US EPA RECORDS CENTER REGION 5
514027

K.07
3/15/97

ANNUAL MONITORING REPORT FOR 1996

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

part B

SUBMITTED MARCH 15, 1997

CITY

ENSR — QUANTERRA

APPENDIX D
LABORATORY DATA SUMMARY PACKAGE:
ST. PETER AQUIFER

WELLS

SLP3 W24 W33
W122 W129 W133
W408 W409 W410
W411 W412 P116

CITY OF ST. LOUIS PARK

St. Peter Aquifer 1996
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						
W409	4/16/96	SBLK01-48342	DPV-W420D-041696	DPV-W420MS-041696	DPV-W420MSD-041696	DPV-W420FB-041696
W410	5/20/96	SBLK01-49142	STP-W410D-052096	STP-W410MS-052096	STP-W410MSD-052096	STP-W410FB-052096
W412	5/20/96	SBLK01-49142	STP-W410D-052096	STP-W410MS-052096	STP-W410MSD-052096	STP-W410FB-052096
W133	5/20/96	SBLK01-49142	STP-W410D-052096	STP-W410MS-052096	STP-W410MSD-052096	STP-W410FB-052096
W33	5/20/96	SBLK01-49142	STP-W410D-052096	STP-W410MS-052096	STP-W410MSD-052096	STP-W410FB-052096
W24	5/20/96	SBLK01-49142	STP-W410D-052096	STP-W410MS-052096	STP-W410MSD-052096	STP-W410FB-052096
SLP3	6/3/96	SBLK01-49376	STP-SLP3D-060396	STP-SLP3MS-060396	STP-SLP3MSD-060396	STP-SLP3FB-060396
W122	6/3/96	SBLK01-49376	STP-SLP3D-060396	STP-SLP3MS-060396	STP-SLP3MSD-060396	STP-SLP3FB-060396
W129	6/3/96	SBLK01-49376	STP-SLP3D-060396	STP-SLP3MS-060396	STP-SLP3MSD-060396	STP-SLP3FB-060396
W411	6/3/96	SBLK01-49376	STP-SLP3D-060396	STP-SLP3MS-060396	STP-SLP3MSD-060396	STP-SLP3FB-060396
W408	6/3/96	SBLK01-49376	STP-SLP3D-060396	STP-SLP3MS-060396	STP-SLP3MSD-060396	STP-SLP3FB-060396
P116	6/4/96	SBLK01-49403	PCJ-SLP4D-060496	STP-SLP3MS-060396	STP-SLP3MSD-060396	PCJ-SLP4FB-060496

CITY OF ST. LOUIS PARK

St. Peter Aquifer 1996
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	10/7/96	SBLK01-51919	STP-SLP3D-100796	STP-SLP3MS-100796	STP-SLP3MSD-100796	STP-SLP3FB-100796
W411	10/7/96	SBLK01-51919	STP-SLP3D-100796	STP-SLP3MS-100796	STP-SLP3MSD-100796	STP-SLP3FB-100796
W129	10/7/96	SBLK01-51919	STP-SLP3D-100796	STP-SLP3MS-100796	STP-SLP3MSD-100796	STP-SLP3FB-100796
W122	10/7/96	SBLK01-51919	STP-SLP3D-100796	STP-SLP3MS-100796	STP-SLP3MSD-100796	STP-SLP3FB-100796
W408	10/7/96	SBLK01-51919	STP-SLP3D-100796	STP-SLP3MS-100796	STP-SLP3MSD-100796	STP-SLP3FB-100796
P116	10/8/96	SBLK01-51936	PCJ-E2D-100896	STP-SLP3MS-100796	STP-SLP3MSD-100796	PCJ-E2FB-100896
W409	10/10/96	SBLK01-48342	DPV-W420D-101096	DPV-W420MS-101096	DPV-W420MSD-101096	DPV-W420FB-101096
W410	10/21/96	SBLK01-52179	STP-W410D-102196	STP-W410MS-102196	STP-W410MSD-102196	STP-W410FB-102196
W24	10/21/96	SBLK01-52179	STP-W410D-102196	STP-W410MS-102196	STP-W410MSD-102196	STP-W410FB-102196
W33	10/21/96	SBLK01-52179	STP-W410D-102196	STP-W410MS-102196	STP-W410MSD-102196	STP-W410FB-102196
W412	10/21/96	SBLK01-52179	STP-W410D-102196	STP-W410MS-102196	STP-W410MSD-102196	STP-W410FB-102196
W133	10/21/96	SBLK01-52179	STP-W410D-102196	STP-W410MS-102196	STP-W410MSD-102196	STP-W410FB-102196

CITY OF ST. LOUIS PARK
St. Peter Aquifer
Analytical Result Summary
1996

Well	Coordinates	Recording Date	Water Level	PAH Concentrations ng/L B(a)P D(a,h)A	Carcin	Other	ug/L Phenols
SLP 3	925.06						
	2164026	6/3/96	823.60			11	
	711755						
		10/7/96	872.38			4	
W 24	893.19						
	2163861	5/20/96	866.76			974	
	705899						
		10/21/96	870.51			1,603	
W 33	907.55						
	2164845	5/20/96	866.56			566	
	706960						
		10/21/96	865.49			655	
W 122	918.58						
	2167866	6/3/96	858.13			144	
	705154						
		10/7/96	859.54			235	
W 129	916.33						
	2166986	6/3/96	867.07			53	
	703797						
		10/7/96	867.58			75	
W 133	921.06						
	2167145	5/20/96	860.79			142	
	707209						
		10/21096	864.74			285	
W 408	923.53						
	2164015	6/3/96	838.38			66	
	710725						
		10/7/96	872.34			103	
W 409	923.56						
	2164064	4/15/96	859.08			805,420	
	708053						
		10/7/96	870.14			312,500	

CITY OF ST. LOUIS PARK
St. Peter Aquifer
Analytical Result Summary
1996

Well	Coordinates	Recording Date	Water Level	PAH Concentrations ng/L B(a)P D(a,h)A	Carcin	Other	ug/L Phenols
W 410	908.04						
	2165528	5/20/96	822.63			15,970	
	706334						
		10/21/96	834.42			14,170	
W 411	896.25						
	2165492	6/3/96	862.62			79	
	705153						
		10/7/96	864.88			253	
W 412	915.17						
	2167743	5/20/96	862.14			139	
	706732						
		10/21/96	864.90			1,620	
P 116	887.14						
	2170794	6/5/96	862.53			7	
	707211						
		10/8/96	863.30			43	

ST. PETER AQUIFER 1996

/ELL		W409	W33	W410	W412	W133	W24	SLP3	W122RA	W129	W124
DATE		4/16/96	5/20/96	5/20/96	5/20/96	5/20/96	5/20/96	6/3/96	6/3/96	6/3/96	6/3/96
2,3-Benzofuran											
2,3-Dihydroindene		107	190	7400	13	51	840		9.5	3.3	
1H-Indene		142	97	3100	11	6.2	14		7.6	2.4	9.6
Naphthalene		142	36	1500		29		8	36	6.7	
Benzo (b) Thiophene		64.2	82	1500							
1H-Indole											
2-Methylnaphthalene			14		11			1.3	17	5	
1-Methylnaphthalene		106	14	920	10				11	5.2	
Biphenyl		22.4									
Acenaphthylene		4.66									
Acenaphthene		75.3	19	1000	8.4	7.6	120		10	3.6	
Dibenzofuran		38.4	7		6	4.3			8	2.4	
Fluorene		38	8.5			4.6				2.8	
Dibenzothiophene		2.46				1.6					
Phenanthrene		30.1	20		18	8.2		1.4	7.6	2.9	
Anthracene			2.5			1.9				1.3	
Acridine											
Carbazole		32.9	23	550	15	7.7			12	4.2	
Fluoranthene			17		19	3.8			5.4	3.9	
Pyrene			36		28	16			20	9.7	
12-Dimethylbenz(a)anthracene											
enzo (e) Pyrene											
Perylene											
3-Methylcholanthrene											
Dibenz (A,C) Anthracene											
Quinoline	C										
Benzo (a) Anthracene	C										
Chrysene	C										
Benzo (b) Fluoranthene	C										
Benzo (k) Fluoranthene	C										
Benzo (a) Pyrene	C	0	0	0	0	0	0	0	0	0	0
Indino (1,2,3-cd) Pyrene	C										
Dibenz (a,h) Anthracene	C	0	0	0	0	0	0	0	0	0	0
Benzo (g,h,i) Perylene	C										
TOTAL OTHER PAH		805.42	566	15970	139.4	141.9	974	10.7	144.1	53.4	9.6
BENO(a)PYRENE + DIBENZO(A,H)	C	0	0	0	0	0	0	0	0	0	0
TOTAL CARCINOGEN	C	0	0	0	0	0	0	0	0	0	0
TOTAL PAH		805.42	566	15970	139.4	141.9	974	10.7	144.1	53.4	9.6
Dilution Factor		2	2	100	5	1	1	1	1	1	10
Surrogate Recoveries											
Naphthalene-d8		75	62	0	59	56	6	62	92	52	D
Fluorene-d10		74	64	0	61	57	5	132	25	30	D
Chrysene-d12		67	19	0	34	8	11	52	70	58	D

ST. PETER AQUIFER 1996

.ELL	W411	W408RA	P116	W408	SLP3D	W129	W122	W411	W133	W410
DATE	6/3/96	6/3/96	6/5/96	10/7/96	10/7/96	10/7/96	10/7/96	10/7/96	10/21/96	10/21/96
2,3-Benzofuran										
2,3-Dihydroindene	2.5	3.8		12		27	32	38	70	7400
1H-Indene	1.4	3		2.6			12	13	30	3200
Naphthalene	8.9	14		29			86	73	55	
Benzo (b) Thiophene				1.1					15	1600
1H-Indole	3.8									
2-Methylnaphthalene	4.5	8.8	2.6	17	1.4	16	43	33	20	
1-Methylnaphthalene	3.4	6.7		9.9			23	22	20	890
Biphenyl										
Acenaphthylene										
Acenaphthene	2.1	3.4		2.5					10	730
Dibenzofuran	1.4	2.9		2					6.1	
Fluorene	1.8	3.2		2.7					7.2	
Dibenzothiophene									1.7	
Phenanthrene	5.8	5	2	6.1	2.7	16			3.9	
Anthracene	1.8								2.2	
Acridine	29							46	15	
Carbazole	3	5.5		2.5					7.9	350
Fluoranthene	3.3	2.4		3.9					5.2	
Pyrene	6.6	7.4	2	12		16	39	28	16	
Dimethylbenz(a)anthracene										
ızo (e) Pyrene										
Perylene										
3-Methylcholanthrene										
Dibenz (A,C) Anthracene										
Quinoline										
Benzo (a) Anthracene										
Chrysene										
Benzo (b) Fluoranthene										
Benzo (k) Fluoranthene										
Benzo (a) Pyrene	0	0	0	0	0	0	0	0	0	0
Indino (1,2,3-cd) Pyrene										
Dibenz (a,h) Anthracene	0	0	0	0	0	0	0	0	0	0
Benzo (g,h,i) Perylene										
TOTAL OTHER PAH	79.3	66.1	6.6	103.3	4.1	75	235	253	285.2	14170
BENO(a)PYRENE + DIBENZO(A,H)	0	0	0	0	0	0	0	0	0	0
TOTAL CARCINOGEN	0	0	0	0	0	0	0	0	0	0
TOTAL PAH	79.3	66.1	6.6	103.3	4.1	75	235	253	285.2	14170
Dilution Factor	1	1	1	1	1	10	10	10	1	100
Surrogate Recoveries										
Naphthalene-d8	36	42	55	68	83	0	0	0	84	0
Fluorene-d10	30	19	37	71	70	0	0	0	74	0
Chrysene-d12	61	89	65	22	38	0	0	0	7	0

ST. PETER AQUIFER 1996

WELL	W24	W33	W412	P116	W409
DATE	10/21/96	10/21/96	10/21/96	10/8/96	10/9/96
2,3-Benzofuran					
2,3-Dihydroindene	1400	220	160	2.1	52
1H-Indene	23	110	260	1	55
Naphthalene				14	42
Benzo (b) Thiophene		110	1200		26
1H-Indole					
2-Methylnaphthalene		32		7.6	
1-Methylnaphthalene		38		4.3	42
Biphenyl					5
Acenaphthylene					2.1
Acenaphthene	180	38			38
Dibenzofuran				1.4	15
Fluorene		13		1.3	15
Dibenzothiophene					1.2
Phenanthrene		26		6.3	7.2
Anthracene					
Acridine					
Carbazole		42			12
Fluoranthene				2.5	
Pyrene		26		2.2	
12-Dimethylbenz(a)anthracene					
Benzo (e) Pyrene					
Perylene					
3-Methylcholanthrene					
Dibenz (A,C) Anthracene					
Quinoline					
Benzo (a) Anthracene					
Chrysene					
Benzo (b) Fluoranthene					
Benzo (k) Fluoranthene					
Benzo (a) Pyrene	0	0	0	0	0
Indino (1,2,3-cd) Pyrene					
Dibenz (a,h) Anthracene	0	0	0	0	0
Benzo (g,h,i) Perylene					
TOTAL OTHER PAH	1603	655	1620	42.7	312.5
BENO(a)PYRENE + DIBENZO(A,H)	0	0	0	0	0
TOTAL CARCINOGEN	0	0	0	0	0
TOTAL PAH	1603	655	1620	42.7	312.5
Dilution Factor	20	10	100	1	1
Surrogate Recoveries					
Naphthalene-d8	86	71	0	69	65
Fluorene-d10	74	85	0	62	68
Chrysene-d12	41	23	0	20	67

RAP SECTION 8.1.3 MONITORING

WELLS

SLP3 W24 W33 W122
W129 W133 W408 W409
W410 W411 W412 P116

FIRST HALF MONITORING

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

STP-W409

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 48342 SAS No.: SDG No.: 48342

Matrix: (soil/water) WATER Lab Sample ID: 48342-10

Sample wt/vol: 1060 (g/ml) ML Lab File ID: T0301721

Level: (low/med) LOW Date Received: 04/17/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted:04/19/96

Concentrated Extract Volume: 1.0(ml) Date Analyzed: 04/23/96

Injection Volume: 2.0(uL) Dilution Factor: 2.0

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	142	
91-57-6	2-Methylnaphthalene	18.9	U
208-96-8	Acenaphthylene	4.66	J
83-32-9	Acenaphthene	75.3	
132-64-9	Dibenzofuran	38.4	
86-73-7	Fluorene	38.0	
85-01-8	Phenanthrene	30.1	
120-12-7	Anthracene	18.9	U
206-44-0	Fluoranthene	18.9	U
129-00-0	Pyrene	18.9	U
56-55-3	Benzo(a)Anthracene	18.9	U
218-01-9	Chrysene	18.9	U
205-99-2	Benzo(b)fluoranthene	18.9	U
207-08-9	Benzo(k)fluoranthene	18.9	U
50-32-8	Benzo(a)pyrene	18.9	U
193-39-5	Indeno(1 2 3-cd)pyrene	18.9	U
53-70-3	Dibenzo(a h)anthracene	18.9	U
191-24-2	Benzo(g h i)perylene	18.9	U
86-74-8	Carbazole	32.9	
95-13-6	1H-Indene	142	
91-22-5	Quinoline	18.9	U
90-12-0	1-Methylnaphthalene	106	
271-89-6	2,3-Benzofuran	18.9	U
496-11-7	2,3-Dihydroindene	107	
95-15-8	Benzo(b)thiophene	64.2	
120-72-9	1H-Indole	18.9	U
92-52-4	Biphenyl	22.4	
132-65-0	Dibenzothiophene	2.46	J
260-94-6	Acridine	18.9	U
192-97-2	Benzo(e)pyrene	18.9	U
198-55-0	Perylene	18.9	U

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

July 8, 1996

Quanterra Environmental Services

Project Number 049142

Introduction

Ten aqueous samples (including matrix QC) were received at Quanterra Environmental Services, Denver Laboratory on May 21, 1996. The samples were logged in under Quanterra Denver's project number 049142. A cross reference associating Quanterra Denver's laboratory sample numbers to the actual field sample number 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 October 1995 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.

Client samples with lab Id's 049142-001, 003, 004, 005, 005DU, 005MS and 005MSD had to be diluted due to non-target analytes exceeding the linear range of the instrument. The reporting limits were raised accordingly. As a result of dilution the surrogates for samples' 049142-005, 005DU, 005MS and 005MSD were not detected and are reported as "D."

The surrogate chrysene-d12 in client sample W133 is reported at 8% recovery which is outside the 10% to 118% acceptance criteria. Chrysene-d12 in both the blank and LCS are reported within acceptable limits. The sample was reanalyzed with the same results. This would suggest a matrix effect and a possible low bias to the sample results

Quanterra Environmental Services

The surrogates Naphthalene-d8 and Fluorene-d10 are reported at 6% and 5% recovery, for sample W24 which are outside the acceptance criteria stated in the QA plan. Upon dilution and reanalysis of the sample all three surrogates were within acceptance criteria. Therefore the results for W24RA (reanalysis)should be used.

Due to the high concentration of 1H-Indene and Naphthalene in client samples W410MS and W410MSD the spike level of 72 ng/L was insufficient and as a result all spiking compounds were diluted out and reported as out of control limits. The results for W410 and W410DU show RPDs within acceptable limits for target compounds reported above the reporting limits. All compounds reported in the LCS are within acceptable limits.

The internal standard Benzo (a) pyrene-d12 in client samples W412 and W33 are reported above the upper control limit (+ 100%). Benzo (a) pyrene-d12 in the laboratory blank, LCS, field blank and field blank duplicate samples were all within acceptable limits. The samples were reanalyzed with the same results indicating a matrix effect.

The internal standard Phenanthrene-d10 in client sample W24 is reported above the upper control limit (+100%). Phenanthrene-d10 in the laboratory blank, LCS, field blank and field blank duplicate samples was within acceptable limits. The sample was reanalyzed with the same results indicating a matrix effect.

This data package is in compliance with the terms and conditions of the October 1995 QAPP, both technically and for completeness, for other than the conditions detailed above.

Reported By: _____ **Date:** 7/3/96

Kurt C. Ill
Program Manager

Reviewed By: _____ **Date:** 7/3/96

Quanterra Environmental Services

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
049142-0001-SA	STP-W412-052096	AQUEOUS	20 MAY 96	12:10	21 MAY 96
049142-0002-SA	STP-W133-052096	AQUEOUS	20 MAY 96	12:30	21 MAY 96
049142-0003-SA	STP-W33-052096	AQUEOUS	20 MAY 96	14:50	21 MAY 96
049142-0004-SA	STP-W24-052096	AQUEOUS	20 MAY 96	09:45	21 MAY 96
049142-0005-SA	STP-W410-052096	AQUEOUS	20 MAY 96		21 MAY 96
049142-0005-DU	STP-W410D-052096	AQUEOUS	20 MAY 96		21 MAY 96
049142-0005-MS	STP-W410MS-052096	AQUEOUS	20 MAY 96		21 MAY 96
049142-0005-SD	STP-W410MSD-052096	AQUEOUS	20 MAY 96		21 MAY 96
049142-0006-FB	STP-W410FB-052096	AQUEOUS	20 MAY 96		21 MAY 96
049142-0006-FD	STP-W410FBD-052096	AQUEOUS	20 MAY 96		21 MAY 96

Quanterra Environmental Services

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 049142	Group Code	Analysis Description	Custom Test?
0001 - 0006	A	Polynuclear Aromatic Hydrocarbons, SIM Low Level	N
		Prep - PAH/SIM by GC/MS Low Level	N
0006	B	Prep - PAH/SIM by GC/MS Low Level	N
		Polynuclear Aromatic Hydrocarbons, SIM Low Level	N

Chain of Custody Record

QUA-4124-1

Quanterra Environmental Services

Client: tro r ous k

Project Manager: il Gregg

Date: 5 2 6

Chain Of Custody Number: 66183

Address: 3252 Woodale Ave S

Telephone Number (Area Code)/Fax Number: 612-924-0112/612- -031

Lab N

Page ___ of ___

City: St Louis Park | State: Mn | Zip Code: 55416

Contact: oH Anderson | Lab Contact: Kurt Ill

Project Name: SL

Carrier/Waybill Number

Contr) Order/Quote No.

Analysis (Attach list if more space is needed)

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Sed.	Matrix: Soil	Matrix: Unpres.	Containers & Preservatives: H2SO4	HNO3	HCl	NaOH	Special Instructions/ Conditions of Receipt
STP-W412-052096	5	12:10								-5
STP-W133-0520										-75
STP- -052										- -

Possible Hazard Identification: ☐ Non-Hazard ☒ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For ___ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☒ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other Standard

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: [signature]	5/20/96		1. Received By: [signature]	5/21/96	900
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy

Chain of Custody Record

Quanterra Environmental Services

QUA-4124-1

Client: City of St Louis Park	Project Manager: Bill Gross	Date: 5/20/96	Chain Of Custody Number: 66184
Address: 3252 Woodale Ave S	Telephone Number (Area Code)/Fax Number: 612-924-0112 / 612-924-0312	Lab Number:	Page 1 of 1
City: SLP; State: Mn; Zip Code: 55416	Site Contact: Scott Anderson; Lab Contact:		
Project Name: City of St Louis Park	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.:			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis (Attach list if more space is needed): PPT-PAH	Special Instructions/ Conditions of Receipt
STP-W24-052096	5/20/96	9:45	X			6						X	PPT-25 -0

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other Standard

QC Requirements (Specify):

	Date	Time		Date	Time
1. Relinquished By: [signature]	5/20/96		1. Received By: J DeChas	5/21/96	900
2. Relinquished By:			2. Received By:		
3. Relinquished By:			3. Received By:		

Comments:

DISTRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Copy

4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

Quanterra Environmental Services

City of St. Louis Park
3752 Wooddale Ave So
St. Louis Park MN 55416

QUANTERRA CLIENT

PROJECT

SAMPLING COMPANY: SAME

SAMPLING SITE: SAME

TEAM LEADER: [redacted] DMZ

SEAL NUMBER

CONDITION OF CONTENTS

INITIAL CONTENTS TEMP. °C

SAMPLING STATUS: ☐ Done ☐ Continuing Until

CONTENTS TEMPERATURE UPON RECEIPT BY LAB °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
5-20-96		STP-W410-052096	[illegible]	6	PPT PAH	PPT 75 -S
5-20-96		STP-W410D-052096	[illegible]	[illegible]	PPT PAH	PPT 75 -SDU

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

AIRBILL NUMBER: 7828345685

DATE/TIME: 5/21/96 900

49142

QUA-4119

Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

Environmental Services

QUANTERRA CLIENT

City of St. Louis Park
3752 Wooddale Ave So
St. Louis Park MN 55416

PROJECT

SAMPLING COMPANY: SAME

SAMPLING SITE: SAME

TEAM LEADER: MZK

SAMPLE SAFE™ CONDITIONS

PACKED BY: MZK

SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY

SEALED FOR SHIPPING BY: MZK

SEAL NUMBER

SAMPLING STATUS: ☐ Done ☐ Continuing Until

SEAL INTACT UPON RECEIPT BY LAB

CONTENTS TEMPERATURE UPON RECEIPT BY LAB. °C

SEAL NUMBER

CONDITION OF CONTENTS

INITIAL CONTENTS TEMP. °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
5-20-96		STP-W420MS-052096	[illegible]	6	PPT PAH	PPT 75 -SMS
5-20-96		STP-W420MSD-052096	[illegible]	6	PPT PAH	PPT 75 -SSD

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MZK

METHOD OF SHIPMENT: [illegible] EX

AIRBILL NUMBER: 7808345685

RECEIVED FOR LAB: [illegible]

DATE/TIME: 5/21/96 900

49142

QUA-4119

4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

Quanterra Environmental Services

City of St. Louis Park
3752 Wooddale Ave So
St. Louis Park MN 55416

QUANTERRA CLIENT

PROJECT

SAMPLING COMPANY: SAME

SAMPLING SITE: SAME

TEAM LEADER: M2 AF

SAMPLE SAFE CONDITIONS

SEAL NUMBER

CONDITION OF CONTENTS

INITIAL CONTENTS TEMP. °C

SAMPLING STATUS: ☐ Done ☐ Continuing Until

CONTENTS TEMPERATURE UPON RECEIPT BY LAB. °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
5-20-96		STP-W410 FB-052096		6	PPT PAH	PPT 75 -6 FB
5-20-96		STP-W410 FBD-05[illegible]		[illegible]	PPT PAH	PPT 75 -6 FD

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: M2 AF

METHOD OF SHIPMENT: FEDEX

AIRBILL NUMBER: 7828345685

RECEIVED FOR LAB: [signature]

DATE/TIME: 8/21/96 9:00

QUANTERRA PROJECT NUMBER: 49142

QUA-4119

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W412

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 49142 SAS No.: SDG No.: 49142

Matrix: (soil/water) WATER Lab Sample ID: 49142-01

Sample wt/vol: 4164 (g/ml) ML Lab File ID: A0101158

Level: (low/med) LOW Date Received: 05/21/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted:05/24/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 06/27/96

Injection Volume: 1.0(uL) Dilution Factor: 5.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	24	U
496-11-7	2,3-Dihydroindene	13	B
95-13-6	1H-Indene	11	
91-20-3	Naphthalene	31	U
95-15-8	Benzo(b)thiophene	4.3	U
91-22-5	Quinoline	6.7	U
120-72-9	1H-Indole	12	U
91-57-6	2-Methylnaphthalene	11	R
90-12-0	1-Methylnaphthalene	10	R
92-52-4	Biphenyl	21	U
208-96-8	Acenaphthylene	6.7	U
83-32-9	Acenaphthene	8.4	
132-64-9	Dibenzofuran	6.0	
86-73-7	Fluorene	4.8	U
132-65-0	Dibenzothiophene	5.3	U
85-01-8	Phenanthrene	18	
120-12-7	Anthracene	5.3	U
260-94-6	Acridine	14	U
86-74-8	Carbazole	15	
206-44-0	Fluoranthene	19	
129-00-0	Pyrene	28	
56-55-3	Benzo(a)Anthracene	12	U
218-01-9	Chrysene	13	U
207-08-9	Benzo(b)fluoranthene	12	U
205-08-9	Benzo(k)fluoranthene	11	U
192-97-2	Benzo(e)pyrene	9.1	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	Dibenzo(a,h)anthracene	7.7	U
191-24-2	Benzo(g,h,i)perylene	13	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W412RA

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 49142 SAS No.: SDG No.: 49142

Matrix: (soil/water) WATER Lab Sample ID: 49142-01RA

Sample wt/vol: 4164 (g/ml) ML Lab File ID: A0501162

Level: (low/med) LOW Date Received: 05/21/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/24/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 06/27/96

Injection Volume: 1.0(uL) Dilution Factor: 5.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	24	U
496-11-7	2,3-Dihydroindene	12	B
95-13-6	1H-Indene	10	
91-20-3	Naphthalene	31	U
95-15-8	Benzo(b)thiophene	4.3	U
91-22-5	Quinoline	6.7	U
120-72-9	1H-Indole	12	U
91-57-6	2-Methylnaphthalene	11	R
90-12-0	1-Methylnaphthalene	10	R
92-52-4	Biphenyl	21	U
208-96-8	Acenaphthylene	6.7	U
83-32-9	Acenaphthene	8.3	
132-64-9	Dibenzofuran	5.1	
86-73-7	Fluorene	4.8	U
132-65-0	Dibenzothiophene	5.3	U
85-01-8	Phenanthrene	17	
120-12-7	Anthracene	5.3	U
260-94-6	Acridine	14	U
86-74-8	Carbazole	14	
206-44-0	Fluoranthene	15	
129-00-0	Pyrene	27	
56-55-3	Benzo(a)Anthracene	12	U
218-01-9	Chrysene	13	U
207-08-9	Benzo(b)fluoranthene	12	U
205-08-9	Benzo(k)fluoranthene	11	U
192-97-2	Benzo(e)pyrene	9.1	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	Dibenzo(a,h)anthracene	7.7	U
191-24-2	Benzo(g,h,i)perylene	13	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W133

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 49142 SAS No.: SDG No.: 49142

Matrix: (soil/water) WATER Lab Sample ID: 49142-02

Sample wt/vol: 4170 (g/ml) ML Lab File ID: A0201159

Level: (low/med) LOW Date Received: 05/21/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted:05/24/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 06/27/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	4.9	U
496-11-7	2,3-Dihydroindene	51	B
95-13-6	1H-Indene	6.2	
91-20-3	Naphthalene	29	
95-15-8	Benzo(b)thiophene	0.86	U
91-22-5	Quinoline	1.3	U
120-72-9	1H-Indole	2.4	U
91-57-6	2-Methylnaphthalene	0.86	U
90-12-0	1-Methylnaphthalene	1.5	U
92-52-4	Biphenyl	4.1	U
208-96-8	Acenaphthylene	1.3	U
83-32-9	Acenaphthene	7.6	
132-64-9	Dibenzofuran	4.3	
86-73-7	Fluorene	4.6	
132-65-0	Dibenzothiophene	1.6	
85-01-8	Phenanthrene	8.2	
120-12-7	Anthracene	1.9	
260-94-6	Acridine	2.8	U
86-74-8	Carbazole	7.7	
206-44-0	Fluoranthene	3.8	
129-00-0	Pyrene	16	
56-55-3	Benzo(a)Anthracene	2.4	U
218-01-9	Chrysene	2.7	U
207-08-9	Benzo(b)fluoranthene	2.4	U
205-08-9	Benzo(k)fluoranthene	2.2	U
192-97-2	Benzo(e)pyrene	1.8	U
50-32-8	Benzo(a)pyrene	2.2	U
198-55-0	Perylene	2.4	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.0	U
53-70-3	Dibenzo(a,h)anthracene	1.5	U
191-24-2	Benzo(g,h,i)perylene	2.7	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W33

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 49142 SAS No.: SDG No.: 49142

Matrix: (soil/water) WATER Lab Sample ID: 49142-03

Sample wt/vol: 4169 (g/ml) ML Lab File ID: A1201128

Level: (low/med) LOW Date Received: 05/21/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/24/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 06/25/96

Injection Volume: 1.0(uL) Dilution Factor: 2.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	9.8	U
496-11-7	2,3-Dihydroindene	190	B
95-13-6	1H-Indene	97	
91-20-3	Naphthalene	36	
95-15-8	Benzo(b)thiophene	82	
91-22-5	Quinoline	2.7	U
120-72-9	1H-Indole	4.8	U
91-57-6	2-Methylnaphthalene	14	R
90-12-0	1-Methylnaphthalene	14	R
92-52-4	Biphenyl	8.2	U
208-96-8	Acenaphthylene	2.7	U
83-32-9	Acenaphthene	19	
132-64-9	Dibenzofuran	7.0	
86-73-7	Fluorene	8.5	
132-65-0	Dibenzothiophene	2.1	U
85-01-8	Phenanthrene	20	
120-12-7	Anthracene	2.5	
260-94-6	Acridine	5.6	U
86-74-8	Carbazole	23	
206-44-0	Fluoranthene	17	
129-00-0	Pyrene	36	
56-55-3	Benzo(a)Anthracene	4.8	U
218-01-9	Chrysene	5.4	U
207-08-9	Benzo(b)fluoranthene	4.8	U
205-08-9	Benzo(k)fluoranthene	4.4	U
192-97-2	Benzo(e)pyrene	3.6	U
50-32-8	Benzo(a)pyrene	4.4	U
198-55-0	Perylene	4.8	U
193-39-5	Indeno(1,2,3-cd)pyrene	4.0	U
53-70-3	Dibenzo(a,h)anthracene	3.1	U
191-24-2	Benzo(g,h,i)perylene	5.4	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W33RA

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 49142 SAS No.: SDG No.: 49142

Matrix: (soil/water) WATER Lab Sample ID: 49142-03RA

Sample wt/vol: 4169 (g/ml) ML Lab File ID: A0301160

Level: (low/med) LOW Date Received: 05/21/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/24/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 06/27/96

Injection Volume: 1.0(uL) Dilution Factor: 2.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	9.8	U
496-11-7	2,3-Dihydroindene	200	B
95-13-6	1H-Indene	98	
91-20-3	Naphthalene	38	
95-15-8	Benzo(b)thiophene	80	
91-22-5	Quinoline	2.7	U
120-72-9	1H-Indole	4.8	U
91-57-6	2-Methylnaphthalene	14	R
90-12-0	1-Methylnaphthalene	14	R
92-52-4	Biphenyl	8.2	U
208-96-8	Acenaphthylene	2.7	U
83-32-9	Acenaphthene	19	
132-64-9	Dibenzofuran	7.1	
86-73-7	Fluorene	8.6	
132-65-0	Dibenzothiophene	2.1	U
85-01-8	Phenanthrene	20	
120-12-7	Anthracene	2.1	U
260-94-6	Acridine	5.6	U
86-74-8	Carbazole	22	
206-44-0	Fluoranthene	16	
129-00-0	Pyrene	35	
56-55-3	Benzo(a)Anthracene	4.8	U
218-01-9	Chrysene	5.4	U
207-08-9	Benzo(b)fluoranthene	4.8	U
205-08-9	Benzo(k)fluoranthene	4.4	U
192-97-2	Benzo(e)pyrene	4.1	
50-32-8	Benzo(a)pyrene	4.4	U
198-55-0	Perylene	4.8	U
193-39-5	Indeno(1,2,3-cd)pyrene	4.0	U
53-70-3	Dibenzo(a,h)anthracene	3.1	U
191-24-2	Benzo(g,h,i)perylene	5.4	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W24

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 49142 SAS No.: SDG No.: 49142

Matrix: (soil/water) WATER Lab Sample ID: 49142-04

Sample wt/vol: 4142 (g/ml) ML Lab File ID: A0901166

Level: (low/med) LOW Date Received: 05/21/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/24/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 06/27/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	4.9	U
496-11-7	2,3-Dihydroindene	86	B
95-13-6	1H-Indene	1.5	
91-20-3	Naphthalene	6.3	U
95-15-8	Benzo(b)thiophene	0.87	U
91-22-5	Quinoline	1.4	U
120-72-9	1H-Indole	2.4	U
91-57-6	2-Methylnaphthalene	0.87	U
90-12-0	1-Methylnaphthalene	1.5	U
92-52-4	Biphenyl	4.2	U
208-96-8	Acenaphthylene	1.4	U
83-32-9	Acenaphthene	13	
132-64-9	Dibenzofuran	0.96	U
86-73-7	Fluorene	0.96	U
132-65-0	Dibenzothiophene	1.1	U
85-01-8	Phenanthrene	1.2	U
120-12-7	Anthracene	1.1	U
260-94-6	Acridine	2.8	U
86-74-8	Carbazole	1.8	U
206-44-0	Fluoranthene	1.4	U
129-00-0	Pyrene	1.4	U
56-55-3	Benzo(a)Anthracene	2.4	U
218-01-9	Chrysene	2.7	U
207-08-9	Benzo(b)fluoranthene	2.4	U
205-08-9	Benzo(k)fluoranthene	2.2	U
192-97-2	Benzo(e)pyrene	1.8	U
50-32-8	Benzo(a)pyrene	2.2	U
198-55-0	Perylene	2.4	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.0	U
53-70-3	Dibenzo(a,h)anthracene	1.5	U
191-24-2	Benzo(g,h,i)perylene	2.7	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W24RA

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 49142 SAS No.: SDG No.: 49142

Matrix: (soil/water) WATER Lab Sample ID: 49142-04RA

Sample wt/vol: 4142 (g/ml) ML Lab File ID: A1001167

Level: (low/med) LOW Date Received: 05/21/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/24/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 06/27/96

Injection Volume: 1.0(uL) Dilution Factor: 10.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	49	U
496-11-7	2,3-Dihydroindene	840	B
95-13-6	1H-Indene	14	
91-20-3	Naphthalene	63	U
95-15-8	Benzo(b)thiophene	8.7	U
91-22-5	Quinoline	14	U
120-72-9	1H-Indole	24	U
91-57-6	2-Methylnaphthalene	8.7	U
90-12-0	1-Methylnaphthalene	15	U
92-52-4	Biphenyl	42	U
208-96-8	Acenaphthylene	14	U
83-32-9	Acenaphthene	120	
132-64-9	Dibenzofuran	9.6	U
86-73-7	Fluorene	9.6	U
132-65-0	Dibenzothiophene	11	U
85-01-8	Phenanthrene	12	U
120-12-7	Anthracene	11	U
260-94-6	Acridine	28	U
86-74-8	Carbazole	18	U
206-44-0	Fluoranthene	14	U
129-00-0	Pyrene	14	U
56-55-3	Benzo(a)Anthracene	24	U
218-01-9	Chrysene	27	U
207-08-9	Benzo(b)fluoranthene	24	U
205-08-9	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	Dibenzo(a,h)anthracene	15	U
191-24-2	Benzo(g,h,i)perylene	27	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W410

Lab Name: QUANTERRA DENVER Contract:

ab Code: Case No.: 49142 SAS No.: SDG No.: 49142

Matrix: (soil/water) WATER Lab Sample ID: 49142-05

Sample wt/vol: 4163 (g/ml) ML Lab File ID: A1401130

Level: (low/med) LOW Date Received: 05/21/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/24/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 06/25/96

Injection Volume: 1.0(uL) Dilution Factor: 100.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	490	U
496-11-7	2,3-Dihydroindene	7400	B
95-13-6	1H-Indene	3100	
91-20-3	Naphthalene	1500	
95-15-8	Benzo(b)thiophene	1500	
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	920	
92-52-4	Biphenyl	410	U
208-96-8	Acenaphthylene	130	U
83-32-9	Acenaphthene	1000	
132-64-9	Dibenzofuran	96	U
86-73-7	Fluorene	96	U
132-65-0	Dibenzothiophene	100	U
85-01-8	Phenanthrene	120	U
120-12-7	Anthracene	100	U
260-94-6	Acridine	280	U
86-74-8	Carbazole	550	
206-44-0	Fluoranthene	130	U
129-00-0	Pyrene	130	U
56-55-3	Benzo(a)Anthracene	240	U
218-01-9	Chrysene	270	U
207-08-9	Benzo(b)fluoranthene	240	U
205-08-9	Benzo(k)fluoranthene	220	U
192-97-2	Benzo(e)pyrene	180	U
50-32-8	Benzo(a)pyrene	220	U
198-55-0	Perylene	240	U
193-39-5	Indeno(1,2,3-cd)pyrene	200	U
53-70-3	Dibenzo(a,h)anthracene	150	U
191-24-2	Benzo(g,h,i)perylene	270	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W410D

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 49142 SAS No.: SDG No.: 49142

Matrix: (soil/water) WATER Lab Sample ID: 49142-05DU

Sample wt/vol: 4171 (g/ml) ML Lab File ID: A1501131

Level: (low/med) LOW Date Received: 05/21/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/24/96

Concentrated Extract Volume: 0.5(mL) Date Analyzed: 06/25/96

Injection Volume: 1.0(uL) Dilution Factor: 100.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	490	U
496-11-7	2,3-Dihydroindene	7000	B
95-13-6	1H-Indene	2800	
91-20-3	Naphthalene	1400	
95-15-8	Benzo(b)thiophene	1400	
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	830	
92-52-4	Biphenyl	410	U
208-96-8	Acenaphthylene	130	U
83-32-9	Acenaphthene	950	
132-64-9	Dibenzofuran	96	U
86-73-7	Fluorene	96	U
132-65-0	Dibenzothiophene	100	U
85-01-8	Phenanthrene	120	U
120-12-7	Anthracene	100	U
260-94-6	Acridine	280	U
86-74-8	Carbazole	520	
206-44-0	Fluoranthene	130	U
129-00-0	Pyrene	130	U
56-55-3	Benzo(a)Anthracene	240	U
218-01-9	Chrysene	270	U
207-08-9	Benzo(b)fluoranthene	240	U
205-08-9	Benzo(k)fluoranthene	220	U
192-97-2	Benzo(e)pyrene	180	U
50-32-8	Benzo(a)pyrene	220	U
198-55-0	Perylene	240	U
193-39-5	Indeno(1,2,3-cd)pyrene	200	U
53-70-3	Dibenzo(a,h)anthracene	150	U
191-24-2	Benzo(g,h,i)perylene	270	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W410FB

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 49142 SAS No.: SDG No.: 49142

Matrix: (soil/water) WATER Lab Sample ID: 49142-06FB

Sample wt/vol: 4143 (g/ml) ML Lab File ID: A1101058

Level: (low/med) LOW Date Received: 05/21/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/24/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 06/18/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	4.9	U
496-11-7	2,3-Dihydroindene	3.2	B
95-13-6	1H-Indene	0.95	
91-20-3	Naphthalene	6.3	U
95-15-8	Benzo(b)thiophene	0.87	U
91-22-5	Quinoline	1.4	U
120-72-9	1H-Indole	2.4	U
91-57-6	2-Methylnaphthalene	1.8	
90-12-0	1-Methylnaphthalene	1.5	U
92-52-4	Biphenyl	4.2	U
208-96-8	Acenaphthylene	1.4	U
83-32-9	Acenaphthene	1.2	U
132-64-9	Dibenzofuran	0.96	U
86-73-7	Fluorene	0.96	U
132-65-0	Dibenzothiophene	1.1	U
85-01-8	Phenanthrene	1.5	
120-12-7	Anthracene	1.1	U
260-94-6	Acridine	2.8	U
86-74-8	Carbazole	1.8	U
206-44-0	Fluoranthene	1.4	U
129-00-0	Pyrene	1.4	U
56-55-3	Benzo(a)Anthracene	2.4	U
218-01-9	Chrysene	2.7	U
207-08-9	Benzo(b)fluoranthene	2.4	U
205-08-9	Benzo(k)fluoranthene	2.2	U
192-97-2	Benzo(e)pyrene	1.8	U
50-32-8	Benzo(a)pyrene	2.2	U
198-55-0	Perylene	2.4	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.0	U
53-70-3	Dibenzo(a,h)anthracene	1.5	U
191-24-2	Benzo(g,h,i)perylene	2.7	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W410FBD

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 49142 SAS No.: SDG No.: 49142

Matrix: (soil/water) WATER Lab Sample ID: 49142-06FD

Sample wt/vol: 4142 (g/ml) ML Lab File ID: A1201059

Level: (low/med) LOW Date Received: 05/21/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/24/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 06/18/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	4.9	U
496-11-7	2,3-Dihydroindene	2.6	B
95-13-6	1H-Indene	0.87	U
91-20-3	Naphthalene	6.3	U
95-15-8	Benzo(b)thiophene	0.87	U
91-22-5	Quinoline	1.4	U
120-72-9	1H-Indole	2.4	U
91-57-6	2-Methylnaphthalene	2.0	
90-12-0	1-Methylnaphthalene	1.5	U
92-52-4	Biphenyl	4.2	U
208-96-8	Acenaphthylene	1.4	U
83-32-9	Acenaphthene	1.2	U
132-64-9	Dibenzofuran	0.96	U
86-73-7	Fluorene	0.96	U
132-65-0	Dibenzothiophene	1.1	U
85-01-8	Phenanthrene	1.4	
120-12-7	Anthracene	1.1	U
260-94-6	Acridine	2.8	U
86-74-8	Carbazole	1.8	U
206-44-0	Fluoranthene	1.4	U
129-00-0	Pyrene	1.4	U
56-55-3	Benzo(a)Anthracene	2.4	U
218-01-9	Chrysene	2.7	U
207-08-9	Benzo(b)fluoranthene	2.4	U
205-08-9	Benzo(k)fluoranthene	2.2	U
192-97-2	Benzo(e)pyrene	1.8	U
50-32-8	Benzo(a)pyrene	2.2	U
198-55-0	Perylene	2.4	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.0	U
53-70-3	Dibenzo(a,h)anthracene	1.5	U
191-24-2	Benzo(g,h,i)perylene	2.7	U

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: QUANTERRA DENVER Contract:

ab Code: Case No.: 49142 SAS No.: SDG No.: 49142

	EPA SAMPLE NO.	S1 #	S2 #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	SBLK01	70	74	57						0
02	49142-LCS	75	81	61						0
03	W410FB	70	68	56						0
04	W410FBD	71	70	60						0
05	W33	62	19	64						0
06	W410	0D	0D	0D						0
07	W410D	0D	0D	0D						0
08	W410MS	0D	0D	0D						0
09	W410MSD	0D	0D	0D						0
10	W412	59	34	61						0
11	W133	56	8*	57						0
12	W33RA	64	17	62						0
13	W412RA	56	40	58						0
14	W24	6*	11	5*						0
15	W24RA	56	106	44						0
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										

		QC LIMITS
S1	= Naphthalene-d8	(21-108)
S2	= Chrysene-d12	(10-118)
S3	= Fluorene-d10	(41-162)

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: QUANTERRA DENVER Contract:

Lab Code: Case No.: 49142 SAS No.: SDG No.: 49142

Matrix Spike - EPA Sample No.: W410

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC #	QC. LIMITS REC.
1H-Indene	72	3100	3300	278*	20-150
Naphthalene	72	1500	1700	278*	20-150
Quinoline	72	0.00	0.00	0*	20-150
2-Methylnaphthalene	72	0.00	0.00	0*	20-150
Fluorene	72	0.00	0.00	0*	69-118
Chrysene	72	0.00	0.00	0*	20-132
Benzo(e)pyrene	72	0.00	0.00	0*	20-150

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC
1H-Indene	72	2900	-276*	55400*	20	20-1
Naphthalene	72	1500	0*	200*	20	20-150
Quinoline	72	0.00	0*		20	20-150
2-Methylnaphthalene	72	0.00	0*		20	20-150
Fluorene	72	0.00	0*		20	69-118
Chrysene	72	0.00	0*		20	20-132
Benzo(e)pyrene	72	0.00	0*		20	20-150

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

RPD: 2 out of 7 outside limits
Spike Recovery: 14 out of 14 outside limits

COMMENTS:

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W410MS

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 49142 SAS No.: SDG No.: 49142

Matrix: (soil/water) WATER Lab Sample ID: 49142-05MS

Sample wt/vol: 4164 (g/ml) ML Lab File ID: A1601132

Level: (low/med) LOW Date Received: 05/21/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/24/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 06/25/96

Injection Volume: 1.0(uL) Dilution Factor: 100.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	490	U
496-11-7	2,3-Dihydroindene	8000	B
95-13-6	1H-Indene	3300	
91-20-3	Naphthalene	1700	
95-15-8	Benzo(b)thiophene	1600	
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	930	
92-52-4	Biphenyl	410	U
208-96-8	Acenaphthylene	130	U
83-32-9	Acenaphthene	1000	
132-64-9	Dibenzofuran	96	U
86-73-7	Fluorene	96	U
132-65-0	Dibenzothiophene	100	U
85-01-8	Phenanthrene	120	U
120-12-7	Anthracene	100	U
260-94-6	Acridine	280	U
86-74-8	Carbazole	530	
206-44-0	Fluoranthene	130	U
129-00-0	Pyrene	130	U
56-55-3	Benzo(a)Anthracene	240	U
218-01-9	Chrysene	270	U
207-08-9	Benzo(b)fluoranthene	240	U
205-08-9	Benzo(k)fluoranthene	220	U
192-97-2	Benzo(e)pyrene	180	U
50-32-8	Benzo(a)pyrene	220	U
198-55-0	Perylene	240	U
193-39-5	Indeno(1,2,3-cd)pyrene	200	U
53-70-3	Dibenzo(a,h)anthracene	150	U
191-24-2	Benzo(g,h,i)perylene	270	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W410MSD

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 49142 SAS No.: SDG No.: 49142

Matrix: (soil/water) WATER Lab Sample ID: 49142-05MSD

Sample wt/vol: 4163 (g/ml) ML Lab File ID: A1701133

Level: (low/med) LOW Date Received: 05/21/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/24/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 06/25/96

Injection Volume: 1.0(uL) Dilution Factor: 100.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	490	U
496-11-7	2,3-Dihydroindene	6900	B
95-13-6	1H-Indene	2900	
91-20-3	Naphthalene	1500	
95-15-8	Benzo(b)thiophene	1400	
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	830	
92-52-4	Biphenyl	410	U
208-96-8	Acenaphthylene	130	U
83-32-9	Acenaphthene	950	
132-64-9	Dibenzofuran	96	U
86-73-7	Fluorene	96	U
132-65-0	Dibenzothiophene	100	U
85-01-8	Phenanthrene	120	U
120-12-7	Anthracene	100	U
260-94-6	Acridine	280	U
86-74-8	Carbazole	520	
206-44-0	Fluoranthene	130	U
129-00-0	Pyrene	130	U
56-55-3	Benzo(a)Anthracene	240	U
218-01-9	Chrysene	270	U
207-08-9	Benzo(b)fluoranthene	240	U
205-08-9	Benzo(k)fluoranthene	220	U
192-97-2	Benzo(e)pyrene	180	U
50-32-8	Benzo(a)pyrene	220	U
198-55-0	Perylene	240	U
193-39-5	Indeno(1,2,3-cd)pyrene	200	U
53-70-3	Dibenzo(a,h)anthracene	150	U
191-24-2	Benzo(g,h,i)perylene	270	U

FORM 3
WATER SEMIVOLATILE METHOD SPIKE RECOVERY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 49142 SAS No.: SDG No.: 49142

Matrix Spike - Sample No.: 49142-LCS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ng/L)	% REC #	QC. LIMITS REC.
1H-Indene	75	51	68	20-150
Naphthalene	75	60	80	20-150
Quinoline	75	69	92	20-150
2-Methylnaphthalene	75	55	73	20-150
Fluorene	75	57	76	20-150
Chrysene	75	50	67	20-150
Benzo(e)pyrene	75	54	72	20-150

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

COMMENTS:

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

49142-LCS

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 49142 SAS No.: SDG No.: 49142

Matrix: (soil/water) WATER Lab Sample ID: 49142-LCS

Sample wt/vol: 4000 (g/ml) ML Lab File ID: A0201049

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:05/24/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 06/18/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
95-13-6	1H-Indene	51	
91-20-3	Naphthalene	60	
91-22-5	Quinoline	69	
91-57-6	2-Methylnaphthalene	55	
86-73-7	Fluorene	57	
218-01-9	Chrysene	50	
192-97-2	Benzo(e)pyrene	54	

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

SBLK01

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 49142 SAS No.: SDG No.: 49142

Lab File ID: A0101048 Lab Sample ID: SBLK01

Instrument ID: A Date Extracted: 05/24/96

Matrix: (soil/water) WATER Date Analyzed: 06/18/96

Level: (low/med) LOW Time Analyzed: 1646

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	49142-LCS	49142-LCS	A0201049	06/18/96
02	W410FB	49142-06FB	A1101058	06/18/96
03	W410FBD	49142-06FD	A1201059	06/18/96
04	W33	49142-03	A1201128	06/25/96
05	W410	49142-05	A1401130	06/25/96
06	W410D	49142-05DU	A1501131	06/25/96
07	W410MS	49142-05MS	A1601132	06/25/96
08	W410MSD	49142-05MSD	A1701133	06/25/96
09	W412	49142-01	A0101158	06/27/96
10	W133	49142-02	A0201159	06/27/96
11	W33RA	49142-03RA	A0301160	06/27/96
12	W412RA	49142-01RA	A0501162	06/27/96
13	W24	49142-04	A0901166	06/27/96
14	W24RA	49142-04RA	A1001167	06/27/96
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COMMENTS:

FORM IV SV

3/90

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLK01

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 49142 SAS No.: SDG No.: 49142

Matrix: (soil/water) WATER Lab Sample ID: SBLK01

Sample wt/vol: 4000 (g/ml) ML Lab File ID: A0101048

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/24/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 06/18/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	5.1	U
496-11-7	2,3-Dihydroindene	1.9	
95-13-6	1H-Indene	0.90	U
91-20-3	Naphthalene	6.5	U
95-15-8	Benzo(b)thiophene	0.90	U
91-22-5	Quinoline	1.4	U
120-72-9	1H-Indole	2.5	U
91-57-6	2-Methylnaphthalene	0.90	U
90-12-0	1-Methylnaphthalene	1.6	U
92-52-4	Biphenyl	4.3	U
208-96-8	Acenaphthylene	1.4	U
83-32-9	Acenaphthene	1.3	U
132-64-9	Dibenzofuran	1.0	U
86-73-7	Fluorene	1.0	U
132-65-0	Dibenzothiophene	1.1	U
85-01-8	Phenanthrene	1.3	U
120-12-7	Anthracene	1.1	U
260-94-6	Acridine	2.9	U
86-74-8	Carbazole	1.9	U
206-44-0	Fluoranthene	1.4	U
129-00-0	Pyrene	1.4	U
56-55-3	Benzo(a)Anthracene	2.5	U
218-01-9	Chrysene	2.8	U
207-08-9	Benzo(b)fluoranthene	2.5	U
205-08-9	Benzo(k)fluoranthene	2.3	U
192-97-2	Benzo(e)pyrene	1.9	U
50-32-8	Benzo(a)pyrene	2.3	U
198-55-0	Perylene	2.5	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.1	U
53-70-3	Dibenzo(a,h)anthracene	1.6	U
191-24-2	Benzo(g,h,i)perylene	2.8	U

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 49142 SAS No.: SDG No.: 49142

Lab File ID (Standard): A048 Date Analyzed: 06/18/96

Instrument ID: A Time Analyzed: 1525

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	214175	12.50	309783	14.94	106742	21.55
	UPPER LIMIT	428350	13.00	619566	15.44	213484	22.05
	LOWER LIMIT	107088	12.00	154892	14.44	53371	21.05
	EPA SAMPLE NO.						
01	SBLK01	230598	12.51	318400	14.96	128174	21.57
02	49142-LCS	230740	12.50	325903	14.95	126371	21.56
03	W410FB	111738	12.50	159257	14.94	80540	21.55
04	W410FBD	107792	12.50	158647	14.94	81710	21.56
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = 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

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 49142 SAS No.: SDG No.: 49142

Lab File ID (Standard): A115 Date Analyzed: 06/25/96

Instrument ID: A Time Analyzed: 0940

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	91511	12.49	121783	14.94	36046	21.53
	UPPER LIMIT	183022	12.99	243566	15.44	72092	22.03
	LOWER LIMIT	45756	11.99	60892	14.44	18023	21.03
	EPA SAMPLE NO.						
01	W33	134597	12.48	193348	14.93	145646*	21.54
02	W410	104369	12.48	137641	14.93	66994	21.53
03	W410D	97209	12.48	131244	14.93	58291	21.53
04	W410MS	97188	12.48	133112	14.92	57906	21.53
05	W410MSD	95647	12.48	133145	14.92	57503	21.53
06							
07							
08							
09							
10							
11							
12							
13							
14							
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16							
17							
18							
19							
20							
21							
22							

IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = 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

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 49142 SAS No.: SDG No.: 49142

Lab File ID (Standard): A157 Date Analyzed: 06/27/96

Instrument ID: A Time Analyzed: 0821

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	90113	12.43	116591	14.87	48651	21.47
	UPPER LIMIT	180226	12.93	233182	15.37	97302	21.97
	LOWER LIMIT	45056	11.93	58296	14.37	24326	20.97
	EPA SAMPLE NO.						
01	W412	130740	12.42	211829	14.86	108883*	21.46
02	W133	107768	12.42	124641	14.85	83425	21.46
03	W33RA	111651	12.42	161492	14.85	140068*	21.46
04	W412RA	124242	12.42	212543	14.85	102463*	21.46
05	W24	153792	12.42	317366*	14.85	70147	21.46
06	W24RA	160556	12.42	309612*	14.85	67367	21.46
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = 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 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

August 14, 1996

Quanterra Environmental Services

Project Number 049376

Introduction

Eleven aqueous samples (including matrix QC) were received at Quanterra Environmental Services, Denver Laboratory on June 4, 1996. The samples were logged in under Quanterra Denver's project number 049376. A cross reference associating Quanterra Denver's laboratory sample numbers to the actual field sample number 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 are for **internal use** only and are **not legally defensible**. Due to instrument problems encountered during analysis all related quality control samples are out of acceptable limits. The following problems were encountered:

- The surrogate chrysene-d12 is reported out of control for the LCS, method blank, SLP3, SLPD and SLPFB. The samples were reanalyzed a number of times with similar results although with no consistency. The recoveries vary from 121% to 593% recovery which is outside the 10% to 118% acceptance criteria. Quanterra feels that this data is not validateable and should not be submitted to any regulatory agency.

Quanterra
Environmental Services

Submitted By: _____ **Date:** 8/14/96

Kurt C. Ill
Program Manager

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.

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".

R = Target compound's secondary ion confirmation not met, however peak shape and retention time make peak identication positive.

Quanterra
Environmental Services

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 049376	Group Code	Analysis Description	Custom Test?
0001 - 0007	A	Polynuclear Aromatic Hydrocarbons, SIM Low Level	N
		Prep - PAH/SIM by GC/MS Low Level	N
0002	B	Prep - PAH/SIM by GC/MS Low Level	N
		Polynuclear Aromatic Hydrocarbons, SIM Low Level	N

Quanterra
Environmental Services

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
049376-0001-SA	STP-SLP3-060396	AQUEOUS	03 JUN 96		04 JUN 96
049376-0001-DU	STP-SLP3D-060396	AQUEOUS	03 JUN 96		04 JUN 96
049376-0001-MS	STP-SLP3MS-060396	AQUEOUS	03 JUN 96		04 JUN 96
049376-0001-SD	STP-SLP3MSD-060396	AQUEOUS	03 JUN 96		04 JUN 96
049376-0002-FB	STP-SLP3FB-060396	AQUEOUS	03 JUN 96		04 JUN 96
049376-0002-FD	STP-SLP3FBD-060396	AQUEOUS	03 JUN 96		04 JUN 96
049376-0003-SA	STP-W122-060396	AQUEOUS	03 JUN 96	09:55	04 JUN 96
049376-0004-SA	STP-W129-060396	AQUEOUS	03 JUN 96	10:55	04 JUN 96
049376-0005-SA	[redacted]-W124-060396	AQUEOUS	03 JUN 96	12:45	04 JUN 96
049376-0006-SA	STP-W411-060396	AQUEOUS	03 JUN 96	16:00	04 JUN 96
049376-0007-SA	STP-W408-060396	AQUEOUS	03 JUN 96	16:50	04 JUN 96

DPV

4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

Environmental Services

QUANTERRA CLIENT

PROJECT

City of St. Louis Park
3752 Wooddale Ave So
St. Louis Park Mn 55416

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: °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
6-3-96		STP-SLP3 -060396	1XL AMBER	6	PPL PAH	PPL 5 -01
6-3-96		STP-SLP3D -060396	1XL AMBER	6	PPL PAH	PPL 5 -01D

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: 7828345652

RECEIVED FOR LAB: QES

SIGNED: [illegible]

DATE/TIME: 6/4/96 900

QUANTERRA PROJECT NUMBER: 49376

QUA-4119

White - CLIENT Pink - LAB

4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

Environmental Services

INTERNA CLIENT

City of St. Louis Park
3752 Wooddale Ave So
St. Louis Park Mn 55416

ECT

MPLING COMPANY
SA

MPLING DATE
SAME

AM LEADER
MJR

SAMPLE SAFE™ CONDITIONS

PACKED BY: MJR	SEAL NUMBER:
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:	CONDITION OF CONTENTS:
SEALED FOR SHIPPING BY: MJR	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
6-3-96		STP-SLP3M5-060396	1XL AMBER	6	PPT PAH	PPT 5 -01MS
6-3-96		STP-SLP3M5D-060396	1XL AMBER	6	PPT PAH	PPT 5 -01SD

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MJR		
METHOD OF SHIPMENT: FED EX		AIRBILL NUMBER: 7828345652
RECEIVED FOR LAB: Q-S	SIGNED: [signature]	DATE/TIME: 6/4/96 900
QUANTERRA PROJECT NUMBER: 49376		

QUA-4119

White - CLIENT Pink - LAB

4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

Environmental Services

QUANTERRA CLIENT

City of St. Louis Park
3752 Wooddale Ave So
St. Louis Park Mn 55416

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 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
6-3-96		STP-SLP3FB -060396	1XL AMBER	6	PPT PAH	PPT PAH 5 -02FB
6-3-96		STP-SLP3FBD -060396	1XL AMBER	6	PPT PAH	PPT 5 -02F

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: 7828345652

RECEIVED FOR LAB: QZS

SIGNED: [signature]

DATE/TIME: 6/4/96 900

QUANTERRA PROJECT NUMBER: 44376

QUA-4119

White – CLIENT Pink – LAB

Chain of Custody Record

Quanterra Environmental Services

QUA-4124-1

Client: City of Saint Louis Park	Project Manager: Bill Gregg	Date: 6/3/96	Chain Of Custody Number: 66186
Address: 3752 Woodale Ave So	Telephone Number (Area Code)/Fax Number: 612 924 0117	Lab Number: 49376	Page 1 of 1
City: St. Louis Park; State: MN; Zip Code: 55416	Site Contact: Scott Anderson; Lab Contact:		
Project Name: City of Saint Louis Park	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No:			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Aqueous	Matrix: Sed.	Matrix: Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis (Attach list if more space is needed): PPT-PAH-PPTS	Special Instructions/ Conditions of Receipt
STP-W122-060396	06/03/96	9:55	X			6						X	-03
STP-W129-060396	6/3/96	10:55	X			6						X	-04
DPV ~~STP~~ W124-060396	6/3/96	1245	X			6						X	-05

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other STANDARD

QC Requirements (Specify):

	Date	Time		Date	Time
1. Relinquished By: [signature]	6/3/96	17:27	1. Received By: [signature]	6/4/96	900
2. Relinquished By:			2. Received By:		
3. Relinquished By:			3. Received By:		

Comments:

DISTRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy

Chain of Custody Record

Quanterr Environmental Services

QUA-4124-1

Client: City of Saint Louis Park	Project Manager: Bill Gregg	Date: 6-3-96	Chain Of Custody Number: 61187
Address: 3752 Wooddale Ave So.	Telephone Number (Area Code)/Fax Number: 612 924 0117	Lab Number:	Page 1 of 1
City: St. Louis Park; State: MN; Zip Code: 55416	Site Contact: Scott Anderson	Lab Contact:	
Project Name: City of Saint Louis Park	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No: 1620-013-400			

Analysis (Attach list if more space is needed): PPT-PAH-PCB

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Special Instructions/ Conditions of Receipt
STP-W411-060396	6-3-96	1600	X			6						-06
STP-W408-060396	6-3-96	1650	X			6						-07

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For ____ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other Standard

QC Requirements (Specify):

	Date	Time		Date	Time
1. Relinquished By: [signature]	6-3-96	17:33	1. Received By: [signature]	6/4/96	900
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments:

DISTRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SLP3

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 49376 SAS No.: SDG No.: 49376

Matrix: (soil/water) WATER Lab Sample ID: 49376-01

Sample wt/vol: 4100 (g/ml) ML Lab File ID: A0401200

Level: (low/med) LOW Date Received: 06/04/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 06/05/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 07/01/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	5.0	U
496-11-7	2,3-Dihydroindene	1.4	U
95-13-6	1H-Indene	0.88	U
91-20-3	Naphthalene	8.0	
95-15-8	Benzo(b)thiophene	0.88	U
91-22-5	Quinoline	1.4	U
120-72-9	1H-Indole	2.4	U
91-57-6	2-Methylnaphthalene	1.3	
90-12-0	1-Methylnaphthalene	1.6	U
92-52-4	Biphenyl	4.2	U
208-96-8	Acenaphthylene	1.4	U
83-32-9	Acenaphthene	1.3	U
132-64-9	Dibenzofuran	0.98	U
86-73-7	Fluorene	0.98	U
132-65-0	Dibenzothiophene	1.1	U
85-01-8	Phenanthrene	1.4	B
120-12-7	Anthracene	1.1	U
260-94-6	Acridine	2.8	U
86-74-8	Carbazole	1.8	U
206-44-0	Fluoranthene	1.4	U
129-00-0	Pyrene	1.4	U
56-55-3	Benzo(a)Anthracene	2.4	U
218-01-9	Chrysene	2.7	U
207-08-9	Benzo(b)fluoranthene	2.4	U
205-08-9	Benzo(k)fluoranthene	2.2	U
192-97-2	Benzo(e)pyrene	1.8	U
50-32-8	Benzo(a)pyrene	2.2	U
198-55-0	Perylene	2.4	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.0	U
53-70-3	Dibenzo(a,h)anthracene	1.6	U
191-24-2	Benzo(g,h,i)perylene	2.7	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SLP3D

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 49376 SAS No.: SDG No.: 49376

Matrix: (soil/water) WATER Lab Sample ID: 49376-01DU

Sample wt/vol: 4200 (g/ml) ML Lab File ID: A0501201

Level: (low/med) LOW Date Received: 06/04/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 06/05/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 07/01/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	4.8	U
496-11-7	2,3-Dihydroindene	1.3	U
95-13-6	1H-Indene	0.86	U
91-20-3	Naphthalene	6.2	U
95-15-8	Benzo(b)thiophene	0.86	U
91-22-5	Quinoline	1.3	U
120-72-9	1H-Indole	2.4	U
91-57-6	2-Methylnaphthalene	1.0	
90-12-0	1-Methylnaphthalene	1.5	U
92-52-4	Biphenyl	4.1	U
208-96-8	Acenaphthylene	1.3	U
83-32-9	Acenaphthene	1.2	U
132-64-9	Dibenzofuran	0.95	U
86-73-7	Fluorene	0.95	U
132-65-0	Dibenzothiophene	1.0	U
85-01-8	Phenanthrene	1.2	U
120-12-7	Anthracene	1.0	U
260-94-6	Acridine	2.8	U
86-74-8	Carbazole	1.8	U
206-44-0	Fluoranthene	1.3	U
129-00-0	Pyrene	1.3	U
56-55-3	Benzo(a)Anthracene	2.4	U
218-01-9	Chrysene	2.7	U
207-08-9	Benzo(b)fluoranthene	2.4	U
205-08-9	Benzo(k)fluoranthene	2.2	U
192-97-2	Benzo(e)pyrene	1.8	U
50-32-8	Benzo(a)pyrene	2.2	U
198-55-0	Perylene	2.4	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.0	U
53-70-3	Dibenzo(a,h)anthracene	1.5	U
191-24-2	Benzo(g,h,i)perylene	2.7	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SLP3RA

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 49376 SAS No.: SDG No.: 49376

Matrix: (soil/water) WATER Lab Sample ID: 49376-01RA

Sample wt/vol: 4100 (g/ml) ML Lab File ID: A0301218

Level: (low/med) LOW Date Received: 06/04/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 06/05/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 07/02/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	5.0	U
496-11-7	2,3-Dihydroindene	1.4	U
95-13-6	1H-Indene	0.88	U
91-20-3	Naphthalene	7.4	
95-15-8	Benzo(b)thiophene	0.88	U
91-22-5	Quinoline	1.4	U
120-72-9	1H-Indole	2.4	U
91-57-6	2-Methylnaphthalene	1.2	
90-12-0	1-Methylnaphthalene	1.6	U
92-52-4	Biphenyl	4.2	U
208-96-8	Acenaphthylene	1.4	U
83-32-9	Acenaphthene	1.3	U
132-64-9	Dibenzofuran	0.98	U
86-73-7	Fluorene	0.98	U
132-65-0	Dibenzothiophene	1.1	U
85-01-8	Phenanthrene	1.4	B
120-12-7	Anthracene	1.1	U
260-94-6	Acridine	2.8	U
86-74-8	Carbazole	1.8	U
206-44-0	Fluoranthene	1.4	U
129-00-0	Pyrene	1.4	U
56-55-3	Benzo(a)Anthracene	2.4	U
218-01-9	Chrysene	2.7	U
207-08-9	Benzo(b)fluoranthene	2.4	U
205-08-9	Benzo(k)fluoranthene	2.2	U
192-97-2	Benzo(e)pyrene	1.8	U
50-32-8	Benzo(a)pyrene	2.2	U
198-55-0	Perylene	2.4	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.0	U
53-70-3	Dibenzo(a,h)anthracene	1.6	U
191-24-2	Benzo(g,h,i)perylene	2.7	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SLP3DRA

ab Name: QUANTERRA DENVER Contract:

ab Code: Case No.: 49376 SAS No.: SDG No.: 49376

atrix: (soil/water) WATER Lab Sample ID: 49376-01DURA

ample wt/vol: 4200 (g/ml) ML Lab File ID: A0401219

evel: (low/med) LOW Date Received: 06/04/96

Moisture: _____ decanted: (Y/N)___ Date Extracted:06/05/96

oncentrated Extract Volume: 0.5(ml) Date Analyzed: 07/02/96

njection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	4.8	U
496-11-7	2,3-Dihydroindene	1.3	U
95-13-6	1H-Indene	0.86	U
91-20-3	Naphthalene	6.2	U
95-15-8	Benzo(b)thiophene	0.86	U
91-22-5	Quinoline	1.3	U
120-72-9	1H-Indole	2.4	U
91-57-6	2-Methylnaphthalene	1.1	
90-12-0	1-Methylnaphthalene	1.5	U
92-52-4	Biphenyl	4.1	U
208-96-8	Acenaphthylene	1.3	U
83-32-9	Acenaphthene	1.2	U
132-64-9	Dibenzofuran	0.95	U
86-73-7	Fluorene	0.95	U
132-65-0	Dibenzothiophene	1.0	U
85-01-8	Phenanthrene	1.2	U
120-12-7	Anthracene	1.0	U
260-94-6	Acridine	2.8	U
86-74-8	Carbazole	1.8	U
206-44-0	Fluoranthene	1.3	U
129-00-0	Pyrene	1.3	U
56-55-3	Benzo(a)Anthracene	2.4	U
218-01-9	Chrysene	2.7	U
207-08-9	Benzo(b)fluoranthene	2.4	U
205-08-9	Benzo(k)fluoranthene	2.2	U
192-97-2	Benzo(e)pyrene	1.8	U
50-32-8	Benzo(a)pyrene	2.2	U
198-55-0	Perylene	2.4	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.0	U
53-70-3	Dibenzo(a,h)anthracene	1.5	U
191-24-2	Benzo(g,h,i)perylene	2.7	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SLP3FB

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 49376 SAS No.: SDG No.: 49376

Matrix: (soil/water) WATER Lab Sample ID: 49376-02FB

Sample wt/vol: 4175 (g/ml) ML Lab File ID: A0801204

Level: (low/med) LOW Date Received: 06/04/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 06/05/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 07/01/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	4.9	U
496-11-7	2,3-Dihydroindene	1.3	U
95-13-6	1H-Indene	0.86	U
91-20-3	Naphthalene	6.2	U
95-15-8	Benzo(b)thiophene	0.86	U
91-22-5	Quinoline	1.3	U
120-72-9	1H-Indole	2.4	U
91-57-6	2-Methylnaphthalene	2.0	
90-12-0	1-Methylnaphthalene	1.5	U
92-52-4	Biphenyl	4.1	U
208-96-8	Acenaphthylene	1.3	U
83-32-9	Acenaphthene	1.2	U
132-64-9	Dibenzofuran	0.96	U
86-73-7	Fluorene	0.96	U
132-65-0	Dibenzothiophene	1.0	U
85-01-8	Phenanthrene	1.2	U
120-12-7	Anthracene	1.0	U
260-94-6	Acridine	2.8	U
86-74-8	Carbazole	1.8	U
206-44-0	Fluoranthene	1.3	U
129-00-0	Pyrene	1.3	U
56-55-3	Benzo(a)Anthracene	2.4	U
218-01-9	Chrysene	2.7	U
207-08-9	Benzo(b)fluoranthene	2.4	U
205-08-9	Benzo(k)fluoranthene	2.2	U
192-97-2	Benzo(e)pyrene	1.8	U
50-32-8	Benzo(a)pyrene	2.2	U
198-55-0	Perylene	2.4	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.0	U
53-70-3	Dibenzo(a,h)anthracene	1.5	U
191-24-2	Benzo(g,h,i)perylene	2.7	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SLP3FBRA

b Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 49376 SAS No.: SDG No.: 49376

