US EPA RECORDS CENTER REGION 5
513881

ANNUAL MONITORING REPORT FOR 1999

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

SUBMITTED MARCH 15, 2000

CITY

ENSR — QUANTERRA

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March 15, 2000

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President
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Re: United States of America, et al. vs. Reilly Tar & Chemical Corporation, et al.
File No. Civ. 4-80-469
CD-RAP Section 3.4

Gentlemen:

Enclosed is the 1999 Annual Monitoring Report submitted pursuant to Section 3.4 of the Consent Decree-Remedial Action Plan in the above captioned matter. This report is issued by the City in accordance with Section 2(a) of the Reilly/St. Louis Park Agreement (Exhibit B to the Consent Decree).

Any questions regarding this submittal can be directed towards this office.

Sincerely,

William M. Gregg

William M. Gregg
Project Leader for the
City of St. Louis Park

Enclosure

cc: Scott Anderson
Mike Rardin (w/o enclosures)
Reilly File

ANNUAL MONITORING REPORT
FOR 1999

SUBMITTED TO THE

REGIONAL ADMINISTRATOR
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

EXECUTIVE DIRECTOR
MINNESOTA POLLUTION CONTROL AGENCY

BY

THE CITY OF ST. LOUIS PARK, MINNESOTA

PURSUANT TO
CONSENT DECREE - REMEDIAL ACTION PLAN
SECTION 3.4

UNITED STATES OF AMERICA, ET AL.

vs.

REILLY TAR & CHEMICAL CORPORATION, ET AL.

UNITED STATES DISTRICT COURT
DISTRICT OF MINNESOTA
CIVIL NO. 4-80-469

MARCH 15, 2000

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1.0 INTRODUCTION

Pursuant to Section 3.4 of the Consent Decree - Remedial Action Plan (CD-RAP) in the case of the United States of America, *et al.* vs. Reilly Tar & Chemical Corporation, *et al.*, this report presents the results of all chemical analyses and water level measurements for calendar year 1999 that are not presented in previous reports.

The groundwater monitoring conducted in 1999 was performed in accordance with the methods and procedures identified in the 1998 Sampling Plan. The U.S. Environmental Protection Agency and the Minnesota Pollution Control Agency approved the use of the 1998 Sampling Plan to guide groundwater monitoring in 1999. The City of St. Louis Park (City) has overall responsibility for conducting the groundwater monitoring required by the CD-RAP. In accordance with the Sampling Plan, the City was assisted in 1999 by ENSR who collected groundwater samples from monitor wells and by Quanterra Environmental Services (Quanterra) who performed the analyses for PAH and phenolics. In February 2000, Severn Trent Laboratories purchased Quanterra and the laboratory is now known as STL-Denver.

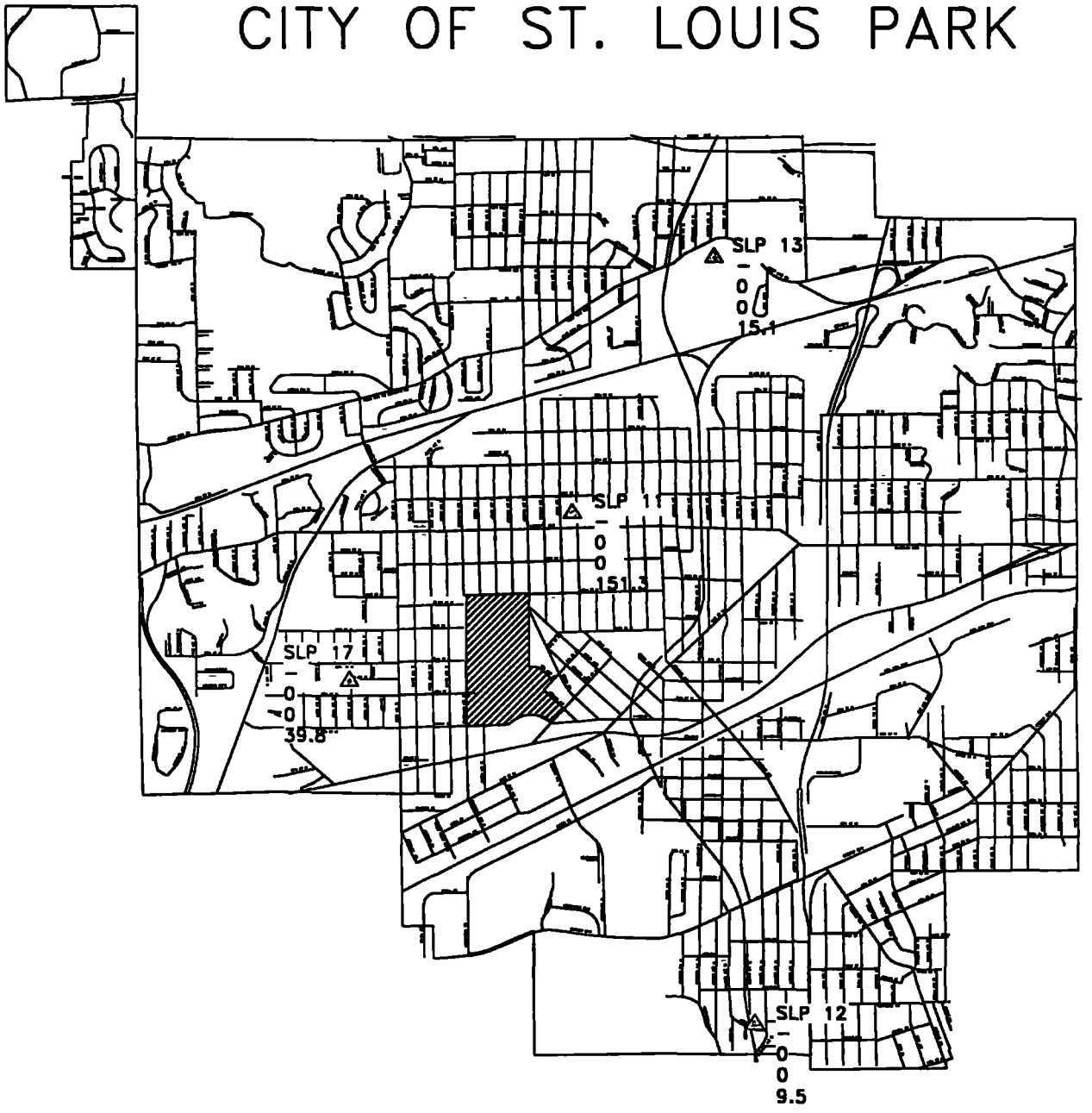
The 1999 monitoring data are presented separately for each aquifer, starting with the Mt. Simon-Hinckley Aquifer, which is the deepest aquifer below the ground surface, and ending with the Drift Aquifer, which is the uppermost aquifer monitored. A series of maps has been prepared to help present the monitoring data. Maps for the Prairie du Chien-Jordan, St. Peter, and Platteville Aquifers are contained in the pockets of this report.

2.0 MT. SIMON-HINCKLEY AQUIFER

In accordance with RAP Section 5.1, four wells in the Mt. Simon-Hinckley Aquifer were sampled once in 1999. A summary of the analytical data and the water level elevations at the four wells are shown on Figure 2-1. The laboratory reports of the analytical data are included in the Appendices. The Guide to Appended Laboratory Results for all of 1999 precedes the appendices.

The sums of the concentrations of benzo(a)pyrene and dibenz(a,h)anthracene PAH, carcinogenic PAH, and other PAH in each well are below the advisory levels for these compounds. The advisory levels for benzo(a)pyrene and dibenz(a,h)anthracene PAH, carcinogenic PAH, and other PAH are 3, 15 and 175 nanograms/liter (ng/l or parts per trillion), respectively. The results for all four wells are consistent with historical water quality for the aquifer. Table 2-1 lists the historic results since 1988 of other PAH and carcinogenic PAH data collected from the four wells. No carcinogenic PAH were detected in the four wells in 1999. It appears that the Mt. Simon-Hinckley Aquifer has not been significantly affected by contaminants originating from the former Reilly Tar & Chemical (Reilly) site.

CITY OF ST. LOUIS PARK



REILLY SITE

WELL LOCATION
SLP 7 WELL IDENTIFICATION
809.79 WATER LEVEL
0 SUM-BENZO(a)PYRENE & DIBENZ(a,h)ANTHRACENE (PPT)
0 SUM-CARCINOGENIC PAH (PPT)
78 SUM-OTHER PAH'S (PPT)

Concentration in nanograms per liter equivalent to parts per trillion

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FIGURE 2-1

SUMMARY OF GROUNDWATER MONITORING RESULTS FOR MOUNT SIMON HINKLEY AQUIFER 1999

DRAWN:	C. BOEHM	DATE:	3/2/00	PROJECT NO.: 1620-013	REV:
FILE No.:	FIG2-1.DWG	CHECKED:	PJM		

Table 2-1
Historical Summary of Other PAH and CPAH Analytical Results
1988 through 1999
SLP11,12,13,17

All concentrations reported in nanograms per liter

SLP11		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
6-88	0	42
6-89	0	34
90	NA	NA
3-91	0	43
5-92	0	43
3-93	0	50
3-94	0	66
10-95	3	113
6-96	0	109
10-97	0	78
5-98	0	70
5-99	0	151

SLP12		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
6-88	0	11
6-89	0	16
3-90	0	109
3-91	0	21
5-92	1	25
3-93	0	9
3-94	0	21
10-95	0	9
6-96	0	3
10-97	0	12
5-98	0	3
9-99	0	10

SLP13		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
6-88	0	15
6-89	0	9
3-90	0	14
3-91	0	13
5-92	2	11
6-93	0	11
12-94	0	28
10-95	0	9
6-96	0	5
10-97	0	22
5-98	0	4
5-99	0	15

SLP17		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
8-88	0	12
6-89	0	12
6-90	1	18
3-91	0	41
11-92	3	41
6-93	0	12
12-94	4	35
10-95	0	8
6-96	0	5
10-97	62	406
5-98	0	3
5-99	0	40

[1] Total Carcinogenic PAHs (as listed in the CD/RAP (A 1 1)), consist of the sum of

benzo(a) anthracene	chrysene	quinoline*
benzo(a)pyrene	dibenz(a,h)anthracene	benzo(j)fluoranthene**
benzo(b)flouranthene	indeno(1,2,3-cd)pyrene	benzo(g,h,i)perylene

*Quinoline is included in the sum of CPAH if other CPAHs were detected If no CPAHs are detected, quinoline is included in the Total Other PAH

**Benzo(j)fluoranthene will coelute with either benzo(b)fluoranthene or benzo(k)fluoranthene Benzo(j)flouranthene can not be consistently separated by the laboratory *Therefore, if present, it will be reported as benzo(b)- and/or benzo(k)-fluoranthene*

[2] Total Other PAHs (as listed in the CD/RAP (A 1 2), consists of the sum of

acenapthene	benzo(e)pyrene	2,3-dihydroindene	1-methylnaphthalene
acenaphthylene	benzo(b)thiophene	fluoranthene	2-methylnaphthalene
acridine	biphenyl	fluorene	naphthalene
anthracene	carbazole	indene	perylene
benzo(k)fluoranthene	dibenzothiophene	indole	phenanthrene
2,3-benzofuran			pyrene

3.0 IRONTON-GALESVILLE AQUIFER

Analytical results from groundwater samples collected during 1987 through 1991 from well W105 had consistently met the criterion (less than 10 parts per billion [10,000 parts per trillion] total PAH) for discontinuing the 25 gallons per minute (gpm) pumping rate. Therefore, in accordance with CD-RAP Section 6.1.5, the pump in well W105 was inactivated on December 23, 1991, and remains inactivated.

Groundwater samples were not required to be collected from well W105 in 1999. Well W105 is required to be sampled once per year on the even-numbered years (i.e. 1998, 2000, 2002) and accordingly will be sampled in 2000.

The historical analytical results for well W105 from 1988 through 1998 are presented on Table 3-1. Concentrations have remained below the 10,000 ng/l cessation criterion since well W105 ceased pumping in 1991.

Table 3-1

Historical Summary of Other PAH and CPAH in Well W105
1988 through 1999

All concentrations repoprted in nanograms per liter.

W105		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
2-88	0	9,000
6-88	0	2,400
9-88	0	3,670
12-88	0	2,035
6-89	0	1,400
12-89	0	1,086
5-90	0	2,347
8-90	0	2,600
5-91	9.5	2,164
8-91	0	1,014
2-92	0	2,185
6-92	355	5,057
11-92	0	30,900
1-93	38	1,797
1-93	23	1,966
3-94	60	2,576
5-96	29	2,746
4-98	0	5,493

NOTES:

[1] Total Carcinogenic PAHs (as listed in the CD/RAP (A.1.1), consist of the sum of:

benzo(a) anthracene
benzo(a)pyrene
benzo(b)flouranthene
chrysene
dibenz(a,h)anthracene
indeno(1,2,3-cd)pyrene
quinoline*
benzo(j)fluoranthene**
benzo(g,h,i)perylene

*Quinoline is included in the sum of CPAH if other CPAHs were detected If no CPAHs are detected, quinoline is included in the Total Other PAH.

**Benzo(j)fluoranthene will coelute with either benzo(b)fluoranthene or benzo(k)fluoranthene. Benzo-(j)flouranthene can not be consistantly separated by the laboratory. Therefore if present, it will be reported as benzo(b)- and/or benzo(k)-fluoranthene

[2] Total Other PAHs (as listed in the CD/RAP (A 1.2)), consists of the sum of:

acenapthene
acenaphthylene
acridine
anthracene
benzo(k)fluoranthene
2,3-benzofuran
benzo(e)pyrene
benzo(b)thiophene
biphenyl
carbazole
dibenzofuran
dibenzothiophene
2,3-dihydroindene
fluoranthene
fluorene
indene
indole
1-methylnaphthalene
2-methylnaphthalene
naphthalene
perylene
phenanthrene
pyrene

4.0 PRAIRIE DU CHIEN-JORDAN AQUIFER

In accordance with RAP Section 7.3, Prairie du Chien-Jordan Aquifer wells were monitored per the frequency outlined in the Agency approved Sampling Plan. In addition to water quality monitoring, groundwater elevations were measured at the Prairie du Chien-Jordan Aquifer wells during sampling. Wells SLP5, W119, and H3 were omitted from sampling during 1999 because owners have taken these wells out of service. Groundwater samples were not collected from E2 in the first half of 1999 because the well was out of service at that time. A total of 22 wells were used to collect groundwater samples during 1999.

Summaries of analytical data and groundwater elevations for the sampling rounds are shown in Figures 4-1 and 4-2 (in pocket). These two figures indicate that groundwater flow in the aquifer is greatly affected by the pumping of wells and is dependent upon the pumping rate and the time the specific measurements were recorded (e.g., pump may have been recently shut off, or turned on). Some of the municipal wells (i.e. SLP10/15, E7, and SLP4) pump at greater than 1,000 gpm and have a considerable effect on localized groundwater flow. However, these wells systematically turn on and turn off, therefore, the general groundwater flow is affected by which wells are pumping and at what rates. According to several literature resources, including the USGS (Water Supply Paper 2211, 1984), Norvitch and others (Water Resources Outlook of the Minneapolis and St. Paul Metropolitan Area, 1973), the general groundwater flow in the Prairie du Chien-Jordan Aquifer is towards the east. A groundwater flow model developed by Hennepin County Conservation District indicates that groundwater flow is greatly affected by pumping wells in the Prairie du Chien-Jordan Aquifer (i.e., groundwater moves toward the pumping well). Figures 4-1 and 4-2 indicate a snapshot in time of the groundwater flow and are not indicative of the long-term flow.

Table 4-1 presents a historical summary of analytical results from 1988 through 1999 for Prairie du Chien-Jordan Aquifer wells. The laboratory reports of the analytical data are included in the Appendices. The Guide to Appended Laboratory Results for all of 1999 precedes the appendices.

The sums of the concentrations of benz(a)pyrene and dibenz(a,h)anthracene PAH, and carcinogenic PAH were below the advisory levels in all monitor wells. Carcinogenic PAH were only detected in one well. Well W402 had a carcinogenic PAH concentration of 1 ng/l.

The amount and distribution of PAH in the aquifer in 1999 was consistent with historical patterns and continues to show a decreasing trend of PAH concentrations in several wells including SLP10, E3, H6, W23, W48, SLP16, and SLP10, while remaining fairly steady in the other wells. In 1999, other PAH were detected in concentrations ranging from 0 ng/l (i.e., below laboratory

Table 4-1
Historical Summary of Other PAH and CPAH Analysis Results
1988 through 1999
Prairie du Chien-Jordan Aquifer Wells

All concentrations reported in nanograms per liter

SLP4		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
8-88	0	244
10-89	0	232
3-90	0	210
6-90	2	239
11-92	3	309
3-93	0	237
6-93	0	259
3-94	0	552
10-94	1	571
9-95	3	561
12-95	6	229
8-96	0	431
9-96	0	526
4-97	0	596
9-97	0	533
4-98	0	440
9-98	1	361
11-98	5	91
5-99	0	485
8-99	0	328

SLP5		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
10-88	0	613
6-89	0	94
6-90	0	49
5-91	1	42
6-92	1	71
8-93	5	77

SLP6		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
8-88	0	33
10-88	0	55
6-89	7	52
9-89	0	36
10-89	0	40
3-90	0	45
6-90	3	80
8-90	0	117
10-90	0	68
8-91	0	123
5-92	1	123
11-92	0	173
3-93	0	212
6-93	0	113
2-94	1	74
6-95	0	88
6-96	1	180
8-96	0	178
10-96	0	189
1-97	0	236
2-97	0	210
3-97	0	277
6-97	0	217
5-98	0	146
8-98	0	173
8-99	0	174

SLP7		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
8-88	0	78
10-88	0	51
6-89	0	61
9-89	0	25
10-89	0	25
3-90	0	43
6-90	2	48
8-90	2	91
10-90	0	49
3-91	0	50
5-91	0	37
8-91	0	65
5-92	1	40
3-93	0	32
6-94	0	60
8-95	0	28
6-96	0	22
4-97	0	11
5-98	0	17
5-99	0	17

SLP8		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
8-88	0	18
6-89	0	8
10-89	0	9
3-90	0	15
3-91	0	50
5-92	1	19
11-92	2	9

SLP10		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
8-88	0	8,200
10-89	0	5,120
6-90	0	5,403
8-90	0	7,388
5-91	5	315
6-92	0	3,070
8-93	0	2,091
6-94	0	2,174
6-95	0	1,737
6-96	0	1,742
10-97	0	1,859
5-98	0	1,354
5-99	0	1,452

SLP14		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
8-88	0	112
6-89	0	134
9-89	0	84
3-90	0	98
8-90	0	145
5-91	1	99
8-91	0	19
5-92	1	90
8-93	0	78
9-94	0	57
6-95	0	89
6-96	0	52
4-97	0	46
5-98	0	55
5-99	0	49

SLP15		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
6-89	0	4,026
11-92	0	3,206
8-93	0	2,091

Table 4-1
Historical Summary of Other PAH and CPAH Analysis Results
1988 through 1999
Prairie du Chien-Jordan Aquifer Wells

All concentrations reported in nanograms per liter

SLP16		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
8-88	0	48
6-89	0	28
9-89	0	24
8-90	8	374
11-90	0	59
5-91	1	32
8-91	0	64
11-92	1	42
8-93	0	11
6-94	0	22
6-95	0	13
6-96	0	8
9-97	0	9
5-98	0	7
5-99	0	0

E2		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
8-88	0	14
6-89	0	21
9-89	0	8
6-90	3	22
8-90	0	14
5-91	4	21
8-91	0	17
5-92	0	19
8-93	0	9
6-94	0	16
12-95	0	10
6-96	0	14
10-96	0	20
4-97	0	45
10-97	0	13
5-98	0	13
8-98	0	196
10-98	0	34
8-99	0	6

E3		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
8-88	0	15
6-89	0	15
6-90	1	17
8-91	0	13
5-92	4	21
8-93	0	5
6-94	0	7
6-95	0	8
6-96	0	3
6-97	0	4
5-98	0	3
5-99	0	0

E7		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
6-96	0	3
10-96	0	5
6-97	0	3
10-97	0	2
5-98	0	1
8-98	0	6
5-99	0	5
8-99	0	2

E13		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
8-88	0	4
6-89	0	20
9-89	0	6
6-90	0	13
8-90	2	227
5-91	1	11
8-91	0	12
5-92	0	43
8-93	0	4
6-94	0	3
6-96	0	3
10-96	0	4
4-97	0	38
10-97	0	8
5-98	0	21
8-98	0	36
5-99	0	15
8-99	0	35

E15		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
8-88	0	11
6-89	0	16
6-90	0	11
5-91	0	13
5-92	0	23
8-93	0	4
6-94	0	6
6-95	0	8
6-96	0	10
10-96	0	29
6-97	0	3
10-97	0	14
5-98	0	22
8-98	0	7
5-99	0	36
8-99	0	18

H3		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
8-88	0	378
6-89	0	93
9-89	0	370
6-90	0	188
8-90	0	5,300
	Abandoned	

H6		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
8-88	0	19
6-89	0	16
6-90	0	15
5-91	0	16
5-92	0	16
8-93	0	3
6-94	0	6
6-95	0	3
6-96	0	3
4-97	0	2
5-98	0	5
5-99	0	5

Table 4-1
Historical Summary of Other PAH and CPAH Analytical Results
1988 through 1999
Prairie du Chien-Jordan Aquifer Wells

All concentrations reported in nanograms per liter

MTK6

Sampling Date	Total CPAH[1]	Total Other PAH[2]
8-88	0	4
6-89	0	12
6-90	5	22
5-91	0	17
5-92	4	19
8-93	0	7
6-94	0	8
6-95	0	15
6-96	0	4
4-97	0	3
5-98	0	0
5-99	0	2

W48

Sampling Date	Total CPAH[1]	Total Other PAH[2]
8-88	0	2,418
6-89	0	1,636
9-89	0	1,850
10-89	0	1,130
3-90	0	1,690
6-90	0	1,809
8-90	22	4,566
8-93	2	428
6-94	1	285
6-95	3	310
6-96	3	259
6-97	0	316
10-97	0	290
5-98	0	186
8-98	0	50
5-99	0	226
8-99	0	226

W23

Sampling Date	Total CPAH[1]	Total Other PAH[2]
9-88	0	111,100
12-88	0	123,100
3-89	0	120,200
6-89	0	117,600
9-89	0	106,300
3-90	0	129,100
8-90	0	114,700
3-91	0	87,800
6-91	0	71,800
9-91	0	91,200
10-91	0	82,600
2-92	0	67,600
9-92	0	78,000
6-94	0	60,000
10-94	0	64,000
5-95	4,000	128,000
9-95	0	70,000
4-96	0	48,000
7-96	0	50,000
4-97	0	34,000
10-97	0	47,000
2-98	0	0[3]
11-98	0	42,090
4-99	0	25,970
8-99	0	14,850

W70

Sampling Date	Total CPAH[1]	Total Other PAH[2]
8-88	0	481
6-89	5	426
9-89	0	280
6-90	9	560
5-91	8	669
6-92	8	401
8-93	2	317
6-94	4	299
6-95	0	384
6-96	0	342
4-97	0	335
5-98	0	307
5-99	0	254

W29

Sampling Date	Total CPAH[1]	Total Other PAH[2]
8-88	0	495
6-89	28	338
6-90	4	372
5-91	6	405
5-92	12	531
8-93	39	1,887
6-94	9	749
6-95	0	1,184
6-96	0	82
4-97	0	418
5-98	0	261
5-99	0	99

W119

Sampling Date	Total CPAH[1]	Total Other PAH[2]
8-88	0	3
6-89	0	18
9-89	0	11
Well is out of service		

W40

Sampling Date	Total CPAH[1]	Total Other PAH[2]
8-88	0	1,062
6-89	0	540
6-90	16	705
5-91	5	474
5-92	2	283
8-93	5	345
6-94	0	484
6-95	0	369
6-96	0	498
4-97	0	624
5-98	0	220
5-99	0	299

W401

Sampling Date	Total CPAH[1]	Total Other PAH[2]
8-88	0	12
6-89	0	15
6-90	0	27
5-91	0	28
5-92	0	10
8-93	1	10
6-94	0	8
6-95	0	16
6-96	0	19
10-96	0	29
6-97	0	174
10-97	0	121
5-98	0	66
8-98	0	5
5-99	0	64
8-99	0	23

Table 4-1
Historical Summary of Other PAH and CPAH Analysis Results
1988 through 1999
Prairie du Chien-Jordan Aquifer Wells

All concentrations reported in nanograms per liter

W402		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
9-89	0	151
6-90	47	720
8-90	16	133
5-91	16	408
8-91	0	18,320
6-92	12	895
8-93	7	145
6-94	5	104
6-95	0	567
6-96	13	383
4-97	0	257
5-98	0	349
5-99	1	545

W403		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
8-88	0	57
6-89	40	974
9-89	0	177
8-90	49	1,102
5-91	110	976
8-91	0	11,570
6-92	19	816
8-93	7	516
6-94	7	1,271
6-95	0	543
6-96	3	182
4-97	0	172
5-98	0	11
5-99	0	169

W406		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
6-89	0	36
10-89	0	26
6-90	8	43
8-90	15	119
5-91	1	30
8-91	1	40
5-92	6	53
8-93	0	22
6-94	0	31
6-95	0	34
6-96	0	21
4-97	0	27
5-98	0	15
5-99	0	28

NOTES:

[1] Total Carcinogenic PAHs (as listed in the CD/RAP (A 1 1)), consist of the sum of

benzo(a)anthracene
benzo(a)pyrene
benzo(b)flouranthene
chrysene
dibenz(a,h)anthracene
indeno(1,2,3-cd)pyrene
quinoline*
benzo(j)fluoranthene**
benzo(g,h,i)perylene

*Quinoline is included in the sum of CPAH if other CPAHs were detected If no CPAHs are detected, quinoline is included in the *Total Other PAH*

**Benzo(j)fluoranthene will coelute with either benzo(b)fluoranthene or benzo(k)fluoranthene Benzo(j)fluoranthene can not be consistantly separated by the laboratory Therefore if present, it will be reported as benzo(b)- and/or benzo(k)-fluoranthene

[2] Total Other PAHs (as listed in the CD/RAP (A 1 2), consists of the sum of

acenapthene
acenaphthylene
acridine
anthracene
benzo(k)fluoranthene
2,3-benzofuran
benzo(e)pyrene
benzo(b)thiophene
biphenyl
carbazole
dibenzofuran
dibenzothiophene
2,3-dihydroindene
fluoranthene
fluorene
indene
indole
1-methylnaphthalene
2-methylnaphthalene
naphthalene
perylene
phenanthrene
pyrene

[3] Result reported as 0 indicates that all parameters were not detected above the laboratory detection limit

detection limits) in SLP16, and E3 to 26,000 ng/l in well W23. A total of five wells, out of 22 wells sampled in 1999, exceed the drinking water criterion for other PAH (280 ng/l) (W23, SLP10, SLP4, W40 and W402). The other 17 wells used to monitor groundwater in the Prairie du Chien-Jordan Aquifer were below 280 ng/l.

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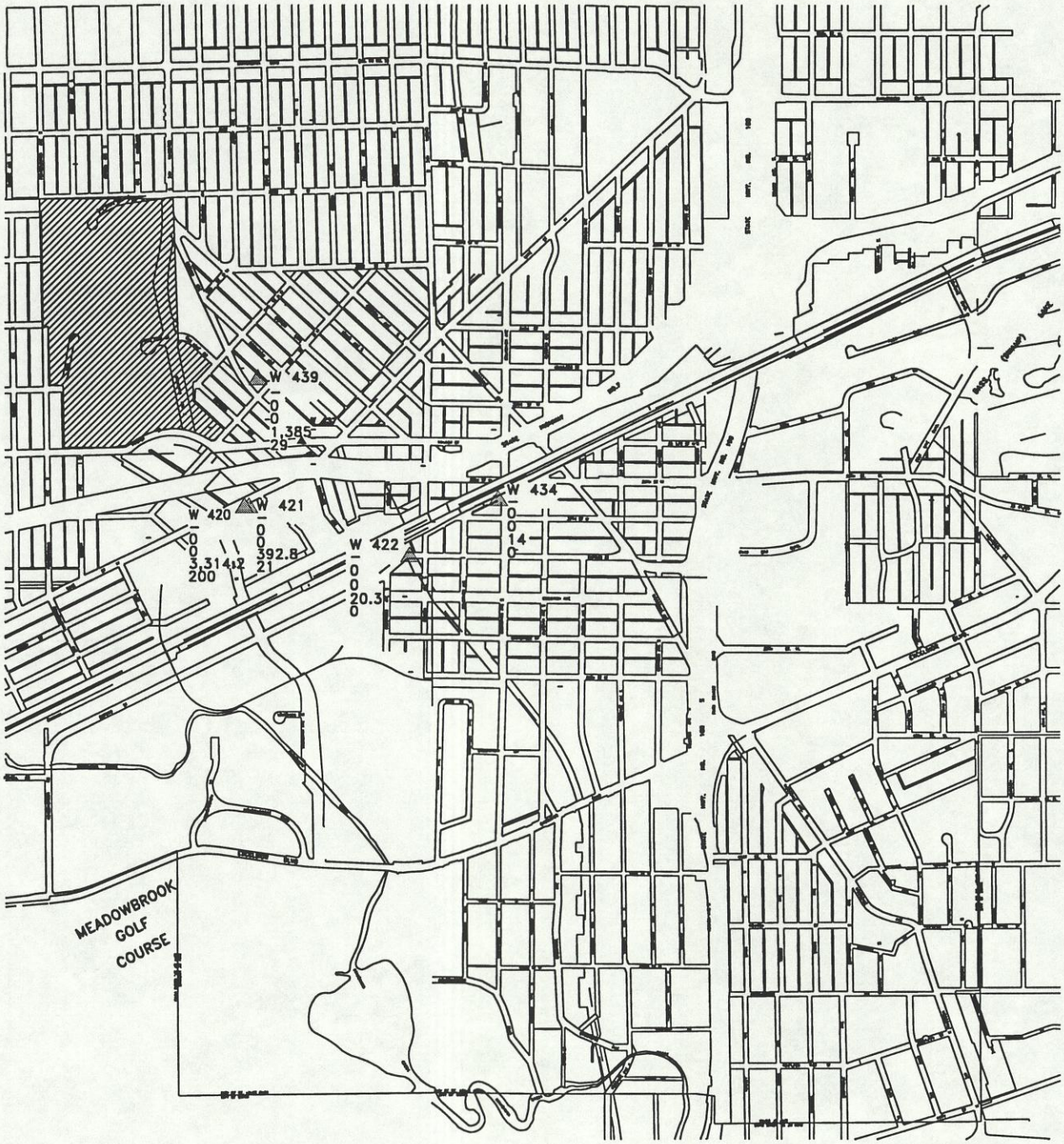

REILLY SITE

WELL LOCATION
P 7 WELL IDENTIFICATION
.79 WATER LEVEL
SUM-BENZO(a)PYRENE & DIBENZ(a,h)ANTHRACENE (PPB)
0 SUM-CARCINOGENIC PAH (PPB)
78 SUM-OTHER PAH'S (PPB)
200 TOTAL PHENOLICS (PPB)

Concentration in micrograms per liter equivalent to parts per billion

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FIGURE 6-1

SUMMARY OF GROUND WATER MONITORING RESULTS FOR DRIFT-PLATTVILLE AQUIFER MARCH 1999 FIRST QUARTER

DRAWN:	C. BOEHM	DATE:	3/2/00	PROJECT No.: 1620-013	REV:
FILE No.:	FIG6-1.DWG	CHECKED:	PJM		

6.0 DRIFT-PLATTEVILLE AQUIFER

6.1 Drift-Platteville Aquifer Source and Gradient Control Wells

Groundwater monitoring for the Drift-Platteville Aquifer in 1999 included quarterly PAH and phenolics monitoring of wells W420, W422, and W439, the Drift Aquifer source and gradient control wells, and W421 and W434, the Platteville Aquifer source and gradient control wells. Wells W420, W421, and W422 have been monitored quarterly since they began pumping in 1987. This is the fifth year of quarterly monitoring for well W439 since pumping began in early 1995 and the third year of quarterly monitoring for well W434 since the pump was activated in June 1997. Average pumping rates for 1999 for wells W420, W421, W422, W434, and W439 were 35, 29, 59, 32 and 51 gpm, respectively. The monitoring data are presented on Figures 6-1, 6-2, 6-3, and 6-4. The laboratory reports of the analytical data are included in the Appendices. Please refer to the Guide to Appended Laboratory Results for all of 1999 that precedes the appendices.

Other PAH, carcinogenic PAH and phenolic data for wells W420, W421, W422, W434, and W439 are summarized in Table 6-1. The trends of these data suggest a gradual decreasing trend in total PAH concentrations in wells W420, W421, W422, W434 and W439 since pumping started in each well. Total PAH concentrations in well W420 averaged approximately 3,000 ug/l in 1999. Total PAH concentrations in well W421 averaged approximately 400 ug/l and well W439 averaged 1,200 ug/l. Total PAH concentrations in wells W422 and W434 averaged approximately 15 ug/l and 4 ug/l, respectively, in 1999.

No carcinogenic PAH were detected in the Drift/Platteville Aquifer pumping wells in 1999 and have not been detected since 1991. Total phenolic concentrations have ranged from a high of 200 ug/l in W420 to below detectable concentrations in W422 and W434.

6.2 Platteville Aquifer Monitoring

Groundwater monitoring for Platteville Aquifer in 1999 consisted of two rounds of sample collection and analysis for PAH, and water level measurements at 19 monitor wells. These 19 monitor wells are required to be sampled in accordance with the ROD for the northern area of the Platteville Aquifer. The ROD required a 20th well (W434) to be sampled semiannually. Well W434 has been sampled quarterly since pumping this well began in June 1997.

Figure 6-5 and Figure 6-6 (in pockets) shows the results from the two monitoring rounds for the Platteville Aquifer. The laboratory reports of the analytical data are included in the Appendices. Please refer to the Guide to Appended Laboratory Results for all of 1999 that precedes the appendices.

REILLY SITE

▲	WELL LOCATION
SLP 7	WELL IDENTIFICATION
809.79	WATER LEVEL
0	SUM-BENZO(a)PYRENE & DIBENZ(a,h)ANTHRACENE (PPT)
0	SUM-CARCINOGENIC PAH (PPT)
78	SUM-OTHER (PPT)

10 FOOT GROUNDWATER LEVEL CONTOUR

2 FOOT GROUNDWATER LEVEL CONTOUR

ENSR
CONSULTING-ENGINEERING-REMEDIATION

FIGURE 5-2

SUMMARY OF GROUND WATER MONITORING RESULTS
FOR ST.PETER AQUIFER
SECOND HALF, 1999

DRAWN:	C. BOEHM	DATE:	3/3/00	PROJECT No.: 1620-013	REV:
FILE No.:	FIG5-2.DWG	CHECKED:	PJM		

REILLY SITE

▲	WELL LOCATION
SLP 7	WELL IDENTIFICATION
809.79	WATER LEVEL
0	SUM-BENZO(a)PYRENE & DIBENZ(a,h)ANTHRACENE (PPT)
0	SUM-CARCINOGENIC PAH (PPT)
78	SUM-OTHER (PPT)

ENSR

CONSULTING-ENGINEERING-REMEDIATION

FIGURE 5-1

SUMMARY OF GROUNDWATER MONITORING RESULTS
FOR ST. PETER AQUIFER
FIRST HALF, 1999

DRAWN:	C. BOEHM	DATE:	3/2/00	PROJECT No.: 1620-013	REV:
FILE No.:	FIG5-1.DWG	CHECKED:	PJM		

Tab
Historical Summary Other PAH and CPAH Analytical Results 1988 Through 1999

St. Peter Aquifer Wells

All concentrations reported in nanograms per liter.

W412		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
7-88	8	1,309
10-88	0	209
6-89	18	211
10-89	0	132
8-90	1	484
4-91	48	1,470
8-91	0	5,283
6-92	12	1,319
11-92	0	3,796
4-93	154	842
7-93	16	777
5-94	25	291
10-94	10	538
5-95	18	369
10-95	0	402
5-96	0	139
10-96	0	1,620
4-97	0	806
10-97	0	614
4-98	30	260
9-98	60	557
4-99	20	267
9-99	0	764

NOTES:

[1] Total Carcinogenic PAHs (as listed in the CD/RAP (A.1.1)), consist of the sum of:

benzo(a) anthracene
benzo(a)pyrene
benzo(b)flouranthene
chrysene
dibenz(a,h)anthracene
indeno(1,2,3-cd)pyrene
quinoline*
benzo(j)fluoranthene**
benzo(g,h,i)perylene

*Quinoline is included in the sum of CPAH if other CPAHs were detected. If no CPAHs are detected, quinoline is included with the Total Other PAH.

**Benzo(j)fluoranthene will coelute with either benzo(b)fluoranthene or benzo(k)fluoranthene. Benzo(j)fluoranthene can not be consistantly separated by the laboratory. Therefore if present, it will be reported as benzo(b)- and/or benzo(k)-fluoranthene.

[2] Total Other PAHs (as listed in the CD/RAP (A.1.2), consists of the sum of:

acenapthene
acenaphthylene
acridine
anthracene
benzo(k)fluoranthene
2,3-benzofuran
benzo(e)pyrene
benzo(b)thiophene
biphenyl
carbazole
dibenzofuran
2,3-dihydroindene
fluoranthene
fluorene
indene
indole
1-methylnaphthalene
2-methylnaphthalene
naphthalene
perylene
phenanthrene
pyrene

Tab
Historical Summa Other PAH and CPAH Analytical Results 1988 Through 1999

St. Peter Aquifer Wells

All concentrations reported in nanograms per liter.

W408		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
7-88	2	151
10-88	0	34
6-89	5	145
10-89	0	110
6-90	0	24
8-90	28	130
4-91	13	343
8-91	25	1,163
6-92	32	283
11-92	2	172
4-93	4	150
7-93	6	217
5-94	5	70
11-94	0	170
5-95	9	143
10-95	15	135
6-96	0	66
10-96	0	103
4-97	0	169
10-97	0	166
4-98	1	96
9-98	0	62
5-99	0	64
8-99	2	51

W409		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
7-88	159	2,198
10-88	0	890
6-89	53	571
10-89	0	830
6-90	0	141
8-90	43	200
4-91	0	360
8-91	0	3,833
6-92	0	49,660
11-92	0	49,399
4-93	0	50,060
7-93	0	42,440
5-95	0	173,000
10-95	0	167,000
4-96	0	805,420
10-96	0	312,500
5-97	0	157,000
9-97	0	64,000
5-98	0	159,200
9-98	0	107,700
4-99	0	446,860
8-99	0	342,000

W410		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
7-88	0	1,288
10-88	0	1,435
6-89	5	424
10-89	0	357
4-91	0	85
8-91	0	5,330
2-92	0	14,070
6-92	0	12,850
11-92	0	16,470
4-93	0	17,600
7-93	0	16,609
5-94	0	14,505
10-94	0	20,880
5-95	0	21,640
10-95	0	13,940
5-96	0	15,970
10-96	0	14,170
4-97	0	14,690
10-97	0	10,150
4-98	0	8,620
5-98	0	1,900
9-98	0	9,690
11-98	0	5,942
3-99	0	8,780
4-99	0	21,606
9-99	0	8,780
11-99	0	3,800

W411		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
7-88	0	1,274
10-88	0	1,161
6-89	8	200
10-89	0	460
6-90	15	451
8-90	0	336
4-91	12	384
8-91	0	251
6-92	24	313
11-92	1	181
4-93	7	189
7-93	5	113
5-94	3	120
11-94	6	219
5-95	6	235
10-95	1	183
6-96	0	79
10-96	0	253
4-97	0	82
10-97	3	253
4-98	1	120
9-98	61	424
5-99	0	99
8-99	0	79

Tab
Historical Summary Other PAH and CPAH Analytical Results 1988 Through 1999

St. Peter Aquifer Wells

All concentrations reported in nanograms per liter.

W33		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
7-88	0	16,430
10-88	0	12,455
8-90	0	290
4-91	0	17,912
8-91	0	9,921
6-92	0	3,448
11-92	14	3,304
4-93	0	1,334
7-93	0	1,000
5-94	8	968
11-94	0	1,700
5-95	0	1,901
10-95	0	1,062
5-96	0	566
10-96	0	655
4-97	0	651
10-97	0	1,779
4-98	0	2,516
9-98	0	4,792
4-99	2	2,383
9-99	0	1,355

W122		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
7-88	21	142
10-88	0	2,246
6-89	20	965
10-89	15	114
4-91	36	757
8-91	10	853
6-92	43	568
11-92	7	179
4-93	32	308
7-93	24	330
5-94	23	583
10-94	10	374
5-95	0	281
10-95	11	220
6-96	0	144
10-96	0	235
4-97	0	256
10-97	0	243
4-98	7	370
9-98	0	99
5-99	0	71
8-99	7	46

W129		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
7-88	0	88
10-88	0	290
6-89	0	27
10-89	0	43
6-90	0	143
8-90	0	96
4-91	27	159
8-91	0	430
6-92	47	247
11-92	5	296
4-93	15	121
7-93	2	53
5-94	0	171
11-94	2	110
5-95	12	94
10-95	0	55
6-96	0	53
10-96	0	75
4-97	0	104
10-97	0	181
4-98	9	88
9-98	0	8
5-99	1	79
8-99	0	80

W133		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
7-88	0	52,370
10-88	0	29,830
6-89	0	37,870
10-89	0	21,099
6-90	0	19,448
8-90	0	14,030
4-91	5	2,587
8-91	0	4,610
6-92	0	2,453
11-92	0	1,920
4-93	0	1,134
7-93	0	836
5-94	5	665
10-94	0	434
5-95	0	165
10-95	0	157
5-96	0	142
10-96	0	285
4-97	0	241
10-97	0	108
4-98	0	88
9-98	0	299
4-99	7	633
9-99	0	190

Tab
Historical Summary of Other PAH and CPAH Analytical Results 1988 Through 1999

St. Peter Aquifer Wells

All concentrations reported in nanograms per liter.

SLP3		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
7-88	0	8
10-88	0	9
6-89	0	10
10-89	0	15
6-90	5	29
8-90	1	18
8-91	1	23
6-92	0	16
11-92	0	13
4-93	0	9
7-93	0	5
5-94	0	8
10-94	0	5
5-95	0	7
10-95	0	16
6-96	0	11
10-96	0	4
4-97	0	6
10-97	0	5
4-98	0	7
9-98	0	247
5-99	0	7
8-99	0	0

P116		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
7-88	8	196
10-88	0	3,770
6-89	1	82
10-89	3	42
8-90	2	20
4-91	0	61
8-91	3	40
6-92	13	118
11-92	10	219
4-93	4	52
7-93	2	38
5-94	1	64
11-94	0	66
5-95	0	50
10-95	0	53
6-96	0	7
10-96	0	43
4-97	0	35
10-97	0	82
4-98	5	148
9-98	0	60
5-99	4	50
8-99	0	55

W14		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
7-88	57	95
10-88	0	439

W24		
Sampling Date	Total CPAH[1]	Total Other PAH[2]
7-88	0	3,309
10-88	0	3,622
4-91	0	4,023
8-91	0	4,160
6-92	0	3,380
11-92	0	3,650
4-93	0	2,950
7-93	0	3,294
5-94	0	2,669
11-94	0	4,029
5-95	0	3,190
10-95	0	1,550
5-96	0	974
10-96	0	1,603
4-97	0	1,513
10-97	0	1,340
4-98	0	689
9-98	0	1,120
4-99	0	2,085
9-99	0	3,590

5.0 ST. PETER AQUIFER

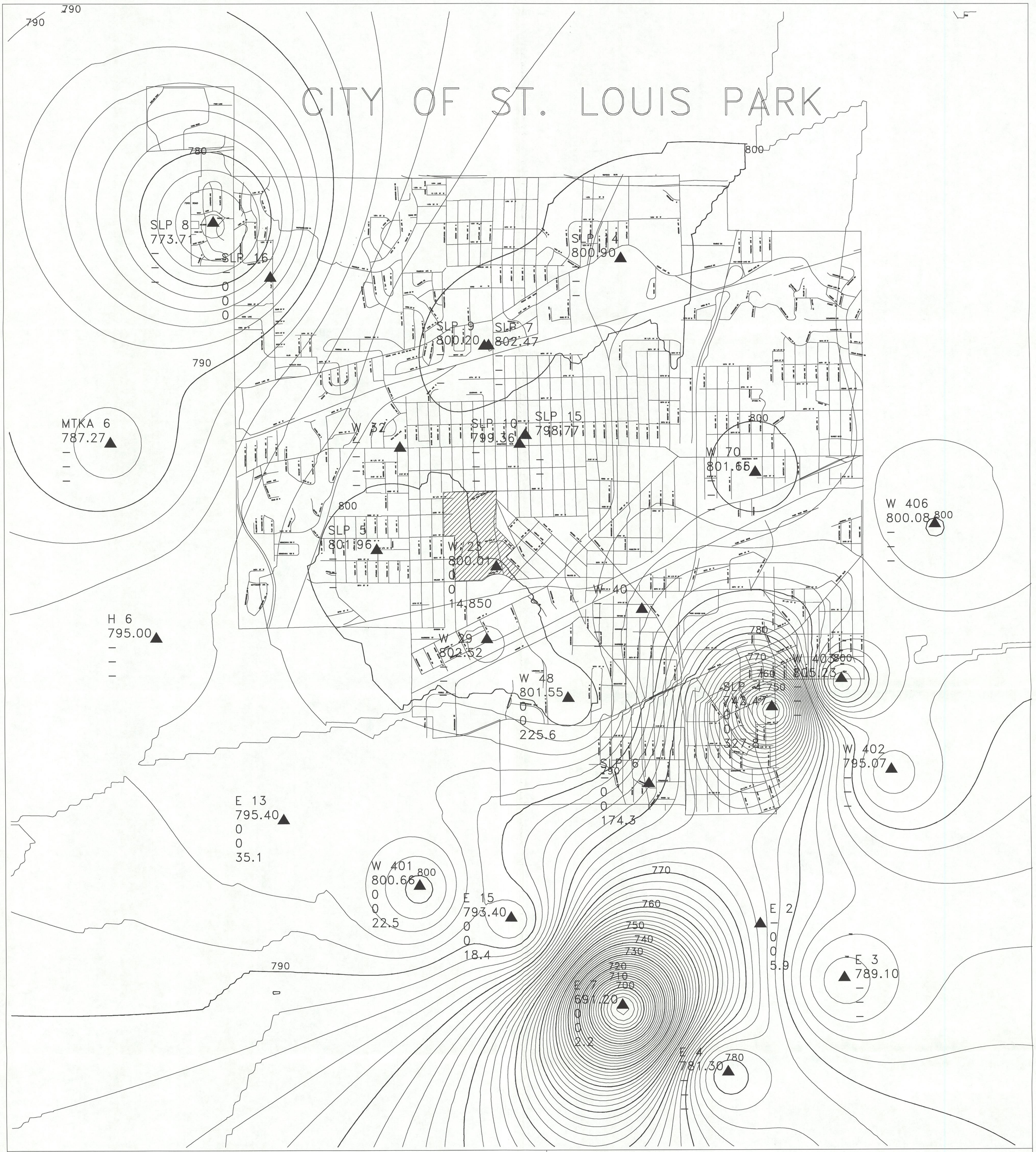
In accordance with the 1999 Sampling Plan, 12 St. Peter Aquifer wells were monitored twice (first half/second half) in 1999. In addition to water quality monitoring, groundwater elevations were measured in the St. Peter Aquifer wells during each monitoring round. Summaries of analytical data and groundwater elevations for the first half and second half of 1999 are shown in Figures 5-1 and 5-2 (in pocket). The laboratory reports of the analytical data are included in the Appendices. The Guide to Appended Laboratory Results for all of 1999 precedes the appendices.

A historical summary of total PAH and carcinogenic PAH results from 1988 through 1999 is presented in Table 5-1. The data in Table 5-1 show several trends. Total PAH concentrations have remained relatively stable for wells SLP3, W24, W412, W129, W408, and P116, while total PAH concentrations show a downward trend in groundwater samples collected from W133, W411, W33, W122.

Groundwater samples collected from well W409 have shown increasing total PAH concentrations since 1991 to a maximum of approximately 805 micrograms (ppb) per liter in 1996. This increase in concentration is apparently in response to pumping well W410. Since 1996, total PAH concentrations in well W409 have ranged from 65 to 450 micrograms per liter.

The total PAH concentration at well W410 appears to have reached a high in 1994/1995 and since then, the concentrations of total PAH is showing a downward trend except for a blip in the PAH concentration in the April 1999 sample. The April 1999 sample had a total PAH concentration of 22 micrograms per liter. Results from three other samples collected during 1999 ranged from 4 to 9 micrograms per liter. Well W410 is required to be sampled twice a year according to the sampling plan, however, the City samples W410 quarterly as part of their Metropolitan Council Environmental Services permit.

In conclusion, the 1999 sampling results for the St. Peter Aquifer appear to accurately represent water quality conditions in the aquifer. The operation of well W410 does appear to be effective in controlling the flow of groundwater as evidenced by the 1999 water quality, and the water level contours shown in Figures 5-1 and 5-2. Continued monitoring in accordance with the Sampling Plan will allow continued evaluation of water quality in the St. Peter Aquifer.



REILLY SITE

▲ WELL LOCATION
SLP 7 WELL IDENTIFICATION
809.79 WATER LEVEL
0 SUM-BENZO(a)PYRENE & DIBENZ(a,h)ANTHRACENE (PPT)
0 SUM-CARCINOGENIC PAH (PPT)
78 SUM-OTHER (PPT)

10 FOOT GROUNDWATER LEVEL CONTOUR

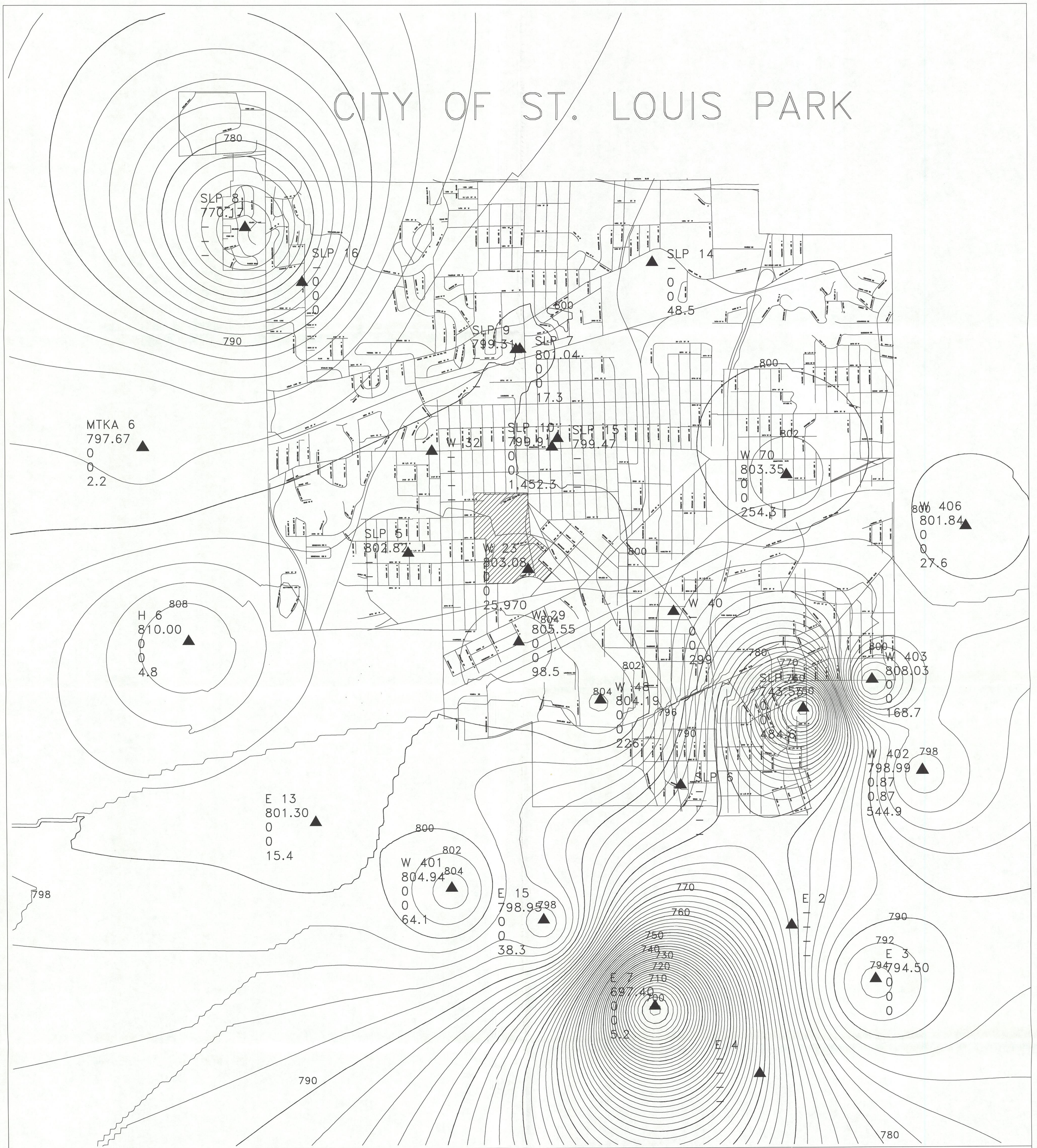
2 FOOT GROUNDWATER LEVEL CONTOUR

ENSR
CONSULTING-ENGINEERING-REMEDIATION

FIGURE 4-2

SUMMARY OF GROUNDWATER MONITORING RESULTS FOR PRAIRIE DU CHEIN-JORDAN AQUIFER: SECOND HALF, 1999

DRAWN: C. BOEHM	DATE: 3/2/00	PROJECT No.: 1620-013	REV:
FILE No.: FIG4-2.DWG	CHECKED: PJM		



REILLY SITE

WELL LOCATION
SLP 7 — WELL IDENTIFICATION
809.79 — WATER LEVEL
0 — SUM–BENZO(a)PYRENE & DIBENZ(a,h)ANTHRACENE(PPT)
0 — SUM–CARCINOGENIC PAH(PPT)
78 — SUM–OTHER (PPT)

10 FOOT GROUNDWATER LEVEL CONTOURS

2 FOOT GROUNDWATER LEVEL CONTOURS

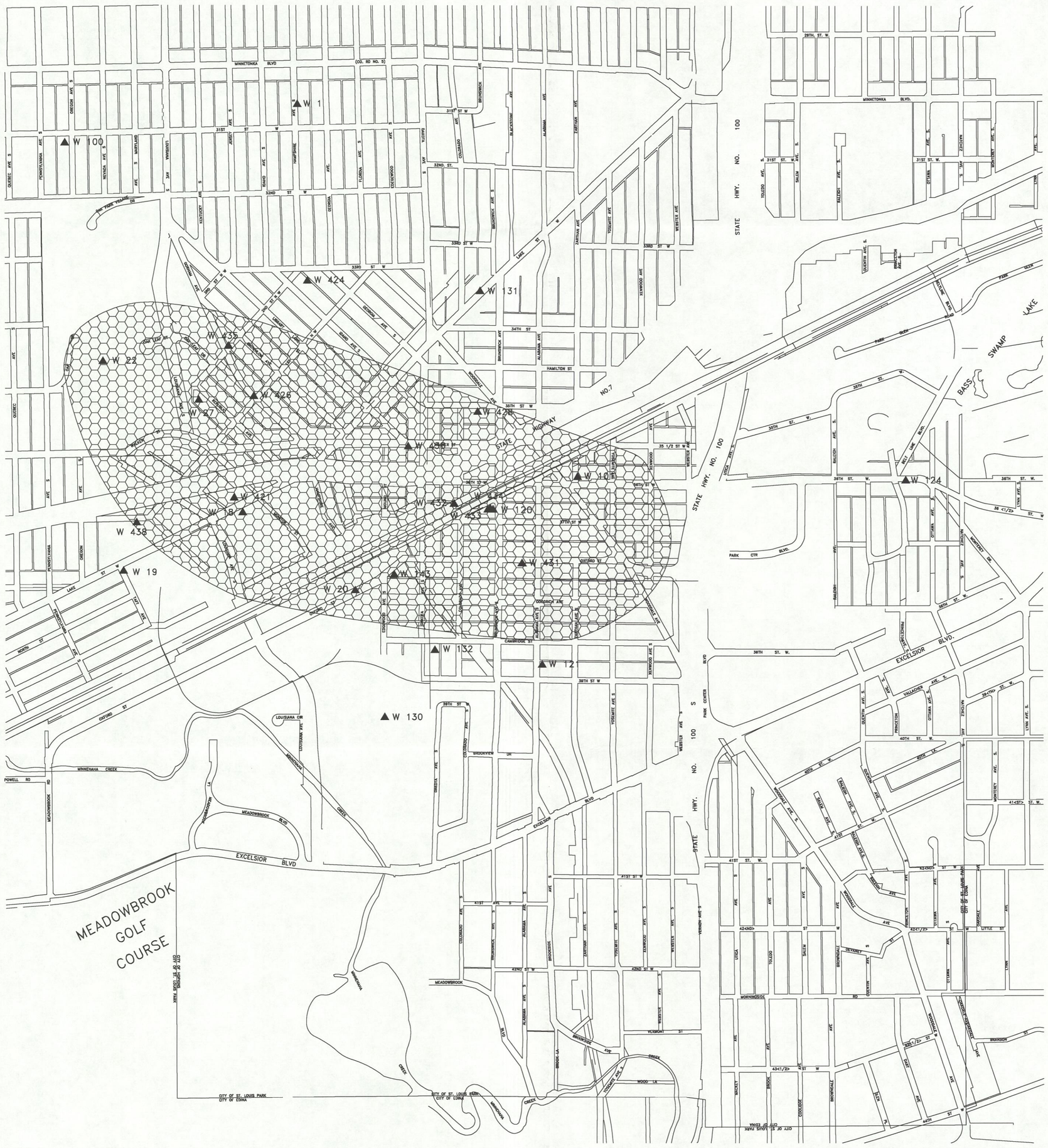
ENSR
CONSULTING–ENGINEERING–REMEDIATION

FIGURE 4–1

SUMMARY OF GROUNDWATER MONITORING RESULTS FOR PRAIRIE DU CHEIN–JORDAN AQUIFER: FIRST HALF, 1999

DRAWN: C. BOEHM	DATE: 3/2/00	PROJECT No.: 1620–013	REV:
FILE No.: FIG4–1.DWG	CHECKED: PJM		

CITY OF ST. LOUIS PARK



REILLY SITE

▲ SLP 7 — WELL LOCATION / WELL IDENTIFICATION

ENSR

CONSULTING–ENGINEERING–REMEDIATION

FIGURE 6–7

INFERRED AREA WHERE GROUNDWATER IN THE PLATTEVILLE AQUIFER EXCEEDS DRINKING WATER CRITERIA, 1999

DRAWN:	C. BOEHM	DATE:	3/13/00	PROJECT No.: 1620–013	REV:
FILE No.:	FIG6–7.DWG	CHECKED:	PJM		

REILLY SITE

▲ WELL LOCATION
SLP 7 WELL IDENTIFICATION
809.79 WATER LEVEL
0 SUM-BENZO(a)PYRENE & DIBENZ(a,h)ANTHRACENE (PPT)
0 SUM-CARCINOGENIC PAH (PPT)
78 SUM-OTHER (PPT)

5 FOOT GROUNDWATER LEVEL CONTOUR

1 FOOT GROUNDWATER LEVEL CONTOUR

ENSR
CONSULTING-ENGINEERING-REMEDIATION

FIGURE 6-6
SUMMARY OF GROUNDWATER MONITORING RESULTS
FOR PLATTVILLE AQUIFER
SECOND HALF, 1999

DRAWN:	C. BOEHM	DATE:	3/2/00	PROJECT No.: 1620-013	REV:
FILE No.:	FIG6-5.DWG	CHECKED:	PJM		

REILLY SITE

WELL LOCATION
SLP 7 WELL IDENTIFICATION
809.79 WATER LEVEL
0 SUM-BENZO(a)PYRENE & DIBENZ(a,h)ANTHRACENE(PPT)
0 SUM-CARCINOGENIC PAH(PPT)
78 SUM-OTHER (PPT)

5 FOOT GROUNDWATER LEVEL CONTOUR

1 FOOT GROUNDWATER LEVEL CONTOUR

ENSR
CONSULTING-ENGINEERING-REMEDIATION

FIGURE 6-5

SUMMARY OF GROUNDWATER MONITORING RESULTS
FOR PLATTVILLE AQUIFER
FIRST HALF, 1999

DRAWN:	C. BOEHM	DATE:	3/2/00	PROJECT No.: 1620-013	REV:
FILE No.:	FIG6-5.DWG	CHECKED:	PJM		

Table 2
Historical Summary of Other PAH, CPAH, and Phenolic Analytical Results 1988 Through 1999

Platteville Aquifer Wells

PAH concentrations in nanograms per liter
Phenolic concentrations in micrograms per liter

W120			
Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
8-88	0	35,200	44
10-88	0	41,300	57
6-89	0	75,900	48
5-96	0	1,716	NA
10-96	0	10,690	NA
4-97	0	12,390	NA
9-97	0	5,832	NA
4-98	0	2,317	NA
9-98	0	3,597	NA
4-99	0	3,252	NA
9-99	0	2,256	NA

NOTES:

[1] Total Carcinogenic PAHs (as listed in the CD/RAP (A.1.1)), consist of the sum of:

benzo(a) anthracene
benzo(a)pyrene
benzo(b)flouranthene
chrysene
dibenz(a,h)anthracene
indeno(1,2,3-cd)pyrene
quinoline*
benzo(j)fluoranthene**
benzo(g,h,i)perylene

*Quinoline is included in the sum of CPAH if other CPAHs were detected. If no CPAHs are detected, quinoline is included in the Total Other PAH.

