240, 8270	
16	6-28-90	12:00	RFI 1002 E3.0	Water	6	SEE Attachment	
17	6-28-90	—	Trip Blank	Water	1	VOA	

CUSTODY TRANSFERS PRIOR TO SHIPPING

	Relinquished by: (signed)	Received by: (signed)	Date	Time
1	Cland Rosendale		6-28-90	2:00 p.m.
2				
3				

SHIPPING DETAILS

Delivered to Shipper by: C Rosendale

Method of Shipment: Fed Express Airbill # _____

Received for Lab: RMAL Signed: Bob Ring Date/Time 29 JUN 90 8:00

Enseco Project No. 10192

9.945

SS-001

SECTION 10.0

Response to RFI Phase I Draft Report Deficiencies

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TEXAS 75202-2733

MAR 19 1991

CERTIFIED MAIL: RETURN RECEIPT REQUESTED

Mr. John J. Stokes, Manager
Giant Refining Company
Route 3, Box 7
Gallup, New Mexico 7301

RE: RFI Phase I Report - Giant Refining Co.
NMD048918817

Dear Mr. Stokes:

We have completed our technical review of your RFI Phase I Report submitted on November 27, 1990, and have determined the Report to be deficient. A list of deficiencies is enclosed for your review.

You shall have 30 days from the receipt of this letter to submit a modified report which addresses the enclosed deficiencies. If this modified report is not approved, we may make further modifications as required.

If you have any questions concerning this matter, please contact Richard Mayer of my staff at (214) 655-6775.

Sincerely yours,

Jack Directa

Allyn M. Davis
Director
Hazardous Waste Management Division

Enclosure

cc: Kathleen Sisneros, NMEID

RECEIVED

DEFICIENCIES OF GIANT

RFI PHASE I REPORT

1. Giant needs to include in the RFI Report a recommendation section which includes further sampling for the following SWMUs:

   A. Tank Farm - Tanks 451, 452, 453, 567, 568, 569, 570, 571, 572, and 573;

   B. Sludge Pits; and

   C. Overflow ditch and fan out area from the Railroad Rack Lagoon.

   This should include where soil samples (or any other media) will be taken and the constituents to be analyzed. A schedule for completing this work should be included.

2. The RFI Report should also include a decision by Giant on the future use of the Railroad Rack Lagoon. The Agency feels that 2 options are available to Giant. They are: 1) Giant continue to operate the lagoon with continued soil/ground water monitoring of the unit or 2) Giant close the lagoon in the near future (6 months).

3. The RFI Report should include a recommendation by Giant on whether further monitoring or no further action is required for the Inactive Landfarm and the Natural Drainage Area.

Section 10.2
Response to Phase I RFI Deficiency Report

The initial sampling for Phase I of Giant Refining Company's RCRA Facility Investigation (RFI) has been completed with the draft report submitted to the Environmental Protection Agency (EPA) on November 27, 1990. On March 22, 1991, Giant received a letter from EPA (Section 10.1) which declared the report to be deficient. The enclosure contained a list of three (3) deficiencies to address and include in the final report. Each of the deficiencies are addressed in the following text.

10.2.1 Additional Sampling Requirements

SWMU #6 Tank Farm

The original sampling plan consisted of one vertical sample at the manway and one angle sample (no specific location) at each of the ten (10) tanks which has previously contained leaded materials. The following chart indicates metals (if tolerances were exceeded) and total BTEX levels for the tank farm samples. Concentrations are reported in ppm.

	Metals - pb(Ni)			Total BTEX		
	Sample Depths					
Sample #	0	$3\frac{1}{2}$	7	0	$3\frac{1}{2}$	7
01	NA	NA	NA	ND	0.64	28.6
02	NA	NA	NA	ND	ND	ND
03	NA	27.7	NA	ND	ND	ND
04	NA	NA	NA	ND	ND	2.46
05	138	NA	NA	ND	119	0.26
06	28.5	NA	NA	0.37	7.6	54.1
07	NA	NA	NA	ND	ND	ND
08	23.1	NA	NA	ND	ND	51.3
09	NA	NA	NA	ND	ND	ND
10	129(15.2)	NA	NA	ND	2.68	4.66
11	44.6	21.4	23.9	ND	269	248.4
12	736(41.3)	NA	NA	488	1,677	160
13	NA	NA	NA	ND	ND	ND
14	57.4	NA	NA	1.58	28	460
15	NA	NA	NA	ND	ND	ND
16	238(32.9)	301(58.2)	55.3	0.47	41.3	23.9
17	NA	NA	NA	ND	ND	ND
18	NA	NA	NA	ND	113.6	26.65
19	19.1	NA	NA	180	ND	0.42
20	21.6(49.8)	NA	NA	ND	104.6	10.0

After reviewing this chart, Giant has decided that nine (9) additional vertical samples should be collected at a depth of 11 to $11\frac{1}{2}$ feet below ground surface. These nine (9) samples will be collected in close proximity to the original sample location of concern. The following chart indicates the original sample number designation, the corresponding new sample number designation and the analytical parameters that will be tested.

Original Sample #	New Sample #	Analytical
01	21	BTEX
06	22	BTEX
08	23	BTEX
10	24	BTEX
11	25	BTEX, Lead
12	26	BTEX
14	27	BTEX
16	28	BTEX, Lead, Nickel
18	29	BTEX

The samples will be collected by excavating to 11 feet with a backhoe and using a hand auger to collect the actual samples as approved in the original generic sampling plan. A lithographic log with PID recordings will be maintained for each sample location. The analytical parameters will also be analyzed by methodology approved in the original generic sampling plan. Figures 10-2 and 10-3 specifies the tank numbers and the associated sample locations. This additional sampling, which is four (4) feet deeper than the deepest original sample, will allow a more thorough evaluation of migration if any contamination does exist.

SWMU #10 Sludge Pits

The sludge pit sampling consisted of two general areas: a) the overflow pipe from the pit with samples collected at ground level and 3.0 feet and b) sludge pit 1 & 2 with samples collected at ground level, 3.0 feet, 6.0 feet, 9.0 feet and 12½ feet.

Sample #01 was collected at the overflow pipe. This sample contained slightly elevated levels of chromium and no detectable organics. The chromium levels were determined to be insignificant.