Matrix: (soil/water) WATER Lab Sample ID: 49376-02FBRA

Sample wt/vol: 4175 (g/ml) ML Lab File ID: A0701222

Level: (low/med) LOW Date Received: 06/04/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 06/05/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 07/02/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	4.9	U
496-11-7	2,3-Dihydroindene	1.3	U
95-13-6	1H-Indene	0.86	U
91-20-3	Naphthalene	6.2	U
95-15-8	Benzo(b)thiophene	0.86	U
91-22-5	Quinoline	1.3	U
120-72-9	1H-Indole	2.4	U
91-57-6	2-Methylnaphthalene	1.8	
90-12-0	1-Methylnaphthalene	1.5	U
92-52-4	Biphenyl	4.1	U
208-96-8	Acenaphthylene	1.3	U
83-32-9	Acenaphthene	1.2	U
132-64-9	Dibenzofuran	0.96	U
86-73-7	Fluorene	0.96	U
132-65-0	Dibenzothiophene	1.0	U
85-01-8	Phenanthrene	1.2	U
120-12-7	Anthracene	1.0	U
260-94-6	Acridine	2.8	U
86-74-8	Carbazole	1.8	U
206-44-0	Fluoranthene	1.3	U
129-00-0	Pyrene	1.3	U
56-55-3	Benzo(a)Anthracene	2.4	U
218-01-9	Chrysene	2.7	U
207-08-9	Benzo(b)fluoranthene	2.4	U
205-08-9	Benzo(k)fluoranthene	2.2	U
192-97-2	Benzo(e)pyrene	1.8	U
50-32-8	Benzo(a)pyrene	2.2	U
198-55-0	Perylene	2.4	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.0	U
53-70-3	Dibenzo(a,h)anthracene	1.5	U
191-24-2	Benzo(g,h,i)perylene	2.7	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SLP3FBD

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 49376 SAS No.: SDG No.: 49376

Matrix: (soil/water) WATER Lab Sample ID: 49376-02FD

Sample wt/vol: 4175 (g/ml) ML Lab File ID: A0801223

Level: (low/med) LOW Date Received: 06/04/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 06/05/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 07/02/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	4.9	U
496-11-7	2,3-Dihydroindene	1.3	U
95-13-6	1H-Indene	0.86	U
91-20-3	Naphthalene	6.2	U
95-15-8	Benzo(b)thiophene	0.86	U
91-22-5	Quinoline	1.3	U
120-72-9	1H-Indole	2.4	U
91-57-6	2-Methylnaphthalene	2.1	
90-12-0	1-Methylnaphthalene	1.5	U
92-52-4	Biphenyl	4.1	U
208-96-8	Acenaphthylene	1.3	U
83-32-9	Acenaphthene	1.2	U
132-64-9	Dibenzofuran	0.96	U
86-73-7	Fluorene	0.96	U
132-65-0	Dibenzothiophene	1.0	U
85-01-8	Phenanthrene	2.2	B
120-12-7	Anthracene	1.0	U
260-94-6	Acridine	2.8	U
86-74-8	Carbazole	1.8	U
206-44-0	Fluoranthene	1.3	U
129-00-0	Pyrene	1.3	U
56-55-3	Benzo(a)Anthracene	2.4	U
218-01-9	Chrysene	2.7	U
207-08-9	Benzo(b)fluoranthene	2.4	U
205-08-9	Benzo(k)fluoranthene	2.2	U
192-97-2	Benzo(e)pyrene	1.8	U
50-32-8	Benzo(a)pyrene	2.2	U
198-55-0	Perylene	2.4	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.0	U
53-70-3	Dibenzo(a,h)anthracene	1.5	U
191-24-2	Benzo(g,h,i)perylene	2.7	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W122

Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 49376 SAS No.: SDG No.: 49376

Matrix: (soil/water) WATER Lab Sample ID: 49376-03

Sample wt/vol: 4170 (g/ml) ML Lab File ID: A0901224

Level: (low/med) LOW Date Received: 06/04/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 06/05/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 07/02/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	4.9	U
496-11-7	2,3-Dihydroindene	7.7	R
95-13-6	1H-Indene	5.7	
91-20-3	Naphthalene	26	
95-15-8	Benzo(b)thiophene	0.86	U
91-22-5	Quinoline	2.2	
120-72-9	1H-Indole	3.2	
91-57-6	2-Methylnaphthalene	12	
90-12-0	1-Methylnaphthalene	8.3	
92-52-4	Biphenyl	5.2	
208-96-8	Acenaphthylene	1.3	U
83-32-9	Acenaphthene	7.9	
132-64-9	Dibenzofuran	6.5	
86-73-7	Fluorene	0.96	U
132-65-0	Dibenzothiophene	1.2	
85-01-8	Phenanthrene	8.6	B
120-12-7	Anthracene	1.0	U
260-94-6	Acridine	2.8	U
86-74-8	Carbazole	9.7	
206-44-0	Fluoranthene	5.5	
129-00-0	Pyrene	23	
56-55-3	Benzo(a)Anthracene	2.4	U
218-01-9	Chrysene	2.7	U
207-08-9	Benzo(b)fluoranthene	2.4	U
205-08-9	Benzo(k)fluoranthene	2.2	U
192-97-2	Benzo(e)pyrene	2.2	
50-32-8	Benzo(a)pyrene	2.2	U
198-55-0	Perylene	2.4	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.0	U
53-70-3	Dibenzo(a,h)anthracene	1.5	U
191-24-2	Benzo(g,h,i)perylene	3.5	

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W122RA

ab Name: QUANTERRA DENVER Contract:

ab Code: Case No.: 49376 SAS No.: SDG No.: 49376

atrix: (soil/water) WATER Lab Sample ID: 49376-03RA

ample wt/vol: 4170 (g/ml) ML Lab File ID: A0601247

evel: (low/med) LOW Date Received: 06/04/96

Moisture: _____ decanted: (Y/N)___ Date Extracted:06/05/96

oncentrated Extract Volume: 0.5(ml) Date Analyzed: 07/11/96

njection Volume: 1.0(uL) Dilution Factor: 2.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	9.8	U
496-11-7	2,3-Dihydroindene	9.5	
95-13-6	1H-Indene	7.6	
91-20-3	Naphthalene	36	
95-15-8	Benzo(b)thiophene	1.7	U
91-22-5	Quinoline	3.4	
120-72-9	1H-Indole	4.8	U
91-57-6	2-Methylnaphthalene	17	
90-12-0	1-Methylnaphthalene	11	
92-52-4	Biphenyl	8.2	U
208-96-8	Acenaphthylene	2.7	U
83-32-9	Acenaphthene	10	
132-64-9	Dibenzofuran	8.0	
86-73-7	Fluorene	1.9	U
132-65-0	Dibenzothiophene	2.1	U
85-01-8	Phenanthrene	7.6	B
120-12-7	Anthracene	2.1	U
260-94-6	Acridine	5.6	U
86-74-8	Carbazole	12	
206-44-0	Fluoranthene	5.4	
129-00-0	Pyrene	20	
56-55-3	Benzo(a)Anthracene	4.8	U
218-01-9	Chrysene	5.4	U
207-08-9	Benzo(b)fluoranthene	4.8	U
205-08-9	Benzo(k)fluoranthene	4.4	U
192-97-2	Benzo(e)pyrene	3.6	U
50-32-8	Benzo(a)pyrene	4.4	U
198-55-0	Perylene	4.8	U
193-39-5	Indeno(1,2,3-cd)pyrene	4.0	U
53-70-3	Dibenzo(a,h)anthracene	3.1	U
191-24-2	Benzo(g,h,i)perylene	5.4	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W129

Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 49376 SAS No.: SDG No.: 49376

Matrix: (soil/water) WATER Lab Sample ID: 49376-04

Sample wt/vol: 4185 (g/ml) ML Lab File ID: A1001225

Level: (low/med) LOW Date Received: 06/04/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 06/05/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 07/02/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	4.9	U
496-11-7	2,3-Dihydroindene	3.3	
95-13-6	1H-Indene	2.4	
91-20-3	Naphthalene	6.7	R
95-15-8	Benzo(b)thiophene	0.86	U
91-22-5	Quinoline	1.3	U
120-72-9	1H-Indole	2.4	U
91-57-6	2-Methylnaphthalene	5.0	R
90-12-0	1-Methylnaphthalene	5.2	
92-52-4	Biphenyl	4.1	U
208-96-8	Acenaphthylene	1.3	U
83-32-9	Acenaphthene	3.6	
132-64-9	Dibenzofuran	2.4	
86-73-7	Fluorene	2.8	
132-65-0	Dibenzothiophene	1.0	U
85-01-8	Phenanthrene	2.9	B
120-12-7	Anthracene	1.3	
260-94-6	Acridine	2.8	U
86-74-8	Carbazole	4.2	
206-44-0	Fluoranthene	3.9	
129-00-0	Pyrene	9.7	
56-55-3	Benzo(a)Anthracene	2.4	U
218-01-9	Chrysene	2.7	U
207-08-9	Benzo(b)fluoranthene	2.4	U
205-08-9	Benzo(k)fluoranthene	2.2	U
192-97-2	Benzo(e)pyrene	1.8	U
50-32-8	Benzo(a)pyrene	2.2	U
198-55-0	Perylene	2.4	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.0	U
53-70-3	Dibenzo(a,h)anthracene	1.5	U
191-24-2	Benzo(g,h,i)perylene	2.7	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W411

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 49376 SAS No.: SDG No.: 49376

Matrix: (soil/water) WATER Lab Sample ID: 49376-06

Sample wt/vol: 4175 (g/ml) ML Lab File ID: A1201227

Level: (low/med) LOW Date Received: 06/04/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 06/05/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 07/02/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	4.9	U
496-11-7	2,3-Dihydroindene	2.5	
95-13-6	1H-Indene	1.4	
91-20-3	Naphthalene	8.9	
95-15-8	Benzo(b)thiophene	0.86	U
91-22-5	Quinoline	1.3	U
120-72-9	1H-Indole	3.8	
91-57-6	2-Methylnaphthalene	4.5	R
90-12-0	1-Methylnaphthalene	3.4	R
92-52-4	Biphenyl	4.1	U
208-96-8	Acenaphthylene	1.3	U
83-32-9	Acenaphthene	2.1	
132-64-9	Dibenzofuran	1.4	
86-73-7	Fluorene	1.8	
132-65-0	Dibenzothiophene	1.0	U
85-01-8	Phenanthrene	5.8	B
120-12-7	Anthracene	1.8	
260-94-6	Acridine	29	
86-74-8	Carbazole	3.0	
206-44-0	Fluoranthene	3.3	
129-00-0	Pyrene	6.6	
56-55-3	Benzo(a)Anthracene	2.4	U
218-01-9	Chrysene	2.7	U
207-08-9	Benzo(b)fluoranthene	2.4	U
205-08-9	Benzo(k)fluoranthene	2.2	U
192-97-2	Benzo(e)pyrene	1.8	U
50-32-8	Benzo(a)pyrene	2.2	U
198-55-0	Perylene	2.4	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.0	U
53-70-3	Dibenzo(a,h)anthracene	1.5	U
191-24-2	Benzo(g,h,i)perylene	2.7	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W408

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 49376 SAS No.: SDG No.: 49376

Matrix: (soil/water) WATER Lab Sample ID: 49376-07

Sample wt/vol: 4180 (g/ml) ML Lab File ID: A1301228

Level: (low/med) LOW Date Received: 06/04/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 06/05/96

Concentrated Extract Volume: 0.5 (ml) Date Analyzed: 07/02/96

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	4.9	U
496-11-7	2,3-Dihydroindene	3.1	
95-13-6	1H-Indene	2.6	
91-20-3	Naphthalene	11	
95-15-8	Benzo(b)thiophene	0.86	U
91-22-5	Quinoline	1.3	U
120-72-9	1H-Indole	2.4	U
91-57-6	2-Methylnaphthalene	7.4	R
90-12-0	1-Methylnaphthalene	1.5	U
92-52-4	Biphenyl	4.1	U
208-96-8	Acenaphthylene	1.3	U
83-32-9	Acenaphthene	3.1	
132-64-9	Dibenzofuran	2.3	
86-73-7	Fluorene	2.9	
132-65-0	Dibenzothiophene	1.0	U
85-01-8	Phenanthrene	5.5	B
120-12-7	Anthracene	1.0	U
260-94-6	Acridine	2.8	U
86-74-8	Carbazole	6.2	
206-44-0	Fluoranthene	3.0	
129-00-0	Pyrene	9.8	
56-55-3	Benzo(a)Anthracene	2.4	U
218-01-9	Chrysene	2.7	U
207-08-9	Benzo(b)fluoranthene	2.4	U
205-08-9	Benzo(k)fluoranthene	2.2	U
192-97-2	Benzo(e)pyrene	1.8	U
50-32-8	Benzo(a)pyrene	2.2	U
198-55-0	Perylene	2.4	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.0	U
53-70-3	Dibenzo(a,h)anthracene	1.5	U
191-24-2	Benzo(g,h,i)perylene	2.7	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W408RA

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 49376 SAS No.: SDG No.: 49376

Matrix: (soil/water) WATER Lab Sample ID: 49376-07RA

Sample wt/vol: 4180 (g/ml) ML Lab File ID: A0801249

Level: (low/med) LOW Date Received: 06/04/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 06/05/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 07/12/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	4.9	U
496-11-7	2,3-Dihydroindene	3.8	
95-13-6	1H-Indene	3.0	
91-20-3	Naphthalene	14	
95-15-8	Benzo(b)thiophene	0.86	U
91-22-5	Quinoline	1.3	U
120-72-9	1H-Indole	2.4	U
91-57-6	2-Methylnaphthalene	8.8	
90-12-0	1-Methylnaphthalene	6.7	R
92-52-4	Biphenyl	4.1	U
208-96-8	Acenaphthylene	1.3	U
83-32-9	Acenaphthene	3.4	
132-64-9	Dibenzofuran	2.9	R
86-73-7	Fluorene	3.2	
132-65-0	Dibenzothiophene	1.0	U
85-01-8	Phenanthrene	5.0	B
120-12-7	Anthracene	1.0	U
260-94-6	Acridine	2.8	U
86-74-8	Carbazole	5.5	
206-44-0	Fluoranthene	2.4	
129-00-0	Pyrene	7.4	
56-55-3	Benzo(a)Anthracene	2.4	U
218-01-9	Chrysene	2.7	U
207-08-9	Benzo(b)fluoranthene	2.4	U
205-08-9	Benzo(k)fluoranthene	2.2	U
192-97-2	Benzo(e)pyrene	1.8	U
50-32-8	Benzo(a)pyrene	2.2	U
198-55-0	Perylene	2.4	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.0	U
53-70-3	Dibenzo(a,h)anthracene	1.5	U
191-24-2	Benzo(g,h,i)perylene	2.7	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLK01RA

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 49376 SAS No.: SDG No.: 49376

Matrix: (soil/water) WATER Lab Sample ID: SBLK01RA

Sample wt/vol: 4000 (g/ml) ML Lab File ID: A0101216

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 06/05/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 07/02/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	5.1	U
496-11-7	2,3-Dihydroindene	1.4	U
95-13-6	1H-Indene	0.90	U
91-20-3	Naphthalene	6.5	U
95-15-8	Benzo(b)thiophene	0.90	U
91-22-5	Quinoline	1.4	U
120-72-9	1H-Indole	2.5	U
91-57-6	2-Methylnaphthalene	0.90	U
90-12-0	1-Methylnaphthalene	1.6	U
92-52-4	Biphenyl	4.3	U
208-96-8	Acenaphthylene	1.4	U
83-32-9	Acenaphthene	1.3	U
132-64-9	Dibenzofuran	1.0	U
86-73-7	Fluorene	1.0	U
132-65-0	Dibenzothiophene	1.1	U
85-01-8	Phenanthrene	1.6	B
120-12-7	Anthracene	1.1	U
260-94-6	Acridine	2.9	U
86-74-8	Carbazole	1.9	U
206-44-0	Fluoranthene	1.4	U
129-00-0	Pyrene	1.4	U
56-55-3	Benzo(a)Anthracene	2.5	U
218-01-9	Chrysene	2.8	U
207-08-9	Benzo(b)fluoranthene	2.5	U
205-08-9	Benzo(k)fluoranthene	2.3	U
192-97-2	Benzo(e)pyrene	1.9	U
50-32-8	Benzo(a)pyrene	2.3	U
198-55-0	Perylene	2.5	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.1	U
53-70-3	Dibenzo(a,h)anthracene	1.6	U
191-24-2	Benzo(g,h,i)perylene	2.8	U

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

ab Name: QUANTERRA DENVER Contract:

ab Code: Case No.: 49376 SAS No.: SDG No.: 49376

	EPA SAMPLE NO.	S1 #	S2 #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	SBLK01	75	593*	56						0
02	49376-LCS	81	270*	64						0
03	SLP3	62	132*	52						0
04	SLP3D	61	496*	43						0
05	SLP3FB	64	177*	47						0
06	SBLK01RA	64	520*	67						0
07	LCSRA	69	223*	76						0
08	SLP3RA	59	121*	66						0
09	SLP3DRA	54	435*	59						0
10	SLP3MS	58	112	66						0
11	SLP3MSD	66	67	74						0
12	SLP3FBRA	56	162*	59						0
13	SLP3FBD	64	109	70						0
14	W122	92	25	70						0
15	W129	52	30	58						0
16	W411	36	30	61						0
17	W408	42	19	99						0
18	W122RA	158*	54	101						0
19	W124	89D	167D	79D						0
20	W408RA	49	19	106						0
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										

		QC LIMITS
S1	= Naphthalene-d8	(21-108)
S2	= Chrysene-d12	(10-118)
S3	= Fluorene-d10	(41-162)

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: QUANTERRA DENVER Contract:

Lab Code: Case No.: 49376 SAS No.: SDG No.: 49376

Matrix Spike - EPA Sample No.: SLP3

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC #	QC. LIMITS REC.
1H-Indene	9.5	0.00	5.6	59	20-150
Naphthalene	9.5	8.0	12	42	20-150
Quinoline	9.5	0.00	7.0	74	20-150
2-Methylnaphthalene	9.5	1.3	6.5	55	20-150
Fluorene	9.5	0.00	6.3	66*	69-118
Chrysene	9.5	0.00	2.7	28	20-132
Benzo(e)pyrene	9.5	0.00	0.00	0*	20-150

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1H-Indene	9.5	6.1	64	8	20	20-150
Naphthalene	9.5	15	74	55*	20	20-150
Quinoline	9.5	8.5	89	18	20	20-150
2-Methylnaphthalene	9.5	7.6	66	18	20	20-150
Fluorene	9.5	7.3	77	15	20	69-118
Chrysene	9.5	2.8	29	4	20	20-132
Benzo(e)pyrene	9.5	0.00	0*		20	20-150

NOT REUSEABLE FOR INTERNAL USE ONLY

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

RPD: 1 out of 7 outside limits
Spike Recovery: 3 out of 14 outside limits

COMMENTS: _____

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SLP3MS

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 49376 SAS No.: SDG No.: 49376

Matrix: (soil/water) WATER Lab Sample ID: 49376-01MS

Sample wt/vol: 4190 (g/ml) ML Lab File ID: A0501220

Level: (low/med) LOW Date Received: 06/04/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 06/05/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 07/02/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	4.9	U
496-11-7	2,3-Dihydroindene	1.3	U
95-13-6	1H-Indene	5.6	
91-20-3	Naphthalene	12	
95-15-8	Benzo(b)thiophene	0.86	U
91-22-5	Quinoline	7.0	
120-72-9	1H-Indole	2.4	U
91-57-6	2-Methylnaphthalene	6.5	
90-12-0	1-Methylnaphthalene	1.5	U
92-52-4	Biphenyl	4.1	U
208-96-8	Acenaphthylene	1.3	U
83-32-9	Acenaphthene	1.2	U
132-64-9	Dibenzofuran	0.95	U
86-73-7	Fluorene	6.3	
132-65-0	Dibenzothiophene	1.0	U
85-01-8	Phenanthrene	1.6	B
120-12-7	Anthracene	1.0	U
260-94-6	Acridine	2.8	U
86-74-8	Carbazole	1.8	U
206-44-0	Fluoranthene	1.3	U
129-00-0	Pyrene	2.7	
56-55-3	Benzo(a)Anthracene	2.4	U
218-01-9	Chrysene	2.7	
207-08-9	Benzo(b)fluoranthene	2.4	U
205-08-9	Benzo(k)fluoranthene	2.2	U
192-97-2	Benzo(e)pyrene	1.8	U
50-32-8	Benzo(a)pyrene	2.2	U
198-55-0	Perylene	2.4	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.0	U
53-70-3	Dibenzo(a,h)anthracene	1.5	U
191-24-2	Benzo(g,h,i)perylene	2.7	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SLP3MSD

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 49376 SAS No.: SDG No.: 49376

Matrix: (soil/water) WATER Lab Sample ID: 49376-01MSD

Sample wt/vol: 4200 (g/ml) ML Lab File ID: A0601221

Level: (low/med) LOW Date Received: 06/04/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 06/05/96

Concentrated Extract Volume: 0.5(mL) Date Analyzed: 07/02/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	4.8	U
496-11-7	2,3-Dihydroindene	1.3	U
95-13-6	1H-Indene	6.1	
91-20-3	Naphthalene	15	
95-15-8	Benzo(b)thiophene	0.86	U
91-22-5	Quinoline	8.5	
120-72-9	1H-Indole	2.4	U
91-57-6	2-Methylnaphthalene	7.6	
90-12-0	1-Methylnaphthalene	1.5	U
92-52-4	Biphenyl	4.1	U
208-96-8	Acenaphthylene	1.3	U
83-32-9	Acenaphthene	1.2	U
132-64-9	Dibenzofuran	0.95	U
86-73-7	Fluorene	7.3	
132-65-0	Dibenzothiophene	1.0	U
85-01-8	Phenanthrene	2.7	B
120-12-7	Anthracene	1.0	U
260-94-6	Acridine	2.8	U
86-74-8	Carbazole	1.8	U
206-44-0	Fluoranthene	1.3	U
129-00-0	Pyrene	1.3	U
56-55-3	Benzo(a)Anthracene	2.4	U
218-01-9	Chrysene	2.8	
207-08-9	Benzo(b)fluoranthene	2.4	U
205-08-9	Benzo(k)fluoranthene	2.2	U
192-97-2	Benzo(e)pyrene	1.8	U
50-32-8	Benzo(a)pyrene	2.2	U
198-55-0	Perylene	2.4	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.0	U
53-70-3	Dibenzo(a,h)anthracene	1.5	U
191-24-2	Benzo(g,h,i)perylene	2.7	U

FORM 3
WATER SEMIVOLATILE METHOD SPIKE RECOVERY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 49376 SAS No.: SDG No.: 49376

Matrix Spike - Sample No.: LCS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ng/L)	% REC #	QC. LIMITS REC.
1H-Indene	10	7.6	76	20-150
Naphthalene	10	10	100	20-150
Quinoline	10	6.3	63	20-150
2-Methylnaphthalene	10	8.5	85	20-150
Fluorene	10	7.4	74	69-118
Chrysene	10	7.9	79	20-132
Benzo(e)pyrene	10	8.7	87	20-150

NON DEFENSEABLE
FOR INTERNAL USE ONLY

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

COMMENTS: _____

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

LCS

b Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 49376 SAS No.: SDG No.: 49376

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

Sample wt/vol: 4000 (g/ml) ML Lab File ID: A0301199

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:06/05/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 07/01/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
95-13-6	1H-Indene	7.6	
91-20-3	Naphthalene	10	
91-22-5	Quinoline	6.3	
91-57-6	2-Methylnaphthalene	8.5	
86-73-7	Fluorene	7.4	
218-01-9	Chrysene	7.9	
192-97-2	Benzo(e)pyrene	8.7	

NON DELIVERABLE
FOR INTERNAL USE ONLY

FORM 3
WATER SEMIVOLATILE METHOD SPIKE RECOVERY

ıb Name: QUANTERRA DENVER Contract:

ıb Code: Case No.: 49376 SAS No.: SDG No.: 49376

ıtrix Spike - Sample No.: LCSRA

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ng/L)	% REC #	QC. LIMITS REC.
1H-Indene	10	6.3	63	20-150
Naphthalene	10	8.9	89	20-150
Quinoline	10	5.8	58	20-150
2-Methylnaphthalene	10	7.6	76	20-150
Fluorene	10	8.0	80	69-118
Chrysene	10	6.4	64	20-132
Benzo(e)pyrene	10	6.9	69	20-150

NON DEFENSEABLE
FOR INTERNAL USE ONLY

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

COMMENTS: _____

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

LCSRA

Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 49376 SAS No.: SDG No.: 49376

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

Sample wt/vol: 4000 (g/ml) ML Lab File ID: A0201217

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 06/05/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 07/02/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
95-13-6	1H-Indene	6.3	
91-20-3	Naphthalene	8.9	
91-22-5	Quinoline	5.8	
91-57-6	2-Methylnaphthalene	7.6	
86-73-7	Fluorene	8.0	
218-01-9	Chrysene	6.4	
192-97-2	Benzo(e)pyrene	6.9	

NON-RELEASABLE
FOR INTERNAL USE ONLY

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 49376 SAS No.: SDG No.: 49376

Lab File ID (Standard): A0101197 Date Analyzed: 07/01/96

Instrument ID: A Time Analyzed: 0903

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	83025	12.41	109521	14.84	30401	21.45
	UPPER LIMIT	166050	12.91	219042	15.34	60802	21.95
	LOWER LIMIT	41512	11.91	54760	14.34	15200	20.95
	EPA SAMPLE NO.						
01	SBLK01	93858	12.40	212235	14.83	35713	21.44
02	49376-LCS	100659	12.40	179504	14.84	39163	21.45
03	SLP3	108599	12.40	188084	14.83	60027	21.44
04	SLP3D	137941	12.41	481740*	14.84	50196	21.44
05	SLP3FB	128032	12.40	251754*	14.83	61194*	21.44
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = 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

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 49376 SAS No.: SDG No.: 49376

Lab File ID (Standard): A215 Date Analyzed: 07/01/96

Instrument ID: A Time Analyzed: 2313

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	105175	12.39	159479	14.82	79212	21.43
	UPPER LIMIT	210350	12.89	318958	15.32	158424	21.93
	LOWER LIMIT	52588	11.89	79740	14.32	39606	20.93
	EPA SAMPLE NO.						
01	SBLK01RA	117926	12.39	301302	14.82	84668	21.44
02	LCSRA	126717	12.38	248025	14.81	96192	21.43
03	SLP3RA	124569	12.38	249899	14.81	107179	21.42
04	SLP3DRA	168280	12.38	692767*	14.81	105712	21.42
05	SLP3MS	139981	12.38	278241	14.81	104204	21.42
06	SLP3MSD	132450	12.38	239843	14.81	104180	21.42
07	SLP3FBRA	155902	12.38	359860*	14.81	128203	21.42
08	SLP3FBD	133967	12.38	223775	14.80	108722	21.42
09	W122	155111	12.38	236086	14.81	161238*	21.42
10	W129	158176	12.38	209814	14.80	133958	21.41
	W411	149005	12.38	230869	14.80	148405	21.42
	W408	141256	12.38	222040	14.80	174803*	21.42
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = 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

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 49376 SAS No.: SDG No.: 49376

Lab File ID (Standard): A0242 Date Analyzed: 07/11/96

Instrument ID: A Time Analyzed: 1929

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	111184	12.15	177563	14.56	114265	21.17
	UPPER LIMIT	222368	12.65	355126	15.06	228530	21.67
	LOWER LIMIT	55592	11.65	88782	14.06	57132	20.67
	EPA SAMPLE NO.						
01	W122RA	163708	12.15	315239	14.56	280333*	21.17
02	W124	138804	12.15	241987	14.55	210214	21.17
03	W408RA	186838	12.15	353831	14.55	393334*	21.17
04							
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = 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.

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 49376 SAS No.: SDG No.: 49376

	EPA SAMPLE NO.	S1 #	S2 #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	SBLK01	75	593*	56						0
02	49376-LCS	81	270*	64						0
03	SLP3	62	132*	52						0
04	SLP3D	61	496*	43						0
05	SLP3FB	64	177*	47						0
06	SBLK01RA	64	520*	67						0
07	LCSRA	69	223*	76						0
08	SLP3RA	59	121*	66						0
09	SLP3DRA	54	435*	59						0
10	SLP3MS	58	112	66						0
11	SLP3MSD	66	67	74						0
12	SLP3FBRA	56	162*	59						0
13	SLP3FBD	64	109	70						0
14	W122	92	25	70						0
15	W129	52	30	58						0
16	W411	36	30	61						0
17	W408	42	19	89						0
18	W122RA	158*	54	101						0
19	W124	89D	167D	79D						0
20	W408RA	49	19	106						0
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										

		QC LIMITS
S1	= Naphthalene-d8	(21-108)
S2	= Chrysene-d12	(10-118)
S3	= Fluorene-d10	(41-162)

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: QUANTERRA DENVER Contract:

Lab Code: Case No.: 49376 SAS No.: SDG No.: 49376

Matrix Spike - EPA Sample No.: SLP3

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC #	QC. LIMITS REC.
1H-Indene	9.5	0.00	5.6	59	20-150
Naphthalene	9.5	8.0	12	42	20-150
Quinoline	9.5	0.00	7.0	74	20-150
2-Methylnaphthalene	9.5	1.3	6.5	55	20-150
Fluorene	9.5	0.00	6.3	66*	69-118
Chrysene	9.5	0.00	2.7	28	20-132
Benzo(e)pyrene	9.5	0.00	0.00	0*	20-150

NON-LICENSEABLE FOR INTERNAL USE ONLY

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1H-Indene	9.5	6.1	64	8	20	20-150
Naphthalene	9.5	15	74	55*	20	20-150
Quinoline	9.5	8.5	89	18	20	20-150
2-Methylnaphthalene	9.5	7.6	66	18	20	20-150
Fluorene	9.5	7.3	77	15	20	69-118
Chrysene	9.5	2.8	29	4	20	20-132
Benzo(e)pyrene	9.5	0.00	0*		20	20-150

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

RPD: 1 out of 7 outside limits
Spike Recovery: 3 out of 14 outside limits

COMMENTS: _____

FORM 3
WATER SEMIVOLATILE METHOD SPIKE RECOVERY

ab Name: QUANTERRA DENVER Contract:

ab Code: Case No.: 49376 SAS No.: SDG No.: 49376

atrix Spike - Sample No.: LCS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ng/L)	% REC #	QC. LIMITS REC.
1H-Indene	10	7.6	76	20-150
Naphthalene	10	10	100	20-150
Quinoline	10	6.3	63	20-150
2-Methylnaphthalene	10	8.5	85	20-150
Fluorene	10	7.4	74	69-118
Chrysene	10	7.9	79	20-132
Benzo(e)pyrene	10	8.7	87	20-150

NON DEFENSEABLE
FOR INTERNAL USE ONLY

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

COMMENTS: _____

FORM III SV

FORM 3
WATER SEMIVOLATILE METHOD SPIKE RECOVERY

b Name: QUANTERRA DENVER Contract:

ıb Code: Case No.: 49376 SAS No.: SDG No.: 49376

ıtrix Spike - Sample No.: LCSRA

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ng/L)	% REC #	QC. LIMITS REC.
1H-Indene	10	6.3	63	20-150
Naphthalene	10	8.9	89	20-150
Quinoline	10	5.8	58	20-150
2-Methylnaphthalene	10	7.6	76	20-150
Fluorene	10	8.0	80	69-118
Chrysene	10	6.4	64	20-132
Benzo(e)pyrene	10	6.9	69	20-150

NON DEFENSEABLE
FOR INTERNAL USE ONLY

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

COMMENTS: _____

FORM III SV

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

SBLK01

A : QUANTERRA DENVER Contract:

Code: Case No.: 49376 SAS No.: SDG No.: 49376

File ID: A0201198 Lab Sample ID: SBLK01

rument ID: A Date Extracted: 06/05/96

ix: (soil/water) WATER Date Analyzed: 07/01/96

al:(low/med) LOW Time Analyzed: 0933

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	49376-LCS	49376-LCS	A0301199	07/01/96
02	SLP3	49376-01	A0401200	07/01/96
03	SLP3D	49376-01DU	A0501201	07/01/96
04	SLP3FB	49376-02FB	A0801204	07/01/96
05	SBLK01RA	SBLK01RA	A0101216	07/02/96
06	LCSRA	LCSRA	A0201217	07/02/96
07	SLP3RA	49376-01RA	A0301218	07/02/96
08	SLP3DRA	49376-01DURA	A0401219	07/02/96
09	SLP3MS	49376-01MS	A0501220	07/02/96
10	SLP3MSD	49376-01MSD	A0601221	07/02/96
11	SLP3FBRA	49376-02FBRA	A0701222	07/02/96
12	SLP3FBD	49376-02FD	A0801223	07/02/96
13	W122	49376-03	A0901224	07/02/96
14	W129	49376-04	A1001225	07/02/96
15	W411	49376-06	A1201227	07/02/96
16	W408	49376-07	A1301228	07/02/96
17	W122RA	49376-03RA	A0601247	07/11/96
18	W124	49376-05	A0701248	07/11/96
19	W408RA	49376-07RA	A0801249	07/12/96
20				
21				
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30				

INTERNAL USE ONLY

OMMENTS:

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 49376 SAS No.: SDG No.: 49376

Lab File ID (Standard): A0101197 Date Analyzed: 07/01/96

Instrument ID: A Time Analyzed: 0903

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	83025	12.41	109521	14.84	30401	21.45
	UPPER LIMIT	166050	12.91	219042	15.34	60802	21.95
	LOWER LIMIT	41512	11.91	54760	14.34	15200	20.95
	EPA SAMPLE NO.						
01	SBLK01	93858	12.40	212235	14.83	35713	21.44
02	49376-LCS	100659	12.40	179504	14.84	39163	21.45
03	SLP3	108599	12.40	188034	14.83	60027	21.44
04	SLP3D	137941	12.41	481740*	14.84	50196	21.44
05	SLP3FB	128032	12.40	251754*	14.83	61194*	21.44
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22							

IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = 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

ame: QUANTERRA DENVER Contract:

b Code: Case No.: 49376 SAS No.: SDG No.: 49376

b File ID (Standard): A215 Date Analyzed: 07/01/96

strument ID: A Time Analyzed: 2313

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	105175	12.39	159479	14.82	79212	21.43
	UPPER LIMIT	210350	12.89	318958	15.32	158424	21.93
	LOWER LIMIT	52588	11.89	79740	14.32	39606	20.93
	EPA SAMPLE NO.						
01	SBLK01RA	117926	12.39	301302	14.82	84668	21.44
02	LCSRA	126717	12.38	248025	14.81	96192	21.43
03	SLP3RA	124569	12.38	249899	14.81	107179	21.42
04	SLP3DRA	168280	12.38	692767*	14.81	105712	21.42
05	SLP3MS	139981	12.38	278241	14.81	104204	21.42
06	SLP3MSD	132450	12.38	239843	14.81	104180	21.42
07	SLP3FBRA	155902	12.38	359800*	14.81	128203	21.42
08	SLP3FBD	133967	12.38	223775	14.80	108722	21.42
09	W122	155111	12.38	236086	14.81	161238*	21.42
10	W129	158176	12.38	209814	14.80	133958	21.41
11	W411	149005	12.38	210869	14.80	148405	21.42
12	W408	141256	12.38	222040	14.80	174803*	21.42
13							
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22							

IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = 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

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 49376 SAS No.: SDG No.: 49376

Lab File ID (Standard): A0242 Date Analyzed: 07/11/96

Instrument ID: A Time Analyzed: 1929

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	111184	12.15	177563	14.56	114265	21.17
	UPPER LIMIT	222368	12.65	355126	15.06	228530	21.67
	LOWER LIMIT	55592	11.65	88782	14.06	57132	20.67
	EPA SAMPLE NO.						
01	W122RA	163708	12.15	315239	14.56	280333*	21.17
02	W124	138804	12.15	241987	14.55	210214	21.17
03	W408RA	186838	12.15	353831	14.55	393334*	21.17
04							
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IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = 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.

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

P116

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 49403 SAS No.: SDG No.: 49403

Matrix: (soil/water) WATER Lab Sample ID: 49403-06

Sample wt/vol: 4160 (g/ml) ML Lab File ID: A1201280

Level: (low/med) LOW Date Received: 06/05/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 06/07/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 07/11/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	4.9	U
496-11-7	2,3-Dihydroindene	1.3	U
95-13-6	1H-Indene	0.86	U
91-20-3	Naphthalene	6.2	U
95-15-8	Benzo(b)thiophene	0.86	U
91-22-5	Quinoline	1.3	U
120-72-9	1H-Indole	2.4	U
91-57-6	2-Methylnaphthalene	2.6	
90-12-0	1-Methylnaphthalene	1.5	U
92-52-4	Biphenyl	4.1	U
208-96-8	Acenaphthylene	1.3	U
83-32-9	Acenaphthene	1.2	U
132-64-9	Dibenzofuran	0.96	U
86-73-7	Fluorene	0.96	U
132-65-0	Dibenzothiophene	1.0	U
85-01-8	Phenanthrene	2.0	
120-12-7	Anthracene	1.0	U
260-94-6	Acridine	2.8	U
86-74-8	Carbazole	1.8	U
206-44-0	Fluoranthene	1.3	U
129-00-0	Pyrene	2.0	
56-55-3	Benzo(a)Anthracene	2.4	U
218-01-9	Chrysene	2.7	U
207-08-9	Benzo(b)fluoranthene	2.4	U
205-08-9	Benzo(k)fluoranthene	2.2	U
192-97-2	Benzo(e)pyrene	1.8	U
50-32-8	Benzo(a)pyrene	2.2	U
198-55-0	Perylene	2.4	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.0	U
53-70-3	Dibenzo(a,h)anthracene	1.5	U
191-24-2	Benzo(g,h,i)perylene	2.7	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 20, 1996

Quanterra Environmental Services

Project Number 051919

Introduction

Ten aqueous samples (including matrix QC) were received at Quanterra Environmental Services, Denver Laboratory on October 8, 1996. The samples were logged in under Quanterra Denver's project number 051919. A cross reference associating Quanterra Denver's laboratory sample numbers to the actual field sample number 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 October 1995 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.

Client sample with lab IDs 051919-003,004 and 005 had to be diluted due to non-target analytes exceeding the linear range of the instrument. The reporting limits were raised accordingly. As a result of dilution the surrogates for samples 051919-003, 004 and 005 were not detected and are reported as "D."

The spike compound benzo (e) pyrene was not detected in either the matrix spike or matrix spike duplicate samples. Benzo (e) pyrene was recovered within acceptable limits in the Laboratory Control Sample. Matrix effect is indicated.

Quanterra
Environmental Services

This data package is in compliance with the terms and conditions of the October 1995 QAPP, both technically and for completeness, for other than the conditions detailed above.

Reported By: _____ Date: 11/20/96

Kurt C. Ill
Program Manager

Reviewed By: _____ Date: 11/20/96

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

STP-SLP3

ab Name: QUANTERRA DENVER Contract:

ab Code: Case No.: 51919 SAS No.: SDG No.: 51919

atrix: (soil/water) WATER Lab Sample ID: 51919-01

ample wt/vol: 4200 (g/ml) ML Lab File ID: A0701103

evel: (low/med) LOW Date Received: 10/08/96

Moisture: _____ decanted: (Y/N)___ Date Extracted: 10/08/96

oncentrated Extract Volume: 0.5(ml) Date Analyzed: 10/16/96

njection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	4.8	U
496-11-7	2,3-Dihydroindene	1.3	U
95-13-6	1H-Indene	0.86	U
91-20-3	Naphthalene	6.2	U
95-15-8	Benzo(b)thiophene	0.86	U
91-22-5	Quinoline	1.3	U
120-72-9	1H-Indole	2.4	U
91-57-6	2-Methylnaphthalene	1.2	B
90-12-0	1-Methylnaphthalene	1.5	U
92-52-4	Biphenyl	4.1	U
208-96-8	Acenaphthylene	1.3	U
83-32-9	Acenaphthene	1.2	U
132-64-9	Dibenzofuran	0.95	U
86-73-7	Fluorene	0.95	U
132-65-0	Dibenzothiophene	1.0	U
85-01-8	Phenanthrene	2.2	B
120-12-7	Anthracene	1.0	U
260-94-6	Acridine	2.8	U
86-74-8	Carbazole	1.8	U
206-44-0	Fluoranthene	1.3	U
129-00-0	Pyrene	1.3	U
56-55-3	Benzo(a)Anthracene	2.4	U
218-01-9	Chrysene	2.7	U
207-08-9	Benzo(b)fluoranthene	2.4	U
205-08-9	Benzo(k)fluoranthene	2.2	U
192-97-2	Benzo(e)pyrene	1.8	U
50-32-8	Benzo(a)pyrene	2.2	U
198-55-0	Perylene	2.4	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.0	U
53-70-3	Dibenzo(a,h)anthracene	1.5	U
191-24-2	Benzo(g,h,i)perylene	2.7	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

STP-SLP3D

ab Name: QUANTERRA DENVER Contract:

ab Code: Case No.: 51919 SAS No.: SDG No.: 51919

atrix: (soil/water) WATER Lab Sample ID: 51919-01DU

ample wt/vol: 4200 (g/ml) ML Lab File ID: A0801104

evel: (low/med) LOW Date Received: 10/08/96

Moisture: _____ decanted: (Y/N)___ Date Extracted: 10/08/96

oncentrated Extract Volume: 0.5(ml) Date Analyzed: 10/16/96

njection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	4.8	U
496-11-7	2,3-Dihydroindene	1.3	U
95-13-6	1H-Indene	0.86	U
91-20-3	Naphthalene	6.2	U
95-15-8	Benzo(b)thiophene	0.86	U
91-22-5	Quinoline	1.3	U
120-72-9	1H-Indole	2.4	U
91-57-6	2-Methylnaphthalene	1.4	B
90-12-0	1-Methylnaphthalene	1.5	U
92-52-4	Biphenyl	4.1	U
208-96-8	Acenaphthylene	1.3	U
83-32-9	Acenaphthene	1.2	U
132-64-9	Dibenzofuran	0.95	U
86-73-7	Fluorene	0.95	U
132-65-0	Dibenzothiophene	1.0	U
85-01-8	Phenanthrene	2.7	B
120-12-7	Anthracene	1.0	U
260-94-6	Acridine	2.8	U
86-74-8	Carbazole	1.8	U
206-44-0	Fluoranthene	1.3	U
129-00-0	Pyrene	1.3	U
56-55-3	Benzo(a)Anthracene	2.4	U
218-01-9	Chrysene	2.7	U
207-08-9	Benzo(b)fluoranthene	2.4	U
205-08-9	Benzo(k)fluoranthene	2.2	U
192-97-2	Benzo(e)pyrene	1.8	U
50-32-8	Benzo(a)pyrene	2.2	U
198-55-0	Perylene	2.4	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.0	U
53-70-3	Dibenzo(a,h)anthracene	1.5	U
191-24-2	Benzo(g,h,i)perylene	2.7	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA

STP-SLP3MS

Name: QUANTERRA DENVER Contract:

Code: Case No.: 51919 SAS No.: SDG No.: 51919

rix: (soil/water) WATER Lab Sample ID: 51919-01MS

ple wt/vol: 4200 (g/ml) ML Lab File ID: A0901105

el: (low/med) LOW Date Received: 10/08/96

Moisture: _____ decanted: (Y/N)___ Date Extracted:10/08/96

ncentrated Extract Volume: 0.5(ml) Date Analyzed: 10/16/96

jection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	4.8	U
496-11-7	2,3-Dihydroindene	1.3	U
95-13-6	1H-Indene	7.8	
91-20-3	Naphthalene	12	
95-15-8	Benzo(b)thiophene	0.86	U
91-22-5	Quinoline	9.2	
120-72-9	1H-Indole	2.4	U
91-57-6	2-Methylnaphthalene	9.4	B
90-12-0	1-Methylnaphthalene	1.5	U
92-52-4	Biphenyl	4.1	U
208-96-8	Acenaphthylene	1.3	U
83-32-9	Acenaphthene	1.2	U
132-64-9	Dibenzofuran	0.95	U
86-73-7	Fluorene	8.5	
132-65-0	Dibenzothiophene	1.0	U
85-01-8	Phenanthrene	3.0	B
120-12-7	Anthracene	1.0	U
260-94-6	Acridine	2.8	U
86-74-8	Carbazole	1.8	U
206-44-0	Fluoranthene	1.3	U
129-00-0	Pyrene	1.3	U
56-55-3	Benzo(a)Anthracene	2.4	U
218-01-9	Chrysene	3.2	
207-08-9	Benzo(b)fluoranthene	2.4	U
205-08-9	Benzo(k)fluoranthene	2.2	U
192-97-2	Benzo(e)pyrene	1.8	U
50-32-8	Benzo(a)pyrene	2.2	U
198-55-0	Perylene	2.4	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.0	U
53-70-3	Dibenzo(a,h)anthracene	1.5	U
191-24-2	Benzo(g,h,i)perylene	2.7	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

STP-SLP3MSD

ab Name: QUANTERRA DENVER Contract:

ab Code: Case No.: 51919 SAS No.: SDG No.: 51919

atrix: (soil/water) WATER Lab Sample ID: 51919-01MSD

ample wt/vol: 4200 (g/ml) ML Lab File ID: A1001106

evel: (low/med) LOW Date Received: 10/08/96

Moisture: _____ decanted: (Y/N)___ Date Extracted: 10/08/96

oncentrated Extract Volume: 0.5(ml) Date Analyzed: 10/16/96

njection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	4.8	U
496-11-7	2,3-Dihydroindene	1.3	U
95-13-6	1H-Indene	7.6	
91-20-3	Naphthalene	13	
95-15-8	Benzo(b)thiophene	0.86	U
91-22-5	Quinoline	10	
120-72-9	1H-Indole	2.4	U
91-57-6	2-Methylnaphthalene	9.4	B
90-12-0	1-Methylnaphthalene	1.5	U
92-52-4	Biphenyl	4.1	U
208-96-8	Acenaphthylene	1.3	U
83-32-9	Acenaphthene	1.2	U
132-64-9	Dibenzofuran	0.95	U
86-73-7	Fluorene	8.8	
132-65-0	Dibenzothiophene	1.0	U
85-01-8	Phenanthrene	3.0	B
120-12-7	Anthracene	1.0	U
260-94-6	Acridine	2.8	U
86-74-8	Carbazole	1.8	U
206-44-0	Fluoranthene	1.3	U
129-00-0	Pyrene	1.3	U
56-55-3	Benzo(a)Anthracene	2.4	U
218-01-9	Chrysene	3.3	
207-08-9	Benzo(b)fluoranthene	2.4	U
205-08-9	Benzo(k)fluoranthene	2.2	U
192-97-2	Benzo(e)pyrene	1.8	U
50-32-8	Benzo(a)pyrene	2.2	U
198-55-0	Perylene	2.4	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.0	U
53-70-3	Dibenzo(a,h)anthracene	1.5	U
191-24-2	Benzo(g,h,i)perylene	2.7	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

STP-SLP3FB

ab Name: QUANTERRA DENVER Contract:

ab Code: Case No.: 51919 SAS No.: SDG No.: 51919

.trix: (soil/water) WATER Lab Sample ID: 51919-02FB

ample wt/vol: 4200 (g/ml) ML Lab File ID: A1101107

.evel: (low/med) LOW Date Received: 10/08/96

Moisture: _____ decanted: (Y/N)___ Date Extracted:10/08/96

:oncentrated Extract Volume: 0.5(ml) Date Analyzed: 10/16/96

njection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	4.8	U
496-11-7	2,3-Dihydroindene	1.3	U
95-13-6	1H-Indene	0.86	U
91-20-3	Naphthalene	6.2	U
95-15-8	Benzo(b)thiophene	0.86	U
91-22-5	Quinoline	1.3	U
120-72-9	1H-Indole	2.4	U
91-57-6	2-Methylnaphthalene	1.7	B
90-12-0	1-Methylnaphthalene	1.5	U
92-52-4	Biphenyl	4.1	U
208-96-8	Acenaphthylene	1.3	U
83-32-9	Acenaphthene	1.2	U
132-64-9	Dibenzofuran	0.95	U
86-73-7	Fluorene	0.95	U
132-65-0	Dibenzothiophene	1.0	U
85-01-8	Phenanthrene	3.3	B
120-12-7	Anthracene	1.0	U
260-94-6	Acridine	2.8	U
86-74-8	Carbazole	1.8	U
206-44-0	Fluoranthene	1.3	U
129-00-0	Pyrene	1.3	U
56-55-3	Benzo(a)Anthracene	2.4	U
218-01-9	Chrysene	2.7	U
207-08-9	Benzo(b)fluoranthene	2.4	U
205-08-9	Benzo(k)fluoranthene	2.2	U
192-97-2	Benzo(e)pyrene	1.8	U
50-32-8	Benzo(a)pyrene	2.2	U
198-55-0	Perylene	2.4	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.0	U
53-70-3	Dibenzo(a,h)anthracene	1.5	U
191-24-2	Benzo(g,h,i)perylene	2.7	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

STP-SLP3FBD

) Name: QUANTERRA DENVER Contract:

) Code: Case No.: 51919 SAS No.: SDG No.: 51919

:rix: (soil/water) WATER Lab Sample ID: 51919-02FD

mple wt/vol: 4200 (g/ml) ML Lab File ID: A1201108

vel: (low/med) LOW Date Received: 10/08/96

Moisture: _____ decanted: (Y/N)___ Date Extracted:10/08/96

ncentrated Extract Volume: 0.5(ml) Date Analyzed: 10/16/96

jection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	4.8	U
496-11-7	2,3-Dihydroindene	1.3	U
95-13-6	1H-Indene	0.86	U
91-20-3	Naphthalene	6.2	U
95-15-8	Benzo(b)thiophene	0.86	U
91-22-5	Quinoline	1.3	U
120-72-9	1H-Indole	2.4	U
91-57-6	2-Methylnaphthalene	2.0	B
90-12-0	1-Methylnaphthalene	1.5	U
92-52-4	Biphenyl	4.1	U
208-96-8	Acenaphthylene	1.3	U
83-32-9	Acenaphthene	1.2	U
132-64-9	Dibenzofuran	0.95	U
86-73-7	Fluorene	0.95	U
132-65-0	Dibenzothiophene	1.0	U
85-01-8	Phenanthrene	4.0	B
120-12-7	Anthracene	1.0	U
260-94-6	Acridine	2.8	U
86-74-8	Carbazole	1.8	U
206-44-0	Fluoranthene	1.3	U
129-00-0	Pyrene	1.3	U
56-55-3	Benzo(a)Anthracene	2.4	U
218-01-9	Chrysene	2.7	U
207-08-9	Benzo(b)fluoranthene	2.4	U
205-08-9	Benzo(k)fluoranthene	2.2	U
192-97-2	Benzo(e)pyrene	1.8	U
50-32-8	Benzo(a)pyrene	2.2	U
198-55-0	Perylene	2.4	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.0	U
53-70-3	Dibenzo(a,h)anthracene	1.5	U
191-24-2	Benzo(g,h,i)perylene	2.7	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

STP
[redacted]-W411

Name: QUANTERRA DENVER Contract:

Code: Case No.: 51919 SAS No.: SDG No.: 51919

.rix: (soil/water) WATER Lab Sample ID: 51919-03

ıple wt/vol: 3995 (g/ml) ML Lab File ID: A0201114

:el: (low/med) LOW Date Received: 10/08/96

Moisture: _____ decanted: (Y/N)___ Date Extracted:10/08/96

ıcentrated Extract Volume: 0.5(ml) Date Analyzed: 10/17/96

jection Volume: 1.0(uL) Dilution Factor: 10.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	51	U
496-11-7	2,3-Dihydroindene	38	
95-13-6	1H-Indene	13	
91-20-3	Naphthalene	73	
95-15-8	Benzo(b)thiophene	9.0	U
91-22-5	Quinoline	14	U
120-72-9	1H-Indole	25	U
91-57-6	2-Methylnaphthalene	33	B
90-12-0	1-Methylnaphthalene	22	
92-52-4	Biphenyl	43	U
208-96-8	Acenaphthylene	14	U
83-32-9	Acenaphthene	13	U
132-64-9	Dibenzofuran	10	U
86-73-7	Fluorene	10	U
132-65-0	Dibenzothiophene	11	U
85-01-8	Phenanthrene	13	U
120-12-7	Anthracene	11	U
260-94-6	Acridine	46	
86-74-8	Carbazole	19	U
206-44-0	Fluoranthene	14	U
129-00-0	Pyrene	28	
56-55-3	Benzo(a)Anthracene	25	U
218-01-9	Chrysene	28	U
207-08-9	Benzo(b)fluoranthene	25	U
205-08-9	Benzo(k)fluoranthene	23	U
192-97-2	Benzo(e)pyrene	19	U
50-32-8	Benzo(a)pyrene	23	U
198-55-0	Perylene	25	U
193-39-5	Indeno(1,2,3-cd)pyrene	21	U
53-70-3	Dibenzo(a,h)anthracene	16	U
191-24-2	Benzo(g,h,i)perylene	28	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA S

STP
~~DEV~~-W129

Name: QUANTERRA DENVER Contract:

Code: Case No.: 51919 SAS No.: SDG No.: 51919

rix: (soil/water) WATER Lab Sample ID: 51919-04

ple wt/vol: 4170 (g/ml) ML Lab File ID: A1401110

el: (low/med) LOW Date Received: 10/08/96

loisture: _____ decanted: (Y/N)___ Date Extracted: 10/08/96

ncentrated Extract Volume: 0.5(ml) Date Analyzed: 10/16/96

jection Volume: 1.0(uL) Dilution Factor: 10.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	49	U
496-11-7	2,3-Dihydroindene	27	
95-13-6	1H-Indene	8.6	U
91-20-3	Naphthalene	62	U
95-15-8	Benzo(b)thiophene	8.6	U
91-22-5	Quinoline	13	U
120-72-9	1H-Indole	24	U
91-57-6	2-Methylnaphthalene	16	B
90-12-0	1-Methylnaphthalene	15	U
92-52-4	Biphenyl	41	U
208-96-8	Acenaphthylene	13	U
83-32-9	Acenaphthene	12	U
132-64-9	Dibenzofuran	9.6	U
86-73-7	Fluorene	9.6	U
132-65-0	Dibenzothiophene	10	U
85-01-8	Phenanthrene	16	B
120-12-7	Anthracene	10	U
260-94-6	Acridine	28	U
86-74-8	Carbazole	18	U
206-44-0	Fluoranthene	13	U
129-00-0	Pyrene	16	
56-55-3	Benzo(a)Anthracene	24	U
218-01-9	Chrysene	27	U
207-08-9	Benzo(b)fluoranthene	24	U
205-08-9	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	Dibenzo(a,h)anthracene	15	U
191-24-2	Benzo(g,h,i)perylene	27	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE .

STP
~~DPW~~-W122

ab Name: QUANTERRA DENVER Contract:

Code: Case No.: 51919 SAS No.: SDG No.: 51919

atrix: (soil/water) WATER Lab Sample ID: 51919-05

ample wt/vol: 3920 (g/ml) ML Lab File ID: A1501111

evel: (low/med) LOW Date Received: 10/08/96

Moisture: _____ decanted: (Y/N)___ Date Extracted:10/08/96

oncentrated Extract Volume: 0.5(ml) Date Analyzed: 10/16/96

njection Volume: 1.0(uL) Dilution Factor: 10.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	52	U
496-11-7	2,3-Dihydroindene	32	
95-13-6	1H-Indene	12	
91-20-3	Naphthalene	86	
95-15-8	Benzo(b)thiophene	9.2	U
91-22-5	Quinoline	14	U
120-72-9	1H-Indole	26	U
91-57-6	2-Methylnaphthalene	43	B
90-12-0	1-Methylnaphthalene	23	
92-52-4	Biphenyl	44	U
208-96-8	Acenaphthylene	14	U
83-32-9	Acenaphthene	13	U
132-64-9	Dibenzofuran	10	U
86-73-7	Fluorene	10	U
132-65-0	Dibenzothiophene	11	U
85-01-8	Phenanthrene	13	U
120-12-7	Anthracene	11	U
260-94-6	Acridine	30	U
86-74-8	Carbazole	19	U
206-44-0	Fluoranthene	14	U
129-00-0	Pyrene	39	
56-55-3	Benzo(a)Anthracene	26	U
218-01-9	Chrysene	28	U
207-08-9	Benzo(b)fluoranthene	26	U
205-08-9	Benzo(k)fluoranthene	23	U
192-97-2	Benzo(e)pyrene	19	U
50-32-8	Benzo(a)pyrene	23	U
198-55-0	Perylene	26	U
193-39-5	Indeno(1,2,3-cd)pyrene	21	U
53-70-3	Dibenzo(a,h)anthracene	16	U
191-24-2	Benzo(g,h,i)perylene	28	U

FORM I SV-1 OLM03.0

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

STP ~~DPW~~-W408

ab Name: QUANTERRA DENVER Contract:

ab Code: Case No.: 51919 SAS No.: SDG No.: 51919

atrix: (soil/water) WATER Lab Sample ID: 51919-06

ample wt/vol: 4160 (g/ml) ML Lab File ID: A0601102

evel: (low/med) LOW Date Received: 10/08/96

Moisture: _____ decanted: (Y/N)___ Date Extracted:10/08/96

oncentrated Extract Volume: 0.5(ml) Date Analyzed: 10/16/96

njection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	4.9	U
496-11-7	2,3-Dihydroindene	12	
95-13-6	1H-Indene	2.6	
91-20-3	Naphthalene	29	
95-15-8	Benzo(b)thiophene	1.1	
91-22-5	Quinoline	1.3	U
120-72-9	1H-Indole	2.4	U
91-57-6	2-Methylnaphthalene	17	B
90-12-0	1-Methylnaphthalene	9.9	
92-52-4	Biphenyl	4.1	U
208-96-8	Acenaphthylene	1.3	U
83-32-9	Acenaphthene	2.5	
132-64-9	Dibenzofuran	2.0	
86-73-7	Fluorene	2.7	
132-65-0	Dibenzothiophene	1.0	U
85-01-8	Phenanthrene	6.1	B
120-12-7	Anthracene	1.0	U
260-94-6	Acridine	2.8	U
86-74-8	Carbazole	2.5	
206-44-0	Fluoranthene	3.9	
129-00-0	Pyrene	12	
56-55-3	Benzo(a)Anthracene	2.4	U
218-01-9	Chrysene	2.7	U
207-08-9	Benzo(b)fluoranthene	2.4	U
205-08-9	Benzo(k)fluoranthene	2.2	U
192-97-2	Benzo(e)pyrene	1.8	U
50-32-8	Benzo(a)pyrene	2.2	U
198-55-0	Perylene	2.4	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.0	U
53-70-3	Dibenzo(a,h)anthracene	1.5	U
191-24-2	Benzo(g,h,i)perylene	2.7	U

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 51919 SAS No.: SDG No.: 51919

	EPA SAMPLE NO.	S1 #	S2 #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	SBLK01	77	74	62						0
02	LCS	85	83	69						0
* 03	[redacted]-W408	68	22	71						0
04	STP-SLP3	83	38	70						0
05	STP-SLP3D	73	33	65						0
06	STP-SLP3MS	84	42	74						0
07	STP-SLP3MSD	82	46	72						0
08	STP-SLP3FB	92	83	80						0
09	STP-SLP3FBD	95	90	79						0
STP 10	[redacted]-W129	0D	0D	0D						0
STP 11	[redacted]-W122	0D	0D	0D						0
STP 12	[redacted]-W411	0D	0D	0D						0
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										

		QC LIMITS
S1	= Naphthalene-d8	(21-108)
S2	= Chrysene-d12	(10-118)
S3	= Fluorene-d10	(41-162)

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

3C

'ER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Name: QUANTERRA DENVER Contract:

Code: Case No.: 51919 SAS No.: SDG No.: 51919

:ix Spike - EPA Sample No.: STP-SLP3

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC #	QC. LIMITS REC.
:H-Indene	9.5	0.00	7.8	82	20-150
aphthalene	9.5	0.00	12	126	20-150
;inoline	9.5	0.00	9.2	97	20-150
-Methylnaphthalene	9.5	1.2	9.4	86	20-150
luorene	9.5	0.00	8.5	89	69-118
hrysene	9.5	0.00	3.2	34	20-132
enzo(e)pyrene	9.5	0.00	0.00	0*	20-150

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
:H-Indene	9.5	7.6	80	2	20	20-150
Iaphthalene	9.5	13	137	8	20	20-150
Quinoline	9.5	10	105	8	20	20-150
2-Methylnaphthalene	9.5	9.4	86	0	20	20-150
Fluorene	9.5	8.8	93	4	20	69-118
Chrysene	9.5	3.3	35	3	20	20-132
Benzo(e)pyrene	9.5	0.00	0*		20	20-150

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

PD: 0 out of 7 outside limits
pike Recovery: 2 out of 14 outside limits

OMMENTS: _____

FORM III SV-1 OLM03.0

FORM 3
WATER SEMIVOLATILE METHOD SPIKE RECOVERY

Iame: QUANTERRA DENVER Contract:

ıde: Case No.: 51919 SAS No.: SDG No.: 51919

:x Spike - CSLP Sample No.: LCS

OMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ng/L)	% REC #	QC. LIMITS REC.
-Indene	10	8.0	80	20-150
ıphthalene	10	9.5	95	20-150
inoline	10	9.0	90	20-150
Methylnaphthalene	10	9.1	91	20-150
uorene	10	8.1	81	69-118
:rysene	10	6.5	65	20-132
ɜnzo(e)pyrene	10	7.6	76	20-150

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

OMMENTS: _____

FORM III SV

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

LCS

Name: QUANTERRA DENVER Contract:

Code: Case No.: 51919 SAS No.: SDG No.: 51919

ix: (soil/water) WATER Lab Sample ID: 51919-LCS

ple wt/vol: 4000 (g/ml) ML Lab File ID: A0201098

el: (low/med) LOW Date Received: _____

oisture: _____ decanted: (Y/N)___ Date Extracted:10/08/96

centrated Extract Volume: 0.5(ml) Date Analyzed: 10/16/96

ection Volume: 1.0(uL) Dilution Factor: 1.0

Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
95-13-6	1H-Indene	8.0	
91-20-3	Naphthalene	9.5	
91-22-5	Quinoline	9.0	
91-57-6	2-Methylnaphthalene	9.1	
86-73-7	Fluorene	8.1	
218-01-9	Chrysene	6.5	
192-97-2	Benzo(e)pyrene	7.6	

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE N .

SBLK01

.b Name: QUANTERRA DENVER Contract:

b Code: Case No.: 51919 SAS No.: SDG No.: 51919

.o File ID: A0101097 Lab Sample ID: SBLK01

nstrument ID: A Date Extracted: 10/08/96

atrix: (soil/water) WATER Date Analyzed: 10/16/96

evel:(low/med) LOW Time Analyzed: 1017

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	LCS	51919-LCS	A0201098	10/16/96
STP 02	[redacted]-W408	51919-06	A0601102	10/16/96
03	STP-SLP3	51919-01	A0701103	10/16/96
04	STP-SLP3D	51919-01DU	A0801104	10/16/96
05	STP-SLP3MS	51919-01MS	A0901105	10/16/96
06	STP-SLP3MSD	51919-01MSD	A1001106	10/16/96
07	STP-SLP3FB	51919-02FB	A1101107	10/16/96
08	STP-SLP3FBD	51919-02FD	A1201108	10/16/96
STP 09	[redacted]-W129	51919-04	A1401110	10/16/96
STP 10	[redacted]-W122	51919-05	A1501111	10/16/96
STP 11	[redacted]-W411	51919-03	A0201114	10/17/96
12				
13				
14				
15				
16				
17				
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23				
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27				
28				
29				
30				

COMMENTS:

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLK01

Name: QUANTERRA DENVER Contract:

Code: Case No.: 51919 SAS No.: SDG No.: 51919

:ix: (soil/water) WATER Lab Sample ID: SBLK01

ple wt/vol: 4000 (g/ml) ML Lab File ID: A0101097

el: (low/med) LOW Date Received: _____

oisture: _____ decanted: (Y/N)___ Date Extracted: 10/08/96

.centrated Extract Volume: 0.5(ml) Date Analyzed: 10/16/96

ection Volume: 1.0(uL) Dilution Factor: 1.0

Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	5.1	U
496-11-7	2,3-Dihydroindene	1.4	U
95-13-6	1H-Indene	0.90	U
91-20-3	Naphthalene	6.5	U
95-15-8	Benzo(b)thiophene	0.90	U
91-22-5	Quinoline	1.4	U
120-72-9	1H-Indole	2.5	U
91-57-6	2-Methylnaphthalene	1.1	
90-12-0	1-Methylnaphthalene	1.6	U
92-52-4	Biphenyl	4.3	U
208-96-8	Acenaphthylene	1.4	U
83-32-9	Acenaphthene	1.3	U
132-64-9	Dibenzofuran	1.0	U
86-73-7	Fluorene	1.0	U
132-65-0	Dibenzothiophene	1.1	U
85-01-8	Phenanthrene	2.8	
120-12-7	Anthracene	1.1	U
260-94-6	Acridine	2.9	U
86-74-8	Carbazole	1.9	U
206-44-0	Fluoranthene	1.4	U
129-00-0	Pyrene	1.4	U
56-55-3	Benzo(a)Anthracene	2.5	U
218-01-9	Chrysene	2.8	U
207-08-9	Benzo(b)fluoranthene	2.5	U
205-08-9	Benzo(k)fluoranthene	2.3	U
192-97-2	Benzo(e)pyrene	1.9	U
50-32-8	Benzo(a)pyrene	2.3	U
198-55-0	Perylene	2.5	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.1	U
53-70-3	Dibenzo(a,h)anthracene	1.6	U
191-24-2	Benzo(g,h,i)perylene	2.8	U

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

.me: QUANTERRA DENVER Contract:

e: Case No.: 51919 SAS No.: SDG No.: 51919

.le ID (Standard): A096 Date Analyzed: 10/16/96

.ment ID: A Time Analyzed: 0921

	IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
12 HOUR STD	140599	12.48	203026	14.92	67093	21.52
UPPER LIMIT	281198	12.98	406052	15.42	134186	22.02
LOWER LIMIT	70300	11.98	101513	14.42	33546	21.02
EPA SAMPLE NO.						
SBLK01	164446	12.48	248898	14.92	97959	21.52
LCS	149024	12.47	232412	14.92	87628	21.52
[redacted]-W408	136724	12.48	191654	14.92	119857	21.52
STP-SLP3	143511	12.48	220049	14.92	123981	21.52
STP-SLP3D	157108	12.48	241641	14.92	130083	21.52
STP-SLP3MS	140140	12.48	216220	14.92	107625	21.52
STP-SLP3MSD	136433	12.47	209636	14.92	99947	21.52
STP-SLP3FB	139918	12.47	216424	14.91	97917	21.52
STP-SLP3FBD	176206	12.47	278991	14.91	119407	21.51
[redacted]-W129	136031	12.47	201650	14.91	100276	21.52
[redacted]-W122	133811	12.47	219421	14.91	116114	21.51

IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = 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 Code: Case No.: 51919 SAS No.: SDG No.: 51919

b File ID (Standard): A112 Date Analyzed: 10/17/96

strument ID: A Time Analyzed: 0826

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	125806	12.43	183993	14.86	69013	21.47
	UPPER LIMIT	251612	12.93	367986	15.36	138026	21.97
	LOWER LIMIT	62903	11.93	91996	14.36	34506	20.97
	EPA SAMPLE NO.						
01	[redacted]-W411	120749	12.41	195513	14.85	104581	21.45
02	STP						
03							
04							
05							
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20							
21							
22							

IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = 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.

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

.b Name: QUANTERRA DENVER Contract:

b Code: Case No.: 51919 SAS No.: SDG No.: 51919

	EPA SAMPLE NO.	S1 #	S2 #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	SBLK01	77	74	62						0
02	LCS	85	83	69						0
03	[redacted]-W408	68	22	71						0
04	STP-SLP3	83	38	70						0
05	STP-SLP3D	73	33	65						0
06	STP-SLP3MS	84	42	74						0
07	STP-SLP3MSD	82	46	72						0
08	STP-SLP3FB	92	83	80						0
09	STP-SLP3FBD	95	90	79						0
10	[redacted]-W129	0D	0D	0D						0
11	[redacted]-W122	0D	0D	0D						0
12	[redacted]-W411	0D	0D	0D						0
13										
14										
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		QC LIMITS
S1	= Naphthalene-d8	(21-108)
S2	= Chrysene-d12	(10-118)
S3	= Fluorene-d10	(41-162)

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: QUANTERRA DENVER Contract:

Lab Code: Case No.: 51919 SAS No.: SDG No.: 51919

Matrix Spike - EPA Sample No.: STP-SLP3

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC #	QC. LIMITS REC.
1H-Indene	9.5	0.00	7.8	82	20-150
Naphthalene	9.5	0.00	12	126	20-150
Quinoline	9.5	0.00	9.2	97	20-150
2-Methylnaphthalene	9.5	1.2	9.4	86	20-150
Fluorene	9.5	0.00	8.5	89	69-118
Chrysene	9.5	0.00	3.2	34	20-132
Benzo(e)pyrene	9.5	0.00	0.00	0*	20-150

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1H-Indene	9.5	7.6	80	2	20	20-150
Naphthalene	9.5	13	137	8	20	20-150
Quinoline	9.5	10	105	8	20	20-150
2-Methylnaphthalene	9.5	9.4	86	0	20	20-150
Fluorene	9.5	8.8	93	4	20	69-118
Chrysene	9.5	3.3	35	3	20	20-132
Benzo(e)pyrene	9.5	0.00	0*		20	20-150

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

RPD: 0 out of 7 outside limits
Spike Recovery: 2 out of 14 outside limits

COMMENTS:

FORM 3
WATER SEMIVOLATILE METHOD SPIKE RECOVERY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 51919 SAS No.: SDG No.: 51919

Matrix Spike - CSLP Sample No.: LCS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ng/L)	% REC #	QC. LIMITS REC.
1H-Indene	10	8.0	80	20-150
Naphthalene	10	9.5	95	20-150
Quinoline	10	9.0	90	20-150
2-Methylnaphthalene	10	9.1	91	20-150
Fluorene	10	8.1	81	69-118
Chrysene	10	6.5	65	20-132
Benzo(e)pyrene	10	7.6	76	20-150

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

COMMENTS:

FORM III SV

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

SBLK01

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 51919 SAS No.: SDG No.: 51919

Lab File ID: A0101097 Lab Sample ID: SBLK01

Instrument ID: A Date Extracted: 10/08/96

Matrix: (soil/water) WATER Date Analyzed: 10/16/96

Level: (low/med) LOW Time Analyzed: 1017

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	LCS	51919-LCS	A0201098	10/16/96
STP 02	~~BPW~~-W408	51919-06	A0601102	10/16/96
03	STP-SLP3	51919-01	A0701103	10/16/96
04	STP-SLP3D	51919-01DU	A0801104	10/16/96
05	STP-SLP3MS	51919-01MS	A0901105	10/16/96
06	STP-SLP3MSD	51919-01MSD	A1001106	10/16/96
07	STP-SLP3FB	51919-02FB	A1101107	10/16/96
08	STP-SLP3FBD	51919-02FD	A1201108	10/16/96
STP 09	~~BPW~~-W129	51919-04	A1401110	10/16/96
STP 10	~~BPW~~-W122	51919-05	A1501111	10/16/96
STP 11	~~BPW~~-W411	51919-03	A0201114	10/17/96
12				
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COMMENTS:

FORM IV SV

OLM03.0

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 51919 SAS No.: SDG No.: 51919

Lab File ID (Standard): A096 Date Analyzed: 10/16/96

Instrument ID: A Time Analyzed: 0921

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	140599	12.48	203026	14.92	67093	21.52
	UPPER LIMIT	281198	12.98	406052	15.42	134186	22.02
	LOWER LIMIT	70300	11.98	101513	14.42	33546	21.02
	EPA SAMPLE NO.						
01	SBLK01	164446	12.48	248898	14.92	97959	21.52
02	LCS	149024	12.47	232412	14.92	87628	21.52
03	[redacted]-W408	136724	12.48	191654	14.92	119857	21.52
04	STP-SLP3	143511	12.48	220049	14.92	123981	21.52
05	STP-SLP3D	157108	12.48	241641	14.92	130083	21.52
06	STP-SLP3MS	140140	12.48	216220	14.92	107625	21.52
07	STP-SLP3MSD	136433	12.47	209636	14.92	99947	21.52
08	STP-SLP3FB	139918	12.47	216424	14.91	97917	21.52
09	STP-SLP3FBD	176206	12.47	278991	14.91	119407	21.51
10	[redacted]-W129	136031	12.47	201650	14.91	100276	21.52
11	[redacted]-W122	133811	12.47	219421	14.91	116114	21.51
12							
13							
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16							
17							
18							
19							
20							
21							
22							

IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = 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

ab Name: QUANTERRA DENVER Contract:

.ab Code: Case No.: 51919 SAS No.: SDG No.: 51919

ab File ID (Standard): A112 Date Analyzed: 10/17/96

.nstrument ID: A Time Analyzed: 0826

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	125806	12.43	183993	14.86	69013	21.47
	UPPER LIMIT	251612	12.93	367986	15.36	138026	21.97
	LOWER LIMIT	62903	11.93	91996	14.36	34506	20.97
	EPA SAMPLE NO.						
01	~~[illegible]~~-W411	120749	12.41	195513	14.85	104581	21.45
02	STP						
03							
04							
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22							

IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = 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.