**Benzo(j)fluoranthene will coelute with either benzo(b)fluoranthene or benzo(k)fluoranthene. Benzo(j)fluoranthene can not be consistantly separated by the laboratory. Therefore

[2] Total Other PAHs (as listed in the CD/RAP (A.1.2), consists of the sum of

acenapthene
acenaphthylene
acridine
anthracene
benzo(k)fluoranthene
2,3-benzofuran
benzo(e)pyrene
benzo(b)thiophene
biphenyl
carbazole
dibenzofuran
dibenzothiophene
2,3-dihydroindene
fluoranthene
fluorene
indene
indole
1-methylnaphthalene
2-methylnaphthalene
naphthalene
perylene
phenanthrene
pyrene

NA = Not analyzed for identified compound class.

Table 2
Historical Summary of Other PAH, CPAH, and Phenolic Analytical Results
1988 Through 1999

Platteville Aquifer Wells

PAH concentrations in nanograms per liter
Phenolic concentrations in micrograms per liter

W431			
Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
2-92	0	3,840	0
3-92	0	2,250	0
5-96	0	1,023	NA
10-96	0	1,583	NA
4-97	0	857	NA
9-97	0	610	NA
5-98	0	627	NA
9-98	0	374	NA
5-99	0	590	NA
9-99	0	366	NA

W432			
Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
2-92	0	7,782	6
3-92	0	3,750	NA
5-96	14	793	NA
10-96	0	2,920	NA
4-97	0	10,040	NA
9-97	0	8,600	NA
4-98	0	9,300	NA
9-98	0	19,029	NA
4-99	0	32,796	NA
9-99	0	11,600	NA

W433			
Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
5-96	0	426	NA
10-96	0	625	NA
4-97	0	451	NA
10-97	0	1,585	NA
5-98	0	1,000	NA
9-98	5	1,654	NA
4-99	0	3,445	NA
9-99	0	1,051	NA

W435			
Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
2-92	0	0	0
3-92	0	813	0

W437			
Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
2-92	0	3,096,000	20
3-92	0	488,800	NA

W438			
Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
2-92	0	20,400	5
3-92	0	0	NA

Table 2
Historical Summary of Other PAH, CPAH, and Phenolic Analytical Results 1988 Through 1999

Platteville Aquifer Wells

PAH concentrations in nanograms per liter
Phenolic concentrations in micrograms per liter

W132

Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
5-90	0	1,168	0

W143

Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
8-88	0	0	0
10-88	0	240	0
6-89	0	1,262	33
5-96	0	1,212	NA
10-96	0	1,288	NA
4-97	0	9,290	NA
9-97	0	1,383	NA
4-98	0	4,440	NA
9-98	0	10,494	NA
4-99	0	15,400	NA
9-99	0	4,420	NA

W424

Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
8-88	0	0	10
10-88	0	50.5	0
6-89	4	517	17
5-90	8	147	0
2-92	0	5,200	0
3-92	0	11,180	0
5-94	1	157	0
5-96	0	153	NA
10-96	0	120	NA
4-97	0	109	NA
9-97	0	106	NA
5-98	0	89	NA
9-98	1	15	NA
5-99	0	284	NA
9-99	0	42	NA

W426

Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
8-88	1,300	905,300	25
10-88	0	638,800	35
6-89	0	497,800	80
2-92	0	82,100	15
3-92	0	46,900	NA
5-96	0	55,470	NA
4-97	0	75,750	NA
9-97	0	64,290	NA
4-98	0	107,820	NA
9-98	0	1,507,900	NA
4-99	0	642,000	NA
8-99	0	258,310	NA

W428

Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
8-88	0	0	0
10-88	0	1,040	8
6-89	0	904	16
5-90	0	490	0
2-92	0	2460	6
3-92	0	8,816	NA
5-94	11	436	0
5-96	6	192	NA
10-96	0	240	NA
4-97	0	336	NA
5-98	0	346	NA
9-98	5	513	NA
5-99	0	705	NA
9-99	0	476	NA

W430

Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
5-90	0	0	0

Table 2
Historical Summary of Other PAH, CPAH, and Phenolic Analytical Results
1988 Through 1999

Patteville Aquifer Wells

PAH concentrations in nanograms per liter
Phenolic concentrations in micrograms per liter

W101

Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
8-88	0	4,000	7
10-88	0	23,300	0
6-89	0	47,800	20
5-90	0	21,800	0
2-92	0	18,300	6
5-94	0	10,839	0
5-96	0	5,320	NA
10-96	0	32,380	NA
4-97	0	31,220	NA
9-97	0	14,590	NA
4-98	0	17,340	NA
9-98	0	124,910	NA
4-99	0	31,970	NA
9-99	0	24,200	NA

W121

Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
8-88	0	0	73
10-88	5	392	35
6-89	5	378	35
5-90	12	282	0
5-94	40	166	0
5-96	0	141	NA
10-96	4	141	NA
4-97	0	63	NA
10-97	0	184	NA
5-98	0	242	NA
9-98	6	94	NA
5-99	0	216	NA
9-99	0	251	NA

W124

Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
8-88	0	0	0
10-88	0	166	0
6-89	0	149	0
5-90	11	92	0
5-94	21	137	0
6-96	0	10	NA
9-96	0	0	NA
4-97	10	131	NA
10-97	0	112	NA
5-98	0	142	NA
9-98	58	69	NA
5-99	0	51	NA
9-99	0	31	NA

W128

Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
8-88	0	0	12
10-88	0	273	0
6-89	0	212	0

W130

Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
8-88	0	0	0
10-88	0	397	0
6-89	2	170	0
5-90	14	239	0
5-96	5	164	NA
10-96	0	52	NA
4-97	0	198	NA
10-97	0	238	NA
5-98	0	47	NA
9-98	2	91	NA
5-99	3	149	NA
9-99	0	75	NA

W131

Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
8-88	0	0	0
10-88	0	305	13
6-89	0	172	0
2-92	0	13,080	0
5-94	31	224	0
5-96	28	149	NA
10-96	0	16	NA
4-97	0	170	NA
10-97	0	179	NA
5-98	0	224	NA
9-98	8	69	NA
5-99	0	362	NA
9-99	12	175	NA

Table
Historical Summary of Other PAH, CPAH, and Phenolic Analytical Results 1988 Through 1999

Platteville Aquifer Wells

PAH concentrations in nanograms per liter
Phenolic concentrations in micrograms per liter

W18

Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
8-88	0	0	20
10-88	0	360,800	20
6-89	0	38,800	44
2-92	0	10,400	8
5-96	0	1,532	NA
9-96	0	2,403	NA
4-97	0	1,115	NA
9-97	0	1,176	NA
5-98	0	627	NA
9-98	7	305	NA
5-99	2	630	NA
9-99	0	1,323	NA

W19

Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
8-88	0	0	0
10-88	14	431	35
6-89	4	52	26
2-92	27	479	0
5-94	17	125	0
5-96	3	83	NA
9-96	0	97	NA
4-97	0	80	NA
9-97	0	173	NA
5-98	0	101	NA
9-98	7	57	NA
5-99	4	169	NA
9-99	3	68	NA

W20

Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
8-88	0	0	28
10-88	0	3,419	16
6-89	0	6,456	34
5-90	0	6,822	9
5-94	12	1,017	0
5-96	0	675	NA
9-96	0	962	NA
4-97	0	1,945	NA
10-97	0	1,833	NA
5-98	0	1,094	NA
9-98	15	368	NA
5-99	2	759	NA
9-99	0	760	NA

W22

Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
5-90	0	0	0
2-92	62	624	0
3-92	0	4,636	NA
5-96	0	82	NA
9-96	0	0	NA
4-97	0	1,635	NA
9-97	0	1,990	NA
4-98	0	1,065	NA
9-98	0	7,520	NA
4-99	0	22,317	NA
9-99	0	24,300	NA

W27

Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
10-88	0	1,882,000	NA
6-89	0	1,345,000	NA
5-96	0	1,476	NA
10-96	0	9,460	NA
4-97	0	281,200	NA
9-97	0	415,800	NA
4-98	0	184,290	NA
9-98	0	421,900	NA
4-99	0	311,560	NA
8-99	0	157,900	NA

W100

Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
5-94	18	234	1

Tab[illegible]
Historical Summary of Other PAH, CPAH, and Phenolic Analytical Results
1988 Through 1999

Platteville Aquifer Wells

PAH concentrations in nanograms per liter
Phenolic concentrations in micrograms per liter

P306			
Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
5-90	0	0	0

P310			
Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
4-91	0	33,000	8

P311			
Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
4-91	0	46,000	10

P312			
Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
4-91	0	14,000	13
2-92	0	23,440	15

P313			
Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
4-91	0	0	0
2-92	0	5,000	6

W1			
Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
8-88	0	0	0
10-88	28	564	96
6-89	43	164	34
5-94	130	554	0
5-96	174	632	NA
9-96	81	337	NA
4-97	66	382	NA
9-97	162	776	NA
5-98	13	275	NA
9-98	63	171	NA
5-99	30	333	NA
9-99	93	207	NA

Table 6-2 is a historical summary since 1988 of other PAH, carcinogenic PAH and phenolic data for Platteville Aquifer wells.

The water level contours in Figures 6-5 and 6-6 shows the influence of the Platteville Aquifer source control wells on the regional east-southeast groundwater flow direction. Well W421 is currently being pumped at a rate of approximately 29 gpm, in accordance with the CD-RAP, and appears to be effective in controlling groundwater in an area at least the size of the bog between Walker and Lake Streets.

The Platteville Aquifer water level contours shown in Figures 6-5 and 6-6 supports the interpretation that well W421 is controlling groundwater as specified by the CD-RAP.

Figure 6-6 shows that pumping well W434 has little effect on the Platteville Aquifer. Well W434 has been pumping at approximately 31 gpm since June 1997. It appears that the well has a local effect in controlling groundwater in the Platteville Aquifer in the immediate area, however, due to the low transmissivity of the Platteville Aquifer in this area, the capture zone is limited. The capture zone of W434 is likely effected by leakage above from the Drift Aquifer recharging the Platteville Aquifer and this effect decreases the lateral extent of the capture area of W434.

The historical water quality data shown in Table 6-2 indicate a general decreasing trend in PAH concentrations in wells W18, W20, W431, and W120 while most other Platteville Aquifer wells have been consistent with historical observations. Five Platteville Aquifer monitoring wells appear to be showing an increasing trend in PAH concentration. Wells W22, W432, W143 and W433 show an upward trend while well W426 initially had a downward trend until last year when total PAH concentrations increased.

Concentrations of CPAH were detected in wells W1, W18, W19, W20, W130, and W131. The highest concentration was 93 ng/l detected in well W1. Carcinogenic PAH concentrations in the other monitor wells were 12 ng/l or less. These results are consistent with historical results for these wells.

Overall, the water quality data for the Platteville Aquifer indicate little change from prior years. Based on the drinking water criteria provided by the CD-RAP, the inferred extent of contamination in the Platteville Aquifer has not changed in 1999 (Figure 6-7).

Table 6-1

Historical Summary of Other PAH and CPAH and Phenolics
Wells W420, W421, W422, W434 and W439
1988 through 1999
All concentrations in micrograms per liter

W434			
Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
2-92	0	4	9
10-96	0	4	-
4-97	0	7	-
9-97[3]	0	5	8
10-97	0	3	-
1-98	0	4	0
2-98	0	3	5
5-98	0	3	5
9-98	0	73	0
11-98	0	12	0
3-99	0	14	0
4-99	0	1	0
8-99	0	1	6
11-99	0	1	0

W439			
Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
3-95	0	3,933	91
5-95	0	4,053	74
9-95	0	2,564	54
10-95	0	2,115	50
2-96	0	1,552	46
4-96	0	1,419	43
7-96	0	1,765	43
10-96	0	1,557	45
2-97	0	1,277	43
5-97	0	1,683	48
9-97	0	1,547	42
1-98	0	1,236	34
2-98	0	1,377	31
5-98	0	1,221	35
9-98	0	978	12
11-98	0	954	53
3-99	0	1,385	29
4-99	0	1,278	31
8-99	0	755	45
11-99	0	1123	17

[1] Total Carcinogenic PAHs (as listed in the CD/RAP (A.1.1)), consist of the sum of:

benzo(a) anthracene	chrysene	quinoline*
benzo(a)pyrene	dibenz(a,h)anthracene	benzo(j)fluoranthene**
benzo(b)flouranthene	indeno(1,2,3-cd)pyrene	benzo(g,h,i)perylene

*Quinoline is included in the sum of CPAH if other CPAHs were detected. If no CPAHs are detected, quinoline is included in the Total Other PAH.

**Benzo(j)fluoranthene will coelute with either benzo(b)fluoranthene or benzo(k)fluoranthene. Benzo(j)flouranthene can not be consistently separated by the laboratory. Therefore, if present, it will be reported as benzo(b)- and/or benzo(k)-fluoranthene.

[2] Total Other PAHs (as listed in the CD/RAP (A.1.2), consists of the sum of:

acenapthene	benzo(e)pyrene	2,3-dihydroindene	1-methylnaphthalene
acenaphthylene	benzo(b)thiophene	fluoranthene	2-methylnaphthalene
acridine	biphenyl	fluorene	naphthalene
anthracene	carbazole	indene	perylene
benzo(k)fluoranthene	dibenzothiophene	indole	phenanthrene
2,3-benzofuran			pyrene

[3] Pump was activated in W434 in June of 1997

Table 6-1

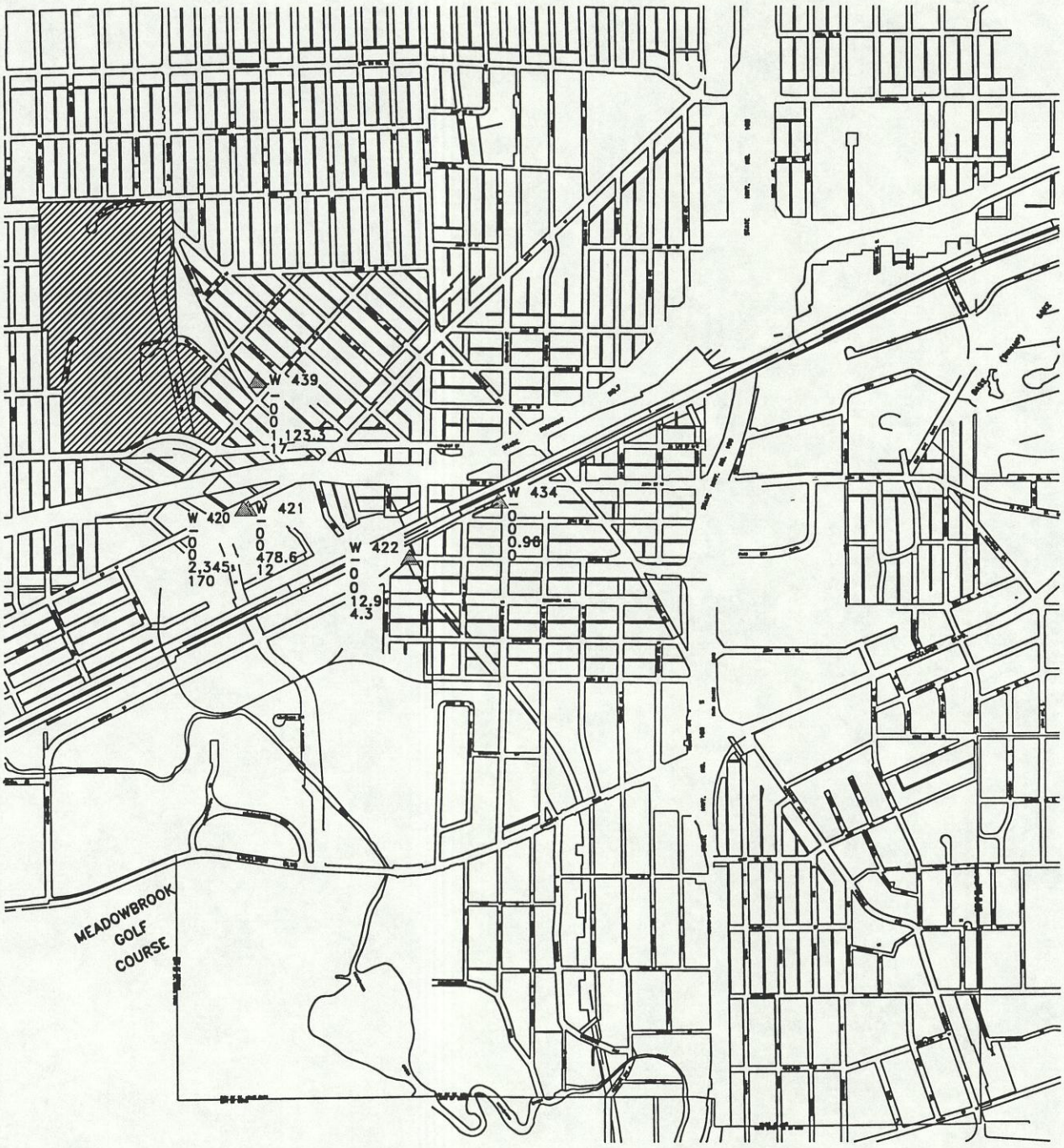
Historical Summary of Other PAH and CPAH and Phenolics
Wells W420, W421, W422, W434 and W439
1988 through 1999
All concentrations in micrograms per liter

W420			
Sampling Date	Total CPAH[1]	Total Other PAH	Total Phenolics
1st Quarter	0	3,242	440
2nd Quarter	0	3,420	330
8-88	0	2,477	220
10-88	0	1,148	44
3-89	0	2,400	120
6-89	0	3,400	129
9-89	0	3,400	220
12-89	0	3,400	110
3-90	0	3,950	239
5-90	0	2,430	231
8-90	0	3,150	244
12-90	0	3,030	228
3-91	0	4,200	232
6-91	0	2,494	221
9-91	0	4,967	210
10-91	0	4,163	194
2-92	0	1,526	177
6-92	0	3,229	204
9-92	0	2,281	167
10-92	0	2,374	236
3-93	0	4,337	18
4-93	0	2,929	207
8-93	0	1,825	136
11-93	0	2,052	148
2-94	0	2,033	109
6-94	0	2,181	151
8-94	0	2,026	147
10-94	0	2,082	151
3-95	0	2,431	143
5-95	0	1,873	134
9-95	0	2,523	91
10-95	0	2,332	113
2-96	0	1,968	121
4-96	0	2,165	130
7-96	0	2,725	87
10-96	0	2,164	118
2-97	0	2,324	122
5-97	0	3,343	134
9-97	0	2,151	261
1-98	0	2,483	140
2-98	0	2,938	124
5-98	0	2,933	160
9-98	0	3,144	80
11-98	0	2,570	180
3-99	0	3,314	200
4-99	0	3,414	170
8-99	0	2,425	140
11-99	0	2,345	170

W421			
Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
1st Quarter	0	566	33
2nd Quarter	0	821	0
8-88	0	764	30
10-88	0	1,107	35
3-89	0	878	29
6-89	0	1,000	26
9-89	0	1,000	33
12-89	0	730	27
3-90	0	1,420	33
5-90	0	715	29
8-90	0	1,410	36
12-90	0	1,145	29
3-91	0	1,449	30
6-91	10	1,389	31
9-91	0	1,226	27
10-91	0	1,285	30
2-92	0	988	31
6-92	0	1,163	26
9-92	0	1,547	28
10-92	0	1,299	45
3-93	0	1,332	15
4-93	0	1,184	21
8-93	0	1,025	32
11-93	0	1,017	29
2-94	0	1,045	14
6-94	0	939	17
8-94	0	788	31
10-94	0	966	24
3-95	0	949	31
5-95	0	911	19
9-95	0	966	29
10-95	0	764	20
2-96	0	618	28
4-96	0	630	123
7-96	0	884	24
10-96	0	843	24
2-97	0	709	26
5-97	0	741	27
9-97	0	699	25
1-98	0	787	26
2-98	0	915	20
5-98	0	684	21
9-98	0	306	5
11-98	0	518	26
3-99	0	393	21
4-99	0	611	21
8-99	0	389	25
11-99	0	479	12

W422			
Sampling Date	Total CPAH[1]	Total Other PAH[2]	Total Phenolics
1st Quarter	0	27	11
2nd Quarter	0	57	0
8-88	0	77	24
10-88	0	50	84
3-89	0	50	11
6-89	0	50	14
9-89	0	60	20
12-89	0	50	13
3-90	0	75	21
5-90	0	60	14
8-90	0	90	14
12-90	0	60	18
4-91	0	67	13
9-91	0	-	17
10-91	0	88	18
2-92	0	121	16
6-92	0	872	-
9-92	0	91	9
10-92	0	89	28
3-93	0	94	0
4-93	0	96	10
8-93	0	81	16
11-93	0	74	16
2-94	0	61	0
6-94	0	66	7
8-94	0	66	30
10-94	0	59	11
3-95	0	54	11
5-95	0	62	5
9-95	0	53	14
10-95	0	29	10
2-96	0	24	12
4-96	0	26	11
7-96	0	26	9
10-96	0	23	8
2-97	0	21	9
5-97	0	20	11
9-97	0	19	18
1-98	0	18	11
2-98	0	21	6
5-98	0	17	9
9-98	0	7	0
11-98	0	13	9
3-99	0	20	0
4-99	0	14	8
8-99	0	13	10
11-99	0	13	4

CITY OF ST. LOUIS PARK



REILLY SITE

WELL LOCATION
7 WELL IDENTIFICATION
.79 WATER LEVEL
0 SUM-BENZO(a)PYRENE & DIBENZ(a,h)ANTHRACENE (PPB)
0 SUM-CARCINOGENIC PAH (PPB)
78 SUM-OTHER PAH'S (PPB)
11.2 TOTAL PHENOLICS (PPB)

Concentration in micrograms per liter
equivalent to parts per billion

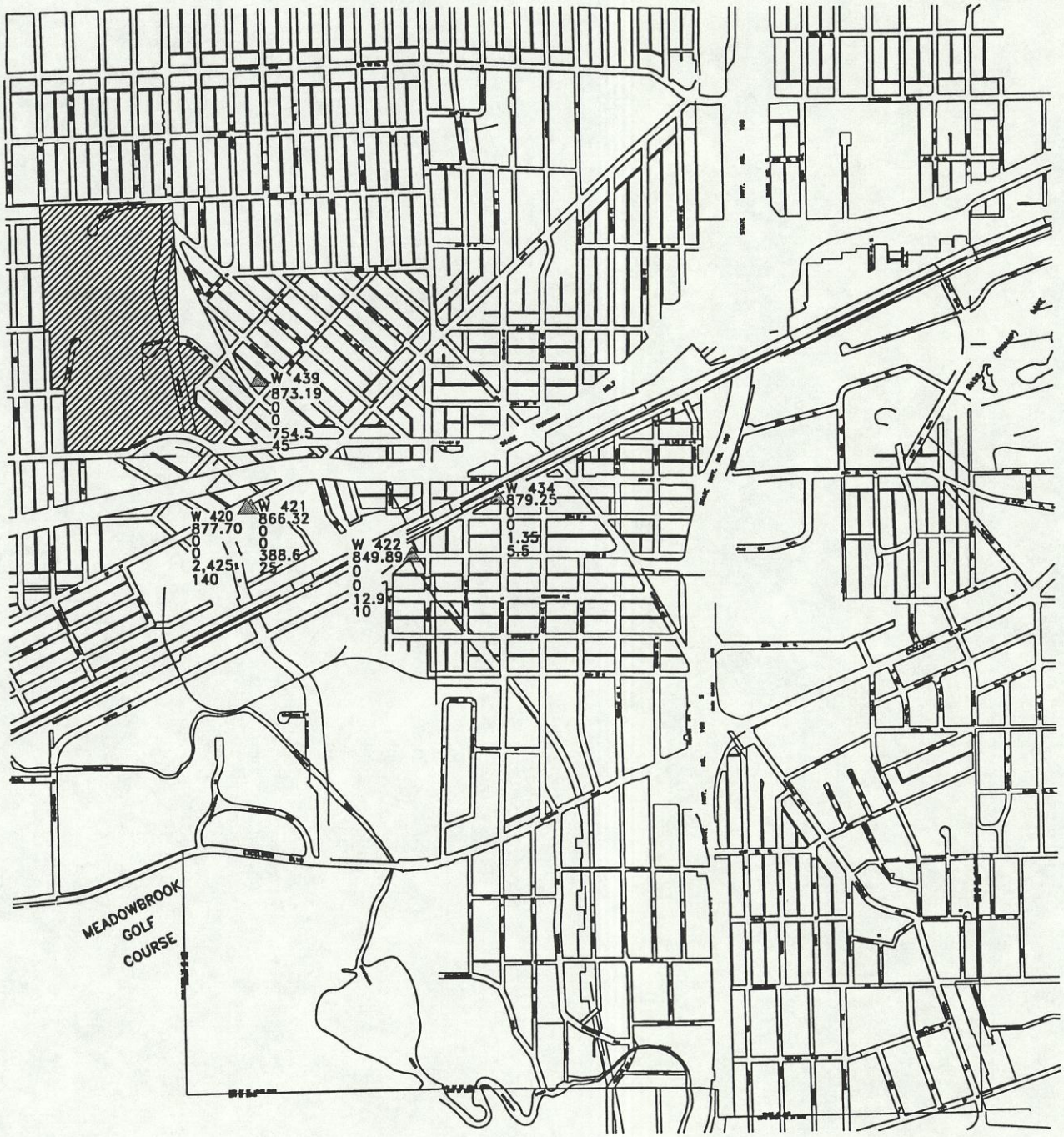
ENSR
CONSULTING-ENGINEERING-REMEDIATION

FIGURE 6-4

SUMMARY OF GROUND WATER MONITORING RESULTS
FOR DRIFT-PLATTVILLE AQUIFER NOVEMBER 1999
FOURTH QUARTER

DRAWN: C. BOEHM	DATE: 3/2/00	PROJECT No.: 1620-013	REV:
FILE No.: FIG6-4.DWG	CHECKED: PJM		

CITY OF ST. LOUIS PARK



REILLY SITE

WELL LOCATION
P 7 WELL IDENTIFICATION
9.79 WATER LEVEL
0 SUM-BENZO(a)PYRENE & DIBENZ(a,h)ANTHRACENE (PPB)
0 SUM-CARCINOGENIC PAH (PPB)
78 SUM-OTHER PAH'S (PPB)
5.9 TOTAL PHENOLICS (PPB)

Concentration in micrograms per liter
equivalent to parts per billion

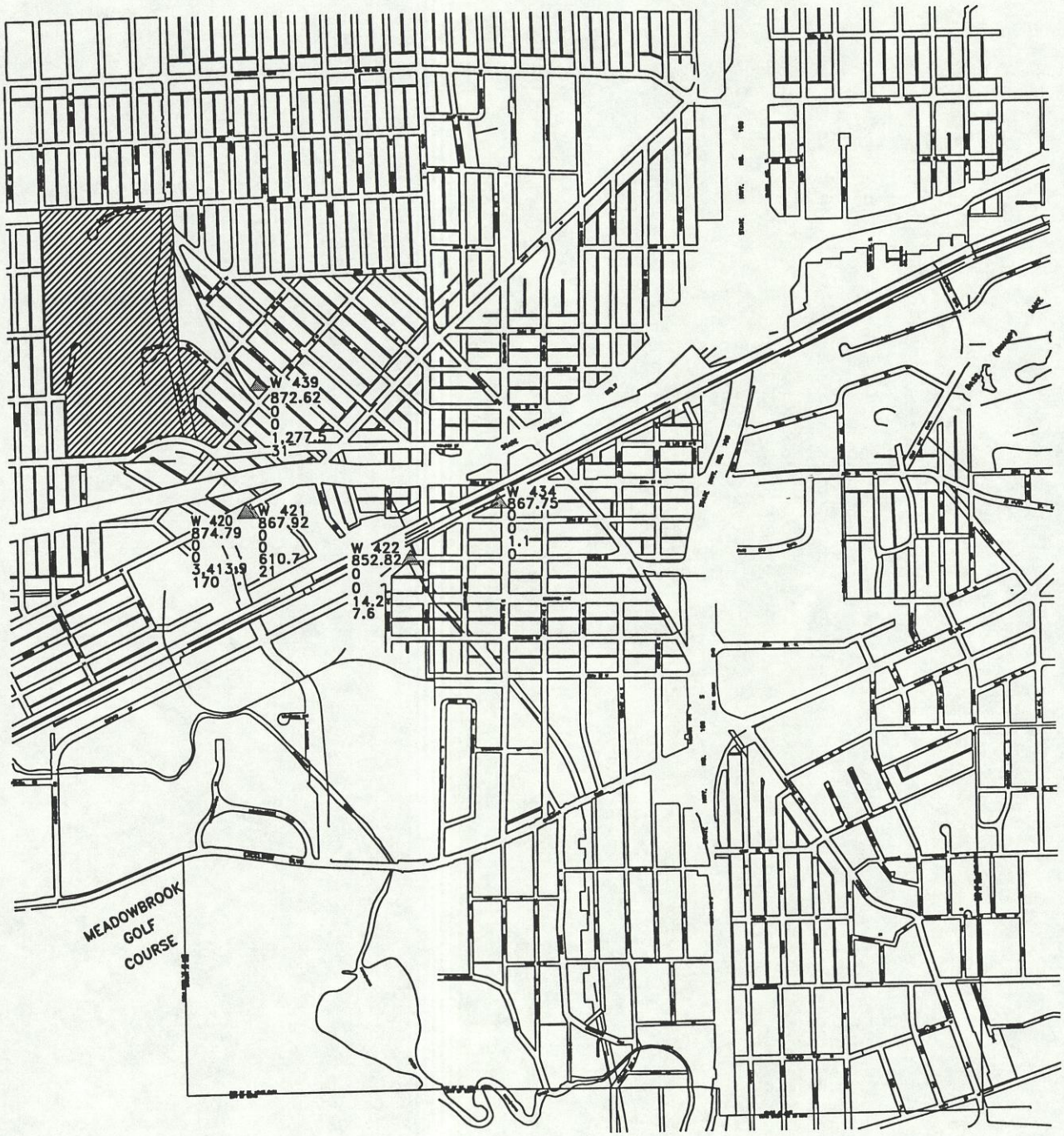
ENSR
CONSULTING-ENGINEERING-REMEDIATION

FIGURE 6-3

SUMMARY OF GROUNDWATER MONITORING RESULTS
FOR DRIFT-PLATTVILLE AQUIFER AUGUST 1999
3rd QUARTER

DRAWN: C. BOEHM	DATE: 3/2/00	PROJECT No.: 1620-013	REV:
FILE No.: FIG6-3.DWG	CHECKED: PJM		

CITY OF ST. LOUIS PARK



REILLY SITE

WELL LOCATION
P 7 WELL IDENTIFICATION
.79 WATER LEVEL
SUM-BENZO(a)PYRENE & DIBENZ(a,h)ANTHRACENE (PPB)
0 SUM-CARCINOGENIC PAH (PPB)
78 SUM-OTHER PAH'S (PPB)
8 TOTAL PHENOLICS (PPB)

Concentration in micrograms per liter equivalent to parts per billion

ENSR
CONSULTING-ENGINEERING-REMEDIATION

FIGURE 6-2

SUMMARY OF GROUNDWATER MONITORING RESULTS FOR DRIFT-PLATTVILLE AQUIFER APRIL 1999 SECOND QUARTER

DRAWN:	C. BOEHM	DATE:	3/2/00	PROJECT No.: 1620-013	REV:
FILE No.:	FIG6-2.DWG	CHECKED:	PJM		

APPENDIX

GUIDE TO APPENDED LABORATORY RESULTS FOR ALL 1999 SAMPLES

Sample Location	CD-RAP Section	Sampling Frequency	Analysis	1st Quarter	Appendix ID	2nd Quarter	Appendix ID	3rd Quarter	Appendix ID	4th Quarter	Appendix ID
Mount Simon Hinckley Aquifer											
SLP 11	5.1	Annual	PPT 5			10-May	F				
SLP 12	5 1	Annual	PPT 5					14-Sep	P		
SLP 13	5 1	Annual	PPT 5			10-May	F				
SLP 17	5.1	Annual	PPT 5			10-May	F				
Prairie du Chien-Jordan Aquifer											
SLP 4	7.3 (A)	Semi	PPT 5			11-May	G	13-Sep	O		
W 23	7 3 (B)	Semi	PPB-PAH			19-Apr	A	23-Aug	L		
SLP 6	7 3 (C)	Annual	PPT 5					31-Aug	N		
SLP 7 or SLP 9	7 3 (C)	Annual	PPT 5			18-May	I				
SLP 10 or SLP 15	7 3 (D)	Annual	PPT 5			17-May	H				
SLP 14	7.3 (D)	Annual	PPT 5			18-May	I				
SLP 16	7.3 (D)	Annual	PPT 5			24-May	J				
W 119	7.3 (D)	Annual	PPT 5			Well out of service					
W 402	7.3 (D)	Annual	PPT 5			17-May	H				
W 403	7.3 (D)	Annual	PPT 5			17-May	H				
W 405 or W 406	7 3 (D)	Annual	PPT 5			17-May	H				
SLP 5	7.3 (E)	Annual	PPT 5			Well out of service					
W 29	7.3 (E)	Annual	PPT 5			17-May	H				
W 40	7.3 (E)	Annual	PPT 5			18-May	I				
W 70	7.3 (E)	Annual	PPT 5			18-May	I				
E 3	7.3 (E)	Annual	PPT 5			24-May	J				
H 6	7.3 (E)	Annual	PPT 5			18-May	I				
MTK 6	7 3 (E)	Annual	PPT 5			18-May	I				
W48	7.4.1	*Semi*	PPT 5			24-May	J	30-Aug	M		
W401	7 4 1	*Semi*	PPT 5			18-May	I	31-Aug	N		
E2	7 4 1	*Semi*	PPT 5			Well out of service		30-Aug	M		
E7	7 4.1	*Semi*	PPT 5			24-May	J	30-Aug	M		
E13	7.4 1	*Semi*	PPT 5			24-May	J	30-Aug	M		
E15	7 4 1	*Semi*	PPT 5			24-May	J	30-Aug	M		

GUIDE TO APPENDED LABORATORY RESULTS FOR ALL 1999 SAMPLES

Sample Location	Rap Section	Frequency	Analysis	1st Quarter	Appendix ID	2nd Quarter	Appendix ID	3rd Quarter	Appendix ID	4th Quarter	Appendix ID
St. Peter Aquifer											
SLP 3	8.1.3	*Semi*	PPT 5			3-May	E	31-Aug	N		
W 122	8.1 3	*Semi*	PPT 5			3-May	E	31-Aug	N		
W 129	8.1 3	*Semi*	PPT 5			3-May	E	31-Aug	N		
W 408	8.1.3	*Semi*	PPT 5			3-May	E	31-Aug	N		
W 411	8 1.3	*Semi*	PPT 5			3-May	E	31-Aug	N		
P 116	8.1.3	*Semi*	PPT 5			3-May	E	31-Aug	N		
W 24	8 1 3	*Semi*	PPT 75			26-Apr	C	20-Sep	Q		
W 33	8.1.3	*Semi*	PPT 75			26-Apr	C	21-Sep	R		
W 133	8.1 3	*Semi*	PPT 75			26-Apr	C	20-Sep	Q		
W 410	8 1.3	*Semi*	PPT 75			26-Apr	C	20-Sep	Q		
W 412	8.1.3	*Semi*	PPT 75			26-Apr	C	20-Sep	Q		
W 409	8.1 3	Semi	PPB			18-Apr	B	23-Aug	K		
Drift-Platteville Aquifer											
W 420	9.1.3	Quarterly	PPB-PAH	16-Mar	A	19-Apr	B	23-Aug	K	15-Nov	S
	AND		Phenolics	16-Mar	A	19-Apr	B	23-Aug	L	15-Nov	S
W 421	9.2 3	Quarterly	PPB-PAH	16-Mar	A	19-Apr	B	23-Aug	K	15-Nov	S
			Phenolics	16-Mar	A	19-Apr	B	23-Aug	L	15-Nov	S
W 422	9.1 3	Quarterly	PPB-PAH	16-Mar	A	19-Apr	B	23-Aug	K	15-Nov	S
	AND		Phenolics	16-Mar	A	19-Apr	B	23-Aug	L	15-Nov	S
W 434	9 2 3	Quarterly	PPB-PAH	16-Mar	A	19-Apr	B	23-Aug	K	15-Nov	S
			Phenolics	16-Mar	A	19-Apr	B	23-Aug	L	15-Nov	S
W 439		Quarterly	PPB-PAH	16-Mar	A	19-Apr	B	23-Aug	K	15-Nov	S
			Phenolics	16-Mar	A	19-Apr	B	23-Aug	L	15-Nov	S
Platteville Aquifer											
W1	9.5	*Semi*	PPT 5			10-May	F	13-Sep	O		
W18	9 5	*Semi*	PPT 5			10-May	F	13-Sep	O		
W19	9 5	*Semi*	PPT 5			10-May	F	13-Sep	O		
W20	9.5	*Semi*	PPT 5			10-May	F	13-Sep	O		
W121	9 5	*Semi*	PPT 5			11-May	G	13-Sep	O		
W124	9.5	*Semi*	PPT 5			11-May	G	14-Sep	P		
W130	9.5	*Semi*	PPT 5			11-May	G	14-Sep	P		
W131	9.5	*Semi*	PPT 5			11-May	G	14-Sep	P		
W424	9 5	*Semi*	PPT 5			11-May	G	14-Sep	P		
W428	9 5	*Semi*	PPT 5			11-May	G	14-Sep	P		
W431	9 5	*Semi*	PPT 5			11-May	G	14-Sep	P		
W22	9.5	*Semi*	PPT 75			27-Apr	D	21-Sep	R		
W 101	9 5	*Semi*	PPT 75			27-Apr	D	21-Sep	R		
W120	9 5	*Semi*	PPT 75			27-Apr	D	21-Sep	R		
W432	9.5	*Semi*	PPT 75			27-Apr	D	21-Sep	R		
W433	9 5	*Semi*	PPT 75			27-Apr	D	21-Sep	R		
W27	9 5	*Semi*	PPB			18-Apr	B	23-Aug	K		
W143	9 5	*Semi*	PPB			19-Apr	B	23-Aug	K		
W426	9 5	*Semi*	PPB			18-Apr	B	23-Aug	K		

A

A

PPB
Phenol

Quanterra

Advanced Analytical Services

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 467-9136 Fax

CASE NARRATIVE

FOR

City of St. Louis Park

April 9, 1999

Quanterra , Inc.

Project Lot Number D9C170111

Introduction

Thirteen aqueous samples (including matrix QC) were received at Quanterra Environmental Services, Denver Laboratory on March 17, 1999. The samples were logged in under Quanterra Denver's project lot number D9C170111. A cross reference associating Quanterra Denver's laboratory sample numbers to the actual field sample number is included. The samples were analyzed for part per billion (ppb) PAHs and total recoverable phenolics.

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the October 1998 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 laboratory Ids D9C170111-001, -001MS/SD, -002, -005 and –007 were analyzed at a dilution for method 8270 GC/MS PAH analysis due to target analytes exceeding the linear range of the instrument. The reporting limits were raised accordingly. As a result of the dilutions all of the surrogate compounds are reported as NC, not calculated.

The surrogate compound naphthalene-d8 in client sample with laboratory Id D9C170111-004 was recovered at 112% which is above the 37% to 107% acceptance limits. There were no compounds above the reporting limit for this sample. No corrective action is indicated.

The spike compound indene in the LCS and DCS was recovered at 137% and 133% respectively which is above the 49% to 108% acceptance limits. There was no indene above the reporting limits in any of the samples associated with these DCSs. No corrective action is indicated.

Naphthalene was not recovered in either the matrix spike or matrix spike duplicate samples. Naphthalene was recovered within acceptance limits in both DCSs. A matrix effect is indicated.

The relative percent difference (RPD) for the spike compounds chrysene and benzo (e) pyrene are reported above the 20% acceptance limit for the matrix spike and matrix spike duplicate samples. The relative percent difference for chrysene and benzo (e) pyrene in the DCSs associated with these samples was within acceptance limits. A matrix effect indicated.

Samples with laboratory Ids D9C170111-001, 001MS & MSD and –002 were analyzed at a dilution for method 420.1 total recoverable phenolics due to target analytes exceeding the linear range of the instrument. The reporting limits were raised accordingly.

Spike recoveries are reported at 155% and 181% recoveries which are above the 75% to 125% acceptance criteria. The Duplicate Control Samples associated with these samples were within acceptance limits. A matrix effect is indicated.

Except for the above, this data package is in compliance with the terms and conditions of the October 1998 QAPP, both technically and for completeness

Reported By: Kurt C. Ill **Date:** April 9, 1999

Kurt C. Ill
Customer Service Manger

ANALYTICAL REPORT

Reilly Tar & Chemical NPL Site

Lot #: D9C170111

Scott Anderson

City of St. Louis Park

QUANTERRA INCORPORATED

Kurt C. Ill
Project Manager

April 11, 1999

EXECUTIVE SUMMARY - Detection Highlights

D9C170111

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
DPV-W420-031699 03/16/99 001				
2,3-Benzofuran	100 J	200	ug/L	SW846 8270B
2,3-Dihydroindene	350	200	ug/L	SW846 8270B
Naphthalene	2200	200	ug/L	SW846 8270B
Benzo(b)thiophene	160 J	200	ug/L	SW846 8270B
2-Methylnaphthalene	150 J	200	ug/L	SW846 8270B
1-Methylnaphthalene	160 J	200	ug/L	SW846 8270B
Biphenyl	31 J	200	ug/L	SW846 8270B
Acenaphthene	160 J	200	ug/L	SW846 8270B
4337 Acridine	3.2 J 33420	200	ug/L	SW846 8270B
Total Phenols	0.19	0.025	mg/L	MCAWW 420.1
DPV-W420D-031699 03/16/99 002				
2,3-Benzofuran	97 J	200	ug/L	SW846 8270B
2,3-Dihydroindene	340	200	ug/L	SW846 8270B
Naphthalene	2100	200	ug/L	SW846 8270B
Benzo(b)thiophene	150 J	200	ug/L	SW846 8270B
2-Methylnaphthalene	140 J	200	ug/L	SW846 8270B
1-Methylnaphthalene	170 J	200	ug/L	SW846 8270B
Biphenyl	31 J	200	ug/L	SW846 8270B
Acenaphthene	160 J	200	ug/L	SW846 8270B
Dibenzothiophene	8.6 J	200	ug/L	SW846 8270B
Anthracene	37 J	200	ug/L	SW846 8270B
Acridine	7.3 J 32409	200	ug/L	SW846 8270B
Total Phenols	0.20	0.025	mg/L	MCAWW 420.1
DPV-W420FBD-031699 03/16/99 004				
Benzo(b)thiophene	6.4 J	10	ug/L	SW846 8270B
Dibenzothiophene	7.5 J	10	ug/L	SW846 8270B
DPV-W421-031699 03/16/99 005				
2,3-Dihydroindene	82 J	100	ug/L	SW846 8270B
Naphthalene	180	100	ug/L	SW846 8270B
Benzo(b)thiophene	38 J	100	ug/L	SW846 8270B
1-Methylnaphthalene	40 J	100	ug/L	SW846 8270B
Biphenyl	5.4 J	100	ug/L	SW846 8270B
Acenaphthene	37 J	100	ug/L	SW846 8270B
Dibenzothiophene	1.4 J	100	ug/L	SW846 8270B
Acridine	8.8 J	100	ug/L	SW846 8270B
Benzo(e)pyrene	0.20 J 39282	100	ug/L	SW846 8270B
Total Phenols	0.021	0.0050	mg/L	MCAWW 420.1

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

D9C170111

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
DPV-W422-031699 03/16/99 006				
2,3-Dihydroindene	7.3 J	10	ug/L	SW846 8270B
Acenaphthene	13	10	ug/L	SW846 8270B
DPV-W439-031699 03/16/99 007				
2,3-Benzofuran	14 J	100	ug/L	SW846 8270B
2,3-Dihydroindene	190	100	ug/L	SW846 8270B
Indene	140	100	ug/L	SW846 8270B
Naphthalene	790	100	ug/L	SW846 8270B
Benzo(b)thiophene	59 J	100	ug/L	SW846 8270B
1-Methylnaphthalene	97 J	100	ug/L	SW846 8270B
Biphenyl	10 J	100	ug/L	SW846 8270B
Acenaphthene	85 J	100	ug/L	SW846 8270B
Total Phenols	0.029	0.0050	mg/L	MCAWW 420.1
DPV-W434-031699 03/16/99 008				
2,3-Dihydroindene	1.4 J	10	ug/L	SW846 8270B
Benzo(b)thiophene	5.1 J	10	ug/L	SW846 8270B
Dibenzothiophene	7.5 J	10	ug/L	SW846 8270B
GTF-ACFR-031699 03/16/99 009				
Total Phenols	0.0064	0.0050	mg/L	MCAWW 420.1
STP-W410-031699 03/16/99 010				
2,3-Dihydroindene	4.8 J	10	ug/L	SW846 8270B
Benzo(b)thiophene	1.4 J	10	ug/L	SW846 8270B
Dibenzothiophene	7.5 J	10	ug/L	SW846 8270B

ANALYTICAL METHODS SUMMARY

D9C170111

PARAMETER	ANALYTICAL METHOD
Phenolics	MCAWW 420.1
Semivolatile Organic Compounds by GC/MS	SW846 8270B

References:

MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

METHOD / ANALYST SUMMARY

D9C170111

ANALYTICAL METHOD	ANALYST	ANALYST ID
MCAWW 420.1	Roxanne K. Sullivan	001200
SW846 8270B	Phil Anderson	008918

References:

MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

D9C170111

WO #	SAMPLE#	CLIENT SAMPLE ID	DATE	TIME
CRND4	001	DPV-W420-031699	03/16/99	
CRNDX	002	DPV-W420D-031699	03/16/99	
CRNE4	003	DPV-W420FB-031699	03/16/99	
CRNEH	004	DPV-W420FBD-031699	03/16/99	
CRNEL	005	DPV-W421-031699	03/16/99	
CRNF2	006	DPV-W422-031699	03/16/99	
CRNF4	007	DPV-W439-031699	03/16/99	
CRNF6	008	DPV-W434-031699	03/16/99	
CRNFA	009	GTF-ACFE-031699	03/16/99	
CRNFC	010	STP-W410-031699	03/16/99	
CRNFE	011	PCJ-SLP4TP-031699	03/16/99	

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages
- All calculations are performed before rounding to avoid round-off errors in calculated results
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory
- Results for the following parameters are never reported on a dry weight basis color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W420-031699

GC/MS Semivolatiles

Lot-Sample #...: D9C170111-001 Work Order #...: CRND4101 Matrix.....: WATER
Date Sampled...: 03/16/99 Date Received..: 03/17/99
Prep Date.....: 03/18/99 Analysis Date..: 04/08/99
Prep Batch #...: 9077215 Analysis Time..: 11:51
Dilution Factor: 20

Method.....: SW846 8270B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,3-Benzofuran	**100 J**	**200**	**ug/L**
2,3-Dihydroindene	**350**	**200**	**ug/L**
Indene	ND	200	ug/L
Naphthalene	**2200**	**200**	**ug/L**
Benzo(b)thiophene	**160 J**	**200**	**ug/L**
Quinoline	ND	200	ug/L
Indole	ND	200	ug/L
2-Methylnaphthalene	**150 J**	**200**	**ug/L**
1-Methylnaphthalene	**160 J**	**200**	**ug/L**
Biphenyl	**31 J**	**200**	**ug/L**
Acenaphthylene	ND	200	ug/L
Acenaphthene	**160 J**	**200**	**ug/L**
Dibenzofuran	ND	200	ug/L
Fluorene	ND	200	ug/L
Dibenzothiophene	ND	200	ug/L
Phenanthrene	ND	200	ug/L
Anthracene	ND	200	ug/L
Acridine	**3.2 J**	**200**	**ug/L**
Carbazole	ND	200	ug/L
Fluoranthene	ND	200	ug/L
Pyrene	ND	200	ug/L
Benzo(a)anthracene	ND	200	ug/L
Chrysene	ND	200	ug/L
Benzo(b)fluoranthene	ND	200	ug/L
Benzo(k)fluoranthene	ND	200	ug/L
Benzo(e)pyrene	ND	200	ug/L
Benzo(a)pyrene	ND	200	ug/L
Perylene	ND	200	ug/L
Indeno(1,2,3-cd)pyrene	ND	200	ug/L
Benzo(ghi)perylene	ND	200	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	0.0 NC	(25 - 160)
Fluorene d-10	0.0 NC	(36 - 127)
Naphthalene-d8	0.0 NC	(37 - 107)

NOTE(S):

NC The recovery and/or RPD were not calculated

J Estimated result. Result is less than RL

Surrogates diluted out; recoveries not calculated

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W420D-031699

GC/MS Semivolatiles

Lot-Sample #...: D9C170111-002 Work Order #...: CRNDX101 Matrix.....: WATER
Date Sampled...: 03/16/99 Date Received..: 03/17/99
Prep Date.....: 03/18/99 Analysis Date..: 04/08/99
Prep Batch #...: 9077215 Analysis Time..: 13:41
Dilution Factor: 20

Method.....: SW846 8270B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,3-Benzofuran	**97 J**	**200**	**ug/L**
2,3-Dihydroindene	**340**	**200**	**ug/L**
Indene	ND	200	ug/L
Naphthalene	**2100**	**200**	**ug/L**
Benzo(b)thiophene	**150 J**	**200**	**ug/L**
Quinoline	ND	200	ug/L
Indole	ND	200	ug/L
2-Methylnaphthalene	**140 J**	**200**	**ug/L**
1-Methylnaphthalene	**170 J**	**200**	**ug/L**
Biphenyl	**31 J**	**200**	**ug/L**
Acenaphthylene	ND	200	ug/L
Acenaphthene	**160 J**	**200**	**ug/L**
Dibenzofuran	ND	200	ug/L
Fluorene	ND	200	ug/L
Dibenzothiophene	**8.6 J**	**200**	**ug/L**
Phenanthrene	ND	200	ug/L
Anthracene	**37 J**	**200**	**ug/L**
Acridine	**7.3 J**	**200**	**ug/L**
Carbazole	ND	200	ug/L
Fluoranthene	ND	200	ug/L
Pyrene	ND	200	ug/L
Benzo(a)anthracene	ND	200	ug/L
Chrysene	ND	200	ug/L
Benzo(b)fluoranthene	ND	200	ug/L
Benzo(k)fluoranthene	ND	200	ug/L
Benzo(e)pyrene	ND	200	ug/L
Benzo(a)pyrene	ND	200	ug/L
Perylene	ND	200	ug/L
Indeno(1,2,3-cd)pyrene	ND	200	ug/L
Benzo(ghi)perylene	ND	200	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	0.0 NC	(25 - 160)
Fluorene d-10	0.0 NC	(36 - 127)
Naphthalene-d8	0.0 NC	(37 - 107)

(Continued on next page)

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W420D-031699

GC/MS Semivolatiles

Lot-Sample #...: D9C170111-002 Work Order #...: CRNDX101 Matrix.....: WATER

NOTE(S):

NC The recovery and/or RPD were not calculated

J Estimated result. Result is less than RL.

Surrogates diluted out; recoveries not calculated

Surrogates outside acceptance criteria due to demonstrated matrix effect

Surrogates outside acceptance criteria due to demonstrated matrix effect.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W420FB-031699

GC/MS Semivolatiles

Lot-Sample #...: D9C170111-003 Work Order #...: CRNE4101 Matrix.....: WATER
Date Sampled...: 03/16/99 Date Received..: 03/17/99
Prep Date.....: 03/18/99 Analysis Date..: 04/07/99
Prep Batch #...: 9077215 Analysis Time..: 02:50
Dilution Factor: 1

Method.....: SW846 8270B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,3-Benzofuran	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Indene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Quinoline	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acenaphthene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Fluorene	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Anthracene	ND	10	ug/L
Acridine	ND	10	ug/L
Carbazole	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Pyrene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Chrysene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Perylene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	126	(25 - 160)
Fluorene d-10	113	(36 - 127)
Naphthalene-d8	94	(37 - 107)

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W420FBD-031699

GC/MS Semivolatiles

Lot-Sample #...: D9C170111-004 Work Order #...: CRNEH101 Matrix.....: WATER
Date Sampled...: 03/16/99 Date Received..: 03/17/99
Prep Date.....: 03/18/99 Analysis Date..: 04/07/99
Prep Batch #...: 9077215 Analysis Time..: 03:27
Dilution Factor: 1

Method.....: SW846 8270B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,3-Benzofuran	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Indene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Benzo(b)thiophene	**6.4 J**	**10**	**ug/L**
Quinoline	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acenaphthene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Fluorene	ND	10	ug/L
Dibenzothiophene	**7.5 J**	**10**	**ug/L**
Phenanthrene	ND	10	ug/L
Anthracene	ND	10	ug/L
Acridine	ND	10	ug/L
Carbazole	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Pyrene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Chrysene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Perylene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	133	(25 - 160)
Fluorene d-10	121	(36 - 127)
Naphthalene-d8	112 *	(37 - 107)

NOTE(S):

* Surrogate recovery is outside stated control limits

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W421-031699

GC/MS Semivolatiles

Lot-Sample #...: D9C170111-005 Work Order #...: CRNEL101 Matrix.....: WATER
Date Sampled...: 03/16/99 Date Received..: 03/17/99
Prep Date.....: 03/18/99 Analysis Date..: 04/08/99
Prep Batch #...: 9077215 Analysis Time..: 14:17
Dilution Factor: 10

Method.....: SW846 8270B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,3-Benzofuran	ND	100	ug/L
2,3-Dihydroindene	**82 J**	**100**	**ug/L**
Indene	ND	100	ug/L
Naphthalene	**180**	**100**	**ug/L**
Benzo(b)thiophene	**38 J**	**100**	**ug/L**
Quinoline	ND	100	ug/L
Indole	ND	100	ug/L
2-Methylnaphthalene	ND	100	ug/L
1-Methylnaphthalene	**40 J**	**100**	**ug/L**
Biphenyl	**5.4 J**	**100**	**ug/L**
Acenaphthylene	ND	100	ug/L
Acenaphthene	**37 J**	**100**	**ug/L**
Dibenzofuran	ND	100	ug/L
Fluorene	ND	100	ug/L
Dibenzothiophene	**1.4 J**	**100**	**ug/L**
Phenanthrene	ND	100	ug/L
Anthracene	ND	100	ug/L
Acridine	**8.8 J**	**100**	**ug/L**
Carbazole	ND	100	ug/L
Fluoranthene	ND	100	ug/L
Pyrene	ND	100	ug/L
Benzo(a)anthracene	ND	100	ug/L
Chrysene	ND	100	ug/L
Benzo(b)fluoranthene	ND	100	ug/L
Benzo(k)fluoranthene	ND	100	ug/L
Benzo(e)pyrene	**0.20 J**	**100**	**ug/L**
Benzo(a)pyrene	ND	100	ug/L
Perylene	ND	100	ug/L
Indeno(1,2,3-cd)pyrene	ND	100	ug/L
Benzo(ghi)perylene	ND	100	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	52	(25 - 160)
Fluorene d-10	75	(36 - 127)
Naphthalene-d8	86	(37 - 107)

NOTE(S):

J Estimated result Result is less than RL

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W422-031699

GC/MS Semivolatiles

Lot-Sample #...: D9C170111-006 Work Order #...: CRNF2101 Matrix.....: WATER
Date Sampled...: 03/16/99 Date Received..: 03/17/99
Prep Date.....: 03/18/99 Analysis Date..: 04/07/99
Prep Batch #...: 9077215 Analysis Time..: 04:42
Dilution Factor: 1

Method.....: SW846 8270B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,3-Benzofuran	ND	10	ug/L
2,3-Dihydroindene	7.3 J	10	ug/L
Indene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Quinoline	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acenaphthene	13	10	ug/L
Dibenzofuran	ND	10	ug/L
Fluorene	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Anthracene	ND	10	ug/L
Acridine	ND	10	ug/L
Carbazole	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Pyrene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Chrysene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Perylene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	72	(25 - 160)
Fluorene d-10	110	(36 - 127)
Naphthalene-d8	92	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W439-031699

GC/MS Semivolatiles

Lot-Sample #...: D9C170111-007 Work Order #...: CRNF4101 Matrix.....: WATER
Date Sampled...: 03/16/99 Date Received..: 03/17/99
Prep Date.....: 03/18/99 Analysis Date..: 04/08/99
Prep Batch #...: 9077215 Analysis Time..: 14:54
Dilution Factor: 10

Method.....: SW846 8270B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,3-Benzofuran	14 J	100	ug/L
2,3-Dihydroindene	190	100	ug/L
Indene	140	100	ug/L
Naphthalene	790	100	ug/L
Benzo(b)thiophene	59 J	100	ug/L
Quinoline	ND	100	ug/L
Indole	ND	100	ug/L
2-Methylnaphthalene	ND	100	ug/L
1-Methylnaphthalene	97 J	100	ug/L
Biphenyl	10 J	100	ug/L
Acenaphthylene	ND	100	ug/L
Acenaphthene	85 J	100	ug/L
Dibenzofuran	ND	100	ug/L
Fluorene	ND	100	ug/L
Dibenzothiophene	ND	100	ug/L
Phenanthrene	ND	100	ug/L
Anthracene	ND	100	ug/L
Acridine	ND	100	ug/L
Carbazole	ND	100	ug/L
Fluoranthene	ND	100	ug/L
Pyrene	ND	100	ug/L
Benzo(a)anthracene	ND	100	ug/L
Chrysene	ND	100	ug/L
Benzo(b)fluoranthene	ND	100	ug/L
Benzo(k)fluoranthene	ND	100	ug/L
Benzo(e)pyrene	ND	100	ug/L
Benzo(a)pyrene	ND	100	ug/L
Perylene	ND	100	ug/L
Indeno(1,2,3-cd)pyrene	ND	100	ug/L
Benzo(ghi)perylene	ND	100	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	0.0 NC	(25 - 160)
Fluorene d-10	0.0 NC	(36 - 127)
Naphthalene-d8	0.0 NC	(37 - 107)

NOTE(S):

NC The recovery and/or RPD were not calculated.