Samples #02 and #03 were collected in sludge pit 1. The 3.0 foot deep sample of sample #02 indicated slightly elevated levels of chromium and zinc and a total organic concentration of 84.0 ppm. The remaining sample intervals of sample #02 and all sample intervals of sample #03 indicated minimal metal concentrations and no detection of organics.

Samples #04 and #05 were collected in sludge pit 2. Samples indicated the presence of layered organics in this area. Each of the two 6.0 foot deep samples contained elevated levels of metals. Sample #05 was the worst with levels of chromium, copper, lead and zinc. Both of these samples also contained organics with levels as high as 2,847 ppm total organics.

Since an organic layer was detected near the 12½ foot sample depth in sludge pit 2, it has been determined that additional borings should be made to depths of 18 feet. Two additional borings (samples 1006 and 1007) will be made in sludge pit 2 and one additional boring (sample 1008) will be made in sludge pit 1. In sludge pit 2, samples will be collected at the 15 to 15½ foot layer. The borings in sludge pit 1 and 2 will consist of a visual and lithologic log and PID recordings. If organic layers are visible or the

PID recordings exceed the background by more than 2.5 units. Samples will be collected at the 15 to 15½ foot layer in sludge pit 1 and the 18 foot layer in sludge pit 1 and 2.

The samples will be collected by using the backhoe and hand auger. Each sample collected will be analyzed for chromium, copper, lead and zinc as outlined in Table 10-1. They will also be analyzed for Method 8240 and Method 8270 Priority Pollutant lists outlined in Table 10-2 and Table 10-3 respectively. These are the same parameters and methodology outlined in the approved generic sampling plan and the same parameters listed in the approved workplan for SWMU #10 except for some of the metals. Figure 10-5 details the location of each specific sample point.

SWMU #8 - Overflow Ditch and Fan Out Area From the Railroad Rack Lagoon

The railroad rack lagoon sampling consisted of two general areas: a) the lagoon area with samples collected at 5.0 feet, 8.0 feet, and 10½ feet, and b) the overflow ditch and fan out area with samples collected at the surface, 2.0 feet and 4½ feet.

	Volatiles(ppm)			Semi-volatiles(ppm)		
	Sample Depth					
Sample #	5	8	10½	5	8	10½
01	5.77	ND	ND	26.57	ND	ND
02	ND	0.50	0.59	ND	ND	ND
03	6.60	ND	ND	37.60	ND	ND
04	ND	5.49	ND	ND	64.0	ND
05	ND	ND	ND	ND	ND	ND
06	ND	ND	ND	ND	ND	ND

Giant does not believe additional sampling is required around the lagoon.

Samples #07 through #13 were collected around the ditch and fan out area. Sample #07 was the only sample with any elevated levels of metals. However, none of the levels were high enough to raise specific concern. Total concentrations of volatiles semi-volatiles are as follows:

	Volatiles(ppm)			Semi-volatiles(ppm)		
	Sample Depths					
Sample #	0	2	4½	0	2	4½
07	ND	ND	ND	ND	50.00	ND
08	ND	ND	ND	ND	73.00	ND
09	ND	ND	ND	ND	106.00	6.70
10	ND	ND	ND	ND	ND	ND
11	ND	ND	ND	ND	ND	131.0
12	ND	ND	ND	ND	ND	ND
13	ND	ND	2.75	ND	ND	ND
13D	ND	ND	ND	ND	ND	ND

As a result of detectable organics at the $4\frac{1}{2}$ foot deep sample, Giant has decided that additional samples should be collected. Two additional samples will be collected at depth intervals of 7.0 to $7\frac{1}{2}$ feet. The location of the new samples are detailed in Figure 10-4. The samples will be analyzed for the 8270 portion of the skinner list constituents as outlined in Table 10-4. The samples will be collected by using a backhoe and hand auger as approved in the generic sampling plan. The analytical parameters are approved in the sampling plan and workplan. A lithologic log and PID readings will be maintained.

10.2.2 Railroad Rack Lagoon

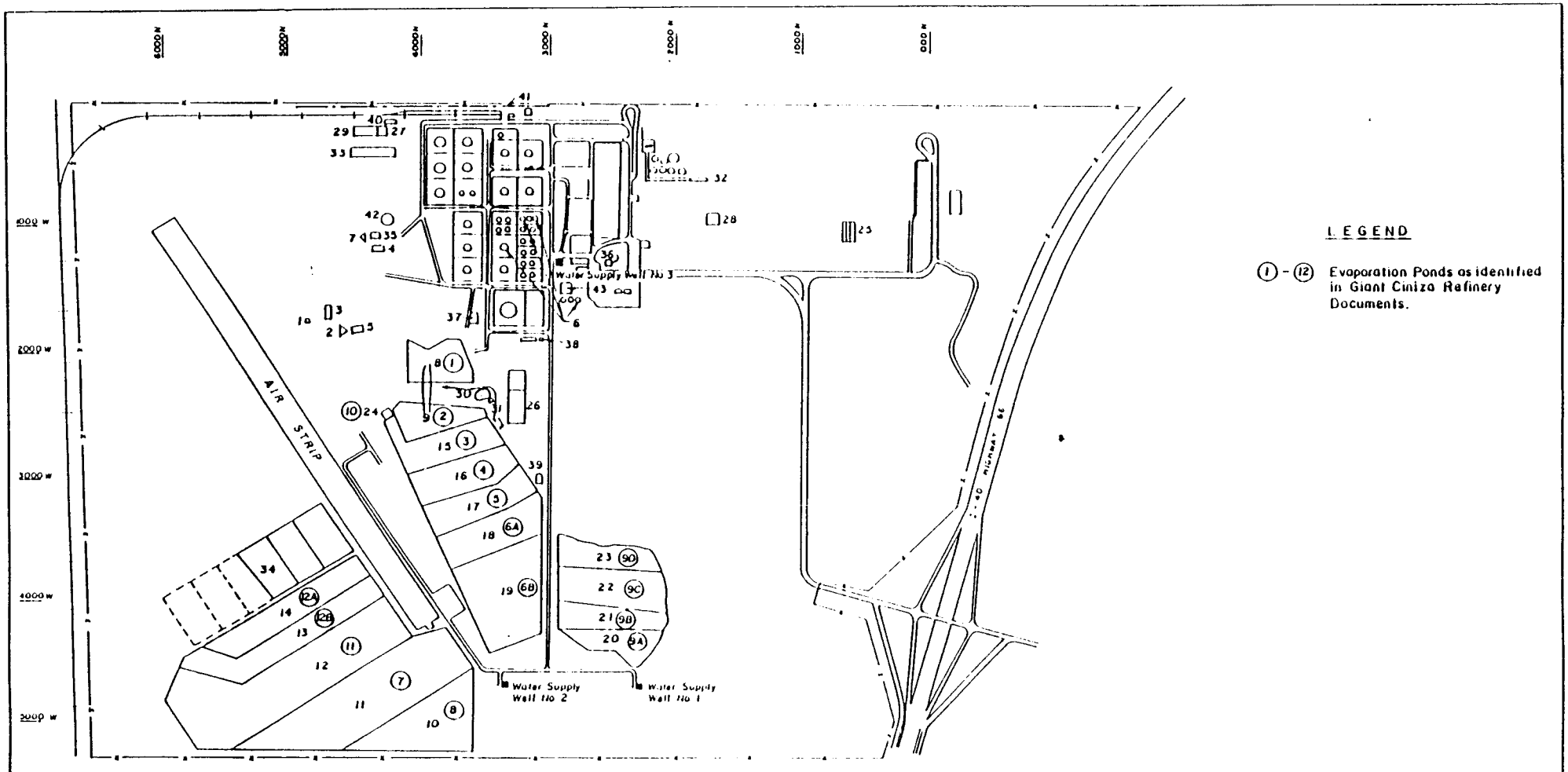
Giant will proceed with plans to close the railroad rack lagoon. An evaluation will be done with the sewer drainage system that is associated with the railroad area. The drainage system will be blocked or dismantled at the most efficient location. A sump pump and level control switch will be installed to pump all process waters from this drainage area to the sewer system that flows to the API separator. The railroad rack lagoon will be emptied with oily liquids being transferred through the API separator. Any oily soils on the slope of the lagoon will be analyzed, then removed and disposed of appropriately. The lagoon will then remain intact as an overflow pit for the domestic sewage lagoon which presently overflows into it.

