US EPA RECORDS CENTER REGION 5
514013

ANNUAL MONITORING REPORT FOR 1994

k07
3/15/95

REILLY TAR & CHEMICAL CORP. N.P.L. SITE ST. LOUIS PARK, MINNESOTA

SUBMITTED MARCH 15, 1995

part B

CITY

ENSR — RMAL

SECOND HALF MONITORING

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

Quanterra
Environmental Services

CASE NARRATIVE

FOR

City of St. Louis Park

November 19, 1994

Quanterra Environmental Services

Project No. 038528

Introduction

12 aqueous samples (includes QC) were received at Quanterra Environmental Services, Denver laboratory on October 12, 1994. The samples were logged in under Quanterra's Denver laboratory project number 038528. Sample DPV-W420FBD-101194 was extracted and held per the April 1990 QAPP. A cross reference associating the Quanterra Denver laboratory sample numbers to the actual field sample numbers is included. The samples were analyzed for part-per-billion (ppb) polynuclear aromatic hydrocarbons (PAH).

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the April, 1990 QAPP for completeness, precision, accuracy, representativeness and defensibility of the data. Unless otherwise stated below, no quality control problems or technical difficulties were encountered which would impact the interpretation or use of data in this report.

PPB PAH

Samples DPV-W420 (038528-0001) and DPV-W420D (038528-0001DU) showed target compounds above the upper calibration range. The samples were analyzed at a dilution. Both the original and reanalysis data were reported for each sample. Sample STP-W409 (038528-0005) was diluted due to non-target compounds above the upper calibration range. The reporting limits were adjusted accordingly.

Quanterra Environmental Services

Sample DPV-W420MSD (038528-0001MSD) showed the percent recoveries for naphthalene and 1H-Indene outside QC limits. This caused the relative percent differences (RPD's) for the matrix spike/matrix spike duplicate pair to be outside control limits.

This data package is in compliance with the terms and conditions of the 1990 QAPP, both technically and for completeness, for other than the conditions detailed above.

Reported by: _____ **Date:** 11/19/94
Daniel Rebarchik
Program Administrator

Approved by: _____ **Date:** 11/19/94
Kevin McHugh
Program Manager

Quanterra
Environmental Services

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FOR

CITY OF ST. LOUIS PARK

QUANTERRA NO: 038528

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SCREENING DATA AND LOGBOOK RECORDS

Pages 0277 through 0319

Quanterra Environmental Services

QUALIFIER CODES AND THEIR USAGE

A = This flag indicates that a TIC is a suspected aldol-condensation product.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action. This flag must be used for a TIC as well as for a positively identified target compound.

C = This flag applies to pesticide results where the identification has been confirmed by GC/MS. If GC/MS confirmation was attempted but was unsuccessful, do not apply this flag, instead use a laboratory-defined flag, discussed below.

D = This flag identifies all compounds identified in an analysis at a secondary dilution factor. If a sample or extract is re-analyzed at a higher dilution factor, as in the "E" flag above, the "DL" suffix is appended to the sample number on the Form I for the diluted sample, and all concentration values reported on that form I are flagged with the "D" flag. This flag alerts data users that any discrepancies between the concentrations reported may be due to dilution of the sample or extract.

E = This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis. If one or more compounds have a response greater than full scale, except as noted in Exhibit D, the sample or extract must be diluted and re-analyzed accordingly to the specifications in exhibit D. All such compounds with a response greater than full scale should have the concentration flagged with an "E" on the Form I for the original analysis. If the dilution of the extract causes any compounds identified in the first analysis to be below the calibration range in the second analysis, the the results of both analyses shall be reported on separate copies of Form I. The Form I for the diluted sample shall have the "DL" suffix appended to the sample number. NOTE: For total xylenes, where three isomers are quantified as two peaks, the calibration range of each peak should be considered separately, e.g., a diluted analysis is not required for total xylenes unless the concentration of either peak separately exceeds 200 ug/L.

J = Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit but greater than zero. For example, if the sample quantitation limit is 10 ug/L, but a concentration of 3 ug/L is calculated report it as 3J. The sample quantitation limit must be adjusted for dilution as discussed for the U flag.

N = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds, where the identification is based on a mass spectral library search. It is applied to all TIC results.

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QUALIFIER CODES AND THEIR USAGE
Page Two

P = This flag is used for a pesticide/Aroclor target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".

S = The concentration of this compound saturated the capacity of the detector and a valid quantitation could not be obtained at this dilution.

U = Indicates compound was analyzed for, but not detected. The sample quantitation limit must be corrected for dilution and for percent moisture. For example, 10 U for phenol in water if the sample final volume is the protocol-specified final volume. If a 1 to 10 dilution of extract is necessary, the reported limit is 100 U. For a soil sample, the value must also be adjusted for percent moisture.

X = Other specific flags may be required to properly define the results. If used, they must be fully described, and such description attached to the Sample Data Summary Package and the SDG Narrative. Begin by using "X". If more than one flag is required, use "Y" and "Z" as needed. If more than five qualifiers are required for a sample result, use the "X" flag to combine several flags as needed. For instance, the "X" flag might combine the "A", "B", and "D" flags for some sample. The laboratory-defined flags are limited to the letters "X", "Y", and "Z".

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
038528-0001-DU	DPV-W420D-101194	AQUEOUS	11 OCT 94		12 OCT 94
038528-0001-MS	DPV-W420MS-101194	AQUEOUS	11 OCT 94		12 OCT 94
038528-0001-SD	DPV-W420MSD-101194	AQUEOUS	11 OCT 94		12 OCT 94
038528-0001-FB	DPV-W420FB-101194	AQUEOUS	11 OCT 94		12 OCT 94
038528-0001-SA	DPV-W420-101194	AQUEOUS	11 OCT 94		12 OCT 94
038528-0001-FD	DPV-W420FBD-101194	AQUEOUS	11 OCT 94		12 OCT 94
038528-0002-SA	DPV-W421-101194	AQUEOUS	11 OCT 94		12 OCT 94
038528-0003-SA	DPV-W422-101194	AQUEOUS	11 OCT 94		12 OCT 94
038528-0004-SA	PCJ-W23-101194	AQUEOUS	11 OCT 94		12 OCT 94
038528-0005-SA	STP-W409-101194	AQUEOUS	11 OCT 94		12 OCT 94
038528-0006-SA	GTF-ACFE-101194	AQUEOUS	11 OCT 94		12 OCT 94
038528-0007-SA	GTF-SFR-101194	AQUEOUS	11 OCT 94		12 OCT 94

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PCJ-W23

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 38528 SAS No.: SDG No.: 38528

Matrix: (soil/water) WATER Lab Sample ID: 38528-04

Sample wt/vol: 1050 (g/mL) ML Lab File ID: T1001784.D

Level: (low/med) HIGH Date Received: 10/12/94

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 10/16/94

Concentrated Extract Volume: 1.0 (ML) Date Analyzed: 10/27/94

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	18	
91-57-6	2-Methylnaphthalene	3	J
208-96-8	Acenaphthylene	10	U
83-32-9	Acenaphthene	9	J
132-64-9	Dibenzofuran	2	J
86-73-7	Fluorene	7	J
85-01-8	Phenanthrene	5	J
120-12-7	Anthracene	10	U
206-44-0	Fluoranthene	4	J
129-00-0	Pyrene	4	J
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1 2 3-cd)pyrene	10	U
53-70-3	Dibenzo(a h)anthracene	10	U
191-24-2	Benzo(g h i)perylene	10	U
86-74-8	Carbazole	10	U
95-13-6	1H-Indene	10	U
91-22-5	Quinoline	10	U
90-12-0	1-Methylnaphthalene	4	J
271-89-6	2,3-Benzofuran	10	U
496-11-7	2,3-Dihydroindene	7	J
4565-32-6	Benzo(b)thiophene	10	U
120-72-9	1H-Indole	10	U
92-52-4	Biphenyl	1	J
132-65-0	Dibenzothiophene	10	U
260-94-6	Acridine	10	U
192-97-2	Benzo(e)pyrene	10	U
198-55-0	Perylene	10	U

RAP SECTION 7.3(C) MONITORING

WELLS

SLP6
SLP7
W48

Rocky Mountain
Analytical Laboratory

Enseco

CASE NARRATIVE

FOR

City of St. Louis Park

February 21, 1994

Enseco - RMAL Project Number 033713

Introduction

Six aqueous samples (includes QC) were received at Enseco Rocky Mountain Analytical Laboratory on February 09, 1994. The samples were logged in under RMAL project number 033713 Sample PCJ-SLP6FBD-020894 was extracted and held per the April 1990 QAPP. A cross reference associating the RMAL sample numbers to the actual field sample numbers is included. The samples were analyzed for low level part-per-trillion (ppt) polynuclear aromatic hydrocarbons (PAH).

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the April, 1990 QAPP for completeness, precision, accuracy, representativeness and defensibility of the data. Unless otherwise stated below, no quality control problems or technical difficulties were encountered which would impact the interpretation or use of data in this report.

PPT PAH

The percent recovery for Benzo(E)Pyrene was below QC limits in samples 033713-0001MS/SD. The RPD for Fluorene was outside QC limits for sample 033713-0001MS/SD. Since acceptable recovery was achieved for all other spike components, quantitation was checked and no further action was taken.

Enseco
4955 Yarrow Street
Arvada, Colorado 80002

The 4800 ng/ml and the 2400 ng/ml standards had excessive saturation, therefore they were not used as the upper range for the 5-point calibration curve. Instead, the calibration curve used was, 20 ng/ml, 40 ng/ml, 240 ng/ml, 600 ng/ml, and 1200 ng/ml.

All samples associated with project 033713 show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion. These compounds are flagged with the letter (R) on the data sheets (Form I) as per the 1990 QAPP.

This data package is in compliance with the terms and conditions of the 1990 QAPP, both technically and for completeness, for other than the conditions detailed above.

Reported by: Karen F. Germann
Karen F. Germann
Program Administrator

Date: February 21 1994

Approved by: Julieann L. Kramer
Julieann L. Kramer
Program Manager

Date: February 21 1994

Enseco
A Coming Company

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
033713-0001-SA	PCJ-SLP6-020894	AQUEOUS	08 FEB 94		09 FEB 94
033713-0001-DU	PCJ-SLP6D-020894	AQUEOUS	08 FEB 94		09 FEB 94
033713-0001-MS	PCJ-SLP6MS-020894	AQUEOUS	08 FEB 94		09 FEB 94
033713-0001-SD	PCJ-SLP6MSD-020894	AQUEOUS	08 FEB 94		09 FEB 94
033713-0001-FB	PCJ-SLP6FB-020894	AQUEOUS	08 FEB 94		09 FEB 94
033713-0001-FD	PCJ-SLP6FBD-020894	AQUEOUS	08 FEB 94		09 FEB 94

Enseco
A Cuming Company

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 033713	Group Code	Analysis Description	Custom Test?
0001 , 0001	A	Polynuclear Aromatic Hydrocarbons, SIM Low Level	N
		Prep - PAH/SIM by GC/MS Low Level	N
0001	B	Prep - PAH/SIM by GC/MS Low Level	N

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Qualifier Codes and Their Usage

U = Indicates compound was analyzed for but not detected. The sample quantitation limit must be corrected for dilution and for percent moisture. For example, 10 U for phenol in water if the sample final volume is the protocol-specified final volume. If a 1 to 10 dilution of extract is necessary, the reported limit is 100 U. For a soil sample, the value must also be adjusted for percent moisture.

J = Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit but greater than zero. For example, if the sample quantitation limit is 10 ug/L, but a concentration of 3 ug/L is calculated, report it as 3J. The sample quantitation limit must be adjusted for dilution as discussed for the U flag.

N = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds, where the identification is based on a mass spectral library search. It is applied to all TIC results.

P = This flag is used for a pesticide/Aroclor target analyte when there is greater then 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".

C = This flag applies to pesticide results where the identification has been confirmed by GC/MS. If GC/MS confirmation was attempted but was unsuccessful, do not apply this flag, instead use a laboratory-defined flag, discussed below.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action. This flag must be used for a TIC as well as for a positively identified target compound.

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E = This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis. If one or more compounds have a response greater than full scale, except as noted in Exhibit D, the sample or extract must be diluted and re-analyzed accordingly to the specifications in Exhibit D. All such compounds with a response greater than full scale should have the concentration flagged with an "E" on the Form I for the original analysis. If the dilution of the extract causes any compounds identified in the first analysis to be below the calibration range in the second analysis, then the results of both analyses shall be reported on separate copies of Form I. The Form I for the diluted sample shall have the "DL" suffix appended to the sample number. NOTE: For total xylenes, where three isomers are quantified as two peaks, the calibration range of each peak should be considered separately, e.g., a diluted analysis is not required for total xylenes unless the concentration of either peak separately exceeds 200 ug/L.

D = This flag identifies all compounds identified in an analysis at a secondary dilution factor. If a sample or extract is re-analyzed at a higher dilution factor, as in the "E" flag above, the "DL" suffix is appended to the sample number on the Form I for the diluted sample, and all concentration values reported on that Form I are flagged with the "D" flag. This flag alerts data users that any discrepancies between the concentrations reported may be due to dilution of the sample or extract.

A = This flag indicates that a TIC is a suspected aldol-condensation product.

X = Other specific flags may be required to properly define the results. If used, they must be fully described, and such description attached to the Sample Data Summary Package and the SDG Narrative. Begin by using "X". If more than one flag is required, use "Y" and "Z" as needed. If more than five qualifiers are required for a sample result, use the "X" flag to combine several flags, as needed. For instance, the "X" flag might combine the "A", "B", and "D" flags for some sample. The laboratory-defined flags are limited to the letters "X", "Y", and "Z".

R = This flag is used for polyaromatic hydrocarbons which show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion.

ENSECO
A Corning Company
Arvada, CO 80002
303/421-6611 FAX 303/431-7171
Suite 120
Houston, TX 77032
713/987-9767 FAX 713/987-9769

CHAIN OF CUSTODY

ENSECO CLIENT: CITY OF ST LOUIS PARK WATER DEPT	
PROJECT:	
SAMPLING COMPANY: SAME	
SAMPLING SITE: SAME	
TEAM LEADER: [illegible]	

SAMPLE SAFE™ CONDITIONS

PACKED BY: [illegible]	SEAL NUMBER:
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:	CONDITION OF CONTENTS:
SEALED FOR SHIPPING BY: [illegible]	INITIAL CONTENTS TEMP: °C
SEAL NUMBER:	SAMPLING STATUS: ☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No	CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 17°C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
[illegible]		PCT-SLPG-[illegible]	1XL AMBER	6	PCT PAH	PCT [illegible] -01
[illegible]		PCT-SLPGD-[illegible]	1XL AMBER	6	PCT PAH	PCT 5 -01DU

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: [illegible]		
METHOD OF SHIPMENT: FEDEX		AIRBILL NUMBER: [illegible]
RECEIVED FOR LAB: RMYL	SIGNED: J Dell	DATE/TIME: 2/9/94 [illegible]
ENSECO PROJECT NUMBER: 33713		

ENS-4011

White - CLIENT Pink - LAB

Enseco
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Suite 120
Houston, TX 77032
713/987-9767 FAX 713/987-9769

CHAIN OF CUSTODY

ENSECO CLIENT: CITY OF ST LOUIS PARK WATER DEPT

PROJECT:

SAMPLING COMPANY: [illegible]

SAMPLING SITE: [illegible]

TEAM LEADER: [illegible]

SAMPLE SAFE™ CONDITIONS

PACKED BY: [illegible]

SEAL NUMBER:

SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:

CONDITION OF CONTENTS:

SEALED FOR SHIPPING BY: [illegible]

INITIAL CONTENTS TEMP: °C

SEAL NUMBER:

SAMPLING STATUS: ☐ Done ☐ Continuing Until

SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No

CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 0.1 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
2-8-94		PCT-SLP 6FD-020894	1XL AMBER	6	PPC PAH	[illegible] -01FD
2-8-94		PCT-SLP 6FBD-020894	1XL AMBER	6	PPC PAH	[illegible] -01FD

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: [illegible]

METHOD OF SHIPMENT: FED EX

AIRBILL NUMBER: [illegible]

RECEIVED FOR LAB: EMAL

SIGNED: [illegible]

DATE/TIME: 2/9/94 820

ENSECO PROJECT NUMBER: 33713

ENS-4011

White - CLIENT Pink - LAB

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Houston, TX 77032
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CHAIN OF CUSTODY

ENSECO CLIENT: CITY OF ST LOUIS PARK WATER DEPT

PROJECT:

SAMPLING COMPANY: SAME

SAMPLING SITE: SAME

TEAM LEADER: MZB

SAMPLE SAFE™ CONDITIONS

PACKED BY: MZB

SEAL NUMBER:

SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:

CONDITION OF CONTENTS:

SEALED FOR SHIPPING BY: MZB

INITIAL CONTENTS TEMP: °C

SEAL NUMBER:

SAMPLING STATUS: ☐ Done ☐ Continuing Until

SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No

CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 3.5 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
2-8-94		PCJ-SLPGMS-020894	IXL AMBER	6	PPL PAH	PPT 5 -MS
2-8-94		PCJ-SLP6MSD-020894	IXL AMBER	6	PPL PAH	PPT 5 -MSD

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MZB

METHOD OF SHIPMENT: FED EX

AIRBILL NUMBER: 2103420911

RECEIVED FOR LAB: RMAL

SIGNED: [illegible]

DATE/TIME: 2/9/94 820

ENSECO PROJECT NUMBER: 33713

ENS-4011

White - CLIENT Pink - LAB

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

33713-01

PCJ-SLP6-020894

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 33713 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 33713-01

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C8689

Level: (low/med) LOW Date Received: 02/09/94

% Moisture: decanted: (Y/N) N Date Extracted: 02/09/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 02/14/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	31	
95-13-6	1H-Indene	1	
91-20-3	Naphthalene	3	BJR
4565-32-6	Benzo(B)Thiophene	2	R
91-22-5	Quinoline	1	BJR
120-72-9	1H-Indole	1	J
91-57-6	2-Methylnaphthalene	2	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	7	
83-32-9	Acenaphthene	16	
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	6	B
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	3	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	BJ
129-00-0	Pyrene	1	BJ
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

33713-01DU

PCJ-SLP6D-020894

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 33713 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 33713-01DU

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C8690

Level: (low/med) LOW Date Received: 02/09/94

% Moisture: decanted: (Y/N) N Date Extracted: 02/09/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 02/14/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	34	
95-13-6	1H-Indene	2	
91-20-3	Naphthalene	5	BJR
4565-32-6	Benzo(B)Thiophene	3	
91-22-5	Quinoline	1	BJR
120-72-9	1H-Indole	2	J
91-57-6	2-Methylnaphthalene	4	B
90-12-0	1-Methylnaphthalene	2	BR
92-52-4	Biphenyl	1	J
208-96-8	Acenaphthylene	8	
83-32-9	Acenaphthene	18	
132-64-9	Dibenzofuran	2	
86-73-7	Fluorene	8	B
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	5	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	2	B
129-00-0	Pyrene	1	BJ
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

33713-01FB

PCJ-SLP6FB-020894

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 33713 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 33713-01FB

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C8687

Level: (low/med) LOW Date Received: 02/09/94

% Moisture: decanted: (Y/N) N Date Extracted: 02/09/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 02/14/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	1	JR
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	5	BJ
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	BJ
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	4	B
90-12-0	1-Methylnaphthalene	2	BR
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	B
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	5	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	2	B
129-00-0	Pyrene	2	B
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

33713-01FBD

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 33713 SAS No.: SDG No.: PCJ-SLP6FBD-020894

Matrix: (soil/water) WATER Lab Sample ID: 33713-01FBD

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C8688

Level: (low/med) LOW Date Received: 02/09/94

% Moisture: decanted: (Y/N) N Date Extracted: 02/09/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 02/14/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	1	J
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	5	BJ
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	BJ
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	3	B
90-12-0	1-Methylnaphthalene	2	BR
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	B
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	6	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	2	B
129-00-0	Pyrene	1	BJ
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

33713-01MS

PCJ-SLP6MS-020894

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 33713 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 33713-01MS

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C8691

Level: (low/med) LOW Date Received: 02/09/94

% Moisture: decanted: (Y/N) N Date Extracted: 02/09/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 02/14/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	32	
95-13-6	1H-Indene	8	
91-20-3	Naphthalene	11	B
4565-32-6	Benzo(B)Thiophene	2	R
91-22-5	Quinoline	7	B
120-72-9	1H-Indole	2	J
91-57-6	2-Methylnaphthalene	10	B
90-12-0	1-Methylnaphthalene	2	BR
92-52-4	Biphenyl	1	J
208-96-8	Acenaphthylene	7	
83-32-9	Acenaphthene	16	
132-64-9	Dibenzofuran	2	
86-73-7	Fluorene	13	B
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	6	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	2	B
129-00-0	Pyrene	1	BJ
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

33713-01MSD

Lab Name: ENSECO Contract:

PCJ-SLP6MSD-020894

Lab Code: ENSECO Case No.: 33713 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 33713-01MSD

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C8692

Level: (low/med) LOW Date Received: 02/09/94

% Moisture: decanted: (Y/N) N Date Extracted: 02/09/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 02/14/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	26	
95-13-6	1H-Indene	7	
91-20-3	Naphthalene	9	B
4565-32-6	Benzo(B)Thiophene	2	
91-22-5	Quinoline	6	B
120-72-9	1H-Indole	1	J
91-57-6	2-Methylnaphthalene	9	B
90-12-0	1-Methylnaphthalene	2	BR
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	6	R
83-32-9	Acenaphthene	14	
132-64-9	Dibenzofuran	1	
86-73-7	Fluorene	11	B
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	5	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	2	B
129-00-0	Pyrene	1	BJ
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

.ab Name: ENSECO Contract:

.ab Code: ENSECO Case No.: 33713 SAS No.: SDG No.:

	EPA SAMPLE NO.	S1 (NAP)#	S2 (FLU)#	S3 (CHR)#	TOT OUT
01	33713-01	76	58	42	0
02	33713-01DU	83	64	46	0
03	33713-01FB	83	68	76	0
04	33713-01FBD	70	56	68	0
05	33713-01MS	76	60	32	0
06	33713-01MSD	64	52	32	0
07	BLK01	77	60	70	0

	QC LIMITS
S1 (NAP) = Naphthalene-d8	(14-108)
S2 (FLU) = Fluorene-d10	(41-162)
S3 (CHR) = Chrysene-d12	(10-118)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogate diluted out

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

ab Name: ENSECO Contract:

ab Code: ENSECO Case No.: 33713 SAS No.: SDG No.:

'atrix Spike - EPA Sample No.: 33713-01

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC #	QC LIMITS REC.
1H-Indene	9.520	1.464	7.937	68	20-150
Naphthalene	9.520	2.666	10.95	87	20-150
Quinoline	9.520	1.004	7.057	64	20-150
2-Methylnapnthalene	9.520	1.523	10.14	91	20-150
Fluorene	9.520	5.831	12.85	74	20-150
Chrysene	9.520	0.345	3.320	35	20-150
Benzo(E)Pyrene	9.520	ND	0.455	5 *	10-150

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
H-Indene	9.520	6.581	54	23	28	20-150
aphthalene	9.520	9.211	69	23	28	20-150
Quinoline	9.520	6.331	56	13	28	20-150
2-Methylnapnthalene	9.520	8.508	73	22	28	20-150
Fluorene	9.520	10.88	53	33 *	28	20-150
Chrysene	9.520	3.118	33	6	28	20-150
Benzo(E)Pyrene	9.520	0.476	5 *	5	28	10-150

Column to be used to flag recovery and RPD values with an asterisk
Values outside of QC limits

OMMENTS:

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

BLK01

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 33713 SAS No.: SDG No.:

Lab File ID: C8686 Lab Sample ID: BL020994

Instrument ID: 4500-C Date Extracted: 02/09/94

Matrix: (soil/water) WATER Date Analyzed: 02/14/94

Level:(low/med) LOW Time Analyzed: 1723

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	33713-01	33713-01	C8689	02/14/94
02	33713-01DU	33713-01DU	C8690	02/14/94
03	33713-01FB	33713-01FB	C8687	02/14/94
04	33713-01FBD	33713-01FBD	C8688	02/14/94
05	33713-01MS	33713-01MS	C8691	02/14/94
06	33713-01MSD	33713-01MSD	C8692	02/14/94

COMMENTS:

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

BLK01

ab Name: ENSECO Contract:

ab Code: ENSECO Case No.: 33713 SAS No.: SDG No.:

latrix: (soil/water) WATER Lab Sample ID: BL020994

ample wt/vol: 4000 (g/mL) ML Lab File ID: C8686

evel: (low/med) LOW Date Received:

Moisture: decanted: (Y/N) N Date Extracted: 02/09/94

oncentrated Extract Volume: 500(uL) Date Analyzed: 02/14/94

njection Volume: 2.0(uL) Dilution Factor: 0.125

PC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	4	J
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	J
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	3	
90-12-0	1-Methylnaphthalene	1	JR
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	7	
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	2	
129-00-0	Pyrene	2	
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 33713 SAS No.: SDG No.:

Lab File ID (Standard): C8685 Date Analyzed: 02/14/94

Instrument ID: 4500-C Time Analyzed: 1602

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	424541	14.27	562456	18.00	249474	27.79
	UPPER LIMIT	849082	14.77	1124912	18.50	498948	28.29
	LOWER LIMIT	212270	13.77	281228	17.50	124737	27.29
	EPA SAMPLE NO.						
01	33713-01	596239	14.22	697147	17.97	231352	27.86
02	33713-01DU	741470	14.22	857141	17.97	255782	27.87
03	33713-01FB	507752	14.25	604480	17.97	245072	27.87
04	33713-01FBD	571945	14.22	654268	17.97	256378	27.87
05	33713-01MS	648806	14.24	726463	17.97	221679	27.87
06	33713-01MSD	664928	14.25	764681	17.99	229030	27.87
07	BLK01	395913	14.12	488053	17.85	202462	27.74

IS1 (ACN) = Acenaphthene-D10
IS2 (PHN) = Phenanthrene-D10
IS3 (BAP) = Benzo(A)Pyrene-D10

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

Rocky Mountain
Analytical Laboratory

Enseco

CASE NARRATIVE

FOR

City of St. Louis Park

August 05, 1994

Enseco - RMAL Project Number 036006

Introduction

10 aqueous samples (includes QC) were received at Enseco Rocky Mountain Analytical Laboratory on June 08, 1994. The samples were logged in under RMAL project number 036006. Sample PCJ-SL27FBD-060794 was extracted and held per the April 1990 QAPP. A cross reference associating the RMAL sample numbers to the actual field sample numbers is included. The samples were analyzed for low level part-per-trillion (ppt) polynuclear aromatic hydrocarbons (PAH).

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the April, 1990 QAPP for completeness, precision, accuracy, representativeness and defensibility of the data. Unless otherwise stated below, no quality control problems or technical difficulties were encountered which would impact the interpretation or use of data in this report.

PPT PAH

Sample 036006-0007 was analyzed at a dilution due to concentrations of target compounds above instrument linear range. The original analysis and diluted analysis of sample 036006-0006 have been reported.

The surrogate recovery for chrysene-d12 was above QC limits in samples 036006-0007DL, all surrogates for sample 036006-0007 were within QC limits.

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303/421-6611 Fax. 303/431-7171

The 4800 ng/ml and the 2400 ng/ml standards had excessive saturation, therefore they were not used as the upper range for the 5-point calibration curve. Instead, the calibration curve used was, 20 ng/ml, 40 ng/ml, 240 ng/ml, 600 ng/ml, and 1200 ng/ml.

All samples associated with project 036006 show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion. These compounds are flagged with the letter (R) on the data sheets (Form I) as per the 1990 QAPP.

This data package is in compliance with the terms and conditions of the 1990 QAPP, both technically and for completeness, for other than the conditions detailed above.

Reported by: _____ **Date:** 8/5/94
Dan Rebarchik
Program Administrator

Approved by: _____ **Date:** Aug 05, 1994
Julieann L. Kramer
Program Manager

Enseco

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
036006-0001-SA	PCJ-SLP7-060794	AQUEOUS	07 JUN 94		08 JUN 94
036006-0001-DU	PCJ-SLP7D-060794	AQUEOUS	07 JUN 94		08 JUN 94
036006-0001-FB	PCJ-SLP7FB-060794	AQUEOUS	07 JUN 94		08 JUN 94
036006-0001-FD	PCJ-SLP7FBD-060794	AQUEOUS	07 JUN 94		08 JUN 94
036006-0002-SA	PCJ-E2-060794	AQUEOUS	07 JUN 94	11:10	08 JUN 94
036006-0003-SA	PCJ-E3-060794	AQUEOUS	07 JUN 94	11:50	08 JUN 94
036006-0004-SA	PCJ-E15-060794	AQUEOUS	07 JUN 94	12:05	08 JUN 94
036006-0005-SA	PCJ-E13-060794	AQUEOUS	07 JUN 94	12:20	08 JUN 94
036006-0006-SA	PCJ-H6-060794	AQUEOUS	07 JUN 94	14:10	08 JUN 94
036006-0007-SA	PCJ-W70-060794	AQUEOUS	07 JUN 94	11:50	08 JUN 94

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ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 036006	Group Code	Analysis Description	Custom Test?
0001 , 0001, 0002 - 0007	A	Polynuclear Aromatic Hydrocarbons, SIM Low Level	N
		Prep - PAH/SIM by GC/MS Low Level	N
0001	B	Prep - PAH/SIM by GC/MS Low Level	N

Rocky Mountain
Analytical Laboratory

Enseco

Qualifier Codes and Their Usage

U = Indicates compound was analyzed for but not detected. The sample quantitation limit must be corrected for dilution and for percent moisture. For example, 10 U for phenol in water if the sample final volume is the protocol-specified final volume. If a 1 to 10 dilution of extract is necessary, the reported limit is 100 U. For a soil sample, the value must also be adjusted for percent moisture.

J = Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit but greater than zero. For example, if the sample quantitation limit is 10 ug/L, but a concentration of 3 ug/L is calculated, report it as 3J. The sample quantitation limit must be adjusted for dilution as discussed for the U flag.

N = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds, where the identification is based on a mass spectral library search. It is applied to all TIC results.

P = This flag is used for a pesticide/Aroclor target analyte when there is greater then 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".

C = This flag applies to pesticide results where the identification has been confirmed by GC/MS. If GC/MS confirmation was attempted but was unsuccessful, do not apply this flag, instead use a laboratory-defined flag, discussed below.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action. This flag must be used for a TIC as well as for a positively identified target compound.

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Arvada, Colorado 80002
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Qualifer Codes and Their Usage
Page Two

E = This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis. If one or more compounds have a response greater than full scale, except as noted in Exhibit D, the sample or extract must be diluted and re-analyzed accordingly to the specifications in Exhibit D. All such compounds with a response greater than full scale should have the concentration flagged with an "E" on the Form I for the original analysis. If the dilution of the extract causes any compounds identified in the first analysis to be below the calibration range in the second analysis. then the results of both analyses shall be reported on separate copies of Form I. The Form I for the diluted sample shall have the "DL" suffix appended to the sample number. NOTE: For total xylenes, where three isomers are quantified as two peaks, the calibration range of each peak should be considered separately, e.g., a diluted analysis is not required for total xylenes unless the concentration of either peak separately exceeds 200 ug/L.

D = This flag identifies all compounds identified in an analysis at a secondary dilution factor. If a sample or extract is re-analyzed at a higher dilution factor, as in the "E" flag above, the "DL" suffix is appended to the sample number on the Form I for the diluted sample, and all concentration values reported on that Form I are flagged with the "D" flag. This flag alerts data users that any discrepancies between the concentrations reported may be due to dilution of the sample or extract.

A = This flag indicates that a TIC is a suspected aldol-condensation product.

X = Other specific flags may be required to properly define the results. If used, they must be fully described, and such description attached to the Sample Data Summary Package and the SDG Narrative. Begin by using "X". If more than one flag is required, use "Y" and "Z" as needed. If more than five qualifiers are required for a sample result, use the "X" flag to combine several flags, as needed. For instance, the "X" flag might combine the "A", "B", and "D" flags for some sample. The laboratory-defined flags are limited to the letters "X", "Y", and "Z".

R = This flag is used for polyaromatic hydrocarbons which show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion.

A Corning Company
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CHAIN OF CUSTODY

ENSECO CLIENT: CITY OF ST LOUIS PARK WATER DEPT	SAMPLE SAFE™ CONDITIONS — PACKED BY: MZR
PROJECT	SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY
SAMPLING COMPANY: SAME	SEALED FOR SHIPPING BY: MZR
SAMPLING SITE: SAME	SEAL NUMBER
TEAM LEADER: MZR	SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No
	SEAL NUMBER
	CONDITION OF CONTENTS
	INITIAL CONTENTS TEMP °C
	SAMPLING STATUS: ☐ Done ☐ Continuing Until
	CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 8.5 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
6-7-94		PCJ-SLP7 -060794	1XL AMBER	6	PPT PAH	PPT 5 36006-1
6-7-94		PCJ-SLP7D-060794	1XL AMBER	6	PPT PAH	PPT 5 -1 Dup

CUSTODY TRANSFERS PRIOR TO SHIPPING			
RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME

SHIPPING DETAILS		
DELIVERED TO SHIPPER BY: MZR		
METHOD OF SHIPMENT: FED EX		AIRBILL NUMBER: 2103421036
RECEIVED FOR LAB: RMAL	SIGNED: [signature]	DATE/TIME: 6-8-94 820
ENSECO PROJECT NUMBER: 36006		

ENS—4011

White – CLIENT Pink – LAB

ENSECO
A Corning Company
Arvada, CO 80002
303/421-6611 FAX 303/431-7171
Suite 120
Houston, TX 77032
713/987 9767 FAX 713/987-9769

CHAIN OF CUSTODY

ENSECO CLIENT: CITY OF ST LOUIS PARK WATER DEPT

PROJECT:

SAMPLING COMPANY: SAME

SAMPLING SITE: SAME

TEAM LEADER: MZK

SAMPLE SAFE™ CONDITIONS

PACKED BY: MZK

SEAL NUMBER:

SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:

CONDITION OF CONTENTS:

SEALED FOR SHIPPING BY: MZK

INITIAL CONTENTS TEMP: °C

SEAL NUMBER:

SAMPLING STATUS: ☐ Done ☐ Continuing Until

SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No

CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 8 6 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
6-7-94		PCJ-SLP 7FB-060794	1XL AMBER	6	PPT PAH	PPT 5 36006 -1FB
6-7-94		PCJ-SLP 7FBD-060794	1XL AMBER	6	PPT PAH	PPT 5 -1FD

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MZK

METHOD OF SHIPMENT: FED EX

AIRBILL NUMBER: 2103421036

RECEIVED FOR LAB: RMAL

SIGNED: [signature]

DATE/TIME: 6-8-94 0820

ENSECO PROJECT NUMBER: 36006

ENS-4011

White - CLIENT Pink - LAB

A Corning Company
303/421-6611 FAX. 303/431-7171
Houston, TX 77032
713/987-9767 FAX 713/987-9769

CHAIN OF CUSTODY

ENSECO CLIENT: City of St Louis Park
PROJECT: SLP
SAMPLING COMPANY: ENSR CHE
SAMPLING SITE: SLP
TEAM LEADER: Peter Moore

SAMPLE SAFE™ CONDITIONS

PACKED BY: Peter Moore
SEAL NUMBER: NA
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY: NA
CONDITION OF CONTENTS: OK
SEALED FOR SHIPPING BY: Peter Moore
INITIAL CONTENTS TEMP: 4 °C
SEAL NUMBER: NA
SAMPLING STATUS: ☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB: ☐ Yes ☒ No
CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 8.0 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
7-6-94 PJM	11:10	PCJ-E2-060794	W	6	PPT-PAH	PPT-5 36006-2
7-6-94 PJM	11:50	PCJ-E3-060794	W	6	PPT-PAH	PPT-5 -3
7-6-94 PJM	12:05	PCJ-E15-060794	W	6	PPT-PAH	PPT-5 -4

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME
Peter Moore			

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: Peter Moore
METHOD OF SHIPMENT: FED-EX
AIRBILL NUMBER:
RECEIVED FOR LAB: PMAC
SIGNED: [illegible]
DATE/TIME: 6-8-94 820
ENSECO PROJECT NUMBER: 36006

ENS—4011

White – CLIENT Pink – LAB

ENSECO
A Corning Company
303/421-6611 FAX. 303/431-7171
Houston, TX 77032
713/987-9767 FAX. 713/987-9769

CHAIN OF CUSTODY

ENSECO CLIENT: City of St Louis Park
PID & C: SLP
SAMPLING COMPANY: ENSR
SAMPLING SITE: SLP
TEAM LEADER: Pete Moore

SAMPLE SAFE™ CONDITIONS

PACKED BY: Pete Moore
SEAL NUMBER: NA
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY: NA
CONDITION OF CONTENTS: OK
SEALED FOR SHIPPING BY: Pete Moore
INITIAL CONTENTS TEMP: 4 °C
SEAL NUMBER: NA
SAMPLING STATUS: ☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No
CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 0.7 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
6/2/94	12:20	PCS-E13-060794	H_2O	6	PPT-PAH	PPT-5 36006-5
6/3/94	14:10	PCS-H6-060794	H_2O	6	PPT-PAH	PPT-5 -6

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME
[illegible]			

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: Pete Moore
METHOD OF SHIPMENT: FED-EX
AIRBILL NUMBER:
RECEIVED FOR LAB: PMAL
SIGNED: [illegible]
DATE/TIME: 6-8-94 820
ENSECO PROJECT NUMBER: 36006

ENS-4011

White - CLIENT Pink - LAB

ENSECO
A Corning Company

Arvada, CO 80002
303/421-6611 FAX. 303/431-7171

Suite 120
Houston, TX 77032
713/987-9767 FAX. 713/987-9769

CHAIN OF CUSTODY

ENSECO CLIENT: City of St. Louis Park
PROJECT: SLP
SAMPLING COMPANY: ENSR CH2M
SAMPLING SITE: SLP
TEAM LEADER: Peter Moore

SAMPLE SAFE™ CONDITIONS

PACKED BY: Peter Moore
SEAL NUMBER: NA
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY: NA
CONDITION OF CONTENTS: OK
SEALED FOR SHIPPING BY: Peter Moore
INITIAL CONTENTS TEMP: 4 °C
SEAL NUMBER: NA
SAMPLING STATUS: ☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No
CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 1.2 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
6/7/94	14:50 11:50	PCJ-W70-060794	H2O	6	PPT-PAH	PPT-5 36006-7
6/7/94	15:20	OPV-W117TP-060794	H2O	1	Phenolics	36005-1
6/7/94	14:55	OPV-W1TP-060794	H2O	1	Phenolics	36005-2
6/7/94	14:00	STP-W409-060794	H2O	2	PPB-PAH	36008-1

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME
Peter Moore			

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: Peter Moore
METHOD OF SHIPMENT: FED-EX
AIRBILL NUMBER:
RECEIVED FOR LAB: RMAC
SIGNED: [illegible]
DATE/TIME: 6-8-94 820
ENSECO PROJECT NUMBER: 36005, 36006, 36008

ENS—4011

White – CLIENT Pink – LAB

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

3600601

PCJ-SLP7-060794

ame: ENSECO Contract:

ode: ENSECO Case No.: 36006 SAS No.: SDG No.:

x: (soil/water) WATER Lab Sample ID: 3600601

e wt/vol: 4200 (g/mL) ML Lab File ID: C9612

: (low/med) LOW Date Received: 06/08/94

isture: decanted: (Y/N) N Date Extracted: 06/09/94

entrated Extract Volume: 500(uL) Date Analyzed: 07/12/94

tion Volume: 2.0(uL) Dilution Factor: 0.119

leanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	4	
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	1	BJR
4565-32-6	Benzo(B)Thiopnene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	1	
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	2	R
83-32-9	Acenaphthene	6	
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiopnene	1	U
85-01-8	Phenanthrene	2	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	J
129-00-0	Pyrene	3	B
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

3600601DU

PCJ-SLP7D-060794

lame: ENSECO Contract:

:ode: ENSECO Case No.: 36006 SAS No.: SDG No.:

x: (soil/water) WATER Lab Sample ID: 3600601DU

e wt/vol: 4200 (g/mL) ML Lab File ID: C9613

: (low/med) LOW Date Received: 06/08/94

sture: decanted: (Y/N) N Date Extracted: 06/09/94

ntrated Extract Volume: 500(uL) Date Analyzed: 07/12/94

.tion Volume: 2.0(uL) Dilution Factor: 0.119

:leanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2.3-Dihydroindene	4	
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	2	BJ
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	1	R
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	3	R
83-32-9	Acenaphthene	6	
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	2	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	J
129-00-0	Pyrene	3	B
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

3600601FB

PCJ-SLP7FB-060794

Name: ENSECO Contract:

Code: ENSECO Case No.: 36006 SAS No.: SDG No.:

ix: (soil/water) WATER Lab Sample ID: 3600601FB

le wt/vol: 4150 (g/mL) ML Lab File ID: C9627

l: (low/med) LOW Date Received: 06/08/94

isture: decanted: (Y/N) N Date Extracted: 06/09/94

entrated Extract Volume: 500(uL) Date Analyzed: 07/13/94

ction Volume: 2.0(uL) Dilution Factor: 0.120

Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	1	J
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	3	BJ
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	2	
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	2	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	J
129-00-0	Pyrene	1	BJ
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

3600601FD

PCJ-SLP7FBD-060794

ame: ENSECO Contract:

ode: ENSECO Case No.: 36006 SAS No.: SDG No.:

x: (soil/water) WATER Lab Sample ID: 3600601FD

e wt/vol: 4100 (g/mL) ML Lab File ID: C9611

: (low/med) LOW Date Received: 06/08/94

sture: decanted: (Y/N) N Date Extracted: 06/09/94

ntrated Extract Volume: 500(uL) Date Analyzed: 07/12/94

tion Volume: 2.0(uL) Dilution Factor: 0.122

leanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	1	J
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	3	BJR
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	0.4	J
91-57-6	2-Methylnaphthalene	2	
90-12-0	1-Methylnaphthalene	0.9	J
92-52-4	Biphenyl	0.3	J
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	0.3	J
132-64-9	Dibenzofuran	0.3	J
86-73-7	Fluorene	0.3	J
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	2	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	0.8	J
129-00-0	Pyrene	1	BJ
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

BLK01

ame: ENSECO Contract:

ode: ENSECO Case No.: 36006 SAS No.: SDG No.:

x: (soil/water) WATER Lab Sample ID: BL060994

e wt/vol: 4000 (g/mL) ML Lab File ID: C9626

: (low/med) LOW Date Received:

sture: decanted: (Y/N) N Date Extracted: 06/09/94

ntrated Extract Volume: 500(uL) Date Analyzed: 07/13/94

tion Volume: 2.0(uL) Dilution Factor: 0.125

leanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	1	JR
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	0.9	U
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	2	
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	U
129-00-0	Pyrene	1	J
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

me: ENSECO Contract:

de: ENSECO Case No.: 36006 SAS No.: SDG No.:

	EPA SAMPLE NO.	S1 (NAP)#	S2 (FLU)#	S3 (CHR)#	TOT OUT
01	3600601	46	54	46	0
02	3600601DU	56	64	60	0
03	3600601FB	61	62	66	0
04	3600601FD	56	60	77	0
05	3600602	62	61	40	0
06	3600603	60	65	45	0
07	3600604	56	60	48	0
08	3600605	61	70	45	0
09	3600606	59	66	49	0
10	3600607	49	66	71	0
11	3600607DIL	58	66	180 *	1
12	BLK01	57	60	75	0

	QC LIMITS
S1 (NAP) = Naphthalene-d8	(14-108)
S2 (FLU) = Fluorene-d10	(41-162)
S3 (CHR) = Chrysene-d12	(10-118)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogate diluted out

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

BLK01

Name: ENSECO Contract:

Code: ENSECO Case No.: 36006 SAS No.: SDG No.:

File ID: C9626 Lab Sample ID: BL060994

rument ID: 4500-C Date Extracted: 06/09/94

ix: (soil/water) WATER Date Analyzed: 07/13/94

l:(low/med) LOW Time Analyzed: 1354

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	3600601	3600601	C9612	07/12/94
02	3600601DU	3600601DU	C9613	07/12/94
03	3600601FB	3600601FB	C9627	07/13/94
04	3600601FD	3600601FD	C9611	07/12/94
05	3600602	3600602	C9644	07/14/94
06	3600603	3600603	C9615	07/12/94
07	3600604	3600604	C9616	07/12/94
08	3600605	3600605	C9617	07/12/94
09	3600606	3600606	C9618	07/12/94
10	3600607	3600607	C9619	07/12/94
11	3600607DIL	3600607DIL	C9642	07/14/94

ENTS:

7B
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Name: ENSECO Contract:

Code: ENSECO Case No.: 36006 SAS No.: SDG No.:

rument ID: 4500-C Calibration date: 07/14/94 Time: 1208

File ID: C9641 Init. Calib. Date(s): 07/07/94 07/08/94

Init. Calib. Times: 2250 0209

COMPOUND	RRF	RRF40	MIN RRF	%D	MAX %D
2,3-Dibenzofuran	1.169	0.939		19.7	35.0
2,3-Dihydroindene	1.026	0.876		14.6	35.0
1H-Indene	1.255	0.955		23.9	35.0
Naphthalene	1.965	1.942		1.2	35.0
Benzo(B)Thiophene	1.676	1.635		2.4	35.0
Quinoline	1.054	1.088		-3.2	35.0
1H-Indole	0.991	0.895		9.7	35.0
2-Methylnaphthalene	1.078	1.111		-3.1	35.0
1-Methylnaphthalene	1.048	1.054		-0.6	35.0
Biphenyl	1.495	1.618		-8.2	35.0
Acenaphthylene	1.527	1.767		-15.7	35.0
Acenaphthene	1.143	1.263		-10.5	35.0
Dibenzofuran	1.561	1.752		-12.2	35.0
Fluorene	1.258	1.392		-10.6	35.0
Dibenzothiophene	0.946	1.074		-13.5	35.0
Phenanthrene	1.154	1.171		-1.5	35.0
Anthracene	0.993	1.000		-0.7	35.0
Acridine	0.728	0.744		-2.2	35.0
Carbazole	0.826	0.685		17.1	35.0
Fluoranthene	1.096	1.121		-2.3	35.0
Pyrene	1.185	1.222		-3.1	35.0
Benzo(A)Anthracene	1.708	1.623		5.0	35.0
Chrysene	1.772	1.577		11.0	35.0
Benzo(B)Fluoranthene	1.866	1.836		1.6	35.0
Benzo(K)Fluoranthene	1.637	1.571		4.0	35.0
Benzo(E)Pyrene	1.779	1.793		-0.8	35.0
Benzo(A)Pyrene	1.351	1.389		-2.8	35.0
Perylene	1.289	1.286		0.2	35.0
Indeno(1,2,3-CD)Pyrene	1.429	1.323		7.4	35.0
Dibenz(A,H)Anthracene	1.179	1.039		11.9	35.0
Benzo(G,H,I)Perylene	1.435	1.300		9.4	35.0
Naphthalene-d8	1.790	1.781		0.5	35.0
Fluorene-d10	1.002	1.087		-8.5	35.0
Chrysene-d12	1.650	1.463		11.3	35.0

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Name: ENSECO Contract:

Code: ENSECO Case No.: 36006 SAS No.: SDG No.:

File ID (Standard): C9608 Date Analyzed: 07/12/94

rument ID: 4500-C Time Analyzed: 1420

	IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
12 HOUR STD	318676	14.59	506861	18.34	397440	28.22
UPPER LIMIT	637352	15.09	1013722	18.84	794880	28.72
LOWER LIMIT	159338	14.09	253430	17.84	198720	27.72
EPA SAMPLE NO.						
1 3600601	593234	14.59	988752	18.34	559722	28.29
2 3600601DU	571197	14.59	966890	18.34	531952	28.29
3 3600601FD	556708	14.59	879170	18.34	515264	28.31
4 3600603	583598	14.59	1000890	18.34	563185	28.29
5 3600604	553420	14.59	946896	18.34	480904	28.29
6 3600605	568824	14.59	945936	18.35	495240	28.29
7 3600606	514088	14.59	898272	18.34	488776	28.29
8 3600607	505224	14.59	905824	18.34	468652	28.29

S1 (ACN) = Acenaphthene-D10
S2 (PHN) = Phenanthrene-D10
S3 (BAP) = Benzo(A)Pyrene-D10

REA UPPER LIMIT = + 100% of internal standard area.
REA LOWER LIMIT = - 50% of internal standard area.
T UPPER LIMIT = +0.50 minutes of internal standard RT.
T LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
Values outside of QC limits.

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

ame: ENSECO Contract:

ode: ENSECO Case No.: 36006 SAS No.: SDG No.:

ile ID (Standard): C9625 Date Analyzed: 07/13/94

ument ID: 4500-C Time Analyzed: 1304

	IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
12 HOUR STD	504245	14.52	851928	18.27	446720	28.36
UPPER LIMIT	1008490	15.02	1703856	18.77	893440	28.86
LOWER LIMIT	252122	14.02	425964	17.77	223360	27.86
EPA SAMPLE NO.						
3600601FB	522147	14.52	935470	18.25	499126	28.31
BLK01	516437	14.52	987968	18.27	470761	28.31

1 (ACN) = Acenaphthene-D10
(PHN) = Phenanthrene-D10
(BAP) = Benzo(A)Pyrene-D10

EA UPPER LIMIT = + 100% of internal standard area.
EA LOWER LIMIT = - 50% of internal standard area.
T UPPER LIMIT = +0.50 minutes of internal standard RT.
T LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
Values outside of QC limits.

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

lame: ENSECO Contract:

Code: ENSECO Case No.: 36006 SAS No.: SDG No.:

File ID (Standard): C9641 Date Analyzed: 07/14/94

ument ID: 4500-C Time Analyzed: 1208

	IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
12 HOUR STD	356886	14.47	593908	18.22	339914	27.97
UPPER LIMIT	713772	14.97	1187816	18.72	679828	28.47
LOWER LIMIT	178443	13.97	296954	17.72	169957	27.47
EPA SAMPLE NO.						
1 3600602	356796	14.47	622296	18.27	242736	28.14
2 3600607DIL	382550	14.47	665646	18.27	261728	28.04

S1 (ACN) = Acenaphthene-D10
S2 (PHN) = Phenanthrene-D10
S3 (BAP) = Benzo(A)Pyrene-D10

REA UPPER LIMIT = + 100% of internal standard area.
REA LOWER LIMIT = - 50% of internal standard area.
T UPPER LIMIT = +0.50 minutes of internal standard RT.
T LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
Values outside of QC limits.

Rocky Mountain
Analytical Laboratory

Enseco

CASE NARRATIVE

FOR

City of St. Louis Park

July 26, 1994

Enseco - RMAL Project Number 035949

Introduction

Ten aqueous samples (includes QC) were received at Enseco Rocky Mountain Analytical Laboratory on June 7, 1994. The samples were logged in under RMAL project number 035949. Sample PCJ-SLP-10FBD-060694 was extracted and held per the April 1990 QAPP. A cross reference associating the RMAL sample numbers to the actual field sample numbers is included. The samples were analyzed for low level part-per-trillion (ppt) polynuclear aromatic hydrocarbons (PAH).

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the April, 1990 QAPP for completeness, precision, accuracy, representativeness and defensibility of the data. Unless otherwise stated below, no quality control problems or technical difficulties were encountered which would impact the interpretation or use of data in this report.

PPT PAH

The analysis of samples 035949-0001, 0001DU, 0001MS, 0001SD, 0003, and 0004 required that the samples be diluted due to the presence of target compounds. Reporting limits have been raised accordingly. Samples 035949-0001DL, 0001DUDL, 0001MSDL, and 0001MSDDL were diluted to the extent that surrogate recoveries could no longer be calculated.