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

STP [redacted]-P116

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 51936 SAS No.: SDG No.: 51936

Matrix: (soil/water) WATER Lab Sample ID: 51936-04

Sample wt/vol: 3885 (g/ml) ML Lab File ID: A1301125

Level: (low/med) LOW Date Received: 10/09/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 10/10/96

Concentrated Extract Volume: 0.5 (ml) Date Analyzed: 10/17/96

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	5.2	U
496-11-7	2,3-Dihydroindene	2.1	
95-13-6	1H-Indene	1.0	
91-20-3	Naphthalene	14	
95-15-8	Benzo(b)thiophene	0.93	U
91-22-5	Quinoline	1.4	U
120-72-9	1H-Indole	2.6	U
91-57-6	2-Methylnaphthalene	7.6	B
90-12-0	1-Methylnaphthalene	4.3	
92-52-4	Biphenyl	4.4	U
208-96-8	Acenaphthylene	1.4	U
83-32-9	Acenaphthene	1.3	U
132-64-9	Dibenzofuran	1.4	B
86-73-7	Fluorene	1.3	
132-65-0	Dibenzothiophene	1.1	U
85-01-8	Phenanthrene	6.3	B
120-12-7	Anthracene	1.1	U
260-94-6	Acridine	3.0	U
86-74-8	Carbazole	2.0	U
206-44-0	Fluoranthene	2.5	
129-00-0	Pyrene	2.2	
56-55-3	Benzo(a)Anthracene	2.6	U
218-01-9	Chrysene	2.9	U
207-08-9	Benzo(b)fluoranthene	2.6	U
205-08-9	Benzo(k)fluoranthene	2.4	U
192-97-2	Benzo(e)pyrene	2.0	U
50-32-8	Benzo(a)pyrene	2.4	U
198-55-0	Perylene	2.6	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.2	U
53-70-3	Dibenzo(a,h)anthracene	1.6	U
191-24-2	Benzo(g,h,i)perylene	2.9	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

STP-W409

Lab Name: QUANTERRA-DENVER Contract:

Lab Code: Case No.: 51917 SAS No.: SDG No.: 51917

Matrix: (soil/water) WATER Lab Sample ID: 51917-10

Sample wt/vol: 1050 (g/ml) ML Lab File ID: E3224

Level: (low/med) LOW Date Received: 10/08/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/11/96

Concentrated Extract Volume: 1.0(ml) Date Analyzed: 10/25/96

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	42	
91-57-6	2-Methylnaphthalene	9.5	U
208-96-8	Acenaphthylene	2.1	J
83-32-9	Acenaphthene	38	
132-64-9	Dibenzofuran	15	
86-73-7	Fluorene	15	
85-01-8	Phenanthrene	7.2	J
120-12-7	Anthracene	9.5	U
206-44-0	Fluoranthene	9.5	U
129-00-0	Pyrene	9.5	U
56-55-3	Benzo(a)Anthracene	9.5	U
218-01-9	Chrysene	9.5	U
205-99-2	Benzo(b)fluoranthene	9.5	U
207-08-9	Benzo(k)fluoranthene	9.5	U
50-32-8	Benzo(a)pyrene	9.5	U
193-39-5	Indeno(1 2 3-cd)pyrene	9.5	U
53-70-3	Dibenz(a h)anthracene	9.5	U
191-24-2	Benzo(g h i)perylene	9.5	U
86-74-8	Carbazole	12	
95-13-6	1H-Indene	55	
91-22-5	Quinoline	9.5	U
90-12-0	1-Methylnaphthalene	42	
271-89-6	2,3-Benzofuran	9.5	U
496-11-7	2,3-Dihydroindene	52	
95-15-8	Benzo(b)thiophene	26	
120-72-9	1H-Indole	9.5	U
92-52-4	Biphenyl	5.0	J
132-65-0	Dibenzothiophene	1.2	J
260-94-6	Acridine	9.5	U
192-97-2	Benzo(e)pyrene	9.5	U
198-55-0	Perylene	9.5	U

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

December 3, 1996

Quanterra Environmental Services

Project Number 052179

Introduction

Ten aqueous samples (including matrix QC) were received at Quanterra Environmental Services, Denver Laboratory on October 22, 1996. The samples were logged in under Quanterra Denver's project number 052179. A cross reference associating Quanterra Denver's laboratory sample numbers to the actual field sample number 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 October 1995 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.

Client samples with lab ID's 052179-001, 001DU, 001MS, 001MSD and 003 had to be diluted due to target analytes exceeding the linear range of the instrument. The reporting limits were raised accordingly. As a result of dilution the surrogates for samples 052179-001, 001DU, 001MS and 001MSD were not detected and are reported as "D."

Client samples with lab ID's 052179-004 and 005 had to be diluted due to non-target analytes exceeding the linear range of the instrument. The reporting limits were raised accordingly. As a result of dilution the surrogates for sample 052179-005 were not detected and are reported as "D".

Quanterra
Environmental Services

The surrogate chrysene-d12 in client sample with lab ID 052179-006 was recovered at 7% which is outside the 10% to 118% acceptance criteria. Chrysene-d12 was recovered within the acceptance criteria in the LCS and Method Blank suggesting a matrix effect.

Due to the large dilution required to bring analytes present in client samples with lab ID's 052179-001MS and 001MSD, all spiked compounds were diluted out.

This data package is in compliance with the terms and conditions of the October 1995 QAPP, both technically and for completeness, for other than the conditions detailed above.

Reported By: Kurt C. Ill Date: 12/3/96

Kurt C. Ill
Program Manager

Reviewed By: Dean L. Riviere Date: 12/3/96

CASE NARRATIVE

FOR

City of St. Louis Park

December 3, 1996

Quanterra Environmental Services

Project Number 052179

Introduction

Ten aqueous samples (including matrix QC) were received at Quanterra Environmental Services, Denver Laboratory on October 22, 1996. The samples were logged in under Quanterra Denver's project number 052179. A cross reference associating Quanterra Denver's laboratory sample numbers to the actual field sample number 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 October 1995 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.

Client samples with lab ID's 052179-001, 001DU, 001MS, 001MSD and 003 had to be diluted due to target analytes exceeding the linear range of the instrument. The reporting limits were raised accordingly. As a result of dilution the surrogates for samples 052179-001, 001DU, 001MS and 001MSD were not detected and are reported as "D."

Client samples with lab ID's 052179-004 and 005 had to be diluted due to non-target analytes exceeding the linear range of the instrument. The reporting limits were raised accordingly. As a result of dilution the surrogates for sample 052179-005 were not detected and are reported as "D".

The surrogate chrysene-d12 in client sample with lab ID 052179-006 was recovered at 7% which is outside the 10% to 118% acceptance criteria. Chrysene-d12 was recovered within the acceptance criteria in the LCS and Method Blank suggesting a matrix effect.

Due to the large dilution required to bring analytes present in client samples with lab ID's 052179-001MS and 001MSD, all spiked compounds were diluted out.

This data package is in compliance with the terms and conditions of the October 1995 QAPP, both technically and for completeness, for other than the conditions detailed above.

Reported By: _____ **Date:** _____

Kurt C. Ill
Program Manager

Reviewed By: _____ **Date:** _____

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

STP-W410

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 52179 SAS No.: SDG No.: 52179

Matrix: (soil/water) WATER Lab Sample ID: 52179-01

Sample wt/vol: 4195 (g/ml) ML Lab File ID: A0201195

Level: (low/med) LOW Date Received: 10/22/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 10/22/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 11/01/96

Injection Volume: 1.0(uL) Dilution Factor: 100.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	490	U
496-11-7	2,3-Dihydroindene	7400	
95-13-6	1H-Indene	3200	
91-20-3	Naphthalene	620	U
95-15-8	Benzo(b)thiophene	1600	
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	890	
92-52-4	Biphenyl	410	U
208-96-8	Acenaphthylene	130	U
83-32-9	Acenaphthene	730	
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	280	U
86-74-8	Carbazole	350	
206-44-0	Fluoranthene	130	U
129-00-0	Pyrene	130	U
56-55-3	Benzo(a)Anthracene	240	U
218-01-9	Chrysene	270	U
207-08-9	Benzo(b)fluoranthene	240	U
205-08-9	Benzo(k)fluoranthene	220	U
192-97-2	Benzo(e)pyrene	180	U
50-32-8	Benzo(a)pyrene	220	U
198-55-0	Perylene	240	U
193-39-5	Indeno(1,2,3-cd)pyrene	200	U
53-70-3	Dibenzo(a,h)anthracene	150	U
191-24-2	Benzo(g,h,i)perylene	270	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

STP-W410DU

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 52179 SAS No.: SDG No.: 52179

Matrix: (soil/water) WATER Lab Sample ID: 52179-01DU

Sample wt/vol: 4190 (g/ml) ML Lab File ID: A0301196

Level: (low/med) LOW Date Received: 10/22/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 10/22/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 11/01/96

Injection Volume: 1.0(uL) Dilution Factor: 100.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	490	U
496-11-7	2,3-Dihydroindene	7300	
95-13-6	1H-Indene	3200	
91-20-3	Naphthalene	620	U
95-15-8	Benzo(b)thiophene	1600	
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	410	U
208-96-8	Acenaphthylene	130	U
83-32-9	Acenaphthene	760	
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	280	U
86-74-8	Carbazole	350	
206-44-0	Fluoranthene	130	U
129-00-0	Pyrene	130	U
56-55-3	Benzo(a)Anthracene	240	U
218-01-9	Chrysene	270	U
207-08-9	Benzo(b)fluoranthene	240	U
205-08-9	Benzo(k)fluoranthene	220	U
192-97-2	Benzo(e)pyrene	180	U
50-32-8	Benzo(a)pyrene	220	U
198-55-0	Perylene	240	U
193-39-5	Indeno(1,2,3-cd)pyrene	200	U
53-70-3	Dibenzo(a,h)anthracene	150	U
191-24-2	Benzo(g,h,i)perylene	270	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

STP-W410MS

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 52179 SAS No.: SDG No.: 52179

Matrix: (soil/water) WATER Lab Sample ID: 52179-01MS

Sample wt/vol: 4180 (g/ml) ML Lab File ID: A0401197

Level: (low/med) LOW Date Received: 10/22/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 10/22/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 11/01/96

Injection Volume: 1.0(uL) Dilution Factor: 100.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	490	U
496-11-7	2,3-Dihydroindene	7500	
95-13-6	1H-Indene	3300	
91-20-3	Naphthalene	620	U
95-15-8	Benzo(b)thiophene	1700	
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	410	U
208-96-8	Acenaphthylene	130	U
83-32-9	Acenaphthene	770	
132-64-9	Dibenzofuran	96	U
86-73-7	Fluorene	96	U
132-65-0	Dibenzothiophene	100	U
85-01-8	Phenanthrene	120	U
120-12-7	Anthracene	100	U
260-94-6	Acridine	280	U
86-74-8	Carbazole	390	
206-44-0	Fluoranthene	130	U
129-00-0	Pyrene	130	U
56-55-3	Benzo(a)Anthracene	240	U
218-01-9	Chrysene	270	U
207-08-9	Benzo(b)fluoranthene	240	U
205-08-9	Benzo(k)fluoranthene	220	U
192-97-2	Benzo(e)pyrene	180	U
50-32-8	Benzo(a)pyrene	220	U
198-55-0	Perylene	240	U
193-39-5	Indeno(1,2,3-cd)pyrene	200	U
53-70-3	Dibenzo(a,h)anthracene	150	U
191-24-2	Benzo(g,h,i)perylene	270	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

STP-W410MSD

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 52179 SAS No.: SDG No.: 52179

Matrix: (soil/water) WATER Lab Sample ID: 52179-01MSD

Sample wt/vol: 4190 (g/ml) ML Lab File ID: A0501198

Level: (low/med) LOW Date Received: 10/22/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/22/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 11/01/96

Injection Volume: 1.0(uL) Dilution Factor: 100.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	490	U
496-11-7	2,3-Dihydroindene	7600	
95-13-6	1H-Indene	3300	
91-20-3	Naphthalene	620	U
95-15-8	Benzo(b)thiophene	1700	
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	900	
92-52-4	Biphenyl	410	U
208-96-8	Acenaphthylene	130	U
83-32-9	Acenaphthene	780	
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	280	U
86-74-8	Carbazole	350	
206-44-0	Fluoranthene	130	U
129-00-0	Pyrene	130	U
56-55-3	Benzo(a)Anthracene	240	U
218-01-9	Chrysene	270	U
207-08-9	Benzo(b)fluoranthene	240	U
205-08-9	Benzo(k)fluoranthene	220	U
192-97-2	Benzo(e)pyrene	180	U
50-32-8	Benzo(a)pyrene	220	U
198-55-0	Perylene	240	U
193-39-5	Indeno(1,2,3-cd)pyrene	200	U
53-70-3	Dibenzo(a,h)anthracene	150	U
191-24-2	Benzo(g,h,i)perylene	270	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

STP-W410FB

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 52179 SAS No.: SDG No.: 52179

Matrix: (soil/water) WATER Lab Sample ID: 52179-02FB

Sample wt/vol: 4170 (g/ml) ML Lab File ID: A1101180

Level: (low/med) LOW Date Received: 10/22/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 10/22/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 10/30/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	4.9	U
496-11-7	2,3-Dihydroindene	1.3	U
95-13-6	1H-Indene	0.86	U
91-20-3	Naphthalene	6.2	U
95-15-8	Benzo(b)thiophene	0.86	U
91-22-5	Quinoline	1.3	U
120-72-9	1H-Indole	2.4	U
91-57-6	2-Methylnaphthalene	2.3	B
90-12-0	1-Methylnaphthalene	1.5	U
92-52-4	Biphenyl	4.1	U
208-96-8	Acenaphthylene	1.3	U
83-32-9	Acenaphthene	1.2	U
132-64-9	Dibenzofuran	0.96	U
86-73-7	Fluorene	0.96	U
132-65-0	Dibenzothiophene	1.0	U
85-01-8	Phenanthrene	4.2	B
120-12-7	Anthracene	1.0	U
260-94-6	Acridine	2.8	U
86-74-8	Carbazole	1.8	U
206-44-0	Fluoranthene	1.3	U
129-00-0	Pyrene	1.3	U
56-55-3	Benzo(a)Anthracene	2.4	U
218-01-9	Chrysene	2.7	U
207-08-9	Benzo(b)fluoranthene	2.4	U
205-08-9	Benzo(k)fluoranthene	2.2	U
192-97-2	Benzo(e)pyrene	1.8	U
50-32-8	Benzo(a)pyrene	2.2	U
198-55-0	Perylene	2.4	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.0	U
53-70-3	Dibenzo(a,h)anthracene	1.5	U
191-24-2	Benzo(g,h,i)perylene	2.7	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

STP-W410FED

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 52179 SAS No.: SDG No.: 52179

Matrix: (soil/water) WATER Lab Sample ID: 52179-02FD

Sample wt/vol: 4180 (g/ml) ML Lab File ID: A1201181

Level: (low/med) LOW Date Received: 10/22/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 10/22/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 10/30/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	4.9	U
496-11-7	2,3-Dihydroindene	1.3	U
95-13-6	1H-Indene	0.86	U
91-20-3	Naphthalene	6.2	U
95-15-8	Benzo(b)thiophene	0.86	U
91-22-5	Quinoline	1.3	U
120-72-9	1H-Indole	2.4	U
91-57-6	2-Methylnaphthalene	2.3	B
90-12-0	1-Methylnaphthalene	1.5	U
92-52-4	Biphenyl	4.1	U
208-96-8	Acenaphthylene	1.3	U
83-32-9	Acenaphthene	1.2	U
132-64-9	Dibenzofuran	0.96	U
86-73-7	Fluorene	0.96	U
132-65-0	Dibenzothiophene	1.0	U
85-01-8	Phenanthrene	3.9	B
120-12-7	Anthracene	1.0	U
260-94-6	Acridine	2.8	U
86-74-8	Carbazole	1.8	U
206-44-0	Fluoranthene	1.3	U
129-00-0	Pyrene	1.3	U
56-55-3	Benzo(a)Anthracene	2.4	U
218-01-9	Chrysene	2.7	U
207-08-9	Benzo(b)fluoranthene	2.4	U
205-08-9	Benzo(k)fluoranthene	2.2	U
192-97-2	Benzo(e)pyrene	1.8	U
50-32-8	Benzo(a)pyrene	2.2	U
198-55-0	Perylene	2.4	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.0	U
53-70-3	Dibenzo(a,h)anthracene	1.5	U
191-24-2	Benzo(g,h,i)perylene	2.7	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

STP-W24

ab Name: QUANTERRA DENVER Contract:

Code: Case No.: 52179 SAS No.: SDG No.: 52179

atrix: (soil/water) WATER Lab Sample ID: 52179-03

ample wt/vol: 4155 (g/ml) ML Lab File ID: A0301210

evel: (low/med) LOW Date Received: 10/22/96

Moisture: _____ decanted: (Y/N)___ Date Extracted: 10/22/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 11/05/96

Injection Volume: 1.0(uL) Dilution Factor: 20.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	98	U
496-11-7	2,3-Dihydroindene	1400	
95-13-6	1H-Indene	23	
91-20-3	Naphthalene	120	U
95-15-8	Benzo(b)thiophene	17	U
91-22-5	Quinoline	27	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	83	U
208-96-8	Acenaphthylene	27	U
83-32-9	Acenaphthene	180	
132-64-9	Dibenzofuran	19	U
86-73-7	Fluorene	19	U
132-65-0	Dibenzothiophene	21	U
85-01-8	Phenanthrene	25	U
120-12-7	Anthracene	21	U
260-94-6	Acridine	56	U
86-74-8	Carbazole	36	U
206-44-0	Fluoranthene	27	U
129-00-0	Pyrene	27	U
56-55-3	Benzo(a)Anthracene	48	U
218-01-9	Chrysene	54	U
207-08-9	Benzo(b)fluoranthene	48	U
205-08-9	Benzo(k)fluoranthene	44	U
192-97-2	Benzo(e)pyrene	36	U
50-32-8	Benzo(a)pyrene	44	U
198-55-0	Perylene	48	U
193-39-5	Indeno(1,2,3-cd)pyrene	40	U
53-70-3	Dibenzo(a,h)anthracene	31	U
191-24-2	Benzo(g,h,i)perylene	54	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

STP-W33

:e: QUANTERRA DENVER Contract:

:e: Case No.: 52179 SAS No.: SDG No.: 52179

: (soil/water) WATER Lab Sample ID: 52179-04

wt/vol: 3995 (g/ml) ML Lab File ID: A0701214

(low/med) LOW Date Received: 10/22/96

sture: _____ decanted: (Y/N)___ Date Extracted:10/22/96

:trated Extract Volume: 0.5(ml) Date Analyzed: 11/05/96

:ion Volume: 1.0(uL) Dilution Factor: 10.0

leanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	51	U
496-11-7	2,3-Dihydroindene	220	
95-13-6	1H-Indene	110	
91-20-3	Naphthalene	65	U
95-15-8	Benzo(b)thiophene	110	R
91-22-5	Quinoline	14	U
120-72-9	1H-Indole	25	U
91-57-6	2-Methylnaphthalene	32	RB
90-12-0	1-Methylnaphthalene	38	R
92-52-4	Biphenyl	43	U
208-96-8	Acenaphthylene	14	U
83-32-9	Acenaphthene	38	
132-64-9	Dibenzofuran	10	U
86-73-7	Fluorene	13	
132-65-0	Dibenzothiophene	11	U
85-01-8	Phenanthrene	26	B
120-12-7	Anthracene	11	U
260-94-6	Acridine	29	U
86-74-8	Carbazole	42	
206-44-0	Fluoranthene	14	U
129-00-0	Pyrene	26	
56-55-3	Benzo(a)Anthracene	25	U
218-01-9	Chrysene	28	U
207-08-9	Benzo(b)fluoranthene	25	U
205-08-9	Benzo(k)fluoranthene	23	U
192-97-2	Benzo(e)pyrene	19	U
50-32-8	Benzo(a)pyrene	23	U
198-55-0	Perylene	25	U
193-39-5	Indeno(1,2,3-cd)pyrene	21	U
53-70-3	Dibenzo(a,h)anthracene	16	U
191-24-2	Benzo(g,h,i)perylene	28	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

STP-W412

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 52179 SAS No.: SDG No.: 52179

Matrix: (soil/water) WATER Lab Sample ID: 52179-05

Sample wt/vol: 4125 (g/ml) ML Lab File ID: A0801215

Level: (low/med) LOW Date Received: 10/22/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 10/22/96

Concentrated Extract Volume: 0.5 (ml) Date Analyzed: 11/05/96

Injection Volume: 1.0 (uL) Dilution Factor: 100.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	490	U
496-11-7	2,3-Dihydroindene	160	
95-13-6	1H-Indene	260	
91-20-3	Naphthalene	630	U
95-15-8	Benzo(b)thiophene	1200	
91-22-5	Quinoline	140	U
120-72-9	1H-Indole	240	U
91-57-6	2-Methylnaphthalene	87	U
90-12-0	1-Methylnaphthalene	160	U
92-52-4	Biphenyl	420	U
208-96-8	Acenaphthylene	140	U
83-32-9	Acenaphthene	130	U
132-64-9	Dibenzofuran	97	U
86-73-7	Fluorene	97	U
132-65-0	Dibenzothiophene	110	U
85-01-8	Phenanthrene	130	U
120-12-7	Anthracene	110	U
260-94-6	Acridine	280	U
86-74-8	Carbazole	180	U
206-44-0	Fluoranthene	140	U
129-00-0	Pyrene	140	U
56-55-3	Benzo(a)Anthracene	240	U
218-01-9	Chrysene	270	U
207-08-9	Benzo(b)fluoranthene	240	U
205-08-9	Benzo(k)fluoranthene	220	U
192-97-2	Benzo(e)pyrene	180	U
50-32-8	Benzo(a)pyrene	220	U
198-55-0	Perylene	240	U
193-39-5	Indeno(1,2,3-cd)pyrene	200	U
53-70-3	Dibenzo(a,h)anthracene	160	U
191-24-2	Benzo(g,h,i)perylene	270	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

STP-W133

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 52179 SAS No.: SDG No.: 52179

Matrix: (soil/water) WATER Lab Sample ID: 52179-06

Sample wt/vol: 3860 (g/ml) ML Lab File ID: A0901178

Level: (low/med) LOW Date Received: 10/22/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/22/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 10/30/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	5.3	U
496-11-7	2,3-Dihydroindene	70	
95-13-6	1H-Indene	30	
91-20-3	Naphthalene	55	
95-15-8	Benzo(b)thiophene	15	
91-22-5	Quinoline	1.4	U
120-72-9	1H-Indole	2.6	U
91-57-6	2-Methylnaphthalene	20	B
90-12-0	1-Methylnaphthalene	20	
92-52-4	Biphenyl	4.4	U
208-96-8	Acenaphthylene	1.4	U
83-32-9	Acenaphthene	10	
132-64-9	Dibenzofuran	6.1	
86-73-7	Fluorene	7.2	
132-65-0	Dibenzothiophene	1.7	
85-01-8	Phenanthrene	3.9	B
120-12-7	Anthracene	2.2	
260-94-6	Acridine	15	
86-74-8	Carbazole	7.9	
206-44-0	Fluoranthene	5.2	
129-00-0	Pyrene	16	
56-55-3	Benzo(a)Anthracene	2.6	U
218-01-9	Chrysene	2.9	U
207-08-9	Benzo(b)fluoranthene	2.6	U
205-08-9	Benzo(k)fluoranthene	2.4	U
192-97-2	Benzo(e)pyrene	2.0	U
50-32-8	Benzo(a)pyrene	2.4	U
198-55-0	Perylene	2.6	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.2	U
53-70-3	Dibenzo(a,h)anthracene	1.6	U
191-24-2	Benzo(g,h,i)perylene	2.9	U

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Name: QUANTERRA DENVER Contract:

Code: Case No.: 52179 SAS No.: SDG No.: 52179

EPA SAMPLE NO.	S1 #	S2 #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
SBLK01	87	103	70						0
LCS	86	94	72						0
STP-W133	84	7*	74						0
STP-W410FB	87	89	78						0
STP-W41-0FBD	95	99	87						0
STP-W410	0D	0D	0D						0
STP-W410DU	0D	0D	0D						0
STP-W410MS	0D	0D	0D						0
STP-W410MSD	0D	0D	0D						0
STP-W24	86	41	74						0
STP-W33	71	23	85						0
STP-W412	0D	0D	0D						0

		QC LIMITS
S1	= Naphthalene-d8	(21-108)
S2	= Chrysene-d12	(10-118)
S3	= Fluorene-d10	(41-162)

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: QUANTERRA DENVER Contract:

Lab Code: Case No.: 52179 SAS No.: SDG No.: 52179

Matrix Spike - EPA Sample No.: STP-W410

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC #	QC. LIMITS REC.
1H-Indene	72	3200	3300	139	20-150
Naphthalene	72	0.00	0.00	0*	20-150
Quinoline	72	0.00	0.00	0*	20-150
2-Methylnaphthalene	72	0.00	0.00	0*	20-150
Fluorene	72	0.00	0.00	0*	69-118
Chrysene	72	0.00	23	32	20-132
Benzo(e)pyrene	72	0.00	0.00	0*	20-150

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1H-Indene	72	3300	139	0	20	20-150
Naphthalene	72	0.00	0*		20	20-150
Quinoline	72	0.00	0*		20	20-150
2-Methylnaphthalene	72	0.00	0*		20	20-150
Fluorene	72	0.00	0*		20	69-118
Chrysene	72	26	36	12	20	20-132
Benzo(e)pyrene	72	0.00	0*		20	20-150

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

RPD: 0 out of 7 outside limits
Spike Recovery: 10 out of 14 outside limits

COMMENTS: _____

4B
SEMIVOLATILE METHOD BLANK SUMMARY

SBLK01

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 52179 SAS No.: SDG No.: 52179

Lab File ID: A0101170 Lab Sample ID: SBLK01

Instrument ID: A Date Extracted: 10/22/96

Matrix: (soil/water) WATER Date Analyzed: 10/30/96

Level: (low/med) LOW Time Analyzed: 1001

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	LCS	52179-LCS	A0201171	10/30/96
02	STP-W133	52179-06	A0901178	10/30/96
03	STP-W410FB	52179-02FB	A1101180	10/30/96
04	STP-W41-0FBD	52179-02FD	A1201181	10/30/96
05	STP-W410	52179-01	A0201195	11/01/96
06	STP-W410DU	52179-01DU	A0301196	11/01/96
07	STP-W410MS	52179-01MS	A0401197	11/01/96
08	STP-W410MSD	52179-01MSD	A0501198	11/01/96
09	STP-W24	52179-03	A0301210	11/05/96
10	STP-W33	52179-04	A0701214	11/05/96
11	STP-W412	52179-05	A0801215	11/05/96
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COMMENTS:

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 52179 SAS No.: SDG No.: 52179

Lab File ID (Standard): A169 Date Analyzed: 10/30/96

Instrument ID: A Time Analyzed: 0827

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	192353	12.35	288144	14.77	89009	21.38
	UPPER LIMIT	384706	12.85	576288	15.27	178018	21.88
	LOWER LIMIT	96176	11.85	144072	14.27	44504	20.88
	EPA SAMPLE NO.						
01	SBLK01	199601	12.34	262811	14.76	70092	21.37
02	LCS	197739	12.33	276177	14.75	78787	21.36
03	STP-W133	123361	12.32	194591	14.74	103844	21.36
04	STP-W410FB	122267	12.32	165038	14.75	71027	21.35
05	STP-W41-0FBD	145191	12.32	206802	14.75	78491	21.35
06							
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22							

IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = 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:

, Code: Case No.: 52179 SAS No.: SDG No.: 52179

b File ID (Standard): A193 Date Analyzed: 11/01/96

nstrument ID: A Time Analyzed: 1158

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	139600	12.23	176680	14.63	51264	21.24
	UPPER LIMIT	279200	12.73	353360	15.13	102528	21.74
	LOWER LIMIT	69800	11.73	88340	14.13	25632	20.74
	EPA SAMPLE NO.						
01	STP-W410	132574	12.22	177485	14.63	42240	21.25
02	STP-W410DU	135023	12.22	177093	14.63	37361	21.25
03	STP-W410MS	133188	12.22	167895	14.63	39799	21.24
04	STP-W410MSD	132856	12.22	172985	14.63	39636	21.24
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IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = 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

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 52179 SAS No.: SDG No.: 52179

Lab File ID (Standard): A207 Date Analyzed: 11/05/96

Instrument ID: A Time Analyzed: 1014

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	144511	12.22	199050	14.63	43802	21.23
	UPPER LIMIT	289022	12.72	398100	15.13	87604	21.73
	LOWER LIMIT	72256	11.72	99525	14.13	21901	20.73
	EPA SAMPLE NO.						
01	STP-W24	143034	12.21	193259	14.62	46007	21.22
02	STP-W33	162398	12.20	249588	14.61	83230	21.21
03	STP-W412	150741	12.19	215577	14.60	79881	21.21
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IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = 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.

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Name: QUANTERRA DENVER Contract:

Code: Case No.: 52179 SAS No.: SDG No.: 52179

	EPA SAMPLE NO.	S1 #	S2 #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	SBLK01	87	103	70						0
02	LCS	86	94	72						0
03	STP-W133	84	7*	74						0
04	STP-W410FB	87	89	78						0
05	STP-W41-0FBD	95	99	87						0
06	STP-W410	0D	0D	0D						0
07	STP-W410DU	0D	0D	0D						0
08	STP-W410MS	0D	0D	0D						0
09	STP-W410MSD	0D	0D	0D						0
10	STP-W24	86	41	74						0
11	STP-W33	71	23	85						0
12	STP-W412	0D	0D	0D						0
13										
14										
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		QC LIMITS
S1	= Naphthalene-d8	(21-108)
S2	= Chrysene-d12	(10-118)
S3	= Fluorene-d10	(41-162)

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

3C

:ER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Name: QUANTERRA DENVER Contract:

Code: Case No.: 52179 SAS No.: SDG No.: 52179

:rix Spike - EPA Sample No.: STP-W410

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC #	QC. LIMITS REC.
1H-Indene	72	3200	3300	139	20-150
Naphthalene	72	0.00	0.00	0*	20-150
Quinoline	72	0.00	0.00	0*	20-150
2-Methylnaphthalene	72	0.00	0.00	0*	20-150
Fluorene	72	0.00	0.00	0*	69-118
Chrysene	72	0.00	23	32	20-132
Benzo(e)pyrene	72	0.00	0.00	0*	20-150

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1H-Indene	72	3300	139	0	20	20-150
Naphthalene	72	0.00	0*		20	20-150
Quinoline	72	0.00	0*		20	20-150
2-Methylnaphthalene	72	0.00	0*		20	20-150
Fluorene	72	0.00	0*		20	69-118
Chrysene	72	26	36	12	20	20-132
Benzo(e)pyrene	72	0.00	0*		20	20-150

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

RPD: 0 out of 7 outside limits
Spike Recovery: 10 out of 14 outside limits

COMMENTS: _____

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

SBLK01

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 52179 SAS No.: SDG No.: 52179

Lab File ID: A0101170 Lab Sample ID: SBLK01

Instrument ID: A Date Extracted: 10/22/96

Matrix: (soil/water) WATER Date Analyzed: 10/30/96

Level: (low/med) LOW Time Analyzed: 1001

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	LCS	52179-LCS	A0201171	10/30/96
02	STP-W133	52179-06	A0901178	10/30/96
03	STP-W410FB	52179-02FB	A1101180	10/30/96
04	STP-W41-0FBD	52179-02FD	A1201181	10/30/96
05	STP-W410	52179-01	A0201195	11/01/96
06	STP-W410DU	52179-01DU	A0301196	11/01/96
07	STP-W410MS	52179-01MS	A0401197	11/01/96
08	STP-W410MSD	52179-01MSD	A0501198	11/01/96
09	STP-W24	52179-03	A0301210	11/05/96
10	STP-W33	52179-04	A0701214	11/05/96
11	STP-W412	52179-05	A0801215	11/05/96
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COMMENTS:

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

ab Name: QUANTERRA DENVER Contract:

ab Code: Case No.: 52179 SAS No.: SDG No.: 52179

ab File ID (Standard): A169 Date Analyzed: 10/30/96

nstrument ID: A Time Analyzed: 0827

		IS1(ANT) AREA #	RT #	IS2(PEN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	192353	12.35	288144	14.77	89009	21.38
	UPPER LIMIT	384706	12.85	576288	15.27	178018	21.88
	LOWER LIMIT	96176	11.85	144072	14.27	44504	20.88
	EPA SAMPLE NO.						
01	SBLK01	199601	12.34	262811	14.76	70092	21.37
02	LCS	197739	12.33	276177	14.75	78787	21.36
03	STP-W133	123361	12.32	194591	14.74	103844	21.36
04	STP-W410FB	122267	12.32	165038	14.75	71027	21.35
05	STP-W41-0FBD	145191	12.32	206802	14.75	78491	21.35
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22							

IS1 (ANT) = Acenaphthene-d10
IS2 (PEN) = Phenanthrene-d10
IS3 = 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

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 52179 SAS No.: SDG No.: 52179

Lab File ID (Standard): A193 Date Analyzed: 11/01/96

Instrument ID: A Time Analyzed: 1158

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	139600	12.23	176680	14.63	51264	21.24
	UPPER LIMIT	279200	12.73	353360	15.13	102528	21.74
	LOWER LIMIT	69800	11.73	88340	14.13	25632	20.74
	EPA SAMPLE NO.						
01	STP-W410	132574	12.22	177485	14.63	42240	21.25
02	STP-W410DU	135023	12.22	177093	14.63	37361	21.25
03	STP-W410MS	133188	12.22	167895	14.63	39799	21.24
04	STP-W410MSD	132856	12.22	172985	14.63	39636	21.24
05							
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22							

IS1 (ANT) = Acenaphthene-d10
IS2 (PEN) = Phenanthrene-d10
IS3 = 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 Code: Case No.: 52179 SAS No.: SDG No.: 52179

b File ID (Standard): A207 Date Analyzed: 11/05/96

nstrument ID: A Time Analyzed: 1014

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	144511	12.22	199050	14.63	43802	21.23
	UPPER LIMIT	289022	12.72	398100	15.13	87604	21.73
	LOWER LIMIT	72256	11.72	99525	14.13	21901	20.73
	EPA SAMPLE NO.						
01	STP-W24	143034	12.21	193259	14.62	46007	21.22
02	STP-W33	162398	12.20	249588	14.61	83230	21.21
03	STP-W412	150741	12.19	215577	14.60	79881	21.21
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IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = 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.

APPENDIX E
LABORATORY DATA SUMMARY PACKAGE:
DRIFT - PLATTEVILLE AQUIFER

WELLS

W420
W421
W422
W439

PLATTEVILLE

W1 W18 W19 W20 W22
W27 W101 W120 W121
W124 W130 W131 W143
W424 W426 W428 W431
W432 W433 W434

CITY OF ST. LOUIS PARK

Drift Platteville Aquifer 1996
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	2/26/96	SBLK01-47508	DPV-W420D-022696	DPV-W420MS-022696	DPV-W420MSD-022696	DPV-W420FB-022696
W421	2/26/96	SBLK01-47508	DPV-W420D-022696	DPV-W420MS-022696	DPV-W420MSD-022696	DPV-W420FB-022696
W422	2/26/96	SBLK01-47508	DPV-W420D-022696	DPV-W420MS-022696	DPV-W420MSD-022696	DPV-W420FB-022696
W439	2/26/96	SBLK01-47508	DPV-W420D-022696	DPV-W420MS-022696	DPV-W420MSD-022696	DPV-W420FB-022696
RAP Section 9.1.3 & 9.2.3 2nd Quarter						
W420	4/15/96	SBLK01-48342	DPV-W420D-041596	DPV-W420MS-041596	DPV-W420MSD-041596	DPV-W420FB-041596
W421	4/15/96	SBLK01-48342	DPV-W420D-041596	DPV-W420MS-041596	DPV-W420MSD-041596	DPV-W420FB-041596
W422	4/15/96	SBLK01-48342	DPV-W420D-041596	DPV-W420MS-041596	DPV-W420MSD-041596	DPV-W420FB-041596
W439	4/15/96	SBLK01-48342	DPV-W420D-041596	DPV-W420MS-041596	DPV-W420MSD-041596	DPV-W420FB-041596
RAP Section 9.1.3 & 9.2.3 3rd Quarter						
W420	7/15/96	SBLK01-50226	DPV-W420D-071596	DPV-W420MS-071596	DPV-W420MSD-071596	DPV-W420FB-071596
W421	7/15/96	SBLK01-50226	DPV-W420D-071596	DPV-W420MS-071596	DPV-W420MSD-071596	DPV-W420FB-071596
W422	7/15/96	SBLK01-50226	DPV-W420D-071596	DPV-W420MS-071596	DPV-W420MSD-071596	DPV-W420FB-071596
W439	7/15/96	SBLK01-50226	DPV-W420D-071596	DPV-W420MS-071596	DPV-W420MSD-071596	DPV-W420FB-071596
RAP Section 9.1.3 & 9.2.3 4th Quarter						
W420	10/7/96	SBLK01-51917	DPV-W420D-100796	DPV-W420MS-100796	DPV-W420MSD-100796	DPV-W420FFB-100796
W421	10/7/96	SBLK01-51917	DPV-W420D-100796	DPV-W420MS-100796	DPV-W420MSD-100796	DPV-W420FFB-100796
W422	10/7/96	SBLK01-51917	DPV-W420D-100796	DPV-W420MS-100796	DPV-W420MSD-100796	DPV-W420FFB-100796
W439	10/7/96	SBLK01-51917	DPV-W420D-100796	DPV-W420MS-100796	DPV-W420MSD-100796	DPV-W420FFB-100796

CITY OF ST. LOUIS PARK

DriftPlatteville Aquifer 1996
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	2/28/96	PBW-47514	DPV-W420TPD-022696	DPV-W420TPMS-022696	DPV-W420TPMSD-022696	DPV-W420TPFB-022696
W421	2/28/96	PBW-47514	DPV-W420TPD-022696	DPV-W420TPMS-022696	DPV-W420TPMSD-022696	DPV-W420TPFB-022696
W422	2/28/96	PBW-47514	DPV-W420TPD-022696	DPV-W420TPMS-022696	DPV-W420TPMSD-022696	DPV-W420TPFB-022696
W439	2/28/96	PBW-47514	DPV-W420TPD-022696	DPV-W420TPMS-022696	DPV-W420TPMSD-022696	DPV-W420TPFB-022696
RAP Section 9.1.3 & 9.2.3 2nd Quarter						
W420	4/15/96	PBW-48225	DPV-W420TPD-041596	DPV-W420TPMS-041596	DPV-W420TPMSD-041596	DPV-W420TPFB-041596
W421	4/15/96	PBW-48225	DPV-W420TPD-041596	DPV-W420TPMS-041596	DPV-W420TPMSD-041596	DPV-W420TPFB-041596
W422	4/15/96	PBW-48225	DPV-W420TPD-041596	DPV-W420TPMS-041596	DPV-W420TPMSD-041596	DPV-W420TPFB-041596
W439	4/15/96	PBW-48225	DPV-W420TPD-041596	DPV-W420TPMS-041596	DPV-W420TPMSD-041596	DPV-W420TPFB-041596
RAP Section 9.1.3 & 9.2.3 3rd Quarter						
W420	7/15/96	ICB-BLK50225	DPV-W420TPD-071596	DPV-W420TPMS-071596	DPV-W420TPMSD-071596	DPV-W420TPFB-071596
W421	7/15/96	ICB-BLK50225	DPV-W420TPD-071596	DPV-W420TPMS-071596	DPV-W420TPMSD-071596	DPV-W420TPFB-071596
W422	7/15/96	ICB-BLK50225	DPV-W420TPD-071596	DPV-W420TPMS-071596	DPV-W420TPMSD-071596	DPV-W420TPFB-071596
W439	7/15/96	ICB-BLK50225	DPV-W420TPD-071596	DPV-W420TPMS-071596	DPV-W420TPMSD-071596	DPV-W420TPFB-071596
RAP Section 9.1.3 & 9.2.3 4th Quarter						
W420	10/7/96	Prep Blank-51918	DPV-W420TPD-100796	DPV-W420TPMS-100796	DPV-W420TPMSD-100796	DPV-W420TPFB-100796
W421	10/7/96	Prep Blank-51918	DPV-W420TPD-100796	DPV-W420TPMS-100796	DPV-W420TPMSD-100796	DPV-W420TPFB-100796
W422	10/7/96	Prep Blank-51918	DPV-W420TPD-100796	DPV-W420TPMS-100796	DPV-W420TPMSD-100796	DPV-W420TPFB-100796
W439	10/7/96	Prep Blank-51918	DPV-W420TPD-100796	DPV-W420TPMS-100796	DPV-W420TPMSD-100796	DPV-W420TPFB-100796

CITY OF ST. LOUIS PARK

PLATTEVILLE AQUIFER 1996
PAH Quality Control Summary

Well No.	Sample Date	Method Blank	Field Duplicate	Matrix Spike	Matrix Spike Dup.	Field Blank
RAP Section 9.5 1st HALF						
W19	5/13/96	SBLK01-48952	DPV-W19D-051396	DPV-W19MS-051396	DPV-W19MSD-051396	DPV-W19FB-051396
W22	5/13/96	SBLK01-48952	DPV-W19D-051396	DPV-W19MS-051396	DPV-W19MSD-051396	DPV-W19FB-051396
W18	5/13/96	SBLK01-48952	DPV-W19D-051396	DPV-W19MS-051396	DPV-W19MSD-051396	DPV-W19FB-051396
W1	5/13/96	SBLK01-48952	DPV-W19D-051396	DPV-W19MS-051396	DPV-W19MSD-051396	DPV-W19FB-051396
W433	5/13/96	SBLK01-48952	DPV-W19D-051396	DPV-W19MS-051396	DPV-W19MSD-051396	DPV-W19FB-051396
W27	5/13/96	SBLK01-48952	DPV-W19D-051396	DPV-W19MS-051396	DPV-W19MSD-051396	DPV-W19FB-051396
W121	5/14/96	SBLK01-48975	DPV-W121D-051496	DPV-W19MS-051396	DPV-W19MSD-051396	DPV-W121FB-051496
W426	5/14/96	SBLK01-48975	DPV-W121D-051496	DPV-W19MS-051396	DPV-W19MSD-051396	DPV-W121FB-051496
W431	5/14/96	SBLK01-48975	DPV-W121D-051496	DPV-W19MS-051396	DPV-W19MSD-051396	DPV-W121FB-051496
W143	5/14/96	SBLK01-48975	DPV-W121D-051496	DPV-W19MS-051396	DPV-W19MSD-051396	DPV-W121FB-051496
W120	5/14/96	SBLK01-48975	DPV-W121D-051496	DPV-W19MS-051396	DPV-W19MSD-051396	DPV-W121FB-051496
W130	5/14/96	SBLK01-48975	DPV-W121D-051496	DPV-W19MS-051396	DPV-W19MSD-051396	DPV-W121FB-051496
W432	5/14/96	SBLK01-48975	DPV-W121D-051496	DPV-W19MS-051396	DPV-W19MSD-051396	DPV-W121FB-051496
W131	5/21/96	SBLK01-49190	IGV-W105D-052196	STP-W410MS-052096	STP-W410MSD-052096	IGV-W105FB-052196
W424	5/21/96	SBLK01-49190	IGV-W105D-052196	STP-W410MS-052096	STP-W410MSD-052096	IGV-W105FB-052196
W20	5/21/96	SBLK01-49190	IGV-W105D-052196	STP-W410MS-052096	STP-W410MSD-052096	IGV-W105FB-052196
W101	5/21/96	SBLK01-49190	IGV-W105D-052196	STP-W410MS-052096	STP-W410MSD-052096	IGV-W105FB-052196
W428	5/21/96	SBLK01-49190	IGV-W105D-052196	STP-W410MS-052096	STP-W410MSD-052096	IGV-W105FB-052196
W124	6/3/96	SBLK01-49376	STP-SLP3D-060396	STP-SLP3MS-060396	STP-SLP3MSD-060396	STP-SLP3FB-060396

CITY OF ST. LOUIS PARK

PLATTEVILLE AQUIFER 1996
PAH Quality Control Summary

Well No.	Sample Date	Method Blank	Field Duplicate	Matrix Spike	Matrix Spike Dup.	Field Blank
RAP Section 9.5 2nd HALF						
W124	9/30/96	SBLK01-51769	PCJ-SLP4D-093096	PCJ-SLP4MS-093096	PCJ-SLP4MSD-093096	PCJ-SLP4FB-093096
W121	9/30/96	SBLK01-51769	PCJ-SLP4D-093096	PCJ-SLP4MS-093096	PCJ-SLP4MSD-093096	PCJ-SLP4FB-093096
W1	9/30/96	SBLK01-51769	PCJ-SLP4D-093096	PCJ-SLP4MS-093096	PCJ-SLP4MSD-093096	PCJ-SLP4FB-093096
W20	9/30/96	SBLK01-51769	PCJ-SLP4D-093096	PCJ-SLP4MS-093096	PCJ-SLP4MSD-093096	PCJ-SLP4FB-093096
W22	9/30/96	SBLK01-51769	PCJ-SLP4D-093096	PCJ-SLP4MS-093096	PCJ-SLP4MSD-093096	PCJ-SLP4FB-093096
W19	10/1/96	SBLK01-51813	DPV-W19D-100196	PCJ-SLP4MS-093096	PCJ-SLP4MSD-093096	DPV-W19FB-100196
W131	10/1/96	SBLK01-51813	DPV-W19D-100196	PCJ-SLP4MS-093096	PCJ-SLP4MSD-093096	DPV-W19FB-100196
W130	10/1/96	SBLK01-51813	DPV-W19D-100196	PCJ-SLP4MS-093096	PCJ-SLP4MSD-093096	DPV-W19FB-100196
W428	10/1/96	SBLK01-51813	DPV-W19D-100196	PCJ-SLP4MS-093096	PCJ-SLP4MSD-093096	DPV-W19FB-100196
W424	10/1/96	SBLK01-51813	DPV-W19D-100196	PCJ-SLP4MS-093096	PCJ-SLP4MSD-093096	DPV-W19FB-100196
W434	10/1/96	SBLK01-51813	DPV-W19D-100196	PCJ-SLP4MS-093096	PCJ-SLP4MSD-093096	DPV-W19FB-100196
W433	10/1/96	SBLK01-51813	DPV-W19D-100196	PCJ-SLP4MS-093096	PCJ-SLP4MSD-093096	DPV-W19FB-100196
W18	10/22/96	SBLK01-52208	DPV-W18D-102296	STP-W410MS-102196	STP-W410MSD-102196	DPV-W18FB-102296
W27	10/22/96	SBLK01-52208	DPV-W18D-102296	STP-W410MS-102196	STP-W410MSD-102196	DPV-W18FB-102296
W120	10/22/96	SBLK01-52208	DPV-W18D-102296	STP-W410MS-102196	STP-W410MSD-102196	DPV-W18FB-102296
W431	10/22/96	SBLK01-52208	DPV-W18D-102296	STP-W410MS-102196	STP-W410MSD-102196	DPV-W18FB-102296
W143	10/22/96	SBLK01-52208	DPV-W18D-102296	STP-W410MS-102196	STP-W410MSD-102196	DPV-W18FB-102296
W432	10/22/96	SBLK01-52208	DPV-W18D-102296	STP-W410MS-102196	STP-W410MSD-102196	DPV-W18FB-102296
W101	10/22/96	SBLK01-52208	DPV-W18D-102296	STP-W410MS-102196	STP-W410MSD-102196	DPV-W18FB-102296

RAP SECTION 9.1.3 & 9.2.3 MONITORING

WELLS

W420 W421
W422 W439

CITY OF ST. LOUIS PARK
Drift Platteville Aquifer
Analytical Result Summary
1996

Well	Coordinates	Date	Water Level	PAH Concentrations ng/L B(a)P D(a,h)A	Carcin	Other	ug/L Phenols
W 420	895.84	2/26/96	877.35			1,968,100	121.0
	2163481	4/15/96	877.57			2,164,800	130.0
	706774	7/15/96	876.48			2,725,000	87.0
		10/7/96	876.86			2,164,000	118.0
W 421	895.82	2/26/96	877.97			618,200	28.0
	2163488	4/15/96	877.76			630,000	123.0
	706774	7/15/96	876.02			884,000	24.0
		10/7/96	876.03			843,000	24.6
W 422	908.04	2/26/96	856.21			24,280	12.4
	2165522	4/15/96	862.33			25,820	11.1
	706328	7/15/96	862.26			25,600	9.4
		10/7/96	862.15			22,500	8.2
W439	924.88	2/26/96	879.33			1,552,400	45.7
		4/15/96	879.38			1,419,000	43.1
		7/15/96	878.95			1,765,000	43.0
		10/7/96	878.68			1,557,000	45.0

DPV AQUIFER 1996

W421		2/27/96	4/15/96	7/15/96	10/7/96			
2,3-Benzofuran								
2,3-Dihydroindene		82.6	92.5	140	140			
1H-Indene		33.1	40.2	47	45			
Naphthalene		352	332	480	440			
Benzo (b) Thiophene		48.7	45.4	64	63			
1H-Indole								
2-Methylnaphthalene								
1-Methylnaphthalene		33	38.4	52	53			
Biphenyl								
Acenaphthylene								
Acenaphthene		33.6	34.6	44	45			
Dibenzofuran				12	11			
Fluorene		11	13.2	14	14			
Dibenzothiophene								
Phenanthrene								
Anthracene								
Acridine								
Carbazole		24.2	33.7	31	32			
Fluoranthene								
Pyrene								
12-Dimethylbenz(a)anthracene								
Benzo (e) Pyrene								
Perylene								
3-Methylcholanthrene								
Dibenz (A,C) Anthracene								
Quinoline	C							
Benzo (a) Anthracene	C							
Chrysene	C							
Benzo (b) Fluoranthene	C							
Benzo (k) Fluoranthene	C							
Benzo (a) Pyrene	C							
Indino (1,2,3-cd) Pyrene	C							
Dibenz (a,h) Anthracene	C							
Benzo (g,h,i) Perylene	C							
TOTAL OTHER PAH		618.2	630	884	843			
BENO(a)PYRENE + DIBENZO(A,H)	C	0	0	0	0			
TOTAL CARCINOGEN	C	0	0	0	0			
TOTAL PAH		618.2	630	884	843			
Dilution Factor								
Surrogate Recoveries								
Naphthalene-d8								
Fluorene-d10								
Chrysene-d12								

DPV AQUIFER 1996

W422		2/27/96	4/15/96	7/15/96	10/7/96				
2,3-Benzofuran									
2,3-Dihydroindene		15.4	17	16	13				
1H-Indene									
Naphthalene		1.46	1.31	1.4	1.4				
Benzo (b) Thiophene									
1H-Indole									
2-Methylnaphthalene									
1-Methylnaphthalene									
Biphenyl									
Acenaphthylene									
Acenaphthene		7.42	7.51	8.2	8.1				
Dibenzofuran									
Fluorene									
Dibenzothiophene									
Phenanthrene									
Anthracene									
Acridine									
Carbazole									
Fluoranthene									
Pyrene									
12-Dimethylbenz(a)anthracene									
Benzo (e) Pyrene									
Perylene									
3-Methylcholanthrene									
Dibenz (A,C) Anthracene									
Quinoline	C								
Benzo (a) Anthracene	C								
Chrysene	C								
Benzo (b) Fluoranthene	C								
Benzo (k) Fluoranthene	C								
Benzo (a) Pyrene	C								
Indino (1,2,3-cd) Pyrene	C								
Dibenz (a,h) Anthracene	C								
Benzo (g,h,i) Perylene	C								
TOTAL OTHER PAH		24.28	25.82	25.6	22.5				
BENO(a)PYRENE + DIBENZO(A,H)	C	0	0	0	0				
TOTAL CARCINOGEN	C	0	0	0	0				
TOTAL PAH		24.28	25.82	25.6	22.5				
Dilution Factor									
Surrogate Recoveries									
Naphthalene-d8									
Fluorene-d10									
Chrysene-d12									

DPV AQUIFER 1996

W439		2/27/96	4/15/96	7/15/96	10/7/96				
2,3-Benzofuran									
2,3-Dihydroindene		238	213	280	260				
1H-Indene		129	126	140	120				
Naphthalene		908	823	1000	860				
Benzo (b) Thiophene		74.8	65.9	84	74				
1H-Indole									
2-Methylnaphthalene		29.7	29.1	40	34				
1-Methylnaphthalene		102	97.2	120	110				
Biphenyl									
Acenaphthylene									
Acenaphthene		70.9	64.8	79	78				
Dibenzofuran				22	21				
Fluorene									
Dibenzothiophene									
Phenanthrene									
Anthracene									
Acridine									
Carbazole									
Fluoranthene									
Pyrene									
12-Dimethylbenz(a)anthracene									
Benzo (e) Pyrene									
Perylene									
3-Methylcholanthrene									
Dibenz (A,C) Anthracene									
Quinoline	C								
Benzo (a) Anthracene	C								
Chrysene	C								
Benzo (b) Fluoranthene	C								
Benzo (k) Fluoranthene	C								
Benzo (a) Pyrene	C								
Indino (1,2,3-cd) Pyrene	C								
Dibenz (a,h) Anthracene	C								
Benzo (g,h,i) Perylene	C								
TOTAL OTHER PAH		1552.4	1419	1765	1557				
BENO(a)PYRENE + DIBENZO(A,H)	C	0	0	0	0				
TOTAL CARCINOGEN	C	0	0	0	0				
TOTAL PAH		1552.4	1419	1765	1557				
Dilution Factor									
Surrogate Recoveries									
Naphthalene-d8									
Fluorene-d10									
Chrysene-d12									

DPV AQUIFER 1996

W420		2/27/96	4/15/96	7/15/96	10/7/96				
2,3-Benzofuran		26.8	36.8		32				
2,3-Dihydroindene		226	266	280	250				
1H-Indene		65.8	76.2	72	62				
Naphthalene		1200	1240	1900	1300				
Benzo (b) Thiophene		106	122	120	110				
1H-Indole									
2-Methylnaphthalene		58.7	73.9	86	68				
1-Methylnaphthalene		93.4	105	110	100				
Biphenyl									
Acenaphthylene									
Acenaphthene		84.5	91.5	96	94				
Dibenzofuran		29.7	32.9		33				
Fluorene		28.3	34.1		35				
Dibenzothiophene									
Phenanthrene			22.1		19				
Anthracene									
Acridine									
Carbazole		48.9	64.3	61	61				
Fluoranthene									
Pyrene									
12-Dimethylbenz(a)anthracene									
Benzo (e) Pyrene									
Perylene									
3-Methylcholanthrene									
Dibenz (A,C) Anthracene									
Quinoline	C								
Benzo (a) Anthracene	C								
Chrysene	C								
Benzo (b) Fluoranthene	C								
Benzo (k) Fluoranthene	C								
Benzo (a) Pyrene	C								
Indino (1,2,3-cd) Pyrene	C								
Dibenz (a,h) Anthracene	C								
Benzo (g,h,i) Perylene	C								
TOTAL OTHER PAH		1968.1	2164.8	2725	2164				
BENO(a)PYRENE + DIBENZO(A,H)	C	0	0	0	0				
TOTAL CARCINOGEN	C	0	0	0	0				
TOTAL PAH		1968.1	2164.8	2725	2164				
Dilution Factor									
Surrogate Recoveries									
Naphthalene-d8									
Fluorene-d10									
Chrysene-d12									

FIRST QUARTER MONITORING

PAH 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

March 19, 1996

Quanterra Environmental Services

Project No. 047508

Introduction

Twelve aqueous samples (including matrix QC) were received at Quanterra Environmental Services, Denver laboratory on February 27, 1996. The samples were logged in under Quanterra's Denver laboratory project number 047508. Sample DPV-W420FBD-022696 (047508-0002FD) was extracted and held per the October, 1995 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 October, 1995 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 (047508-0001), DPV-W420D (047508-0001DU), DPV-W421 (047508-0003), DPV-W439 (047508-0005) and GAC-SFR (047508-0007) were diluted to bring the concentrations of target compounds within the calibration range of the method. The reporting limits were raised accordingly and the surrogates were diluted out of samples DPV-W420, DPV-W420D and DPV-439.

Quanterra
Environmental Services

Due to the concentrations of the naphthalene in the native sample, the percent recoveries for the spiked naphthalene in samples DPV-W420MS (044745-0001MS) and DPV-420MSD (044745-0001SD) were outside control limits. However, the laboratory control sample (LCS) analyzed with the samples was within control limits and therefore no further action was taken.

This data package is in compliance with the terms and conditions of the 1995 QAPP, both technically and for completeness, for other than the conditions detailed above.

Reported by: _____ **Date:** 3/19/96
Daniel Rebarchik
Program Administrator

Approved by: _____ **Date:** 3/19/96
Kevin McHugh
Program Manager

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

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".

R = Target compound's secondary ion confirmation not met, however peak shape and retention time make peak identication positive.

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 047508	Group Code	Analysis Description	Custom Test?
0001 - 0008	A	CLP/PAH Semivolatile Organics High Level PPB	N
		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

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
047508-0001-SA	DPV-W420-022696	AQUEOUS	26 FEB 96		27 FEB 96
047508-0001-DU	DPV-W420D-022696	AQUEOUS	26 FEB 96		27 FEB 96
047508-0001-MS	DPV-W420MS-022696	AQUEOUS	26 FEB 96		27 FEB 96
047508-0001-SD	DPV-W420MSD-022696	AQUEOUS	26 FEB 96		27 FEB 96
047508-0002-FB	DPV-W420FB-022696	AQUEOUS	26 FEB 96		27 FEB 96
047508-0002-FD	DPV-W420FBD-022696	AQUEOUS	26 FEB 96		27 FEB 96
047508-0003-SA	DPV-W421-022696	AQUEOUS	26 FEB 96		27 FEB 96
047508-0004-SA	DPV-W422-022696	AQUEOUS	26 FEB 96		27 FEB 96
047508-0005-SA	DPV-W439-022696	AQUEOUS	26 FEB 96		27 FEB 96
047508-0006-SA	STP-W410-022696	AQUEOUS	26 FEB 96		27 FEB 96
047508-0007-SA	GAC-SFR-022696	AQUEOUS	26 FEB 96		27 FEB 96
047508-0008-SA	GAC-ACFE-022696	AQUEOUS	26 FEB 96		27 FEB 96

CHAIN OF CUSTODY

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

Quanterra Environmental Services

QUANTERRA CLIENT: City of St. Louis Park

PROJECT: 3752 Wooddale Ave So

SAMPLING COMPANY: St. Louis Park Mn 55416

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: 5.1 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
2-26-96		DPV-W420-022696	1XL AMBER	2	PPB PAH	-1
		DPV-W420D-022696				-1DU
		DPV-W420MS-022696				-1MS
		DPV-W420MSD-022696				-1SD
		DPV-W420FB-022696				-2FB
		DPV-W420FBD-022696				-2FD
		DPV-W421-022696				-3
		DPV-W422-022696				-4
		DPV-W439-022696				-5
2-26-96		STP-W410-022696	1XL AMBER	2	PPB PAH	-6

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: 7825345755

RECEIVED FOR LAB: QES

SIGNED: [signature]

DATE/TIME: 2/27/96 915

QUANTERRA PROJECT NUMBER: 47508

QUA-4119

White - CLIENT Pink - LAB

CHAIN OF CUSTODY

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

Quanterra Environmental Services

QUANTERRA CLIENT

PROJECT: City of St. Louis Park
3752 Wooddale Ave So
St. Louis Park Mn 55416

SAMPLING COMPANY

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: 5.8 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
2-26-96		GAC-SFR-022696	1XL AMBER	2	PPB PAH	-7
2-26-96		GAC-ACFE-022696	1XL AMBER	2	PPB PAH	-8

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: 7828345755

RECEIVED FOR LAB: QES

SIGNED: [signature]

DATE/TIME: 2/27/96 95

QUANTERRA PROJECT NUMBER: 47508

QUA-4119

White – CLIENT Pink – LAB

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 46465 SAS No.: SDG No.: 47508

Matrix: (soil/water) WATER Lab Sample ID: 47508-01

Sample wt/vol: 1060 (g/ml) ML Lab File ID: T1201321

Level: (low/med) LOW Date Received: 02/27/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/01/96

Concentrated Extract Volume: 1.0 (ml) Date Analyzed: 03/13/96

Injection Volume: 2.0 (uL) Dilution Factor: 20.0

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	1200	
91-57-6	2-Methylnaphthalene	58.7	J
208-96-8	Acenaphthylene	189	U
83-32-9	Acenaphthene	84.5	J
132-64-9	Dibenzofuran	29.7	J
86-73-7	Fluorene	28.3	J
85-01-8	Phenanthrene	189	U
120-12-7	Anthracene	189	U
206-44-0	Fluoranthene	189	U
129-00-0	Pyrene	189	U
56-55-3	Benzo(a)Anthracene	189	U
218-01-9	Chrysene	189	U
205-99-2	Benzo(b)fluoranthene	189	U
207-08-9	Benzo(k)fluoranthene	189	U
50-32-8	Benzo(a)pyrene	189	U
193-39-5	Indeno(1 2 3-cd)pyrene	189	U
53-70-3	Dibenzo(a h)anthracene	189	U
191-24-2	Benzo(g h i)perylene	189	U
86-74-8	Carbazole	48.9	J
95-13-6	1H-Indene	65.8	J
91-22-5	Quinoline	189	U
90-12-0	1-Methylnaphthalene	93.4	J
271-89-6	2,3-Benzofuran	26.8	J
496-11-7	2,3-Dihydroindene	226	
95-15-8	Benzo(b)thiophene	106	J
120-72-9	1H-Indole	189	U
92-52-4	Biphenyl	189	U
132-65-0	Dibenzothiophene	189	U
260-94-6	Acridine	189	U
192-97-2	Benzo(e)pyrene	189	U
198-55-0	Perylene	189	U

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1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W421

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 46465 SAS No.: SDG No.: 47508

Matrix: (soil/water) WATER Lab Sample ID: 47508-03

Sample wt/vol: 910.0 (g/ml) ML Lab File ID: T1601325

Level: (low/med) LOW Date Received: 02/27/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted:03/01/96

Concentrated Extract Volume: 1.0(ml) Date Analyzed: 03/13/96

Injection Volume: 2.0(uL) Dilution Factor: 10.0

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	352	
91-57-6	2-Methylnaphthalene	110	U
208-96-8	Acenaphthylene	110	U
83-32-9	Acenaphthene	33.6	J
132-64-9	Dibenzofuran	110	U
86-73-7	Fluorene	11.0	J
85-01-8	Phenanthrene	110	U
120-12-7	Anthracene	110	U
206-44-0	Fluoranthene	110	U
129-00-0	Pyrene	110	U
56-55-3	Benzo(a)Anthracene	110	U
218-01-9	Chrysene	110	U
205-99-2	Benzo(b)fluoranthene	110	U
207-08-9	Benzo(k)fluoranthene	110	U
50-32-8	Benzo(a)pyrene	110	U
193-39-5	Indeno(1 2 3-cd)pyrene	110	U
53-70-3	Dibenzo(a h)anthracene	110	U
191-24-2	Benzo(g h i)perylene	110	U
86-74-8	Carbazole	24.2	J
95-13-6	1H-Indene	33.1	J
91-22-5	Quinoline	110	U
90-12-0	1-Methylnaphthalene	33.0	J
271-89-6	2,3-Benzofuran	110	U
496-11-7	2,3-Dihydroindene	82.6	J
95-15-8	Benzo(b)thiophene	48.7	J
120-72-9	1H-Indole	110	U
92-52-4	Biphenyl	110	U
132-65-0	Dibenzothiophene	110	U
260-94-6	Acridine	110	U
192-97-2	Benzo(e)pyrene	110	U
198-55-0	Perylene	110	U

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1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W422

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 46465 SAS No.: SDG No.: 47508

Matrix: (soil/water) WATER Lab Sample ID: 47508-04

Sample wt/vol: 1060 (g/ml) ML Lab File ID: T0901318

Level: (low/med) LOW Date Received: 02/27/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/01/96

Concentrated Extract Volume: 1.0 (ml) Date Analyzed: 03/13/96

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	1.46	J
91-57-6	2-Methylnaphthalene	9.43	U
208-96-8	Acenaphthylene	9.43	U
83-32-9	Acenaphthene	7.42	J
132-64-9	Dibenzofuran	9.43	U
86-73-7	Fluorene	9.43	U
85-01-8	Phenanthrene	9.43	U
120-12-7	Anthracene	9.43	U
206-44-0	Fluoranthene	9.43	U
129-00-0	Pyrene	9.43	U
56-55-3	Benzo(a)Anthracene	9.43	U
218-01-9	Chrysene	9.43	U
205-99-2	Benzo(b)fluoranthene	9.43	U
207-08-9	Benzo(k)fluoranthene	9.43	U
50-32-8	Benzo(a)pyrene	9.43	U
193-39-5	Indeno(1 2 3-cd)pyrene	9.43	U
53-70-3	Dibenzo(a h)anthracene	9.43	U
191-24-2	Benzo(g h i)perylene	9.43	U
86-74-8	Carbazole	9.43	U
95-13-6	1H-Indene	9.43	U
91-22-5	Quinoline	9.43	U
90-12-0	1-Methylnaphthalene	9.43	U
271-89-6	2,3-Benzofuran	9.43	U
496-11-7	2,3-Dihydroindene	15.4	
95-15-8	Benzo(b)thiophene	9.43	U
120-72-9	1H-Indole	9.43	U
92-52-4	Biphenyl	9.43	U
132-65-0	Dibenzothiophene	9.43	U
260-94-6	Acridine	9.43	U
192-97-2	Benzo(e)pyrene	9.43	U
198-55-0	Perylene	9.43	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W439

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 46465 SAS No.: SDG No.: 47508

Matrix: (soil/water) WATER Lab Sample ID: 47508-05

Sample wt/vol: 1060 (g/ml) ML Lab File ID: T1701326

Level: (low/med) LOW Date Received: 02/27/96

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 03/01/96

Concentrated Extract Volume: 1.0 (ml) Date Analyzed: 03/13/96

Injection Volume: 2.0 (uL) Dilution Factor: 20.0

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	908	
91-57-6	2-Methylnaphthalene	29.7	J
208-96-8	Acenaphthylene	189	U
83-32-9	Acenaphthene	70.9	J
132-64-9	Dibenzofuran	189	U
86-73-7	Fluorene	189	U
85-01-8	Phenanthrene	189	U
120-12-7	Anthracene	189	U
206-44-0	Fluoranthene	189	U
129-00-0	Pyrene	189	U
56-55-3	Benzo(a)Anthracene	189	U
218-01-9	Chrysene	189	U
205-99-2	Benzo(b)fluoranthene	189	U
207-08-9	Benzo(k)fluoranthene	189	U
50-32-8	Benzo(a)pyrene	189	U
193-39-5	Indeno(1 2 3-cd)pyrene	189	U
53-70-3	Dibenzo(a h)anthracene	189	U
191-24-2	Benzo(g h i)perylene	189	U
86-74-8	Carbazole	189	U
95-13-6	1H-Indene	129	J
91-22-5	Quinoline	189	U
90-12-0	1-Methylnaphthalene	102	J
271-89-6	2,3-Benzofuran	189	U
496-11-7	2,3-Dihydroindene	238	
95-15-8	Benzo(b)thiophene	74.8	J
120-72-9	1H-Indole	189	U
92-52-4	Biphenyl	189	U
132-65-0	Dibenzothiophene	189	U
260-94-6	Acridine	189	U
192-97-2	Benzo(e)pyrene	189	U
198-55-0	Perylene	189	U

1,552

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420D

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 46465 SAS No.: SDG No.: 47508

Matrix: (soil/water) WATER Lab Sample ID: 47508-01DU

Sample wt/vol: 1060 (g/ml) ML Lab File ID: T1301322

Level: (low/med) LOW Date Received: 02/27/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/01/96

Concentrated Extract Volume: 1.0 (ml) Date Analyzed: 03/13/96

Injection Volume: 2.0 (uL) Dilution Factor: 20.0

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	1150	
91-57-6	2-Methylnaphthalene	53.8	J
208-96-8	Acenaphthylene	189	U
83-32-9	Acenaphthene	77.2	J
132-64-9	Dibenzofuran	26.9	J
86-73-7	Fluorene	26.1	J
85-01-8	Phenanthrene	189	U
120-12-7	Anthracene	189	U
206-44-0	Fluoranthene	189	U
129-00-0	Pyrene	189	U
56-55-3	Benzo(a)Anthracene	189	U
218-01-9	Chrysene	189	U
205-99-2	Benzo(b)fluoranthene	189	U
207-08-9	Benzo(k)fluoranthene	189	U
50-32-8	Benzo(a)pyrene	189	U
193-39-5	Indeno(1 2 3-cd)pyrene	189	U
53-70-3	Dibenzo(a h)anthracene	189	U
191-24-2	Benzo(g h i)perylene	189	U
86-74-8	Carbazole	48.8	J
95-13-6	1H-Indene	53.9	J
91-22-5	Quinoline	189	U
90-12-0	1-Methylnaphthalene	81.2	J
271-89-6	2,3-Benzofuran	26.4	J
496-11-7	2,3-Dihydroindene	204	
95-15-8	Benzo(b)thiophene	95.9	J
120-72-9	1H-Indole	189	U
92-52-4	Biphenyl	189	U
132-65-0	Dibenzothiophene	189	U
260-94-6	Acridine	189	U
192-97-2	Benzo(e)pyrene	189	U
198-55-0	Perylene	189	U

1285

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420FB

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 46465 SAS No.: SDG No.: 47508

Matrix: (soil/water) WATER Lab Sample ID: 47508-02FB

Sample wt/vol: 1050 (g/ml) ML Lab File ID: T0701316

Level: (low/med) LOW Date Received: 02/27/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/01/96