10.2.3 Inactive Landfarm and the Natural Drainage Area

SWMU #9 contains slightly elevated levels of chromium (42.3 ppm and 102 ppm) and zinc (69.6 ppm and 157 ppm) at the surface sample ($0-\frac{1}{2}$ foot depth) of sample #04 and #07 respectively. The only volatile organic detected was ethanol. Ethanol was detected in sample numbers 01, 02, 04 and 06 with the maximum concentration of 24.0 ppm. The only semi-volatile organic detected was chrysene in sample #06 at 26.0 ppm. Giant does not believe this SWMU requires any additional monitoring or sampling. Therefore, we believe no further action is required for the Inactive Landfarm and Natural Drainage Ditch.

10.0 Sampling and Reporting Schedule

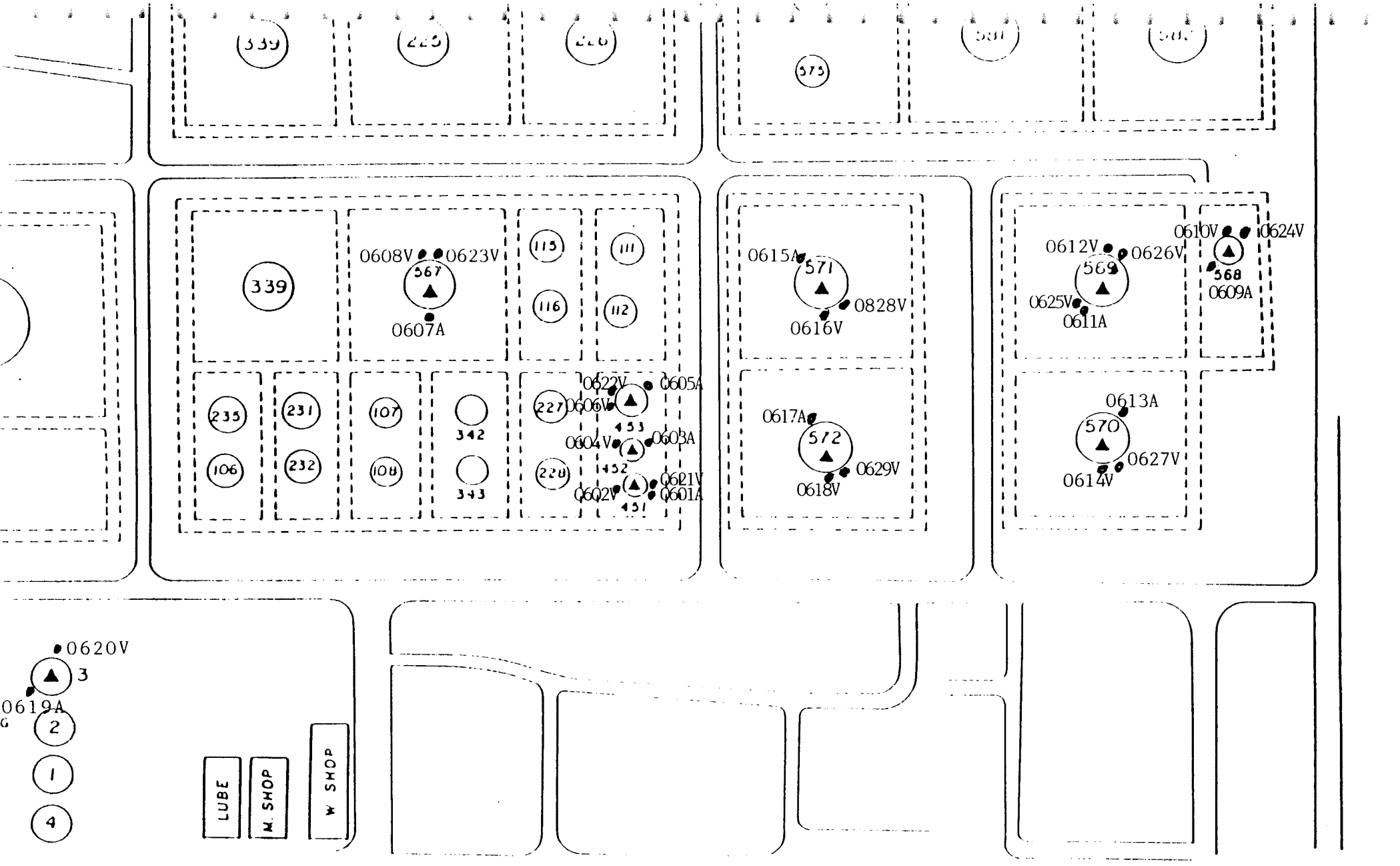
Giant proposes to collect the additional samples for SWMU #6, SWMU #8 and SWMU #10 in conjunction with the Phase II RFI sampling event which is scheduled from April 29, 1991 to May 7, 1991. Groundwater samples will be collected from April 29, 1991 to May 3, 1991 in conjunction with a four day New Mexico Oil Conservation Division inspection and sampling event. Soil sampling will begin on May 6, 1991. The completed analytical reports are expected by late June. Giant will submit a separate report for this additional Phase I analytical. It will be submitted by August 31, 1991 as a supplement to the Phase I RFI Final Report.