The percent recovery for Benzo(E)Pyrene was below QC limits in sample 035949-0001MS. The percent recovery for Fluorene in sample 035949-0001MS and the RPD for Fluorene in samples 035949-0001MS/MSD were not calculated due to the concentration of Fluorene detected in the sample. The RPD's for 1H-Indene and Naphthalene were above QC limits for samples 035949-0001MS/MSD.

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Samples 035949-0001MS/MSD were re-analyzed at a dilution. The percent recovery for Benzo(E)Pyrene was below QC limits, and the RPD was not calculated in samples 035949-0001MSDL/MSDDL. The percent recovery for Fluorene in sample 035949-0001MSDL and the RPD for Fluorene in samples 035949-0001MSDL/MSDDL were not calculated due to the concentration of Fluorene detected in the sample. The percent recovery for quinoline was above QC limits in samples 035949-0001MSDL/MSDDL. The RPD for chrysene was above QC limits for samples 035949-0001MSDL/MSDDL.

The 4800 ng/ml and the 2400 ng/ml standards had excessive saturation, therefore they were not used as the upper range for the 5-point calibration curve. Instead, the calibration curve used was, 20 ng/ml, 40 ng/ml, 240 ng/ml, 600 ng/ml, and 1200 ng/ml.

All samples associated with project 035949 show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion. These compounds are flagged with the letter (R) on the data sheets (Form I) as per the 1990 QAPP.

This data package is in compliance with the terms and conditions of the 1990 QAPP, both technically and for completeness, for other than the conditions detailed above.

Reported by: _____ **Date:** July 26, 1994
Karen F. Germann
Program Administrator

Approved by: _____ **Date:** July 26, 1994
Julieann L. Kramer
Program Manager

Enseco

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
035949-0001-SA	PCJ-SLP10-060694	AQUEOUS	06 JUN 94		07 JUN 94
035949-0001-DU	PCJ-SLP10D-060694	AQUEOUS	06 JUN 94		07 JUN 94
035949-0001-MS	PCJ-SLP10MS-060694	AQUEOUS	06 JUN 94		07 JUN 94
035949-0001-SD	PCJ-SLP10MSD-060694	AQUEOUS	06 JUN 94		07 JUN 94
035949-0001-FB	PCJ-SLP10FB-060694	AQUEOUS	06 JUN 94		07 JUN 94
035949-0001-FD	PCJ-SLP10FBD-060694	AQUEOUS	06 JUN 94		07 JUN 94
035949-0002-SA	PCJ-W48-060694	AQUEOUS	06 JUN 94	10:30	07 JUN 94
035949-0003-SA	PCJ-W40-060694	AQUEOUS	06 JUN 94	11:00	07 JUN 94
035949-0004-SA	PCJ-W403-060694	AQUEOUS	06 JUN 94	12:20	07 JUN 94
035949-0005-SA	PCJ-W402-060694	AQUEOUS	06 JUN 94	15:30	07 JUN 94

Enseco

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 035949	Group Code	Analysis Description	Custom Test?
0001 , 0001, 0002 - 0005	A	Polynuclear Aromatic Hydrocarbons, SIM Low Level	N
		Prep - PAH/SIM by GC/MS Low Level	N
0001	B	Prep - PAH/SIM by GC/MS Low Level	N

Rocky Mountain
Analytical Laboratory

Enseco

Qualifier Codes and Their Usage

U = Indicates compound was analyzed for but not detected. The sample quantitation limit must be corrected for dilution and for percent moisture. For example, 10 U for phenol in water if the sample final volume is the protocol-specified final volume. If a 1 to 10 dilution of extract is necessary, the reported limit is 100 U. For a soil sample, the value must also be adjusted for percent moisture.

J = Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit but greater than zero. For example, if the sample quantitation limit is 10 ug/L, but a concentration of 3 ug/L is calculated, report it as 3J. The sample quantitation limit must be adjusted for dilution as discussed for the U flag.

N = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds, where the identification is based on a mass spectral library search. It is applied to all TIC results.

P = This flag is used for a pesticide/Aroclor target analyte when there is greater then 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".

C = This flag applies to pesticide results where the identification has been confirmed by GC/MS. If GC/MS confirmation was attempted but was unsuccessful, do not apply this flag, instead use a laboratory-defined flag, discussed below.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action. This flag must be used for a TIC as well as for a positively identified target compound.

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E = This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis. If one or more compounds have a response greater than full scale, except as noted in Exhibit D, the sample or extract must be diluted and re-analyzed accordingly to the specifications in Exhibit D. All such compounds with a response greater than full scale should have the concentration flagged with an "E" on the Form I for the original analysis. If the dilution of the extract causes any compounds identified in the first analysis to be below the calibration range in the second analysis, then the results of both analyses shall be reported on separate copies of Form I. The Form I for the diluted sample shall have the "DL" suffix appended to the sample number. NOTE: For total xylenes, where three isomers are quantified as two peaks, the calibration range of each peak should be considered separately, e.g., a diluted analysis is not required for total xylenes unless the concentration of either peak separately exceeds 200 ug/L.

D = This flag identifies all compounds identified in an analysis at a secondary dilution factor. If a sample or extract is re-analyzed at a higher dilution factor, as in the "E' flag above, the "DL" suffix is appended to the sample number on the Form I for the diluted sample, and all concentration values reported on that Form I are flagged with the "D" flag. This flag alerts data users that any discrepancies between the concentrations reported may be due to dilution of the sample or extract.

A = This flag indicates that a TIC is a suspected aldol-condensation product.

X = Other specific flags may be required to properly define the results. If used, they must be fully described, and such description attached to the Sample Data Summary Package and the SDG Narrative. Begin by using "X". If more than one flag is required, use "Y" and "Z" as needed. If more than five qualifiers are required for a sample result, use the "X" flag to combine several flags, as needed. For instance, the "X" flag might combine the "A", "B", and "D" flags for some sample. The laboratory-defined flags are limited to the letters "X", "Y", and "Z".

R = This flag is used for polyaromatic hydrocarbons which show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion.

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35949-02

PCJ-W48-060694

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35949 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35949-02

Sample wt/vol: 4180 (g/mL) ML Lab File ID: C9582

Level: (low/med) LOW Date Received: 06/07/94

% Moisture: decanted: (Y/N) N Date Extracted: 06/08/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/09/94

Injection Volume: 2.0(uL) Dilution Factor: 0.120

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	1	JR
496-11-7	2,3-Dihydroindene	96	
95-13-6	1H-Indene	9	
91-20-3	Naphthalene	4	BJR
4565-32-6	Benzo(B)Thiophene	6	R
91-22-5	Quinoline	1	JR
120-72-9	1H-Indole	2	JR
91-57-6	2-Methylnaphthalene	2	B
90-12-0	1-Methylnaphthalene	3	R
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	7	R
83-32-9	Acenaphthene	67	
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	20	
132-65-0	Dibenzothiophene	5	R
85-01-8	Phenanthrene	6	BR
120-12-7	Anthracene	4	R
260-94-6	Acridine	23	
86-74-8	Carbazole	6	R
206-44-0	Fluoranthene	12	B
129-00-0	Pyrene	12	B
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

RAP SECTION 7.3(D) MONITORING

WELLS

SLP 10 SLP 14
SLP 16 W406
E2 E13
W402 W403

Rocky Mountain
Analytical Laboratory

Enseco

CASE NARRATIVE

FOR

City of St. Louis Park

July 26, 1994

Enseco - RMAL Project Number 035949

Introduction

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Reported by: Karen F. Germann — **Date:** July 26, 1994
Karen F. Germann
Program Administrator

Approved by: Julieann L. Kramer — **Date:** July 26, 1994
Julieann L. Kramer
Program Manager

Enseco

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
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035949-0001-MS	PCJ-SLP10MS-060694	AQUEOUS	06 JUN 94		07 JUN 94
035949-0001-SD	PCJ-SLP10MSD-060694	AQUEOUS	06 JUN 94		07 JUN 94
035949-0001-FB	PCJ-SLP10FB-060694	AQUEOUS	06 JUN 94		07 JUN 94
035949-0001-FD	PCJ-SLP10FBD-060694	AQUEOUS	06 JUN 94		07 JUN 94
035949-0002-SA	PCJ-W48-060694	AQUEOUS	06 JUN 94	10:30	07 JUN 94
035949-0003-SA	PCJ-W40-060694	AQUEOUS	06 JUN 94	11:00	07 JUN 94
035949-0004-SA	PCJ-W403-060694	AQUEOUS	06 JUN 94	12:20	07 JUN 94
035949-0005-SA	PCJ-W402-060694	AQUEOUS	06 JUN 94	15:30	07 JUN 94

Enseco

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 035949	Group Code	Analysis Description	Custom Test?
0001 , 0001, 0002 - 0005	A	Polynuclear Aromatic Hydrocarbons, SIM Low Level	N
		Prep - PAH/SIM by GC/MS Low Level	N
0001	B	Prep - PAH/SIM by GC/MS Low Level	N

Rocky Mountain
Analytical Laboratory

Enseco

Qualifier Codes and Their Usage

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Qualifer Codes and Their Usage
Page Two

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A Corning Company

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303/421-6611 FAX. 303/431-7171

1420 East North Belt Drive
Suite 120
Houston, TX 77032
713/987-9767 FAX. 713/987 9769

CHAIN OF CUSTODY

ENSECO CLIENT: City of ST Louis PARK WATER DEPT

PROJECT:

SAMPLING COMPANY: SAME

SAMPLING SITE: SAME

TEAM LEADER: MZ

SAMPLE SAFE™ CONDITIONS

PACKED BY: MZ

SEAL NUMBER:

SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:

CONDITION OF CONTENTS:

SEALED FOR SHIPPING BY: MZ

INITIAL CONTENTS TEMP: °C

SEAL NUMBER:

SAMPLING STATUS: ☐ Done ☐ Continuing Until

SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No

CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 7.9 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
6-6-94		PCJ-SLP10MS-060694	1XL AMBER	6	PPL PAH	PPL 5 -1MS
6-6-94		PCJ-SLP10MSD-060694	1XL AMBER	6	PPL PAH	PPL 5 -1SD

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MZ

METHOD OF SHIPMENT: FED EX

AIRBILL NUMBER: 2103 [illegible]

RECEIVED FOR LAB: PMAC

SIGNED: [illegible]

DATE/TIME: 6-7-94 840

ENSECO PROJECT NUMBER: 35949

ENS-4011

White - CLIENT Pink - LAB

Enseco
A Corning Company

☐ Rocky Mountain Analytical Laboratory
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Arvada, CO 80002
303/421-6611 FAX 303/431-7171

☐ Enseco Houston
1420 East North Belt Drive
Suite 120
Houston, TX 77032
713/987 9767 FAX. 713/987-9769

CHAIN OF CUSTODY

ENSECO CLIENT: City of ST Louis PARK WATER DEPT

PROJECT:

SAMPLING COMPANY: SAME / FASR CHE

SAMPLING SITE: SAME

TEAM LEADER: MZ

SAMPLE SAFE™ CONDITIONS

PACKED BY: MZ

SEAL NUMBER:

SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:

CONDITION OF CONTENTS:

SEALED FOR SHIPPING BY: MZ

INITIAL CONTENTS TEMP: °C

SEAL NUMBER:

SAMPLING STATUS: ☐ Done ☐ Continuing Until

SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No

CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 4.5 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
6-6-94		PCJ-SLP10FB-060694	1XL AMBER	6	PPT PAH	PPT 5 -1FD
6-6-94		PCJ-SLP10FBD-060694	1XL AMBER	6	PPT PAH	PPT 5 -1FD
6-6-94	10:30	PCJ-W48-060694	H2O	6	PPT PAH	PPT 5 -2

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME
[signature]			

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MZ

METHOD OF SHIPMENT: FED EX

AIRBILL NUMBER: 2103421044

RECEIVED FOR LAB: RMAL

SIGNED: [signature]

DATE/TIME: 6-7-94 8:10

ENSECO PROJECT NUMBER: 35948

ENS-4011

White - CLIENT LAB

Enseco
A Corning Company
4955 Yarrow Street
Arvada, CO 80002
303/421-6611 FAX. 303/431-7171

1420 East North Belt Drive
Suite 120
Houston, TX 77032
713/987-9767 FAX 713/987-9769

CHAIN OF CUSTODY

ENSECO CLIENT: City of St Louis Park
PROJECT: SIP
SAMPLING COMPANY: FUSR CAE
SAMPLING SITE: SIP
TEAM LEADER: Peter Moore

SAMPLE SAFE™ CONDITIONS

PACKED BY: Peter Moore
SEAL NUMBER: NA
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY: NA
CONDITION OF CONTENTS:
SEALED FOR SHIPPING BY: Peter Moore
INITIAL CONTENTS TEMP: °C
SEAL NUMBER: NA
SAMPLING STATUS: ☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No
CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 2.7 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
6-6-94	11:00	PCS-W40-060694	H2O	6	PPT-PAH	PPT-5 -3
6-6-94	12:20	PCS-W403-060694	H2O	6	PPT-PAH	PPT-5 -4
6-6-94	15:30	PCS-W402-060694	H2O	6	PPT-PAH	PPT-5 -5

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME
Peter Moore			

SHIPPING DETAILS

DELIVERED TO SHIPPED BY: Peter Moore
METHOD OF SHIPMENT: FED-EX
AIRBILL NUMBER:
RECEIVED FOR LAB: P MAL
SIGNED: [illegible]
DATE/TIME: 6-7-94 FAX
ENSECO PROJECT NUMBER: 35949

ENS-4011

White - CLIENT Pink - LAB

Enseco
A Corning Company

☐ Rocky Mountain Analytical Laboratory
4955 Yarrow Street
Arvada, CO 80002
303/421-6611 FAX: 303/431-7171

☐ Enseco Houston
1420 East North Belt Drive
Suite 120
Houston, TX 77032
713/987-9767 FAX: 713/987-9769

CHAIN OF CUSTODY

ENSECO CLIENT: CITY OF ST LOUIS PARK WATER DEPT	PACKED BY: MZK
PROJECT:	SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:
SAMPLING COMPANY: SAME	SEALED FOR SHIPPING BY: MZK
SAMPLING SITE: SAME	SEAL NUMBER:
TEAM LEADER: MZK	SEAL INTACT UPON RECEIPT BY LAB: ☑ Yes ☐ No

SAMPLE SAFE™ CONDITIONS

SEAL NUMBER:	CONDITION OF CONTENTS:
INITIAL CONTENTS TEMP: °C	SAMPLING STATUS: ☐ Done ☐ Continuing Until
CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 11.4 °C	

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
6-6-94		PCJ-SLP10-060694	1XL AMBER	6	PPC PAH	PPC 5 -1
6-6-94		PCJ-SLP10D-060694	1XL AMBER	6	PPC PAH	PPC 5 -1Dh
						1n
						3
						1-1

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MZK	
METHOD OF SHIPMENT: FED EX	AIRBILL NUMBER: 2103421 0460
RECEIVED FOR LAB: PMAL	SIGNED: [signature] DATE/TIME: 6-7-94 840
ENSECO PROJECT NUMBER: 35949	

ENS-4011 White - CLIENT LAB

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35949-01

PCJ-SLP10-060694

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35949 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35949-01

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9580

Level: (low/med) LOW Date Received: 06/07/94

% Moisture: decanted: (Y/N) N Date Extracted: 06/08/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/09/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	2	J
496-11-7	2,3-Dihydroindene	280	ERT
95-13-6	1H-Indene	20	
91-20-3	Naphthalene	9	B
4565-32-6	Benzo(B)Thiophene	74	
91-22-5	Quinoline	4	R
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	2	B
90-12-0	1-Methylnaphthalene	13	R
92-52-4	Biphenyl	61	
208-96-8	Acenaphthylene	110	RT
83-32-9	Acenaphthene	190	ET
132-64-9	Dibenzofuran	57	
86-73-7	Fluorene	150	ET
132-65-0	Dibenzothiophene	36	
85-01-8	Phenanthrene	16	B
120-12-7	Anthracene	11	
260-94-6	Acridine	5	R
86-74-8	Carbazole	12	
206-44-0	Fluoranthene	67	B
129-00-0	Pyrene	80	B
56-55-3	Benzo(A)Anthracene	4	R
218-01-9	Chrysene	2	J
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35949-01DL

Lab Name: ENSECO Contract: PCJ-SLP10-060694

Lab Code: ENSECO Case No.: 35949 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35949-01DL

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9593

Level: (low/med) LOW Date Received: 06/07/94

% Moisture: decanted: (Y/N) N Date Extracted: 06/08/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/11/94

Injection Volume: 2.0(uL) Dilution Factor: 1.19

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	49	U
496-11-7	2,3-Dihydroindene	630	D
95-13-6	1H-Indene	19	D
91-20-3	Naphthalene	62	U
4565-32-6	Benzo(B)Thiophene	79	D
91-22-5	Quinoline	13	U
120-72-9	1H-Indole	24	U
91-57-6	2-Methylnaphthalene	9	U
90-12-0	1-Methylnaphthalene	13	DJR
92-52-4	Biphenyl	66	D
208-96-8	Acenaphthylene	200	D
83-32-9	Acenaphthene	570	D
132-64-9	Dibenzofuran	59	D
86-73-7	Fluorene	320	D
132-65-0	Dibenzothiophene	34	D
85-01-8	Phenanthrene	16	BD
120-12-7	Anthracene	10	DJ
260-94-6	Acridine	27	U
86-74-8	Carbazole	11	DJ
206-44-0	Fluoranthene	65	BD
129-00-0	Pyrene	82	BD
56-55-3	Benzo(A)Anthracene	24	U
218-01-9	Chrysene	26	U
205-99-2	Benzo(B)Fluoranthene	24	U
207-08-9	Benzo(K)Fluoranthene	21	U
192-97-2	Benzo(E)Pyrene	18	U
50-32-8	Benzo(A)Pyrene	21	U
198-55-0	Perylene	24	U
193-39-5	Indeno(1,2,3-CD)Pyrene	20	U
53-70-3	Dibenz(A,H)Anthracene	15	U
191-24-2	Benzo(G,H,I)Perylene	26	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35949-01DU

PCJ-SLP10D-060694

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35949 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35949-01DU

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9581

Level: (low/med) LOW Date Received: 06/07/94

% Moisture: decanted: (Y/N) N Date Extracted: 06/08/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/09/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	2	JR
496-11-7	2,3-Dihydroindene	260	ERT
95-13-6	1H-Indene	18	
91-20-3	Naphthalene	8	B
4565-32-6	Benzo(B)Thiophene	67	
91-22-5	Quinoline	3	R
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	2	B
90-12-0	1-Methylnaphthalene	11	R
92-52-4	Biphenyl	54	
208-96-8	Acenaphthylene	100	T
83-32-9	Acenaphthene	170	ET
132-64-9	Dibenzofuran	50	
86-73-7	Fluorene	140	T
132-65-0	Dibenzothiophene	35	
85-01-8	Phenanthrene	15	B
120-12-7	Anthracene	11	
260-94-6	Acridine	5	R
86-74-8	Carbazole	12	
206-44-0	Fluoranthene	67	B
129-00-0	Pyrene	78	BT
56-55-3	Benzo(A)Anthracene	4	R
218-01-9	Chrysene	3	
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

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ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35949-01DUDL

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35949 SAS No.: SDG No.: PCJ-SLPIOD-060694

Matrix: (soil/water) WATER Lab Sample ID: 35949-01DUDL

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9594

Level: (low/med) LOW Date Received: 06/07/94

% Moisture: decanted: (Y/N) N Date Extracted: 06/08/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/11/94

Injection Volume: 2.0(uL) Dilution Factor: 1.19

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	49	U
496-11-7	2,3-Dihydroindene	570	D
95-13-6	1H-Indene	17	D
91-20-3	Naphthalene	62	U
4565-32-6	Benzo(B)Thiophene	70	D
91-22-5	Quinoline	13	U
120-72-9	1H-Indole	24	U
91-57-6	2-Methylnaphthalene	9	U
90-12-0	1-Methylnaphthalene	12	DJR
92-52-4	Biphenyl	57	D
208-96-8	Acenaphthylene	180	D
83-32-9	Acenaphthene	500	D
132-64-9	Dibenzofuran	52	D
86-73-7	Fluorene	280	D
132-65-0	Dibenzothiophene	32	D
85-01-8	Phenanthrene	16	BD
120-12-7	Anthracene	11	D
260-94-6	Acridine	27	U
86-74-8	Carbazole	11	DJ
206-44-0	Fluoranthene	62	BD
129-00-0	Pyrene	80	BD
56-55-3	Benzo(A)Anthracene	24	U
218-01-9	Chrysene	26	U
205-99-2	Benzo(B)Fluoranthene	24	U
207-08-9	Benzo(K)Fluoranthene	21	U
192-97-2	Benzo(E)Pyrene	18	U
50-32-8	Benzo(A)Pyrene	21	U
198-55-0	Perylene	24	U
193-39-5	Indeno(1,2,3-CD)Pyrene	20	U
53-70-3	Dibenz(A,H)Anthracene	15	U
191-24-2	Benzo(G,H,I)Perylene	26	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35949-01FB

Lab Name: ENSECO Contract: PCJ-SLP10FB-060694

Lab Code: ENSECO Case No.: 35949 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35949-01FB

Sample wt/vol: 4160 (g/mL) ML Lab File ID: C9578

Level: (low/med) LOW Date Received: 06/07/94

% Moisture: decanted: (Y/N) N Date Extracted: 06/08/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/09/94

Injection Volume: 2.0(uL) Dilution Factor: 0.120

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	1	J
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	3	BJ
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	2	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	3	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	BJ
129-00-0	Pyrene	1	BJ
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

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ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35949-01FBD

Lab Name: ENSECO Contract:

PCJ-SLP10FBD-060694

Lab Code: ENSECO Case No.: 35949 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35949-01FBD

Sample wt/vol: 4170 (g/mL) ML Lab File ID: C9579

Level: (low/med) LOW Date Received: 06/07/94

% Moisture: decanted: (Y/N) N Date Extracted: 06/08/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/09/94

Injection Volume: 2.0(uL) Dilution Factor: 0.120

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	1	J
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	3	BJ
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	2	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	3	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	BJ
129-00-0	Pyrene	1	BJ
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

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ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35949-05

PCJ-W402-0660694

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35949 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35949-05

Sample wt/vol: 4190 (g/mL) ML Lab File ID: C9585

Level: (low/med) LOW Date Received: 06/07/94

% Moisture: decanted: (Y/N) N Date Extracted: 06/08/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/09/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	5	
95-13-6	1H-Indene	3	
91-20-3	Naphthalene	19	B
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	1	JR
91-57-6	2-Methylnaphthalene	12	B
90-12-0	1-Methylnaphthalene	9	
92-52-4	Biphenyl	4	J
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	3	
132-64-9	Dibenzofuran	3	
86-73-7	Fluorene	3	
132-65-0	Dibenzothiophene	2	R
85-01-8	Phenanthrene	11	B
120-12-7	Anthracene	1	JR
260-94-6	Acridine	3	
86-74-8	Carbazole	3	
206-44-0	Fluoranthene	6	B
129-00-0	Pyrene	16	B
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	1	J
205-99-2	Benzo(B)Fluoranthene	1	J
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	R

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35949-04

Lab Name: ENSECO Contract: PCJ-W403-060694

Lab Code: ENSECO Case No.: 35949 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35949-04

Sample wt/vol: 4190 (g/mL) ML Lab File ID: C9640

Level: (low/med) LOW Date Received: 06/07/94

% Moisture: decanted: (Y/N) N Date Extracted: 06/08/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/14/94

Injection Volume: 2.0(uL) Dilution Factor: 6.67

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	33	U
496-11-7	2,3-Dihydroindene	190	
95-13-6	1H-Indene	150	
91-20-3	Naphthalene	500	B
4565-32-6	Benzo(B)Thiophene	97	
91-22-5	Quinoline	7	J
120-72-9	1H-Indole	15	JR
91-57-6	2-Methylnaphthalene	37	B
90-12-0	1-Methylnaphthalene	84	
92-52-4	Biphenyl	13	JR
208-96-8	Acenaphthylene	7	JR
83-32-9	Acenaphthene	37	
132-64-9	Dibenzofuran	18	
86-73-7	Fluorene	16	
132-65-0	Dibenzothiophene	10	R
85-01-8	Phenanthrene	19	B
120-12-7	Anthracene	7	U
260-94-6	Acridine	8	J
86-74-8	Carbazole	44	R
206-44-0	Fluoranthene	7	BJ
129-00-0	Pyrene	19	B
56-55-3	Benzo(A)Anthracene	16	U
218-01-9	Chrysene	18	U
205-99-2	Benzo(B)Fluoranthene	16	U
207-08-9	Benzo(K)Fluoranthene	14	U
192-97-2	Benzo(E)Pyrene	12	U
50-32-8	Benzo(A)Pyrene	14	U
198-55-0	Perylene	16	U
193-39-5	Indeno(1,2,3-CD)Pyrene	14	U
53-70-3	Dibenz(A,H)Anthracene	10	U
191-24-2	Benzo(G,H,I)Perylene	18	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35949-01MS

PCJ-SLPIOMS-060694

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35949 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35949-01MS

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9586

Level: (low/med) LOW Date Received: 06/07/94

% Moisture: decanted: (Y/N) N Date Extracted: 06/08/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/09/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	1	J
496-11-7	2,3-Dihydroindene	170	ERT
95-13-6	1H-Indene	25	
91-20-3	Naphthalene	12	B
4565-32-6	Benzo(B)Thiophene	64	
91-22-5	Quinoline	14	R
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	8	B
90-12-0	1-Methylnaphthalene	11	R
92-52-4	Biphenyl	56	
208-96-8	Acenaphthylene	96	RT
83-32-9	Acenaphthene	160	ET
132-64-9	Dibenzofuran	53	
86-73-7	Fluorene	140	T
132-65-0	Dibenzothiophene	35	
85-01-8	Phenanthrene	16	B
120-12-7	Anthracene	11	
260-94-6	Acridine	5	R
86-74-8	Carbazole	12	
206-44-0	Fluoranthene	66	B
129-00-0	Pyrene	77	B
56-55-3	Benzo(A)Anthracene	3	
218-01-9	Chrysene	6	
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	1	J
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35949-01MSDL

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35949 SAS No.: SDG No.: PCJ-SLPIOMS-060694

Matrix: (soil/water) WATER Lab Sample ID: 35949-01MSDL

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9595

Level: (low/med) LOW Date Received: 06/07/94

% Moisture: decanted: (Y/N) N Date Extracted: 06/08/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/11/94

Injection Volume: 2.0(uL) Dilution Factor: 1.19

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	49	U
496-11-7	2,3-Dihydroindene	630	D
95-13-6	1H-Indene	27	D
91-20-3	Naphthalene	14	BDJ
4565-32-6	Benzo(B)Thiophene	81	D
91-22-5	Quinoline	15	DR
120-72-9	1H-Indole	24	U
91-57-6	2-Methylnaphthalene	9	U
90-12-0	1-Methylnaphthalene	13	DJR
92-52-4	Biphenyl	64	D
208-96-8	Acenaphthylene	200	D
83-32-9	Acenaphthene	570	D
132-64-9	Dibenzofuran	58	D
86-73-7	Fluorene	320	D
132-65-0	Dibenzothiophene	35	D
85-01-8	Phenanthrene	17	BD
120-12-7	Anthracene	11	D
260-94-6	Acridine	27	U
86-74-8	Carbazole	12	DJ
206-44-0	Fluoranthene	68	BD
129-00-0	Pyrene	86	BD
56-55-3	Benzo(A)Anthracene	24	U
218-01-9	Chrysene	26	U
205-99-2	Benzo(B)Fluoranthene	24	U
207-08-9	Benzo(K)Fluoranthene	21	U
192-97-2	Benzo(E)Pyrene	18	U
50-32-8	Benzo(A)Pyrene	21	U
198-55-0	Perylene	24	U
193-39-5	Indeno(1,2,3-CD)Pyrene	20	U
53-70-3	Dibenz(A,H)Anthracene	15	U
191-24-2	Benzo(G,H,I)Perylene	26	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35949-01MSD

PCJ-SLP10MSD-060694

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35949 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35949-01MSD

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9587

Level: (low/med) LOW Date Received: 06/07/94

% Moisture: decanted: (Y/N) N Date Extracted: 06/08/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/09/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	2	J
496-11-7	2,3-Dihydroindene	250	ERT
95-13-6	1H-Indene	28	
91-20-3	Naphthalene	14	B
4565-32-6	Benzo(B)Thiophene	75	
91-22-5	Quinoline	16	R
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	9	B
90-12-0	1-Methylnaphthalene	13	R
92-52-4	Biphenyl	63	
208-96-8	Acenaphthylene	110	RT
83-32-9	Acenaphthene	190	ET
132-64-9	Dibenzofuran	58	
86-73-7	Fluorene	160	ET
132-65-0	Dibenzothiophene	37	
85-01-8	Phenanthrene	17	B
120-12-7	Anthracene	11	
260-94-6	Acridine	5	R
86-74-8	Carbazole	12	
206-44-0	Fluoranthene	71	B
129-00-0	Pyrene	85	B
56-55-3	Benzo(A)Anthracene	3	
218-01-9	Chrysene	6	
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35949-01MSDDL

PCJ-SLP10MSD-060694

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35949 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35949-01MSDDL

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9596

Level: (low/med) LOW Date Received: 06/07/94

% Moisture: decanted: (Y/N) N Date Extracted: 06/08/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/11/94

Injection Volume: 2.0(uL) Dilution Factor: 1.19

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	49	U
496-11-7	2,3-Dihydroindene	670	D
95-13-6	1H-Indene	26	D
91-20-3	Naphthalene	14	BDJ
4565-32-6	Benzo(B)Thiophene	84	D
91-22-5	Quinoline	16	DR
120-72-9	1H-Indole	24	U
91-57-6	2-Methylnaphthalene	9	U
90-12-0	1-Methylnaphthalene	14	DJR
92-52-4	Biphenyl	65	D
208-96-8	Acenaphthylene	210	D
83-32-9	Acenaphthene	590	D
132-64-9	Dibenzofuran	60	D
86-73-7	Fluorene	320	D
132-65-0	Dibenzothiophene	37	D
85-01-8	Phenanthrene	18	BD
120-12-7	Anthracene	11	D
260-94-6	Acridine	27	U
86-74-8	Carbazole	12	DJ
206-44-0	Fluoranthene	71	BD
129-00-0	Pyrene	89	BD
56-55-3	Benzo(A)Anthracene	24	U
218-01-9	Chrysene	26	U
205-99-2	Benzo(B)Fluoranthene	24	U
207-08-9	Benzo(K)Fluoranthene	21	U
192-97-2	Benzo(E)Pyrene	18	U
50-32-8	Benzo(A)Pyrene	21	U
198-55-0	Perylene	24	U
193-39-5	Indeno(1,2,3-CD)Pyrene	20	U
53-70-3	Dibenz(A,H)Anthracene	15	U
191-24-2	Benzo(G,H,I)Perylene	26	U

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35949 SAS No.: SDG No.:

	EPA SAMPLE NO.	S1 (NAP)#	S2 (FLU)#	S3 (CHR)#	TOT OUT
01	35949-01	65	73	72	0
02	35949-01DL	0 D	0 D	0 D	0
03	35949-01DU	60	62	52	0
04	35949-01DUDL	0 D	0 D	0 D	0
05	35949-01FB	62	61	82	0
06	35949-01FBD	69	61	76	0
07	35949-02	53	77	38	0
08	35949-03	75	81	40	0
09	35949-03DL	58	76	74	0
10	35949-04	84	85	84	0
11	35949-05	42	54	15	0
12	35949-01MS	61	65	38	0
13	35949-01MSD	69	72	40	0
14	35949-01MSDDL	0 D	0 D	0 D	0
15	35949-01MSDL	0 D	0 D	0 D	0
16	BLK01	62	59	86	0

	QC LIMITS
S1 (NAP) = Naphthalene-d8	(14-108)
S2 (FLU) = Fluorene-d10	(41-162)
S3 (CHR) = Chrysene-d12	(10-118)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogate diluted out

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35949 SAS No.: SDG No.:

Matrix Spike - EPA Sample No.: 35949-01

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC #	QC LIMITS REC.
1H-Indene	9.520	20.35	24.87	47	20-150
Naphthalene	9.520	8.949	12.38	36	20-150
Quinoline	9.520	4.189	14.40	107	20-150
2-Methylnaphthalene	9.520	2.011	7.580	58	20-150
Fluorene	9.520	149.9	136.8	NC *	20-150
Chrysene	9.520	2.475	5.664	34	20-150
Benzo(E)Pyrene	9.520	ND	1.057	11	10-150

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1H-Indene	9.520	28.20	82	54 *	28	20-150
Naphthalene	9.520	14.16	55	42 *	28	20-150
Quinoline	9.520	16.06	125	16	28	20-150
2-Methylnaphthalene	9.520	8.830	72	22	28	20-150
Fluorene	9.520	155.9	63	NC	28	20-150
Chrysene	9.520	5.664	34	0	28	20-150
Benzo(E)Pyrene	9.520	0.878	9 *	20	28	10-150

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

COMMENTS:

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35949 SAS No.: SDG No.:

Matrix Spike - EPA Sample No.: 35949-01DL

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC #	QC LIMITS REC.
1H-Indene	9.520	18.92	26.78	83	20-150
Naphthalene	9.520	8.88	13.92	53	20-150
Quinoline	9.520	ND	15.47	162 *	20-150
2-Methylnaphthalene	9.520	2.37	7.95	59	20-150
Fluorene	9.520	321.3	317.7	NC	20-150
Chrysene	9.520	1.46	7.60	64	20-150
Benzo(E)Pyrene	9.520	ND	ND	NC	10-150

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1H-Indene	9.520	26.18	76	9	28	20-150
Naphthalene	9.520	14.40	58	9	28	20-150
Quinoline	9.520	15.95	168 *	4	28	20-150
2-Methylnaphthalene	9.520	9.01	70	17	28	20-150
Fluorene	9.520	324.9	38	NC	28	20-150
Chrysene	9.520	5.71	45	35 *	28	20-150
Benzo(E)Pyrene	9.520	ND	NC	NC	28	10-150

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

COMMENTS:

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

BLK01

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35949 SAS No.: SDG No.:

Lab File ID: C9577 Lab Sample ID: BL060894

Instrument ID: 4500-C Date Extracted: 06/08/94

Matrix: (soil/water) WATER Date Analyzed: 07/09/94

Level:(low/med) LOW Time Analyzed: 1122

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	35949-01	35949-01	C9580	07/09/94
02	35949-01DL	35949-01DL	C9593	07/11/94
03	35949-01DU	35949-01DU	C9581	07/09/94
04	35949-01DUDL	35949-01DUDL	C9594	07/11/94
05	35949-01FB	35949-01FB	C9578	07/09/94
06	35949-01FBD	35949-01FBD	C9579	07/09/94
07	35949-02	35949-02	C9582	07/09/94
08	35949-03	35949-03	C9583	07/09/94
09	35949-03DL	35949-03DL	C9597	07/11/94
10	35949-04	35949-04	C9640	07/14/94
11	35949-05	35949-05	C9585	07/09/94
12	35949-01MS	35949-01MS	C9586	07/09/94
13	35949-01MSD	35949-01MSD	C9587	07/09/94
14	35949-01MSDDL	35949-01MSDDL	C9596	07/11/94
15	35949-01MSDL	35949-01MSDL	C9595	07/11/94

COMMENTS:

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

BLK01

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35949 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: BL060894

Sample wt/vol: 4000 (g/mL) ML Lab File ID: C9577

Level: (low/med) LOW Date Received:

% Moisture: decanted: (Y/N) N Date Extracted: 06/08/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/09/94

Injection Volume: 2.0(uL) Dilution Factor: 0.125

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	2	J
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	1	R
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	3	
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	2	
129-00-0	Pyrene	2	
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35949 SAS No.: SDG No.:

Lab File ID (Standard): C9576 Date Analyzed: 07/09/94

Instrument ID: 4500-C Time Analyzed: 1034

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	342656	14.69	632313	18.45	310378	28.47
	UPPER LIMIT	685312	15.19	1264626	18.95	620756	28.97
	LOWER LIMIT	171328	14.19	316156	17.95	155189	27.97
	EPA SAMPLE NO.						
01	35949-01	513097	14.67	963743	18.52	327187	28.52
02	35949-01DU	554902	14.67	944875	18.50	317746	28.52
03	35949-01FB	483598	14.67	816239	18.49	360102	28.52
04	35949-01FBD	454007	14.67	744622	18.50	305776	28.52
05	35949-02	535490	14.67	1042900	18.52	365732	28.52
06	35949-03	549025	14.67	1051770	18.50	339691	28.52
07	35949-05	572403	14.65	806931	18.49	488544	28.51
08	35949-01MS	577850	14.67	1014820	18.52	527872	28.54
09	35949-01MSD	495062	14.69	905080	18.52	435264	28.56
10	BLK01	446911	14.69	742329	18.52	367961	28.52

IS1 (ACN) = Acenaphthene-D10
IS2 (PHN) = Phenanthrene-D10
IS3 (BAP) = Benzo(A)Pyrene-D10

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35949 SAS No.: SDG No.:

Lab File ID (Standard): C9592 Date Analyzed: 07/11/94

Instrument ID: 4500-C Time Analyzed: 1849

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	324666	14.64	543635	18.39	336095	28.39
	UPPER LIMIT	649332	15.14	1087270	18.89	672190	28.89
	LOWER LIMIT	162333	14.14	271818	17.89	168048	27.89
	EPA SAMPLE NO.						
01	35949-01DL	354609	14.64	656422	18.40	321508	28.41
02	35949-01DUDL	429115	14.62	727034	18.39	380848	28.39
03	35949-03DL	438098	14.62	855555	18.39	405455	28.52
04	35949-01MSDDL	452150	14.62	776974	18.37	399232	28.52
05	35949-01MSDL	381455	14.62	670290	18.39	332809	28.52

IS1 (ACN) = Acenaphthene-D10
IS2 (PHN) = Phenanthrene-D10
IS3 (BAP) = Benzo(A)Pyrene-D10

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35949 SAS No.: SDG No.:

Lab File ID (Standard): C9625 Date Analyzed: 07/13/94

Instrument ID: 4500-C Time Analyzed: 1304

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	504245	14.52	851928	18.27	446720	28.36
	UPPER LIMIT	1008490	15.02	1703856	18.77	893440	28.86
	LOWER LIMIT	252122	14.02	425964	17.77	223360	27.86
	EPA SAMPLE NO.						
01	35949-04	387733	14.52	736331	18.27	265888	28.36

IS1 (ACN) = Acenaphthene-D10
IS2 (PHN) = Phenanthrene-D10
IS3 (BAP) = Benzo(A)Pyrene-D10

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

Rocky Mountain
Analytical Laboratory

Enseco

CASE NARRATIVE

FOR

City of St. Louis Park

August 05, 1994

Enseco - RMAL Project Number 036006

Introduction

10 aqueous samples (includes QC) were received at Enseco Rocky Mountain Analytical Laboratory on June 08, 1994. The samples were logged in under RMAL project number 036006. Sample PCJ-SLP7FBD-060794 was extracted and held per the April 1990 QAPP. A cross reference associating the RMAL sample numbers to the actual field sample numbers is included. The samples were analyzed for low level part-per-trillion (ppt) polynuclear aromatic hydrocarbons (PAH).

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the April, 1990 QAPP for completeness, precision, accuracy, representativeness and defensibility of the data. Unless otherwise stated below, no quality control problems or technical difficulties were encountered which would impact the interpretation or use of data in this report.

PPT PAH

Sample 036006-0007 was analyzed at a dilution due to concentrations of target compounds above instrument linear range. The original analysis and diluted analysis of sample 036006-0006 have been reported.

The surrogate recovery for chrysene-d12 was above QC limits in samples 036006-0007DL, all surrogates for sample 036006-0007 were within QC limits.

Enseco
4955 Yarrow Street
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303/421-6611 Fax: 303/431-7171

The 4800 ng/ml and the 2400 ng/ml standards had excessive saturation, therefore they were not used as the upper range for the 5-point calibration curve. Instead, the calibration curve used was, 20 ng/ml, 40 ng/ml, 240 ng/ml, 600 ng/ml, and 1200 ng/ml.

All samples associated with project 036006 show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion. These compounds are flagged with the letter (R) on the data sheets (Form I) as per the 1990 QAPP.

This data package is in compliance with the terms and conditions of the 1990 QAPP, both technically and for completeness, for other than the conditions detailed above.

Reported by: _____ **Date:** 8/5/94
Dan Rebarchik
Program Administrator

Approved by: _____ **Date:** Aug 05, 1994
Julieann L. Kramer
Program Manager

Enseco

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
036006-0001-SA	PCJ-SLP7-060794	AQUEOUS	07 JUN 94		08 JUN 94
036006-0001-DU	PCJ-SLP7D-060794	AQUEOUS	07 JUN 94		08 JUN 94
036006-0001-FB	PCJ-SLP7FB-060794	AQUEOUS	07 JUN 94		08 JUN 94
036006-0001-FD	PCJ-SLP7FBD-060794	AQUEOUS	07 JUN 94		08 JUN 94
036006-0002-SA	PCJ-E2-060794	AQUEOUS	07 JUN 94	11:10	08 JUN 94
036006-0003-SA	PCJ-E3-060794	AQUEOUS	07 JUN 94	11:50	08 JUN 94
036006-0004-SA	PCJ-E15-060794	AQUEOUS	07 JUN 94	12:05	08 JUN 94
036006-0005-SA	PCJ-E13-060794	AQUEOUS	07 JUN 94	12:20	08 JUN 94
036006-0006-SA	PCJ-H6-060794	AQUEOUS	07 JUN 94	14:10	08 JUN 94
036006-0007-SA	PCJ-W70-060794	AQUEOUS	07 JUN 94	11:50	08 JUN 94

Enseco

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 036006	Group Code	Analysis Description	Custom Test?
0001 , 0001, 0002 - 0007	A	Polynuclear Aromatic Hydrocarbons, SIM Low Level	N
		Prep - PAH/SIM by GC/MS Low Level	N
0001	B	Prep - PAH/SIM by GC/MS Low Level	N

Rocky Mountain
Analytical Laboratory

Enseco

Qualifier Codes and Their Usage

U = Indicates compound was analyzed for but not detected. The sample quantitation limit must be corrected for dilution and for percent moisture. For example, 10 U for phenol in water if the sample final volume is the protocol-specified final volume. If a 1 to 10 dilution of extract is necessary, the reported limit is 100 U. For a soil sample, the value must also be adjusted for percent moisture.

J = Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit but greater than zero. For example, if the sample quantitation limit is 10 ug/L, but a concentration of 3 ug/L is calculated, report it as 3J. The sample quantitation limit must be adjusted for dilution as discussed for the U flag.

N = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds, where the identification is based on a mass spectral library search. It is applied to all TIC results.

P = This flag is used for a pesticide/Aroclor target analyte when there is greater then 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".

C = This flag applies to pesticide results where the identification has been confirmed by GC/MS. If GC/MS confirmation was attempted but was unsuccessful, do not apply this flag, instead use a laboratory-defined flag, discussed below.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action. This flag must be used for a TIC as well as for a positively identified target compound.

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4955 Yarrow Street
Arvada, Colorado 80002
303/421-6011 Fax: 303/431-7171

E = This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis. If one or more compounds have a response greater than full scale, except as noted in Exhibit D, the sample or extract must be diluted and re-analyzed accordingly to the specifications in Exhibit D. All such compounds with a response greater than full scale should have the concentration flagged with an "E" on the Form I for the original analysis. If the dilution of the extract causes any compounds identified in the first analysis to be below the calibration range in the second analysis, then the results of both analyses shall be reported on separate copies of Form I. The Form I for the diluted sample shall have the "DL" suffix appended to the sample number. NOTE: For total xylenes, where three isomers are quantified as two peaks, the calibration range of each peak should be considered separately, e.g., a diluted analysis is not required for total xylenes unless the concentration of either peak separately exceeds 200 ug/L.

D = This flag identifies all compounds identified in an analysis at a secondary dilution factor. If a sample or extract is re-analyzed at a higher dilution factor, as in the "E" flag above, the "DL" suffix is appended to the sample number on the Form I for the diluted sample, and all concentration values reported on that Form I are flagged with the "D" flag. This flag alerts data users that any discrepancies between the concentrations reported may be due to dilution of the sample or extract.

A = This flag indicates that a TIC is a suspected aldol-condensation product.

X = Other specific flags may be required to properly define the results. If used, they must be fully described, and such description attached to the Sample Data Summary Package and the SDG Narrative. Begin by using "X". If more than one flag is required, use "Y" and "Z" as needed. If more than five qualifiers are required for a sample result, use the "X" flag to combine several flags, as needed. For instance, the "X" flag might combine the "A", "B", and "D" flags for some sample. The laboratory-defined flags are limited to the letters "X", "Y", and "Z".

R = This flag is used for polyaromatic hydrocarbons which show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion.

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

3600602

PCJ-E2-060794

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 36006 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 3600602

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9644

Level: (low/med) LOW Date Received: 06/08/94

% Moisture: decanted: (Y/N) N Date Extracted: 06/09/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/14/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	6	
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	2	BJR
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	1	
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	2	
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	2	BR
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	J
129-00-0	Pyrene	2	B
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

3600605

PCJ-E13-060794

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 36006 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 3600605

Sample wt/vol: 4180 (g/mL) ML Lab File ID: C9617

Level: (low/med) LOW Date Received: 06/08/94

% Moisture: decanted: (Y/N) N Date Extracted: 06/09/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/12/94

Injection Volume: 2.0(uL) Dilution Factor: 0.120

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	1	BJ
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnapnthalene	0.9	U
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	1	BJ
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	U
129-00-0	Pyrene	1	BJR
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

Rocky Mountain
Analytical Laboratory

Enseco

CASE NARRATIVE

FOR

City of St. Louis Park

July 22, 1994

Enseco - RMAL Project Number 036157

Introduction

Ten aqueous samples (includes QC) were received at Enseco Rocky Mountain Analytical Laboratory on June 14 and 15, 1994. The samples were logged in under RMAL project number 036157. Sample PCJ-SLP14FBD-061394 was extracted and held per the April 1990 QAPP. A cross reference associating the RMAL sample numbers to the actual field sample numbers is included. The samples were analyzed for low level part-per-trillion (ppt) polynuclear aromatic hydrocarbons (PAH).

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the April 1990 QAPP for completeness, precision, accuracy, representativeness and defensibility of the data. Unless otherwise stated below, no quality control problems or technical difficulties were encountered which would impact the interpretation or use of data in this report.

PPT PAH

The analysis of sample 036157-0004 required that the sample be diluted due to concentrations of target compounds. Reporting limits have been raised accordingly.

The percent recovery for Benzo(E)Pyrene was below QC limits in samples 036157-0001MS/SD. The RPD's for 1H-Indene, Naphthalene, and 2-Methylnaphthalene were outside QC limits for samples 036157-0001MS/SD. Since acceptable recovery was achieved for all other spike components, quantitation was checked and no further action was taken.

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The 4800 ng/ml and the 2400 ng/ml standards had excessive saturation, therefore they were not used as the upper range for the 5-point calibration curve. Instead, the calibration curve used was, 20 ng/ml, 40 ng/ml, 240 ng/ml, 600 ng/ml, and 1200 ng/ml.

All samples associated with project 036157 show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion. These compounds are flagged with the letter (R) on the data sheets (Form I) as per the 1990 QAPP.

This data package is in compliance with the terms and conditions of the 1990 QAPP, both technically and for completeness, for other than the conditions detailed above.

Reported by: Karen F. Germann **Date:** July 22, 1994
Karen F. Germann
Program Administrator

Approved by: Julie Kramer **Date:** 22 July 94
Julieann L. Kramer
Program Manager (for)

Enseco
A Corning Company

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303/421-6611 FAX. 303/431-7171

☐ Enseco Houston
1420 East North Belt Drive
Suite 120
Houston, TX 77032
713/987-9767 FAX 713/987 9769

CHAIN OF CUSTODY

ENSECO CLIENT: City of ST Louis PARK WATER DEPT

PROJECT:

SAMPLING COMPANY: SAME

SAMPLING SITE: SAME

TEAM LEADER: MZ BK

SAMPLE SAFE℠ CONDITIONS

PACKED BY: MZ BK

SEAL NUMBER:

SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:

CONDITION OF CONTENTS:

SEALED FOR SHIPPING BY: MZ BK

INITIAL CONTENTS TEMP: °C

SEAL NUMBER:

SAMPLING STATUS: ☐ Done ☐ Continuing Until

SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No

CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 7.9 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
6-13-94		PEJ-SLP14-061394	IXL AMBER	6	PPL PAH	PPL S -1
6-13-94		PEJ-SLP14D-061394	IXL AMBER	6	PPL PAH	PPL S -1 pu

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MZ-BK

METHOD OF SHIPMENT: FED EX

AIRBILL NUMBER: 2103432002

RECEIVED FOR LAB: RMAL

SIGNED: JDeCh

DATE/TIME: 6/14/94 840

ENSECO PROJECT NUMBER: 36157

ENS-4011

White - CLIENT Pink - LAB

Enseco
A Corning Company

Rocky Mountain Analytical Laboratory
4955 Yarrow Street
Arvada, CO 80002
303/421-6611 FAX 303/431 7171

Enseco Houston
1420 East North Belt Drive
Suite 120
Houston, TX 77032
713/987-9767 FAX 713/987 9769

CHAIN OF CUSTODY

ENSECO CLIENT: City of ST Louis Park Water Dept	PACKED BY: MZ
PROJECT:	SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:
SAMPLING COMPANY: SAME	SEALED FOR SHIPPING BY: MZ
SAMPLING SITE: SAME	SEAL NUMBER: / SAMPLING STATUS: ☐ Done ☐ Continuing Until
TEAM LEADER: MZ	SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No / CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 10.4 °C

SAMPLE SAFE™ CONDITIONS

SEAL NUMBER:
CONDITION OF CONTENTS:
INITIAL CONTENTS TEMP: °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
6-13-94		PCJ-SLP14MS-061394	1XL AMBER	6	PPC PAH	PPC 5 -1 ms
6-13-94		PCJ-SLP14MSD-061394	1XL AMBER	6	PPC PAH	PPC 5 -1 sd

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MZ
METHOD OF SHIPMENT: FED EX
AIRBILL NUMBER: 21034-2106-2
RECEIVED FOR LAB: RMAL
SIGNED: [signature]
DATE/TIME: 6/14/94 840
ENSECO PROJECT NUMBER: 36157

ENS-4011

White - CLIENT - LAB

Enseco
A Corning Company

Mountain Analytical Laboratory
4955 Yarrow Street
Arvada, CO 80002
303/421-6611 FAX. 303/431-7171

Enseco Houston
1420 East North Belt Drive
Suite 120
Houston, TX 77032
713/987 9767 FAX. 713/987-9769

CHAIN OF CUSTODY

ENSECO CLIENT: City of St. Louis Park
PROJECT: SLP
SAMPLING COMPANY: ENSR, CIE
SAMPLING SITE: SLP
TEAM LEADER: Vicki Moore

SAMPLE SAFE™ CONDITIONS

PACKED BY: Vicki Moore
SEAL NUMBER: N/A
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY: NA
CONDITION OF CONTENTS: Good
SEALED FOR SHIPPING BY: Vicki Moore
INITIAL CONTENTS TEMP: ~ °C
SEAL NUMBER: NA
SAMPLING STATUS: ☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No
CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 7.8 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
6/13	5:45	PCJ-W401-061394	H2O	6	PPT-PAH	PPT-S -2
6/13	9:00	PCJ-MIKAG-061394	H2O	6	PPT-PAH	PPT-S -3
6/13	11:00	PCJ-W29-061394	H2O	6	PPT-PAH	PPT-S -4

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME
[illegible]		6/13/94	11:00

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: Vicki Moore / ENSR
METHOD OF SHIPMENT: FED-EX
AIRBILL NUMBER:
RECEIVED FOR LAB: RMAL
SIGNED: [illegible]
DATE/TIME: 6/14/94 840
ENSECO PROJECT NUMBER: 36157

ENS-4011

White - CLIENT Pink - LAB

Enseco
A Corning Company

☐ Rocky Mountain Analytical Laboratory
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☐ Enseco Houston
1420 East North Belt Drive
Suite 120
Houston, TX 77032
713/987-9767 FAX 713/987-9769

CHAIN OF CUSTODY

ENSECO CLIENT: City of ST Louis PARK WATER DEPT

PROJECT:

SAMPLING COMPANY: SAME

SAMPLING SITE: SAME

TEAM LEADER: MZ

SAMPLE SAFE™ CONDITIONS

PACKED BY: MZ

SEAL NUMBER:

SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:

CONDITION OF CONTENTS:

SEALED FOR SHIPPING BY: MZ

INITIAL CONTENTS TEMP: °C

SEAL NUMBER:

SAMPLING STATUS: ☐ Done ☐ Continuing Until

SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No

CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 4.3°C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
6-13-94		PCJ-SLP14FB-061394	1XL AMBER	6	PPT PAH	PPT, -1FD
6-13-94		PCJ-SLP14FBD-061394	1XL AMBER	6	PPT PAH	PPT-S -1FD
6-14-94		PCJ-WYKG-061494	H2O	6	PPT PAH	PPT-S -S

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME
[illegible]			

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MZ

METHOD OF SHIPMENT: FED EX

AIRBILL NUMBER: 2103421[illegible]2

RECEIVED FOR LAB: RMAL

SIGNED: [illegible]

DATE/TIME: 6/15/94 [illegible]

ENSECO PROJECT NUMBER: 36157

ENS-4011

White - CLIENT Pink - LAB

Enseco

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
036157-0001-SA	PCJ-SLP14-061394	AQUEOUS	13 JUN 94		14 JUN 94
036157-0001-DU	PCJ-SLP14D-061394	AQUEOUS	13 JUN 94		14 JUN 94
036157-0001-MS	PCJ-SLP14MS-061394	AQUEOUS	13 JUN 94		14 JUN 94
036157-0001-SD	PCJ-SLP14MSD-061394	AQUEOUS	13 JUN 94		14 JUN 94
036157-0001-FB	PCJ-SLP14FB-061394	AQUEOUS	13 JUN 94		15 JUN 94
036157-0001-FD	PCJ-SLP14FBD-061394	AQUEOUS	13 JUN 94		15 JUN 94
036157-0002-SA	PCJ-W401-061394	AQUEOUS	13 JUN 94	05:45	14 JUN 94
036157-0003-SA	PCJ-MTK6-061394	AQUEOUS	13 JUN 94	09:00	14 JUN 94
036157-0004-SA	PCJ-W29-061394	AQUEOUS	13 JUN 94	11:00	14 JUN 94
036157-0005-SA	PCJ-W406-061494	AQUEOUS	14 JUN 94		15 JUN 94

Enseco

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 036157	Group Code	Analysis Description	Custom Test?
0001 , 0001, 0002 - 0005	A	Polynuclear Aromatic Hydrocarbons, SIM Low Level	N
		Prep - PAH/SIM by GC/MS Low Level	N
0001	B	Prep - PAH/SIM by GC/MS Low Level	N

Rocky Mountain
Analytical Laboratory

Enseco

Qualifier Codes and Their Usage

U = Indicates compound was analyzed for but not detected. The sample quantitation limit must be corrected for dilution and for percent moisture. For example, 10 U for phenol in water if the sample final volume is the protocol-specified final volume. If a 1 to 10 dilution of extract is necessary, the reported limit is 100 U. For a soil sample, the value must also be adjusted for percent moisture.

J = Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit but greater than zero. For example, if the sample quantitation limit is 10 ug/L, but a concentration of 3 ug/L is calculated, report it as 3J. The sample quantitation limit must be adjusted for dilution as discussed for the U flag.

N = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds, where the identification is based on a mass spectral library search. It is applied to all TIC results.

P = This flag is used for a pesticide/Aroclor target analyte when there is greater then 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".

C = This flag applies to pesticide results where the identification has been confirmed by GC/MS. If GC/MS confirmation was attempted but was unsuccessful, do not apply this flag, instead use a laboratory-defined flag, discussed below.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action. This flag must be used for a TIC as well as for a positively identified target compound.

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Arvada, Colorado 80002
303/421-6611 Fax: 303/431-7171

E = This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis. If one or more compounds have a response greater than full scale, except as noted in Exhibit D, the sample or extract must be diluted and re-analyzed accordingly to the specifications in Exhibit D. All such compounds with a response greater than full scale should have the concentration flagged with an "E" on the Form I for the original analysis. If the dilution of the extract causes any compounds identified in the first analysis to be below the calibration range in the second analysis, then the results of both analyses shall be reported on separate copies of Form I. The Form I for the diluted sample shall have the "DL" suffix appended to the sample number. NOTE: For total xylenes, where three isomers are quantified as two peaks, the calibration range of each peak should be considered separately, e.g., a diluted analysis is not required for total xylenes unless the concentration of either peak separately exceeds 200 ug/L.

D = This flag identifies all compounds identified in an analysis at a secondary dilution factor. If a sample or extract is re-analyzed at a higher dilution factor, as in the "E" flag above, the "DL" suffix is appended to the sample number on the Form I for the diluted sample, and all concentration values reported on that Form I are flagged with the "D" flag. This flag alerts data users that any discrepancies between the concentrations reported may be due to dilution of the sample or extract.

A = This flag indicates that a TIC is a suspected aldol-condensation product.

X = Other specific flags may be required to properly define the results. If used, they must be fully described, and such description attached to the Sample Data Summary Package and the SDG Narrative. Begin by using "X". If more than one flag is required, use "Y" and "Z" as needed. If more than five qualifiers are required for a sample result, use the "X" flag to combine several flags, as needed. For instance, the "X" flag might combine the "A", "B", and "D" flags for some sample. The laboratory-defined flags are limited to the letters "X", "Y", and "Z".

R = This flag is used for polyaromatic hydrocarbons which show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion.

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

36157-01

PCJ-SLP14-061394

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 36157 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 36157-01

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9636

Level: (low/med) LOW Date Received: 06/14/94

% Moisture: decanted: (Y/N) N Date Extracted: 06/16/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/13/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	19	
95-13-6	1H-Indene	1	
91-20-3	Naphthalene	3	BJ
4565-32-6	Benzo(B)Thiophene	2	R
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	1	JR
91-57-6	2-Methylnaphthalene	2	B
90-12-0	1-Methylnaphthalene	1	JR
92-52-4	Biphenyl	1	J
208-96-8	Acenaphthylene	7	R
83-32-9	Acenaphthene	14	
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	2	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	2	B
129-00-0	Pyrene	2	B
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

36157-01DU

PCJ-SLP14D-061394

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 36157 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 36157-01DU

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9637

Level: (low/med) LOW Date Received: 06/14/94

% Moisture: decanted: (Y/N) N Date Extracted: 06/16/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/13/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	21	
95-13-6	1H-Indene	1	
91-20-3	Naphthalene	3	BJR
4565-32-6	Benzo(B)Thiophene	2	
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	1	JR
91-57-6	2-Methylnaphthalene	2	B
90-12-0	1-Methylnaphthalene	1	JR
92-52-4	Biphenyl	2	J
208-96-8	Acenaphthylene	8	R
83-32-9	Acenaphthene	16	
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	4	B
120-12-7	Anthracene	1	J
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	2	B
129-00-0	Pyrene	3	B
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

36157-05

PCJ-W406-061494

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 36157 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 36157-05

Sample wt/vol: 4180 (g/mL) ML Lab File ID: C9635

Level: (low/med) LOW Date Received: 06/15/94

% Moisture: decanted: (Y/N) N Date Extracted: 06/16/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/13/94

Injection Volume: 2.0(uL) Dilution Factor: 0.120

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	1	J
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	3	BJR
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	1	JR
91-57-6	2-Methylnaphthalene	2	BR
90-12-0	1-Methylnaphthalene	1	JR
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	J
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	4	B
120-12-7	Anthracene	1	JR
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	2	B
129-00-0	Pyrene	15	B
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

36157-01FB

PCJ-SLP14FB-061394

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 36157 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 36157-01FB

Sample wt/vol: 4180 (g/mL) ML Lab File ID: C9630

Level: (low/med) LOW Date Received: 06/15/94

% Moisture: decanted: (Y/N) N Date Extracted: 06/16/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/13/94

Injection Volume: 2.0(uL) Dilution Factor: 0.120

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	8	
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	3	BJ
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnapnthalene	2	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	4	R
83-32-9	Acenaphthene	7	
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	2	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	2	B
129-00-0	Pyrene	2	B
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

36157-01FBD

PCJ-SLP14FBD-061394

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 36157 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 36157-01FBD

Sample wt/vol: 4180 (g/mL) ML Lab File ID: C9631

Level: (low/med) LOW Date Received: 06/15/94

% Moisture: decanted: (Y/N) N Date Extracted: 06/16/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/13/94

Injection Volume: 2.0(uL) Dilution Factor: 0.120

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	2	
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	4	BJ
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	2	B
90-12-0	1-Methylnaphthalene	1	J
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	2	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	BJ
129-00-0	Pyrene	1	BJ
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

36157-01MS

PCJ-SLP14MS-061394

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 36157 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 36157-01MS

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9638

Level: (low/med) LOW Date Received: 06/14/94

% Moisture: decanted: (Y/N) N Date Extracted: 06/16/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/13/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	15	
95-13-6	1H-Indene	7	
91-20-3	Naphthalene	9	B
4565-32-6	Benzo(B)Thiopnene	1	R
91-22-5	Quinoline	7	
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnapnthalene	8	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	1	J
208-96-8	Acenaphthylene	7	R
83-32-9	Acenaphthene	13	
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	7	
132-65-0	Dibenzothiopnene	1	U
85-01-8	Phenanthrene	3	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	2	B
129-00-0	Pyrene	3	B
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	4	
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

36157-01MSD

Lab Name: ENSECO Contract:

PCJ-SLPI4MSD-061394

Lab Code: ENSECO Case No.: 36157 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 36157-01MSD

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9639

Level: (low/med) LOW Date Received: 06/14/94

% Moisture: decanted: (Y/N) N Date Extracted: 06/16/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/14/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	18	
95-13-6	1H-Indene	9	
91-20-3	Naphthalene	11	B
4565-32-6	Benzo(B)Thiophene	2	R
91-22-5	Quinoline	9	
120-72-9	1H-Indole	1	J
91-57-6	2-Methylnapnthalene	10	B
90-12-0	1-Methylnaphthalene	1	JR
92-52-4	Biphenyl	1	J
208-96-8	Acenaphthylene	8	R
83-32-9	Acenaphthene	16	
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	9	
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	3	B
120-12-7	Anthracene	1	J
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	2	B
129-00-0	Pyrene	3	B
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	5	
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 36157 SAS No.: SDG No.:

Lab File ID (Standard): C9641 Date Analyzed: 07/14/94

Instrument ID: 4500-C Time Analyzed: 1208

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	356886	14.47	593908	18.22	339914	27.97
	UPPER LIMIT	713772	14.97	1187816	18.72	679828	28.47
	LOWER LIMIT	178443	13.97	296954	17.72	169957	27.47
	EPA SAMPLE NO.						
01	36157-04DL	352475	14.47	631732	18.25	257428	28.12

IS1 (ACN) = Acenaphthene-D10
IS2 (PHN) = Phenanthrene-D10
IS3 (BAP) = Benzo(A)Pyrene-D10

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 36157 SAS No.: SDG No.:

Lab File ID (Standard): C9625 Date Analyzed: 07/13/94

Instrument ID: 4500-C Time Analyzed: 1304

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	504245	14.52	851928	18.27	446720	28.36
	UPPER LIMIT	1008490	15.02	1703856	18.77	893440	28.86
	LOWER LIMIT	252122	14.02	425964	17.77	223360	27.86
	EPA SAMPLE NO.						
01	36157-01	427481	14.52	827951	18.27	324386	28.36
02	36157-01DU	394231	14.54	751720	18.29	325097	28.36
03	36157-01FB	396229	14.52	767318	18.27	384216	28.17
04	36157-01FBD	291194	14.52	565196	18.27	226915	28.21
05	36157-02	486907	14.52	900398	18.27	447570	28.31
06	36157-03	459616	14.54	874988	18.29	408364	28.32
07	36157-04	437552	14.52	848384	18.27	434695	28.36
08	36157-05	450572	14.52	848811	18.27	314607	28.37
09	36157-01MS	415320	14.54	767093	18.27	410938	28.36
10	36157-01MSD	389580	14.52	752240	18.27	330505	28.32
11	BLK01	509460	14.54	915265	18.27	442451	28.19

IS1 (ACN) = Acenaphthene-D10
IS2 (PHN) = Phenanthrene-D10
IS3 (BAP) = Benzo(A)Pyrene-D10

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

BLK01

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 36157 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: BL061694

Sample wt/vol: 4000 (g/mL) ML Lab File ID: C9629

Level: (low/med) LOW Date Received:

% Moisture: decanted: (Y/N) N Date Extracted: 06/16/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/13/94

Injection Volume: 2.0(uL) Dilution Factor: 0.125

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	2	J
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	1	
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	4	
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	2	
129-00-0	Pyrene	2	
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

BLK01

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 36157 SAS No.: SDG No.:

Lab File ID: C9629 Lab Sample ID: BL061694

Instrument ID: 4500-C Date Extracted: 06/16/94

Matrix: (soil/water) WATER Date Analyzed: 07/13/94

Level:(low/med) LOW Time Analyzed: 1616

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	36157-01	36157-01	C9636	07/13/94
02	36157-01DU	36157-01DU	C9637	07/13/94
03	36157-01FB	36157-01FB	C9630	07/13/94
04	36157-01FBD	36157-01FBD	C9631	07/13/94
05	36157-02	36157-02	C9632	07/13/94
06	36157-03	36157-03	C9633	07/13/94
07	36157-04	36157-04	C9634	07/13/94
08	36157-04DL	36157-04DL	C9643	07/14/94
09	36157-05	36157-05	C9635	07/13/94
10	36157-01MS	36157-01MS	C9638	07/13/94
11	36157-01MSD	36157-01MSD	C9639	07/14/94

COMMENTS:

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 36157 SAS No.: SDG No.:

Matrix Spike - EPA Sample No.: 36157-01

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC #	QC LIMITS REC.
1H-Indene	9.520	1.150	6.688	58	20-150
Naphthalene	9.520	2.868	8.711	61	20-150
Quinoline	9.520	0.369	7.045	70	20-150
2-Methylnaphthalene	9.520	1.726	7.830	64	20-150
Fluorene	9.520	0.749	7.402	70	20-150
Chrysene	9.520	0.265	4.010	39	20-150
Benzo(E)Pyrene	9.520	ND	0.734	8 *	10-150

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1H-Indene	9.520	8.675	79	31 *	28	20-150
Naphthalene	9.520	10.65	82	29 *	28	20-150
Quinoline	9.520	8.961	90	25	28	20-150
2-Methylnaphthalene	9.520	9.877	86	29 *	28	20-150
Fluorene	9.520	8.996	87	22	28	20-150
Chrysene	9.520	4.736	47	19	28	20-150
Benzo(E)Pyrene	9.520	0.877	9 *	12	28	10-150

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

COMMENTS:

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 36157 SAS No.: SDG No.:

	EPA SAMPLE NO.	S1 (NAP)#	S2 (FLU)#	S3 (CHR)#	TOT OUT
01	36157-01	70	73	48	0
02	36157-01DU	78	81	54	0
03	36157-01FB	62	68	56	0
04	36157-01FBD	83	84	91	0
05	36157-02	66	73	36	0
06	36157-03	71	74	36	0
07	36157-04	63	73	39	0
08	36157-04DL	61	66	43	0
09	36157-05	76	81	50	0
10	36157-01MS	61	68	38	0
11	36157-01MSD	78	82	46	0
12	BLK01	71	72	80	0

	QC LIMITS
S1 (NAP) = Naphthalene-d8	(14-108)
S2 (FLU) = Fluorene-d10	(41-162)
S3 (CHR) = Chrysene-d12	(10-118)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogate diluted out

Rocky Mountain
Analytical Laboratory

Enseco

CASE NARRATIVE

FOR

City of St. Louis Park

June 20, 1994

Enseco - RMAL Project Number 035695

Introduction

Ten aqueous samples (includes QC, were received at Enseco Rocky Mountain Analytical Laboratory on May 25, 1994. The samples were logged in under RMAL project number 035695 Sample PCJ-SLP16FBD-052494 was extracted and held per the April 1990 QAPP. Sample 035695-0003 field ID STP-W409-052494 was cancelled per clinet's request on 05/31/94. A cross reference associating the RMAL sample numbers to the actual field sample numbers is included. The samples were analyzed for low level part-per-trillion (ppt) polynuclear aromatic hydrocarbons (PAH).

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the April, 1990 QAPP for completeness, precision, accuracy, representativeness and defensibility of the data. Unless otherwise stated below, no quality control problems or technical difficulties were encountered which would impact the interpretation or use of data in this report.

PPT PAH

The % RPD for Chrysene was above QC limits in samples 035695-0001MS/SD. Since acceptably recovery was achieved for all other spike components, quantitation was checked and no further action was taken.

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The 4800 ng/ml and the 2400 ng/ml standards had excessive saturation, therefore they were not used as the upper range for the 5-point calibration curve. Instead, the calibration curve used was, 20 ng/ml, 40 ng/ml, 240 ng/ml, 600 ng/ml, and 1200 ng/ml.

All samples associated with project 035695 show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion. These compounds are flagged with the letter (R) on the data sheets (Form I) as per the 1990 QAPP.

This data package is in compliance with the terms and conditions of the 1990 QAPP, both technically and for completeness, for other than the conditions detailed above.

Reported by: Karen F. Germann
Karen F. Germann
Program Administrator

Date: June 20, 1994

Approved by: Julieann L. Kramer
Julieann L. Kramer
Program Manager

Date: June 20, 1994

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
035695-0001-SA	PCJ-SLP16-052494	AQUEOUS	24 MAY 94		25 MAY 94
035695-0001-DU	PCJ-SLP16D-052494	AQUEOUS	24 MAY 94		25 MAY 94
035695-0001-MS	PCJ-SLP16MS-052494	AQUEOUS	24 MAY 94		25 MAY 94
035695-0001-SD	PCJ-SLP16MSD-052494	AQUEOUS	24 MAY 94		25 MAY 94
035695-0001-FB	PCJ-SLP16FB-052494	AQUEOUS	24 MAY 94		25 MAY 94
035695-0001-FD	PCJ-SLP16FBD-052494	AQUEOUS	24 MAY 94		25 MAY 94
035695-0002-SA	STP-W411-052494	AQUEOUS	24 MAY 94	11:30	25 MAY 94
035695-0003-SA	STP-W409-052494	AQUEOUS	24 MAY 94	14:00	25 MAY 94
035695-0004-SA	STP-408-052494	AQUEOUS	24 MAY 94	15:00	25 MAY 94
035695-0005-SA	STP-P116-052494	AQUEOUS	24 MAY 94	16:30	25 MAY 94

Enseco

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 035695	Group Code	Analysis Description	Custom Test?
0001 , 0001, 0002 - 0005	A	Polynuclear Aromatic Hydrocarbons, SIM Low Level	N
		Prep - PAH/SIM by GC/MS Low Level	N
0001	B	Prep - PAH/SIM by GC/MS Low Level	N

Rocky Mountain
Analytical Laboratory

Enseco

Qualifier Codes and Their Usage

U = Indicates compound was analyzed for but not detected. The sample quantitation limit must be corrected for dilution and for percent moisture. For example, 10 U for phenol in water if the sample final volume is the protocol-specified final volume. If a 1 to 10 dilution of extract is necessary, the reported limit is 100 U. For a soil sample, the value must also be adjusted for percent moisture.

J = Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit but greater than zero. For example, if the sample quantitation limit is 10 ug/L, but a concentration of 3 ug/L is calculated, report it as 3J. The sample quantitation limit must be adjusted for dilution as discussed for the U flag.

N = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds, where the identification is based on a mass spectral library search. It is applied to all TIC results.

P = This flag is used for a pesticide/Aroclor target analyte when there is greater then 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".

C = This flag applies to pesticide results where the identification has been confirmed by GC/MS. If GC/MS confirmation was attempted but was unsuccessful, do not apply this flag, instead use a laboratory-defined flag, discussed below.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action. This flag must be used for a TIC as well as for a positively identified target compound.

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E = This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis. If one or more compounds have a response greater than full scale, except as noted in Exhibit D, the sample or extract must be diluted and re-analyzed accordingly to the specifications in Exhibit D. All such compounds with a response greater than full scale should have the concentration flagged with an "E" on the Form I for the original analysis. If the dilution of the extract causes any compounds identified in the first analysis to be below the calibration range in the second analysis, then the results of both analyses shall be reported on separate copies of Form I. The Form I for the diluted sample shall have the "DL" suffix appended to the sample number. NOTE: For total xylenes, where three isomers are quantified as two peaks, the calibration range of each peak should be considered separately, e.g., a diluted analysis is not required for total xylenes unless the concentration of either peak separately exceeds 200 ug/L.

D = This flag identifies all compounds identified in an analysis at a secondary dilution factor. If a sample or extract is re-analyzed at a higher dilution factor, as in the "E" flag above, the "DL" suffix is appended to the sample number on the Form I for the diluted sample, and all concentration values reported on that Form I are flagged with the "D" flag. This flag alerts data users that any discrepancies between the concentrations reported may be due to dilution of the sample or extract.

A = This flag indicates that a TIC is a suspected aldol-condensation product.

X = Other specific flags may be required to properly define the results. If used, they must be fully described, and such description attached to the Sample Data Summary Package and the SDG Narrative. Begin by using "X". If more than one flag is required. use "Y" and "Z" as needed. If more than five qualifiers are required for a sample result, use the "X" flag to combine several flags, as needed. For instance, the "X" flag might combine the "A", "B", and "D" flags for some sample. The laboratory-defined flags are limited to the letters "X", "Y", and "Z".

R = This flag is used for polyaromatic hydrocarbons which show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion.

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713/987-9767 FAX 713/987-9769

CHAIN OF CUSTODY

ENSECO CLIENT: CITY OF SAINT LOUIS PARK (WATER PQT)

PROJECT:

SAMPLING COMPANY: SAIZE

SAMPLING SITE: SAIZE

TEAM LEADER: MZ

SAMPLE SAFE™ CONDITIONS

PACKED BY: MZ

SEAL NUMBER:

SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:

CONDITION OF CONTENTS:

SEALED FOR SHIPPING BY: MZ

INITIAL CONTENTS TEMP: °C

SEAL NUMBER:

SAMPLING STATUS: ☐ Done ☐ Continuing Until

SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No

CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 4.1 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
5-24-94		PCJ-SLP16MSD-052494	1XL AMBER	6	PPL PAH	PPL 5 ~~-6SD~~ 01MSD
5-24-94	1	PCJ-SLP16FB-052494	1XL AMBER	6	PPL PAH	PPL 5 ~~-6FB~~ 01FB
5-24-94		PCJ-SLP16FBD-052494	1XL AMBER	6	PPL PAH	PPL 5 ~~-6FD~~ 01FBD

GAL 5-31-94

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MZ

METHOD OF SHIPMENT: FED EX

AIRBILL NUMBER: 210342 1003

RECEIVED FOR LAB: LMAL

SIGNED: [signature]

DATE/TIME: 52594 0820

ENSECO PROJECT NUMBER:

ENS-4011

White - CLIENT Pink - LAB

Enseco
A Corning Company

Rocky Mountain Analytical Laboratory
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Houston, TX 77032
713/987-9767 FAX. 713/987-9769

CHAIN OF CUSTODY

ENSECO CLIENT: CITY OF ST LOUIS PARK (WATER DEPT)	
PROJECT:	
SAMPLING COMPANY: SAME	
SAMPLING SITE: SAME	
TEAM LEADER: MZK	

SAMPLE SAFE™ CONDITIONS

PACKED BY: MZK	SEAL NUMBER:
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:	CONDITION OF CONTENTS:
SEALED FOR SHIPPING BY: MZK	INITIAL CONTENTS TEMP: °C
SEAL NUMBER:	SAMPLING STATUS: ☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No	CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 8.0 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
5-24-94		PCJ-SLP16-052494	1XL AMBER	6	PPL PAH	PPL 5 -1
5-24-94		PCJ-SLP16D-052494	1XL AMBER	6	PPL PAH	PPL 5 -1DUP
5-24-94		PCJ-SLP16MS-052494	1XL AMBER	6	PPL PAH	PPL 5 -1MS

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MZK		
METHOD OF SHIPMENT: FED EX		AIRBILL NUMBER: 1003 210342
RECEIVED FOR LAB: RMAL	SIGNED: [illegible]	DATE/TIME: 5 25 94 820
ENSECO PROJECT NUMBER: 35695		

ENS-4011

White - CLIENT Pink - LAB

Enseco
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CHAIN OF CUSTODY

ENSECO CLIENT: City of St Louis Park
PROJECT: SLP
SAMPLING COMPANY: ENSR CHE
SAMPLING SITE: SLP
TEAM LEADER: Peter Moore

SAMPLE SAFE™ CONDITIONS

PACKED BY: Peter Moore
SEAL NUMBER: NA
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY: NA
CONDITION OF CONTENTS: Ok
SEALED FOR SHIPPING BY: Peter Moore
INITIAL CONTENTS TEMP: °C
SEAL NUMBER: NA
SAMPLING STATUS: ☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No
CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 3.7 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
5/24/94	15:00	STP-408-052494	WO	6	PPT-PAH	PPT-5 -4
5/24/94	16:30	STP-P116-052494	WO	6	PPT-PAH	PPT-5 -5

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME
[signature]		5/24	17:00

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: Peter Moore
METHOD OF SHIPMENT: FED-EX
AIRBILL NUMBER: NA
RECEIVED FOR LAB: RMAL
SIGNED: [signature]
DATE/TIME: 52594 820
ENSECO PROJECT NUMBER: 35695

ENS-4011

White - CLIENT Pink - LAB

Enseco
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CHAIN OF CUSTODY

ENSECO CLIENT: City of St Louis Park
PROJECT: SLP
SAMPLING COMPANY: ENSR CHE
SAMPLING SITE: SLP
TEAM LEADER: Peter Moore

SAMPLE SAFE™ CONDITIONS

PACKED BY: Peter Moore
SEAL NUMBER: NA
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY: NA
CONDITION OF CONTENTS: OK
SEALED FOR SHIPPING BY: Peter Moore
INITIAL CONTENTS TEMP: °C
SEAL NUMBER: NA
SAMPLING STATUS: ☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No
CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 2.2 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
5/24/94	11:30	STP-W411-052494	H2O	6	PPT-PAH	PPT-5 -2
5/24/94	14:00	STP-W409-052494	H2O	6	PPT-PAH	PPT-5 -3

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME
Peter Moore		5/24	17:00

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: Peter Moore
METHOD OF SHIPMENT: FED-EX
AIRBILL NUMBER:
RECEIVED FOR LAB: RMAL
SIGNED: Marilyn
DATE/TIME: 52594 820
ENSECO PROJECT NUMBER: 35695

ENS-4011

White - CLIENT Pink - LAB

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35695-01

PCJ-SLP16-052494

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35695 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35695-01

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9257

Level: (low/med) LOW Date Received: 05/25/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/26/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/03/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	5	
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	2	BJ
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	1	BR
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	1	JR
208-96-8	Acenaphthylene	1	JR
83-32-9	Acenaphthene	5	
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	2	
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	2	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	2	
129-00-0	Pyrene	1	J
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35695-01DU

PCJ-SLP16D-052494

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35695 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35695-01DU

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9262

Level: (low/med) LOW Date Received: 05/25/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/26/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/03/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	4	
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	2	BJR
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnapnthalene	1	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	1	J
208-96-8	Acenaphthylene	1	JR
83-32-9	Acenaphthene	5	
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	2	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	J
129-00-0	Pyrene	1	J
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35695-01FB

PCJ-SLP16FB-052494

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35695 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35695-01FB

Sample wt/vol: 4175 (g/mL) ML Lab File ID: C9240

Level: (low/med) LOW Date Received: 05/25/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/26/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/02/94

Injection Volume: 2.0(uL) Dilution Factor: 0.120

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	2	
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	5	BJ
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	3	B
90-12-0	1-Methylnaphthalene	1	JR
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	3	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	2	
129-00-0	Pyrene	2	
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

IX
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35695-01FBD

Lab Name: ENSECO Contract:

PCJ-SLP16FBD-052494

Lab Code: ENSECO Case No.: 35695 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35695-01FBD

Sample wt/vol: 4175 (g/mL) ML Lab File ID: C9241

Level: (low/med) LOW Date Received: 05/25/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/26/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/02/94

Injection Volume: 2.0(uL) Dilution Factor: 0.120

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	1	JR
496-11-7	2,3-Dihydroindene	2	
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	6	BJ
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	3	B
90-12-0	1-Methylnaphthalene	1	JR
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	3	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	2	
129-00-0	Pyrene	2	
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35695-01MS

PCJ-SLP16MS-052494

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35695 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35695-01MS

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9263

Level: (low/med) LOW Date Received: 05/25/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/26/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/03/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	5	
95-13-6	1H-Indene	8	
91-20-3	Naphthalene	9	B
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	9	
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	8	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	1	J
208-96-8	Acenaphthylene	1	JR
83-32-9	Acenaphthene	5	
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	8	
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	2	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	JR
129-00-0	Pyrene	1	J
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	4	
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	1	JR
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35695-01MSD

PCJ-SLP16MSD-052494

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35695 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35695-01MSD

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9264

Level: (low/med) LOW Date Received: 05/25/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/26/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/03/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	5	
95-13-6	1H-Indene	9	
91-20-3	Naphthalene	10	B
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	11	
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	10	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	1	J
208-96-8	Acenaphthylene	2	
83-32-9	Acenaphthene	5	
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	9	
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	2	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	J
129-00-0	Pyrene	1	J
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	6	
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	1	JR
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35695 SAS No.: SDG No.:

	EPA SAMPLE NO.	S1 (NAP)#	S2 (FLU)#	S3 (CHR)#	TOT OUT
01	35695-01	76	85	55	0
02	35695-01DU	75	70	60	0
03	35695-01FB	86	90	104	0
04	35695-01FBD	80	82	99	0
05	35695-02	60	78	26	0
06	35695-04	73	94	23	0
07	35695-05	80	84	12	0
08	35695-01MS	74	74	50	0
09	35695-01MSD	82	84	40	0
10	BLK01	76	72	62	0

	QC LIMITS
S1 (NAP) = Naphthalene-d8	(14-108)
S2 (FLU) = Fluorene-d10	(41-162)
S3 (CHR) = Chrysene-d12	(10-118)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogate diluted out

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35695 SAS No.: SDG No.:

Matrix Spike - EPA Sample No.: 35695-01

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC #	QC LIMITS REC.
1H-Indene	9.520	0.456	7.794	77	20-150
Naphthalene	9.520	2.356	8.616	66	20-150
Quinoline	9.520	ND	8.961	94	20-150
2-Methylnaphthalene	9.520	1.416	8.223	72	20-150
Fluorene	9.520	1.642	7.949	66	20-150
Chrysene	9.520	0.370	4.129	39	20-150
Benzo(E)Pyrene	9.520	ND	1.273	13	10-150

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1H-Indene	9.520	9.139	91	17	28	20-150
Naphthalene	9.520	10.31	84	24	28	20-150
Quinoline	9.520	11.17	117	22	28	20-150
2-Methylnaphthalene	9.520	10.02	90	22	28	20-150
Fluorene	9.520	9.472	82	22	28	20-150
Chrysene	9.520	5.522	54	32 *	28	20-150
Benzo(E)Pyrene	9.520	1.107	12	8	28	10-150

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

COMMENTS:

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

BLK01

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35695 SAS No.: SDG No.:

Lab File ID: C9256 Lab Sample ID: BL052694

Instrument ID: 4500-C Date Extracted: 05/26/94

Matrix: (soil/water) WATER Date Analyzed: 06/03/94

Level:(low/med) LOW Time Analyzed: 0937

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	35695-01	35695-01	C9257	06/03/94
02	35695-01DU	35695-01DU	C9262	06/03/94
03	35695-01FB	35695-01FB	C9240	06/02/94
04	35695-01FBD	35695-01FBD	C9241	06/02/94
05	35695-02	35695-02	C9258	06/03/94
06	35695-04	35695-04	C9260	06/03/94
07	35695-05	35695-05	C9261	06/03/94
08	35695-01MS	35695-01MS	C9263	06/03/94
09	35695-01MSD	35695-01MSD	C9264	06/03/94

COMMENTS:

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

BLK01

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35695 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: BL052694

Sample wt/vol: 4000 (g/mL) ML Lab File ID: C9256

Level: (low/med) LOW Date Received:

% Moisture: decanted: (Y/N) N Date Extracted: 05/26/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/03/94

Injection Volume: 2.0(uL) Dilution Factor: 0.125

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	2	J
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	1	R
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	2	
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	U
129-00-0	Pyrene	1	U
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35695 SAS No.: SDG No.:

Lab File ID (Standard): C9238 Date Analyzed: 06/02/94

Instrument ID: 4500-C Time Analyzed: 1550

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	360267	13.97	672757	17.69	272748	27.52
	UPPER LIMIT	720534	14.47	1345514	18.19	545496	28.02
	LOWER LIMIT	180134	13.47	336378	17.19	136374	27.02
	EPA SAMPLE NO.						
01	35695-01FB	321267	13.95	577474	17.67	183571	27.51
02	35695-01FBD	329880	13.95	557949	17.67	193560	27.52

IS1 (ACN) = Acenaphthene-D10
IS2 (PHN) = Phenanthrene-D10
IS3 (BAP) = Benzo(A)Pyrene-D10

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35695 SAS No.: SDG No.:

Lab File ID (Standard): C9255 Date Analyzed: 06/03/94

Instrument ID: 4500-C Time Analyzed: 0819

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	331005	13.97	596031	17.69	268988	27.49
	UPPER LIMIT	662010	14.47	1192062	18.19	537976	27.99
	LOWER LIMIT	165502	13.47	298016	17.19	134494	26.99
	EPA SAMPLE NO.						
01	35695-01	346256	13.94	668326	17.67	227436	27.49
02	35695-01DU	327794	13.95	620839	17.67	246784	27.49
03	35695-02	508775	13.95	870976	17.69	385744	27.49
04	35695-04	384585	13.97	852512	17.69	421980	27.49
05	35695-05	413727	13.97	690856	17.70	407029	27.52
06	35695-01MS	313680	13.94	568764	17.67	246923	27.49
07	35695-01MSD	342624	13.95	592278	17.67	281362	27.49
08	BLK01	290287	13.97	561705	17.67	272975	27.47

IS1 (ACN) = Acenaphthene-D10
IS2 (PHN) = Phenanthrene-D10
IS3 (BAP) = Benzo(A)Pyrene-D10

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

RAP SECTION 7.3(E) MONITORING

WELLS

H6 E3 E15
MTK6 W26 W40
W70 W401

Rocky Mountain
Analytical Laboratory

Enseco

CASE NARRATIVE

FOR

City of St. Louis Park

July 26, 1994

Enseco - RMAL Project Number 035949

Introduction

Ten aqueous samples (includes QC) were received at Enseco Rocky Mountain Analytical Laboratory on June 7. 1994. The samples were logged in under RMAL project number 035949. Sample PCJ-SLP-10FBD-060694 was extracted and held per the April 1990 QAPP. A cross reference associating the RMAL sample numbers to the actual field sample numbers is included. The samples were analyzed for low level part-per-trillion (ppt) polynuclear aromatic hydrocarbons (PAH).

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the April, 1990 QAPP for completeness, precision, accuracy, representativeness and defensibility of the data. Unless otherwise stated below, no quality control problems or technical difficulties were encountered which would impact the interpretation or use of data in this report.

PPT PAH

The analysis of samples 035949-0001, 0001DU, 0001MS. 0001SD, 0003. and 0004 required that the samples be diluted due to the presence of target compounds. Reporting limits have been raised accordingly. Samples 035949-0001DL, 0001DUDL, 0001MSDL, and 0001MSDDL were diluted to the extent that surrogate recoveries could no longer be calculated.

The percent recovery for Benzo(E)Pyrene was below QC limits in sample 035949-0001MS. The percent recovery for Fluorene in sample 035949-0001MS and the RPD for Fluorene in samples 035949-0001MS/MSD were not calculated due to the concentration of Fluorene detected in the sample. The RPD's for 1H-Indene and Naphthalene were above QC limits for samples 035949-0001MS/MSD.

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Samples 035949-0001MS/MSD were re-analyzed at a dilution. The percent recovery for Benzo(E)Pyrene was below QC limits, and the RPD was not calculated in samples 035949-0001MSDL/MSDDL. The percent recovery for Fluorene in sample 035949-0001MSDL and the RPD for Fluorene in samples 035949-0001MSDL/MSDDL were not calculated due to the concentration of Fluorene detected in the sample. The percent recovery for quinoline was above QC limits in samples 035949-0001MSDL/MSDDL. The RPD for chrysene was above QC limits for samples 035949-0001MSDL/MSDDL.

The 4800 ng/ml and the 2400 ng/ml standards had excessive saturation, therefore they were not used as the upper range for the 5-point calibration curve. Instead, the calibration curve used was, 20 ng/ml, 40 ng/ml, 240 ng/ml, 600 ng/ml, and 1200 ng/ml.

All samples associated with project 035949 show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion. These compounds are flagged with the letter (R) on the data sheets (Form I) as per the 1990 QAPP.

This data package is in compliance with the terms and conditions of the 1990 QAPP, both technically and for completeness, for other than the conditions detailed above.

Reported by: _____ **Date:** July 26, 1994
Karen F. Germann
Program Administrator

Approved by: _____ **Date:** July 26, 1994
Julieann L. Kramer
Program Manager

Enseco

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
035949-0001-SA	PCJ-SLP10-060694	AQUEOUS	06 JUN 94		07 JUN 94
035949-0001-DU	PCJ-SLP10D-060694	AQUEOUS	06 JUN 94		07 JUN 94
035949-0001-MS	PCJ-SLP10MS-060694	AQUEOUS	06 JUN 94		07 JUN 94
035949-0001-SD	PCJ-SLP10MSD-060694	AQUEOUS	06 JUN 94		07 JUN 94
035949-0001-FB	PCJ-SLP10FB-060694	AQUEOUS	06 JUN 94		07 JUN 94
035949-0001-FD	PCJ-SLP10FBD-060694	AQUEOUS	06 JUN 94		07 JUN 94
035949-0002-SA	PCJ-W48-060694	AQUEOUS	06 JUN 94	10:30	07 JUN 94
035949-0003-SA	PCJ-W40-060694	AQUEOUS	06 JUN 94	11:00	07 JUN 94
035949-0004-SA	PCJ-W403-060694	AQUEOUS	06 JUN 94	12:20	07 JUN 94
035949-0005-SA	PCJ-W402-060694	AQUEOUS	06 JUN 94	15:30	07 JUN 94

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ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 035949	Group Code	Analysis Description	Custom Test?
0001 , 0001, 0002 - 0005	A	Polynuclear Aromatic Hydrocarbons, SIM Low Level	N
		Prep - PAH/SIM by GC/MS Low Level	N
0001	B	Prep - PAH/SIM by GC/MS Low Level	N

Rocky Mountain
Analytical Laboratory

Enseco

Qualifier Codes and Their Usage

U = Indicates compound was analyzed for but not detected. The sample quantitation limit must be corrected for dilution and for percent moisture. For example, 10 U for phenol in water if the sample final volume is the protocol-specified final volume. If a 1 to 10 dilution of extract is necessary, the reported limit is 100 U. For a soil sample, the value must also be adjusted for percent moisture.

J = Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit but greater than zero. For example, if the sample quantitation limit is 10 ug/L, but a concentration of 3 ug/L is calculated, report it as 3J. The sample quantitation limit must be adjusted for dilution as discussed for the U flag.

N = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds, where the identification is based on a mass spectral library search. It is applied to all TIC results.

P = This flag is used for a pesticide/Aroclor target analyte when there is greater then 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".

C = This flag applies to pesticide results where the identification has been confirmed by GC/MS. If GC/MS confirmation was attempted but was unsuccessful, do not apply this flag, instead use a laboratory-defined flag, discussed below.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action. This flag must be used for a TIC as well as for a positively identified target compound.

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E = This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis. If one or more compounds have a response greater than full scale, except as noted in Exhibit D, the sample or extract must be diluted and re-analyzed accordingly to the specifications in Exhibit D. All such compounds with a response greater than full scale should have the concentration flagged with an "E" on the Form I for the original analysis. If the dilution of the extract causes any compounds identified in the first analysis to be below the calibration range in the second analysis, then the results of both analyses shall be reported on separate copies of Form I. The Form I for the diluted sample shall have the "DL" suffix appended to the sample number. NOTE: For total xylenes, where three isomers are quantified as two peaks, the calibration range of each peak should be considered separately, e.g., a diluted analysis is not required for total xylenes unless the concentration of either peak separately exceeds 200 ug/L.

D = This flag identifies all compounds identified in an analysis at a secondary dilution factor. If a sample or extract is re-analyzed at a higher dilution factor, as in the "E" flag above, the "DL" suffix is appended to the sample number on the Form I for the diluted sample, and all concentration values reported on that Form I are flagged with the "D" flag. This flag alerts data users that any discrepancies between the concentrations reported may be due to dilution of the sample or extract.

A = This flag indicates that a TIC is a suspected aldol-condensation product.

X = Other specific flags may be required to properly define the results. If used, they must be fully described, and such description attached to the Sample Data Summary Package and the SDG Narrative. Begin by using "X". If more than one flag is required, use "Y" and "Z" as needed. If more than five qualifiers are required for a sample result, use the "X" flag to combine several flags, as needed. For instance, the "X" flag might combine the "A", "B", and "D" flags for some sample. The laboratory-defined flags are limited to the letters "X", "Y", and "Z".

R = This flag is used for polyaromatic hydrocarbons which show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion.

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35949-03

PCJ-W40-060694

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35949 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35949-03

Sample wt/vol: 4180 (g/mL) ML Lab File ID: C9583

Level: (low/med) LOW Date Received: 06/07/94

% Moisture: decanted: (Y/N) N Date Extracted: 06/08/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/09/94

Injection Volume: 2.0(uL) Dilution Factor: 0.120

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	1	JR
496-11-7	2,3-Dihydroindene	53	
95-13-6	1H-Indene	11	
91-20-3	Naphthalene	4	BJR
4565-32-6	Benzo(B)Thiophene	10	R
91-22-5	Quinoline	2	R
120-72-9	1H-Indole	2	JR
91-57-6	2-Methylnaphthalene	2	BR
90-12-0	1-Methylnaphthalene	4	R
92-52-4	Biphenyl	1	JR
208-96-8	Acenaphthylene	11	R
83-32-9	Acenaphthene	160	ET
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	R
132-65-0	Dibenzothiophene	7	R
85-01-8	Phenanthrene	3	BR
120-12-7	Anthracene	6	R
260-94-6	Acridine	17	
86-74-8	Carbazole	3	R
206-44-0	Fluoranthene	2	B
129-00-0	Pyrene	39	B
56-55-3	Benzo(A)Anthracene	2	JR
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35949-03DL

Lab Name: ENSECO Contract: PCJ-W40-060694

Lab Code: ENSECO Case No.: 35949 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35949-03DL

Sample wt/vol: 4180 (g/mL) ML Lab File ID: C9597

Level: (low/med) LOW Date Received: 06/07/94

% Moisture: decanted: (Y/N) N Date Extracted: 06/08/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/11/94

Injection Volume: 2.0(uL) Dilution Factor: 0.598

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	25	U
496-11-7	2,3-Dihydroindene	51	D
95-13-6	1H-Indene	10	D
91-20-3	Naphthalene	31	U
4565-32-6	Benzo(B)Thiophene	9	DR
91-22-5	Quinoline	7	U
120-72-9	1H-Indole	12	U
91-57-6	2-Methylnaphthalene	4	U
90-12-0	1-Methylnaphthalene	8	U
92-52-4	Biphenyl	20	U
208-96-8	Acenaphthylene	10	DR
83-32-9	Acenaphthene	330	D
132-64-9	Dibenzofuran	5	U
86-73-7	Fluorene	5	U
132-65-0	Dibenzothiophene	6	DR
85-01-8	Phenanthrene	6	U
120-12-7	Anthracene	6	D
260-94-6	Acridine	18	D
86-74-8	Carbazole	9	U
206-44-0	Fluoranthene	7	U
129-00-0	Pyrene	44	BD
56-55-3	Benzo(A)Anthracene	12	U
218-01-9	Chrysene	13	U
205-99-2	Benzo(B)Fluoranthene	12	U
207-08-9	Benzo(K)Fluoranthene	11	U
192-97-2	Benzo(E)Pyrene	9	U
50-32-8	Benzo(A)Pyrene	11	U
198-55-0	Perylene	12	U
193-39-5	Indeno(1,2,3-CD)Pyrene	10	U
53-70-3	Dibenz(A,H)Anthracene	8	U
191-24-2	Benzo(G,H,I)Perylene	13	U

Rocky Mountain
Analytical Laboratory

Enseco

CASE NARRATIVE

FOR

City of St. Louis Park

August 05, 1994

Enseco - RMAL Project Number 036006

Introduction

10 aqueous samples (includes QC) were received at Enseco Rocky Mountain Analytical Laboratory on June 08, 1994. The samples were logged in under RMAL project number 036006. Sample PCJ-SLP7FBD-060794 was extracted and held per the April 1990 QAPP. A cross reference associating the RMAL sample numbers to the actual field sample numbers is included. The samples were analyzed for low level part-per-trillion (ppt) polynuclear aromatic hydrocarbons (PAH).

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the April, 1990 QAPP for completeness, precision, accuracy, representativeness and defensibility of the data. Unless otherwise stated below, no quality control problems or technical difficulties were encountered which would impact the interpretation or use of data in this report.

PPT PAH

Sample 036006-0007 was analyzed at a dilution due to concentrations of target compounds above instrument linear range. The original analysis and diluted analysis of sample 036006-0006 have been reported.

The surrogate recovery for chrysene-d12 was above QC limits in samples 036006-0007DL, all surrogates for sample 036006-0007 were within QC limits.

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The 4800 ng/ml and the 2400 ng/ml standards had excessive saturation, therefore they were not used as the upper range for the 5-point calibration curve. Instead. the calibration curve used was, 20 ng/ml, 40 ng/ml, 240 ng/ml, 600 ng/ml, and 1200 ng/ml.

All samples associated with project 036006 show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion. These compounds are flagged with the letter (R) on the data sheets (Form I) as per the 1990 QAPP.

This data package is in compliance with the terms and conditions of the 1990 QAPP, both technically and for completeness, for other than the conditions detailed above.

Reported by: _____ **Date:** 8/5/94
Dan Rebarchik
Program Administrator

Approved by: _____ **Date:** Aug 05, 1994
Julieann L. Kramer
Program Manager

Enseco

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
036006-0001-SA	PCJ-SLP7-060794	AQUEOUS	07 JUN 94		08 JUN 94
036006-0001-DU	PCJ-SLP7D-060794	AQUEOUS	07 JUN 94		08 JUN 94
036006-0001-FB	PCJ-SLP7FB-060794	AQUEOUS	07 JUN 94		08 JUN 94
036006-0001-FD	PCJ-SLP7FBD-060794	AQUEOUS	07 JUN 94		08 JUN 94
036006-0002-SA	PCJ-E2-060794	AQUEOUS	07 JUN 94	11:10	08 JUN 94
036006-0003-SA	PCJ-E3-060794	AQUEOUS	07 JUN 94	11:50	08 JUN 94
036006-0004-SA	PCJ-E15-060794	AQUEOUS	07 JUN 94	12:05	08 JUN 94
036006-0005-SA	PCJ-E13-060794	AQUEOUS	07 JUN 94	12:20	08 JUN 94
036006-0006-SA	PCJ-H6-060794	AQUEOUS	07 JUN 94	14:10	08 JUN 94
036006-0007-SA	PCJ-W70-060794	AQUEOUS	07 JUN 94	11:50	08 JUN 94

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 036006	Group Code	Analysis Description	Custom Test?
0001 , 0001, 0002 - 0007	A	Polynuclear Aromatic Hydrocarbons, SIM Low Level	N
		Prep - PAH/SIM by GC/MS Low Level	N
0001	B	Prep - PAH/SIM by GC/MS Low Level	N

Rocky Mountain
Analytical Laboratory

Enseco

Qualifier Codes and Their Usage

U = Indicates compound was analyzed for but not detected. The sample quantitation limit must be corrected for dilution and for percent moisture. For example, 10 U for phenol in water if the sample final volume is the protocol-specified final volume. If a 1 to 10 dilution of extract is necessary, the reported limit is 100 U. For a soil sample, the value must also be adjusted for percent moisture.

J = Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit but greater than zero. For example, if the sample quantitation limit is 10 ug/L, but a concentration of 3 ug/L is calculated, report it as 3J. The sample quantitation limit must be adjusted for dilution as discussed for the U flag.

N = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds, where the identification is based on a mass spectral library search. It is applied to all TIC results.

P = This flag is used for a pesticide/Aroclor target analyte when there is greater then 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".

C = This flag applies to pesticide results where the identification has been confirmed by GC/MS. If GC/MS confirmation was attempted but was unsuccessful, do not apply this flag, instead use a laboratory-defined flag, discussed below.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action. This flag must be used for a TIC as well as for a positively identified target compound.

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E = This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis. If one or more compounds have a response greater than full scale, <u>except as noted</u> in Exhibit D, the sample or extract must be diluted and re-analyzed accordingly to the specifications in Exhibit D. All such compounds with a response greater than full scale should have the concentration flagged with an "E" on the Form I for the original analysis. If the dilution of the extract causes any compounds identified in the first analysis to be below the calibration range in the second analysis, then the results of both analyses shall be reported on separate copies of Form I. The Form I for the diluted sample shall have the "DL" suffix appended to the sample number. NOTE: For total xylenes, where three isomers are quantified as two peaks, the calibration range of <u>each peak</u> should be considered separately, e.g.. a diluted analysis is <u>not</u> required for total xylenes unless the concentration of either peak separately exceeds 200 ug/L.

D = This flag identifies all compounds identified in an analysis at a secondary dilution factor. If a sample or extract is re-analyzed at a higher dilution factor. as in the "E" flag above, the "DL" suffix is appended to the sample number on the Form I for the diluted sample, and <u>all</u> concentration values reported on that Form I are flagged with the "D" flag. This flag alerts data users that any discrepancies between the concentrations reported may be due to dilution of the sample or extract.

A = This flag indicates that a TIC is a suspected aldol-condensation product.

X = Other specific flags may be required to properly define the results. If used, they must be fully described, and such description attached to the Sample Data Summary Package and the SDG Narrative. Begin by using "X". If more than one flag is required, use "Y" and "Z" as needed. If more than five qualifiers are required for a sample result, use the "X" flag to combine several flags, as needed. For instance, the "X" flag might combine the "A", "B". and "D" flags for some sample. The laboratory-defined flags are <u>limited to</u> the letters "X", "Y", and "Z".

R = This flag is used for polyaromatic hydrocarbons which show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion.