J Estimated result. Result is less than RL.

Surrogates diluted out, recoveries not calculated

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W434-031699

GC/MS Semivolatiles

Lot-Sample #...: D9C170111-008 Work Order #...: CRNF6101 Matrix.....: WATER
Date Sampled...: 03/16/99 Date Received..: 03/17/99
Prep Date.....: 03/18/99 Analysis Date..: 04/07/99
Prep Batch #...: 9077215 Analysis Time..: 05:56
Dilution Factor: 1

Method.....: SW846 8270B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,3-Benzofuran	ND	10	ug/L
2,3-Dihydroindene	**1.4 J**	**10**	**ug/L**
Indene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Benzo(b)thiophene	**5.1 J**	**10**	**ug/L**
Quinoline	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acenaphthene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Fluorene	ND	10	ug/L
Dibenzothiophene	**7.5 J**	**10**	**ug/L**
Phenanthrene	ND	10	ug/L
Anthracene	ND	10	ug/L
Acridine	ND	10	ug/L
Carbazole	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Pyrene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Chrysene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Perylene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	100	(25 - 160)
Fluorene d-10	105	(36 - 127)
Naphthalene-d8	74	(37 - 107)

NOTE(S):

J Estimated result Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: *GTF-ACFE-031699*

GC/MS Semivolatiles

Lot-Sample #...: D9C170111-009 **Work Order #...:** CRNFA101 **Matrix.....:** WATER
Date Sampled...: 03/16/99 **Date Received..:** 03/17/99
Prep Date.....: 03/18/99 **Analysis Date..:** 04/07/99
Prep Batch #...: 9077215 **Analysis Time..:** 06:32
Dilution Factor: 1

Method.....: SW846 8270B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,3-Benzofuran	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Indene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Quinoline	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acenaphthene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Fluorene	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Anthracene	ND	10	ug/L
Acridine	ND	10	ug/L
Carbazole	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Pyrene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Chrysene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Perylene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	102	(25 - 160)
Fluorene d-10	117	(36 - 127)
Naphthalene-d8	98	(37 - 107)

CITY OF ST. LOUIS PARK

Client Sample ID: STP-W410-031699

GC/MS Semivolatiles

Lot-Sample #...:	D9C170111-010	**Work Order #...:**	CRNFC101	**Matrix.....:**	WATER
Date Sampled...:	03/16/99	**Date Received..:**	03/17/99		
Prep Date.....:	03/18/99	**Analysis Date..:**	04/07/99		
Prep Batch #...:	9077215	**Analysis Time..:**	07:09		
Dilution Factor:	1				
		Method.....:	SW846 8270B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,3-Benzofuran	ND	10	ug/L
2,3-Dihydroindene	**4.8 J**	**10**	**ug/L**
Indene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Benzo(b)thiophene	**1.4 J**	**10**	**ug/L**
Quinoline	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acenaphthene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Fluorene	ND	10	ug/L
Dibenzothiophene	**7.5 J**	**10**	**ug/L**
Phenanthrene	ND	10	ug/L
Anthracene	ND	10	ug/L
Acridine	ND	10	ug/L
Carbazole	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Pyrene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Chrysene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Perylene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	102	(25 - 160)
Fluorene d-10	114	(36 - 127)
Naphthalene-d8	88	(37 - 107)

NOTE(S):

J - Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W422-031699

General Chemistry

Lot-Sample #...: D9C170111-006 **Work Order #...:** CRNF2 **Matrix.....:** WATER
Date Sampled...: 03/16/99 **Date Received..:** 03/17/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols	ND	0.0050	mg/L	MCAWW 420.1	03/31-04/01/99	9092203

Dilution Factor: 1 Analysis Time..: 00:00

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W439-031699

General Chemistry

Lot-Sample #...: D9C170111-007 Work Order #...: CRNF4 Matrix.....: WATER
Date Sampled...: 03/16/99 Date Received..: 03/17/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols	0.029	0.0050	mg/L	MCAWW 420.1	03/31-04/01/99	9092203

Dilution Factor: 1 Analysis Time..: 00:00

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W434-031699

General Chemistry

Lot-Sample #...: D9C170111-008 **Work Order #...:** CRNF6 **Matrix.....:** WATER
Date Sampled...: 03/16/99 **Date Received..:** 03/17/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols	ND	0.0050	mg/L	MCAWW 420.1	03/31-04/01/99	9092203

Dilution Factor: 1 **Analysis Time..:** 00:00

CITY OF ST. LOUIS PARK

Client Sample ID: GTF-ACFE-031699

General Chemistry

Lot-Sample #...: D9C170111-009 Work Order #...: CRNFA Matrix.....: WATER
Date Sampled...: 03/16/99 Date Received..: 03/17/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols	0.0064	0.0050	mg/L	MCAWW 420.1	03/31-04/01/99	9092203

Dilution Factor: 1 Analysis Time..: 00:00

CITY OF ST. LOUIS PARK

Client Sample ID: STP-W410-031699

General Chemistry

Lot-Sample #...: D9C170111-010 **Work Order #...:** CRNFC **Matrix.....:** WATER
Date Sampled...: 03/16/99 **Date Received..:** 03/17/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols	ND	0.0050	mg/L	MCAWW 420.1	03/31-04/01/99	9092203

Dilution Factor: 1 Analysis Time..: 00:00

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W420-031699

General Chemistry

Lot-Sample #...: D9C170111-001 Work Order #...: CRND4 Matrix.....: WATER
Date Sampled...: 03/16/99 Date Received..: 03/17/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols	0.19	0.025	mg/L	MCAWW 420.1	03/31-04/01/99	9092203

Dilution Factor: 5 Analysis Time..: 00:00

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W420D-031699

General Chemistry

Lot-Sample #...: D9C170111-002 Work Order #...: CRNDX Matrix.....: WATER
Date Sampled...: 03/16/99 Date Received..: 03/17/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols	0.20	0.025	mg/L	MCAWW 420.1	03/31-04/01/99	9092203

Dilution Factor: 5 Analysis Time..: 00:00

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W420FB-031699

General Chemistry

Lot-Sample #...: D9C170111-003 Work Order #...: CRNE4 Matrix.....: WATER
Date Sampled...: 03/16/99 Date Received..: 03/17/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols	ND	0.0050	mg/L	MCAWW 420.1	03/31-04/01/99	9092203

Dilution Factor: 1 Analysis Time..: 00:00

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W420FBD-031699

General Chemistry

Lot-Sample #...: D9C170111-004 Work Order #...: CRNEH Matrix.....: WATER
Date Sampled...: 03/16/99 Date Received..: 03/17/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols	ND	0.0050	mg/L	MCAWW 420.1	03/31-04/01/99	9092203

Dilution Factor: 1 Analysis Time..: 00:00

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W421-031699

General Chemistry

Lot-Sample #...: D9C170111-005 Work Order #...: CRNEL Matrix.....: WATER
Date Sampled...: 03/16/99 Date Received..: 03/17/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols	0.021	0.0050	mg/L	MCAWW 420.1	03/31-04/01/99	9092203

Dilution Factor: 1 Analysis Time..: 00:00

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-SLP4TP-031699

General Chemistry

Lot-Sample #...: D9C170111-011 **Work Order #...:** CRNFE **Matrix.....:** WATER
Date Sampled...: 03/16/99 **Date Received..:** 03/17/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols	ND	0.0050	mg/L	MCAWW 420.1	03/31-04/01/99	9092203

Dilution Factor: 1 **Analysis Time..:** 00:00

QC DATA ASSOCIATION SUMMARY

D9C170111

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WATER	SW846 8270B		9077215	9077087
	WATER	MCAWW 420.1		9092203	9092073
002	WATER	SW846 8270B		9077215	9077087
	WATER	MCAWW 420.1		9092203	9092073
003	WATER	SW846 8270B		9077215	9077087
	WATER	MCAWW 420.1		9092203	9092073
004	WATER	SW846 8270B		9077215	9077087
	WATER	MCAWW 420.1		9092203	9092073
005	WATER	SW846 8270B		9077215	9077087
	WATER	MCAWW 420.1		9092203	9092073
006	WATER	SW846 8270B		9077215	9077087
	WATER	MCAWW 420.1		9092203	9092073
007	WATER	SW846 8270B		9077215	9077087
	WATER	MCAWW 420.1		9092203	9092073
008	WATER	SW846 8270B		9077215	9077087
	WATER	MCAWW 420.1		9092203	9092073
009	WATER	SW846 8270B		9077215	9077087
	WATER	MCAWW 420.1		9092203	9092073
010	WATER	SW846 8270B		9077215	9077087
	WATER	MCAWW 420.1		9092203	9092073
011	WATER	MCAWW 420.1		9092203	9092073

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D9C170111
MB Lot-Sample #: D9C180000-215
Work Order #...: CRPW1101
Matrix.....: WATER
Prep Date.....: 03/18/99
Analysis Time..: 22:31
Analysis Date..: 04/06/99
Prep Batch #...: 9077215
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
2,3-Benzofuran	ND	10	ug/L	SW846 8270B
2,3-Dihydroindene	ND	10	ug/L	SW846 8270B
Indene	ND	10	ug/L	SW846 8270B
Naphthalene	ND	10	ug/L	SW846 8270B
Benzo(b)thiophene	ND	10	ug/L	SW846 8270B
Quinoline	ND	10	ug/L	SW846 8270B
Indole	ND	10	ug/L	SW846 8270B
2-Methylnaphthalene	ND	10	ug/L	SW846 8270B
1-Methylnaphthalene	ND	10	ug/L	SW846 8270B
Biphenyl	ND	10	ug/L	SW846 8270B
Acenaphthylene	ND	10	ug/L	SW846 8270B
Acenaphthene	ND	10	ug/L	SW846 8270B
Dibenzofuran	ND	10	ug/L	SW846 8270B
Fluorene	ND	10	ug/L	SW846 8270B
Dibenzothiophene	ND	10	ug/L	SW846 8270B
Phenanthrene	ND	10	ug/L	SW846 8270B
Anthracene	ND	10	ug/L	SW846 8270B
Acridine	ND	10	ug/L	SW846 8270B
Carbazole	ND	10	ug/L	SW846 8270B
Fluoranthene	ND	10	ug/L	SW846 8270B
Pyrene	ND	10	ug/L	SW846 8270B
Benzo(a)anthracene	ND	10	ug/L	SW846 8270B
Chrysene	ND	10	ug/L	SW846 8270B
Benzo(b)fluoranthene	ND	10	ug/L	SW846 8270B
Benzo(k)fluoranthene	ND	10	ug/L	SW846 8270B
Benzo(e)pyrene	ND	10	ug/L	SW846 8270B
Benzo(a)pyrene	ND	10	ug/L	SW846 8270B
Perylene	ND	10	ug/L	SW846 8270B
Indeno(1,2,3-cd)pyrene	ND	10	ug/L	SW846 8270B
Benzo(ghi)perylene	ND	10	ug/L	SW846 8270B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	122	(25 - 160)
Fluorene d-10	108	(36 - 127)
Naphthalene-d8	80	(37 - 107)

NOTE(S):

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

METHOD BLANK REPORT

General Chemistry

Client Lot #...: D9C170111 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols		Work Order #: CT8TW101		MB Lot-Sample #:	D9D020000-203	
	ND	0.0050	mg/L	MCAWW 420.1	03/31-04/01/99	9092203

Dilution Factor: 1
Analysis Time..: 00:00

NOTE(S):

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

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D9C170111 **Work Order #...:** CRPW1102-LCS **Matrix.....:** WATER
LCS Lot-Sample#: D9C180000-215 CRPW1103-LCSD
Prep Date.....: 03/18/99 **Analysis Date..:** 04/06/99
Prep Batch #...: 9077215 **Analysis Time..:** 23:08
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Indene	**50.0**	**68.5 a**	**ug/L**	**137**		**SW846 8270B**
	50.0	**66.2 a**	**ug/L**	**133**	**3.4**	**SW846 8270B**
Naphthalene	**50.0**	**55.0**	**ug/L**	**110**		**SW846 8270B**
	50.0	**53.2**	**ug/L**	**106**	**3.3**	**SW846 8270B**
Quinoline	**50.0**	**44.9**	**ug/L**	**90**		**SW846 8270B**
	50.0	**44.0**	**ug/L**	**88**	**1.9**	**SW846 8270B**
2-Methylnaphthalene	**50.0**	**45.9**	**ug/L**	**92**		**SW846 8270B**
	50.0	**44.8**	**ug/L**	**90**	**2.4**	**SW846 8270B**
Fluorene	**50.0**	**50.1**	**ug/L**	**100**		**SW846 8270B**
	50.0	**50.9**	**ug/L**	**102**	**1.6**	**SW846 8270B**
Chrysene	**50.0**	**55.8**	**ug/L**	**112**		**SW846 8270B**
	50.0	**57.4**	**ug/L**	**115**	**2.9**	**SW846 8270B**
Benzo(e)pyrene	**50.0**	**50.3**	**ug/L**	**101**		**SW846 8270B**
	50.0	**51.9**	**ug/L**	**104**	**3.0**	**SW846 8270B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	120	(25 - 160)
	121	(25 - 160)
Fluorene d-10	115	(36 - 127)
	116	(36 - 127)
Naphthalene-d8	92	(37 - 107)
	80	(37 - 107)

NOTE(S):

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

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Lot-Sample #...: D9C170111 **Matrix.....:** WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols		WO#:CT8TW102-LCS/CT8TW103-LCSD				LCS Lot-Sample#: D9D020000-203		
	0.0500	0.0551	mg/L	110		MCAWW 420.1	03/31-04/01/99	9092203
	0.0500	0.0493	mg/L	99	11	MCAWW 420.1	03/31-04/01/99	9092203

Dilution Factor: 1

NOTE(S):

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

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D9C170111 **Work Order #...:** CRPW1102-LCS **Matrix.....:** WATER
LCS Lot-Sample#: D9C180000-215 CRPW1103-LCSD
Prep Date.....: 03/18/99 **Analysis Date..:** 04/06/99
Prep Batch #...: 9077215 **Analysis Time..:** 23:08
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Indene	**137 a**	**(49 - 108)**			**SW846 8270B**
	133 a	**(49 - 108)**	**3.4**	**(0-20)**	**SW846 8270B**
Naphthalene	**110**	**(43 - 128)**			**SW846 8270B**
	106	**(43 - 128)**	**3.3**	**(0-20)**	**SW846 8270B**
Quinoline	**90**	**(40 - 126)**			**SW846 8270B**
	88	**(40 - 126)**	**1.9**	**(0-20)**	**SW846 8270B**
2-Methylnaphthalene	**92**	**(47 - 138)**			**SW846 8270B**
	90	**(47 - 138)**	**2.4**	**(0-20)**	**SW846 8270B**
Fluorene	**100**	**(51 - 120)**			**SW846 8270B**
	102	**(51 - 120)**	**1.6**	**(0-20)**	**SW846 8270B**
Chrysene	**112**	**(43 - 124)**			**SW846 8270B**
	115	**(43 - 124)**	**2.9**	**(0-20)**	**SW846 8270B**
Benzo(e)pyrene	**101**	**(20 - 150)**			**SW846 8270B**
	104	**(20 - 150)**	**3.0**	**(0-20)**	**SW846 8270B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	120	(25 - 160)
	121	(25 - 160)
Fluorene d-10	115	(36 - 127)
	116	(36 - 127)
Naphthalene-d8	92	(37 - 107)
	80	(37 - 107)

NOTE(S):

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

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Lot-Sample #...: D9C170111 **Matrix.....:** WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols		WO#:CT8TW102-LCS/CT8TW103-LCSD				LCS Lot-Sample#: D9D020000-203	
	110	(76 - 121)			MCAWW 420.1	03/31-04/01/99	9092203
	99	(76 - 121)	11	(0-16)	MCAWW 420.1	03/31-04/01/99	9092203

Dilution Factor: 1

NOTE(S):

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

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D9C170111 **Work Order #...:** CRND4102-MS **Matrix.....:** WATER
MS Lot-Sample #: D9C170111-001 CRND4103-MSD
Date Sampled...: 03/16/99 **Date Received..:** 03/17/99
Prep Date.....: 03/18/99 **Analysis Date..:** 04/08/99
Prep Batch #...: 9077215 **Analysis Time..:** 12:28
Dilution Factor: 20

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Indene	ND	50.3		ug/L	97		SW846 8270B
	ND	50.5		ug/L	94	1.0	SW846 8270B
Naphthalene	2200	50.3	2150 a	ug/L	0.0		SW846 8270B
	2200	50.5	2100 a	ug/L	0.0	0.0	SW846 8270B
Quinoline	ND	50.3		ug/L	81		SW846 8270B
	ND	50.5		ug/L	86	6.9	SW846 8270B
2-Methylnaphthalene	150	50.3	175	ug/L	57		SW846 8270B
	150	50.5	182	ug/L	70	3.5	SW846 8270B
Fluorene	ND	50.3	104	ug/L	87		SW846 8270B
	ND	50.5	110	ug/L	100	5.6	SW846 8270B
Chrysene	ND	50.3		ug/L	76		SW846 8270B
	ND	50.5	p	ug/L	49	43	SW846 8270B
Benzo(e)pyrene	ND	50.3	20.8	ug/L	41		SW846 8270B
	ND	50.5	12.0 p	ug/L	24	54	SW846 8270B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	0.0 NC	(25 - 160)
	0.0 NC	(25 - 160)
Fluorene d-10	0.0 NC	(36 - 127)
	0.0 NC	(36 - 127)
Naphthalene-d8	0.0 NC	(37 - 107)
	0.0 NC	(37 - 107)

NOTE(S):

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

Bold print denotes control parameters

NC The recovery and/or RPD were not calculated

a Spiked analyte recovery is outside stated control limits

p Relative percent difference (RPD) is outside stated control limits

Spike cpds outside acceptance criteria due to demonstrated matrix effect Surrogates diluted out, recoveries not calculated

Spiked cpds outside acceptance criteria due to demonstrated matrix interference Surrogates diluted out, recoveries not calculated

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: D9C170111 **Matrix.....:** WATER
Date Sampled...: 03/16/99 **Date Received..:** 03/17/99

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols			WO#: CRND4105-MS/CRND4106-MSD				MS Lot-Sample #: D9C170111-001		
	0.19	0.050	0.267 N	mg/L	155		MCAWW 420.1	03/31-04/01/99	9092203
	0.19	0.050	0.280 N	mg/L	181	4.7	MCAWW 420.1	03/31-04/01/99	9092203

Dilution Factor: 1
Analysis Time..: 00:00

NOTE(S):

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

N Spiked analyte recovery is outside stated control limits

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D9C170111 **Work Order #...:** CRND4102-MS **Matrix.....:** WATER
MS Lot-Sample #: D9C170111-001 CRND4103-MSD
Date Sampled...: 03/16/99 **Date Received..:** 03/17/99
Prep Date.....: 03/18/99 **Analysis Date..:** 04/08/99
Prep Batch #...: 9077215 **Analysis Time..:** 12:28
Dilution Factor: 20

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Indene	**97**	**(49 - 108)**			**SW846 8270B**
	94	**(49 - 108)**	**1.0**	**(0-20)**	**SW846 8270B**
Naphthalene	**0.0 a**	**(43 - 128)**			**SW846 8270B**
	0.0 a	**(43 - 128)**	**0.0**	**(0-20)**	**SW846 8270B**
Quinoline	**81**	**(40 - 126)**			**SW846 8270B**
	86	**(40 - 126)**	**6.9**	**(0-20)**	**SW846 8270B**
2-Methylnaphthalene	**57**	**(47 - 138)**			**SW846 8270B**
	70	**(47 - 138)**	**3.5**	**(0-20)**	**SW846 8270B**
Fluorene	**87**	**(51 - 120)**			**SW846 8270B**
	100	**(51 - 120)**	**5.6**	**(0-20)**	**SW846 8270B**
Chrysene	**76**	**(43 - 124)**			**SW846 8270B**
	49 p	**(43 - 124)**	**43**	**(0-20)**	**SW846 8270B**
Benzo(e)pyrene	**41**	**(20 - 150)**			**SW846 8270B**
	24 p	**(20 - 150)**	**54**	**(0-20)**	**SW846 8270B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	0.0 NC	(25 - 160)
	0.0 NC	(25 - 160)
Fluorene d-10	0.0 NC	(36 - 127)
	0.0 NC	(36 - 127)
Naphthalene-d8	0.0 NC	(37 - 107)
	0.0 NC	(37 - 107)

NOTE(S):

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

Bold print denotes control parameters

NC The recovery and/or RPD were not calculated

a Spiked analyte recovery is outside stated control limits.

p Relative percent difference (RPD) is outside stated control limits

Spike cpds outside acceptance criteria due to demonstrated matrix effect Surrogates diluted out, recoveries not calculated

Spiked cpds outside acceptance criteria due to demonstrated matrix interference Surrogates diluted out, recoveries not calculated

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: D9C170111 **Matrix.....:** WATER
Date Sampled...: 03/16/99 **Date Received..:** 03/17/99

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols		WO#:	CRND4105-MS/CRND4106-MSD			MS Lot-Sample #: D9C170111-001	
	155 N	(76 - 121)			MCAWW 420.1	03/31-04/01/99	9092203
	181 N	(76 - 121)	4.7	(0-16)	MCAWW 420.1	03/31-04/01/99	9092203

Dilution Factor: 1
Analysis Time..: 00:00

NOTE(S):

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

N Spiked analyte recovery is outside stated control limits.

Chain of Custody Record

Quanterra Environmental Services

QUA-4124

Client: CITY OF ST. LOUIS PARK UTILITY DIVISION 3752 WOODDALE AVENUE ST. LOUIS PARK, MN 55416	Project Manager: SCOTT ANDERSON	Date: 3-16-99	Chain Of Custody Number: 25654
Address:	Telephone Number (Area Code)/Fax Number: 924-2557 (612) 924-2570	Lab Number: D9C170111	Page ____ of ____
City:	Site Contact: SAME		
Project Name: SAME	Carrier/Waybill Number: FED EX 8008 4631 6698		
Contract/Purchase Order/Quote No:			

Sample I.D. No and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No	Preservative	Condition on Receipt	Analysis: PPB PAH
DPV-W420 -031699	3-16-99		WATER	1LITER	AMBER	2	N/A		X
DPV-W420 D-031699	3-16-99								
DPV-W420 MS-031699									
DPV-W420 MSD-031699									
DPV-W420FB-031699									
DPV-W420FBD-031699	3-16-99		WATER	1LITER	AMBER	2	N/A		X

Special Instructions

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

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For ____ Months

Turn Around Time Required: ☐ Normal ☐ Rush

QC Level: ☐ I ☐ II. ☐ III.

Project Specific (Specify)

	Date	Time		Date	Time
1 Relinquished By: MZH	3-16-99	1400	1 Received By: [signature]	3/17/99	0845
2 Relinquished By:			2 Received By:		
3 Relinquished By:			3 Received By:		

Comments

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

Chain of Custody Record

Quanterra Environmental Services

QUA-4124

Client: CITY OF ST. LOUIS PARK UTILITY DIVISION	Project Manager: SCOTT ANDERSON	Date: 3-16-99	Chain Of Custody Number: 25653
Address: 3752 WOODDALE AVENUE	Telephone Number (Area Code)/Fax Number: 924-2557 (612) 924-2570	Lab Number: DAC170111	Page ____ of ____
City: ST. LOUIS PARK, MN 55416	Site Contact: SAME		
Project Name: SAME	Carrier/Waybill Number: FED EX 8008463166 98		
Contract/Purchase Order/Quote No			

Sample I.D. No and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: PPB PAH
DPV-W421 -031699	3-16-99		WATER	1 LITER	AMBER	2	N/A		X
DPV-W422 -031699									
DPV-W439 -031699									
DPV-W434 -031699									
~~STF-STR-031699~~									
GTF-ACFE -031699	3-16-99		WATER	1 LITER	AMBER	2	N/A		X
STP-W410 -031699	3-16-99		WATER	1 LITER	AMBER	2	N/A		X

Special Instructions

Possible Hazard Identification: [X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown

Sample Disposal: [ ] Return To Client [X] Disposal By Lab [ ] Archive For ____ Months

Turn Around Time Required: [ ] Normal [ ] Rush

QC Level: [ ] I. [ ] II. [ ] III.

Project Specific (Specify)

	Date	Time		Date	Time
1 Relinquished By: MZ	3-16-99	1400	1 Received By: Kurt C. Ill	3/17/99	0845
2 Relinquished By			2 Received By		
3 Relinquished By			3 Received By		

Comments

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

Chain of Custody Record

Quanterra Environmental Services

UA-4124

Client: CITY OF ST. LOUIS PARK UTILITY DIVISION	Project Manager: SCOTT ANDERSON	Date: 3-16-99	Chain Of Custody Number: 27376
Address: 3752 WOODDALE AVENUE	Telephone Number (Area Code)/Fax Number: 924-2557 (612) 924-2570	Lab Number: D9C170111	Page ____ of ____
City: ST. LOUIS PARK, MN 55416	Site Contact: SAME		
Project Name: SAME	Carrier/Waybill Number: FED EX 800846316698		
Contract/Purchase Order/Quote No			

Analysis

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No	Preservative	Condition on Receipt	Phenols
DPV-W420TP-031699	3-16-99		WATER	16 oz	AMBER	1	H2SO4		X
DPV-W420TPD-031699									
DPV-W420TPMS-031699									
DPV-W420TPMSD-031699									
DPV-W420TPFB-031699									
DPV-W420TPFBD-031699									
DPV-W421TP-031699									
DPV-W422TP-031699									
DPV-W439TP-031699									
DPV-W434TP-031699									
~~STF-SFRTP-031699~~									
GTF-ACFETP-031699									
PCJ-SLP4TP-031699									
STP-W410TP-031699	3-16-99		WATER	16 oz	AMBER	1	H2SO4		X

Special Instructions

Possible Hazard Identification: [X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown

Sample Disposal: [ ] Return To Client [X] Disposal By Lab [ ] Archive For ____ Months

Turn Around Time Required: [ ] Normal [ ] Rush

QC Level: [ ] I. [ ] II. [ ] III.

Project Specific (Specify)

	Date	Time		Date	Time
1 Relinquished By: M2H	3-16-99	1400	1 Received By: [signature]	3/17/99	0845
2 Relinquished By			2 Received By		
3 Relinquished By			3 Received By		

Comments: GTF-ACFETP-031699 Sample on COC but not received in Cooler Called S. Anderson @ 9:20 Am

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

Chain of Custody Record

Quanterra Environmental Services

QUA-4124

Client: City of St. Louis Park	Project Manager	Date: 3/18/99	Chain Of Custody Number: 27379
Address: 3752 Woodbale Ave.	Telephone Number (Area Code)/Fax Number	Lab Number	Page 1 of 1
City: St. Louis Park; State: MN; Zip Code: 55416	Site Contact		
Project Name	Carrier/Waybill Number		
Contract/Purchase Order/Quote No			

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No	Preservative	Condition on Receipt	Analysis
GTF-ACFETP-031899									TOTAL PHENOL

Call Kurt Ill

Special Instructions

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

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Turn Around Time Required: ☐ Normal ☐ Rush

QC Level: ☐ I. ☐ II. ☐ III.

Project Specific (Specify)

	Date	Time		Date	Time
1 Relinquished By			1 Received By		
2 Relinquished By			2 Received By		
3 Relinquished By			3 Received By		

Comments

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

B

PPB
Phenol

Quanterra

Advanced Analytical Services

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
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CASE NARRATIVE

FOR

City of St. Louis Park

June 9, 1999

Quanterra Environmental Services

Project Lot Number D9D200129

Introduction

Eighteen aqueous samples (including matrix QC) were received at Quanterra Environmental Services, Denver Laboratory on April 20, 1999. The samples were logged in under Quanterra Denver's project lot number D9D200129. A cross reference associating Quanterra Denver's laboratory sample numbers to the actual field sample number is included. The samples were analyzed for part per billion (ppb) PAHs and total recoverable phenolics.

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the October 1998 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 laboratory Id's D9D200129-001, -001MS, -001SD, -002, -005 and -007 were analyzed at a dilution due to target analytes exceeding the linear range of the instrument. The reporting limits were raised accordingly. As a result of the dilution, the surrogate compounds were not detected and are reported as "NC".

The compound Indene in the matrix spike and matrix spike duplicate samples are reported at 226% and 113% recovery which is outside the 49% to 108% acceptance limits. Indene was recovered within acceptance limits in the Laboratory Control Samples. A matrix effect is indicated.

The spike compound Naphthalene in both the matrix spike and matrix spike duplicate samples is reported at 0% recovery which are below the 43% to 128% acceptance limits. Naphthalene was recovered within acceptance limits in the Laboratory Control Sample. A matrix effect is indicated.

The spike compound Quinloine in the matrix spike sample is reported at 171% recovery which is above the 40% to 126% acceptance limits. Quinoline was recovered within acceptance limits in the Laboratory Control Sample. A matrix effect is indicated.

The spike compound 2-Methylnaphthalene in both the matrix spike and matrix spike duplicate samples is reported at 329% and 139% recovery which are above the 47% to 138% acceptance limits. 2-Methlynaphthalene was recovered within acceptance limits in the Laboratory Control Sample. A matrix effect is indicated.

The spike compound Fluorene in both the matrix spike and matrix spike duplicate samples is reported at 259% and 144% recovery which are above the 41% to 120% acceptance limits. Naphthalene was recovered within acceptance limits in the Laboratory Control Sample. A matrix effect is indicated.

Except for the above, this data package is in compliance with the terms and conditions of the October 1997 QAPP, both technically and for completeness

Reported By: _____ **Date:** 6/9/99

Kurt C. Ill
Customer Service Manger

ANALYTICAL REPORT

Reilly Tar & Chemical NPL Site

Lot #: D9D200129

Scott Anderson

City of St. Louis Park

QUANTERRA INCORPORATED

Kurt C. Ill
Project Manager

June 9, 1999

EXECUTIVE SUMMARY - Detection Highlights

D9D200129

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
DPV-W420-041999 04/19/99 001				
2,3-Benzofuran	66 J	100	ug/L	SW846 8270B
2,3-Dihydroindene	440	100	ug/L	SW846 8270B
Indene	76 J	100	ug/L	SW846 8270B
Naphthalene	1600	100	ug/L	SW846 8270B
Benzo(b)thiophene	190	100	ug/L	SW846 8270B
2-Methylnaphthalene	180	100	ug/L	SW846 8270B
1-Methylnaphthalene	220	100	ug/L	SW846 8270B
Biphenyl	39 J	100	ug/L	SW846 8270B
Acenaphthene	200	100	ug/L	SW846 8270B
Dibenzofuran	75 J	100	ug/L	SW846 8270B
Fluorene	81 J	100	ug/L	SW846 8270B
Phenanthrene	48 J	100	ug/L	SW846 8270B
Acridine	4.4 J	100	ug/L	SW846 8270B
Carbazole	120	100	ug/L	SW846 8270B
Total Phenols	0.16	0.025	mg/L	MCAWW 420.1
DPV-W420D-041999 04/19/99 002				
2,3-Benzofuran	83 J	100	ug/L	SW846 8270B
2,3-Dihydroindene	560	100	ug/L	SW846 8270B
Indene	98 J	100	ug/L	SW846 8270B
Naphthalene	1300	100	ug/L	SW846 8270B
Benzo(b)thiophene	230	100	ug/L	SW846 8270B
2-Methylnaphthalene	230	100	ug/L	SW846 8270B
1-Methylnaphthalene	260	100	ug/L	SW846 8270B
Biphenyl	46 J	100	ug/L	SW846 8270B
Acenaphthene	240	100	ug/L	SW846 8270B
Dibenzofuran	86 J	100	ug/L	SW846 8270B
Fluorene	92 J	100	ug/L	SW846 8270B
Phenanthrene	54 J	100	ug/L	SW846 8270B
Acridine	4.9 J	100	ug/L	SW846 8270B
Carbazole	130	100	ug/L	SW846 8270B
Total Phenols	0.17	0.025	mg/L	MCAWW 420.1
DPV-W421-041999 04/19/99 005				
2,3-Dihydroindene	120	20	ug/L	SW846 8270B
Indene	34	20	ug/L	SW846 8270B
Naphthalene	170	20	ug/L	SW846 8270B
Benzo(b)thiophene	54	20	ug/L	SW846 8270B
2-Methylnaphthalene	9.7 J	20	ug/L	SW846 8270B
1-Methylnaphthalene	62	20	ug/L	SW846 8270B
Biphenyl	8.6 J	20	ug/L	SW846 8270B

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

D9D200129

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
DPV-W421-041999 04/19/99 005				
Acenaphthene	59	20	ug/L	SW846 8270B
Dibenzofuran	15 J	20	ug/L	SW846 8270B
Fluorene	21	20	ug/L	SW846 8270B
Phenanthrene	8.0 J	20	ug/L	SW846 8270B
Acridine	3.4 J	20	ug/L	SW846 8270B
Carbazole	46	20	ug/L	SW846 8270B
Total Phenols	0.021	0.0050	mg/L	MCAWW 420.1
DPV-W422-041999 04/19/99 006				
2,3-Dihydroindene	6.5 J	10	ug/L	SW846 8270B
Acenaphthene	7.7 J	10	ug/L	SW846 8270B
Total Phenols	0.0076	0.0050	mg/L	MCAWW 420.1
DPV-W439-041999 04/19/99 007				
2,3-Benzofuran	9.5 J	50	ug/L	SW846 8270B
2,3-Dihydroindene	250	50	ug/L	SW846 8270B
Indene	110	50	ug/L	SW846 8270B
Naphthalene	590	50	ug/L	SW846 8270B
Benzo(b)thiophene	69	50	ug/L	SW846 8270B
2-Methylnaphthalene	23 J	50	ug/L	SW846 8270B
1-Methylnaphthalene	110	50	ug/L	SW846 8270B
Biphenyl	11 J	50	ug/L	SW846 8270B
Acenaphthene	84	50	ug/L	SW846 8270B
Dibenzofuran	21 J	50	ug/L	SW846 8270B
Total Phenols	0.031	0.0050	mg/L	MCAWW 420.1
DPV-W434-041999 04/19/99 008				
2,3-Dihydroindene	1.1 J	10	ug/L	SW846 8270B
DPV-W23-041999 04/19/99 009				
2,3-Dihydroindene	2.1 J	10	ug/L	SW846 8270B
Naphthalene	12	10	ug/L	SW846 8270B
Benzo(b)thiophene	0.45 J	10	ug/L	SW846 8270B
Biphenyl	1.0 J	10	ug/L	SW846 8270B
Acenaphthene	5.7 J	10	ug/L	SW846 8270B
Fluorene	3.9 J	10	ug/L	SW846 8270B
Dibenzothiophene	0.53 J	10	ug/L	SW846 8270B
Acridine	0.29 J	10	ug/L	SW846 8270B

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

D9D200129

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
STP-W409-041999 04/18/99 12:30 013				
2,3-Dihydroindene	60	10	ug/L	SW846 8270B
Indene	68	10	ug/L	SW846 8270B
Naphthalene	41	10	ug/L	SW846 8270B
Benzo(b)thiophene	41	10	ug/L	SW846 8270B
1-Methylnaphthalene	74	10	ug/L	SW846 8270B
Biphenyl	16	10	ug/L	SW846 8270B
Acenaphthylene	4.1 J	10	ug/L	SW846 8270B
Acenaphthene	52	10	ug/L	SW846 8270B
Dibenzofuran	27	10	ug/L	SW846 8270B
Fluorene	25	10	ug/L	SW846 8270B
Dibenzothiophene	1.9 J	10	ug/L	SW846 8270B
Phenanthrene	27	10	ug/L	SW846 8270B
Acridine	0.96 J	10	ug/L	SW846 8270B
Carbazole	8.9 J	10	ug/L	SW846 8270B
DPV-W426-041999 04/18/99 13:00 014				
2,3-Benzofuran	1.2 J	10	ug/L	SW846 8270B
2,3-Dihydroindene	68	10	ug/L	SW846 8270B
Indene	35	10	ug/L	SW846 8270B
Naphthalene	89	10	ug/L	SW846 8270B
Benzo(b)thiophene	20	10	ug/L	SW846 8270B
1-Methylnaphthalene	100	10	ug/L	SW846 8270B
Biphenyl	26	10	ug/L	SW846 8270B
Acenaphthylene	7.1 J	10	ug/L	SW846 8270B
Acenaphthene	89	10	ug/L	SW846 8270B
Dibenzofuran	43	10	ug/L	SW846 8270B
Fluorene	59	10	ug/L	SW846 8270B
Dibenzothiophene	6.1 J	10	ug/L	SW846 8270B
Phenanthrene	63	10	ug/L	SW846 8270B
Anthracene	5.8 J	10	ug/L	SW846 8270B
Acridine	1.7 J	10	ug/L	SW846 8270B
Carbazole	23	10	ug/L	SW846 8270B
Fluoranthene	5.1 J	10	ug/L	SW846 8270B
DPV-W27-041999 04/18/99 15:00 015				
2,3-Benzofuran	0.21 J	10	ug/L	SW846 8270B
2,3-Dihydroindene	62	10	ug/L	SW846 8270B
Indene	38	10	ug/L	SW846 8270B
Naphthalene	57	10	ug/L	SW846 8270B
Benzo(b)thiophene	16	10	ug/L	SW846 8270B
1-Methylnaphthalene	45	10	ug/L	SW846 8270B

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

D9D200129

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
DPV-W27-041999 04/18/99 15:00 015				
Biphenyl	8.3 J	10	ug/L	SW846 8270B
Acenaphthene	40	10	ug/L	SW846 8270B
Dibenzofuran	13	10	ug/L	SW846 8270B
Fluorene	15	10	ug/L	SW846 8270B
Dibenzothiophene	0.75 J	10	ug/L	SW846 8270B
Phenanthrene	4.4 J	10	ug/L	SW846 8270B
Acridine	2.1 J	10	ug/L	SW846 8270B
Carbazole	9.8 J	10	ug/L	SW846 8270B
DPV-W143-041999 04/19/99 08:00 016				
2,3-Dihydroindene	12	10	ug/L	SW846 8270B
Benzo(b)thiophene	3.4 J	10	ug/L	SW846 8270B

ANALYTICAL METHODS SUMMARY

D9D200129

PARAMETER	ANALYTICAL METHOD
Phenolics	MCAWW 420.1
Semivolatile Organic Compounds by GC/MS	SW846 8270B

References:

MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

METHOD / ANALYST SUMMARY

D9D200129

ANALYTICAL METHOD	ANALYST	ANALYST ID
MCAWW 420.1	Christopher Borton	008906
SW846 8270B	Monica R. Edwards	001685

References:

MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

D9D200129

WO #	SAMPLE#	CLIENT SAMPLE ID	DATE	TIME
CTT43	001	DPV-W420-041999	04/19/99	
CTT48	002	DPV-W420D-041999	04/19/99	
CTT4A	003	DPV-W420FB-041999	04/19/99	
CTT4C	004	DPV-W420FBD-041999	04/19/99	
CTT4D	005	DPV-W421-041999	04/19/99	
CTT4E	006	DPV-W422-041999	04/19/99	
CTT4G	007	DPV-W439-041999	04/19/99	
CTT4N	008	DPV-W434-041999	04/19/99	
CTT4W	009	DPV-W23-041999	04/19/99	
CTT56	010	GTF-ACFE-041999	04/19/99	
CTT59	011	PCJ-SLP4T-041999	04/19/99	
CTT5H	012	STP-W410P-041999	04/19/99	
CTV59	013	STP-W409-041999	04/18/99	12:30
CTV5H	014	DPV-W426-041999	04/18/99	13:00
CTV5M	015	DPV-W27-041999	04/18/99	15:00
CTV5Q	016	DPV-W143-041999	04/19/99	08:00

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W420-041999

GC/MS Semivolatiles

Lot-Sample #...: D9D200129-001 Work Order #...: CTT43101 Matrix.....: WATER
Date Sampled...: 04/19/99 Date Received..: 04/20/99
Prep Date.....: 04/21/99 Analysis Date..: 06/04/99
Prep Batch #...: 9110230 Analysis Time..: 21:50
Dilution Factor: 10

Method.....: SW846 8270B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,3-Benzofuran	66 J	100	ug/L
2,3-Dihydroindene	440	100	ug/L
Indene	76 J	100	ug/L
Naphthalene	1600	100	ug/L
Benzo(b)thiophene	190	100	ug/L
Quinoline	ND	100	ug/L
Indole	ND	100	ug/L
2-Methylnaphthalene	180	100	ug/L
1-Methylnaphthalene	220	100	ug/L
Biphenyl	39 J	100	ug/L
Acenaphthylene	ND	100	ug/L
Acenaphthene	200	100	ug/L
Dibenzofuran	75 J	100	ug/L
Fluorene	81 J	100	ug/L
Dibenzothiophene	ND	100	ug/L
Phenanthrene	48 J	100	ug/L
Anthracene	ND	100	ug/L
Acridine	4.4 J	100	ug/L
Carbazole	120	100	ug/L
Fluoranthene	ND	100	ug/L
Pyrene	ND	100	ug/L
Benzo(a)anthracene	ND	100	ug/L
Chrysene	ND	100	ug/L
Benzo(b)fluoranthene	ND	100	ug/L
Benzo(k)fluoranthene	ND	100	ug/L
Benzo(e)pyrene	ND	100	ug/L
Benzo(a)pyrene	ND	100	ug/L
Perylene	ND	100	ug/L
Indeno(1,2,3-cd)pyrene	ND	100	ug/L
Benzo(ghi)perylene	ND	100	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC	(25 - 160)
Fluorene d-10	NC	(36 - 127)
Naphthalene-d8	NC	(37 - 107)

NOTE(S):

NC The recovery and/or RPD were not calculated.

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W420D-041999

GC/MS Semivolatiles

Lot-Sample #...: D9D200129-002 Work Order #...: CTT48101 Matrix.....: WATER
Date Sampled...: 04/19/99 Date Received..: 04/20/99
Prep Date.....: 04/21/99 Analysis Date..: 06/04/99
Prep Batch #...: 9110230 Analysis Time..: 23:46
Dilution Factor: 10

Method.....: SW846 8270B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,3-Benzofuran	83 J	100	ug/L
2,3-Dihydroindene	560	100	ug/L
Indene	98 J	100	ug/L
Naphthalene	1300	100	ug/L
Benzo(b)thiophene	230	100	ug/L
Quinoline	ND	100	ug/L
Indole	ND	100	ug/L
2-Methylnaphthalene	230	100	ug/L
1-Methylnaphthalene	260	100	ug/L
Biphenyl	46 J	100	ug/L
Acenaphthylene	ND	100	ug/L
Acenaphthene	240	100	ug/L
Dibenzofuran	86 J	100	ug/L
Fluorene	92 J	100	ug/L
Dibenzothiophene	ND	100	ug/L
Phenanthrene	54 J	100	ug/L
Anthracene	ND	100	ug/L
Acridine	4.9 J	100	ug/L
Carbazole	130	100	ug/L
Fluoranthene	ND	100	ug/L
Pyrene	ND	100	ug/L
Benzo(a)anthracene	ND	100	ug/L
Chrysene	ND	100	ug/L
Benzo(b)fluoranthene	ND	100	ug/L
Benzo(k)fluoranthene	ND	100	ug/L
Benzo(e)pyrene	ND	100	ug/L
Benzo(a)pyrene	ND	100	ug/L
Perylene	ND	100	ug/L
Indeno(1,2,3-cd)pyrene	ND	100	ug/L
Benzo(ghi)perylene	ND	100	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC	(25 - 160)
Fluorene d-10	NC	(36 - 127)
Naphthalene-d8	NC	(37 - 107)

NOTE(S):

NC The recovery and/or RPD were not calculated.

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W420FB-041999

GC/MS Semivolatiles

Lot-Sample #...: D9D200129-003 Work Order #...: CTT4A101 Matrix.....: WATER
Date Sampled...: 04/19/99 Date Received..: 04/20/99
Prep Date.....: 04/21/99 Analysis Date..: 05/06/99
Prep Batch #...: 9110230 Analysis Time..: 20:16
Dilution Factor: 1

Method.....: SW846 8270B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,3-Benzofuran	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Indene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Quinoline	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acenaphthene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Fluorene	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Anthracene	ND	10	ug/L
Acridine	ND	10	ug/L
Carbazole	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Pyrene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Chrysene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Perylene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	102	(25 - 160)
Fluorene d-10	86	(36 - 127)
Naphthalene-d8	79	(37 - 107)

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W420FBD-041999

GC/MS Semivolatiles

Lot-Sample #...: D9D200129-004 Work Order #...: CTT4C101 Matrix.....: WATER
Date Sampled...: 04/19/99 Date Received..: 04/20/99
Prep Date.....: 04/21/99 Analysis Date..: 05/06/99
Prep Batch #...: 9110230 Analysis Time..: 20:55
Dilution Factor: 1

Method.....: SW846 8270B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,3-Benzofuran	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Indene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Quinoline	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acenaphthene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Fluorene	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Anthracene	ND	10	ug/L
Acridine	ND	10	ug/L
Carbazole	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Pyrene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Chrysene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Perylene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	107	(25 - 160)
Fluorene d-10	88	(36 - 127)
Naphthalene-d8	85	(37 - 107)

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W421-041999

GC/MS Semivolatiles

Lot-Sample #...: D9D200129-005 Work Order #...: CTT4D101 Matrix.....: WATER
Date Sampled...: 04/19/99 Date Received..: 04/20/99
Prep Date.....: 04/21/99 Analysis Date..: 06/05/99
Prep Batch #...: 9110230 Analysis Time..: 00:24
Dilution Factor: 2

Method.....: SW846 8270B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,3-Benzofuran	ND	20	ug/L
2,3-Dihydroindene	120	20	ug/L
Indene	34	20	ug/L
Naphthalene	170	20	ug/L
Benzo(b)thiophene	54	20	ug/L
Quinoline	ND	20	ug/L
Indole	ND	20	ug/L
2-Methylnaphthalene	9.7 J	20	ug/L
1-Methylnaphthalene	62	20	ug/L
Biphenyl	8.6 J	20	ug/L
Acenaphthylene	ND	20	ug/L
Acenaphthene	59	20	ug/L
Dibenzofuran	15 J	20	ug/L
Fluorene	21	20	ug/L
Dibenzothiophene	ND	20	ug/L
Phenanthrene	8.0 J	20	ug/L
Anthracene	ND	20	ug/L
Acridine	3.4 J	20	ug/L
Carbazole	46	20	ug/L
Fluoranthene	ND	20	ug/L
Pyrene	ND	20	ug/L
Benzo(a)anthracene	ND	20	ug/L
Chrysene	ND	20	ug/L
Benzo(b)fluoranthene	ND	20	ug/L
Benzo(k)fluoranthene	ND	20	ug/L
Benzo(e)pyrene	ND	20	ug/L
Benzo(a)pyrene	ND	20	ug/L
Perylene	ND	20	ug/L
Indeno(1,2,3-cd)pyrene	ND	20	ug/L
Benzo(ghi)perylene	ND	20	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	101	(25 - 160)
Fluorene d-10	117	(36 - 127)
Naphthalene-d8	86	(37 - 107)

NOTE(S):

Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W23-041999

GC/MS Semivolatiles

Lot-Sample #...:	D9D200129-009	**Work Order #...:**	CTT4W101	**Matrix.....:**	WATER
Date Sampled...:	04/19/99	**Date Received..:**	04/20/99		
Prep Date.....:	04/21/99	**Analysis Date..:**	05/07/99		
Prep Batch #...:	9110230	**Analysis Time..:**	16:41		
Dilution Factor:	1				
		Method.....:	SW846 8270B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,3-Benzofuran	ND	10	ug/L
2,3-Dihydroindene	**2.1 J**	**10**	**ug/L**
Indene	ND	10	ug/L
Naphthalene	**12**	**10**	**ug/L**
Benzo(b)thiophene	**0.45 J**	**10**	**ug/L**
Quinoline	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Biphenyl	**1.0 J**	**10**	**ug/L**
Acenaphthylene	ND	10	ug/L
Acenaphthene	**5.7 J**	**10**	**ug/L**
Dibenzofuran	ND	10	ug/L
Fluorene	**3.9 J**	**10**	**ug/L**
Dibenzothiophene	**0.53 J**	**10**	**ug/L**
Phenanthrene	ND	10	ug/L
Anthracene	ND	10	ug/L
Acridine	**0.29 J**	**10**	**ug/L**
Carbazole	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Pyrene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Chrysene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Perylene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	88	(25 - 160)
Fluorene d-10	81	(36 - 127)
Naphthalene-d8	76	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: STP-W409-041999

GC/MS Semivolatiles

Lot-Sample #...: D9D200129-013 Work Order #...: CTV59101 Matrix.....: WATER
Date Sampled...: 04/18/99 12:30 Date Received..: 04/21/99
Prep Date.....: 04/21/99 Analysis Date..: 06/05/99
Prep Batch #...: 9110230 Analysis Time..: 01:41
Dilution Factor: 1

Method.....: SW846 8270B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,3-Benzofuran	ND	10	ug/L
2,3-Dihydroindene	60	10	ug/L
Indene	68	10	ug/L
Naphthalene	41	10	ug/L
Benzo(b)thiophene	41	10	ug/L
Quinoline	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	74	10	ug/L
Biphenyl	16	10	ug/L
Acenaphthylene	4.1 J	10	ug/L
Acenaphthene	52	10	ug/L
Dibenzofuran	27	10	ug/L
Fluorene	25	10	ug/L
Dibenzothiophene	1.9 J	10	ug/L
Phenanthrene	27	10	ug/L
Anthracene	ND	10	ug/L
Acridine	0.96 J	10	ug/L
Carbazole	8.9 J	10	ug/L
Fluoranthene	ND	10	ug/L
Pyrene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Chrysene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Perylene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	38	(25 - 160)
Fluorene d-10	77	(36 - 127)
Naphthalene-d8	70	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W426-041999

GC/MS Semivolatiles

Lot-Sample #...: D9D200129-014 Work Order #...: CTV5H101 Matrix.....: WATER
Date Sampled...: 04/18/99 13:00 Date Received..: 04/21/99
Prep Date.....: 04/21/99 Analysis Date..: 06/05/99
Prep Batch #...: 9110230 Analysis Time..: 02:20
Dilution Factor: 1

Method.....: SW846 8270B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,3-Benzofuran	1.2 J	10	ug/L
2,3-Dihydroindene	68	10	ug/L
Indene	35	10	ug/L
Naphthalene	89	10	ug/L
Benzo(b)thiophene	20	10	ug/L
Quinoline	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	100	10	ug/L
Biphenyl	26	10	ug/L
Acenaphthylene	7.1 J	10	ug/L
Acenaphthene	89	10	ug/L
Dibenzofuran	43	10	ug/L
Fluorene	59	10	ug/L
Dibenzothiophene	6.1 J	10	ug/L
Phenanthrene	63	10	ug/L
Anthracene	5.8 J	10	ug/L
Acridine	1.7 J	10	ug/L
Carbazole	23	10	ug/L
Fluoranthene	5.1 J	10	ug/L
Pyrene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Chrysene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Perylene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	60	(25 - 160)
Fluorene d-10	95	(36 - 127)
Naphthalene-d8	83	(37 - 107)

NOTE(S):

J Estimated result Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W27-041999

GC/MS Semivolatiles

Lot-Sample #...: D9D200129-015 Work Order #...: CTV5M101 Matrix.....: WATER
Date Sampled...: 04/18/99 15:00 Date Received..: 04/21/99
Prep Date.....: 04/21/99 Analysis Date..: 06/05/99
Prep Batch #...: 9110230 Analysis Time..: 02:58
Dilution Factor: 1

Method.....: SW846 8270B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,3-Benzofuran	0.21 J	10	ug/L
2,3-Dihydroindene	62	10	ug/L
Indene	38	10	ug/L
Naphthalene	57	10	ug/L
Benzo(b)thiophene	16	10	ug/L
Quinoline	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	45	10	ug/L
Biphenyl	8.3 J	10	ug/L
Acenaphthylene	ND	10	ug/L
Acenaphthene	40	10	ug/L
Dibenzofuran	13	10	ug/L
Fluorene	15	10	ug/L
Dibenzothiophene	0.75 J	10	ug/L
Phenanthrene	4.4 J	10	ug/L
Anthracene	ND	10	ug/L
Acridine	2.1 J	10	ug/L
Carbazole	9.8 J	10	ug/L
Fluoranthene	ND	10	ug/L
Pyrene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Chrysene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Perylene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	64	(25 - 160)
Fluorene d-10	97	(36 - 127)
Naphthalene-d8	83	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W143-041999

GC/MS Semivolatiles

Lot-Sample #...: D9D200129-016 Work Order #...: CTV5Q101 Matrix.....: WATER
Date Sampled...: 04/19/99 08:00 Date Received..: 04/21/99
Prep Date.....: 04/21/99 Analysis Date..: 05/07/99
Prep Batch #...: 9110230 Analysis Time..: 20:39
Dilution Factor: 1

Method.....: SW846 8270B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,3-Benzofuran	ND	10	ug/L
2,3-Dihydroindene	12	10	ug/L
Indene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Benzo(b)thiophene	3.4 J	10	ug/L
Quinoline	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acenaphthene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Fluorene	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Anthracene	ND	10	ug/L
Acridine	ND	10	ug/L
Carbazole	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Pyrene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Chrysene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Perylene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	64	(25 - 160)
Fluorene d-10	80	(36 - 127)
Naphthalene-d8	73	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W420-041999

General Chemistry

Lot-Sample #...: D9D200129-001 Work Order #...: CTT43 Matrix.....: WATER
Date Sampled...: 04/19/99 Date Received..: 04/20/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols	0.16	0.025	mg/L	MCAWW 420.1	05/04-05/16/99	9127188

Dilution Factor: 5 Analysis Time..: 00:00

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W420D-041999

General Chemistry

Lot-Sample #...: D9D200129-002 Work Order #...: CTT48 Matrix.....: WATER
Date Sampled...: 04/19/99 Date Received..: 04/20/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols	0.17	0.025	mg/L	MCAWW 420.1	05/04-05/16/99	9127188

Dilution Factor: 5 Analysis Time..: 00:00

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W420FB-041999

General Chemistry

Lot-Sample #...: D9D200129-003 Work Order #...: CTT4A Matrix.....: WATER
Date Sampled...: 04/19/99 Date Received..: 04/20/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols	ND	0.0050	mg/L	MCAWW 420.1	05/04-05/16/99	9127188

Dilution Factor: 1 Analysis Time..: 00:00

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W420FBD-041999

General Chemistry

Lot-Sample #...: D9D200129-004 **Work Order #...:** CTT4C **Matrix.....:** WATER
Date Sampled...: 04/19/99 **Date Received..:** 04/20/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols	ND	0.0050	mg/L	MCAWW 420.1	05/04-05/16/99	9127188

Dilution Factor: 1 Analysis Time..: 00:00

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W421-041999

General Chemistry

Lot-Sample #...: D9D200129-005 Work Order #...: CTT4D Matrix.....: WATER
Date Sampled...: 04/19/99 Date Received..: 04/20/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols	0.021	0.0050	mg/L	MCAWW 420.1	05/04-05/16/99	9127188

Dilution Factor: 1 Analysis Time..: 00:00

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W422-041999

GC/MS Semivolatiles

Lot-Sample #...: D9D200129-006 Work Order #...: CTT4E101 Matrix.....: WATER
Date Sampled...: 04/19/99 Date Received..: 04/20/99
Prep Date.....: 04/21/99 Analysis Date..: 05/07/99
Prep Batch #...: 9110230 Analysis Time..: 18:01
Dilution Factor: 1

Method.....: SW846 8270B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,3-Benzofuran	ND	10	ug/L
2,3-Dihydroindene	6.5 J	10	ug/L
Indene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Quinoline	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acenaphthene	7.7 J	10	ug/L
Dibenzofuran	ND	10	ug/L
Fluorene	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Anthracene	ND	10	ug/L
Acridine	ND	10	ug/L
Carbazole	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Pyrene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Chrysene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Perylene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	76	(25 - 160)
Fluorene d-10	84	(36 - 127)
Naphthalene-d8	78	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W439-041999

GC/MS Semivolatiles

Lot-Sample #...: D9D200129-007 Work Order #...: CTT4G101 Matrix.....: WATER
Date Sampled...: 04/19/99 Date Received..: 04/20/99
Prep Date.....: 04/21/99 Analysis Date..: 06/05/99
Prep Batch #...: 9110230 Analysis Time..: 01:03
Dilution Factor: 5