Applied Earth Sciences		NAME		FIGURE
FILE No. 5202	MADE BY A.S.G. DATE 5-13-89 CHECKED BY DATE	GIANT REFINERY Gallup, New Mexico	SITE MAP	1

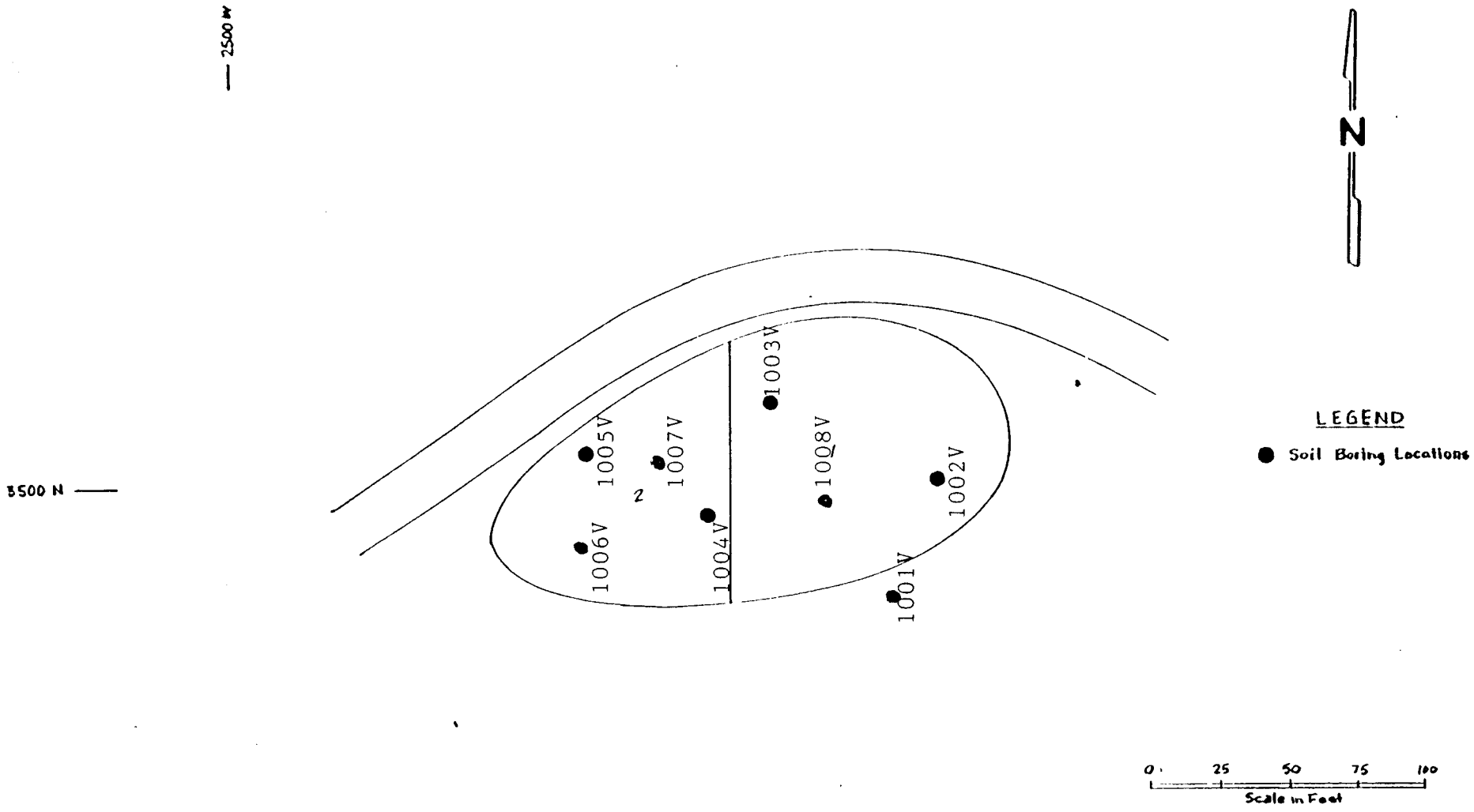
TANK SAMPLES

TANK #	TYPE	SAMPLE #
451	Angle	RFI0601A
	Vertical	RFI0602V
452	Angle	RFI0603A
	Vertical	RFI0604V
453	Angle	RFI0605A
	Vertical	RFI0606V
567	Angle	RFI0607A
	Vertical	RFI0608V
568	Angle	RFI0609A
	Vertical	RFI0610V
569	Angle	RFI0611A
	Vertical	RFI0612V
570	Angle	RFI0613A
	Vertical	RFI0614V
571	Angle	RFI0615A
	Vertical	RFI0616V
572	Angle	RFI0617A
	Vertical	RFI0618V
3	Angle	RFI0619A
	Vertical	RFI0620V
451	Vertical	RFI0621V
453	Vertical	RFI0622V
567	Vertical	RFI0623V
568	Vertical	RFI0624V
569	Vertical	RFI0625V
569	Vertical	RFI0626V
570	Vertical	RFI0627V
571	Vertical	RFI0628V
572	Vertical	RFI0629V



Applied Earth Sciences		NAME
FILE No. 5202	MADE BY RG DATE. 12-6-89 CHECKED BY DATE.	GIANT REFINERY Gallup, New Mexico

(See SHT. 1)
0807V
0808V
0809V
0815V
0810V
0813V
0812V
0811V
0814V
N
LEGEND
Proposed Soil Boring Locations
Proposed Surface Water Sample Locations
0 30 60
Scale in Feet
375 W
Railroad Rack Lagoon and Fan Out Area SHT. 2
GIANT REFINERY
Gallup, New Mexico



GIANT REFINERY Gallup, New Mexico	Sludge Pits	FIG.