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

3600603

PCJ-E3-060794

ab Name: ENSECO Contract:

ab Code: ENSECO Case No.: 36006 SAS No.: SDG No.:

atrix: (soil/water) WATER Lab Sample ID: 3600603

ample wt/vol: 4160 (g/mL) ML Lab File ID: C9615

evel: (low/med) LOW Date Received: 06/08/94

Moisture: decanted: (Y/N) N Date Extracted: 06/09/94

oncentrated Extract Volume: 500(uL) Date Analyzed: 07/12/94

njection Volume: 2.0(uL) Dilution Factor: 0.120

PC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2.3-Dihydroindene	1	U
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	2	BJR
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	0.9	U
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	3	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	JR
129-00-0	Pyrene	1	BJR
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

3600604

PCJ-E15-060794

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 36006 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 3600604

Sample wt/vol: 4140 (g/mL) ML Lab File ID: C9616

Level: (low/med) LOW Date Received: 06/08/94

% Moisture: decanted: (Y/N) N Date Extracted: 06/09/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/12/94

Injection Volume: 2.0(uL) Dilution Factor: 0.121

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	2	BJR
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	0.9	U
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	2	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	J
129-00-0	Pyrene	1	BJ
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

3600606

PCJ-HB-060794

ab Name: ENSECO Contract:

.ab Code: ENSECO Case No.: 36006 SAS No.: SDG No.:

latrix: (soil/water) WATER Lab Sample ID: 3600606

ample wt/vol: 4130 (g/mL) ML Lab File ID: C9618

.evel: (low/med) LOW Date Received: 06/08/94

; Moisture: decanted: (Y/N) N Date Extracted: 06/09/94

:oncentrated Extract Volume: 500(uL) Date Analyzed: 07/12/94

.njection Volume: 2.0(uL) Dilution Factor: 0.121

;PC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	2	BJR
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	0.9	U
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	2	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	J
129-00-0	Pyrene	1	BJ
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

3600607

PCJ-W70-060794

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 36006 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 3600607

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9619

Level: (low/med) LOW Date Received: 06/08/94

% Moisture: decanted: (Y/N) N Date Extracted: 06/09/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/12/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	6	
95-13-6	1H-Indene	5	
91-20-3	Naphthalene	19	B
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	JR
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	15	
90-12-0	1-Methylnaphthalene	9	
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	17	
83-32-9	Acenaphthene	140	T
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	4	
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	4	B
120-12-7	Anthracene	4	
260-94-6	Acridine	2	JR
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	5	
129-00-0	Pyrene	68	B
56-55-3	Benzo(A)Anthracene	3	
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

3600607DIL

Lab Name: ENSECO Contract: PCJ-W70-060794

Lab Code: ENSECO Case No.: 36006 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 3600607DIL

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9642

Level: (low/med) LOW Date Received: 06/08/94

% Moisture: decanted: (Y/N) N Date Extracted: 06/09/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/14/94

Injection Volume: 2.0(uL) Dilution Factor: 0.476

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	20	U
496-11-7	2,3-Dihydroindene	8	
95-13-6	1H-Indene	7	
91-20-3	Naphthalene	23	BJ
4565-32-6	Benzo(B)Thiophene	3	U
91-22-5	Quinoline	5	U
120-72-9	1H-Indole	10	U
91-57-6	2-Methylnaphthalene	17	
90-12-0	1-Methylnaphthalene	10	
92-52-4	Biphenyl	16	U
208-96-8	Acenaphthylene	16	R
83-32-9	Acenaphthene	210	
132-64-9	Dibenzofuran	4	U
86-73-7	Fluorene	4	U
132-65-0	Dibenzothiophene	6	R
85-01-8	Phenanthrene	4	BJR
120-12-7	Anthracene	4	J
260-94-6	Acridine	11	U
86-74-8	Carbazole	7	U
206-44-0	Fluoranthene	5	J
129-00-0	Pyrene	50	B
56-55-3	Benzo(A)Anthracene	5	J
218-01-9	Chrysene	5	J
205-99-2	Benzo(B)Fluoranthene	10	U
207-08-9	Benzo(K)Fluoranthene	4	J
192-97-2	Benzo(E)Pyrene	7	U
50-32-8	Benzo(A)Pyrene	9	U
198-55-0	Perylene	10	U
193-39-5	Indeno(1,2,3-CD)Pyrene	4	JR
53-70-3	Dibenz(A,H)Anthracene	6	U
191-24-2	Benzo(G,H,I)Perylene	4	JR

Rocky Mountain
Analytical Laboratory

Enseco

CASE NARRATIVE

FOR

City of St. Louis Park

July 22, 1994

Enseco - RMAL Project Number 036157

Introduction

Ten aqueous samples (includes QC) were received at Enseco Rocky Mountain Analytical Laboratory on June 14 and 15, 1994. The samples were logged in under RMAL project number 036157. Sample PCJ-SLP14FBD-061394 was extracted and held per the April 1990 QAPP. A cross reference associating the RMAL sample numbers to the actual field sample numbers is included. The samples were analyzed for low level part-per-trillion (ppt) polynuclear aromatic hydrocarbons (PAH).

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the April 1990 QAPP for completeness, precision, accuracy, representativeness and defensibility of the data. Unless otherwise stated below, no quality control problems or technical difficulties were encountered which would impact the interpretation or use of data in this report.

PPT PAH

The analysis of sample 036157-C004 required that the sample be diluted due to concentrations of target compounds. Reporting limits have been raised accordingly.

The percent recovery for Benzo(E)Pyrene was below QC limits in samples 036157-0001MS/SD. The RPD's for 1H-Indene, Naphthalene, and 2-Methylnaphthalene were outside QC limits for samples 036157-0001MS/SD. Since acceptable recovery was achieved for all other spike components, quantitation was checked and no further action was taken.

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The 4800 ng/ml and the 2400 ng/ml standards had excessive saturation, therefore they were not used as the upper range for the 5-point calibration curve. Instead, the calibration curve used was, 20 ng/ml, 40 ng/ml, 240 ng/ml, 600 ng/ml, and 1200 ng/ml.

All samples associated with project 036157 show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion. These compounds are flagged with the letter (R) on the data sheets (Form I) as per the 1990 QAPP.

This data package is in compliance with the terms and conditions of the 1990 QAPP, both technically and for completeness, for other than the conditions detailed above.

Reported by: Karen F. Germann **Date:** July 22, 1994
Karen F. Germann
Program Administrator

Approved by: Debra Henderer **Date:** 22 July 94
Julieann L. Kramer
Program Manager (for)

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
036157-0001-SA	PCJ-SLP14-061394	AQUEOUS	13 JUN 94		14 JUN 94
036157-0001-DU	PCJ-SLP14D-061394	AQUEOUS	13 JUN 94		14 JUN 94
036157-0001-MS	PCJ-SLP14MS-061394	AQUEOUS	13 JUN 94		14 JUN 94
036157-0001-SD	PCJ-SLP14MSD-061394	AQUEOUS	13 JUN 94		14 JUN 94
036157-0001-FB	PCJ-SLP14FB-061394	AQUEOUS	13 JUN 94		15 JUN 94
036157-0001-FD	PCJ-SLP14FBD-061394	AQUEOUS	13 JUN 94		15 JUN 94
036157-0002-SA	PCJ-W401-061394	AQUEOUS	13 JUN 94	05:45	14 JUN 94
036157-0003-SA	PCJ-MTK6-061394	AQUEOUS	13 JUN 94	09:00	14 JUN 94
036157-0004-SA	PCJ-W29-061394	AQUEOUS	13 JUN 94	11:00	14 JUN 94
036157-0005-SA	PCJ-W406-061494	AQUEOUS	14 JUN 94		15 JUN 94

Enseco

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 036157	Group Code	Analysis Description	Custom Test?
0001 , 0001, 0002 - 0005	A	Polynuclear Aromatic Hydrocarbons, SIM Low Level	N
		Prep - PAH/SIM by GC/MS Low Level	N
0001	B	Prep - PAH/SIM by GC/MS Low Level	N

Rocky Mountain
Analytical Laboratory

Enseco

Qualifier Codes and Their Usage

U = Indicates compound was analyzed for but not detected. The sample quantitation limit must be corrected for dilution and for percent moisture. For example. 10 U for phenol in water if the sample final volume is the protocol-specified final volume. If a 1 to 10 dilution of extract is necessary. the reported limit is 100 U. For a soil sample, the value must also be adjusted for percent moisture.

J = Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit but greater than zero. For example, if the sample quantitation limit is 10 ug/L, but a concentration of 3 ug/L is calculated. report it as 3J. The sample quantitation limit must be adjusted for dilution as discussed for the U flag.

N = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds. where the identification is based on a mass spectral library search. It is applied to all TIC results.

P = This flag is used for a pesticide/Aroclor target analyte when there is greater then 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".

C = This flag applies to pesticide results where the identification has been confirmed by GC/MS. If GC/MS confirmation was attempted but was unsuccessful. do not apply this flag, instead use a laboratory-defined flag. discussed below.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action. This flag must be used for a TIC as well as for a positively identified target compound.

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4955 Yarrow Street
Arvada. Colorado 80002
303 421-6611 Fax 303/431-7171

E = This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis. If one or more compounds have a response greater than full scale, except as noted in Exhibit D, the sample or extract must be diluted and re-analyzed accordingly to the specifications in Exhibit D. All such compounds with a response greater than full scale should have the concentration flagged with an "E" on the Form I for the original analysis. If the dilution of the extract causes any compounds identified in the first analysis to be below the calibration range in the second analysis, then the results of both analyses shall be reported on separate copies of Form I. The Form I for the diluted sample shall have the "DL" suffix appended to the sample number. NOTE: For total xylenes. where three isomers are quantified as two peaks, the calibration range of each peak should be considered separately, e.g., a diluted analysis is not required for total xylenes unless the concentration of either peak separately exceeds 200 ug/L.

D = This flag identifies all compounds identified in an analysis at a secondary dilution factor. If a sample or extract is re-analyzed at a higher dilution factor, as in the "E" flag above, the "DL" suffix is appended to the sample number on the Form I for the diluted sample, and all concentration values reported on that Form I are flagged with the "D" flag. This flag alerts data users that any discrepancies between the concentrations reported may be due to dilution of the sample or extract.

A = This flag indicates that a TIC is a suspected aldol-condensation product.

X = Other specific flags may be required to properly define the results. If used, they must be fully described, and such description attached to the Sample Data Summary Package and the SDG Narrative. Begin by using "X". If more than one flag is required. use "Y" and "Z" as needed. If more than five qualifiers are required for a sample result, use the "X" flag to combine several flags, as needed. For instance, the "X" flag might combine the "A", "B", and "D" flags for some sample. The laboratory-defined flags are limited to the letters "X", "Y", and "Z".

R = This flag is used for polyaromatic hydrocarbons which show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion.

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

36157-02

Lab Name: ENSECO Contract: PCJ-W401-061394

Lab Code: ENSECO Case No.: 36157 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 36157-02

Sample wt/vol: 4170 (g/mL) ML Lab File ID: C9632

Level: (low/med) LOW Date Received: 06/14/94

% Moisture: decanted: (Y/N) N Date Extracted: 06/16/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/13/94

Injection Volume: 2.0(uL) Dilution Factor: 0.120

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	1	J
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	2	BJR
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	1	JR
91-57-6	2-Methylnaphthalene	1	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	2	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	BJ
129-00-0	Pyrene	1	U
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

36157-03

PCJ-MTK6-061394

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 36157 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 36157-03

Sample wt/vol: 4180 (g/mL) ML Lab File ID: C9633

Level: (low/med) LOW Date Received: 06/14/94

% Moisture: decanted: (Y/N) N Date Extracted: 06/16/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/13/94

Injection Volume: 2.0(uL) Dilution Factor: 0.120

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	2	BJR
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	2	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	2	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	BJ
129-00-0	Pyrene	1	BJ
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

36157-04

PCJ-W29-061394

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 36157 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 36157-04

Sample wt/vol: 4190 (g/mL) ML Lab File ID: C9634

Level: (low/med) LOW Date Received: 06/14/94

% Moisture: decanted: (Y/N) N Date Extracted: 06/16/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/13/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	180	E
95-13-6	1H-Indene	3	
91-20-3	Naphthalene	3	BJR
4565-32-6	Benzo(B)Thiophene	1	R
91-22-5	Quinoline	2	R
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	2	B
90-12-0	1-Methylnaphthalene	2	R
92-52-4	Biphenyl	1	J
208-96-8	Acenaphthylene	31	R
83-32-9	Acenaphthene	150	
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	120	
132-65-0	Dibenzothiophene	21	
85-01-8	Phenanthrene	4	B
120-12-7	Anthracene	4	
260-94-6	Acridine	4	R
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	88	B
129-00-0	Pyrene	74	B
56-55-3	Benzo(A)Anthracene	5	R
218-01-9	Chrysene	3	
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

36157-04DL

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 36157 SAS No.: SDG No.: PCJ-W29-061394

Matrix: (soil/water) WATER Lab Sample ID: 36157-04DL

Sample wt/vol: 4190 (g/mL) ML Lab File ID: C9643

Level: (low/med) LOW Date Received: 06/14/94

% Moisture: decanted: (Y/N) N Date Extracted: 06/16/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/14/94

Injection Volume: 2.0(uL) Dilution Factor: 0.239

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	10	U
496-11-7	2,3-Dihydroindene	190	D
95-13-6	1H-Indene	3	D
91-20-3	Naphthalene	3	BDJR
4565-32-6	Benzo(B)Thiophene	2	U
91-22-5	Quinoline	3	U
120-72-9	1H-Indole	5	U
91-57-6	2-Methylnaphthalene	2	U
90-12-0	1-Methylnaphthalene	3	U
92-52-4	Biphenyl	8	U
208-96-8	Acenaphthylene	29	D
83-32-9	Acenaphthene	220	D
132-64-9	Dibenzofuran	2	U
86-73-7	Fluorene	140	D
132-65-0	Dibenzothiophene	20	D
85-01-8	Phenanthrene	3	BD
120-12-7	Anthracene	4	D
260-94-6	Acridine	3	DJR
86-74-8	Carbazole	4	U
206-44-0	Fluoranthene	74	BD
129-00-0	Pyrene	60	BD
56-55-3	Benzo(A)Anthracene	5	D
218-01-9	Chrysene	4	DJ
205-99-2	Benzo(B)Fluoranthene	5	U
207-08-9	Benzo(K)Fluoranthene	4	U
192-97-2	Benzo(E)Pyrene	4	U
50-32-8	Benzo(A)Pyrene	4	U
198-55-0	Perylene	5	U
193-39-5	Indeno(1,2,3-CD)Pyrene	4	U
53-70-3	Dibenz(A,H)Anthracene	3	U
191-24-2	Benzo(G,H,I)Perylene	5	U

APPENDIX D
LABORATORY DATA SUMMARY PACKAGE:
ST. PETER AQUIFER

WELLS

SLP3 W129 W122
W410 W24 W33
W133 W412 W408
W411 P116 W409

CITY OF ST. LOUIS PARK

St. Peter Aquifer 1994
PAH Quality Control Summary

Well No.	Sample Date	Method Blank	Field Duplicate	Matrix Spike	Matrix Spike Dup.	Field Blank
RAP Section 8.1.3 2nd Half						
SLP3	10/3/94	38363	STP-SLP3D-100394	STP-SLP3MS-100394	STP-SLP3MSD-100394	STP-SLP3FB-100394
W122	10/3/94	38363	STP-SLP3D-100394	STP-SLP3MS-100394	STP-SLP3MSD-100394	STP-SLP3FB-100394
W129	10/3/94	38363	STP-SLP3D-100394	STP-SLP3MS-100394	STP-SLP3MSD-100394	STP-SLP3FB-100394
W408	10/3/94	38363	STP-SLP3D-100394	STP-SLP3MS-100394	STP-SLP3MSD-100394	STP-SLP3FB-100394
W411	10/3/94	38363	STP-SLP3D-100394	STP-SLP3MS-100394	STP-SLP3MSD-100394	STP-SLP3FB-100394
P116	10/3/94	38363	STP-SLP3D-100394	STP-SLP3MS-100394	STP-SLP3MSD-100394	STP-SLP3FB-100394
W410	10/4/94	38422	STP-W410D-100494	STP-W410MS-100494	STP-W410MSD-100494	STP-W410FB-100494
W24	10/4/94	38422	STP-W410D-100494	STP-W410MS-100494	STP-W410MSD-100494	STP-W410FB-100494
W33	10/4/94	38422	STP-W410D-100494	STP-W410MS-100494	STP-W410MSD-100494	STP-W410FB-100494
W133	10/4/94	38422	STP-W410D-100494	STP-W410MS-100494	STP-W410MSD-100494	STP-W410FB-100494
W412	10/4/94	38422	STP-W410D-100494	STP-W410MS-100494	STP-W410MSD-100494	STP-W410FB-100494
W409	10/11/94	38528	DPV-W420D-101194	DPV-W420MS-101194	DPV-W420MSD-101194	DPV-W420FB-101194

Phenolic Quality Control Summary

W410	2/15/94	33822	DPV-W422TPD-021594	DPV-W422TPMS-021594	DPV-W422TPMSD-021594	DPV-W422TPFB-021594
W410	8/2994	37725	DPV-W420TPD-082994	DPV-W420TPMS-082994	DPV-W420TPMSD-082994	DPV-W420TPFB-082994
SLP3	5/9/94	35336	STP-SLP3TPD-050994	STP-SLP3TPMS-050994	STP-SLP3TPMSD-050994	STP-SLP3TPFB-050994

CITY OF ST. LOUIS PARK

St. Peter Aquifer 1994
PAH Quality Control Summary

Well No.	Sample Date	Method Blank	Field Duplicate	Matrix Spike	Matrix Spike Dup.	Field Blank
RAP Section 8.1.3 1st Half						
SLP3	5/9/94	35332	STP-SLP3D-050994	STP-SLP3MS-050994	STP-SLP3MSD-050994	STP-SLP3FB-050994
W129	5/10/94	35354	DPV-W19D-051094	STP-SLP3MS-050994	STP-SLP3MSD-050994	DPV-W19FB-051094
W122	5/10/94	35354	DPV-W19D-051094	STP-SLP3MS-050994	STP-SLP3MSD-050994	DPV-W19FB-051094
W410	5/23/94	35629	STP-W410D-052394	STP-W410MS-052394	STP-W410MSD-052394	STP-W410FB-052394
W24	5/23/94	35629	STP-W410D-052394	STP-W410MS-052394	STP-W410MSD-052394	STP-W410FB-052394
W33	5/23/94	35629	STP-W410D-052394	STP-W410MS-052394	STP-W410MSD-052394	STP-W410FB-052394
W133	5/23/94	35629	STP-W410D-052394	STP-W410MS-052394	STP-W410MSD-052394	STP-W410FB-052394
W412	5/23/94	35629	STP-W410D-052394	STP-W410MS-052394	STP-W410MSD-052394	STP-W410FB-052394
W408	5/24/94	35695	PCJ-SLP16D-052494	PCJ-SLP16MS-052494	PCJ-SLP16MSD-052494	PCJ-SLP16FB-052494
W411	5/24/94	35695	PCJ-SLP16D-052494	PCJ-SLP16MS-052494	PCJ-SLP16MSD-052494	PCJ-SLP16FB-052494
P116	5/24/94	35695	PCJ-SLP16D-052494	PCJ-SLP16MS-052494	PCJ-SLP16MSD-052494	PCJ-SLP16FB-052494
W409	6/7/94	36008	DPV-W420D-060794	DPV-W420MS-060794	DPV-W420MSD-060794	DPV-W420FB-060794

FIRST HALF MONITORING

Rocky Mountain
Analytical Laboratory

Enseco

CASE NARRATIVE

FOR

City of St. Louis Park

June 08, 1994

Enseco - RMAL Project Number 035332

Introduction

Ten aqueous samples (includes QC) were received at Enseco Rocky Mountain Analytical Laboratory on May 10, 1994. The samples were logged in under RMAL project number 035332. Sample STP-SLP3FBD-050994 was extracted and held per the April 1990 QAPP. A cross reference associating the RMAL sample numbers to the actual field sample numbers is included. The samples were analyzed for low level part-per-trillion (ppt) polynuclear aromatic hydrocarbons (PAH).

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the April, 1990 QAPP for completeness, precision, accuracy, representativeness and defensibility of the data. Unless otherwise stated below, no quality control problems or technical difficulties were encountered which would impact the interpretation or use of data in this report.

PPT PAH

The percent recovery for Benzo(E)Pyrene was below QC limits in samples 035332-0001MS. The RPD's for Benzo(E)Pyrene and Chrysene was outside QC limits for samples 035332-0001MS/SD. Since acceptable recovery was achieved for all other spike components, quantitation was checked and no further action was taken.

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

The 4800 ng/ml and the 2400 ng/ml standards had excessive saturation, therefore they were not used as the upper range for the 5-point calibration curve. Instead, the calibration curve used was, 20 ng/ml, 40 ng/ml, 240 ng/ml, 600 ng/ml, and 1200 ng/ml.

All samples associated with project 035332 show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion. These compounds are flagged with the letter (R) on the data sheets (Form I) as per the 1990 QAPP.

This data package is in compliance with the terms and conditions of the 1990 QAPP, both technically and for completeness, for other than the conditions detailed above.

Reported by: Karen F. Germann **Date:** 6/8/94
Karen F. Germann
Program Administrator

Approved by: Julieann L. Kramer **Date:** 6/8/94
Julieann L. Kramer
Program Manager

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
035332-0001-SA	STP-SLP3-050994	AQUEOUS	09 MAY 94		10 MAY 94
035332-0001-DU	STP-SLP3D-050994	AQUEOUS	09 MAY 94		10 MAY 94
035332-0001-MS	STP-SLP3MS-050994	AQUEOUS	09 MAY 94		10 MAY 94
035332-0001-SD	STP-SLP3MSD-050994	AQUEOUS	09 MAY 94		10 MAY 94
035332-0001-FB	STP-SLP3FB-050994	AQUEOUS	09 MAY 94		10 MAY 94
035332-0001-FD	STP-SLP3FBD-050994	AQUEOUS	09 MAY 94		10 MAY 94
035332-0002-SA	DPV-W2-050994	AQUEOUS	09 MAY 94	16:10	10 MAY 94
035332-0003-SA	DPV-W423-050994	AQUEOUS	09 MAY 94	17:40	10 MAY 94
035332-0004-SA	DPV-W135-050994	AQUEOUS	09 MAY 94	13:40	10 MAY 94
035332-0005-SA	DPV-W128-050994	AQUEOUS	09 MAY 94	15:00	10 MAY 94

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 035332	Group Code	Analysis Description	Custom Test?
0001 , 0001, 0002 - 0005	A	Polynuclear Aromatic Hydrocarbons, SIM Low Level	N
		Prep - PAH/SIM by GC/MS Low Level	N
0001	B	Prep - PAH/SIM by GC/MS Low Level	N

Enseco
A Con[illegible] Company
Arvada, CO 80002
303/421-6611 FAX: 303/431-7171
Suite 120
Houston, TX 770[illegible]
713/987-9767 F[illegible]13/987-9769

CHAIN OF CUSTODY

ENSECO CLIENT: CITY OF ST LOUIS PARK (WATER DEPT)

PROJECT:

SAMPLING COMPANY: SAME

SAMPLING SITE: SAME

TEAM LEADER: MZ

SAMPLE SAFE™ CONDITIONS

PACKED BY: MZ

SEAL NUMBER:

SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:

CONDITION OF CONTENTS:

SEALED FOR SHIPPING BY: MZ

INITIAL CONTENTS TEMP: °C

SEAL NUMBER:

SAMPLING STATUS: ☐ Done ☐ Continuing Until

SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No

CONTENTS TEMPERATURE UPON RECEIPT BY LAB: °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
5-9-94		STP-SLP3-050994	1XL AMBER	6	PPT PAH	PPT S -1
5-9-94		STP-SLP3D-050994	1XL AMBER	6	PPT PAH	PPT S →2-1pm
5-9-94		STP-SLP3MS-050994	1XL AMBER	6	PPT PAH	PPT S →3 1ms

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MZ

METHOD OF SHIPMENT: FED EX

AIRBILL NUMBER: 210 34 20 955

RECEIVED FOR LAB: RMAL

SIGNED: [illegible]

DATE/TIME: 5/10/94 900

ENSECO PROJECT NUMBER: 35332

ENS-4011

White - CLIENT Pink - LAB

Enseco
A Corning Company
4955 Yarrow Street
Arvada, CO 80002
303/421-6611 FAX: 303/431-7171
1420 East North Belt Drive
Suite 120
Houston, TX 77032
713/987-9767 FAX: 713/987-9769

CHAIN OF CUSTODY

ENSECO CLIENT: CITY OF ST LOUIS PARK (WATER DEPT)

PROJECT:

SAMPLING COMPANY: SAME

SAMPLING SITE: SAME

TEAM LEADER: MZK

SAMPLE SAFE™ CONDITIONS

PACKED BY: MZK

SEAL NUMBER:

SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:

CONDITION OF CONTENTS:

SEALED FOR SHIPPING BY: MZK

INITIAL CONTENTS TEMP: °C

SEAL NUMBER:

SAMPLING STATUS: ☐ Done ☐ Continuing Until

SEAL INTACT UPON RECEIPT BY LAB: ☐ Yes ☐ No

CONTENTS TEMPERATURE UPON RECEIPT BY LAB: °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
5-9-94		STP-SLP3MSD-050994	1XL AMBER	6	PPL PAH	PPL 5 -1SD
5-9-94		STP-SLP3FB-050994	1XL AMBER	5	PPL PAH	PPL 5 -1FB
5-9-94		STP-SLP3FBD-050994	1XL AMBER	5	PPL PAH	PPL 5 -1FD

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MZK

METHOD OF SHIPMENT: FED EX

AIRBILL NUMBER: 2103420955

RECEIVED FOR LAB: ANL

SIGNED: [illegible]

DATE/TIME: 5/10/94 9:00

ENSECO PROJECT NUMBER: 35332

ENS-4011

White - CLIENT Pink - LAB

Enseco
A Corning Company
Arvada, CO 80002
303/421-6611 FAX. 303/431-7171
Suite 120
Houston, TX 77032
713/987-9767 FAX 987-9769

CHAIN OF CUSTODY

ENSECO CLIENT	City of St Louis Park
PROJECT	SLP
SAMPLING COMPANY	FASR CIE
SAMPLING SITE	
TEAM LEADER	Peter Moore

SAMPLE SAFE™ CONDITIONS

PACKED BY	Peter Moore
SEAL NUMBER	NA
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY	
CONDITION OF CONTENTS	
SEALED FOR SHIPPING BY	Peter Moore
INITIAL CONTENTS TEMP	°C
SEAL NUMBER	
SAMPLING STATUS	☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB	☐ Yes ☐ No
CONTENTS TEMPERATURE UPON RECEIPT BY LAB	°C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
5/9/94	16:10	DPV-W2-050994	W, C	6	PPT-PAH	PPT-5 -2
5/9/94	17:40	DPV-W423-050994	W, C	6	PPT-PAH	PPT-5 -3
5/9/94	16:10	DPV-W2-050994	W, C	1	PPB-Pesticides	-2
5/9/94	17:40	DPV-W423-050994	W, C	1	PPB-Pesticides	-3

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME
[illegible]			

SHIPPING DETAILS

DELIVERED TO SHIPPER BY	Peter Moore	
METHOD OF SHIPMENT	FED-EX	AIRBILL NUMBER
RECEIVED FOR LAB	RMK	SIGNED [illegible]	DATE/TIME 5/11/94 900
ENSECO PROJECT NUMBER	35332/3534	

ENS-4011

White - CLIENT Pink - LAB

Enseco
A Corning Company
Arvada, CO 80002
303/421-6611 FAX: 303/431-7171
Suite 120
Houston, TX 77032
713/987-9767 FAX: 713/987-9769

CHAIN OF CUSTODY

ENSECO CLIENT: City of St. Louis Park
PROJECT: SLP
SAMPLING COMPANY: ENSR CHE
SAMPLING SITE: XP
TEAM LEADER: Peter Moore

SAMPLE SAFE™ CONDITIONS

PACKED BY: Peter Moore
SEAL NUMBER: NA
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:
CONDITION OF CONTENTS:
SEALED FOR SHIPPING BY: Peter Moore
INITIAL CONTENTS TEMP: °C
SEAL NUMBER: NA
SAMPLING STATUS: ☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB: ☐ Yes ☐ No
CONTENTS TEMPERATURE UPON RECEIPT BY LAB: °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
5/9/94	13:40	DPV-W135-050994	W	6	PPT-PM4	PPT-5 -4
5/9/94	15:00	DPV-W128-050994		6	PPT-PM4	PPT-5 -5
5/9/94	13:40	DPV-W135-050994		1	PPB-Pesticides	-4
5/9/94	15:00	DPV-W128-050994		1	PPB-Pesticides	-5

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME
Peter Moore			

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: Peter Moore
METHOD OF SHIPMENT: FEDEX
AIRBILL NUMBER:
RECEIVED FOR LAB: ENAL
SIGNED: Rechus
DATE/TIME: 5/10/94 900
ENSECO PROJECT NUMBER: 35332/35336

ENS-4011

White - CLIENT Pink - LAB

Enseco
A Corning Company

Qualifier Codes and Their Usage

U = Indicates compound was analyzed for but not detected. The sample quantitation limit must be corrected for dilution and for percent moisture. For example, 10 U for phenol in water if the sample final volume is the protocol-specified final volume. If a 1 to 10 dilution of extract is necessary, the reported limit is 100 U. For a soil sample, the value must also be adjusted for percent moisture.

J = Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit but greater than zero. For example, if the sample quantitation limit is 10 ug/L, but a concentration of 3 ug/L is calculated, report it as 3J. The sample quantitation limit must be adjusted for dilution as discussed for the U flag.

N = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds, where the identification is based on a mass spectral library search. It is applied to all TIC results.

P = This flag is used for a pesticide/Aroclor target analyte when there is greater then 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".

C = This flag applies to pesticide results where the identification has been confirmed by GC/MS. If GC/MS confirmation was attempted but was unsuccessful, do not apply this flag, instead use a laboratory-defined flag, discussed below.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action. This flag must be used for a TIC as well as for a positively identified target compound.

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

E = This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis. If one or more compounds have a response greater than full scale, except as noted in Exhibit D, the sample or extract must be diluted and re-analyzed accordingly to the specifications in Exhibit D. All such compounds with a response greater than full scale should have the concentration flagged with an "E" on the Form I for the original analysis. If the dilution of the extract causes any compounds identified in the first analysis to be below the calibration range in the second analysis, then the results of both analyses shall be reported on separate copies of Form I. The Form I for the diluted sample shall have the "DL" suffix appended to the sample number. NOTE: For total xylenes, where three isomers are quantified as two peaks, the calibration range of each peak should be considered separately, e.g., a diluted analysis is not required for total xylenes unless the concentration of either peak separately exceeds 200 ug/L.

D = This flag identifies all compounds identified in an analysis at a secondary dilution factor. If a sample or extract is re-analyzed at a higher dilution factor, as in the "E" flag above, the "DL" suffix is appended to the sample number on the Form I for the diluted sample, and all concentration values reported on that Form I are flagged with the "D" flag. This flag alerts data users that any discrepancies between the concentrations reported may be due to dilution of the sample or extract.

A = This flag indicates that a TIC is a suspected aldol-condensation product.

X = Other specific flags may be required to properly define the results. If used, they must be fully described, and such description attached to the Sample Data Summary Package and the SDG Narrative. Begin by using "X". If more than one flag is required, use "Y" and "Z" as needed. If more than five qualifiers are required for a sample result, use the "X" flag to combine several flags, as needed. For instance, the "X" flag might combine the "A", "B", and "D" flags for some sample. The laboratory-defined flags are limited to the letters "X", "Y", and "Z".

R = This flag is used for polyaromatic hydrocarbons which show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion.

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FOR

CITY OF ST. LOUIS PARK

RMAL PROJECT# 035332

PPT-PAH

QC Summary.....0001

Sample Data.....0008

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1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35332-01

Lab Name: ENSECO Contract: STP-SLP3-050994

Lab Code: ENSECO Case No.: 35332 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35332-01

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9121

Level: (low/med) LOW Date Received: 05/10/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/10/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/13/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	1	J
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	2	BJ
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnapnthalene	1	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	2	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	BJ
129-00-0	Pyrene	1	BJR
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35332-01DU

STP-SLP3D-050994

Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35332 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35332-01DU

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9115

Level: (low/med) LOW Date Received: 05/10/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/10/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/13/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	1	J
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	2	BJ
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnapnthalene	2	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	3	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	BJ
129-00-0	Pyrene	1	BJR
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35332-01FB

STP-SLP3FB-050994

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35332 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35332-01FB

Sample wt/vol: 4175 (g/mL) ML Lab File ID: C9116

Level: (low/med) LOW Date Received: 05/10/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/10/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/13/94

Injection Volume: 2.0(uL) Dilution Factor: 0.120

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	2	
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	5	BJ
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	2	B
90-12-0	1-Methylnaphthalene	1	JR
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	3	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	BJ
129-00-0	Pyrene	2	B
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35332-01FBD

STP-SLP3FBD-050994

Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35332 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35332-01FBD

Sample wt/vol: 4175 (g/mL) ML Lab File ID: C9117

Level: (low/med) LOW Date Received: 05/10/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/10/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/13/94

Injection Volume: 2.0(uL) Dilution Factor: 0.120

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	2	
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	5	BJ
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	3	B
90-12-0	1-Methylnaphthalene	2	R
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	3	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	BJ
129-00-0	Pyrene	2	BR
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35332-01MS

STP-SLP3MS-050994

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35332 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35332-01MS

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9119

Level: (low/med) LOW Date Received: 05/10/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/10/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/13/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	1	J
95-13-6	1H-Indene	8	
91-20-3	Naphthalene	9	B
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	10	
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	9	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	9	
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	2	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	BJ
129-00-0	Pyrene	2	B
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	5	
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35332-01MSD

STP-SLP3MSD-050994

Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35332 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35332-01MSD

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9120

Level: (low/med) LOW Date Received: 05/10/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/10/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/13/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
95-13-6	1H-Indene	6	
91-20-3	Naphthalene	10	B
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	10	
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	10	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	10	
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	3	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	2	B
129-00-0	Pyrene	1	BJ
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	7	
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	1	J
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35332 SAS No.: SDG No.:

	EPA SAMPLE NO.	S1 (NAP)#	S2 (FLU)#	S3 (CHR)#	TOT OUT
01	35332-01	77	92	52	0
02	35332-01DU	60	77	40	0
03	35332-01FB	66	80	72	0
04	35332-01FBD	75	91	90	0
05	35332-02	49	92	83	0
06	35332-03	64	70	112	0
07	35332-04	37	53	21	0
08	35332-05	52	68	28	0
09	35332-01MS	70	92	48	0
10	35332-01MSD	74	96	66	0
11	BLK01	80	96	96	0

	QC LIMITS
S1 (NAP) = Naphthalene-d8	(14-108)
S2 (FLU) = Fluorene-d10	(41-162)
S3 (CHR) = Chrysene-d12	(10-118)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogate diluted out

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35332 SAS No.: SDG No.:

Matrix Spike - EPA Sample No.: 35332-01

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC #	QC LIMITS REC.
1H-Indene	9.520	0.227	7.580	77	20-150
Naphthalene	9.520	2.344	9.365	74	20-150
Quinoline	9.520	0.712	9.901	97	20-150
2-Methylnaphthalene	9.520	1.392	9.234	82	20-150
Fluorene	9.520	0.353	9.258	94	20-150
Chrysene	9.520	0.145	5.331	54	20-150
Benzo(E)Pyrene	9.520	ND	0.901	9 *	10-150

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1H-Indene	9.520	6.366	64	18	28	20-150
Naphthalene	9.520	9.734	78	5	28	20-150
Quinoline	9.520	9.865	96	1	28	20-150
2-Methylnaphthalene	9.520	9.758	88	7	28	20-150
Fluorene	9.520	9.758	99	5	28	20-150
Chrysene	9.520	6.973	72	29 *	28	20-150
Benzo(E)Pyrene	9.520	1.261	13	36 *	28	10-150

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

COMMENTS:

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

BLK01

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35332 SAS No.: SDG No.:

Lab File ID: C9118 Lab Sample ID: BL051094

Instrument ID: 4500-C Date Extracted: 05/10/94

Matrix: (soil/water) WATER Date Analyzed: 05/13/94

Level:(low/med) LOW Time Analyzed: 1707

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	35332-01	35332-01	C9121	05/13/94
02	35332-01DU	35332-01DU	C9115	05/13/94
03	35332-01FB	35332-01FB	C9116	05/13/94
04	35332-01FBD	35332-01FBD	C9117	05/13/94
05	35332-02	35332-02	C9111	05/13/94
06	35332-03	35332-03	C9112	05/13/94
07	35332-04	35332-04	C9123	05/13/94
08	35332-05	35332-05	C9114	05/13/94
09	35332-01MS	35332-01MS	C9119	05/13/94
10	35332-01MSD	35332-01MSD	C9120	05/13/94

COMMENTS:

IX
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

BLK01

Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35332 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: BL051094

Sample wt/vol: 4000 (g/mL) ML Lab File ID: C9118

Level: (low/med) LOW Date Received:

% Moisture: decanted: (Y/N) N Date Extracted: 05/10/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/13/94

Injection Volume: 2.0(uL) Dilution Factor: 0.125

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	2	J
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	1	
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	3	
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	2	
129-00-0	Pyrene	2	
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35332 SAS No.: SDG No.:

Lab File ID (Standard): C9109 Date Analyzed: 05/13/94

Instrument ID: 4500-C Time Analyzed: 0939

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	363079	14.52	511756	18.27	207580	28.24
	UPPER LIMIT	726158	15.02	1023512	18.77	415160	28.74
	LOWER LIMIT	181540	14.02	255878	17.77	103790	27.74
	EPA SAMPLE NO.						
01	35332-01	366522	14.47	562931	18.24	279687	28.37
02	35332-01DU	473681	14.52	722014	18.27	376527	28.27
03	35332-01FB	421936	14.52	644405	18.27	342210	28.39
04	35332-01FBD	401883	14.50	605037	18.25	271027	28.37
05	35332-02	476430	14.52	827813	18.27	175205	28.32
06	35332-03	475686	14.52	896072	18.27	182254	28.37
07	35332-04	671747	14.49	672961	18.25	208472	28.37
08	35332-05	537871	14.49	820880	18.24	198730	28.37
09	35332-01MS	414898	14.47	624949	18.24	305302	28.37
10	35332-01MSD	420946	14.47	669238	18.24	239026	28.37
11	BLK01	404700	14.49	631784	18.24	315044	28.37

IS1 (ACN) = Acenaphthene-D10
IS2 (PHN) = Phenanthrene-D10
IS3 (BAP) = Benzo(A)Pyrene-D10

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

OOC002

Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35332 SAS No.: SDG No.:

	EPA SAMPLE NO.	S1 (NAP)#	S2 (FLU)#	S3 (CHR)#	TOT OUT
01	35332-01	77	92	52	0
02	35332-01DU	60	77	40	0
03	35332-01FB	66	80	72	0
04	35332-01FBD	75	91	90	0
05	35332-02	49	92	83	0
06	35332-03	64	70	112	0
07	35332-04	37	53	21	0
08	35332-05	52	68	28	0
09	35332-01MS	70	92	48	0
10	35332-01MSD	74	96	66	0
11	BLK01	80	96	96	0

	QC LIMITS
S1 (NAP) = Naphthalene-d8	(14-108)
S2 (FLU) = Fluorene-d10	(41-162)
S3 (CHR) = Chrysene-d12	(10-118)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogate diluted out

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35332 SAS No.: SDG No.:

Matrix Spike - EPA Sample No.: 35332-01

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC #	QC LIMITS REC.
1H-Indene	9.520	0.227	7.580	77	20-150
Naphthalene	9.520	2.344	9.365	74	20-150
Quinoline	9.520	0.712	9.901	97	20-150
2-Methylnaphthalene	9.520	1.392	9.234	82	20-150
Fluorene	9.520	0.353	9.258	94	20-150
Chrysene	9.520	0.145	5.331	54	20-150
Benzo(E)Pyrene	9.520	ND	0.901	9 *	10-150

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1H-Indene	9.520	6.366	64	18	28	20-150
Naphthalene	9.520	9.734	78	5	28	20-150
Quinoline	9.520	9.865	96	1	28	20-150
2-Methylnaphthalene	9.520	9.758	88	7	28	20-150
Fluorene	9.520	9.758	99	5	28	20-150
Chrysene	9.520	6.973	72	29 *	28	20-150
Benzo(E)Pyrene	9.520	1.261	13	36 *	28	10-150

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

COMMENTS:

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

BLK01

0CCCO4

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35332 SAS No.: SDG No.:

Lab File ID: C9118 Lab Sample ID: BL051094

Instrument ID: 4500-C Date Extracted: 05/10/94

Matrix: (soil/water) WATER Date Analyzed: 05/13/94

Level:(low/med) LOW Time Analyzed: 1707

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	35332-01	35332-01	C9121	05/13/94
02	35332-01DU	35332-01DU	C9115	05/13/94
03	35332-01FB	35332-01FB	C9116	05/13/94
04	35332-01FBD	35332-01FBD	C9117	05/13/94
05	35332-02	35332-02	C9111	05/13/94
06	35332-03	35332-03	C9112	05/13/94
07	35332-04	35332-04	C9123	05/13/94
08	35332-05	35332-05	C9114	05/13/94
09	35332-01MS	35332-01MS	C9119	05/13/94
10	35332-01MSD	35332-01MSD	C9120	05/13/94

COMMENTS:

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35332 SAS No.: SDG No.:

Lab File ID: C8878T . Run Date: 04/13/94

Instrument ID: 4500-C Run Time: 1344

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD040	40_PPB_PAH	C8878	04/13/94	1344
02	SSTD020	20_PPB_PAH	C8879	04/13/94	1437
03	SSTD240	240_PPB_PAH	C8880	04/13/94	1531
04	SSTD600	600_PPB_PAH	C8881	04/13/94	1624
05	SSTD1200	1200_PPB_PAH	C8882	04/13/94	1711

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

000006

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35332 SAS No.: SDG No.:

Lab File ID: C9109T Run Date: 05/13/94

Instrument ID: 4500-C Run Time: 0939

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD040	40 PPB PAH	C9109	05/13/94	0939
02	35332-02	35332-02	C9111	05/13/94	1121
03	35332-03	35332-03	C9112	05/13/94	1214
04	35332-05	35332-05	C9114	05/13/94	1347
05	35332-01DU	35332-01DU	C9115	05/13/94	1439
06	35332-01FB	35332-01FB	C9116	05/13/94	1534
07	35332-01FBD	35332-01FBD	C9117	05/13/94	1620
08	BLK01	BL051094	C9118	05/13/94	1707
09	35332-01MS	35332-01MS	C9119	05/13/94	1753
10	35332-01MSD	35332-01MSD	C9120	05/13/94	1840
11	35332-01	35332-01	C9121	05/13/94	1926
12	35332-04	35332-04	C9123	05/13/94	2058

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

000007

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35332 SAS No.: SDG No.:

Lab File ID (Standard): C9109 Date Analyzed: 05/13/94

Instrument ID: 4500-C Time Analyzed: 0939

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	363079	14.52	511756	18.27	207580	28.24
	UPPER LIMIT	726158	15.02	1023512	18.77	415160	28.74
	LOWER LIMIT	181540	14.02	255878	17.77	103790	27.74
	EPA SAMPLE NO.						
01	35332-01	366522	14.47	562931	18.24	279687	28.37
02	35332-01DU	473681	14.52	722014	18.27	376527	28.27
03	35332-01FB	421936	14.52	644405	18.27	342210	28.39
04	35332-01FBD	401883	14.50	605037	18.25	271027	28.37
05	35332-02	476430	14.52	827813	18.27	175205	28.32
06	35332-03	475686	14.52	896072	18.27	182254	28.37
07	35332-04	671747	14.49	672961	18.25	208472	28.37
08	35332-05	537871	14.49	820880	18.24	198730	28.37
09	35332-01MS	414898	14.47	624949	18.24	305302	28.37
10	35332-01MSD	420946	14.47	669238	18.24	239026	28.37
11	BLK01	404700	14.49	631784	18.24	315044	28.37

IS1 (ACN) = Acenaphthene-D10
IS2 (PHN) = Phenanthrene-D10
IS3 (BAP) = Benzo(A)Pyrene-D10

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

Enseco

CASE NARRATIVE

FOR

City of St. Louis Park

May 27, 1994

Enseco - RMAL Project Number 035354

Introduction

Ten aqueous samples (includes QC) were received at Enseco Rocky Mountain Analytical Laboratory on May 11, 1994. The samples were logged in under RMAL project number 035354. Sample DPV-W19FBD-051094 was extracted and held per the April 1990 QAPP. A cross reference associating the RMAL sample numbers to the actual field sample numbers is included. The samples were analyzed for low level part-per-trillion (ppt) polynuclear aromatic hydrocarbons (PAH).

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the April, 1990 QAPP for completeness, precision, accuracy, representativeness and defensibility of the data. Unless otherwise stated below, no quality control problems or technical difficulties were encountered which would impact the interpretation or use of data in this report.

PPT PAH

The surrogate percent recovery for Chrysene-d12 was above QC limits in samples 035354-0002 and -0007FB. The surrogate percent recovery for Fluorene-d10 was above QC limits for sample 035354-0004. Since surrogate recovery was achieved for all other surrogate components, quantitation was checked and no further action was taken.

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

The 4800 ng/ml and the 2400 ng/ml standards had excessive saturation, therefore they were not used as the upper range for the 5-point calibration curve. Instead, the calibration curve used was, 20 ng/ml, 40 ng/ml, 240 ng/ml, 600 ng/ml, and 1200 ng/ml.

All samples associated with project 035354 show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion. These compounds are flagged with the letter (R) on the data sheets (Form I) as per the 1990 QAPP.

This data package is in compliance with the terms and conditions of the 1990 QAPP, both technically and for completeness, for other than the conditions detailed above.

Reported by: Karen F. Germann **Date:** May 27, 1994
Karen F. Germann
Program Administrator

Approved by: Julieann L. Kramer **Date:** May 27, 1994
Julieann L. Kramer
Program Manager

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
035354-0001-SA	STP-W122-051094	AQUEOUS	10 MAY 94	15:40	11 MAY 94
035354-0002-SA	DPV-W121-051094	AQUEOUS	10 MAY 94	15:45	11 MAY 94
035354-0003-SA	DPV-W124-051094	AQUEOUS	10 MAY 94	17:30	11 MAY 94
035354-0004-SA	DPV-W100-051094	AQUEOUS	10 MAY 94	12:45	11 MAY 94
035354-0005-SA	DPV-W1-051094	AQUEOUS	10 MAY 94	13:40	11 MAY 94
035354-0006-SA	DPV-W129-051094	AQUEOUS	10 MAY 94	11:00	11 MAY 94
035354-0007-SA	DPV-W19-051094	AQUEOUS	10 MAY 94	13:00	11 MAY 94
035354-0007-DU	DPV-W19D-051094	AQUEOUS	10 MAY 94	13:00	11 MAY 94
035354-0007-FB	DPV-W19FB-051094	AQUEOUS	10 MAY 94	09:45	11 MAY 94
035354-0007-FD	DPV-W19FBD-051094	AQUEOUS	10 MAY 94	09:45	11 MAY 94

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 035354	Group Code	Analysis Description	Custom Test?
0001 - 0007, 0007	A	Polynuclear Aromatic Hydrocarbons, SIM Low Level	N
		Prep - PAH/SIM by GC/MS Low Level	N
0007	B	Prep - PAH/SIM by GC/MS Low Level	N

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A Corning Company

Qualifier Codes and Their Usage

U = Indicates compound was analyzed for but not detected. The sample quantitation limit must be corrected for dilution and for percent moisture. For example, 10 U for phenol in water if the sample final volume is the protocol-specified final volume. If a 1 to 10 dilution of extract is necessary, the reported limit is 100 U. For a soil sample, the value must also be adjusted for percent moisture.

J = Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit but greater than zero. For example, if the sample quantitation limit is 10 ug/L, but a concentration of 3 ug/L is calculated, report it as 3J. The sample quantitation limit must be adjusted for dilution as discussed for the U flag.

N = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds, where the identification is based on a mass spectral library search. It is applied to all TIC results.

P = This flag is used for a pesticide/Aroclor target analyte when there is greater then 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".

C = This flag applies to pesticide results where the identification has been confirmed by GC/MS. If GC/MS confirmation was attempted but was unsuccessful, do not apply this flag, instead use a laboratory-defined flag, discussed below.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action. This flag must be used for a TIC as well as for a positively identified target compound.

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4955 Yarrow Street
Arvada, Colorado 80002
303/421-6611 Fax. 303-431-7171

E = This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis. If one or more compounds have a response greater than full scale, except as noted in Exhibit D, the sample or extract must be diluted and re-analyzed accordingly to the specifications in Exhibit D. All such compounds with a response greater than full scale should have the concentration flagged with an "E" on the Form I for the original analysis. If the dilution of the extract causes any compounds identified in the first analysis to be below the calibration range in the second analysis, then the results of both analyses shall be reported on separate copies of Form I. The Form I for the diluted sample shall have the "DL" suffix appended to the sample number. NOTE: For total xylenes, where three isomers are quantified as two peaks, the calibration range of each peak should be considered separately, e.g., a diluted analysis is not required for total xylenes unless the concentration of either peak separately exceeds 200 ug/L.

D = This flag identifies all compounds identified in an analysis at a secondary dilution factor. If a sample or extract is re-analyzed at a higher dilution factor, as in the "E" flag above, the "DL" suffix is appended to the sample number on the Form I for the diluted sample, and all concentration values reported on that Form I are flagged with the "D" flag. This flag alerts data users that any discrepancies between the concentrations reported may be due to dilution of the sample or extract.

A = This flag indicates that a TIC is a suspected aldol-condensation product.

X = Other specific flags may be required to properly define the results. If used, they must be fully described, and such description attached to the Sample Data Summary Package and the SDG Narrative. Begin by using "X". If more than one flag is required, use "Y" and "Z" as needed. If more than five qualifiers are required for a sample result, use the "X" flag to combine several flags, as needed. For instance, the "X" flag might combine the "A", "B", and "D" flags for some sample. The laboratory-defined flags are limited to the letters "X", "Y", and "Z".

R = This flag is used for polyaromatic hydrocarbons which show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion.

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35354-01

STP-WI22-051094

Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35354 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35354-01

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9130

Level: (low/med) LOW Date Received: 05/11/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/12/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/17/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	52	
496-11-7	2,3-Dihydroindene	20	
95-13-6	1H-Indene	15	
91-20-3	Naphthalene	110	BR
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	3	
120-72-9	1H-Indole	3	R
91-57-6	2-Methylnapnthalene	99	B
90-12-0	1-Methylnaphthalene	62	
92-52-4	Biphenyl	31	
208-96-8	Acenaphthylene	10	R
83-32-9	Acenaphthene	10	
132-64-9	Dibenzofuran	40	
86-73-7	Fluorene	17	
132-65-0	Dibenzothiophene	5	R
85-01-8	Phenanthrene	23	B
120-12-7	Anthracene	8	R
260-94-6	Acridine	19	R
86-74-8	Carbazole	6	R
206-44-0	Fluoranthene	10	
129-00-0	Pyrene	43	
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	R
205-99-2	Benzo(B)Fluoranthene	3	R
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	R
50-32-8	Benzo(A)Pyrene	1	JR
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	1	J
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	10	

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35354-06
STP
[redacted]-W129-051094

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35354 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35354-06

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9135

Level: (low/med) LOW Date Received: 05/11/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/12/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/17/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	2	JR
496-11-7	2,3-Dihydroindene	7	
95-13-6	1H-Indene	3	R
91-20-3	Naphthalene	41	B
4565-32-6	Benzo(B)Thiophene	3	R
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	1	JR
91-57-6	2-Methylnaphthalene	25	B
90-12-0	1-Methylnaphthalene	24	
92-52-4	Biphenyl	5	
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	9	
132-64-9	Dibenzofuran	6	
86-73-7	Fluorene	6	
132-65-0	Dibenzothiophene	2	R
85-01-8	Phenanthrene	11	B
120-12-7	Anthracene	1	J
260-94-6	Acridine	3	U
86-74-8	Carbazole	4	R
206-44-0	Fluoranthene	5	
129-00-0	Pyrene	16	
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

Rocky Mountain
Analytical Laboratory

Enseco

CASE NARRATIVE

FOR

City of St. Louis Park

June 16, 1994

Enseco - RMAL Project Number 035629

Introduction

10 aqueous samples (includes QC) were received at Enseco Rocky Mountain Analytical Laboratory on May 24, 1994. The samples were logged in under RMAL project number 035629. Sample STP-W410FBD-052394 was extracted and held per the April 1990 QAPP. A cross reference associating the RMAL sample numbers to the actual field sample numbers is included. The samples were analyzed for low level part-per-trillion (ppt) polynuclear aromatic hydrocarbons (PAH).