Concentrated Extract Volume: 1.0 (ml) Date Analyzed: 03/13/96

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	9.52	U
91-57-6	2-Methylnaphthalene	9.52	U
208-96-8	Acenaphthylene	9.52	U
83-32-9	Acenaphthene	9.52	U
132-64-9	Dibenzofuran	9.52	U
86-73-7	Fluorene	9.52	U
85-01-8	Phenanthrene	9.52	U
120-12-7	Anthracene	9.52	U
206-44-0	Fluoranthene	9.52	U
129-00-0	Pyrene	9.52	U
56-55-3	Benzo(a)Anthracene	9.52	U
218-01-9	Chrysene	9.52	U
205-99-2	Benzo(b)fluoranthene	9.52	U
207-08-9	Benzo(k)fluoranthene	9.52	U
50-32-8	Benzo(a)pyrene	9.52	U
193-39-5	Indeno(1 2 3-cd)pyrene	9.52	U
53-70-3	Dibenzo(a h)anthracene	9.52	U
191-24-2	Benzo(g h i)perylene	9.52	U
86-74-8	Carbazole	9.52	U
95-13-6	1H-Indene	9.52	U
91-22-5	Quinoline	9.52	U
90-12-0	1-Methylnaphthalene	9.52	U
271-89-6	2,3-Benzofuran	9.52	U
496-11-7	2,3-Dihydroindene	9.52	U
95-15-8	Benzo(b)thiophene	9.52	U
120-72-9	1H-Indole	9.52	U
92-52-4	Biphenyl	9.52	U
132-65-0	Dibenzothiophene	9.52	U
260-94-6	Acridine	9.52	U
192-97-2	Benzo(e)pyrene	9.52	U
198-55-0	Perylene	9.52	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420FBD

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 46465 SAS No.: SDG No.: 47508

Matrix: (soil/water) WATER Lab Sample ID: 47508-02FD

Sample wt/vol: 1060 (g/ml) ML Lab File ID: T0801317

Level: (low/med) LOW Date Received: 02/27/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/01/96

Concentrated Extract Volume: 1.0 (ml) Date Analyzed: 03/13/96

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	9.43	U
91-57-6	2-Methylnaphthalene	9.43	U
208-96-8	Acenaphthylene	9.43	U
83-32-9	Acenaphthene	9.43	U
132-64-9	Dibenzofuran	9.43	U
86-73-7	Fluorene	9.43	U
85-01-8	Phenanthrene	9.43	U
120-12-7	Anthracene	9.43	U
206-44-0	Fluoranthene	9.43	U
129-00-0	Pyrene	9.43	U
56-55-3	Benzo(a)Anthracene	9.43	U
218-01-9	Chrysene	9.43	U
205-99-2	Benzo(b)fluoranthene	9.43	U
207-08-9	Benzo(k)fluoranthene	9.43	U
50-32-8	Benzo(a)pyrene	9.43	U
193-39-5	Indeno(1 2 3-cd)pyrene	9.43	U
53-70-3	Dibenzo(a h)anthracene	9.43	U
191-24-2	Benzo(g h i)perylene	9.43	U
86-74-8	Carbazole	9.43	U
95-13-6	1H-Indene	9.43	U
91-22-5	Quinoline	9.43	U
90-12-0	1-Methylnaphthalene	9.43	U
271-89-6	2,3-Benzofuran	9.43	U
496-11-7	2,3-Dihydroindene	9.43	U
95-15-8	Benzo(b)thiophene	9.43	U
120-72-9	1H-Indole	9.43	U
92-52-4	Biphenyl	9.43	U
132-65-0	Dibenzothiophene	9.43	U
260-94-6	Acridine	9.43	U
192-97-2	Benzo(e)pyrene	9.43	U
198-55-0	Perylene	9.43	U

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 46465 SAS No.: SDG No.: 47508

	EPA SAMPLE NO.	S1 #	S2 #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	SBLK01	69	86	65						0
02	47508 LCS	82	96	74						0
03	DPV-W420FB	64	84	58						0
04	DPV-W420FBD	64	83	60						0
05	DPV-W422	64	44	58						0
06	STP-W410	74	65	61						0
07	GAC-ACFE	69	63	60						0
08	DPV-W420	0D	0D	0D						0
09	DPV-W420D	0D	0D	0D						0
10	DPV-W420MS	74	51	59						0
11	DPV-W420MSD	67	50	58						0
12	DPV-W421	63	36	48						0
13	DPV-W439	0D	0D	0D						0
14	GAC-SFR	72	40	58						0
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										

		QC LIMITS
S1	= Naphthalene-d8	(37-107)
S2	= Chrysene-d12	(25-160)
S3	= Fluorene-d10	(36-127)

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: QUANTERRA DENVER Contract:

Lab Code: Case No.: 46465 SAS No.: SDG No.: 47508

Matrix Spike - EPA Sample No.: DPV-W420

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC. LIMITS REC.
Naphthalene	47.6	1200	544	-1378*	43-128
2-Methylnaphthalene	47.6	58.7	86.0	57	47-138
Fluorene	47.6	28.3	65.2	78	51-120
Chrysene	47.6	0.000	37.8	79	43-124
1H-Indene	47.6	65.8	96.8	65	49-108
Quinoline	47.6	0.000	34.7	73	40-126
Benzo(e)pyrene	47.6	0.000	21.3	45	20-150

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Naphthalene	47.2	577	-1318*	-4	50	43-128
2-Methylnaphthalene	47.2	86.1	58	2	50	47-138
Fluorene	47.2	68.6	85	8	50	51-120
Chrysene	47.2	35.9	76	4	50	43-124
1H-Indene	47.2	91.1	54	18	50	49-108
Quinoline	47.2	32.2	68	7	50	40-126
Benzo(e)pyrene	47.2	22.0	47	4	50	20-150

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

RPD: 0 out of 7 outside limits
Spike Recovery: 2 out of 14 outside limits

COMMENTS: _____

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420MS

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 46465 SAS No.: SDG No.: 47508

Matrix: (soil/water) WATER Lab Sample ID: 47508-01MS

Sample wt/vol: 1050 (g/ml) ML Lab File ID: T1401323

Level: (low/med) LOW Date Received: 02/27/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted:03/01/96

Concentrated Extract Volume: 1.0(ml) Date Analyzed: 03/13/96

Injection Volume: 2.0(uL) Dilution Factor: 5.0

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	544	E
91-57-6	2-Methylnaphthalene	86.0	
208-96-8	Acenaphthylene	47.6	U
83-32-9	Acenaphthene	67.5	
132-64-9	Dibenzofuran	26.3	J
86-73-7	Fluorene	65.2	
85-01-8	Phenanthrene	16.4	J
120-12-7	Anthracene	47.6	U
206-44-0	Fluoranthene	47.6	U
129-00-0	Pyrene	47.6	U
56-55-3	Benzo(a)Anthracene	47.6	U
218-01-9	Chrysene	37.8	J
205-99-2	Benzo(b)fluoranthene	47.6	U
207-08-9	Benzo(k)fluoranthene	47.6	U
50-32-8	Benzo(a)pyrene	47.6	U
193-39-5	Indeno(1 2 3-cd)pyrene	47.6	U
53-70-3	Dibenzo(a h)anthracene	47.6	U
191-24-2	Benzo(g h i)perylene	47.6	U
86-74-8	Carbazole	49.2	
95-13-6	1H-Indene	96.8	
91-22-5	Quinoline	34.7	J
90-12-0	1-Methylnaphthalene	76.1	
271-89-6	2,3-Benzofuran	24.4	J
496-11-7	2,3-Dihydroindene	183	
95-15-8	Benzo(b)thiophene	89.8	
120-72-9	1H-Indole	47.6	U
92-52-4	Biphenyl	15.0	J
132-65-0	Dibenzothiophene	47.6	U
260-94-6	Acridine	47.6	U
192-97-2	Benzo(e)pyrene	21.3	J
198-55-0	Perylene	47.6	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420MSD

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 46465 SAS No.: SDG No.: 47508

Matrix: (soil/water) WATER Lab Sample ID: 47508-01MSD

Sample wt/vol: 1060 (g/ml) ML Lab File ID: T1501324

Level: (low/med) LOW Date Received: 02/27/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/01/96

Concentrated Extract Volume: 1.0 (ml) Date Analyzed: 03/13/96

Injection Volume: 2.0 (uL) Dilution Factor: 5.0

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	577	E
91-57-6	2-Methylnaphthalene	86.1	
208-96-8	Acenaphthylene	47.2	U
83-32-9	Acenaphthene	72.4	
132-64-9	Dibenzofuran	28.5	J
86-73-7	Fluorene	68.6	
85-01-8	Phenanthrene	17.4	J
120-12-7	Anthracene	47.2	U
206-44-0	Fluoranthene	47.2	U
129-00-0	Pyrene	47.2	U
56-55-3	Benzo(a)Anthracene	47.2	U
218-01-9	Chrysene	35.9	J
205-99-2	Benzo(b)fluoranthene	47.2	U
207-08-9	Benzo(k)fluoranthene	47.2	U
50-32-8	Benzo(a)pyrene	47.2	U
193-39-5	Indeno(1 2 3-cd)pyrene	47.2	U
53-70-3	Dibenzo(a h)anthracene	47.2	U
191-24-2	Benzo(g h i)perylene	47.2	U
86-74-8	Carbazole	52.3	
95-13-6	1H-Indene	91.1	
91-22-5	Quinoline	32.2	J
90-12-0	1-Methylnaphthalene	76.7	
271-89-6	2,3-Benzofuran	25.8	J
496-11-7	2,3-Dihydroindene	189	
95-15-8	Benzo(b)thiophene	93.8	
120-72-9	1H-Indole	47.2	U
92-52-4	Biphenyl	15.9	J
132-65-0	Dibenzothiophene	47.2	U
260-94-6	Acridine	47.2	U
192-97-2	Benzo(e)pyrene	22.0	J
198-55-0	Perylene	47.2	U

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

SBLK01

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 46465 SAS No.: SDG No.: 47508

Lab File ID: T0501314 Lab Sample ID: SBLK01

Instrument ID: T Date Extracted: 03/01/96

Matrix: (soil/water) WATER Date Analyzed: 03/13/96

Level: (low/med) LOW Time Analyzed: 1416

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	47508 LCS	47508 LCS	T0601315	03/13/96
02	DPV-W420FB	47508-02FB	T0701316	03/13/96
03	DPV-W420FBD	47508-02FD	T0801317	03/13/96
04	DPV-W422	47508-04	T0901318	03/13/96
05	STP-W410	47508-06	T1001319	03/13/96
06	GAC-ACFE	47508-08	T1101320	03/13/96
07	DPV-W420	47508-01	T1201321	03/13/96
08	DPV-W420D	47508-01DU	T1301322	03/13/96
09	DPV-W420MS	47508-01MS	T1401323	03/13/96
10	DPV-W420MSD	47508-01MSD	T1501324	03/13/96
11	DPV-W421	47508-03	T1601325	03/13/96
12	DPV-W439	47508-05	T1701326	03/13/96
13	GAC-SFR	47508-07	T1801327	03/13/96
14				
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COMMENTS:

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLK01

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 46465 SAS No.: SDG No.: 47508

Matrix: (soil/water) WATER Lab Sample ID: SBLK01

Sample wt/vol: 1000 (g/ml) ML Lab File ID: T0501314

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/01/96

Concentrated Extract Volume: 1.0 (ml) Date Analyzed: 03/13/96

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	10.0	U
91-57-6	2-Methylnaphthalene	10.0	U
208-96-8	Acenaphthylene	10.0	U
83-32-9	Acenaphthene	10.0	U
132-64-9	Dibenzofuran	10.0	U
86-73-7	Fluorene	10.0	U
85-01-8	Phenanthrene	10.0	U
120-12-7	Anthracene	10.0	U
206-44-0	Fluoranthene	10.0	U
129-00-0	Pyrene	10.0	U
56-55-3	Benzo(a)Anthracene	10.0	U
218-01-9	Chrysene	10.0	U
205-99-2	Benzo(b)fluoranthene	10.0	U
207-08-9	Benzo(k)fluoranthene	10.0	U
50-32-8	Benzo(a)pyrene	10.0	U
193-39-5	Indeno(1 2 3-cd)pyrene	10.0	U
53-70-3	Dibenzo(a h)anthracene	10.0	U
191-24-2	Benzo(g h i)perylene	10.0	U
86-74-8	Carbazole	10.0	U
95-13-6	1H-Indene	10.0	U
91-22-5	Quinoline	10.0	U
90-12-0	1-Methylnaphthalene	10.0	U
271-89-6	2,3-Benzofuran	10.0	U
496-11-7	2,3-Dihydroindene	10.0	U
95-15-8	Benzo(b)thiophene	10.0	U
120-72-9	1H-Indole	10.0	U
92-52-4	Biphenyl	10.0	U
132-65-0	Dibenzothiophene	10.0	U
260-94-6	Acridine	10.0	U
192-97-2	Benzo(e)pyrene	10.0	U
198-55-0	Perylene	10.0	U

Denver
4955 Yarrow Street, Arvada, CO 80002 (303) 421-6611

QUANTERRA
Environmental
Services

02/27/96

Scott Anderson
City of St. Louis Park
5005 Minnetonka Blvd.
St. Louis Park, MN 55416

Dear Mr. Anderson:

This letter acknowledges the acceptance of 11 samples at Quanterra's Denver Laboratory which have been assigned to project number 047514. Attached are the Sample Description Information form, cross-referencing the Quanterra sample numbers to client descriptions, and a copy of the signed Chain of Custody.

If you have any questions or need additional information, please contact me at (303)421-6611. Thank you.

Sincerely,

Daniel Rebarchik
Program Administrator

Denver

02/27/96

SAMPLE DESCRIPTION INFORMATION

for

City of St. Louis Park

Sample No.	Sample Description	Sample Type	Date Sampled	Time Sampled	Date Received
047514-0001-SA	DPV-W420TP	AQUEOUS	02/26/96		02/27/96
047514-0001-DU	DPV-W420TPD	AQUEOUS	02/26/96		02/27/96
047514-0001-MS	DPV-W420TPMS	AQUEOUS	02/26/96		02/27/96
047514-0001-SD	DPV-W420TPMSD	AQUEOUS	02/26/96		02/27/96
047514-0002-FB	DPV-W420TPFB	AQUEOUS	02/26/96		02/27/96
047514-0002-FD	DPV-W420TPFBD	AQUEOUS	02/26/96		02/27/96
047514-0003-SA	DPV-W421TP	AQUEOUS	02/26/96		02/27/96
047514-0004-SA	DPV-W422TP	AQUEOUS	02/26/96		02/27/96
047514-0005-SA	DPV-W439TP	AQUEOUS	02/26/96		02/27/96
047514-0006-SA	STP-W410TP	AQUEOUS	02/26/96		02/27/96
047514-0007-SA	GTF-ACFETP-022696	AQUEOUS	02/26/96		02/27/96

BROKEN IN TRANSIT

GTF-ACFETP-022696 -07

4955 Yarrow Street
Arvada, Colorado 80002
303 421-6611 Telephone
303 431-7171 Fax

Quanterra Environmental Services

SAMPLE SAFE™ CONDITIONS

QUANTERRA CLIENT	City of St. Louis Park
PROJECT	3752 Wooddale Ave So
SAMPLING COMPANY	St. Louis Park Mn 55416
SAMPLING SITE	SAME
TEAM LEADER	[illegible]

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.	5.6 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
2-26-96		DPV-W420TP ✓	16oz AMBER	1	Phenolics	-1
		DPV-W420TPD				-1DU
		DPV-W420TPMS				-1MS
		DPV-W420TPMSD ✓				-1SD
		DPV-W420TPFB ✓				-2FB
		DPV-W420TPFBD ✓				-2FD
		DPV-W421TP				-3
		DPV-W422TP				-4
		DPV-W439TP				-5
2-26-96		STP-W410TP	16oz AMBER	1	Phenolics	-6

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	QES	SIGNED [illegible] DATE/TIME 9/27/96 9:15
QUANTERRA PROJECT NUMBER	475H	

QUA-4119

White - CLIENT Pink - LAB

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 46465 SAS No.: SDG No.: 47508

Lab File ID (Standard): T0401313 Date Analyzed: 03/13/96

Instrument ID: T Time Analyzed: 1316

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	319840	12.31	456381	14.49	288227	19.93
	UPPER LIMIT	639680	12.81	912762	14.99	576454	20.43
	LOWER LIMIT	159920	11.81	228190	13.99	144114	19.43
	EPA SAMPLE NO.						
01	SBLK01	287165	12.31	394078	14.49	243639	19.94
02	47508 LCS	252928	12.31	351839	14.49	211976	19.93
03	DPV-W420FB	299245	12.31	413825	14.49	232724	19.93
04	DPV-W420FBD	313718	12.29	428503	14.48	254670	19.93
05	DPV-W422	304896	12.30	413104	14.48	265849	19.92
06	DPV-W410	294658	12.29	370226	14.49	226844	19.92
07	GAC-ACFE	332751	12.29	449984	14.48	262637	19.92
08	DPV-W420	331415	12.29	474235	14.48	261028	19.92
09	DPV-W420D	287967	12.31	426099	14.49	254432	19.93
10	DPV-W420MS	346261	12.31	462999	14.49	282044	19.92
11	DPV-W420MSD	309783	12.31	429876	14.49	259824	19.92
12	DPV-W421	283965	12.31	399450	14.49	256093	19.93
13	DPV-W439	292199	12.29	387442	14.48	220672	19.92
14	GAC-SFR	309416	12.30	428128	14.48	242967	19.91
15							
16							
17							
18							
19							
20							
21							
22							

IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = 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.

PHENOLICS MONITORING

Quanterra Environmental Services

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

March 22, 1996

Mr. Scott Anderson
City of St. Louis Park
5005 Minnetonka Blvd.
St. Louis Park, MN 55416

Dear Mr. Anderson:

Enclosed is the ppb phenolics report for eleven aqueous samples, received at Quanterra Environmental Services, Denver laboratory on February 26, 1996 and February 29, 1996.

The matrix spike and matrix spike duplicate analyzed with these samples showed percent recoveries outside control limits due to the concentration in the native sample. However, the laboratory control samples were within control limits and therefore no further action was taken.

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 #047514

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
047514-0001-SA	DPV-W420TP-022896	AQUEOUS	28 FEB 96		29 FEB 96
047514-0001-DU	DPV-W420TPD-022696	AQUEOUS	26 FEB 96		27 FEB 96
047514-0001-MS	DPV-W420TPMS-022696	AQUEOUS	26 FEB 96		27 FEB 96
047514-0001-SD	DPV-W420TPMSD-022696	AQUEOUS	26 FEB 96		27 FEB 96
047514-0002-FB	DPV-W420TPFB-022896	AQUEOUS	28 FEB 96		29 FEB 96
047514-0002-FD	DPV-W420TPFBD-022896	AQUEOUS	28 FEB 96		29 FEB 96
047514-0003-SA	DPV-W421TP-022696	AQUEOUS	26 FEB 96		27 FEB 96
047514-0004-SA	DPV-W422TP-022696	AQUEOUS	26 FEB 96		27 FEB 96
047514-0005-SA	DPV-W439TP-022696	AQUEOUS	26 FEB 96		27 FEB 96
047514-0006-SA	STP-W410TP-022696	AQUEOUS	26 FEB 96		27 FEB 96
047514-0007-SA	GTF-ACFETP-022696	AQUEOUS	26 FEB 96		27 FEB 96

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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

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COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: ____ SAS No.: ____ SDG No.:47514

SOW No.: ILM02

EPA Sample No.	Lab Sample ID
4751401	4751401
4751401DU	4751401DU
4751401S	4751401S
4751401D	4751401D
4751402FB	4751402FB
4751402FD	4751402FD
4751403	4751403
4751404	4751404
4751405	4751405
4751406	4751406
4751407	4751407

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:
SEVEN WATER SAMPLES FOR PHENOLICS 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: [signature] Name: DAN REBARCHIK

Date: 3/22/96 Title: PROJECT ADMINISTRATOR

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

4751401

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.: 47514

Matrix (soil/water): WATER Lab Sample ID: 4751401

Level (low/med): LOW Date Received: 02/29/96

% 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	121		N	C

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:
DPV-W420TP

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

4751401D

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: SAS No.: SDG No.: 47514

Matrix (soil/water): WATER Lab Sample ID: 4751401D

Level (low/med): LOW Date Received: 02/27/96

% 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	190		N	C

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:
DPV-W420TPMSD

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

4751402FB

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.: 47514

Matrix (soil/water): WATER Lab Sample ID: 4751402FB

Level (low/med): LOW Date Received: 02/29/96

% 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	3.1	B	N	C

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:
DPV-W420TPFB

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

4751402FD

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: ____ SAS No.: ____ SDG No.: 47514

Matrix (soil/water): WATER Lab Sample ID: 4751402FD

Level (low/med): LOW Date Received: 02/29/96

% 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	2.4	U	N	C

Color Before: COLORLESS Clarity Before: CLEAR Texture: ____

Color After: COLORLESS Clarity After: CLEAR Artifacts: ____

Comments:
DPV-W420TPFBD

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

4751403

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: Sas No.: SDG No.: 47514

Matrix (soil/water): WATER Lab Sample ID: 4751403

Level (low/med): LOW Date Received: 02/27/96

% 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	28.0		N	C

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:
DPV-W421TP

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

4751404

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: SAS No.: SDG No.: 47514

Matrix (soil/water): WATER Lab Sample ID: 4751404

Level (low/med): LOW Date Received: 02/27/96

% 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	12.4		N	C

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:
DPV-W422TP

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

4751405

.o Name: QUANTERRA Contract: CITY_SLP

ab Code: DENVER Case No.: ____ SAS No.: ____ SDG No.: 47514

latrix (soil/water): WATER Lab Sample ID: 4751405

.evel (low/med): LOW Date Received: 02/27/96

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	45.7		N	C

:olor Before: COLORLESS Clarity Before: CLEAR Texture: ____

:olor After: COLORLESS Clarity After: CLEAR Artifacts: ____

:omments:
DPV-W439TP

FORM I - IN

7/88

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

4751401S

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.: 47514

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Phenolics	75-125	186.0000		121.0000		50.00	130.0	N	C

Comments:
DPV-W420TPMS

U.S. EPA - CLP

6
DUPLICATES

EPA SAMPLE NO.

4751401DU

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: ____ SAS No.: ____ SDG No.: 47514

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0 % Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Phenolics		121.0000		139.4000		14.1		C

U.S. EPA - CLP

8
STANDARD ADDITION RESULTS

Lab Name: QUANTERRA_____ Contract:CITY_SLP__

Lab Code: DENVER Case No.: ____ SAS No.:_____ SDG No.:47514_

Concentration Units: ug/L

EPA Sample No.	An	0 ADD ABS	1 ADD CON	1 ADD ABS	2 ADD CON	2 ADD ABS	3 ADD CON	3 ADD ABS	Final Conc.	r	Q

FORM VIII - IN 7/88

U.S. EPA - CLP

13

PREPARATION LOG

Lab Name: QUANTERRA Contract: CITY_SLP__

Lab Code: DENVER Case No.:_____ SAS No.: _____ SDG No.:47514_

Method: C_

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
4751401	03/13/96		1
4751401	03/13/96		200
4751401	03/13/96		200
4751401	03/13/96		200
4751402	03/13/96		200
4751402	03/13/96		200
4751403	03/13/96		200
4751404	03/13/96		200
4751405	03/13/96		200
4751406	03/13/96		200
4751407	03/13/96		200
LCSW	03/13/96		200
PBW	03/13/96		200

U.S. EPA - CLP

14

ANALYSIS RUN LOG

Lab Name: QUANTERRA

Contract: CITY_SLP

Lab Code: DENVER Case No.:

SAS No.: SDG No.:47514

Instrument ID Number: SPEC 301

Method: C

Start Date: 03/13/96

End Date: 03/13/96

EPA Sample No.	D/F	Time	% R	Analytes PH
S0.0	1.00	1946		X
S5.0	1.00	1947		X
S10.0	1.00	1948		X
S20.0	1.00	1949		X
S50.0	1.00	1950		X
S100.0	1.00	1951		X
ICV/LCSW	1.00	1952		X
ICB/PBW	1.00	1953		X
4751401	2.00	1954		X
4751401D	2.00	1954		X
4751401S	5.00	1954		X
4751401D	5.00	1954		X
4751402F	1.00	1954		X
4751402F	1.00	1954		X
4751403	1.00	1954		X
4751404	1.00	1955		X
4751405	1.00	1955		X
4751406	1.00	1955		X
CCV	1.00	1955		X
CCB	1.00	1955		X
4751407	1.00	1955		X
CCV	1.00	1955		X
CCB	1.00	1956		X

FORM XIV - IN 7/88

000681

Quanterra Environmental Services

Laboratory Bench Sheet
Colorimetric Analysis
Revision 0 - January 25, 1995

Analyst: D. LONA	**Calibration Curve Information**						**Instrument Information**
Date: 3/13/96	CONC.(mg/L)		ABS.	CONC.(mg/L)		ABS.	Instrument: SPEC 301
QC Lot: 13 MAR 96-N1	BLANK	0.000	0.061	STD 5	0.10	0.298	Wavelength (nm): 460
QC Run: ↓	STD 1	0.005	0.075	STD 6	—	—	Parameter: PHEN-SPEC-CLP
SOP Information	STD 2	0.010	0.085	STD 7	—	—	Corr. Coefficient: 0.99972
Number: LM-RMA-1112	STD 3	0.020	0.111	STD 8	—	—	Slope: 2.3721
Revision: 1.0	STD 4	0.050	0.185	—	—	—	Intercept: 0.06269

ICV ~~DCS~~ Information	Matrix Spike Information	Calibration Information
Source/Ver-Lot #: RMAL/9534	Source/Ver-Lot #: SAME AS CAL	Source/Ver-Lot #: RMAL/9652
Prep Date: N/A Made By: LABCHEM	Prep Date: Made By:	Prep Date: N/A Made By: RICCA
Concentration: 1000 mg/L	Concentration:	Concentration: 1000 mg/L
Expiration Date: 10/26/96	Expiration Date: ↓	Expiration Date: 9/96
DCS True Value: 0.05 mg/L	Spike True Value: 0.05 mg/L	CCV True Value: 0.05 mg/L

Int./ Notes	LIMS ID	pH	Sample Amount (mL/g)	Sample Absorbance	Color Blank Absorbance	Concentration (mg/L-mg/kg)	Prep D.F.	Anal. D.F.	Final Conc. (mg/L-mg/kg)	%REC /RPD
LCS	ICV			0.179		0.0490			0.049	
PBW	ICB			0.0010		ND			ND	
19:54	47514-1	<2	200	0.206	N/A	0.0604	1X	2X	0.121	RL 0.01
	-1DU			0.228		0.0697		↓	0.139	↓
	-1MS			0.151		0.0372		5X	0.186(0.05)	MS diluted out
	-1SD			0.153		0.0381		↓	0.190(0.05)	↓
	-2FD			0.066		0.0014		1X	ND	
	-2FB			0.070		0.0031			ND	
V	-3			0.129		0.0280			0.028	
19:55	-4			0.092		0.0124			0.012	
	-5			0.171		0.0457			0.046	
	-6	↓	↓	0.077	↓	0.0060	↓	↓	0.006	
	CCV			0.185		0.0516			0.052	
	CCB			0.062		-0.0003			ND	
	47514-7	<2	200	0.075	N/A	0.0052	1X	1X	0.005	
	CCV			0.185		0.0516			0.052	
	CCB			0.062		-0.0003			ND	

DL 3/13/96

* MS/MSD chosen by analyst

Page ____ of ____

BS0003.DOC

Quanterra Environmental Services

Laboratory Bench Sheet
Wet Chemistry Sample Preparation
Revision 0 - January 19, 1995

000653

Analyst: D. LONA	DCS Information	Matrix Spike Information
Date: 3/13/96 Parameter: DIEN-SPEC-CLD QC Lot: 13 MAR 96-N1 QC Run: ↓	Source: LABCHEM Verification/Lot Number: 9534 Prep Date: N/A Made By: LABCHEM Concentration: 1000 mg/L Expiration Date: 10/26/96	Source: RICCA Verification/Lot: 9652 Prep Date: N/A Made By: RICCA Concentration: 1000 mg/L Expiration Date: 9/96
SOP Information	Use this as "ICV"	
Number: LM-RMA-1112 Revision: 1.0	Solvent: N/A Brand: N/A Lot #: N/A	

LIMS ID	pH	Bottle Type	Interference Checks Sample Pretreatment Stds. Added/ True Value	Initial Wt/Vol (g or mL)	Final Wt/Vol (g or mL)	Prep Dilution Factor
ICV			ICV T.V. 0.05 mg/L	200	200	1X
ICB						
47514-1	<2	#2	SO4-NEG. S2-POS 2ml 10% CuSO4 added			
-1DU						
-1MS			MS/SD T.V. 0.05 mg/L			
-1SD						
-2FD			S2-NEG.			
-2FB						
-3			S2-POS. 2ml 10% CuSO4 added			
-4			S2-NEG.			
-5						
-6						
-7						

DL 3/13/96

* MS/MSD chosen by prep analyst

Page ____ of ____

BSC024.DOC.

Enseco - Rocky Mountain Analytical Lab
Sample Description Sheet

Project 047514 Case/SAS No. /NA

SDG No. Conc./Matrix /AQUEOUS

SAMPLE	LIMS SAMPLE	BEFORE DIGESTION COLOR	BEFORE DIGESTION CLARITY	AFTER DIGESTION COLOR	AFTER DIGESTION CLARITY
PV-W420TP	0475140001DU	Colorless	Clear	Colorless	Clear
PV-W420TP	0475140001MS				
PV-W420TP	0475140001SD				
PV-W420TP	0475140001SA				
PV-W420TP	0475140002FD				
PV-W420TP	0475140002FB				
PV-W421TP	0475140003SA				
PV-W422TP	0475140004SA				
PV-W439TP	0475140005SA				
TF-ACFETP	0475140007SA				
STP-W410TP	0475140006SA				

DESCRIPTION KEY:

COLOR:
1.RED 4.GREEN 7.WHITE 10.GREY
2.BLUE 5.ORANGE 8.COLORLESS 11.BLACK
3.YELLOW 6.VIOLET 9.BROWN

CLARITY:
1.CLEAR
2.CLOUDY
3.OPAQUE

COMMENTS:

Enseco - Rocky Mountain Analytical Lab
Sample Preparation Sheet

Project 047514 Case/SAS No. /NA

SDG No. Conc./Matrix /AQUEOUS

SAMPLE	LIMS SAMPLE	DATE RECD	PARAMETERS	ICP METALS		FURNACE METALS		MERCURY		Phenols ~~CYANIDE~~		pH
				g/mL	mL	g/mL	mL	g/mL	mL	g/mL	mL	
PBW	--------	------								200	200	
LCS	--------	------										
DPV-W420TP	0475140001DU	02/27/96										
DPV-W420TP	0475140001MS	02/27/96										
DPV-W420TP	0475140001SD	02/27/96										
DPV-W420TP	0475140001SA	02/29/96										
DPV-W420TP	0475140002FD	02/29/96										
DPV-W420TP	0475140002FB	02/29/96										
DPV-W421TP	0475140003SA	02/27/96										
DPV-W422TP	0475140004SA	02/27/96										
DPV-W439TP	0475140005SA	02/27/96										
GTF-ACFETP	0475140007SA	02/27/96										
STP-W410TP	0475140006SA	02/27/96										
			DATE / INITIALS:	/		/		/		3/13/96	DL.	/

SPECIAL INSTRUCTIONS and/or CAUTIONS:

CHAIN OF CUSTODY

GTF-ACFETP-022696 -07

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002
303 421-6611 Telephone
303 431-7171 Fax

Quanterra Environmental Services

QUANTERRA CLIENT	City of St. Louis Park 3752 Wooddale Ave So St. Louis Park Mn 55416
PROJECT	
SAMPLING COMPANY	
SAMPLING SITE	SAME
TEAM LEADER	MZM

SAMPLE SAFE™ CONDITIONS

PACKED BY: MZM	SEAL NUMBER:
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:	CONDITION OF CONTENTS:
SEALED FOR SHIPPING BY: MZM	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: 5.6 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
2-26-96		DPV-W420TP	16oz AMBER	1	Phenolics	-1
		DPV-W420TPD -01DU				-1DU
		DPV-W420TPMS -01MS/SD				-1MS
		DPV-W420TPMSD				-1SD
		DPV-W420TPFB				-2FB
		DPV-W420TPFBD				-2FD
		DPV-W421TP -03				-3
		DPV-W422TP -04				-4
		DPV-W439TP -05				-5
2-26-96		STP-W410TP -06	16oz AMBER	1	Phenolics	-6

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MZM	
METHOD OF SHIPMENT: FEDEX	AIRBILL NUMBER: 7828345755
RECEIVED FOR LAB: QES	SIGNED: [signature] DATE/TIME: 2/27/96 9:15
QUANTERRA PROJECT NUMBER: 475H	

QUA-4119

White – CLIENT Pink – LAB

303 421-6611 Telephone
303 431-7171 Fax

Environmental Services

QUANTERRA CLIENT: CITY OF ST LOUIS PARK WATER DEPT

PROJECT:

SAMPLING COMPANY: SAME

SAMPLING SITE: SAME

TEAM LEADER: MZW

SAMPLE SAFE™ CONDITIONS

PACKED BY: MZW

SEAL NUMBER:

SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:

CONDITION OF CONTENTS:

SEALED FOR SHIPPING BY: MZW

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
2-28-96		DPV-W420TP-022896			Phenolics	-01
2-28-96		DPV-W420TPFB-022896			Phenolics	-02FB/FD

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MZW

METHOD OF SHIPMENT: FED EX

AIRBILL NUMBER: 7828345744

RECEIVED FOR LAB:

SIGNED:

DATE/TIME:

QUANTERRA PROJECT NUMBER:

QUA-4119

White – CLIENT. Pink – LAB

SECOND QUARTER MONITORING

PAH 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

May 14, 1996

Quanterra Environmental Services

Project Number 048342

Introduction

Fourteen aqueous samples (including matrix QC) were received at Quanterra Environmental Services, Denver Laboratory on April 16 and April 17, 1996. The samples were logged in under Quanterra Denver's project number 048342. A cross reference associating Quanterra Denver's laboratory sample numbers to the actual field sample number is included. The samples were analyzed for low level 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.

Client samples with lab Id's 048342-001, 001DU, 001MS, 001MSD, 003, 005, 008 and 010 had to be diluted due to target analytes exceeding the linear range of the instrument. The reporting limits were raised accordingly. As a result of dilution the surrogates for samples 048342-001, 01DU and 005 were not detected and are reported as "D".

Napthalene in both the matrix spike and matrix spike duplicate samples are reported out of QC limits (43 - 128). Due to the high concentration of Napthalene present in the sample, 1210 ug/L, the spike concentration of 47 ug/L was insufficient to be detected and calculated.

Quanterra
Environmental Services

1H-Indene in both the matrix spike and matrix spike duplicate samples are reported out of QC limits (49 - 108). 1H-Indene is within acceptance limits in both the LCS and Method Blank, suggesting a matrix effect. No further action is indicated.

Client sample with lab Id 048342-010 for pH was received in a non-approved sample container. Sample was analyzed per the COC but data is subject to suspicion.

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:** May 14 1996

Kurt C. Ill
Program Manager

Reviewed By: _____ **Date:** 5-14-96

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

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".

R = Target compound's secondary ion confirmation not met, however peak shape and retention time make peak identication positive.

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 048342	Group Code	Analysis Description	Custom Test?
0001 - 0009	A	CLP/PAH Semivolatile Organics High Level PPB	N
		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
		CLP/PAH Semivolatile Organics High Level PPB	N
0010	C	pH	N
		CLP/PAH Semivolatile Organics High Level PPB	N
		CLP Prep - PAH Semivolatile Organics by GC/MS High Level PPB	N

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
048342-0001-SA	DPV-W420-041596	AQUEOUS	15 APR 96		16 APR 96
048342-0001-DU	DPV-W420D-041596	AQUEOUS	15 APR 96		16 APR 96
048342-0001-MS	DPV-W420MS-041596	AQUEOUS	15 APR 96		16 APR 96
048342-0001-SD	DPV-W420MSD-041596	AQUEOUS	15 APR 96		16 APR 96
048342-0002-FB	DPV-W420FB-041596	AQUEOUS	15 APR 96		16 APR 96
048342-0002-FD	DPV-W420FBD-041596	AQUEOUS	15 APR 96		16 APR 96
048342-0003-SA	DPV-W421-041596	AQUEOUS	15 APR 96		16 APR 96
048342-0004-SA	DPV-W422-041596	AQUEOUS	15 APR 96		16 APR 96
048342-0005-SA	DPV-W439-041596	AQUEOUS	15 APR 96		16 APR 96
048342-0006-SA	PCJ-W23-041596	AQUEOUS	15 APR 96		16 APR 96
048342-0007-SA	STP-W410-041596	AQUEOUS	15 APR 96		16 APR 96
048342-0008-SA	GTF-SFR-041596	AQUEOUS	15 APR 96		16 APR 96
048342-0009-SA	GTF-ACFE-041596	AQUEOUS	15 APR 96		16 APR 96
048342-0010-SA	STP-W409-041596	AQUEOUS	16 APR 96	17:25	17 APR 96

CHAIN OF CUSTODY

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

Quanterra Environmental Services

QUANTERRA CLIENT: City of St. Louis Park
3752 Wooddale Ave So
St. Louis Park Mn 55416

PROJECT:

SAMPLING COMPANY: SAME

SAMPLING SITE: SAME

TEAM LEADER: MJH

SAMPLE SAFE™ CONDITIONS

PACKED BY: MJH

SEAL NUMBER:

SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:

CONDITION OF CONTENTS:

SEALED FOR SHIPPING BY: MJH

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
4-15-96		DPV-W420-041596	1XL AMBER	2	PPB PAH	
		DPV-W420D-041596				
		DPV-W420MS-041596				
		DPV-W420MSD-041596				
		DPV-W420FB-041596				
		DPV-W420FBD-041596				
		DPV-W421-041596				
4-15-96	16:40	STP-W409-041596 BROKEN	1XL AMBER	2	PPB PAH	And pH

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MJH

METHOD OF SHIPMENT: FED EX

AIRBILL NUMBER: 7828345733

RECEIVED FOR LAB: SIGNED: Steve Binfen DATE/TIME: 4/16/96 900

QUANTERRA PROJECT NUMBER:

QUA-4110 White - CLIENT Pink - LAB

CHAIN OF CUSTODY

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

Quanterra Environmental Services

QUANTERRA CLIENT: City of St. Louis Park
PROJECT: 3752 Wooddale Ave So
St. Louis Park Mn 55416

SAMPLING COMPANY: SAME

SAMPLING SITE: SAME

TEAM LEADER: MJV

SAMPLE SAFE™ CONDITIONS

PACKED BY: MJV	SEAL NUMBER:
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:	CONDITION OF CONTENTS:
SEALED FOR SHIPPING BY: MJV	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
4-15-96		DPV-W422 - 041596	1XLAMBER	2	PPB · PAH	
		DPV-W439-041596				
		PGJ-W23 -041596				
		STP-W410 -041596				
		BTF-SFP-041596				
4-15-96		BTF-ACFE-041596	1XLAMBER	2	PPB PAH	

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MJV

METHOD OF SHIPMENT: FED EX

AIRBILL NUMBER: 7828345733

RECEIVED FOR LAB: SIGNED: Steve Benjamin DATE/TIME: 4/16/96 900

QUANTERRA PROJECT NUMBER:

QUA-4118

White - CLIENT Pink - LAB

ıcape Testing Services
ıt-Paine Laboratories
(504) 769-4900 • Fax (504) 767-5717

CHAIN OF CUSTODY RECORD

Lab use only:

Client Name	Client #	Group #	Due Date

Submitted by
Client: ENSR
Address: 4500 Park Glen Rd
St. Louis Park MN
Contact: Bill Gregg
Phone: 612 924 0117
Fax: 612 924 0317

Bill to
Client: SAME
Address:
Contact:
Phone:

P. O. Number:
Project Name/Number: SLP 1620-013-400

Sampled By: Pete Moore / J. OSBERG

Analytical Requests: PAH - PPB

Lab use only: LAB M ☐ ☐; Gen Chem ☐ ☐; Metals ☐ ☐; GC/MS VOA ☐ ☐; GC/MS Semi-V ☐ ☐; GC/Semi-V ☐ ☐; GC ☐ ☐; Extractions ☐ ☐; Client Services ☐ ☐; Ship ☐ ☐; Info Request ☐ ☐

Matrix[1]	Date	Time (2400)	Comp	Grab	Sample Description	Preservatives	No. Containers	PAH - PPB	Remarks:	Lab ID
H_2O	4-16-96	17:35	X		PCJ - W409 - 041696	None	3	X	48392-10	1

Lab use only:
Custody Seal used ☑ yes ☐ no
In tact ☑ yes ☐ no
Temperature °C 3.7

Turn Around Time: ☐ 24-48 hrs. (min. 100%) ☐ 3 days (75%) ☐ 1 week (50%) ☐ Standard Other _____

Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
18:00	[signature]	041796	1900
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

Note:

___ Water
___ Solid
___ Oil
___ Sludge

By submitting these samples, you agree to the terms and conditions contained in our most recent schedule of services.

Matrix[1]: W = water, S = soil, SD = solid, L = liquid, SL = sludge, O = oil, CT = charcoal tube, A = air bag

We cannot accept verbal changes. Please fax written changes to (504) 767-5717.

WHITE: CLIENT FINAL REPORT — CANARY: LABORATORY — PINK: CLIENT

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 48342 SAS No.: SDG No.: 48342

Matrix: (soil/water) WATER Lab Sample ID: 48342-01

Sample wt/vol: 1050 (g/ml) ML Lab File ID: T0401722

Level: (low/med) LOW Date Received: 04/16/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 04/19/96

Concentrated Extract Volume: 1.0 (ml) Date Analyzed: 04/23/96

Injection Volume: 2.0 (uL) Dilution Factor: 20.0

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	1210	
91-57-6	2-Methylnaphthalene	65.7	J
208-96-8	Acenaphthylene	190	U
83-32-9	Acenaphthene	81.4	J
132-64-9	Dibenzofuran	30.7	J
86-73-7	Fluorene	31.0	J
85-01-8	Phenanthrene	19.7	J
120-12-7	Anthracene	190	U
206-44-0	Fluoranthene	190	U
129-00-0	Pyrene	190	U
56-55-3	Benzo(a)Anthracene	190	U
218-01-9	Chrysene	190	U
205-99-2	Benzo(b)fluoranthene	190	U
207-08-9	Benzo(k)fluoranthene	190	U
50-32-8	Benzo(a)pyrene	190	U
193-39-5	Indeno(1 2 3-cd)pyrene	190	U
53-70-3	Dibenzo(a h)anthracene	190	U
191-24-2	Benzo(g h i)perylene	190	U
86-74-8	Carbazole	62.6	J
95-13-6	1H-Indene	62.2	J
91-22-5	Quinoline	190	U
90-12-0	1-Methylnaphthalene	88.2	J
271-89-6	2,3-Benzofuran	26.0	J
496-11-7	2,3-Dihydroindene	222	
95-15-8	Benzo(b)thiophene	103	J
120-72-9	1H-Indole	190	U
92-52-4	Biphenyl	190	U
132-65-0	Dibenzothiophene	190	U
260-94-6	Acridine	190	U
192-97-2	Benzo(e)pyrene	190	U
198-55-0	Perylene	190	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420DU

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 48342 SAS No.: SDG No.: 48342

Matrix: (soil/water) WATER Lab Sample ID: 48342-01DU

Sample wt/vol: 1060 (g/ml) ML Lab File ID: T0501723

Level: (low/med) LOW Date Received: 04/16/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 04/19/96

Concentrated Extract Volume: 1.0(ml) Date Analyzed: 04/23/96

Injection Volume: 2.0(uL) Dilution Factor: 20.0

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	1240	
91-57-6	2-Methylnaphthalene	73.9	J
208-96-8	Acenaphthylene	189	U
83-32-9	Acenaphthene	91.5	J
132-64-9	Dibenzofuran	32.9	J
86-73-7	Fluorene	34.1	J
85-01-8	Phenanthrene	22.1	J
120-12-7	Anthracene	189	U
206-44-0	Fluoranthene	189	U
129-00-0	Pyrene	189	U
56-55-3	Benzo(a)Anthracene	189	U
218-01-9	Chrysene	189	U
205-99-2	Benzo(b)fluoranthene	189	U
207-08-9	Benzo(k)fluoranthene	189	U
50-32-8	Benzo(a)pyrene	189	U
193-39-5	Indeno(1 2 3-cd)pyrene	189	U
53-70-3	Dibenzo(a h)anthracene	189	U
191-24-2	Benzo(g h i)perylene	189	U
86-74-8	Carbazole	64.3	J
95-13-6	1H-Indene	76.2	J
91-22-5	Quinoline	189	U
90-12-0	1-Methylnaphthalene	105	J
271-89-6	2,3-Benzofuran	36.8	J
496-11-7	2,3-Dihydroindene	266	
95-15-8	Benzo(b)thiophene	122	J
120-72-9	1H-Indole	189	U
92-52-4	Biphenyl	189	U
132-65-0	Dibenzothiophene	189	U
260-94-6	Acridine	189	U
192-97-2	Benzo(e)pyrene	189	U
198-55-0	Perylene	189	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420FB

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 48342 SAS No.: SDG No.: 48342

Matrix: (soil/water) WATER Lab Sample ID: 48342-02FB

Sample wt/vol: 1000 (g/ml) ML Lab File ID: T0301709

Level: (low/med) LOW Date Received: 04/16/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted:04/19/96

Concentrated Extract Volume: 1.0(ml) Date Analyzed: 04/22/96

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	10.0	U
91-57-6	2-Methylnaphthalene	10.0	U
208-96-8	Acenaphthylene	10.0	U
83-32-9	Acenaphthene	10.0	U
132-64-9	Dibenzofuran	10.0	U
86-73-7	Fluorene	10.0	U
85-01-8	Phenanthrene	10.0	U
120-12-7	Anthracene	10.0	U
206-44-0	Fluoranthene	10.0	U
129-00-0	Pyrene	10.0	U
56-55-3	Benzo(a)Anthracene	10.0	U
218-01-9	Chrysene	10.0	U
205-99-2	Benzo(b)fluoranthene	10.0	U
207-08-9	Benzo(k)fluoranthene	10.0	U
50-32-8	Benzo(a)pyrene	10.0	U
193-39-5	Indeno(1 2 3-cd)pyrene	10.0	U
53-70-3	Dibenzo(a h)anthracene	10.0	U
191-24-2	Benzo(g h i)perylene	10.0	U
86-74-8	Carbazole	10.0	U
95-13-6	1H-Indene	10.0	U
91-22-5	Quinoline	10.0	U
90-12-0	1-Methylnaphthalene	10.0	U
271-89-6	2,3-Benzofuran	10.0	U
496-11-7	2,3-Dihydroindene	10.0	U
95-15-8	Benzo(b)thiophene	10.0	U
120-72-9	1H-Indole	10.0	U
92-52-4	Biphenyl	10.0	U
132-65-0	Dibenzothiophene	10.0	U
260-94-6	Acridine	10.0	U
192-97-2	Benzo(e)pyrene	10.0	U
198-55-0	Perylene	10.0	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420FBD

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 48342 SAS No.: SDG No.: 48342

Matrix: (soil/water) WATER Lab Sample ID: 48342-02FD

Sample wt/vol: 1040 (g/ml) ML Lab File ID: T0401710

Level: (low/med) LOW Date Received: 04/16/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 04/19/96

Concentrated Extract Volume: 1.0(ml) Date Analyzed: 04/22/96

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	9.62	U
91-57-6	2-Methylnaphthalene	9.62	U
208-96-8	Acenaphthylene	9.62	U
83-32-9	Acenaphthene	9.62	U
132-64-9	Dibenzofuran	9.62	U
86-73-7	Fluorene	9.62	U
85-01-8	Phenanthrene	9.62	U
120-12-7	Anthracene	9.62	U
206-44-0	Fluoranthene	9.62	U
129-00-0	Pyrene	9.62	U
56-55-3	Benzo(a)Anthracene	9.62	U
218-01-9	Chrysene	9.62	U
205-99-2	Benzo(b)fluoranthene	9.62	U
207-08-9	Benzo(k)fluoranthene	9.62	U
50-32-8	Benzo(a)pyrene	9.62	U
193-39-5	Indeno(1 2 3-cd)pyrene	9.62	U
53-70-3	Dibenzo(a h)anthracene	9.62	U
191-24-2	Benzo(g h i)perylene	9.62	U
86-74-8	Carbazole	9.62	U
95-13-6	1H-Indene	9.62	U
91-22-5	Quinoline	9.62	U
90-12-0	1-Methylnaphthalene	9.62	U
271-89-6	2,3-Benzofuran	9.62	U
496-11-7	2,3-Dihydroindene	9.62	U
95-15-8	Benzo(b)thiophene	9.62	U
120-72-9	1H-Indole	9.62	U
92-52-4	Biphenyl	9.62	U
132-65-0	Dibenzothiophene	9.62	U
260-94-6	Acridine	9.62	U
192-97-2	Benzo(e)pyrene	9.62	U
198-55-0	Perylene	9.62	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W421

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 48342 SAS No.: SDG No.: 48342

Matrix: (soil/water) WATER Lab Sample ID: 48342-03

Sample wt/vol: 1060 (g/ml) ML Lab File ID: T0801726

Level: (low/med) LOW Date Received: 04/16/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 04/19/96

Concentrated Extract Volume: 1.0 (ml) Date Analyzed: 04/23/96

Injection Volume: 2.0 (uL) Dilution Factor: 10.0

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	332	
91-57-6	2-Methylnaphthalene	94.3	U
208-96-8	Acenaphthylene	94.3	U
83-32-9	Acenaphthene	34.6	J
132-64-9	Dibenzofuran	94.3	U
86-73-7	Fluorene	13.2	J
85-01-8	Phenanthrene	94.3	U
120-12-7	Anthracene	94.3	U
206-44-0	Fluoranthene	94.3	U
129-00-0	Pyrene	94.3	U
56-55-3	Benzo(a)Anthracene	94.3	U
218-01-9	Chrysene	94.3	U
205-99-2	Benzo(b)fluoranthene	94.3	U
207-08-9	Benzo(k)fluoranthene	94.3	U
50-32-8	Benzo(a)pyrene	94.3	U
193-39-5	Indeno(1 2 3-cd)pyrene	94.3	U
53-70-3	Dibenzo(a h)anthracene	94.3	U
191-24-2	Benzo(g h i)perylene	94.3	U
86-74-8	Carbazole	33.7	J
95-13-6	1H-Indene	40.2	J
91-22-5	Quinoline	94.3	U
90-12-0	1-Methylnaphthalene	38.4	J
271-89-6	2,3-Benzofuran	94.3	U
496-11-7	2,3-Dihydroindene	92.5	J
95-15-8	Benzo(b)thiophene	45.4	J
120-72-9	1H-Indole	94.3	U
92-52-4	Biphenyl	94.3	U
132-65-0	Dibenzothiophene	94.3	U
260-94-6	Acridine	94.3	U
192-97-2	Benzo(e)pyrene	94.3	U
198-55-0	Perylene	94.3	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DFV-W422

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 48342 SAS No.: SDG No.: 48342

Matrix: (soil/water) WATER Lab Sample ID: 48342-04

Sample wt/vol: 1060 (g/ml) ML Lab File ID: T0501711

Level: (low/med) LOW Date Received: 04/16/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted:04/19/96

Concentrated Extract Volume: 1.0(ml) Date Analyzed: 04/22/96

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	1.31	J
91-57-6	2-Methylnaphthalene	9.43	U
208-96-8	Acenaphthylene	9.43	U
83-32-9	Acenaphthene	7.51	J
132-64-9	Dibenzofuran	9.43	U
86-73-7	Fluorene	9.43	U
85-01-8	Phenanthrene	9.43	U
120-12-7	Anthracene	9.43	U
206-44-0	Fluoranthene	9.43	U
129-00-0	Pyrene	9.43	U
56-55-3	Benzo(a)Anthracene	9.43	U
218-01-9	Chrysene	9.43	U
205-99-2	Benzo(b)fluoranthene	9.43	U
207-08-9	Benzo(k)fluoranthene	9.43	U
50-32-8	Benzo(a)pyrene	9.43	U
193-39-5	Indeno(1 2 3-cd)pyrene	9.43	U
53-70-3	Dibenzo(a h)anthracene	9.43	U
191-24-2	Benzo(g h i)perylene	9.43	U
86-74-8	Carbazole	9.43	U
95-13-6	1H-Indene	9.43	U
91-22-5	Quinoline	9.43	U
90-12-0	1-Methylnaphthalene	9.43	U
271-89-6	2,3-Benzofuran	9.43	U
496-11-7	2,3-Dihydroindene	17.0	
95-15-8	Benzo(b)thiophene	9.43	U
120-72-9	1H-Indole	9.43	U
92-52-4	Biphenyl	9.43	U
132-65-0	Dibenzothiophene	9.43	U
260-94-6	Acridine	9.43	U
192-97-2	Benzo(e)pyrene	9.43	U
198-55-0	Perylene	9.43	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W439

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 48342 SAS No.: SDG No.: 48342

Matrix: (soil/water) WATER Lab Sample ID: 48342-05

Sample wt/vol: 1060 (g/ml) ML Lab File ID: T0901727

Level: (low/med) LOW Date Received: 04/16/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 04/19/96

Concentrated Extract Volume: 1.0 (ml) Date Analyzed: 04/23/96

Injection Volume: 2.0 (uL) Dilution Factor: 20.0

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	823	
91-57-6	2-Methylnaphthalene	29.1	J
208-96-8	Acenaphthylene	189	U
83-32-9	Acenaphthene	64.8	J
132-64-9	Dibenzofuran	189	U
86-73-7	Fluorene	189	U
85-01-8	Phenanthrene	189	U
120-12-7	Anthracene	189	U
206-44-0	Fluoranthene	189	U
129-00-0	Pyrene	189	U
56-55-3	Benzo(a)Anthracene	189	U
218-01-9	Chrysene	189	U
205-99-2	Benzo(b)fluoranthene	189	U
207-08-9	Benzo(k)fluoranthene	189	U
50-32-8	Benzo(a)pyrene	189	U
193-39-5	Indeno(1 2 3-cd)pyrene	189	U
53-70-3	Dibenzo(a h)anthracene	189	U
191-24-2	Benzo(g h i)perylene	189	U
86-74-8	Carbazole	189	U
95-13-6	1H-Indene	126	J
91-22-5	Quinoline	189	U
90-12-0	1-Methylnaphthalene	97.2	J
271-89-6	2,3-Benzofuran	189	U
496-11-7	2,3-Dihydroindene	213	
95-15-8	Benzo(b)thiophene	65.9	J
120-72-9	1H-Indole	189	U
92-52-4	Biphenyl	189	U
132-65-0	Dibenzothiophene	189	U
260-94-6	Acridine	189	U
192-97-2	Benzo(e)pyrene	189	U
198-55-0	Perylene	189	U

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 48342 SAS No.: SDG No.: 48342

	EPA SAMPLE NO.	S1 #	S2 #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	SBLK01	70	98	57						0
02	48342 LCS	67	98	61						0
03	DPV-W420FB	63	94	60						0
04	DPV-W420FBD	72	105	62						0
05	DPV-W422	61	82	57						0
06	PCJ-W23	62	74	57						0
07	STP-W410	69	83	61						0
08	GTF-ACFE	80	94	68						0
09	STP-W409	75	74	67						0
10	DPV-W420	0D	0D	0D						0
11	DPV-W420DU	0D	0D	0D						0
12	DPV-W420MS	70	82	66						0
13	DPV-W420MSD	79	77	64						0
14	DPV-W421	0D	0D	0D						0
15	DPV-W439	0D	0D	0D						0
6	GTF-SFR	70	78	64						0
7										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										

		QC LIMITS
S1	= Naphthalene-d8	(37-107)
S2	= Chrysene-d12	(25-160)
S3	= Fluorene-d10	(36-127)

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: QUANTERRA DENVER Contract:

Lab Code: Case No.: 48342 SAS No.: SDG No.: 48342

Matrix Spike - EPA Sample No.: DPV-W420

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC. LIMITS REC.
Naphthalene	47.6	1210	633	-1212*	43-128
2-Methylnaphthalene	47.6	65.7	114	101	47-138
Fluorene	47.6	31.0	79.7	102	51-120
Chrysene	47.6	0.000	42.9	90	43-124
1H-Indene	47.6	62.2	124	130*	49-108
Quinoline	47.6	0.000	43.5	91	40-126
Benzo(e)pyrene	47.6	0.000	32.3	68	20-150

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Naphthalene	47.2	614	-1261*	-2	50	43-128
2-Methylnaphthalene	47.2	109	92	9	50	47-138
Fluorene	47.2	74.5	92	10	50	51-120
Chrysene	47.2	41.9	89	1	50	43-124
1H-Indene	47.2	124	131*	1	50	49-108
Quinoline	47.2	43.3	92	1	50	40-126
Benzo(e)pyrene	47.2	32.2	68	0	50	20-150

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

RPD: 0 out of 7 outside limits
Spike Recovery: 4 out of 14 outside limits

COMMENTS: _____

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420MS

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 48342 SAS No.: SDG No.: 48342

Matrix: (soil/water) WATER Lab Sample ID: 48342-01MS

Sample wt/vol: 1050 (g/ml) ML Lab File ID: T0601724

Level: (low/med) LOW Date Received: 04/16/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 04/19/96

Concentrated Extract Volume: 1.0 (ml) Date Analyzed: 04/23/96

Injection Volume: 2.0 (uL) Dilution Factor: 5.0

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	633	E
91-57-6	2-Methylnaphthalene	114	
208-96-8	Acenaphthylene	47.6	U
83-32-9	Acenaphthene	85.4	
132-64-9	Dibenzofuran	33.9	J
86-73-7	Fluorene	79.7	
85-01-8	Phenanthrene	22.4	J
120-12-7	Anthracene	47.6	U
206-44-0	Fluoranthene	47.6	U
129-00-0	Pyrene	47.6	U
56-55-3	Benzo(a)Anthracene	47.6	U
218-01-9	Chrysene	42.9	J
205-99-2	Benzo(b)fluoranthene	47.6	U
207-08-9	Benzo(k)fluoranthene	47.6	U
50-32-8	Benzo(a)pyrene	47.6	U
193-39-5	Indeno(1 2 3-cd)pyrene	47.6	U
53-70-3	Dibenzo(a h)anthracene	47.6	U
191-24-2	Benzo(g h i)perylene	47.6	U
86-74-8	Carbazole	74.8	
95-13-6	1H-Indene	124	
91-22-5	Quinoline	43.5	J
90-12-0	1-Methylnaphthalene	102	
271-89-6	2,3-Benzofuran	40.8	J
496-11-7	2,3-Dihydroindene	233	
95-15-8	Benzo(b)thiophene	113	
120-72-9	1H-Indole	47.6	U
92-52-4	Biphenyl	19.5	J
132-65-0	Dibenzothiophene	47.6	U
260-94-6	Acridine	47.6	U
192-97-2	Benzo(e)pyrene	32.3	J
198-55-0	Perylene	47.6	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420MSD

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 48342 SAS No.: SDG No.: 48342

Matrix: (soil/water) WATER Lab Sample ID: 48342-01MSD

Sample wt/vol: 1060 (g/ml) ML Lab File ID: T0701725

Level: (low/med) LOW Date Received: 04/16/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 04/19/96

Concentrated Extract Volume: 1.0(ml) Date Analyzed: 04/23/96

Injection Volume: 2.0(uL) Dilution Factor: 5.0

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	614	E
91-57-6	2-Methylnaphthalene	109	
208-96-8	Acenaphthylene	47.2	U
83-32-9	Acenaphthene	82.2	
132-64-9	Dibenzofuran	34.4	J
86-73-7	Fluorene	74.5	
85-01-8	Phenanthrene	21.4	J
120-12-7	Anthracene	47.2	U
206-44-0	Fluoranthene	47.2	U
129-00-0	Pyrene	47.2	U
56-55-3	Benzo(a)Anthracene	47.2	U
218-01-9	Chrysene	41.9	J
205-99-2	Benzo(b)fluoranthene	47.2	U
207-08-9	Benzo(k)fluoranthene	47.2	U
50-32-8	Benzo(a)pyrene	47.2	U
193-39-5	Indeno(1 2 3-cd)pyrene	47.2	U
53-70-3	Dibenzo(a h)anthracene	47.2	U
191-24-2	Benzo(g h i)perylene	47.2	U
86-74-8	Carbazole	68.6	
95-13-6	1H-Indene	124	
91-22-5	Quinoline	43.3	J
90-12-0	1-Methylnaphthalene	103	
271-89-6	2,3-Benzofuran	39.3	J
496-11-7	2,3-Dihydroindene	225	
95-15-8	Benzo(b)thiophene	111	
120-72-9	1H-Indole	47.2	U
92-52-4	Biphenyl	19.0	J
132-65-0	Dibenzothiophene	47.2	U
260-94-6	Acridine	6.21	J
192-97-2	Benzo(e)pyrene	32.2	J
198-55-0	Perylene	47.2	U

FORM 3
WATER SEMIVOLATILE METHOD SPIKE RECOVERY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 48342 SAS No.: SDG No.: 48342

Matrix Spike - Sample No.: 48342 LCS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	% REC #	QC. LIMITS REC.
Naphthalene	50.0	34.2	68	43-128
2-Methylnaphthalene	50.0	37.1	74	47-138
Fluorene	50.0	44.6	89	51-120
Chrysene	50.0	50.1	100	43-124
1H-Indene	50.0	42.9	86	49-108
Quinoline	50.0	39.9	80	40-126
Benzo(e)pyrene	50.0	42.5	85	20-150

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

COMMENTS:

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

48342 LCS

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 48342 SAS No.: SDG No.: 48342

Matrix: (soil/water) WATER Lab Sample ID: 48342 LCS

Sample wt/vol: 1000 (g/ml) ML Lab File ID: T0201708

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 04/19/96

Concentrated Extract Volume: 1.0 (ml) Date Analyzed: 04/22/96

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	34.2	
91-57-6	2-Methylnaphthalene	37.1	
208-96-8	Acenaphthylene	10.0	U
83-32-9	Acenaphthene	10.0	U
132-64-9	Dibenzofuran	10.0	U
86-73-7	Fluorene	44.6	
85-01-8	Phenanthrene	10.0	U
120-12-7	Anthracene	10.0	U
206-44-0	Fluoranthene	10.0	U
129-00-0	Pyrene	10.0	U
56-55-3	Benzo(a)Anthracene	10.0	U
218-01-9	Chrysene	50.1	
205-99-2	Benzo(b)fluoranthene	10.0	U
207-08-9	Benzo(k)fluoranthene	10.0	U
50-32-8	Benzo(a)pyrene	10.0	U
193-39-5	Indeno(1 2 3-cd)pyrene	10.0	U
53-70-3	Dibenzo(a h)anthracene	10.0	U
191-24-2	Benzo(g h i)perylene	10.0	U
86-74-8	Carbazole	10.0	U
95-13-6	1H-Indene	42.9	
91-22-5	Quinoline	39.9	
90-12-0	1-Methylnaphthalene	10.0	U
271-89-6	2,3-Benzofuran	10.0	U
496-11-7	2,3-Dihydroindene	10.0	U
95-15-8	Benzo(b)thiophene	10.0	U
120-72-9	1H-Indole	10.0	U
92-52-4	Biphenyl	10.0	U
132-65-0	Dibenzothiophene	10.0	U
260-94-6	Acridine	10.0	U
192-97-2	Benzo(e)pyrene	42.5	
198-55-0	Perylene	10.0	U

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

SBLK01

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 48342 SAS No.: SDG No.: 48342

Lab File ID: T0101707 Lab Sample ID: SBLK01

Instrument ID: T Date Extracted: 04/19/96

Matrix: (soil/water) WATER Date Analyzed: 04/22/96

Level: (low/med) LOW Time Analyzed: 1512

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	48342 LCS	48342 LCS	T0201708	04/22/96
02	DPV-W420FB	48342-02FB	T0301709	04/22/96
03	DPV-W420FBD	48342-02FD	T0401710	04/22/96
04	DPV-W422	48342-04	T0501711	04/22/96
05	PCJ-W23	48342-06	T0601712	04/22/96
06	STP-W410	48342-07	T0701713	04/22/96
07	GTF-ACFE	48342-09	T0201720	04/23/96
08	STP-W409	48342-10	T0301721	04/23/96
09	DPV-W420	48342-01	T0401722	04/23/96
10	DPV-W420DU	48342-01DU	T0501723	04/23/96
11	DPV-W420MS	48342-01MS	T0601724	04/23/96
12	DPV-W420MSD	48342-01MSD	T0701725	04/23/96
13	DPV-W421	48342-03	T0801726	04/23/96
14	DPV-W439	48342-05	T0901727	04/23/96
15	GTF-SFR	48342-08	T1001728	04/23/96
16				
17				
18				
19				
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22				
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24				
25				
26				
27				
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29				
30				

COMMENTS:

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLK01

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 48342 SAS No.: SDG No.: 48342

Matrix: (soil/water) WATER Lab Sample ID: SBLK01

Sample wt/vol: 1000 (g/ml) ML Lab File ID: T0101707

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:04/19/96

Concentrated Extract Volume: 1.0(ml) Date Analyzed: 04/22/96

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	10.0	U
91-57-6	2-Methylnaphthalene	10.0	U
208-96-8	Acenaphthylene	10.0	U
83-32-9	Acenaphthene	10.0	U
132-64-9	Dibenzofuran	10.0	U
86-73-7	Fluorene	10.0	U
85-01-8	Phenanthrene	10.0	U
120-12-7	Anthracene	10.0	U
206-44-0	Fluoranthene	10.0	U
129-00-0	Pyrene	10.0	U
56-55-3	Benzo(a)Anthracene	10.0	U
218-01-9	Chrysene	10.0	U
205-99-2	Benzo(b)fluoranthene	10.0	U
207-08-9	Benzo(k)fluoranthene	10.0	U
50-32-8	Benzo(a)pyrene	10.0	U
193-39-5	Indeno(1 2 3-cd)pyrene	10.0	U
53-70-3	Dibenzo(a h)anthracene	10.0	U
191-24-2	Benzo(g h i)perylene	10.0	U
86-74-8	Carbazole	10.0	U
95-13-6	1H-Indene	10.0	U
91-22-5	Quinoline	10.0	U
90-12-0	1-Methylnaphthalene	10.0	U
271-89-6	2,3-Benzofuran	10.0	U
496-11-7	2,3-Dihydroindene	10.0	U
95-15-8	Benzo(b)thiophene	10.0	U
120-72-9	1H-Indole	10.0	U
92-52-4	Biphenyl	10.0	U
132-65-0	Dibenzothiophene	10.0	U
260-94-6	Acridine	10.0	U
192-97-2	Benzo(e)pyrene	10.0	U
198-55-0	Perylene	10.0	U

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 48342 SAS No.: SDG No.: 48342

Lab File ID (Standard): T0704 Date Analyzed: 04/22/96

Instrument ID: T Time Analyzed: 1001

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	273838	12.08	365562	14.26	282313	19.66
	UPPER LIMIT	547676	12.58	731124	14.76	564626	20.16
	LOWER LIMIT	136919	11.58	182781	13.76	141156	19.16
	EPA SAMPLE NO.						
01	SBLK01	269067	12.07	372840	14.27	232769	19.66
02	48342 LCS	260219	12.05	371596	14.24	228101	19.65
03	DPV-W420FB	272347	12.05	397979	14.24	243534	19.65
04	DPV-W420FBD	278201	12.05	391957	14.24	230147	19.64
05	DPV-W422	304208	12.04	374329	14.23	259491	19.63
06	PCJ-W23	272146	12.04	411221	14.24	250232	19.63
07	STP-W410	289719	12.04	388989	14.24	245133	19.65
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = 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

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 48342 SAS No.: SDG No.: 48342

Lab File ID (Standard): T0718 Date Analyzed: 04/23/96

Instrument ID: T Time Analyzed: 1029

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	283331	12.05	394951	14.24	267986	19.65
	UPPER LIMIT	566662	12.55	789902	14.74	535972	20.15
	LOWER LIMIT	141666	11.55	197476	13.74	133993	19.15
	EPA SAMPLE NO.						
01	GTF-ACFE	285802	12.03	423512	14.23	211148	19.62
02	STP-W409	298721	12.03	416125	14.21	244620	19.62
03	DPV-W420	300185	12.03	434818	14.22	259650	19.62
04	DPV-W420DU	345427	12.04	466578	14.23	264284	19.63
05	DPV-W420MS	313521	12.04	411191	14.24	254765	19.64
06	DPV-W420MSD	319375	12.04	437407	14.24	263661	19.64
07	DPV-W421	321977	12.05	427084	14.24	203095	19.65
08	DPV-W439	323114	12.05	460253	14.24	246360	19.65
09	GTF-SFR	316885	12.05	442485	14.24	259517	19.64
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = 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.

PHENOLICS 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

May 14, 1996

Quanterra Environmental Services

Project Number 048335

Introduction

Thirteen aqueous samples (including matrix QC) were received at Quanterra Environmental Services, Denver Laboratory on April 16 , 1996. The samples were logged in under Quanterra Denver's project number 048335. A cross reference associating Quanterra Denver's laboratory sample numbers to the actual field sample number is included. The samples were analyzed for total recoverable phenolics by EPA method 420.1.

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.

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 abov

Reported By: _____ Date: 5/14/96

Kurt C. Ill
Program Manager

Reviewed By: _____ Date: 5-14-96

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
048335-0001-SA	DPV-W420TP-041596	AQUEOUS	15 APR 96		16 APR 96
048335-0001-DU	DPV-W420TPD-041596	AQUEOUS	15 APR 96		16 APR 96
048335-0001-MS	DPV-W420TPMS-041596	AQUEOUS	15 APR 96		16 APR 96
048335-0001-SD	DPV-W420TPMSD-041596	AQUEOUS	15 APR 96		16 APR 96
048335-0002-FB	DPV-W420TPFB-041596	AQUEOUS	15 APR 96		16 APR 96
048335-0002-FD	DPV-W420TPFBD-041596	AQUEOUS	15 APR 96		16 APR 96
048335-0003-SA	DPV-W421TP-041596	AQUEOUS	15 APR 96		16 APR 96
048335-0004-SA	DPV-W422TP-041596	AQUEOUS	15 APR 96		16 APR 96
048335-0005-SA	DPV-W439TP-041596	AQUEOUS	15 APR 96		16 APR 96
048335-0006-SA	GTF-SFRTP-041596	AQUEOUS	15 APR 96		16 APR 96
048335-0007-SA	GTF-ACFETP-041596	AQUEOUS	15 APR 96		16 APR 96
048335-0008-SA	PCJ-SLP4TP-041596	AQUEOUS	15 APR 96		16 APR 96
048335-0009-SA	STP-W410TP-041596	AQUEOUS	15 APR 96		16 APR 96

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COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

: QUANTERRA Contract: CITY_SLP

. DENVER Case No.: SAS No.: SDG No.:48335

ILM02

EPA Sample No.	Lab Sample ID
4833501	4833501
4833501DU	4833501DU
4833501S	4833501S
4833501D	4833501D
4833502FB	4833502FB
4833502FD	4833502FD
4833503	4833503
4833504	4833504
4833505	4833505
4833506	4833506
4833507	4833507
4833508	4833508
4833509	4833509

ıts:
:NE_WATER_SAMPLES_FOR_PHENOLICS_ANALYSIS.

:ify that this data package is in compliance with the terms and
:ions of the contract, both technically and for completeness, for
than the conditions detailed above. Release of the data contained
is hardcopy data package and in the computer-readable data submitted
oppy diskette has been authorized by the Laboratory Manager or the
er's designee, as verified by the following signature.