TABLE -1
BACKGROUND METALS

Total Metals

Parameter	Analytical Method	Reporting Limit mg/kg
Antimony	6010	6.0
Arsenic	7060	0.5
Barium	6010	1.0
Beryllium	6010	0.2
Cadmium	6010	0.5
Chromium	6010	1.0
Cobalt	6010	1.0
Copper	6010	2.0
Lead	6010	5.0
Mercury	7471	0.2
Nickel	6010	4.0
Potassium	6010	500
Selenium	7740	0.5
Vanadium	6010	1.0
Zinc	6010	2.0

TABLE-2
PRIORITY POLLUTANT VOLATILES

Method 8240

Parameter	Reporting Limits ug/kg
Acetone	5,000
Acrolein	10,000
Acrylonitrile	10,000
Benzene	500
Bromodichloromethane	500
Bromoform	500
Bromomethane(methyl bromide)	1,000
Carbon disulfide	500
Carbon tetrachloride	500
Chlorobenzene	500
Chlorodibromoethane	500
Chloroethane	1,000
2-Chloroethylvinyl ether	1,000
Chloroform	500
Chloromethane	1,000
Dibromomethane	500
1,4 - Dichloro-2-butane	-
trans-1,4-Dichloro-2-butene	500
Dichlorodifluoromethane	2,000
1,1-Dichloroethane	500
1,2-Dichloroethane	500
1,1-Dichloroethylene	500
trans-1,2-Dichloroethylene	500
1,2-Dichloropropane	500
cis-1,3-Dichloropropene	500
trans-1,3-Dichloropropene	500
Ethanol	10,000
Ethyl benzene	500
Ethyl methacrylate	1,000
2-Hexanone	1,000
Iodomethane	500
Methylene Chloride	500
Methyl ethyl ketone (2-Butanone)	1,000
Methyl isobutyl ketone (4-methyl-2-pentanone)	1,000
Styrene	500
1,1,2,2,-Tetrachloroethane	500
Tetrachloroethylene	500
Toluene	500
1,1,1-Trichloroethane	500
1,1,2-Trichloroethane	500
Trichloroethylene	500
Trichlorofluoromethane	500
1,2,3-Trichloropropane	500
Vinyl acetate	1,000
Vinyl chloride	1,000
Xylenes	500

TABLE-3
PRIORITY POLLUTANT SEMIVOLATILES

Method 8270

Parameter	Reporting Limits ug/kg
Acenaphthene	5,000
Acenaphthylene	5,000
Acetophenone	5,000
4-Aminobiphenyl	-
Aniline	5,000
Anthracene	5,000
Benzidine	50,000
Benzoic Acid	5,000
Benzo(a)anthracene	5,000
Benzo(b)fluoranthene	5,000
Benzo(k)fluoranthene	5,000
Benzo(g,h,i)perylene	5,000
Benzo(a)pyrene	5,000
Benzyl alcohol	5,000
Bis(2-chloroethoxy)methane	5,000
Bis(2-chloroethyl)ether	5,000
Bis(2-chloroisopropyl)ether [bis(2-chloro-1 methylethyl)ether]	5,000
Bis(2-ethylhexyl)phthalate	5,000
4-Bromophenyl phenyl ether	5,000
Butyl benzyl phthalate	5,000
4-Chloroaniline	5,000
4-Chloro-3-methylphenol	5,000
1-Chloronaphthane	5,000
2-Chloronaphthane	5,000
2-Chlorophenol	5,000
4-Chlorophenyl phenyl ether	5,000
Chrysene	5,000
Dibenzo(a,j)acridine	-
Dibenzo(a,h) anthracene	5,000
Dibenzo furans(tetrachloro, pentachloro, hexachloro)	-
Di-n-butylphthalate	5,000
1,2-Dichlorobenzene	5,000
1,3-Dichlorobenzene	5,000
1,4-Dichlorobenzene	5,000
3,3-Dichlorobenzidine	10,000
2,4-Dichlorophenol	5,000
2,6-Dichlorophenol	5,000
Diethyl phthalate	5,000
p(Dimethylamino)azobenzene	5,000
7,12-Dimethylbenz(a)anthracene	5,000
aa-Dimethylphenethylamine	5,000
2,4-Dimethylphenol	5,000
Dimethyl phthalate	5,000
4,6-Dinitro-2-methylphenol	25,000
2,4-Dinitrophenol	25,000
2,4-Dinitrotoluene	5,000

TABLE-3 Continued

2,6-Dintrotoluene	5,000
Di-n-octyl phthalate	5,000
Diphenylamine	5,000
1,2-Diphenylhydrazine	5,000
Ethyl methanesulfonate	5,000
Fluoranthene	5,000
Flourene	5,000
Hexachlorobenzene	5,000
Hexachloro-13-butadiene	5,000
Hexachlorocyclopentadiene	5,000
Hexachloroethane	5,000
Indeno(1,2,3-cd)pyrene	5,000
Isophorene	5,000
3-Methylcholanthrene	5,000
Methyl methanesulfonate	5,000
2-Methylnaphthalene	5,000
2-Methylphenol	5,000
3-Methylphenol	5,000
4-Methylphenol	5,000
Naphthalene	5,000
1-Naphthylamine	5,000
2-Naphthylamine	5,000
2-Nitroaniline	25,000
3-Nitroaniline	25,000
4-Nitroaniline	25,000
Nitrobenzene	5,000
2-Nitrophenol	5,000
4-Nitrophenol	25,000
N-Nitrosodimethylamine	5,000
N-Nitroso-di-n-butylamine	5,000
N-Nitroso-di-n-propylamine	5,000
N-Nitrosopiperidine	5,000
N-Nitrosodiphenylamine	5,000
Pentachlorobenzene	5,000
Pentachloronitrobenzene	25,000
Pentachlorophenol	25,000
Phenacetin	5,000
Phenanthrene	5,000
Phenol	5,000
2-Picoline	5,000
Pronamide	5,000
Pyrene	5,000
1,2,4,5-Tetrachlorobenzene	5,000
2,3,4,6-Tetrachlorophenol	25,000
1,2,4-Trichlorobenzene	5,000
2,4,5-Trichlorophenol	25,000
2,4,6-Trichlorophenol	5,000