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the April, 1990 QAPP for completeness, precision, accuracy, representativeness and defensibility of the data. Unless otherwise stated below, no quality control problems or technical difficulties were encountered which would impact the interpretation or use of data in this report.

PPT PAH

The percent recovery for 1H-Indene was below QC limits in samples 035629-0001MS/SD due to the concentration of 1H-Indene present in sample 035629-0001.

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4955 Yarrow Street
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The 4800 ng/ml and the 2400 ng/ml standards had excessive saturation, therefore they were not used as the upper range for the 5-point calibration curve. Instead, the calibration curve used was, 20 ng/ml, 40 ng/ml, 240 ng/ml, 600 ng/ml, and 1200 ng/ml.

All samples associated with project 035629 show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion. These compounds are flagged with the letter (R) on the data sheets (Form I) as per the 1990 QAPP.

This data package is in compliance with the terms and conditions of the 1990 QAPP, both technically and for completeness, for other than the conditions detailed above.

Reported by: Karen F. Germann **Date:** June 16, 1994
Karen F. Germann
Program Administrator

Approved by: Julieann L. Kramer **Date:** June 16, 1994
Julieann L. Kramer
Program Manager

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
035629-0001-SA	STP-W410-052394	AQUEOUS	23 MAY 94		24 MAY 94
035629-0001-DU	STP-W410D-052394	AQUEOUS	23 MAY 94		24 MAY 94
035629-0001-MS	STP-W410MS-052394	AQUEOUS	23 MAY 94		24 MAY 94
035629-0001-SD	STP-W410MSD-052394	AQUEOUS	23 MAY 94		24 MAY 94
035629-0001-FB	STP-W410FB-052394	AQUEOUS	23 MAY 94		24 MAY 94
035629-0001-FD	STP-W410FBD-052394	AQUEOUS	23 MAY 94		24 MAY 94
035629-0002-SA	STP-W412-052394	AQUEOUS	23 MAY 94	10:45	24 MAY 94
035629-0003-SA	STP-W24-052394	AQUEOUS	23 MAY 94	12:30	24 MAY 94
035629-0004-SA	STP-W133-052394	AQUEOUS	23 MAY 94	13:00	24 MAY 94
035629-0005-SA	STP-W33-052394	AQUEOUS	23 MAY 94	15:00	24 MAY 94

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 035629	Group Code	Analysis Description	Custom Test?
0001 , 0001, 0002 - 0005	A	Polynuclear Aromatic Hydrocarbons, SIM Low Level	N
		Prep - PAH/SIM by GC/MS Low Level	N
0001	B	Prep - PAH/SIM by GC/MS Low Level	N

Enseco

Qualifier Codes and Their Usage

U = Indicates compound was analyzed for but not detected. The sample quantitation limit must be corrected for dilution and for percent moisture. For example, 10 U for phenol in water if the sample final volume is the protocol-specified final volume. If a 1 to 10 dilution of extract is necessary, the reported limit is 100 U. For a soil sample, the value must also be adjusted for percent moisture.

J = Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit but greater than zero. For example, if the sample quantitation limit is 10 ug/L, but a concentration of 3 ug/L is calculated, report it as 3J. The sample quantitation limit must be adjusted for dilution as discussed for the U flag.

N = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds, where the identification is based on a mass spectral library search. It is applied to all TIC results.

P = This flag is used for a pesticide/Aroclor target analyte when there is greater then 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".

C = This flag applies to pesticide results where the identification has been confirmed by GC/MS. If GC/MS confirmation was attempted but was unsuccessful, do not apply this flag, instead use a laboratory-defined flag, discussed below.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action. This flag must be used for a TIC as well as for a positively identified target compound.

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E = This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis. If one or more compounds have a response greater than full scale, <u>except as noted</u> in Exhibit D, the sample or extract must be diluted and re-analyzed accordingly to the specifications in Exhibit D. All such compounds with a response greater than full scale should have the concentration flagged with an "E" on the Form I for the original analysis. If the dilution of the extract causes any compounds identified in the first analysis to be below the calibration range in the second analysis, then the results of both analyses shall be reported on separate copies of Form I. The Form I for the diluted sample shall have the "DL" suffix appended to the sample number. NOTE: For total xylenes, where three isomers are quantified as two peaks, the calibration range of <u>each peak</u> should be considered separately, e.g., a diluted analysis is <u>not</u> required for total xylenes unless the concentration of either peak separately exceeds 200 ug/L.

D = This flag identifies all compounds identified in an analysis at a secondary dilution factor. If a sample or extract is re-analyzed at a higher dilution factor, as in the "E" flag above, the "DL" suffix is appended to the sample number on the Form I for the diluted sample, and <u>all</u> concentration values reported on that Form I are flagged with the "D" flag. This flag alerts data users that any discrepancies between the concentrations reported may be due to dilution of the sample or extract.

A = This flag indicates that a TIC is a suspected aldol-condensation product.

X = Other specific flags may be required to properly define the results. If used, they must be fully described, and such description attached to the Sample Data Summary Package and the SDG Narrative. Begin by using "X". If more than one flag is required, use "Y" and "Z" as needed. If more than five qualifiers are required for a sample result, use the "X" flag to combine several flags, as needed. For instance, the "X" flag might combine the "A", "B", and "D" flags for some sample. The laboratory-defined flags are <u>limited to</u> the letters "X", "Y", and "Z".

R = This flag is used for polyaromatic hydrocarbons which show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion.

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A Corning Company

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CHAIN OF CUSTODY

ENSECO CLIENT: CITY OF ST LOUIS PARK (WATER DEPT)	SAMPLE SAFE™ CONDITIONS — PACKED BY: MZ SK
PROJECT:	SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:
SAMPLING COMPANY: SAME	SEALED FOR SHIPPING BY: MZ SK
SAMPLING SITE: SAME	SEAL NUMBER:
TEAM LEADER: MZ SK	SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No

SEAL NUMBER: SEAL NUMBER: CONDITION OF CONTENTS: INITIAL CONTENTS TEMP: °C

SAMPLING STATUS: ☐ Done ☐ Continuing Until

CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 7.0 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
5-23-94		STP-N410 - 052394	IXL AMBER	6	PPC PAH	PPC 75 -1
5-23-94		STP-N410D-052394	IXL AMBER	6	PPC PAH	PPC 75 -1 DU
5-23-94		STP-N410MS-052394	IXL AMBER	6	PPC PAH	PPC 75 -1 MS

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MZ SK

METHOD OF SHIPMENT: FED EX

AIRBILL NUMBER: 1014 2103426[redacted]

RECEIVED FOR LAB: RMAL

SIGNED: [illegible]

DATE/TIME: 5/24/94 830

ENSECO PROJECT NUMBER: 31629

ENS-4011

White - CLIENT Pink - LAB

Enseco
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Houston, TX 77032
713/987-9767 FAX 713/987-9769

CHAIN OF CUSTODY

ENSECO CLIENT: CITY OF ST LOUIS PARK (WATER DEPT)

PROJECT:

SAMPLING COMPANY: SAME

SAMPLING SITE: SAME

TEAM LEADER: MZ

SAMPLE SAFE™ CONDITIONS

PACKED BY: MZ

SEAL NUMBER:

SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:

CONDITION OF CONTENTS:

SEALED FOR SHIPPING BY: MZ

INITIAL CONTENTS TEMP: °C

SEAL NUMBER:

SAMPLING STATUS: ☐ Done ☐ Continuing Until

SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No

CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 8.5°C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
5-23-94		STP-W410MSD-052394	IXL AMBER	6	PPL PAH	PPL 75 -1SD
5-23-94		STP-W410 FB - 052394	IXL AMBER	6	PPL PAH	PPL 75 -1FB
5-23-94		STP-W410 FBD-052394	IXL AMBER	6	PPL PAH	PPL 75 -1FP

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MZ

METHOD OF SHIPMENT: FED EX

AIRBILL NUMBER: 1014 210342[redacted]

RECEIVED FOR LAB: RMAL

SIGNED: [illegible]

DATE/TIME: 5/24/94 830

ENSECO PROJECT NUMBER: 35629

ENS-4011 White - Client Pink - LAB

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CHAIN OF CUSTODY

ENSECO CLIENT	City of St Louis Park
PROJECT	SLP
SAMPLING COMPANY	ENSR CHE
SAMPLING SITE	SLP
TEAM LEADER	Peter Moore

SAMPLE SAFE™ CONDITIONS

PACKED BY: Peter Moore	SEAL NUMBER: NA
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY: NA	CONDITION OF CONTENTS: OK
SEALED FOR SHIPPING BY: Peter Moore	INITIAL CONTENTS TEMP: °C
SEAL NUMBER: NA	SAMPLING STATUS: ☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No	CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 6.8 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
5/23/94	10:45	STP-W412-052394	H_2O	6	PPT-PAH	PPT-25 -2
5/23/94	12:30	STP-W24-052394	H_2O	6	PPT-PAH	PPT-25 -3

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME
Peter Moore			

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: Peter Moore		
METHOD OF SHIPMENT: FED-EX		AIRBILL NUMBER:
RECEIVED FOR LAB: [illegible]	SIGNED: [illegible]	DATE/TIME: 5/24/94 830
ENSECO PROJECT NUMBER: 35629		

ENS-4011 White = CLIENT Pink = LAB

Enseco
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CHAIN OF CUSTODY

ENSECO CLIENT: City of St. Louis Park

PROJECT: SLP

SAMPLING COMPANY: ENSR CHE

SAMPLING SITE: SLP

TEAM LEADER: Peter Moore

SAMPLE SAFE™ CONDITIONS

PACKED BY: Peter Moore

SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY: NA

SEALED FOR SHIPPING BY: Peter Moore

SEAL NUMBER: NA

SAMPLING STATUS: ☐ Done ☐ Continuing Until

SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No

SEAL NUMBER

CONDITION OF CONTENTS

INITIAL CONTENTS TEMP °C

CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 8.8 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
5/23/94	13:00	STP-W133-052394	H_2O	6	PPT-PAH	PPT-25 -4
5/23/94	15:00	STP-W33-052394	H_2O	6	PPT-PAH	PPT-25 -5

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME
Peter Moore			

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: Peter Moore

METHOD OF SHIPMENT: FED-EX

AIRBILL NUMBER

RECEIVED FOR LAB: Pmc

SIGNED: DDeC

DATE/TIME: 5/24/94 830

ENSECO PROJECT NUMBER: 35621

ENS-4011 White = CLIENT Pink = LAB

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35629-01

STP-W410-052394

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35629 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35629-01

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9224

Level: (low/med) LOW Date Received: 05/24/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/24/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/31/94

Injection Volume: 2.0(uL) Dilution Factor: 1.19

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	49	U
496-11-7	2,3-Dihydroindene	4800	ER
95-13-6	1H-Indene	1600	E
91-20-3	Naphthalene	54	BJ
4565-32-6	Benzo(B)Thiophene	870	
91-22-5	Quinoline	13	U
120-72-9	1H-Indole	24	U
91-57-6	2-Methylnaphthalene	10	BR
90-12-0	1-Methylnaphthalene	660	
92-52-4	Biphenyl	88	
208-96-8	Acenaphthylene	83	
83-32-9	Acenaphthene	1000	
132-64-9	Dibenzofuran	11	R
86-73-7	Fluorene	44	
132-65-0	Dibenzothiophene	10	U
85-01-8	Phenanthrene	21	BR
120-12-7	Anthracene	13	R
260-94-6	Acridine	53	
86-74-8	Carbazole	520	
206-44-0	Fluoranthene	13	U
129-00-0	Pyrene	13	U
56-55-3	Benzo(A)Anthracene	24	U
218-01-9	Chrysene	26	U
205-99-2	Benzo(B)Fluoranthene	24	U
207-08-9	Benzo(K)Fluoranthene	21	U
192-97-2	Benzo(E)Pyrene	18	U
50-32-8	Benzo(A)Pyrene	21	U
198-55-0	Perylene	24	U
193-39-5	Indeno(1,2,3-CD)Pyrene	20	U
53-70-3	Dibenz(A,H)Anthracene	15	U
191-24-2	Benzo(G,H,I)Perylene	26	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35629-01DL

STP-W410-052394

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35629 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35629-01DL

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9236

Level: (low/med) LOW Date Received: 05/24/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/24/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/01/94

Injection Volume: 2.0(uL) Dilution Factor: 11.9

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	490	U
496-11-7	2,3-Dihydroindene	9200	D
95-13-6	1H-Indene	1900	D
91-20-3	Naphthalene	620	U
4565-32-6	Benzo(B)Thiophene	980	D
91-22-5	Quinoline	130	U
120-72-9	1H-Indole	240	U
91-57-6	2-Methylnapnthalene	86	U
90-12-0	1-Methylnaphthalene	740	D
92-52-4	Biphenyl	95	DJ
208-96-8	Acenaphthylene	130	U
83-32-9	Acenaphthene	1100	D
132-64-9	Dibenzofuran	95	U
86-73-7	Fluorene	95	U
132-65-0	Dibenzothiophene	100	U
85-01-8	Phenanthrene	120	U
120-12-7	Anthracene	100	U
260-94-6	Acridine	270	U
86-74-8	Carbazole	490	D
206-44-0	Fluoranthene	130	U
129-00-0	Pyrene	130	U
56-55-3	Benzo(A)Anthracene	240	U
218-01-9	Chrysene	260	U
205-99-2	Benzo(B)Fluoranthene	240	U
207-08-9	Benzo(K)Fluoranthene	210	U
192-97-2	Benzo(E)Pyrene	180	U
50-32-8	Benzo(A)Pyrene	210	U
198-55-0	Perylene	240	U
193-39-5	Indeno(1,2,3-CD)Pyrene	200	U
53-70-3	Dibenz(A,H)Anthracene	150	U
191-24-2	Benzo(G,H,I)Perylene	260	U.

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35629-01DU

STP-W410D-052394

Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35629 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35629-01DU

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9265

Level: (low/med) LOW Date Received: 05/24/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/24/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/03/94

Injection Volume: 2.0(uL) Dilution Factor: 1.19

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	15	JR
496-11-7	2,3-Dihydroindene	3700	ER
95-13-6	1H-Indene	1700	E
91-20-3	Naphthalene	52	BJR
4565-32-6	Benzo(B)Thiophene	830	
91-22-5	Quinoline	17	R
120-72-9	1H-Indole	15	JR
91-57-6	2-Methylnaphthalene	9	U
90-12-0	1-Methylnaphthalene	660	
92-52-4	Biphenyl	86	
208-96-8	Acenaphthylene	87	
83-32-9	Acenaphthene	940	
132-64-9	Dibenzofuran	10	R
86-73-7	Fluorene	39	
132-65-0	Dibenzothiophene	10	U
85-01-8	Phenanthrene	14	BR
120-12-7	Anthracene	10	JR
260-94-6	Acridine	44	
86-74-8	Carbazole	440	
206-44-0	Fluoranthene	13	U
129-00-0	Pyrene	13	U
56-55-3	Benzo(A)Anthracene	24	U
218-01-9	Chrysene	26	U
205-99-2	Benzo(B)Fluoranthene	24	U
207-08-9	Benzo(K)Fluoranthene	21	U
192-97-2	Benzo(E)Pyrene	18	U
50-32-8	Benzo(A)Pyrene	21	U
198-55-0	Perylene	24	U
193-39-5	Indeno(1,2,3-CD)Pyrene	20	U
53-70-3	Dibenz(A,H)Anthracene	15	U
191-24-2	Benzo(G,H,I)Perylene	26	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35629-01DUDL

STP-W410D-052394

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35629 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35629-01DUDL

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9233

Level: (low/med) LOW Date Received: 05/24/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/24/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/01/94

Injection Volume: 2.0(uL) Dilution Factor: 11.9

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	490	U
496-11-7	2,3-Dihydroindene	12000	D
95-13-6	1H-Indene	2500	D
91-20-3	Naphthalene	620	U
4565-32-6	Benzo(B)Thiophene	1300	D
91-22-5	Quinoline	130	U
120-72-9	1H-Indole	240	U
91-57-6	2-Methylnapnthalene	86	U
90-12-0	1-Methylnaphthalene	940	D
92-52-4	Biphenyl	120	DJ
208-96-8	Acenaphthylene	120	DJ
83-32-9	Acenaphthene	1300	D
132-64-9	Dibenzofuran	95	U
86-73-7	Fluorene	95	U
132-65-0	Dibenzothiophene	100	U
85-01-8	Phenanthrene	120	U
120-12-7	Anthracene	100	U
260-94-6	Acridine	270	U
86-74-8	Carbazole	640	D
206-44-0	Fluoranthene	130	U
129-00-0	Pyrene	130	U
56-55-3	Benzo(A)Anthracene	240	U
218-01-9	Chrysene	260	U
205-99-2	Benzo(B)Fluoranthene	240	U
207-08-9	Benzo(K)Fluoranthene	210	U
192-97-2	Benzo(E)Pyrene	180	U
50-32-8	Benzo(A)Pyrene	210	U
198-55-0	Perylene	240	U
193-39-5	Indeno(1,2,3-CD)Pyrene	200	U
53-70-3	Dibenz(A,H)Anthracene	150	U
191-24-2	Benzo(G,H,I)Perylene	260	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35629-01FB

STP-W410FB-052394

Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35629 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35629-01FB

Sample wt/vol: 4170 (g/mL) ML Lab File ID: C9206

Level: (low/med) LOW Date Received: 05/24/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/24/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/26/94

Injection Volume: 2.0(uL) Dilution Factor: 0.120

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	2	
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	5	BJ
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	3	BR
90-12-0	1-Methylnaphthalene	1	JR
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	4	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	2	B
129-00-0	Pyrene	2	B
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35629-01FBD

STP-W410FBD-052394

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35629 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35629-01FBD

Sample wt/vol: 4160 (g/mL) ML Lab File ID: C9207

Level: (low/med) LOW Date Received: 05/24/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/24/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/26/94

Injection Volume: 2.0(uL) Dilution Factor: 0.120

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	1	J
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	5	BJ
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	3	B
90-12-0	1-Methylnaphthalene	1	JR
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	2	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	BJ
129-00-0	Pyrene	1	BJ
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35629-02

STP-W412-052394

Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35629 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35629-02

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9268

Level: (low/med) LOW Date Received: 05/24/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/24/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/03/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	2	JR
496-11-7	2,3-Dihydroindene	25	
95-13-6	1H-Indene	7	
91-20-3	Naphthalene	47	B
4565-32-6	Benzo(B)Thiophene	9	
91-22-5	Quinoline	2	R
120-72-9	1H-Indole	7	R
91-57-6	2-Methylnaphthalene	28	B
90-12-0	1-Methylnaphthalene	28	
92-52-4	Biphenyl	6	
208-96-8	Acenaphthylene	5	
83-32-9	Acenaphthene	15	
132-64-9	Dibenzofuran	8	R
86-73-7	Fluorene	9	
132-65-0	Dibenzothiophene	8	R
85-01-8	Phenanthrene	23	B
120-12-7	Anthracene	4	
260-94-6	Acridine	8	R
86-74-8	Carbazole	8	R
206-44-0	Fluoranthene	12	BR
129-00-0	Pyrene	32	B
56-55-3	Benzo(A)Anthracene	3	R
218-01-9	Chrysene	5	R
205-99-2	Benzo(B)Fluoranthene	2	JR
207-08-9	Benzo(K)Fluoranthene	3	R
192-97-2	Benzo(E)Pyrene	3	R
50-32-8	Benzo(A)Pyrene	2	J
198-55-0	Perylene	5	
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35629-03

STP-W24-052394

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35629 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35629-03

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9216

Level: (low/med) LOW Date Received: 05/24/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/24/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/27/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	1	J
496-11-7	2,3-Dihydroindene	320	ERT
95-13-6	1H-Indene	17	
91-20-3	Naphthalene	3	BJR
4565-32-6	Benzo(B)Thiophene	4	R
91-22-5	Quinoline	1	J
120-72-9	1H-Indole	2	J
91-57-6	2-Methylnaphthalene	2	BR
90-12-0	1-Methylnaphthalene	3	R
92-52-4	Biphenyl	1	J
208-96-8	Acenaphthylene	6	
83-32-9	Acenaphthene	140	T
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	R
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	3	BR
120-12-7	Anthracene	14	
260-94-6	Acridine	8	R
86-74-8	Carbazole	5	
206-44-0	Fluoranthene	2	B
129-00-0	Pyrene	4	B
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35629-03DL

STP-W24-052394

Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35629 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35629-03DL

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9237

Level: (low/med) LOW Date Received: 05/24/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/24/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/01/94

Injection Volume: 2.0(uL) Dilution Factor: 2.38

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	98	U
496-11-7	2,3-Dihydroindene	2300	D
95-13-6	1H-Indene	29	D
91-20-3	Naphthalene	120	U
4565-32-6	Benzo(B)Thiophene	17	U
91-22-5	Quinoline	26	U
120-72-9	1H-Indole	48	U
91-57-6	2-Methylnaphthalene	17	U
90-12-0	1-Methylnaphthalene	31	U
92-52-4	Biphenyl	81	U
208-96-8	Acenaphthylene	26	U
83-32-9	Acenaphthene	320	D
132-64-9	Dibenzofuran	19	U
86-73-7	Fluorene	19	U
132-65-0	Dibenzothiophene	21	U
85-01-8	Phenanthrene	24	U
120-12-7	Anthracene	20	DJR
260-94-6	Acridine	55	U
86-74-8	Carbazole	36	U
206-44-0	Fluoranthene	26	U
129-00-0	Pyrene	26	U
56-55-3	Benzo(A)Anthracene	48	U
218-01-9	Chrysene	52	U
205-99-2	Benzo(B)Fluoranthene	48	U
207-08-9	Benzo(K)Fluoranthene	43	U
192-97-2	Benzo(E)Pyrene	36	U
50-32-8	Benzo(A)Pyrene	43	U
198-55-0	Perylene	48	U
193-39-5	Indeno(1,2,3-CD)Pyrene	40	U
53-70-3	Dibenz(A,H)Anthracene	31	U
191-24-2	Benzo(G,H,I)Perylene	52	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35629-04

STP-WI33-052394

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35629 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35629-04

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9226

Level: (low/med) LOW Date Received: 05/24/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/24/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/31/94

Injection Volume: 2.0(uL) Dilution Factor: 0.595

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	24	U
496-11-7	2,3-Dihydroindene	460	
95-13-6	1H-Indene	13	
91-20-3	Naphthalene	31	BR
4565-32-6	Benzo(B)Thiophene	9	R
91-22-5	Quinoline	7	U
120-72-9	1H-Indole	12	U
91-57-6	2-Methylnaphthalene	18	BR
90-12-0	1-Methylnaphthalene	14	R
92-52-4	Biphenyl	20	U
208-96-8	Acenaphthylene	7	U
83-32-9	Acenaphthene	8	
132-64-9	Dibenzofuran	5	U
86-73-7	Fluorene	6	
132-65-0	Dibenzothiophene	5	U
85-01-8	Phenanthrene	16	BR
120-12-7	Anthracene	5	U
260-94-6	Acridine	24	
86-74-8	Carbazole	6	JR
206-44-0	Fluoranthene	15	B
129-00-0	Pyrene	45	B
56-55-3	Benzo(A)Anthracene	12	U
218-01-9	Chrysene	13	U
205-99-2	Benzo(B)Fluoranthene	12	U
207-08-9	Benzo(K)Fluoranthene	11	U
192-97-2	Benzo(E)Pyrene	9	U
50-32-8	Benzo(A)Pyrene	11	U
198-55-0	Perylene	12	U
193-39-5	Indeno(1,2,3-CD)Pyrene	10	U
53-70-3	Dibenz(A,H)Anthracene	8	U
191-24-2	Benzo(G,H,I)Perylene	5	JR

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35629-05

Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35629 SAS No.: SDG No.: STP-W33-052394

Matrix: (soil/water) WATER Lab Sample ID: 35629-05

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9269

Level: (low/med) LOW Date Received: 05/24/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/24/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/03/94

Injection Volume: 2.0(uL) Dilution Factor: 0.298

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	3	JR
496-11-7	2,3-Dihydroindene	300	
95-13-6	1H-Indene	140	
91-20-3	Naphthalene	110	B
4565-32-6	Benzo(B)Thiophene	100	
91-22-5	Quinoline	4	R
120-72-9	1H-Indole	8	R
91-57-6	2-Methylnaphthalene	42	B
90-12-0	1-Methylnaphthalene	60	
92-52-4	Biphenyl	11	
208-96-8	Acenaphthylene	4	
83-32-9	Acenaphthene	42	
132-64-9	Dibenzofuran	9	
86-73-7	Fluorene	9	
132-65-0	Dibenzothiophene	4	R
85-01-8	Phenanthrene	49	B
120-12-7	Anthracene	3	U
260-94-6	Acridine	6	JR
86-74-8	Carbazole	31	
206-44-0	Fluoranthene	9	B
129-00-0	Pyrene	31	B
56-55-3	Benzo(A)Anthracene	6	U
218-01-9	Chrysene	7	U
205-99-2	Benzo(B)Fluoranthene	6	U
207-08-9	Benzo(K)Fluoranthene	5	U
192-97-2	Benzo(E)Pyrene	4	U
50-32-8	Benzo(A)Pyrene	5	U
198-55-0	Perylene	6	U
193-39-5	Indeno(1,2,3-CD)Pyrene	5	U
53-70-3	Dibenz(A,H)Anthracene	4	U
191-24-2	Benzo(G,H,I)Perylene	4	JR

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35629-01MS

STP-W410MS-052394

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35629 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35629-01MS

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9266

Level: (low/med) LOW Date Received: 05/24/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/24/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/03/94

Injection Volume: 2.0(uL) Dilution Factor: 1.19

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	14	JR
496-11-7	2,3-Dihydroindene	3500	R
95-13-6	1H-Indene	1400	
91-20-3	Naphthalene	76	BR
4565-32-6	Benzo(B)Thiophene	670	
91-22-5	Quinoline	64	
120-72-9	1H-Indole	24	U
91-57-6	2-Methylnaphthalene	42	BR
90-12-0	1-Methylnaphthalene	530	
92-52-4	Biphenyl	70	
208-96-8	Acenaphthylene	68	
83-32-9	Acenaphthene	760	
132-64-9	Dibenzofuran	10	U
86-73-7	Fluorene	69	
132-65-0	Dibenzothiophene	10	U
85-01-8	Phenanthrene	12	BR
120-12-7	Anthracene	10	U
260-94-6	Acridine	35	
86-74-8	Carbazole	370	
206-44-0	Fluoranthene	13	U
129-00-0	Pyrene	13	U
56-55-3	Benzo(A)Anthracene	24	U
218-01-9	Chrysene	41	
205-99-2	Benzo(B)Fluoranthene	24	U
207-08-9	Benzo(K)Fluoranthene	21	U
192-97-2	Benzo(E)Pyrene	10	JR
50-32-8	Benzo(A)Pyrene	21	U
198-55-0	Perylene	24	U
193-39-5	Indeno(1,2,3-CD)Pyrene	20	U
53-70-3	Dibenz(A,H)Anthracene	15	U
191-24-2	Benzo(G,H,I)Perylene	26	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35629-01MSD

STP-W410MSD-052394

Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35629 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35629-01MSD

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9267

Level: (low/med) LOW Date Received: 05/24/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/24/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/03/94

Injection Volume: 2.0(uL) Dilution Factor: 1.19

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	49	U
496-11-7	2,3-Dihydroindene	3700	ERT
95-13-6	1H-Indene	1400	
91-20-3	Naphthalene	76	BR
4565-32-6	Benzo(B)Thiophene	660	
91-22-5	Quinoline	61	
120-72-9	1H-Indole	24	U
91-57-6	2-Methylnaphthalene	42	BR
90-12-0	1-Methylnaphthalene	520	
92-52-4	Biphenyl	69	
208-96-8	Acenaphthylene	66	
83-32-9	Acenaphthene	750	
132-64-9	Dibenzofuran	10	U
86-73-7	Fluorene	71	
132-65-0	Dibenzothiophene	10	U
85-01-8	Phenanthrene	13	B
120-12-7	Anthracene	10	U
260-94-6	Acridine	35	
86-74-8	Carbazole	360	
206-44-0	Fluoranthene	13	U
129-00-0	Pyrene	13	U
56-55-3	Benzo(A)Anthracene	24	U
218-01-9	Chrysene	36	
205-99-2	Benzo(B)Fluoranthene	24	U
207-08-9	Benzo(K)Fluoranthene	21	U
192-97-2	Benzo(E)Pyrene	18	U
50-32-8	Benzo(A)Pyrene	21	U
198-55-0	Perylene	24	U
193-39-5	Indeno(1,2,3-CD)Pyrene	20	U
53-70-3	Dibenz(A,H)Anthracene	15	U
191-24-2	Benzo(G,H,I)Perylene	26	U

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35629 SAS No.: SDG No.:

	EPA SAMPLE NO.	S1 (NAP)#	S2 (FLU)#	S3 (CHR)#	TOT OUT
01	35629-01	62	92	68	0
02	35629-01DL	0 D	0 D	0 D	0
03	35629-01DU	68	75	97	0
04	35629-01DUDL	0 D	0 D	0 D	0
05	35629-01FB	77	82	91	0
06	35629-01FBD	75	76	93	0
07	35629-02	51	75	20	0
08	35629-03	45	57	35	0
09	35629-03DL	75	92	59	0
10	35629-04	59	80	31	0
11	35629-05	56	79	10	0
12	35629-01MS	59	66	107	0
13	35629-01MSD	60	64	90	0
14	BLK01	99	105	106	0

		QC LIMITS
S1 (NAP)	= Naphthalene-d8	(14-108)
S2 (FLU)	= Fluorene-d10	(41-162)
S3 (CHR)	= Chrysene-d12	(10-118)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogate diluted out

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35629 SAS No.: SDG No.:

Matrix Spike - EPA Sample No.: 35629-01

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC #	QC LIMITS REC.
1H-Indene	71.40	1559	1380	250 *	20-150
Naphthalene	71.40	53.91	75.92	31	20-150
Quinoline	71.40	ND	64.14	90	20-150
2-Methylnaphthalene	71.40	10.08	41.53	44	20-150
Fluorene	71.40	43.67	68.54	35	20-150
Chrysene	71.40	2.36	40.82	54	20-150
Benzo(E)Pyrene	71.40	ND	10.46	15	10-150

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1H-Indene	71.40	1368	267 *	7	28	20-150
Naphthalene	71.40	76.16	31	0	28	20-150
Quinoline	71.40	61.17	86	5	28	20-150
2-Methylnaphthalene	71.40	41.89	45	2	28	20-150
Fluorene	71.40	70.92	38	8	28	20-150
Chrysene	71.40	36.18	47	14	28	20-150
Benzo(E)Pyrene	71.40	8.54	12	22	28	10-150

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

COMMENTS:

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

BLK01

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35629 SAS No.: SDG No.:

Lab File ID: C9205 Lab Sample ID: BL052494

Instrument ID: 4500-C Date Extracted: 05/24/94

Matrix: (soil/water) WATER Date Analyzed: 05/26/94

Level:(low/med) LOW Time Analyzed: 1821

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	35629-01	35629-01	C9224	05/31/94
02	35629-01DL	35629-01DL	C9236	06/01/94
03	35629-01DU	35629-01DU	C9265	06/03/94
04	35629-01DUDL	35629-01DUDL	C9233	06/01/94
05	35629-01FB	35629-01FB	C9206	05/26/94
06	35629-01FBD	35629-01FBD	C9207	05/26/94
07	35629-02	35629-02	C9268	06/03/94
08	35629-03	35629-03	C9216	05/27/94
09	35629-03DL	35629-03DL	C9237	06/01/94
10	35629-04	35629-04	C9226	05/31/94
11	35629-05	35629-05	C9269	06/03/94
12	35629-01MS	35629-01MS	C9266	06/03/94
13	35629-01MSD	35629-01MSD	C9267	06/03/94

COMMENTS:

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

BLK01

Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35629 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: BL052494

Sample wt/vol: 4000 (g/mL) ML Lab File ID: C9205

Level: (low/med) LOW Date Received:

% Moisture: decanted: (Y/N) N Date Extracted: 05/24/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/26/94

Injection Volume: 2.0(uL) Dilution Factor: 0.125

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	2	J
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	1	R
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	3	
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	2	
129-00-0	Pyrene	1	J
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35629 SAS No.: SDG No.:

Lab File ID (Standard): C9204 Date Analyzed: 05/26/94

Instrument ID: 4500-C Time Analyzed: 1705

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	376652	14.10	662237	17.84	216836	27.71
	UPPER LIMIT	753304	14.60	1324474	18.34	433672	28.21
	LOWER LIMIT	188326	13.60	331118	17.34	108418	27.21
	EPA SAMPLE NO.						
01	35629-01FB	275447	14.12	499364	17.84	144326	27.72
02	35629-01FBD	317496	14.32	653583	18.07	158857	27.92
03	35629-03	548378	14.09	974170	17.84	289946	27.72
04	BLK01	274937	14.12	519004	17.82	145724	27.67

IS1 (ACN) = Acenaphthene-D10
IS2 (PHN) = Phenanthrene-D10
IS3 (BAP) = Benzo(A)Pyrene-D10

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35629 SAS No.: SDG No.:

Lab File ID (Standard): C9223 Date Analyzed: 05/31/94

Instrument ID: 4500-C Time Analyzed: 1829

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	279776	14.00	496963	17.77	202068	27.64
	UPPER LIMIT	559552	14.50	993926	18.27	404136	28.14
	LOWER LIMIT	139888	13.50	248482	17.27	101034	27.14
	EPA SAMPLE NO.						
01	35629-01	275320	14.04	499560	17.82	130642	27.71
02	35629-01DL	166618	14.02	316658	17.77	107438	27.67
03	35629-01DUDL	198652	14.00	370971	17.77	137006	27.67
04	35629-03DL	169064	14.02	330627	17.77	111582	27.67
05	35629-04	297083	14.04	568017	17.85	212666	27.72

IS1 (ACN) = Acenaphthene-D10
IS2 (PHN) = Phenanthrene-D10
IS3 (BAP) = Benzo(A)Pyrene-D10

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35629 SAS No.: SDG No.:

Lab File ID (Standard): C9255 Date Analyzed: 06/03/94

Instrument ID: 4500-C Time Analyzed: 0819

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	331005	13.97	596031	17.69	268988	27.49
	UPPER LIMIT	662010	14.47	1192062	18.19	537976	27.99
	LOWER LIMIT	165502	13.47	298016	17.19	134494	26.99
	EPA SAMPLE NO.						
01	35629-01DU	483266	13.95	939925	17.67	274229	27.51
02	35629-02	412179	13.95	874668	17.67	491801	27.52
03	35629-05	292952	13.97	524768	17.70	264478	27.51
04	35629-01MS	406361	13.97	805087	17.67	199237	27.49
05	35629-01MSD	386798	13.95	791162	17.67	195324	27.49

IS1 (ACN) = Acenaphthene-D10
IS2 (PHN) = Phenanthrene-D10
IS3 (BAP) = Benzo(A)Pyrene-D10

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

Rocky Mountain
Analytical Laboratory

Enseco

CASE NARRATIVE

FOR

City of St. Louis Park

June 20, 1994

Enseco - RMAL Project Number 035695

Introduction

Ten aqueous samples (includes QC) were received at Enseco Rocky Mountain Analytical Laboratory on May 25, 1994. The samples were logged in under RMAL project number 035695 Sample PCJ-SLP16FBD-052494 was extracted and held per the April 1990 QAPP. Sample 035695-0003 field ID STP-W409-052494 was cancelled per clinet's request on 05/31/94. A cross reference associating the RMAL sample numbers to the actual field sample numbers is included. The samples were analyzed for low level part-per-trillion (ppt) polynuclear aromatic hydrocarbons (PAH).

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the April, 1990 QAPP for completeness, precision, accuracy, representativeness and defensibility of the data. Unless otherwise stated below, no quality control problems or technical difficulties were encountered which would impact the interpretation or use of data in this report.

PPT PAH

The % RPD for Chrysene was above QC limits in samples 035695-0001MS/SD. Since acceptably recovery was achieved for all other spike components, quantitation was checked and no further action was taken.

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The 4800 ng/ml and the 2400 ng/ml standards had excessive saturation, therefore they were not used as the upper range for the 5-point calibration curve. Instead, the calibration curve used was, 20 ng/ml, 40 ng/ml, 240 ng/ml, 600 ng/ml, and 1200 ng/ml.

All samples associated with project 035695 show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion. These compounds are flagged with the letter (R) on the data sheets (Form I) as per the 1990 QAPP.

This data package is in compliance with the terms and conditions of the 1990 QAPP, both technically and for completeness, for other than the conditions detailed above.

Reported by: Karen F. Germann
Karen F. Germann
Program Administrator

Date: June 20, 1994

Approved by: Julieann L. Kramer
Julieann L. Kramer
Program Manager

Date: June 20, 1994

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
035695-0001-SA	PCJ-SLP16-052494	AQUEOUS	24 MAY 94		25 MAY 94
035695-0001-DU	PCJ-SLP16D-052494	AQUEOUS	24 MAY 94		25 MAY 94
035695-0001-MS	PCJ-SLP16MS-052494	AQUEOUS	24 MAY 94		25 MAY 94
035695-0001-SD	PCJ-SLP16MSD-052494	AQUEOUS	24 MAY 94		25 MAY 94
035695-0001-FB	PCJ-SLP16FB-052494	AQUEOUS	24 MAY 94		25 MAY 94
035695-0001-FD	PCJ-SLP16FBD-052494	AQUEOUS	24 MAY 94		25 MAY 94
035695-0002-SA	STP-W411-052494	AQUEOUS	24 MAY 94	11:30	25 MAY 94
035695-0003-SA	STP-W409-052494	AQUEOUS	24 MAY 94	14:00	25 MAY 94
035695-0004-SA	STP-408-052494	AQUEOUS	24 MAY 94	15:00	25 MAY 94
035695-0005-SA	STP-P116-052494	AQUEOUS	24 MAY 94	16:30	25 MAY 94

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 035695	Group Code	Analysis Description	Custom Test?
0001 , 0001, 0002 - 0005	A	Polynuclear Aromatic Hydrocarbons, SIM Low Level	N
		Prep - PAH/SIM by GC/MS Low Level	N
0001	B	Prep - PAH/SIM by GC/MS Low Level	N

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Qualifier Codes and Their Usage

U = Indicates compound was analyzed for but not detected. The sample quantitation limit must be corrected for dilution and for percent moisture. For example, 10 U for phenol in water if the sample final volume is the protocol-specified final volume. If a 1 to 10 dilution of extract is necessary, the reported limit is 100 U. For a soil sample, the value must also be adjusted for percent moisture.

J = Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit but greater than zero. For example, if the sample quantitation limit is 10 ug/L, but a concentration of 3 ug/L is calculated, report it as 3J. The sample quantitation limit must be adjusted for dilution as discussed for the U flag.

N = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds, where the identification is based on a mass spectral library search. It is applied to all TIC results.

P = This flag is used for a pesticide/Aroclor target analyte when there is greater then 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".

C = This flag applies to pesticide results where the identification has been confirmed by GC/MS. If GC/MS confirmation was attempted but was unsuccessful, do not apply this flag, instead use a laboratory-defined flag, discussed below.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action. This flag must be used for a TIC as well as for a positively identified target compound.

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E = This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis. If one or more compounds have a response greater than full scale, <u>except as noted</u> in Exhibit D, the sample or extract must be diluted and re-analyzed accordingly to the specifications in Exhibit D. All such compounds with a response greater than full scale should have the concentration flagged with an "E" on the Form I for the original analysis. If the dilution of the extract causes any compounds identified in the first analysis to be below the calibration range in the second analysis, then the results of both analyses shall be reported on separate copies of Form I. The Form I for the diluted sample shall have the "DL" suffix appended to the sample number. NOTE: For total xylenes, where three isomers are quantified as two peaks, the calibration range of <u>each peak</u> should be considered separately, e.g., a diluted analysis is <u>not</u> required for total xylenes unless the concentration of either peak separately exceeds 200 ug/L.

D = This flag identifies all compounds identified in an analysis at a secondary dilution factor. If a sample or extract is re-analyzed at a higher dilution factor, as in the "E" flag above, the "DL" suffix is appended to the sample number on the Form I for the diluted sample, and <u>all</u> concentration values reported on that Form I are flagged with the "D" flag. This flag alerts data users that any discrepancies between the concentrations reported may be due to dilution of the sample or extract.

A = This flag indicates that a TIC is a suspected aldol-condensation product.

X = Other specific flags may be required to properly define the results. If used, they must be fully described, and such description attached to the Sample Data Summary Package and the SDG Narrative. Begin by using "X". If more than one flag is required, use "Y" and "Z" as needed. If more than five qualifiers are required for a sample result, use the "X" flag to combine several flags, as needed. For instance, the "X" flag might combine the "A", "B", and "D" flags for some sample. The laboratory-defined flags are <u>limited to</u> the letters "X", "Y", and "Z".

R = This flag is used for polyaromatic hydrocarbons which show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion.

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35695-02

STP-W411-052494

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35695 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35695-02

Sample wt/vol: 4175 (g/mL) ML Lab File ID: C9258

Level: (low/med) LOW Date Received: 05/25/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/26/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/03/94

Injection Volume: 2.0(uL) Dilution Factor: 0.120

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	3	
95-13-6	1H-Indene	5	
91-20-3	Naphthalene	13	BR
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	2	R
120-72-9	1H-Indole	5	R
91-57-6	2-Methylnaphthalene	9	BR
90-12-0	1-Methylnaphthalene	8	R
92-52-4	Biphenyl	3	JR
208-96-8	Acenaphthylene	1	JR
83-32-9	Acenaphthene	3	
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	3	
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	9	BR
120-12-7	Anthracene	4	R
260-94-6	Acridine	27	
86-74-8	Carbazole	5	R
206-44-0	Fluoranthene	6	R
129-00-0	Pyrene	16	
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	1	J
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35695-04

STP-408-052494

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35695 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35695-04

Sample wt/vol: 4180 (g/mL) ML Lab File ID: C9260

Level: (low/med) LOW Date Received: 05/25/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/26/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/03/94

Injection Volume: 2.0(uL) Dilution Factor: 0.120

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	1	J
496-11-7	2,3-Dihydroindene	4	
95-13-6	1H-Indene	4	R
91-20-3	Naphthalene	6	BJ
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	J
120-72-9	1H-Indole	7	R
91-57-6	2-Methylnaphthalene	3	B
90-12-0	1-Methylnaphthalene	2	R
92-52-4	Biphenyl	2	JR
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	2	
132-64-9	Dibenzofuran	1	R
86-73-7	Fluorene	2	
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	5	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	4	R
86-74-8	Carbazole	5	R
206-44-0	Fluoranthene	5	R
129-00-0	Pyrene	17	
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	R
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	1	JR

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35695-05

STP-P116-052494

Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35695 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35695-05

Sample wt/vol: 4125 (g/mL) ML Lab File ID: C9261

Level: (low/med) LOW Date Received: 05/25/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/26/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/03/94

Injection Volume: 2.0(uL) Dilution Factor: 0.121

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	1	JR
496-11-7	2,3-Dihydroindene	3	
95-13-6	1H-Indene	2	R
91-20-3	Naphthalene	19	B
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	3	R
91-57-6	2-Methylnaphthalene	7	B
90-12-0	1-Methylnaphthalene	5	R
92-52-4	Biphenyl	2	J
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	
86-73-7	Fluorene	1	R
132-65-0	Dibenzothiophene	1	J
85-01-8	Phenanthrene	6	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	3	
206-44-0	Fluoranthene	3	R
129-00-0	Pyrene	2	
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	1	JR
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

Enseco

CASE NARRATIVE

FOR

City of St. Louis Park

September 7, 1994

Quanterra Environmental Services

Project No. 036008

Introduction

10 aqueous samples (includes QC) were received at Quanterra Environmental Services, Denver laboratory (formerly Enseco-Rocky Mountain Analytical Laboratory) on June 6, 1994. The samples were logged in under Quanterra's Denver laboratory project number 036008. Sample DPV-W420FBD-060794 was extracted and held per the April 1990 QAPP. A cross reference associating the Quanterra Denver laboratory sample numbers to the actual field sample numbers is included. The samples were analyzed for part-per-billion (ppb) polynuclear aromatic hydrocarbons (PAH).

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the April, 1990 QAPP for completeness, precision, accuracy, representativeness and defensibility of the data. Unless otherwise stated below, no quality control problems or technical difficulties were encountered which would impact the interpretation or use of data in this report.

PPB PAH

Samples DPV-W420 (036008-0002), DPV-W420D (036008-0002DU) and DPV-W421 (036008-0003) showed target compounds above the upper calibration range. The samples were analyzed at a dilution. Both the original and reanalysis data were reported for each sample. The reporting limits were adjusted accordingly.

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Sample STP-W409 (036008-0001) showed the surrogate recovery for chrysene-d12 outside QC limits. The sample was reanalyzed and showed similar results. The surrogates were diluted out of samples DPV-W420DL (036008-0002DL) and DPV-W420DDL (036008-0002DUDL).

Sample DPV-W420MS (036008-0002MS) Showed the percent recovery for naphthalene outside QC limits. The RPD for samples DPV-W420MS (036008-0002MS) and DPV-W420MSD (036008-0002SD) is outside QC limits.

This data package is in compliance with the terms and conditions of the 1990 QAPP, both technically and for completeness, for other than the conditions detailed above.

Reported by: _____ Date: 9/7/94
Daniel Rebarchik
Program Administrator

Approved by: _____ Date: 9/7/94
Kevin McHugh
Program Manager

Enseco

Qualifier Codes and Their Usage

U = Indicates compound was analyzed for but not detected. The sample quantitation limit must be corrected for dilution and for percent moisture. For example, 10 U for phenol in water if the sample final volume is the protocol-specified final volume. If a 1 to 10 dilution of extract is necessary, the reported limit is 100 U. For a soil sample, the value must also be adjusted for percent moisture.

J = Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit but greater than zero. For example, if the sample quantitation limit is 10 ug/L, but a concentration of 3 ug/L is calculated, report it as 3J. The sample quantitation limit must be adjusted for dilution as discussed for the U flag.

N = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds, where the identification is based on a mass spectral library search. It is applied to all TIC results.

P = This flag is used for a pesticide/Aroclor target analyte when there is greater then 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".

C = This flag applies to pesticide results where the identification has been confirmed by GC/MS. If GC/MS confirmation was attempted but was unsuccessful, do not apply this flag, instead use a laboratory-defined flag, discussed below.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action. This flag must be used for a TIC as well as for a positively identified target compound.

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E = This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis. If one or more compounds have a response greater than full scale, <u>except as noted</u> in Exhibit D, the sample or extract must be diluted and re-analyzed accordingly to the specifications in Exhibit D. All such compounds with a response greater than full scale should have the concentration flagged with an "E" on the Form I for the original analysis. If the dilution of the extract causes any compounds identified in the first analysis to be below the calibration range in the second analysis, then the results of both analyses shall be reported on separate copies of Form I. The Form I for the diluted sample shall have the "DL" suffix appended to the sample number. NOTE: For total xylenes, where three isomers are quantified as two peaks, the calibration range of <u>each peak</u> should be considered separately, e.g., a diluted analysis is <u>not</u> required for total xylenes unless the concentration of either peak separately exceeds 200 ug/L.

D = This flag identifies all compounds identified in an analysis at a secondary dilution factor. If a sample or extract is re-analyzed at a higher dilution factor, as in the "E" flag above, the "DL" suffix is appended to the sample number on the Form I for the diluted sample, and <u>all</u> concentration values reported on that Form I are flagged with the "D" flag. This flag alerts data users that any discrepancies between the concentrations reported may be due to dilution of the sample or extract.

A = This flag indicates that a TIC is a suspected aldol-condensation product.

X = Other specific flags may be required to properly define the results. If used, they must be fully described, and such description attached to the Sample Data Summary Package and the SDG Narrative. Begin by using "X". If more than one flag is required, use "Y" and "Z" as needed. If more than five qualifiers are required for a sample result, use the "X" flag to combine several flags, as needed. For instance, the "X" flag might combine the "A", "B", and "D" flags for some sample. The laboratory-defined flags are <u>limited to</u> the letters "X", "Y", and "Z".

R = This flag is used for polyaromatic hydrocarbons which show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion.

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
036008-0001-SA	STP-W409-060794	AQUEOUS	07 JUN 94	14:00	08 JUN 94
036008-0002-SA	DPV-W420-060794	AQUEOUS	07 JUN 94		08 JUN 94
036008-0002-DU	DPV-W420D-060794	AQUEOUS	07 JUN 94		08 JUN 94
036008-0002-MS	DPV-W420MS-060794	AQUEOUS	07 JUN 94		08 JUN 94
036008-0002-SD	DPV-W420MSD-060794	AQUEOUS	07 JUN 94		08 JUN 94
036008-0002-FB	DPV-W420FB-060794	AQUEOUS	07 JUN 94		08 JUN 94
036008-0002-FD	DPV-W420FBD-060794	AQUEOUS	07 JUN 94		08 JUN 94
036008-0003-SA	DPV-W421-060794	AQUEOUS	07 JUN 94		08 JUN 94
036008-0004-SA	DPV-W422-060794	AQUEOUS	07 JUN 94		08 JUN 94
036008-0005-SA	GTF-ACFE-060794	AQUEOUS	07 JUN 94		08 JUN 94
036008-0006-SA	GTF-SFR-060794	AQUEOUS	07 JUN 94		08 JUN 94
036008-0007-SA	PCJ-W23-060894	AQUEOUS	08 JUN 94		09 JUN 94

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 036008	Group Code	Analysis Description	Custom Test?
0001 - 0002,	A	CLP/PAH Semivolatile Organics High Level PPB	N
0002 - 0006		CLP Prep - PAH Semivolatile Organics by GC/MS High Level PPB	N
0002	B	CLP Prep - PAH Semivolatile Organics by GC/MS High Level PPB	N

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

STP-W409

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 36008 SAS No.: SDG No.: 36008

Matrix: (soil/water) WATER Lab Sample ID: 36008-01

Sample wt/vol: 1050 (g/mL) ML Lab File ID: T0201825.D

Level: (low/med) LOW Date Received: 06/08/94

% Moisture: _____ decanted: (Y/N)___ Date Extracted:06/12/94

Concentrated Extract Volume: 1 ML) Date Analyzed: 07/21/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	27	
91-57-6	2-Methylnaphthalene	10	U
208-96-8	Acenaphthylene	10	U
83-32-9	Acenaphthene	10	
132-64-9	Dibenzofuran	4	J
86-73-7	Fluorene	4	J
85-01-8	Phenanthrene	2	J
120-12-7	Anthracene	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1 2 3-cd)pyrene	10	U
53-70-3	Dibenzo(a h)anthracene	10	U
191-24-2	Benzo(g h i)perylene	10	U
86-74-8	Carbazole	5	J
95-13-6	1H-Indene	29	
91-22-5	Quinoline	10	U
90-12-0	1-Methylnaphthalene	10	
271-89-6	2,3-Benzofuran	1	J
496-11-7	2,3-Dihydroindene	26	
95-15-8	Benzo(b)thiophene	10	
120-72-9	1H-Indole	10	U
92-52-4	Biphenyl	3	J
132-65-0	Dibenzothiophene	10	U
260-94-6	Acridine	10	U
192-97-2	Benzo(e)pyrene	10	U
198-55-0	Perylene	10	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

STP-W409RE

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 36008 SAS No.: SDG No.: 36008

Matrix: (soil/water) WATER Lab Sample ID: 36008-01RE

Sample wt/vol: 1050 (g/mL) ML Lab File ID: T0301836.D

Level: (low/med) LOW Date Received: 06/08/94

% Moisture: _____ decanted: (Y/N)___ Date Extracted:06/12/94

Concentrated Extract Volume: 1(ML) Date Analyzed: 07/22/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	25	
91-57-6	2-Methylnaphthalene	10	U
208-96-8	Acenaphthylene	10	U
83-32-9	Acenaphthene	9	J
132-64-9	Dibenzofuran	3	J
86-73-7	Fluorene	3	J
85-01-8	Phenanthrene	2	J
120-12-7	Anthracene	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1 2 3-cd)pyrene	10	U
53-70-3	Dibenzo(a h)anthracene	10	U
191-24-2	Benzo(g h i)perylene	10	U
86-74-8	Carbazole	4	J
95-13-6	1H-Indene	27	
91-22-5	Quinoline	10	U
90-12-0	1-Methylnaphthalene	10	
271-89-6	2,3-Benzofuran	1	J
496-11-7	2,3-Dihydroindene	24	
95-15-8	Benzo(b)thiophene	9	J
120-72-9	1H-Indole	10	U
92-52-4	Biphenyl	3	J
132-65-0	Dibenzothiophene	10	U
260-94-6	Acridine	10	U
192-97-2	Benzo(e)pyrene	10	U
198-55-0	Perylene	10	U

SECOND HALF MONITORING

Quanterra Environmental Services

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

CASE NARRATIVE

FOR

City of St. Louis Park

November 19, 1994

Quanterra Environmental Services

Project Number 038363

Introduction

Twelve aqueous samples (includes QC) were received at Quanterra Environmental Services, Denver Laboratory on October 4, 1994 and October 5, 1994. The samples were logged in under Quanterra's Denver laboratory project number 038363. Sample STP-SLP3FBD-100394 (038363-01FBD) was extracted and held per the April 1990 QAPP. A cross reference associating Quanterra's Denver laboratory sample numbers to the actual field sample numbers is included. The samples were analyzed for low level part-per-trillion (ppt) polynuclear aromatic hydrocarbons (PAH).