:ture: Name:

Title:

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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

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

4833501

QUANTERRA Contract: CITY_SLP

:: DENVER Case No.: SAS No.: SDG No.: 48335

(soil/water): WATER Lab Sample ID: 4833501

low/med): LOW Date Received: 04/16/96

s: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
54-30-0	Phenolics	130			C

Before: COLORLESS Clarity Before: CLEAR Texture:

After: COLORLESS Clarity After: CLEAR Artifacts:

ents:
PV-W420TP-041596

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

4833501D

: QUANTERRA Contract: CITY_SLP

: DENVER Case No.: SAS No.: SDG No.: 48335

(soil/water): WATER Lab Sample ID: 4833501D

low/med): LOW Date Received: 04/16/96

s: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
54-30-0	Phenolics	169			C

Before: COLORLESS Clarity Before: CLEAR Texture:

After: COLORLESS Clarity After: CLEAR Artifacts:

nts:
V-W420TPMSD-041596

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EPA SAMPLE NO.

4833502FB

e: QUANTERRA Contract: CITY_SLP

ie: DENVER Case No.: Sas No.: SDG No.: 48335

(soil/water): WATER Lab Sample ID: 4833502FB

(low/med): LOW Date Received: 04/16/96

ds: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
54-30-0	Phenolics	10.0	U		C

· Before: COLORLESS Clarity Before: CLEAR Texture:

· After: COLORLESS Clarity After: CLEAR Artifacts:

ents:
PV-W420TPFB-041596

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

4833502FD

ne: QUANTERRA Contract: CITY_SLP

:e: DENVER Case No.: ____ SAS No.: ____ SDG No.: 48335

(soil/water): WATER Lab Sample ID: 4833502FD

(low/med): LOW Date Received: 04/16/96

is: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
54-30-0	Phenolics	29.4			C

Before: COLORLESS Clarity Before: CLEAR Texture: ____

After: COLORLESS Clarity After: CLEAR Artifacts: ____

nts:
V-W420TPFBD-041596

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

4833503

: QUANTERRA Contract: CITY_SLP

e: DENVER Case No.: SAS No.: SDG No.: 48335

(soil/water): WATER Lab Sample ID: 4833503

low/med): LOW Date Received: 04/16/96

s: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
54-30-0	Phenolics	123			C

Before: COLORLESS Clarity Before: CLEAR Texture:

r After: COLORLESS Clarity After: CLEAR Artifacts:

ents:
PV-W421TP-041596

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

4833504

e: QUANTERRA Contract: CITY_SLP

e: DENVER Case No.: SAS No.: SDG No.: 48335

(soil/water): WATER Lab Sample ID: 4833504

low/med): LOW Date Received: 04/16/96

s: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
54-30-0	Phenolics	11.1			C

Before: COLORLESS Clarity Before: CLEAR Texture:

After: COLORLESS Clarity After: CLEAR Artifacts:

ents:
PV-W422TP-041596

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

4833505

QUANTERRA Contract: CITY_SLP

e: DENVER Case No.: SAS No.: SDG No.: 48335

(soil/water): WATER Lab Sample ID: 4833505

low/med): LOW Date Received: 04/16/96

is: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
54-30-0	Phenolics	43.1			C

Before: COLORLESS Clarity Before: CLEAR Texture:

After: COLORLESS Clarity After: CLEAR Artifacts:

nts:
V-W439TP-041596

FORM I - IN

7/88

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

QUANTERRA_____ Contract: CITY_SLP__

DENVER Case No.: ____ SAS No.: _____ SDG No.: 48335_

alibration Source: HIGH PURITY_

g Calibration Source: INORG VENTUR

Concentration Units: ug/L

	Initial Calibration			Continuing Calibration					
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
s	50.0	49.90	99.8	50.0	49.00	98.0	49.00	98.0	C

ntrol Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

FORM II (PART 1) - IN

7/88

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

JANTERRA_____ Contract: CITY_SLP__

ENVER Case No.: ____ SAS No.: _____ SDG No.: 48335_

ibration Source: HIGH PURITY_

Calibration Source: INORG VENTUR

Concentration Units: ug/L

Initial Calibration			Continuing Calibration					
True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
			50.0	49.00	98.0			C

.trol Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

FORM II (PART 1) - IN

7/88

U.S. EPA - CLP

3
BLANKS

NTERRA_____ Contract: CITY_SLP__

NVER Case No.: _____ SAS No.: _____ SDG No.: 48335_

Blank Matrix (soil/water): WATER

Blank Concentration Units (ug/L or mg/kg): UG/L_

Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
10.0	U	10.0	U	10.0	U	10.0	U	10.000	U	L

FORM III - IN

7/88

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

4833501S

.TERRA_____ Contract: CITY_SLP__

.NVER Case No.: _____ SAS No.: _____ SDG No.: 48335_

/water): WATER_ Level (low/med): LOW___

- Sample: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
75-125	174.8000		129.6000		50.00	90.4		C

ts:
-W420TPMS-041596

U.S. EPA - CLP

6
DUPLICATES

EPA SAMPLE NO.

4833501DU

e: QUANTERRA Contract: CITY_SLP

e: DENVER Case No.: ____ SAS No.: ____ SDG No.: 48335_

(soil/water): WATER Level (low/med): _LOW

is for Sample: 0.0 % Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

alyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
enolics		129.6000		121.8000		6.2		C

FORM VI - IN

7/88

U.S. EPA - CLP

7

LABORATORY CONTROL SAMPLE

QUANTERRA_____ Contract: CITY_SLP__

. DENVER Case No.: _____ SAS No.: _____ SDG No.: 48335_

5 Source: EPA STANDARD

LCS Source: INORG VENTUR

	Aqueous (ug/L)			Solid (mg/kg)					
	True	Found	%R	True	Found	C	Limits		%R
cs	50.0	49.90	99.8						

FORM VII - IN

7/88

U.S. EPA - CLP

8

STANDARD ADDITION RESULTS

:ANTERRA_____ Contract:CITY_SLP__

:NVER Case No.: _____ SAS No.:_____ SDG No.:48335_

Concentration Units: ug/L

n	0 ADD ABS	1 ADD CON	1 ADD ABS	2 ADD CON	2 ADD ABS	3 ADD CON	3 ADD ABS	Final Conc.	r	Q

FORM VIII - IN 7/88

U.S. EPA - CLP

13
PREPARATION LOG

ITERRA_____ Contract: CITY_SLP__

NVER Case No.:_____ SAS No.: _____ SDG No.:48335_

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
4833501	04/22/96		200
4833501	04/22/96		200
4833501	04/22/96		200
4833501	04/22/96		200
4833502	04/22/96		200
4833502	04/22/96		200
4833503	04/22/96		200
4833504	04/22/96		200
4833505	04/22/96		200
4833506	04/22/96		200
4833507	04/22/96		200
4833508	04/22/96		200
4833509	04/22/96		200
LCSW	04/22/96		200
PBW	04/22/96		200

U.S. EPA - CLP

14

ANALYSIS RUN LOG

ANTERRA_____ Contract: CITY_SLP__

NVER Case No.: _____ SAS No.: _____ SDG No.:48335_

D Number: SPEC 301_____ Method: C_

04/22/96 End Date: 04/22/96

D/F	Time	% R	Analytes: PH
1.00	2206		X
1.00	2207		X
1.00	2208		X
1.00	2209		X
1.00	2210		X
1.00	2211		X
1.00	2212		X
1.00	2212		X
1.00	2213		X
1.00	2214		X
2.00	2215		X
2.00	2215		X
2.00	2215		X
2.00	2216		X
1.00	2216		X
1.00	2216		X
2.00	2217		X
1.00	2217		X
1.00	2217		X
1.00	2217		X
1.00	2217		X
1.00	2218		X
1.00	2219		X
1.00	2220		X
1.00	2221		X
1.00	2222		
1.00	2223		
1.00	2224		
1.00	2225		
1.00	2226		
1.00	2227		X
1.00	2228		X

U.S. EPA - CLP

14

ANALYSIS RUN LOG

JANTERRA _____ Contract: CITY_SLP__

DENVER Case No.: _____ SAS No.: _____ SDG No.:48335_

: ID Number: SPEC 301_____ Method: C_

e: 04/22/96 End Date: 04/22/96

D/F	Time	% R	Analytes																								
			PH																								
1.00	2229																										
1.00	2230																										
1.00	2231																										
1.00	2232																										
1.00	2233																										
1.00	2234																										
1.00	2235																										
1.00	2236																										
1.00	2237		X																								
1.00	2238		X																								

FORM XIV - IN 7/88

uanterra
Environmental Services

Laboratory Bench Sheet
Colorimetric Analysis
Revision 0 - January 25, 1995

yst: D. LONA	**Calibration Curve Information**						**Instrument Information**
: 4/22/96	CONC.(mg/L)		ABS.	CONC.(mg/L)		ABS.	Instrument: SPECI 301
Lot: 22 APR96-N1+N2	BLANK	0.000	0.000	STD 5	0.10	0.235	Wavelength (nm): 460
Run: ↓	STD 1	0.005	0.013	STD 6			Parameter: PHEN-MAN
SOP Information	STD 2	0.01	0.026	STD 7			Corr. Coefficient: 0.99987
mber: DEN-WC-0013	STD 3	0.02	0.046	STD 8			Slope: 2.3465
vision:	STD 4	0.05	0.120				Intercept: 0.00098

DCS Information	**Matrix Spike Information**	**Calibration Information**
urce/Ver-Lot #: RMAL/9534	Source/Ver-Lot #: SAME AS CAL	Source/Ver-Lot #: RMAL/9652
ep Date: N/A Made By: LARCHEM	Prep Date: Made By:	Prep Date: N/A Made By: RICCA
ncentration: 1000 mg/L	Concentration:	Concentration: 1000 mg/L
piration Date: 10/26/96	Expiration Date: ↓	Expiration Date: 9/96
S True Value: 0.05 mg/L	Spike True Value: 0.05 mg/L	CCV True Value: 0.05 mg/L

Int./ Notes	LIMS ID	pH	Sample Amount (mL/g)	Sample Absorbance	Color Blank Absorbance	Concentration (mg/L-mg/kg)	Prep D.F.	Anal. D.F.	Final Conc. (mg/L-mg/kg)	%REC /RPD
	ICV/LCS	<2	200	0.118	N/A	0.0499	1X	1X	0.050	100%
	ICB			0.000		-0.0004			ND	
	PREP BLANK			0.001		0.0000		↓	ND	
:15	48335-1			0.153		0.0648		2X	0.130	RL 0.01
	-1DU			0.144		0.0609		2X	0.122	↓
	-1MS			0.206		0.0874		2X	0.175(0.05)	88%
2:16	-1SD			0.199		0.0844		2X	0.169(0.05)	78%
	-2FB			0.004		0.0013		1X	ND	
	-2FD			0.070		0.0294		↓	0.029	
:27	-3			0.145		0.0614		2X	0.123	RL 0.01
	-4			0.027		0.0111		1X	0.011	
	-5	↓	↓	0.102	↓	0.0431	↓	↓	0.043	
	CCV			0.116		0.0490			0.049	98%
	CCB			0.000		-0.0004			ND	
22:18	48335-6	<2	200	0.197	N/A	0.0835	1X	1X	0.084	
22:19	-7			0.006		0.0021			ND	
	-8			0.005		0.0017			ND	
	-9			0.021		0.0085			-0.0085	
	PBLK (N2)			0.002		0.0004			ND	
	DCS			0.113		0.0477			0.048	95%
	DCS			0.114		0.0482			0.048	
	48431-1			0.015		0.0064			0.0064	
	-2	↓	↓	0.002	↓	0.0004	↓	↓	ND	
	CCV			0.116		0.0490			0.049	98%
	CCB			0.000		-0.0004				

* MS/MSD chosen by analyst

BS0003.DOC

Environmental Services

Laboratory Bench Sheet
Colorimetric Analysis
Revision 0 - January 25, 1995

	Calibration Curve Information						Instrument Information
: D. LUNA	CONC.(mg/L)	ABS.		CONC.(mg/L)	ABS.		Instrument: SPECT
4/22/96	BLANK			STD 5			Wavelength (nm):
: 22 APR 96 - N1+N2	STD 1			STD 6			Parameter:
un:	STD 2			STD 7			Corr. Coefficient:
SOP Information	STD 3			STD 8			Slope:
er:	STD 4						Intercept:
ion:							

DCS Information	Matrix Spike Information	Calibration Information
e/Ver-Lot #:	Source/Ver-Lot #:	Source/Ver-Lot #:
Date: Made By:	Prep Date: Made By:	Prep Date: Made By:
entration:	Concentration:	Concentration:
ation Date:	Expiration Date:	Expiration Date:
True Value:	Spike True Value:	CCV True Value:

tes	LIMS ID	pH	Sample Amount (mL/g)	Sample Absorbance	Color Blank Absorbance	Concentration (mg/L-mg/kg)	Prep D.F.	Anal. D.F.	Final Conc. (mg/L-mg/kg)	%REC /RPD
	48431-3	<2	200	0.002	N/A	0.0004	1X	1X	ND	
	-4			0.002		0.0004			ND	
	-5			0.005		0.0017			ND	
	-6			0.004		0.0013			ND	
	-6MS			0.111		0.0469			0.047 (0.05)	94%
	-6SD			0.121		0.0511			0.051 (0.05)	102%
	-7			0.007		0.0026			ND	
	-8			0.005		0.0017			ND	
	CCV			0.116		0.0490			0.049	
	CCB			0.000		-0.0004			ND	

DL 4/22/96

* MS/MSD chosen by analyst

BS0003.DOC

Enseco - Rocky Mountain Analytical Lab
Sample Description Sheet

Project 048335 Case/SAS No. /NA

SDG No. Conc./Matrix /AQUEOUS

	LIMS SAMPLE	BEFORE DIGESTION COLOR	BEFORE DIGESTION CLARITY	AFTER DIGESTION COLOR	AFTER DIGESTION CLARITY
)TP	0483350001DU	Colorless	Clear	Colorless	Clear
)TP	0483350001MS				
)TP	0483350001SA				
)TP	0483350001SD				
)TP	0483350002FB				
)TP	0483350002FD				
1TP	0483350003SA				
.2TP	0483350004SA				
9TP	0483350005SA				
·ETP	0483350007SA				
RTP-	0483350006SA				
24TP	0483350008SA				
10TP	0483350009SA				

DESCRIPTION KEY:

COLOR:

1.RED	4.GREEN	7.WHITE	10.GREY
2.BLUE	5.ORANGE	8.COLORLESS	11.BLACK
3.YELLOW	6.VIOLET	9.BROWN	

CLARITY:
1.CLEAR
2.CLOUDY
3.OPAQUE

NTS:

Enseco - Rocky Mountain Analytical Lab
Sample Preparation Sheet

Project 048335 Case/SAS No. /NA

SDG No. Conc./Matrix /AQUEOUS

.E	LIMS SAMPLE	DATE RECD	PARAMETERS	ICP METALS		FURNACE METALS		MERCURY		Phenols ~~CYANIDE~~		pH
				g/mL	mL	g/mL	mL	g/mL	mL	g/mL	mL	
	--------	------								200	200	
	--------	------										
20TP	0483350001DU	04/16/96										
20TP	0483350001MS	04/16/96										
20TP	0483350001SA	04/16/96										
20TP	0483350001SD	04/16/96										
20TP	0483350002FB	04/16/96										
20TP	0483350002FD	04/16/96										
21TP	0483350003SA	04/16/96										
22TP	0483350004SA	04/16/96										
439TP	0483350005SA	04/16/96										
ETP	0483350007SA	04/16/96										
RTP-	0483350006SA	04/16/96										
LP4TP	0483350008SA	04/16/96										
410TP	0483350009SA	04/16/96										
		DATE / INITIALS:		/		/		/		4/22/96	DL	/

IAL INSTRUCTIONS and/or CAUTIONS:

303 421-6611 Telephone
303 431-7171 Fax

Environmental Services

QUANTERRA CLIENT

City of St. Louis Park
3752 Wooddale Ave So
St. Louis Park Mn 55416

PROJECT

SAMPLING COMPANY: SDME

SAMPLING SITE: SPME

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 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
4-15-96		DPV-W420TP -041596	16oz AMBER	1	Phenolics	01
		DPV-W420TPD-041596				02 -01 Dup
		DPV-W420TPMS-041596				03 -01ms
		DPV-W420TPMSD-041596				04 -01sp
		DPV-W420TPFB -041596				05 -02FB
		DPV-W420TPFBD-041596				06 -02FD
		DPV-W421TP -041596				07 -03
		DPV-W422TP -041596				08 -04
		DPV-W439TP -041596				09 -05
4-15-96		GTF-SFRTP -041596	16oz AMBER	1	Phenolics	10 -06

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: 7828345733

RECEIVED FOR LAB — SIGNED: Stephen [illegible] DATE/TIME: 4/16/96 900

QUANTERRA PROJECT NUMBER: 48335

QUA 4119

White - C[illegible] Pink - LAB

Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

Environmental Services

QUANTERRA CLIENT

City of St. Louis Park
3752 Wooddale Ave So
St. Louis Park Mn 55416

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 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
4-15-96		GTF-ACFETP-041596	16oz AMBER	1	Phenolics	1 -07
4-15-96		PCU-SLP4TP-041596	16oz AMBER	1	Phenolics	-08
4-15-96		STP-W410TP-041596	16oz AMBER	1	Phenolics	-09

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: 7828345733

RECEIVED FOR LAB

SIGNED: Steve Benjamin

DATE/TIME: 4/16/96 90

QUANTERRA PROJECT NUMBER: 48335

QUA 4119

White – CLIENT Pink – LAB

THIRD QUARTER MONITORING

PAH 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

May 14, 1996

Quanterra Environmental Services

Project Number 048342

Introduction

Fourteen aqueous samples (including matrix QC) were received at Quanterra Environmental Services, Denver Laboratory on April 16 and April 17, 1996. The samples were logged in under Quanterra Denver's project number 048342. A cross reference associating Quanterra Denver's laboratory sample numbers to the actual field sample number is included. The samples were analyzed for low level 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.

Client samples with lab Id's 048342-001, 001DU, 001MS, 001MSD, 003, 005, 008 and 010 had to be diluted due to target analytes exceeding the linear range of the instrument. The reporting limits were raised accordingly. As a result of dilution the surrogates for samples 048342-001, 01DU and 005 were not detected and are reported as "D".

Napthalene in both the matrix spike and matrix spike duplicate samples are reported out of QC limits (43 - 128). Due to the high concentration of Napthalene present in the sample, 1210 ug/L, the spike concentration of 47 ug/L was insufficient to be detected and calculated.

Quanterra
Environmental Services

1H-Indene in both the matrix spike and matrix spike duplicate samples are reported out of QC limits (49 - 108). 1H-Indene is within acceptance limits in both the LCS and Method Blank, suggesting a matrix effect. No further action is indicated.

Client sample with lab Id 048342-010 for pH was received in a non-approved sample container. Sample was analyzed per the COC but data is subject to suspicion.

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:** May 14 1996

Kurt C. Ill
Program Manager

Reviewed By: _____ **Date:** 5-14-96

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

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".

R = Target compound's secondary ion confirmation not met, however peak shape and retention time make peak identication positive.

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 048342	Group Code	Analysis Description	Custom Test?
0001 - 0009	A	CLP/PAH Semivolatile Organics High Level PPB	N
		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
		CLP/PAH Semivolatile Organics High Level PPB	N
0010	C	pH	N
		CLP/PAH Semivolatile Organics High Level PPB	N
		CLP Prep - PAH Semivolatile Organics by GC/MS High Level PPB	N

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
048342-0001-SA	DPV-W420-041596	AQUEOUS	15 APR 96		16 APR 96
048342-0001-DU	DPV-W420D-041596	AQUEOUS	15 APR 96		16 APR 96
048342-0001-MS	DPV-W420MS-041596	AQUEOUS	15 APR 96		16 APR 96
048342-0001-SD	DPV-W420MSD-041596	AQUEOUS	15 APR 96		16 APR 96
048342-0002-FB	DPV-W420FB-041596	AQUEOUS	15 APR 96		16 APR 96
048342-0002-FD	DPV-W420FBD-041596	AQUEOUS	15 APR 96		16 APR 96
048342-0003-SA	DPV-W421-041596	AQUEOUS	15 APR 96		16 APR 96
048342-0004-SA	DPV-W422-041596	AQUEOUS	15 APR 96		16 APR 96
048342-0005-SA	DPV-W439-041596	AQUEOUS	15 APR 96		16 APR 96
048342-0006-SA	PCJ-W23-041596	AQUEOUS	15 APR 96		16 APR 96
048342-0007-SA	STP-W410-041596	AQUEOUS	15 APR 96		16 APR 96
048342-0008-SA	GTF-SFR-041596	AQUEOUS	15 APR 96		16 APR 96
048342-0009-SA	GTF-ACFE-041596	AQUEOUS	15 APR 96		16 APR 96
048342-0010-SA	STP-W409-041596	AQUEOUS	16 APR 96	17:25	17 APR 96

CHAIN OF CUSTODY

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

Quanterra Environmental Services

QUANTERRA CLIENT: City of St. Louis Park
3752 Wooddale Ave So
St. Louis Park Mn 55416

PROJECT:

SAMPLING COMPANY: SAME

SAMPLING SITE: SAME

TEAM LEADER: MJR

SAMPLE SAFE™ CONDITIONS

PACKED BY: MJR

SEAL NUMBER:

SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:

CONDITION OF CONTENTS:

SEALED FOR SHIPPING BY: MJR

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
4-15-96		DPV-W420-041596	1XL AMBER	2	PPB PAH	
		DPV-W420D-041596				
		DPV-W420MS-041596				
		DPV-W420MSD-041596				
		DPV-W420FB-041596				
		DPV-W420FBD-041596				
		DPV-W421-041596				
4-15-96	16:40	STP-W409-041596	1XL AMBER	2	PPB PAH	And pH
		BROKEN				

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MJR

METHOD OF SHIPMENT: FED EX

AIRBILL NUMBER: 7828945733

RECEIVED FOR LAB: SIGNED: Steve Bingham DATE/TIME: 4/16/96 @ 900

QUANTERRA PROJECT NUMBER:

QUA-4110

White - CLIENT Pink - LAB

CHAIN OF CUSTODY

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

Quanterra Environmental Services

QUANTERRA CLIENT: City of St. Louis Park
PROJECT: 3752 Wooddale Ave So
St. Louis Park Mn 55416

SAMPLING COMPANY: SAME

SAMPLING SITE: SAME

TEAM LEADER: MJW

SAMPLE SAFE™ CONDITIONS

PACKED BY: MJW	SEAL NUMBER:
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:	CONDITION OF CONTENTS:
SEALED FOR SHIPPING BY: MJW	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
4-15-96		DPV-W422-041596	1XLAMBER	2	PPB · PAH	
		DPV-W439-041596				
		PCJ-W23-041596				
		STP-W410-041596				
		GTF-SFR-041596				
4-15-96		GTF-ACFE-041596	1XLAMBER	2	PPB PAH	

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MJW	
METHOD OF SHIPMENT: FED EX	AIRBILL NUMBER: 7828345733
RECEIVED FOR LAB:	SIGNED: Steve Benjamin DATE/TIME: 9/16/96 900
QUANTERRA PROJECT NUMBER:	

QUA-4119

White – CLIENT Pink – LAB

Pinchcape Testing Services
West-Paine Laboratories
(504) 769-4900 • Fax (504) 767-5717

CHAIN OF CUSTODY RECORD

Lab use only:

Client Name | Client # | Group # | Due Date

Submitted by
Client: ENSR
Address: 4500 Park Glen Rd
St. Louis Park MN
Contact: Bill Gregg
Phone: 612 924 0117
Fax: 612 924 0317

Bill to
Client: SAME
Address:
Contact:
Phone:

P. O. Number:
Project Name/Number: SLP 1620-013-400

Sampled By: Pete Moore / J. OSBERG

Analytical Requests: PAH - PPB

Lab use only:
LAB M ☐ ☐
Gen Chem ☐ ☐
Metals ☐ ☐
GC/MS VOA ☐ ☐
GC/MS Semi-V ☐ ☐
GC/Semi-V ☐ ☐
GC ☐ ☐
Extractions ☐ ☐
Client Services ☐ ☐
Ship ☐ ☐
Info Request ☐ ☐

Matrix[1]	Date	Time (2400)	Comp	Grab	Sample Description	Preservatives	No. Containers	PAH - PPB	Remarks:	Lab ID
H_2O	4-16-96	17:35		X	PCJ - W409 - 041696	None	3	X	48392-10	1

Lab use only:
Custody Seal
used ☑ yes ☐ no
In tact ☑ yes ☐ no
Temperature °C 3.7

Turn Around Time: ☐ 24-48 hrs. (min. 100%) ☐ 3 days (75%) ☐ 1 week (50%) ☐ Standard Other _____

Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
[signature] 18:00	[signature]	4/17/96	1900
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

Note:

___ Water
___ Solid
___ Oil
___ Sludge

By submitting these samples, you agree to the terms and conditions contained in our most recent schedule of services.

Matrix[1]: W = water, S = soil, SD = solid, L = liquid, SL = sludge, O = oil, CT = charcoal tube, A = air bag

We cannot accept verbal changes. Please fax written changes to (504) 767-5717.

WHITE: CLIENT FINAL REPORT — CANARY: LABORATORY — PINK: CLIENT

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 48342 SAS No.: SDG No.: 48342

Matrix: (soil/water) WATER Lab Sample ID: 48342-01

Sample wt/vol: 1050 (g/ml) ML Lab File ID: T0401722

Level: (low/med) LOW Date Received: 04/16/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 04/19/96

Concentrated Extract Volume: 1.0 (ml) Date Analyzed: 04/23/96

Injection Volume: 2.0 (uL) Dilution Factor: 20.0

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	1210	
91-57-6	2-Methylnaphthalene	65.7	J
208-96-8	Acenaphthylene	190	U
83-32-9	Acenaphthene	81.4	J
132-64-9	Dibenzofuran	30.7	J
86-73-7	Fluorene	31.0	J
85-01-8	Phenanthrene	19.7	J
120-12-7	Anthracene	190	U
206-44-0	Fluoranthene	190	U
129-00-0	Pyrene	190	U
56-55-3	Benzo(a)Anthracene	190	U
218-01-9	Chrysene	190	U
205-99-2	Benzo(b)fluoranthene	190	U
207-08-9	Benzo(k)fluoranthene	190	U
50-32-8	Benzo(a)pyrene	190	U
193-39-5	Indeno(1 2 3-cd)pyrene	190	U
53-70-3	Dibenzo(a h)anthracene	190	U
191-24-2	Benzo(g h i)perylene	190	U
86-74-8	Carbazole	62.6	J
95-13-6	1H-Indene	62.2	J
91-22-5	Quinoline	190	U
90-12-0	1-Methylnaphthalene	88.2	J
271-89-6	2,3-Benzofuran	26.0	J
496-11-7	2,3-Dihydroindene	222	
95-15-8	Benzo(b)thiophene	103	J
120-72-9	1H-Indole	190	U
92-52-4	Biphenyl	190	U
132-65-0	Dibenzothiophene	190	U
260-94-6	Acridine	190	U
192-97-2	Benzo(e)pyrene	190	U
198-55-0	Perylene	190	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DFV-W420DU

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 48342 SAS No.: SDG No.: 48342

Matrix: (soil/water) WATER Lab Sample ID: 48342-01DU

Sample wt/vol: 1060 (g/ml) ML Lab File ID: T0501723

Level: (low/med) LOW Date Received: 04/16/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 04/19/96

Concentrated Extract Volume: 1.0 (ml) Date Analyzed: 04/23/96

Injection Volume: 2.0 (uL) Dilution Factor: 20.0

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	1240	
91-57-6	2-Methylnaphthalene	73.9	J
208-96-8	Acenaphthylene	189	U
83-32-9	Acenaphthene	91.5	J
132-64-9	Dibenzofuran	32.9	J
86-73-7	Fluorene	34.1	J
85-01-8	Phenanthrene	22.1	J
120-12-7	Anthracene	189	U
206-44-0	Fluoranthene	189	U
129-00-0	Pyrene	189	U
56-55-3	Benzo(a)Anthracene	189	U
218-01-9	Chrysene	189	U
205-99-2	Benzo(b)fluoranthene	189	U
207-08-9	Benzo(k)fluoranthene	189	U
50-32-8	Benzo(a)pyrene	189	U
193-39-5	Indeno(1 2 3-cd)pyrene	189	U
53-70-3	Dibenzo(a h)anthracene	189	U
191-24-2	Benzo(g h i)perylene	189	U
86-74-8	Carbazole	64.3	J
95-13-6	1H-Indene	76.2	J
91-22-5	Quinoline	189	U
90-12-0	1-Methylnaphthalene	105	J
271-89-6	2,3-Benzofuran	36.8	J
496-11-7	2,3-Dihydroindene	266	
95-15-8	Benzo(b)thiophene	122	J
120-72-9	1H-Indole	189	U
92-52-4	Biphenyl	189	U
132-65-0	Dibenzothiophene	189	U
260-94-6	Acridine	189	U
192-97-2	Benzo(e)pyrene	189	U
198-55-0	Perylene	189	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DFV-W420FB

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 48342 SAS No.: SDG No.: 48342

Matrix: (soil/water) WATER Lab Sample ID: 48342-02FB

Sample wt/vol: 1000 (g/ml) ML Lab File ID: T0301709

Level: (low/med) LOW Date Received: 04/16/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted:04/19/96

Concentrated Extract Volume: 1.0(ml) Date Analyzed: 04/22/96

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	10.0	U
91-57-6	2-Methylnaphthalene	10.0	U
208-96-8	Acenaphthylene	10.0	U
83-32-9	Acenaphthene	10.0	U
132-64-9	Dibenzofuran	10.0	U
86-73-7	Fluorene	10.0	U
85-01-8	Phenanthrene	10.0	U
120-12-7	Anthracene	10.0	U
206-44-0	Fluoranthene	10.0	U
129-00-0	Pyrene	10.0	U
56-55-3	Benzo(a)Anthracene	10.0	U
218-01-9	Chrysene	10.0	U
205-99-2	Benzo(b)fluoranthene	10.0	U
207-08-9	Benzo(k)fluoranthene	10.0	U
50-32-8	Benzo(a)pyrene	10.0	U
193-39-5	Indeno(1 2 3-cd)pyrene	10.0	U
53-70-3	Dibenzo(a h)anthracene	10.0	U
191-24-2	Benzo(g h i)perylene	10.0	U
86-74-8	Carbazole	10.0	U
95-13-6	1H-Indene	10.0	U
91-22-5	Quinoline	10.0	U
90-12-0	1-Methylnaphthalene	10.0	U
271-89-6	2,3-Benzofuran	10.0	U
496-11-7	2,3-Dihydroindene	10.0	U
95-15-8	Benzo(b)thiophene	10.0	U
120-72-9	1H-Indole	10.0	U
92-52-4	Biphenyl	10.0	U
132-65-0	Dibenzothiophene	10.0	U
260-94-6	Acridine	10.0	U
192-97-2	Benzo(e)pyrene	10.0	U
198-55-0	Perylene	10.0	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420FBD

b Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 48342 SAS No.: SDG No.: 48342

Matrix: (soil/water) WATER Lab Sample ID: 48342-02FD

Sample wt/vol: 1040 (g/ml) ML Lab File ID: T0401710

Level: (low/med) LOW Date Received: 04/16/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted:04/19/96

Concentrated Extract Volume: 1.0(ml) Date Analyzed: 04/22/96

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	9.62	U
91-57-6	2-Methylnaphthalene	9.62	U
208-96-8	Acenaphthylene	9.62	U
83-32-9	Acenaphthene	9.62	U
132-64-9	Dibenzofuran	9.62	U
86-73-7	Fluorene	9.62	U
85-01-8	Phenanthrene	9.62	U
120-12-7	Anthracene	9.62	U
206-44-0	Fluoranthene	9.62	U
129-00-0	Pyrene	9.62	U
56-55-3	Benzo(a)Anthracene	9.62	U
218-01-9	Chrysene	9.62	U
205-99-2	Benzo(b)fluoranthene	9.62	U
207-08-9	Benzo(k)fluoranthene	9.62	U
50-32-8	Benzo(a)pyrene	9.62	U
193-39-5	Indeno(1 2 3-cd)pyrene	9.62	U
53-70-3	Dibenzo(a h)anthracene	9.62	U
191-24-2	Benzo(g h i)perylene	9.62	U
86-74-8	Carbazole	9.62	U
95-13-6	1H-Indene	9.62	U
91-22-5	Quinoline	9.62	U
90-12-0	1-Methylnaphthalene	9.62	U
271-89-6	2,3-Benzofuran	9.62	U
496-11-7	2,3-Dihydroindene	9.62	U
95-15-8	Benzo(b)thiophene	9.62	U
120-72-9	1H-Indole	9.62	U
92-52-4	Biphenyl	9.62	U
132-65-0	Dibenzothiophene	9.62	U
260-94-6	Acridine	9.62	U
192-97-2	Benzo(e)pyrene	9.62	U
198-55-0	Perylene	9.62	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W421

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 48342 SAS No.: SDG No.: 48342

Matrix: (soil/water) WATER Lab Sample ID: 48342-03

Sample wt/vol: 1060 (g/ml) ML Lab File ID: T0801726

Level: (low/med) LOW Date Received: 04/16/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 04/19/96

Concentrated Extract Volume: 1.0 (ml) Date Analyzed: 04/23/96

Injection Volume: 2.0 (uL) Dilution Factor: 10.0

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	332	
91-57-6	2-Methylnaphthalene	94.3	U
208-96-8	Acenaphthylene	94.3	U
83-32-9	Acenaphthene	34.6	J
132-64-9	Dibenzofuran	94.3	U
86-73-7	Fluorene	13.2	J
85-01-8	Phenanthrene	94.3	U
120-12-7	Anthracene	94.3	U
206-44-0	Fluoranthene	94.3	U
129-00-0	Pyrene	94.3	U
56-55-3	Benzo(a)Anthracene	94.3	U
218-01-9	Chrysene	94.3	U
205-99-2	Benzo(b)fluoranthene	94.3	U
207-08-9	Benzo(k)fluoranthene	94.3	U
50-32-8	Benzo(a)pyrene	94.3	U
193-39-5	Indeno(1 2 3-cd)pyrene	94.3	U
53-70-3	Dibenzo(a h)anthracene	94.3	U
191-24-2	Benzo(g h i)perylene	94.3	U
86-74-8	Carbazole	33.7	J
95-13-6	1H-Indene	40.2	J
91-22-5	Quinoline	94.3	U
90-12-0	1-Methylnaphthalene	38.4	J
271-89-6	2,3-Benzofuran	94.3	U
496-11-7	2,3-Dihydroindene	92.5	J
95-15-8	Benzo(b)thiophene	45.4	J
120-72-9	1H-Indole	94.3	U
92-52-4	Biphenyl	94.3	U
132-65-0	Dibenzothiophene	94.3	U
260-94-6	Acridine	94.3	U
192-97-2	Benzo(e)pyrene	94.3	U
198-55-0	Perylene	94.3	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W422

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 48342 SAS No.: SDG No.: 48342

Matrix: (soil/water) WATER Lab Sample ID: 48342-04

Sample wt/vol: 1060 (g/ml) ML Lab File ID: T0501711

Level: (low/med) LOW Date Received: 04/16/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 04/19/96

Concentrated Extract Volume: 1.0 (ml) Date Analyzed: 04/22/96

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	1.31	J
91-57-6	2-Methylnaphthalene	9.43	U
208-96-8	Acenaphthylene	9.43	U
83-32-9	Acenaphthene	7.51	J
132-64-9	Dibenzofuran	9.43	U
86-73-7	Fluorene	9.43	U
85-01-8	Phenanthrene	9.43	U
120-12-7	Anthracene	9.43	U
206-44-0	Fluoranthene	9.43	U
129-00-0	Pyrene	9.43	U
56-55-3	Benzo(a)Anthracene	9.43	U
218-01-9	Chrysene	9.43	U
205-99-2	Benzo(b)fluoranthene	9.43	U
207-08-9	Benzo(k)fluoranthene	9.43	U
50-32-8	Benzo(a)pyrene	9.43	U
193-39-5	Indeno(1 2 3-cd)pyrene	9.43	U
53-70-3	Dibenzo(a h)anthracene	9.43	U
191-24-2	Benzo(g h i)perylene	9.43	U
86-74-8	Carbazole	9.43	U
95-13-6	1H-Indene	9.43	U
91-22-5	Quinoline	9.43	U
90-12-0	1-Methylnaphthalene	9.43	U
271-89-6	2,3-Benzofuran	9.43	U
496-11-7	2,3-Dihydroindene	17.0	
95-15-8	Benzo(b)thiophene	9.43	U
120-72-9	1H-Indole	9.43	U
92-52-4	Biphenyl	9.43	U
132-65-0	Dibenzothiophene	9.43	U
260-94-6	Acridine	9.43	U
192-97-2	Benzo(e)pyrene	9.43	U
198-55-0	Perylene	9.43	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W439

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 48342 SAS No.: SDG No.: 48342

Matrix: (soil/water) WATER Lab Sample ID: 48342-05

Sample wt/vol: 1060 (g/ml) ML Lab File ID: T0901727

Level: (low/med) LOW Date Received: 04/16/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 04/19/96

Concentrated Extract Volume: 1.0 (ml) Date Analyzed: 04/23/96

Injection Volume: 2.0 (uL) Dilution Factor: 20.0

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	823	
91-57-6	2-Methylnaphthalene	29.1	J
208-96-8	Acenaphthylene	189	U
83-32-9	Acenaphthene	64.8	J
132-64-9	Dibenzofuran	189	U
86-73-7	Fluorene	189	U
85-01-8	Phenanthrene	189	U
120-12-7	Anthracene	189	U
206-44-0	Fluoranthene	189	U
129-00-0	Pyrene	189	U
56-55-3	Benzo(a)Anthracene	189	U
218-01-9	Chrysene	189	U
205-99-2	Benzo(b)fluoranthene	189	U
207-08-9	Benzo(k)fluoranthene	189	U
50-32-8	Benzo(a)pyrene	189	U
193-39-5	Indeno(1 2 3-cd)pyrene	189	U
53-70-3	Dibenzo(a h)anthracene	189	U
191-24-2	Benzo(g h i)perylene	189	U
86-74-8	Carbazole	189	U
95-13-6	1H-Indene	126	J
91-22-5	Quinoline	189	U
90-12-0	1-Methylnaphthalene	97.2	J
271-89-6	2,3-Benzofuran	189	U
496-11-7	2,3-Dihydroindene	213	
95-15-8	Benzo(b)thiophene	65.9	J
120-72-9	1H-Indole	189	U
92-52-4	Biphenyl	189	U
132-65-0	Dibenzothiophene	189	U
260-94-6	Acridine	189	U
192-97-2	Benzo(e)pyrene	189	U
198-55-0	Perylene	189	U

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 48342 SAS No.: SDG No.: 48342

	EPA SAMPLE NO.	S1 #	S2 #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	SBLK01	70	98	57						0
02	48342 LCS	67	98	61						0
03	DPV-W420FB	63	94	60						0
04	DPV-W420FBD	72	105	62						0
05	DPV-W422	61	82	57						0
06	PCJ-W23	62	74	57						0
07	STP-W410	69	83	61						0
08	GTF-ACFE	80	94	68						0
09	STP-W409	75	74	67						0
10	DPV-W420	0D	0D	0D						0
11	DPV-W420DU	0D	0D	0D						0
12	DPV-W420MS	70	82	66						0
13	DPV-W420MSD	79	77	64						0
14	DPV-W421	0D	0D	0D						0
15	DPV-W439	0D	0D	0D						0
16	GTF-SFR	70	78	64						0
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
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30										

		QC LIMITS
S1	= Naphthalene-d8	(37-107)
S2	= Chrysene-d12	(25-160)
S3	= Fluorene-d10	(36-127)

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: QUANTERRA DENVER Contract:

Lab Code: Case No.: 48342 SAS No.: SDG No.: 48342

Matrix Spike - EPA Sample No.: DPV-W420

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC. LIMITS REC.
Naphthalene	47.6	1210	633	-1212*	43-128
2-Methylnaphthalene	47.6	65.7	114	101	47-138
Fluorene	47.6	31.0	79.7	102	51-120
Chrysene	47.6	0.000	42.9	90	43-124
1H-Indene	47.6	62.2	124	130*	49-108
Quinoline	47.6	0.000	43.5	91	40-126
Benzo(e)pyrene	47.6	0.000	32.3	68	20-150

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Naphthalene	47.2	614	-1261*	-2	50	43-128
2-Methylnaphthalene	47.2	109	92	9	50	47-138
Fluorene	47.2	74.5	92	10	50	51-120
Chrysene	47.2	41.9	89	1	50	43-124
1H-Indene	47.2	124	131*	1	50	49-108
Quinoline	47.2	43.3	92	1	50	40-126
Benzo(e)pyrene	47.2	32.2	68	0	50	20-150

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

RPD: 0 out of 7 outside limits
Spike Recovery: 4 out of 14 outside limits

COMMENTS: _____

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420MS

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 48342 SAS No.: SDG No.: 48342

Matrix: (soil/water) WATER Lab Sample ID: 48342-01MS

Sample wt/vol: 1050 (g/ml) ML Lab File ID: T0601724

Level: (low/med) LOW Date Received: 04/16/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 04/19/96

Concentrated Extract Volume: 1.0(ml) Date Analyzed: 04/23/96

Injection Volume: 2.0(uL) Dilution Factor: 5.0

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	633	E
91-57-6	2-Methylnaphthalene	114	
208-96-8	Acenaphthylene	47.6	U
83-32-9	Acenaphthene	85.4	
132-64-9	Dibenzofuran	33.9	J
86-73-7	Fluorene	79.7	
85-01-8	Phenanthrene	22.4	J
120-12-7	Anthracene	47.6	U
206-44-0	Fluoranthene	47.6	U
129-00-0	Pyrene	47.6	U
56-55-3	Benzo(a)Anthracene	47.6	U
218-01-9	Chrysene	42.9	J
205-99-2	Benzo(b)fluoranthene	47.6	U
207-08-9	Benzo(k)fluoranthene	47.6	U
50-32-8	Benzo(a)pyrene	47.6	U
193-39-5	Indeno(1 2 3-cd)pyrene	47.6	U
53-70-3	Dibenzo(a h)anthracene	47.6	U
191-24-2	Benzo(g h i)perylene	47.6	U
86-74-8	Carbazole	74.8	
95-13-6	1H-Indene	124	
91-22-5	Quinoline	43.5	J
90-12-0	1-Methylnaphthalene	102	
271-89-6	2,3-Benzofuran	40.8	J
496-11-7	2,3-Dihydroindene	233	
95-15-8	Benzo(b)thiophene	113	
120-72-9	1H-Indole	47.6	U
92-52-4	Biphenyl	19.5	J
132-65-0	Dibenzothiophene	47.6	U
260-94-6	Acridine	47.6	U
192-97-2	Benzo(e)pyrene	32.3	J
198-55-0	Perylene	47.6	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420MSD

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 48342 SAS No.: SDG No.: 48342

Matrix: (soil/water) WATER Lab Sample ID: 48342-01MSD

Sample wt/vol: 1060 (g/ml) ML Lab File ID: T0701725

Level: (low/med) LOW Date Received: 04/16/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted:04/19/96

Concentrated Extract Volume: 1.0(ml) Date Analyzed: 04/23/96

Injection Volume: 2.0(uL) Dilution Factor: 5.0

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	614	E
91-57-6	2-Methylnaphthalene	109	
208-96-8	Acenaphthylene	47.2	U
83-32-9	Acenaphthene	82.2	
132-64-9	Dibenzofuran	34.4	J
86-73-7	Fluorene	74.5	
85-01-8	Phenanthrene	21.4	J
120-12-7	Anthracene	47.2	U
206-44-0	Fluoranthene	47.2	U
129-00-0	Pyrene	47.2	U
56-55-3	Benzo(a)Anthracene	47.2	U
218-01-9	Chrysene	41.9	J
205-99-2	Benzo(b)fluoranthene	47.2	U
207-08-9	Benzo(k)fluoranthene	47.2	U
50-32-8	Benzo(a)pyrene	47.2	U
193-39-5	Indeno(1 2 3-cd)pyrene	47.2	U
53-70-3	Dibenzo(a h)anthracene	47.2	U
191-24-2	Benzo(g h i)perylene	47.2	U
86-74-8	Carbazole	68.6	
95-13-6	1H-Indene	124	
91-22-5	Quinoline	43.3	J
90-12-0	1-Methylnaphthalene	103	
271-89-6	2,3-Benzofuran	39.3	J
496-11-7	2,3-Dihydroindene	225	
95-15-8	Benzo(b)thiophene	111	
120-72-9	1H-Indole	47.2	U
92-52-4	Biphenyl	19.0	J
132-65-0	Dibenzothiophene	47.2	U
260-94-6	Acridine	6.21	J
192-97-2	Benzo(e)pyrene	32.2	J
198-55-0	Perylene	47.2	U

FORM 3
WATER SEMIVOLATILE METHOD SPIKE RECOVERY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 48342 SAS No.: SDG No.: 48342

Matrix Spike - Sample No.: 48342 LCS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	% REC #	QC. LIMITS REC.
Naphthalene	50.0	34.2	68	43-128
2-Methylnaphthalene	50.0	37.1	74	47-138
Fluorene	50.0	44.6	89	51-120
Chrysene	50.0	50.1	100	43-124
1H-Indene	50.0	42.9	86	49-108
Quinoline	50.0	39.9	80	40-126
Benzo(e)pyrene	50.0	42.5	85	20-150

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

COMMENTS: _____

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

48342 LCS

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 48342 SAS No.: SDG No.: 48342

Matrix: (soil/water) WATER Lab Sample ID: 48342 LCS

Sample wt/vol: 1000 (g/ml) ML Lab File ID: T0201708

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 04/19/96

Concentrated Extract Volume: 1.0 (ml) Date Analyzed: 04/22/96

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	34.2	
91-57-6	2-Methylnaphthalene	37.1	
208-96-8	Acenaphthylene	10.0	U
83-32-9	Acenaphthene	10.0	U
132-64-9	Dibenzofuran	10.0	U
86-73-7	Fluorene	44.6	
85-01-8	Phenanthrene	10.0	U
120-12-7	Anthracene	10.0	U
206-44-0	Fluoranthene	10.0	U
129-00-0	Pyrene	10.0	U
56-55-3	Benzo(a)Anthracene	10.0	U
218-01-9	Chrysene	50.1	
205-99-2	Benzo(b)fluoranthene	10.0	U
207-08-9	Benzo(k)fluoranthene	10.0	U
50-32-8	Benzo(a)pyrene	10.0	U
193-39-5	Indeno(1 2 3-cd)pyrene	10.0	U
53-70-3	Dibenzo(a h)anthracene	10.0	U
191-24-2	Benzo(g h i)perylene	10.0	U
86-74-8	Carbazole	10.0	U
95-13-6	1H-Indene	42.9	
91-22-5	Quinoline	39.9	
90-12-0	1-Methylnaphthalene	10.0	U
271-89-6	2,3-Benzofuran	10.0	U
496-11-7	2,3-Dihydroindene	10.0	U
95-15-8	Benzo(b)thiophene	10.0	U
120-72-9	1H-Indole	10.0	U
92-52-4	Biphenyl	10.0	U
132-65-0	Dibenzothiophene	10.0	U
260-94-6	Acridine	10.0	U
192-97-2	Benzo(e)pyrene	42.5	
198-55-0	Perylene	10.0	U

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

SBLK01

Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 48342 SAS No.: SDG No.: 48342

Lab File ID: T0101707 Lab Sample ID: SBLK01

Instrument ID: T Date Extracted: 04/19/96

Matrix: (soil/water) WATER Date Analyzed: 04/22/96

Level: (low/med) LOW Time Analyzed: 1512

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	48342 LCS	48342 LCS	T0201708	04/22/96
02	DPV-W420FB	48342-02FB	T0301709	04/22/96
03	DPV-W420FBD	48342-02FD	T0401710	04/22/96
04	DPV-W422	48342-04	T0501711	04/22/96
05	PCJ-W23	48342-06	T0601712	04/22/96
06	STP-W410	48342-07	T0701713	04/22/96
07	GTF-ACFE	48342-09	T0201720	04/23/96
08	STP-W409	48342-10	T0301721	04/23/96
09	DPV-W420	48342-01	T0401722	04/23/96
10	DPV-W420DU	48342-01DU	T0501723	04/23/96
11	DPV-W420MS	48342-01MS	T0601724	04/23/96
12	DPV-W420MSD	48342-01MSD	T0701725	04/23/96
13	DPV-W421	48342-03	T0801726	04/23/96
14	DPV-W439	48342-05	T0901727	04/23/96
15	GTF-SFR	48342-08	T1001728	04/23/96
16				
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30				

COMMENTS:

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLK01

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 48342 SAS No.: SDG No.: 48342

Matrix: (soil/water) WATER Lab Sample ID: SBLK01

Sample wt/vol: 1000 (g/ml) ML Lab File ID: T0101707

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:04/19/96

Concentrated Extract Volume: 1.0(ml) Date Analyzed: 04/22/96

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	10.0	U
91-57-6	2-Methylnaphthalene	10.0	U
208-96-8	Acenaphthylene	10.0	U
83-32-9	Acenaphthene	10.0	U
132-64-9	Dibenzofuran	10.0	U
86-73-7	Fluorene	10.0	U
85-01-8	Phenanthrene	10.0	U
120-12-7	Anthracene	10.0	U
206-44-0	Fluoranthene	10.0	U
129-00-0	Pyrene	10.0	U
56-55-3	Benzo(a)Anthracene	10.0	U
218-01-9	Chrysene	10.0	U
205-99-2	Benzo(b)fluoranthene	10.0	U
207-08-9	Benzo(k)fluoranthene	10.0	U
50-32-8	Benzo(a)pyrene	10.0	U
193-39-5	Indeno(1 2 3-cd)pyrene	10.0	U
53-70-3	Dibenzo(a h)anthracene	10.0	U
191-24-2	Benzo(g h i)perylene	10.0	U
86-74-8	Carbazole	10.0	U
95-13-6	1H-Indene	10.0	U
91-22-5	Quinoline	10.0	U
90-12-0	1-Methylnaphthalene	10.0	U
271-89-6	2,3-Benzofuran	10.0	U
496-11-7	2,3-Dihydroindene	10.0	U
95-15-8	Benzo(b)thiophene	10.0	U
120-72-9	1H-Indole	10.0	U
92-52-4	Biphenyl	10.0	U
132-65-0	Dibenzothiophene	10.0	U
260-94-6	Acridine	10.0	U
192-97-2	Benzo(e)pyrene	10.0	U
198-55-0	Perylene	10.0	U

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 48342 SAS No.: SDG No.: 48342

Lab File ID (Standard): T0704 Date Analyzed: 04/22/96

Instrument ID: T Time Analyzed: 1001

		IS1 (ANT) AREA #	RT #	IS2 (PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	273838	12.08	365562	14.26	282313	19.66
	UPPER LIMIT	547676	12.58	731124	14.76	564626	20.16
	LOWER LIMIT	136919	11.58	182781	13.76	141156	19.16
	EPA SAMPLE NO.						
01	SBLK01	269067	12.07	372840	14.27	232769	19.66
02	48342 LCS	260219	12.05	371596	14.24	228101	19.65
03	DPV-W420FB	272347	12.05	397979	14.24	243534	19.65
04	DPV-W420FBD	278201	12.05	391957	14.24	230147	19.64
05	DPV-W422	304208	12.04	374329	14.23	259491	19.63
06	PCJ-W23	272146	12.04	411221	14.24	250232	19.63
07	STP-W410	289719	12.04	388989	14.24	245133	19.65
08							
09							
10							
11							
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20							
21							
22							

IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = 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

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 48342 SAS No.: SDG No.: 48342

Lab File ID (Standard): T0718 Date Analyzed: 04/23/96

Instrument ID: T Time Analyzed: 1029

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	283331	12.05	394951	14.24	267986	19.65
	UPPER LIMIT	566662	12.55	789902	14.74	535972	20.15
	LOWER LIMIT	141666	11.55	197476	13.74	133993	19.15
	EPA SAMPLE NO.						
01	GTF-ACFE	285802	12.03	423512	14.23	211148	19.62
02	STP-W409	298721	12.03	416125	14.21	244620	19.62
03	DPV-W420	300185	12.03	434818	14.22	259650	19.62
04	DPV-W420DU	345427	12.04	466578	14.23	264284	19.63
05	DPV-W420MS	313521	12.04	411191	14.24	254765	19.64
06	DPV-W420MSD	319375	12.04	437407	14.24	263661	19.64
07	DPV-W421	321977	12.05	427084	14.24	203095	19.65
08	DPV-W439	323114	12.05	460253	14.24	246360	19.65
09	GTF-SFR	316885	12.05	442485	14.24	259517	19.64
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = 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.

PHENOLICS 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

August 23, 1996

Quanterra Environmental Services

Project Number 050225

Introduction

Thirteen aqueous samples (including matrix QC) were received at Quanterra Environmental Services, Denver Laboratory on July 16, 1996. The samples were logged in under Quanterra Denver's project number 050225. A cross reference associating Quanterra Denver's laboratory sample numbers to the actual field sample number is included. The samples were analyzed for low level part-per-billion (ppb) total recoverable phenolics.

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the October 1995 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.

Quanterra
Environmental Services

This data package is in compliance with the terms and conditions of the October 1995 QAPP, both technically and for completeness, for other than the conditions detailed above.

Reported By: _____ **Date:** 8/23/96

Kurt C. Ill
Program Manager

Reviewed By: _____ **Date:** 8/24/96

INORGANIC ANALYSIS DATA PACKAGE

Laboratory Name: Quanterra Denver Contract: City of St. Louis Park

	Sample Number	Laboratory Sample Number
1	DPV-W420TP-071596	050225-0001-SA
2	DPV-W420TPD-071596	050225-0001-DU
3	DPV-W420TPMS-071596	050225-0001-MS
4	DPV-W420TPMSD-071596	050225-0001-MSD
5	DPV-W420TPFB-071596	050225-0002-FB
6	DPV-W420TPFBD-071596	050225-0002-FD
7	DPV-W421TP-071596	050225-0003-SA
8	DPV-W422TP-071596	050225-0004-SA
9	DPV-W439TP-071596	050225-0005-SA
10	GTF-SFRTP-071596	050225-0006-SA
11	GTF-ACFETP-071596	050225-0007-SA
12	PCJ-SLP4TP-071596	050225-0008-SA
13	STP-W410TP-071596	050225-0009-SA
14		
15		
16		
17		
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20		
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22		

Comments:

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 Managers designee, as verified by the following signature.

Signature: [signature] Name: Kurt C. Ill

Date: 8/25/96 Title: Program Manager

SL50225.XLS
rev 1.0

INORGANIC ANALYSIS DATA SHEET

Client ID

DPV-W420TP-071596

Laboratory Name: Quanterra Denver

Contract: City of St. Louis Park

Matrix (soil/water): Aqueous

Level (low/med): Low

Lab Sample ID: 50225-0001-SA

% Solids: N/A

Date Received: 7/16/96

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
54-30-0	Phenolics	0.087			C

Color Before: Colorless

Clarity Before: Clear

Texture:

Color After: Colorless

Clarity After: Clear

Artifacts:

Comments:

INORGANIC ANALYSIS DATA SHEET

Client ID

DPV-W420TPFB-071596

Laboratory Name: Quanterra Denver

Contract: City of St. Louis Park

Matrix (soil/water): Aqueous

Level (low/med): Low

Lab Sample ID: 50225-0002-FB

% Solids: N/A

Date Received: 7/16/96

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
54-30-0	Phenolics	0.005 U			C

Color Before: Colorless

Clarity Before: Clear

Texture:

Color After: Colorless

Clarity After: Clear

Artifacts:

Comments:

Form I

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INORGANIC ANALYSIS DATA SHEET

Client ID

DPV-W420TPFBD-071596

ratory Name: Quanterra Denver Contract: City of St. Louis Park

x (soil/water): Aqueous

vel (low/med): Low Lab Sample ID: 50225-0002-FD

Solids: N/A Date Received: 7/16/96

ncentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
54-30-0	Phenolics	0.005 U			C

Color Before: Colorless Clarity Before: Clear Texture:

Color After: Colorless Clarity After: Clear Artifacts:

Comments:

Form I

SL50225.XLS
rev 1.0

Client ID

DPV-W421TP-071596

ɔry Name: Quanterra Denver Contract: City of St. Louis Park

(soil/water): Aqueous

el (low/med): Low Lab Sample ID: 50225-0003-SA

ɔlids: N/A Date Received: 7/16/96

centration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
54-30-0	Phenolics	0.024			C

Color Before: Colorless Clarity Before: Clear Texture:

Color After: Colorless Clarity After: Clear Artifacts:

Comments:

Form I

SL50225.XLS
rev 1.0

INORGANIC ANALYSIS DATA SHEET

Client ID

DPV-W422TP-071596

ɔratory Name: Quanterra Denver

Contract: City of St. Louis Park

rix (soil/water): Aqueous

evel (low/med): Low

Lab Sample ID: 50225-0004-SA

Solids: N/A

Date Received: 7/16/96

ɔncentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
54-30-0	Phenolics	0.0094			C

Color Before: Colorless

Clarity Before: Clear

Texture:

Color After: Colorless

Clarity After: Clear

Artifacts:

Comments:

INORGANIC ANALYSIS DATA SHEET

Client ID

DPV-W439TP-071596

.atory Name: Quanterra Denver

Contract: City of St. Louis Park

.rix (soil/water): Aqueous

evel (low/med): Low

Lab Sample ID: 50225-0005-SA

Solids: N/A

Date Received: 7/16/96

oncentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
54-30-0	Phenolics	0.043			C

Color Before: Colorless

Clarity Before: Clear

Texture:

Color After: Colorless

Clarity After: Clear

Artifacts:

Comments:

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Name: Quanterra Denver Contract: City of St. Louis Park
ation Source: LabChem
Calibration Source: RICCA

Concentration Units: ug/L

nalyte	Initial Calibration			Continuing Calibration						M
	True	Found	%R(1)	True	Found	%R(1)	True	Found	%R(1)	
enolics	0.05	0.0499	99.8%	0.05	0.0493	98.6%	0.05	0.0494	98.8%	C

ntrol Limits: ICV = 75-125; CCV = 85-115

SL50225.XLS
rev 1.0

BLANKS

ame: Quanterra Denver

Contract: City of St. Louis Park

Blank Matrix (soil/water): WATER

Blank Concentration Units (ug/L or mg/kg): UG/L

		Initial Calib.		Continuing Calib. Blank						Preparation		
nalyte	IDL	Blank	C	(1)	C	(2)	C	(3)	C	Blank	C	M
enolics	0.005	0.005	U	0.005	U	0.005	U			0.0050	U	C

SPIKE SAMPLE RECOVERY

Client ID

DPV-W420TPMS-071596

:y Name: Quanterra Denver

Contract: City of St. Louis Park

:oil/water): Water

for Sample: N/A

Level (low/med): LOW

:oncentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Phenolics	75-125	0.14		0.0870		0.0500			C

(SSR - SR) / SA X 100

nents:

SL50225.XLS
rev 1.0

Form V

Client ID

DPV-W420TPMSD-071596

ry Name: Quanterra Denver

Contract: City of St. Louis Park

/water): Water

for Sample: N/A

Level (low/med): LOW

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Phenolics	75-125	0.14		0.0870		0.0500	106%		C

= (SSR - SR) / SA X 100

ments:

SL50225.XLS
rev 1.0

Form V

DUPLICATES

Client ID

DPV-W420TPD-071596

ry Name: Quanterra Denver Contract: City of St. Louis Park

oil/water): WATER Level (low/med) : LOW

, for Sample: N/A % Solids for Duplicate: N/A

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S) Concentration	C	Duplicate (D) Concentration	C	RPD	Q	M
Phenolics		0.0870		0.0880		1.14%		C

ntrol Limits = 35 percent for soil samples.

elative Percent Difference = [|sample - duplicate| / mean] X 100

SL50225.XLS
rev 1.0

Laboratory Name: Quanterra Denver Contract: City of St. Louis Park
queous LCS Source: LABCHEM

Analyte	Aqueous (ug/L)			Solid (mg/kg)				
	True	Found	%R	True	Found	C	Limits	%R
Phenolics	0.05	0.0499	1.00					

Form VII

SL50225.XLS
rev 1.0

PREPARATION LOG

ry Name: Quanterra Denver Contract: City of St. Louis Park
C

Lab Sample ID	Preparation Date	Weight (grams)	Volume (mL)
BLANK	8/6/96		200
LCS	8/6/96		200
50225-0001-SA	8/6/96		200
50225-0001-DU	8/6/96		200
50225-0001-MS	8/6/96		200
50225-0001-SD	8/6/96		200
50225-0002-FB	8/6/96		200
50225-0002-FD	8/6/96		200
50225-0003-SA	8/6/96		200
50225-0004-SA	8/6/96		200
50225-0005-SA	8/6/96		200
50225-0006-SA	8/6/96		200
50225-0007-SA	8/6/96		200
50225-0008-SA	8/6/96		200
50225-0009-SA	8/6/96		200

Form XIII

WCFMVII.XLS
rev 1.0

ANALYSIS RUN LOG

Laboratory Name: Quanterra Denver
Instrument ID Number: SPEC 301

Contract: City of St. Louis Park
Method: C

Start Date: 8/8/96

End Date: 8/8/96

Lab Sample ID	D/F	Time	% R	Analytes								
				PH								
ICV/LCS	1.00	1540		x								
ICB/BLK	1.00	1540		x								
050225-0001-SA	1.00	1540										
050225-0001-DU	1.00	1540										
050225-0001-MS	1.00	1540										
050225-0001-SD	1.00	1541										
050225-0001-SA	2.00	1541		x								
050225-0001-DU	2.00	1541		x								
050225-0001-MS	2.00	1541		x								
050225-0001-SD	2.00	1541		x								
CCV	1.00	1541		x								
CCB	1.00	1541		x								
050225-0002-FB	1.00	1542		x								
050225-0002-FD	1.00	1542		x								
050225-0003-SA	1.00	1542		x								
050225-0004-SA	1.00	1542		x								
050225-0005-SA	1.00	1542		x								
050225-0006-SA	1.00	1543		x								
050225-0007-SA	1.00	1543		x								
050225-0008-SA	1.00	1543		x								
050225-0009-SA	1.00	1543		x								
CCV	1.00	1544		x								
CCB	1.00	1544		x								

Form XIV

WCFMVII.XLS
rev 1.0

Quanterra Environmental Services

Laboratory Bench Sheet
Wet Chemistry Sample Preparation
Revision 0 - January 19, 1995

Analyst: MTF	DCS Information	Matrix Spike Information
ate: 06 Aug 96 arameter: 00A C Lot: 4A C Run: 4A	Source: Labchem Verification/Lot Number: 9534/4298-8 Prep Date: n/a Made By: Labchem Concentration: 1000 mg/L Expiration Date: 10/26/96	Source: Labchem Verification/Lot: 9534/4298-8 Prep Date: n/a Made By: Labchem Concentration: 1000 mg/L Expiration Date: 10/26/96
SOP Information		
Number: Den-WC-0002 Revision: 0.0	Solvent: n/a Brand: n/a Lot #: n/a	

LIMS ID	pH	Bottle Type	Interference Checks Sample Pretreatment Stds. Added/ True Value	Initial Wt/Vol (g or mL)	Final Wt/Vol (g or mL) 8/6	Prep Dilution Factor
Blank	n/a	n/a		200mls	200mls	1X
LCS	↓	↓	1ml of 9534 (10mg/L)		1 g	
50225 -01	≤ 2	#2	Negative for interferences			
-01DU						
-01MS			1ml of 9534 (10mg/L)			
-01SD			↓			
(FB) -02						
(FD) -02						
-03						
-04						
-05						
-06						
-07						
-08						
-09	↓	↓	↓	↓	↓	↓

* MS/MSD chosen by prep analyst

BS0024.DOC.

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Quanterra Environmental Services

Laboratory Bench Sheet
Colorimetric Analysis
Revision 0 - January 25, 1995

Analyst: MTT	
Date: Aug 8, 1996	
Lot: 06 Aug 96 4A	
Run: 1	
SOP Information	
Number: DEN-WC-013	
Revision: 1.0	

Calibration Curve Information

CONC.(mg/L)		ABS.	CONC.(mg/L)		ABS.
BLANK	0.0	0.000	STD 5	0.10	0.580
STD 1	0.005	0.055 ~~0.065~~	STD 6		
STD 2	0.01	0.071	STD 7		
STD 3	0.02	0.135	STD 8		
STD 4	0.05	0.294			

Instrument Information

Instrument: SPEC 301
Wavelength (nm): 460
Parameter: Phenol
Corr. Coefficient: 0.99904
Slope: 5.653614
Intercept: 0.0148468

DCS Information Lot 4298-8	Matrix Spike Information Lot 4298-8	Calibration Information Lot 5209
Source/Ver-Lot #: Labchem / 9534	Source/Ver-Lot #: Labchem / 9534	Source/Ver-Lot #: Ricca / 9652
Prep Date: n/a Made By: Labchem	Prep Date: n/a Made By: Labchem	Prep Date: n/a Made By: Ricca
Concentration: 1000 mg/L	Concentration: 1000 mg/L	Concentration: 1000 mg/L
Expiration Date: 10/26/96	Expiration Date: 10/26/96	Expiration Date: 9/96
DCS True Value: 0.05	Spike True Value: 0.05	CCV True Value: 0.05

Int./ Notes	LIMS ID	pH	Sample Amount (mL/g)	Sample Absorbance	Color Blank Absorbance	Concentration (mg/L-mg/kg)	Prep D.F.	Anal. D.F.	Final Conc. (mg/L-mg/kg)	%REC /RPD
	ICV/LCS	10.0	10 mls	0.297	—	0.0499	1X	1X	0.0499	99%
	ICB/BLK			0.020	—	0.00091		1X	ND	
	50225-01			0.614	—	0.10597		1X	dilute	
	-01 Dil			0.621	—	over-range		1X	dilute	
	-01 MS			0.856	—			1X		
	-01 SD			0.849	—			1X		
	-01			0.260	—	0.04336		2X	0.087	(0.01)
	-01 Dil			0.265	—	0.04424		2X	0.088	(0.01)
	-01 MS			0.397	—	0.06759		2X	0.14	106%
	-01 SD			0.397	—	0.06759		2X	0.14	106%
	CCV	n/a		0.294	—	0.04937		1X	0.0493	99%
	CCB			0.000	—	-0.0026			ND	
	-02 FB	10.0		0.029	—	0.00250			ND	
	-02 FD			0.024	—				ND	
	-03			0.150	—	0.0239			0.024	
	-04			0.068	—	0.00940			0.0094	
	-05			0.260	—	0.04336			0.043	
	-06			0.389	—	0.06617			0.066	
	-07			0.051	—	0.00639			0.0064	
	-08			0.044	—	0.00515			0.0052	
	-09			0.070	—	0.00975			0.0098	
	CCV	n/a		0.294	—	0.04937			0.0494	99%
	CCB			0.000	—	-0.0026			ND	

* MS/MSD chosen by analyst

Chain of Custody Record

Environmental Services

QUA-4124-1

Client	City of St. Louis Park
Address	3752 Wooddale Ave So
City	St. Louis Park MN 55416
Project Manager	SCOTT ANDERSON
Telephone Number (Area Code)/Fax Number	924-2557 (612) 924-2570
Date	7-15-96
Chain Of Custody Number	75697
Lab Number	
Page	1 of 2
Site Contact	
Lab Contact	
Project Name	SAME
Carrier/Waybill Number	FED EX 7828345604
Contract/Purchase Order/Quote No.	

Analysis (Attach list if more space is needed): PHENOLICS

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Aqueous	Sed.	Soil		Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	PHENOLICS	Special Instructions/ Conditions of Receipt
DPV-W420TP-071596	7-15-96		X										X	-01
DPV-W420TPD-071596														-02-01D
DPV-W420TPMS-071596														-01MS
DPV-W420TPMSD-071596														-01SD
DPV-W420TPFB-071596														-02FB
DPV-W420TPFBD-071596														-02FD
DPV-W421TP-071596														-03
DPV-W422TP-071596														-04
DPV-W439TP-071596														-05
GTF-SFRTP-071596														-06
GTF-ACFETP-071596														-07
PCJ-SLP4TP-071596	7-15-96		X										X	-09

Possible Hazard Identification: [X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown

Sample Disposal: [ ] Return To Client [X] Disposal By Lab [ ] Archive For _____ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required: [ ] 24 Hours [ ] 48 Hours [ ] 7 Days [ ] 14 Days [ ] 21 Days [ ] Other _____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: MZ 96	7-15-96	1430	1. Received By: [signature]	7/16/96	845
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy

Chain of Custody Record

Environmental Services

QUA-4124-1

Client	City of St. Louis Park
Address	3752 Wooddale Ave So
City	St. Louis Park MN 55416
Project Name	SAME
Contract/Purchase Order/Quote No.	
Project Manager	SCOTT ANDERSON
Telephone Number (Area Code)/Fax Number	924-2557 (612) 924-2580
Site Contact	
Lab Contact	
Carrier/Waybill Number	FEDEX 7828345604
Date	7-15-96
Lab Number	
Chain Of Custody Number	75696
Page	2 of 2

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Aqueous	Sed.	Soil		Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH		Analysis (Attach list if more space is needed): PHENOLICS	Special Instructions/Conditions of Rec
STP-W410TP-071596	7-15-96		X											X	

Possible Hazard Identification: [X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown

Sample Disposal: [ ] Return To Client [X] Disposal By Lab [ ] Archive For _____ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required: [ ] 24 Hours [ ] 48 Hours [ ] 7 Days [ ] 14 Days [ ] 21 Days [ ] Other _____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By	7-15-96	1430	1. Received By	7/16/96	8[illegible]
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy

FOURTH QUARTER MONITORING

PAH 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 21, 1996

Quanterra Environmental Services

Project Number 051917

Introduction

Fourteen aqueous samples (including matrix QC) were received at Quanterra Environmental Services, Denver Laboratory on October 8, 1996. The samples were logged in under Quanterra Denver's project number 051917. A cross reference associating Quanterra Denver's laboratory sample numbers to the actual field sample number is included. The samples were analyzed for high level 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 October 1995 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.

Client samples with lab IDs 051917-001, 01DU, 01MS, 01MSD, 03 and 05 had to be diluted due to target analytes exceeding the linear range of the instrument. The reporting limits were raised accordingly. As a result of dilution the surrogates for samples 051917-001, 01DU and 05 were not detected and are reported as "D."

Naphthalene in both the matrix spike and matrix spike duplicate are reported out of QC limits. Spike amount added was insufficient relative to the amount of naphthalene present in the sample. Naphthalene in the LCS is reported within acceptable limits.

Quanterra
Environmental Services

This data package is in compliance with the terms and conditions of the October 1995 QAPP, both technically and for completeness, for other than the conditions detailed above.