Method.....: SW846 8270B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,3-Benzofuran	9.5 J	50	ug/L
2,3-Dihydroindene	250	50	ug/L
Indene	110	50	ug/L
Naphthalene	590	50	ug/L
Benzo(b)thiophene	69	50	ug/L
Quinoline	ND	50	ug/L
Indole	ND	50	ug/L
2-Methylnaphthalene	23 J	50	ug/L
1-Methylnaphthalene	110	50	ug/L
Biphenyl	11 J	50	ug/L
Acenaphthylene	ND	50	ug/L
Acenaphthene	84	50	ug/L
Dibenzofuran	21 J	50	ug/L
Fluorene	ND	50	ug/L
Dibenzothiophene	ND	50	ug/L
Phenanthrene	ND	50	ug/L
Anthracene	ND	50	ug/L
Acridine	ND	50	ug/L
Carbazole	ND	50	ug/L
Fluoranthene	ND	50	ug/L
Pyrene	ND	50	ug/L
Benzo(a)anthracene	ND	50	ug/L
Chrysene	ND	50	ug/L
Benzo(b)fluoranthene	ND	50	ug/L
Benzo(k)fluoranthene	ND	50	ug/L
Benzo(e)pyrene	ND	50	ug/L
Benzo(a)pyrene	ND	50	ug/L
Perylene	ND	50	ug/L
Indeno(1,2,3-cd)pyrene	ND	50	ug/L
Benzo(ghi)perylene	ND	50	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	65	(25 - 160)
Fluorene d-10	98	(36 - 127)
Naphthalene-d8	87	(37 - 107)

NOTE(S):

Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W434-041999

GC/MS Semivolatiles

Lot-Sample #...: D9D200129-008 Work Order #...: CTT4N101 Matrix.....: WATER
Date Sampled...: 04/19/99 Date Received..: 04/20/99
Prep Date.....: 04/21/99 Analysis Date..: 05/07/99
Prep Batch #...: 9110230 Analysis Time..: 16:01
Dilution Factor: 1

Method.....: SW846 8270B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,3-Benzofuran	ND	10	ug/L
2,3-Dihydroindene	1.1 J	10	ug/L
Indene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Quinoline	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acenaphthene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Fluorene	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Anthracene	ND	10	ug/L
Acridine	ND	10	ug/L
Carbazole	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Pyrene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Chrysene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Perylene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	74	(25 - 160)
Fluorene d-10	77	(36 - 127)
Naphthalene-d8	73	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: GTF-ACFE-041999

GC/MS Semivolatiles

Lot-Sample #...: D9D200129-010 Work Order #...: CTT56101 Matrix.....: WATER
Date Sampled...: 04/19/99 Date Received..: 04/20/99
Prep Date.....: 04/21/99 Analysis Date..: 05/07/99
Prep Batch #...: 9110230 Analysis Time..: 17:21
Dilution Factor: 1

Method.....: SW846 8270B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,3-Benzofuran	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Indene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Quinoline	ND	10	ug/L
Indole	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Acenaphthene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Fluorene	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Anthracene	ND	10	ug/L
Acridine	ND	10	ug/L
Carbazole	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Pyrene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Chrysene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Perylene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	80	(25 - 160)
Fluorene d-10	81	(36 - 127)
Naphthalene-d8	77	(37 - 107)

CITY OF ST. LOUIS PARK

Client Sample ID: STP-W410P-041999

General Chemistry

Lot-Sample #...: D9D200129-012 **Work Order #...:** CTT5H **Matrix.....:** WATER
Date Sampled...: 04/19/99 **Date Received..:** 04/20/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols	ND	0.0050	mg/L	MCAWW 420.1	05/04-05/16/99	9127188

Dilution Factor: 1 Analysis Time..: 00:00

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W422-041999

General Chemistry

Lot-Sample #...: D9D200129-006 Work Order #...: CTT4E Matrix.....: WATER
Date Sampled...: 04/19/99 Date Received..: 04/20/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols	0.0076	0.0050	mg/L	MCAWW 420.1	05/04-05/16/99	9127188

Dilution Factor: 1 Analysis Time..: 00:00

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W439-041999

General Chemistry

Lot-Sample #...: D9D200129-007 Work Order #...: CTT4G Matrix.....: WATER
Date Sampled...: 04/19/99 Date Received..: 04/20/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols	0.031	0.0050	mg/L	MCAWW 420.1	05/04-05/16/99	9127188

Dilution Factor: 1 Analysis Time..: 00:00

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W434-041999

General Chemistry

Lot-Sample #...: D9D200129-008 Work Order #...: CTT4N Matrix.....: WATER
Date Sampled...: 04/19/99 Date Received..: 04/20/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols	ND	0.0050	mg/L	MCAWW 420.1	05/04-05/16/99	9127188

Dilution Factor: 1 Analysis Time..: 00:00

CITY OF ST. LOUIS PARK

Client Sample ID: GTF-ACFE-041999

General Chemistry

Lot-Sample #...: D9D200129-010 **Work Order #...:** CTT56 **Matrix.....:** WATER
Date Sampled...: 04/19/99 **Date Received..:** 04/20/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols	ND	0.0050	mg/L	MCAWW 420.1	05/04-05/16/99	9127188

Dilution Factor: 1 Analysis Time..: 00:00

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-SLP4T-041999

General Chemistry

Lot-Sample #...: D9D200129-011 Work Order #...: CTT59 Matrix.....: WATER
Date Sampled...: 04/19/99 Date Received..: 04/20/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols	ND	0.0050	mg/L	MCAWW 420.1	05/04-05/16/99	9127188

Dilution Factor: 1 Analysis Time..: 00:00

QC DATA ASSOCIATION SUMMARY

D9D200129

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WATER	SW846 8270B		9110230	9111062
	WATER	MCAWW 420.1		9127188	9127068
002	WATER	SW846 8270B		9110230	9111062
	WATER	MCAWW 420.1		9127188	9127068
003	WATER	SW846 8270B		9110230	9111062
	WATER	MCAWW 420.1		9127188	9127068
004	WATER	SW846 8270B		9110230	9111062
	WATER	MCAWW 420.1		9127188	9127068
005	WATER	SW846 8270B		9110230	9111062
	WATER	MCAWW 420.1		9127188	9127068
006	WATER	SW846 8270B		9110230	9111062
	WATER	MCAWW 420.1		9127188	9127068
007	WATER	SW846 8270B		9110230	9111062
	WATER	MCAWW 420.1		9127188	9127068
008	WATER	SW846 8270B		9110230	9111062
	WATER	MCAWW 420.1		9127188	9127068
009	WATER	SW846 8270B		9110230	9111062
010	WATER	SW846 8270B		9110230	9111062
	WATER	MCAWW 420.1		9127188	9127068
011	WATER	MCAWW 420.1		9127188	9127068
012	WATER	MCAWW 420.1		9127188	9127068
013	WATER	SW846 8270B		9110230	9111062
014	WATER	SW846 8270B		9110230	9111062
015	WATER	SW846 8270B		9110230	9111062
016	WATER	SW846 8270B		9110230	9111062

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D9D200129 Work Order #...: CTT99101 Matrix.....: WATER
MB Lot-Sample #: D9D200000-230

Prep Date.....: 04/21/99 Analysis Time..: 15:40
Analysis Date..: 05/06/99 Prep Batch #...: 9110230
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
2,3-Benzofuran	ND	10	ug/L	SW846 8270B
2,3-Dihydroindene	ND	10	ug/L	SW846 8270B
Indene	ND	10	ug/L	SW846 8270B
Naphthalene	ND	10	ug/L	SW846 8270B
Benzo(b)thiophene	ND	10	ug/L	SW846 8270B
Quinoline	ND	10	ug/L	SW846 8270B
Indole	ND	10	ug/L	SW846 8270B
2-Methylnaphthalene	ND	10	ug/L	SW846 8270B
1-Methylnaphthalene	ND	10	ug/L	SW846 8270B
Biphenyl	ND	10	ug/L	SW846 8270B
Acenaphthylene	ND	10	ug/L	SW846 8270B
Acenaphthene	ND	10	ug/L	SW846 8270B
Dibenzofuran	ND	10	ug/L	SW846 8270B
Fluorene	ND	10	ug/L	SW846 8270B
Dibenzothiophene	ND	10	ug/L	SW846 8270B
Phenanthrene	ND	10	ug/L	SW846 8270B
Anthracene	ND	10	ug/L	SW846 8270B
Acridine	ND	10	ug/L	SW846 8270B
Carbazole	ND	10	ug/L	SW846 8270B
Fluoranthene	ND	10	ug/L	SW846 8270B
Pyrene	ND	10	ug/L	SW846 8270B
Benzo(a)anthracene	ND	10	ug/L	SW846 8270B
Chrysene	ND	10	ug/L	SW846 8270B
Benzo(b)fluoranthene	ND	10	ug/L	SW846 8270B
Benzo(k)fluoranthene	ND	10	ug/L	SW846 8270B
Benzo(e)pyrene	ND	10	ug/L	SW846 8270B
Benzo(a)pyrene	ND	10	ug/L	SW846 8270B
Perylene	ND	10	ug/L	SW846 8270B
Indeno(1,2,3-cd)pyrene	ND	10	ug/L	SW846 8270B
Benzo(ghi)perylene	ND	10	ug/L	SW846 8270B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	82	(25 - 160)
Fluorene d-10	68	(36 - 127)
Naphthalene-d8	64	(37 - 107)

NOTE(S):

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

METHOD BLANK REPORT

General Chemistry

Client Lot #...: D9D200129 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols		Work Order #: CVHL6101		MB Lot-Sample #:	D9E070000-188	
	ND	0.0050	mg/L	MCAWW 420.1	05/04-05/16/99	9127188
		Dilution Factor: 1				
		Analysis Time..: 00:00				

NOTE(S):

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

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D9D200129 Work Order #...: CTT99102-LCS Matrix.....: WATER
LCS Lot-Sample#: D9D200000-230 CTT99103-LCSD
Prep Date.....: 04/21/99 Analysis Date..: 06/04/99
Prep Batch #...: 9110230 Analysis Time..: 20:32
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Indene	50.2	36.6	ug/L	73		SW846 8270B
	50.2	40.8	ug/L	81	11	SW846 8270B
Naphthalene	50.2	39.2	ug/L	78		SW846 8270B
	50.2	42.6	ug/L	85	8.2	SW846 8270B
Quinoline	50.2	42.4	ug/L	84		SW846 8270B
	50.2	44.8	ug/L	89	5.6	SW846 8270B
2-Methylnaphthalene	50.2	39.5	ug/L	79		SW846 8270B
	50.2	42.4	ug/L	84	7.2	SW846 8270B
Fluorene	50.2	43.8	ug/L	87		SW846 8270B
	50.2	47.7	ug/L	95	8.7	SW846 8270B
Chrysene	50.2	44.2	ug/L	88		SW846 8270B
	50.2	48.8	ug/L	97	10	SW846 8270B
Benzo(e)pyrene	50.2	42.3	ug/L	84		SW846 8270B
	50.2	46.3	ug/L	92	8.9	SW846 8270B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	91	(25 - 160)
	100	(25 - 160)
Fluorene d-10	90	(36 - 127)
	97	(36 - 127)
Naphthalene-d8	74	(37 - 107)
	81	(37 - 107)

NOTE(S):

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

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Lot-Sample #...: D9D200129 **Matrix.....:** WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols			WO#:CVHL6102-LCS/CVHL6103-LCSD				LCS Lot-Sample#: D9E070000-188	
	0.0500	0.0512	mg/L	102		MCAWW 420.1	05/04-05/16/99	9127188
	0.0500	0.0546	mg/L	109	6.4	MCAWW 420.1	05/04-05/16/99	9127188

Dilution Factor: 1

NOTE(S):

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

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D9D200129 Work Order #...: CTT99102-LCS Matrix.....: WATER
LCS Lot-Sample#: D9D200000-230 CTT99103-LCSD
Prep Date.....: 04/21/99 Analysis Date..: 06/04/99
Prep Batch #...: 9110230 Analysis Time..: 20:32
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Indene	**73**	**(49 - 108)**			**SW846 8270B**
	81	**(49 - 108)**	**11**	**(0-20)**	**SW846 8270B**
Naphthalene	**78**	**(43 - 128)**			**SW846 8270B**
	85	**(43 - 128)**	**8.2**	**(0-20)**	**SW846 8270B**
Quinoline	**84**	**(40 - 126)**			**SW846 8270B**
	89	**(40 - 126)**	**5.6**	**(0-20)**	**SW846 8270B**
2-Methylnaphthalene	**79**	**(47 - 138)**			**SW846 8270B**
	84	**(47 - 138)**	**7.2**	**(0-20)**	**SW846 8270B**
Fluorene	**87**	**(51 - 120)**			**SW846 8270B**
	95	**(51 - 120)**	**8.7**	**(0-20)**	**SW846 8270B**
Chrysene	**88**	**(43 - 124)**			**SW846 8270B**
	97	**(43 - 124)**	**10**	**(0-20)**	**SW846 8270B**
Benzo(e)pyrene	**84**	**(20 - 150)**			**SW846 8270B**
	92	**(20 - 150)**	**8.9**	**(0-20)**	**SW846 8270B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	91	(25 - 160)
	100	(25 - 160)
Fluorene d-10	90	(36 - 127)
	97	(36 - 127)
Naphthalene-d8	74	(37 - 107)
	81	(37 - 107)

NOTE(S):

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

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Lot-Sample #...: D9D200129 **Matrix.....:** WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols		WO#:CVHL6102-LCS/CVHL6103-LCSD				LCS Lot-Sample#: D9E070000-188	
	102	(76 - 121)			MCAWW 420.1	05/04-05/16/99	9127188
	109	(76 - 121)	6.4	(0-16)	MCAWW 420.1	05/04-05/16/99	9127188

Dilution Factor: 1

NOTE(S):

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

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D9D200129 Work Order #...: CTT43102-MS Matrix.....: WATER
MS Lot-Sample #: D9D200129-001 CTT43103-MSD
Date Sampled...: 04/19/99 Date Received..: 04/20/99
Prep Date.....: 04/21/99 Analysis Date..: 06/04/99
Prep Batch #...: 9110230 Analysis Time..: 22:28
Dilution Factor: 10

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Indene	76	51.5	193 a	ug/L	226		SW846 8270B
	76	51.5	134 a,p	ug/L	113	36	SW846 8270B
Naphthalene	1600	51.5	1510 a	ug/L	0.0		SW846 8270B
	1600	51.5	1320 a	ug/L	0.0	0.0	SW846 8270B
Quinoline	ND	51.5	88.0 a	ug/L	171		SW846 8270B
	ND	51.5	58.9 p	ug/L	114	40	SW846 8270B
2-Methylnaphthalene	180	51.5	354 a	ug/L	329		SW846 8270B
	180	51.5	257 a,p	ug/L	139	32	SW846 8270B
Fluorene	81	51.5	215 a	ug/L	259		SW846 8270B
	81	51.5	155 a,p	ug/L	144	32	SW846 8270B
Chrysene	ND	51.5	52.2	ug/L	101		SW846 8270B
	ND	51.5	40.4 p	ug/L	78	25	SW846 8270B
zo(e)pyrene	ND	51.5	35.8	ug/L	70		SW846 8270B
	ND	51.5	25.9 p	ug/L	50	32	SW846 8270B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC	(25 - 160)
	NC	(25 - 160)
Fluorene d-10	NC	(36 - 127)
	NC	(36 - 127)
Naphthalene-d8	NC	(37 - 107)
	NC	(37 - 107)

NOTE(S):

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

Bold print denotes control parameters

NC The recovery and/or RPD were not calculated.

a Spiked analyte recovery is outside stated control limits

p Relative percent difference (RPD) is outside stated control limits

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: D9D200129 **Matrix.....:** WATER
Date Sampled...: 04/19/99 **Date Received..:** 04/20/99

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols			WO#: CTT43105-MS/CTT43106-MSD				MS Lot-Sample #: D9D200129-001		
	0.16	0.050	0.210	mg/L	97		MCAWW 420.1	05/04-05/16/99	9127188
	0.16	0.050	0.221	mg/L	118	5.0	MCAWW 420.1	05/04-05/16/99	9127188

Dilution Factor: 1
Analysis Time..: 00:00

NOTE(S):

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

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D9D200129 Work Order #...: CTT43102-MS Matrix.....: WATER
MS Lot-Sample #: D9D200129-001 CTT43103-MSD
Date Sampled...: 04/19/99 Date Received..: 04/20/99
Prep Date.....: 04/21/99 Analysis Date..: 06/04/99
Prep Batch #...: 9110230 Analysis Time..: 22:28
Dilution Factor: 10

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Indene	226 a	(49 - 108)			SW846 8270B
	113 a,p	(49 - 108)	36	(0-20)	SW846 8270B
Naphthalene	0.0 a	(43 - 128)			SW846 8270B
	0.0 a	(43 - 128)	0.0	(0-20)	SW846 8270B
Quinoline	171 a	(40 - 126)			SW846 8270B
	114 p	(40 - 126)	40	(0-20)	SW846 8270B
2-Methylnaphthalene	329 a	(47 - 138)			SW846 8270B
	139 a,p	(47 - 138)	32	(0-20)	SW846 8270B
Fluorene	259 a	(51 - 120)			SW846 8270B
	144 a,p	(51 - 120)	32	(0-20)	SW846 8270B
Chrysene	101	(43 - 124)			SW846 8270B
	78 p	(43 - 124)	25	(0-20)	SW846 8270B
[illegible]zo(e)pyrene	70	(20 - 150)			SW846 8270B
	50 p	(20 - 150)	32	(0-20)	SW846 8270B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC	(25 - 160)
	NC	(25 - 160)
Fluorene d-10	NC	(36 - 127)
	NC	(36 - 127)
Naphthalene-d8	NC	(37 - 107)
	NC	(37 - 107)

NOTE(S):

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

Bold print denotes control parameters

NC The recovery and/or RPD were not calculated.

a Spiked analyte recovery is outside stated control limits.

p Relative percent difference (RPD) is outside stated control limits.

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: D9D200129 **Matrix.....:** WATER
Date Sampled...: 04/19/99 **Date Received..:** 04/20/99

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols		WO#:	CTT43105-MS/CTT43106-MSD			MS Lot-Sample #: D9D200129-001	
	97	(76 - 121)			MCAWW 420.1	05/04-05/16/99	9127188
	118	(76 - 121)	5.0	(0-16)	MCAWW 420.1	05/04-05/16/99	9127188
		Dilution Factor: 1					
		Analysis Time..: 00:00					

NOTE(S):

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

Chain of Custody Record

Quanterra Environmental Services

QUA-4124

Client: CITY OF ST. LOUIS PARK UTILITY DIVISION 3752 WOODDALE AVENUE ST. LOUIS PARK, MN 55416	Project Manager: SCOTT ANDERSON	Date: 4-19-99	Chain Of Custody Number: 27375
Address	Telephone Number (Area Code)/Fax Number: 924-2557 (612) 924-2570	Lab Number: D9D260129	Page 1 of 3
City	Site Contact: SAME		
Project Name: SAME	Carrier/Waybill Number: FED EX 8008463166 65		
Contract/Purchase Order/Quote No			

Sample I.D No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: PPB PAH
1 DPV-W420-041999	4-19-99		WATER	1 LITER	AMBER	2	N/A		X
2 DPV-W420D-041999									
3 DPV-W420MS-041999									
4 DPV-W420MSD-041999									
5 DPV-W420FB-041999									
6 DPV-W420FBD-041999	4-19-99		WATER	1 LITER	AMBER	2	N/A		X

Special Instructions

Possible Hazard Identification: [X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown

Sample Disposal: [ ] Return To Client [X] Disposal By Lab [ ] Archive For _____ Months

Turn Around Time Required: [ ] Normal [ ] Rush

QC Level: [ ] I. [ ] II. [ ] III.

Project Specific (Specify)

	Date	Time		Date	Time
1 Relinquished By: [signature]	4-19-99	1400	1 Received By: [signature]	4/20/99	0915
2 Relinquished By			2 Received By		
3 Relinquished By			3 Received By		

Comments: Cooler · CSLP 0012 Temp 2.8°C

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

Chain of Custody Record

Quanterra Environmental Services

QUA-4124

Client: CITY OF ST. LOUIS PARK UTILITY DIVISION 3752 WOODDALE AVENUE ST. LOUIS PARK, MN 55416	Project Manager: SCOTT ANDERSON	Date: 4-19-99	Chain Of Custody Number: 25560
Address:	Telephone Number (Area Code)/Fax Number: 924-2557 (612) 924-2570	Lab Number: D9D200129	Page 2 of 3
City:	Site Contact: SAME		
Project Name: SAME	Carrier/Waybill Number: FED EX 800846316665		
Contract/Purchase Order/Quote No:			

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: PPB PAH
-05 DPV-W421-041999	4-19-99		WATER	1 LITER	AMBER	2	N/A		X
-06 DPV-W422-041999	4-19-99								
-07 DPV-W439-041999	4-19-99								
-08 DPV-W434-041999	4-19-99								
-09 PCJ-W23-041999	4-19-99								
-10 GTF-ACFE-041999	4-19-99		WATER	1 LITER	AMBER	2	N/A		X

Special Instructions

Possible Hazard Identification: [X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown

Sample Disposal: [ ] Return To Client [X] Disposal By Lab [ ] Archive For _____ Months

Turn Around Time Required: [ ] Normal [ ] Rush

QC Level: [ ] I. [ ] II. [ ] III.

Project Specific (Specify)

	Date	Time		Date	Time
1 Relinquished By: MZH	4-19-99	1400	1 Received By: Kurt C. [illegible]	4/20/99	0915
2 Relinquished By:			2 Received By:		
3 Relinquished By:			3 Received By:		

Comments: Cooler SLP 0002 Tup 2.0°C

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

Chain of Custody Record

Quanterra Environmental Services

QUA-4124

Client: CITY OF ST. LOUIS PARK UTILITY DIVISION	Project Manager: SCOTT ANDERSON	Date: 4-19-99	Chain Of Custody Number: 25559
Address: 3752 WOODDALE AVENUE	Telephone Number (Area Code)/Fax Number: 924-2557 (612) 924-2570	Lab Number: DAD200129	Page 3 of 3
City: ST. LOUIS PARK, MN 55416	Site Contact: SAME		
Project Name: SAME	Carrier/Waybill Number: FED EX 800846316665		
Contract/Purchase Order/Quote No.			

	Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: Phenols
1	DPV - W420TP - 041999	4-19-99		WATER	16 OZ	AMBER	1	H_2SO_4		X
2	DPV - W420TPD - 041999									
3	DPV - W420MS - 041999									
4	DPV - W420MSD - 041999									
5	DPV - W420FB - 041999									
6	DPV - W420FBD - 041999									
7	DPV - W421TP - 041999									
8	DPV - W422TP - 041999									
9	DPV - W439TP - 041999									
10	DPV - W434TP - 041999									
11	ETE - ACFETP - 041999									
12	DCJ - SLP4TP - 041999									
	STP - W410TP - 041999	4-19-99		WATER	16 OZ	AMBER	1	H_2SO_4		X

Special Instructions

Possible Hazard Identification: [X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown

Sample Disposal: [ ] Return To Client [X] Disposal By Lab [ ] Archive For _____ Months

Turn Around Time Required: [ ] Normal [ ] Rush

QC Level: [ ] I. [ ] II. [ ] III.

Project Specific (Specify)

1. Relinquished By: MZK	Date: 4-19-99	Time: 1400	1 Received By: Kurt C. Dill	Date: 4/20/99	Time: 0915
2 Relinquished By	Date	Time	2 Received By	Date	Time
3. Relinquished By	Date	Time	3 Received By	Date	Time

Comments: Cooler CSLP 0003 Temp 4.7 °C

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

Chain of Custody Record

Quanterra

JIA 4124

Client: City of St Louis Park	Project Manager: Bill Gregg - ENSR	Date: 4/18/99	Chain Of Custody Number: 39664
Address: 3752 Woodale Ave	Telephone Number (Area Code)/Fax Number: 612-924-2557	Lab Number: D9D200129	Page 1 of 1
City: St Louis Park; State: MN; Zip Code: 55416	Site Contact: Scott Anderson - SLP		
Project Name: Reilly Site	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No	Preservative	Condition on Receipt	Analysis: PPB-PAH
STP-W409-041999	4/18/99	12:30	GW	2 Liters	1 Liter	2	—		X
DPV-W426-041999	4/18/99	13:00	GW	2 Liters	1 Liter	2	—		X
DPV-W27-041999	4/18/99	14:00	GW	2 Liters	1 Liter	2	—		X
DPV-W143-041999	4/19/99	8:00	GW	2 Liters	1 Liter	2	—		X

Special Instructions: PAH PPB Analyses

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

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Turn Around Time Required: ☒ Normal ☐ Rush

QC Level: ☐ I. ☐ II. ☐ III.

Project Specific (Specify):

	Date	Time		Date	Time
1 Relinquished By: Pat Moore	4/18	9:00	1 Received By: [signature]	4/21/99	0900
2 Relinquished By:			2 Received By:		
3 Relinquished By:			3 Received By:		

Comments: [illegible] ESLP0001 1.8°C Only 1 bottle for [illegible]

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

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STP

Quanterra

Advanced Analytical Services

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 467-9136 Fax

CASE NARRATIVE

FOR

City of St. Louis Park

June 23, 1999

Quanterra , Inc.

Project Lot Number D9D270124

Introduction

Ten aqueous samples (including matrix QC) were received at Quanterra Environmental Services, Denver Laboratory on April 27, 1999. The samples were logged in under Quanterra Denver's project lot number D9D270124. A cross reference associating Quanterra Denver's laboratory sample numbers to the actual field sample number is included. The samples were analyzed for part per trillion (ppt) PAHs.

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the October 1998 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.

The spike compound Indene in the LCS and LCSD samples are reported at 162% and 163% recoveries which are above the 20% to 150% acceptance limits. An investigation revealed that the concentration in the calibration standards for Indene was approximately 50% of what was entered into the method causing the results to be biased high for Indene. All other compounds were at the correct concentration. A new calibration curve was produced and the samples that required dilutions were reanalyzed. The Field Blank and Field Blank Duplicate samples were the only samples not reanalyzed because Indene was not present above the reporting limit. All other compounds in the LCS and LCSD samples were within acceptance limits.

Client samples with laboratory Id's D9D270124-001, -002 and –008 were analyzed at a dilution due to target analytes exceeding the linear range of the instrument. The reporting limits were raised accordingly. As a result of dilutions, the surrogate compounds were not detected and are reported as "NC".

The surrogate compound Chrysene-d12 in samplesD9D270124-005, -006 and –007 are reported below the 10% to 118% acceptance limits. Chrysene-d12 was recovered within acceptance limits in the method blank and duplicate control samples. A matrix effect is indicated.

The spike compound 2-methylnaphthalene in the matrix spike and matrix spike duplicate samples are reported at 19$% and 168% recovery which is above the 20% to 150% acceptance limits. 2-methylnaphthalene was recovered within acceptance limits in the duplicate control samples. A matrix effect is indicated.

The spike compound fluorene in the matrix spike and matrix spike duplicate samples are reported at 168% and 162% recovery which is above the 69% to 132% acceptance limits. Fluroene was recovered within acceptance limits in the duplicate control samples. A matrix effect is indicated.

The spike compound Indene was not recovered in the matrix spike and matrix spike duplicate samples. Indene was present in the sample at a concentration 10 times greater than the spiking level.

The spike compound quinoline in the matrix spike and matrix spike duplicate samples are reported at 696% and 627% recovery which is above the 20% to 150% acceptance limits. Quinoline was recovered within acceptance limits in the duplicate control samples. A matrix effect is indicated.

The relative percent difference (RPD) for the compound benzo (e) pyrene in the matrix spike and matrix spike duplicate samples is reported at 95% which is above the 20% acceptance limit.

Except for the above, this data package is in compliance with the terms and conditions of the October 1998 QAPP, both technically and for completeness

Reported By: Kurt C. Ill **Date:** June 23, 1999

Kurt C. Ill
Program Manager

ANALYTICAL REPORT

Reilly Tar & Chemical NPL Site

Lot #: D9D270124

Scott Anderson

City of St. Louis Park

QUANTERRA INCORPORATED

Kurt C. Ill
Project Manager

June 23, 1999

EXECUTIVE SUMMARY - Detection Highlights

D9D270124

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
STP-W410-042699 04/26/99 001				
Acenaphthylene	23 J	140	ng/L	SW846 8270A SIM
Naphthalene	440 J	650	ng/L	SW846 8270A SIM
Acenaphthene	860	130	ng/L	SW846 8270A SIM
Dibenzofuran	20 J	100	ng/L	SW846 8270A SIM
Fluorene	23 J	100	ng/L	SW846 8270A SIM
Phenanthrene	46 J	130	ng/L	SW846 8270A SIM
Carbazole	390	190	ng/L	SW846 8270A SIM
Indene	5300	90	ng/L	SW846 8270A SIM
1-Methylnaphthalene	1200	280	ng/L	SW846 8270A SIM
Biphenyl	95 J	430	ng/L	SW846 8270A SIM
2,3-Benzofuran	28 J	510	ng/L	SW846 8270A SIM
2,3-Dihydroindene	9900	500	ng/L	SW846 8270A SIM
Benzo(b)thiophene	3200	90	ng/L	SW846 8270A SIM
Acridine	67 J	610	ng/L	SW846 8270A SIM
Dibenzothiophene	14 J	110	ng/L	SW846 8270A SIM
STP-W410D-042699 04/26/99 002				
Acenaphthylene	13 J	140	ng/L	SW846 8270A SIM
Naphthalene	330 J	650	ng/L	SW846 8270A SIM
Acenaphthene	600	130	ng/L	SW846 8270A SIM
Dibenzofuran	14 J	100	ng/L	SW846 8270A SIM
Fluorene	17 J	100	ng/L	SW846 8270A SIM
Phenanthrene	36 J	130	ng/L	SW846 8270A SIM
Carbazole	260	190	ng/L	SW846 8270A SIM
Indene	4000	90	ng/L	SW846 8270A SIM
1-Methylnaphthalene	870	280	ng/L	SW846 8270A SIM
Biphenyl	73 J	430	ng/L	SW846 8270A SIM
2,3-Benzofuran	23 J	510	ng/L	SW846 8270A SIM
2,3-Dihydroindene	7600	500	ng/L	SW846 8270A SIM
Benzo(b)thiophene	2400	90	ng/L	SW846 8270A SIM
Acridine	26 J	610	ng/L	SW846 8270A SIM
STP-W410FB-042699 04/26/99 003				
Naphthalene	2.9 J	6.5	ng/L	SW846 8270A SIM
2-Methylnaphthalene	2.0 J	3.9	ng/L	SW846 8270A SIM
Phenanthrene	2.6	1.3	ng/L	SW846 8270A SIM
Carbazole	0.13 J	1.9	ng/L	SW846 8270A SIM
Fluoranthene	1.2 J	3.1	ng/L	SW846 8270A SIM
Pyrene	0.92 J	1.4	ng/L	SW846 8270A SIM
Benzo(a)anthracene	0.25 J	2.5	ng/L	SW846 8270A SIM
Indeno(1,2,3-cd)pyrene	0.28 J	2.1	ng/L	SW846 8270A

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EXECUTIVE SUMMARY - Detection Highlights

D9D270124

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
STP-W410FB-042699 04/26/99 003				
Benzo(ghi)perylene	0.31 J	2.8	ng/L	SW846 8270A SIM
1-Methylnaphthalene	0.95 J	2.8	ng/L	SW846 8270A SIM
Biphenyl	0.27 J	4.3	ng/L	SW846 8270A SIM
Dibenz(a,h)anthracene	0.13 J	1.6	ng/L	SW846 8270A SIM
2,3-Benzofuran	0.47 J	5.1	ng/L	SW846 8270A SIM
2,3-Dihydroindene	0.66 J	5.0	ng/L	SW846 8270A SIM
Dibenzothiophene	0.17 J	1.1	ng/L	SW846 8270A SIM
STP-W410FBD-042699 04/26/99 004				
Naphthalene	3.2 J	6.5	ng/L	SW846 8270A SIM
2-Methylnaphthalene	2.1 J	3.9	ng/L	SW846 8270A SIM
Fluorene	0.45 J	1.0	ng/L	SW846 8270A SIM
Phenanthrene	2.7	1.3	ng/L	SW846 8270A SIM
Carbazole	0.19 J	1.9	ng/L	SW846 8270A SIM
Fluoranthene	1.3 J	3.1	ng/L	SW846 8270A SIM
Pyrene	1.1 J	1.4	ng/L	SW846 8270A SIM
Chrysene	0.28 J	2.8	ng/L	SW846 8270A SIM
Indeno(1,2,3-cd)pyrene	0.26 J	2.1	ng/L	SW846 8270A SIM
Benzo(ghi)perylene	0.18 J	2.8	ng/L	SW846 8270A SIM
1-Methylnaphthalene	1.0 J	2.8	ng/L	SW846 8270A SIM
Biphenyl	0.29 J	4.3	ng/L	SW846 8270A SIM
2,3-Benzofuran	0.39 J	5.1	ng/L	SW846 8270A SIM
2,3-Dihydroindene	0.70 J	5.0	ng/L	SW846 8270A SIM
Dibenzothiophene	0.17 J	1.1	ng/L	SW846 8270A SIM
STP-W412-042699 04/26/99 005				
Naphthalene	36	6.5	ng/L	SW846 8270A SIM
2-Methylnaphthalene	14	3.9	ng/L	SW846 8270A SIM
Acenaphthene	9.6	1.3	ng/L	SW846 8270A SIM
Dibenzofuran	4.2	1.0	ng/L	SW846 8270A SIM
Phenanthrene	25	1.3	ng/L	SW846 8270A SIM
Carbazole	16	1.9	ng/L	SW846 8270A SIM
Fluoranthene	20	3.1	ng/L	SW846 8270A SIM
Pyrene	25	1.4	ng/L	SW846 8270A SIM
Chrysene	3.4	2.8	ng/L	SW846 8270A SIM
Benzo(b)fluoranthene	3.0	2.5	ng/L	SW846 8270A SIM
Benzo(k)fluoranthene	2.1 J	2.3	ng/L	SW846 8270A SIM
Benzo(a)pyrene	4.9	2.3	ng/L	SW846 8270A SIM
Indeno(1,2,3-cd)pyrene	2.9	2.1	ng/L	SW846 8270A SIM
Benzo(ghi)perylene	2.7 J	2.8	ng/L	SW846 8270A SIM
Indene	26	0.90	ng/L	SW846 8270A SIM

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EXECUTIVE SUMMARY - Detection Highlights

D9D270124

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
STP-W412-042699 04/26/99 005				
1-Methylnaphthalene	15	2.8	ng/L	SW846 8270A SIM
Benzo(e)pyrene	2.4	1.9	ng/L	SW846 8270A SIM
Dibenz(a,h)anthracene	0.64 J	1.6	ng/L	SW846 8270A SIM
2,3-Dihydroindene	11	5.0	ng/L	SW846 8270A SIM
Benzo(b)thiophene	50	0.90	ng/L	SW846 8270A SIM
Acridine	11	6.1	ng/L	SW846 8270A SIM
Perylene	1.5 J	2.5	ng/L	SW846 8270A SIM
STP-W133-042699 04/26/99 09:30 006				
Naphthalene	120	6.5	ng/L	SW846 8270A SIM
2-Methylnaphthalene	36	3.9	ng/L	SW846 8270A SIM
Acenaphthene	35	1.3	ng/L	SW846 8270A SIM
Dibenzofuran	13	1.0	ng/L	SW846 8270A SIM
Fluorene	15	1.0	ng/L	SW846 8270A SIM
Phenanthrene	12	1.3	ng/L	SW846 8270A SIM
Anthracene	2.1 J	2.7	ng/L	SW846 8270A SIM
Carbazole	16	1.9	ng/L	SW846 8270A SIM
Fluoranthene	8.5	3.1	ng/L	SW846 8270A SIM
Pyrene	6.8	1.4	ng/L	SW846 8270A SIM
Benzo(a)anthracene	0.66 J	2.5	ng/L	SW846 8270A SIM
Chrysene	1.2 J	2.8	ng/L	SW846 8270A SIM
Benzo(b)fluoranthene	1.1 J	2.5	ng/L	SW846 8270A SIM
Benzo(k)fluoranthene	0.45 J	2.3	ng/L	SW846 8270A SIM
Benzo(a)pyrene	1.6 J	2.3	ng/L	SW846 8270A SIM
Indeno(1,2,3-cd)pyrene	0.96 J	2.1	ng/L	SW846 8270A SIM
Benzo(ghi)perylene	1.0 J	2.8	ng/L	SW846 8270A SIM
Indene	120	0.90	ng/L	SW846 8270A SIM
1-Methylnaphthalene	69	2.8	ng/L	SW846 8270A SIM
Benzo(e)pyrene	0.96 J	1.9	ng/L	SW846 8270A SIM
Biphenyl	11	4.3	ng/L	SW846 8270A SIM
Dibenz(a,h)anthracene	0.26 J	1.6	ng/L	SW846 8270A SIM
2,3-Benzofuran	2.4 J	5.1	ng/L	SW846 8270A SIM
2,3-Dihydroindene	110	5.0	ng/L	SW846 8270A SIM
Benzo(b)thiophene	37	0.90	ng/L	SW846 8270A SIM
Acridine	16	6.1	ng/L	SW846 8270A SIM
Perylene	0.38 J	2.5	ng/L	SW846 8270A SIM
Dibenzothiophene	2.1	1.1	ng/L	SW846 8270A SIM

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EXECUTIVE SUMMARY - Detection Highlights

D9D270124

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
STP-W33-042699 04/26/99 10:40 007				
Naphthalene	50	6.5	ng/L	SW846 8270A SIM
2-Methylnaphthalene	14	3.9	ng/L	SW846 8270A SIM
Acenaphthene	140	1.3	ng/L	SW846 8270A SIM
Dibenzofuran	6.8	1.0	ng/L	SW846 8270A SIM
Fluorene	16	1.0	ng/L	SW846 8270A SIM
Phenanthrene	20	1.3	ng/L	SW846 8270A SIM
Anthracene	2.8	2.7	ng/L	SW846 8270A SIM
Carbazole	110	1.9	ng/L	SW846 8270A SIM
Fluoranthene	7.0	3.1	ng/L	SW846 8270A SIM
Pyrene	14	1.4	ng/L	SW846 8270A SIM
Chrysene	0.34 J	2.8	ng/L	SW846 8270A SIM
Benzo(b)fluoranthene	0.37 J	2.5	ng/L	SW846 8270A SIM
Benzo(k)fluoranthene	0.23 J	2.3	ng/L	SW846 8270A SIM
Benzo(a)pyrene	0.51 J	2.3	ng/L	SW846 8270A SIM
Indeno(1,2,3-cd)pyrene	0.38 J	2.1	ng/L	SW846 8270A SIM
Benzo(ghi)perylene	0.41 J	2.8	ng/L	SW846 8270A SIM
Indene	290	0.90	ng/L	SW846 8270A SIM
1-Methylnaphthalene	24	2.8	ng/L	SW846 8270A SIM
Benzo(e)pyrene	0.25 J	1.9	ng/L	SW846 8270A SIM
Biphenyl	23	4.3	ng/L	SW846 8270A SIM
2,3-Benzofuran	7.6	5.1	ng/L	SW846 8270A SIM
2,3-Dihydroindene	1200	5.0	ng/L	SW846 8270A SIM
Benzo(b)thiophene	440	0.90	ng/L	SW846 8270A SIM
Indole	6.5	2.5	ng/L	SW846 8270A SIM
Acridine	11	6.1	ng/L	SW846 8270A SIM
STP-W24-042699 04/26/99 14:10 008				
Acenaphthylene	6.0 J	28	ng/L	SW846 8270A SIM
Naphthalene	11 J	130	ng/L	SW846 8270A SIM
Acenaphthene	160	26	ng/L	SW846 8270A SIM
Dibenzofuran	13 J	20	ng/L	SW846 8270A SIM
Phenanthrene	13 J	26	ng/L	SW846 8270A SIM
Anthracene	22 J	54	ng/L	SW846 8270A SIM
Carbazole	8.8 J	38	ng/L	SW846 8270A SIM
Fluoranthene	6.0 J	62	ng/L	SW846 8270A SIM
Pyrene	14 J	28	ng/L	SW846 8270A SIM
Quinoline	89 J	140	ng/L	SW846 8270A SIM
2,3-Benzofuran	3.0 J	100	ng/L	SW846 8270A SIM
2,3-Dihydroindene	1700	100	ng/L	SW846 8270A SIM
Benzo(b)thiophene	12 J	18	ng/L	SW846 8270A SIM
Acridine	27 J	120	ng/L	SW846 8270A SIM

ANALYTICAL METHODS SUMMARY

D9D270124

PARAMETER	ANALYTICAL METHOD
Base/Neutrals and Acids	SW846 8270A SIM

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

METHOD / ANALYST SUMMARY

D9D270124

ANALYTICAL METHOD	ANALYST	ANALYST ID
SW846 8270A SIM	Monica R. Edwards	001685

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

D9D270124

WO #	SAMPLE#	CLIENT SAMPLE ID	DATE	TIME
CV4EV	001	STP-W410-042699	04/26/99	
CV4F1	002	STP-W410D-042699	04/26/99	
CV4F2	003	STP-W410FB-042699	04/26/99	
CV4F3	004	STP-W410FBD-042699	04/26/99	
CV4F4	005	STP-W412-042699	04/26/99	
CV4F8	006	STP-W133-042699	04/26/99	09:30
CV4FC	007	STP-W33-042699	04/26/99	10:40
CV4FG	008	STP-W24-042699	04/26/99	14:10

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- *This report must not be reproduced, except in full, without the written approval of the laboratory.*
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

CITY OF ST. LOUIS PARK

Client Sample ID: STP-W410-042699

GC/MS Semivolatiles

Lot-Sample #...: D9D270124-001 Work Order #...: CV4EV101 Matrix.....: WATER
Date Sampled...: 04/26/99 Date Received..: 04/27/99
Prep Date.....: 04/27/99 Analysis Date..: 06/10/99
Prep Batch #...: 9117269 Analysis Time..: 07:20
Dilution Factor: 100

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	23 J	140	ng/L
Naphthalene	440 J	650	ng/L
2-Methylnaphthalene	ND	390	ng/L
Acenaphthene	860	130	ng/L
Dibenzofuran	20 J	100	ng/L
Fluorene	23 J	100	ng/L
Phenanthrene	46 J	130	ng/L
Anthracene	ND	270	ng/L
Carbazole	390	190	ng/L
Fluoranthene	ND	310	ng/L
Pyrene	ND	140	ng/L
Benzo(a)anthracene	ND	250	ng/L
Chrysene	ND	280	ng/L
Benzo(b)fluoranthene	ND	250	ng/L
Benzo(k)fluoranthene	ND	230	ng/L
Benzo(a)pyrene	ND	230	ng/L
Indeno(1,2,3-cd)pyrene	ND	210	ng/L
Benzo(ghi)perylene	ND	280	ng/L
Indene	5300	90	ng/L
1-Methylnaphthalene	1200	280	ng/L
Benzo(e)pyrene	ND	190	ng/L
Biphenyl	95 J	430	ng/L
Dibenz(a,h)anthracene	ND	160	ng/L
Quinoline	ND	690	ng/L
2,3-Benzofuran	28 J	510	ng/L
2,3-Dihydroindene	9900	500	ng/L
Benzo(b)thiophene	3200	90	ng/L
Indole	ND	250	ng/L
Acridine	67 J	610	ng/L
Perylene	ND	250	ng/L
Dibenzothiophene	14 J	110	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC	(10 - 118)
Fluorene d-10	NC	(41 - 162)
Naphthalene-d8	NC	(21 - 108)

NOTE(S):

NC The recovery and/or RPD were not calculated.

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: STP-W410D-042699

GC/MS Semivolatiles

Lot-Sample #...: D9D270124-002
Date Sampled...: 04/26/99
Prep Date.....: 04/27/99
Prep Batch #...: 9117269
Dilution Factor: 100

Work Order #...: CV4F1101
Date Received..: 04/27/99
Analysis Date..: 06/10/99
Analysis Time..: 09:09

Matrix.....: WATER

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	13 J	140	ng/L
Naphthalene	330 J	650	ng/L
2-Methylnaphthalene	ND	390	ng/L
Acenaphthene	600	130	ng/L
Dibenzofuran	14 J	100	ng/L
Fluorene	17 J	100	ng/L
Phenanthrene	36 J	130	ng/L
Anthracene	ND	270	ng/L
Carbazole	260	190	ng/L
Fluoranthene	ND	310	ng/L
Pyrene	ND	140	ng/L
Benzo(a)anthracene	ND	250	ng/L
Chrysene	ND	280	ng/L
Benzo(b)fluoranthene	ND	250	ng/L
Benzo(k)fluoranthene	ND	230	ng/L
Benzo(a)pyrene	ND	230	ng/L
Indeno(1,2,3-cd)pyrene	ND	210	ng/L
Benzo(ghi)perylene	ND	280	ng/L
Indene	4000	90	ng/L
1-Methylnaphthalene	870	280	ng/L
Benzo(e)pyrene	ND	190	ng/L
Biphenyl	73 J	430	ng/L
Dibenz(a,h)anthracene	ND	160	ng/L
Quinoline	ND	690	ng/L
2,3-Benzofuran	23 J	510	ng/L
2,3-Dihydroindene	7600	500	ng/L
Benzo(b)thiophene	2400	90	ng/L
Indole	ND	250	ng/L
Acridine	26 J	610	ng/L
Perylene	ND	250	ng/L
Dibenzothiophene	ND	110	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC	(10 - 118)
Fluorene d-10	NC	(41 - 162)
Naphthalene-d8	NC	(21 - 108)

NOTE(S):

NC The recovery and/or RPD were not calculated.

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: STP-W410FB-042699

GC/MS Semivolatiles

Lot-Sample #...: D9D270124-003 Work Order #...: CV4F2101 Matrix.....: WATER
Date Sampled...: 04/26/99 Date Received..: 04/27/99
Prep Date.....: 04/27/99 Analysis Date..: 05/01/99
Prep Batch #...: 9117269 Analysis Time..: 05:41
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	2.9 J	6.5	ng/L
2-Methylnaphthalene	2.0 J	3.9	ng/L
Acenaphthene	ND	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	2.6	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	0.13 J	1.9	ng/L
Fluoranthene	1.2 J	3.1	ng/L
Pyrene	0.92 J	1.4	ng/L
Benzo(a)anthracene	0.25 J	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	0.28 J	2.1	ng/L
Benzo(ghi)perylene	0.31 J	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	0.95 J	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	0.27 J	4.3	ng/L
Dibenz(a,h)anthracene	0.13 J	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	0.47 J	5.1	ng/L
2,3-Dihydroindene	0.66 J	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	0.17 J	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	101	(10 - 118)
Fluorene d-10	99	(41 - 162)
Naphthalene-d8	89	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: STP-W410FBD-042699

GC/MS Semivolatiles

Lot-Sample #...: D9D270124-004 Work Order #...: CV4F3101 Matrix.....: WATER
Date Sampled...: 04/26/99 Date Received..: 04/27/99
Prep Date.....: 04/27/99 Analysis Date..: 05/01/99
Prep Batch #...: 9117269 Analysis Time..: 06:20
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	3.2 J	6.5	ng/L
2-Methylnaphthalene	2.1 J	3.9	ng/L
Acenaphthene	ND	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	0.45 J	1.0	ng/L
Phenanthrene	2.7	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	0.19 J	1.9	ng/L
Fluoranthene	1.3 J	3.1	ng/L
Pyrene	1.1 J	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	0.28 J	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	0.26 J	2.1	ng/L
Benzo(ghi)perylene	0.18 J	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	1.0 J	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	0.29 J	4.3	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	0.39 J	5.1	ng/L
2,3-Dihydroindene	0.70 J	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	0.17 J	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	100	(10 - 118)
Fluorene d-10	95	(41 - 162)
Naphthalene-d8	85	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: STP-W412-042699

GC/MS Semivolatiles

Lot-Sample #...: D9D270124-005 Work Order #...: CV4F4101 Matrix.....: WATER
Date Sampled...: 04/26/99 Date Received..: 04/27/99
Prep Date.....: 04/27/99 Analysis Date..: 05/01/99
Prep Batch #...: 9117269 Analysis Time..: 07:00
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	36	6.5	ng/L
2-Methylnaphthalene	14	3.9	ng/L
Acenaphthene	9.6	1.3	ng/L
Dibenzofuran	4.2	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	25	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	16	1.9	ng/L
Fluoranthene	20	3.1	ng/L
Pyrene	25	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	3.4	2.8	ng/L
Benzo(b)fluoranthene	3.0	2.5	ng/L
Benzo(k)fluoranthene	2.1 J	2.3	ng/L
Benzo(a)pyrene	4.9	2.3	ng/L
Indeno(1,2,3-cd)pyrene	2.9	2.1	ng/L
Benzo(ghi)perylene	2.7 J	2.8	ng/L
Indene	26	0.90	ng/L
1-Methylnaphthalene	15	2.8	ng/L
Benzo(e)pyrene	2.4	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	0.64 J	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	11	5.0	ng/L
Benzo(b)thiophene	50	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	11	6.1	ng/L
Perylene	1.5 J	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	5.4 *	(10 - 118)
Fluorene d-10	64	(41 - 162)
Naphthalene-d8	57	(21 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: STP-W133-042699

GC/MS Semivolatiles

Lot-Sample #...: D9D270124-006 Work Order #...: CV4F8101 Matrix.....: WATER
Date Sampled...: 04/26/99 09:30 Date Received..: 04/27/99
Prep Date.....: 04/27/99 Analysis Date..: 05/01/99
Prep Batch #...: 9117269 Analysis Time..: 07:40
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	120	6.5	ng/L
2-Methylnaphthalene	36	3.9	ng/L
Acenaphthene	35	1.3	ng/L
Dibenzofuran	13	1.0	ng/L
Fluorene	15	1.0	ng/L
Phenanthrene	12	1.3	ng/L
Anthracene	2.1 J	2.7	ng/L
Carbazole	16	1.9	ng/L
Fluoranthene	8.5	3.1	ng/L
Pyrene	6.8	1.4	ng/L
Benzo(a)anthracene	0.66 J	2.5	ng/L
Chrysene	1.2 J	2.8	ng/L
Benzo(b)fluoranthene	1.1 J	2.5	ng/L
Benzo(k)fluoranthene	0.45 J	2.3	ng/L
Benzo(a)pyrene	1.6 J	2.3	ng/L
Indeno(1,2,3-cd)pyrene	0.96 J	2.1	ng/L
Benzo(ghi)perylene	1.0 J	2.8	ng/L
Indene	120	0.90	ng/L
1-Methylnaphthalene	69	2.8	ng/L
Benzo(e)pyrene	0.96 J	1.9	ng/L
Biphenyl	11	4.3	ng/L
Dibenz(a,h)anthracene	0.26 J	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	2.4 J	5.1	ng/L
2,3-Dihydroindene	110	5.0	ng/L
Benzo(b)thiophene	37	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	16	6.1	ng/L
Perylene	0.38 J	2.5	ng/L
Dibenzothiophene	2.1	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	9.1 *	(10 - 118)
Fluorene d-10	77	(41 - 162)
Naphthalene-d8	67	(21 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: STP-W33-042699

GC/MS Semivolatiles

Lot-Sample #...:	D9D270124-007	**Work Order #...:**	CV4FC101	**Matrix.....:**	WATER
Date Sampled...:	04/26/99 10:40	**Date Received..:**	04/27/99		
Prep Date.....:	04/27/99	**Analysis Date..:**	05/01/99		
Prep Batch #...:	9117269	**Analysis Time..:**	08:20		
Dilution Factor:	1				
		Method.....:	SW846 8270A SIM		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	50	6.5	ng/L
2-Methylnaphthalene	14	3.9	ng/L
Acenaphthene	140	1.3	ng/L
Dibenzofuran	6.8	1.0	ng/L
Fluorene	16	1.0	ng/L
Phenanthrene	20	1.3	ng/L
Anthracene	2.8	2.7	ng/L
Carbazole	110	1.9	ng/L
Fluoranthene	7.0	3.1	ng/L
Pyrene	14	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	0.34 J	2.8	ng/L
Benzo(b)fluoranthene	0.37 J	2.5	ng/L
Benzo(k)fluoranthene	0.23 J	2.3	ng/L
Benzo(a)pyrene	0.51 J	2.3	ng/L
Indeno(1,2,3-cd)pyrene	0.38 J	2.1	ng/L
Benzo(ghi)perylene	0.41 J	2.8	ng/L
Indene	290	0.90	ng/L
1-Methylnaphthalene	24	2.8	ng/L
Benzo(e)pyrene	0.25 J	1.9	ng/L
Biphenyl	23	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	7.6	5.1	ng/L
2,3-Dihydroindene	1200	5.0	ng/L
Benzo(b)thiophene	440	0.90	ng/L
Indole	6.5	2.5	ng/L
Acridine	11	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	8.1 *	(10 - 118)
Fluorene d-10	68	(41 - 162)
Naphthalene-d8	57	(21 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: STP-W24-042699

GC/MS Semivolatiles

Lot-Sample #...: D9D270124-008 Work Order #...: CV4FG101 Matrix.....: WATER
Date Sampled...: 04/26/99 14:10 Date Received..: 04/27/99
Prep Date.....: 04/27/99 Analysis Date..: 06/10/99
Prep Batch #...: 9117269 Analysis Time..: 12:08
Dilution Factor: 20

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	6.0 J	28	ng/L
Naphthalene	11 J	130	ng/L
2-Methylnaphthalene	ND	78	ng/L
Acenaphthene	160	26	ng/L
Dibenzofuran	13 J	20	ng/L
Fluorene	ND	20	ng/L
Phenanthrene	13 J	26	ng/L
Anthracene	22 J	54	ng/L
Carbazole	8.8 J	38	ng/L
Fluoranthene	6.0 J	62	ng/L
Pyrene	14 J	28	ng/L
Benzo(a)anthracene	ND	50	ng/L
Chrysene	ND	56	ng/L
Benzo(b)fluoranthene	ND	50	ng/L
Benzo(k)fluoranthene	ND	46	ng/L
Benzo(a)pyrene	ND	46	ng/L
Indeno(1,2,3-cd)pyrene	ND	42	ng/L
Benzo(ghi)perylene	ND	56	ng/L
Indene	ND	18	ng/L
1-Methylnaphthalene	ND	56	ng/L
Benzo(e)pyrene	ND	38	ng/L
Biphenyl	ND	86	ng/L
Dibenz(a,h)anthracene	ND	32	ng/L
Quinoline	89 J	140	ng/L
2,3-Benzofuran	3.0 J	100	ng/L
2,3-Dihydroindene	1700	100	ng/L
Benzo(b)thiophene	12 J	18	ng/L
Indole	ND	50	ng/L
Acridine	27 J	120	ng/L
Perylene	ND	50	ng/L
Dibenzothiophene	ND	22	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC	(10 - 118)
Fluorene d-10	NC	(41 - 162)
Naphthalene-d8	NC	(21 - 108)

NOTE(S):

NC The recovery and/or RPD were not calculated.

J Estimated result. Result is less than RL.

QC DATA ASSOCIATION SUMMARY

D9D270124

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WATER	SW846 8270A SIM		9117269	9117103
002	WATER	SW846 8270A SIM		9117269	9117103
003	WATER	SW846 8270A SIM		9117269	9117103
004	WATER	SW846 8270A SIM		9117269	9117103
005	WATER	SW846 8270A SIM		9117269	9117103
006	WATER	SW846 8270A SIM		9117269	9117103
007	WATER	SW846 8270A SIM		9117269	9117103
008	WATER	SW846 8270A SIM		9117269	9117103

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D9D270124 Work Order #...: CV50F101 Matrix.....: WATER
MB Lot-Sample #: D9D270000-269

Prep Date.....: 04/27/99 Analysis Time..: 01:03
Analysis Date..: 05/01/99 Prep Batch #...: 9117269
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthylene	ND	1.4	ng/L	SW846 8270A SIM
Naphthalene	2.8 J	6.5	ng/L	SW846 8270A SIM
2-Methylnaphthalene	1.8 J	3.9	ng/L	SW846 8270A SIM
Acenaphthene	ND	1.3	ng/L	SW846 8270A SIM
Dibenzofuran	ND	1.0	ng/L	SW846 8270A SIM
Fluorene	ND	1.0	ng/L	SW846 8270A SIM
Phenanthrene	2.4	1.3	ng/L	SW846 8270A SIM
Anthracene	ND	2.7	ng/L	SW846 8270A SIM
Carbazole	ND	1.9	ng/L	SW846 8270A SIM
Fluoranthene	1.2 J	3.1	ng/L	SW846 8270A SIM
Pyrene	0.99 J	1.4	ng/L	SW846 8270A SIM
Benzo(a)anthracene	ND	2.5	ng/L	SW846 8270A SIM
Chrysene	ND	2.8	ng/L	SW846 8270A SIM
Benzo(b)fluoranthene	ND	2.5	ng/L	SW846 8270A SIM
Benzo(k)fluoranthene	ND	2.3	ng/L	SW846 8270A SIM
Benzo(a)pyrene	0.25 J	2.3	ng/L	SW846 8270A SIM
Indeno(1,2,3-cd)pyrene	0.22 J	2.1	ng/L	SW846 8270A SIM
Benzo(ghi)perylene	0.33 J	2.8	ng/L	SW846 8270A SIM
Indene	ND	0.90	ng/L	SW846 8270A SIM
1-Methylnaphthalene	ND	2.8	ng/L	SW846 8270A SIM
Benzo(e)pyrene	0.14 J	1.9	ng/L	SW846 8270A SIM
Biphenyl	0.22 J	4.3	ng/L	SW846 8270A SIM
Dibenz(a,h)anthracene	ND	1.6	ng/L	SW846 8270A SIM
Quinoline	ND	6.9	ng/L	SW846 8270A SIM
2,3-Benzofuran	0.30 J	5.1	ng/L	SW846 8270A SIM
2,3-Dihydroindene	0.60 J	5.0	ng/L	SW846 8270A SIM
Benzo(b)thiophene	ND	0.90	ng/L	SW846 8270A SIM
Indole	ND	2.5	ng/L	SW846 8270A SIM
Acridine	ND	6.1	ng/L	SW846 8270A SIM
Perylene	ND	2.5	ng/L	SW846 8270A SIM
Dibenzothiophene	0.14 J	1.1	ng/L	SW846 8270A SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	102	(10 - 118)
Fluorene d-10	93	(41 - 162)
Naphthalene-d8	82	(21 - 108)

NOTE(S):

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

J Estimated result. Result is less than RL.