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the April 1990 QAPP for completeness, precision, accuracy, representativeness and defensibility of the data. Unless otherwise stated below, no quality control problems or technical difficulties were encountered which would impact the interpretation or use of data in this report.

PPT PAH

The analysis of samples PCJ-SLP4 (038363-02), STP-W122 (038363-06) and STP-W408 (038363-07) required that the samples be diluted due to concentrations of target compounds. Reporting limits have been raised accordingly.

The surrogate Fluorene-d10 for sample STP-W122 (038363-06) was outside control limits.

Quanterra Environmental Services

The percent recovery for Benzo(E)Pyrene was below QC limits in STP-SLP3MS (038363-01MS). The relative percent difference (RPD) for this compound in the matrix spike/matrix spike duplicate pair were outside QC limits. The RPD for Chrysene was also outside QC limits. Since acceptable recovery was achieved for all other spike components, quantitation was checked and no further action was taken.

The internal standard area count for Acenaphthalene-D10 in sample STP-W408 (038363-07) was outside QC limits.

The 4800 ng/ml and the 2400 ng/ml standards had excessive saturation, therefore they were not used as the upper range for the 5-point calibration curve. Instead, the calibration curve used was, 20 ng/ml, 40 ng/ml, 240 ng/ml, 600 ng/ml, and 1200 ng/ml.

Some of the samples associated with project 038363 show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion. These compounds are flagged with the letter (R) on the data sheets (Form I) as per the 1990 QAPP.

This data package is in compliance with the terms and conditions of the 1990 QAPP, both technically and for completeness, for other than the conditions detailed above.

Reported by: _____ **Date:** 11/19/94
Daniel Rebarchik
Program Administrator

Approved by: _____ **Date:** 11/19/94
Kevin McHugh
Program Manager

Quanterra Environmental Services

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FOR

CITY OF ST. LOUIS PARK

QUANTERRA NO: 038363

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SCREENING DATA AND LOGBOOK RECORDS

Pages 1213 through 1233

Quanterra Environmental Services

QUALIFIER CODES AND THEIR USAGE

A = This flag indicates that a TIC is a suspected aldol-condensation product.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action. This flag must be used for a TIC as well as for a positively identified target compound.

C = This flag applies to pesticide results where the identification has been confirmed by GC/MS. If GC/MS confirmation was attempted but was unsuccessful, do not apply this flag, instead use a laboratory-defined flag, discussed below.

D = This flag identifies all compounds identified in an analysis at a secondary dilution factor. If a sample or extract is re-analyzed at a higher dilution factor, as in the "E" flag above, the "DL" suffix is appended to the sample number on the Form I for the diluted sample, and all concentration values reported on that form I are flagged with the "D" flag. This flag alerts data users that any discrepancies between the concentrations reported may be due to dilution of the sample or extract.

E = This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis. If one or more compounds have a response greater than full scale, except as noted in Exhibit D, the sample or extract must be diluted and re-analyzed accordingly to the specifications in exhibit D. All such compounds with a response greater than full scale should have the concentration flagged with an "E" on the Form I for the original analysis. If the dilution of the extract causes any compounds identified in the first analysis to be below the calibration range in the second analysis, the the results of both analyses shall be reported on separate copies of Form I. The Form I for the diluted sample shall have the "DL" suffix appended to the sample number. NOTE: For total xylenes, where three isomers are quantified as two peaks, the calibration range of each peak should be considered separately, e.g., a diluted analysis is not required for total xylenes unless the concentration of either peak separately exceeds 200 ug/L.

J = Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit but greater than zero. For example, if the sample quantitation limit is 10 ug/L, but a concentration of 3 ug/L is calculated report it as 3J. The sample quantitation limit must be adjusted for dilution as discussed for the U flag.

N = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds, where the identification is based on a mass spectral library search. It is applied to all TIC results.

Quanterra
Environmental Services

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

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QUALIFIER CODES AND THEIR USAGE
Page Two

P = This flag is used for a pesticide/Aroclor target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".

S = The concentration of this compound saturated the capacity of the detector and a valid quantitation could not be obtained at this dilution.

U = Indicates compound was analyzed for, but not detected. The sample quantitation limit must be corrected for dilution and for percent moisture. For example, 10 U for phenol in water if the sample final volume is the protocol-specified final volume. If a 1 to 10 dilution of extract is necessary, the reported limit is 100 U. For a soil sample, the value must <u>also</u> be adjusted for percent moisture.

X = Other specific flags may be required to properly define the results. If used, they must be fully described, and such description attached to the Sample Data Summary Package and the SDG Narrative. Begin by using "X". If more than one flag is required, use "Y" and "Z" as needed. If more than five qualifiers are required for a sample result, use the "X" flag to combine several flags as needed. For instance, the "X" flag might combine the "A", "B", and "D" flags for some sample. The laboratory-defined flags are <u>limited to</u> the letters "X", "Y", and "Z".

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
038363-0001-SA	STP-SLP3-100394	AQUEOUS	03 OCT 94		04 OCT 94
038363-0001-DU	STP-SLP3D-100394	AQUEOUS	03 OCT 94		04 OCT 94
038363-0001-FB	STP-SLP3FB-100394	AQUEOUS	03 OCT 94		04 OCT 94
038363-0001-FD	STP-SLP3FBD-100394	AQUEOUS	03 OCT 94		04 OCT 94
038363-0001-MS	STP-SLP3MS-100394	AQUEOUS	03 OCT 94		05 OCT 94
038363-0001-SD	STP-SLP3MSD-100394	AQUEOUS	03 OCT 94		05 OCT 94
038363-0002-SA	PCJ-SLP4-100394	AQUEOUS	03 OCT 94		04 OCT 94
038363-0003-SA	STP-W411-100394	AQUEOUS	03 OCT 94	12:30	04 OCT 94
038363-0004-SA	STP-W129-100394	AQUEOUS	03 OCT 94	13:15	04 OCT 94
038363-0005-SA	STP-P116-100394	AQUEOUS	03 OCT 94	16:20	04 OCT 94
038363-0006-SA	STP-W122-100394	AQUEOUS	03 OCT 94	16:00	04 OCT 94
038363-0007-SA	STP-W408-100394	AQUEOUS	03 OCT 94	16:40	04 OCT 94

Enseco
A Corning Company
4955 Yarrow Street
Arvada, CO 80002
303/421-6611 FAX: 303/431-7171
1420 East North Belt Drive
Suite 120
Houston, TX 77032
713/987-9767 FAX 713/987-9769

CHAIN OF CUSTODY

ENSECO CLIENT: City of ST LOUIS PARK (WATER DEPT)

PROJECT:

SAMPLING COMPANY: SAME

SAMPLING SITE: SAME

TEAM LEADER: [illegible]

SAMPLE SAFE™ CONDITIONS

PACKED BY: [illegible]

SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:

SEALED FOR SHIPPING BY: [illegible]

SEAL NUMBER:

SAMPLING STATUS: ☐ Done ☐ Continuing Until

SEAL INTACT UPON RECEIPT BY LAB: ☑ Yes ☐ No

SEAL NUMBER:

CONDITION OF CONTENTS:

INITIAL CONTENTS TEMP: °C

CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 10.4 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
10-3-94		STP-SLP3-100394	1XL AMBER	6	PPL PAH	PPL 5 -1
10 3-94		STP-SLP3D-100394	1XL AMBER	6	PPL PAH	PPL 5 -1PL

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: [illegible]

METHOD OF SHIPMENT: FED EX

AIRBILL NUMBER: 2103421084

RECEIVED FOR LAB: BLS

SIGNED: [illegible]

DATE/TIME: 10-4-94 900

ENSECO PROJECT NUMBER: 38363

EHS-4011

White - CLIENT Pink - LAB

Enseco
A Corning Company
Arvada, CO 80002
303/421-6611 FAX: 303/431-7171
Suite 120
Houston, TX 77032
713/987-9767 FAX: 713/987-9769

CHAIN OF CUSTODY

ENSECO CLIENT	CITY OF ST LOUIS PK (WATER DEPT)
PROJECT	
SAMPLING COMPANY	SAME
SAMPLING SITE	SAME
TEAM LEADER	MZR

SAMPLE SAFE™ CONDITIONS

PACKED BY	MZR
SEAL NUMBER	
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY	
CONDITION OF CONTENTS	
SEALED FOR SHIPPING BY	MZR
INITIAL CONTENTS TEMP	°C
SEAL NUMBER	
SAMPLING STATUS	☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB	☒ Yes ☐ No
CONTENTS TEMPERATURE UPON RECEIPT BY LAB	12.3 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
10-3-94		STP-SLP3FB-100394	1XL AMBER	6	PPL PAH	PPL 5 -1F
10-3-94		STP-SLP3FBD-100394	1XL AMBER	6	PPL PAH	PPL 5 -1F
10-3-94		PEJ-SLP4-100394	1XL AMBER	6	PPL PAH	PPL 5 -2

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME

SHIPPING DETAILS

DELIVERED TO SHIPPER BY	MZR	
METHOD OF SHIPMENT	FED EX	AIRBILL NUMBER 2103421084
RECEIVED FOR LAB	QLS	SIGNED [signature] DATE/TIME 6994 900
ENSECO PROJECT NUMBER	38363	

ENS-4011

White – CLIENT Pink – LAB

Enseco
A Corning Company
4955 Yarrow Street
Arvada, CO 80002
303/421-6611 FAX: 303/431-7171
1420 East North Belt Drive
Suite 120
Houston, TX 7703
713/987-9767 FAX 713/987-9769

CHAIN OF CUSTODY

ENSECO CLIENT: CITY OF ST LOUIS PARK (WATER DEPT)	
PROJECT:	
SAMPLING COMPANY: SAME	
SAMPLING SITE: SAME	
TEAM LEADER: [illegible]	

SAMPLE SAFE™ CONDITIONS

PACKED BY: [illegible]	SEAL NUMBER:
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:	CONDITION OF CONTENTS:
SEALED FOR SHIPPING BY: [illegible]	INITIAL CONTENTS TEMP: °C
SEAL NUMBER:	SAMPLING STATUS: ☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No	CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 7.9 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
10-3-94		STP-SLP3MS-100394	1XL AMBER	6	PPL PAH	Hinpbyrsen -1MS
10-3-94		STP-SLP3MSD-100394	1XL AMBER	6	PPL PAH	Pyrene -1SD

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME
[illegible]		10/4/94	[illegible]

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: [illegible]		
METHOD OF SHIPMENT: FED EX		AIRBILL NUMBER: 2193421084
RECEIVED FOR LAB: QES	SIGNED: [illegible]	DATE/TIME: 10594 830
ENSECO PROJECT NUMBER:		38363

ENS-4011 White - CLIENT Pink - LAB

Enseco
A Corning Company
4955 Yarrow Street
Arvada, CO 80002
303/421-6611 FAX: 303/431-7171
1420 East North Belt Drive
Suite 120
Houston, TX 77032
713/987-9767 FAX: 713/987-9769

CHAIN OF CUSTODY

ENSECO CLIENT: City of St Louis Park
PROJECT: SLP
SAMPLING COMPANY: FASR C+E
SAMPLING SITE: SLP
TEAM LEADER: Peka Moore

SAMPLE SAFE™ CONDITIONS

PACKED BY: Peka Moore
SEAL NUMBER: NA
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY: ND
CONDITION OF CONTENTS:
SEALED FOR SHIPPING BY: Peka Moore
INITIAL CONTENTS TEMP: °C
SEAL NUMBER: NA
SAMPLING STATUS: ☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No
CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 8.8 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
10/3/94	12:30	STP-W111-100394	H_2O	6	PPT-PAH	PPT-5 -3
10/3/94	13:15	STP-W129-100394	H_2O	6	PPT-PAH	PPT-5 -4
10/3/94	16:20	STP-P116-100394	H_2O	6	PPT-PAH	PPT-5 -5
			field			

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME
Peka Moore			

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: Peka Moore
METHOD OF SHIPMENT: FED-EX
AIRBILL NUMBER:
RECEIVED FOR LAB: DCS
SIGNED: [signature]
DATE/TIME: 10-4-94 900
ENSECO PROJECT NUMBER: 38863

ENS-4011 White - CLIENT Pink - LAB

Enseco
A Corning Company
4955 Yarrow Street
Arvada, CO 80002
303/421-6611 FAX: 303/431-7171
1120 East North Belt Drive
Suite 120
Houston, TX 77
713/987-9767 FAX 713/987-9769

CHAIN OF CUSTODY

ENSECO CLIENT	City of St Louis Park
PROJECT	SLP
SAMPLING COMPANY	ENSR CHE
SAMPLING SITE	SLP
TEAM LEADER	Pete Moore

SAMPLE SAFE™ CONDITIONS

PACKED BY	Pete Moore
SEAL NUMBER	NK
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY	NA
CONDITION OF CONTENTS	OK
SEALED FOR SHIPPING BY	Peter Moore
INITIAL CONTENTS TEMP	NA °C
SEAL NUMBER	NA
SAMPLING STATUS	☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB	☒ Yes ☐ No
CONTENTS TEMPERATURE UPON RECEIPT BY LAB	6.6 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
10/3/94	16:00	STP-W122-100394	H2O	6	PPT-PAH	PPT-5
10/3/94	16:40	STP-W408-100394	H2O	6	PPT-PAH	PPT-5

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME
Pete Moore			

SHIPPING DETAILS

DELIVERED TO SHIPPER BY	Pete Moore	
METHOD OF SHIPMENT	FEDEX	AIRBILL NUMBER
RECEIVED FOR LAB	QES	SIGNED DDeCks — DATE/TIME 10/4/94
ENSECO PROJECT NUMBER	38363	

ENS-4011 White – CLIENT Pink – LAB

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

38363-01

STP-SLP3-100394

ab Name: QUANTERRA Denver Contract:

ab Code: Case No.: 38363 SAS No.: SDG No.:

atrix: (soil/water) WATER Lab Sample ID: 38363-01

ample wt/vol: 4200 (g/mL) ML Lab File ID: C9923

evel: (low/med) LOW Date Received: 10/04/94

Moisture: decanted: (Y/N) N Date Extracted: 10/04/94

oncentrated Extract Volume: 500(uL) Date Analyzed: 10/12/94

njection Volume: 2.0(uL) Dilution Factor: 0.8

PC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	1	JR
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	2	BJ
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	1.4	
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	1	BJ
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	U
129-00-0	Pyrene	1	U
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

38363-01DU

STP-SLP3D-100394

b Name: QUANTERRA Denver Contract:

b Code: Case No.: 38363 SAS No.: SDG No.:

trix: (soil/water) WATER Lab Sample ID: 38363-01DU

mple wt/vol: 4200 (g/mL) ML Lab File ID: C9924

vel: (low/med) LOW Date Received: 10/04/94

Moisture: decanted: (Y/N) N Date Extracted: 10/04/94

ncentrated Extract Volume: 500(uL) Date Analyzed: 10/12/94

jection Volume: 2.0(uL) Dilution Factor: 0.8

PC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	2	BJR
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	1	
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	1	BJ
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	J
129-00-0	Pyrene	1	J
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

38363-01FB

STP-SLP3FB-100394

ıb Name: QUANTERRA Denver Contract:

ıb Code: Case No.: 38363 SAS No.: SDG No.:

ıtrix: (soil/water) WATER Lab Sample ID: 38363-01FB

ımple wt/vol: 4180 (g/mL) ML Lab File ID: C9910

evel: (low/med) LOW Date Received: 10/04/94

Moisture: decanted: (Y/N) N Date Extracted: 10/04/94

ɔncentrated Extract Volume: 500(uL) Date Analyzed: 10/07/94

ıjection Volume: 2.0(uL) Dilution Factor: 0.8

PC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	1	JR
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	3	BJ
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	2	
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	2	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	U
129-00-0	Pyrene	1	U
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

38363-01FD

STP-SLP3FBD-100394

ıb [redacted]e: QUANTERRA Denver Contract:

ıb Code: Case No.: 38363 SAS No.: SDG No.:

ıtrix: (soil/water) WATER Lab Sample ID: 38363-01FD

ımple wt/vol: 4180 (g/mL) ML Lab File ID: C9911

ɜvel: (low/med) LOW Date Received: 10/04/94

Moisture: decanted: (Y/N) N Date Extracted: 10/04/94

ɔncentrated Extract Volume: 500(uL) Date Analyzed: 10/07/94

ıjection Volume: 2.0(uL) Dilution Factor: 0.8

PC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	1	JR
95-13-6	1H-Indene	1	
91-20-3	Naphthalene	3	BJ
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	2	
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	2	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	U
129-00-0	Pyrene	1	U
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

38363-03

STP-W411-100394

b Name: QUANTERRA Denver Contract:

b Code: Case No.: 38363 SAS No.: SDG No.:

trix: (soil/water) WATER Lab Sample ID: 38363-03

mple wt/vol: 4190 (g/mL) ML Lab File ID: C9943

vel: (low/med) LOW Date Received: 10/04/94

Moisture: decanted: (Y/N) N Date Extracted: 10/04/94

ncentrated Extract Volume: 500(uL) Date Analyzed: 10/13/94

jection Volume: 2.0(uL) Dilution Factor: 0.8

C Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	5	R
95-13-6	1H-Indene	7	
91-20-3	Naphthalene	40	B
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	JR
120-72-9	1H-Indole	4	R
91-57-6	2-Methylnaphthalene	31	
90-12-0	1-Methylnaphthalene	27	
92-52-4	Biphenyl	7	
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	10	
132-64-9	Dibenzofuran	7	
86-73-7	Fluorene	7	
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	23	B
120-12-7	Anthracene	3	R
260-94-6	Acridine	25	R
86-74-8	Carbazole	6	R
206-44-0	Fluoranthene	4	R
129-00-0	Pyrene	13	
56-55-3	Benzo(A)Anthracene	1	J
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	J
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	2	J

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

38363-04

STP-WI29-100394

ab Name: QUANTERRA Denver Contract:

ab Code: Case No.: 38363 SAS No.: SDG No.:

atrix: (soil/water) WATER Lab Sample ID: 38363-04

ample wt/vol: 4200 (g/mL) ML Lab File ID: C9945

evel: (low/med) LOW Date Received: 10/04/94

Moisture: decanted: (Y/N) N Date Extracted: 10/04/94

oncentrated Extract Volume: 500(uL) Date Analyzed: 10/13/94

njection Volume: 2.0(uL) Dilution Factor: 0.8

PC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Benzofuran	2	J
496-11-7	2,3-Dihydroindene	4	
95-13-6	1H-Indene	2	
91-20-3	Naphthalene	25	BR
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	26	
90-12-0	1-Methylnaphthalene	15	
92-52-4	Biphenyl	4	J
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	3	R
132-64-9	Dibenzofuran	3	
86-73-7	Fluorene	3	
132-65-0	Dibenzothiophene	1	JR
85-01-8	Phenanthrene	8	B
120-12-7	Anthracene	1	J
260-94-6	Acridine	3	U
86-74-8	Carbazole	1	JR
206-44-0	Fluoranthene	3	
129-00-0	Pyrene	11	
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	2	JR

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

38363-05

STP-PI16-100394

ıb Name: QUANTERRA Denver Contract:

ıb Code: Case No.: 38363 SAS No.: SDG No.:

ıtrix: (soil/water) WATER Lab Sample ID: 38363-05

ımple wt/vol: 4170 (g/mL) ML Lab File ID: C9946

ɜvel: (low/med) LOW Date Received: 10/04/94

Moisture: decanted: (Y/N) N Date Extracted: 10/04/94

ɔncentrated Extract Volume: 500(uL) Date Analyzed: 10/13/94

ıjection Volume: 2.0(uL) Dilution Factor: 0.8

PC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	7	
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	19	B
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	19	
90-12-0	1-Methylnaphthalene	9	
92-52-4	Biphenyl	3	J
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	J
132-64-9	Dibenzofuran	1	
86-73-7	Fluorene	1	
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	4	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	J
129-00-0	Pyrene	1	J
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

38363-06

STP-WI22-100394

:b [redacted]e: QUANTERRA Denver Contract:

ıb Code: Case No.: 38363 SAS No.: SDG No.:

ıtrix: (soil/water) WATER Lab Sample ID: 38363-06

ımple wt/vol: 4140 (g/mL) ML Lab File ID: C9920

:vel: (low/med) LOW Date Received: 10/04/94

Moisture: decanted: (Y/N) N Date Extracted: 10/04/94

ɔncentrated Extract Volume: 500(uL) Date Analyzed: 10/07/94

ıjection Volume: 2.0(uL) Dilution Factor: 0.8

ᵖC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Benzofuran	6	
496-11-7	2,3-Dihydroindene	16	
95-13-6	1H-Indene	7	
91-20-3	Naphthalene	43	BTR
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	3	
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	34	
90-12-0	1-Methylnaphthalene	24	
92-52-4	Biphenyl	9	
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	7	
132-64-9	Dibenzofuran	10	
86-73-7	Fluorene	6	
132-65-0	Dibenzothiophene	4	R
85-01-8	Phenanthrene	13	BR
120-12-7	Anthracene	2	R
260-94-6	Acridine	20	R
86-74-8	Carbazole	7	R
206-44-0	Fluoranthene	7	
129-00-0	Pyrene	30	R
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	JR
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	JR
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	7	

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

38363-06DL

STP-WI22-100394

b Name: QUANTERRA Denver Contract:

.b Code: Case No.: 38363 SAS No.: SDG No.:

.trix: (soil/water) WATER Lab Sample ID: 38363-06DL

mple wt/vol: 4140 (g/mL) ML Lab File ID: C9932

.vel: (low/med) LOW Date Received: 10/04/94

Moisture: decanted: (Y/N) N Date Extracted: 10/04/94

ncentrated Extract Volume: 500(uL) Date Analyzed: 10/12/94

jection Volume: 2.0(uL) Dilution Factor: 10.0

C Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Benzofuran	10	DJ
496-11-7	2,3-Dihydroindene	23	D
95-13-6	1H-Indene	10	D
91-20-3	Naphthalene	110	BD
4565-32-6	Benzo(B)Thiophene	9	U
91-22-5	Quinoline	13	U
120-72-9	1H-Indole	11	DJR
91-57-6	2-Methylnaphthalene	59	D
90-12-0	1-Methylnaphthalene	34	D
92-52-4	Biphenyl	12	DJ
208-96-8	Acenaphthylene	13	U
83-32-9	Acenaphthene	11	DJ
132-64-9	Dibenzofuran	15	D
86-73-7	Fluorene	10	U
132-65-0	Dibenzothiophene	11	U
85-01-8	Phenanthrene	15	DB
120-12-7	Anthracene	11	U
260-94-6	Acridine	11	DJ
86-74-8	Carbazole	10	DJ
206-44-0	Fluoranthene	13	U
129-00-0	Pyrene	43	D
56-55-3	Benzo(A)Anthracene	24	U
218-01-9	Chrysene	27	U
205-99-2	Benzo(B)Fluoranthene	24	U
207-08-9	Benzo(K)Fluoranthene	22	U
192-97-2	Benzo(E)Pyrene	18	U
50-32-8	Benzo(A)Pyrene	22	U
198-55-0	Perylene	24	U
193-39-5	Indeno(1,2,3-CD)Pyrene	21	U
53-70-3	Dibenz(A,H)Anthracene	16	U
191-24-2	Benzo(G,H,I)Perylene	10	DJ

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

38363-07

STP-W408-100394

b Name: QUANTERRA Denver Contract:

b Code: Case No.: 38363 SAS No.: SDG No.:

trix: (soil/water) WATER Lab Sample ID: 38363-07

mple wt/vol: 4180 (g/mL) ML Lab File ID: C9921

vel: (low/med) LOW Date Received: 10/04/94

Moisture: decanted: (Y/N) N Date Extracted: 10/04/94

ncentrated Extract Volume: 500(uL) Date Analyzed: 10/07/94

jection Volume: 2.0(uL) Dilution Factor: 0.8

C Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	5	
95-13-6	1H-Indene	3	
91-20-3	Naphthalene	29	BERT
4565-32-6	Benzo(B)Thiophene	6	R
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	8	R
90-12-0	1-Methylnaphthalene	18	
92-52-4	Biphenyl	4	J
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	10	
132-64-9	Dibenzofuran	5	
86-73-7	Fluorene	4	
132-65-0	Dibenzothiophene	2	
85-01-8	Phenanthrene	8	BR
120-12-7	Anthracene	1	U
260-94-6	Acridine	2	JR
86-74-8	Carbazole	6	
206-44-0	Fluoranthene	3	R
129-00-0	Pyrene	14	R
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

38363-07DL

b Name: QUANTERRA Denver Contract: STP-W408-100394

b Code: Case No.: 38363 SAS No.: SDG No.:

trix: (soil/water) WATER Lab Sample ID: 38363-07DL

mple wt/vol: 4180 (g/mL) ML Lab File ID: C9934

vel: (low/med) LOW Date Received: 10/04/94

Moisture: decanted: (Y/N) N Date Extracted: 10/04/94

ncentrated Extract Volume: 500(uL) Date Analyzed: 10/13/94

jection Volume: 2.0(uL) Dilution Factor: 10.0

PC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Benzofuran	49	U
496-11-7	2,3-Dihydroindene	13	U
95-13-6	1H-Indene	9	U
91-20-3	Naphthalene	68	BD
4565-32-6	Benzo(B)Thiophene	9	U
91-22-5	Quinoline	13	U
120-72-9	1H-Indole	24	U
91-57-6	2-Methylnaphthalene	14	D
90-12-0	1-Methylnaphthalene	26	D
92-52-4	Biphenyl	41	U
208-96-8	Acenaphthylene	13	U
83-32-9	Acenaphthene	16	D
132-64-9	Dibenzofuran	10	U
86-73-7	Fluorene	10	U
132-65-0	Dibenzothiophene	11	U
85-01-8	Phenanthrene	10	BDJ
120-12-7	Anthracene	11	U
260-94-6	Acridine	28	U
86-74-8	Carbazole	11	DJ
206-44-0	Fluoranthene	13	U
129-00-0	Pyrene	25	D
56-55-3	Benzo(A)Anthracene	24	U
218-01-9	Chrysene	26	U
205-99-2	Benzo(B)Fluoranthene	24	U
207-08-9	Benzo(K)Fluoranthene	22	U
192-97-2	Benzo(E)Pyrene	18	U
50-32-8	Benzo(A)Pyrene	22	U
198-55-0	Perylene	24	U
193-39-5	Indeno(1,2,3-CD)Pyrene	20	U
53-70-3	Dibenz(A,H)Anthracene	16	U
191-24-2	Benzo(G,H,I)Perylene	26	U

2C

WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: QUANTERRA Denver Contract:

Lab Code: Case No.: 38363 SAS No.: SDG No.:

	EPA SAMPLE NO.	S1 (NAP)#	S2 (FLU)#	S3 (CHR)#	TOT OUT
01	38363-01	61	60	46	0
02	38363-01DU	56	55	68	0
03	38363-01FB	64	50	64	0
04	38363-01FD	64	50	60	0
05	38363-02	59	47	27	0
06	38363-02DL	0 D	0 D	0 D	0
07	38363-03	39	52	44	0
08	38363-04	48	50	18	0
09	38363-05	53	50	17	0
10	38363-06	41	37 *	11	1
11	38363-06DL	0 D	0 D	0 D	0
12	38363-07	43	44	18	0
13	38363-07DL	0 D	0 D	0 D	0
14	38363-01MS	68	64	56	0
15	38363-01MSD	65	52	37	0
16	BLK01	60	53	72	0

	QC LIMITS
S1 (NAP) = Naphthalene-d8	(21-108)
S2 (FLU) = Fluorene-d10	(41-162)
S3 (CHR) = Chrysene-d12	(10-118)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogate diluted out

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

ɔ Name: QUANTERRA Denver Contract:

ɔ Code: Case No.: 38363 SAS No.: SDG No.:

trix Spike - EPA Sample No.: 38363-01

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC #	QC LIMITS REC.
1H-Indene	9.520	0	7.473	78	20-150
Naphthalene	9.520	1.368	9.330	84	20-150
Quinoline	9.520	0	7.711	81	20-150
2-Methylnaphthalene	9.520	0	9.568	100	20-150
Fluorene	9.520	0	8.128	85	69-118
Chrysene	9.520	0	5.058	53	20-132
Benzo(E)Pyrene	9.520	0	1.125	12	10-150

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1H-Indene	9.520	6.985	73	7	28	20-150
Naphthalene	9.520	8.092	71	17	28	20-150
Quinoline	9.520	8.485	89	9	28	20-150
2-Methylnaphthalene	9.520	7.925	83	19	28	20-150
Fluorene	9.520	6.557	69	21	28	69-118
Chrysene	9.520	3.451	36	38 *	28	20-132
Benzo(E)Pyrene	9.520	0	0 *	200 *	28	10-150

Column to be used to flag recovery and RPD values with an asterisk
Values outside of QC limits

ɔMMENTS:

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

38363-01MS

b N[illegible]: QUANTERRA Denver Contract:

b Code: Case No.: 38363 SAS No.: SDG No.:

.trix: (soil/water) WATER Lab Sample ID: 38363-01MS

mple wt/vol: 4200 (g/mL) ML Lab File ID: C9925

vel: (low/med) LOW Date Received: 10/05/94

Moisture: decanted: (Y/N) N Date Extracted: 10/04/94

ıncentrated Extract Volume: 500(uL) Date Analyzed: 10/12/94

ıjection Volume: 2.0(uL) Dilution Factor: 0.8

ᵖC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	1	J
95-13-6	1H-Indene	7	
91-20-3	Naphthalene	9	B
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	8	
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	10	
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	8	
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	1	BJ
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	U
129-00-0	Pyrene	1	J
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	5	
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	1	J
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

38363-01MSD

ɔ Name: QUANTERRA Denver Contract:

ɔ Code: Case No.: 38363 SAS No.: SDG No.:

:rix: (soil/water) WATER Lab Sample ID: 38363-01MSD

nple wt/vol: 4200 (g/mL) ML Lab File ID: C9915

/el: (low/med) LOW Date Received: 10/05/94

Moisture: decanted: (Y/N) N Date Extracted: 10/04/94

ncentrated Extract Volume: 500(uL) Date Analyzed: 10/07/94

jection Volume: 2.0(uL) Dilution Factor: 0.8

C Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
95-13-6	1H-Indene	7	
91-20-3	Naphthalene	8	B
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	8	
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	8	
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	7	
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	2	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	J
129-00-0	Pyrene	2	
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

BLK01

b N[illegible]: QUANTERRA Denver Contract:

b Code: Case No.: 38363 SAS No.: SDG No.:

b File ID: C9909 Lab Sample ID: BL100494

strument ID: 4500-C Date Extracted: 10/04/94

trix: (soil/water) WATER Date Analyzed: 10/07/94

vel:(low/med) LOW Time Analyzed: 1358

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	38363-01	38363-01	C9923	10/12/94
02	38363-01DU	38363-01DU	C9924	10/12/94
03	38363-01FB	38363-01FB	C9910	10/07/94
04	38363-01FD	38363-01FD	C9911	10/07/94
05	38363-02	38363-02	C9916	10/07/94
06	38363-02DL	38363-02DL	C9926	10/12/94
07	38363-03	38363-03	C9943	10/13/94
08	38363-04	38363-04	C9945	10/13/94
09	38363-05	38363-05	C9946	10/13/94
10	38363-06	38363-06	C9920	10/07/94
11	38363-06DL	38363-06DL	C9932	10/12/94
12	38363-07	38363-07	C9921	10/07/94
13	38363-07DL	38363-07DL	C9934	10/13/94
14	38363-01MS	38363-01MS	C9925	10/12/94
15	38363-01MSD	38363-01MSD	C9915	10/07/94

OMMENTS:

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

BLK01

) Name: QUANTERRA Denver Contract:

) Code: Case No.: 38363 SAS No.: SDG No.:

:rix: (soil/water) WATER Lab Sample ID: BL100494

ıple wt/vol: 4000 (g/mL) ML Lab File ID: C9909

/el: (low/med) LOW Date Received:

Moisture: decanted: (Y/N) N Date Extracted: 10/04/94

ıcentrated Extract Volume: 500(uL) Date Analyzed: 10/07/94

jection Volume: 2.0(uL) Dilution Factor: 0.8

: Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	Benzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	1	J
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	0.9	U
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	2	
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	U
129-00-0	Pyrene	1	U
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Name: QUANTERRA Denver Contract:

Co[illegible] Case No.: 38363 SAS No.: SDG No.:

File ID (Standard): C9908 Date Analyzed: 10/07/94

trument ID: 4500-C Time Analyzed: 1313

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	381886	15.07	450256	18.87	195950	28.99
	UPPER LIMIT	763772	15.57	900512	19.37	391900	29.49
	LOWER LIMIT	190943	14.57	225128	18.37	97975	28.49
	EPA SAMPLE NO.						
01	38363-01FB	433357	15.07	516067	18.85	292102	28.99
02	38363-01FD	540801	15.07	643249	18.85	376913	28.97
03	38363-02	534273	15.05	633688	18.84	376139	28.97
04	38363-06	666993	15.09	569938	18.87	253387	29.01
05	38363-07	912253 *	15.07	855128	18.84	359008	28.97
06	38363-01MSD	521230	15.07	598991	18.85	387751	28.99
07	BLK01	460293	15.07	549513	18.84	275952	28.97

IS[illegible]ACN) = Acenaphthene-D10
IS[illegible]PHN) = Phenanthrene-D10
IS3 (BAP) = Benzo(A)Pyrene-D12

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

.b Name: QUANTERRA Denver Contract:

ıb Code: Case No.: 38363 SAS No.: SDG No.:

ıb File ID (Standard): C9922 Date Analyzed: 10/12/94

ıstrument ID: 4500-C Time Analyzed: 1552

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	423808	15.04	507659	18.85	278154	29.02
	UPPER LIMIT	847616	15.54	1015318	19.35	556308	29.52
	LOWER LIMIT	211904	14.54	253830	18.35	139077	28.52
	EPA SAMPLE NO.						
01	38363-01	530680	15.04	742230	18.85	417976	29.02
02	38363-01DU	564326	15.05	786849	18.92	379156	29.07
03	38363-02DL	715745	15.05	861689	18.92	431832	29.07
04	38363-06DL	560910	15.05	731826	18.85	394233	29.02
05	38363-07DL	470665	15.02	622543	18.84	409607	29.01
06	38363-01MS	670271	15.05	857972	18.90	439440	29.07

IS1 (ACN) = Acenaphthene-D10
IS2 (PHN) = Phenanthrene-D10
IS3 (BAP) = Benzo(A)Pyrene-D12

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

b Name: QUANTERRA Denver Contract:

b [illegible]e: Case No.: 38363 SAS No.: SDG No.:

.b File ID (Standard): C9940 Date Analyzed: 10/13/94

strument ID: 4500-C Time Analyzed: 1557

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	450586	15.17	629818	18.94	496438	29.07
	UPPER LIMIT	901172	15.67	1259636	19.44	992876	29.57
	LOWER LIMIT	225293	14.67	314909	18.44	248219	28.57
	EPA SAMPLE NO.						
01	38363-03	726774	15.02	758041	18.80	356944	28.96
02	38363-04	779756	15.19	790899	18.97	385423	29.12
03	38363-05	553155	15.20	607676	18.97	300717	29.11

IS1 (ACN) = Acenaphthene-D10
IS2 (PHN) = Phenanthrene-D10
IS3 (BAP) = Benzo(A)Pyrene-D12

[illegible]A UPPER LIMIT = + 100% of internal standard area.
[illegible]A LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

SEMIVOLATILES DATA

QC SUMMARY

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

ab Name: QUANTERRA Denver Contract:

ab Code: Case No.: 38363 SAS No.: SDG No.:

000002

	EPA SAMPLE NO.	S1 (NAP)#	S2 (FLU)#	S3 (CHR)#	TOT OUT
01	38363-01	61	60	46	0
02	38363-01DU	56	55	68	0
03	38363-01FB	64	50	64	0
04	38363-01FD	64	50	60	0
05	38363-02	59	47	27	0
06	38363-02DL	0 D	0 D	0 D	0
07	38363-03	39	52	44	0
08	38363-04	48	50	18	0
09	38363-05	53	50	17	0
10	38363-06	41	37 *	11	1
11	38363-06DL	0 D	0 D	0 D	0
12	38363-07	43	44	18	0
13	38363-07DL	0 D	0 D	0 D	0
14	38363-01MS	68	64	56	0
15	38363-01MSD	65	52	37	0
16	BLK01	60	53	72	0

	QC LIMITS
S1 (NAP) = Naphthalene-d8	(21-108)
S2 (FLU) = Fluorene-d10	(41-162)
S3 (CHR) = Chrysene-d12	(10-118)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogate diluted out

FORM II SV-1 3/90

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

000003

ab Name: QUANTERRA Denver Contract:

ab Code: Case No.: 38363 SAS No.: SDG No.:

atrix Spike - EPA Sample No.: 38363-01

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC #	QC LIMITS REC.
1H-Indene	9.520	0	7.473	78	20-150
Naphthalene	9.520	1.368	9.330	84	20-150
Quinoline	9.520	0	7.711	81	20-150
2-Methylnaphthalene	9.520	0	9.568	100	20-150
Fluorene	9.520	0	8.128	85	69-118
Chrysene	9.520	0	5.058	53	20-132
Benzo(E)Pyrene	9.520	0	1.125	12	10-150

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1H-Indene	9.520	6.985	73	7	28	20-150
Naphthalene	9.520	8.092	71	17	28	20-150
Quinoline	9.520	8.485	89	9	28	20-150
2-Methylnapnthalene	9.520	7.925	83	19	28	20-150
Fluorene	9.520	6.557	69	21	28	69-118
Chrysene	9.520	3.451	36	38 *	28	20-132
Benzo(E)Pyrene	9.520	0	0 *	200 *	28	10-150

= Column to be used to flag recovery and RPD values with an asterisk
- Values outside of QC limits

COMMENTS:

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

BLK01

000004

ɔ N[illegible]: QUANTERRA Denver Contract:

ɔ Code: Case No.: 38363 SAS No.: SDG No.:

ɔ File ID: C9909 Lab Sample ID: BL100494

strument ID: 4500-C Date Extracted: 10/04/94

trix: (soil/water) WATER Date Analyzed: 10/07/94

vel:(low/med) LOW Time Analyzed: 1358

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	38363-01	38363-01	C9923	10/12/94
02	38363-01DU	38363-01DU	C9924	10/12/94
03	38363-01FB	38363-01FB	C9910	10/07/94
04	38363-01FD	38363-01FD	C9911	10/07/94
05	38363-02	38363-02	C9916	10/07/94
06	38363-02DL	38363-02DL	C9926	10/12/94
07	38363-03	38363-03	C9943	10/13/94
08	38363-04	38363-04	C9945	10/13/94
09	38363-05	38363-05	C9946	10/13/94
10	38363-06	38363-06	C9920	10/07/94
11	38363-06DL	38363-06DL	C9932	10/12/94
12	38363-07	38363-07	C9921	10/07/94
13	38363-07DL	38363-07DL	C9934	10/13/94
14	38363-01MS	38363-01MS	C9925	10/12/94
15	38363-01MSD	38363-01MSD	C9915	10/07/94

ɔMMENTS:

5B
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

000005

ɔ Name: QUANTERRA Denver Contract:

ɔ Code: Case No.: 38363 SAS No.: SDG No.:

ɔ File ID: C9896T Run Date: 10/05/94

strument ID: 4500-C Run Time: 1643

IS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD40	40PPBPAH	C9896	10/05/94	1643
02	SSTD1200	1200PPBPAH	C9897	10/05/94	1735
03	SSTD600	600PPBPAH	C9898	10/05/94	1820
04	SSTD240	240PPBPAH	C9899	10/05/94	1905
05	SSTD20	20PPBPAH	C9900	10/05/94	1950

FORM V SV 3/90

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

000006

ɔ Name: QUANTERRA Denver Contract:

ɔ Code: Case No.: 38363 SAS No.: SDG No.:

ɔ File ID: C9908T Run Date: 10/07/94

strument ID: 4500-C Run Time: 1313

IS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD040	40PPBPAH	C9908	10/07/94	1313
02	BLK01	BL100494	C9909	10/07/94	1358
03	38363-01FB	38363-01FB	C9910	10/07/94	1442
04	38363-01FD	38363-01FD	C9911	10/07/94	1533
05	38363-01MSD	38363-01MSD	C9915	10/07/94	1835
06	38363-02	38363-02	C9916	10/07/94	1920
07	38363-06	38363-06	C9920	10/07/94	2230
08	38363-07	38363-07	C9921	10/07/94	2320

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

000007

b Name: QUANTERRA Denver Contract:

b Code: Case No.: 38363 SAS No.: SDG No.:

b File ID: C9922T Run Date: 10/12/94

strument ID: 4500-C Run Time: 1552

IS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD040	40PPBPAH	C9922	10/12/94	1552
02	38363-01	38363-01	C9923	10/12/94	1657
03	38363-01DU	38363-01DU	C9924	10/12/94	1742
04	38363-01MS	38363-01MS	C9925	10/12/94	1827
05	38363-02DL	38363-02DL	C9926	10/12/94	1911
06	38363-06DL	38363-06DL	C9932	10/12/94	2344
07	38363-07DL	38363-07DL	C9934	10/13/94	0113

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

000008

b Name: QUANTERRA Denver Contract:

b C[illegible]: Case No.: 38363 SAS No.: SDG No.:

b File ID: C9940T Run Date: 10/13/94

strument ID: 4500-C Run Time: 1557

IS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD040	40PPBPAH	C9940	10/13/94	1557
02	38363-03	38363-03	C9943	10/13/94	1920
03	38363-04	38363-04	C9945	10/13/94	2100
04	38363-05	38363-05	C9946	10/13/94	2145

FORM V SV 3/90

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

000009

b Name: QUANTERRA Denver Contract:

b Code: Case No.: 38363 SAS No.: SDG No.:

b File ID (Standard): C9908 Date Analyzed: 10/07/94

strument ID: 4500-C Time Analyzed: 1313

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	381886	15.07	450256	18.87	195950	28.99
	UPPER LIMIT	763772	15.57	900512	19.37	391900	29.49
	LOWER LIMIT	190943	14.57	225128	18.37	97975	28.49
	EPA SAMPLE NO.						
01	38363-01FB	433357	15.07	516067	18.85	292102	28.99
02	38363-01FD	540801	15.07	643249	18.85	376913	28.97
03	38363-02	534273	15.05	633688	18.84	376139	28.97
04	38363-06	666993	15.09	569938	18.87	253387	29.01
05	38363-07	912253 *	15.07	855128	18.84	359008	28.97
06	38363-01MSD	521230	15.07	598991	18.85	387751	28.99
07	BLK01	460293	15.07	549513	18.84	275952	28.97

IS1 (ACN) = Acenaphthene-D10
IS2 (PHN) = Phenanthrene-D10
IS3 (BAP) = Benzo(A)Pyrene-D12

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

000010

b Name: QUANTERRA Denver Contract:

.b C[illegible]e: Case No.: 38363 SAS No.: SDG No.:

ıb File ID (Standard): C9922 Date Analyzed: 10/12/94

ıstrument ID: 4500-C Time Analyzed: 1552

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	423808	15.04	507659	18.85	278154	29.02
	UPPER LIMIT	847616	15.54	1015318	19.35	556308	29.52
	LOWER LIMIT	211904	14.54	253830	18.35	139077	28.52
	EPA SAMPLE NO.						
01	38363-01	530680	15.04	742230	18.85	417976	29.02
02	38363-01DU	564326	15.05	786849	18.92	379156	29.07
03	38363-02DL	715745	15.05	861689	18.92	431832	29.07
04	38363-06DL	560910	15.05	731826	18.85	394233	29.02
05	38363-07DL	470665	15.02	622543	18.84	409607	29.01
06	38363-01MS	670271	15.05	857972	18.90	439440	29.07

IS1 (ACN) = Acenaphthene-D10
I[illegible] (PHN) = Phenanthrene-D10
I[illegible] (BAP) = Benzo(A)Pyrene-D12

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

000011

b Name: QUANTERRA Denver Contract:

b Code: Case No.: 38363 SAS No.: SDG No.:

b File ID (Standard): C9940 Date Analyzed: 10/13/94

strument ID: 4500-C Time Analyzed: 1557

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	450586	15.17	629818	18.94	496438	29.07
	UPPER LIMIT	901172	15.67	1259636	19.44	992876	29.57
	LOWER LIMIT	225293	14.67	314909	18.44	248219	28.57
	EPA SAMPLE NO.						
01	38363-03	726774	15.02	758041	18.80	356944	28.96
02	38363-04	779756	15.19	790899	18.97	385423	29.12
03	38363-05	553155	15.20	607676	18.97	300717	29.11

IS1 (ACN) = Acenaphthene-D10
IS2 (PHN) = Phenanthrene-D10
IS3 (BAP) = Benzo(A)Pyrene-D12

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

Quanterra Environmental Services

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CASE NARRATIVE

FOR

City of St. Louis Park

November 15, 1994

Quanterra Environmental Services

Project Number 038422

Introduction

Ten aqueous samples (includes QC) were received at Quanterra's Denver laboratory on October 6, 1994. The samples were logged in under Quanterra's Denver laboratory project number 038422. Sample STA-W410FBD-100594 (038422-01FD) was extracted and held per the April 1990 QAPP. A cross reference associating Quanterra's Denver laboratory sample numbers to the actual field sample numbers is included. The samples were analyzed for low level part-per-trillion (ppt) polynuclear aromatic hydrocarbons (PAH).

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the April 1990 QAPP for completeness, precision, accuracy, representativeness and defensibility of the data. Unless otherwise stated below, no quality control problems or technical difficulties were encountered which would impact the interpretation or use of data in this report.

PPT PAH

The analysis of all the samples (except STA-W410FB (038422-01FB)) required that the sample be diluted due to concentrations of target compounds. Reporting limits have been raised accordingly.

The percent recoveries for 1H-Indene and Benzo(E)Pyrene were outside QC limits in samples STA-W410MS (038422-01MS) and STA-W410MSD (038422-01MSD). The relative percent diferences (RPD's) for these compounds were within QC limits. Since acceptable recovery was achieved for all other spike components, quantitation was checked and no further action was taken.

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Environmental Services

The 4800 ng/ml and the 2400 ng/ml standards had excessive saturation, therefore they were not used as the upper range for the 5-point calibration curve. Instead, the calibration curve used was, 20 ng/ml, 40 ng/ml, 240 ng/ml, 600 ng/ml, and 1200 ng/ml.

All samples associated with project 038422 show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion. These compounds are flagged with the letter (R) on the data sheets (Form I) as per the 1990 QAPP.

This data package is in compliance with the terms and conditions of the 1990 QAPP, both technically and for completeness, for other than the conditions detailed above.

Reported by: _____ Date: 11/15/94
Daniel Rebarchik
Program Administrator

Approved by: _____ Date: 11/15/94
Kevin McHugh
Program Manager

Quanterra Environmental Services

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FOR

CITY OF ST. LOUIS PARK

QUANTERRA NO: 038422

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Standards Data.....0664

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SCREENING DATA AND LOGBOOK RECORDS

Quanterra Environmental Services

QUALIFIER CODES AND THEIR USAGE

A = This flag indicates that a TIC is a suspected aldol-condensation product.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action. This flag must be used for a TIC as well as for a positively identified target compound.

C = This flag applies to pesticide results where the identification has been confirmed by GC/MS. If GC/MS confirmation was attempted but was unsuccessful, do not apply this flag, instead use a laboratory-defined flag, discussed below.

D = This flag identifies all compounds identified in an analysis at a secondary dilution factor. If a sample or extract is re-analyzed at a higher dilution factor, as in the "E" flag above, the "DL" suffix is appended to the sample number on the Form I for the diluted sample, and all concentration values reported on that form I are flagged with the "D" flag. This flag alerts data users that any discrepancies between the concentrations reported may be due to dilution of the sample or extract.

E = This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis. If one or more compounds have a response greater than full scale, except as noted in Exhibit D, the sample or extract must be diluted and re-analyzed accordingly to the specifications in exhibit D. All such compounds with a response greater than full scale should have the concentration flagged with an "E" on the Form I for the original analysis. If the dilution of the extract causes any compounds identified in the first analysis to be below the calibration range in the second analysis, the the results of both analyses shall be reported on separate copies of Form I. The Form I for the diluted sample shall have the "DL" suffix appended to the sample number. NOTE: For total xylenes, where three isomers are quantified as two peaks, the calibration range of each peak should be considered separately, e.g., a diluted analysis is not required for total xylenes unless the concentration of either peak separately exceeds 200 ug/L.

J = Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit but greater than zero. For example, if the sample quantitation limit is 10 ug/L, but a concentration of 3 ug/L is calculated report it as 3J. The sample quantitation limit must be adjusted for dilution as discussed for the U flag.

N = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds, where the identification is based on a mass spectral library search. It is applied to all TIC results.

Quanterra
Environmental Services

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QUALIFIER CODES AND THEIR USAGE
Page Two

P = This flag is used for a pesticide/Aroclor target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".

S = The concentration of this compound saturated the capacity of the detector and a valid quantitation could not be obtained at this dilution.

U = Indicates compound was analyzed for, but not detected. The sample quantitation limit must be corrected for dilution and for percent moisture. For example, 10 U for phenol in water if the sample final volume is the protocol-specified final volume. If a 1 to 10 dilution of extract is necessary, the reported limit is 100 U. For a soil sample, the value must <u>also</u> be adjusted for percent moisture.

X = Other specific flags may be required to properly define the results. If used, they must be fully described, and such description attached to the Sample Data Summary Package and the SDG Narrative. Begin by using "X". If more than one flag is required, use "Y" and "Z" as needed. If more than five qualifiers are required for a sample result, use the "X" flag to combine several flags as needed. For instance, the "X" flag might combine the "A", "B", and "D" flags for some sample. The laboratory-defined flags are <u>limited to</u> the letters "X", "Y", and "Z".