TABLE-4
SKINNER LIST

METHOD 8240

Parameter	Reporting Limit (ug/kg)
Benzene	500
Carbon disulfide	500
Chlorobenzene	500
2-Chloroethylvinyl ether	1,000
1,2-Dibromomethane	1,000
1,2-Dichloroethane	500
1,4-Dioxane	50,000
Ethyl Benzene	500
Methyl ethyl ketone (2-butanone)	1,000
Styrene	500
Toluene	500
Xylenes	500

METHOD 8270

Anthracene	5,000
Benzenethiol	-
Benzo(a)anthracene	5,000
Benzo(b)fluoranthene	5,000
Benzo(k)fluoranthene	5,000
Benzo(a)pyrene	5,000
Bis(2-ethylhexyl)phthalate	5,000
Butyl benzyl phthalate	5,000
Chrysene	5,000
Dibenzo(a,j)acridine	-
Dibenzo(a,h)anthracene	5,000
Di-n-butylphthalate	5,000
1,2-Dichlorobenzene	5,000
1,3-Dichlorobenzene	5,000
1,4-Dichlorobenzene	5,000
Diethyl phthalate	5,000
7,12-Dimethylbenz(a)anthrancene	5,000
2,4-Dimethylphenol	5,000
Dimethyl phthalate	5,000
2,4-Dinitrophenol	25,000
Di-n-octyl phthalate	5,000
Fluoranthene	5,000
Indene	5,000
Methylchrysene	-
1-Methylnaphthalene	5,000
2-Methylphenol	5,000
3-Methylphenol	5,000
4-Methylphenol	5,000
Naphthalene	5,000
4-Nitrophenol	25,000
Phenanthrene	5,000

TABLE-4 Continued

Phenol	5,000
Pyrene	5,000
Pyridine	10,000
Quinoline	25,000

LABORATORY

TECH NOTES

Analytical Services

RADIAN CORPORATION

Number 3
Revised, April 1990

GCMS TARGET LISTS MADE SIMPLE

NEW TCLP LIST INCLUDED

To simplify project planning and data review, *Tech Note 3* provides a table of gas chromatographic/mass spectrometric (GC/MS) volatile and semivolatile organic chemicals covered by EPA's major water and waste regulations. Pesticides normally analyzed by gas chromatographic methods have been omitted from the lists.

Be aware that the table of GC/MS target compounds can change as EPA amends its regulations or promulgates new ones. Note, also, that there are two separate TCLP lists – Toxicity and Land ban – for solvent wastes (F001-F005) and those containing dioxins (F020-F023; F026-F028). Stay aware of changes in regulations by referring to appropriate technical or trade journals or to the *Federal Register*.

In addition, call us for an update from time to time – we will be happy to advise you on changes to *Tech Note 3*. And as always, Radian's Marketing Managers and Client Service Coordinators will actively help you identify the best analysis methods and the most appropriate compound lists for your monitoring needs when you schedule work with Radian's Analytical Services Laboratories.

VOLATILE COMPOUNDS*

TEST PARAMETERS BY REGULATIONS

ANALYTE	CWA		RCRA					SUPERFUND
	NPDES[a]	624[b]	APPENDIX IX	8240[c]	SKINNER	TCLP		CLP[d]
						Toxicity	Land ban	
A								
Acetone			✓	✓			✓	✓
Acetonitrile			✓					
Acrolein	✓		✓	✓				
Acrylonitrile	✓		✓	✓				
Allyl chloride			✓					
B								
Benzene	✓	✓	✓	✓	✓	✓		✓
Bromodichloromethane	✓	✓	✓	✓				✓
Bromoform	✓	✓	✓	✓				✓
Bromomethane	✓	✓	✓	✓[e]				✓
Butyl Alcohol							✓	
C								
Carbon disulfide			✓	✓	✓		✓	✓
Carbon tetrachloride	✓	✓	✓	✓		✓	✓	✓

*This list of compounds, which is a comparison of lists and methods as performed at Radian, is current as of publication date. It should not be used as a substitute for consulting the most recent issue of *40 CFR* or SW846 methods for any changes.

[a] *40 CFR*, Pt. 122, Appendix D
[b] *40 CFR*, Pt. 136, Appendix A
[c] *SW-846, 3rd Edition*
[d] *CLP SOW 7/88*
[e] Listed as methyl bromide

(cont ▶)

VOLATILE COMPOUNDS (cont.)

ANALYTE	CWA		RCRA					SUPERFU
	NPDES	624	APPENDIX IX	8240	SKINNER	TCLP Toxicity	TCLP Land ban	CLP
Chlorobenzene	✓	✓	✓	✓	✓	✓	✓	✓
Chlorodibromomethane	✓[f]	✓[f]	✓[f]	✓				✓
Chloroethane	✓	✓	✓	✓				✓
2-Chloroethylvinyl ether	✓	✓		✓				
Chloroform	✓	✓	✓	✓	✓	✓		✓
Chloromethane	✓	✓	✓	✓				✓
Chloropropene			✓					
D								
1,2 Dichlorobenzene	✓	✓						
1,3 Dichlorobenzene	✓	✓						
1,4 Dichlorobenzene	✓	✓						
1,2-Dibromo-3-chloropropane			✓					
Dibromomethane			✓[g]	✓				
1,2-Dibromoethane			✓		✓[a]			
1,4-Dichloro-2-butane				✓				
trans-1,4-Dichloro-2-butene			✓	✓				
Dichlorodifluoromethane			✓	✓				
1,1-Dichloroethane	✓	✓	✓	✓				✓
1,2-Dichloroethane	✓	✓	✓	✓	✓	✓		✓
1,1-Dichloroethylene	✓	✓	✓	✓		✓		✓
trans-1,2-dichloroethylene	✓	✓	✓	✓				✓
1,2-Dichloropropane	✓	✓	✓	✓				✓
cis-1,3-Dichloropropene	✓	✓	✓	✓				✓
trans-1,3-Dichloropropene	✓	✓	✓	✓				✓
1,4 Dioxane			✓		✓			
E								
Ethanol				✓				
Ethyl acetate							✓	
Ethyl benzene	✓	✓	✓	✓	✓		✓	✓
Ethyl ether							✓	
Ethyl methacrylate			✓	✓				
H								
2-Hexanone			✓	✓				✓

[f] Listed as dibromochloromethane
[g] Listed as methylene dibromide
[h] Listed as ethylene dibromide
[i] Listed as methyl iodide

(cont ►)

VOLATILE COMPOUNDS (cont.)