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D9D270124 **Work Order #...:** CV50F102-LCS **Matrix.....:** WATER
LCS Lot-Sample#: D9D270000-269 CV50F103-LCSD
Prep Date.....: 04/27/99 **Analysis Date..:** 05/01/99
Prep Batch #...: 9117269 **Analysis Time..:** 01:43
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Naphthalene	75.0	65.5	ng/L	87		SW846 8270A SIM
	75.0	66.1	ng/L	88	0.92	SW846 8270A SIM
2-Methylnaphthalene	75.0	65.2	ng/L	87		SW846 8270A SIM
	75.0	66.6	ng/L	89	2.2	SW846 8270A SIM
Fluorene	75.0	69.6	ng/L	93		SW846 8270A SIM
	75.0	71.2	ng/L	95	2.2	SW846 8270A SIM
Chrysene	75.0	68.4	ng/L	91		SW846 8270A SIM
	75.0	73.2	ng/L	98	6.8	SW846 8270A SIM
Indene	75.0	122 a	ng/L	162		SW846 8270A SIM
	75.0	122 a	ng/L	163	0.57	SW846 8270A SIM
Benzo(e)pyrene	75.0	59.2	ng/L	79		SW846 8270A SIM
	75.0	66.0	ng/L	88	11	SW846 8270A SIM
Quinoline	75.0	54.4	ng/L	73		SW846 8270A SIM
	75.0	68.4 p	ng/L	91	23	SW846 8270A SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	84	(10 - 118)
	90	(10 - 118)
Fluorene d-10	86	(41 - 162)
	88	(41 - 162)
Naphthalene-d8	75	(21 - 108)
	78	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

p Relative percent difference (RPD) is outside stated control limits.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D9D270124 **Work Order #...:** CV50F102-LCS **Matrix.....:** WATER
LCS Lot-Sample#: D9D270000-269 CV50F103-LCSD
Prep Date.....: 04/27/99 **Analysis Date..:** 05/01/99
Prep Batch #...: 9117269 **Analysis Time..:** 01:43
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Naphthalene	**87**	**(20 - 150)**			**SW846 8270A SIM**
	88	**(20 - 150)**	**0.92**	**(0-20)**	**SW846 8270A SIM**
2-Methylnaphthalene	**87**	**(20 - 150)**			**SW846 8270A SIM**
	89	**(20 - 150)**	**2.2**	**(0-20)**	**SW846 8270A SIM**
Fluorene	**93**	**(69 - 118)**			**SW846 8270A SIM**
	95	**(69 - 118)**	**2.2**	**(0-20)**	**SW846 8270A SIM**
Chrysene	**91**	**(20 - 132)**			**SW846 8270A SIM**
	98	**(20 - 132)**	**6.8**	**(0-20)**	**SW846 8270A SIM**
Indene	**162 a**	**(20 - 150)**			**SW846 8270A SIM**
	163 a	**(20 - 150)**	**0.57**	**(0-20)**	**SW846 8270A SIM**
Benzo(e)pyrene	**79**	**(20 - 150)**			**SW846 8270A SIM**
	88	**(20 - 150)**	**11**	**(0-20)**	**SW846 8270A SIM**
Quinoline	**73**	**(20 - 150)**			**SW846 8270A SIM**
	91 p	**(20 - 150)**	**23**	**(0-20)**	**SW846 8270A SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	84	(10 - 118)
	90	(10 - 118)
Fluorene d-10	86	(41 - 162)
	88	(41 - 162)
Naphthalene-d8	75	(21 - 108)
	78	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

p Relative percent difference (RPD) is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D9D270124 Work Order #...: CV4EV102-MS Matrix.....: WATER
MS Lot-Sample #: D9D270124-001 CV4EV103-MSD
Date Sampled...: 04/26/99 Date Received..: 04/27/99
Prep Date.....: 04/27/99 Analysis Date..: 06/10/99
Prep Batch #...: 9117269 Analysis Time..: 07:56
Dilution Factor: 100

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Naphthalene	**440**	**76.1**	**548**	**ng/L**	**145**		**SW846 8270A SIM**
	440	**76.2**	**480**	**ng/L**	**56**	**13**	**SW846 8270A SIM**
2-Methylnaphthalene	**ND**	**76.1**	**148 a**	**ng/L**	**194**		**SW846 8270A SIM**
	ND	**76.2**	**128 a**	**ng/L**	**168**	**15**	**SW846 8270A SIM**
Fluorene	**23**	**76.1**	**147 a**	**ng/L**	**162**		**SW846 8270A SIM**
	23	**76.2**	**128 a**	**ng/L**	**138**	**14**	**SW846 8270A SIM**
Chrysene	**ND**	**76.1**	**89.4**	**ng/L**	**117**		**SW846 8270A SIM**
	ND	**76.2**	**75.2**	**ng/L**	**99**	**17**	**SW846 8270A SIM**
Indene	**5300**	**76.1**	**5090 a**	**ng/L**	**0.0**		**SW846 8270A SIM**
	5300	**76.2**	**4330 a**	**ng/L**	**0.0**	**0.0**	**SW846 8270A SIM**
Benzo(e)pyrene	**ND**	**76.1**	**69.4**	**ng/L**	**91**		**SW846 8270A SIM**
	ND	**76.2**	**24.7 p**	**ng/L**	**32**	**95**	**SW846 8270A SIM**
Quinoline	**ND**	**76.1**	**530 a**	**ng/L**	**696**		**SW846 8270A SIM**
	ND	**76.2**	**478 a**	**ng/L**	**627**	**10**	**SW846 8270A SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC	(10 - 118)
	NC	(10 - 118)
Fluorene d-10	NC	(41 - 162)
	NC	(41 - 162)
Naphthalene-d8	NC	(21 - 108)
	NC	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

NC The recovery and/or RPD were not calculated.

a Spiked analyte recovery is outside stated control limits.

p Relative percent difference (RPD) is outside stated control limits.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D9D270124 **Work Order #...:** CV4EV102-MS **Matrix.....:** WATER
MS Lot-Sample #: D9D270124-001 CV4EV103-MSD
Date Sampled...: 04/26/99 **Date Received..:** 04/27/99
Prep Date.....: 04/27/99 **Analysis Date..:** 06/10/99
Prep Batch #...: 9117269 **Analysis Time..:** 07:56
Dilution Factor: 100

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Naphthalene	**145**	**(20 - 150)**			**SW846 8270A SIM**
	56	**(20 - 150)**	**13**	**(0-20)**	**SW846 8270A SIM**
2-Methylnaphthalene	**194 a**	**(20 - 150)**			**SW846 8270A SIM**
	168 a	**(20 - 150)**	**15**	**(0-20)**	**SW846 8270A SIM**
Fluorene	**162 a**	**(69 - 118)**			**SW846 8270A SIM**
	138 a	**(69 - 118)**	**14**	**(0-20)**	**SW846 8270A SIM**
Chrysene	**117**	**(20 - 132)**			**SW846 8270A SIM**
	99	**(20 - 132)**	**17**	**(0-20)**	**SW846 8270A SIM**
Indene	**0.0 a**	**(20 - 150)**			**SW846 8270A SIM**
	0.0 a	**(20 - 150)**	**0.0**	**(0-20)**	**SW846 8270A SIM**
Benzo(e)pyrene	**91**	**(20 - 150)**			**SW846 8270A SIM**
	32 p	**(20 - 150)**	**95**	**(0-20)**	**SW846 8270A SIM**
Quinoline	**696 a**	**(20 - 150)**			**SW846 8270A SIM**
	627 a	**(20 - 150)**	**10**	**(0-20)**	**SW846 8270A SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC	(10 - 118)
	NC	(10 - 118)
Fluorene d-10	NC	(41 - 162)
	NC	(41 - 162)
Naphthalene-d8	NC	(21 - 108)
	NC	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

NC The recovery and/or RPD were not calculated.

a Spiked analyte recovery is outside stated control limits.

p Relative percent difference (RPD) is outside stated control limits.

Chain of Custody Record

Quanterra Environmental Services

QUA-4124

Client: CITY OF ST. LOUIS PARK UTILITY DIVISION 3752 WOODDALE AVENUE ST. LOUIS PARK, MN 55416	Project Manager: SCOTT ANDERSON	Date: 4-26-99	Chain Of Custody Number: 25558
Address	Telephone Number (Area Code)/Fax Number: 924-2557 (612) 924-2570	Lab Number: D9D270124	Page ____ of ____
City	Site Contact: SAME		
Project Name: SAME	Carrier/Waybill Number: FED EX 8008463166 54		
Contract/Purchase Order/Quote No			

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: PPL PAH 75
STP-W 410 - 042699	4-26-99		WATER	1 LITER	AMBER	8	N/A		X
STP-W410D-042699	4-26-99		WATER	1 LITER	AMBER	6	N/A		X

Special Instructions: PPL 75 Cooler CSLP 0014 2.1°C

Possible Hazard Identification: [X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown

Sample Disposal: [ ] Return To Client [X] Disposal By Lab [ ] Archive For ____ Months

Turn Around Time Required: [ ] Normal [ ] Rush

QC Level: [ ] I. [ ] II. [ ] III.

Project Specific (Specify):

	Date	Time		Date	Time
1. Relinquished By: M 2 X	4-26-99	1400	1 Received By: [signature]	4/27/99	0930
2 Relinquished By			2 Received By		
3 Relinquished By			3 Received By		

Comments

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

Chain of Custody Record

Quanterra Environmental Services

QUA-4124

Client: CITY OF ST. LOUIS PARK UTILITY DIVISION 3752 WOODDALE AVENUE ST. LOUIS PARK, MN 55416	Project Manager: Scott Anderson	Date: 4-26-99	Chain Of Custody Number: 25557
Address:	Telephone Number (Area Code)/Fax Number: 924-2557 (612) 924-2570	Lab Number: D9D270124	Page ____ of ____
City:	Site Contact: SAME		
Project Name: SAME	Carrier/Waybill Number: FED EX 800846316654		
Contract/Purchase Order/Quote No:			

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: PPT PAH 75
STP-W410MS-042698	4-26-99		WATER	1 LITER	AMBER	6	N/A		X
STP-W410MSD-042699	4-26-99		WATER	1 LITER	AMBER	6	N/A		X

Special Instructions: PPT 75 Cooler CSLP 0001 Temp 2.2°C

Possible Hazard Identification: [X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown

Sample Disposal: [ ] Return To Client [X] Disposal By Lab [ ] Archive For ____ Months

Turn Around Time Required: [ ] Normal [ ] Rush

QC Level: [ ] I. [ ] II. [ ] III.

Project Specific (Specify):

	Date	Time		Date	Time
1. Relinquished By: MZH	4-26-99	1400	1 Received By: Kurt C. Ill	4/27/99	0930
2. Relinquished By:			2 Received By:		
3. Relinquished By:			3 Received By:		

Comments:

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

Chain of Custody Record

Quanterra Environmental Services

QUA-4124

Client: CITY OF ST. LOUIS PARK UTILITY DIVISION	Project Manager: SCOTT ANDERSON	Date: 4-26-99	Chain Of Custody Number: 25555
Address: 3752 WOODDALE AVENUE	Telephone Number (Area Code)/Fax Number: 924-2557 (612) 924-2570	Lab Number: D9D270124	Page ____ of ____
City: ST. LOUIS PARK, MN 55416	Site Contact: SAME		
Project Name: SAME	Carrier/Waybill Number: FED EX 800 846 316 654		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: PPT PAH'S
3 STP-W410 FD-042699	4-26-99		WATER	1 LITER	AMBER	6	N/A		X
1 STP-W410 FDD-042699	4-26-99		WATER	1 LITER	AMBER	6	N/A		X

Special Instructions: PPT 75 Cab CSLP 0005 Temp 2.8°C

Possible Hazard Identification: [X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown

Sample Disposal: [ ] Return To Client [X] Disposal By Lab [ ] Archive For ____ Months

Turn Around Time Required: [ ] Normal [ ] Rush

QC Level: [ ] I. [ ] II. [ ] III.

Project Specific (Specify):

	Date	Time		Date	Time
1. Relinquished By: MZA	4-26-99	1400	1 Received By: Kurt C. Ill	4/27/99	0930
2. Relinquished By			2 Received By		
3. Relinquished By			3 Received By		

Comments

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

Chain of Custody Record

Quanterra

QUA-4134

Client: City of St. Louis Park, Utility	Project Manager: Bill Gregg	Date: 4/26/99	Chain Of Custody Number: 39665
Address: 3752 Woodale Ave	Telephone Number (Area Code)/Fax Number: 612-924-2557	Lab Number: D9D270124	Page 1 of 1
City: St. Louis Park; State: MN; Zip Code: 55416	Site Contact: Scott Anderson		
Project Name: St. Louis Park	Carrier/Waybill Number		
Contract/Purchase Order/Quote No			

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: PPT-PAH
5 STP-W412-042699	4-26-99	8:50	G-W	6Liters	1Liter	6	—		X
6 STP-W133-042699	4-26-99	9:30	G-W	6Liters	1Liter	6	—		X

Special Instructions: PPT-25 Cooler CSLP 0006 Temp 1.1°C

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

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Turn Around Time Required: ☐ Normal ☒ Rush

QC Level: ☐ I. ☐ II. ☐ III.

Project Specific (Specify)

1 Relinquished By: Pat Moore	Date: 4/26/99	Time: 15:00	1 Received By: Kurt C. Ill	Date: 4/27/99	Time: 0930
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 Sample; CANARY - Returned to Client with Report, PINK - Field Copy

Chain of Custody Record

Quanterra

QUA-4124

Client: City of St Louis Park	Project Manager: B. Tl Group	Date: 4-26-99	Chain Of Custody Number: 39622
Address: 3752 Woodale Ave	Telephone Number (Area Code)/Fax Number: 612-924-2557	Lab Number: D9D270124	Page 1 of 1
City: St Louis Park; State: MN; Zip Code: 55416	Site Contact: Scott Anderson		
Project Name: SLP	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No:			

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: PPT-DAH
57 STP-W33-042699	4-26-99	10:40	G-W	6 Liters	1 Liter	6	—		X
58 STP-W24-042699	4-26-99	14:10	G-W	6 Liters	1 Liter	6	—		X

Special Instructions: PPT-75 Cooler CSLP 0008 Temp 2.1°C

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

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Turn Around Time Required: ☐ Normal ☐ Rush

QC Level: ☐ I. ☐ II. ☐ III.

Project Specific (Specify):

1. Relinquished By: Pat Moe	Date: 4/26/99	Time: 15:00	1 Received By: Kurt C. [illegible]	Date: 4/27/99	Time: 09:30
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 Sample, CANARY - Returned to Client with Report, PINK - Field Copy

D

D

DPV

Quanterra

Advanced Analytical Services

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 467-9136 Fax

CASE NARRATIVE

FOR

City of St. Louis Park

June 23, 1999

Quanterra , Inc.

Project Lot Number D9D280126

Introduction

Eight aqueous samples were received at Quanterra Environmental Services, Denver Laboratory on April 28, 1999. The samples were logged in under Quanterra Denver's project lot number D9D9D280126. A cross reference associating Quanterra Denver's laboratory sample numbers to the actual field sample number is included. The samples were analyzed for part per trillion (ppt) PAHs.

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the October 1998 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.

The surrogate compounds in the field blank were recovered below acceptance limits. The surrogates in the field blank duplicate sample were all within acceptance limits. Surrogates in the method blank and laboratory control samples were within acceptance limits. Water was observed in the extract and when filtered through sodium sulfate to remove the water possible loss of surrogates is suspected.

Client samples with laboratory Id's D9D280126-001, -002, -005, -006, -007 an –008 were all analyzed at dilutions due to target analytes exceeding the linear range of the instrument. The reporting limits were raised accordingly. As a result of dilution the surrogate compounds were not detected and are reported as "NC".

The spike compound Indene in the LCS duplicate sample is reported at 154% recovery which is above the 20% to 150% acceptance limits. An investigation was initiated and the cause was found to be that the Indene calibration standards concentration were approximately 50% of what was entered into the method. A new calibration curve was prepared and the LCSs were reanalyzed with acceptable results.

The LCSs that were analyzed on 05/03/99 are to be used for all compounds except Indene. The LCSs that were analyzed on 06/10/99 are to be used for **Indene only**.

Except for the above, this data package is in compliance with the terms and conditions of the October 1998 QAPP, both technically and for completeness.

Reported By: Kurt C. Ill **Date:** June 23, 1999

Kurt C. Ill
Program Manager

ANALYTICAL REPORT

PROJECT NO. 7

Reilly Tar & Chemical NPL Site

Lot #: D9D280126

Scott Anderson

City of St. Louis Park

QUANTERRA INCORPORATED

Kurt C. Ill
Project Manager

June 23, 1999

EXECUTIVE SUMMARY - Detection Highlights

D9D280126

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
DPV-W22-042799 04/27/99 07:10 001				
Naphthalene	8100	650	ng/L	SW846 8270A SIM
2-Methylnaphthalene	25 J	390	ng/L	SW846 8270A SIM
Acenaphthene	54 J	130	ng/L	SW846 8270A SIM
Phenanthrene	27 J	130	ng/L	SW846 8270A SIM
Carbazole	60 J	190	ng/L	SW846 8270A SIM
Fluoranthene	17 J	310	ng/L	SW846 8270A SIM
Pyrene	14 J	140	ng/L	SW846 8270A SIM
Indene	2500	90	ng/L	SW846 8270A SIM
2,3-Benzofuran	400 J	510	ng/L	SW846 8270A SIM
2,3-Dihydroindene	2900	500	ng/L	SW846 8270A SIM
Benzo(b)thiophene	1600	90	ng/L	SW846 8270A SIM
Indole	14 J	250	ng/L	SW846 8270A SIM
Acridine	84 J	610	ng/L	SW846 8270A SIM
DPV-W22D-042799 04/27/99 07:10 002				
Acenaphthylene	13 J	140	ng/L	SW846 8270A SIM
Naphthalene	11000	650	ng/L	SW846 8270A SIM
2-Methylnaphthalene	29 J	390	ng/L	SW846 8270A SIM
Acenaphthene	61 J	130	ng/L	SW846 8270A SIM
Fluorene	13 J	100	ng/L	SW846 8270A SIM
Phenanthrene	27 J	130	ng/L	SW846 8270A SIM
Carbazole	74 J	190	ng/L	SW846 8270A SIM
Fluoranthene	22 J	310	ng/L	SW846 8270A SIM
Pyrene	18 J	140	ng/L	SW846 8270A SIM
Indene	3600	90	ng/L	SW846 8270A SIM
1-Methylnaphthalene	150 J	280	ng/L	SW846 8270A SIM
2,3-Benzofuran	590	510	ng/L	SW846 8270A SIM
2,3-Dihydroindene	4300	500	ng/L	SW846 8270A SIM
Benzo(b)thiophene	2300	90	ng/L	SW846 8270A SIM
Indole	27 J	250	ng/L	SW846 8270A SIM
Acridine	70 J	610	ng/L	SW846 8270A SIM
Dibenzothiophene	23 J	110	ng/L	SW846 8270A SIM
DPV-W22FB-042799 04/27/99 07:00 003				
Naphthalene	1.0 J	6.5	ng/L	SW846 8270A SIM
2-Methylnaphthalene	0.51 J	3.9	ng/L	SW846 8270A SIM
Fluorene	0.14 J	1.0	ng/L	SW846 8270A SIM
Phenanthrene	0.81 J	1.3	ng/L	SW846 8270A SIM
Fluoranthene	0.65 J	3.1	ng/L	SW846 8270A SIM
Pyrene	0.57 J	1.4	ng/L	SW846 8270A SIM
Biphenyl	0.17 J	4.3	ng/L	SW846 8270A SIM

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

D9D280126

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
DPV-W22FB-042799 04/27/99 07:00 003				
Dibenz(a,h)anthracene	0.66 J	1.6	ng/L	SW846 8270A SIM
DPV-W22FBD-042799 04/27/99 07:00 004				
Naphthalene	2.1 J	6.5	ng/L	SW846 8270A SIM
2-Methylnaphthalene	1.6 J	3.9	ng/L	SW846 8270A SIM
Acenaphthene	0.16 J	1.3	ng/L	SW846 8270A SIM
Fluorene	0.35 J	1.0	ng/L	SW846 8270A SIM
Phenanthrene	2.2	1.3	ng/L	SW846 8270A SIM
Carbazole	0.13 J	1.9	ng/L	SW846 8270A SIM
Fluoranthene	1.0 J	3.1	ng/L	SW846 8270A SIM
Pyrene	0.86 J	1.4	ng/L	SW846 8270A SIM
Indene	0.71 J	0.90	ng/L	SW846 8270A SIM
1-Methylnaphthalene	0.72 J	2.8	ng/L	SW846 8270A SIM
Biphenyl	0.21 J	4.3	ng/L	SW846 8270A SIM
2,3-Dihydroindene	0.57 J	5.0	ng/L	SW846 8270A SIM
DPV-W120-04279999 04/27/99 08:45 005				
Acenaphthylene	4.8 J	28	ng/L	SW846 8270A SIM
Naphthalene	39 J	130	ng/L	SW846 8270A SIM
Acenaphthene	150	26	ng/L	SW846 8270A SIM
Fluorene	9.9 J	20	ng/L	SW846 8270A SIM
Phenanthrene	16 J	26	ng/L	SW846 8270A SIM
Carbazole	43	38	ng/L	SW846 8270A SIM
Fluoranthene	8.5 J	62	ng/L	SW846 8270A SIM
Pyrene	12 J	28	ng/L	SW846 8270A SIM
Indene	180	18	ng/L	SW846 8270A SIM
Biphenyl	2.8 J	86	ng/L	SW846 8270A SIM
2,3-Benzofuran	4.6 J	100	ng/L	SW846 8270A SIM
2,3-Dihydroindene	2000	100	ng/L	SW846 8270A SIM
Benzo(b)thiophene	740	18	ng/L	SW846 8270A SIM
Acridine	38 J	120	ng/L	SW846 8270A SIM
Dibenzothiophene	3.2 J	22	ng/L	SW846 8270A SIM
DPV-W433-04279999 04/27/99 09:40 006				
Naphthalene	54 J	130	ng/L	SW846 8270A SIM
Acenaphthene	54	26	ng/L	SW846 8270A SIM
Dibenzofuran	7.0 J	20	ng/L	SW846 8270A SIM
Phenanthrene	19 J	26	ng/L	SW846 8270A SIM
Carbazole	22 J	38	ng/L	SW846 8270A SIM
Fluoranthene	11 J	62	ng/L	SW846 8270A SIM

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

D9D280126

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
DPV-W433-04279999 04/27/99 09:40 006				
Pyrene	30	28	ng/L	SW846 8270A SIM
Indene	190	18	ng/L	SW846 8270A SIM
Biphenyl	6.6 J	86	ng/L	SW846 8270A SIM
2,3-Benzofuran	5.4 J	100	ng/L	SW846 8270A SIM
2,3-Dihydroindene	2400	100	ng/L	SW846 8270A SIM
Benzo(b)thiophene	560	18	ng/L	SW846 8270A SIM
Acridine	86 J	120	ng/L	SW846 8270A SIM
DPV-W101-04279999 04/27/99 11:20 007				
Naphthalene	180 J	3200	ng/L	SW846 8270A SIM
2-Methylnaphthalene	83 J	2000	ng/L	SW846 8270A SIM
Acenaphthene	740	650	ng/L	SW846 8270A SIM
Phenanthrene	110 J	650	ng/L	SW846 8270A SIM
Carbazole	94 J	950	ng/L	SW846 8270A SIM
Fluoranthene	73 J	1600	ng/L	SW846 8270A SIM
Indene	350 J	450	ng/L	SW846 8270A S
Quinoline	2300 J	3400	ng/L	SW846 8270A S
2,3-Dihydroindene	20000	2500	ng/L	SW846 8270A SIM
Benzo(b)thiophene	7900	450	ng/L	SW846 8270A SIM
Acridine	140 J	3000	ng/L	SW846 8270A SIM
DPV-W432-04279999 04/27/99 13:00 008				
Naphthalene	4200	650	ng/L	SW846 8270A SIM
Acenaphthene	33 J	130	ng/L	SW846 8270A SIM
Dibenzofuran	16 J	100	ng/L	SW846 8270A SIM
Fluorene	23 J	100	ng/L	SW846 8270A SIM
Phenanthrene	48 J	130	ng/L	SW846 8270A SIM
Carbazole	50 J	190	ng/L	SW846 8270A SIM
Fluoranthene	15 J	310	ng/L	SW846 8270A SIM
Pyrene	15 J	140	ng/L	SW846 8270A SIM
Indene	6300	90	ng/L	SW846 8270A SIM
2,3-Benzofuran	46 J	510	ng/L	SW846 8270A SIM
2,3-Dihydroindene	15000	500	ng/L	SW846 8270A SIM
Benzo(b)thiophene	6900	90	ng/L	SW846 8270A SIM
Acridine	150 J	610	ng/L	SW846 8270A SIM

ANALYTICAL METHODS SUMMARY

D9D280126

PARAMETER	ANALYTICAL METHOD
Base/Neutrals and Acids	SW846 8270A SIM

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

METHOD / ANALYST SUMMARY

D9D280126

ANALYTICAL METHOD	ANALYST	ANALYST ID
SW846 8270A SIM	Monica R. Edwards	001685

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

D9D280126

WO #	SAMPLE#	CLIENT SAMPLE ID	DATE	TIME
CV5R7	001	DPV-W22-042799	04/27/99	07:10
CV5R8	002	DPV-W22D-042799	04/27/99	07:10
CV5RA	003	DPV-W22FB-042799	04/27/99	07:00
CV5RG	004	DPV-W22FBD-042799	04/27/99	07:00
CV5RH	005	DPV-W120-04279999	04/27/99	08:45
CV5RJ	006	DPV-W433-04279999	04/27/99	09:40
CV5RL	007	DPV-W101-04279999	04/27/99	11:20
CV5RP	008	DPV-W432-04279999	04/27/99	13:00

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W22-042799

GC/MS Semivolatiles

Lot-Sample #...: D9D280126-001 Work Order #...: CV5R7101 Matrix.....: WATER
Date Sampled...: 04/27/99 07:10 Date Received..: 04/28/99
Prep Date.....: 04/29/99 Analysis Date..: 06/10/99
Prep Batch #...: 9118243 Analysis Time..: 02:31
Dilution Factor: 100

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	140	ng/L
Naphthalene	8100	650	ng/L
2-Methylnaphthalene	25 J	390	ng/L
Acenaphthene	54 J	130	ng/L
Dibenzofuran	ND	100	ng/L
Fluorene	ND	100	ng/L
Phenanthrene	27 J	130	ng/L
Anthracene	ND	270	ng/L
Carbazole	60 J	190	ng/L
Fluoranthene	17 J	310	ng/L
Pyrene	14 J	140	ng/L
Benzo(a)anthracene	ND	250	ng/L
Chrysene	ND	280	ng/L
Benzo(b)fluoranthene	ND	250	ng/L
Benzo(k)fluoranthene	ND	230	ng/L
Benzo(a)pyrene	ND	230	ng/L
Indeno(1,2,3-cd)pyrene	ND	210	ng/L
Benzo(ghi)perylene	ND	280	ng/L
Indene	2500	90	ng/L
1-Methylnaphthalene	ND	280	ng/L
Benzo(e)pyrene	ND	190	ng/L
Biphenyl	ND	430	ng/L
Dibenz(a,h)anthracene	ND	160	ng/L
Quinoline	ND	690	ng/L
2,3-Benzofuran	400 J	510	ng/L
2,3-Dihydroindene	2900	500	ng/L
Benzo(b)thiophene	1600	90	ng/L
Indole	14 J	250	ng/L
Acridine	84 J	610	ng/L
Perylene	ND	250	ng/L
Dibenzothiophene	ND	110	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC	(10 - 118)
Fluorene d-10	NC	(41 - 162)
Naphthalene-d8	NC	(21 - 108)

NOTE(S):

NC The recovery and/or RPD were not calculated.

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W22D-042799

GC/MS Semivolatiles

Lot-Sample #...: D9D280126-002 Work Order #...: CV5R8101 Matrix.....: WATER
Date Sampled...: 04/27/99 07:10 Date Received..: 04/28/99
Prep Date.....: 04/29/99 Analysis Date..: 06/10/99
Prep Batch #...: 9118243 Analysis Time..: 03:07
Dilution Factor: 100
Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	13 J	140	ng/L
Naphthalene	11000	650	ng/L
2-Methylnaphthalene	29 J	390	ng/L
Acenaphthene	61 J	130	ng/L
Dibenzofuran	ND	100	ng/L
Fluorene	13 J	100	ng/L
Phenanthrene	27 J	130	ng/L
Anthracene	ND	270	ng/L
Carbazole	74 J	190	ng/L
Fluoranthene	22 J	310	ng/L
Pyrene	18 J	140	ng/L
Benzo(a)anthracene	ND	250	ng/L
Chrysene	ND	280	ng/L
Benzo(b)fluoranthene	ND	250	ng/L
Benzo(k)fluoranthene	ND	230	ng/L
Benzo(a)pyrene	ND	230	ng/L
Indeno(1,2,3-cd)pyrene	ND	210	ng/L
Benzo(ghi)perylene	ND	280	ng/L
Indene	3600	90	ng/L
1-Methylnaphthalene	150 J	280	ng/L
Benzo(e)pyrene	ND	190	ng/L
Biphenyl	ND	430	ng/L
Dibenz(a,h)anthracene	ND	160	ng/L
Quinoline	ND	690	ng/L
2,3-Benzofuran	590	510	ng/L
2,3-Dihydroindene	4300	500	ng/L
Benzo(b)thiophene	2300	90	ng/L
Indole	27 J	250	ng/L
Acridine	70 J	610	ng/L
Perylene	ND	250	ng/L
Dibenzothiophene	23 J	110	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC	(10 - 118)
Fluorene d-10	NC	(41 - 162)
Naphthalene-d8	NC	(21 - 108)

NOTE(S):

NC The recovery and/or RPD were not calculated.

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W22FB-042799

GC/MS Semivolatiles

Lot-Sample #...: D9D280126-003 Work Order #...: CV5RA101 Matrix.....: WATER
Date Sampled...: 04/27/99 07:00 Date Received..: 04/28/99
Prep Date.....: 04/29/99 Analysis Date..: 05/03/99
Prep Batch #...: 9118243 Analysis Time..: 17:19
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	1.0 J	6.5	ng/L
2-Methylnaphthalene	0.51 J	3.9	ng/L
Acenaphthene	ND	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	0.14 J	1.0	ng/L
Phenanthrene	0.81 J	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	0.65 J	3.1	ng/L
Pyrene	0.57 J	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	0.17 J	4.3	ng/L
Dibenz(a,h)anthracene	0.66 J	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	18	(10 - 118)
Fluorene d-10		(41 - 162)
Naphthalene-d8	17 *	(21 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W22FBD-042799

GC/MS Semivolatiles

Lot-Sample #...: D9D280126-004 Work Order #...: CV5RG101 Matrix.....: WATER
Date Sampled...: 04/27/99 07:00 Date Received..: 04/28/99
Prep Date.....: 04/29/99 Analysis Date..: 05/03/99
Prep Batch #...: 9118243 Analysis Time..: 18:00
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	2.1 J	6.5	ng/L
2-Methylnaphthalene	1.6 J	3.9	ng/L
Acenaphthene	0.16 J	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	0.35 J	1.0	ng/L
Phenanthrene	2.2	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	0.13 J	1.9	ng/L
Fluoranthene	1.0 J	3.1	ng/L
Pyrene	0.86 J	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	0.71 J	0.90	ng/L
1-Methylnaphthalene	0.72 J	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	0.21 J	4.3	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	0.57 J	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	34	(10 - 118)
Fluorene d-10	80	(41 - 162)
Naphthalene-d8	67	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W120-04279999

GC/MS Semivolatiles

Lot-Sample #...: D9D280126-005 Work Order #...: CV5RH101 Matrix.....: WATER
Date Sampled...: 04/27/99 08:45 Date Received..: 04/28/99
Prep Date.....: 04/29/99 Analysis Date..: 06/10/99
Prep Batch #...: 9118243 Analysis Time..: 03:44
Dilution Factor: 20

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	4.8 J	28	ng/L
Naphthalene	39 J	130	ng/L
2-Methylnaphthalene	ND	78	ng/L
Acenaphthene	150	26	ng/L
Dibenzofuran	ND	20	ng/L
Fluorene	9.9 J	20	ng/L
Phenanthrene	16 J	26	ng/L
Anthracene	ND	54	ng/L
Carbazole	43	38	ng/L
Fluoranthene	8.5 J	62	ng/L
Pyrene	12 J	28	ng/L
Benzo(a)anthracene	ND	50	ng/L
Chrysene	ND	56	ng/L
Benzo(b)fluoranthene	ND	50	ng/L
Benzo(k)fluoranthene	ND	46	ng/L
Benzo(a)pyrene	ND	46	ng/L
Indeno(1,2,3-cd)pyrene	ND	42	ng/L
Benzo(ghi)perylene	ND	56	ng/L
Indene	180	18	ng/L
1-Methylnaphthalene	ND	56	ng/L
Benzo(e)pyrene	ND	38	ng/L
Biphenyl	2.8 J	86	ng/L
Dibenz(a,h)anthracene	ND	32	ng/L
Quinoline	ND	140	ng/L
2,3-Benzofuran	4.6 J	100	ng/L
2,3-Dihydroindene	2000	100	ng/L
Benzo(b)thiophene	740	18	ng/L
Indole	ND	50	ng/L
Acridine	38 J	120	ng/L
Perylene	ND	50	ng/L
Dibenzothiophene	3.2 J	22	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC	(10 - 118)
Fluorene d-10	NC	(41 - 162)
Naphthalene-d8	NC	(21 - 108)

NOTE(S):

NC The recovery and/or RPD were not calculated.

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W433-04279999

GC/MS Semivolatiles

Lot-Sample #...: D9D280126-006 Work Order #...: CV5RJ101 Matrix.....: WATER
Date Sampled...: 04/27/99 09:40 Date Received..: 04/28/99
Prep Date.....: 04/29/99 Analysis Date..: 06/10/99
Prep Batch #...: 9118243 Analysis Time..: 04:20
Dilution Factor: 20

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	28	ng/L
Naphthalene	54 J	130	ng/L
2-Methylnaphthalene	ND	78	ng/L
Acenaphthene	54	26	ng/L
Dibenzofuran	7.0 J	20	ng/L
Fluorene	ND	20	ng/L
Phenanthrene	19 J	26	ng/L
Anthracene	ND	54	ng/L
Carbazole	22 J	38	ng/L
Fluoranthene	11 J	62	ng/L
Pyrene	30	28	ng/L
Benzo(a)anthracene	ND	50	ng/L
Chrysene	ND	56	ng/L
Benzo(b)fluoranthene	ND	50	ng/L
Benzo(k)fluoranthene	ND	46	ng/L
Benzo(a)pyrene	ND	46	ng/L
Indeno(1,2,3-cd)pyrene	ND	42	ng/L
Benzo(ghi)perylene	ND	56	ng/L
Indene	190	18	ng/L
1-Methylnaphthalene	ND	56	ng/L
Benzo(e)pyrene	ND	38	ng/L
Biphenyl	6.6 J	86	ng/L
Dibenz(a,h)anthracene	ND	32	ng/L
Quinoline	ND	140	ng/L
2,3-Benzofuran	5.4 J	100	ng/L
2,3-Dihydroindene	2400	100	ng/L
Benzo(b)thiophene	560	18	ng/L
Indole	ND	50	ng/L
Acridine	86 J	120	ng/L
Perylene	ND	50	ng/L
Dibenzothiophene	ND	22	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC	(10 - 118)
Fluorene d-10	NC	(41 - 162)
Naphthalene-d8	NC	(21 - 108)

NOTE(S):

NC The recovery and/or RPD were not calculated

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W101-04279999

GC/MS Semivolatiles

Lot-Sample #...: D9D280126-007 Work Order #...: CV5RL101 Matrix.....: WATER
Date Sampled...: 04/27/99 11:20 Date Received..: 04/28/99
Prep Date.....: 04/29/99 Analysis Date..: 06/10/99
Prep Batch #...: 9118243 Analysis Time..: 13:56
Dilution Factor: 500

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	700	ng/L
Naphthalene	180 J	3200	ng/L
2-Methylnaphthalene	83 J	2000	ng/L
Acenaphthene	740	650	ng/L
Dibenzofuran	ND	500	ng/L
Fluorene	ND	500	ng/L
Phenanthrene	110 J	650	ng/L
Anthracene	ND	1400	ng/L
Carbazole	94 J	950	ng/L
Fluoranthene	73 J	1600	ng/L
Pyrene	ND	700	ng/L
Benzo(a)anthracene	ND	1200	ng/L
Chrysene	ND	1400	ng/L
Benzo(b)fluoranthene	ND	1200	ng/L
Benzo(k)fluoranthene	ND	1200	ng/L
Benzo(a)pyrene	ND	1200	ng/L
Indeno(1,2,3-cd)pyrene	ND	1000	ng/L
Benzo(ghi)perylene	ND	1400	ng/L
Indene	350 J	450	ng/L
1-Methylnaphthalene	ND	1400	ng/L
Benzo(e)pyrene	ND	950	ng/L
Biphenyl	ND	2200	ng/L
Dibenz(a,h)anthracene	ND	800	ng/L
Quinoline	2300 J	3400	ng/L
2,3-Benzofuran	ND	2600	ng/L
2,3-Dihydroindene	20000	2500	ng/L
Benzo(b)thiophene	7900	450	ng/L
Indole	ND	1200	ng/L
Acridine	140 J	3000	ng/L
Perylene	ND	1200	ng/L
Dibenzothiophene	ND	550	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC	(10 - 118)
Fluorene d-10	NC	(41 - 162)
Naphthalene-d8	NC	(21 - 108)

NOTE(S):

NC The recovery and/or RPD were not calculated.

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W432-04279999

GC/MS Semivolatiles

Lot-Sample #...: D9D280126-008 Work Order #...: CV5RP101 Matrix.....: WATER
Date Sampled...: 04/27/99 13:00 Date Received..: 04/28/99
Prep Date.....: 04/29/99 Analysis Date..: 06/10/99
Prep Batch #...: 9118243 Analysis Time..: 05:32
Dilution Factor: 100

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	140	ng/L
Naphthalene	4200	650	ng/L
2-Methylnaphthalene	ND	390	ng/L
Acenaphthene	33 J	130	ng/L
Dibenzofuran	16 J	100	ng/L
Fluorene	23 J	100	ng/L
Phenanthrene	48 J	130	ng/L
Anthracene	ND	270	ng/L
Carbazole	50 J	190	ng/L
Fluoranthene	15 J	310	ng/L
Pyrene	15 J	140	ng/L
Benzo(a)anthracene	ND	250	ng/L
Chrysene	ND	280	ng/L
Benzo(b)fluoranthene	ND	250	ng/L
Benzo(k)fluoranthene	ND	230	ng/L
Benzo(a)pyrene	ND	230	ng/L
Indeno(1,2,3-cd)pyrene	ND	210	ng/L
Benzo(ghi)perylene	ND	280	ng/L
Indene	6300	90	ng/L
1-Methylnaphthalene	ND	280	ng/L
Benzo(e)pyrene	ND	190	ng/L
Biphenyl	ND	430	ng/L
Dibenz(a,h)anthracene	ND	160	ng/L
Quinoline	ND	690	ng/L
2,3-Benzofuran	46 J	510	ng/L
2,3-Dihydroindene	15000	500	ng/L
Benzo(b)thiophene	6900	90	ng/L
Indole	ND	250	ng/L
Acridine	150 J	610	ng/L
Perylene	ND	250	ng/L
Dibenzothiophene	ND	110	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC	(10 - 118)
Fluorene d-10	NC	(41 - 162)
Naphthalene-d8	NC	(21 - 108)

NOTE(S):

NC The recovery and/or RPD were not calculated.

J Estimated result. Result is less than RL.

QC DATA ASSOCIATION SUMMARY

D9D280126

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WATER	SW846 8270A SIM		9118243	
002	WATER	SW846 8270A SIM		9118243	
003	WATER	SW846 8270A SIM		9118243	
004	WATER	SW846 8270A SIM		9118243	
005	WATER	SW846 8270A SIM		9118243	
006	WATER	SW846 8270A SIM		9118243	
007	WATER	SW846 8270A SIM		9118243	
008	WATER	SW846 8270A SIM		9118243	

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D9D280126 Work Order #...: CV63Q101 Matrix.....: WATER
MB Lot-Sample #: D9D280000-243

Prep Date.....: 04/29/99 Analysis Time..: 13:58
Analysis Date..: 05/03/99 Prep Batch #...: 9118243
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthylene	ND	1.4	ng/L	SW846 8270A SIM
Naphthalene	1.5 J	6.5	ng/L	SW846 8270A SIM
2-Methylnaphthalene	1.1 J	3.9	ng/L	SW846 8270A SIM
Acenaphthene	ND	1.3	ng/L	SW846 8270A SIM
Dibenzofuran	ND	1.0	ng/L	SW846 8270A SIM
Fluorene	0.34 J	1.0	ng/L	SW846 8270A SIM
Phenanthrene	1.9	1.3	ng/L	SW846 8270A SIM
Anthracene	ND	2.7	ng/L	SW846 8270A SIM
Carbazole	ND	1.9	ng/L	SW846 8270A SIM
Fluoranthene	0.94 J	3.1	ng/L	SW846 8270A SIM
Pyrene	0.75 J	1.4	ng/L	SW846 8270A SIM
Benzo(a)anthracene	ND	2.5	ng/L	SW846 8270A SIM
Chrysene	ND	2.8	ng/L	SW846 8270A SIM
Benzo(b)fluoranthene	0.26 J	2.5	ng/L	SW846 8270A SIM
Benzo(k)fluoranthene	ND	2.3	ng/L	SW846 8270A SIM
Benzo(a)pyrene	0.67 J	2.3	ng/L	SW846 8270A SIM
Indeno(1,2,3-cd)pyrene	0.25 J	2.1	ng/L	SW846 8270A SIM
Benzo(ghi)perylene	0.20 J	2.8	ng/L	SW846 8270A SIM
Indene	ND	0.90	ng/L	SW846 8270A SIM
1-Methylnaphthalene	ND	2.8	ng/L	SW846 8270A SIM
Benzo(e)pyrene	0.30 J	1.9	ng/L	SW846 8270A SIM
Biphenyl	0.16 J	4.3	ng/L	SW846 8270A SIM
Dibenz(a,h)anthracene	ND	1.6	ng/L	SW846 8270A SIM
Quinoline	ND	6.9	ng/L	SW846 8270A SIM
2,3-Benzofuran	ND	5.1	ng/L	SW846 8270A SIM
2,3-Dihydroindene	0.29 J	5.0	ng/L	SW846 8270A SIM
Benzo(b)thiophene	ND	0.90	ng/L	SW846 8270A SIM
Indole	ND	2.5	ng/L	SW846 8270A SIM
Acridine	ND	6.1	ng/L	SW846 8270A SIM
Perylene	ND	2.5	ng/L	SW846 8270A SIM
Dibenzothiophene	0.13 J	1.1	ng/L	SW846 8270A SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	84	(10 - 118)
Fluorene d-10		(41 - 162)
Naphthalene-d8	69	(21 - 108)

NOTE(S):

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

J Estimated result. Result is less than RL.

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D9D280126 Work Order #...: CV63Q104-LCS Matrix.....: WATER
LCS Lot-Sample#: D9D280000-243 CV63Q105-LCSD
Prep Date.....: 04/29/99 Analysis Date..: 05/03/99
Prep Batch #...: 9118243 Analysis Time..: 14:38
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Naphthalene	75.0	61.6	ng/L	82		SW846 8270A SIM
	75.0	53.5	ng/L	71	14	SW846 8270A SIM
2-Methylnaphthalene	75.0	62.1	ng/L	83		SW846 8270A SIM
	75.0	54.2	ng/L	72	14	SW846 8270A SIM
Fluorene	75.0	65.6	ng/L	87		SW846 8270A SIM
	75.0	58.2	ng/L	78	12	SW846 8270A SIM
Chrysene	75.0	65.3	ng/L	87		SW846 8270A SIM
	75.0	65.3	ng/L	87	0.030	SW846 8270A SIM
Indene	75.0	116 a	ng/L	154		SW846 8270A SIM
	75.0	97.9	ng/L	130	17	SW846 8270A SIM
Benzo(e)pyrene	75.0	57.7	ng/L	77		SW846 8270A SIM
	75.0	59.5	ng/L	79	3.1	SW846 8270A SIM
Quinoline	75.0	43.9	ng/L	59		SW846 8270A SIM
	75.0	49.1	ng/L	65	11	SW846 8270A SI

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	84	(10 - 118)
	86	(10 - 118)
Fluorene d-10	85	(41 - 162)
	75	(41 - 162)
Naphthalene-d8	75	(21 - 108)
	65	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D9D280126 Work Order #...: CV63Q104-LCS Matrix.....: WATER
LCS Lot-Sample#: D9D280000-243 CV63Q105-LCSD
Prep Date.....: 04/29/99 Analysis Date..: 05/03/99
Prep Batch #...: 9118243 Analysis Time..: 14:38
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Naphthalene	**82**	**(20 - 150)**			**SW846 8270A SIM**
	71	**(20 - 150)**	**14**	**(0-20)**	**SW846 8270A SIM**
2-Methylnaphthalene	**83**	**(20 - 150)**			**SW846 8270A SIM**
	72	**(20 - 150)**	**14**	**(0-20)**	**SW846 8270A SIM**
Fluorene	**87**	**(69 - 118)**			**SW846 8270A SIM**
	78	**(69 - 118)**	**12**	**(0-20)**	**SW846 8270A SIM**
Chrysene	**87**	**(20 - 132)**			**SW846 8270A SIM**
	87	**(20 - 132)**	**0.030**	**(0-20)**	**SW846 8270A SIM**
Indene	**154 a**	**(20 - 150)**			**SW846 8270A SIM**
	130	**(20 - 150)**	**17**	**(0-20)**	**SW846 8270A SIM**
Benzo(e)pyrene	**77**	**(20 - 150)**			**SW846 8270A SIM**
	79	**(20 - 150)**	**3.1**	**(0-20)**	**SW846 8270A SIM**
Quinoline	**59**	**(20 - 150)**			**SW846 8270A SIM**
	65	**(20 - 150)**	**11**	**(0-20)**	**SW846 8270A SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	84	(10 - 118)
	86	(10 - 118)
Fluorene d-10	85	(41 - 162)
	75	(41 - 162)
Naphthalene-d8	75	(21 - 108)
	65	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D9D280126 Work Order #...: CV63Q102-LCS Matrix.....: WATER
LCS Lot-Sample#: D9D280000-243 CV63Q103-LCSD
Prep Date.....: 04/29/99 Analysis Date..: 06/10/99
Prep Batch #...: 9118243 Analysis Time..: 01:19
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Naphthalene	75.0	45.5	ng/L	61		SW846 8270A SIM
	75.0	39.0	ng/L	52	15	SW846 8270A SIM
2-Methylnaphthalene	75.0	46.2	ng/L	62		SW846 8270A SIM
	75.0	39.6	ng/L	53	15	SW846 8270A SIM
Fluorene	75.0	47.9 a	ng/L	64		SW846 8270A SIM
	75.0	41.2 a	ng/L	55	15	SW846 8270A SIM
Chrysene	75.0	39.0	ng/L	52		SW846 8270A SIM
	75.0	36.7	ng/L	49	5.9	SW846 8270A SIM
Indene	75.0	43.9	ng/L	59		SW846 8270A SIM
	75.0	36.8	ng/L	49	18	SW846 8270A SIM
Benzo(e)pyrene	75.0	46.3	ng/L	62		SW846 8270A SIM
	75.0	44.9	ng/L	60	3.2	SW846 8270A SIM
Quinoline	75.0	39.5	ng/L	53		SW846 8270A SIM
	75.0	40.6	ng/L	54	2.8	SW846 8270A SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	52	(10 - 118)
	50	(10 - 118)
Fluorene d-10	64	(41 - 162)
	57	(41 - 162)
Naphthalene-d8	53	(21 - 108)
	46	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D9D280126 Work Order #...: CV63Q102-LCS Matrix.....: WATER
LCS Lot-Sample#: D9D280000-243 CV63Q103-LCSD
Prep Date.....: 04/29/99 Analysis Date..: 06/10/99
Prep Batch #...: 9118243 Analysis Time..: 01:19
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Naphthalene	61	(20 - 150)			SW846 8270A SIM
	52	(20 - 150)	15	(0-20)	SW846 8270A SIM
2-Methylnaphthalene	62	(20 - 150)			SW846 8270A SIM
	53	(20 - 150)	15	(0-20)	SW846 8270A SIM
Fluorene	64 a	(69 - 118)			SW846 8270A SIM
	55 a	(69 - 118)	15	(0-20)	SW846 8270A SIM
Chrysene	52	(20 - 132)			SW846 8270A SIM
	49	(20 - 132)	5.9	(0-20)	SW846 8270A SIM
Indene	59	(20 - 150)			SW846 8270A SIM
	49	(20 - 150)	18	(0-20)	SW846 8270A SIM
Benzo(e)pyrene	62	(20 - 150)			SW846 8270A SIM
	60	(20 - 150)	3.2	(0-20)	SW846 8270A SIM
Quinoline	53	(20 - 150)			SW846 8270A SIM
	54	(20 - 150)	2.8	(0-20)	SW846 8270A SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	52	(10 - 118)
	50	(10 - 118)
Fluorene d-10	64	(41 - 162)
	57	(41 - 162)
Naphthalene-d8	53	(21 - 108)
	46	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

Chain of Custody Record

Quanterra

QUA-4124

Client: City of St Louis Park	Project Manager: Bill Grey	Date: 4/27/99	Chain Of Custody Number: 39667
Address: 3752 Woodale Ave	Telephone Number (Area Code)/Fax Number: 612-924-2557	Lab Number: D9D280126	Page 1 of 1
City: SLP; State: MN; Zip Code: 55416	Site Contact: Scott Anderson		
Project Name: Reilly	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No			

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: PPT-PAH
DPV-W22-042799	4-27-99	7:10	G-W	6 Liters	1 Liter	6	—		X
DPV-W22D-042799	4-27-99	7:10	G-W	6 Liters	1 Liter	6	—		X

Special Instructions: PPT-75 Code CSLP 0009 temp 2.2°C

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

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Turn Around Time Required: ☐ Normal ☐ Rush

QC Level: ☐ I. ☐ II. ☐ III.

Project Specific (Specify):

1 Relinquished By: Pat Moore	Date: 4-27-99	Time: 15:00	1 Received By: Bart C. Sell	Date: 4/28/99	Time: 0840
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 Sample, CANARY - Returned to Client with Report, PINK - Field Copy

Chain of Custody Record

Quanterra

QUA-4124

Client: City of St Louis Park	Project Manager: Bill Gross	Date: 4-27-99	Chain Of Custody Number: 39668
Address: 3252 Woodale Ave	Telephone Number (Area Code)/Fax Number: 612-924-2557	Lab Number: D9D280126	Page 1 of 1
City: SLP; State: MN; Zip Code: 55416	Site Contact: Scott Anderson		
Project Name: Reilly	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: PPT-PAH
3 DPV-W22FB-042799	4-27-99	2:00	G-W	6 Liters	1 Liter	6	—		X
4 DPV-W22FBD-042799	4-27-99	2:00	G-W	6 Liters	1 Liter	6	—		X

Special Instructions: PPT-25 Code CSLP 0010 temp 2.8°C

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

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Turn Around Time Required: ☐ Normal ☐ Rush

QC Level: ☐ I. ☐ II. ☐ III.

Project Specific (Specify):

	Date	Time		Date	Time
1. Relinquished By: [signature]	4-27-99	15:00	1 Received By: [signature]	4/28/99	0840
2 Relinquished By			2 Received By		
3 Relinquished By			3 Received By		

Comments

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

Chain of Custody Record

Quanterra

QUA-4124

Client: Citypop St Louis Park	Project Manager: Bill Gregg	Date: 4-27-99	Chain Of Custody Number: 39669
Address: 3752 Woodale Ave S	Telephone Number (Area Code)/Fax Number: 612-924-2557	Lab Number: D9D280126	Page 1 of 1
City: SLP; State: MN; Zip Code: 55416	Site Contact: Scott Anderson		
Project Name: Reilly	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No:			

Analysis: ~~PPT-25 ppm~~ PPT-PAH

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No	Preservative	Condition on Receipt	~~PPT-25 ppm~~	PPT-PAH
5 DPV-W120-042799	4-27-99	8:45	GW	6 Liter	1 Liter	6	—			X
6 DPV-W433-042799	4-27-99	9:40	GW	6 Liters	1 Liter	6	—			X

Special Instructions: PPT-25 Cooler C3LP 0012 temp 1.2°C

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

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Turn Around Time Required: ☐ Normal ☑ Rush

QC Level: ☐ I. ☐ II. ☐ III.

Project Specific (Specify):

	Date	Time		Date	Time
1 Relinquished By: P. Moore	4-27-99	15:00	1 Received By: Kurt C. Hill	4/28/99	0840
2 Relinquished By:			2 Received By:		
3 Relinquished By:			3 Received By:		

Comments:

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

Chain of Custody Record

Quanterra

QUA-4194

Client: City of St Louis Park	Project Manager: Bill Gross	Date: 4/27/99	Chain Of Custody Number: 39672
Address: 3752 Woodale Ave	Telephone Number (Area Code)/Fax Number: 612-924-2557	Lab Number: DAD280126	Page 1 of 1
City: SLP; State: MN; Zip Code: 55416	Site Contact: Scott Anderson		
Project Name: Reilly	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No			

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: DPT-PAH
DPV-W101-042799	4-27-99	11:20	GW	6 Liters	1 Liter	6	—		X
DPV-W432-042799	4-27-99	13:00	GW	6 Liters	1 Liter	6	—		X

Special Instructions: PPT-25 Cooler CSLP 0015 temp 2.6°C

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

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Turn Around Time Required: ☐ Normal ☒ Rush

QC Level: ☐ I. ☐ II. ☐ III.

Project Specific (Specify):

1. Relinquished By: Pat Moe	Date: 4/27/99	Time: 15:00	1 Received By: Kurt C. Gill	Date: 4/28/99	Time: 0840
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 Sample; CANARY - Returned to Client with Report; PINK - Field Copy

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STP

Quanterra

Advanced Analytical Services

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 467-9136 Fax

CASE NARRATIVE

FOR

City of St. Louis Park

June 23, 1999

Quanterra , Inc.

Project Lot Number D9E040124

Introduction

Eleven aqueous samples (including matrix QC) were received at Quanterra Environmental Services, Denver Laboratory on May 4, 1999. The samples were logged in under Quanterra Denver's project lot number D9E040124. A cross reference associating Quanterra Denver's laboratory sample numbers to the actual field sample number is included. The samples were analyzed for part per trillion (ppt) PAHs.

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the October 1998 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.

The Relative Percent Difference (RPD) for the spike compounds quinoline in the matrix spike and matrix spike duplicate samples are reported outside the 20% acceptance criteria. The method blank and laboratory control sample associated with these samples were within control limits. Possible matrix effect is indicated.