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

38422-01

STA-W410-100594

ab Name: QUANTERRA Denver Contract:

ab Code: Case No.: 38422 SAS No.: SDG No.:

atrix: (soil/water) WATER Lab Sample ID: 38422-01

ample wt/vol: 4200 (g/mL) ML Lab File ID: C9959

evel: (low/med) LOW Date Received: 10/06/94

Moisture: decanted: (Y/N) N Date Extracted: 10/06/94

oncentrated Extract Volume: 500(uL) Date Analyzed: 10/14/94

njection Volume: 2.0(uL) Dilution Factor: 100.0

PC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Benzofuran	490	U
496-11-7	2,3-Dihydroindene	15000	
95-13-6	1H-Indene	2300	B
91-20-3	Naphthalene	620	U
4565-32-6	Benzo(B)Thiophene	1300	
91-22-5	Quinoline	130	U
120-72-9	1H-Indole	240	U
91-57-6	2-Methylnaphthalene	86	U
90-12-0	1-Methylnaphthalene	880	
92-52-4	Biphenyl	100	J
208-96-8	Acenaphthylene	130	U
83-32-9	Acenaphthene	1100	
132-64-9	Dibenzofuran	95	U
86-73-7	Fluorene	95	U
132-65-0	Dibenzothiophene	100	U
85-01-8	Phenanthrene	120	U
120-12-7	Anthracene	100	U
260-94-6	Acridine	270	U
86-74-8	Carbazole	460	
206-44-0	Fluoranthene	130	U
129-00-0	Pyrene	130	U
56-55-3	Benzo(A)Anthracene	240	U
218-01-9	Chrysene	260	U
205-99-2	Benzo(B)Fluoranthene	240	U
207-08-9	Benzo(K)Fluoranthene	210	U
192-97-2	Benzo(E)Pyrene	180	U
50-32-8	Benzo(A)Pyrene	210	U
198-55-0	Perylene	240	U
193-39-5	Indeno(1,2,3-CD)Pyrene	200	U
53-70-3	Dibenz(A,H)Anthracene	150	U
191-24-2	Benzo(G,H,I)Perylene	260	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

38422-01DL

STA-W410-100594

ab [illegible]e: QUANTERRA Denver Contract:

ab Code: Case No.: 38422 SAS No.: SDG No.:

atrix: (soil/water) WATER Lab Sample ID: 38422-01DL

ample wt/vol: 4200 (g/mL) ML Lab File ID: C0056

evel: (low/med) LOW Date Received: 10/06/94

Moisture: decanted: (Y/N) N Date Extracted: 10/06/94

oncentrated Extract Volume: 500(uL) Date Analyzed: 10/28/94

njection Volume: 2.0(uL) Dilution Factor: 25.0

PC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Benzofuran	980	U
496-11-7	2,3-Dihydroindene	14000	D
95-13-6	1H-Indene	2100	BD
91-20-3	Naphthalene	1200	BDJ
4565-32-6	Benzo(B)Thiophene	1200	D
91-22-5	Quinoline	260	U
120-72-9	1H-Indole	480	U
91-57-6	2-Methylnaphthalene	170	U
90-12-0	1-Methylnaphthalene	880	D
92-52-4	Biphenyl	810	U
208-96-8	Acenaphthylene	260	U
83-32-9	Acenaphthene	1100	D
132-64-9	Dibenzofuran	190	U
86-73-7	Fluorene	190	U
132-65-0	Dibenzothiophene	210	U
85-01-8	Phenanthrene	240	U
120-12-7	Anthracene	210	U
260-94-6	Acridine	550	U
86-74-8	Carbazole	400	D
206-44-0	Fluoranthene	260	U
129-00-0	Pyrene	260	U
56-55-3	Benzo(A)Anthracene	480	U
218-01-9	Chrysene	520	U
205-99-2	Benzo(B)Fluoranthene	480	U
207-08-9	Benzo(K)Fluoranthene	430	U
192-97-2	Benzo(E)Pyrene	360	U
50-32-8	Benzo(A)Pyrene	430	U
198-55-0	Perylene	480	U
193-39-5	Indeno(1,2,3-CD)Pyrene	400	U
53-70-3	Dibenz(A,H)Anthracene	310	U
191-24-2	Benzo(G,H,I)Perylene	520	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

38422-01DUDL

STA-W410D-100594

ab Name: QUANTERRA Denver Contract:

ab Code: Case No.: 38422 SAS No.: SDG No.:

atrix: (soil/water) WATER Lab Sample ID: 38422-01DUDL

ample wt/vol: 4200 (g/mL) ML Lab File ID: C0057

evel: (low/med) LOW Date Received: 10/06/94

Moisture: decanted: (Y/N) N Date Extracted: 10/06/94

oncentrated Extract Volume: 500(uL) Date Analyzed: 10/28/94

njection Volume: 2.0(uL) Dilution Factor: 200.0

PC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Benzofuran	980	U
496-11-7	2,3-Dihydroindene	14000	
95-13-6	1H-Indene	2200	B
91-20-3	Naphthalene	1200	U
4565-32-6	Benzo(B)Thiophene	1300	
91-22-5	Quinoline	260	U
120-72-9	1H-Indole	480	U
91-57-6	2-Methylnaphthalene	170	U
90-12-0	1-Methylnaphthalene	880	
92-52-4	Biphenyl	810	U
208-96-8	Acenaphthylene	260	U
83-32-9	Acenaphthene	1100	
132-64-9	Dibenzofuran	190	U
86-73-7	Fluorene	190	U
132-65-0	Dibenzothiophene	210	U
85-01-8	Phenanthrene	240	U
120-12-7	Anthracene	210	U
260-94-6	Acridine	550	U
86-74-8	Carbazole	440	
206-44-0	Fluoranthene	260	U
129-00-0	Pyrene	260	U
56-55-3	Benzo(A)Anthracene	480	U
218-01-9	Chrysene	520	U
205-99-2	Benzo(B)Fluoranthene	480	U
207-08-9	Benzo(K)Fluoranthene	430	U
192-97-2	Benzo(E)Pyrene	360	U
50-32-8	Benzo(A)Pyrene	430	U
198-55-0	Perylene	480	U
193-39-5	Indeno(1,2,3-CD)Pyrene	400	U
53-70-3	Dibenz(A,H)Anthracene	310	U
191-24-2	Benzo(G,H,I)Perylene	520	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

38422-01DU

STA-W410D-100594

ab[illegible]e: QUANTERRA Denver Contract:

ab Code: Case No.: 38422 SAS No.: SDG No.:

atrix: (soil/water) WATER Lab Sample ID: 38422-01DU

ample wt/vol: 4200 (g/mL) ML Lab File ID: C9948

evel: (low/med) LOW Date Received: 10/06/94

Moisture: decanted: (Y/N) N Date Extracted: 10/06/94

oncentrated Extract Volume: 500(uL) Date Analyzed: 10/13/94

njection Volume: 2.0(uL) Dilution Factor: 10.0

PC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Benzofuran	12	J
496-11-7	2,3-Dihydroindene	3400	ERS
95-13-6	1H-Indene	1400	BS
91-20-3	Naphthalene	62	BR
4565-32-6	Benzo(B)Thiophene	800	RS
91-22-5	Quinoline	19	R
120-72-9	1H-Indole	10	J
91-57-6	2-Methylnaphthalene	9	U
90-12-0	1-Methylnaphthalene	730	
92-52-4	Biphenyl	86	
208-96-8	Acenaphthylene	78	R
83-32-9	Acenaphthene	910	
132-64-9	Dibenzofuran	10	U
86-73-7	Fluorene	40	
132-65-0	Dibenzothiophene	10	U
85-01-8	Phenanthrene	15	BR
120-12-7	Anthracene	10	JR
260-94-6	Acridine	32	
86-74-8	Carbazole	390	
206-44-0	Fluoranthene	13	U
129-00-0	Pyrene	13	U
56-55-3	Benzo(A)Anthracene	24	U
218-01-9	Chrysene	26	U
205-99-2	Benzo(B)Fluoranthene	24	U
207-08-9	Benzo(K)Fluoranthene	21	U
192-97-2	Benzo(E)Pyrene	18	U
50-32-8	Benzo(A)Pyrene	21	U
198-55-0	Perylene	24	U
193-39-5	Indeno(1,2,3-CD)Pyrene	20	U
53-70-3	Dibenz(A,H)Anthracene	15	U
191-24-2	Benzo(G,H,I)Perylene	26	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

38422-01FB

STA-W410FB-100594

b Name: QUANTERRA Denver Contract:

ıb Code: Case No.: 38422 SAS No.: SDG No.:

trix: (soil/water) WATER Lab Sample ID: 38422-01FB

.mple wt/vol: 4140 (g/mL) ML Lab File ID: C9957

:vel: (low/med) LOW Date Received: 10/06/94

Moisture: decanted: (Y/N) N Date Extracted: 10/06/94

ɔncentrated Extract Volume: 500(uL) Date Analyzed: 10/14/94

ıjection Volume: 2.0(uL) Dilution Factor: 0.8

ᵖC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	1	J
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	4	BJ
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	2	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	3	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	J
129-00-0	Pyrene	1	J
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

38422-01FD

STA-W410FBD-100594

ab Name: QUANTERRA Denver Contract:

ab Code: Case No.: 38422 SAS No.: SDG No.:

atrix: (soil/water) WATER Lab Sample ID: 38422-01FD

ample wt/vol: 4140 (g/mL) ML Lab File ID: C9958

evel: (low/med) LOW Date Received: 10/06/94

Moisture: decanted: (Y/N) N Date Extracted: 10/06/94

oncentrated Extract Volume: 500(uL) Date Analyzed: 10/14/94

njection Volume: 2.0(uL) Dilution Factor: 0.8

PC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	1	J
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	3	BJ
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	2	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	2	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	U
129-00-0	Pyrene	1	J
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

38422-02

STP-W412-100594

ıb Name: QUANTERRA Denver Contract:

ıb Code: Case No.: 38422 SAS No.: SDG No.:

ıtrix: (soil/water) WATER Lab Sample ID: 38422-02

ımple wt/vol: 4140 (g/mL) ML Lab File ID: C9963

ɜvel: (low/med) LOW Date Received: 10/06/94

Moisture: decanted: (Y/N) N Date Extracted: 10/06/94

ɔncentrated Extract Volume: 500(uL) Date Analyzed: 10/14/94

ıjection Volume: 2.0(uL) Dilution Factor: 0.8

ᵖC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	76	
95-13-6	1H-Indene	11	B
91-20-3	Naphthalene	63	BRS
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	10-	
120-72-9	1H-Indole	5	R
91-57-6	2-Methylnaphthalene	49	B
90-12-0	1-Methylnaphthalene	43	R
92-52-4	Biphenyl	6	
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	22	
132-64-9	Dibenzofuran	9	
86-73-7	Fluorene	14	
132-65-0	Dibenzothiophene	15	R
85-01-8	Phenanthrene	46	BR
120-12-7	Anthracene	3	R
260-94-6	Acridine	41	R
86-74-8	Carbazole	21	R
206-44-0	Fluoranthene	12	R
129-00-0	Pyrene	45	
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	
205-99-2	Benzo(B)Fluoranthene	2	JR
207-08-9	Benzo(K)Fluoranthene	5	R
192-97-2	Benzo(E)Pyrene	3	R
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	R

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

38422-02DL

SPT-W412-100594

ab Name: QUANTERRA Denver Contract:

ab Code: Case No.: 38422 SAS No.: SDG No.:

atrix: (soil/water) WATER Lab Sample ID: 38422-02DL

ample wt/vol: 4140 (g/mL) ML Lab File ID: C9942

evel: (low/med) LOW Date Received: 10/06/94

Moisture: decanted: (Y/N) N Date Extracted: 10/06/94

oncentrated Extract Volume: 500(uL) Date Analyzed: 10/13/94

njection Volume: 2.0(uL) Dilution Factor: 10.0

PC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Benzofuran	50	U
496-11-7	2,3-Dihydroindene	88	D
95-13-6	1H-Indene	13	BD
91-20-3	Naphthalene	110	BD
4565-32-6	Benzo(B)Thiophene	12	DR
91-22-5	Quinoline	10	DJR
120-72-9	1H-Indole	24	U
91-57-6	2-Methylnaphthalene	55	BD
90-12-0	1-Methylnaphthalene	49	D
92-52-4	Biphenyl	41	U
208-96-8	Acenaphthylene	13	U
83-32-9	Acenaphthene	25	D
132-64-9	Dibenzofuran	10	D
86-73-7	Fluorene	15	D
132-65-0	Dibenzothiophene	12	DR
85-01-8	Phenanthrene	32	BD
120-12-7	Anthracene	11	U
260-94-6	Acridine	35	DR
86-74-8	Carbazole	17	DJ
206-44-0	Fluoranthene	11	DJ
129-00-0	Pyrene	48	D
56-55-3	Benzo(A)Anthracene	24	U
218-01-9	Chrysene	27	U
205-99-2	Benzo(B)Fluoranthene	24	U
207-08-9	Benzo(K)Fluoranthene	22	U
192-97-2	Benzo(E)Pyrene	18	U
50-32-8	Benzo(A)Pyrene	22	U
198-55-0	Perylene	24	U
193-39-5	Indeno(1,2,3-CD)Pyrene	21	U
53-70-3	Dibenz(A,H)Anthracene	16	U
191-24-2	Benzo(G,H,I)Perylene	27	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

38422-03

STP-33-100594

.b Name: QUANTERRA Denver Contract:

.b Code: Case No.: 38422 SAS No.: SDG No.:

:trix: (soil/water) WATER Lab Sample ID: 38422-03

.mple wt/vol: 4200 (g/mL) ML Lab File ID: C9952

·vel: (low/med) LOW Date Received: 10/06/94

Moisture: decanted: (Y/N) N Date Extracted: 10/06/94

ɔncentrated Extract Volume: 500(uL) Date Analyzed: 10/14/94

ıjection Volume: 2.0(uL) Dilution Factor: 4.8

ᵊC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Benzofuran	24	U
496-11-7	2,3-Dihydroindene	730	E
95-13-6	1H-Indene	240	B
91-20-3	Naphthalene	130	B
4565-32-6	Benzo(B)Thiophene	210	
91-22-5	Quinoline	7	U
120-72-9	1H-Indole	5	JR
91-57-6	2-Methylnaphthalene	56	B
90-12-0	1-Methylnaphthalene	100	
92-52-4	Biphenyl	18	J
208-96-8	Acenaphthylene	7	U
83-32-9	Acenaphthene	81	
132-64-9	Dibenzofuran	12	
86-73-7	Fluorene	20	
132-65-0	Dibenzothiophene	5	U
85-01-8	Phenanthrene	21	B
120-12-7	Anthracene	33	
260-94-6	Acridine	10	J
86-74-8	Carbazole	51	
206-44-0	Fluoranthene	8	
129-00-0	Pyrene	26	
56-55-3	Benzo(A)Anthracene	12	U
218-01-9	Chrysene	13	U
205-99-2	Benzo(B)Fluoranthene	12	U
207-08-9	Benzo(K)Fluoranthene	11	U
192-97-2	Benzo(E)Pyrene	9	U
50-32-8	Benzo(A)Pyrene	11	U
198-55-0	Perylene	12	U
193-39-5	Indeno(1,2,3-CD)Pyrene	10	U
53-70-3	Dibenz(A,H)Anthracene	8	U
191-24-2	Benzo(G,H,I)Perylene	13	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

38422-03DL

STP-W33-100594

b Name: QUANTERRA Denver Contract:

b Code: Case No.: 38422 SAS No.: SDG No.:

trix: (soil/water) WATER Lab Sample ID: 38422-03DL

mple wt/vol: 4200 (g/mL) ML Lab File ID: C9937

vel: (low/med) LOW Date Received: 10/06/94

Moisture: decanted: (Y/N) N Date Extracted: 10/06/94

ncentrated Extract Volume: 500(uL) Date Analyzed: 10/13/94

jection Volume: 2.0(uL) Dilution Factor: 10.0

PC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Benzofuran	49	U
496-11-7	2,3-Dihydroindene	700	D
95-13-6	1H-Indene	220	BD
91-20-3	Naphthalene	130	BD
4565-32-6	Benzo(B)Thiophene	210	DR
91-22-5	Quinoline	13	U
120-72-9	1H-Indole	24	U
91-57-6	2-Methylnaphthalene	58	BD
90-12-0	1-Methylnaphthalene	100	D
92-52-4	Biphenyl	18	DJ
208-96-8	Acenaphthylene	13	U
83-32-9	Acenaphthene	87	D
132-64-9	Dibenzofuran	12	D
86-73-7	Fluorene	22	D
132-65-0	Dibenzothiophene	10	U
85-01-8	Phenanthrene	24	BD
120-12-7	Anthracene	10	U
260-94-6	Acridine	14	DJ
86-74-8	Carbazole	64	D
206-44-0	Fluoranthene	10	DJ
129-00-0	Pyrene	31	D
56-55-3	Benzo(A)Anthracene	24	U
218-01-9	Chrysene	26	U
205-99-2	Benzo(B)Fluoranthene	24	U
207-08-9	Benzo(K)Fluoranthene	21	U
192-97-2	Benzo(E)Pyrene	18	U
50-32-8	Benzo(A)Pyrene	21	U
198-55-0	Perylene	24	U
193-39-5	Indeno(1,2,3-CD)Pyrene	20	U
53-70-3	Dibenz(A,H)Anthracene	15	U
191-24-2	Benzo(G,H,I)Perylene	26	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

38422-04

STP-W24-100594

Name: QUANTERRA Denver Contract:

Code: Case No.: 38422 SAS No.: SDG No.:

rix: (soil/water) WATER Lab Sample ID: 38422-04

ple wt/vol: 4190 (g/mL) ML Lab File ID: C9953

el: (low/med) LOW Date Received: 10/06/94

loisture: decanted: (Y/N) N Date Extracted: 10/06/94

icentrated Extract Volume: 500(uL) Date Analyzed: 10/14/94

jection Volume: 2.0(uL) Dilution Factor: 20.0

Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Benzofuran	98	U
496-11-7	2,3-Dihydroindene	2900	E
95-13-6	1H-Indene	31	B
91-20-3	Naphthalene	120	U
4565-32-6	Benzo(B)Thiophene	17	U
91-22-5	Quinoline	26	U
120-72-9	1H-Indole	48	U
91-57-6	2-Methylnaphthalene	17	U
90-12-0	1-Methylnaphthalene	31	U
92-52-4	Biphenyl	81	U
208-96-8	Acenaphthylene	26	U
83-32-9	Acenaphthene	330	
132-64-9	Dibenzofuran	19	U
86-73-7	Fluorene	19	U
132-65-0	Dibenzothiophene	21	U
85-01-8	Phenanthrene	24	U
120-12-7	Anthracene	21	U
260-94-6	Acridine	55	U
86-74-8	Carbazole	36	U
206-44-0	Fluoranthene	26	U
129-00-0	Pyrene	26	U
56-55-3	Benzo(A)Anthracene	48	U
218-01-9	Chrysene	53	U
205-99-2	Benzo(B)Fluoranthene	48	U
207-08-9	Benzo(K)Fluoranthene	43	U
192-97-2	Benzo(E)Pyrene	36	U
50-32-8	Benzo(A)Pyrene	43	U
198-55-0	Perylene	48	U
193-39-5	Indeno(1,2,3-CD)Pyrene	41	U
53-70-3	Dibenz(A,H)Anthracene	31	U
191-24-2	Benzo(G,H,I)Perylene	53	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

38422-04DL

STP-W24-199594

b N[illegible]: QUANTERRA Denver Contract:

b Code: Case No.: 38422 SAS No.: SDG No.:

trix: (soil/water) WATER Lab Sample ID: 38422-04DL

nple wt/vol: 4190 (g/mL) ML Lab File ID: C9964

vel: (low/med) LOW Date Received: 10/06/94

Moisture: decanted: (Y/N) N Date Extracted: 10/06/94

ncentrated Extract Volume: 500(uL) Date Analyzed: 10/14/94

jection Volume: 2.0(uL) Dilution Factor: 40.0

PC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Benzofuran	200	U
496-11-7	2,3-Dihydroindene	3600	D
95-13-6	1H-Indene	39	BD
91-20-3	Naphthalene	250	U
4565-32-6	Benzo(B)Thiophene	34	U
91-22-5	Quinoline	52	U
120-72-9	1H-Indole	95	U
91-57-6	2-Methylnaphthalene	34	U
90-12-0	1-Methylnaphthalene	62	U
92-52-4	Biphenyl	160	U
208-96-8	Acenaphthylene	52	U
83-32-9	Acenaphthene	390	D
132-64-9	Dibenzofuran	38	U
86-73-7	Fluorene	38	U
132-65-0	Dibenzothiophene	42	U
85-01-8	Phenanthrene	48	U
120-12-7	Anthracene	42	U
260-94-6	Acridine	110	U
86-74-8	Carbazole	72	U
206-44-0	Fluoranthene	52	U
129-00-0	Pyrene	52	U
56-55-3	Benzo(A)Anthracene	95	U
218-01-9	Chrysene	100	U
205-99-2	Benzo(B)Fluoranthene	95	U
207-08-9	Benzo(K)Fluoranthene	86	U
192-97-2	Benzo(E)Pyrene	72	U
50-32-8	Benzo(A)Pyrene	86	U
198-55-0	Perylene	95	U
193-39-5	Indeno(1,2,3-CD)Pyrene	81	U
53-70-3	Dibenz(A,H)Anthracene	62	U
191-24-2	Benzo(G,H,I)Perylene	100	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

38422-05

STP-WI33-100594

) Name: QUANTERRA Denver Contract:

) Code: Case No.: 38422 SAS No.: SDG No.:

.rix: (soil/water) WATER Lab Sample ID: 38422-05

ıple wt/vol: 4200 (g/mL) ML Lab File ID: C9954

/el: (low/med) LOW Date Received: 10/06/94

Moisture: decanted: (Y/N) N Date Extracted: 10/06/94

ıcentrated Extract Volume: 500(uL) Date Analyzed: 10/14/94

jection Volume: 2.0(uL) Dilution Factor: 2.4

C Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Benzofuran	12	U
496-11-7	2,3-Dihydroindene	320	
95-13-6	1H-Indene	10	B
91-20-3	Naphthalene	36	BR
4565-32-6	Benzo(B)Thiophene	2	U
91-22-5	Quinoline	3	U
120-72-9	1H-Indole	6	U
91-57-6	2-Methylnaphthalene	10	BR
90-12-0	1-Methylnaphthalene	13	
92-52-4	Biphenyl	3	J
208-96-8	Acenaphthylene	3	U
83-32-9	Acenaphthene	7	
132-64-9	Dibenzofuran	4	
86-73-7	Fluorene	4	
132-65-0	Dibenzothiophene	3	U
85-01-8	Phenanthrene	7	B
120-12-7	Anthracene	3	U
260-94-6	Acridine	9	
86-74-8	Carbazole	4	JR
206-44-0	Fluoranthene	2	J
129-00-0	Pyrene	5	
56-55-3	Benzo(A)Anthracene	6	U
218-01-9	Chrysene	7	U
205-99-2	Benzo(B)Fluoranthene	6	U
207-08-9	Benzo(K)Fluoranthene	5	U
192-97-2	Benzo(E)Pyrene	4	U
50-32-8	Benzo(A)Pyrene	5	U
198-55-0	Perylene	6	U
193-39-5	Indeno(1,2,3-CD)Pyrene	5	U
53-70-3	Dibenz(A,H)Anthracene	4	U
191-24-2	Benzo(G,H,I)Perylene	7	U

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

ɔ Name: QUANTERRA Denver Contract:

ɔ Code: Case No.: 38422 SAS No.: SDG No.:

	EPA SAMPLE NO.	S1 (NAP)#	S2 (FLU)#	S3 (CHR)#	TOT OUT
01	38422-01	87	95	49	0
02	38422-01DL	0 D	0 D	0 D	0
03	38422-01DU	70	69	35	0
04	38422-01DU	0 D	0 D	0 D	0
05	38422-01FB	73	68	67	0
06	38422-01FD	59	52	54	0
07	38422-02	47	52	21	0
08	38422-02DL	57	57	52	0
09	38422-03	60	59	20	0
10	38422-03DL	59	68	16	0
11	38422-04	72	67	40	0
12	38422-04DL	82	77	35	0
13	38422-05	66	59	10	0
14	38422-01MS	71	78	34	0
15	38422-01MSD	74	82	37	0
16	BLK01	82	72	66	0

	QC LIMITS
S1 (NAP) = Naphthalene-d8	(14-108)
S2 (FLU) = Fluorene-d10	(41-162)
S3 (CHR) = Chrysene-d12	(10-118)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogate diluted out

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

b Name: QUANTERRA Denver Contract:

.b Code: Case No.: 38422 SAS No.: SDG No.:

trix Spike - EPA Sample No.: 38422-01

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC #	QC LIMITS REC.
1H-Indene	71.4	2344	1595	-1050*	20-150
Naphthalene	71.4	0	123.8	60	20-150
Quinoline	71.4	0	75.45	106	20-150
2-Methylnaphthalene	71.4	0	67.95	82	20-150
Fluorene	71.4	0	102.2	77	20-150
Chrysene	71.4	0	30.82	43	20-150
Benzo(E)Pyrene	71.4	0	0	0*	10-150

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1H-Indene	71.4	1511	-1176*	0	28	20-150
Naphthalene	71.4	127.3	65	3	28	20-150
Quinoline	71.4	76.28	107	1	28	20-150
2-Methylnaphthalene	71.4	70.92	86	4	28	20-150
Fluorene	71.4	107.8	86	5	28	20-150
Chrysene	71.4	31.42	44	2	28	20-150
Benzo(E)Pyrene	71.4	0	0 *	0	28	10-150

Column to be used to flag recovery and RPD values with an asterisk
Values outside of QC limits

.OMMENTS:

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

38422-01MS

STA-W410MS-100594

ab [illegible]e: QUANTERRA Denver Contract:

ab Code: Case No.: 38422 SAS No.: SDG No.:

atrix: (soil/water) WATER Lab Sample ID: 38422-01MS

ample wt/vol: 4200 (g/mL) ML Lab File ID: C9949

evel: (low/med) LOW Date Received: 10/06/94

Moisture: decanted: (Y/N) N Date Extracted: 10/06/94

oncentrated Extract Volume: 500(uL) Date Analyzed: 10/14/94

njection Volume: 2.0(uL) Dilution Factor: 10.0

PC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Benzofuran	12	J
496-11-7	2,3-Dihydroindene	4100	ERS
95-13-6	1H-Indene	1600	BES
91-20-3	Naphthalene	120	B
4565-32-6	Benzo(B)Thiophene	940	S
91-22-5	Quinoline	75	
120-72-9	1H-Indole	15	JR
91-57-6	2-Methylnaphthalene	68	BR
90-12-0	1-Methylnaphthalene	770	
92-52-4	Biphenyl	93	
208-96-8	Acenaphthylene	80	R
83-32-9	Acenaphthene	1000	
132-64-9	Dibenzofuran	10	U
86-73-7	Fluorene	100	
132-65-0	Dibenzothiophene	10	U
85-01-8	Phenanthrene	17	BR
120-12-7	Anthracene	11	R
260-94-6	Acridine	34	
86-74-8	Carbazole	430	
206-44-0	Fluoranthene	13	U
129-00-0	Pyrene	13	U
56-55-3	Benzo(A)Anthracene	24	U
218-01-9	Chrysene	31	
205-99-2	Benzo(B)Fluoranthene	24	U
207-08-9	Benzo(K)Fluoranthene	21	U
192-97-2	Benzo(E)Pyrene	18	U
50-32-8	Benzo(A)Pyrene	21	U
198-55-0	Perylene	24	U
193-39-5	Indeno(1,2,3-CD)Pyrene	20	U
53-70-3	Dibenz(A,H)Anthracene	15	U
191-24-2	Benzo(G,H,I)Perylene	26	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

38422-01MSD

STA-W41OMSD-100594

b Name: QUANTERRA Denver Contract:

b Code: Case No.: 38422 SAS No.: SDG No.:

trix: (soil/water) WATER Lab Sample ID: 38422-01MSD

mple wt/vol: 4200 (g/mL) ML Lab File ID: C9950

vel: (low/med) LOW Date Received: 10/06/94

Moisture: decanted: (Y/N) N Date Extracted: 10/06/94

ncentrated Extract Volume: 500(uL) Date Analyzed: 10/14/94

jection Volume: 2.0(uL) Dilution Factor: 10.0

C Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Benzofuran	12	J
496-11-7	2,3-Dihydroindene	3600	ERS
95-13-6	1H-Indene	1500	BES
91-20-3	Naphthalene	130	B
4565-32-6	Benzo(B)Thiophene	860	R
91-22-5	Quinoline	76	
120-72-9	1H-Indole	15	JR
91-57-6	2-Methylnaphthalene	71	BR
90-12-0	1-Methylnaphthalene	790	
92-52-4	Biphenyl	96	
208-96-8	Acenaphthylene	83	R
83-32-9	Acenaphthene	980	
132-64-9	Dibenzofuran	10	U
86-73-7	Fluorene	110	
132-65-0	Dibenzothiophene	10	U
85-01-8	Phenanthrene	18	BR
120-12-7	Anthracene	11	R
260-94-6	Acridine	39	
86-74-8	Carbazole	470	
206-44-0	Fluoranthene	13	U
129-00-0	Pyrene	13	U
56-55-3	Benzo(A)Anthracene	24	U
218-01-9	Chrysene	31	
205-99-2	Benzo(B)Fluoranthene	24	U
207-08-9	Benzo(K)Fluoranthene	21	U
192-97-2	Benzo(E)Pyrene	18	U
50-32-8	Benzo(A)Pyrene	21	U
198-55-0	Perylene	24	U
193-39-5	Indeno(1,2,3-CD)Pyrene	20	U
53-70-3	Dibenz(A,H)Anthracene	15	U
191-24-2	Benzo(G,H,I)Perylene	26	U

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

BLK01

ab [illegible]e: QUANTERRA Denver Contract:

ab Code: Case No.: 38422 SAS No.: SDG No.:

ab File ID: C9956 Lab Sample ID: BL100694

nstrument ID: 4500-C Date Extracted: 10/06/94

atrix: (soil/water) WATER Date Analyzed: 10/14/94

evel:(low/med) LOW Time Analyzed: 1331

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	38422-01	38422-01	C9959	10/14/94
02	38422-01DL	38422-01DL	C0056	10/28/94
03	38422-01DU	38422-01DU	C0057	10/28/94
04	38422-01DU	38422-01DU	C9948	10/13/94
05	38422-01FB	38422-01FB	C9957	10/14/94
06	38422-01FD	38422-01FD	C9958	10/14/94
07	38422-02	38422-02	C9963	10/14/94
08	38422-02DL	38422-02DL	C9942	10/13/94
09	38422-03	38422-03	C9952	10/14/94
10	38422-03DL	38422-03DL	C9937	10/13/94
11	38422-04	38422-04	C9953	10/14/94
12	38422-04DL	38422-04DL	C9964	10/14/94
13	38422-05	38422-05	C9954	10/14/94
14	38422-01MS	38422-01MS	C9949	10/14/94
15	38422-01MSD	38422-01MSD	C9950	10/14/94

OMMENTS:

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

BLK01

Name: QUANTERRA Denver Contract:

Code: Case No.: 38422 SAS No.: SDG No.:

rix: (soil/water) WATER Lab Sample ID: BL100694

ple wt/vol: 4000 (g/mL) ML Lab File ID: C9956

el: (low/med) LOW Date Received:

oisture: decanted: (Y/N) N Date Extracted: 10/06/94

centrated Extract Volume: 500(uL) Date Analyzed: 10/14/94

ection Volume: 2.0(uL) Dilution Factor: 0.8

Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
95-13-6	1H-Indene	1	
91-20-3	Naphthalene	2	J
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	1	
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	2	
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	U
129-00-0	Pyrene	1	U
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

ab Name: QUANTERRA Denver Contract:

ab Code: Case No.: 38422 SAS No.: SDG No.:

ab File ID (Standard): C9922 Date Analyzed: 10/12/94

nstrument ID: 4500-C Time Analyzed: 1552

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	423808	15.04	507659	18.85	278154	29.02
	UPPER LIMIT	847616	15.54	1015318	19.35	556308	29.52
	LOWER LIMIT	211904	14.54	253830	18.35	139077	28.52
	EPA SAMPLE NO.						
01	38422-03DL	558003	15.04	799040	18.85	434292	29.02

IS1 (ACN) = Acenaphthene-D10
IS2 (PHN) = Phenanthrene-D10
IS3 (BAP) = Benzo(A)Pyrene-D10

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

:b Name: QUANTERRA Denver Contract:

:b Code: Case No.: 38422 SAS No.: SDG No.:

.b File ID (Standard): C9940 Date Analyzed: 10/13/94

'strument ID: 4500-C Time Analyzed: 1557

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	450586	15.17	629818	18.94	496438	29.07
	UPPER LIMIT	901172	15.67	1259636	19.44	992876	29.57
	LOWER LIMIT	225293	14.67	314909	18.44	248219	28.57
	EPA SAMPLE NO.						
01	38422-01DU	658637	15.17	973761	18.95	563762	29.11
02	38422-02DL	668830	15.07	1153810	18.85	600656	29.01
03	38422-03	625918	15.22	1002570	18.99	489636	29.14
04	38422-04	520129	15.17	724520	18.95	487022	29.11
05	38422-01MS	523108	15.19	743858	18.97	447967	29.12
06	38422-01MSD	563360	15.17	801128	18.95	499976	29.11

IS1 (ACN) = Acenaphthene-D10
IS2 (PHN) = Phenanthrene-D10
IS3 (BAP) = Benzo(A)Pyrene-D10

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

ab Name: QUANTERRA Denver Contract:

ab Code: Case No.: 38422 SAS No.: SDG No.:

ab File ID (Standard): C9955 Date Analyzed: 10/14/94

nstrument ID: 4500-C Time Analyzed: 1240

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	377984	15.00	474971	18.77	320744	28.89
	UPPER LIMIT	755968	15.50	949942	19.27	641488	29.39
	LOWER LIMIT	188992	14.50	237486	18.27	160372	28.39
	EPA SAMPLE NO.						
01	38422-01	391132	15.20	467189	19.04	280239	29.19
02	38422-01FB	419342	15.07	533733	18.90	330100	29.02
03	38422-01FD	492361	15.22	619868	19.05	393440	29.21
04	38422-02	717739	15.22	719345	19.07	335776	29.22
05	38422-04DL	398680	15.22	504380	19.05	337596	29.21
06	38422-05	573333	15.17	808547	18.97	396344	29.12
07	BLK01	467623	15.19	585192	18.97	368725	29.07

IS1 (ACN) = Acenaphthene-D10
IS2 (PHN) = Phenanthrene-D10
IS3 (BAP) = Benzo(A)Pyrene-D10

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

:b Name: QUANTERRA Denver Contract:

:b Code: Case No.: 38422 SAS No.: SDG No.:

:b File ID (Standard): C0048 Date Analyzed: 10/28/94

·strument ID: 4500-C Time Analyzed: 1502

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	323241	15.14	392664	18.97	292584	29.02
	UPPER LIMIT	646482	15.64	785328	19.47	585168	29.52
	LOWER LIMIT	161620	14.64	196332	18.47	146292	28.52
	EPA SAMPLE NO.						
01	38422-01DL	291453	15.17	352661	19.02	193591	29.26
02	38422-01DU	291145	15.15	359416	19.02	195689	29.22

IS1 (ACN) = Acenaphthene-D10
IS2 (PHN) = Phenanthrene-D10
IS3 (BAP) = Benzo(A)Pyrene-D10

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

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SEMIVOLATILES DATA

QC SUMMARY

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

ıb Name: QUANTERRA Denver Contract:

ıb Code: Case No.: 38422 SAS No.: SDG No.:

ıb File ID: Run Date:

ıstrument ID: Run Time:

HIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD040	40PPBPAH	C0048	10/28/94	1502
02	38422-01DL	38422-01DL	C0056	10/28/94	1953
03	38422-01DU	38422-01DU	C0057	10/28/94	2045

5B
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

) N QUANTERRA Denver Contract:

) Code: Case No.: 38422 SAS No.: SDG No.:

) File ID: C9955T Run Date: 10/05/94

;trument ID: 4500-C Run Time: 1240

IS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	38422-05	38422-05	C9954	10/14/94	0351
02	SSTD040	40PPBPAH	C9955	10/14/94	1240
03	BLK01	BL100694	C9956	10/14/94	1331
04	38422-01FB	38422-01FB	C9957	10/14/94	1415
05	38422-01FD	38422-01FD	C9958	10/14/94	1506
06	38422-01	38422-01	C9959	10/14/94	1550
07	38422-02	38422-02	C9963	10/14/94	1848
08	38422-04DL	38422-04DL	C9964	10/14/94	1933

FORM V SV 3/90

5B
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

b Name: QUANTERRA Denver Contract:

.b Code: Case No.: 38422 SAS No.: SDG No.:

b File ID: C9896T Run Date: 10/05/94

strument ID: 4500-C Run Time: 1643

.IS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD40	40PPBPAH	C9896	10/05/94	1643
02	SSTD1200	1200PPBPAH	C9897	10/05/94	1735
03	SSTD600	600PPBPAH	C9898	10/05/94	1820
04	SSTD240	240PPBPAH	C9899	10/05/94	1905
05	SSTD20	20PPBPAH	C9900	10/05/94	1950

FORM V SV 3/90

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

ab Name: QUANTERRA Denver Contract:

ab Code: Case No.: 38422 SAS No.: SDG No.:

ab File ID: C9922T Run Date: 10/12/94

nstrument ID: 4500-C Run Time: 1552

HIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD040	40PPBPAH	C9922	10/12/94	1552
02	38422-03DL	38422-03DL	C9937	10/13/94	0325

FORM V SV 3/90

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

000009

ab Name: QUANTERRA Denver Contract:

ab Code: Case No.: 38422 SAS No.: SDG No.:

ab File ID: C9940T Run Date: 10/13/94

nstrument ID: 4500-C Run Time: 1557

HIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD040	40PPBPAH	C9940	10/13/94	1557
02	38422-02DL	38422-02DL	C9942	10/13/94	1732
03	38422-01DU	38422-01DU	C9948	10/13/94	2319
04	38422-01MS	38422-01MS	C9949	10/14/94	0004
05	38422-01MSD	38422-01MSD	C9950	10/14/94	0048
06	38422-03	38422-03	C9952	10/14/94	0222
07	38422-04	38422-04	C9953	10/14/94	0307

FORM V SV 3/90

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

000010

:b [redacted]: QUANTERRA Denver Contract:

·b Code: Case No.: 38422 SAS No.: SDG No.:

b File ID (Standard): C9922 Date Analyzed: 10/12/94

strument ID: 4500-C Time Analyzed: 1552

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	423808	15.04	507659	18.85	278154	29.02
	UPPER LIMIT	847616	15.54	1015318	19.35	556308	29.52
	LOWER LIMIT	211904	14.54	253830	18.35	139077	28.52
	EPA SAMPLE NO.						
01	38422-03DL	558003	15.04	799040	18.85	434292	29.02

IS1 (ACN) = Acenaphthene-D10
IS2 (PHN) = Phenanthrene-D10
IS3 (BAP) = Benzo(A)Pyrene-D10

AREA UPPER LIMIT = + 100% of internal standard area.
A[redacted] LOWER LIMIT = - 50% of internal standard area.
R[redacted]PPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

FORM VIII SV-1 3/90

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

ıb Name: QUANTERRA Denver Contract:

ıb Code: Case No.: 38422 SAS No.: SDG No.:

.b File ID (Standard): C9940 Date Analyzed: 10/13/94

ıstrument ID: 4500-C Time Analyzed: 1557

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	450586	15.17	629818	18.94	496438	29.07
	UPPER LIMIT	901172	15.67	1259636	19.44	992876	29.57
	LOWER LIMIT	225293	14.67	314909	18.44	248219	28.57
	EPA SAMPLE NO.						
01	38422-01DU	658637	15.17	973761	18.95	563762	29.11
02	38422-02DL	668830	15.07	1153810	18.85	600656	29.01
03	38422-03	625918	15.22	1002570	18.99	489636	29.14
04	38422-04	520129	15.17	724520	18.95	487022	29.11
05	38422-01MS	523108	15.19	743858	18.97	447967	29.12
06	38422-01MSD	563360	15.17	801128	18.95	499976	29.11

IS1 (ACN) = Acenaphthene-D10
IS2 (PHN) = Phenanthrene-D10
IS3 (BAP) = Benzo(A)Pyrene-D10

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

ab Name: QUANTERRA Denver Contract:

ab Code: Case No.: 38422 SAS No.: SDG No.:

ab File ID (Standard): C9955 Date Analyzed: 10/14/94

nstrument ID: 4500-C Time Analyzed: 1240

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	377984	15.00	474971	18.77	320744	28.89
	UPPER LIMIT	755968	15.50	949942	19.27	641488	29.39
	LOWER LIMIT	188992	14.50	237486	18.27	160372	28.39
	EPA SAMPLE NO.						
01	38422-01	391132	15.20	467189	19.04	280239	29.19
02	38422-01FB	419342	15.07	533733	18.90	330100	29.02
03	38422-01FD	492361	15.22	619868	19.05	393440	29.21
04	38422-02	717739	15.22	719345	19.07	335776	29.22
05	38422-04DL	398680	15.22	504380	19.05	337596	29.21
06	38422-05	573333	15.17	808547	18.97	396344	29.12
07	BLK01	467623	15.19	585192	18.97	368725	29.07

IS1 (ACN) = Acenaphthene-D10
IS2 (PHN) = Phenanthrene-D10
IS3 (BAP) = Benzo(A)Pyrene-D10

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QUANTERRA Denver Contract:

Lab Code: Case No.: 38422 SAS No.: SDG No.:

Lab File ID (Standard): C0048 Date Analyzed: 10/28/94

Instrument ID: 4500-C Time Analyzed: 1502

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	323241	15.14	392664	18.97	292584	29.02
	UPPER LIMIT	646482	15.64	785328	19.47	585168	29.52
	LOWER LIMIT	161620	14.64	196332	18.47	146292	28.52
	EPA SAMPLE NO.						
01	38422-01DL	291453	15.17	352661	19.02	193591	29.26
02	38422-01DU	291145	15.15	359416	19.02	195689	29.22

IS1 (ACN) = Acenaphthene-D10
IS2 (PHN) = Phenanthrene-D10
IS3 (BAP) = Benzo(A)Pyrene-D10

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

Quanterra Environmental Services

CASE NARRATIVE

FOR

City of St. Louis Park

November 19, 1994

Quanterra Environmental Services

Project No. 038528

Introduction

12 aqueous samples (includes Q) were received at Quanterra Environmental Services, Denver laboratory on October 12, 1994. The samples were logged in under Quanterra's Denver laboratory project number 038528. Sample DPV-W420FBD-101194 was extracted and held per the April 1990 QAPP. A cross reference associating the Quanterra Denver laboratory sample numbers to the actual field sample numbers is included. The samples were analyzed for part-per-billion (ppb) polynuclear aromatic hydrocarbons (PAH).

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the April, 1990 QAPP for completeness, precision, accuracy, representativeness and defensibility of the data. Unless otherwise stated below, no quality control problems or technical difficulties were encountered which would impact the interpretation or use of data in this report.

PPB PAH

Samples DPV-W420 (038528-0001) and DPV-W420D (038528-0001DU) showed target compounds above the upper calibration range. The samples were analyzed at a dilution. Both the original and reanalysis data were reported for each sample. Sample STP-W409 (038528-0005) was diluted due to non-target compounds above the upper calibration range. The reporting limits were adjusted accordingly.

Quanterra
Environmental Services

TABLE OF CONTENTS

FOR

CITY OF ST. LOUIS PARK

QUANTERRA NO: 038528

SEMIVOLATILES

QC Summary.....0001

Sample Data.....0009

Standards Data.....0179

Raw QC Data.....0211

SCREENING DATA AND LOGBOOK RECORDS

Pages 0277 through 0319

Quanterra Environmental Services

QUALIFIER CODES AND THEIR USAGE

A = This flag indicates that a TIC is a suspected aldol-condensation product.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action. This flag must be used for a TIC as well as for a positively identified target compound.

C = This flag applies to pesticide results where the identification has been confirmed by GC/MS. If GC/MS confirmation was attempted but was unsuccessful, do not apply this flag, instead use a laboratory-defined flag, discussed below.

D = This flag identifies all compounds identified in an analysis at a secondary dilution factor. If a sample or extract is re-analyzed at a higher dilution factor, as in the "E" flag above, the "DL" suffix is appended to the sample number on the Form I for the diluted sample, and all concentration values reported on that form I are flagged with the "D" flag. This flag alerts data users that any discrepancies between the concentrations reported may be due to dilution of the sample or extract.

E = This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis. If one or more compounds have a response greater than full scale, except as noted in Exhibit D, the sample or extract must be diluted and re-analyzed accordingly to the specifications in exhibit D. All such compounds with a response greater than full scale should have the concentration flagged with an "E" on the Form I for the original analysis. If the dilution of the extract causes any compounds identified in the first analysis to be below the calibration range in the second analysis, the the results of both analyses shall be reported on separate copies of Form I. The Form I for the diluted sample shall have the "DL" suffix appended to the sample number. NOTE: For total xylenes, where three isomers are quantified as two peaks, the calibration range of each peak should be considered separately, e.g., a diluted analysis is not required for total xylenes unless the concentration of either peak separately exceeds 200 ug/L.

J = Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit but greater than zero. For example, if the sample quantitation limit is 10 ug/L, but a concentration of 3 ug/L is calculated report it as 3J. The sample quantitation limit must be adjusted for dilution as discussed for the U flag.

N = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds, where the identification is based on a mass spectral library search. It is applied to all TIC results.

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

QUALIFIER CODES AND THEIR USAGE
Page Two

P = This flag is used for a pesticide/Aroclor target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".

S = The concentration of this compound saturated the capacity of the detector and a valid quantitation could not be obtained at this dilution.

U = Indicates compound was analyzed for, but not detected. The sample quantitation limit must be corrected for dilution and for percent moisture. For example, 10 U for phenol in water if the sample final volume is the protocol-specified final volume. If a 1 to 10 dilution of extract is necessary, the reported limit is 100 U. For a soil sample, the value must also be adjusted for percent moisture.

X = Other specific flags may be required to properly define the results. If used, they must be fully described, and such description attached to the Sample Data Summary Package and the SDG Narrative. Begin by using "X". If more than one flag is required, use "Y" and "Z" as needed. If more than five qualifiers are required for a sample result, use the "X" flag to combine several flags as needed. For instance, the "X" flag might combine the "A", "B", and "D" flags for some sample. The laboratory-defined flags are limited to the letters "X", "Y", and "Z".

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
038528-0001-DU	DPV-W420D-101194	AQUEOUS	11 OCT 94		12 OCT 94
038528-0001-MS	DPV-W420MS-101194	AQUEOUS	11 OCT 94		12 OCT 94
038528-0001-SD	DPV-W420MSD-101194	AQUEOUS	11 OCT 94		12 OCT 94
038528-0001-FB	DPV-W420FB-101194	AQUEOUS	11 OCT 94		12 OCT 94
038528-0001-SA	DPV-W420-101194	AQUEOUS	11 OCT 94		12 OCT 94
038528-0001-FD	DPV-W420FBD-101194	AQUEOUS	11 OCT 94		12 OCT 94
038528-0002-SA	DPV-W421-101194	AQUEOUS	11 OCT 94		12 OCT 94
038528-0003-SA	DPV-W422-101194	AQUEOUS	11 OCT 94		12 OCT 94
038528-0004-SA	PCJ-W23-101194	AQUEOUS	11 OCT 94		12 OCT 94
038528-0005-SA	STP-W409-101194	AQUEOUS	11 OCT 94		12 OCT 94
038528-0006-SA	GTF-ACFE-101194	AQUEOUS	11 OCT 94		12 OCT 94
038528-0007-SA	GTF-SFR-101194	AQUEOUS	11 OCT 94		12 OCT 94

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

STP-W409

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 38528 SAS No.: SDG No.: 38528

Matrix: (soil/water) WATER Lab Sample ID: 38524-05

Sample wt/vol: 1060 (g/mL) ML Lab File ID: T0801796.D

Level: (low/med) HIGH Date Received: 10/12/94

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/16/94

Concentrated Extract Volume: 1.0(ML) Date Analyzed: 10/28/94

Injection Volume: 2.0(uL) Dilution Factor: 4.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	57	
91-57-6	2-Methylnaphthalene	38	U
208-96-8	Acenaphthylene	38	U
83-32-9	Acenaphthene	10	J
132-64-9	Dibenzofuran	38	U
86-73-7	Fluorene	38	U
85-01-8	Phenanthrene	38	U
120-12-7	Anthracene	38	U
206-44-0	Fluoranthene	38	U
129-00-0	Pyrene	38	U
56-55-3	Benzo(a)Anthracene	38	U
218-01-9	Chrysene	38	U
205-99-2	Benzo(b)fluoranthene	38	U
207-08-9	Benzo(k)fluoranthene	38	U
50-32-8	Benzo(a)pyrene	38	U
193-39-5	Indeno(1 2 3-cd)pyrene	38	U
53-70-3	Dibenzo(a h)anthracene	38	U
191-24-2	Benzo(g h i)perylene	38	U
86-74-8	Carbazole	5	J
95-13-6	1H-Indene	25	J
91-22-5	Quinoline	38	U
90-12-0	1-Methylnaphthalene	15	J
271-89-6	2,3-Benzofuran	38	U
496-11-7	2,3-Dihydroindene	27	J
4565-32-6	Benzo(b)thiophene	12	J
120-72-9	1H-Indole	38	U
92-52-4	Biphenyl	38	U
132-65-0	Dibenzothiophene	38	U
260-94-6	Acridine	38	U
192-97-2	Benzo(e)pyrene	38	U
198-55-0	Perylene	38	U

ADDITIONAL MONITORING
PHENOLICS

Rocky Mountain
Analytical Laboratory

Enseco

March 28, 1994

Mr. James Grube
City of St. Louis Park
5005 Minnetonka Blvd.
St. Louis Park, MN 55416

Dear Mr Grube:

Enclosed is the ppb phenol report for 9 aqueous samples, including matrix QC, received at Enseco-Rocky Mountain Analytical laboratory on February 16, 1994.

Please call if you have any questions.

Sincerely,

Karen F. Germann
Project Administrator

Reviewed by:

Julieann L. Kramer
Program Manager

KFG/JLK
Enclosures

RMAL #033822

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

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
033822-0001-SA	DPV-W422TP-021594	AQUEOUS	15 FEB 94		16 FEB 94
033822-0001-DU	DPV-W422TPD-021594	AQUEOUS	15 FEB 94		16 FEB 94
033822-0001-MS	DPV-W422TPMS-021594	AQUEOUS	15 FEB 94		16 FEB 94
033822-0001-SD	DPV-W422TPMSD-021594	AQUEOUS	15 FEB 94		16 FEB 94
033822-0001-FB	DPV-W422TPFB-021594	AQUEOUS	15 FEB 94		16 FEB 94
033822-0001-FD	DPV-W422TPFBD-021594	AQUEOUS	15 FEB 94		16 FEB 94
033822-0002-SA	DPV-W421TP-021594	AQUEOUS	15 FEB 94		16 FEB 94
033822-0003-SA	DPV-W420TP-021594	AQUEOUS	15 FEB 94		16 FEB 94
033822-0004-SA	STP-W410TP-021594	AQUEOUS	15 FEB 94		16 FEB 94

Enseco

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 033822	Group Code	Analysis Description	Custom Test?
0001 , 0001, 0001 - 0004	A	Phenolics (4-AAP)	N

U.S. EPA - CLP

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: ____ SAS No.: _____ SDG No.:33822_

SOW No.: ILM02

EPA Sample No.	Lab Sample ID
3382201	3382201
3382201	3382201D
3382201	3382201SD
3382201	3382201S
3382201	3382201FB
3382201	3382201FD
3382202	3382202
3382203	3382203
3382204	3382204

Were ICP interelement corrections applied ? Yes/No YES

Were ICP background corrections applied ? Yes/No YES

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

Comments:
FOUR_WATER_SAMPLES_FOR_PHENOLIC_ANALYSIS.

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

Signature: Will Pratt Name: Will Pratt

Date: 3/26/94 Title: Inorganic Group Leader

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

3382204

Enseco 000004

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 33822_

Matrix (soil/water): WATER Lab Sample ID: 3382204___

Level (low/med): LOW__ Date Received: 02/16/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
54-30-0__	Phenolics	12.5		N	C

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
DPV-W410TP-021594

FORM I - IN

7/88

Rocky Mountain
Analytical Laboratory

Enseco
A CORNING Company

June 17, 1994

Mr. James Grube
City of St. Louis Park
5005 Minnetonka Blvd.
St. Louis Park, MN 55416

Dear Mr. Grube:

Enclosed is the ppb phenol report for 10 aqueous samples, including matrix QC, received at Enseco-Rocky Mountain Analytical Laboratory on May 10, 1994.