Reported By: _____ Date: 11/21/96

Kurt C. Ill
Program Manager

Reviewed By: _____ Date: 11/21/96

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420

Lab Name: QUANTERRA-DENVER Contract:

Lab Code: Case No.: 51917 SAS No.: SDG No.: 51917

Matrix: (soil/water) WATER Lab Sample ID: 51917-01

Sample wt/vol: 1050 (g/ml) ML Lab File ID: E3234

Level: (low/med) LOW Date Received: 10/08/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/11/96

Concentrated Extract Volume: 1.0(ml) Date Analyzed: 10/28/96

Injection Volume: 2.0(uL) Dilution Factor: 20.0

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	1300	
91-57-6	2-Methylnaphthalene	67	J
208-96-8	Acenaphthylene	190	U
83-32-9	Acenaphthene	92	J
132-64-9	Dibenzofuran	34	J
86-73-7	Fluorene	35	J
85-01-8	Phenanthrene	19	J
120-12-7	Anthracene	190	U
206-44-0	Fluoranthene	190	U
129-00-0	Pyrene	190	U
56-55-3	Benzo(a)Anthracene	190	U
218-01-9	Chrysene	190	U
205-99-2	Benzo(b)fluoranthene	190	U
207-08-9	Benzo(k)fluoranthene	190	U
50-32-8	Benzo(a)pyrene	190	U
193-39-5	Indeno(1 2 3-cd)pyrene	190	U
53-70-3	Dibenz(a h)anthracene	190	U
191-24-2	Benzo(g h i)perylene	190	U
86-74-8	Carbazole	61	J
95-13-6	1H-Indene	62	J
91-22-5	Quinoline	190	U
90-12-0	1-Methylnaphthalene	100	J
271-89-6	2,3-Benzofuran	32	J
496-11-7	2,3-Dihydroindene	250	
95-15-8	Benzo(b)thiophene	110	J
120-72-9	1H-Indole	190	U
92-52-4	Biphenyl	190	U
132-65-0	Dibenzothiophene	190	U
260-94-6	Acridine	190	U
192-97-2	Benzo(e)pyrene	190	U
198-55-0	Perylene	190	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420D

ab Name: QUANTERRA-DENVER Contract:

ab Code: Case No.: 51917 SAS No.: SDG No.: 51917

atrix: (soil/water) WATER Lab Sample ID: 51917-01DU

ample wt/vol: 1050 (g/ml) ML Lab File ID: E3235

evel: (low/med) LOW Date Received: 10/08/96

Moisture: _____ decanted: (Y/N)___ Date Extracted:10/11/96

oncentrated Extract Volume: 1.0(ml) Date Analyzed: 10/28/96

njection Volume: 2.0(uL) Dilution Factor: 20.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	1300	
91-57-6	2-Methylnaphthalene	68	J
208-96-8	Acenaphthylene	190	U
83-32-9	Acenaphthene	94	J
132-64-9	Dibenzofuran	33	J
86-73-7	Fluorene	35	J
85-01-8	Phenanthrene	190	U
120-12-7	Anthracene	190	U
206-44-0	Fluoranthene	190	U
129-00-0	Pyrene	190	U
56-55-3	Benzo(a)Anthracene	190	U
218-01-9	Chrysene	190	U
205-99-2	Benzo(b)fluoranthene	190	U
207-08-9	Benzo(k)fluoranthene	190	U
50-32-8	Benzo(a)pyrene	190	U
193-39-5	Indeno(1 2 3-cd)pyrene	190	U
53-70-3	Dibenz(a h)anthracene	190	U
191-24-2	Benzo(g h i)perylene	190	U
86-74-8	Carbazole	61	J
95-13-6	1H-Indene	62	J
91-22-5	Quinoline	190	U
90-12-0	1-Methylnaphthalene	100	J
271-89-6	2,3-Benzofuran	32	J
496-11-7	2,3-Dihydroindene	250	
95-15-8	Benzo(b)thiophene	110	J
120-72-9	1H-Indole	190	U
92-52-4	Biphenyl	190	U
132-65-0	Dibenzothiophene	190	U
260-94-6	Acridine	190	U
192-97-2	Benzo(e)pyrene	190	U
198-55-0	Perylene	190	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420MS

ame: QUANTERRA-DENVER Contract:

Code: Case No.: 51917 SAS No.: SDG No.: 51917

ix: (soil/water) WATER Lab Sample ID: 51917-01MS

le wt/vol: 1050 (g/ml) ML Lab File ID: E3214

el: (low/med) LOW Date Received: 10/08/96

oisture: _____ decanted: (Y/N)___ Date Extracted:10/11/96

centrated Extract Volume: 1.0(ml) Date Analyzed: 10/25/96

ection Volume: 2.0(uL) Dilution Factor: 5.0

Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	930	E
91-57-6	2-Methylnaphthalene	110	
208-96-8	Acenaphthylene	48	U
83-32-9	Acenaphthene	93	
132-64-9	Dibenzofuran	35	J
86-73-7	Fluorene	78	
85-01-8	Phenanthrene	19	J
120-12-7	Anthracene	48	U
206-44-0	Fluoranthene	48	U
129-00-0	Pyrene	48	U
56-55-3	Benzo(a)Anthracene	48	U
218-01-9	Chrysene	44	J
205-99-2	Benzo(b)fluoranthene	48	U
207-08-9	Benzo(k)fluoranthene	48	U
50-32-8	Benzo(a)pyrene	48	U
193-39-5	Indeno(1 2 3-cd)pyrene	48	U
53-70-3	Dibenz(a h)anthracene	48	U
191-24-2	Benzo(g h i)perylene	48	U
86-74-8	Carbazole	58	
95-13-6	1H-Indene	100	
91-22-5	Quinoline	46	J
90-12-0	1-Methylnaphthalene	110	
271-89-6	2,3-Benzofuran	34	J
496-11-7	2,3-Dihydroindene	230	
95-15-8	Benzo(b)thiophene	110	
120-72-9	1H-Indole	48	U
92-52-4	Biphenyl	20	J
132-65-0	Dibenzothiophene	48	U
260-94-6	Acridine	48	U
192-97-2	Benzo(e)pyrene	42	J
198-55-0	Perylene	48	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420MSD

Name: QUANTERRA-DENVER Contract:

Code: Case No.: 51917 SAS No.: SDG No.: 51917

rix: (soil/water) WATER Lab Sample ID: 51917-01SD

ple wt/vol: 1060 (g/ml) ML Lab File ID: E3215

el: (low/med) LOW Date Received: 10/08/96

oisture: _____ decanted: (Y/N)___ Date Extracted:10/11/96

centrated Extract Volume: 1.0(ml) Date Analyzed: 10/25/96

ection Volume: 2.0(uL) Dilution Factor: 5.0

Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	940	E
91-57-6	2-Methylnaphthalene	110	
208-96-8	Acenaphthylene	47	U
83-32-9	Acenaphthene	92	
132-64-9	Dibenzofuran	34	J
86-73-7	Fluorene	76	
85-01-8	Phenanthrene	19	J
120-12-7	Anthracene	47	U
206-44-0	Fluoranthene	47	U
129-00-0	Pyrene	47	U
56-55-3	Benzo(a)Anthracene	47	U
218-01-9	Chrysene	43	J
205-99-2	Benzo(b)fluoranthene	47	U
207-08-9	Benzo(k)fluoranthene	47	U
50-32-8	Benzo(a)pyrene	47	U
193-39-5	Indeno(1 2 3-cd)pyrene	47	U
53-70-3	Dibenz(a h)anthracene	47	U
191-24-2	Benzo(g h i)perylene	47	U
86-74-8	Carbazole	58	
95-13-6	1H-Indene	99	
91-22-5	Quinoline	45	J
90-12-0	1-Methylnaphthalene	110	
271-89-6	2,3-Benzofuran	34	J
496-11-7	2,3-Dihydroindene	240	
95-15-8	Benzo c)thiophene	110	
120-72-9	1H-Indole	47	U
92-52-4	Biphenyl	20	J
132-65-0	Dibenzothiophene	47	U
260-94-6	Acridine	47	U
192-97-2	Benzo(e)pyrene	43	J
198-55-0	Perylene	47	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420FB

ame: QUANTERRA-DENVER Contract:

ode: Case No.: 51917 SAS No.: SDG No.: 51917

x: (soil/water) WATER Lab Sample ID: 51917-02FB

e wt/vol: 1060 (g/ml) ML Lab File ID: E3216

.: (low/med) LOW Date Received: 10/08/96

isture: _____ decanted: (Y/N)___ Date Extracted:10/11/96

entrated Extract Volume: 1.0(ml) Date Analyzed: 10/25/96

ction Volume: 2.0(uL) Dilution Factor: 1.0

Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	9.4	U
91-57-6	2-Methylnaphthalene	9.4	U
208-96-8	Acenaphthylene	9.4	U
83-32-9	Acenaphthene	9.4	U
132-64-9	Dibenzofuran	9.4	U
86-73-7	Fluorene	9.4	U
85-01-8	Phenanthrene	9.4	U
120-12-7	Anthracene	9.4	U
206-44-0	Fluoranthene	9.4	U
129-00-0	Pyrene	9.4	U
56-55-3	Benzo(a)Anthracene	9.4	U
218-01-9	Chrysene	9.4	U
205-99-2	Benzo(b)fluoranthene	9.4	U
207-08-9	Benzo(k)fluoranthene	9.4	U
50-32-8	Benzo(a)pyrene	9.4	U
193-39-5	Indeno(1 2 3-cd)pyrene	9.4	U
53-70-3	Dibenz(a h)anthracene	9.4	U
191-24-2	Benzo(g h i)perylene	9.4	U
86-74-8	Carbazole	9.4	U
95-13-6	1H-Indene	9.4	U
91-22-5	Quinoline	9.4	U
90-12-0	1-Methylnaphthalene	9.4	U
271-89-6	2,3-Benzofuran	9.4	U
496-11-7	2,3-Dihydroindene	9.4	U
95-15-8	Benzo(b)thiophene	9.4	U
120-72-9	1H-Indole	9.4	U
92-52-4	Biphenyl	9.4	U
132-65-0	Dibenzothiophene	9.4	U
260-94-6	Acridine	9.4	U
192-97-2	Benzo(e)pyrene	9.4	U
198-55-0	Perylene	9.4	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420FBD

me: QUANTERRA-DENVER Contract:

de: Case No.: 51917 SAS No.: SDG No.: 51917

:: (soil/water) WATER Lab Sample ID: 51917-02FD

: wt/vol: 1050 (g/ml) ML Lab File ID: E3217

: (low/med) LOW Date Received: 10/08/96

sture: _____ decanted: (Y/N)___ Date Extracted:10/11/96

ntrated Extract Volume: 1.0(ml) Date Analyzed: 10/25/96

tion Volume: 2.0(uL) Dilution Factor: 1.0

leanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	9.5	U
91-57-6	2-Methylnaphthalene	9.5	U
208-96-8	Acenaphthylene	9.5	U
83-32-9	Acenaphthene	9.5	U
132-64-9	Dibenzofuran	9.5	U
86-73-7	Fluorene	9.5	U
85-01-8	Phenanthrene	9.5	U
120-12-7	Anthracene	9.5	U
206-44-0	Fluoranthene	9.5	U
129-00-0	Pyrene	9.5	U
56-55-3	Benzo(a)Anthracene	9.5	U
218-01-9	Chrysene	9.5	U
205-99-2	Benzo(b)fluoranthene	9.5	U
207-08-9	Benzo(k)fluoranthene	9.5	U
50-32-8	Benzo(a)pyrene	9.5	U
193-39-5	Indeno(1 2 3-cd)pyrene	9.5	U
53-70-3	Dibenz(a h)anthracene	9.5	U
191-24-2	Benzo(g h i)perylene	9.5	U
86-74-8	Carbazole	9.5	U
95-13-6	1H-Indene	9.5	U
91-22-5	Quinoline	9.5	U
90-12-0	1-Methylnaphthalene	9.5	U
271-89-6	2,3-Benzofuran	9.5	U
496-11-7	2,3-Dihydroindene	9.5	U
95-15-8	Benzo(b)thiophene	9.5	U
120-72-9	1H-Indole	9.5	U
92-52-4	Biphenyl	9.5	U
132-65-0	Dibenzothiophene	9.5	U
260-94-6	Acridine	9.5	U
192-97-2	Benzo(e)pyrene	9.5	U
198-55-0	Perylene	9.5	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W421

Name: QUANTERRA-DENVER Contract:

Code: Case No.: 51917 SAS No.: SDG No.: 51917

rix: (soil/water) WATER Lab Sample ID: 51917-03

ple wt/vol: 1060 (g/ml) ML Lab File ID: E3232

vel: (low/med) LOW Date Received: 10/08/96

Moisture: _____ decanted: (Y/N)___ Date Extracted:10/11/96

ncentrated Extract Volume: 1.0(ml) Date Analyzed: 10/28/96

jection Volume: 2.0(uL) Dilution Factor: 10.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	440	
91-57-6	2-Methylnaphthalene	94	U
208-96-8	Acenaphthylene	94	U
83-32-9	Acenaphthene	45	J
132-64-9	Dibenzofuran	11	J
86-73-7	Fluorene	14	J
85-01-8	Phenanthrene	94	U
120-12-7	Anthracene	94	U
206-44-0	Fluoranthene	94	U
129-00-0	Pyrene	94	U
56-55-3	Benzo(a)Anthracene	94	U
218-01-9	Chrysene	94	U
205-99-2	Benzo(b)fluoranthene	94	U
207-08-9	Benzo(k)fluoranthene	94	U
50-32-8	Benzo(a)pyrene	94	U
193-39-5	Indeno(1 2 3-cd)pyrene	94	U
53-70-3	Dibenz(a h)anthracene	94	U
191-24-2	Benzo(g h i)perylene	94	U
86-74-8	Carbazole	32	J
95-13-6	1H-Indene	45	J
91-22-5	Quinoline	94	U
90-12-0	1-Methylnaphthalene	53	J
271-89-6	2,3-Benzofuran	94	U
496-11-7	2,3-Dihydroindene	140	
95-15-8	Benzo(b)thiophene	63	J
120-72-9	1H-Indole	94	U
92-52-4	Biphenyl	94	U
132-65-0	Dibenzothiophene	94	U
260-94-6	Acridine	94	U
192-97-2	Benzo(e)pyrene	94	U
198-55-0	Perylene	94	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W422

me: QUANTERRA-DENVER Contract:

de: Case No.: 51917 SAS No.: SDG No.: 51917

:: (soil/water) WATER Lab Sample ID: 51917-04

e wt/vol: 1060 (g/ml) ML Lab File ID: E3231

: (low/med) LOW Date Received: 10/08/96

sture: _____ decanted: (Y/N)___ Date Extracted:10/11/96

ntrated Extract Volume: 1.0(ml) Date Analyzed: 10/28/96

tion Volume: 2.0(uL) Dilution Factor: 1.0

leanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	1.4	J
91-57-6	2-Methylnaphthalene	9.4	U
208-96-8	Acenaphthylene	9.4	U
83-32-9	Acenaphthene	8.1	J
132-64-9	Dibenzofuran	9.4	U
86-73-7	Fluorene	9.4	U
85-01-8	Phenanthrene	9.4	U
120-12-7	Anthracene	9.4	U
206-44-0	Fluoranthene	9.4	U
129-00-0	Pyrene	9.4	U
56-55-3	Benzo(a)Anthracene	9.4	U
218-01-9	Chrysene	9.4	U
205-99-2	Benzo(b)fluoranthene	9.4	U
207-08-9	Benzo(k)fluoranthene	9.4	U
50-32-8	Benzo(a)pyrene	9.4	U
193-39-5	Indeno(1 2 3-cd)pyrene	9.4	U
53-70-3	Dibenz(a h)anthracene	9.4	U
191-24-2	Benzo(g h i)perylene	9.4	U
86-74-8	Carbazole	9.4	U
95-13-6	1H-Indene	9.4	U
91-22-5	Quinoline	9.4	U
90-12-0	1-Methylnaphthalene	9.4	U
271-89-6	2,3-Benzofuran	9.4	U
496-11-7	2,3-Dihydroindene	13	
95-15-8	Benzo(b)thiophene	9.4	U
120-72-9	1H-Indole	9.4	U
92-52-4	Biphenyl	9.4	U
132-65-0	Dibenzothiophene	9.4	U
260-94-6	Acridine	9.4	U
192-97-2	Benzo(e)pyrene	9.4	U
198-55-0	Perylene	9.4	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W439

ıe: QUANTERRA-DENVER Contract:

ɔde: Case No.: 51917 SAS No.: SDG No.: 51917

.x: (soil/water) WATER Lab Sample ID: 51917-05

.e wt/vol: 1060 (g/ml) ML Lab File ID: E3233

.: (low/med) LOW Date Received: 10/08/96

.sture: _____ decanted: (Y/N)___ Date Extracted:10/11/96

ɜntrated Extract Volume: 1.0(ml) Date Analyzed: 10/28/96

ɔtion Volume: 2.0(uL) Dilution Factor: 20.0

Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	860	
91-57-6	2-Methylnaphthalene	34	J
208-96-8	Acenaphthylene	190	U
83-32-9	Acenaphthene	78	J
132-64-9	Dibenzofuran	21	J
86-73-7	Fluorene	190	U
85-01-8	Phenanthrene	190	U
120-12-7	Anthracene	190	U
206-44-0	Fluoranthene	190	U
129-00-0	Pyrene	190	U
56-55-3	Benzo(a)Anthracene	190	U
218-01-9	Chrysene	190	U
205-99-2	Benzo(b)fluoranthene	190	U
207-08-9	Benzo(k)fluoranthene	190	U
50-32-8	Benzo(a)pyrene	190	U
193-39-5	Indeno(1 2 3-cd)pyrene	190	U
53-70-3	Dibenz(a h)anthracene	190	U
191-24-2	Benzo(g h i)perylene	190	U
86-74-8	Carbazole	190	U
95-13-6	1H-Indene	120	J
91-22-5	Quinoline	190	U
90-12-0	1-Methylnaphthalene	110	J
271-89-6	2,3-Benzofuran	190	U
496-11-7	2,3-Dihydroindene	260	
95-15-8	Benzo(b)thiophene	74	J
120-72-9	1H-Indole	190	U
92-52-4	Biphenyl	190	U
132-65-0	Dibenzothiophene	190	U
260-94-6	Acridine	190	U
192-97-2	Benzo(e)pyrene	190	U
198-55-0	Perylene	190	U

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Name: QUANTERRA-DENVER Contract:

Code: Case No.: 51917 SAS No.: SDG No.: 51917

	EPA SAMPLE NO.	S1 #	S2 #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
1	SBLK01	82	98	76						0
2	LCS	74	92	74						0
3	DPV-W420MS	83	100	89						0
4	DPV-W420MSD	76	96	85						0
5	DPV-W420FB	82	98	77						0
6	DPV-W420FBD	77	91	74						0
7	GTF-ACFE	68	82	70						0
8	PCJ-W23	66	86	66						0
9	STP-W426	74	89	74						0
10	STP-W409	65	68	67						0
11	GTF-SFR	64	77	67						0
12	DPV-W422	64	87	69						0
13	DPV-W421	71	96	77						0
14	DPV-W439	0D	0D	0D						0
15	DPV-W420	0D	0D	0D						0
16	DPV-W420D	0D	0D	0D						0
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										

		QC LIMITS
S1	= Naphthalene-d8	(37-107)
S2	= Chrysene-d12	(25-160)
S3	= Fluorene-d10	(36-127)

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

3C

;EMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

: QUANTERRA-DENVER Contract:

ɜ: Case No.: 51917 SAS No.: SDG No.: 51917

Spike - EPA Sample No.: DPV-W420

?OUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC. LIMITS REC.
thalene	48	1300	930	-769*	43-128
thylnaphthalene	48	67	110	90	47-138
rene	48	35	78	90	51-120
sene	48	0.00	44	92	43-124
ndene	48	62	100	79	49-108
oline	48	0.00	46	96	40-126
o(e)pyrene	48	0.00	42	88	20-150

'POUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
phthalene	47	940	-764*	0	50	43-128
Methylnaphthalene	47	110	91	1	50	47-138
uorene	47	76	87	3	50	51-120
rysene	47	43	91	1	50	43-124
-Indene	47	99	79	0	50	49-108
inoline	47	45	96	0	50	40-126
nzo(e)pyrene	47	43	91	3	50	20-150

olumn to be used to flag recovery and RPD values with an asterisk
'alues outside of QC limits

): 0 out of 7 outside limits
ke Recovery: 2 out of 14 outside limits

MMENTS: _____

FORM III SV-1 3/90

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

LCS

) Name: QUANTERRA-DENVER Contract:

) Code: Case No.: 51917 SAS No.: SDG No.: 51917

:rix: (soil/water) WATER Lab Sample ID: LCS

mple wt/vol: 1000 (g/ml) ML Lab File ID: E3211

vel: (low/med) LOW Date Received: _____

Moisture: _____ decanted: (Y/N)___ Date Extracted:10/11/96

ncentrated Extract Volume: 1.0(ml) Date Analyzed: 10/25/96

jection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	39	
91-57-6	2-Methylnaphthalene	38	
86-73-7	Fluorene	40	
218-01-9	Chrysene	44	
95-13-6	1H-Indene	36	
91-22-5	Quinoline	42	
192-97-2	Benzo(e)pyrene	45	

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

SBLK01

me: QUANTERRA-DENVER Contract:

:ode: Case No.: 51917 SAS No.: SDG No.: 51917

:ile ID: E3210 Lab Sample ID: SBLK01

:ument ID: E Date Extracted: 10/11/96

ix: (soil/water) WATER Date Analyzed: 10/24/96

l:(low/med) LOW Time Analyzed: 2325

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	LCS	LCS	E3211	10/25/96
02	DPV-W420MS	51917-01MS	E3214	10/25/96
03	DPV-W420MSD	51917-01SD	E3215	10/25/96
04	DPV-W420FB	51917-02FB	E3216	10/25/96
05	DPV-W420FBD	51917-02FD	E3217	10/25/96
06	GTF-ACFE	51917-07	E3221	10/25/96
07	PCJ-W23	51917-08	E3222	10/25/96
08	STP-W426	51917-09	E3223	10/25/96
09	STP-W409	51917-10	E3224	10/25/96
10	GTF-SFR	51917-06	E3225	10/25/96
11	DPV-W422	51917-04	E3231	10/28/96
12	DPV-W421	51917-03	E3232	10/28/96
13	DPV-W439	51917-05	E3233	10/28/96
14	DPV-W420	51917-01	E3234	10/28/96
15	DPV-W420D	51917-01DU	E3235	10/28/96
16				
17				
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30				

OMMENTS:

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLK01

Name: QUANTERRA-DENVER Contract:

Code: Case No.: 51917 SAS No.: SDG No.: 51917

.rix: (soil/water) WATER Lab Sample ID: SBLK01

ıple wt/vol: 1000 (g/ml) ML Lab File ID: E3210

:el: (low/med) LOW Date Received: _____

Moisture: _____ decanted: (Y/N)___ Date Extracted:10/11/96

:centrated Extract Volume: 1.0(ml) Date Analyzed: 10/24/96

jection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	10	U
91-57-6	2-Methylnaphthalene	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
85-01-8	Phenanthrene	10	U
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	Dibenz(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	10	U
271-89-6	2,3-Benzofuran	10	U
496-11-7	2,3-Dihydroindene	10	U
95-15-8	Benzo(b)thiophene	10	U
120-72-9	1H-Indole	10	U
92-52-4	Biphenyl	10	U
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

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

ab Name: QUANTERRA-DENVER Contract:

b Code: Case No.: 51917 SAS No.: SDG No.: 51917

ab File ID (Standard): E3227 Date Analyzed: 10/24/96

nstrument ID: E Time Analyzed: 2246

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	389408	13.93	507793	16.70	268531	24.06
	UPPER LIMIT	778816	14.43	1015586	17.20	537062	24.56
	LOWER LIMIT	194704	13.43	253896	16.20	134266	23.56
	EPA SAMPLE NO.						
01	SBLK01	364142	13.93	515601	16.70	210947	24.05
02	LCS	392308	13.93	569274	16.71	246685	24.06
03	DPV-W420MS	405188	13.93	563421	16.71	253107	24.05
04	DPV-W420MSD	397552	13.93	549181	16.70	241346	24.06
05	DPV-W420FB	443016	13.93	628327	16.71	263347	24.06
06	DPV-W420FBD	409969	13.93	588733	16.71	258887	24.06
07	GTF-ACFE	412675	13.94	593080	16.72	253412	24.06
08	PCJ-W23	454441	13.93	627738	16.72	251038	24.06
09	STP-W426	425560	13.93	579402	16.72	273846	24.06
10	STP-W409	427671	13.94	562016	16.71	288317	24.06
1	GTF-SFR	422882	13.94	537696	16.72	282230	24.06
2							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = 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 Code: Case No.: 51917 SAS No.: SDG No.: 51917

:b File ID (Standard): E3229 Date Analyzed: 10/28/96

:strument ID: E Time Analyzed: 1629

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	375038	13.92	494138	16.69	251417	24.05
	UPPER LIMIT	750076	14.42	988276	17.19	502834	24.55
	LOWER LIMIT	187519	13.42	247069	16.19	125708	23.55
	EPA SAMPLE NO.						
01	DPV-W422	377690	13.92	527328	16.70	237128	24.04
02	DPV-W421	385337	13.92	550490	16.69	239197	24.05
03	DPV-W439	405690	13.93	567916	16.70	245891	24.05
04	DPV-W420	382818	13.93	540313	16.70	235334	24.05
05	DPV-W420D	369427	13.93	541457	16.70	229255	24.05
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = 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.

PHENOLICS 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 15, 1996

Quanterra Environmental Services

Project Number 051918

Introduction

Thirteen aqueous samples (including matrix QC) were received at Quanterra Environmental Services, Denver Laboratory on October 8, 1996. The samples were logged in under Quanterra Denver's project number 051918. A cross reference associating Quanterra Denver's laboratory sample numbers to the actual field sample number is included. The samples were analyzed for total recoverable phenolics.

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the October 1995 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.

Client sample with lab ID 051918-001 had to be diluted due to target analytes exceeding the linear range of the instrument. The reporting limit was raised according.

Quanterra
Environmental Services

This data package is in compliance with the terms and conditions of the October 1995 QAPP, both technically and for completeness, for other than the conditions detailed above.

Reported By: _____ Date: 11/15/96

Kurt C. III
Program Manager

Reviewed By: _____ Date: 11/15/96

INORGANIC ANALYSIS DATA PACKAGE

aboratory Name: Quanterra Denver Contract: City of St. Louis Park

	Sample Number	Laboratory Sample Number
1	DPV-W420TP-100796	051918-0001-SA
2	DPV-W420TPD-100796	051918-0001-DU
3	DPV-W420TPMS-100796	051918-0001-MS
4	DPV-W420TPMSD-100796	051918-0001-SD
5	DPV-W420TPFB-100796	051918-0002-FB
6	DPV-W420TPFBD-100796	051918-0002-FD
7	DPV-W421TP-100796	051918-0003-SA
8	DPV-W422TP-100796	051918-0004-SA
9	DPV-W439-100796	051918-0005-SA
10	GTF-SFRTP-100796	051918-0006-SA
11	GTF-ACFETP-100796	051918-0007-SA
12	PCJ-SLP4TP-100796	051918-0008-SA
13	STP-W410TP-100796	051918-0009-SA
14		
15		
16		
17		
18		
19		
20		
21		
22		

Comments:

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 Managers designee, as verified by the following signature:

Signature: Kurt C. III Name: Kurt C. III
Date: 11/15/96 Title: Program Manager

CSS1918.XLS
rev 1.0

INORGANIC ANALYSIS DATA SHEET

Client ID

DPV-W420TP-100796

Laboratory Name: Quanterra Denver

Contract: City of St. Louis Park

Matrix (soil/water): Aqueous

Level (low/med): Low

Lab Sample ID: 51918-0001-SA

% Solids: N/A

Date Received: 10/8/96

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
54-30-0	Phenolics	118			

Comments:

Form I

CS51918.XLS
rev 1.0

INORGANIC ANALYSIS DATA SHEET

Client ID
DPV-W420TPD-100796

Laboratory Name: Quanterra Denver
Contract: City of St. Louis Park
Matrix (soil/water): Aqueous
Level (low/med): Low
Lab Sample ID: 51918-0002-FB
% Solids: N/A
Date Received: 10/8/96

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	

Comments:

Form I

CS51918.XLS
rev 1.0

INORGANIC ANALYSIS DATA SHEET

Client ID

DPV-W420TPFBD-100796

aboratory Name: Quanterra Denver

Contract: City of St. Louis Park

latrix (soil/water): Aqueous

Level (low/med): Low

Lab Sample ID: 51918-0002-FD

% Solids: N/A

Date Received: 10/8/96

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	

Comments:

Form I

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rev 1.0

INORGANIC ANALYSIS DATA SHEET

Client ID

DPV-W421TP-100796

Laboratory Name: Quanterra Denver

Contract: City of St. Louis Park

Matrix (soil/water): Aqueous

Level (low/med): Low

Lab Sample ID: 51918-0003-SA

% Solids: N/A

Date Received: 10/8/96

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
54-30-0	Phenolics	24.6			

Comments:

Form I

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rev 1.0

INORGANIC ANALYSIS DATA SHEET

Client ID
DPV-W439TP-100796

Laboratory Name: Quanterra Denver Contract: City of St. Louis Park

Matrix (soil/water): Aqueous

Level (low/med): Low Lab Sample ID: 51918-0005-SA

% Solids: N/A Date Received: 10/8/96

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
54-30-0	Phenolics	45.0			

Comments:

INORGANIC ANALYSIS DATA SHEET

Client ID

DPV-W422TP-100796

Laboratory Name: Quanterra Denver

Contract: City of St. Louis Park

Matrix (soil/water): Aqueous

Level (low/med): Low

Lab Sample ID: 51918-0004-SA

% Solids: N/A

Date Received: 10/8/96

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
54-30-0	Phenolics	8.2			

Comments:

Form I

CS51918.XLS
rev 1.0

INITIAL AND CONTINUING CALIBRATION VERIFICATION

:ratory Name: Quanterra Denver Contract: City of St. Louis Park
l Calibration Source: LabChem
:inuing Calibration Source: RICCA

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration						M
	True	Found	%R(1)	True	Found	%R(1)	True	Found	%R(1)	
Phenolics	50.0	47.50	95.0%	50.0	48.50	97.0%	50.0	50.00	100.0%	

) Control Limits: ICV = 75-125; CCV = 85-115

INITIAL AND CONTINUING CALIBRATION VERIFICATION

/ Name: Quanterra Denver Contract: City of St. Louis Park
ıbration Source: LabChem
.ıg Calibration Source: RICCA

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration						M
	True	Found	%R(1)	True	Found	%R(1)	True	Found	%R(1)	
Phenolics				50.0	50.50	101.0%	50.0	51.00	102.0%	

ɔntrol Limits: ICV = 75-125; CCV = 85-115

CS51918.XLS
rev 1.0

BLANKS

ratory Name: Quanterra Denver

Contract: City of St. Louis Park

aration Blank Matrix (soil/water): WATER

aration Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	IDL	Initial Calib. Blank	C	Continuing Calib. Blank (1)	C	(2)	C	(3)	C	Preparation Blank	C	M
Phenolics	5.0	5.0	U	5.0	U	5.0	U	5.0	U	5.0000	U	

BLANKS

.ory Name: Quanterra Denver

Contract: City of St. Louis Park

ration Blank Matrix (soil/water): WATER

ration Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	IDL	Initial Calib. Blank	C	Continuing Calib. Blank (1)	C	(2)	C	(3)	C	Preparation Blank	C	M
Phenolics	5.0			5.0	U							

SPIKE SAMPLE RECOVERY

Client ID

DPV-W420TPMS-100796

ratory Name: Quanterra Denver

Contract: City of St. Louis Park

x (soil/water): Water

lids for Sample: N/A

Level (low/med): LOW

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Phenolics	75-125	164		118.0000		50.0000	92.0%		C

R = (SSR - SR) / SA X 100

mments:

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SPIKE SAMPLE RECOVERY

Client ID

DPV-W420TPMSD-100796

oratory Name: Quanterra Denver

Contract: City of St. Louis Park

trix (soil/water): Water

Solids for Sample: N/A

Level (low/med): LOW

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Phenolics	75-125	164		118.0000		50.0000	92.0%		C

) %R = (SSR - SR) / SA X 100

Comments:

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rev 1.0

Form V

DUPLICATES

Client ID

DPV-W420TPD-100796

aboratory Name: Quanterra Denver Contract: City of St. Louis Park

latrix (soil/water): WATER Level (low/med) : LOW

% Solids for Sample: N/A % Solids for Duplicate: N/A

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S) Concentration	C	Duplicate (D) Concentration	C	RPD	Q	M
Phenolics		118.0000		166.0000		33.80%		C

(a) Control Limits = 35 percent for soil samples.

(b) Relative Percent Difference = (|sample - duplicate| / mean| X 100

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LABORATORY CONTROL SAMPLE

Laboratory Name: Quanterra Denver
Aqueous LCS Source: LABCHEM

Contract: City of St. Louis Park

Analyte	Aqueous (ug/L)			Solid (mg/kg)				
	True	Found	%R	True	Found	C	Limits	%R
Phenolics	50.00	47.50	95%					

PREPARATION LOG

ratory Name: Quanterra Denver Contract: City of St. Louis Park
od: C

Lab Sample ID	Preparation Date	Weight (grams)	Volume (mL)
Prep Blank	10/18/96		200
ICV (LCS)	10/18/96		200
51918-0001-SA	10/18/96		200
51918-0001-DU	10/18/96		200
51918-0001-MS	10/18/96		200
51918-0001-SD	10/18/96		200
51918-0002-SA	10/18/96		200
51918-0002-FD	10/18/96		200
51918-0003-SA	10/18/96		200
51918-0004-SA	10/18/96		200
51918-0005-SA	10/18/96		200
51918-0006-SA	10/18/96		200
51918-0007-SA	10/18/96		200
51918-0008-SA	10/18/96		200
51918-0009-SA	10/18/96		200

Form XIII

WCFMVII.XLS
rev 1.0

ANALYSIS RUN LOG

Laboratory Name: Quanterra Denver
Instrument ID Number: SPEC 301

Contract: City of St. Louis Park
Method: C

Start Date: 10/18/96

End Date: 10/18/96

Lab Sample ID	D/F	Time	% R	Analytes								
				PH								
Prep Blank	1.00	2132		x								
ICV/LCS	1.00	2133		x								
CCV	1.00	2134		x								
CCB	1.00	2134		x								
51918-0001-SA	1.00	2135										
51918-0001-DU	1.00	2135										
51918-0001-MS	2.00	2136		x								
51918-0001-SD	2.00	2137		x								
51918-0002-SA	1.00	2138		x								
51918-0002-FD	1.00	2138		x								
51918-0003-SA	1.00	2139		x								
51918-0004-SA	1.00	2140		x								
51918-0005-SA	1.00	2141		x								
51918-0006-SA	1.00	2142		x								
CCV	1.00	2143		x								
CCB	1.00	2143		x								
51918-0007-SA	1.00	2144		x								
51918-0008-SA	1.00	2144		x								
51918-0009-SA	1.00	2145		x								
CCV	1.00	2146		x								
CCB	1.00	2146		x								
51918-0001-SA	1.00	2147		x								

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Form XIV

WCFMVII.XLS
rev 1.0

ANALYSIS RUN LOG

Laboratory Name: Quanterra Denver
Instrument ID Number: SPEC 301

Contract: City of St. Louis Park
Method: C

Start Date: 10/18/96

End Date: 10/18/96

Lab Sample ID	D/F	Time	% R	Analytes								
				PH								
51918-0001-DU	2.00	2148		x								
CCV	1.00	2149		x								
CCB	1.00	2150		x								

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Form XIV

WCFMVII.XLS
rev 1.0

Sample Data

Wet Chemistry—Supporting Documentation

51918

976

Quanterra Environmental Services

Laboratory Bench Sheet
Colorimetric Analysis
Revision 0 - January 25, 1995

MDL = 2.4 ug/L

Analyst: J. MAURER	Calibration Curve Information						Instrument Information
Date: 10/18/96	CONC.(mg/L)		ABS.	CONC.(mg/L)		ABS.	Instrument: SPEC 301
QC Lot: 18OCT96-S1	BLANK	0	0.000	STD 5	50 ug/L 0.050	0.163	Wavelength (nm): 460
QC Run: 1	STD 1	0	0.061	STD 6	100 ug/L 0.100	0.264	Parameter: PHEN-A
SOP Information	STD 2	5 ug/L 0.005	0.074	STD 7			Corr. Coefficient: 0.9997
Number: DEN-WC-0002	STD 3	10 ug/L 0.010	0.085	STD 8			Slope: 2.0131
Revision: 0	STD 4	20 ug/L 0.020	0.100				Intercept: 10/30/96 ok ~~0.001430~~

DCS Information	Matrix Spike Information	Calibration Information
Source/Ver-Lot #: LABCHEM 10363	Source/Ver-Lot #: SAME AS DCS	Source/Ver-Lot #: RICCA 10362
Prep Date: NA Made By: NA	Prep Date: Made By:	Prep Date: NA Made By: NA
Concentration: 1000MG/L	Concentration:	Concentration: 1000MG/L
Expiration Date: ~~TC20~~ 31/5/98	Expiration Date:	Expiration Date: 5/96
DCS True Value: 0.050MG/L 50 ug/L	Spike True Value: 0.050MG/L 50 ug/L	CCV True Value: 0.050MG/L 50 ug/L

	Int./ Notes	LIMS ID	pH	Sample Amount (mL/g)	Sample Absorbance	Color Blank Absorbance	Concentration (mg/L-mg/kg)	Prep D.F.	Anal. D.F.	Final Conc. (mg/L-mg/kg) ug/L	%REC /RPD
2		PREP BLANK		200	0.061		ND	1	1	ND 5u	
3		ICV/LCS		↓	0.158		0.0475	1	1	0.0475 47.5	95%
4		CCV			0.160		0.0485		1	0.0485 48.5	97%
5		CCB			0.062		ND		1	ND 5u	
5		51918-1		200	0.299		OR	1	1		
5		-1DU			0.295		OR	1	1		
6		-1MS			0.228		0.0822	1	2	0.1645 164	92%
7		-1SD			0.230		0.0832	1	2	0.1665 166	96%
8		-2			0.062		ND	1	1	ND 5u	
8		-2FD			0.058		ND			ND 5u	
9		-3			0.112		0.0246			0.0246 24.6	
0		-4			0.079		0.0082			0.0082 8.2	
1		-5			0.153		0.0450			0.0450 45.0	
2		-6		↓	0.212		0.0743	↓	↓	0.0743 74.3	
3		CCV			0.163		0.0500		1	0.0500 50.0	100%
43		CCB			0.063		0.0003		1	ND 5u	
44		51918-7		200	0.061		ND	1	1	ND 5u	
44		-8			0.061		ND			ND 5u	
45		-9		↓	0.074		0.0057	↓	↓	0.0057 5.7	
46		CCV			0.164		0.0505		1	0.0505 50.5	101%
46		CCB			0.062		ND ok 0.0591		1	ND 5u	
47	⊛	51918-1		200	0.151	11/1/96	~~0.0439~~ ~~0.0440~~ 10/18/96	1	2 118	ok ~~0.0~~ ~~0.1183~~	10/30/96
48	⊛	-1DU		↓	0.153	11/1/96	~~0.0441~~ 0.0601 ok	1	~~2~~ 150	ok ~~0.1203~~	~~0.0399~~
49		CCV			0.165		0.0510		1	0.0510 51.0	102%
50		CCB			0.061		ND		1	ND 5u	

* MS/MSD chosen by analyst 10/30/96 Page 1 of 1 BS0003.DOC

⊛ CHLOROFORM ~~FRESH~~ EXTRACT DILUTED 2X.

corrections by Reviewed By [signature] 11/1/96

2565 DISTILLATION STARTED 1530

Quanterra Environmental Services

Laboratory Bench Sheet
Wet Chemistry Sample Preparation
Revision 0 - January 19, 1995

Analyst: J. MAUREX	DCS Information	Matrix Spike Information
Date: 10/18/96 Parameter: PHEN-ANN-CLP-A QC Lot: 18OCT96-S1 QC Run: 1	Source: LABCHEM Verification/Lot Number: 10363 Prep Date: NA Made By: NA Concentration: 1000MG/L Expiration Date: 3/15/98	Source: SAME AS DCS Verification/Lot: ↓ Prep Date: ↓ Made By: ↓ Concentration: ↓ Expiration Date: ↓
SOP Information		
Number: DEN-WC-0002 Revision: 0	Solvent: NA Brand: Lot #:	

LIMS ID	pH	Bottle Type	Interference Checks Sample Pretreatment Stds. Added/ True Value	Initial Wt/Vol (g or mL)	Final Wt/Vol (g or mL)	Prep Dilution Factor
PREP BLANK	<2			200MLS	200MLS	1
ICV (LCS)	↓		+1ML 10MG/L 10363	↓	↓	↓
51918-1	↓	#2	S=Cl2	↓	↓	↓
-1DU	↓	↓	↓	↓	↓	↓
-1MS	↓	↓	+1ML 10MG/L 10363	↓	↓	↓
-1SD	↓	↓	"	↓	↓	↓
-2	↓	↓	↓	↓	↓	↓
-2FD	↓	↓	↓	↓	↓	↓
-3	↓	↓	↓	↓	↓	↓
-4	↓	↓	↓	↓	↓	↓
-5	↓	↓	↓	↓	↓	↓
-6	↓	↓	↓	↓	↓	↓
-7	↓	↓	↓	↓	↓	↓
-8	↓	↓	↓	↓	↓	↓
-9	↓	↓	↓	↓	↓	↓

* MS/MSD chosen by prep analyst

Page 1 of 1

BS0024.DOC

RAP SECTION 9.5 MONITORING

WELLS

W1 W18 W19 W20 W22
W27 W101 W120 W121
W124 W130 W131 W143
W424 W426 W428 W431
W432 W433 W434

CITY OF ST. LOUIS PARK
Platteville Aquifer
Analytical Result Summary
1996

Well	Coordinates	Recording Date	Water Level	PAH Concentrations ng/L B(a)P D(a,h)A	Carcin	Other	ug/L Phenols
W 1	922.78						
	2164506	5/13/96	879.14	22	141	509	
	711045	9/30/96	878.47	14	81	256	
W 18	893.27						
	2163930	5/13/96	881.68	0	0	1,532	
	706898						
		10/22/96	880.97	0	0	2,403	
W 19	894.49						
	2162700	5/13/96	882.89	0	3	79	
	706307						
		10/1/96	882.19	0	0	97	
W 20	895.83						
	2164542	5/21/96	879.24	0	0	675	
	705794	9/30/96	878.75	0	0	962	
W 22							
	2162495	5/13/96	884.85	0	0	82	
	708445	9/30/96	884.29	0	0	0	
W 27	910.47						
	2163581	5/13/96	882.74	0	0	1,476	
	707967						
		10/22/96	882.09	0	0	9,460	
W100	899.71						
	2162094		888.66				
	710654						
			888.24				
W 101	918.03						
	2167403	5/21/96	876.69	0	0	5,320	
	707259						
		10/22/96	876.15	0	0	32,380	
W120	919.9						
	2166550	5/14/96	878.43	0	0	1,716	
	706961						
		10/22/96	877.94	0	0	10,690	

CITY OF ST. LOUIS PARK
Platteville Aquifer
Analytical Result Summary
1996

Well	Coordinates	Recording Date	Water Level	PAH Concentrations ng/L B(a)P D(a,h)A	Carcin	Other	ug/L Phenols
W 121	922.85						
	2167032	5/14/96	873.51	0	0	141	
	705349	9/30/96	872.97	0	4	141	
W 124	887.65						
	2170785	6/3/96	868.47	0	0	10	
	707211	9/30/96	868.74	0	0	0	
W 130	894.83						
	2165394	5/14/96	873.51	0	5	164	
	704808						
		10/1/96	873.56	0	0	52	
W 131	919.27						
	2167145	5/21/96	879.76	4	24	149	
	709109						
		10/1/96	879.25	0	0	16	
W 132							
	2165928		871.27				
	705506						
			871.45				
W 143	905.31						
	2165506	5/14/96	876.95	0	0	1,212	
	706239						
		10/22/96	876.61	0	0	1,288	
W 424	917.57						
	2164612	5/21/96	882.36	0	0	153	
	709254						
		10/1/96	881.78	0	0	120	
W 426	923.91						
	2164050	5/14/96	882.36	0	0	55,470	
	708071						
			881.80				
W 428	919.4						
	2166377	5/21/96	879.71	0	6	192	
	707914						
		10/1/96	879.19	0	0	240	

CITY OF ST. LOUIS PARK
Platteville Aquifer
Analytical Result Summary
1996

Well	Coordinates	Recording Date	Water Level	PAH Concentrations ng/L B(a)P D(a,h)A	Carcin	Other	ug/L Phenols
W 430	895.34						
	2162834		884.21				
	706784						
			883.54				
W 431							
	2166835	5/21/96	874.85	0	0	1,023	
	706384						
		10/22/96	874.38	0	0	1,583	
W 432							
	2166125	5/14/96	881.33	0	14	793	
	706982						
		10/22/96	880.85	0	0	2,920	
W 433	925.84						
		5/13/96	878.54	0	0	426	
		10/1/96	878.19	0	0	625	
W 434	920.59						
	2166502		878.46				
	706938						
		10/1/96	877.96	0	0	4,351	
W 435							
			882.63				
			882.40				
W 437							
W 438							
			879.99				
			879.48				

PLATTEVILLE AQUIFER 1996

WELL		W1	W19	W18	W27	W22	W121	W426	W431	W120
Date		5/13/96	5/13/96	5/13/96	5/13/96	5/13/96	5/14/96	5/14/96	5/14/96	5/14/96
2,3-Benzofuran										
2,3-Dihydroindene		14	2.5	540		13	9.5	4900	880	1200
1H-Indene		8.1	1.2	22	15			2500		86
Naphthalene		16	7.5	170			32			
Benzo (b) Thiophene		3.9		270	420	6.6	6.7	1200		430
1H-Indole										
2-Methylnaphthalene		7.4	5.8	11			11			
1-Methylnaphthalene		11	4.3	100			13	6300		
Biphenyl		4.5			70					
Acenaphthylene								1700		
Acenaphthene		13	6.3	170		11	12	21000	33	
Dibenzofuran		11	3.9	14	9.8	4.8	7.2	3700		
Fluorene		11		20	63	6.6	7.8	7700		
Dibenzothiophene		5.7	2.1							
Phenanthrene		40	12		17	11	14	580		
Anthracene		7.3						790		
Acridine		15			81				110	
Carbazole		90	6.9	200	800	14		4200		
Fluoranthene		87	8.7			6.8	7.7	900		
Pyrene		88	18	15		7.7	20			
12-Dimethylbenz(a)anthracene										
Benzo (e) Pyrene		20								
Perylene		5.7								
3-Methylcholanthrene										
Dibenz (A,C) Anthracene										
Quinoline	C	1.7								
Benzo (a) Anthracene	C	35								
Chrysene	C	35								
Benzo (b) Fluoranthene	C	34	3.3							
Benzo (k) Fluoranthene	C	13								
Benzo (a) Pyrene	C	22								
Indeno (1,2,3-cd) Pyrene	C	12								
Dibenz (a,h) Anthracene	C	4.8								
Benzo (g,h,i) Perylene	C	16								
TOTAL OTHER PAH		458.6	79.2	1532	1475.8	81.5	140.9	55470	1023	1716
BENO(a)PYRENE + DIBENZO(A,H)	**C**	26.8	0	0	0	0	0	0	0	0
TOTAL CARCINOGEN	C	173.5	3.3	0	0	0	0	0	0	0
TOTAL PAH		632.1	82.5	1532	1475.8	81.5	140.9	55470	1023	1716
Dilution Factor		1	1	10	10	4	5	400	10	20
Surrogate Recoveries										
Naphthalene-d8		44	62	44	39	38	48	OD	68	92
Chrysene-d12		37	33	55	42	39	28	OD	20	93
Fluorene-d10		12	16	75	59	46	54	OD	79	38

PLATTEVILLE AQUIFER 1996

WELL	W433	W143	W432	W130A	W131	W424	W20	W101	W428	W1
Date	5/13/96	5/14/96	5/14/96	5/14/96	5/21/96	5/21/96	5/21/96	5/21/96	5/21/96	6/3/96
2,3-Benzofuran										
2,3-Dihydroindene	240	660	410	17	17	26	520	3200	42	
1H-Indene		56	95	8.6	9.5	20	16	80	5.6	9.6
Naphthalene		68		40	10	15			17	
Benzo (b) Thiophene	110	340	190	6.2	3.8	6.2	57	1800	17	
1H-Indole										
2-Methylnaphthalene		16		9.3	7.4	5.5	8.8		8	
1-Methylnaphthalene				12	13	23			9.4	
Biphenyl						5.2				
Acenaphthylene										
Acenaphthene		27	18	9	11	14		240	11	
Dibenzofuran					5.6	6.4			6.1	
Fluorene				5.4	7.8	5.5				
Dibenzothiophene					2.1	1.1				
Phenanthrene		13		17	3.9	8.6	14		13	
Anthracene				4.2	2.4					
Acridine			31	0	4.1		34			
Carbazole		32	29	10	10	12			14	
Fluoranthene	26			10	17	2.2			8	
Pyrene	50		20	15	21	2.1	25		37	
12-Dimethylbenz(a)anthracene										
Benzo (e) Pyrene					3				4.1	
Perylene										
3-Methylcholanthrene										
Dibenz (A,C) Anthracene										
Quinoline			14	2.4						
Benzo (a) Anthracene					2.6					
Chrysene					3.3					
Benzo (b) Fluoranthene				3.6	5.5					
Benzo (k) Fluoranthene					2.3					
Benzo (a) Pyrene		0	0	0	3.9					
Indeno (1,2,3-cd) Pyrene					2.6					
Dibenz (a,h) Anthracene		0	0	0						
Benzo (g,h,i) Perylene					3.7				5.8	
TOTAL OTHER PAH	426	1212	793	163.7	148.6	152.8	674.8	5320	192.2	9.6
BENO(a)PYRENE + DIBENZO(A,H)	0	0	0	0	3.9	0	0	0	0	
TOTAL CARCINOGEN	0	0	14	6	23.9	0	0	0	5.8	
TOTAL PAH	426	1212	807	169.7	172.5	152.8	674.8	5320	198	
Dilution Factor	20	10	10	1	1	1	10	40	2	10
Surrogate Recoveries										
Naphthalene-d8	79	56	53	44						89
Chrysene-d12	73	54	56	52						167
Fluorene-d10	40	24	20	28						79

PLATTEVILLE AQUIFER 1996

WELL	W121	W1	W20	W22	W124	W424	W19	W131	W433	W428
Date	9/30/96	9/30/96	9/30/96	9/30/96	9/30/96	10/1/96	10/1/96	10/1/96	10/1/96	10/1/96
2,3-Benzofuran										
2,3-Dihydroindene	3.5	8.1	720			14			420	86
1H-Indene	1.6	4.4	25			9.7			17	11
Naphthalene	21	21				37				
Benzo (b) Thiophene	1.5		72			5.1			160	31
1H-Indole		2.5								
2-Methylnaphthalene	11	9.7	19			14	42	16	14	21
1-Methylnaphthalene	8.4	8.9	18			15	26			19
Biphenyl										
Acenaphthylene		2								
Acenaphthene	5.5	7.9	13			4.9			14	15
Dibenzofuran	3.5	6.6				2.8				
Fluorene	4	7.4				2.3				
Dibenzothiophene	1.5	4.6								
Phenanthrene	10	24	15			4	13			14
Anthracene	1.9	5.7								
Acridine	29	9.8	41			4.6				
Carbazole	5	47	20							
Fluoranthene	8.2	36				2.6				
Pyrene	25	38	19			3.7	16			43
12-Dimethylbenz(a)anthracene										
Benzo (e) Pyrene		9.4								
Perylene		2.7								
3-Methylcholanthrene										
Dibenz (A,C) Anthracene										
Quinoline										
Benzo (a) Anthracene		16								
Chrysene		16								
Benzo (b) Fluoranthene		15								
Benzo (k) Fluoranthene		6.6								
Benzo (a) Pyrene	0	12	0	0	0	0	0	0	0	0
Indeno (1,2,3-cd) Pyrene		5.7								
Dibenz (a,h) Anthracene	0	2.4	0	0	0	0	0	0	0	0
Benzo (g,h,i) Perylene	4	7.6								
TOTAL OTHER PAH	140.6	255.7	962	0	0	119.7	97	16	625	240
BENO(a)PYRENE + DIBENZO(A,H)	0	14.4	0	0	0	0	0	0	0	0
TOTAL CARCINOGEN	4	81.3	0	0	0	0	0	0	0	0
TOTAL PAH	144.6	337	962	0	0	119.7	97	16	625	240
Dilution Factor	1	1	10	10		1	10	10	10	10
Surrogate Recoveries										
Naphthalene-d8	58	48	OD	OD	OD	73	0	0	0	0
Chrysene-d12	12	14	OD	OD	OD	61	0	0	0	0
Fluorene-d10	74	58	OD	OD	OD	13	0	0	0	0

PLATTEVILLE AQUIFER 1996

WELL	W130	W434	W18	W27	W431	W120	W143	W432	W101
Date	10/1/96	10/1/96	10/22/96	10/22/96	10/22/96	10/22/96	10/22/96	10/22/96	10/22/96
2,3-Benzofuran									
2,3-Dihydroindene		2900	830		1100	7300	750	1700	24000
1H-Indene	8.9	100	59	680	29	390	63	320	420
Naphthalene			240		140			130	
Benzo (b) Thiophene		1300	430	4100	78	3000	350	700	7200
1H-Indole	32								
2-Methylnaphthalene	11	51	19		55		26	30	
1-Methylnaphthalene			150		56		24		
Biphenyl									
Acenaphthylene									
Acenaphthene			250		33		29		760
Dibenzofuran			23						
Fluorene			21	160					
Dibenzothiophene									
Phenanthrene			12				17		
Anthracene									
Acridine				320	92				
Carbazole			340	4200			29	40	
Fluoranthene									
Pyrene			29						
12-Dimethylbenz(a)anthracene									
Benzo (e) Pyrene									
Perylene									
3-Methylcholanthrene									
Dibenz (A,C) Anthracene									
Quinoline									
Benzo (a) Anthracene									
Chrysene									
Benzo (b) Fluoranthene									
Benzo (k) Fluoranthene									
Benzo (a) Pyrene	0	0	0	0	0	0	0	0	0
Indeno (1,2,3-cd) Pyrene									
Dibenz (a,h) Anthracene	0	0	0	0	0	0	0	0	0
Benzo (g,h,i) Perylene									
TOTAL OTHER PAH	51.9	4351	2403	9460	1583	10690	1288	2920	32380
BENO(a)PYRENE + DIBENZO(A,H)	0	0	0	0	0	0	0	0	0
TOTAL CARCINOGEN	0	0	0	0	0	0	0	0	0
TOTAL PAH	51.9	4351	2403	9460	1583	10690	1288	2920	32380
Dilution Factor	10	50	10	100	10	100	10	20	200
Surrogate Recoveries									
Naphthalene-d8	0	0	79	0	88	0	89	80	0
Chrysene-d12	0	0	88	0	55	0	80	80	0
Fluorene-d10	0	0	24	0	9	0	21	16	0

FIRST 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

June 21, 1996

Quanterra Environmental Services

Project Number 048952

Introduction

Eleven aqueous samples (including matrix QC) were received at Quanterra Environmental Services, Denver Laboratory on May 14 1996. The samples were logged in under Quanterra Denver's project number 048952. A cross reference associating Quanterra Denver's laboratory sample numbers to the actual field sample number 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 October 1995 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.

Client samples with lab Id's 048952-002 and 005 had to be diluted due to non-target analytes exceeding the linear range of the instrument. The reporting limits were raised accordingly.

Client samples with lab Id's 048952-003 and 006 had to be diluted due to target analytes exceeding the linear range of the instrument. The reporting limits were raised accordingly.

The surrogate fluorene-d10 are reported low, but not less than 30%, in client samples with lab Id's 048952-002, 004 and 07DU (relabeled as 07SA on the data sheet). Fluorene-d10 is reported within acceptable limits in the LCS, matrix spike and matrix spike duplicate. This would indicate a possible matrix interference and no further action is deemed necessary.

Quanterra
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Client sample DPV-W19-051396 with lab Id 048952-07 was lost during preparation. Sample 048952-07DU was relabled as 048952-07 on the data sheets to facilitate matrix spike recovery calculations only.

Benzo (e) pyrene and chrysene are reported low in both the matrix spike and matrix spike duplicate samples. Benzo (e) pyrene and chrysene are reported within acceptable limits in the LCS. This would suggest a possible matrix interference. Both compounds are reported at greater than the 10% minimum.

This data package is in compliance with the terms and conditions of the 1995 QAPP, both technically and for completeness, for other than the conditions detailed above.

Reported By: _____ **Date:** 6/21/96

Kurt C. Ill
Program Manager

Reviewed By: _____ **Date:** 6/21/96

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.

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".

R = Target compound's secondary ion confirmation not met, however peak shape and retention time make peak identication positive.

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 048952	Group Code	Analysis Description	Custom Test?
0001 - 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
		Polynuclear Aromatic Hydrocarbons, SIM Low Level	N

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
048952-0001-FD	DPV-W19FBD-051396	AQUEOUS	13 MAY 96	14:25	14 MAY 96
048952-0001-FB	DPV-W19FB-051396	AQUEOUS	13 MAY 96	14:25	14 MAY 96
048952-0002-SA	DPV-W22-051396	AQUEOUS	13 MAY 96	13:30	14 MAY 96
048952-0003-SA	DPV-W18-051396	AQUEOUS	13 MAY 96	16:30	14 MAY 96
048952-0004-SA	DPV-W1-051396	AQUEOUS	13 MAY 96	17:30	14 MAY 96
048952-0005-SA	DPV-W433-051396	AQUEOUS	13 MAY 96	12:30	14 MAY 96
048952-0006-SA	DPV-W27-051396	AQUEOUS	13 MAY 96	11:00	14 MAY 96
048952-0007-SA	DPV-W19-051396	AQUEOUS	13 MAY 96	15:00	14 MAY 96
048952-0007-DU	DPV-W19D-051396	AQUEOUS	13 MAY 96	15:00	14 MAY 96
048952-0007-MS	DPV-W19MS-051396	AQUEOUS	13 MAY 96	15:00	14 MAY 96
048952-0007-SD	DPV-W19MSD-051396	AQUEOUS	13 MAY 96	15:00	14 MAY 96

Chain of Custody Record

Environmental Services

QUA-4124-1

Client: City of St Louis Park	Project Manager: Bill Gregg	Date: 5/13/96	Chain Of Custody Number: 66369
Address: 5005 Minnetonka Blvd	Telephone Number (Area Code)/Fax Number: 612-924-0112 / 612-924-0317	Lab Number:	Page 1 of 1
City: St Louis Park; State: Mn; Zip Code: 55416	Site Contact: Scott Anderson; Lab Contact:		
Project Name: City of St Louis Park	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.: Scott Anderson			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis (Attach list if more space is needed): PPT-PAH											Special Instructions/ Conditions of Receipt
DPV-W19FBD-051396	5/13/96	14:25	X			6						X							-1FD				PPT-5
DPV-W19FB-051396	5/13/96	14:05	X			6						X							-1FB				PPT-5
DPV-W22-051396	5/13/96	13:30	X			6						X							-2				PPT-5

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other Standard

QC Requirements (Specify):

	Date	Time		Date	Time
1. Relinquished By: Ret Moore	5/13/96		1. Received By: [signature]	5/14/96	900
2. Relinquished By:			2. Received By:		
3. Relinquished By:			3. Received By:		

Comments:

DISTRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy

Chain of Custody Record

Environmental Services

QUA-4124-1

Client: City of St Louis Park	Project Manager: Bill Gross	Date: 5/13/96	Chain Of Custody Number: 66373
Address: 5005 Minnetonka Blvd	Telephone Number (Area Code)/Fax Number: 612-924-0112/612-931-0317	Lab Number:	Page 1 of 1
City: St Louis Park; State: MN; Zip Code: 55416	Site Contact: Scott Anderson	Lab Contact:	
Project Name: City of St Louis Park	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No: Scott Anderson			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Aqueous	Sed.	Soil		Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis (Attach list if more space is needed): PPT-PAH											Special Instructions/ Conditions of Receipt
DPV-WIB-051396	5/13/96	16:30	X				6						X							-3				PPT-5
DPV-WI-051396	5/13/96	12:30	X				6						X							-4				PPT-5

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other Standard

QC Requirements (Specify):

1. Relinquished By: [signature]	Date: 5/13/96	Time:	1. Received By: [signature]	Date: 5/14/96	Time: 900
2. Relinquished By:	Date:	Time:	2. Received By:	Date:	Time:
3. Relinquished By:	Date:	Time:	3. Received By:	Date:	Time:

Comments:

DISTRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Copy

Chain of Custody Record

Environmental Services

QUA-4124-1

Client: City of St Louis Park	Project Manager: Billberg	Date: 5/13/96	Chain Of Custody Number: 66374
Address: 5005 Minnetonka Blvd	Telephone Number (Area Code)/Fax Number: 612-924-0112 / 612-924-0312	Lab Number:	Page 1 of 1
City: St Louis Park, State: MN, Zip Code: 55416	Site Contact:	Lab Contact:	
Project Name: City of St Louis Park	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.: 620-013-400			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Aqueous	Matrix: Sed.	Matrix: Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis (Attach list if more space is needed): DPT-PAH		Special Instructions/ Conditions of Receipt
DPV-W433-051396	5-13-96	12:30	X			X						X	-5	PPT-5
DPV-W27-051396	5-13-96	11:00	X			X						X	-6	PPT-5
DPV-W19-051396	5-13-96	15:00	X			X						X	-7	PPT-5

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other Standard

QC Requirements (Specify): Per Contract

1. Relinquished By: [signature]	Date: 5/13/96	Time:	1. Received By: [signature]	Date: 5/14/96	Time: 901
2. Relinquished By:	Date:	Time:	2. Received By:	Date:	Time:
3. Relinquished By:	Date:	Time:	3. Received By:	Date:	Time:

Comments:

DISTRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy

Chain of Custody Record

Services

QUA-4124-1

Client: City of St Louis Park	Project Manager: Bill Gross	Date: 5/13/96	Chain Of Custody Number: 66368
Address: 5005 Minnetonka Blvd	Telephone Number (Area Code)/Fax Number: 612-924-0112/612-924-0312	Lab Number:	Page 1 of 1
City: St Louis Park; State: Mn; Zip Code: 55416	Site Contact: Scott Anderson	Lab Contact:	
Project Name: City of St Louis Park	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.: Scott Anderson			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	PPT-PHA	Analysis (Attach list if more space is needed)	Special Instructions/ Conditions of Receipt
DPV-W19D-051396	5/13/96	15:00	X			6						X	7DU	PPT-5
DPV-W19MSD-051396	5/13/96	15:00	X			6						X	7MSD	PPT-5
DPV-W19MS-051396	5/13/96	15:00	X			6						X	7SD	PPT-5

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other Standard

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: [signature]	5/13/96		1. Received By: [signature]	5/14/96	900
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

DISTRIBUTI... WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK ... Copy

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W19FB

·b Name: QUANTERRA DENVER Contract:

.o Code: Case No.: 48952 SAS No.: SDG No.: 48952

atrix: (soil/water) WATER Lab Sample ID: 48952-01FB

ample wt/vol: 4204 (g/ml) ML Lab File ID: A0301879

evel: (low/med) LOW Date Received: 05/14/96

Moisture: _____ decanted: (Y/N)___ Date Extracted:05/18/96

oncentrated Extract Volume: 0.5(ml) Date Analyzed: 05/31/96

njection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	4.8	U
496-11-7	2,3-Dihydroindene	2.0	
95-13-6	1H-Indene	0.86	U
91-20-3	Naphthalene	6.8	
95-15-8	Benzo(b)thiophene	0.86	U
91-22-5	Quinoline	1.3	U
120-72-9	1H-Indole	2.4	U
91-57-6	2-Methylnaphthalene	4.5	B
90-12-0	1-Methylnaphthalene	2.1	
92-52-4	Biphenyl	4.1	U
208-96-8	Acenaphthylene	1.3	U
83-32-9	Acenaphthene	1.2	U
132-64-9	Dibenzofuran	1.2	R
86-73-7	Fluorene	1.0	
132-65-0	Dibenzothiophene	1.0	U
85-01-8	Phenanthrene	4.1	B
120-12-7	Anthracene	1.0	U
260-94-6	Acridine	2.8	U
86-74-8	Carbazole	1.8	U
206-44-0	Fluoranthene	1.8	
129-00-0	Pyrene	1.3	U
56-55-3	Benzo(a)Anthracene	2.4	U
218-01-9	Chrysene	2.7	U
207-08-9	Benzo(b)fluoranthene	2.4	U
205-08-9	Benzo(k)fluoranthene	2.2	U
192-97-2	Benzo(e)pyrene	1.8	U
50-32-8	Benzo(a)pyrene	2.2	U
198-55-0	Perylene	2.4	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.0	U
53-70-3	Dibenzo(a,h)anthracene	1.5	U
191-24-2	Benzo(g,h,i)perylene	2.7	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W19FBD

ab Name: QUANTERRA DENVER Contract:

ab Code: Case No.: 48952 SAS No.: SDG No.: 48952

atrix: (soil/water) WATER Lab Sample ID: 48952-01FD

ample wt/vol: 4184 (g/ml) ML Lab File ID: A0401880

evel: (low/med) LOW Date Received: 05/14/96

Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/18/96

oncentrated Extract Volume: 0.5(ml) Date Analyzed: 05/31/96

njection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	4.9	U
496-11-7	2,3-Dihydroindene	2.8	
95-13-6	1H-Indene	0.86	U
91-20-3	Naphthalene	6.2	U
95-15-8	Benzo(b)thiophene	0.86	U
91-22-5	Quinoline	1.3	U
120-72-9	1H-Indole	2.4	U
91-57-6	2-Methylnaphthalene	3.0	B
90-12-0	1-Methylnaphthalene	1.5	U
92-52-4	Biphenyl	4.1	U
208-96-8	Acenaphthylene	1.3	U
83-32-9	Acenaphthene	1.2	U
132-64-9	Dibenzofuran	0.96	U
86-73-7	Fluorene	0.96	U
132-65-0	Dibenzothiophene	1.0	U
85-01-8	Phenanthrene	2.4	B
120-12-7	Anthracene	1.0	U
260-94-6	Acridine	2.8	U
86-74-8	Carbazole	1.8	U
206-44-0	Fluoranthene	1.6	
129-00-0	Pyrene	1.3	U
56-55-3	Benzo(a)Anthracene	2.4	U
218-01-9	Chrysene	2.7	U
207-08-9	Benzo(b)fluoranthene	2.4	U
205-08-9	Benzo(k)fluoranthene	2.2	U
192-97-2	Benzo(e)pyrene	1.8	U
50-32-8	Benzo(a)pyrene	2.2	U
198-55-0	Perylene	2.4	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.0	U
53-70-3	Dibenzo(a,h)anthracene	1.5	U
191-24-2	Benzo(g,h,i)perylene	2.7	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W22

Name: QUANTERRA DENVER Contract:

Code: Case No.: 48952 SAS No.: SDG No.: 48952

rix: (soil/water) WATER Lab Sample ID: 48952-02

ple wt/vol: 4187 (g/ml) ML Lab File ID: A1301963

el: (low/med) LOW Date Received: 05/14/96

loisture: _____ decanted: (Y/N)___ Date Extracted:05/18/96

centrated Extract Volume: 0.5(ml) Date Analyzed: 06/07/96

ection Volume: 1.0(uL) Dilution Factor: 4.0

Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	19	U
496-11-7	2,3-Dihydroindene	13	
95-13-6	1H-Indene	3.4	U
91-20-3	Naphthalene	25	U
95-15-8	Benzo(b)thiophene	6.6	
91-22-5	Quinoline	5.3	U
120-72-9	1H-Indole	9.6	U
91-57-6	2-Methylnaphthalene	3.4	U
90-12-0	1-Methylnaphthalene	6.1	U
92-52-4	Biphenyl	16	U
208-96-8	Acenaphthylene	5.3	U
83-32-9	Acenaphthene	11	R
132-64-9	Dibenzofuran	4.8	
86-73-7	Fluorene	6.6	
132-65-0	Dibenzothiophene	4.2	U
85-01-8	Phenanthrene	11	B
120-12-7	Anthracene	4.2	U
260-94-6	Acridine	11	U
86-74-8	Carbazole	14	
206-44-0	Fluoranthene	6.8	
129-00-0	Pyrene	7.7	
56-55-3	Benzo(a)Anthracene	9.6	U
218-01-9	Chrysene	11	U
207-08-9	Benzo(b)fluoranthene	9.6	U
205-08-9	Benzo(k)fluoranthene	8.8	U
192-97-2	Benzo(e)pyrene	7.3	U
50-32-8	Benzo(a)pyrene	8.8	U
198-55-0	Perylene	9.6	U
193-39-5	Indeno(1,2,3-cd)pyrene	8.0	U
53-70-3	Dibenzo(a,h)anthracene	6.1	U
191-24-2	Benzo(g,h,i)perylene	11	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W18

'ame: QUANTERRA DENVER Contract:

:ode: Case No.: 48952 SAS No.: SDG No.: 48952

.x: (soil/water) WATER Lab Sample ID: 48952-03

.e wt/vol: 4207 (g/ml) ML Lab File ID: A0901959

.: (low/med) LOW Date Received: 05/14/96

isture: _____ decanted: (Y/N)___ Date Extracted:05/18/96

entrated Extract Volume: 0.5(ml) Date Analyzed: 06/07/96

ction Volume: 1.0(uL) Dilution Factor: 10.0

Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	48	U
496-11-7	2,3-Dihydroindene	540	
95-13-6	1H-Indene	22	
91-20-3	Naphthalene	170	
95-15-8	Benzo(b)thiophene	270	
91-22-5	Quinoline	13	U
120-72-9	1H-Indole	24	U
91-57-6	2-Methylnaphthalene	11	B
90-12-0	1-Methylnaphthalene	100	
92-52-4	Biphenyl	41	U
208-96-8	Acenaphthylene	13	U
83-32-9	Acenaphthene	170	
132-64-9	Dibenzofuran	14	
86-73-7	Fluorene	20	
132-65-0	Dibenzothiophene	10	U
85-01-8	Phenanthrene	12	U
120-12-7	Anthracene	10	U
260-94-6	Acridine	28	U
86-74-8	Carbazole	200	
206-44-0	Fluoranthene	13	U
129-00-0	Pyrene	15	
56-55-3	Benzo(a)Anthracene	24	U
218-01-9	Chrysene	27	U
207-08-9	Benzo(b)fluoranthene	24	U
205-08-9	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	Dibenzo(a,h)anthracene	15	U
191-24-2	Benzo(g,h,i)perylene	27	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W1

Name: QUANTERRA DENVER Contract:

Code: Case No.: 48952 SAS No.: SDG No.: 48952

trix: (soil/water) WATER Lab Sample ID: 48952-04

mple wt/vol: 4226 (g/ml) ML Lab File ID: A0701883

vel: (low/med) LOW Date Received: 05/14/96

Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/18/96

ncentrated Extract Volume: 0.5(ml) Date Analyzed: 05/31/96

jection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	4.8	U
496-11-7	2,3-Dihydroindene	14	
95-13-6	1H-Indene	8.1	
91-20-3	Naphthalene	16	
95-15-8	Benzo(b)thiophene	3.9	
91-22-5	Quinoline	1.7	
120-72-9	1H-Indole	2.4	U
91-57-6	2-Methylnaphthalene	7.4	B
90-12-0	1-Methylnaphthalene	11	
92-52-4	Biphenyl	4.5	
208-96-8	Acenaphthylene	1.3	U
83-32-9	Acenaphthene	13	
132-64-9	Dibenzofuran	11	
86-73-7	Fluorene	11	
132-65-0	Dibenzothiophene	5.7	
85-01-8	Phenanthrene	40	B
120-12-7	Anthracene	7.3	
260-94-6	Acridine	15	
86-74-8	Carbazole	90	
206-44-0	Fluoranthene	87	
129-00-0	Pyrene	88	
56-55-3	Benzo(a)Anthracene	35	
218-01-9	Chrysene	35	
207-08-9	Benzo(b)fluoranthene	34	
205-08-9	Benzo(k)fluoranthene	13	
192-97-2	Benzo(e)pyrene	20	
50-32-8	Benzo(a)pyrene	22	
198-55-0	Perylene	5.7	
193-39-5	Indeno(1,2,3-cd)pyrene	12	
53-70-3	Dibenzo(a,h)anthracene	4.8	
191-24-2	Benzo(g,h,i)perylene	16	

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W433

Name: QUANTERRA DENVER Contract:

Code: Case No.: 48952 SAS No.: SDG No.: 48952

rix: (soil/water) WATER Lab Sample ID: 48952-05

ple wt/vol: 4233 (g/ml) ML Lab File ID: A0901979

el: (low/med) LOW Date Received: 05/14/96

oisture: _____ decanted: (Y/N)___ Date Extracted:05/18/96

centrated Extract Volume: 0.5(ml) Date Analyzed: 06/08/96

ection Volume: 1.0(uL) Dilution Factor: 20.0

Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	96	U
496-11-7	2,3-Dihydroindene	240	
95-13-6	1H-Indene	17	U
91-20-3	Naphthalene	120	U
95-15-8	Benzo(b)thiophene	110	
91-22-5	Quinoline	26	U
120-72-9	1H-Indole	47	U
91-57-6	2-Methylnaphthalene	17	U
90-12-0	1-Methylnaphthalene	30	U
92-52-4	Biphenyl	81	U
208-96-8	Acenaphthylene	26	U
83-32-9	Acenaphthene	24	U
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	J
129-00-0	Pyrene	50	
56-55-3	Benzo(a)Anthracene	47	U
218-01-9	Chrysene	53	U
207-08-9	Benzo(b)fluoranthene	47	U
205-08-9	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	47	U
193-39-5	Indeno(1,2,3-cd)pyrene	40	U
53-70-3	Dibenzo(a,h)anthracene	30	U
191-24-2	Benzo(g,h,i)perylene	53	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W27

Name: QUANTERRA DENVER Contract:

Code: Case No.: 48952 SAS No.: SDG No.: 48952

trix: (soil/water) WATER Lab Sample ID: 48952-06

mple wt/vol: 4226 (g/ml) ML Lab File ID: A1101961

vel: (low/med) LOW Date Received: 05/14/96

Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/18/96

ncentrated Extract Volume: 0.5(ml) Date Analyzed: 06/07/96

jection Volume: 1.0(uL) Dilution Factor: 10.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	48	U
496-11-7	2,3-Dihydroindene	13	U
95-13-6	1H-Indene	15	
91-20-3	Naphthalene	62	U
95-15-8	Benzo(b)thiophene	420	
91-22-5	Quinoline	13	U
120-72-9	1H-Indole	24	U
91-57-6	2-Methylnaphthalene	8.5	U
90-12-0	1-Methylnaphthalene	15	U
92-52-4	Biphenyl	70	
208-96-8	Acenaphthylene	13	U
83-32-9	Acenaphthene	12	U
132-64-9	Dibenzofuran	9.8	
86-73-7	Fluorene	63	
132-65-0	Dibenzothiophene	10	U
85-01-8	Phenanthrene	17	B
120-12-7	Anthracene	10	U
260-94-6	Acridine	81	
86-74-8	Carbazole	800	
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
207-08-9	Benzo(b)fluoranthene	24	U
205-08-9	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	Dibenzo(a,h)anthracene	15	U
191-24-2	Benzo(g,h,i)perylene	26	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W19

) Name: QUANTERRA DENVER Contract:

) Code: Case No.: 48952 SAS No.: SDG No.: 48952

trix: (soil/water) WATER Lab Sample ID: 48952-07

mple wt/vol: 4151 (g/ml) ML Lab File ID: A1001886

vel: (low/med) LOW Date Received: 05/14/96

Moisture: _____ decanted: (Y/N)___ Date Extracted:05/18/96

ncentrated Extract Volume: 0.5(ml) Date Analyzed: 05/31/96

jection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	4.9	U
496-11-7	2,3-Dihydroindene	2.5	
95-13-6	1H-Indene	1.2	
91-20-3	Naphthalene	7.5	
95-15-8	Benzo(b)thiophene	0.87	U
91-22-5	Quinoline	1.3	U
120-72-9	1H-Indole	2.4	U
91-57-6	2-Methylnaphthalene	5.8	B
90-12-0	1-Methylnaphthalene	4.3	
92-52-4	Biphenyl	4.1	U
208-96-8	Acenaphthylene	1.3	U
83-32-9	Acenaphthene	6.3	
132-64-9	Dibenzofuran	3.9	
86-73-7	Fluorene	0.96	U
132-65-0	Dibenzothiophene	2.1	
85-01-8	Phenanthrene	12	B
120-12-7	Anthracene	1.0	U
260-94-6	Acridine	2.8	U
86-74-8	Carbazole	6.9	
206-44-0	Fluoranthene	8.7	
129-00-0	Pyrene	18	
56-55-3	Benzo(a)Anthracene	2.4	U
218-01-9	Chrysene	2.7	U
207-08-9	Benzo(b)fluoranthene	3.3	
205-08-9	Benzo(k)fluoranthene	2.2	U
192-97-2	Benzo(e)pyrene	1.8	U
50-32-8	Benzo(a)pyrene	2.2	U
198-55-0	Perylene	2.4	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.0	U
53-70-3	Dibenzo(a,h)anthracene	1.5	U
191-24-2	Benzo(g,h,i)perylene	2.7	U

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Name: QUANTERRA DENVER Contract:

Code: Case No.: 48952 SAS No.: SDG No.: 48952

	EPA SAMPLE NO.	S1 #	S2 #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	SBLK01	63	90	60						0
02	48952-LCS	77	89	72						0
03	W19FB	74	103	74						0
04	W19FBD	74	108	70						0
05	W1	44	12	37*						0
06	W19	62	16	33*						0
07	W19MS	71	23	65						0
08	W19MSD	62	13	52						0
09	W18	44	75	55						0
10	W27	39	59	42						0
11	W22	38	46	39*						0
12	W433	79	40	73						0
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										

		QC LIMITS
S1	= Naphthalene-d8	(21-108)
S2	= Chrysene-d12	(10-118)
S3	= Fluorene-d10	(41-162)

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

3C

ER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Name: QUANTERRA DENVER Contract:

Code: Case No.: 48952 SAS No.: SDG No.: 48952

rix Spike - EPA Sample No.: W19

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC #	QC. LIMITS REC.
H-Indene	97	1.2	67	68	20-150
aphthalene	97	7.5	79	74	20-150
uinoline	97	0.00	94	97	20-150
-Methylnaphthalene	97	5.8	79	75	20-150
luorene	97	0.00	73	75	69-118
hrysene	97	0.00	18	18*	20-132
enzo(e)pyrene	97	0.00	12	12*	20-150

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1H-Indene	73	44	59	14	20	20-15
Naphthalene	73	53	62	18	20	20-150
Quinoline	73	60	82	17	20	20-150
2-Methylnaphthalene	73	52	63	17	20	20-150
Fluorene	73	45	62	19	20	69-118
Chrysene	73	9.3	13*	32*	20	20-132
Benzo(e)pyrene	73	7.0	10*	18	20	20-150

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

PD: 1 out of 7 outside limits
pike Recovery: 4 out of 14 outside limits

COMMENTS:

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W19MS

Name: QUANTERRA DENVER Contract:

Code: Case No.: 48952 SAS No.: SDG No.: 48952

rix: (soil/water) WATER Lab Sample ID: 48952-07MS

ple wt/vol: 3096 (g/ml) ML Lab File ID: A1101887

el: (low/med) LOW Date Received: 05/14/96

oisture: _____ decanted: (Y/N)___ Date Extracted: 05/18/96

centrated Extract Volume: 0.5(ml) Date Analyzed: 06/01/96

ection Volume: 1.0(uL) Dilution Factor: 1.0

Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	6.6	U
496-11-7	2,3-Dihydroindene	2.7	R
95-13-6	1H-Indene	67	
91-20-3	Naphthalene	79	
95-15-8	Benzo(b)thiophene	1.2	U
91-22-5	Quinoline	94	
120-72-9	1H-Indole	3.2	U
91-57-6	2-Methylnaphthalene	79	B
90-12-0	1-Methylnaphthalene	5.6	
92-52-4	Biphenyl	5.6	U
208-96-8	Acenaphthylene	1.8	U
83-32-9	Acenaphthene	6.8	
132-64-9	Dibenzofuran	4.9	
86-73-7	Fluorene	73	
132-65-0	Dibenzothiophene	2.8	
85-01-8	Phenanthrene	16	B
120-12-7	Anthracene	1.4	U
260-94-6	Acridine	3.7	U
86-74-8	Carbazole	13	
206-44-0	Fluoranthene	8.9	
129-00-0	Pyrene	22	
56-55-3	Benzo(a)Anthracene	3.2	U
218-01-9	Chrysene	18	
207-08-9	Benzo(b)fluoranthene	3.2	U
205-08-9	Benzo(k)fluoranthene	3.0	U
192-97-2	Benzo(e)pyrene	12	
50-32-8	Benzo(a)pyrene	3.0	U
198-55-0	Perylene	3.2	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.7	U
53-70-3	Dibenzo(a,h)anthracene	2.1	U
191-24-2	Benzo(g,h,i)perylene	3.6	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W19MSD

Name: QUANTERRA DENVER Contract:

Code: Case No.: 48952 SAS No.: SDG No.: 48952

ix: (soil/water) WATER Lab Sample ID: 48952-07SD

:le wt/vol: 4132 (g/ml) ML Lab File ID: A1201888

el: (low/med) LOW Date Received: 05/14/96

oisture: _____ decanted: (Y/N)___ Date Extracted:05/18/96

:entrated Extract Volume: 0.5(ml) Date Analyzed: 06/01/96

ection Volume: 1.0(uL) Dilution Factor: 1.0

Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	4.9	U
496-11-7	2,3-Dihydroindene	2.9	
95-13-6	1H-Indene	44	
91-20-3	Naphthalene	53	
95-15-8	Benzo(b)thiophene	0.87	U
91-22-5	Quinoline	60	
120-72-9	1H-Indole	2.4	U
91-57-6	2-Methylnaphthalene	52	B
90-12-0	1-Methylnaphthalene	4.5	
92-52-4	Biphenyl	4.2	U
208-96-8	Acenaphthylene	1.4	U
83-32-9	Acenaphthene	6.0	
132-64-9	Dibenzofuran	3.8	
86-73-7	Fluorene	45	
132-65-0	Dibenzothiophene	1.9	
85-01-8	Phenanthrene	11	B
120-12-7	Anthracene	1.1	U
260-94-6	Acridine	2.8	U
86-74-8	Carbazole	9.4	
206-44-0	Fluoranthene	7.8	
129-00-0	Pyrene	16	
56-55-3	Benzo(a)Anthracene	2.4	U
218-01-9	Chrysene	9.3	
207-08-9	Benzo(b)fluoranthene	3.0	
205-08-9	Benzo(k)fluoranthene	2.2	U
192-97-2	Benzo(e)pyrene	7.0	
50-32-8	Benzo(a)pyrene	2.2	U
198-55-0	Perylene	2.4	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.0	U
53-70-3	Dibenzo(a,h)anthracene	1.5	U
191-24-2	Benzo(g,h,i)perylene	2.7	U

FORM 3
WATER SEMIVOLATILE METHOD SPIKE RECOVERY

ab Name: QUANTERRA DENVER Contract:

ab Code: Case No.: 48952 SAS No.: SDG No.: 48952

atrix Spike - Sample No.: 48952-lcs

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ng/L)	% REC #	QC. LIMITS REC.
1H-Indene	75	54	72	20-150
Naphthalene	75	66	88	20-150
Quinoline	75	67	89	20-150
2-Methylnaphthalene	75	62	83	20-150
Fluorene	75	63	84	20-150
Chrysene	75	58	77	20-150
Benzo(e)pyrene	75	61	81	20-150

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

COMMENTS: _____

FORM III SV

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

48952-LCS

) Name: QUANTERRA DENVER Contract:

) Code: Case No.: 48952 SAS No.: SDG No.: 48952

.trix: (soil/water) WATER Lab Sample ID: 48952-LCS

mple wt/vol: 4000 (g/ml) ML Lab File ID: A0201878

:vel: (low/med) LOW Date Received: _____

Moisture: _____ decanted: (Y/N)___ Date Extracted:05/18/96

)ncentrated Extract Volume: 0.5(ml) Date Analyzed: 05/31/96

:jection Volume: 1.0(uL) Dilution Factor: 1.0

?C Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
95-13-6	1H-Indene	54	
91-20-3	Naphthalene	66	
91-22-5	Quinoline	67	
91-57-6	2-Methylnaphthalene	62	
86-73-7	Fluorene	63	
218-01-9	Chrysene	58	
192-97-2	Benzo(e)pyrene	61	

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

SBLK01

Name: QUANTERRA DENVER Contract:

ode: Case No.: 48952 SAS No.: SDG No.: 48952

File ID: A0101877 Lab Sample ID: SBLK01

rument ID: A Date Extracted: 05/18/96

ix: (soil/water) WATER Date Analyzed: 05/31/96

el:(low/med) LOW Time Analyzed: 1756

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	48952-LCS	48952-LCS	A0201878	05/31/96
02	W19FB	48952-01FB	A0301879	05/31/96
03	W19FBD	48952-01FD	A0401880	05/31/96
04	W1	48952-04	A0701883	05/31/96
05	W19	48952-07	A1001886	05/31/96
06	W19MS	48952-07MS	A1101887	06/01/96
07	W19MSD	48952-07SD	A1201888	06/01/96
08	W18	48952-03	A0901959	06/07/96
09	W27	48952-06	A1101961	06/07/96
10	W22	48952-02	A1301963	06/07/96
11	W433	48952-05	A0901979	06/08/96
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OMMENTS:

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLK01

Name: QUANTERRA DENVER Contract:

Code: Case No.: 48952 SAS No.: SDG No.: 48952

:ix: (soil/water) WATER Lab Sample ID: SBLK01

:le wt/vol: 4000 (g/ml) ML Lab File ID: A0101877

el: (low/med) LOW Date Received: _____

oisture: _____ decanted: (Y/N)___ Date Extracted:05/18/96

:entrated Extract Volume: 0.5(ml) Date Analyzed: 05/31/96

ection Volume: 1.0(uL) Dilution Factor: 1.0

Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	5.1	U
496-11-7	2,3-Dihydroindene	1.4	U
95-13-6	1H-Indene	0.90	U
91-20-3	Naphthalene	6.5	U
95-15-8	Benzo(b)thiophene	0.90	U
91-22-5	Quinoline	1.4	U
120-72-9	1H-Indole	2.5	U
91-57-6	2-Methylnaphthalene	1.9	
90-12-0	1-Methylnaphthalene	1.6	U
92-52-4	Biphenyl	4.3	U
208-96-8	Acenaphthylene	1.4	U
83-32-9	Acenaphthene	1.3	U
132-64-9	Dibenzofuran	1.0	U
86-73-7	Fluorene	1.0	U
132-65-0	Dibenzothiophene	1.1	U
85-01-8	Phenanthrene	3.0	
120-12-7	Anthracene	1.1	U
260-94-6	Acridine	2.9	U
86-74-8	Carbazole	1.9	U
206-44-0	Fluoranthene	1.4	U
129-00-0	Pyrene	1.4	U
56-55-3	Benzo(a)Anthracene	2.5	U
218-01-9	Chrysene	2.8	U
207-08-9	Benzo(b)fluoranthene	2.5	U
205-08-9	Benzo(k)fluoranthene	2.3	U
192-97-2	Benzo(e)pyrene	1.9	U
50-32-8	Benzo(a)pyrene	2.3	U
198-55-0	Perylene	2.5	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.1	U
53-70-3	Dibenzo(a,h)anthracene	1.6	U
191-24-2	Benzo(g,h,i)perylene	2.8	U

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

ıb Name: QUANTERRA DENVER Contract:

ɔ Code: Case No.: 48952 SAS No.: SDG No.: 48952

ab File ID (Standard): A875 Date Analyzed: 05/31/96

ıstrument ID: A Time Analyzed: 1605

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	156668	12.51	243004	14.96	53302	21.57
	UPPER LIMIT	313336	13.01	486008	15.46	106604	22.07
	LOWER LIMIT	78334	12.01	121502	14.46	26651	21.07
	EPA SAMPLE NO.						
01	SBLK01	195369	12.50	360419	14.96	64870	21.57
02	48952-LCS	172564	12.50	300220	14.95	67530	21.55
03	W19FB	187571	12.49	318109	14.95	72570	21.56
04	W19FBD	218621	12.49	408261	14.95	77020	21.56
05	W1	227477	12.50	326249	14.94	95121	21.55
06	W19	156037	12.49	256095	14.94	95932	21.55
07	W19MS	162444	12.49	255245	14.94	102325	21.55
08	W19MSD	144747	12.50	216067	14.94	93557	21.55
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = 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

Name: QUANTERRA DENVER Contract:

Code: Case No.: 48952 SAS No.: SDG No.: 48952

File ID (Standard): A948 Date Analyzed: 06/07/96

:rument ID: A Time Analyzed: 0829

	IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
12 HOUR STD	164838	12.44	264646	14.87	121175	21.48
UPPER LIMIT	329676	12.94	529292	15.37	242350	21.98
LOWER LIMIT	82419	11.94	132323	14.37	60588	20.98
EPA SAMPLE NO.						
W18	189817	12.41	430618	14.85	130509	21.46
W27	154286	12.41	286870	14.86	82443	21.47
W22	229966	12.41	488125	14.85	149893	21.47

IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = 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

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 48952 SAS No.: SDG No.: 48952

Lab File ID (Standard): A970 Date Analyzed: 06/08/96

Instrument ID: A Time Analyzed: 0849

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	79616	12.43	120974	14.86	43785	21.48
	UPPER LIMIT	159232	12.93	241948	15.36	87570	21.98
	LOWER LIMIT	39808	11.93	60487	14.36	21892	20.98
	EPA SAMPLE NO.						
01	W433	93597	12.41	170009	14.86	62483	21.47
02							
03							
04							
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22							

IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = 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.

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

ıb Name: QUANTERRA DENVER Contract:

ab Code: Case No.: 48952 SAS No.: SDG No.: 48952

	EPA SAMPLE NO.	S1 #	S2 #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	SBLK01	63	90	60						0
02	48952-LCS	77	89	72						0
03	W19FB	74	103	74						0
04	W19FBD	74	108	70						0
05	W1	44	12	37*						0
06	W19	62	16	33*						0
07	W19MS	71	23	65						0
08	W19MSD	62	13	52						0
09	W18	44	75	55						0
10	W27	39	59	42						0
11	W22	38	46	39*						0
12	W433	79	40	73						0
13										
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		QC LIMITS
S1	= Naphthalene-d8	(21-108)
S2	= Chrysene-d12	(10-118)
S3	= Fluorene-d10	(41-162)

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

3C

ATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Name: QUANTERRA DENVER Contract:

Code: Case No.: 48952 SAS No.: SDG No.: 48952

trix Spike - EPA Sample No.: W19

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC #	QC. LIMITS REC.
1H-Indene	97	1.2	67	68	20-150
Naphthalene	97	7.5	79	74	20-150
Quinoline	97	0.00	94	97	20-150
2-Methylnaphthalene	97	5.8	79	75	20-150
Fluorene	97	0.00	73	75	20-150
Chrysene	97	0.00	18	18*	20-150
Benzo(e)pyrene	97	0.00	12	12*	20-150

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1H-Indene	73	44	59	14	20	20-150
Naphthalene	73	53	62	18	20	20-150
Quinoline	73	60	82	17	20	20-150
2-Methylnaphthalene	73	52	63	17	20	20-150
Fluorene	73	45	62	19	20	20-150
Chrysene	73	9.3	13*	32*	20	20-150
Benzo(e)pyrene	73	7.0	10*	18	20	20-150

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

RPD: 1 out of 7 outside limits
Spike Recovery: 4 out of 14 outside limits

COMMENTS:

FORM 3
WATER SEMIVOLATILE METHOD SPIKE RECOVERY

ıb Name: QUANTERRA DENVER Contract:

ıb Code: Case No.: 48952 SAS No.: SDG No.: 48952

ıtrix Spike - Sample No.: 48952-lcs

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ng/L)	% - REC #	QC. LIMITS REC.
1H-Indene	75	54	72	20-150
Naphthalene	75	66	88	20-150
Quinoline	75	67	89	20-150
2-Methylnaphthalene	75	62	83	20-150
Fluorene	75	63	84	20-150
Chrysene	75	58	77	20-150
Benzo(e)pyrene	75	61	81	20-150

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

COMMENTS: _____

FORM III SV

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

SBLK01

ame: QUANTERRA DENVER Contract:

ode: Case No.: 48952 SAS No.: SDG No.: 48952

File ID: A0101877 Lab Sample ID: SBLK01

cument ID: A Date Extracted: 05/18/96

ix: (soil/water) WATER Date Analyzed: 05/31/96

l:(low/med) LOW Time Analyzed: 1756

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	48952-LCS	48952-LCS	A0201878	05/31/96
02	W19FB	48952-01FB	A0301879	05/31/96
03	W19FBD	48952-01FD	A0401880	05/31/96
04	W1	48952-04	A0701883	05/31/96
05	W19	48952-07	A1001886	05/31/96
06	W19MS	48952-07MS	A1101887	06/01/96
07	W19MSD	48952-07SD	A1201888	06/01/96
08	W18	48952-03	A0901959	06/07/96
09	W27	48952-06	A1101961	06/07/96
10	W22	48952-02	A1301963	06/07/96
11	W433	48952-05	A0901979	06/08/96
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OMMENTS:

e 1 of 1

FORM IV SV 3/90

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Name: QUANTERRA DENVER Contract:

Code: Case No.: 48952 SAS No.: SDG No.: 48952

File ID (Standard): A875 Date Analyzed: 05/31/96

Instrument ID: A Time Analyzed: 1605

	IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
12 HOUR STD	156668	12.51	243004	14.96	53302	21.57
UPPER LIMIT	313336	13.01	486008	15.46	106604	22.07
LOWER LIMIT	78334	12.01	121502	14.46	26651	21.07
EPA SAMPLE NO.						
SBLK01	195369	12.50	360419	14.96	64870	21.57
48952-LCS	172564	12.50	300220	14.95	67530	21.55
W19FB	187571	12.49	318109	14.95	72570	21.56
W19FBD	218621	12.49	408261	14.95	77020	21.56
W1	227477	12.50	326249	14.94	95121	21.55
W19	156037	12.49	256095	14.94	95932	21.55
W19MS	162444	12.49	255245	14.94	102325	21.55
W19MSD	144747	12.50	216067	14.94	93557	21.55

IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = 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

ame: QUANTERRA DENVER Contract:

de: Case No.: 48952 SAS No.: SDG No.: 48952

File ID (Standard): A948 Date Analyzed: 06/07/96

rument ID: A Time Analyzed: 0829

	IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
12 HOUR STD	164838	12.44	264646	14.87	121175	21.48
UPPER LIMIT	329676	12.94	529292	15.37	242350	21.98
LOWER LIMIT	82419	11.94	132323	14.37	60588	20.98
EPA SAMPLE NO.						
W18	189817	12.41	430618	14.85	130509	21.46
W27	154286	12.41	286870	14.86	82443	21.47
W22	229966	12.41	488125	14.85	149893	21.47

IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = 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:

ab Code: Case No.: 48952 SAS No.: SDG No.: 48952

ab File ID (Standard): A970 Date Analyzed: 06/08/96

istrument ID: A Time Analyzed: 0849

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	79616	12.43	120974	14.86	43785	21.48
	UPPER LIMIT	159232	12.93	241948	15.36	87570	21.98
	LOWER LIMIT	39808	11.93	60487	14.36	21892	20.98
	EPA SAMPLE NO.						
01	W433	93597	12.41	170009	14.86	62483	21.47
02							
03							
04							
05							
06							
07							
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18							
19							
20							
21							
22							

IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = 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 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

June 21, 1996

Quanterra Environmental Services

Project Number 048975

Introduction

Ten aqueous samples (including matrix QC) were received at Quanterra Environmental Services, Denver Laboratory on May 15, 1996. The samples were logged in under Quanterra Denver's project number 048975. A cross reference associating Quanterra Denver's laboratory sample numbers to the actual field sample number 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 October 1995 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.

Client samples with lab Id's 048975-001 and 001DU had to be diluted due to non-target analytes exceeding the linear range of the instrument. The reporting limits were raised accordingly.

Client samples with lab Id's 048975-003, 004, 005, 006 and 008 had to be diluted due to target analytes exceeding the linear range of the instrument. The reporting limits were raised accordingly.

The extracts from day 1 and day 2 for client sample DPV-W130-051496 (lab Id 048975) were analyzed separately due to laboratory error and are reported on the data sheets as W130A and W130B.

Quanterra
Environmental Services

The surrogate fluorene-d10 in client samples with lab Id's 048975-006(W120) and 007A (W130A) are reported low, outside the 41% to 162% acceptance but above the 30% minimum requirement. Fluorene-d10 is reported within acceptable limits for both of the duplicate control samples (DCS's) analyzed with these samples. This would suggest a possible matrix interference.

All the surrogates for client sample with lab Id 048975-003 are reported as 0D as a result of dilution due to target analytes exceeding the linear range of the instrument..

This data package is in compliance with the terms and conditions of the 1995 QAPP, both technically and for completeness, for other than the conditions detailed above.

Reported By: _____ **Date:** 6/21/96

Kurt C. III
Program Manager

Reviewed By: _____ **Date:** 6/21/96

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.

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".

R = Target compound's secondary ion confirmation not met, however peak shape and retention time make peak identication positive.

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 048975	Group Code	Analysis Description	Custom Test?
0001 - 0008	A	Polynuclear Aromatic Hydrocarbons, SIM Low Level	N
		Prep - PAH/SIM by GC/MS Low Level	N
0002	B	Prep - PAH/SIM by GC/MS Low Level	N
		Polynuclear Aromatic Hydrocarbons, SIM Low Level	N

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
048975-0001-SA	DPV-W121-051496	AQUEOUS	14 MAY 96	15:40	15 MAY 96
048975-0001-DU	DPV-W121D-051496	AQUEOUS	14 MAY 96	15:40	15 MAY 96
048975-0002-FB	DPV-W121FB-051496	AQUEOUS	14 MAY 96	15:40	15 MAY 96
048975-0002-FD	DPV-W121FBD-051496	AQUEOUS	14 MAY 96	15:40	15 MAY 96
048975-0003-SA	DPV-W426-051496	AQUEOUS	14 MAY 96	18:30	15 MAY 96
048975-0004-SA	DPV-W431-051496	AQUEOUS	14 MAY 96	14:16	15 MAY 96
048975-0005-SA	DPV-W143-051496	AQUEOUS	14 MAY 96	15:10	15 MAY 96
048975-0006-SA	DPV-W120-051496	AQUEOUS	14 MAY 96	08:50	15 MAY 96
048975-0007-SA	DPV-W130-051496	AQUEOUS	14 MAY 96	11:15	15 MAY 96
048975-0008-SA	DPV-W432-051496	AQUEOUS	14 MAY 96	12:40	15 MAY 96

Chain of Custody Record

Environmental Services

QUA-4124-1

Client: City of St Louis Park	Project Manager: Bill Gregg	Date: 5/14/96	Chain Of Custody Number: 66153
Address: 5005 Minnetonka Blvd	Telephone Number (Area Code)/Fax Number: 612-924-0117/612-924-0317	Lab Number:	Page 1 of 1
City: St Louis Park; State: Mn; Zip Code: 55416	Site Contact: Scott Anderson; Lab Contact:		
Project Name: City of St Louis Park	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.:			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Aqueous	Matrix: Sed.	Matrix: Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis (Attach list if more space is needed): PPT-PAH	Special Instructions/ Conditions of Receipt
DPV-W121FBD-051496	5/14/96	15:40	X			6						X -02FD	PPT-5
DPV-W426-051496	5/14/96	18:30	X			6						X -03	PPT-5

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other Standard

QC Requirements (Specify):

	Date	Time		Date	Time
1. Relinquished By: [signature]	5/14/96		1. Received By: [signature]	5/15/96	900
2. Relinquished By:			2. Received By:		
3. Relinquished By:			3. Received By:		

Comments:

DISTRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy

Chain of Custody Record

Quanterra Environmental Services

QUA-4124-1

Client: City of St Louis Park	Project Manager: Bill Gregg	Date: 5/14/96	Chain Of Custody Number: 66372
Address: 5005 Minnetonka Blvd	Telephone Number (Area Code)/Fax Number: 612-924-0117 / 612-924-0317	Lab Number:	Page 1 of 1
City: St Louis Park; State: Mn; Zip Code: 55416	Site Contact: Scott Anderson; Lab Contact:		
Project Name: City of St Louis Park	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.:			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Aqueous	Matrix: Sed.	Matrix: Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis (Attach list if more space is needed): PPT-PAH	Special Instructions/ Conditions of Receipt
DPV-W121D-051496	5/14/96	15:40	X			6						X -01D	PPT-5
DPV-W121FB-051496	5/14/96	15:40	X			6						X -02FB	PPT-5

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other Standard

QC Requirements (Specify):

	Date	Time		Date	Time
1. Relinquished By: [signature]	5/14/96		1. Received By: [signature]	5/15/96	900
2. Relinquished By:			2. Received By:		
3. Relinquished By:			3. Received By:		

Comments:

DISTRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy

Chain of Custody Record

Quanterra Environmental Services

QUA-4124-1

Client: City of St Louis Park	Project Manager: Bill Gregg	Date: 5/14/96	Chain Of Custody Number: 66371
Address: 5005 Minnetonka Blvd	Telephone Number (Area Code)/Fax Number: 612-924-0117 / 612-924-0317	Lab Number:	Page 1 of 1
City: St Louis Park; State: MN; Zip Code: 55416	Site Contact: Scott Anderson	Lab Contact:	
Project Name: City of St Louis Park	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.:			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Aqueous	Matrix: Sed.	Matrix: Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis (Attach list if more space is needed): PPT-PAH	Special Instructions/ Conditions of Receipt
DPV-W431-051496	5/14/96	14:16	X			6						X -04	PPT-5
DPV-W143-051496	5/14/96	15:10	X			6						X -05	PPT-5
DPV-W121-051496	5/14/96	15:40	X			6						X -01	PPT-5

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other Standard

QC Requirements (Specify):

	Date	Time		Date	Time
1. Relinquished By: [signature]	5/14/96		1. Received By: [signature]	5/15/96	900
2. Relinquished By:			2. Received By:		
3. Relinquished By:			3. Received By:		

Comments:

DISTRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy

Chain of Custody Record

Quanterra Environmental Services

QUA-4124-1

Client: City of St Louis Park	Project Manager: Bill Gless	Date: 5/14/96	Chain Of Custody Number: 66370
Address: 5005 Minnetonka Blvd	Telephone/Number (Area Code)/Fax Number: 612-924-2312 / 612-924-2312	Lab Number:	Page 1 of 1
City: St Louis Park; State: MN; Zip Code: 55416	Site Contact: Scott Anderson	Lab Contact:	
Project Name: City of St Louis Park	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.: Scott Anderson			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Aqueous	Sed.	Soil		Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis (Attach list if more space is needed): PPT-PAH										Special Instructions/ Conditions of Receipt
DPV-W120-051496	5/14/96	8:50	X				6						X						-06				PPT-5
DPV-W130-051496		11:45	X				6						X						-07				PPT-5
DPV-W132-051496	✓	12:40	X				6						X						-08				PPT-5

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For ____ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other Standard

QC Requirements (Specify):

	Date	Time		Date	Time
1. Relinquished By: [signature]	5/14/96		1. Received By: [signature]	5/15/96	700
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments:

DISTRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W121

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 48975 SAS No.: SDG No.: 48975

Matrix: (soil/water) WATER Lab Sample ID: 48975-01

Sample wt/vol: 4144 (g/ml) ML Lab File ID: A949

Level: (low/med) LOW Date Received: 05/15/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/20/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 06/07/96

Injection Volume: 1.0(uL) Dilution Factor: 5.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	25	U
496-11-7	2,3-Dihydroindene	9.4	
95-13-6	1H-Indene	4.3	U
91-20-3	Naphthalene	34	
95-15-8	Benzo(b)thiophene	6.1	
91-22-5	Quinoline	6.8	U
120-72-9	1H-Indole	12	U
91-57-6	2-Methylnaphthalene	12	B
90-12-0	1-Methylnaphthalene	12	
92-52-4	Biphenyl	21	U
208-96-8	Acenaphthylene	6.8	U
83-32-9	Acenaphthene	9.1	
132-64-9	Dibenzofuran	6.2	
86-73-7	Fluorene	6.3	
132-65-0	Dibenzothiophene	5.3	U
85-01-8	Phenanthrene	11	B
120-12-7	Anthracene	5.3	U
260-94-6	Acridine	15	
86-74-8	Carbazole	9.2	U
206-44-0	Fluoranthene	6.8	U
129-00-0	Pyrene	18	
56-55-3	Benzo(a)Anthracene	12	U
218-01-9	Chrysene	14	U
207-08-9	Benzo(b)fluoranthene	12	U
205-08-9	Benzo(k)fluoranthene	11	U
192-97-2	Benzo(e)pyrene	9.2	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	Dibenzo(a,h)anthracene	7.7	U
191-24-2	Benzo(g,h,i)perylene	14	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W121D

.b Name: QUANTERRA DENVER Contract:

.b Code: Case No.: 48975 SAS No.: SDG No.: 48975

.trix: (soil/water) WATER Lab Sample ID: 48975-01DU

ımple wt/vol: 4164 (g/ml) ML Lab File ID: A0101951

ɜvel: (low/med) LOW Date Received: 05/15/96

Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/20/96

ɔncentrated Extract Volume: 0.5(ml) Date Analyzed: 06/07/96

.jection Volume: 1.0(uL) Dilution Factor: 5.0

ᵊC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	24	U
496-11-7	2,3-Dihydroindene	9.5	
95-13-6	1H-Indene	4.3	U
91-20-3	Naphthalene	32	
95-15-8	Benzo(b)thiophene	6.7	
91-22-5	Quinoline	6.7	U
120-72-9	1H-Indole	12	U
91-57-6	2-Methylnaphthalene	11	B
90-12-0	1-Methylnaphthalene	13	
92-52-4	Biphenyl	21	U
208-96-8	Acenaphthylene	6.7	U
83-32-9	Acenaphthene	12	
132-64-9	Dibenzofuran	7.2	
86-73-7	Fluorene	7.8	
132-65-0	Dibenzothiophene	5.3	U
85-01-8	Phenanthrene	14	B
120-12-7	Anthracene	5.3	U
260-94-6	Acridine	14	U
86-74-8	Carbazole	9.1	U
206-44-0	Fluoranthene	7.7	
129-00-0	Pyrene	20	
56-55-3	Benzo(a)Anthracene	12	U
218-01-9	Chrysene	13	U
207-08-9	Benzo(b)fluoranthene	12	U
205-08-9	Benzo(k)fluoranthene	11	U
192-97-2	Benzo(e)pyrene	9.1	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	Dibenzo(a,h)anthracene	7.7	U
191-24-2	Benzo(g,h,i)perylene	13	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W121FB

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 48975 SAS No.: SDG No.: 48975

Matrix: (soil/water) WATER Lab Sample ID: 48975-02FB

Sample wt/vol: 4082 (g/ml) ML Lab File ID: A0201952

Level: (low/med) LOW Date Received: 05/15/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/20/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 06/07/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	5.0	U
496-11-7	2,3-Dihydroindene	3.4	
95-13-6	1H-Indene	0.88	U
91-20-3	Naphthalene	8.8	
95-15-8	Benzo(b)thiophene	0.88	U
91-22-5	Quinoline	1.4	U
120-72-9	1H-Indole	2.4	U
91-57-6	2-Methylnaphthalene	4.5	B
90-12-0	1-Methylnaphthalene	2.0	
92-52-4	Biphenyl	4.2	U
208-96-8	Acenaphthylene	1.4	U
83-32-9	Acenaphthene	1.3	U
132-64-9	Dibenzofuran	0.98	U
86-73-7	Fluorene	0.98	U
132-65-0	Dibenzothiophene	1.1	U
85-01-8	Phenanthrene	3.0	B
120-12-7	Anthracene	1.1	U
260-94-6	Acridine	2.8	U
86-74-8	Carbazole	1.9	U
206-44-0	Fluoranthene	1.8	
129-00-0	Pyrene	1.6	
56-55-3	Benzo(a)Anthracene	2.4	U
218-01-9	Chrysene	2.7	U
207-08-9	Benzo(b)fluoranthene	2.4	U
205-08-9	Benzo(k)fluoranthene	2.2	U
192-97-2	Benzo(e)pyrene	1.9	U
50-32-8	Benzo(a)pyrene	2.2	U
198-55-0	Perylene	2.4	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.0	U
53-70-3	Dibenzo(a,h)anthracene	1.6	U
191-24-2	Benzo(g,h,i)perylene	2.7	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W121FBD

ab Name: QUANTERRA DENVER Contract:

ab Code: Case No.: 48975 SAS No.: SDG No.: 48975

atrix: (soil/water) WATER Lab Sample ID: 48975-02FD

ample wt/vol: 4067 (g/ml) ML Lab File ID: A0301953

evel: (low/med) LOW Date Received: 05/15/96

Moisture: _____ decanted: (Y/N)___ Date Extracted:05/20/96

oncentrated Extract Volume: 0.5(ml) Date Analyzed: 06/07/96

njection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	5.0	U
496-11-7	2,3-Dihydroindene	4.0	
95-13-6	1H-Indene	0.88	U
91-20-3	Naphthalene	13	
95-15-8	Benzo(b)thiophene	0.88	U
91-22-5	Quinoline	1.4	U
120-72-9	1H-Indole	2.4	U
91-57-6	2-Methylnaphthalene	6.8	B
90-12-0	1-Methylnaphthalene	3.1	
92-52-4	Biphenyl	4.2	U
208-96-8	Acenaphthylene	1.4	U
83-32-9	Acenaphthene	1.3	U
132-64-9	Dibenzofuran	0.98	U
86-73-7	Fluorene	0.98	U
132-65-0	Dibenzothiophene	1.1	U
85-01-8	Phenanthrene	2.2	B
120-12-7	Anthracene	1.1	U
260-94-6	Acridine	2.8	U
86-74-8	Carbazole	1.9	U
206-44-0	Fluoranthene	1.6	
129-00-0	Pyrene	1.4	U
56-55-3	Benzo(a)Anthracene	2.4	U
218-01-9	Chrysene	2.8	U
207-08-9	Benzo(b)fluoranthene	2.4	U
205-08-9	Benzo(k)fluoranthene	2.3	U
192-97-2	Benzo(e)pyrene	1.9	U
50-32-8	Benzo(a)pyrene	2.3	U
198-55-0	Perylene	2.4	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.1	U
53-70-3	Dibenzo(a,h)anthracene	1.6	U
191-24-2	Benzo(g,h,i)perylene	2.8	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W426

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 48975 SAS No.: SDG No.: 48975

Matrix: (soil/water) WATER Lab Sample ID: 48975-03

Sample wt/vol: 4168 (g/ml) ML Lab File ID: A0401974

Level: (low/med) LOW Date Received: 05/15/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/20/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 06/08/96

Injection Volume: 1.0(uL) Dilution Factor: 400.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	2000	U
496-11-7	2,3-Dihydroindene	4900	
95-13-6	1H-Indene	2500	
91-20-3	Naphthalene	2500	U
95-15-8	Benzo(b)thiophene	1200	
91-22-5	Quinoline	540	U
120-72-9	1H-Indole	960	U
91-57-6	2-Methylnaphthalene	340	U
90-12-0	1-Methylnaphthalene	6300	
92-52-4	Biphenyl	1600	U
208-96-8	Acenaphthylene	1700	
83-32-9	Acenaphthene	21000	
132-64-9	Dibenzofuran	3700	
86-73-7	Fluorene	7700	
132-65-0	Dibenzothiophene	420	U
85-01-8	Phenanthrene	580	B
120-12-7	Anthracene	790	
260-94-6	Acridine	1100	U
86-74-8	Carbazole	4200	
206-44-0	Fluoranthene	900	
129-00-0	Pyrene	540	U
56-55-3	Benzo(a)Anthracene	960	U
218-01-9	Chrysene	1100	U
207-08-9	Benzo(b)fluoranthene	960	U
205-08-9	Benzo(k)fluoranthene	880	U
192-97-2	Benzo(e)pyrene	730	U
50-32-8	Benzo(a)pyrene	880	U
198-55-0	Perylene	960	U
193-39-5	Indeno(1,2,3-cd)pyrene	810	U
53-70-3	Dibenzo(a,h)anthracene	610	U
191-24-2	Benzo(g,h,i)perylene	1100	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W431

ab Name: QUANTERRA DENVER Contract:

ab Code: Case No.: 48975 SAS No.: SDG No.: 48975

atrix: (soil/water) WATER Lab Sample ID: 48975-04

ample wt/vol: 4183 (g/ml) ML Lab File ID: A1501965

evel: (low/med) LOW Date Received: 05/15/96

Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/20/96

oncentrated Extract Volume: 0.5(ml) Date Analyzed: 06/07/96

njection Volume: 1.0(uL) Dilution Factor: 10.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	49	U
496-11-7	2,3-Dihydroindene	880	
95-13-6	1H-Indene	8.6	U
91-20-3	Naphthalene	62	U
95-15-8	Benzo(b)thiophene	8.6	U
91-22-5	Quinoline	13	U
120-72-9	1H-Indole	24	U
91-57-6	2-Methylnaphthalene	8.6	U
90-12-0	1-Methylnaphthalene	15	U
92-52-4	Biphenyl	41	U
208-96-8	Acenaphthylene	13	U
83-32-9	Acenaphthene	33	
132-64-9	Dibenzofuran	9.6	U
86-73-7	Fluorene	9.6	U
132-65-0	Dibenzothiophene	10	U
85-01-8	Phenanthrene	12	U
120-12-7	Anthracene	10	U
260-94-6	Acridine	110	
86-74-8	Carbazole	18	U
206-44-0	Fluoranthene	13	U
129-00-0	Pyrene	13	U
56-55-3	Benzo(a)Anthracene	24	U
218-01-9	Chrysene	27	U
207-08-9	Benzo(b)fluoranthene	24	U
205-08-9	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	Dibenzo(a,h)anthracene	15	U
191-24-2	Benzo(g,h,i)perylene	27	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W143

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 48975 SAS No.: SDG No.: 48975

Matrix: (soil/water) WATER Lab Sample ID: 48975-05

Sample wt/vol: 4229 (g/ml) ML Lab File ID: A0801990

Level: (low/med) LOW Date Received: 05/15/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/20/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 06/11/96

Injection Volume: 1.0(uL) Dilution Factor: 10.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	48	U
496-11-7	2,3-Dihydroindene	660	
95-13-6	1H-Indene	56	
91-20-3	Naphthalene	68	
95-15-8	Benzo(b)thiophene	340	
91-22-5	Quinoline	13	U
120-72-9	1H-Indole	24	U
91-57-6	2-Methylnaphthalene	16	B
90-12-0	1-Methylnaphthalene	15	U
92-52-4	Biphenyl	41	U
208-96-8	Acenaphthylene	13	U
83-32-9	Acenaphthene	27	
132-64-9	Dibenzofuran	9.4	U
86-73-7	Fluorene	9.4	U
132-65-0	Dibenzothiophene	10	U
85-01-8	Phenanthrene	13	RB
120-12-7	Anthracene	10	U
260-94-6	Acridine	27	U
86-74-8	Carbazole	32	
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
207-08-9	Benzo(b)fluoranthene	24	U
205-08-9	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	Dibenzo(a,h)anthracene	15	U
191-24-2	Benzo(g,h,i)perylene	26	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W120

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 48975 SAS No.: SDG No.: 48975

Matrix: (soil/water) WATER Lab Sample ID: 48975-06

Sample wt/vol: 4196 (g/ml) ML Lab File ID: A0601976

Level: (low/med) LOW Date Received: 05/15/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/20/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 06/08/96

Injection Volume: 1.0(uL) Dilution Factor: 20.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	97	U
496-11-7	2,3-Dihydroindene	1200	
95-13-6	1H-Indene	86	
91-20-3	Naphthalene	120	U
95-15-8	Benzo(b)thiophene	430	
91-22-5	Quinoline	27	U
120-72-9	1H-Indole	48	U
91-57-6	2-Methylnaphthalene	17	U
90-12-0	1-Methylnaphthalene	30	U
92-52-4	Biphenyl	82	U
208-96-8	Acenaphthylene	27	U
83-32-9	Acenaphthene	25	U
132-64-9	Dibenzofuran	19	U
86-73-7	Fluorene	19	U
132-65-0	Dibenzothiophene	21	U
85-01-8	Phenanthrene	25	U
120-12-7	Anthracene	21	U
260-94-6	Acridine	55	U
86-74-8	Carbazole	36	U
206-44-0	Fluoranthene	27	U
129-00-0	Pyrene	27	U
56-55-3	Benzo(a)Anthracene	48	U
218-01-9	Chrysene	53	U
207-08-9	Benzo(b)fluoranthene	48	U
205-08-9	Benzo(k)fluoranthene	44	U
192-97-2	Benzo(e)pyrene	36	U
50-32-8	Benzo(a)pyrene	44	U
198-55-0	Perylene	48	U
193-39-5	Indeno(1,2,3-cd)pyrene	40	U
53-70-3	Dibenzo(a,h)anthracene	30	U
191-24-2	Benzo(g,h,i)perylene	53	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W130A

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 48975 SAS No.: SDG No.: 48975

Matrix: (soil/water) WATER Lab Sample ID: 48975-07A

Sample wt/vol: 2096 (g/ml) ML Lab File ID: A1301889

Level: (low/med) LOW Date Received: 05/15/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/20/96

Concentrated Extract Volume: 0.2(ml) Date Analyzed: 06/01/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	4.9	U
496-11-7	2,3-Dihydroindene	17	
95-13-6	1H-Indene	8.6	
91-20-3	Naphthalene	40	
95-15-8	Benzo(b)thiophene	6.2	R
91-22-5	Quinoline	2.4	
120-72-9	1H-Indole	2.4	U
91-57-6	2-Methylnaphthalene	9.3	B
90-12-0	1-Methylnaphthalene	12	R
92-52-4	Biphenyl	4.1	U
208-96-8	Acenaphthylene	1.3	U
83-32-9	Acenaphthene	9.0	
132-64-9	Dibenzofuran	4.5	R
86-73-7	Fluorene	5.4	
132-65-0	Dibenzothiophene	1.0	U
85-01-8	Phenanthrene	17	B
120-12-7	Anthracene	4.2	
260-94-6	Acridine	2.8	U
86-74-8	Carbazole	10	
206-44-0	Fluoranthene	10	
129-00-0	Pyrene	15	
56-55-3	Benzo(a)Anthracene	2.4	U
218-01-9	Chrysene	2.7	U
207-08-9	Benzo(b)fluoranthene	3.6	
205-08-9	Benzo(k)fluoranthene	2.2	U
192-97-2	Benzo(e)pyrene	1.8	U
50-32-8	Benzo(a)pyrene	2.2	U
198-55-0	Perylene	2.4	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.0	U
53-70-3	Dibenzo(a,h)anthracene	1.5	U
191-24-2	Benzo(g,h,i)perylene	2.7	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W130B

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 48975 SAS No.: SDG No.: 48975

Matrix: (soil/water) WATER Lab Sample ID: 48975-07B

Sample wt/vol: 2097 (g/ml) ML Lab File ID: A996

Level: (low/med) LOW Date Received: 05/15/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted:05/20/96

Concentrated Extract Volume: 0.2(ml) Date Analyzed: 06/12/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	4.9	U
496-11-7	2,3-Dihydroindene	15	
95-13-6	1H-Indene	7.3	
91-20-3	Naphthalene	35	
95-15-8	Benzo(b)thiophene	5.1	
91-22-5	Quinoline	1.6	
120-72-9	1H-Indole	2.4	U
91-57-6	2-Methylnaphthalene	4.7	B
90-12-0	1-Methylnaphthalene	9.6	R
92-52-4	Biphenyl	4.1	U
208-96-8	Acenaphthylene	1.3	U
83-32-9	Acenaphthene	6.2	
132-64-9	Dibenzofuran	0.95	U
86-73-7	Fluorene	3.1	
132-65-0	Dibenzothiophene	1.0	U
85-01-8	Phenanthrene	7.5	RB
120-12-7	Anthracene	3.2	
260-94-6	Acridine	4.5	
86-74-8	Carbazole	6.7	
206-44-0	Fluoranthene	4.9	
129-00-0	Pyrene	4.0	
56-55-3	Benzo(a)Anthracene	2.4	U
218-01-9	Chrysene	2.7	U
207-08-9	Benzo(b)fluoranthene	2.9	
205-08-9	Benzo(k)fluoranthene	2.2	U
192-97-2	Benzo(e)pyrene	1.8	U
50-32-8	Benzo(a)pyrene	2.2	U
198-55-0	Perylene	2.4	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.0	U
53-70-3	Dibenzo(a,h)anthracene	1.5	U
191-24-2	Benzo(g,h,i)perylene	2.7	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W432

Name: QUANTERRA DENVER Contract:

Code: Case No.: 48975 SAS No.: SDG No.: 48975

rix: (soil/water) WATER Lab Sample ID: 48975-08

ple wt/vol: 4200 (g/ml) ML Lab File ID: A1001992

vel: (low/med) LOW Date Received: 05/15/96

Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/20/96

ncentrated Extract Volume: 0.5(ml) Date Analyzed: 06/11/96

jection Volume: 1.0(uL) Dilution Factor: 10.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	48	U
496-11-7	2,3-Dihydroindene	410	
95-13-6	1H-Indene	95	
91-20-3	Naphthalene	62	U
95-15-8	Benzo(b)thiophene	190	
91-22-5	Quinoline	14	
120-72-9	1H-Indole	24	U
91-57-6	2-Methylnaphthalene	8.6	U
90-12-0	1-Methylnaphthalene	15	U
92-52-4	Biphenyl	41	U
208-96-8	Acenaphthylene	13	U
83-32-9	Acenaphthene	18	
132-64-9	Dibenzofuran	9.5	U
86-73-7	Fluorene	9.5	U
132-65-0	Dibenzothiophene	10	U
85-01-8	Phenanthrene	12	U
120-12-7	Anthracene	10	U
260-94-6	Acridine	31	
[illegible]-74-8	Carbazole	29	
[illegible]6-44-0	Fluoranthene	13	U
129-00-0	Pyrene	20	
56-55-3	Benzo(a)Anthracene	24	U
218-01-9	Chrysene	27	U
207-08-9	Benzo(b)fluoranthene	24	U
205-08-9	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	Dibenzo(a,h)anthracene	15	U
191-24-2	Benzo(g,h,i)perylene	27	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

48975-DCS1

b Name: QUANTERRA DENVER Contract:

b Code: Case No.: 48975 SAS No.: SDG No.: 48975

trix: (soil/water) WATER Lab Sample ID: 48975-DCS1

mple wt/vol: 4000 (g/ml) ML Lab File ID: A0501955

evel: (low/med) LOW Date Received: _____

Moisture: _____ decanted: (Y/N)___ Date Extracted:05/20/96

oncentrated Extract Volume: 0.5(ml) Date Analyzed: 06/07/96

jection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
95-13-6	1H-Indene	45	
91-20-3	Naphthalene	55	
91-22-5	Quinoline	64	
91-57-6	2-Methylnaphthalene	56	
86-73-7	Fluorene	62	
218-01-9	Chrysene	40	
192-97-2	Benzo(e)pyrene	53	

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

48975-DCS2

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 48975 SAS No.: SDG No.: 48975

Matrix: (soil/water) WATER Lab Sample ID: 48975-DCS2

Sample wt/vol: 4000 (g/ml) ML Lab File ID: A0601956

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:05/20/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 06/07/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
95-13-6	1H-Indene	46	
91-20-3	Naphthalene	57	
91-22-5	Quinoline	53	
91-57-6	2-Methylnaphthalene	56	
86-73-7	Fluorene	61	
218-01-9	Chrysene	39	
192-97-2	Benzo(e)pyrene	49	

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

b Name: QUANTERRA DENVER Contract:

b Code: Case No.: 48975 SAS No.: SDG No.: 48975

	EPA SAMPLE NO.	S1 #	S2 #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	W130A	41	14	33*						0
02	W121	48	28	54						0
03	W121D	47	10	58						0
04	W121FB	70	48	70						0
05	W121FBD	74	49	77						0
06	SBLK01	65	65	66						0
07	48975-DCS1	72	66	74						0
08	48975-DCS2	71	63	71						0
09	W431	68	20	79						0
10	W426	0D	0D	0D						0
11	W120	92	93	38*						0
12	W143	56	24	54						0
13	W432	53	20	56						0
14	W130B	44	28	52						0
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		QC LIMITS
S1	= Naphthalene-d8	(21-108)
S2	= Chrysene-d12	(10-118)
S3	= Fluorene-d10	(41-162)

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.

SBLK01

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 48975 SAS No.: SDG No.: 48975

Lab File ID: A0401954 Lab Sample ID: SBLK01

Instrument ID: A Date Extracted: 05/20/96

Matrix: (soil/water) WATER Date Analyzed: 06/07/96

Level: (low/med) LOW Time Analyzed: 1246

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	W130A	48975-07A	A1301889	06/01/96
02	W121	48975-01	A949	06/07/96
03	W121D	48975-01DU	A0101951	06/07/96
04	W121FB	48975-02FB	A0201952	06/07/96
05	W121FBD	48975-02FD	A0301953	06/07/96
06	48975-DCS1	48975-DCS1	A0501955	06/07/96
07	48975-DCS2	48975-DCS2	A0601956	06/07/96
08	W431	48975-04	A1501965	06/07/96
09	W426	48975-03	A0401974	06/08/96
10	W120	48975-06	A0601976	06/08/96
11	W143	48975-05	A0801990	06/11/96
12	W432	48975-08	A1001992	06/11/96
13	W130B	48975-07B	A996	06/12/96
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COMMENTS:

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLK01

Name: QUANTERRA DENVER Contract:

Code: Case No.: 48975 SAS No.: SDG No.: 48975

rix: (soil/water) WATER Lab Sample ID: SBLK01

ple wt/vol: 4000 (g/ml) ML Lab File ID: A0401954

el: (low/med) LOW Date Received: _____

oisture: _____ decanted: (Y/N)___ Date Extracted:05/20/96

centrated Extract Volume: 0.5(ml) Date Analyzed: 06/07/96

ection Volume: 1.0(uL) Dilution Factor: 1.0

Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	5.1	U
496-11-7	2,3-Dihydroindene	1.4	U
95-13-6	1H-Indene	0.90	U
91-20-3	Naphthalene	6.5	U
95-15-8	Benzo(b)thiophene	0.90	U
91-22-5	Quinoline	1.4	U
120-72-9	1H-Indole	2.5	U
91-57-6	2-Methylnaphthalene	1.6	
90-12-0	1-Methylnaphthalene	1.6	U
92-52-4	Biphenyl	4.3	U
208-96-8	Acenaphthylene	1.4	U
83-32-9	Acenaphthene	1.3	U
132-64-9	Dibenzofuran	1.0	U
86-73-7	Fluorene	1.0	U
132-65-0	Dibenzothiophene	1.1	U
85-01-8	Phenanthrene	2.5	
120-12-7	Anthracene	1.1	U
260-94-6	Acridine	2.9	U
86-74-8	Carbazole	1.9	U
206-44-0	Fluoranthene	1.4	U
129-00-0	Pyrene	1.4	U
56-55-3	Benzo(a)Anthracene	2.5	U
218-01-9	Chrysene	2.8	U
207-08-9	Benzo(b)fluoranthene	2.5	U
205-08-9	Benzo(k)fluoranthene	2.3	U
192-97-2	Benzo(e)pyrene	1.9	U
50-32-8	Benzo(a)pyrene	2.3	U
198-55-0	Perylene	2.5	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.1	U
53-70-3	Dibenzo(a,h)anthracene	1.6	U
191-24-2	Benzo(g,h,i)perylene	2.8	U

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QUANTERRA DENVER Contract:

ıb Code: Case No.: 48975 SAS No.: SDG No.: 48975

Lab File ID (Standard): A875 Date Analyzed: 05/31/96

Instrument ID: A Time Analyzed: 1605

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	156668	12.51	243004	14.96	53302	21.57
	UPPER LIMIT	313336	13.01	486008	15.46	106604	22.07
	LOWER LIMIT	78334	12.01	121502	14.46	26651	21.07
	EPA SAMPLE NO.						
01	W130A	161969	12.49	224696	14.95	100802	21.56
02							
03							
04							
05							
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20							
21							
22							

IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = 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

ɔ Name: QUANTERRA DENVER Contract:

ɔ Code: Case No.: 48975 SAS No.: SDG No.: 48975

ɔ File ID (Standard): A948 Date Analyzed: 06/07/96

strument ID: A Time Analyzed: 0829

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	164838	12.44	264646	14.87	121175	21.48
	UPPER LIMIT	329676	12.94	529292	15.37	242350	21.98
	LOWER LIMIT	82419	11.94	132323	14.37	60588	20.98
	EPA SAMPLE NO.						
1	W121	200580	12.43	458338	14.87	199535	21.48
2	W121D	103115	12.42	184160	14.86	101497	21.47
3	W121FB	162125	12.41	273522	14.85	181955	21.46
4	W121FBD	143963	12.41	243780	14.85	176055	21.46
5	SBLK01	147830	12.41	262466	14.85	111661	21.46
6	48975-DCS1	126478	12.42	209172	14.85	102710	21.46
7	48975-DCS2	120585	12.41	208611	14.85	100948	21.46
8	W431	98754	12.41	192435	14.85	93462	21.46
9							
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19							
20							
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22							

IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = 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 STAND

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 48975 SAS No.: SDG No.: 48975

ab File ID (Standard): A970 Date Analyzed: 06/08/96

Instrument ID: A Time Analyzed: 0849

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	79616	12.43	120974	14.86	43785	21.48
	UPPER LIMIT	159232	12.93	241948	15.36	87570	21.98
	LOWER LIMIT	39808	11.93	60487	14.36	21892	20.98
	EPA SAMPLE NO.						
01	W426	80649	12.42	132428	14.85	50742	21.46
02	W120	128226	12.41	215162	14.86	52214	21.47
03							
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22							

IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = 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

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 48975 SAS No.: SDG No.: 48975

Lab File ID (Standard): A0501987 Date Analyzed: 06/11/96

Instrument ID: A Time Analyzed: 1451

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	83040	12.40	119486	14.83	34288	21.44
	UPPER LIMIT	166080	12.90	238972	15.33	68576	21.94
	LOWER LIMIT	41520	11.90	59743	14.33	17144	20.94
	EPA SAMPLE NO.						
01	W143	109017	12.40	192362	14.83	67791	21.44
02	W432	119996	12.40	184879	14.82	64405	21.44
03							
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22							

IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = 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

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 48975 SAS No.: SDG No.: 48975

Lab File ID (Standard): A994 Date Analyzed: 06/12/96

Instrument ID: A Time Analyzed: 0846

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	96722	12.41	147154	14.84	55174	21.44
	UPPER LIMIT	193444	12.91	294308	15.34	110348	21.94
	LOWER LIMIT	48361	11.91	73577	14.34	27587	20.94
	EPA SAMPLE NO.						
01	W130B	146285	12.39	231167	14.82	82904	21.43
02							
03							
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22							

IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = 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.

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W131

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 49190 SAS No.: SDG No.: 49190

Matrix: (soil/water) WATER Lab Sample ID: 49190-01

Sample wt/vol: 4218 (g/ml) ML Lab File ID: A0701185

Level: (low/med) LOW Date Received: 05/22/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/27/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 06/28/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	4.8	U
496-11-7	2,3-Dihydroindene	17	
95-13-6	1H-Indene	9.5	
91-20-3	Naphthalene	10	
95-15-8	Benzo(b)thiophene	3.8	R
91-22-5	Quinoline	1.3	U
120-72-9	1H-Indole	2.4	U
91-57-6	2-Methylnaphthalene	7.4	B
90-12-0	1-Methylnaphthalene	13	
92-52-4	Biphenyl	4.1	U
208-96-8	Acenaphthylene	1.3	U
83-32-9	Acenaphthene	11	
132-64-9	Dibenzofuran	5.6	
86-73-7	Fluorene	7.8	
132-65-0	Dibenzothiophene	2.1	
85-01-8	Phenanthrene	3.9	B
120-12-7	Anthracene	2.4	
260-94-6	Acridine	4.1	
86-74-8	Carbazole	10	
206-44-0	Fluoranthene	17	
129-00-0	Pyrene	21	
56-55-3	Benzo(a)Anthracene	2.6	
218-01-9	Chrysene	3.3	
207-08-9	Benzo(b)fluoranthene	5.5	
205-08-9	Benzo(k)fluoranthene	2.3	
192-97-2	Benzo(e)pyrene	3.0	
50-32-8	Benzo(a)pyrene	3.9	
198-55-0	Perylene	2.4	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.6	
53-70-3	Dibenzo(a,h)anthracene	1.5	U
191-24-2	Benzo(g,h,i)perylene	3.7	

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W424

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 49190 SAS No.: SDG No.: 49190

Matrix: (soil/water) WATER Lab Sample ID: 49190-02

Sample wt/vol: 4217 (g/ml) ML Lab File ID: A0801186

Level: (low/med) LOW Date Received: 05/22/96

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/27/96

Concentrated Extract Volume: 0.5 (ml) Date Analyzed: 06/28/96

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	4.8	U
496-11-7	2,3-Dihydroindene	26	
95-13-6	1H-Indene	20	
91-20-3	Naphthalene	15	
95-15-8	Benzo(b)thiophene	6.2	R
91-22-5	Quinoline	1.3	U
120-72-9	1H-Indole	2.4	U
91-57-6	2-Methylnaphthalene	5.5	B
90-12-0	1-Methylnaphthalene	23	
92-52-4	Biphenyl	5.2	
208-96-8	Acenaphthylene	1.3	U
83-32-9	Acenaphthene	14	
132-64-9	Dibenzofuran	6.4	
86-73-7	Fluorene	5.5	
132-65-0	Dibenzothiophene	1.1	R
85-01-8	Phenanthrene	8.6	B
120-12-7	Anthracene	1.0	U
260-94-6	Acridine	2.8	U
86-74-8	Carbazole	12	
206-44-0	Fluoranthene	2.2	
129-00-0	Pyrene	2.1	
56-55-3	Benzo(a)Anthracene	2.4	U
218-01-9	Chrysene	2.6	U
207-08-9	Benzo(b)fluoranthene	2.4	U
205-08-9	Benzo(k)fluoranthene	2.2	U
192-97-2	Benzo(e)pyrene	1.8	U
50-32-8	Benzo(a)pyrene	2.2	U
198-55-0	Perylene	2.4	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.0	U
53-70-3	Dibenzo(a,h)anthracene	1.5	U
191-24-2	Benzo(g,h,i)perylene	2.6	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W20

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 49190 SAS No.: SDG No.: 49190

Matrix: (soil/water) WATER Lab Sample ID: 49190-05

Sample wt/vol: 4189 (g/ml) ML Lab File ID: A0401182

Level: (low/med) LOW Date Received: 05/22/96

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/27/96

Concentrated Extract Volume: 0.5 (ml) Date Analyzed: 06/28/96

Injection Volume: 1.0 (uL) Dilution Factor: 10.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	49	U
496-11-7	2,3-Dihydroindene	520	
95-13-6	1H-Indene	16	
91-20-3	Naphthalene	62	U
95-15-8	Benzo(b)thiophene	57	
91-22-5	Quinoline	13	U
120-72-9	1H-Indole	24	U
91-57-6	2-Methylnaphthalene	8.8	B
90-12-0	1-Methylnaphthalene	15	U
92-52-4	Biphenyl	41	U
208-96-8	Acenaphthylene	13	U
83-32-9	Acenaphthene	12	U
132-64-9	Dibenzofuran	9.5	U
86-73-7	Fluorene	9.5	U
132-65-0	Dibenzothiophene	10	U
85-01-8	Phenanthrene	14	B
120-12-7	Anthracene	10	U
260-94-6	Acridine	34	
86-74-8	Carbazole	18	U
206-44-0	Fluoranthene	13	U
129-00-0	Pyrene	25	
56-55-3	Benzo(a)Anthracene	24	U
218-01-9	Chrysene	[illegible]	U
207-08-9	Benzo(b)fluoranthene	24	U
205-08-9	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	Dibenzo(a,h)anthracene	15	U
191-24-2	Benzo(g,h,i)perylene	27	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W101

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 49190 SAS No.: SDG No.: 49190

Matrix: (soil/water) WATER Lab Sample ID: 49190-06

Sample wt/vol: 4210 (g/ml) ML Lab File ID: A1301191

Level: (low/med) LOW Date Received: 05/22/96

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/27/96

Concentrated Extract Volume: 0.5 (ml) Date Analyzed: 06/28/96

Injection Volume: 1.0 (uL) Dilution Factor: 40.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	190	U
496-11-7	2,3-Dihydroindene	3200	
95-13-6	1H-Indene	80	
91-20-3	Naphthalene	250	U
95-15-8	Benzo(b)thiophene	1800	
91-22-5	Quinoline	53	U
120-72-9	1H-Indole	95	U
91-57-6	2-Methylnaphthalene	34	U
90-12-0	1-Methylnaphthalene	61	U
92-52-4	Biphenyl	160	U
208-96-8	Acenaphthylene	53	U
83-32-9	Acenaphthene	240	
132-64-9	Dibenzofuran	38	U
86-73-7	Fluorene	38	U
132-65-0	Dibenzothiophene	42	U
85-01-8	Phenanthrene	49	U
120-12-7	Anthracene	42	U
260-94-6	Acridine	110	U
86-74-8	Carbazole	72	U
206-44-0	Fluoranthene	53	U
129-00-0	Pyrene	53	U
56-55-3	Benzo(a)Anthracene	95	U
218-01-9	Chrysene	110	U
207-08-9	Benzo(b)fluoranthene	95	U
205-08-9	Benzo(k)fluoranthene	87	U
192-97-2	Benzo(e)pyrene	72	U
50-32-8	Benzo(a)pyrene	87	U
198-55-0	Perylene	95	U
193-39-5	Indeno(1,2,3-cd)pyrene	80	U
53-70-3	Dibenzo(a,h)anthracene	61	U
191-24-2	Benzo(g,h,i)perylene	110	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W428

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 49190 SAS No.: SDG No.: 49190

Matrix: (soil/water) WATER Lab Sample ID: 49190-07

Sample wt/vol: 4195 (g/ml) ML Lab File ID: A1401192

Level: (low/med) LOW Date Received: 05/22/96

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/27/96

Concentrated Extract Volume: 0.5 (ml) Date Analyzed: 06/28/96

Injection Volume: 1.0 (uL) Dilution Factor: 2.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	9.7	U
496-11-7	2,3-Dihydroindene	42	
95-13-6	1H-Indene	5.6	
91-20-3	Naphthalene	17	
95-15-8	Benzo(b)thiophene	17	
91-22-5	Quinoline	2.7	U
120-72-9	1H-Indole	4.8	U
91-57-6	2-Methylnaphthalene	8.0	B
90-12-0	1-Methylnaphthalene	9.4	R
92-52-4	Biphenyl	8.2	U
208-96-8	Acenaphthylene	2.7	U
83-32-9	Acenaphthene	11	
132-64-9	Dibenzofuran	6.1	
86-73-7	Fluorene	1.9	U
132-65-0	Dibenzothiophene	2.1	U
85-01-8	Phenanthrene	13	B
120-12-7	Anthracene	2.1	U
260-94-6	Acridine	5.5	U
86-74-8	Carbazole	14	
206-44-0	Fluoranthene	8.0	
129-00-0	Pyrene	37	
56-55-3	Benzo(a)Anthracene	4.8	U
218-01-9	Chrysene	5.3	U
207-08-9	Benzo(b)fluoranthene	4.8	U
205-08-9	Benzo(k)fluoranthene	4.4	U
192-97-2	Benzo(e)pyrene	4.1	R
50-32-8	Benzo(a)pyrene	4.4	U
198-55-0	Perylene	4.8	U
193-39-5	Indeno(1,2,3-cd)pyrene	4.0	U
53-70-3	Dibenzo(a,h)anthracene	3.0	U
191-24-2	Benzo(g,h,i)perylene	5.8	

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W124

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 49376 SAS No.: SDG No.: 49376

Matrix: (soil/water) WATER Lab Sample ID: 49376-05

Sample wt/vol: 4160 (g/ml) ML Lab File ID: A0701248

Level: (low/med) LOW Date Received: 06/04/96

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 06/05/96

Concentrated Extract Volume: 0.5 (ml) Date Analyzed: 07/11/96

Injection Volume: 1.0 (uL) Dilution Factor: 10.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/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	9.6	
91-20-3	Naphthalene	62	U
95-15-8	Benzo(b)thiophene	8.6	U
91-22-5	Quinoline	13	U
120-72-9	1H-Indole	24	U
91-57-6	2-Methylnaphthalene	8.6	U
90-12-0	1-Methylnaphthalene	15	U
92-52-4	Biphenyl	41	U
208-96-8	Acenaphthylene	13	U
83-32-9	Acenaphthene	12	U
132-64-9	Dibenzofuran	9.6	U
86-73-7	Fluorene	9.6	U
132-65-0	Dibenzothiophene	10	U
85-01-8	Phenanthrene	12	U
120-12-7	Anthracene	10	U
260-94-6	Acridine	28	U
86-74-8	Carbazole	18	U
206-44-0	Fluoranthene	13	U
129-00-0	Pyrene	13	U
56-55-3	Benzo(a)Anthracene	24	U
218-01-9	Chrysene	27	U
207-08-9	Benzo(b)fluoranthene	24	U
205-08-9	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	Dibenzo(a,h)anthracene	15	U
191-24-2	Benzo(g,h,i)perylene	27	U

SECOND HALF MONITORING

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W124

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 51769 SAS No.: SDG No.: 51769

Matrix: (soil/water) WATER Lab Sample ID: 51769-03

Sample wt/vol: 4260 (g/ml) ML Lab File ID: A1001055

Level: (low/med) LOW Date Received: 10/01/96

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 10/02/96

Concentrated Extract Volume: 0.5 (ml) Date Analyzed: 10/09/96

Injection Volume: 1.0 (uL) Dilution Factor: 10.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	48	U
496-11-7	2,3-Dihydroindene	13	U
95-13-6	1H-Indene	8.4	U
91-20-3	Naphthalene	61	U
95-15-8	Benzo(b)thiophene	8.4	U
91-22-5	Quinoline	13	U
120-72-9	1H-Indole	23	U
91-57-6	2-Methylnaphthalene	8.4	U
90-12-0	1-Methylnaphthalene	15	U
92-52-4	Biphenyl	40	U
208-96-8	Acenaphthylene	13	U
83-32-9	Acenaphthene	12	U
132-64-9	Dibenzofuran	9.4	U
86-73-7	Fluorene	9.4	U
132-65-0	Dibenzothiophene	10	U
85-01-8	Phenanthrene	12	U
120-12-7	Anthracene	10	U
260-94-6	Acridine	27	U
86-74-8	Carbazole	18	U
206-44-0	Fluoranthene	13	U
129-00-0	Pyrene	13	U
56-55-3	Benzo(a)Anthracene	23	U
218-01-9	Chrysene	26	U
207-08-9	Benzo(b)fluoranthene	23	U
205-08-9	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	23	U
193-39-5	Indeno(1,2,3-cd)pyrene	20	U
53-70-3	Dibenzo(a,h)anthracene	15	U
191-24-2	Benzo(g,h,i)perylene	26	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W121

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 51769 SAS No.: SDG No.: 51769

Matrix: (soil/water) WATER Lab Sample ID: 51769-04

Sample wt/vol: 4255 (g/ml) ML Lab File ID: A0301029

Level: (low/med) LOW Date Received: 10/01/96

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 10/02/96

Concentrated Extract Volume: 0.5 (ml) Date Analyzed: 10/08/96

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	4.8	U
496-11-7	2,3-Dihydroindene	3.5	
95-13-6	1H-Indene	1.6	
91-20-3	Naphthalene	21	
95-15-8	Benzo(b)thiophene	1.5	R
91-22-5	Quinoline	1.3	U
120-72-9	1H-Indole	2.4	U
91-57-6	2-Methylnaphthalene	11	B
90-12-0	1-Methylnaphthalene	8.4	R
92-52-4	Biphenyl	4.0	U
208-96-8	Acenaphthylene	1.3	U
83-32-9	Acenaphthene	5.5	
132-64-9	Dibenzofuran	3.5	R
86-73-7	Fluorene	4.0	
132-65-0	Dibenzothiophene	1.5	
85-01-8	Phenanthrene	10	B
120-12-7	Anthracene	1.9	
260-94-6	Acridine	29	
86-74-8	Carbazole	5.0	
206-44-0	Fluoranthene	8.2	
129-00-0	Pyrene	25	
56-55-3	Benzo(a)Anthracene	2.4	U
218-01-9	Chrysene	2.6	U
207-08-9	Benzo(b)fluoranthene	2.4	U
205-08-9	Benzo(k)fluoranthene	2.2	U
192-97-2	Benzo(e)pyrene	1.8	U
50-32-8	Benzo(a)pyrene	2.2	U
198-55-0	Perylene	2.4	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.0	U
53-70-3	Dibenzo(a,h)anthracene	1.5	U
191-24-2	Benzo(g,h,i)perylene	4.0	

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W1

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 51769 SAS No.: SDG No.: 51769

Matrix: (soil/water) WATER Lab Sample ID: 51769-05

Sample wt/vol: 4140 (g/ml) ML Lab File ID: A0401030

Level: (low/med) LOW Date Received: 10/01/96

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 10/02/96

Concentrated Extract Volume: 0.5 (ml) Date Analyzed: 10/08/96

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	4.8	U
496-11-7	2,3-Dihydroindene	8.1	
95-13-6	1H-Indene	4.4	
91-20-3	Naphthalene	21	
95-15-8	Benzo(b)thiophene	0.85	U
91-22-5	Quinoline	1.3	U
120-72-9	1H-Indole	2.5	
91-57-6	2-Methylnaphthalene	9.7	B
90-12-0	1-Methylnaphthalene	8.9	
92-52-4	Biphenyl	4.0	U
208-96-8	Acenaphthylene	2.0	R
83-32-9	Acenaphthene	7.9	
132-64-9	Dibenzofuran	6.6	
86-73-7	Fluorene	7.4	
132-65-0	Dibenzothiophene	4.6	
85-01-8	Phenanthrene	24	B
120-12-7	Anthracene	5.7	
260-94-6	Acridine	9.8	
86-74-8	Carbazole	47	
206-44-0	Fluoranthene	36	
129-00-0	Pyrene	38	
56-55-3	Benzo(a)Anthracene	16	
218-01-9	Chrysene	16	
207-08-9	Benzo(b)fluoranthene	15	
205-08-9	Benzo(k)fluoranthene	6.6	
192-97-2	Benzo(e)pyrene	9.4	
50-32-8	Benzo(a)pyrene	12	
198-55-0	Perylene	2.7	
193-39-5	Indeno(1,2,3-cd)pyrene	5.7	
53-70-3	Dibenzo(a,h)anthracene	2.4	
191-24-2	Benzo(g,h,i)perylene	7.6	

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W20

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 51769 SAS No.: SDG No.: 51769

Matrix: (soil/water) WATER Lab Sample ID: 51769-0[illegible]

Sample wt/vol: 4280 (g/ml) ML Lab File ID: A1001036

Level: (low/med) LOW Date Received: 10/01/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 10/02/96

Concentrated Extract Volume: 0.5 (ml) Date Analyzed: 10/08/96

Injection Volume: 1.0 (uL) Dilution Factor: 10.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	48	U
496-11-7	2,3-Dihydroindene	720	
95-13-6	1H-Indene	25	
91-20-3	Naphthalene	61	U
95-15-8	Benzo(b)thiophene	72	
91-22-5	Quinoline	13	U
120-72-9	1H-Indole	23	U
91-57-6	2-Methylnaphthalene	19	B
90-12-0	1-Methylnaphthalene	18	R
92-52-4	Biphenyl	40	U
208-96-8	Acenaphthylene	13	U
83-32-9	Acenaphthene	13	
132-64-9	Dibenzofuran	9.3	U
86-73-7	Fluorene	9.3	U
132-65-0	Dibenzothiophene	10	U
85-01-8	Phenanthrene	15	B
120-12-7	Anthracene	10	U
260-94-6	Acridine	41	
86-74-8	Carbazole	20	
206-44-0	Fluoranthene	13	U
129-00-0	Pyrene	19	
56-55-3	Benzo(a)Anthracene	23	U
218-01-9	Chrysene	26	U
207-08-9	Benzo(b)fluoranthene	23	U
205-08-9	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	23	U
193-39-5	Indeno(1,2,3-cd)pyrene	20	U
53-70-3	Dibenzo(a,h)anthracene	15	U
191-24-2	Benzo(g,h,i)perylene	26	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W22

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 51769 SAS No.: SDG No.: 51769

Matrix: (soil/water) WATER Lab Sample ID: 51769-07

Sample wt/vol: 4290 (g/ml) ML Lab File ID: A0501050

Level: (low/med) LOW Date Received: 10/01/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 10/02/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 10/09/96

Injection Volume: 1.0(uL) Dilution Factor: 10.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	48	U
496-11-7	2,3-Dihydroindene	13	U
95-13-6	1H-Indene	8.4	U
91-20-3	Naphthalene	61	U
95-15-8	Benzo(b)thiophene	8.4	U
91-22-5	Quinoline	13	U
120-72-9	1H-Indole	23	U
91-57-6	2-Methylnaphthalene	8.4	U
90-12-0	1-Methylnaphthalene	15	U
92-52-4	Biphenyl	40	U
208-96-8	Acenaphthylene	13	U
83-32-9	Acenaphthene	12	U
132-64-9	Dibenzofuran	9.3	U
86-73-7	Fluorene	9.3	U
132-65-0	Dibenzothiophene	10	U
85-01-8	Phenanthrene	12	U
120-12-7	Anthracene	10	U
260-94-6	Acridine	27	U
86-74-8	Carbazole	18	U
206-44-0	Fluoranthene	13	U
129-00-0	Pyrene	13	U
56-55-3	Benzo(a)Anthracene	23	U
218-01-9	Chrysene	26	U
207-08-9	Benzo(b)fluoranthene	23	U
205-08-9	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	23	U
193-39-5	Indeno(1,2,3-cd)pyrene	20	U
53-70-3	Dibenzo(a,h)anthracene	15	U
191-24-2	Benzo(g,h,i)perylene	26	U

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 15, 1996

Quanterra Environmental Services

Project Number 051813

Introduction

Ten aqueous samples (including matrix QC) were received at Quanterra Environmental Services, Denver Laboratory on October 2, 1996. The samples were logged in under Quanterra Denver's project number 051813. A cross reference associating Quanterra Denver's laboratory sample numbers to the actual field sample number 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 October 1995 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.