Except for the above, this data package is in compliance with the terms and conditions of the October 1998 QAPP, both technically and for completeness

Reported By: Kurt C. Ill

Kurt C. Ill
Program Manager

Date: June 23, 1999

ANALYTICAL REPORT

PROJECT NO. 7

Reilly Tar & Chemical NPL Site

Lot #: D9E040124

Scott Anderson

City of St. Louis Park

QUANTERRA INCORPORATED

Kurt C. Ill
Project Manager

June 23, 1999

EXECUTIVE SUMMARY - Detection Highlights

D9E040124

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
STP-SLP3-050399 05/03/99 001				
Quinoline	6.5 J	6.9	ng/L	SW846 8270A SIM
STP-SLP3D-050399 05/03/99 002				
Quinoline	6.4 J	6.9	ng/L	SW846 8270A SIM
STP-W129-050399 05/03/99 08:15 005				
Naphthalene	17	6.5	ng/L	SW846 8270A SIM
Acenaphthene	5.2	1.3	ng/L	SW846 8270A SIM
Dibenzofuran	2.8	1.0	ng/L	SW846 8270A SIM
Fluorene	3.4	1.0	ng/L	SW846 8270A SIM
Phenanthrene	7.5	1.3	ng/L	SW846 8270A SIM
Anthracene	1.7 J	2.7	ng/L	SW846 8270A SIM
Carbazole	1.6 J	1.9	ng/L	SW846 8270A SIM
Fluoranthene	3.9	3.1	ng/L	SW846 8270A SIM
Pyrene	2.9	1.4	ng/L	SW846 8270A S
Benzo(a)pyrene	0.93 J	2.3	ng/L	SW846 8270A S
Indene	7.8	0.90	ng/L	SW846 8270A SIM
1-Methylnaphthalene	11	2.8	ng/L	SW846 8270A SIM
2,3-Benzofuran	3.1 J	5.1	ng/L	SW846 8270A SIM
2,3-Dihydroindene	8.2	5.0	ng/L	SW846 8270A SIM
Benzo(b)thiophene	~~2.7~~ 78.5 .93	0.90	ng/L	SW846 8270A SIM
STP-W122-050399 05/03/99 09:30 006				
Naphthalene	12	6.5	ng/L	SW846 8270A SIM
2-Methylnaphthalene	6.8	3.9	ng/L	SW846 8270A SIM
Acenaphthene	3.7	1.3	ng/L	SW846 8270A SIM
Dibenzofuran	2.1	1.0	ng/L	SW846 8270A SIM
Fluorene	2.9	1.0	ng/L	SW846 8270A SIM
Phenanthrene	5.8	1.3	ng/L	SW846 8270A SIM
Carbazole	3.5	1.9	ng/L	SW846 8270A SIM
Fluoranthene	2.9 J	3.1	ng/L	SW846 8270A SIM
Pyrene	7.1	1.4	ng/L	SW846 8270A SIM
Indene	5.3	0.90	ng/L	SW846 8270A SIM
1-Methylnaphthalene	6.2	2.8	ng/L	SW846 8270A SIM
Quinoline	7.6	6.9	ng/L	SW846 8270A SIM
2,3-Dihydroindene	4.6 J	5.0	ng/L	SW846 8270A SIM

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

D9E040124

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
STP-W411-050399 05/03/99 10:20 007				
Naphthalene	7.4	6.5	ng/L	SW846 8270A SIM
2-Methylnaphthalene	4.8	3.9	ng/L	SW846 8270A SIM
Acenaphthene	3.0	1.3	ng/L	SW846 8270A SIM
Fluorene	26	1.0	ng/L	SW846 8270A SIM
Phenanthrene	4.8	1.3	ng/L	SW846 8270A SIM
Anthracene	1.3 J	2.7	ng/L	SW846 8270A SIM
Carbazole	2.8	1.9	ng/L	SW846 8270A SIM
Fluoranthene	2.8 J	3.1	ng/L	SW846 8270A SIM
Pyrene	8.0	1.4	ng/L	SW846 8270A SIM
Indene	8.2	0.90	ng/L	SW846 8270A SIM
1-Methylnaphthalene	4.7	2.8	ng/L	SW846 8270A SIM
2,3-Dihydroindene	4.1 J	5.0	ng/L	SW846 8270A SIM
Benzo(b)thiophene	2.2	0.90	ng/L	SW846 8270A SIM
Acridine	19	6.1	ng/L	SW846 8270A SIM
STP-P116-050399 05/03/99 12:30 008				
Naphthalene	9.7	6.5	ng/L	SW846 8270A SIM
2-Methylnaphthalene	8.3	3.9	ng/L	SW846 8270A SIM
Phenanthrene	8.7	1.3	ng/L	SW846 8270A SIM
Fluoranthene	7.4	3.1	ng/L	SW846 8270A SIM
Pyrene	5.7	1.4	ng/L	SW846 8270A SIM
Chrysene	1.9 J	2.8	ng/L	SW846 8270A SIM
Benzo(a)pyrene	2.2 J	2.3	ng/L	SW846 8270A SIM
1-Methylnaphthalene	5.2	2.8	ng/L	SW846 8270A SIM
Biphenyl	2.9 J	4.3	ng/L	SW846 8270A SIM
Acridine	2.1 J	6.1	ng/L	SW846 8270A SIM
STP-W408-050399 05/03/99 14:10 009				
Naphthalene	13	6.5	ng/L	SW846 8270A SIM
2-Methylnaphthalene	6.0	3.9	ng/L	SW846 8270A SIM
Acenaphthene	3.8	1.3	ng/L	SW846 8270A SIM
Dibenzofuran	2.1	1.0	ng/L	SW846 8270A SIM
Phenanthrene	4.3	1.3	ng/L	SW846 8270A SIM
Carbazole	3.0	1.9	ng/L	SW846 8270A SIM
Fluoranthene	1.8 J	3.1	ng/L	SW846 8270A SIM
Pyrene	2.3	1.4	ng/L	SW846 8270A SIM
Indene	8.7	0.90	ng/L	SW846 8270A SIM
1-Methylnaphthalene	7.2	2.8	ng/L	SW846 8270A SIM
2,3-Dihydroindene	6.2	5.0	ng/L	SW846 8270A SIM
Benzo(b)thiophene	3.2	0.90	ng/L	SW846 8270A SIM
Acridine	2.4 J	6.1	ng/L	SW846 8270A SIM

ANALYTICAL METHODS SUMMARY

D9E040124

PARAMETER	ANALYTICAL METHOD
Base/Neutrals and Acids	SW846 8270A SIM

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

METHOD / ANALYST SUMMARY

D9E040124

ANALYTICAL METHOD	ANALYST	ANALYST ID
SW846 8270A SIM	Monica R. Edwards	001685

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

D9E040124

WO #	SAMPLE#	CLIENT SAMPLE ID	DATE	TIME
CVD38	001	STP-SLP3-050399	05/03/99	
CVD3A	002	STP-SLP3D-050399	05/03/99	
CVD3C	003	STP-SLP3FB-050399	05/03/99	
CVD3E	004	STP-SLP3FBD-050399	05/03/99	
CVD3F	005	STP-W129-050399	05/03/99	08:15
CVD3G	006	STP-W122-050399	05/03/99	09:30
CVD3J	007	STP-W411-050399	05/03/99	10:20
CVD3K	008	STP-P116-050399	05/03/99	12:30
CVD3N	009	STP-W408-050399	05/03/99	14:10

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results
- Results noted as "ND" were not detected at or above the stated limit
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

CITY OF ST. LOUIS PARK

Client Sample ID: STP-SLP3-050399

GC/MS Semivolatiles

Lot-Sample #...: D9E040124-001 Work Order #...: CVD38101 Matrix.....: WATER
Date Sampled...: 05/03/99 Date Received..: 05/04/99
Prep Date.....: 05/04/99 Analysis Date..: 05/20/99
Prep Batch #...: 9124319 Analysis Time..: 11:18
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	ND	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	ND	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	ND	3.1	ng/L
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	6.5 J	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	55	(10 - 118)
Fluorene d-10	84	(41 - 162)
Naphthalene-d8	75	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: STP-SLP3D-050399

GC/MS Semivolatiles

Lot-Sample #...: D9E040124-002 Work Order #...: CVD3A101 Matrix.....: WATER
Date Sampled...: 05/03/99 Date Received..: 05/04/99
Prep Date.....: 05/04/99 Analysis Date..: 05/20/99
Prep Batch #...: 9124319 Analysis Time..: 13:13
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	ND	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	ND	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	ND	3.1	ng/L
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	6.4 J	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	40	(10 - 118)
Fluorene d-10	64	(41 - 162)
Naphthalene-d8	57	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: STP-SLP3FB-050399

GC/MS Semivolatiles

Lot-Sample #...: D9E040124-003 Work Order #...: CVD3C101 Matrix.....: WATER
Date Sampled...: 05/03/99 Date Received..: 05/04/99
Prep Date.....: 05/04/99 Analysis Date..: 05/20/99
Prep Batch #...: 9124319 Analysis Time..: 13:51
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	ND	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	ND	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	ND	3.1	ng/L
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	93	(10 - 118)
Fluorene d-10	87	(41 - 162)
Naphthalene-d8	81	(21 - 108)

CITY OF ST. LOUIS PARK

Client Sample ID: STP-SLP3FBD-050399

GC/MS Semivolatiles

Lot-Sample #...: D9E040124-004 Work Order #...: CVD3E101 Matrix.....: WATER
Date Sampled...: 05/03/99 Date Received..: 05/04/99
Prep Date.....: 05/04/99 Analysis Date..: 05/20/99
Prep Batch #...: 9124319 Analysis Time..: 14:30
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	ND	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	ND	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	ND	3.1	ng/L
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	94	(10 - 118)
Fluorene d-10	86	(41 - 162)
Naphthalene-d8	81	(21 - 108)

CITY OF ST. LOUIS PARK

Client Sample ID: STP-W129-050399

GC/MS Semivolatiles

Lot-Sample #...: D9E040124-005 Work Order #...: CVD3F101 Matrix.....: WATER
Date Sampled...: 05/03/99 08:15 Date Received..: 05/04/99
Prep Date.....: 05/04/99 Analysis Date..: 05/20/99
Prep Batch #...: 9124319 Analysis Time..: 15:47
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	17	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	5.2	1.3	ng/L
Dibenzofuran	2.8	1.0	ng/L
Fluorene	3.4	1.0	ng/L
Phenanthrene	7.5	1.3	ng/L
Anthracene	1.7 J	2.7	ng/L
Carbazole	1.6 J	1.9	ng/L
Fluoranthene	3.9	3.1	ng/L
Pyrene	2.9	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	0.93 J	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	7.8	0.90	ng/L
1-Methylnaphthalene	11	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	3.1 J	5.1	ng/L
2,3-Dihydroindene	8.2	5.0	ng/L
Benzo(b)thiophene	2.7	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	25	(10 - 118)
Fluorene d-10	72	(41 - 162)
Naphthalene-d8	72	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: STP-W122-050399

GC/MS Semivolatiles

Lot-Sample #...: D9E040124-006 Work Order #...: CVD3G101 Matrix.....: WATER
Date Sampled...: 05/03/99 09:30 Date Received..: 05/04/99
Prep Date.....: 05/04/99 Analysis Date..: 05/20/99
Prep Batch #...: 9124319 Analysis Time..: 16:25
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	12	6.5	ng/L
2-Methylnaphthalene	6.8	3.9	ng/L
Acenaphthene	3.7	1.3	ng/L
Dibenzofuran	2.1	1.0	ng/L
Fluorene	2.9	1.0	ng/L
Phenanthrene	5.8	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	3.5	1.9	ng/L
Fluoranthene	2.9 J	3.1	ng/L
Pyrene	7.1	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	5.3	0.90	ng/L
1-Methylnaphthalene	6.2	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	7.6	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	4.6 J	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	20	(10 - 118)
Fluorene d-10	77	(41 - 162)
Naphthalene-d8	77	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: STP-W411-050399

GC/MS Semivolatiles

Lot-Sample #...: D9E040124-007 Work Order #...: CVD3J101 Matrix.....: WATER
Date Sampled...: 05/03/99 10:20 Date Received..: 05/04/99
Prep Date.....: 05/04/99 Analysis Date..: 05/20/99
Prep Batch #...: 9124319 Analysis Time..: 17:04
Dilution Factor: 1
Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	7.4	6.5	ng/L
2-Methylnaphthalene	4.8	3.9	ng/L
Acenaphthene	3.0	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	26	1.0	ng/L
Phenanthrene	4.8	1.3	ng/L
Anthracene	1.3 J	2.7	ng/L
Carbazole	2.8	1.9	ng/L
Fluoranthene	2.8 J	3.1	ng/L
Pyrene	8.0	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	8.2	0.90	ng/L
1-Methylnaphthalene	4.7	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	4.1 J	5.0	ng/L
Benzo(b)thiophene	2.2	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	19	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	20	(10 - 118)
Fluorene d-10	75	(41 - 162)
Naphthalene-d8	66	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: STP-P116-050399

GC/MS Semivolatiles

Lot-Sample #...: D9E040124-008 Work Order #...: CVD3K101 Matrix.....: WATER
Date Sampled...: 05/03/99 12:30 Date Received..: 05/04/99
Prep Date.....: 05/04/99 Analysis Date..: 05/20/99
Prep Batch #...: 9124319 Analysis Time..: 17:43
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	9.7	6.5	ng/L
2-Methylnaphthalene	8.3	3.9	ng/L
Acenaphthene	ND	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	8.7	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	7.4	3.1	ng/L
Pyrene	5.7	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	1.9 J	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	2.2 J	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	5.2	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	2.9 J	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	2.1 J	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	12	(10 - 118)
Fluorene d-10	70	(41 - 162)
Naphthalene-d8	83	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: STP-W408-050399

GC/MS Semivolatiles

Lot-Sample #...: D9E040124-009 Work Order #...: CVD3N101 Matrix.....: WATER
Date Sampled...: 05/03/99 14:10 Date Received..: 05/04/99
Prep Date.....: 05/04/99 Analysis Date..: 05/20/99
Prep Batch #...: 9124319 Analysis Time..: 18:22
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	13	6.5	ng/L
2-Methylnaphthalene	6.0	3.9	ng/L
Acenaphthene	3.8	1.3	ng/L
Dibenzofuran	2.1	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	4.3	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	3.0	1.9	ng/L
Fluoranthene	1.8 J	3.1	ng/L
Pyrene	2.3	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	8.7	0.90	ng/L
1-Methylnaphthalene	7.2	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	6.2	5.0	ng/L
Benzo(b)thiophene	3.2	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	2.4 J	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	13	(10 - 118)
Fluorene d-10	64	(41 - 162)
Naphthalene-d8	71	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

QC DATA ASSOCIATION SUMMARY

D9E040124

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WATER	SW846 8270A SIM		9124319	9124142
002	WATER	SW846 8270A SIM		9124319	9124142
003	WATER	SW846 8270A SIM		9124319	9124142
004	WATER	SW846 8270A SIM		9124319	9124142
005	WATER	SW846 8270A SIM		9124319	9124142
006	WATER	SW846 8270A SIM		9124319	9124142
007	WATER	SW846 8270A SIM		9124319	9124142
008	WATER	SW846 8270A SIM		9124319	9124142
009	WATER	SW846 8270A SIM		9124319	9124142

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D9E040124 Work Order #...: CVDV9101 Matrix.....: WATER
MB Lot-Sample #: D9E040000-319

Prep Date.....: 05/04/99 Analysis Time..: 09:22
Analysis Date..: 05/20/99 Prep Batch #...: 9124319
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthylene	ND	1.4	ng/L	SW846 8270A SIM
Naphthalene	ND	6.5	ng/L	SW846 8270A SIM
2-Methylnaphthalene	ND	3.9	ng/L	SW846 8270A SIM
Acenaphthene	ND	1.3	ng/L	SW846 8270A SIM
Dibenzofuran	ND	1.0	ng/L	SW846 8270A SIM
Fluorene	ND	1.0	ng/L	SW846 8270A SIM
Phenanthrene	ND	1.3	ng/L	SW846 8270A SIM
Anthracene	ND	2.7	ng/L	SW846 8270A SIM
Carbazole	ND	1.9	ng/L	SW846 8270A SIM
Fluoranthene	ND	3.1	ng/L	SW846 8270A SIM
Pyrene	ND	1.4	ng/L	SW846 8270A SIM
Benzo(a)anthracene	ND	2.5	ng/L	SW846 8270A SIM
Chrysene	ND	2.8	ng/L	SW846 8270A SIM
Benzo(b)fluoranthene	ND	2.5	ng/L	SW846 8270A SIM
Benzo(k)fluoranthene	ND	2.3	ng/L	SW846 8270A SIM
Benzo(a)pyrene	ND	2.3	ng/L	SW846 8270A SIM
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L	SW846 8270A SIM
Benzo(ghi)perylene	ND	2.8	ng/L	SW846 8270A SIM
Indene	ND	0.90	ng/L	SW846 8270A SIM
1-Methylnaphthalene	ND	2.8	ng/L	SW846 8270A SIM
Benzo(e)pyrene	ND	1.9	ng/L	SW846 8270A SIM
Biphenyl	ND	4.3	ng/L	SW846 8270A SIM
Dibenz(a,h)anthracene	ND	1.6	ng/L	SW846 8270A SIM
Quinoline	ND	6.9	ng/L	SW846 8270A SIM
2,3-Benzofuran	ND	5.1	ng/L	SW846 8270A SIM
2,3-Dihydroindene	ND	5.0	ng/L	SW846 8270A SIM
Benzo(b)thiophene	ND	0.90	ng/L	SW846 8270A SIM
Indole	ND	2.5	ng/L	SW846 8270A SIM
Acridine	ND	6.1	ng/L	SW846 8270A SIM
Perylene	ND	2.5	ng/L	SW846 8270A SIM
Dibenzothiophene	ND	1.1	ng/L	SW846 8270A SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	93	(10 - 118)
Fluorene d-10	88	(41 - 162)
Naphthalene-d8	79	(21 - 108)

NOTE(S):
Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D9E040124 Work Order #...: CVDV9102-LCS Matrix.....: WATER
LCS Lot-Sample#: D9E040000-319 CVDV9103-LCSD
Prep Date.....: 05/04/99 Analysis Date..: 05/20/99
Prep Batch #...: 9124319 Analysis Time..: 10:01
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Naphthalene	**10.0**	**7.85**	**ng/L**	**78**		**SW846 8270A SIM**
	10.0	**8.71**	**ng/L**	**87**	**10**	**SW846 8270A SIM**
2-Methylnaphthalene	**10.0**	**7.94**	**ng/L**	**79**		**SW846 8270A SIM**
	10.0	**9.18**	**ng/L**	**92**	**14**	**SW846 8270A SIM**
Fluorene	**10.0**	**7.32**	**ng/L**	**73**		**SW846 8270A SIM**
	10.0	**8.69**	**ng/L**	**87**	**17**	**SW846 8270A SIM**
Chrysene	**10.0**	**7.11**	**ng/L**	**71**		**SW846 8270A SIM**
	10.0	**6.80**	**ng/L**	**68**	**4.4**	**SW846 8270A SIM**
Indene	**10.0**	**12.8**	**ng/L**	**128**		**SW846 8270A SIM**
	10.0	**13.0**	**ng/L**	**130**	**1.9**	**SW846 8270A SIM**
Benzo(e)pyrene	**10.0**	**6.57**	**ng/L**	**66**		**SW846 8270A SIM**
	10.0	**6.05**	**ng/L**	**61**	**8.2**	**SW846 8270A SIM**
Quinoline	**10.0**	**11.5**	**ng/L**	**115**		**SW846 8270A SIM**
	10.0	**12.2**	**ng/L**	**122**	**5.4**	**SW846 8270A SI**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	83	(10 - 118)
	68	(10 - 118)
Fluorene d-10	89	(41 - 162)
	81	(41 - 162)
Naphthalene-d8	78	(21 - 108)
	70	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D9E040124 Work Order #...: CVDV9102-LCS Matrix.....: WATER
LCS Lot-Sample#: D9E040000-319 CVDV9103-LCSD
Prep Date.....: 05/04/99 Analysis Date..: 05/20/99
Prep Batch #...: 9124319 Analysis Time..: 10:01
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Naphthalene	78	(20 - 150)			SW846 8270A SIM
	87	(20 - 150)	10	(0-20)	SW846 8270A SIM
2-Methylnaphthalene	79	(20 - 150)			SW846 8270A SIM
	92	(20 - 150)	14	(0-20)	SW846 8270A SIM
Fluorene	73	(69 - 118)			SW846 8270A SIM
	87	(69 - 118)	17	(0-20)	SW846 8270A SIM
Chrysene	71	(20 - 132)			SW846 8270A SIM
	68	(20 - 132)	4.4	(0-20)	SW846 8270A SIM
Indene	128	(20 - 150)			SW846 8270A SIM
	130	(20 - 150)	1.9	(0-20)	SW846 8270A SIM
Benzo(e)pyrene	66	(20 - 150)			SW846 8270A SIM
	61	(20 - 150)	8.2	(0-20)	SW846 8270A SIM
Quinoline	115	(20 - 150)			SW846 8270A SIM
	122	(20 - 150)	5.4	(0-20)	SW846 8270A SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	83	(10 - 118)
	68	(10 - 118)
Fluorene d-10	89	(41 - 162)
	81	(41 - 162)
Naphthalene-d8	78	(21 - 108)
	70	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D9E040124 Work Order #...: CVD38102-MS Matrix.....: WATER
MS Lot-Sample #: D9E040124-001 CVD38103-MSD
Date Sampled...: 05/03/99 Date Received..: 05/04/99
Prep Date.....: 05/04/99 Analysis Date..: 05/20/99
Prep Batch #...: 9124319 Analysis Time..: 11:57
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Naphthalene	ND	10.0	8.34	ng/L	83		SW846 8270A SIM
	ND	10.0	8.08	ng/L	81	3.1	SW846 8270A SIM
2-Methylnaphthalene	ND	10.0	8.26	ng/L	83		SW846 8270A SIM
	ND	10.0	8.01	ng/L	80	3.0	SW846 8270A SIM
Fluorene	ND	10.0	7.96	ng/L	80		SW846 8270A SIM
	ND	10.0	7.95	ng/L	80	0.02	SW846 8270A SIM
Chrysene	ND	10.0	5.61	ng/L	56		SW846 8270A SIM
	ND	10.0	5.56	ng/L	56	0.81	SW846 8270A SIM
Indene	ND	10.0	14.0	ng/L	140		SW846 8270A SIM
	ND	10.0	13.6	ng/L	136	2.6	SW846 8270A SIM
Benzo(e)pyrene	ND	10.0	3.18	ng/L	32		SW846 8270A SIM
	ND	10.0	3.45	ng/L	35	8.3	SW846 8270A SIM
Quinoline	6.5	10.0	14.8	ng/L	83		SW846 8270A SIM
	6.5	10.0	11.5 p	ng/L	50	25	SW846 8270A SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	60	(10 - 118)
	60	(10 - 118)
Fluorene d-10	90	(41 - 162)
	88	(41 - 162)
Naphthalene-d8	83	(21 - 108)
	81	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

p Relative percent difference (RPD) is outside stated control limits

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D9E040124 Work Order #...: CVD38102-MS Matrix.....: WATER
MS Lot-Sample #: D9E040124-001 CVD38103-MSD
Date Sampled...: 05/03/99 Date Received..: 05/04/99
Prep Date.....: 05/04/99 Analysis Date..: 05/20/99
Prep Batch #...: 9124319 Analysis Time..: 11:57
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Naphthalene	83	(20 - 150)			SW846 8270A SIM
	81	(20 - 150)	3.1	(0-20)	SW846 8270A SIM
2-Methylnaphthalene	83	(20 - 150)			SW846 8270A SIM
	80	(20 - 150)	3.0	(0-20)	SW846 8270A SIM
Fluorene	80	(69 - 118)			SW846 8270A SIM
	80	(69 - 118)	0.02	(0-20)	SW846 8270A SIM
Chrysene	56	(20 - 132)			SW846 8270A SIM
	56	(20 - 132)	0.81	(0-20)	SW846 8270A SIM
Indene	140	(20 - 150)			SW846 8270A SIM
	136	(20 - 150)	2.6	(0-20)	SW846 8270A SIM
Benzo(e)pyrene	32	(20 - 150)			SW846 8270A SIM
	35	(20 - 150)	8.3	(0-20)	SW846 8270A SIM
[illegible]noline	83	(20 - 150)			SW846 8270A SIM
	50 p	(20 - 150)	25	(0-20)	SW846 8270A SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	60	(10 - 118)
	60	(10 - 118)
Fluorene d-10	90	(41 - 162)
	88	(41 - 162)
Naphthalene-d8	83	(21 - 108)
	81	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

p Relative percent difference (RPD) is outside stated control limits.

Chain of Custody Record

Quanterra

QUA-4124

Client: CITY OF ST. LOUIS PARK UTILITY DIVISION 3752 WOODDALE AVENUE ST. LOUIS PARK, MN 55416	Project Manager: Scott Anderson	Date: 5-3-99	Chain Of Custody Number: 39649
Address	Telephone Number (Area Code)/Fax Number: 924-2557 (612) 924-2570	Lab Number: D9E040124	Page 1 of 1
City	Site Contact: SAME		
Project Name: SAME	Carrier/Waybill Number: FED EX 800846316632		
Contract/Purchase Order/Quote No			

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: PPT PAH 5
STP-SLP3-050399	5-3-99		WATER	1 LITER	AMBER	6	N/A		X
STP-SLP3D-050399	5-3-99		WATER	1 LITER	AMBER	6	N/A		X

Special Instructions: PPT 5 Cooler CSLP 0009 temp 7.3°C

Possible Hazard Identification: [X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown

Sample Disposal: [ ] Return To Client [X] Disposal By Lab [ ] Archive For _____ Months

Turn Around Time Required: [ ] Normal [ ] Rush

QC Level: [ ] I. [ ] II. [ ] III.

Project Specific (Specify)

	Date	Time		Date	Time
1. Relinquished By: MZW	5-3-99	1400	1. Received By: Kurt C. [illegible]	05/04/99	0840
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

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

Chain of Custody Record

Quanterra

QUA-4124

Client CITY OF ST. LOUIS PARK	**Project Manager** SCOTT ANDERSON	**Date** 5-3-99	**Chain Of Custody Number** 39650
Address UTILITY DIVISION, 3752 WOODDALE AVENUE	**Telephone Number (Area Code)/Fax Number** 924-2557 (612) 924-2570	**Lab Number** D9E040124	**Page** 1 of 1
City ST. LOUIS PARK, MN 55416	**Site Contact** SAME		
Project Name SAME	**Carrier/Waybill Number** FED EX 800846316632		
Contract/Purchase Order/Quote No			

Sample I.D No and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: PPT PAH 5
STP-SLP3MS -050399	5-3-99		WATER	1 LITER	AMBER	6	N/A		X
STP-SLP3MSD -050399	5-3-99		WATER	1 LITER	AMBER	6	N/A		X

Special Instructions PPT 5 Cooler CSLP 0004 temp 5.8°C

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

Sample Disposal ☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Turn Around Time Required ☐ Normal ☐ Rush

QC Level ☐ I. ☐ II. ☐ III.

Project Specific (Specify)

	Date	Time		Date	Time
1 Relinquished By [signature]	5-3-99	1400	1 Received By [signature]	5/4/99	0840
2 Relinquished By			2 Received By		
3 Relinquished By			3 Received By		

Comments

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

Chain of Custody Record

Quanterra

QUA-4124

Client: CITY OF ST. LOUIS PARK UTILITY DIVISION	Project Manager: SCOTT ANDERSON	Date: 5-3-99	Chain Of Custody Number: 39651
Address: 3752 WOODDALE AVENUE	Telephone Number (Area Code)/Fax Number: 924-2557 (612) 924-2570	Lab Number: D9E040124	Page 1 of 1
City: ST. LOUIS PARK, MN 55416	Site Contact: SAME		
Project Name: SAME	Carrier/Waybill Number: FED EX 800846316632		
Contract/Purchase Order/Quote No			

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No	Preservative	Condition on Receipt	Analysis: PPE PAHS
STP-SLP3FB-050399	5-3-99		WATER	1 LITER	AMBER	6	N/A		X
STP-SLP3FBD-050399	5-3-99		WATER	1 LITER	AMBER	6	N/A		X

Special Instructions: PPE S Cooler CSLP 0007 temp 5.7°C

Possible Hazard Identification: [X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown

Sample Disposal: [ ] Return To Client [X] Disposal By Lab [ ] Archive For _____ Months

Turn Around Time Required: [ ] Normal [ ] Rush

QC Level: [ ] I. [ ] II. [ ] III.

Project Specific (Specify):

	Date	Time		Date	Time
1 Relinquished By: [signature]	5-3-99	1400	1 Received By: [signature]	5/4/99	0840
2 Relinquished By			2 Received By		
3 Relinquished By			3 Received By		

Comments

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

Chain of Custody Record

Quanterra

OUA-4124

Client: City of St Louis Park	Project Manager: Bill Grage	Date: 05-03-99	Chain Of Custody Number: 39671
Address: 3252 Woodale Ave	Telephone Number (Area Code)/Fax Number: 612-924-2557	Lab Number: D9E040124	Page 1 of 1
City: St Louis Park; State: MN; Zip Code: 55416	Site Contact: Scott Anderson		
Project Name: Reilly	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No:			

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: PDT-PAH
5 STP-W129-050399	5/3/99	8:15	GW	6 Liters	1 Liter	6	—		X
6 STP-W122-050399	5/3/99	9:30	GW	6 Liters	1 Liter	6	—		X

Special Instructions: PPT-5 Code CSLP 0002 temp 1.2°C

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

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Turn Around Time Required: ☐ Normal ☒ Rush

QC Level: ☐ I. ☐ II. ☐ III

Project Specific (Specify):

1 Relinquished By: [signature]	Date: 5/3/99	Time: 16:00	1 Received By: [signature]	Date: 5/4/99	Time: 0840
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 Sample; CANARY - Returned to Client with Report, PINK - Field Copy

Chain of Custody Record

Quanterra

QUA-4124

Client: City of St Louis Park	Project Manager: Bill Greg	Date: 05-03-99	Chain Of Custody Number: 24382
Address: 3752 Woodale Ave	Telephone Number (Area Code)/Fax Number: 612-924-2557	Lab Number: D9E040124	Page 1 of 1
City: St Louis Park; State: Mn; Zip Code: 55416	Site Contact: Scott Anderson		
Project Name: Reilly	Carrier/Waybill Number		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: PPT-PAH
STP-W411-050399	5-3-99	10:20	GW	6 Liter	1 Liter	6	—		X
STP-P116-050399	5-3-99	12:30	GW	6 Liter	1 Liter	6	—		X

Special Instructions: PPT-5 Cooler ESP 0011 temp 1.3°C

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

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Turn Around Time Required: ☐ Normal ☐ Rush

QC Level: ☐ I. ☐ II. ☐ III.

Project Specific (Specify):

1. Relinquished By: [signature]	Date: 5/3/99	Time: 16:00	1 Received By: [signature]	Date: 5/4/99	Time: 0840
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 Sample, CANARY - Returned to Client with Report; PINK - Field Copy

Chain of Custody Record

Quanterra

QUA-4124

Client: City of St Louis Park	Project Manager: Bill Goyg	Date: 5/3/99	Chain Of Custody Number: 39673
Address: 3752 Woodale Ave	Telephone Number (Area Code)/Fax Number: 612-924-2557	Lab Number: D9E040124	Page 1 of 1
City: St Louis Park; State: MN; Zip Code: 55416	Site Contact: Scott Anderson		
Project Name: Reilly	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: PPT-PAH
9 STP-W408-050399	5/3/99	14:10	GW	6 Liter	1 Liter	6	—		X

Special Instructions: PPT-5 Code CSLP 0010 temp 0.6°C

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

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Turn Around Time Required: ☐ Normal ☒ Rush

QC Level: ☐ I. ☐ II. ☐ III.

Project Specific (Specify):

1. Relinquished By: [signature]	Date: 5/3/99	Time: 16:00	1 Received By: [signature]	Date: 5/4/99	Time: 0840
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 Sample; CANARY - Returned to Client with Report, PINK - Field Copy

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F

MSH
DPV

Quanterra

Advanced Analytical Services

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 467-9136 Fax

CASE NARRATIVE

FOR

City of St. Louis Park

June 23, 1999

Quanterra , Inc.

Project Lot Number D9E110126

Introduction

Twelve aqueous samples (including matrix QC) were received at Quanterra Environmental Services, Denver Laboratory on May 11, 1999. The samples were logged in under Quanterra Denver's project lot number D9E110126. A cross reference associating Quanterra Denver's laboratory sample numbers to the actual field sample number is included. The samples were analyzed for part per tillion (ppt) PAHs.

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the October 1998 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.

The method blank associated with the first extraction contained target analytes above the allowable limit. The source of the contamination was traced to the use of a contaminated wash bottle and was eliminated. The DCSs associated with the contaminated method blank were not analyzed. The samples were re-extracted, out side of holding times, and analyzed with acceptable method blank and DCS results. Both sets of data are included in this report.

The spike compound fluorene in the matrix spike was recovered at 65% which is below the 69% to 118% acceptance limits. Fluorene was recovered within acceptance limits in the DCSs. A matrix effect is indicated.

The relative percent difference (RPD) for chrysene and benzo (e) pyrene for the matrix spike and matrix spike duplicate samples is reported outside acceptance limits. Chrysene and benzo (e) pyrene had acceptable RPDs in the DCSs. A matrix effect is indicated.

The compound Fluorene in the LCS and LCSD for sample D9E110126-010 are reported at 66% and 68% recoveries which are below the 69% to 118% acceptance limits. This pair of control samples was first analyzed on May 29th with acceptable recoveries for Fluorene and the raw data for this analysis is included. However, Indene was recovered high, outside acceptance limits. It was discovered that the calibration concentrations for Indene were approximately half of what was in the method. A new calibration curve was prepared and the extracts were analyzed against the new curve for Indene only with acceptable recoveries in the LCS and LCSD samples.

Except for the above, this data package is in compliance with the terms and conditions of the October 1998 QAPP, both technically and for completeness

Reported By: Kurt C. Ill **Date:** June 23, 1999

Kurt C. Ill
Program Manager

ANALYTICAL REPORT

Reilly Tar & Chemical NPL Site

Lot #: D9E110126

Scott Anderson

City of St. Louis Park

QUANTERRA INCORPORATED

Kurt C. Ill
Project Manager

June 23, 1999

EXECUTIVE SUMMARY - Detection Highlights

D9E110126

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
MSH-SLP11-051099 05/10/99 001				
Naphthalene	14	6.5	ng/L	SW846 8270A SIM
Naphthalene	13	6.5	ng/L	SW846 8270A SIM
2-Methylnaphthalene	2.2 J	3.9	ng/L	SW846 8270A SIM
Acenaphthene	8.3	1.3	ng/L	SW846 8270A SIM
Acenaphthene	7.4	1.3	ng/L	SW846 8270A SIM
Fluorene	3.0	1.0	ng/L	SW846 8270A SIM
Fluorene	2.0	1.0	ng/L	SW846 8270A SIM
Phenanthrene	8.2	1.3	ng/L	SW846 8270A SIM
Phenanthrene	2.2	1.3	ng/L	SW846 8270A SIM
Carbazole	2.5	1.9	ng/L	SW846 8270A SIM
Fluoranthene	2.7 J	3.1	ng/L	SW846 8270A SIM
Pyrene	1.6	1.4	ng/L	SW846 8270A SIM
Indene	14	0.90	ng/L	SW846 8270A SIM
Indene	14	0.90	ng/L	SW846 8270A SIM
1-Methylnaphthalene	3.6	2.8	ng/L	SW846 8270A SIM
1-Methylnaphthalene	3.0	2.8	ng/L	SW846 8270A SIM
Quinoline	4.8 J	6.9	ng/L	SW846 8270A SIM
2,3-Benzofuran	2.3 J	5.1	ng/L	SW846 8270A SIM
2,3-Benzofuran	2.5 J	5.1	ng/L	SW846 8270A SIM
2,3-Dihydroindene	10	5.0	ng/L	SW846 8270A SIM
2,3-Dihydroindene	11	5.0	ng/L	SW846 8270A SIM
Benzo(b)thiophene	6.0	0.90	ng/L	SW846 8270A SIM
MSH-SLP11D-051099 05/10/99 002				
Naphthalene	15	6.5	ng/L	SW846 8270A SIM
Naphthalene	15	6.5	ng/L	SW846 8270A SIM
2-Methylnaphthalene	6.5	3.9	ng/L	SW846 8270A SIM
Acenaphthene	9.1	1.3	ng/L	SW846 8270A SIM
Acenaphthene	7.9	1.3	ng/L	SW846 8270A SIM
Dibenzofuran	4.6	1.0	ng/L	SW846 8270A SIM
Fluorene	6.4	1.0	ng/L	SW846 8270A SIM
Fluorene	2.0	1.0	ng/L	SW846 8270A SIM
Phenanthrene	39	1.3	ng/L	SW846 8270A SIM
Phenanthrene	2.1	1.3	ng/L	SW846 8270A SIM
Carbazole	2.3	1.9	ng/L	SW846 8270A SIM
Fluoranthene	12	3.1	ng/L	SW846 8270A SIM
Pyrene	6.7	1.4	ng/L	SW846 8270A SIM
Indene	12	0.90	ng/L	SW846 8270A SIM
Indene	15	0.90	ng/L	SW846 8270A SIM
1-Methylnaphthalene	6.0	2.8	ng/L	SW846 8270A SIM
1-Methylnaphthalene	3.2	2.8	ng/L	SW846 8270A SIM
Biphenyl	2.7 J	4.3	ng/L	SW846 8270A SIM

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

D9E110126

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
MSH-SLP11D-051099 05/10/99 002				
2,3-Benzofuran	2.0 J	5.1	ng/L	SW846 8270A SIM
2,3-Benzofuran	2.7 J	5.1	ng/L	SW846 8270A SIM
2,3-Dihydroindene	9.2	5.0	ng/L	SW846 8270A SIM
2,3-Dihydroindene	12	5.0	ng/L	SW846 8270A SIM
Benzo(b)thiophene	6.6	0.90	ng/L	SW846 8270A SIM
Acridine	4.7 J	6.1	ng/L	SW846 8270A SIM
MSH-SLP11FB-051099 05/10/99 003				
Naphthalene	3.7 J	6.5	ng/L	SW846 8270A SIM
2-Methylnaphthalene	6.0	3.9	ng/L	SW846 8270A SIM
Dibenzofuran	3.5	1.0	ng/L	SW846 8270A SIM
Fluorene	4.1	1.0	ng/L	SW846 8270A SIM
Phenanthrene	34	1.3	ng/L	SW846 8270A SIM
Fluoranthene	11	3.1	ng/L	SW846 8270A SIM
Pyrene	6.3	1.4	ng/L	SW846 8270A SIM
1-Methylnaphthalene	3.4	2.8	ng/L	SW846 8270A SIM
Acridine	3.8 J	6.1	ng/L	SW846 8270A SIM
MSH-SLP11FBD-051099 05/10/99 004				
2-Methylnaphthalene	4.5	3.9	ng/L	SW846 8270A SIM
Fluorene	3.2	1.0	ng/L	SW846 8270A SIM
Phenanthrene	26	1.3	ng/L	SW846 8270A SIM
Fluoranthene	8.9	3.1	ng/L	SW846 8270A SIM
Pyrene	4.9	1.4	ng/L	SW846 8270A SIM
1-Methylnaphthalene	3.3	2.8	ng/L	SW846 8270A SIM
Acridine	3.0 J	6.1	ng/L	SW846 8270A SIM
DPV-W18-051099 05/10/99 13:15 005				
Acenaphthylene	14	1.4	ng/L	SW846 8270A SIM
Acenaphthylene	9.0	2.8	ng/L	SW846 8270A SIM
Naphthalene	18	6.5	ng/L	SW846 8270A SIM
Naphthalene	8.7 J	13	ng/L	SW846 8270A SIM
Acenaphthene	150	1.3	ng/L	SW846 8270A SIM
Acenaphthene	150	2.6	ng/L	SW846 8270A SIM
Dibenzofuran	6.6	1.0	ng/L	SW846 8270A SIM
Dibenzofuran	5.7	2.0	ng/L	SW846 8270A SIM
Fluorene	11	1.0	ng/L	SW846 8270A SIM
Phenanthrene	34	1.3	ng/L	SW846 8270A SIM
Phenanthrene	6.6	2.6	ng/L	SW846 8270A SIM
Carbazole	14	3.8	ng/L	SW846 8270A SIM

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

D9E110126

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
DPV-W18-051099 05/10/99 13:15 005				
Fluoranthene	14	3.1	ng/L	SW846 8270A SIM
Fluoranthene	4.2 J	6.2	ng/L	SW846 8270A SIM
Pyrene	14	1.4	ng/L	SW846 8270A SIM
Pyrene	9.2	2.8	ng/L	SW846 8270A SIM
Benzo(b)fluoranthene	1.9 J	2.5	ng/L	SW846 8270A SIM
Indene	52	0.90	ng/L	SW846 8270A SIM
Indene	47	1.8	ng/L	SW846 8270A SIM
2,3-Benzofuran	5.5	5.1	ng/L	SW846 8270A SIM
2,3-Benzofuran	6.1 J	10	ng/L	SW846 8270A SIM
2,3-Dihydroindene	120	5.0	ng/L	SW846 8270A SIM
2,3-Dihydroindene	110	10	ng/L	SW846 8270A SIM
Benzo(b)thiophene	150	0.90	ng/L	SW846 8270A SIM
Benzo(b)thiophene	110	1.8	ng/L	SW846 8270A SIM
Acridine	9.9	6.1	ng/L	SW846 8270A SIM
Acridine	9.6 J	12	ng/L	SW846 8270A SIM
Dibenzothiophene	16	1.1	ng/L	SW846 8270A SIM
Dibenzothiophene	6.3	2.2	ng/L	SW846 8270A S
DPV-W19-051099 05/10/99 14:15 006				
Naphthalene	12	6.5	ng/L	SW846 8270A SIM
Naphthalene	4.8 J	6.5	ng/L	SW846 8270A SIM
2-Methylnaphthalene	12	3.9	ng/L	SW846 8270A SIM
2-Methylnaphthalene	2.9 J	3.9	ng/L	SW846 8270A SIM
Acenaphthene	2.7	1.3	ng/L	SW846 8270A SIM
Dibenzofuran	6.0	1.0	ng/L	SW846 8270A SIM
Fluorene	7.0	1.0	ng/L	SW846 8270A SIM
Phenanthrene	49	1.3	ng/L	SW846 8270A SIM
Phenanthrene	5.4	1.3	ng/L	SW846 8270A SIM
Carbazole	5.2	1.9	ng/L	SW846 8270A SIM
Fluoranthene	21	3.1	ng/L	SW846 8270A SIM
Fluoranthene	4.0	3.1	ng/L	SW846 8270A SIM
Pyrene	21	1.4	ng/L	SW846 8270A SIM
Pyrene	11	1.4	ng/L	SW846 8270A SIM
Benzo(b)fluoranthene	2.8	2.5	ng/L	SW846 8270A SIM
Benzo(a)pyrene	1.3 J	2.3	ng/L	SW846 8270A SIM
Indene	6.2	0.90	ng/L	SW846 8270A SIM
Indene	4.4	0.90	ng/L	SW846 8270A SIM
1-Methylnaphthalene	8.9	2.8	ng/L	SW846 8270A SIM
1-Methylnaphthalene	2.9	2.8	ng/L	SW846 8270A SIM
Biphenyl	3.6 J	4.3	ng/L	SW846 8270A SIM
2,3-Dihydroindene	3.4 J	5.0	ng/L	SW846 8270A SI
2,3-Dihydroindene	2.6 J	5.0	ng/L	SW846 8270A S

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

D9E110126

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
DPV-W19-051099 05/10/99 14:15 006				
Acridine	6.8	6.1	ng/L	SW846 8270A SIM
Dibenzothiophene	4.5	1.1	ng/L	SW846 8270A SIM
MSH-SLP13-051099 05/10/99 007				
Acenaphthene	2.0	1.3	ng/L	SW846 8270A SIM
Phenanthrene	2.6	1.3	ng/L	SW846 8270A SIM
Anthracene	1.2 J	2.7	ng/L	SW846 8270A SIM
Fluoranthene	2.6 J	3.1	ng/L	SW846 8270A SIM
Quinoline	4.9 J	6.9	ng/L	SW846 8270A SIM
2,3-Dihydroindene	1.8 J	5.0	ng/L	SW846 8270A SIM
MSH-SLP17-051099 05/10/99 008				
2-Methylnaphthalene	3.8 J	3.9	ng/L	SW846 8270A SIM
2-Methylnaphthalene	2.0 J	3.9	ng/L	SW846 8270A SIM
Fluorene	2.3	1.0	ng/L	SW846 8270A SIM
Phenanthrene	15	1.3	ng/L	SW846 8270A SIM
Phenanthrene	2.6	1.3	ng/L	SW846 8270A SIM
Fluoranthene	5.8	3.1	ng/L	SW846 8270A SIM
Fluoranthene	2.0 J	3.1	ng/L	SW846 8270A SIM
Pyrene	3.6	1.4	ng/L	SW846 8270A SIM
Pyrene	1.5	1.4	ng/L	SW846 8270A SIM
1-Methylnaphthalene	2.3 J	2.8	ng/L	SW846 8270A SIM
Quinoline	4.8 J	6.9	ng/L	SW846 8270A SIM
Acridine	2.2 J	6.1	ng/L	SW846 8270A SIM
DPV-W20-051099 05/10/99 15:15 009				
Naphthalene	15	6.5	ng/L	SW846 8270A SIM
Acenaphthene	17	1.3	ng/L	SW846 8270A SIM
Acenaphthene	9.2	2.6	ng/L	SW846 8270A SIM
Dibenzofuran	3.5	1.0	ng/L	SW846 8270A SIM
Fluorene	7.7	1.0	ng/L	SW846 8270A SIM
Phenanthrene	18	1.3	ng/L	SW846 8270A SIM
Anthracene	9.0	2.7	ng/L	SW846 8270A SIM
Anthracene	10	5.4	ng/L	SW846 8270A SIM
Carbazole	15	1.9	ng/L	SW846 8270A SIM
Carbazole	7.6	3.8	ng/L	SW846 8270A SIM
Fluoranthene	9.0	3.1	ng/L	SW846 8270A SIM
Fluoranthene	6.7	6.2	ng/L	SW846 8270A SIM
Pyrene	13	1.4	ng/L	SW846 8270A SIM
Pyrene	8.5	2.8	ng/L	SW846 8270A SIM

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

D9E110126

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
DPV-W20-051099 05/10/99 15:15 009				
Benzo(b)fluoranthene	2.0 J	2.5	ng/L	SW846 8270A SIM
Indene	31	0.90	ng/L	SW846 8270A SIM
Indene	23	1.8	ng/L	SW846 8270A SIM
2,3-Benzofuran	5.1	5.1	ng/L	SW846 8270A SIM
2,3-Benzofuran	6.0 J	10	ng/L	SW846 8270A SIM
2,3-Dihydroindene	540	5.0	ng/L	SW846 8270A SIM
2,3-Dihydroindene	270	10	ng/L	SW846 8270A SIM
Benzo(b)thiophene	31	0.90	ng/L	SW846 8270A SIM
Benzo(b)thiophene	17	1.8	ng/L	SW846 8270A SIM
Acridine	23	6.1	ng/L	SW846 8270A SIM
Acridine	29	12	ng/L	SW846 8270A SIM
Dibenzothiophene	14	2.2	ng/L	SW846 8270A SIM
DPV-W1-051099 05/10/99 16:00 010				
Naphthalene	35	6.5	ng/L	SW846 8270A SIM
2-Methylnaphthalene	14	3.9	ng/L	SW846 8270A SIM
Acenaphthene	17	1.3	ng/L	SW846 8270A SIM
Dibenzofuran	7.4	1.0	ng/L	SW846 8270A SIM
Fluorene	6.2	1.0	ng/L	SW846 8270A SIM
Phenanthrene	16	1.3	ng/L	SW846 8270A SIM
Carbazole	18	1.9	ng/L	SW846 8270A SIM
Fluoranthene	31	3.1	ng/L	SW846 8270A SIM
Pyrene	59	1.4	ng/L	SW846 8270A SIM
Chrysene	3.9	2.8	ng/L	SW846 8270A SIM
Benzo(b)fluoranthene	10	2.5	ng/L	SW846 8270A SIM
Benzo(k)fluoranthene	1.7 J	2.3	ng/L	SW846 8270A SIM
Benzo(a)pyrene	7.3	2.3	ng/L	SW846 8270A SIM
Indeno(1,2,3-cd)pyrene	4.2	2.1	ng/L	SW846 8270A SIM
Benzo(ghi)perylene	2.5 J	2.8	ng/L	SW846 8270A SIM
Indene	37	0.90	ng/L	SW846 8270A SIM
1-Methylnaphthalene	16	2.8	ng/L	SW846 8270A SIM
Benzo(e)pyrene	2.8	1.9	ng/L	SW846 8270A SIM
Biphenyl	5.8	4.3	ng/L	SW846 8270A SIM
2,3-Dihydroindene	37	5.0	ng/L	SW846 8270A SIM
Benzo(b)thiophene	27	0.90	ng/L	SW846 8270A SIM
Perylene	1.4 J	2.5	ng/L	SW846 8270A SIM
Dibenzothiophene	2.3	1.1	ng/L	SW846 8270A SIM

ANALYTICAL METHODS SUMMARY

D9E110126

PARAMETER	ANALYTICAL METHOD
Base/Neutrals and Acids	SW846 8270A SIM

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

METHOD / ANALYST SUMMARY

D9E110126

ANALYTICAL METHOD	ANALYST	ANALYST ID
SW846 8270A SIM	Monica R. Edwards	001685

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

D9E110126

WO #	SAMPLE#	CLIENT SAMPLE ID	DATE	TIME
CVLW7	001	MSH-SLP11-051099	05/10/99	
CVLW8	002	MSH-SLP11D-051099	05/10/99	
CVLW9	003	MSH-SLP11FB-051099	05/10/99	
CVLWD	004	MSH-SLP11FBD-051099	05/10/99	
CVLWE	005	DPV-W18-051099	05/10/99	13:15
CVLWF	006	DPV-W19-051099	05/10/99	14:15
CVLWG	007	MSH-SLP13-051099	05/10/99	
CVLWJ	008	MSH-SLP17-051099	05/10/99	
CVLWQ	009	DPV-W20-051099	05/10/99	15:15
CVLWT	010	DPV-W1-051099	05/10/99	16:00

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit
- This report must not be reproduced, except in full, without the written approval of the laboratory
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

CITY OF ST. LOUIS PARK

Client Sample ID: MSH-SLP11-051099

GC/MS Semivolatiles

Lot-Sample #...: D9E110126-001 Work Order #...: CVLW7101 Matrix.....: WATER
Date Sampled...: 05/10/99 Date Received..: 05/11/99
Prep Date.....: 05/11/99 Analysis Date..: 06/18/99
Prep Batch #...: 9131328 Analysis Time..: 20:23
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	14	6.5	ng/L
2-Methylnaphthalene	2.2 J	3.9	ng/L
Acenaphthene	8.3	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	3.0	1.0	ng/L
Phenanthrene	8.2	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	2.7 J	3.1	ng/L
Pyrene	1.6	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	14	0.90	ng/L
1-Methylnaphthalene	3.6	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	2.3 J	5.1	ng/L
2,3-Dihydroindene	10	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	16	(10 - 118)
Fluorene d-10	74	(41 - 162)
Naphthalene-d8	58	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: MSH-SLP11-051099

GC/MS Semivolatiles

Lot-Sample #...: D9E110126-001 Work Order #...: CVLW7201 Matrix.....: WATER
Date Sampled...: 05/10/99 Date Received..: 05/11/99
Prep Date.....: 06/01/99 Analysis Date..: 06/11/99
Prep Batch #...: 9152315 Analysis Time..: 17:09
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	13	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	7.4	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	2.0	1.0	ng/L
Phenanthrene	2.2	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	2.5	1.9	ng/L
Fluoranthene	ND	3.1	ng/L
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	14	0.90	ng/L
1-Methylnaphthalene	3.0	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	4.8 J	6.9	ng/L
2,3-Benzofuran	2.5 J	5.1	ng/L
2,3-Dihydroindene	11	5.0	ng/L
Benzo(b)thiophene	6.0	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	50	(10 - 118)
Fluorene d-10	70	(41 - 162)
Naphthalene-d8	57	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: MSH-SLP11D-051099

GC/MS Semivolatiles

Lot-Sample #...: D9E110126-002 Work Order #...: CVLW8101 Matrix.....: WATER
Date Sampled...: 05/10/99 Date Received..: 05/11/99
Prep Date.....: 05/11/99 Analysis Date..: 06/18/99
Prep Batch #...: 9131328 Analysis Time..: 22:11
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	15	6.5	ng/L
2-Methylnaphthalene	6.5	3.9	ng/L
Acenaphthene	9.1	1.3	ng/L
Dibenzofuran	4.6	1.0	ng/L
Fluorene	6.4	1.0	ng/L
Phenanthrene	39	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	12	3.1	ng/L
Pyrene	6.7	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	12	0.90	ng/L
1-Methylnaphthalene	6.0	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	2.7 J	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	2.0 J	5.1	ng/L
2,3-Dihydroindene	9.2	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	4.7 J	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	11	(10 - 118)
Fluorene d-10	63	(41 - 162)
Naphthalene-d8	46	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: MSH-SLP11D-051099

GC/MS Semivolatiles

Lot-Sample #...:	D9E110126-002	**Work Order #...:**	CVLW8201	**Matrix.....:**	WATER
Date Sampled...:	05/10/99	**Date Received..:**	05/11/99		
Prep Date.....:	06/01/99	**Analysis Date..:**	06/11/99		
Prep Batch #...:	9152315	**Analysis Time..:**	18:59		
Dilution Factor:	1				
		Method.....:	SW846 8270A SIM		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	**15**	**6.5**	**ng/L**
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	**7.9**	**1.3**	**ng/L**
Dibenzofuran	ND	1.0	ng/L
Fluorene	**2.0**	**1.0**	**ng/L**
Phenanthrene	**2.1**	**1.3**	**ng/L**
Anthracene	ND	2.7	ng/L
Carbazole	**2.3**	**1.9**	**ng/L**
Fluoranthene	ND	3.1	ng/L
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	**15**	**0.90**	**ng/L**
1-Methylnaphthalene	**3.2**	**2.8**	**ng/L**
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	**2.7 J**	**5.1**	**ng/L**
2,3-Dihydroindene	**12**	**5.0**	**ng/L**
Benzo(b)thiophene	**6.6**	**0.90**	**ng/L**
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	37	(10 - 118)
Fluorene d-10	69	(41 - 162)
Naphthalene-d8	57	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: MSH-SLP11FB-051099

GC/MS Semivolatiles

Lot-Sample #...: D9E110126-003 Work Order #...: CVLW9101 Matrix.....: WATER
Date Sampled...: 05/10/99 Date Received..: 05/11/99
Prep Date.....: 05/11/99 Analysis Date..: 06/18/99
Prep Batch #...: 9131328 Analysis Time..: 22:46
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	**3.7 J**	**6.5**	**ng/L**
2-Methylnaphthalene	**6.0**	**3.9**	**ng/L**
Acenaphthene	ND	1.3	ng/L
Dibenzofuran	**3.5**	**1.0**	**ng/L**
Fluorene	**4.1**	**1.0**	**ng/L**
Phenanthrene	**34**	**1.3**	**ng/L**
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	**11**	**3.1**	**ng/L**
Pyrene	**6.3**	**1.4**	**ng/L**
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	**3.4**	**2.8**	**ng/L**
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	**3.8 J**	**6.1**	**ng/L**
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	28	(10 - 118)
Fluorene d-10	68	(41 - 162)
Naphthalene-d8	59	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: MSH-SLP11FB-051099

GC/MS Semivolatiles

Lot-Sample #...: D9E110126-003 Work Order #...: CVLW9201 Matrix.....: WATER
Date Sampled...: 05/10/99 Date Received..: 05/11/99
Prep Date.....: 06/01/99 Analysis Date..: 06/11/99
Prep Batch #...: 9152315 Analysis Time..: 19:36
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	ND	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	ND	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	ND	3.1	ng/L
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	72	(10 - 118)
Fluorene d-10	73	(41 - 162)
Naphthalene-d8	62	(21 - 108)

CITY OF ST. LOUIS PARK

Client Sample ID: MSH-SLP11FBD-051099

GC/MS Semivolatiles

Lot-Sample #...: D9E110126-004 Work Order #...: CVLWD101 Matrix.....: WATER
Date Sampled...: 05/10/99 Date Received..: 05/11/99
Prep Date.....: 05/11/99 Analysis Date..: 06/18/99
Prep Batch #...: 9131328 Analysis Time..: 23:22
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	**4.5**	**3.9**	**ng/L**
Acenaphthene	ND	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	**3.2**	**1.0**	**ng/L**
Phenanthrene	**26**	**1.3**	**ng/L**
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	**8.9**	**3.1**	**ng/L**
Pyrene	**4.9**	**1.4**	**ng/L**
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	**3.3**	**2.8**	**ng/L**
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	**3.0 J**	**6.1**	**ng/L**
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	25	(10 - 118)
Fluorene d-10	64	(41 - 162)
Naphthalene-d8	50	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: MSH-SLP11FBD-051099

GC/MS Semivolatiles

Lot-Sample #...: D9E110126-004 Work Order #...: CVLWD201 Matrix.....: WATER
Date Sampled...: 05/10/99 Date Received..: 05/11/99
Prep Date.....: 06/01/99 Analysis Date..: 06/11/99
Prep Batch #...: 9152315 Analysis Time..: 20:12
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	ND	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	ND	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	ND	3.1	ng/L
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	86	(10 - 118)
Fluorene d-10	71	(41 - 162)
Naphthalene-d8	59	(21 - 108)

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W18-051099

GC/MS Semivolatiles

Lot-Sample #...: D9E110126-005 Work Order #...: CVLWE101 Matrix.....: WATER
Date Sampled...: 05/10/99 13:15 Date Received..: 05/11/99
Prep Date.....: 05/11/99 Analysis Date..: 06/18/99
Prep Batch #...: 9131328 Analysis Time..: 23:57
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	**14**	**1.4**	**ng/L**
Naphthalene	**18**	**6.5**	**ng/L**
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	**150**	**1.3**	**ng/L**
Dibenzofuran	**6.6**	**1.0**	**ng/L**
Fluorene	**11**	**1.0**	**ng/L**
Phenanthrene	**34**	**1.3**	**ng/L**
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	**14**	**3.1**	**ng/L**
Pyrene	**14**	**1.4**	**ng/L**
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	**1.9 J**	**2.5**	**ng/L**
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	**52**	**0.90**	**ng/L**
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	**5.5**	**5.1**	**ng/L**
2,3-Dihydroindene	**120**	**5.0**	**ng/L**
Benzo(b)thiophene	**150**	**0.90**	**ng/L**
Indole	ND	2.5	ng/L
Acridine	**9.9**	**6.1**	**ng/L**
Perylene	ND	2.5	ng/L
Dibenzothiophene	**16**	**1.1**	**ng/L**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	9.5 *	(10 - 118)
Fluorene d-10	153	(41 - 162)
Naphthalene-d8	36	(21 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W18-051099

GC/MS Semivolatiles

Lot-Sample #...: D9E110126-005 Work Order #...: CVLWE201 Matrix.....: WATER
Date Sampled...: 05/10/99 13:15 Date Received..: 05/11/99
Prep Date.....: 06/01/99 Analysis Date..: 06/17/99
Prep Batch #...: 9152315 Analysis Time..: 23:46
Dilution Factor: 2

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	9.0	2.8	ng/L
Naphthalene	8.7 J	13	ng/L
2-Methylnaphthalene	ND	7.8	ng/L
Acenaphthene	150	2.6	ng/L
Dibenzofuran	5.7	2.0	ng/L
Fluorene	ND	2.0	ng/L
Phenanthrene	6.6	2.6	ng/L
Anthracene	ND	5.4	ng/L
Carbazole	14	3.8	ng/L
Fluoranthene	4.2 J	6.2	ng/L
Pyrene	9.2	2.8	ng/L
Benzo(a)anthracene	ND	5.0	ng/L
Chrysene	ND	5.6	ng/L
Benzo(b)fluoranthene	ND	5.0	ng/L
Benzo(k)fluoranthene	ND	4.6	ng/L
Benzo(a)pyrene	ND	4.6	ng/L
Indeno(1,2,3-cd)pyrene	ND	4.2	ng/L
Benzo(ghi)perylene	ND	5.6	ng/L
Indene	47	1.8	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Benzo(e)pyrene	ND	3.8	ng/L
Biphenyl	ND	8.6	ng/L
Dibenz(a,h)anthracene	ND	3.2	ng/L
Quinoline	ND	14	ng/L
2,3-Benzofuran	6.1 J	10	ng/L
2,3-Dihydroindene	110	10	ng/L
Benzo(b)thiophene	110	1.8	ng/L
Indole	ND	5.0	ng/L
Acridine	9.6 J	12	ng/L
Perylene	ND	5.0	ng/L
Dibenzothiophene	6.3	2.2	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	20	(10 - 118)
Fluorene d-10	100	(41 - 162)
Naphthalene-d8	47	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W19-051099

GC/MS Semivolatiles

Lot-Sample #...: D9E110126-006 Work Order #...: CVLWF101 Matrix.....: WATER
Date Sampled...: 05/10/99 14:15 Date Received..: 05/11/99
Prep Date.....: 05/11/99 Analysis Date..: 06/19/99
Prep Batch #...: 9131328 Analysis Time..: 00:33
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	12	6.5	ng/L
2-Methylnaphthalene	12	3.9	ng/L
Acenaphthene	ND	1.3	ng/L
Dibenzofuran	6.0	1.0	ng/L
Fluorene	7.0	1.0	ng/L
Phenanthrene	49	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	21	3.1	ng/L
Pyrene	21	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	2.8	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	6.2	0.90	ng/L
1-Methylnaphthalene	8.9	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	3.6 J	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	3.4 J	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	6.8	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	4.5	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	9.8 *	(10 - 118)
Fluorene d-10	69	(41 - 162)
Naphthalene-d8	53	(21 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W19-051099

GC/MS Semivolatiles

Lot-Sample #...: D9E110126-006 Work Order #...: CVLWF201 Matrix.....: WATER
Date Sampled...: 05/10/99 14:15 Date Received..: 05/11/99
Prep Date.....: 06/01/99 Analysis Date..: 06/11/99
Prep Batch #...: 9152315 Analysis Time..: 21:26
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	4.8 J	6.5	ng/L
2-Methylnaphthalene	2.9 J	3.9	ng/L
Acenaphthene	2.7	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	5.4	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	5.2	1.9	ng/L
Fluoranthene	4.0	3.1	ng/L
Pyrene	11	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	1.3 J	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	4.4	0.90	ng/L
1-Methylnaphthalene	2.9	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	2.6 J	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	14	(10 - 118)
Fluorene d-10	60	(41 - 162)
Naphthalene-d8	47	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: MSH-SLP13-051099