Please call if you have any questions.

Sincerely,

Karen F. Germann
Project Administrator

Reviewed by:

Julieann L. Kramer
Program Manager

KFG/JLK
Enclosures

RMAL #035336

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

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
035336-0001-SA	STP-SLP3TP-050994	AQUEOUS	09 MAY 94		10 MAY 94
035336-0001-DU	STP-SLP3TPD-050994	AQUEOUS	09 MAY 94		10 MAY 94
035336-0001-MS	STP-SLP3TPMS-050994	AQUEOUS	09 MAY 94		10 MAY 94
035336-0001-SD	STP-SLP3TPMSD-050994	AQUEOUS	09 MAY 94		10 MAY 94
035336-0001-FB	STP-SLP3TPFB-050994	AQUEOUS	09 MAY 94		10 MAY 94
035336-0001-FD	STP-SLP3TPFBD-050994	AQUEOUS	09 MAY 94		10 MAY 94
035336-0002-SA	DPV-W2-050994	AQUEOUS	09 MAY 94	16:10	10 MAY 94
035336-0003-SA	DPV-W423-050994	AQUEOUS	09 MAY 94	17:40	10 MAY 94
035336-0004-SA	DPV-W135-050994	AQUEOUS	09 MAY 94	13:40	10 MAY 94
035336-0005-SA	DPV-W128-050994	AQUEOUS	09 MAY 94	15:00	10 MAY 94

U.S. EPA - CLP

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

000001

ab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

ab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.:35336_

OW No.: ILM02

EPA Sample No.	Lab Sample ID
3533601	3533601
3533601	3533601D
3533601	3533601S
3533601	3533601FB
3533601	3533601FD
3533601	3533601SD
3533602	3533602
3533603	3533603
3533604	3533604
3533605	3533605

Were ICP interelement corrections applied ? Yes/No YES

Were ICP background corrections applied ? Yes/No YES

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

Comments:

TEN_WATER_SAMPLE_FOR_PHENOLIC_ANALYSIS.

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

Signature: Juliann L. Kramer Name: Juliann L. Kramer

Date: 06-21-94 Title: Program Manager

U.S. EPA - CLP

INORGANIC ANALYSES - RESULT QUALIFIERS

C - Concentration Qualifiers:

U - The reported value is less than the Instrument Detection Limit (IDL).

B - The reported value is less than the Contract Required Detection Limit (CRDL) but greater than the Instrument Detection Limit (IDL).

Q - Quality Control Qualifiers:

E - The reported value is estimated because of the presence of interference. An explanatory note is included under Comments on the Cover Page (if the problem applies to all samples) or on the specific FORM I-IN (if it is an isolated problem).

M - Duplicate injection precision not met.

N - Spiked sample recovery not within control limits.

S - The reported value was determined by the Method of Standard Additions (MSA).

W - Post-digestion spike for Furnace AA analysis is out of control limits (85-115%), while sample absorbance is less than 50% of spike absorbance.

* - Duplicate analysis not within control limits.

+ - Correlation coefficient for the MSA is less than 0.995.

Entering "S", "W", or "+" is mutually exclusive. No combination of these qualifiers can appear in the same field for an analyte.

M - Method Qualifiers:

P - ICP
A - Flame AA
F - Furnace AA
CV - Manual Cold Vapor AA
AV - Automated Cold Vapor AA
AS - Semi-Automated Spectrophotometric
C - Manual Spectrophotometric
T - Titrimetric
NR - Not Required

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

000003

3533601

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 35336_

Matrix (soil/water): WATER Lab Sample ID: 3533601___

Level (low/med): LOW__ Date Received: 05/10/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
54-30-0__	Phenolics	5.0	U		C_

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
STP-SLP3TP-050994

FORM I - IN

7/88

Rocky Mountain
Analytical Laboratory

Enseco

September 29, 1994

Mr. James Grube
City of St. Louis Park
5005 Minnetonka Blvd.
St. Louis Park, MN 55416

Dear Mr. Grube:

Enclosed is the ppb phenol report for 9 aqueous samples, including matrix QC, received at Quanterra Environmental Services, Denver laboratory (formerly Enseco - Rocky Mountain Analytical Laboratory) on August 30, 1994.

Please call if you have any questions.

Sincerely,

Daniel Rebarchik
Project Administrator

Reviewed by:

Kevin McHugh
Program Manager

DR/KM
Enclosures

Quanterra's Denver laboratory #037725

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

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
037725-0001-SA	DPV-W420TP-082994	AQUEOUS	29 AUG 94		30 AUG 94
037725-0001-DU	DPV-W420TPD-082994	AQUEOUS	29 AUG 94		30 AUG 94
037725-0001-MS	DPV-W420TPMS-082994	AQUEOUS	29 AUG 94		30 AUG 94
037725-0001-SD	DPV-W420TPMSD-082994	AQUEOUS	29 AUG 94		30 AUG 94
037725-0001-FB	DPV-W420TPFB-082994	AQUEOUS	29 AUG 94		30 AUG 94
037725-0001-FD	DPV-W420TPFBD-082994	AQUEOUS	29 AUG 94		30 AUG 94
037725-0002-SA	DPV-W421TP-082994	AQUEOUS	29 AUG 94		30 AUG 94
037725-0003-SA	DPV-W422TP-082994	AQUEOUS	29 AUG 94		30 AUG 94
037725-0004-SA	DPV-W410TP-082994	AQUEOUS	29 AUG 94		30 AUG 94

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 037725	Group Code	Analysis Description	Custom Test?
0001 , 0001, 0001 - 0004	A	Phenolics (4-AAP)	N

U.S. EPA - CLP

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

ab Name: QUANTERRA Contract: CITY_SLP

ab Code: DENVER Case No.: SAS No.: SDG No.:37725

)W No.: ILMO2

EPA Sample No.	Lab Sample ID
3772501	3772501
3772501	3772501D
3772501	3772501S
3772501	3772501FB
3772501	3772501FD
3772502	3772502
3772503	3772503
3772504	3772504

ere ICP interelement corrections applied ? Yes/No YES

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

omments:
FOUR WATER SAMPLES FOR PHENOLIC ANALYSIS.

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

ignature: Name: Ellen Le Riviere

ate: 9/29/94 Title: PA

COVER PAGE - IN Rev.6/89

U.S. EPA - CLP

INORGANIC ANALYSES - RESULT QUALIFIERS

C - Concentration Qualifiers:

U - The reported value is less than the Instrument Detection Limit (IDL).

B - The reported value is less than the Contract Required Detection Limit (CRDL) but greater than the Instrument Detection Limit (IDL).

Q - Quality Control Qualifiers:

E - The reported value is estimated because of the presence of interference. An explanatory note is included under Comments on the Cover Page (if the problem applies to all samples) or on the specific FORM I-IN (if it is an isolated problem).

M - Duplicate injection precision not met.

N - Spiked sample recovery not within control limits.

S - The reported value was determined by the Method of Standard Additions (MSA).

W - Post-digestion spike for Furnace AA analysis is out of control limits (85-115%), while sample absorbance is less than 50% of spike absorbance.

* - Duplicate analysis not within control limits.

+ - Correlation coefficient for the MSA is less than 0.995.

Entering "S", "W", or "+" is mutually exclusive. No combination of these qualifiers can appear in the same field for an analyte.

M - Method Qualifiers:

P - ICP
A - Flame AA
F - Furnace AA
CV - Manual Cold Vapor AA
AV - Automated Cold Vapor AA
AS - Semi-Automated Spectrophotometric
C - Manual Spectrophotometric
T - Titrimetric
NR - Not Required

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

3772504

ɔ Name: QUANTERRA Contract: CITY_SLP

ɔ Code: DENVER Case No.: SAS No.: SDG No.: 37725

trix (soil/water): WATER Lab Sample ID: 3772504

vel (low/med): LOW Date Received: 08/30/94

Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
54-30-0	Phenolics	25.6			C

olor Before: COLORLESS Clarity Before: CLEAR Texture:

olor After: COLORLESS Clarity After: CLEAR Artifacts:

omments:
DPV-W410TP-082994

FORM I - IN

7/88

APPENDIX E
LABORATORY DATA SUMMARY PACKAGE:
DRIFT - PLATTEVILLE AQUIFER

WELLS

W420
W421
W422

DRIFT

W10 W15 W116 W117
W136 W425 W427 P112
P308 P312 P313

PLATTEVILLE

W18 W19 W22 W101
W131 W426 W428 W431
W434

CITY OF ST. LOUIS PARK

Drift Platteville Aquifer 1994
PAH Quality Control Summary

Well No.	Sample Date	Method Blank	Field Duplicate	Matrix Spike	Matrix Spike Dup.	Field Blank
RAP Section 9.1.3 & 9.2.3 1st Quarter						
W420	2/15/94	32821	DPV-W422D-021594	DPV-W422MS-021594	DPV-W422MSD-021594	DPV-W422FB-021594
W421	2/15/94	32821	DPV-W422D-021594	DPV-W422MS-021594	DPV-W422MSD-021594	DPV-W422FB-021594
W422	2/15/94	32821	DPV-W422D-021594	DPV-W422MS-021594	DPV-W422MSD-021594	DPV-W422FB-021594
RAP Section 9.1.3 & 9.2.3 2nd Quarter						
W420	6/7/94	36008	DPV-W420D-060794	DPV-W420MS-060794	DPV-W420MSD-060794	DPV-W420FB-060794
W421	6/7/94	36008	DPV-W420D-060794	DPV-W420MS-060794	DPV-W420MSD-060794	DPV-W420FB-060794
W422	6/7/94	36008	DPV-W420D-060794	DPV-W420MS-060794	DPV-W420MSD-060794	DPV-W420FB-060794
RAP Section 9.1.3 & 9.2.3 3rd Quarter						
W420	8/29/94	37724	DPV-W420D-082994	DPV-W420MS-082994	DPV-W420MSD-082994	DPV-W420FB-082994
W421	8/29/94	37724	DPV-W420D-082994	DPV-W420MS-082994	DPV-W420MSD-082994	DPV-W420FB-082994
W422	8/29/94	37724	DPV-W420D-082994	DPV-W420MS-082994	DPV-W420MSD-082994	DPV-W420FB-082994
RAP Section 9.1.3 & 9.2.3 4th Quarter						
W420	10/11/94	38528	DPV-W420D-101194	DPV-W420MS-101194	DPV-W420MSD-101194	DPV-W420FB-101194
W421	10/11/94	38528	DPV-W420D-101194	DPV-W420MS-101194	DPV-W420MSD-101194	DPV-W420FB-101194
W422	10/11/94	38528	DPV-W420D-101194	DPV-W420MS-101194	DPV-W420MSD-101194	DPV-W420FB-101194

CITY OF ST. LOUIS PARK

Drift Platteville Aquifer 1992
Phenolic Quality Control Summary

Well No.	Sample Date	Method Blank	Field Duplicate	Matrix Spike	Matrix Spike Dup.	Field Blank
RAP Section 9.1.3 & 9.2.3 1st Quarter						
W420	2/15/94	33822	DPV-W422TPD-021594	DPV-W422TPMS-021594	DPV-W422TPMSD-021594	DPV-W422TPFB-021594
W421	2/15/94	33822	DPV-W422TPD-021594	DPV-W422TPMS-021594	DPV-W422TPMSD-021594	DPV-W422TPFB-021594
W422	2/15/94	33822	DPV-W422TPD-021594	DPV-W422TPMS-021594	DPV-W422TPMSD-021594	DPV-W422TPFB-021594
RAP Section 9.1.3 & 9.2.3 2nd Quarter						
W420	6/7/94	36005	DPV-W420TPD-060794	DPV-W420TPMS-060794	DPV-W420TPMSD-060794	DPV-W420TPFB-060794
W421	6/7/94	36005	DPV-W420TPD-060794	DPV-W420TPMS-060794	DPV-W420TPMSD-060794	DPV-W420TPFB-060794
W422	6/7/94	36005	DPV-W420TPD-060794	DPV-W420TPMS-060794	DPV-W420TPMSD-060794	DPV-W420TPFB-060794
RAP Section 9.1.3 & 9.2.3 3rd Quarter						
W420	8/29/94	37725	DPV-W420TPD-082994	DPV-W420TPMS-082994	DPV-W420TPMSD-082994	DPV-W420TPFB-082994
W421	8/29/94	37725	DPV-W420TPD-082994	DPV-W420TPMS-082994	DPV-W420TPMSD-082994	DPV-W420TPFB-082994
W422	8/29/94	37725	DPV-W420TPD-082994	DPV-W420TPMS-082994	DPV-W420TPMSD-082994	DPV-W420TPFB-082994
RAP Section 9.1.3 & 9.2.3 4th Quarter						
W420	10/11/94	38529	DPV-W420TPD-101194	DPV-W420TPMS-101194	DPV-W420TPMSD-101194	DPV-W420TPFB-101194
W421	10/11/94	38529	DPV-W420TPD-101194	DPV-W420TPMS-101194	DPV-W420TPMSD-101194	DPV-W420TPFB-101194
W422	10/11/94	38529	DPV-W420TPD-101194	DPV-W420TPMS-101194	DPV-W420TPMSD-101194	DPV-W420TPFB-101194

CITY OF ST. LOUIS PARK

Drift Aquifer 1994
PAH Quality Control Summary

Well No.	Sample Date	Method Blank	Field Duplicate	Matrix Spike	Matrix Spike Dup.	Field Blank
RAP Section 9.6						
W2	5/9/94	35332	STP-SLP3D-050994	STP-SLP3MS-050994	STP-SLP3MSD-050994	STP-SLP3FB-050994
W423	5/9/94	35332	STP-SLP3D-050994	STP-SLP3MS-050994	STP-SLP3MSD-050994	STP-SLP3FB-050994
W135	5/9/94	35332	STP-SLP3D-050994	STP-SLP3MS-050994	STP-SLP3MSD-050994	STP-SLP3FB-050994
W128	5/9/94	35332	STP-SLP3D-050994	STP-SLP3MS-050994	STP-SLP3MSD-050994	STP-SLP3FB-050994
W117	5/17/94	35526	DPV-W117D-051794	DPV-W101MS-051694	DPV-W101MSD-051694	DPV-W117FB-051794
W15	5/17/94	35526	DPV-W117D-051794	DPV-W101MS-051694	DPV-W101MSD-051694	DPV-W117FB-051794
W136	5/17/94	35526	DPV-W117D-051794	DPV-W101MS-051694	DPV-W101MSD-051694	DPV-W117FB-051794
W10	5/17/94	35526	DPV-W117D-051794	DPV-W101MS-051694	DPV-W101MSD-051694	DPV-W117FB-051794
W116	5/17/94	35526	DPV-W117D-051794	DPV-W101MS-051694	DPV-W101MSD-051694	DPV-W117FB-051794
W425	5/17/94	35526	DPV-W117D-051794	DPV-W101MS-051694	DPV-W101MSD-051694	DPV-W117FB-051794

CITY OF ST. LOUIS PARK

Drift Aquifer 1994
Phenolic Quality Control Summary

Well No.	Sample Date	Method Blank	Field Duplicate	Matrix Spike	Matrix Spike Dup.	Field Blank
RAP Section 9.6						
W2	5/9/94	35336	STP-SLP3TPD-050994	STP-SLP3TPMS-050994	STP-SLP3TPMSD-050994	STP-SLP3TPFB-050994
W423	5/9/94	35336	STP-SLP3TPD-050994	STP-SLP3TPMS-050994	STP-SLP3TPMSD-050994	STP-SLP3TPFB-050994
W135	5/9/94	35336	STP-SLP3TPD-050994	STP-SLP3TPMS-050994	STP-SLP3TPMSD-050994	STP-SLP3TPFB-050994
W128	5/9/94	35336	STP-SLP3TPD-050994	STP-SLP3TPMS-050994	STP-SLP3TPMSD-050994	STP-SLP3TPFB-050994
W117	5/17/94	35525	DPV-W117TP-051794	DPV-W101TPMS-051694	DPV-W101TPMSD-051694	DPV-W117TPFB-051794
W15	5/17/94	35525	DPV-W117TP-051794	DPV-W101TPMS-051694	DPV-W101TPMSD-051694	DPV-W117TPFB-051794
W136	5/17/94	35525	DPV-W117TP-051794	DPV-W101TPMS-051694	DPV-W101TPMSD-051694	DPV-W117TPFB-051794
W10	5/17/94	35525	DPV-W117TP-051794	DPV-W101TPMS-051694	DPV-W101TPMSD-051694	DPV-W117TPFB-051794
W116	5/17/94	35525	DPV-W117TP-051794	DPV-W101TPMS-051694	DPV-W101TPMSD-051694	DPV-W117TPFB-051794
W425	5/17/94	35525	DPV-W117TP-051794	DPV-W101TPMS-051694	DPV-W101TPMSD-051694	DPV-W117TPFB-051794

CITY OF ST. LOUIS PARK

Platteville Aquifer 1994
Phenolic Quality Control Summary

Well No.	Sample Date	Method Blank	Field Duplicate	Matrix Spike	Matrix Spike Dup.	Field Blank
RAP Section 9.6						
W19	5/10/94	35356	DPV-W19TPD-051094	STP-SLP3TPMS-050994	STP-SLP3TPMSD-050994	DPV-W19TPFB-051094
W212	5/10/94	35356	DPV-W19TPD-051094	STP-SLP3TPMS-050994	STP-SLP3TPMSD-050994	DPV-W19TPFB-051094
W124	5/10/94	35356	DPV-W19TPD-051094	STP-SLP3TPMS-050994	STP-SLP3TPMSD-050994	DPV-W19TPFB-051094
W100	5/10/94	35356	DPV-W19TPD-051094	STP-SLP3TPMS-050994	STP-SLP3TPMSD-050994	DPV-W19TPFB-051094
W1	5/10/94	35356	DPV-W19TPD-051094	STP-SLP3TPMS-050994	STP-SLP3TPMSD-050994	DPV-W19TPFB-051094
W101	5/16/94	35463	DPV-W101TPD-051694	DPV-W101TPMS-051694	DPV-W101TPMSD-051694	DPV-W101TPFB-051694
W131	5/16/94	35463	DPV-W101TPD-051694	DPV-W101TPMS-051694	DPV-W101TPMSD-051694	DPV-W101TPFB-051694
W20	5/16/94	35463	DPV-W101TPD-051694	DPV-W101TPMS-051694	DPV-W101TPMSD-051694	DPV-W101TPFB-051694
W424	5/16/94	35463	DPV-W101TPD-051694	DPV-W101TPMS-051694	DPV-W101TPMSD-051694	DPV-W101TPFB-051694
W428	5/16/94	35463	DPV-W101TPD-051694	DPV-W101TPMS-051694	DPV-W101TPMSD-051694	DPV-W101TPFB-051694

CITY OF ST. LOUIS PARK

Platteville Aquifer 1994
PAH Quality Control Summary

Well No.	Sample Date	Method Blank	Field Duplicate	Matrix Spike	Matrix Spike Dup.	Field Blank
RAP Section 9.6						
W19	5/10/94	35354	DPV-W19D-051094	STP-SLP3MS-050994	STP-SLP3MSD-050994	DPV-W19FB-051094
W212	5/10/94	35354	DPV-W19D-051094	STP-SLP3MS-050994	STP-SLP3MSD-050994	DPV-W19FB-051094
W124	5/10/94	35354	DPV-W19D-051094	STP-SLP3MS-050994	STP-SLP3MSD-050994	DPV-W19FB-051094
W100	5/10/94	35354	DPV-W19D-051094	STP-SLP3MS-050994	STP-SLP3MSD-050994	DPV-W19FB-051094
W1	5/10/94	35354	DPV-W19D-051094	STP-SLP3MS-050994	STP-SLP3MSD-050994	DPV-W19FB-051094
W101	5/16/94	35462	DPV-W101D-051694	DPV-W101MS-051694	DPV-W101MSD-051694	DPV-W101FB-051694
W131	5/16/94	35462	DPV-W101D-051694	DPV-W101MS-051694	DPV-W101MSD-051694	DPV-W101FB-051694
W20	5/16/94	35462	DPV-W101D-051694	DPV-W101MS-051694	DPV-W101MSD-051694	DPV-W101FB-051694
W424	5/16/94	35462	DPV-W101D-051694	DPV-W101MS-051694	DPV-W101MSD-051694	DPV-W101FB-051694
W428	5/16/94	35462	DPV-W101D-051694	DPV-W101MS-051694	DPV-W101MSD-051694	DPV-W101FB-051694

RAP SECTION 9.1.3 & 9.2.3 MONITORING

WELLS

W420
W421
W422

FIRST QUARTER MONITORING

PAH MONITORING

Rocky Mountain
Analytical Laboratory

Enseco

CASE NARRATIVE

FOR

City of St. Louis Park

March 23, 1994

Enseco - RMAL Project Number 033821

Introduction

11 aqueous samples (includes QC) were received at Enseco Rocky Mountain Analytical Laboratory on February 16, 1994. The samples were logged in under RMAL project number 033821. Sample DPV-W422FBD-021594 was extracted and held per the April 1990 QAPP. A cross reference associating the RMAL sample numbers to the actual field sample numbers is included. The samples were analyzed for part-per-billion (ppb) polynuclear aromatic hydrocarbons (PAH).

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the April, 1990 QAPP for completeness, precision, accuracy, representativeness and defensibility of the data. Unless otherwise stated below, no quality control problems or technical difficulties were encountered which would impact the interpretation or use of data in this report.

PPB PAH

Sample 033821-0002DL1 showed target compounds above the upper calibration range. The sample was analyzed at a dilution. Both the original and reanalysis data are reported for each sample. Sample 033821-0003 was analyzed at a dilution due to target compounds. reporting limits were adjusted accordingly.

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

This data package is in compliance with the terms and conditions of the 1990 QAPP, both technically and for completeness, for other than the conditions detailed above.

Reported by: Karen F. Germann **Date:** 3-25-94
Karen F. Germann
Program Administrator

Approved by: Julieann L. Kramer **Date:** 3-25-94
Julieann L. Kramer
Program Manager

Enseco

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
033821-0001-SA	DPV-W422-021594	AQUEOUS	15 FEB 94		16 FEB 94
033821-0001-DU	DPV-W422D-021594	AQUEOUS	15 FEB 94		16 FEB 94
033821-0001-MS	DPV-W422MS-021594	AQUEOUS	15 FEB 94		16 FEB 94
033821-0001-SD	DPV-W422MSD-021594	AQUEOUS	15 FEB 94		16 FEB 94
033821-0001-FB	DPV-W422FB-021594	AQUEOUS	15 FEB 94		16 FEB 94
033821-0001-FD	DPV-W422FBD-021594	AQUEOUS	15 FEB 94		16 FEB 94
033821-0002-SA	DPV-W420-021594	AQUEOUS	15 FEB 94		16 FEB 94
033821-0003-SA	DPV-W421-021594	AQUEOUS	15 FEB 94		16 FEB 94
033821-0004-SA	STP-W410-021594	AQUEOUS	15 FEB 94		16 FEB 94
033821-0005-SA	GTF-ACFE-021594	AQUEOUS	15 FEB 94		16 FEB 94
033821-0006-SA	GTF-SFR-021594	AQUEOUS	15 FEB 94		16 FEB 94

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Qualifier Codes and Their Usage

U = Indicates compound was analyzed for but not detected. The sample quantitation limit must be corrected for dilution and for percent moisture. For example, 10 U for phenol in water if the sample final volume is the protocol-specified final volume. If a 1 to 10 dilution of extract is necessary, the reported limit is 100 U. For a soil sample, the value must also be adjusted for percent moisture.

J = Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit but greater than zero. For example, if the sample quantitation limit is 10 ug/L, but a concentration of 3 ug/L is calculated, report it as 3J. The sample quantitation limit must be adjusted for dilution as discussed for the U flag.

N = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds, where the identification is based on a mass spectral library search. It is applied to all TIC results.

P = This flag is used for a pesticide/Aroclor target analyte when there is greater then 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".

C = This flag applies to pesticide results where the identification has been confirmed by GC/MS. If GC/MS confirmation was attempted but was unsuccessful, do not apply this flag, instead use a laboratory-defined flag, discussed below.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action. This flag must be used for a TIC as well as for a positively identified target compound.

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Arvada, Colorado 80002
303/421-6611 Fax: 303/431-7171

E = This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis. If one or more compounds have a response greater than full scale, except as noted in Exhibit D, the sample or extract must be diluted and re-analyzed accordingly to the specifications in Exhibit D. All such compounds with a response greater than full scale should have the concentration flagged with an "E" on the Form I for the original analysis. If the dilution of the extract causes any compounds identified in the first analysis to be below the calibration range in the second analysis, then the results of both analyses shall be reported on separate copies of Form I. The Form I for the diluted sample shall have the "DL" suffix appended to the sample number. NOTE: For total xylenes, where three isomers are quantified as two peaks, the calibration range of each peak should be considered separately, e.g., a diluted analysis is not required for total xylenes unless the concentration of either peak separately exceeds 200 ug/L.

D = This flag identifies all compounds identified in an analysis at a secondary dilution factor. If a sample or extract is re-analyzed at a higher dilution factor, as in the "E" flag above, the "DL" suffix is appended to the sample number on the Form I for the diluted sample, and all concentration values reported on that Form I are flagged with the "D" flag. This flag alerts data users that any discrepancies between the concentrations reported may be due to dilution of the sample or extract.

A = This flag indicates that a TIC is a suspected aldol-condensation product.

X = Other specific flags may be required to properly define the results. If used, they must be fully described, and such description attached to the Sample Data Summary Package and the SDG Narrative. Begin by using "X". If more than one flag is required, use "Y" and "Z" as needed. If more than five qualifiers are required for a sample result, use the "X" flag to combine several flags, as needed. For instance, the "X" flag might combine the "A", "B", and "D" flags for some sample. The laboratory-defined flags are limited to the letters "X", "Y", and "Z".

R = This flag is used for polyaromatic hydrocarbons which show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion.

Enseco

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 033821	Group Code	Analysis Description	Custom Test?
0001 , 0001, 0002 - 0006	A	CLP/PAH Semivolatile Organics High Level PPB	N
		CLP Prep - PAH Semivolatile Organics by GC/MS High Level PPB	N
0001	B	CLP Prep - PAH Semivolatile Organics by GC/MS High Level PPB	N

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4955 Yarrow Street
Arvada, CO 80002
303/421-6611 FAX 303/431-7171

1120 East North Belt Drive
Suite 120
Houston, TX 77032
713/987-9767 FAX 713/987-9769

CHAIN OF CUSTODY

ENSECO CLIENT: City of ST Louis Park (WATER DEPT)

PROJECT:

SAMPLING COMPANY: SAME

SAMPLING SITE: SAME

TEAM LEADER: [illegible]

SAMPLE SAFE™ CONDITIONS

PACKED BY: [illegible]

SEAL NUMBER:

SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:

CONDITION OF CONTENTS:

SEALED FOR SHIPPING BY: [illegible]

INITIAL CONTENTS TEMP: °C

SEAL NUMBER:

SAMPLING STATUS: ☐ Done ☐ Continuing Until

SEAL INTACT UPON RECEIPT BY LAB: ☑ Yes ☐ No

CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 3.9 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
2-15-94		DPV-W422 -021594	1XL AMBER	2	PPB PAH	-01
		DPV-W422D-021594				-01DU
		DPV-W422MS-021594				-01MS
		DPV-W422MSD-021594				-01SD
		DPV-W422FB-021594				-01FB
		DPV-W422FBD-021594				-01FD
		DPV-W420 -021594				-02
		DPV-W421-021594				-03
		STP-W41-021594				-04
2-15-94		GTF-ACFE-021594	1XL AMBER	2	PPB PAH	-05

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: [illegible]

METHOD OF SHIPMENT: FED EX

AIRBILL NUMBER: 2102512094

RECEIVED FOR LAB: [illegible]

SIGNED: [illegible]

DATE/TIME: 2/16/94 [illegible]

ENSECO PROJECT NUMBER: 33821

ENS-4011

White - CLIENT Pink - LAB

Enseco
A Corning Company

☐ Rocky Mountain Analytical Laboratory
4955 Yarrow Street
Arvada, CO 80002
303/421 6611 FAX 303/431-7171

☐ Enseco Houston
1420 East North Belt Drive
Suite 120
Houston, TX 77032
713/987 9767 FAX 713/987-9769

CHAIN OF CUSTODY

ENSECO CLIENT: CITY OF ST LOUIS PARK (WATER DEPT)

PROJECT:

SAMPLING COMPANY: SAME

SAMPLING SITE: SAME

TEAM LEADER: MZR

SAMPLE SAFE™ CONDITIONS

PACKED BY: MZR

SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:

SEALED FOR SHIPPING BY: MZR

SEAL NUMBER:

SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No

SEAL NUMBER:

CONDITION OF CONTENTS:

INITIAL CONTENTS TEMP: °C

SAMPLING STATUS: ☐ Done ☐ Continuing Until

CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 4.0°C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
2-15-94		GTF-SFR-021594	1XL AMBER	2	PPB PAH	-06

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME

SHIPPING DETAILS

DELIVERED TO SHIPPER BY:

METHOD OF SHIPMENT: FED EX

AIRBILL NUMBER: 2103420911

RECEIVED FOR LAB: [illegible]

SIGNED: [illegible]

DATE/TIME: 2/16/94 830

ENSECO PROJECT NUMBER: 33821

ENS-4011

White - CLIENT Pink

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

33821-01

Lab Name: ENSECO Contract No.:

DPV-W422-021594

Lab Code: ENSECO Case No.: 33821 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 33821-01

Sample wt/vol: 1030 (g/mL) ML Lab File ID: X7416

Level: (low/med) LOW Date Received: 02/16/94

% Moisture: not dec. dec. Date Extracted: 02/16/94

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 03/03/94

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 0.971

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
271-89-6	2,3-Benzofuran	10	U
496-11-7	2,3-Dihydroindene	41	
95-13-6	1H-Indene	10	U
91-20-3	Naphthalene	11	
4565-32-6	Benzo(B)Thiophene	10	U
91-22-5	Quinoline	10	U
120-72-9	1H-Indole	10	U
91-57-6	2-Methylnaphthalene	10	U
90-12-0	1-Methylnaphthalene	10	U
92-52-4	Biphenyl	10	U
208-96-8	Acenaphthylene	10	U
83-32-9	Acenaphthene	7	J
132-64-9	Dibenzofuran	10	U
86-73-7	Fluorene	10	U
132-65-0	Dibenzothiophene	10	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
260-94-6	Acridine	10	U
86-74-8	Carbazole	2	J
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
56-55-3	Benzo(A)Anthracene	10	U
218-01-9	Chrysene	10	U
205-99-2	Benzo(B)Fluoranthene	10	U
207-08-9	Benzo(K)Fluoranthene	10	U
192-97-2	Benzo(E)Pyrene	10	U
50-32-8	Benzo(A)Pyrene	10	U
198-55-0	Perylene	10	U
193-39-5	Indeno(1,2,3-CD)Pyrene	10	U
53-70-3	Dibenz(A,H)Anthracene	10	U
191-24-2	Benzo(G,H,I)Perylene	10	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

33821-01DU

Lab Name: ENSECO Contract No.: DPV-W422D-021594

Lab Code: ENSECO Case No.: 33821 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 33821-01DU

Sample wt/vol: 1040 (g/mL) ML Lab File ID: X7419

Level: (low/med) LOW Date Received: 02/16/94

% Moisture: not dec. dec. Date Extracted: 02/16/94

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 03/03/94

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 0.962

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
271-89-6	2,3-Benzofuran	10	U
496-11-7	2,3-Dihydroindene	45	
95-13-6	1H-Indene	10	U
91-20-3	Naphthalene	12	
4565-32-6	Benzo(B)Thiophene	10	U
91-22-5	Quinoline	10	U
120-72-9	1H-Indole	10	U
91-57-6	2-Methylnaphthalene	10	U
90-12-0	1-Methylnaphthalene	10	U
92-52-4	Biphenyl	10	U
208-96-8	Acenaphthylene	10	U
83-32-9	Acenaphthene	8	J
132-64-9	Dibenzofuran	10	U
86-73-7	Fluorene	10	U
132-65-0	Dibenzothiophene	10	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
260-94-6	Acridine	10	U
86-74-8	Carbazole	2	J
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
56-55-3	Benzo(A)Anthracene	10	U
218-01-9	Chrysene	10	U
205-99-2	Benzo(B)Fluoranthene	10	U
207-08-9	Benzo(K)Fluoranthene	10	U
192-97-2	Benzo(E)Pyrene	10	U
50-32-8	Benzo(A)Pyrene	10	U
198-55-0	Perylene	10	U
193-39-5	Indeno(1,2,3-CD)Pyrene	10	U
53-70-3	Dibenz(A,H)Anthracene	10	U
191-24-2	Benzo(G,H,I)Perylene	10	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

33821-02DL2

Lab Name: ENSECO Contract No.: DPV-W420-021594

Lab Code: ENSECO Case No.: 33821 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 33821-02DIL

Sample wt/vol: 1030 (g/mL) ML Lab File ID: X7432

Level: (low/med) LOW Date Received: 02/16/94

% Moisture: not dec. dec. Date Extracted: 02/16/94

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 03/04/94

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 38.8

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
271-89-6	2,3-Benzofuran	390	U
496-11-7	2,3-Dihydroindene	274	J
95-13-6	1H-Indene	72	J
91-20-3	Naphthalene	1410	
4565-32-6	Benzo(B)Thiophene	85	J
91-22-5	Quinoline	390	U
120-72-9	1H-Indole	390	U
91-57-6	2-Methylnaphthalene	52	J
90-12-0	1-Methylnaphthalene	77	J
92-52-4	Biphenyl	390	U
208-96-8	Acenaphthylene	390	U
83-32-9	Acenaphthene	63	J
132-64-9	Dibenzofuran	390	U
86-73-7	Fluorene	390	U
132-65-0	Dibenzothiophene	390	U
85-01-8	Phenanthrene	390	U
120-12-7	Anthracene	390	U
260-94-6	Acridine	390	U
86-74-8	Carbazole	390	U
206-44-0	Fluoranthene	390	U
129-00-0	Pyrene	390	U
56-55-3	Benzo(A)Anthracene	390	U
218-01-9	Chrysene	390	U
205-99-2	Benzo(B)Fluoranthene	390	U
207-08-9	Benzo(K)Fluoranthene	390	U
192-97-2	Benzo(E)Pyrene	390	U
50-32-8	Benzo(A)Pyrene	390	U
198-55-0	Perylene	390	U
193-39-5	Indeno(1,2,3-CD)Pyrene	390	U
53-70-3	Dibenz(A,H)Anthracene	390	U
191-24-2	Benzo(G,H,I)Perylene	390	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

33821-03

Lab Name: ENSECO Contract No.: DPV-W421-021594

Lab Code: ENSECO Case No.: 33821 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 33821-03

Sample wt/vol: 1030 (g/mL) ML Lab File ID: X7430

Level: (low/med) LOW Date Received: 02/16/94

% Moisture: not dec. dec. Date Extracted: 02/16/94

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 03/04/94

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 9.71

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
271-89-6	2,3-Benzofuran	100	U
496-11-7	2,3-Dihydroindene	150	
95-13-6	1H-Indene	82	J
91-20-3	Naphthalene	620	
4565-32-6	Benzo(B)Thiophene	64	J
91-22-5	Quinoline	100	U
120-72-9	1H-Indole	100	U
91-57-6	2-Methylnaphthalene	100	U
90-12-0	1-Methylnaphthalene	50	J
92-52-4	Biphenyl	100	U
208-96-8	Acenaphthylene	100	U
83-32-9	Acenaphthene	40	J
132-64-9	Dibenzofuran	100	U
86-73-7	Fluorene	10	J
132-65-0	Dibenzothiophene	100	U
85-01-8	Phenanthrene	100	U
120-12-7	Anthracene	100	U
260-94-6	Acridine	100	U
86-74-8	Carbazole	29	J
206-44-0	Fluoranthene	100	U
129-00-0	Pyrene	100	U
56-55-3	Benzo(A)Anthracene	100	U
218-01-9	Chrysene	100	U
205-99-2	Benzo(B)Fluoranthene	100	U
207-08-9	Benzo(K)Fluoranthene	100	U
192-97-2	Benzo(E)Pyrene	100	U
50-32-8	Benzo(A)Pyrene	100	U
198-55-0	Perylene	100	U
193-39-5	Indeno(1,2,3-CD)Pyrene	100	U
53-70-3	Dibenz(A,H)Anthracene	100	U
191-24-2	Benzo(G,H,I)Perylene	100	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

33821-01MSD

Lab Name: ENSECO Contract No.: DPV-W422MSD-02159

Lab Code: ENSECO Case No.: 33821 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 33821-01MSD

Sample wt/vol: 1030 (g/mL) ML Lab File ID: X7418

Level: (low/med) LOW Date Received: 02/16/94

% Moisture: not dec. dec. Date Extracted: 02/16/94

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 03/03/94

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 0.971

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
271-89-6	2,3-Benzofuran	10	U
496-11-7	2,3-Dihydroindene	47	
95-13-6	1H-Indene	36	
91-20-3	Naphthalene	46	
4565-32-6	Benzo(B)Thiophene	10	U
91-22-5	Quinoline	42	
120-72-9	1H-Indole	10	U
91-57-6	2-Methylnaphthalene	35	
90-12-0	1-Methylnaphthalene	1	J
92-52-4	Biphenyl	10	U
208-96-8	Acenaphthylene	10	U
83-32-9	Acenaphthene	8	J
132-64-9	Dibenzofuran	10	U
86-73-7	Fluorene	39	
132-65-0	Dibenzothiophene	10	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
260-94-6	Acridine	10	U
86-74-8	Carbazole	2	J
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
56-55-3	Benzo(A)Anthracene	10	U
218-01-9	Chrysene	37	
205-99-2	Benzo(B)Fluoranthene	10	U
207-08-9	Benzo(K)Fluoranthene	10	U
192-97-2	Benzo(E)Pyrene	34	
50-32-8	Benzo(A)Pyrene	10	U
198-55-0	Perylene	10	U
193-39-5	Indeno(1,2,3-CD)Pyrene	10	U
53-70-3	Dibenz(A,H)Anthracene	10	U
191-24-2	Benzo(G,H,I)Perylene	10	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

33821-02DL1

Lab Name: ENSECO Contract No.:

DPV-W420-021594

Lab Code: ENSECO Case No.: 33821 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 33821-02

Sample wt/vol: 1030 (g/mL) ML Lab File ID: X7429

Level: (low/med) LOW Date Received: 02/16/94

% Moisture: not dec. dec. Date Extracted: 02/16/94

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 03/04/94

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 4.85

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
271-89-6	2,3-Benzofuran	30	J
496-11-7	2,3-Dihydroindene	274	
95-13-6	1H-Indene	77	
91-20-3	Naphthalene	841	E
4565-32-6	Benzo(B)Thiophene	86	
91-22-5	Quinoline	480	U
120-72-9	1H-Indole	480	U
91-57-6	2-Methylnaphthalene	56	
90-12-0	1-Methylnaphthalene	80	
92-52-4	Biphenyl	14	J
208-96-8	Acenaphthylene	480	U
83-32-9	Acenaphthene	66	
132-64-9	Dibenzofuran	23	J
86-73-7	Fluorene	22	J
132-65-0	Dibenzothiophene	480	U
85-01-8	Phenanthrene	12	J
120-12-7	Anthracene	480	U
260-94-6	Acridine	480	U
86-74-8	Carbazole	44	J
206-44-0	Fluoranthene	480	U
129-00-0	Pyrene	480	U
56-55-3	Benzo(A)Anthracene	480	U
218-01-9	Chrysene	480	U
205-99-2	Benzo(B)Fluoranthene	480	U
207-08-9	Benzo(K)Fluoranthene	480	U
192-97-2	Benzo(E)Pyrene	480	U
50-32-8	Benzo(A)Pyrene	480	U
198-55-0	Perylene	480	U
193-39-5	Indeno(1,2,3-CD)Pyrene	480	U
53-70-3	Dibenz(A,H)Anthracene	480	U
191-24-2	Benzo(G,H,I)Perylene	480	U

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 33821 SAS No.: SDG No.:

Level: LOW

	EPA SAMPLE NO.	S1 (NAP) #	S2 (FLU) #	S3 (CHR) #
1	33821-01	70	64	68
2	33821-01DU	82	70	62
3	33821-01FB	84	74	75
4	33821-02DL1	78	67	63
5	33821-02DL2	D	D	D
6	33821-03	70	59	54
7	33821-04	76	64	55
8	33821-05	89	75	64
9	33821-06	84	78	66
10	33821-01MS	74	70	65
11	33821-01MSD	86	74	64
12	BLK01	85	74	72

	QC LIMITS
S1 (NAP) = D8-NAPHTHALENE	(25-175)
S2 (FLU) = D10-FLUORENE	(25-175)
S3 (CHR) = D12-CHRYSENE	(25-175)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 33821 SAS No.: SDG No.:

Matrix Spike - EPA Sample No.: 33821-01 LEVEL: LOW

Compound	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC
1H-Indene	48.5	10.8	41.5	63
Naphthalene	48.5	0.319	35.3	72
Quinoline	48.5	ND	34.1	70
2-Methylnaphthalene	48.5	0.169	31.7	65
Fluorene	48.5	ND	36.1	74
Chrysene	48.5	ND	32.0	66
Benzo(E)Pyrene	48.5	ND	29.6	61

Compound	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC	% RPD
1H-Indene	48.5	46.4	73	11
Naphthalene	48.5	39.3	80	11
Quinoline	48.5	36.5	75	7
2-Methylnaphthalene	48.5	36.2	74	13
Fluorene	48.5	41.8	86	15
Chrysene	48.5	34.4	71	7
Benzo(E)Pyrene	48.5	34.6	71	16

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA

PCJ-W

Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 36008 SAS No.: SDG No.: 3600

Matrix: (soil/water) WATER Lab Sample ID: 36008-07

Sample wt/vol: 1060 (g/mL) ML Lab File ID: T0601829.D

Level: (low/med) LOW Date Received: 06/09/94

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 06/12/94

Concentrated Extract Volume: 1(ML) Date Analyzed: 07/21/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	14	
91-57-6	2-Methylnaphthalene	2	J
208-96-8	Acenaphthylene	1	J
83-32-9	Acenaphthene	9	J
132-64-9	Dibenzofuran	3	J
86-73-7	Fluorene	7	J
85-01-8	Phenanthrene	5	J
120-12-7	Anthracene	9	U
206-44-0	Fluoranthene	4	J
129-00-0	Pyrene	4	J
56-55-3	Benzo(a)Anthracene	9	U
218-01-9	Chrysene	9	U
205-99-2	Benzo(b)fluoranthene	9	U
207-08-9	Benzo(k)fluoranthene	9	U
50-32-8	Benzo(a)pyrene	9	U
193-39-5	Indeno(1 2 3-cd)pyrene	9	U
53-70-3	Dibenzo(a h)anthracene	9	U
191-24-2	Benzo(g h i)perylene	9	U
86-74-8	Carbazole	9	U
95-13-6	1H-Indene	9	U
91-22-5	Quinoline	9	U
90-12-0	1-Methylnaphthalene	4	J
271-89-6	2,3-Benzofuran	9	U
496-11-7	2,3-Dihydroindene	5	J
95-15-8	Benzo(b)thiophene	9	U
120-72-9	1H-Indole	9	U
92-52-4	Biphenyl	2	J
132-65-0	Dibenzothiophene	9	U
260-94-6	Acridine	9	U
192-97-2	Benzo(e)pyrene	9	U
198-55-0	Perylene	9	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

33821-01FB

Lab Name: ENSECO Contract No.: DPV-W422FB-021594

Lab Code: ENSECO Case No.: 33821 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 33821-01FB

Sample wt/vol: 1020 (g/mL) ML Lab File ID: X7420

Level: (low/med) LOW Date Received: 02/16/94

% Moisture: not dec. dec. Date Extracted: 02/16/94

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 03/03/94

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 0.980

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
271-89-6	2,3-Benzofuran	10	U
496-11-7	2,3-Dihydroindene	10	U
95-13-6	1H-Indene	10	U
91-20-3	Naphthalene	10	U
4565-32-6	Benzo(B)Thiophene	10	U
91-22-5	Quinoline	10	U
120-72-9	1H-Indole	10	U
91-57-6	2-Methylnaphthalene	10	U
90-12-0	1-Methylnaphthalene	10	U
92-52-4	Biphenyl	10	U
208-96-8	Acenaphthylene	10	U
83-32-9	Acenaphthene	10	U
132-64-9	Dibenzofuran	10	U
86-73-7	Fluorene	10	U
132-65-0	Dibenzothiophene	10	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
260-94-6	Acridine	10	U
86-74-8	Carbazole	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
56-55-3	Benzo(A)Anthracene	10	U
218-01-9	Chrysene	10	U
205-99-2	Benzo(B)Fluoranthene	10	U
207-08-9	Benzo(K)Fluoranthene	10	U
192-97-2	Benzo(E)Pyrene	10	U
50-32-8	Benzo(A)Pyrene	10	U
198-55-0	Perylene	10	U
193-39-5	Indeno(1,2,3-CD)Pyrene	10	U
53-70-3	Dibenz(A,H)Anthracene	10	U
191-24-2	Benzo(G,H,I)Perylene	10	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

33821-01MS

Lab Name: ENSECO Contract No.:

DPV-W422MS-021594

Lab Code: ENSECO Case No.: 33821 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 33821-01MS

Sample wt/vol: 1030 (g/mL) ML Lab File ID: X7417

Level: (low/med) LOW Date Received: 02/16/94

% Moisture: not dec. dec. Date Extracted: 02/16/94

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 03/03/94

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 0.971

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
271-89-6	2,3-Benzofuran	10	U
496-11-7	2,3-Dihydroindene	41	
95-13-6	1H-Indene	32	
91-20-3	Naphthalene	41	
4565-32-6	Benzo(B)Thiophene	10	U
91-22-5	Quinoline	36	
120-72-9	1H-Indole	10	U
91-57-6	2-Methylnaphthalene	30	
90-12-0	1-Methylnaphthalene	1	J
92-52-4	Biphenyl	10	U
208-96-8	Acenaphthylene	10	U
83-32-9	Acenaphthene	7	J
132-64-9	Dibenzofuran	10	U
86-73-7	Fluorene	35	
132-65-0	Dibenzothiophene	10	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
260-94-6	Acridine	10	U
86-74-8	Carbazole	2	J
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
56-55-3	Benzo(A)Anthracene	10	U
218-01-9	Chrysene	34	
205-99-2	Benzo(B)Fluoranthene	10	U
207-08-9	Benzo(K)Fluoranthene	10	U
192-97-2	Benzo(E)Pyrene	32	
50-32-8	Benzo(A)Pyrene	10	U
198-55-0	Perylene	10	U
193-39-5	Indeno(1,2,3-CD)Pyrene	10	U
53-70-3	Dibenz(A,H)Anthracene	10	U
191-24-2	Benzo(G,H,I)Perylene	10	U

8C

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No: 33821 SAS No.: SDG No:

Lab File ID (Standard): X7414 Date Analyzed: 03/03/94

Instrument ID: 4500-X Time Analyzed: 1356

	IS#1 (ACN) AREA #	IS#2 (PHN) AREA #	IS#3 (BAP) AREA #
12 HOUR STD	33278	51239	28106
UPPER LIMIT	66556	102478	56212
LOWER LIMIT	16639	25620	14053
SAMPLE NO.			
BLK01	35990	52911	32132
33821-01	37128	56873	33740
33821-01MS	37295	57846	34089
33821-01MSD	38471	59578	34278
33821-01DU	38268	59135	34047
33821-01FB	41104	61458	37836
33821-04	36681	54130	32228
33821-05	39592	57797	35205
33821-06	33907	52009	26325

IS#1 (ACN) = D10-ACENAPHTHENE
IS#2 (PHN) = D10-PHENANTHRENE
IS#3 (BAP) = D12-BENZO(A)PYRENE

UPPER LIMIT = + 100% of internal standard area
LOWER LIMIT = - 50% of internal standard area

Column used to flag internal standard area values with an asterisk

8C

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No: 33821 SAS No.: SDG No:

Lab File ID (Standard): X7428 Date Analyzed: 03/04/94

Instrument ID: 4500-X Time Analyzed: 0900

	IS#1 (ACN) AREA #	IS#2 (PHN) AREA #	IS#3 (BAP) AREA #
12 HOUR STD	29974	48034	28106
UPPER LIMIT	59948	98068	56212
LOWER LIMIT	14987	24017	14053
SAMPLE NO.			
33821-03	32445	49262	32009
33821-02DL1	32859	51637	30801
33821-02DL2	32475	49291	31718

IS#1 (ACN) = D10-ACENAPHTHENE
IS#2 (PHN) = D10-PHENANTHRENE
IS#3 (BAP) = D12-BENZO(A)PYRENE

UPPER LIMIT = + 100% of internal standard area
LOWER LIMIT = - 50% of internal standard area

Column used to flag internal standard area values with an asterisk

4B
SEMIVOLATILE METHOD BLANK SUMMARY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 33821 SAS No.: SDG No.:

Lab File ID: X7415 Lab Sample ID: BLK01

Date Extracted: 02/16/94 Extraction: (SepF/Cont/Sonc) CONT

Date Analyzed: 03/03/94 Time Analyzed: 1438

Matrix: (soil/water) WATER Level: (low/med) LOW

Instrument ID: 4500-X

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	33821-01	33821-01	X7416	03/03/94
02	33821-01MS	33821-01MS	X7417	03/03/94
03	33821-01MSD	33821-01MSD	X7418	03/03/94
04	33821-01DU	33821-01DU	X7419	03/03/94
05	33821-01FB	33821-01FB	X7420	03/03/94
06	33821-01FBD	33821-01FBD	X7421	03/03/94
07	33821-04	33821-04	X7424	03/03/94
08	33821-05	33821-05	X7425	03/03/94
09	33821-06	33821-06	X7426	03/03/94
10	33821-03	33821-03	X7430	03/04/94
11	33821-02DL1	33821-02DL1	X7429	03/04/94
12	33821-02DL2	33821-02DL2	X7432	03/04/94

COMMENTS:

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BLK01

Lab Name: ENSECO Contract No.:

Lab Code: ENSECO Case No.: 33821 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: BL021694

Sample wt/vol: 1000 (g/mL) ML Lab File ID: X7415

Level: (low/med) LOW Date Received:

% Moisture: not dec. dec. Date Extracted: 02/16/94

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 03/03/94

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
271-89-6	2,3-Benzofuran	10	U
496-11-7	2,3-Dihydroindene	10	U
95-13-6	1H-Indene	10	U
91-20-3	Naphthalene	10	U
4565-32-6	Benzo(B)Thiophene	10	U
91-22-5	Quinoline	10	U
120-72-9	1H-Indole	10	U
91-57-6	2-Methylnaphthalene	10	U
90-12-0	1-Methylnaphthalene	10	U
92-52-4	Biphenyl	10	U
208-96-8	Acenaphthylene	10	U
83-32-9	Acenaphthene	10	U
132-64-9	Dibenzofuran	10	U
86-73-7	Fluorene	10	U
132-65-0	Dibenzothiophene	10	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
260-94-6	Acridine	10	U
86-74-8	Carbazole	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
56-55-3	Benzo(A)Anthracene	10	U
218-01-9	Chrysene	10	U
205-99-2	Benzo(B)Fluoranthene	10	U
207-08-9	Benzo(K)Fluoranthene	10	U
192-97-2	Benzo(E)Pyrene	10	U
50-32-8	Benzo(A)Pyrene	10	U
198-55-0	Perylene	10	U
193-39-5	Indeno(1,2,3-CD)Pyrene	10	U
53-70-3	Dibenz(A,H)Anthracene	10	U
191-24-2	Benzo(G,H,I)Perylene	10	U