Client samples with lab IDs 051813-001, 001DU, 003, 004, 005 and 008 had to be diluted due to non-target analytes exceeding the linear range of the instrument. Client sample with lab ID 051513-007 had to be diluted due to target analytes exceeding the linear range of the instrument. The reporting limits were raised accordingly. As a result of dilution the surrogates for all associated samples were not detected and are reported as "D."

The RPDs for quinoline and naphthalene are reported at 28% and 21% respectively for the Duplicate Control Samples. This is outside the +/- 20% acceptance criteria. There is no corrective action dictated in the QAPjP.

Quanterra
Environmental Services

This data package is in compliance with the terms and conditions of the October 1995 QAPP, both technically and for completeness, for other than the conditions detailed above.

Reported By: Kurt C. Ill Date: 11/15/96

Kurt C. Ill
Program Manager

Reviewed By: Ellen LaRuvire Date: 11/15/96

Quanterra
Environmental Services

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
051813-0001-SA	DPV-W19-100196	AQUEOUS	01 OCT 96	09:10	02 OCT 96
051813-0001-DU	DPV-W19D-100196	AQUEOUS	01 OCT 96	09:10	02 OCT 96
051813-0002-FB	DPV-W19FB-100196	AQUEOUS	01 OCT 96	09:00	02 OCT 96
051813-0002-FD	DPV-W19FBD-100196	AQUEOUS	01 OCT 96	09:00	02 OCT 96
051813-0003-SA	DPV-W131-100196	AQUEOUS	01 OCT 96	15:30	02 OCT 96
051813-0004-SA	DPV-W130-100196	AQUEOUS	01 OCT 96	14:45	02 OCT 96
051813-0005-SA	DPV-W428-100196	AQUEOUS	01 OCT 96	13:30	02 OCT 96
051813-0006-SA	DPV-W424-100196	AQUEOUS	01 OCT 96	11:20	02 OCT 96
051813-0007-SA	DPV-W434-100196	AQUEOUS	01 OCT 96	17:45	02 OCT 96
051813-0008-SA	DPV-W433-100196	AQUEOUS	01 OCT 96	18:15	02 OCT 96

Quanterra
Environmental Services

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 051813	Group Code	Analysis Description	Custom Test?
0001 - 0008	A	Polynuclear Aromatic Hydrocarbons, SIM Low Level	N
		Prep - PAH/SIM by GC/MS Low Level	N
0002	B	Prep - PAH/SIM by GC/MS Low Level	N
		Polynuclear Aromatic Hydrocarbons, SIM Low Level	N

Chain of Custody Record

Quanterra Environmental Services

QUA-4124-1

Client: City of St. Louis Park	Project Manager: Scott Anderson	Date: 10-1-96	Chain Of Custody Number: 69807
Address: 5005 Minnetonka Blvd	Telephone Number (Area Code)/Fax Number: (612) 924 2557	Lab Number:	Page ____ of ____
City: St. Louis Park; State: MN; Zip Code: 55416	Site Contact:	Lab Contact:	
Project Name: Reilly Site	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.:			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Aqueous	Matrix: Sed.	Matrix: Soil	Containers & Preservatives: Unpres.	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH	Analysis (Attach list if more space is needed): PAH PITS	Special Instructions/ Conditions of Receipt
DPV-W19-100196 (6l)	10-1-96	0910	✓			✓						✓	-01
DPV-W19D-100196 (6l)	10-1-96	0910	✓			✓						✓	-01Dn

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other ____

QC Requirements (Specify):

1. Relinquished By: William M Hugg	Date: 10-1-96	Time: 1700	1. Received By: [signature]	Date: 10/2/96	Time: 900
2. Relinquished By:	Date:	Time:	2. Received By:	Date:	Time:
3. Relinquished By:	Date:	Time:	3. Received By:	Date:	Time:

Comments:

DISTRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy

Chain of Custody Record

QUA-4124-1

Client: City of St. Louis Park	Project Manager: Scott Anderson	Date: 10-1-96	Chain Of Custody Number: 69806
Address: 5005 Minnetonk Blvd	Telephone Number (Area Code)/Fax Number: (612) 924-2557	Lab Number:	Page ____ of ____
City: St. Louis Park; State: MN; Zip Code: 55416	Site Contact:	Lab Contact:	
Project Name: Reilly Site	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Aqueous	Matrix: Sed.	Matrix: Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis (Attach list if more space is needed): PAH PPT5	Special Instructions/ Conditions of Receipt
DPV-W19FB-100196 (6l)	10-1-96	0900	✓			✓						✓	-02FB
DPV-W19FBD-100196 (6l)	10-1-96	0900	✓			✓						✓	-02FBD

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other ____

QC Requirements (Specify):

	Date	Time		Date	Time
1. Relinquished By: William M Gregg	10-1-96	1700	1. Received By: [signature]	10/2/96	900
2. Relinquished By:			2. Received By:		
3. Relinquished By:			3. Received By:		

Comments

DISTRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy

Chain of Custody Record

Quanterra Environmental Services

QUA-4124-1

Client	Project Manager	Date	Chain Of Custody Number
City of St. Louis Park	Scott Anderson	10-1-96	69811

Address	Telephone Number (Area Code)/Fax Number	Lab Number	Page ___ of ___
5005 Minnetonka Blvd	(612) 924-2557		

City	State	Zip Code	Site Contact	Lab Contact
St. Louis Park	MN	55416	Bill Gregg	Kurt Ill

Project Name: Reilly Site

Carrier/Waybill Number:

Contract/Purchase Order/Quote No.:

Analysis (Attach list if more space is needed)

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Aqueous	Matrix: Sed.	Matrix: Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	PPT-PAH-5	Special Instructions/ Conditions of Receipt
DPV-W131-100196(6l)	10-1-96	1530	X			X						X	-03
DPV-W130-100196(6l)	10-1-96	1445	X			X						X	-04

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For ___ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other ___

QC Requirements (Specify):

	Date	Time		Date	Time
1. Relinquished By: W McGregg	10-1-96	1915	1. Received By: J. Pecho	10/2/96	900
2. Relinquished By:			2. Received By:		
3. Relinquished By:			3. Received By:		

Comments:

DISTRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy

Chain of Custody Record

Quanterra Environmental Services

QUA-4124-1

Client: City of St. Louis Park	Project Manager: Scott Anderson	Date: 10-1-96	Chain Of Custody Number: 69810
Address: 5005 Minnetonka Blvd	Telephone Number (Area Code)/Fax Number: (612) 924-2557	Lab Number:	Page ____ of ____
City: St. Louis Park; State: MN; Zip Code: 55416	Site Contact: Bill Gregg; Lab Contact: Kurt Ill		
Project Name: Reilly Site	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Aqueous	Matrix: Sed.	Matrix: Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis (Attach list if more space is needed): PPT-PAH-5	Special Instructions/ Conditions of Receipt
DPV- W428- 100196 (6l)	10-1-96	1330	X			X						X	-05
DPV- W424- 100196 (6l)	10-1-96	1120	X			X						X	-06

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other ____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: W M Gregg	10-1-96	1915	1. Received By: [signature]	10/2/96	900
2. Relinquished By:			2. Received By:		
3. Relinquished By:			3. Received By:		

Comments

DISTRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy

Chain of Custody Record

Environmental Services

QUA-4124-1

Client: City of St. Louis Park	Project Manager: Scott Anderson	Date: 10-1-96	Chain Of Custody Number: 69809
Address: 5005 Minnetonka Blvd	Telephone Number (Area Code)/Fax Number: (612) 924-2557	Lab Number:	Page ____ of ____
City: St. Louis Park; State: MN; Zip Code: 55416	Site Contact: Bill Gregg	Lab Contact: Kurt Ill	
Project Name: Reilly Site	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Aqueous	Sed.	Soil		Containers & Preservatives: Unpres.	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH		Analysis (Attach list if more space is needed): PPL-PAH-S			Special Instructions/ Conditions of Receipt
DPV-W434-100196 (6l)	10-1-96	1745	X				X							X			-07
DPV-W433-100196 (6l)	10-1-96	1815															-08

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other ____

QC Requirements (Specify):

1. Relinquished By: W M Gregg	Date: 10-1-96	Time: 1915	1. Received By: [signature]	Date: 10/2/96	Time: 900
2. Relinquished By:	Date:	Time:	2. Received By:	Date:	Time:
3. Relinquished By:	Date:	Time:	3. Received By:	Date:	Time:

Comments:

DISTRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy

Organic EPA-defined Data Qualifiers

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. For example, if the sample had 24% moisture and a 1 to 10 dilution factor, the sample quantitation limit for phenol (330 U) would be corrected to:

$$\frac{(330\ U)}{D} \times Df \qquad \text{Where } D = \frac{100 - \%\ moisture}{100}$$

and Df = Dilution factor

For example, at 24% moisture, $D = \frac{100 - 24}{100} = 0.76$

$$\frac{(330\ U)}{0.76} \times 10 = 4300\ U$$ rounded to the appropriate number of significant figures

For semivolatile soil samples, the extract must be concentrated to 0.5 mL, and the sensitivity of the analysis is not compromised by the cleanup procedures. Similarly, pesticide samples subjected to GPC are concentrated to 5.0 mL. Therefore, the CRQL values in Exhibit C will apply to all samples, regardless of the cleanup. However, if a sample extract cannot be concentrated to the protocol-specified volume (see Exhibit C), this fact must be accounted for in reporting the sample quantitation limit.

J- Indicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, 2) when the mass spectral and retention time data indicate the presence of a compound that meets the volatile and semivolatile GC/MS identification criteria, and the result is less than the CRQL but greater than zero, 3) when the retention time data indicate the presence of a compound that meets the pesticide/Aroclor identification criteria and the result is less than the CRQL but greater than zero. Note: the "J" code is not used and the compound is not reported as being identified for pesticide/Aroclor results less than the CRQL, if the technical judgement of the pesticide residue analysis expert determines that the peaks used for compound identification resulted from instrument noise or other interferences. (column bleed, solvent contamination, etc.). 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. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.

P- This flag is used for a pesticide/Aroclor target analyte when there is greater than 25% difference for detected concentration 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 were 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.

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 according to the specification 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 the peak representing the single isomer exceeds 200 ug/L or the peak representing the two coeluting isomers on that GC column exceeds 400 ug/L. Similarly, if the two 1,2-Dichloroethene isomers coelute, a diluted analysis is not required unless the concentration exceeds 400 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 samples. The laboratory-defined flags are limited to the letters "X", "Y", and "Z".

The combination of flags "BU" or "UB" is expressly prohibited. Blank contaminants are flagged "B" only when they are detected in the sample.

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W19

ab Name: QUANTERRA DENVER Contract:

ab Code: Case No.: 51813 SAS No.: SDG No.: 51813

atrix: (soil/water) WATER Lab Sample ID: 51813-01

ample wt/vol: 4200 (g/ml) ML Lab File ID: A0401064

evel: (low/med) LOW Date Received: 10/02/96

Moisture: _____ decanted: (Y/N)___ Date Extracted:10/04/96

oncentrated Extract Volume: 0.5(ml) Date Analyzed: 10/10/96

njection Volume: 1.0(uL) Dilution Factor: 10.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	48	U
496-11-7	2,3-Dihydroindene	13	U
95-13-6	1H-Indene	8.6	U
91-20-3	Naphthalene	62	U
95-15-8	Benzo(b)thiophene	8.6	U
91-22-5	Quinoline	13	U
120-72-9	1H-Indole	24	U
91-57-6	2-Methylnaphthalene	42	
90-12-0	1-Methylnaphthalene	26	
92-52-4	Biphenyl	41	U
208-96-8	Acenaphthylene	13	U
83-32-9	Acenaphthene	12	U
132-64-9	Dibenzofuran	9.5	U
86-73-7	Fluorene	9.5	U
132-65-0	Dibenzothiophene	10	U
85-01-8	Phenanthrene	13	
120-12-7	Anthracene	10	U
260-94-6	Acridine	28	U
86-74-8	Carbazole	18	U
206-44-0	Fluoranthene	13	U
129-00-0	Pyrene	16	
56-55-3	Benzo(a)Anthracene	24	U
218-01-9	Chrysene	27	U
207-08-9	Benzo(b)fluoranthene	24	U
205-08-9	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	Dibenzo(a,h)anthracene	15	U
191-24-2	Benzo(g,h,i)perylene	27	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W19D

ame: QUANTERRA DENVER Contract:

Code: Case No.: 51813 SAS No.: SDG No.: 51813

ix: (soil/water) WATER Lab Sample ID: 51813-01DU

le wt/vol: 4195 (g/ml) ML Lab File ID: A1301058

el: (low/med) LOW Date Received: 10/02/96

oisture: _____ decanted: (Y/N)___ Date Extracted: 10/04/96

centrated Extract Volume: 0.5(ml) Date Analyzed: 10/09/96

ection Volume: 1.0(uL) Dilution Factor: 10.0

Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/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	8.6	U
91-20-3	Naphthalene	62	U
95-15-8	Benzo(b)thiophene	8.6	U
91-22-5	Quinoline	13	U
120-72-9	1H-Indole	24	U
91-57-6	2-Methylnaphthalene	42	
90-12-0	1-Methylnaphthalene	26	
92-52-4	Biphenyl	41	U
208-96-8	Acenaphthylene	13	U
83-32-9	Acenaphthene	12	U
132-64-9	Dibenzofuran	9.5	U
86-73-7	Fluorene	9.5	U
132-65-0	Dibenzothiophene	10	U
85-01-8	Phenanthrene	12	U
120-12-7	Anthracene	10	U
260-94-6	Acridine	28	U
86-74-8	Carbazole	18	U
206-44-0	Fluoranthene	13	U
129-00-0	Pyrene	13	U
56-55-3	Benzo(a)Anthracene	24	U
218-01-9	Chrysene	27	U
207-08-9	Benzo(b)fluoranthene	24	U
205-08-9	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	Dibenzo(a,h)anthracene	15	U
191-24-2	Benzo(g,h,i)perylene	27	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W19FB

ab Name: QUANTERRA DENVER Contract:

:b Code: Case No.: 51813 SAS No.: SDG No.: 51813

atrix: (soil/water) WATER Lab Sample ID: 51813-02FB

ample wt/vol: 3590 (g/ml) ML Lab File ID: A1401059

evel: (low/med) LOW Date Received: 10/02/96

Moisture: _____ decanted: (Y/N)___ Date Extracted:10/04/96

oncentrated Extract Volume: 0.5(ml) Date Analyzed: 10/09/96

njection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	5.7	U
496-11-7	2,3-Dihydroindene	3.1	
95-13-6	1H-Indene	1.0	U
91-20-3	Naphthalene	7.2	U
95-15-8	Benzo(b)thiophene	1.0	U
91-22-5	Quinoline	1.6	U
120-72-9	1H-Indole	2.8	U
91-57-6	2-Methylnaphthalene	4.8	
90-12-0	1-Methylnaphthalene	2.5	
92-52-4	Biphenyl	4.8	U
208-96-8	Acenaphthylene	1.6	U
83-32-9	Acenaphthene	1.4	U
132-64-9	Dibenzofuran	1.1	U
86-73-7	Fluorene	1.1	U
132-65-0	Dibenzothiophene	1.2	U
85-01-8	Phenanthrene	1.9	
120-12-7	Anthracene	1.2	U
260-94-6	Acridine	3.2	U
86-74-8	Carbazole	2.1	U
206-44-0	Fluoranthene	1.6	U
129-00-0	Pyrene	1.6	U
56-55-3	Benzo(a)Anthracene	2.8	U
218-01-9	Chrysene	3.1	U
207-08-9	Benzo(b)fluoranthene	2.8	U
205-08-9	Benzo(k)fluoranthene	2.6	U
192-97-2	Benzo(e)pyrene	2.1	U
50-32-8	Benzo(a)pyrene	2.6	U
198-55-0	Perylene	2.8	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.3	U
53-70-3	Dibenzo(a,h)anthracene	1.8	U
191-24-2	Benzo(g,h,i)perylene	3.1	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W19FBD

Name: QUANTERRA DENVER Contract:

Code: Case No.: 51813 SAS No.: SDG No.: 51813

rix: (soil/water) WATER Lab Sample ID: 51813-02FD

ple wt/vol: 3580 (g/ml) ML Lab File ID: A1501060

el: (low/med) LOW Date Received: 10/02/96

loisture: _____ decanted: (Y/N)___ Date Extracted:10/04/96

icentrated Extract Volume: 0.5(ml) Date Analyzed: 10/09/96

jection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	5.7	U
496-11-7	2,3-Dihydroindene	1.8	
95-13-6	1H-Indene	1.0	U
91-20-3	Naphthalene	7.3	U
95-15-8	Benzo(b)thiophene	1.0	U
91-22-5	Quinoline	1.6	U
120-72-9	1H-Indole	2.8	U
91-57-6	2-Methylnaphthalene	3.6	
90-12-0	1-Methylnaphthalene	1.8	
92-52-4	Biphenyl	4.8	U
208-96-8	Acenaphthylene	1.6	U
83-32-9	Acenaphthene	1.4	U
132-64-9	Dibenzofuran	1.1	U
86-73-7	Fluorene	1.1	U
132-65-0	Dibenzothiophene	1.2	U
85-01-8	Phenanthrene	1.7	
120-12-7	Anthracene	1.2	U
260-94-6	Acridine	3.2	U
86-74-8	Carbazole	2.1	U
206-44-0	Fluoranthene	1.6	U
129-00-0	Pyrene	1.6	U
56-55-3	Benzo(a)Anthracene	2.8	U
218-01-9	Chrysene	3.1	U
207-08-9	Benzo(b)fluoranthene	2.8	U
205-08-9	Benzo(k)fluoranthene	2.6	U
192-97-2	Benzo(e)pyrene	2.1	U
50-32-8	Benzo(a)pyrene	2.6	U
198-55-0	Perylene	2.8	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.3	U
53-70-3	Dibenzo(a,h)anthracene	1.8	U
191-24-2	Benzo(g,h,i)perylene	3.1	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W131

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 51813 SAS No.: SDG No.: 51813

Matrix: (soil/water) WATER Lab Sample ID: 51813-03

Sample wt/vol: 4150 (g/ml) ML Lab File ID: A0501065

Level: (low/med) LOW Date Received: 10/02/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/04/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 10/10/96

Injection Volume: 1.0(uL) Dilution Factor: 10.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/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	8.7	U
91-20-3	Naphthalene	63	U
95-15-8	Benzo(b)thiophene	8.7	U
91-22-5	Quinoline	13	U
120-72-9	1H-Indole	24	U
91-57-6	2-Methylnaphthalene	16	
90-12-0	1-Methylnaphthalene	15	U
92-52-4	Biphenyl	41	U
208-96-8	Acenaphthylene	13	U
83-32-9	Acenaphthene	12	U
132-64-9	Dibenzofuran	9.6	U
86-73-7	Fluorene	9.6	U
132-65-0	Dibenzothiophene	11	U
85-01-8	Phenanthrene	12	U
120-12-7	Anthracene	11	U
260-94-6	Acridine	28	U
86-74-8	Carbazole	18	U
206-44-0	Fluoranthene	13	U
129-00-0	Pyrene	13	U
56-55-3	Benzo(a)Anthracene	24	U
218-01-9	Chrysene	27	U
207-08-9	Benzo(b)fluoranthene	24	U
205-08-9	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	Dibenzo(a,h)anthracene	15	U
191-24-2	Benzo(g,h,i)perylene	27	U

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W130

ame: QUANTERRA DENVER Contract:

Code: Case No.: 51813 SAS No.: SDG No.: 51813

rix: (soil/water) WATER Lab Sample ID: 51813-04

ple wt/vol: 4155 (g/ml) ML Lab File ID: A0901069

el: (low/med) LOW Date Received: 10/02/96

oisture: _____ decanted: (Y/N)___ Date Extracted:10/04/96

centrated Extract Volume: 0.5(ml) Date Analyzed: 10/10/96

ection Volume: 1.0(uL) Dilution Factor: 10.0

Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/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	8.9	R
91-20-3	Naphthalene	62	U
95-15-8	Benzo(b)thiophene	8.7	U
91-22-5	Quinoline	13	U
120-72-9	1H-Indole	32	
91-57-6	2-Methylnaphthalene	11	
90-12-0	1-Methylnaphthalene	15	U
92-52-4	Biphenyl	41	U
208-96-8	Acenaphthylene	13	U
83-32-9	Acenaphthene	12	U
132-64-9	Dibenzofuran	9.6	U
86-73-7	Fluorene	9.6	U
132-65-0	Dibenzothiophene	10	U
85-01-8	Phenanthrene	12	U
120-12-7	Anthracene	10	U
260-94-6	Acridine	28	U
86-74-8	Carbazole	18	U
206-44-0	Fluoranthene	13	U
129-00-0	Pyrene	13	U
56-55-3	Benzo(a)Anthracene	24	U
218-01-9	Chrysene	27	U
207-08-9	Benzo(b)fluoranthene	24	U
205-08-9	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	Dibenzo(a,h)anthracene	15	U
191-24-2	Benzo(g,h,i)perylene	27	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W428

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 51813 SAS No.: SDG No.: 51813

Matrix: (soil/water) WATER Lab Sample ID: 51813-05

Sample wt/vol: 4120 (g/ml) ML Lab File ID: A0801068

Level: (low/med) LOW Date Received: 10/02/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/04/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 10/10/96

Injection Volume: 1.0(uL) Dilution Factor: 10.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	50	U
496-11-7	2,3-Dihydroindene	86	
95-13-6	1H-Indene	11	
91-20-3	Naphthalene	63	U
95-15-8	Benzo(b)thiophene	31	
91-22-5	Quinoline	14	U
120-72-9	1H-Indole	24	U
91-57-6	2-Methylnaphthalene	21	
90-12-0	1-Methylnaphthalene	19	
92-52-4	Biphenyl	42	U
208-96-8	Acenaphthylene	14	U
83-32-9	Acenaphthene	15	
132-64-9	Dibenzofuran	9.7	U
86-73-7	Fluorene	9.7	U
132-65-0	Dibenzothiophene	11	U
85-01-8	Phenanthrene	14	
120-12-7	Anthracene	11	U
260-94-6	Acridine	28	U
86-74-8	Carbazole	18	U
206-44-0	Fluoranthene	14	U
129-00-0	Pyrene	43	
56-55-3	Benzo(a)Anthracene	24	U
218-01-9	Chrysene	27	U
207-08-9	Benzo(b)fluoranthene	24	U
205-08-9	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	Dibenzo(a,h)anthracene	16	U
191-24-2	Benzo(g,h,i)perylene	27	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W424

ame: QUANTERRA DENVER Contract:

Code: Case No.: 51813 SAS No.: SDG No.: 51813

ix: (soil/water) WATER Lab Sample ID: 51813-06

le wt/vol: 4095 (g/ml) ML Lab File ID: A0301063

l: (low/med) LOW Date Received: 10/02/96

oisture: _____ decanted: (Y/N)___ Date Extracted:10/04/96

entrated Extract Volume: 0.5(ml) Date Analyzed: 10/10/96

ction Volume: 1.0(uL) Dilution Factor: 1.0

Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	5.0	U
496-11-7	2,3-Dihydroindene	14	
95-13-6	1H-Indene	9.7	
91-20-3	Naphthalene	37	
95-15-8	Benzo(b)thiophene	5.1	
91-22-5	Quinoline	1.4	U
120-72-9	1H-Indole	2.4	U
91-57-6	2-Methylnaphthalene	14	
90-12-0	1-Methylnaphthalene	15	
92-52-4	Biphenyl	4.2	U
208-96-8	Acenaphthylene	1.4	U
83-32-9	Acenaphthene	4.9	
132-64-9	Dibenzofuran	2.8	
86-73-7	Fluorene	2.3	
132-65-0	Dibenzothiophene	1.1	U
85-01-8	Phenanthrene	4.0	
120-12-7	Anthracene	1.1	U
260-94-6	Acridine	4.6	
86-74-8	Carbazole	1.8	U
206-44-0	Fluoranthene	2.6	
129-00-0	Pyrene	3.7	
56-55-3	Benzo(a)Anthracene	2.4	U
218-01-9	Chrysene	2.7	U
207-08-9	Benzo(b)fluoranthene	2.4	U
205-08-9	Benzo(k)fluoranthene	2.2	U
192-97-2	Benzo(e)pyrene	1.8	U
50-32-8	Benzo(a)pyrene	2.2	U
198-55-0	Perylene	2.4	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.0	U
53-70-3	Dibenzo(a,h)anthracene	1.6	U
191-24-2	Benzo(g,h,i)perylene	2.7	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W434

ıme: QUANTERRA DENVER Contract:

ɔde: Case No.: 51813 SAS No.: SDG No.: 51813

.x: (soil/water) WATER Lab Sample ID: 51813-07

e wt/vol: 4190 (g/ml) ML Lab File ID: A0201085

.: (low/med) LOW Date Received: 10/02/96

:sture: _____ decanted: (Y/N)___ Date Extracted:10/04/96

:ntrated Extract Volume: 0.5(ml) Date Analyzed: 10/10/96

:tion Volume: 1.0(uL) Dilution Factor: 50.0

Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	240	U
496-11-7	2,3-Dihydroindene	2900	
95-13-6	1H-Indene	100	
91-20-3	Naphthalene	310	U
95-15-8	Benzo(b)thiophene	1300	
91-22-5	Quinoline	67	U
120-72-9	1H-Indole	120	U
91-57-6	2-Methylnaphthalene	51	
90-12-0	1-Methylnaphthalene	76	U
92-52-4	Biphenyl	200	U
208-96-8	Acenaphthylene	67	U
83-32-9	Acenaphthene	62	U
132-64-9	Dibenzofuran	48	U
86-73-7	Fluorene	48	U
132-65-0	Dibenzothiophene	52	U
85-01-8	Phenanthrene	62	U
120-12-7	Anthracene	52	U
260-94-6	Acridine	140	U
86-74-8	Carbazole	91	U
206-44-0	Fluoranthene	67	U
129-00-0	Pyrene	67	U
56-55-3	Benzo(a)Anthracene	120	U
218-01-9	Chrysene	130	U
207-08-9	Benzo(b)fluoranthene	120	U
205-08-9	Benzo(k)fluoranthene	110	U
192-97-2	Benzo(e)pyrene	91	U
50-32-8	Benzo(a)pyrene	110	U
198-55-0	Perylene	120	U
193-39-5	Indeno(1,2,3-cd)pyrene	100	U
53-70-3	Dibenzo(a,h)anthracene	76	U
191-24-2	Benzo(g,h,i)perylene	130	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W433

'b Name: QUANTERRA DENVER Contract:

.ab Code: Case No.: 51813 SAS No.: SDG No.: 51813

Matrix: (soil/water) WATER Lab Sample ID: 51813-08

Sample wt/vol: 4180 (g/ml) ML Lab File ID: A0701067

Level: (low/med) LOW Date Received: 10/02/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/04/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 10/10/96

Injection Volume: 1.0(uL) Dilution Factor: 10.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	49	U
496-11-7	2,3-Dihydroindene	420	
95-13-6	1H-Indene	17	
91-20-3	Naphthalene	62	U
95-15-8	Benzo(b)thiophene	160	
91-22-5	Quinoline	13	U
120-72-9	1H-Indole	24	U
91-57-6	2-Methylnaphthalene	14	
90-12-0	1-Methylnaphthalene	15	U
92-52-4	Biphenyl	41	U
208-96-8	Acenaphthylene	13	U
83-32-9	Acenaphthene	14	
132-64-9	Dibenzofuran	9.6	U
86-73-7	Fluorene	9.6	U
132-65-0	Dibenzothiophene	10	U
85-01-8	Phenanthrene	12	U
120-12-7	Anthracene	10	U
260-94-6	Acridine	28	U
86-74-8	Carbazole	18	U
206-44-0	Fluoranthene	13	U
129-00-0	Pyrene	13	U
56-55-3	Benzo(a)Anthracene	24	U
218-01-9	Chrysene	27	U
207-08-9	Benzo(b)fluoranthene	24	U
205-08-9	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	Dibenzo(a,h)anthracene	15	U
191-24-2	Benzo(g,h,i)perylene	27	U

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

ame: QUANTERRA DENVER Contract:

ode: Case No.: 51813 SAS No.: SDG No.: 51813

EPA SAMPLE NO.	S1 #	S2 #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
SBLK01	82	91	63						0
DCS1	111*	104	90						0
DCS2	89	93	70						0
DPV-W19D	0D	0D	0D						0
DPV-W19FB	88	89	73						0
DPV-W19FBD	92	84	74						0
DPV-W424	73	13	61						0
DPV-W19	0D	0D	0D						0
DPV-W131	0D	0D	0D						0
DPV-W433	0D	0D	0D						0
DPV-W428	0D	0D	0D						0
DPV-W130	0D	0D	0D						0
DPV-W434	0D	0D	0D						0

		QC LIMITS
S1	= Naphthalene-d8	(21-108)
S2	= Chrysene-d12	(10-118)
S3	= Fluorene-d10	(41-162)

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.

SBLK01

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 51813 SAS No.: SDG No.: 51813

Lab File ID: A0101046 Lab Sample ID: SBLK01

Instrument ID: A Date Extracted: 10/04/96

Matrix: (soil/water) WATER Date Analyzed: 10/09/96

Level: (low/med) LOW Time Analyzed: 1109

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	DCS1	51813-DCS1	A0201047	10/09/96
02	DCS2	51813-DCS2	A0301048	10/09/96
03	DPV-W19D	51813-01DU	A1301058	10/09/96
04	DPV-W19FB	51813-02FB	A1401059	10/09/96
05	DPV-W19FBD	51813-02FD	A1501060	10/09/96
06	DPV-W424	51813-06	A0301063	10/10/96
07	DPV-W19	51813-01	A0401064	10/10/96
08	DPV-W131	51813-03	A0501065	10/10/96
09	DPV-W433	51813-08	A0701067	10/10/96
10	DPV-W428	51813-05	A0801068	10/10/96
11	DPV-W130	51813-04	A0901069	10/10/96
12	DPV-W434	51813-07	A0201085	10/10/96
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COMMENTS:

FORM IV SV

OLM03.0

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLK01

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 51813 SAS No.: SDG No.: 51813

Matrix: (soil/water) WATER Lab Sample ID: SBLK01

Sample wt/vol: 4000 (g/ml) ML Lab File ID: A0101046

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/04/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 10/09/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	5.1	U
496-11-7	2,3-Dihydroindene	1.4	U
95-13-6	1H-Indene	0.90	U
91-20-3	Naphthalene	6.5	U
95-15-8	Benzo(b)thiophene	0.90	U
91-22-5	Quinoline	1.4	U
120-72-9	1H-Indole	2.5	U
91-57-6	2-Methylnaphthalene	0.90	U
90-12-0	1-Methylnaphthalene	1.6	U
92-52-4	Biphenyl	4.3	U
208-96-8	Acenaphthylene	1.4	U
83-32-9	Acenaphthene	1.3	U
132-64-9	Dibenzofuran	1.0	U
86-73-7	Fluorene	1.0	U
132-65-0	Dibenzothiophene	1.1	U
85-01-8	Phenanthrene	1.3	U
120-12-7	Anthracene	1.1	U
260-94-6	Acridine	2.9	U
86-74-8	Carbazole	1.9	U
206-44-0	Fluoranthene	1.4	U
129-00-0	Pyrene	1.4	U
56-55-3	Benzo(a)Anthracene	2.5	U
218-01-9	Chrysene	2.8	U
207-08-9	Benzo(b)fluoranthene	2.5	U
205-08-9	Benzo(k)fluoranthene	2.3	U
192-97-2	Benzo(e)pyrene	1.9	U
50-32-8	Benzo(a)pyrene	2.3	U
198-55-0	Perylene	2.5	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.1	U
53-70-3	Dibenzo(a,h)anthracene	1.6	U
191-24-2	Benzo(g,h,i)perylene	2.8	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DCS1

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 51813 SAS No.: SDG No.: 51813

Matrix: (soil/water) WATER Lab Sample ID: 51813-DCS1

Sample wt/vol: 4000 (g/ml) ML Lab File ID: A0201047

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/04/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 10/09/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
95-13-6	1H-Indene	10	
91-20-3	Naphthalene	12	
91-22-5	Quinoline	11	
91-57-6	2-Methylnaphthalene	11	
86-73-7	Fluorene	10	
218-01-9	Chrysene	8.6	
192-97-2	Benzo(e)pyrene	11	

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DCS2

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 51813 SAS No.: SDG No.: 51813

Matrix: (soil/water) WATER Lab Sample ID: 51813-DCS2

Sample wt/vol: 4000 (g/ml) ML Lab File ID: A0301048

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/04/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 10/09/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
95-13-6	1H-Indene	8.5	
91-20-3	Naphthalene	9.7	
91-22-5	Quinoline	8.3	
91-57-6	2-Methylnaphthalene	9.1	
86-73-7	Fluorene	8.3	
218-01-9	Chrysene	7.2	
192-97-2	Benzo(e)pyrene	9.1	

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 51813 SAS No.: SDG No.: 51813

Lab File ID (Standard): A045 Date Analyzed: 10/09/96

Instrument ID: A Time Analyzed: 0843

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	132436	12.53	177567	14.98	59150	21.58
	UPPER LIMIT	264872	13.03	355134	15.48	118300	22.08
	LOWER LIMIT	66218	12.03	88784	14.48	29575	21.08
	EPA SAMPLE NO.						
01	SBLK01	114190	12.50	160781	14.95	44892	21.56
02	DCS1	112664	12.50	163510	14.95	53059	21.56
03	DCS2	105993	12.50	154829	14.95	46184	21.56
04	DPV-W19D	129719	12.51	185035	14.96	81481	21.56
05	DPV-W19FB	130501	12.50	180630	14.95	56280	21.56
06	DPV-W19FBD	177209	12.50	249446	14.95	80507	21.55
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IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = 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

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 51813 SAS No.: SDG No.: 51813

Lab File ID (Standard): A0060 Date Analyzed: 10/09/96

Instrument ID: A Time Analyzed: 2142

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	107149	12.51	144934	14.96	49737	21.57
	UPPER LIMIT	214298	13.01	289868	15.46	99474	22.07
	LOWER LIMIT	53574	12.01	72467	14.46	24868	21.07
	EPA SAMPLE NO.						
01	DPV-W424	127560	12.51	180086	14.95	91007	21.55
02	DPV-W19	103917	12.50	157530	14.95	74327	21.55
03	DPV-W131	114308	12.51	168415	14.95	64127	21.56
04	DPV-W433	112599	12.50	171233	14.95	68909	21.56
05	DPV-W428	114590	12.50	176459	14.95	81643	21.56
06	DPV-W130	121646	12.50	169582	14.95	69536	21.55
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IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = 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

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 51813 SAS No.: SDG No.: 51813

Lab File ID (Standard): A0083 Date Analyzed: 10/10/96

Instrument ID: A Time Analyzed: 2015

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	120765	12.50	173171	14.95	51231	21.55
	UPPER LIMIT	241530	13.00	346342	15.45	102462	22.05
	LOWER LIMIT	60382	12.00	86586	14.45	25616	21.05
	EPA SAMPLE NO.						
01	DPV-W434	105544	12.49	155496	14.93	43287	21.54
02							
03							
04							
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IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = 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.

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 51813 SAS No.: SDG No.: 51813

	EPA SAMPLE NO.	S1 #	S2 #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	SBLK01	82	91	63						0
02	DCS1	111*	104	90						0
03	DCS2	89	93	70						0
04	DPV-W19D	0D	0D	0D						0
05	DPV-W19FB	88	89	73						0
06	DPV-W19FBD	92	84	74						0
07	DPV-W424	73	13	61						0
08	DPV-W19	0D	0D	0D						0
09	DPV-W131	0D	0D	0D						0
10	DPV-W433	0D	0D	0D						0
11	DPV-W428	0D	0D	0D						0
12	DPV-W130	0D	0D	0D						0
13	DPV-W434	0D	0D	0D						0
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		QC LIMITS
S1	= Naphthalene-d8	(21-108)
S2	= Chrysene-d12	(10-118)
S3	= Fluorene-d10	(41-162)

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.

SBLK01

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 51813 SAS No.: SDG No.: 51813

Lab File ID: A0101046 Lab Sample ID: SBLK01

Instrument ID: A Date Extracted: 10/04/96

Matrix: (soil/water) WATER Date Analyzed: 10/09/96

Level: (low/med) LOW Time Analyzed: 1109

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	DCS1	51813-DCS1	A0201047	10/09/96
02	DCS2	51813-DCS2	A0301048	10/09/96
03	DPV-W19D	51813-01DU	A1301058	10/09/96
04	DPV-W19FB	51813-02FB	A1401059	10/09/96
05	DPV-W19FBD	51813-02FD	A1501060	10/09/96
06	DPV-W424	51813-06	A0301063	10/10/96
07	DPV-W19	51813-01	A0401064	10/10/96
08	DPV-W131	51813-03	A0501065	10/10/96
09	DPV-W433	51813-08	A0701067	10/10/96
10	DPV-W428	51813-05	A0801068	10/10/96
11	DPV-W130	51813-04	A0901069	10/10/96
12	DPV-W434	51813-07	A0201085	10/10/96
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COMMENTS:

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 51813 SAS No.: SDG No.: 51813

Lab File ID (Standard): A045 Date Analyzed: 10/09/96

Instrument ID: A Time Analyzed: 0843

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	132436	12.53	177567	14.98	59150	21.58
	UPPER LIMIT	264872	13.03	355134	15.48	118300	22.08
	LOWER LIMIT	66218	12.03	88784	14.48	29575	21.08
	EPA SAMPLE NO.						
01	SBLK01	114190	12.50	160781	14.95	44892	21.56
02	DCS1	112664	12.50	163510	14.95	53059	21.56
03	DCS2	105993	12.50	154829	14.95	46184	21.56
04	DPV-W19D	129719	12.51	185035	14.96	81481	21.56
05	DPV-W19FB	130501	12.50	180630	14.95	56280	21.56
06	DPV-W19FBD	177209	12.50	249446	14.95	80507	21.55
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IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = 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

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 51813 SAS No.: SDG No.: 51813

Lab File ID (Standard): A0060 Date Analyzed: 10/09/96

Instrument ID: A Time Analyzed: 2142

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	107149	12.51	144934	14.96	49737	21.57
	UPPER LIMIT	214298	13.01	289868	15.46	99474	22.07
	LOWER LIMIT	53574	12.01	72467	14.46	24868	21.07
	EPA SAMPLE NO.						
01	DPV-W424	127560	12.51	180086	14.95	91007	21.55
02	DPV-W19	103917	12.50	157530	14.95	74327	21.55
03	DPV-W131	114308	12.51	168415	14.95	64127	21.56
04	DPV-W433	112599	12.50	171233	14.95	68909	21.56
05	DPV-W428	114590	12.50	176459	14.95	81643	21.56
06	DPV-W130	121646	12.50	169582	14.95	69536	21.55
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22							

IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = 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

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 51813 SAS No.: SDG No.: 51813

Lab File ID (Standard): A0083 Date Analyzed: 10/10/96

Instrument ID: A Time Analyzed: 2015

	IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
12 HOUR STD	120765	12.50	173171	14.95	51231	21.55
UPPER LIMIT	241530	13.00	346342	15.45	102462	22.05
LOWER LIMIT	60382	12.00	86586	14.45	25616	21.05
EPA SAMPLE NO.						
01 DPV-W434	105544	12.49	155496	14.93	43287	21.54
02						
03						
04						
05						
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17						
18						
19						
20						
21						
22						

IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = 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

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

CASE NARRATIVE

FOR

City of St. Louis Park

December 3, 1996

Quanterra Environmental Services

Project Number 052208

Introduction

Ten aqueous samples (including matrix QC) were received at Quanterra Environmental Services, Denver Laboratory on October 23, 1996. The samples were logged in under Quanterra Denver's project number 052208. A cross reference associating Quanterra Denver's laboratory sample numbers to the actual field sample number 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 October 1995 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.

Client samples with lab ID's 052208-001, 001DU, 003, 004, 005, 007 and 008 had to be diluted due to target analytes exceeding the linear range of the instrument. The reporting limits were raised accordingly. As a result of dilution the surrogates for samples 052208-003, 004 and 008 were not detected and are reported as "D."

The surrogate chrysene-d12 in client sample with lab ID 052208-005 was recovered at 9% which is outside the 10% to 118% acceptance criteria. Chrysene-d12 was recovered within the acceptance criteria in the DCSs and Method Blank suggesting a matrix effect.

Quanterra
Environmental Services

This data package is in compliance with the terms and conditions of the October 1995 QAPP, both technically and for completeness, for other than the conditions detailed above.

Reported By: _____ Date: 12/3/96

Kurt C. III
Program Manager

Reviewed By: _____ Date: 12/3/96

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W18

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 52208 SAS No.: SDG No.: 52208

Matrix: (soil/water) WATER Lab Sample ID: 52208-01

Sample wt/vol: 4195 (g/ml) ML Lab File ID: A0501233

Level: (low/med) LOW Date Received: 10/23/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 10/24/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 11/07/96

Injection Volume: 1.0(uL) Dilution Factor: 10.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	49	U
496-11-7	2,3-Dihydroindene	830	
95-13-6	1H-Indene	59	
91-20-3	Naphthalene	240	
95-15-8	Benzo(b)thiophene	430	
91-22-5	Quinoline	13	U
120-72-9	1H-Indole	24	U
91-57-6	2-Methylnaphthalene	19	RB
90-12-0	1-Methylnaphthalene	150	
92-52-4	Biphenyl	41	U
208-96-8	Acenaphthylene	13	U
83-32-9	Acenaphthene	250	
132-64-9	Dibenzofuran	23	
86-73-7	Fluorene	21	
132-65-0	Dibenzothiophene	10	U
85-01-8	Phenanthrene	12	RB
120-12-7	Anthracene	10	U
260-94-6	Acridine	28	U
86-74-8	Carbazole	340	
206-44-0	Fluoranthene	13	U
129-00-0	Pyrene	29	
56-55-3	Benzo(a)Anthracene	24	U
218-01-9	Chrysene	27	U
207-08-9	Benzo(b)fluoranthene	24	U
205-08-9	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	Dibenzo(a,h)anthracene	15	U
191-24-2	Benzo(g,h,i)perylene	27	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W18D

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 52208 SAS No.: SDG No.: 52208

Matrix: (soil/water) WATER Lab Sample ID: 52208-01DU

Sample wt/vol: 4200 (g/ml) ML Lab File ID: A1401242

Level: (low/med) LOW Date Received: 10/23/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/24/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 11/07/96

Injection Volume: 1.0(uL) Dilution Factor: 10.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	48	U
496-11-7	2,3-Dihydroindene	840	
95-13-6	1H-Indene	61	
91-20-3	Naphthalene	240	
95-15-8	Benzo(b)thiophene	440	
91-22-5	Quinoline	13	U
120-72-9	1H-Indole	24	U
91-57-6	2-Methylnaphthalene	8.6	U
90-12-0	1-Methylnaphthalene	150	
92-52-4	Biphenyl	41	U
208-96-8	Acenaphthylene	13	U
83-32-9	Acenaphthene	240	
132-64-9	Dibenzofuran	22	
86-73-7	Fluorene	22	
132-65-0	Dibenzothiophene	10	U
85-01-8	Phenanthrene	12	U
120-12-7	Anthracene	10	U
260-94-6	Acridine	28	U
86-74-8	Carbazole	300	
206-44-0	Fluoranthene	13	U
129-00-0	Pyrene	19	
56-55-3	Benzo(a)Anthracene	24	U
218-01-9	Chrysene	27	U
207-08-9	Benzo(b)fluoranthene	24	U
205-08-9	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	Dibenzo(a,h)anthracene	15	U
191-24-2	Benzo(g,h,i)perylene	27	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W18FB

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 52208 SAS No.: SDG No.: 52208

Matrix: (soil/water) WATER Lab Sample ID: 52208-02FB

Sample wt/vol: 3730 (g/ml) ML Lab File ID: A0601234

Level: (low/med) LOW Date Received: 10/23/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 10/24/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 11/07/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	5.5	U
496-11-7	2,3-Dihydroindene	1.5	U
95-13-6	1H-Indene	1.0	
91-20-3	Naphthalene	7.0	U
95-15-8	Benzo(b)thiophene	0.96	U
91-22-5	Quinoline	1.5	U
120-72-9	1H-Indole	2.7	U
91-57-6	2-Methylnaphthalene	1.9	B
90-12-0	1-Methylnaphthalene	1.7	U
92-52-4	Biphenyl	4.6	U
208-96-8	Acenaphthylene	1.5	U
83-32-9	Acenaphthene	1.4	U
132-64-9	Dibenzofuran	1.1	U
86-73-7	Fluorene	1.1	U
132-65-0	Dibenzothiophene	1.2	U
85-01-8	Phenanthrene	2.2	B
120-12-7	Anthracene	1.2	U
260-94-6	Acridine	3.1	U
86-74-8	Carbazole	2.0	U
206-44-0	Fluoranthene	1.5	U
129-00-0	Pyrene	1.5	U
56-55-3	Benzo(a)Anthracene	2.7	U
218-01-9	Chrysene	3.0	U
207-08-9	Benzo(b)fluoranthene	2.7	U
205-08-9	Benzo(k)fluoranthene	2.5	U
192-97-2	Benzo(e)pyrene	2.0	U
50-32-8	Benzo(a)pyrene	2.5	U
198-55-0	Perylene	2.7	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.2	U
53-70-3	Dibenzo(a,h)anthracene	1.7	U
191-24-2	Benzo(g,h,i)perylene	3.0	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W18FBD

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 52208 SAS No.: SDG No.: 52208

Matrix: (soil/water) WATER Lab Sample ID: 52208-02FD

Sample wt/vol: 3825 (g/ml) ML Lab File ID: A0701235

Level: (low/med) LOW Date Received: 10/23/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/24/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 11/07/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	5.3	U
496-11-7	2,3-Dihydroindene	1.5	U
95-13-6	1H-Indene	0.94	U
91-20-3	Naphthalene	6.8	U
95-15-8	Benzo(b)thiophene	0.94	U
91-22-5	Quinoline	1.5	U
120-72-9	1H-Indole	2.6	U
91-57-6	2-Methylnaphthalene	3.0	B
90-12-0	1-Methylnaphthalene	1.7	U
92-52-4	Biphenyl	4.5	U
208-96-8	Acenaphthylene	1.5	U
83-32-9	Acenaphthene	1.4	U
132-64-9	Dibenzofuran	1.1	
86-73-7	Fluorene	1.2	R
132-65-0	Dibenzothiophene	1.2	U
85-01-8	Phenanthrene	5.0	B
120-12-7	Anthracene	1.2	U
260-94-6	Acridine	3.0	U
86-74-8	Carbazole	2.0	U
206-44-0	Fluoranthene	1.5	U
129-00-0	Pyrene	1.5	U
56-55-3	Benzo(a)Anthracene	2.6	U
218-01-9	Chrysene	2.9	U
207-08-9	Benzo(b)fluoranthene	2.6	U
205-08-9	Benzo(k)fluoranthene	2.4	U
192-97-2	Benzo(e)pyrene	2.0	U
50-32-8	Benzo(a)pyrene	2.4	U
198-55-0	Perylene	2.6	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.2	U
53-70-3	Dibenzo(a,h)anthracene	1.7	U
191-24-2	Benzo(g,h,i)perylene	2.9	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W27

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 52208 SAS No.: SDG No.: 52208

Matrix: (soil/water) WATER Lab Sample ID: 52208-03

Sample wt/vol: 3955 (g/ml) ML Lab File ID: A0801236

Level: (low/med) LOW Date Received: 10/23/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 10/24/96

Concentrated Extract Volume: 0.5 (ml) Date Analyzed: 11/07/96

Injection Volume: 1.0 (uL) Dilution Factor: 100.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	520	U
496-11-7	2,3-Dihydroindene	140	U
95-13-6	1H-Indene	680	
91-20-3	Naphthalene	660	U
95-15-8	Benzo(b)thiophene	4100	
91-22-5	Quinoline	140	U
120-72-9	1H-Indole	250	U
91-57-6	2-Methylnaphthalene	91	U
90-12-0	1-Methylnaphthalene	160	U
92-52-4	Biphenyl	430	U
208-96-8	Acenaphthylene	140	U
83-32-9	Acenaphthene	130	U
132-64-9	Dibenzofuran	100	U
86-73-7	Fluorene	160	
132-65-0	Dibenzothiophene	110	U
85-01-8	Phenanthrene	130	U
120-12-7	Anthracene	110	U
260-94-6	Acridine	320	
86-74-8	Carbazole	4200	
206-44-0	Fluoranthene	140	U
129-00-0	Pyrene	140	U
56-55-3	Benzo(a)Anthracene	250	U
218-01-9	Chrysene	280	U
207-08-9	Benzo(b)fluoranthene	250	U
205-08-9	Benzo(k)fluoranthene	230	U
192-97-2	Benzo(e)pyrene	190	U
50-32-8	Benzo(a)pyrene	230	U
198-55-0	Perylene	250	U
193-39-5	Indeno(1,2,3-cd)pyrene	210	U
53-70-3	Dibenzo(a,h)anthracene	160	U
191-24-2	Benzo(g,h,i)perylene	280	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W120

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 52208 SAS No.: SDG No.: 52208

Matrix: (soil/water) WATER Lab Sample ID: 52208-04

Sample wt/vol: 4195 (g/ml) ML Lab File ID: A0201245

Level: (low/med) LOW Date Received: 10/23/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/24/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 11/08/96

Injection Volume: 1.0(uL) Dilution Factor: 100.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	490	U
496-11-7	2,3-Dihydroindene	7300	
95-13-6	1H-Indene	390	
91-20-3	Naphthalene	620	U
95-15-8	Benzo(b)thiophene	3000	
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	150	U
92-52-4	Biphenyl	410	U
208-96-8	Acenaphthylene	130	U
83-32-9	Acenaphthene	120	U
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	280	U
86-74-8	Carbazole	180	U
206-44-0	Fluoranthene	130	U
129-00-0	Pyrene	130	U
56-55-3	Benzo(a)Anthracene	240	U
218-01-9	Chrysene	270	U
207-08-9	Benzo(b)fluoranthene	240	U
205-08-9	Benzo(k)fluoranthene	220	U
192-97-2	Benzo(e)pyrene	180	U
50-32-8	Benzo(a)pyrene	220	U
198-55-0	Perylene	240	U
193-39-5	Indeno(1,2,3-cd)pyrene	200	U
53-70-3	Dibenzo(a,h)anthracene	150	U
191-24-2	Benzo(g,h,i)perylene	270	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DFV-W431

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 52208 SAS No.: SDG No.: 52208

Matrix: (soil/water) WATER Lab Sample ID: 52208-05

Sample wt/vol: 4015 (g/ml) ML Lab File ID: A1001238

Level: (low/med) LOW Date Received: 10/23/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 10/24/96

Concentrated Extract Volume: 0.5 (ml) Date Analyzed: 11/07/96

Injection Volume: 1.0 (uL) Dilution Factor: 10.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	51	U
496-11-7	2,3-Dihydroindene	1100	
95-13-6	1H-Indene	29	
91-20-3	Naphthalene	140	
95-15-8	Benzo(b)thiophene	78	
91-22-5	Quinoline	14	U
120-72-9	1H-Indole	25	U
91-57-6	2-Methylnaphthalene	55	B
90-12-0	1-Methylnaphthalene	56	
92-52-4	Biphenyl	43	U
208-96-8	Acenaphthylene	14	U
83-32-9	Acenaphthene	33	
132-64-9	Dibenzofuran	10	U
86-73-7	Fluorene	10	U
132-65-0	Dibenzothiophene	11	U
85-01-8	Phenanthrene	13	U
120-12-7	Anthracene	11	U
260-94-6	Acridine	92	
86-74-8	Carbazole	19	U
206-44-0	Fluoranthene	14	U
129-00-0	Pyrene	14	U
56-55-3	Benzo(a)Anthracene	25	U
218-01-9	Chrysene	28	U
207-08-9	Benzo(b)fluoranthene	25	U
205-08-9	Benzo(k)fluoranthene	23	U
192-97-2	Benzo(e)pyrene	19	U
50-32-8	Benzo(a)pyrene	23	U
198-55-0	Perylene	25	U
193-39-5	Indeno(1,2,3-cd)pyrene	21	U
53-70-3	Dibenzo(a,h)anthracene	16	U
191-24-2	Benzo(g,h,i)perylene	28	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W143

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 52208 SAS No.: SDG No.: 52208

Matrix: (soil/water) WATER Lab Sample ID: 52208-06

Sample wt/vol: 3795 (g/ml) ML Lab File ID: A0301246

Level: (low/med) LOW Date Received: 10/23/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 10/24/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 11/08/96

Injection Volume: 1.0(uL) Dilution Factor: 10.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	54	U
496-11-7	2,3-Dihydroindene	750	
95-13-6	1H-Indene	63	
91-20-3	Naphthalene	68	U
95-15-8	Benzo(b)thiophene	350	
91-22-5	Quinoline	15	U
120-72-9	1H-Indole	26	U
91-57-6	2-Methylnaphthalene	26	B
90-12-0	1-Methylnaphthalene	24	R
92-52-4	Biphenyl	45	U
208-96-8	Acenaphthylene	15	U
83-32-9	Acenaphthene	29	
132-64-9	Dibenzofuran	10	U
86-73-7	Fluorene	10	U
132-65-0	Dibenzothiophene	12	U
85-01-8	Phenanthrene	17	RB
120-12-7	Anthracene	12	U
260-94-6	Acridine	30	U
86-74-8	Carbazole	29	
206-44-0	Fluoranthene	15	U
129-00-0	Pyrene	15	U
56-55-3	Benzo(a)Anthracene	26	U
218-01-9	Chrysene	30	U
207-08-9	Benzo(b)fluoranthene	26	U
205-08-9	Benzo(k)fluoranthene	24	U
192-97-2	Benzo(e)pyrene	20	U
50-32-8	Benzo(a)pyrene	24	U
198-55-0	Perylene	26	U
193-39-5	Indeno(1,2,3-cd)pyrene	22	U
53-70-3	Dibenzo(a,h)anthracene	17	U
191-24-2	Benzo(g,h,i)perylene	30	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

DFV-W432

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 52208 SAS No.: SDG No.: 52208

Matrix: (soil/water) WATER Lab Sample ID: 52208-07

Sample wt/vol: 4090 (g/ml) ML Lab File ID: A0401247

Level: (low/med) LOW Date Received: 10/23/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/24/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 11/08/96

Injection Volume: 1.0(uL) Dilution Factor: 20.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	100	U
496-11-7	2,3-Dihydroindene	1700	
95-13-6	1H-Indene	320	
91-20-3	Naphthalene	130	
95-15-8	Benzo(b)thiophene	700	
91-22-5	Quinoline	27	U
120-72-9	1H-Indole	49	U
91-57-6	2-Methylnaphthalene	30	RB
90-12-0	1-Methylnaphthalene	31	U
92-52-4	Biphenyl	84	U
208-96-8	Acenaphthylene	27	U
83-32-9	Acenaphthene	25	U
132-64-9	Dibenzofuran	20	U
86-73-7	Fluorene	20	U
132-65-0	Dibenzothiophene	22	U
85-01-8	Phenanthrene	25	U
120-12-7	Anthracene	22	U
260-94-6	Acridine	57	U
86-74-8	Carbazole	40	
206-44-0	Fluoranthene	27	U
129-00-0	Pyrene	27	U
56-55-3	Benzo(a)Anthracene	49	U
218-01-9	Chrysene	55	U
207-08-9	Benzo(b)fluoranthene	49	U
205-08-9	Benzo(k)fluoranthene	45	U
192-97-2	Benzo(e)pyrene	37	U
50-32-8	Benzo(a)pyrene	45	U
198-55-0	Perylene	49	U
193-39-5	Indeno(1,2,3-cd)pyrene	41	U
53-70-3	Dibenzo(a,h)anthracene	31	U
191-24-2	Benzo(g,h,i)perylene	55	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W101

ab Name: QUANTERRA DENVER Contract:

ab Code: Case No.: 52208 SAS No.: SDG No.: 52208

atrix: (soil/water) WATER Lab Sample ID: 52208-08

ample wt/vol: 4050 (g/ml) ML Lab File ID: A0701250

evel: (low/med) LOW Date Received: 10/23/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 10/24/96

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 11/08/96

Injection Volume: 1.0(uL) Dilution Factor: 200.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
271-89-6	2,3-Benzofuran	1000	U
496-11-7	2,3-Dihydroindene	24000	
95-13-6	1H-Indene	420	
91-20-3	Naphthalene	1300	U
95-15-8	Benzo(b)thiophene	7200	
91-22-5	Quinoline	280	U
120-72-9	1H-Indole	490	U
91-57-6	2-Methylnaphthalene	180	U
90-12-0	1-Methylnaphthalene	320	U
92-52-4	Biphenyl	850	U
208-96-8	Acenaphthylene	280	U
83-32-9	Acenaphthene	760	
132-64-9	Dibenzofuran	200	U
86-73-7	Fluorene	200	U
132-65-0	Dibenzothiophene	220	U
85-01-8	Phenanthrene	260	U
120-12-7	Anthracene	220	U
260-94-6	Acridine	570	U
86-74-8	Carbazole	380	U
206-44-0	Fluoranthene	280	U
129-00-0	Pyrene	280	U
56-55-3	Benzo(a)Anthracene	490	U
218-01-9	Chrysene	550	U
207-08-9	Benzo(b)fluoranthene	490	U
205-08-9	Benzo(k)fluoranthene	450	U
192-97-2	Benzo(e)pyrene	380	U
50-32-8	Benzo(a)pyrene	450	U
198-55-0	Perylene	490	U
193-39-5	Indeno(1,2,3-cd)pyrene	410	U
53-70-3	Dibenzo(a,h)anthracene	320	U
191-24-2	Benzo(g,h,i)perylene	550	U

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

.ab Name: QUANTERRA DENVER Contract:

ɔ Code: Case No.: 52208 SAS No.: SDG No.: 52208

	EPA SAMPLE NO.	S1 #	S2 #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	SBLK01	104	101	93						0
02	DCS1	92	110	86						0
03	DCS2	95	101	86						0
04	DPV-W18	79	24	88						0
05	DPV-W18FB	53	52	49						0
06	DPV-W15FBD	83	75	75						0
07	DPV-W27	0D	0D	0D						0
08	DPV-W431	88	9*	55						1
09	DPV-W18D	80	14	85						0
10	DPV-W120	0D	0D	0D						0
11	DPV-W143	89	21	80						0
12	DPV-W432	80	16	80						0
13	DPV-W101	0D	0D	0D						0
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		QC LIMITS
S1	= Naphthalene-d8	(21-108)
S2	= Chrysene-d12	(10-118)
S3	= Fluorene-d10	(41-162)

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.

SBLK01

b Name: QUANTERRA DENVER Contract:

b Code: Case No.: 52208 SAS No.: SDG No.: 52208

b File ID: A0201230 Lab Sample ID: SBLK01

istrument ID: A Date Extracted: 10/23/96

atrix: (soil/water) WATER Date Analyzed: 11/07/96

evel:(low/med) LOW Time Analyzed: 1258

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	DCS1	52208-DCS1	A0301231	11/07/96
02	DCS2	52208-DCS2	A0401232	11/07/96
03	DPV-W18	52208-01	A0501233	11/07/96
04	DPV-W18FB	52208-02FB	A0601234	11/07/96
05	DPV-W15FBD	52208-02FD	A0701235	11/07/96
06	DPV-W27	52208-03	A0801236	11/07/96
07	DPV-W431	52208-05	A1001238	11/07/96
08	DPV-W18D	52208-01DU	A1401242	11/07/96
09	DPV-W120	52208-04	A0201245	11/08/96
10	DPV-W143	52208-06	A0301246	11/08/96
11	DPV-W433	52208-07	A0401247	11/08/96
12	DPV-W101	52208-08	A0701250	11/08/96
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COMMENTS:

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 52208 SAS No.: SDG No.: 52208

Lab File ID (Standard): A0101229 Date Analyzed: 11/07/96

Instrument ID: A Time Analyzed: 1227

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	210752	12.17	305375	14.57	139402	21.18
	UPPER LIMIT	421504	12.67	610750	15.07	278804	21.68
	LOWER LIMIT	105376	11.67	152688	14.07	69701	20.68
	EPA SAMPLE NO.						
01	SBLK01	191376	12.16	275789	14.57	136200	21.17
02	DCS1	220004	12.15	299001	14.56	144003	21.17
03	DCS2	219226	12.15	309244	14.56	137542	21.17
04	DFV-W18	188372	12.16	275637	14.57	155652	21.17
05	DFV-W18FB	274525	12.15	387689	14.56	215016	21.17
06	DFV-W15FBD	207557	12.15	287318	14.55	156736	21.16
07	DFV-W27	187933	12.14	276278	14.55	146662	21.17
08	DFV-W431	166101	12.14	239586	14.55	159680	21.16
09	DFV-W18D	208932	12.13	324208	14.54	172964	21.15
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IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = 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

ab Name: QUANTERRA DENVER Contract:

ab Code: Case No.: 52208 SAS No.: SDG No.: 52208

ab File ID (Standard): A243 Date Analyzed: 11/08/96

nstrument ID: A Time Analyzed: 0936

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	199984	12.13	300746	14.53	175860	21.15
	UPPER LIMIT	399968	12.63	601492	15.03	351720	21.65
	LOWER LIMIT	99992	11.63	150373	14.03	87930	20.65
	EPA SAMPLE NO.						
01	DPV-W120	219519	12.12	318210	14.52	153837	21.13
02	DPV-W143	195593	12.12	278536	14.52	157059	21.13
03	DPV-W433	191597	12.12	297544	14.51	160577	21.13
04	DPV-W101	170956	12.11	267512	14.52	111343	21.13
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22							

IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = 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.

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

:e: QUANTERRA DENVER Contract:

: Case No.: 52208 SAS No.: SDG No.: 52208

EPA SAMPLE NO.	S1 #	S2 #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
3LK01	104	101	93						0
CS1	92	110	86						0
CS2	95	101	86						0
PV-W18	79	24	88						0
PV-W18FB	53	52	49						0
PV-W15FBD	83	75	75						0
PV-W27	0D	0D	0D						0
PV-W431	88	9*	55						1
PV-W18D	80	14	85						0
PV-W120	0D	0D	0D						0
PV-W143	89	21	80						0
PV-W432	80	16	80						0
PV-W101	0D	0D	0D						0

		QC LIMITS
S1	= Naphthalene-d8	(21-108)
S2	= Chrysene-d12	(10-118)
S3	= Fluorene-d10	(41-162)

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.

SBLK01

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 52208 SAS No.: SDG No.: 52208

Lab File ID: A0201230 Lab Sample ID: SBLK01

Instrument ID: A Date Extracted: 10/23/96

Matrix: (soil/water) WATER Date Analyzed: 11/07/96

Level: (low/med) LOW Time Analyzed: 1258

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	DCS1	52208-DCS1	A0301231	11/07/96
02	DCS2	52208-DCS2	A0401232	11/07/96
03	DPV-W18	52208-01	A0501233	11/07/96
04	DPV-W18FB	52208-02FB	A0601234	11/07/96
05	DPV-W15FBD	52208-02FD	A0701235	11/07/96
06	DPV-W27	52208-03	A0801236	11/07/96
07	DPV-W431	52208-05	A1001238	11/07/96
08	DPV-W18D	52208-01DU	A1401242	11/07/96
09	DPV-W120	52208-04	A0201245	11/08/96
10	DPV-W143	52208-06	A0301246	11/08/96
11	DPV-W433	52208-07	A0401247	11/08/96
12	DPV-W101	52208-08	A0701250	11/08/96
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COMMENTS:

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Name: QUANTERRA DENVER Contract:

Code: Case No.: 52208 SAS No.: SDG No.: 52208

File ID (Standard): A0101229 Date Analyzed: 11/07/96

strument ID: A Time Analyzed: 1227

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	210752	12.17	305375	14.57	139402	21.18
	UPPER LIMIT	421504	12.67	610750	15.07	278804	21.68
	LOWER LIMIT	105376	11.67	152688	14.07	69701	20.68
	EPA SAMPLE NO.						
01	SBLK01	191376	12.16	275789	14.57	136200	21.17
02	DCS1	220004	12.15	299001	14.56	144003	21.17
03	DCS2	219226	12.15	309244	14.56	137542	21.17
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05	DPV-W18FB	274525	12.15	387689	14.56	215016	21.17
06	DPV-W15FBD	207557	12.15	287318	14.55	156736	21.16
07	DPV-W27	187933	12.14	276278	14.55	146662	21.17
08	DPV-W431	166101	12.14	239586	14.55	159680	21.16
09	DPV-W18D	208932	12.13	324208	14.54	172964	21.15
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IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = 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

ab Name: QUANTERRA DENVER Contract:

ab Code: Case No.: 52208 SAS No.: SDG No.: 52208

ab File ID (Standard): A243 Date Analyzed: 11/08/96

nstrument ID: A Time Analyzed: 0936

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	199984	12.13	300746	14.53	175860	21.15
	UPPER LIMIT	399968	12.63	601492	15.03	351720	21.65
	LOWER LIMIT	99992	11.63	150373	14.03	87930	20.65
	EPA SAMPLE NO.						
01	DFV-W120	219519	12.12	318210	14.52	153837	21.13
02	DFV-W143	195593	12.12	278536	14.52	157059	21.13
03	DFV-W433	191597	12.12	297544	14.51	160577	21.13
04	DFV-W101	170956	12.11	267512	14.52	111343	21.13
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IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = 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.