GC/MS Semivolatiles

Lot-Sample #...: D9E110126-007 Work Order #...: CVLWG101 Matrix.....: WATER
Date Sampled...: 05/10/99 Date Received..: 05/11/99
Prep Date.....: 05/11/99 Analysis Date..: 06/19/99
Prep Batch #...: 9131328 Analysis Time..: 01:08
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	ND	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	ND	1.3	ng/L
Anthracene	1.2 J	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	ND	3.1	ng/L
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	17	(10 - 118)
Fluorene d-10	71	(41 - 162)
Naphthalene-d8	59	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: MSH-SLP13-051099

GC/MS Semivolatiles

Lot-Sample #...: D9E110126-007 Work Order #...: CVLWG201 Matrix.....: WATER
Date Sampled...: 05/10/99 Date Received..: 05/11/99
Prep Date.....: 06/01/99 Analysis Date..: 06/11/99
Prep Batch #...: 9152315 Analysis Time..: 22:38
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	**2.0**	**1.3**	**ng/L**
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	**2.6**	**1.3**	**ng/L**
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	**2.6 J**	**3.1**	**ng/L**
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	**4.9 J**	**6.9**	**ng/L**
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	**1.8 J**	**5.0**	**ng/L**
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	29	(10 - 118)
Fluorene d-10	71	(41 - 162)
Naphthalene-d8	56	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: MSH-SLP17-051099

GC/MS Semivolatiles

Lot-Sample #...: D9E110126-008 Work Order #...: CVLWJ101 Matrix.....: WATER
Date Sampled...: 05/10/99 Date Received..: 05/11/99
Prep Date.....: 05/11/99 Analysis Date..: 06/19/99
Prep Batch #...: 9131328 Analysis Time..: 02:19
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	3.8 J	3.9	ng/L
Acenaphthene	ND	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	2.3	1.0	ng/L
Phenanthrene	15	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	5.8	3.1	ng/L
Pyrene	3.6	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	2.3 J	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	2.2 J	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	20	(10 - 118)
Fluorene d-10	77	(41 - 162)
Naphthalene-d8	59	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: MSH-SLP17-051099

GC/MS Semivolatiles

Lot-Sample #...: D9E110126-008 Work Order #...: CVLWJ201 Matrix.....: WATER
Date Sampled...: 05/10/99 Date Received..: 05/11/99
Prep Date.....: 06/01/99 Analysis Date..: 06/11/99
Prep Batch #...: 9152315 Analysis Time..: 23:15
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	2.0 J	3.9	ng/L
Acenaphthene	ND	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	2.6	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	2.0 J	3.1	ng/L
Pyrene	1.5	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	4.8 J	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	35	(10 - 118)
Fluorene d-10	77	(41 - 162)
Naphthalene-d8	61	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W20-051099

GC/MS Semivolatiles

Lot-Sample #...: D9E110126-009 Work Order #...: CVLWQ101 Matrix.....: WATER
Date Sampled...: 05/10/99 15:15 Date Received..: 05/11/99
Prep Date.....: 05/11/99 Analysis Date..: 06/19/99
Prep Batch #...: 9131328 Analysis Time..: 02:54
Dilution Factor: 1
Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	**15**	**6.5**	**ng/L**
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	**17**	**1.3**	**ng/L**
Dibenzofuran	**3.5**	**1.0**	**ng/L**
Fluorene	**7.7**	**1.0**	**ng/L**
Phenanthrene	**18**	**1.3**	**ng/L**
Anthracene	**9.0**	**2.7**	**ng/L**
Carbazole	**15**	**1.9**	**ng/L**
Fluoranthene	**9.0**	**3.1**	**ng/L**
Pyrene	**13**	**1.4**	**ng/L**
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	**2.0 J**	**2.5**	**ng/L**
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	**31**	**0.90**	**ng/L**
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	**5.1**	**5.1**	**ng/L**
2,3-Dihydroindene	**540**	**5.0**	**ng/L**
Benzo(b)thiophene	**31**	**0.90**	**ng/L**
Indole	ND	2.5	ng/L
Acridine	**23**	**6.1**	**ng/L**
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	9.9 *	(10 - 118)
Fluorene d-10	99	(41 - 162)
Naphthalene-d8	52	(21 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W20-051099

GC/MS Semivolatiles

Lot-Sample #...: D9E110126-009 Work Order #...: CVLWQ201 Matrix.....: WATER
Date Sampled...: 05/10/99 15:15 Date Received..: 05/11/99
Prep Date.....: 06/01/99 Analysis Date..: 06/18/99
Prep Batch #...: 9152315 Analysis Time..: 00:22
Dilution Factor: 2

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	2.8	ng/L
Naphthalene	ND	13	ng/L
2-Methylnaphthalene	ND	7.8	ng/L
Acenaphthene	**9.2**	**2.6**	**ng/L**
Dibenzofuran	ND	2.0	ng/L
Fluorene	ND	2.0	ng/L
Phenanthrene	ND	2.6	ng/L
Anthracene	**10**	**5.4**	**ng/L**
Carbazole	**7.6**	**3.8**	**ng/L**
Fluoranthene	**6.7**	**6.2**	**ng/L**
Pyrene	**8.5**	**2.8**	**ng/L**
Benzo(a)anthracene	ND	5.0	ng/L
Chrysene	ND	5.6	ng/L
Benzo(b)fluoranthene	ND	5.0	ng/L
Benzo(k)fluoranthene	ND	4.6	ng/L
Benzo(a)pyrene	ND	4.6	ng/L
Indeno(1,2,3-cd)pyrene	ND	4.2	ng/L
Benzo(ghi)perylene	ND	5.6	ng/L
Indene	**23**	**1.8**	**ng/L**
1-Methylnaphthalene	ND	5.6	ng/L
Benzo(e)pyrene	ND	3.8	ng/L
Biphenyl	ND	8.6	ng/L
Dibenz(a,h)anthracene	ND	3.2	ng/L
Quinoline	ND	14	ng/L
2,3-Benzofuran	**6.0 J**	**10**	**ng/L**
2,3-Dihydroindene	**270**	**10**	**ng/L**
Benzo(b)thiophene	**17**	**1.8**	**ng/L**
Indole	ND	5.0	ng/L
Acridine	**29**	**12**	**ng/L**
Perylene	ND	5.0	ng/L
Dibenzothiophene	**14**	**2.2**	**ng/L**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	19	(10 - 118)
Fluorene d-10	91	(41 - 162)
Naphthalene-d8	51	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W1-051099

GC/MS Semivolatiles

Lot-Sample #...: D9E110126-010 Work Order #...: CVLWT101 Matrix.....: WATER
Date Sampled...: 05/10/99 16:00 Date Received..: 05/11/99
Prep Date.....: 05/13/99 Analysis Date..: 06/17/99
Prep Batch #...: 9133344 Analysis Time..: 18:53
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	35	6.5	ng/L
2-Methylnaphthalene	14	3.9	ng/L
Acenaphthene	17	1.3	ng/L
Dibenzofuran	7.4	1.0	ng/L
Fluorene	6.2	1.0	ng/L
Phenanthrene	16	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	18	1.9	ng/L
Fluoranthene	31	3.1	ng/L
Pyrene	59	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	3.9	2.8	ng/L
Benzo(b)fluoranthene	10	2.5	ng/L
Benzo(k)fluoranthene	1.7 J	2.3	ng/L
Benzo(a)pyrene	7.3	2.3	ng/L
Indeno(1,2,3-cd)pyrene	4.2	2.1	ng/L
Benzo(ghi)perylene	2.5 J	2.8	ng/L
Indene	37	0.90	ng/L
1-Methylnaphthalene	16	2.8	ng/L
Benzo(e)pyrene	2.8	1.9	ng/L
Biphenyl	5.8	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	37	5.0	ng/L
Benzo(b)thiophene	27	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	1.4 J	2.5	ng/L
Dibenzothiophene	2.3	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	11	(10 - 118)
Fluorene d-10	63	(41 - 162)
Naphthalene-d8	45	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

QC DATA ASSOCIATION SUMMARY

D9E110126

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WATER	SW846 8270A SIM		9131328	9131144
	WATER	SW846 8270A SIM		9152315	9173050
002	WATER	SW846 8270A SIM		9131328	9131144
	WATER	SW846 8270A SIM		9152315	9173050
003	WATER	SW846 8270A SIM		9131328	9131144
	WATER	SW846 8270A SIM		9152315	9173050
004	WATER	SW846 8270A SIM		9131328	9131144
	WATER	SW846 8270A SIM		9152315	9173050
005	WATER	SW846 8270A SIM		9131328	9131144
	WATER	SW846 8270A SIM		9152315	9173050
006	WATER	SW846 8270A SIM		9131328	9131144
	WATER	SW846 8270A SIM		9152315	9173050
007	WATER	SW846 8270A SIM		9131328	9131144
	WATER	SW846 8270A SIM		9152315	9173050
008	WATER	SW846 8270A SIM		9131328	9131144
	WATER	SW846 8270A SIM		9152315	9173050
009	WATER	SW846 8270A SIM		9131328	9131144
	WATER	SW846 8270A SIM		9152315	9173050
010	WATER	SW846 8270A SIM		9133344	

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D9E110126 Work Order #...: CVMRD101 Matrix.....: WATER
MB Lot-Sample #: D9E110000-328

Prep Date.....: 05/11/99 Analysis Time..: 20:58
Analysis Date..: 05/26/99 Prep Batch #...: 9131328
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthylene	ND	1.4	ng/L	SW846 8270A SIM
Naphthalene	5.2 J	6.5	ng/L	SW846 8270A SIM
2-Methylnaphthalene	8.5	3.9	ng/L	SW846 8270A SIM
Acenaphthene	ND	1.3	ng/L	SW846 8270A SIM
Dibenzofuran	4.8	1.0	ng/L	SW846 8270A SIM
Fluorene	6.0	1.0	ng/L	SW846 8270A SIM
Phenanthrene	43	1.3	ng/L	SW846 8270A SIM
Anthracene	ND	2.7	ng/L	SW846 8270A SIM
Carbazole	ND	1.9	ng/L	SW846 8270A SIM
Fluoranthene	13	3.1	ng/L	SW846 8270A SIM
Pyrene	6.6	1.4	ng/L	SW846 8270A SIM
Benzo(a)anthracene	ND	2.5	ng/L	SW846 8270A SIM
Chrysene	ND	2.8	ng/L	SW846 8270A SIM
Benzo(b)fluoranthene	ND	2.5	ng/L	SW846 8270A SIM
Benzo(k)fluoranthene	ND	2.3	ng/L	SW846 8270A SIM
Benzo(a)pyrene	ND	2.3	ng/L	SW846 8270A SIM
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L	SW846 8270A SIM
Benzo(ghi)perylene	ND	2.8	ng/L	SW846 8270A SIM
Indene	ND	0.90	ng/L	SW846 8270A SIM
1-Methylnaphthalene	4.9	2.8	ng/L	SW846 8270A SIM
Benzo(e)pyrene	ND	1.9	ng/L	SW846 8270A SIM
Biphenyl	1.9 J	4.3	ng/L	SW846 8270A SIM
Dibenz(a,h)anthracene	ND	1.6	ng/L	SW846 8270A SIM
Quinoline	ND	6.9	ng/L	SW846 8270A SIM
2,3-Benzofuran	ND	5.1	ng/L	SW846 8270A SIM
2,3-Dihydroindene	ND	5.0	ng/L	SW846 8270A SIM
Benzo(b)thiophene	ND	0.90	ng/L	SW846 8270A SIM
Indole	ND	2.5	ng/L	SW846 8270A SIM
Acridine	ND	6.1	ng/L	SW846 8270A SIM
Perylene	ND	2.5	ng/L	SW846 8270A SIM
Dibenzothiophene	ND	1.1	ng/L	SW846 8270A SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	60	(10 - 118)
Fluorene d-10	81	(41 - 162)
Naphthalene-d8	74	(21 - 108)

NOTE(S):

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

J Estimated result. Result is less than RL.

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D9E110126 Work Order #...: CVMRD102-LCS Matrix.....: WATER
LCS Lot-Sample#: D9E110000-328 CVMRD103-LCSD
Prep Date.....: 05/11/99 Analysis Date..:
Prep Batch #...: 9131328 Analysis Time..: 00:00
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Naphthalene	10.0		ng/L	0		SW846 8270A SIM
	10.0		ng/L			SW846 8270A SIM
2-Methylnaphthalene	10.0		ng/L	0		SW846 8270A SIM
	10.0		ng/L			SW846 8270A SIM
Fluorene	10.0		ng/L	0		SW846 8270A SIM
	10.0		ng/L			SW846 8270A SIM
Chrysene	10.0		ng/L	0		SW846 8270A SIM
	10.0		ng/L			SW846 8270A SIM
Indene	10.0		ng/L	0		SW846 8270A SIM
	10.0		ng/L			SW846 8270A SIM
Benzo(e)pyrene	10.0		ng/L	0		SW846 8270A SIM
	10.0		ng/L			SW846 8270A SIM
Quinoline	10.0		ng/L	0		SW846 8270A SIM
	10.0		ng/L			SW846 8270A SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12		(10 - 118)
		(10 - 118)
Fluorene d-10		(41 - 162)
		(41 - 162)
Naphthalene-d8		(21 - 108)
		(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D9E110126 Work Order #...: CVMRD102-LCS Matrix.....: WATER
LCS Lot-Sample#: D9E110000-328 CVMRD103-LCSD
Prep Date.....: 05/11/99 Analysis Date..:
Prep Batch #...: 9131328 Analysis Time..: 00:00
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Naphthalene	**0**	**(20 - 150)**			**SW846 8270A SIM**
		(20 - 150)		**(0-20)**	**SW846 8270A SIM**
2-Methylnaphthalene	**0**	**(20 - 150)**			**SW846 8270A SIM**
		(20 - 150)		**(0-20)**	**SW846 8270A SIM**
Fluorene	**0**	**(69 - 118)**			**SW846 8270A SIM**
		(69 - 118)		**(0-20)**	**SW846 8270A SIM**
Chrysene	**0**	**(20 - 132)**			**SW846 8270A SIM**
		(20 - 132)		**(0-20)**	**SW846 8270A SIM**
Indene	**0**	**(20 - 150)**			**SW846 8270A SIM**
		(20 - 150)		**(0-20)**	**SW846 8270A SIM**
Benzo(e)pyrene	**0**	**(20 - 150)**			**SW846 8270A SIM**
		(20 - 150)		**(0-20)**	**SW846 8270A SIM**
Quinoline	**0**	**(20 - 150)**			**SW846 8270A SIM**
		(20 - 150)		**(0-20)**	**SW846 8270A SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12		(10 - 118)
		(10 - 118)
Fluorene d-10		(41 - 162)
		(41 - 162)
Naphthalene-d8		(21 - 108)
		(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D9E110126 Work Order #...: CVLW7102-MS Matrix.....: WATER
MS Lot-Sample #: D9E110126-001 CVLW7103-MSD
Date Sampled...: 05/10/99 Date Received..: 05/11/99
Prep Date.....: 05/11/99 Analysis Date..: 06/18/99
Prep Batch #...: 9131328 Analysis Time..: 20:59
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Naphthalene	14	10.9	25.0	ng/L	102		SW846 8270A SIM
	14	10.1	17.7 p	ng/L	37	27	SW846 8270A SIM
2-Methylnaphthalene	2.2	10.9	11.9	ng/L	90		SW846 8270A SIM
	2.2	10.1	7.28 p	ng/L	51	42	SW846 8270A SIM
Fluorene	3.0	10.9	11.5	ng/L	78		SW846 8270A SIM
	3.0	10.1	9.32 a	ng/L	62	14	SW846 8270A SIM
Chrysene	ND	10.9		ng/L	0.0		SW846 8270A SIM
	ND	10.1		ng/L	0.0	0.0	SW846 8270A SIM
Indene	14	10.9	24.0	ng/L	95		SW846 8270A SIM
	14	10.1	19.4	ng/L	58	14	SW846 8270A SIM
Benzo(e)pyrene	ND	10.9		ng/L	0.0		SW846 8270A SIM
	ND	10.1	1.50 a,	ng/L	15	200	SW846 8270A SIM
Quinoline	ND	10.9	13.6	ng/L	125		SW846 8270A SIM
	ND	10.1	11.2	ng/L	111	12	SW846 8270A SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	17	(10 - 118)
	17	(10 - 118)
Fluorene d-10	69	(41 - 162)
	71	(41 - 162)
Naphthalene-d8	61	(21 - 108)
	54	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

p Relative percent difference (RPD) is outside stated control limits

a Spiked analyte recovery is outside stated control limits

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D9E110126 **Work Order #...:** CVLW7102-MS **Matrix.....:** WATER
MS Lot-Sample #: D9E110126-001 CVLW7103-MSD
Date Sampled...: 05/10/99 **Date Received..:** 05/11/99
Prep Date.....: 05/11/99 **Analysis Date..:** 06/18/99
Prep Batch #...: 9131328 **Analysis Time..:** 20:59
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Naphthalene	**102**	**(20 - 150)**			**SW846 8270A SIM**
	37 p	**(20 - 150)**	**27**	**(0-20)**	**SW846 8270A SIM**
2-Methylnaphthalene	**90**	**(20 - 150)**			**SW846 8270A SIM**
	51 p	**(20 - 150)**	**42**	**(0-20)**	**SW846 8270A SIM**
Fluorene	**78**	**(69 - 118)**			**SW846 8270A SIM**
	62 a	**(69 - 118)**	**14**	**(0-20)**	**SW846 8270A SIM**
Chrysene	**0.0**	**(20 - 132)**			**SW846 8270A SIM**
	0.0	**(20 - 132)**	**0.0**	**(0-20)**	**SW846 8270A SIM**
Indene	**95**	**(20 - 150)**			**SW846 8270A SIM**
	58	**(20 - 150)**	**14**	**(0-20)**	**SW846 8270A SIM**
Benzo(e)pyrene	**0.0**	**(20 - 150)**			**SW846 8270A SIM**
	15 a,p	**(20 - 150)**	**200**	**(0-20)**	**SW846 8270A SIM**
Quinoline	**125**	**(20 - 150)**			**SW846 8270A SIM**
	111	**(20 - 150)**	**12**	**(0-20)**	**SW846 8270A SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	17	(10 - 118)
	17	(10 - 118)
Fluorene d-10	69	(41 - 162)
	71	(41 - 162)
Naphthalene-d8	61	(21 - 108)
	54	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

p Relative percent difference (RPD) is outside stated control limits

a Spiked analyte recovery is outside stated control limits.

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D9E110126 Work Order #...: CWE3P101 Matrix.....: WATER
MB Lot-Sample #: D9F010000-315

Prep Date.....: 06/01/99 Analysis Time..: 15:21
Analysis Date..: 06/11/99 Prep Batch #...: 9152315
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthylene	ND	1.4	ng/L	SW846 8270A SIM
Naphthalene	ND	6.5	ng/L	SW846 8270A SIM
2-Methylnaphthalene	ND	3.9	ng/L	SW846 8270A SIM
Acenaphthene	ND	1.3	ng/L	SW846 8270A SIM
Dibenzofuran	ND	1.0	ng/L	SW846 8270A SIM
Fluorene	ND	1.0	ng/L	SW846 8270A SIM
Phenanthrene	2.4	1.3	ng/L	SW846 8270A SIM
Anthracene	ND	2.7	ng/L	SW846 8270A SIM
Carbazole	ND	1.9	ng/L	SW846 8270A SIM
Fluoranthene	ND	3.1	ng/L	SW846 8270A SIM
Pyrene	ND	1.4	ng/L	SW846 8270A SIM
Benzo(a)anthracene	ND	2.5	ng/L	SW846 8270A SIM
Chrysene	ND	2.8	ng/L	SW846 8270A SIM
Benzo(b)fluoranthene	ND	2.5	ng/L	SW846 8270A SIM
Benzo(k)fluoranthene	ND	2.3	ng/L	SW846 8270A SIM
Benzo(a)pyrene	ND	2.3	ng/L	SW846 8270A SIM
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L	SW846 8270A SIM
Benzo(ghi)perylene	ND	2.8	ng/L	SW846 8270A SIM
Indene	ND	0.90	ng/L	SW846 8270A SIM
1-Methylnaphthalene	ND	2.8	ng/L	SW846 8270A SIM
Benzo(e)pyrene	ND	1.9	ng/L	SW846 8270A SIM
Biphenyl	ND	4.3	ng/L	SW846 8270A SIM
Dibenz(a,h)anthracene	ND	1.6	ng/L	SW846 8270A SIM
Quinoline	ND	6.9	ng/L	SW846 8270A SIM
2,3-Benzofuran	ND	5.1	ng/L	SW846 8270A SIM
2,3-Dihydroindene	ND	5.0	ng/L	SW846 8270A SIM
Benzo(b)thiophene	ND	0.90	ng/L	SW846 8270A SIM
Indole	ND	2.5	ng/L	SW846 8270A SIM
Acridine	ND	6.1	ng/L	SW846 8270A SIM
Perylene	ND	2.5	ng/L	SW846 8270A SIM
Dibenzothiophene	ND	1.1	ng/L	SW846 8270A SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	68	(10 - 118)
Fluorene d-10	76	(41 - 162)
Naphthalene-d8	64	(21 - 108)

NOTE(S):
Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D9E110126 Work Order #...: CWE3P102-LCS Matrix.....: WATER
LCS Lot-Sample#: D9F010000-315 CWE3P103-LCSD
Prep Date.....: 06/01/99 Analysis Date..: 06/11/99
Prep Batch #...: 9152315 Analysis Time..: 15:58
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Naphthalene	10.0	9.52	ng/L	95		SW846 8270A SIM
	10.0	8.91	ng/L	89	6.7	SW846 8270A SIM
2-Methylnaphthalene	10.0	8.57	ng/L	86		SW846 8270A SIM
	10.0	8.22	ng/L	82	4.2	SW846 8270A SIM
Fluorene	10.0	7.38	ng/L	74		SW846 8270A SIM
	10.0	7.15	ng/L	71	3.2	SW846 8270A SIM
Chrysene	10.0	6.02	ng/L	60		SW846 8270A SIM
	10.0	6.50	ng/L	65	7.8	SW846 8270A SIM
Indene	10.0	7.77	ng/L	78		SW846 8270A SIM
	10.0	6.98	ng/L	70	11	SW846 8270A SIM
Benzo(e)pyrene	10.0	6.62	ng/L	66		SW846 8270A SIM
	10.0	7.33	ng/L	73	10	SW846 8270A SIM
Quinoline	10.0	6.36	ng/L	64		SW846 8270A SIM
	10.0	7.19	ng/L	72	12	SW846 8270A SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	70	(10 - 118)
	75	(10 - 118)
Fluorene d-10	77	(41 - 162)
	75	(41 - 162)
Naphthalene-d8	66	(21 - 108)
	63	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D9E110126 Work Order #...: CWE3P102-LCS Matrix.....: WATER
LCS Lot-Sample#: D9F010000-315 CWE3P103-LCSD
Prep Date.....: 06/01/99 Analysis Date..: 06/11/99
Prep Batch #...: 9152315 Analysis Time..: 15:58
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Naphthalene	**95**	**(20 - 150)**			**SW846 8270A SIM**
	89	**(20 - 150)**	**6.7**	**(0-20)**	**SW846 8270A SIM**
2-Methylnaphthalene	**86**	**(20 - 150)**			**SW846 8270A SIM**
	82	**(20 - 150)**	**4.2**	**(0-20)**	**SW846 8270A SIM**
Fluorene	**74**	**(69 - 118)**			**SW846 8270A SIM**
	71	**(69 - 118)**	**3.2**	**(0-20)**	**SW846 8270A SIM**
Chrysene	**60**	**(20 - 132)**			**SW846 8270A SIM**
	65	**(20 - 132)**	**7.8**	**(0-20)**	**SW846 8270A SIM**
Indene	**78**	**(20 - 150)**			**SW846 8270A SIM**
	70	**(20 - 150)**	**11**	**(0-20)**	**SW846 8270A SIM**
Benzo(e)pyrene	**66**	**(20 - 150)**			**SW846 8270A SIM**
	73	**(20 - 150)**	**10**	**(0-20)**	**SW846 8270A SIM**
Quinoline	**64**	**(20 - 150)**			**SW846 8270A SIM**
	72	**(20 - 150)**	**12**	**(0-20)**	**SW846 8270A SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	70	(10 - 118)
	75	(10 - 118)
Fluorene d-10	77	(41 - 162)
	75	(41 - 162)
Naphthalene-d8	66	(21 - 108)
	63	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D9E110126 Work Order #...: CVLW7104-MS Matrix.....: WATER
MS Lot-Sample #: D9E110126-001 CVLW7105-MSD
Date Sampled...: 05/10/99 Date Received..: 05/11/99
Prep Date.....: 06/01/99 Analysis Date..: 06/11/99
Prep Batch #...: 9152315 Analysis Time..: 17:46
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Naphthalene	13	10.2	21.2	ng/L	84		SW846 8270A SIM
	13	10.2	19.3	ng/L	66	9.5	SW846 8270A SIM
2-Methylnaphthalene	ND	10.2	8.56	ng/L	84		SW846 8270A SIM
	ND	10.2	7.76	ng/L	76	10	SW846 8270A SIM
Fluorene	2.0	10.2	10.1	ng/L	80		SW846 8270A SIM
	2.0	10.2	8.58 a	ng/L	65	16	SW846 8270A SIM
Chrysene	ND	10.2	4.49	ng/L	44		SW846 8270A SIM
	ND	10.2	2.37 p	ng/L	23	62	SW846 8270A SIM
Indene	14	10.2	23.3	ng/L	91		SW846 8270A SIM
	14	10.2	21.8	ng/L	76	6.9	SW846 8270A SIM
Benzo(e)pyrene	ND	10.2	3.70	ng/L	36		SW846 8270A SIM
	ND	10.2	2.17 p	ng/L	21	52	SW846 8270A SIM
Quinoline	4.8	10.2	11.3	ng/L	64		SW846 8270A SIM
	4.8	10.2	13.0	ng/L	81	13	SW846 8270A SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	50	(10 - 118)
	25	(10 - 118)
Fluorene d-10	76	(41 - 162)
	82	(41 - 162)
Naphthalene-d8	65	(21 - 108)
	57	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits

p Relative percent difference (RPD) is outside stated control limits

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D9E110126 Work Order #...: CVLW7104-MS Matrix.....: WATER
MS Lot-Sample #: D9E110126-001 CVLW7105-MSD
Date Sampled...: 05/10/99 Date Received..: 05/11/99
Prep Date.....: 06/01/99 Analysis Date..: 06/11/99
Prep Batch #...: 9152315 Analysis Time..: 17:46
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Naphthalene	84	(20 - 150)			SW846 8270A SIM
	66	(20 - 150)	9.5	(0-20)	SW846 8270A SIM
2-Methylnaphthalene	84	(20 - 150)			SW846 8270A SIM
	76	(20 - 150)	10	(0-20)	SW846 8270A SIM
Fluorene	80	(69 - 118)			SW846 8270A SIM
	65 a	(69 - 118)	16	(0-20)	SW846 8270A SIM
Chrysene	44	(20 - 132)			SW846 8270A SIM
	23 p	(20 - 132)	62	(0-20)	SW846 8270A SIM
Indene	91	(20 - 150)			SW846 8270A SIM
	76	(20 - 150)	6.9	(0-20)	SW846 8270A SIM
Benzo(e)pyrene	36	(20 - 150)			SW846 8270A SIM
	21 p	(20 - 150)	52	(0-20)	SW846 8270A SIM
[illegible]inoline	64	(20 - 150)			SW846 8270A SIM
	81	(20 - 150)	13	(0-20)	SW846 8270A SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	50	(10 - 118)
	25	(10 - 118)
Fluorene d-10	76	(41 - 162)
	82	(41 - 162)
Naphthalene-d8	65	(21 - 108)
	57	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

p Relative percent difference (RPD) is outside stated control limits.

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D9E110126
MB Lot-Sample #: D9E130000-344
Analysis Date..: 05/26/99
Dilution Factor: 1

Work Order #...: CVQVX101
Prep Date.....: 05/13/99
Prep Batch #...: 9133344

Matrix.....: WATER
Analysis Time..: 22:09

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthylene	ND	1.4	ng/L	SW846 8270A SIM
Naphthalene	**6.7**	**6.5**	**ng/L**	**SW846 8270A SIM**
2-Methylnaphthalene	**4.4**	**3.9**	**ng/L**	**SW846 8270A SIM**
Acenaphthene	ND	1.3	ng/L	SW846 8270A SIM
Dibenzofuran	ND	1.0	ng/L	SW846 8270A SIM
Fluorene	ND	1.0	ng/L	SW846 8270A SIM
Phenanthrene	**5.2**	**1.3**	**ng/L**	**SW846 8270A SIM**
Anthracene	ND	2.7	ng/L	SW846 8270A SIM
Carbazole	ND	1.9	ng/L	SW846 8270A SIM
Fluoranthene	**1.6 J**	**3.1**	**ng/L**	**SW846 8270A SIM**
Pyrene	ND	1.4	ng/L	SW846 8270A SIM
Benzo(a)anthracene	ND	2.5	ng/L	SW846 8270A SIM
Chrysene	ND	2.8	ng/L	SW846 8270A SIM
Benzo(b)fluoranthene	ND	2.5	ng/L	SW846 8270A SIM
Benzo(k)fluoranthene	ND	2.3	ng/L	SW846 8270A SIM
Benzo(a)pyrene	ND	2.3	ng/L	SW846 8270A SIM
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L	SW846 8270A SIM
Benzo(ghi)perylene	ND	2.8	ng/L	SW846 8270A SIM
Indene	**2.6**	**0.90**	**ng/L**	**SW846 8270A SIM**
1-Methylnaphthalene	**4.7**	**2.8**	**ng/L**	**SW846 8270A SIM**
Benzo(e)pyrene	ND	1.9	ng/L	SW846 8270A SIM
Biphenyl	ND	4.3	ng/L	SW846 8270A SIM
Dibenz(a,h)anthracene	ND	1.6	ng/L	SW846 8270A SIM
Quinoline	ND	6.9	ng/L	SW846 8270A SIM
2,3-Benzofuran	ND	5.1	ng/L	SW846 8270A SIM
2,3-Dihydroindene	**3.2 J**	**5.0**	**ng/L**	**SW846 8270A SIM**
Benzo(b)thiophene	ND	0.90	ng/L	SW846 8270A SIM
Indole	ND	2.5	ng/L	SW846 8270A SIM
Acridine	ND	6.1	ng/L	SW846 8270A SIM
Perylene	ND	2.5	ng/L	SW846 8270A SIM
Dibenzothiophene	**1.4**	**1.1**	**ng/L**	**SW846 8270A SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	68	(10 - 118)
Fluorene d-10	99	(41 - 162)
Naphthalene-d8	92	(21 - 108)

NOTE(S):

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

J Estimated result. Result is less than RL.

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D9E110126 Work Order #...: CVQVX102-LCS Matrix.....: WATER
LCS Lot-Sample#: D9E130000-344 CVQVX103-LCSD
Prep Date.....: 05/13/99 Analysis Date..: 06/17/99
Prep Batch #...: 9133344 Analysis Time..: 17:39
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Naphthalene	10.0	7.22	ng/L	72		SW846 8270A SIM
	10.0	6.99	ng/L	70	3.3	SW846 8270A SIM
2-Methylnaphthalene	10.0	7.53	ng/L	75		SW846 8270A SIM
	10.0	6.91	ng/L	69	8.6	SW846 8270A SIM
Fluorene	10.0	6.81 a	ng/L	68		SW846 8270A SIM
	10.0	6.65 a	ng/L	66	2.4	SW846 8270A SIM
Chrysene	10.0	3.56	ng/L	36		SW846 8270A SIM
	10.0	3.32	ng/L	33	6.9	SW846 8270A SIM
Indene	10.0	5.92	ng/L	59		SW846 8270A SIM
	10.0	6.35	ng/L	63	7.0	SW846 8270A SIM
Benzo(e)pyrene	10.0	4.93	ng/L	49		SW846 8270A SIM
	10.0	4.58	ng/L	46	7.2	SW846 8270A SIM
Quinoline	10.0	9.96	ng/L	100		SW846 8270A SIM
	10.0	9.24	ng/L	92	7.5	SW846 8270A SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	39	(10 - 118)
	37	(10 - 118)
Fluorene d-10	79	(41 - 162)
	76	(41 - 162)
Naphthalene-d8	60	(21 - 108)
	61	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D9E110126 **Work Order #...:** CVQVX102-LCS **Matrix.....:** WATER
LCS Lot-Sample#: D9E130000-344 CVQVX103-LCSD
Prep Date.....: 05/13/99 **Analysis Date..:** 06/17/99
Prep Batch #...: 9133344 **Analysis Time..:** 17:39
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Naphthalene	**72**	**(20 - 150)**			**SW846 8270A SIM**
	70	**(20 - 150)**	**3.3**	**(0-20)**	**SW846 8270A SIM**
2-Methylnaphthalene	**75**	**(20 - 150)**			**SW846 8270A SIM**
	69	**(20 - 150)**	**8.6**	**(0-20)**	**SW846 8270A SIM**
Fluorene	**68 a**	**(69 - 118)**			**SW846 8270A SIM**
	66 a	**(69 - 118)**	**2.4**	**(0-20)**	**SW846 8270A SIM**
Chrysene	**36**	**(20 - 132)**			**SW846 8270A SIM**
	33	**(20 - 132)**	**6.9**	**(0-20)**	**SW846 8270A SIM**
Indene	**59**	**(20 - 150)**			**SW846 8270A SIM**
	63	**(20 - 150)**	**7.0**	**(0-20)**	**SW846 8270A SIM**
Benzo(e)pyrene	**49**	**(20 - 150)**			**SW846 8270A SIM**
	46	**(20 - 150)**	**7.2**	**(0-20)**	**SW846 8270A SIM**
Quinoline	**100**	**(20 - 150)**			**SW846 8270A SIM**
	92	**(20 - 150)**	**7.5**	**(0-20)**	**SW846 8270A SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	39	(10 - 118)
	37	(10 - 118)
Fluorene d-10	79	(41 - 162)
	76	(41 - 162)
Naphthalene-d8	60	(21 - 108)
	61	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits

Chain of Custody Record

Quanterra

QUA-4124

Client	CITY OF ST. LOUIS PARK UTILITY DIVISION
Address	3752 WOODDALE AVENUE ST. LOUIS PARK, MN 55416
City	
Project Name	SAME
Contract/Purchase Order/Quote No	
Project Manager	SCOTT ANDERSON
Telephone Number (Area Code)/Fax Number	924-2557 (612) 924-2570
Site Contact	SAME
Carrier/Waybill Number	FED EX 800846316621
Date	5-10-99
Lab Number	DAE110126
Chain Of Custody Number	39674
Page ____ of ____	

Sample I.D No and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: PPT PAH 5
MSH-SLP II -051099	5-10-99		WATER	1 LITER	AMBER	6	N/A		X
MSH-SLP IID-051099	5-10-99		WATER	1 LITER	AMBER	6	N/A		X

Special Instructions: PPT 5 Cooler CSI 0015 temp 1.8°C

Possible Hazard Identification: [X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown

Sample Disposal: [ ] Return To Client [X] Disposal By Lab [ ] Archive For ____ Months

Turn Around Time Required: [ ] Normal [ ] Rush

QC Level: [ ] I. [ ] II. [ ] III.

Project Specific (Specify):

	Date	Time		Date	Time
1 Relinquished By: MZK	5-10-99	1400	1 Received By: Kurt C. Ill	5/11/99	0830
2 Relinquished By			2 Received By		
3 Relinquished By			3 Received By		

Comments

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

Chain of Custody Record

Quanterra

QUA-4124

Client: CITY OF ST. LOUIS PARK UTILITY DIVISION 3752 WOODDALE AVENUE ST. LOUIS PARK, MN 55416	Project Manager: SCOTT ANDERSON	Date: 5-10-99	Chain Of Custody Number: 39677
Address	Telephone Number (Area Code)/Fax Number: 924-2557 (612) 924-2570	Lab Number: DAE110126	Page ____ of ____
City	Site Contact: SAME		
Project Name: SAME	Carrier/Waybill Number: FED EX 800846316621		
Contract/Purchase Order/Quote No			

Sample I.D No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: PPT PAH 5
MSH-SLP 11MS-051099	5-10-99		WATER	1 LITER	AMBER	6	N/A		X
MSH-SLP 11MSD-051099	5-10-99		WATER	1 LITER	AMBER	6	N/A		X

Special Instructions: PPT 5 Cooler CSLP 0004 temp 1.1°C

Possible Hazard Identification: [X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown

Sample Disposal: [ ] Return To Client [X] Disposal By Lab [ ] Archive For ____ Months

Turn Around Time Required: [ ] Normal [ ] Rush

QC Level: [ ] I. [ ] II. [ ] III.

Project Specific (Specify)

	Date	Time		Date	Time
1 Relinquished By: M2 [signature]	5-10-99	0400	1 Received By: Kurt C. [signature]	5/11/99	0830
2 Relinquished By			2 Received By		
3 Relinquished By			3 Received By		

Comments

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

Chain of Custody Record

Quanterra

QUA-4124

Client: CITY OF ST. LOUIS PARK UTILITY DIVISION	Project Manager: SCOTT ANDERSON	Date: 5-10-99	Chain Of Custody Number: 39678
Address: 3752 WOODDALE AVENUE	Telephone Number (Area Code)/Fax Number: 924-2557 (612) 924-2570	Lab Number: DAE110124	Page ____ of ____
City: ST. LOUIS PARK, MN 55416	Site Contact: SAME		
Project Name: SAME	Carrier/Waybill Number: FED EX 800846316621		
Contract/Purchase Order/Quote No			

Sample I.D. No and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: PPL PAH 5
MSH-SLP 11 FB-051099	5-10-99		WATER	1 LITER	AMBER	6	N/A		X
MSH-SLP 11 FBD-051099	5-10-99		WATER	1 LITER	AMBER	6	N/A		X

Special Instructions: PPL 5 Cooler CSLP 0010 temp 1.8°C

Possible Hazard Identification: [X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown

Sample Disposal: [ ] Return To Client [X] Disposal By Lab [ ] Archive For ____ Months

Turn Around Time Required: [ ] Normal [ ] Rush

QC Level: [ ] I. [ ] II. [ ] III.

Project Specific (Specify):

1 Relinquished By: MZK	Date: 5-10-99	Time: 1400	1 Received By: Kurt C. [illegible]	Date: 5/11/99	Time: 0830
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 Sample, CANARY - Returned to Client with Report, PINK - Field Copy

Chain of Custody Record

Quanterra

QUA-4124

Client: City of St. Louis Park	Project Manager: Bill Gregg	Date: 5/10/99	Chain Of Custody Number: 39683
Address: 3752 Wooddale Ave	Telephone Number (Area Code)/Fax Number: (612) 924-2557	Lab Number: D9E110126	Page 1 of 1
City: St. Louis Park; State: MN; Zip Code: 55416	Site Contact: Scott Anderson		
Project Name: St. Louis Park - Reilly	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No:			

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: XXPT-PAH(PPES)
DPV-W18-051099	5/10/99	13:15	WT	6L	1 liter	6			
DPV-W19-051099	↓	14:15	↓	↓	↓	↓			

Special Instructions: Cooler CSLP 0002 temp 1.7°C

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

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Turn Around Time Required: ☐ Normal ☐ Rush

QC Level: ☐ I. ☐ II. ☐ III.

Project Specific (Specify):

1 Relinquished By: Chris Boe	Date: 5/10/99	Time: 16:00	1 Received By: Kurt C. Dell	Date: 5/11/99	Time: 0830
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 Sample, CANARY - Returned to Client with Report, PINK - Field Copy

Chain of Custody Record

Quanterra

QUA-4124

Client: CITY OF ST. LOUIS PARK UTILITY DIVISION	Project Manager: Scott Anderson	Date: 5-10-99	Chain Of Custody Number: 39681
Address: 3752 WOODDALE AVENUE	Telephone Number (Area Code)/Fax Number: 924-2557 (612) 924-2570	Lab Number: D9E110126	Page ____ of ____
City: ST. LOUIS PARK, MN 55416	Site Contact: SAME		
Project Name: SAME	Carrier/Waybill Number: FED EX 800846316621		
Contract/Purchase Order/Quote No			

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: PPT PAHS
MSH-SLP13-051099	5-10-99		WATER	1 LITER	AMBER	6	N/A		X
MSH-SLP17-051099	5-10-99		WATER	1 LITER	AMBER	6	N/A		X

Special Instructions: PPT 5 Cadm CSLP 0002 Temp 0.8°C

Possible Hazard Identification: [X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown

Sample Disposal: [ ] Return To Client [X] Disposal By Lab [ ] Archive For ____ Months

Turn Around Time Required: [ ] Normal [ ] Rush

QC Level: [ ] I. [ ] II. [ ] III.

Project Specific (Specify)

	Date	Time		Date	Time
1. Relinquished By: MZF	5-10-99	1400	1 Received By: Kurt C. [illegible]	5/11/99	0830
2 Relinquished By			2 Received By		
3 Relinquished By			3 Received By		

Comments

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

Chain of Custody Record

Quanterra

QUA-4124

Client: City of St. Louis Park	Project Manager: Bill Gregg	Date: 5/10/99	Chain Of Custody Number: 39682
Address: 3752 Wooddale Ave	Telephone Number (Area Code)/Fax Number: ~~XX~~ (612) 924-2557	Lab Number: D9E110126	Page 1 of 1
City: St. Louis Park; State: MN; Zip Code: 55416	Site Contact: Scott Anderson		
Project Name: St. Louis Park - Richy	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No:			

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: XX PPT-PAH(PPT-5)
9 PV ~~DPF~~-W20-051099	5/10/99	15:15	WT	6L	1L	6			X
10 DPV-W1-051099	5/10/99	16:00	↓	↓	↓	↓			X

Special Instructions: Cooler ~~CSLP~~ QD111 temp 1.4°C

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

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Turn Around Time Required: ☐ Normal ☐ Rush

QC Level: ☐ I. ☐ II. ☐ III.

Project Specific (Specify):

	Date	Time		Date	Time
1 Relinquished By: Chris Boehm	5/10/99	16:00	1 Received By: Kurt C. Ill	5/11/99	0830
2 Relinquished By:			2 Received By:		
3 Relinquished By:			3 Received By:		

Comments:

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

G

PCJ
DPV

Quanterra

Advanced Analytical Services

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 467-9136 Fax

CASE NARRATIVE

FOR

City of St. Louis Park

June 28, 1999

Quanterra , Inc.

Project Lot Number D9E120122

Introduction

Thirteen aqueous samples (including matrix QC) were received at Quanterra Environmental Services, Denver Laboratory on May 12, 1999. The samples were logged in under Quanterra Denver's project lot number D9E120122. A cross reference associating Quanterra Denver's laboratory sample numbers to the actual field sample number is included. The samples were analyzed for part per trillion (ppt) PAHs.

Three 1L amber bottles of sample PCJ-W124-051199 were broken in transit. The well was resampled on May 12, 1999 and received on May 13, 1999.

The sample Id's for the following wells were changed per ENSR (fax attached) due to errors on the chains of custody forms: W431, W121, W130, W124 and W428 from PCJ prefixes to DPV prefixes.

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the October 1998 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 laboratory Id's D9E120122-001, -001MS, -001MSD, -002, –008 and –010 were analyzed at a dilution due to target analytes exceeding the linear range of the instrument. The reporting limits were adjusted accordingly. As a result of the dilutions, the surrogate compounds associated with samples –008 and –010 were not calculated and are reported as "NC".

The surrogate compound chrysene-d12 in sample D9E120122 was recovered at 9.6% which is below the 10% to 118% acceptance criteria. Chrysene-d12 is reported within acceptance criteria for the method blank and laboratory control samples. A possible matrix effect is indicated.

The relative percent difference (RPD) for the spike compounds chrysene and benzo (e) pyrene in the DCSs for batch 9132318 are reported at 32% and 31% respectively which is above the 20% acceptance limit. The RPD for chrysene and benzo (e) pyrene in the matrix spike and matrix spike duplicate samples as well as for sample D9E120122-001 and –002 (field duplicate) are within the 20% acceptance limits. The precision requirements for the batch have been meet.

The compound Indene in the DCSs for batch 9132318 are reported at 194% and 198% recoveries which are above the 20% to 150% acceptance limits. An investigation revealed that the calibration concentration for Indene was approximately 50% of what was entered into the method resulting in biased high results. All other compounds were within accepted recovery ranges. A new calibration curve was prepared and analyzed with the proper Indene concentrations. Samples D9E120122-001, -001MS, -001MSD, -002, -006, -008, -010 and –011 were reanalyzed against the new curve. Samples D9E120122-003 and –004 (field blank and field blank duplicate) contained no Indene above the reporting limit and were not reanalyzed. Samples D9E120122-005, -007 and –009 were reanalyzed but the results could not be used due to internal standards being above the upper allowable limit (extract concentrated while in storage). Indene is reported biased high in these samples.

The DCSs for batch 9133344 has Indene reported above acceptance limits for the same reason as stated above. The DCSs were reanalyzed using the new curve with acceptable Indene results. The DCSs analyzed on 05/29/99 should be used for all compounds except Indene. The DCSs reanalyzed on 06/17/99 should be used for **Indene only**.

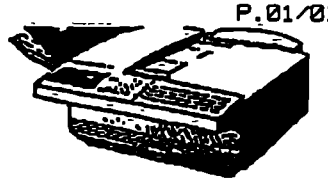
The spike compound Quinoline in the matrix spike sample was recovered at 155% which is above the 20% to 150% acceptance limits. Quinoline was recovered within acceptance limits in the DCSs. A possible matrix effect is indicated.

Except for the above, this data package is in compliance with the terms and conditions of the October 1998 QAPP, both technically and for completeness

Reported By: Kurt C. Ill **Date:** June 28, 1999

Kurt C. Ill
Program Manager

ENSR
ENSR Consulting and Engineering



Facsimile Cover Sheet

TO: Kurt ILL — Name — Firm/Location — 303-431-2121 Fax Number

FROM: Peter Moore — Name — Division/Dept. — Tel. Ext.

DATE: 5/12/99 — Date — 10:45 Time

RE: Change in Sample IDs

COMMENTS:

W431 Change From PCJ Prefix to DPV on Sample ID
W121 " "
W130 " "
W124 (Will Be resampled today)
W 428 change From PCJ Prefix to DPV on Sample ID

Cover Page + — Pages

Accounting No: 1620-013-400

Call **(612) 924-0117** regarding problems with this transmission.

4500 Park Glen Road, Suite 210
St. Louis Park, MN 55416
FAX (612) 924-0317

ANALYTICAL REPORT

PROJECT NO. 7

Reilly Tar & Chemical NPL Site

Lot #: D9E120122

Scott Anderson

City of St. Louis Park

QUANTERRA INCORPORATED

Kurt C. Ill
Project Manager

June 28, 1999

EXECUTIVE SUMMARY - Detection Highlights

D9E120122

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
PCJ-SLP4-051199 05/11/99 001				
Acenaphthene	190	2.6	ng/L	SW846 8270A SIM
Phenanthrene	4.0	2.6	ng/L	SW846 8270A SIM
Carbazole	29	3.8	ng/L	SW846 8270A SIM
Fluoranthene	13	6.2	ng/L	SW846 8270A SIM
Pyrene	12	2.8	ng/L	SW846 8270A SIM
Indene	11	1.8	ng/L	SW846 8270A SIM
2,3-Dihydroindene	170	10	ng/L	SW846 8270A SIM
Benzo(b)thiophene	23	1.8	ng/L	SW846 8270A SIM
	452			
PCJ-SLP4D-051199 05/11/99 002				
Acenaphthene	200	2.6	ng/L	SW846 8270A SIM
Phenanthrene	7.4	2.6	ng/L	SW846 8270A SIM
Carbazole	33	3.8	ng/L	SW846 8270A SIM
Fluoranthene	16	6.2	ng/L	SW846 8270A SIM
Pyrene	15	2.8	ng/L	SW846 8270A SIM
Indene	11	1.8	ng/L	SW846 8270A SIM
Quinoline	9.2 J	14	ng/L	SW846 8270A SIM
2,3-Dihydroindene	170	10	ng/L	SW846 8270A SIM
Benzo(b)thiophene	23	1.8	ng/L	SW846 8270A SIM
PCJ-SLP4FB-051199 05/11/99 003				
Phenanthrene	1.7	1.3	ng/L	SW846 8270A SIM
PCJ-SLP4FBD-051199 05/11/99 004				
Phenanthrene	1.9	1.3	ng/L	SW846 8270A SIM
DPV-W130-051199 05/11/99 10:00 005				
Naphthalene	15	6.5	ng/L	SW846 8270A SIM
Acenaphthene	4.9	1.3	ng/L	SW846 8270A SIM
Phenanthrene	10	1.3	ng/L	SW846 8270A SIM
Anthracene	6.8	2.7	ng/L	SW846 8270A SIM
Carbazole	4.8	1.9	ng/L	SW846 8270A SIM
Fluoranthene	8.4	3.1	ng/L	SW846 8270A SIM
Pyrene	41	1.4	ng/L	SW846 8270A SIM
Benzo(ghi)perylene	3.1	2.8	ng/L	SW846 8270A SIM
Indene	27	0.90	ng/L	SW846 8270A SIM
1-Methylnaphthalene	7.5	2.8	ng/L	SW846 8270A SIM
2,3-Benzofuran	3.6 J	5.1	ng/L	SW846 8270A SIM
2,3-Dihydroindene	8.9	5.0	ng/L	SW846 8270A SIM

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

D9E120122

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
DPV-W130-051199 05/11/99 10:00 005				
Acridine	9.3	6.1	ng/L	SW846 8270A SIM
Dibenzothiophene	1.9	1.1	ng/L	SW846 8270A SIM
DPV-W124-051299 05/12/99 14:15 006				
Naphthalene	6.7	6.5	ng/L	SW846 8270A SIM
2-Methylnaphthalene	4.4	3.9	ng/L	SW846 8270A SIM
Acenaphthene	2.7	1.3	ng/L	SW846 8270A SIM
Dibenzofuran	1.9	1.0	ng/L	SW846 8270A SIM
Fluorene	2.1	1.0	ng/L	SW846 8270A SIM
Phenanthrene	8.7	1.3	ng/L	SW846 8270A SIM
Fluoranthene	4.0	3.1	ng/L	SW846 8270A SIM
Pyrene	10	1.4	ng/L	SW846 8270A SIM
Indene	2.6	0.90	ng/L	SW846 8270A SIM
1-Methylnaphthalene	4.7	2.8	ng/L	SW846 8270A SIM
2,3-Dihydroindene	3.2 J	5.0	ng/L	SW846 8270A SIM
DPV-W424-051199 05/11/99 13:40 007				
Naphthalene	64	6.5	ng/L	SW846 8270A SIM
2-Methylnaphthalene	20	3.9	ng/L	SW846 8270A SIM
Acenaphthene	15	1.3	ng/L	SW846 8270A SIM
Dibenzofuran	5.7	1.0	ng/L	SW846 8270A SIM
Phenanthrene	4.0	1.3	ng/L	SW846 8270A SIM
Carbazole	6.6	1.9	ng/L	SW846 8270A SIM
Pyrene	1.4	1.4	ng/L	SW846 8270A SIM
Indene	64	0.90	ng/L	SW846 8270A SIM
1-Methylnaphthalene	33	2.8	ng/L	SW846 8270A SIM
Biphenyl	5.9	4.3	ng/L	SW846 8270A SIM
2,3-Benzofuran	2.8 J	5.1	ng/L	SW846 8270A SIM
2,3-Dihydroindene	45	5.0	ng/L	SW846 8270A SIM
Indole	6.6	2.5	ng/L	SW846 8270A SIM
Acridine	~~10~~ 14	6.1	ng/L	SW846 8270A SIM
DPV-W428-051199 05/11/99 15:20 008				
Naphthalene	15 J	32	ng/L	SW846 8270A SIM
Acenaphthene	18	6.5	ng/L	SW846 8270A SIM
Fluorene	7.4	5.0	ng/L	SW846 8270A SIM
Phenanthrene	19	6.5	ng/L	SW846 8270A SIM
Anthracene	8.5 J	14	ng/L	SW846 8270A SIM
Carbazole	14	9.5	ng/L	SW846 8270A SIM
Fluoranthene	9.0 J	16	ng/L	SW846 8270A SI

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

D9E120122

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
DPV-W428-051199 05/11/99 15:20 008				
Pyrene	13	7.0	ng/L	SW846 8270A SIM
Indene	31	4.5	ng/L	SW846 8270A SIM
2,3-Dihydroindene	550	25	ng/L	SW846 8270A SIM
Acridine	20 J	30	ng/L	SW846 8270A SIM
DPV-W131-051199 05/11/99 16:55 009				
Acenaphthylene	2.0	1.4	ng/L	SW846 8270A SIM
Naphthalene	69	6.5	ng/L	SW846 8270A SIM
2-Methylnaphthalene	20	3.9	ng/L	SW846 8270A SIM
Acenaphthene	24	1.3	ng/L	SW846 8270A SIM
Dibenzofuran	8.5	1.0	ng/L	SW846 8270A SIM
Fluorene	10	1.0	ng/L	SW846 8270A SIM
Phenanthrene	9.5	1.3	ng/L	SW846 8270A SIM
Carbazole	8.4	1.9	ng/L	SW846 8270A SIM
Fluoranthene	3.9	3.1	ng/L	SW846 8270A SIM
Pyrene	3.0	1.4	ng/L	SW846 8270A SIM
Indene	67	0.90	ng/L	SW846 8270A SIM
1-Methylnaphthalene	42	2.8	ng/L	SW846 8270A SIM
Biphenyl	7.7	4.3	ng/L	SW846 8270A SIM
2,3-Dihydroindene	59	5.0	ng/L	SW846 8270A SIM
Benzo(b)thiophene	22	0.90	ng/L	SW846 8270A SIM
Acridine	4.4 J	6.1	ng/L	SW846 8270A SIM
Dibenzothiophene	1.8	1.1	ng/L	SW846 8270A SIM
DPV-W431-051199 05/11/99 08:00 010				
Naphthalene	27 J	32	ng/L	SW846 8270A SIM
Acenaphthene	41	6.5	ng/L	SW846 8270A SIM
Dibenzofuran	13	5.0	ng/L	SW846 8270A SIM
Fluorene	13	5.0	ng/L	SW846 8270A SIM
Phenanthrene	26	6.5	ng/L	SW846 8270A SIM
Anthracene	8.8 J	14	ng/L	SW846 8270A SIM
Fluoranthene	17	16	ng/L	SW846 8270A SIM
Pyrene	28	7.0	ng/L	SW846 8270A SIM
Indene	14	4.5	ng/L	SW846 8270A SIM
2,3-Dihydroindene	260	25	ng/L	SW846 8270A SIM
Benzo(b)thiophene	12	4.5	ng/L	SW846 8270A SIM
Acridine	130	30	ng/L	SW846 8270A SIM

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

D9E120122

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
DPV-W121-051199 05/11/99 09:10 011				
Naphthalene	43	6.5	ng/L	SW846 8270A SIM
2-Methylnaphthalene	13	3.9	ng/L	SW846 8270A SIM
Acenaphthene	14	1.3	ng/L	SW846 8270A SIM
Dibenzofuran	5.2	1.0	ng/L	SW846 8270A SIM
Fluorene	5.4	1.0	ng/L	SW846 8270A SIM
Phenanthrene	4.5	1.3	ng/L	SW846 8270A SIM
Anthracene	1.2 J	2.7	ng/L	SW846 8270A SIM
Carbazole	7.4	1.9	ng/L	SW846 8270A SIM
Fluoranthene	2.1 J	3.1	ng/L	SW846 8270A SIM
Pyrene	1.4	1.4	ng/L	SW846 8270A SIM
Indene	22	0.90	ng/L	SW846 8270A SIM
1-Methylnaphthalene	25	2.8	ng/L	SW846 8270A SIM
Biphenyl	4.1 J	4.3	ng/L	SW846 8270A SIM
2,3-Dihydroindene	38	5.0	ng/L	SW846 8270A SIM
Acridine	30	6.1	ng/L	SW846 8270A SIM

ANALYTICAL METHODS SUMMARY

D9E120122

PARAMETER	ANALYTICAL METHOD
Base/Neutrals and Acids	SW846 8270A SIM

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

METHOD / ANALYST SUMMARY

D9E120122

ANALYTICAL METHOD	ANALYST	ANALYST ID
SW846 8270A SIM	Monica R. Edwards	001685

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

D9E120122

WO #	SAMPLE#	CLIENT SAMPLE ID	DATE	TIME
CVNAQ	001	PCJ-SLP4-051199	05/11/99	
CVNC0	002	PCJ-SLP4D-051199	05/11/99	
CVNC3	003	PCJ-SLP4FB-051199	05/11/99	
CVNC5	004	PCJ-SLP4FBD-051199	05/11/99	
CVNC9	005	DPV-W130-051199	05/11/99	10:00
CVNCC	006	DPV-W124-051299	05/12/99	14:15
CVNCE	007	DPV-W424-051199	05/11/99	13:40
CVNCG	008	DPV-W428-051199	05/11/99	15:20
CVNCP	009	DPV-W131-051199	05/11/99	16:55
CVNCR	010	DPV-W431-051199	05/11/99	08:00
CVNCW	011	DPV-W121-051199	05/11/99	09:10

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-SLP4-051199

GC/MS Semivolatiles

Lot-Sample #...: D9E120122-001 **Work Order #...:** CVNAQ101 **Matrix.....:** WATER
Date Sampled...: 05/11/99 **Date Received..:** 05/12/99
Prep Date.....: 05/12/99 **Analysis Date..:** 06/21/99
Prep Batch #...: 9132318 **Analysis Time..:** 20:04
Dilution Factor: 2