TEST PARAMETERS BY REGULATIONS

ANALYTE	CWA		RCRA					SUPERFUND
	NPDES	624	APPENDIX IX	8240	SKINNER	TCLP		CLP
						Toxicity	Land ban	
I								
Iodomethane			✓[1]	✓				
Isobutanol							✓	
M								
Methacrylonitrile			✓					
Methanol							✓	
Methylene chloride	✓	✓	✓	✓			✓	✓
Methyl ethyl ketone			✓[1]	✓	✓	✓	✓	✓
Methyl isobutyl ketone			✓[2]	✓[2]			✓	✓
Methyl methacrylate			✓					
P								
Propionitrile			✓					
S								
Styrene			✓	✓	✓			✓
T								
1,1,1,2-Tetrachloroethane			✓					
1,1,2,2-Tetrachloroethane	✓	✓	✓	✓				✓
Tetrachloroethylene	✓	✓	✓	✓		✓	✓	✓
Toluene	✓	✓	✓	✓	✓		✓	✓
1,1,1-Trichloroethane	✓	✓	✓	✓			✓	✓
1,1,2-Trichloroethane	✓	✓	✓	✓				✓
Trichloroethylene	✓	✓	✓	✓		✓	✓	✓
Trichlorofluoromethane		✓	✓	✓			✓	
1,2,3-Trichloropropane			✓	✓				
1,1,2-Trichloro-2,2,1-trifluoroethane							✓	
V								
Vinyl acetate			✓	✓				✓
Vinyl chloride	✓	✓	✓	✓		✓		✓
X								
Xylenes			✓	✓	✓		✓	✓

[1] Listed as 2-butanone
[2] Listed as 4-methyl-2-pentanone

SEMIVOLATILE COMPOUNDS*

ANALYTE	CWA		RCRA					SUPERFU:
	NPDES	625[l]	APPENDIX IX	8270[m]	SKINNER	TCLP		CLP
						Toxicity	Land ban	
A								
Acenaphthene	✓	✓	✓	✓				✓
Acenaphthylene	✓	✓	✓	✓				✓
Acetophenone			✓	✓				
2-Acetylaminofluorene			✓					
4-Aminobiphenyl			✓	✓				
Aniline			✓	✓				
Anthracene	✓	✓	✓	✓	✓			✓
Aramite			✓					
B								
Benzenethiol					✓			
Benzidine	✓			✓				
Benzoic acid				✓				✓
Benzo(a)anthracene	✓	✓	✓	✓	✓			✓
Benzo(b)fluoranthene	✓	✓	✓	✓	✓			✓
Benzo(k)fluoranthene	✓	✓	✓	✓	✓			✓
Benzo(g,h,i)perylene	✓	✓	✓	✓				✓
Benzo(a)pyrene	✓	✓	✓	✓	✓			✓
Benzyl alcohol			✓	✓				✓
Bis(2-chloroethoxy)methane	✓	✓	✓	✓				✓
Bis(2-chloroethyl)ether	✓	✓	✓	✓				✓
Bis(2-chloroisopropyl)ether	✓[n]	✓		✓[o]				✓
Bis(2-ethylhexyl)phthalate	✓	✓	✓	✓	✓			✓
4-Bromophenyl phenyl ether	✓	✓	✓	✓				✓
Butyl benzyl phthalate	✓[p]	✓	✓	✓	✓			✓
C								
4-Chloroaniline			✓[q]	✓				✓
Chlorobenzilate			✓					
4-Chloro-3-methylphenol	✓[r]	✓	✓[r]	✓				✓
1-Chloronaphthane				✓				
2-Chloronaphthane	✓	✓	✓	✓				✓
2-Chlorophenol	✓	✓	✓	✓				✓
4-Chlorophenyl phenyl ether	✓	✓	✓	✓				✓

*This list of compounds, which is a comparison of lists and methods as performed at Radian, is current as of publication date. It should not be used as a substitute for consulting the most recent issue of *40 CFR* or methods for any changes. Chromatographicable pesticides are excluded from this list.

[l] *40 CFR*, Pt. 136, Appendix A.

[m] *SW-846, 3rd Edition*

[n] Listed as 2,2'-oxybis(1-chloropropane)

[o] Listed as bis(2-chloro-1-methylethyl)ether

[p] Listed as benzyl butyl phthalate

[q] Listed as p-chloraniline

[r] Listed as p-chloro-m-cresol

(cont ►

SEMIVOLATILE COMPOUNDS (cont.)

ANALYTE	CWA		RCRA					SUPERFUND
	NPDES	625	APPENDIX IX	8270	SKINNER	TCLP		CLP[d]
						Toxicity	Land ban	
Chrysene	✓	✓	✓	✓	✓			✓
Cresol						✓		
Cyclohexanone							✓	
D								
Diallate			✓					
Dibenzo(a,h)acridine					✓			
Dibenzo(a,j)acridine				✓				
Dibenzo(a,h)anthracene	✓	✓	✓	✓	✓			✓
Dibenzofurans tetrachloro pentachloro hexachloro			✓	✓			✓	✓
1,2-Dibromo-3-chloropropane			✓					
Di-n-butylphthalate	✓	✓	✓	✓	✓			✓
1,2-Dichlorobenzene	✓	✓	✓	✓	✓		✓	✓
1,3-Dichlorobenzene	✓	✓	✓	✓	✓			✓
1,4-Dichlorobenzene	✓	✓	✓	✓	✓	✓		✓
3,3'-Dichlorobenzidine	✓	✓	✓	✓				✓
2,4-Dichlorophenol	✓	✓	✓	✓				✓
2,6-Dichlorophenol			✓	✓				✓
Diethyl phthalate	✓	✓	✓	✓	✓			✓
p(Dimethylamino)azobenzene			✓	✓				
7,12-Dimethylbenz(a)anthracene			✓	✓	✓			
3,3'-Dimethylbenzidine			✓					
α,α-Dimethylphenethylamine			✓	✓				
2,4-Dimethylphenol	✓	✓	✓	✓	✓			✓
Dimethyl phthalate	✓	✓	✓	✓	✓			✓
m-Dinitrobenzene			✓					
4,6-Dinitro-2-methylphenol	✓	✓	✓ [5]	✓ [5]				✓
2,4-Dinitrophenol	✓	✓	✓	✓	✓			✓
2,4-Dinitrotoluene	✓	✓	✓	✓		✓		✓
2,6-Dinitrotoluene	✓	✓	✓	✓				✓
Di-n-octyl phthalate	✓	✓	✓	✓	✓			✓
Dioxins tetrachlorodibenzo-p- pentachlorodibenzo-p- hexachlorodibenzo-p-							✓	
Diphenylamine			✓	✓				
1,2-Diphenylhydrazine	✓			✓				

[5] Listed as 4,6-dinitro-o-cresol
[d] Dioxin Wastes (F020, 021, 022, 023, 026, 027, 028)

(cont ►)

SEMIVOLATILE COMPOUNDS (cont.)

ANALYTE	CWA		RCRA					SUPERFUND
						TCLP		
	NPDES	625	APPENDIX IX	8270	SKINNER	Toxicity	Land ban	CLP
E								
Ethyl methanesulfonate			✓	✓				
F								
Fluoranthene	✓	✓	✓	✓	✓			✓
Fluorene	✓	✓	✓	✓				✓
H								
Hexachlorobenzene	✓	✓	✓	✓		✓		✓
Hexachloro-1,3-butadiene	✓	✓	✓	✓		✓		✓
Hexachlorocyclopentadiene	✓		✓	✓				✓
Hexachloroethane	✓	✓	✓	✓		✓		✓
Hexachlorophene			✓					
Hexachloropropene			✓					
2-Hexanone			✓					
I								
Indene					✓			
Indeno(1,2,3-cd)pyrene	✓	✓	✓	✓				✓
Isodrin			✓					
Isophorone	✓	✓	✓	✓				✓
Isosafrole			✓					
M								
Methapyrilene			✓					
3-Methylcholanthrene			✓	✓				
Methylchrysene					✓			
Methyl methanesulfonate			✓	✓				
1-Methylnaphthalene					✓			
2-Methylnaphthalene			✓	✓				✓
2-Methylphenol			✓[t]	✓	✓	✓[t]	✓[t]	✓
3-Methylphenol			✓[t]		✓	✓[t]	✓[t]	
4-Methylphenol			✓[t]	✓	✓	✓[t]	✓[t]	✓
N								
Naphthalene	✓	✓	✓	✓	✓			✓
1,4-Naphthoquinone			✓					

[t] Listed as o,m,p cresols
[u] Listed as o,m,p nitroanilines
[v] Listed as o nitrophenol

(cont ▶)

SEMIVOLATILE COMPOUNDS (cont.)

ANALYTE	CWA		RCRA					SUPERFUND
	NPDES	625	APPENDIX IX	8270	SKINNER	TCLP Toxicity	TCLP Land ban	CLP
1-Naphthylamine			✓	✓				
2-Naphthylamine			✓	✓				
2-Nitroaniline			✓ [u]	✓				✓
3-Nitroaniline			✓ [u]	✓				✓
4-Nitroaniline			✓ [u]	✓				✓
Nitrobenzene	✓	✓	✓	✓		✓	✓	✓
5-Nitro-o-toluidine			✓					
2-Nitrophenol	✓	✓	✓ [v]	✓				✓
4-Nitrophenol	✓	✓	✓ [w]	✓	✓			✓
4-Nitroquinoline-1-oxide			✓					
N-Nitrosodiethylamine			✓					
N-Nitrosodimethylamine	✓		✓	✓				
N-Nitroso-di-n-butylamine			✓	✓				
N-Nitrosodi-n-propylamine	✓	✓	✓	✓				✓
N-Nitrosopiperidine			✓	✓				
N-Nitrosodiphenylamine	✓		✓	✓				✓
N-Nitrosomethylethylamine			✓					
N-Nitrosomorpholine			✓					
N-Nitrosopyrrolidine			✓					
P								
Pentachlorobenzene			✓	✓				
Pentachloroethane			✓					
Pentachloronitrobenzene			✓	✓				
Pentachlorophenol	✓	✓	✓	✓		✓	✓	✓
Phenacetin			✓	✓				
Phenanthrene	✓	✓	✓	✓	✓			✓
Phenol	✓	✓	✓	✓	✓			✓
p-Phenylenediamine			✓					
2-Picoline			✓	✓				
Polychlorinated dibenzofurans			✓ [x]					
Polychlorinated dioxins			✓ [x]					
Pronamide			✓	✓				
Pyrene	✓	✓	✓	✓	✓			✓
Pyridine			✓		✓	✓	✓	
Q								
Quinoline					✓			

[v] Listed as p-nitrophenol
[x] Listed as polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans by Method SW8280, *SW-846, 3rd Edition*
[u] Dioxin Wastes (F020, 021, 022, 023, 026, 027, 028)

(cont. ►)

SEMIVOLATILE COMPOUNDS (cont.)

ANALYTE	CWA		RCRA					SUPERFUND
	NPDES[a]	625	APPENDIX IX	8270	SKINNER	TCLP		CLP
						Toxicity	Land ban	
S								
Safrole			✓					
T								
1,2,4,5-Tetrachlorobenzene			✓	✓				
2,3,4,6-Tetrachlorophenol			✓	✓			•	
o-Toluidine			✓					
1,2,4-Trichlorobenzene	✓	✓	✓	✓				✓
2,4,5-Trichlorophenol			✓	✓		✓	•	✓
2,4,6-Trichlorophenol	✓	✓	✓	✓		✓	•	✓
sym-Trinitrobenzene			✓					
0,0,0 Triethylphosphorothioate			✓					

[a] Dioxin Wastes (F020, 021, 022, 023, 026, 027, 028)

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