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	2.8	ng/L
Naphthalene	ND	13	ng/L
2-Methylnaphthalene	ND	7.8	ng/L
Acenaphthene	**190**	**2.6**	**ng/L**
Dibenzofuran	ND	2.0	ng/L
Fluorene	ND	2.0	ng/L
Phenanthrene	**4.0**	**2.6**	**ng/L**
Anthracene	ND	5.4	ng/L
Carbazole	**29**	**3.8**	**ng/L**
Fluoranthene	**13**	**6.2**	**ng/L**
Pyrene	**12**	**2.8**	**ng/L**
Benzo(a)anthracene	ND	5.0	ng/L
Chrysene	ND	5.6	ng/L
Benzo(b)fluoranthene	ND	5.0	ng/L
Benzo(k)fluoranthene	ND	4.6	ng/L
Benzo(a)pyrene	ND	4.6	ng/L
Indeno(1,2,3-cd)pyrene	ND	4.2	ng/L
Benzo(ghi)perylene	ND	5.6	ng/L
Indene	**11**	**1.8**	**ng/L**
1-Methylnaphthalene	ND	5.6	ng/L
Benzo(e)pyrene	ND	3.8	ng/L
Biphenyl	ND	8.6	ng/L
Dibenz(a,h)anthracene	ND	3.2	ng/L
Quinoline	ND	14	ng/L
2,3-Benzofuran	ND	10	ng/L
2,3-Dihydroindene	**170**	**10**	**ng/L**
Benzo(b)thiophene	**23**	**1.8**	**ng/L**
Indole	ND	5.0	ng/L
Acridine	ND	12	ng/L
Perylene	ND	5.0	ng/L
Dibenzothiophene	ND	2.2	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	41	(10 - 118)
Fluorene d-10	81	(41 - 162)
Naphthalene-d8	64	(21 - 108)

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-SLP4D-051199

GC/MS Semivolatiles

Lot-Sample #...: D9E120122-002 Work Order #...: CVNC0101 Matrix.....: WATER
Date Sampled...: 05/11/99 Date Received..: 05/12/99
Prep Date.....: 05/12/99 Analysis Date..: 06/21/99
Prep Batch #...: 9132318 Analysis Time..: 21:51
Dilution Factor: 2

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	2.8	ng/L
Naphthalene	ND	13	ng/L
2-Methylnaphthalene	ND	7.8	ng/L
Acenaphthene	**200**	**2.6**	**ng/L**
Dibenzofuran	ND	2.0	ng/L
Fluorene	ND	2.0	ng/L
Phenanthrene	**7.4**	**2.6**	**ng/L**
Anthracene	ND	5.4	ng/L
Carbazole	**33**	**3.8**	**ng/L**
Fluoranthene	**16**	**6.2**	**ng/L**
Pyrene	**15**	**2.8**	**ng/L**
Benzo(a)anthracene	ND	5.0	ng/L
Chrysene	ND	5.6	ng/L
Benzo(b)fluoranthene	ND	5.0	ng/L
Benzo(k)fluoranthene	ND	4.6	ng/L
Benzo(a)pyrene	ND	4.6	ng/L
Indeno(1,2,3-cd)pyrene	ND	4.2	ng/L
Benzo(ghi)perylene	ND	5.6	ng/L
Indene	**11**	**1.8**	**ng/L**
1-Methylnaphthalene	ND	5.6	ng/L
Benzo(e)pyrene	ND	3.8	ng/L
Biphenyl	ND	8.6	ng/L
Dibenz(a,h)anthracene	ND	3.2	ng/L
Quinoline	**9.2 J**	**14**	**ng/L**
2,3-Benzofuran	ND	10	ng/L
2,3-Dihydroindene	**170**	**10**	**ng/L**
Benzo(b)thiophene	**23**	**1.8**	**ng/L**
Indole	ND	5.0	ng/L
Acridine	ND	12	ng/L
Perylene	ND	5.0	ng/L
Dibenzothiophene	ND	2.2	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	23	(10 - 118)
Fluorene d-10	83	(41 - 162)
Naphthalene-d8	65	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-SLP4FB-051199

GC/MS Semivolatiles

Lot-Sample #...: D9E120122-003	**Work Order #...:** CVNC3101	**Matrix.....:** WATER
Date Sampled...: 05/11/99	**Date Received..:** 05/12/99	
Prep Date.....: 05/12/99	**Analysis Date..:** 05/29/99	
Prep Batch #...: 9132318	**Analysis Time..:** 15:25	
Dilution Factor: 1		
	Method.....: SW846 8270A SIM	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	ND	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	1.7	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	ND	3.1	ng/L
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	78	(10 - 118)
Fluorene d-10	92	(41 - 162)
Naphthalene-d8	93	(21 - 108)

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-SLP4FBD-051199

GC/MS Semivolatiles

Lot-Sample #...: D9E120122-004 Work Order #...: CVNC5101 Matrix.....: WATER
Date Sampled...: 05/11/99 Date Received..: 05/12/99
Prep Date.....: 05/12/99 Analysis Date..: 05/29/99
Prep Batch #...: 9132318 Analysis Time..: 16:00
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	ND	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	1.9	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	ND	3.1	ng/L
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	77	(10 - 118)
Fluorene d-10	95	(41 - 162)
Naphthalene-d8	94	(21 - 108)

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W130-051199

GC/MS Semivolatiles

Lot-Sample #...: D9E120122-005 Work Order #...: CVNC9101 Matrix.....: WATER
Date Sampled...: 05/11/99 10:00 Date Received..: 05/12/99
Prep Date.....: 05/12/99 Analysis Date..: 05/29/99
Prep Batch #...: 9132318 Analysis Time..: 16:36
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	**15**	**6.5**	**ng/L**
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	**4.9**	**1.3**	**ng/L**
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	**10**	**1.3**	**ng/L**
Anthracene	**6.8**	**2.7**	**ng/L**
Carbazole	**4.8**	**1.9**	**ng/L**
Fluoranthene	**8.4**	**3.1**	**ng/L**
Pyrene	**41**	**1.4**	**ng/L**
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	**3.1**	**2.8**	**ng/L**
Indene	**27**	**0.90**	**ng/L**
1-Methylnaphthalene	**7.5**	**2.8**	**ng/L**
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	**3.6 J**	**5.1**	**ng/L**
2,3-Dihydroindene	**8.9**	**5.0**	**ng/L**
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	**9.3**	**6.1**	**ng/L**
Perylene	ND	2.5	ng/L
Dibenzothiophene	**1.9**	**1.1**	**ng/L**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	27	(10 - 118)
Fluorene d-10	93	(41 - 162)
Naphthalene-d8	108	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W124-051299

GC/MS Semivolatiles

Lot-Sample #...: D9E120122-006 Work Order #...: CVNCC101 Matrix.....: WATER
Date Sampled...: 05/12/99 14:15 Date Received..: 05/13/99
Prep Date.....: 05/13/99 Analysis Date..: 06/17/99
Prep Batch #...: 9133344 Analysis Time..: 19:29
Dilution Factor: 1
Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	6.7	6.5	ng/L
2-Methylnaphthalene	4.4	3.9	ng/L
Acenaphthene	2.7	1.3	ng/L
Dibenzofuran	1.9	1.0	ng/L
Fluorene	2.1	1.0	ng/L
Phenanthrene	8.7	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	4.0	3.1	ng/L
Pyrene	10	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	2.6	0.90	ng/L
1-Methylnaphthalene	4.7	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	3.2 J	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	17	(10 - 118)
Fluorene d-10	60	(41 - 162)
Naphthalene-d8	44	(21 - 108)

NOTE(S):

J Estimated result Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W424-051199

GC/MS Semivolatiles

Lot-Sample #...: D9E120122-007 Work Order #...: CVNCE101 Matrix.....: WATER
Date Sampled...: 05/11/99 13:40 Date Received..: 05/12/99
Prep Date.....: 05/12/99 Analysis Date..: 05/29/99
Prep Batch #...: 9132318 Analysis Time..: 17:13
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	64	6.5	ng/L
2-Methylnaphthalene	20	3.9	ng/L
Acenaphthene	15	1.3	ng/L
Dibenzofuran	5.7	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	4.0	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	6.6	1.9	ng/L
Fluoranthene	ND	3.1	ng/L
Pyrene	1.4	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	64	0.90	ng/L
1-Methylnaphthalene	33	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	5.9	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	2.8 J	5.1	ng/L
2,3-Dihydroindene	45	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	6.6	2.5	ng/L
Acridine	10	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	19	(10 - 118)
Fluorene d-10	85	(41 - 162)
Naphthalene-d8	74	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W428-051199

GC/MS Semivolatiles

Lot-Sample #...: D9E120122-008 Work Order #...: CVNCG101 Matrix.....: WATER
Date Sampled...: 05/11/99 15:20 Date Received..: 05/12/99
Prep Date.....: 05/12/99 Analysis Date..: 06/21/99
Prep Batch #...: 9132318 Analysis Time..: 22:26
Dilution Factor: 5

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	7.0	ng/L
Naphthalene	15 J	32	ng/L
2-Methylnaphthalene	ND	20	ng/L
Acenaphthene	18	6.5	ng/L
Dibenzofuran	ND	5.0	ng/L
Fluorene	7.4	5.0	ng/L
Phenanthrene	19	6.5	ng/L
Anthracene	8.5 J	14	ng/L
Carbazole	14	9.5	ng/L
Fluoranthene	9.0 J	16	ng/L
Pyrene	13	7.0	ng/L
Benzo(a)anthracene	ND	12	ng/L
Chrysene	ND	14	ng/L
Benzo(b)fluoranthene	ND	12	ng/L
Benzo(k)fluoranthene	ND	12	ng/L
Benzo(a)pyrene	ND	12	ng/L
Indeno(1,2,3-cd)pyrene	ND	10	ng/L
Benzo(ghi)perylene	ND	14	ng/L
Indene	31	4.5	ng/L
1-Methylnaphthalene	ND	14	ng/L
Benzo(e)pyrene	ND	9.5	ng/L
Biphenyl	ND	22	ng/L
Dibenz(a,h)anthracene	ND	8.0	ng/L
Quinoline	ND	34	ng/L
2,3-Benzofuran	ND	26	ng/L
2,3-Dihydroindene	550	25	ng/L
Benzo(b)thiophene	ND	4.5	ng/L
Indole	ND	12	ng/L
Acridine	20 J	30	ng/L
Perylene	ND	12	ng/L
Dibenzothiophene	ND	5.5	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC	(10 - 118)
Fluorene d-10	NC	(41 - 162)
Naphthalene-d8	NC	(21 - 108)

NOTE(S):

NC The recovery and/or RPD were not calculated.

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W131-051199

GC/MS Semivolatiles

Lot-Sample #...: D9E120122-009 Work Order #...: CVNCP101 Matrix.....: WATER
Date Sampled...: 05/11/99 16:55 Date Received..: 05/12/99
Prep Date.....: 05/12/99 Analysis Date..: 05/29/99
Prep Batch #...: 9132318 Analysis Time..: 18:27
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	2.0	1.4	ng/L
Naphthalene	69	6.5	ng/L
2-Methylnaphthalene	20	3.9	ng/L
Acenaphthene	24	1.3	ng/L
Dibenzofuran	8.5	1.0	ng/L
Fluorene	10	1.0	ng/L
Phenanthrene	9.5	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	8.4	1.9	ng/L
Fluoranthene	3.9	3.1	ng/L
Pyrene	3.0	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	67	0.90	ng/L
1-Methylnaphthalene	42	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	7.7	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	59	5.0	ng/L
Benzo(b)thiophene	22	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	4.4 J	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	1.8	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	32	(10 - 118)
Fluorene d-10	95	(41 - 162)
Naphthalene-d8	90	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W431-051199

GC/MS Semivolatiles

Lot-Sample #...: D9E120122-010 Work Order #...: CVNCR101 Matrix.....: WATER
Date Sampled...: 05/11/99 08:00 Date Received..: 05/12/99
Prep Date.....: 05/13/99 Analysis Date..: 06/17/99
Prep Batch #...: 9133344 Analysis Time..: 20:06
Dilution Factor: 5

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	7.0	ng/L
Naphthalene	27 J	32	ng/L
2-Methylnaphthalene	ND	20	ng/L
Acenaphthene	41	6.5	ng/L
Dibenzofuran	13	5.0	ng/L
Fluorene	13	5.0	ng/L
Phenanthrene	26	6.5	ng/L
Anthracene	8.8 J	14	ng/L
Carbazole	ND	9.5	ng/L
Fluoranthene	17	16	ng/L
Pyrene	28	7.0	ng/L
Benzo(a)anthracene	ND	12	ng/L
Chrysene	ND	14	ng/L
Benzo(b)fluoranthene	ND	12	ng/L
Benzo(k)fluoranthene	ND	12	ng/L
Benzo(a)pyrene	ND	12	ng/L
Indeno(1,2,3-cd)pyrene	ND	10	ng/L
Benzo(ghi)perylene	ND	14	ng/L
Indene	14	4.5	ng/L
1-Methylnaphthalene	ND	14	ng/L
Benzo(e)pyrene	ND	9.5	ng/L
Biphenyl	ND	22	ng/L
Dibenz(a,h)anthracene	ND	8.0	ng/L
Quinoline	ND	34	ng/L
2,3-Benzofuran	ND	26	ng/L
2,3-Dihydroindene	260	25	ng/L
Benzo(b)thiophene	12	4.5	ng/L
Indole	ND	12	ng/L
Acridine	130	30	ng/L
Perylene	ND	12	ng/L
Dibenzothiophene	ND	5.5	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC	(10 - 118)
Fluorene d-10	NC	(41 - 162)
Naphthalene-d8	NC	(21 - 108)

NOTE(S):

NC The recovery and/or RPD were not calculated.

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W121-051199

GC/MS Semivolatiles

Lot-Sample #...: D9E120122-011 Work Order #...: CVNCW101 Matrix.....: WATER
Date Sampled...: 05/11/99 09:10 Date Received..: 05/12/99
Prep Date.....: 05/13/99 Analysis Date..: 06/17/99
Prep Batch #...: 9133344 Analysis Time..: 20:43
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	43	6.5	ng/L
2-Methylnaphthalene	13	3.9	ng/L
Acenaphthene	14	1.3	ng/L
Dibenzofuran	5.2	1.0	ng/L
Fluorene	5.4	1.0	ng/L
Phenanthrene	4.5	1.3	ng/L
Anthracene	1.2 J	2.7	ng/L
Carbazole	7.4	1.9	ng/L
Fluoranthene	2.1 J	3.1	ng/L
Pyrene	1.4	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	22	0.90	ng/L
1-Methylnaphthalene	25	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	4.1 J	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	38	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	30	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	9.6 *	(10 - 118)
Fluorene d-10	74	(41 - 162)
Naphthalene-d8	53	(21 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

J Estimated result. Result is less than RL.

QC DATA ASSOCIATION SUMMARY

D9E120122

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WATER	SW846 8270A SIM		9132318	9132132
002	WATER	SW846 8270A SIM		9132318	9132132
003	WATER	SW846 8270A SIM		9132318	9132132
004	WATER	SW846 8270A SIM		9132318	9132132
005	WATER	SW846 8270A SIM		9132318	9132132
006	WATER	SW846 8270A SIM		9133344	
007	WATER	SW846 8270A SIM		9132318	9132132
008	WATER	SW846 8270A SIM		9132318	9132132
009	WATER	SW846 8270A SIM		9132318	9132132
010	WATER	SW846 8270A SIM		9133344	
011	WATER	SW846 8270A SIM		9133344	

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D9E120122
MB Lot-Sample #: D9E120000-318
Work Order #...: CVP67101
Matrix.....: WATER
Prep Date.....: 05/12/99
Analysis Time..: 21:34
Analysis Date..: 05/26/99
Prep Batch #...: 9132318
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthylene	ND	1.4	ng/L	SW846 8270A SIM
Naphthalene	ND	6.5	ng/L	SW846 8270A SIM
2-Methylnaphthalene	ND	3.9	ng/L	SW846 8270A SIM
Acenaphthene	ND	1.3	ng/L	SW846 8270A SIM
Dibenzofuran	ND	1.0	ng/L	SW846 8270A SIM
Fluorene	ND	1.0	ng/L	SW846 8270A SIM
Phenanthrene	ND	1.3	ng/L	SW846 8270A SIM
Anthracene	ND	2.7	ng/L	SW846 8270A SIM
Carbazole	ND	1.9	ng/L	SW846 8270A SIM
Fluoranthene	ND	3.1	ng/L	SW846 8270A SIM
Pyrene	ND	1.4	ng/L	SW846 8270A SIM
Benzo(a)anthracene	ND	2.5	ng/L	SW846 8270A SIM
Chrysene	ND	2.8	ng/L	SW846 8270A SIM
Benzo(b)fluoranthene	ND	2.5	ng/L	SW846 8270A SIM
Benzo(k)fluoranthene	ND	2.3	ng/L	SW846 8270A SIM
Benzo(a)pyrene	ND	2.3	ng/L	SW846 8270A SIM
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L	SW846 8270A SIM
Benzo(ghi)perylene	ND	2.8	ng/L	SW846 8270A SIM
Indene	ND	0.90	ng/L	SW846 8270A SIM
1-Methylnaphthalene	ND	2.8	ng/L	SW846 8270A SIM
Benzo(e)pyrene	ND	1.9	ng/L	SW846 8270A SIM
Biphenyl	ND	4.3	ng/L	SW846 8270A SIM
Dibenz(a,h)anthracene	ND	1.6	ng/L	SW846 8270A SIM
Quinoline	ND	6.9	ng/L	SW846 8270A SIM
2,3-Benzofuran	ND	5.1	ng/L	SW846 8270A SIM
2,3-Dihydroindene	ND	5.0	ng/L	SW846 8270A SIM
Benzo(b)thiophene	ND	0.90	ng/L	SW846 8270A SIM
Indole	ND	2.5	ng/L	SW846 8270A SIM
Acridine	ND	6.1	ng/L	SW846 8270A SIM
Perylene	ND	2.5	ng/L	SW846 8270A SIM
Dibenzothiophene	ND	1.1	ng/L	SW846 8270A SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	66	(10 - 118)
Fluorene d-10	91	(41 - 162)
Naphthalene-d8	83	(21 - 108)

NOTE(S):

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

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D9E120122 Work Order #...: CVQVX101 Matrix.....: WATER
MB Lot-Sample #: D9E130000-344

Prep Date.....: 05/13/99 Analysis Time..: 22:09
Analysis Date..: 05/26/99 Prep Batch #...: 9133344
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthylene	ND	1.4	ng/L	SW846 8270A SIM
Naphthalene	6.7	6.5	ng/L	SW846 8270A SIM
2-Methylnaphthalene	4.4	3.9	ng/L	SW846 8270A SIM
Acenaphthene	ND	1.3	ng/L	SW846 8270A SIM
Dibenzofuran	ND	1.0	ng/L	SW846 8270A SIM
Fluorene	ND	1.0	ng/L	SW846 8270A SIM
Phenanthrene	5.2	1.3	ng/L	SW846 8270A SIM
Anthracene	ND	2.7	ng/L	SW846 8270A SIM
Carbazole	ND	1.9	ng/L	SW846 8270A SIM
Fluoranthene	1.6 J	3.1	ng/L	SW846 8270A SIM
Pyrene	ND	1.4	ng/L	SW846 8270A SIM
Benzo(a)anthracene	ND	2.5	ng/L	SW846 8270A SIM
Chrysene	ND	2.8	ng/L	SW846 8270A SIM
Benzo(b)fluoranthene	ND	2.5	ng/L	SW846 8270A SIM
Benzo(k)fluoranthene	ND	2.3	ng/L	SW846 8270A SIM
Benzo(a)pyrene	ND	2.3	ng/L	SW846 8270A SIM
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L	SW846 8270A SIM
Benzo(ghi)perylene	ND	2.8	ng/L	SW846 8270A SIM
Indene	2.6	0.90	ng/L	SW846 8270A SIM
1-Methylnaphthalene	4.7	2.8	ng/L	SW846 8270A SIM
Benzo(e)pyrene	ND	1.9	ng/L	SW846 8270A SIM
Biphenyl	ND	4.3	ng/L	SW846 8270A SIM
Dibenz(a,h)anthracene	ND	1.6	ng/L	SW846 8270A SIM
Quinoline	ND	6.9	ng/L	SW846 8270A SIM
2,3-Benzofuran	ND	5.1	ng/L	SW846 8270A SIM
2,3-Dihydroindene	3.2 J	5.0	ng/L	SW846 8270A SIM
Benzo(b)thiophene	ND	0.90	ng/L	SW846 8270A SIM
Indole	ND	2.5	ng/L	SW846 8270A SIM
Acridine	ND	6.1	ng/L	SW846 8270A SIM
Perylene	ND	2.5	ng/L	SW846 8270A SIM
Dibenzothiophene	1.4	1.1	ng/L	SW846 8270A SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	68	(10 - 118)
Fluorene d-10	99	(41 - 162)
Naphthalene-d8	92	(21 - 108)

NOTE(S):

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

J Estimated result. Result is less than RL.

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D9E120122 Work Order #...: CVP67102-LCS Matrix.....: WATER
LCS Lot-Sample#: D9E120000-318 CVP67103-LCSD
Prep Date.....: 05/12/99 Analysis Date..: 05/29/99
Prep Batch #...: 9132318 Analysis Time..: 11:47
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Naphthalene	**10.0**	**11.6**	**ng/L**	**116**		**SW846 8270A SIM**
	10.0	**12.4**	**ng/L**	**124**	**6.9**	**SW846 8270A SIM**
2-Methylnaphthalene	**10.0**	**10.6**	**ng/L**	**106**		**SW846 8270A SIM**
	10.0	**11.8**	**ng/L**	**118**	**11**	**SW846 8270A SIM**
Fluorene	**10.0**	**10.1**	**ng/L**	**101**		**SW846 8270A SIM**
	10.0	**11.1**	**ng/L**	**111**	**9.2**	**SW846 8270A SIM**
Chrysene	**10.0**	**9.39**	**ng/L**	**94**		**SW846 8270A SIM**
	10.0	**6.84 p**	**ng/L**	**68**	**32**	**SW846 8270A SIM**
Indene	**10.0**	**19.4 a**	**ng/L**	**194**		**SW846 8270A SIM**
	10.0	**19.8 a**	**ng/L**	**198**	**1.6**	**SW846 8270A SIM**
Benzo(e)pyrene	**10.0**	**9.73**	**ng/L**	**97**		**SW846 8270A SIM**
	10.0	**7.15 p**	**ng/L**	**71**	**31**	**SW846 8270A SIM**
Quinoline	**10.0**	**6.13**	**ng/L**	**61**		**SW846 8270A SIM**
	10.0	**5.10**	**ng/L**	**51**	**18**	**SW846 8270A SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	99	(10 - 118)
	70	(10 - 118)
Fluorene d-10	94	(41 - 162)
	100	(41 - 162)
Naphthalene-d8	95	(21 - 108)
	96	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

p Relative percent difference (RPD) is outside stated control limits

a Spiked analyte recovery is outside stated control limits.

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D9E120122 Work Order #...: CVQVX102-LCS Matrix.....: WATER
LCS Lot-Sample#: D9E130000-344 CVQVX103-LCSD
Prep Date.....: 05/13/99 Analysis Date..: 06/17/99
Prep Batch #...: 9133344 Analysis Time..: 17:39
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Naphthalene	10.0	7.22	ng/L	72		SW846 8270A SIM
	10.0	6.99	ng/L	70	3.3	SW846 8270A SIM
2-Methylnaphthalene	10.0	7.53	ng/L	75		SW846 8270A SIM
	10.0	6.91	ng/L	69	8.6	SW846 8270A SIM
Fluorene	10.0	6.81 a	ng/L	68		SW846 8270A SIM
	10.0	6.65 a	ng/L	66	2.4	SW846 8270A SIM
Chrysene	10.0	3.56	ng/L	36		SW846 8270A SIM
	10.0	3.32	ng/L	33	6.9	SW846 8270A SIM
Indene	10.0	5.92	ng/L	59		SW846 8270A SIM
	10.0	6.35	ng/L	63	7.0	SW846 8270A SIM
Benzo(e)pyrene	10.0	4.93	ng/L	49		SW846 8270A SIM
	10.0	4.58	ng/L	46	7.2	SW846 8270A SIM
Quinoline	10.0	9.96	ng/L	100		SW846 8270A SIM
	10.0	9.24	ng/L	92	7.5	SW846 8270A SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	39	(10 - 118)
	37	(10 - 118)
Fluorene d-10	79	(41 - 162)
	76	(41 - 162)
Naphthalene-d8	60	(21 - 108)
	61	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D9E120122 **Work Order #...:** CVQVX104-LCS **Matrix.....:** WATER
LCS Lot-Sample#: D9E130000-344 CVQVX105-LCSD
Prep Date.....: 05/13/99 **Analysis Date..:** 05/29/99
Prep Batch #...: 9133344 **Analysis Time..:** 19:04
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Naphthalene	**10.0**	**11.7**	**ng/L**	**117**		**SW846 8270A SIM**
	10.0	**11.3**	**ng/L**	**113**	**3.6**	**SW846 8270A SIM**
2-Methylnaphthalene	**10.0**	**11.7**	**ng/L**	**117**		**SW846 8270A SIM**
	10.0	**10.9**	**ng/L**	**109**	**7.3**	**SW846 8270A SIM**
Fluorene	**10.0**	**10.6**	**ng/L**	**106**		**SW846 8270A SIM**
	10.0	**10.2**	**ng/L**	**102**	**3.3**	**SW846 8270A SIM**
Chrysene	**10.0**	**6.33**	**ng/L**	**63**		**SW846 8270A SIM**
	10.0	**6.11**	**ng/L**	**61**	**3.6**	**SW846 8270A SIM**
Indene	**10.0**	**19.4 a**	**ng/L**	**194**		**SW846 8270A SIM**
	10.0	**20.2 a**	**ng/L**	**202**	**3.9**	**SW846 8270A SIM**
Benzo(e)pyrene	**10.0**	**6.52**	**ng/L**	**65**		**SW846 8270A SIM**
	10.0	**6.45**	**ng/L**	**64**	**1.1**	**SW846 8270A SIM**
Quinoline	**10.0**	**10.1**	**ng/L**	**101**		**SW846 8270A SIM**
	10.0	**9.65**	**ng/L**	**96**	**4.6**	**SW846 8270A SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	67	(10 - 118)
	65	(10 - 118)
Fluorene d-10	103	(41 - 162)
	101	(41 - 162)
Naphthalene-d8	94	(21 - 108)
	97	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D9E120122 Work Order #...: CVP67102-LCS Matrix.....: WATER
LCS Lot-Sample#: D9E120000-318 CVP67103-LCSD
Prep Date.....: 05/12/99 Analysis Date..: 05/29/99
Prep Batch #...: 9132318 Analysis Time..: 11:47
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Naphthalene	**116**	**(20 - 150)**			**SW846 8270A SIM**
	124	**(20 - 150)**	**6.9**	**(0-20)**	**SW846 8270A SIM**
2-Methylnaphthalene	**106**	**(20 - 150)**			**SW846 8270A SIM**
	118	**(20 - 150)**	**11**	**(0-20)**	**SW846 8270A SIM**
Fluorene	**101**	**(69 - 118)**			**SW846 8270A SIM**
	111	**(69 - 118)**	**9.2**	**(0-20)**	**SW846 8270A SIM**
Chrysene	**94**	**(20 - 132)**			**SW846 8270A SIM**
	68 p	**(20 - 132)**	**32**	**(0-20)**	**SW846 8270A SIM**
Indene	**194 a**	**(20 - 150)**			**SW846 8270A SIM**
	198 a	**(20 - 150)**	**1.6**	**(0-20)**	**SW846 8270A SIM**
Benzo(e)pyrene	**97**	**(20 - 150)**			**SW846 8270A SIM**
	71 p	**(20 - 150)**	**31**	**(0-20)**	**SW846 8270A SIM**
Quinoline	**61**	**(20 - 150)**			**SW846 8270A SIM**
	51	**(20 - 150)**	**18**	**(0-20)**	**SW846 8270A SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	99	(10 - 118)
	70	(10 - 118)
Fluorene d-10	94	(41 - 162)
	100	(41 - 162)
Naphthalene-d8	95	(21 - 108)
	96	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

p Relative percent difference (RPD) is outside stated control limits.

a Spiked analyte recovery is outside stated control limits

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D9E120122 Work Order #...: CVQVX102-LCS Matrix.....: WATER
LCS Lot-Sample#: D9E130000-344 CVQVX103-LCSD
Prep Date.....: 05/13/99 Analysis Date..: 06/17/99
Prep Batch #...: 9133344 Analysis Time..: 17:39
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Naphthalene	72	(20 - 150)			SW846 8270A SIM
	70	(20 - 150)	3.3	(0-20)	SW846 8270A SIM
2-Methylnaphthalene	75	(20 - 150)			SW846 8270A SIM
	69	(20 - 150)	8.6	(0-20)	SW846 8270A SIM
Fluorene	68 a	(69 - 118)			SW846 8270A SIM
	66 a	(69 - 118)	2.4	(0-20)	SW846 8270A SIM
Chrysene	36	(20 - 132)			SW846 8270A SIM
	33	(20 - 132)	6.9	(0-20)	SW846 8270A SIM
Indene	59	(20 - 150)			SW846 8270A SIM
	63	(20 - 150)	7.0	(0-20)	SW846 8270A SIM
Benzo(e)pyrene	49	(20 - 150)			SW846 8270A SIM
	46	(20 - 150)	7.2	(0-20)	SW846 8270A SIM
Quinoline	100	(20 - 150)			SW846 8270A SIM
	92	(20 - 150)	7.5	(0-20)	SW846 8270A SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	39	(10 - 118)
	37	(10 - 118)
Fluorene d-10	79	(41 - 162)
	76	(41 - 162)
Naphthalene-d8	60	(21 - 108)
	61	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D9E120122 Work Order #...: CVQVX104-LCS Matrix.....: WATER
LCS Lot-Sample#: D9E130000-344 CVQVX105-LCSD
Prep Date.....: 05/13/99 Analysis Date..: 05/29/99
Prep Batch #...: 9133344 Analysis Time..: 19:04
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Naphthalene	**117**	**(20 - 150)**			**SW846 8270A SIM**
	113	**(20 - 150)**	**3.6**	**(0-20)**	**SW846 8270A SIM**
2-Methylnaphthalene	**117**	**(20 - 150)**			**SW846 8270A SIM**
	109	**(20 - 150)**	**7.3**	**(0-20)**	**SW846 8270A SIM**
Fluorene	**106**	**(69 - 118)**			**SW846 8270A SIM**
	102	**(69 - 118)**	**3.3**	**(0-20)**	**SW846 8270A SIM**
Chrysene	**63**	**(20 - 132)**			**SW846 8270A SIM**
	61	**(20 - 132)**	**3.6**	**(0-20)**	**SW846 8270A SIM**
Indene	**194 a**	**(20 - 150)**			**SW846 8270A SIM**
	202 a	**(20 - 150)**	**3.9**	**(0-20)**	**SW846 8270A SIM**
Benzo(e)pyrene	**65**	**(20 - 150)**			**SW846 8270A SIM**
	64	**(20 - 150)**	**1.1**	**(0-20)**	**SW846 8270A SIM**
Quinoline	**101**	**(20 - 150)**			**SW846 8270A SIM**
	96	**(20 - 150)**	**4.6**	**(0-20)**	**SW846 8270A SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	67	(10 - 118)
	65	(10 - 118)
Fluorene d-10	103	(41 - 162)
	101	(41 - 162)
Naphthalene-d8	94	(21 - 108)
	97	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D9E120122 **Work Order #...:** CVNAQ102-MS **Matrix.....:** WATER
MS Lot-Sample #: D9E120122-001 CVNAQ103-MSD
Date Sampled...: 05/11/99 **Date Received..:** 05/12/99
Prep Date.....: 05/12/99 **Analysis Date..:** 06/21/99
Prep Batch #...: 9132318 **Analysis Time..:** 20:39
Dilution Factor: 2

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Naphthalene	ND	10.1	8.63	ng/L	86		SW846 8270A SIM
	ND	10.1	9.64	ng/L	96	11	SW846 8270A SIM
2-Methylnaphthalene	ND	10.1	7.68	ng/L	76		SW846 8270A SIM
	ND	10.1	8.84	ng/L	88	14	SW846 8270A SIM
Fluorene	ND	10.1	7.12	ng/L	71		SW846 8270A SIM
	ND	10.1	8.16	ng/L	81	14	SW846 8270A SIM
Chrysene	ND	10.1		ng/L	35		SW846 8270A SIM
	ND	10.1	4.15	ng/L	41	17	SW846 8270A SIM
Indene	11	10.1	16.7	ng/L	61		SW846 8270A SIM
	11	10.1	18.3	ng/L	77	9.6	SW846 8270A SIM
Benzo(e)pyrene	ND	10.1		ng/L	21		SW846 8270A SIM
	ND	10.1		ng/L	25	15	SW846 8270A SIM
Quinoline	ND	10.1	15.6 a	ng/L	155		SW846 8270A SIM
	ND	10.1	14.8	ng/L	147	5.6	SW846 8270A SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	39	(10 - 118)
	46	(10 - 118)
Fluorene d-10	78	(41 - 162)
	87	(41 - 162)
Naphthalene-d8	62	(21 - 108)
	68	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D9E120122 Work Order #...: CVNAQ102-MS Matrix.....: WATER
MS Lot-Sample #: D9E120122-001 CVNAQ103-MSD
Date Sampled...: 05/11/99 Date Received..: 05/12/99
Prep Date.....: 05/12/99 Analysis Date..: 06/21/99
Prep Batch #...: 9132318 Analysis Time..: 20:39
Dilution Factor: 2

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Naphthalene	86	(20 - 150)			SW846 8270A SIM
	96	(20 - 150)	11	(0-20)	SW846 8270A SIM
2-Methylnaphthalene	76	(20 - 150)			SW846 8270A SIM
	88	(20 - 150)	14	(0-20)	SW846 8270A SIM
Fluorene	71	(69 - 118)			SW846 8270A SIM
	81	(69 - 118)	14	(0-20)	SW846 8270A SIM
Chrysene	35	(20 - 132)			SW846 8270A SIM
	41	(20 - 132)	17	(0-20)	SW846 8270A SIM
Indene	61	(20 - 150)			SW846 8270A SIM
	77	(20 - 150)	9.6	(0-20)	SW846 8270A SIM
Benzo(e)pyrene	21	(20 - 150)			SW846 8270A SIM
	25	(20 - 150)	15	(0-20)	SW846 8270A SIM
[illegible]noline	155 a	(20 - 150)			SW846 8270A SIM
	147	(20 - 150)	5.6	(0-20)	SW846 8270A SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	39	(10 - 118)
	46	(10 - 118)
Fluorene d-10	78	(41 - 162)
	87	(41 - 162)
Naphthalene-d8	62	(21 - 108)
	68	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

Chain of Custody Record

Quanterra

QUA-4124

Client: CITY OF ST. LOUIS PARK UTILITY DIVISION	Project Manager: Scott Anderson	Date: 5-10-99	Chain Of Custody Number: 39679
Address: 3752 WOODDALE AVENUE	Telephone Number (Area Code)/Fax Number: 924-2557 (612) 924-2570	Lab Number: D9E120122	Page ____ of ____
City: ST. LOUIS PARK, MN 55416	Site Contact: SAME		
Project Name: SAME	Carrier/Waybill Number: FED EX 800846316610		
Contract/Purchase Order/Quote No			

Analysis

Sample I D No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	PPT PAH 5
PCJ-SLP4-051199	5-10-99		WATER	1 LITER	AMBER	6	N/A		X
PCJ-SLP4D-051199	5-10-99		WATER	1 LITER	AMBER	6	N/A		X

Special Instructions: PPT 5 Cooler CSLP 0008 temp 0.6°C

Possible Hazard Identification: [X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown

Sample Disposal: [ ] Return To Client [X] Disposal By Lab [ ] Archive For ____ Months

Turn Around Time Required: [ ] Normal [ ] Rush

QC Level: [ ] I. [ ] II. [ ] III.

Project Specific (Specify)

	Date	Time		Date	Time
1 Relinquished By: MZF	5-10-99	1400	1 Received By: Kurt C. Hill	5/12/99	0830
2 Relinquished By			2 Received By		
3 Relinquished By			3 Received By		

Comments

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

Chain of Custody Record

Quanterra

QUA-4124

Client: CITY OF ST. LOUIS PARK UTILITY DIVISION 3752 WOODDALE AVENUE ST. LOUIS PARK, MN 55416	Project Manager: Scott Anderson	Date: 5-11-99	Chain Of Custody Number: 39652
Address	Telephone Number (Area Code)/Fax Number: 924-2557 (612) 924-2570	Lab Number: DAE120122	Page ____ of ____
City	Site Contact: SAME		
Project Name: SAME	Carrier/Waybill Number: FED EX 800846316610		
Contract/Purchase Order/Quote No			

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: PPT PAH 5
PCJ-SLP4MS-051199	5-11-99		WATER	1 LITER	AMBER	6	N/A		X
PCJ-SLP4MSD-051199	5-11-99		WATER	1 LITER	AMBER	6	N/A		X

Special Instructions: PPT 5 Cooler CSLP 0006 temp 1.2°C

Possible Hazard Identification: [X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown

Sample Disposal: [ ] Return To Client [X] Disposal By Lab [ ] Archive For ____ Months

Turn Around Time Required: [ ] Normal [ ] Rush

QC Level: [ ] I. [ ] II. [ ] III.

Project Specific (Specify)

	Date	Time		Date	Time
1 Relinquished By: MZH	5-11-99	1400	1 Received By: Kurt C. [illegible]	5/12/99	0830
2 Relinquished By			2 Received By		
3 Relinquished By			3 Received By		

Comments

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

Chain of Custody Record

Quanterra

QUA-4124

Client: CITY OF ST. LOUIS PARK UTILITY DIVISION 3752 WOODDALE AVENUE ST. LOUIS PARK, MN 55416	Project Manager: SCOTT ANDERSON	Date: 5-11-99	Chain Of Custody Number: 39653
Address	Telephone Number (Area Code)/Fax Number: 924-2557 (612) 924-2570	Lab Number: D9E120122	Page ____ of ____
City	Site Contact: SAME		
Project Name: SAME	Carrier/Waybill Number: FED EX 800836316610		
Contract/Purchase Order/Quote No			

Sample I.D. No and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: PPT PAH 5
PCJ-SLP4FD-051199	5-11-99		WATER	1 LITER	AMBER	6	N/A		X
PCJ-SLP4FBD-051199	5-11-99		WATER	1 LITER	AMBER	6	NXA		X

Special Instructions: PPT 5 Cabin CSLP 0014 temp 3.8°C

Possible Hazard Identification: [X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown

Sample Disposal: [ ] Return To Client [X] Disposal By Lab [ ] Archive For ____ Months

Turn Around Time Required: [ ] Normal [ ] Rush

QC Level: [ ] I. [ ] II. [ ] III.

Project Specific (Specify)

	Date	Time		Date	Time
1 Relinquished By: MZH	5-11-99	1400	1 Received By: Kurt C. [illegible]	5/12/99	0830
2 Relinquished By			2 Received By		
3 Relinquished By			3 Received By		

Comments

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

Chain of Custody Record

Quanterra

QUA-4124

Client: City of St. Louis Park	Project Manager: Bill Gregg	Date: 5/11/99	Chain Of Custody Number: 39610
Address: 3752 Wooddale Ave	Telephone Number (Area Code)/Fax Number: (612)924-2557	Lab Number: D9E120122	Page 1 of 1
City: St. Louis Park; State: MN; Zip Code: 55416	Site Contact: Scott Anderson		
Project Name: St. Louis Park - Rielley	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No:			

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: PAH-PPT (PPT-5)
DPV ~~PCJ~~ W130-051199	5/11/99	10:00	WT	6L	L1	6			X
~~PCJ~~ W124-051199 DPV	↓	11:05	↓	↓	↓	↓			X

Special Instructions: Cooler CSLP 0007 temp 1.8°C

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

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Turn Around Time Required: ☐ Normal ☐ Rush

QC Level: ☐ I. ☐ II. ☐ III.

Project Specific (Specify):

	Date	Time		Date	Time
1 Relinquished By: Chris Boehm	5/11/99	16:00	1 Received By: Kurt C. [illegible]	5/12/99	0830
2 Relinquished By:			2 Received By:		
3 Relinquished By:			3 Received By:		

Comments: 3 1-Liter Amber PCJ-W124-051199 Broken in transit: Will be resampled 5/12/99

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

Chain of Custody Record

Quanterra

QUA-4124

Client: City of St. Louis Park	Project Manager: Bill Gregg	Date: 5/12/99	Chain Of Custody Number: 39684
Address: 3752 Woodlake Ave	Telephone Number (Area Code)/Fax Number: (612) 924-2557	Lab Number:	Page 1 of 1
City: St. Louis Park; State: MN; Zip Code: 55416	Site Contact: Scott Anderson		
Project Name: St. Louis Park - Reilly	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No:			

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: PPT-PAH (PPT-5)
DPV-W124-051299	5/12/99	14:15	WT	6L	1 L	6			X

Special Instructions: Cooler CSLP 0001 temp 0.8°C

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

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Turn Around Time Required: ☐ Normal ☐ Rush

QC Level: ☐ I. ☐ II. ☐ III.

Project Specific (Specify):

	Date	Time		Date	Time
1 Relinquished By: Chris Bochum	5/12/99	15:00	1 Received By: Kurt C. Dill	5/13/99	0900
2 Relinquished By:			2 Received By:		
3 Relinquished By:			3 Received By:		

Comments:

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

Chain of Custody Record

Quanterra

QUA-418A

Client: City of St. Louis Park	Project Manager: Bill Gregg	Date: 5/11/99	Chain Of Custody Number: 39611
Address: 3752 Woodale Ave	Telephone Number (Area Code)/Fax Number: (612) 924-2557	Lab Number: D98120122	Page 1 of 1
City: St. Louis Park; State: MN; Zip Code: 55416	Site Contact: Scott Anderson		
Project Name: St. Louis Park - Reilly	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No:			

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: XXPPT-PAH(PT-S)
DPV-W424-051199	5/11/99	1340	WT	6L	1L	6			X
~~PCT~~-W428-051199 DPV	5/11/99	1520	↓	↓	↓	↓			X

Special Instructions: Cooler CSLP 0013 temp 0.8°C

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

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Turn Around Time Required: ☐ Normal ☐ Rush

QC Level: ☐ I. ☐ II. ☐ III.

Project Specific (Specify):

1 Relinquished By: [signature]	Date: 5/11/99	Time: 16:00	1 Received By: [signature]	Date: 5/12/99	Time: 0830
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 Sample; CANARY - Returned to Client with Report, PINK - Field Copy

Chain of Custody Record

Quanterra

QUA-4124

Client: City of St. Louis Park	Project Manager: Bill Gregg	Date: 5/11/99	Chain Of Custody Number: 39612
Address: 3752 Wooddale Ave.	Telephone Number (Area Code)/Fax Number: (612) 924-2557	Lab Number: D9E/20122	Page 1 of 1
City: St. Louis Park; State: MN; Zip Code: 55416	Site Contact: Scott Anderson		
Project Name: St. Louis Park - Reilley	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No:			

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: PPT-PAH/PPT-5
DPV-W131-051199	5/11/99	16:55	WT	6L	1L	6			X
~~PCJ-WB1-051199~~	~~5/11/99~~								

Special Instructions: Cooler CSLP 0003 temp 1.1°C

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

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Turn Around Time Required: ☐ Normal ☐ Rush

QC Level: ☐ I. ☐ II. ☐ III.

Project Specific (Specify):

1 Relinquished By: [signature]	Date: 5/11/99	Time: 17:30	1 Received By: [signature]	Date: 5/12/99	Time: 0830
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 Sample, CANARY - Returned to Client with Report, PINK - Field Copy

Chain of Custody Record

Quanterra

QUA-412N

Client: City of St. Louis Park	Project Manager: Bill Gregg	Date: 5/11/99	Chain Of Custody Number: 39605
Address: 3752 Wooddale Ave	Telephone Number (Area Code)/Fax Number: (612) 924-2557	Lab Number: D9E120122	Page 1 of 1
City: St. Louis Park; State: MN; Zip Code: 55416	Site Contact: Scott Anderson		
Project Name: St. Louis Park - Reilly	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No			

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: PAH-PAT (APT-5)
DPV ~~DCJ~~ - W431 - 051199	5/11/99	8:00	WT	6 L	1 L	6			X
~~PCJ~~ - W121 - 051199	↓	9:10	↓	↓	↓	↓			X
DPV									

Special Instructions: Cooler CSLP 0005 temp 1.2°C

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

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Turn Around Time Required: ☐ Normal ☐ Rush

QC Level: ☐ I. ☐ II. ☐ III.

Project Specific (Specify):

1 Relinquished By: Chris Boehm	Date: 5/11/99	Time: 16:00	1 Received By: [illegible]	Date: 5/12/99	Time: 0830
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 Sample; CANARY - Returned to Client with Report, PINK - Field Copy

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H

PCJ

Quanterra

Advanced Analytical Services

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 467-9136 Fax

CASE NARRATIVE

FOR

City of St. Louis Park

June 28, 1999

Quanterra , Inc.

Project Lot Number D9E180128

Introduction

Ten aqueous samples (including matrix QC) were received at Quanterra Environmental Services, Denver Laboratory on May 18, 1999. The samples were logged in under Quanterra Denver's project lot number D9E180128. A cross reference associating Quanterra Denver's laboratory sample numbers to the actual field sample number is included. The samples were analyzed for part per trillion (ppt) PAHs.

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the October 1998 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.

The method blank associated with the first extraction contained target analytes above the allowable limit. The source of the contamination was traced to the use of a contaminated wash bottle and was eliminated. The DCSs associated with the contaminated method blank were not analyzed. The samples were re-extracted, out side of holding times, and analyzed with acceptable method blank and DCS results. Both sets of data are included in this report.

Client samples with laboratory Id's D9E180128-001, -001MS, -001MSD, -002 and –007 were analyzed at a dilution due to target analytes exceeding the linear range of the instrument. The reporting limits were raised accordingly. As a result of dilutions, the surrogate compounds associated with samples D9E180128-001 and –002 were not accurately detected and are reported "NC" (not calculated).

The spike compound fluorene in the matrix spike and matrix spike duplicate samples were recovered at 228% and 147% which is above the 69% to 118% acceptance level. The native fluorene content in the sample was present at a concentration 5 times greater than the spike amount. A matrix effect is indicated.

The spike compound quinoline in the matrix spike was recovered at 167% which is above the 20% to 150% acceptance limits. The resultant relative percent difference (RPD) is reported at 31% which is above the 20% acceptance criteria. Quinoline was reported within acceptance criteria for percent recovery and RPD in the duplicate control samples. A possible matrix effect is indicated.

Except for the above, this data package is in compliance with the terms and conditions of the October 1998 QAPP, both technically and for completeness

Reported By: Kurt C. Ill **Date:** June 28, 1999

Kurt C. Ill
Program Manager

ANALYTICAL REPORT

PROJECT NO. 7

Reilly Tar & Chemical NPL Site

Lot #: D9E180128

Scott Anderson

City of St. Louis Park

QUANTERRA INCORPORATED

Kurt C. Ill
Project Manager

June 28, 1999

EXECUTIVE SUMMARY - Detection Highlights

D9E180128

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
PCJ-SLP10-051799 05/17/99 12:00 001				
Acenaphthylene	120	1.4	ng/L	SW846 8270A SIM
Acenaphthylene	94	7.0	ng/L	SW846 8270A SIM
Naphthalene	3.7 J	6.5	ng/L	SW846 8270A SIM
Acenaphthene	550	1.3	ng/L	SW846 8270A SIM
Acenaphthene	520	6.5	ng/L	SW846 8270A SIM
Dibenzofuran	25	1.0	ng/L	SW846 8270A SIM
Dibenzofuran	21	5.0	ng/L	SW846 8270A SIM
Fluorene	150	1.0	ng/L	SW846 8270A SIM
Fluorene	140	5.0	ng/L	SW846 8270A SIM
Phenanthrene	12	1.3	ng/L	SW846 8270A SIM
Phenanthrene	10	6.5	ng/L	SW846 8270A SIM
Anthracene	6.5	2.7	ng/L	SW846 8270A SIM
Carbazole	10	1.9	ng/L	SW846 8270A SIM
Carbazole	7.7 J	9.5	ng/L	SW846 8270A SIM
Fluoranthene	41	3.1	ng/L	SW846 8270A SIM
Fluoranthene	35	16	ng/L	SW846 8270A SIM
Pyrene	81	1.4	ng/L	SW846 8270A SIM
Pyrene	68	7.0	ng/L	SW846 8270A SIM
Indene	22	0.90	ng/L	SW846 8270A SIM
Indene	20	4.5	ng/L	SW846 8270A SIM
1-Methylnaphthalene	41	2.8	ng/L	SW846 8270A SIM
1-Methylnaphthalene	38	14	ng/L	SW846 8270A SIM
Biphenyl	11	4.3	ng/L	SW846 8270A SIM
Biphenyl	9.4 J	22	ng/L	SW846 8270A SIM
Quinoline	16	6.9	ng/L	SW846 8270A SIM
2,3-Benzofuran	2.7 J	5.1	ng/L	SW846 8270A SIM
2,3-Dihydroindene	260	5.0	ng/L	SW846 8270A SIM
2,3-Dihydroindene	220	25	ng/L	SW846 8270A SIM
Benzo(b)thiophene	29	0.90	ng/L	SW846 8270A SIM
Benzo(b)thiophene	27	4.5	ng/L	SW846 8270A SIM
Acridine	5.1 J	6.1	ng/L	SW846 8270A SIM
Dibenzothiophene	23	1.1	ng/L	SW846 8270A SIM
Dibenzothiophene	21	5.5	ng/L	SW846 8270A SIM
PCJ-SLP10D-051799 05/17/99 12:00 002				
Acenaphthylene	110	1.4	ng/L	SW846 8270A SIM
Acenaphthylene	79	7.0	ng/L	SW846 8270A SIM
Naphthalene	3.7 J	6.5	ng/L	SW846 8270A SIM
Acenaphthene	560	1.3	ng/L	SW846 8270A SIM
Acenaphthene	570	6.5	ng/L	SW846 8270A SIM
Dibenzofuran	25	1.0	ng/L	SW846 8270A SIM
Dibenzofuran	23	5.0	ng/L	SW846 8270A SIM

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

D9E180128

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
PCJ-SLP10D-051799 05/17/99 12:00 002				
Fluorene	160	1.0	ng/L	SW846 8270A SIM
Fluorene	150	5.0	ng/L	SW846 8270A SIM
Phenanthrene	12	1.3	ng/L	SW846 8270A SIM
Anthracene	6.7	2.7	ng/L	SW846 8270A SIM
Carbazole	9.9	1.9	ng/L	SW846 8270A SIM
Carbazole	7.0 J	9.5	ng/L	SW846 8270A SIM
Fluoranthene	38	3.1	ng/L	SW846 8270A SIM
Fluoranthene	35	16	ng/L	SW846 8270A SIM
Pyrene	76	1.4	ng/L	SW846 8270A SIM
Pyrene	69	7.0	ng/L	SW846 8270A SIM
Indene	23	0.90	ng/L	SW846 8270A SIM
Indene	23	4.5	ng/L	SW846 8270A SIM
1-Methylnaphthalene	41	2.8	ng/L	SW846 8270A SIM
1-Methylnaphthalene	40	14	ng/L	SW846 8270A SIM
Biphenyl	11	4.3	ng/L	SW846 8270A SIM
Biphenyl	9.8 J	22	ng/L	SW846 8270A SIM
Quinoline	34	34	ng/L	SW846 8270A SIM
2,3-Benzofuran	3.2 J	5.1	ng/L	SW846 8270A SIM
2,3-Dihydroindene	260	5.0	ng/L	SW846 8270A SIM
2,3-Dihydroindene	270	25	ng/L	SW846 8270A SIM
Benzo(b)thiophene	29	0.90	ng/L	SW846 8270A SIM
Benzo(b)thiophene	28	4.5	ng/L	SW846 8270A SIM
Acridine	5.8 J	6.1	ng/L	SW846 8270A SIM
Dibenzothiophene	24	1.1	ng/L	SW846 8270A SIM
Dibenzothiophene	21	5.5	ng/L	SW846 8270A SIM
PCJ-SLP10FB-051799 05/17/99 12:00 003				
Phenanthrene	2.5	1.3	ng/L	SW846 8270A SIM
Phenanthrene	4.1	1.3	ng/L	SW846 8270A SIM
Fluoranthene	1.6 J	3.1	ng/L	SW846 8270A SIM
PCJ-SLP10FBD-051799 05/17/99 12:00 004				
Phenanthrene	3.4	1.3	ng/L	SW846 8270A SIM
Phenanthrene	2.6	1.3	ng/L	SW846 8270A SIM
PCJ-W406-051799 05/17/99 14:00 005				
2-Methylnaphthalene	2.2 J	3.9	ng/L	SW846 8270A SIM
Phenanthrene	4.1	1.3	ng/L	SW846 8270A SIM
Phenanthrene	2.2	1.3	ng/L	SW846 8270A SIM
Fluoranthene	2.0 J	3.1	ng/L	SW846 8270A SIM

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

D9E180128

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
PCJ-W406-051799 05/17/99 14:00 005				
Fluoranthene	1.7 J	3.1	ng/L	SW846 8270A SIM
Pyrene	11	1.4	ng/L	SW846 8270A SIM
Pyrene	14	1.4	ng/L	SW846 8270A SIM
Quinoline	5.3 J	6.9	ng/L	SW846 8270A SIM
PCJ-W29-051799 05/17/99 15:00 006				
2-Methylnaphthalene	2.2 J	3.9	ng/L	SW846 8270A SIM
Acenaphthene	12	1.3	ng/L	SW846 8270A SIM
Acenaphthene	10	1.3	ng/L	SW846 8270A SIM
Fluorene	1.7	1.0	ng/L	SW846 8270A SIM
Fluorene	2.1	1.0	ng/L	SW846 8270A SIM
Phenanthrene	2.0	1.3	ng/L	SW846 8270A SIM
Phenanthrene	4.3	1.3	ng/L	SW846 8270A SIM
Anthracene	1.1 J	2.7	ng/L	SW846 8270A SIM
Fluoranthene	5.0	3.1	ng/L	SW846 8270A SIM
Fluoranthene	5.7	3.1	ng/L	SW846 8270A SIM
Pyrene	4.6	1.4	ng/L	SW846 8270A SIM
Pyrene	5.1	1.4	ng/L	SW846 8270A SIM
Quinoline	4.8 J	6.9	ng/L	SW846 8270A SIM
2,3-Dihydroindene	59	5.0	ng/L	SW846 8270A SIM
2,3-Dihydroindene	48	5.0	ng/L	SW846 8270A SIM
Acridine	2.2 J	6.1	ng/L	SW846 8270A SIM
PCJ-W403-051799 05/17/99 10:15 007				
Naphthalene	15	6.5	ng/L	SW846 8270A SIM
Naphthalene	16	6.5	ng/L	SW846 8270A SIM
2-Methylnaphthalene	7.4	3.9	ng/L	SW846 8270A SIM
Acenaphthene	3.6	1.3	ng/L	SW846 8270A SIM
Dibenzofuran	2.1	1.0	ng/L	SW846 8270A SIM
Phenanthrene	14	1.3	ng/L	SW846 8270A SIM
Phenanthrene	8.8	1.3	ng/L	SW846 8270A SIM
Anthracene	6.8	2.7	ng/L	SW846 8270A SIM
Fluoranthene	4.6	3.1	ng/L	SW846 8270A SIM
Fluoranthene	4.6	3.1	ng/L	SW846 8270A SIM
Pyrene	19	1.4	ng/L	SW846 8270A SIM
Pyrene	17	1.4	ng/L	SW846 8270A SIM
Indene	5.5	0.90	ng/L	SW846 8270A SIM
Indene	5.8	0.90	ng/L	SW846 8270A SIM
2,3-Dihydroindene	6.6	5.0	ng/L	SW846 8270A SIM
2,3-Dihydroindene	6.7	5.0	ng/L	SW846 8270A SIM
Benzo(b)thiophene	5.9	0.90	ng/L	SW846 8270A SIM

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

D9E180128

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
PCJ-W403-051799 05/17/99 10:15 007				
Acridine	75	6.1	ng/L	SW846 8270A SIM
Dibenzothiophene	1.5	1.1	ng/L	SW846 8270A SIM
Dibenzothiophene	1.8	1.1	ng/L	SW846 8270A SIM
PCJ-W402-051799 05/17/99 12:00 008				
2-Methylnaphthalene	14	3.9	ng/L	SW846 8270A SIM
2-Methylnaphthalene	10	3.9	ng/L	SW846 8270A SIM
Acenaphthene	12	1.3	ng/L	SW846 8270A SIM
Acenaphthene	8.9	1.3	ng/L	SW846 8270A SIM
Phenanthrene	27	1.3	ng/L	SW846 8270A SIM
Phenanthrene	14	1.3	ng/L	SW846 8270A SIM
Anthracene	2.0 J	2.7	ng/L	SW846 8270A SIM
Carbazole	4.4	1.9	ng/L	SW846 8270A SIM
Fluoranthene	12	3.1	ng/L	SW846 8270A SIM
Fluoranthene	6.7	3.1	ng/L	SW846 8270A SIM
Pyrene	45	1.4	ng/L	SW846 8270A SIM
Pyrene	24	1.4	ng/L	SW846 8270A SIM
Benzo(a)pyrene	0.87 J	2.3	ng/L	SW846 8270A SIM
Indene	15	0.90	ng/L	SW846 8270A SIM
Indene	12	0.90	ng/L	SW846 8270A SIM
Biphenyl	3.6 J	4.3	ng/L	SW846 8270A SIM
Biphenyl	2.4 J	4.3	ng/L	SW846 8270A SIM
2,3-Dihydroindene	16	5.0	ng/L	SW846 8270A SIM
2,3-Dihydroindene	12	5.0	ng/L	SW846 8270A SIM
Benzo(b)thiophene	15	0.90	ng/L	SW846 8270A SIM
Benzo(b)thiophene	10	0.90	ng/L	SW846 8270A SIM
Indole	370	2.5	ng/L	SW846 8270A SIM
Acridine	6.1	6.1	ng/L	SW846 8270A SIM
Dibenzothiophene	2.8	1.1	ng/L	SW846 8270A SIM

ANALYTICAL METHODS SUMMARY

D9E180128

PARAMETER	ANALYTICAL METHOD
Base/Neutrals and Acids	SW846 8270A SIM

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

METHOD / ANALYST SUMMARY

D9E180128

ANALYTICAL METHOD	ANALYST	ANALYST ID
SW846 8270A SIM	Monica R. Edwards	001685

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

D9E180128

WO #	SAMPLE#	CLIENT SAMPLE ID	DATE	TIME
CVW6A	001	PCJ-SLP10-051799	05/17/99	12:00
CVW6X	002	PCJ-SLP10D-051799	05/17/99	12:00
CVW7A	003	PCJ-SLP10FB-051799	05/17/99	12:00
CVW7Q	004	PCJ-SLP10FBD-051799	05/17/99	12:00
CVW80	005	PCJ-W406-051799	05/17/99	14:00
CVW81	006	PCJ-W29-051799	05/17/99	15:00
CVW82	007	PCJ-W403-051799	05/17/99	10:15
CVW84	008	PCJ-W402-051799	05/17/99	12:00

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- *This report must not be reproduced, except in full, without the written approval of the laboratory*
- Results for the following parameters are never reported on a dry weight basis color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-SLP10-051799

GC/MS Semivolatiles

Lot-Sample #...: D9E180128-001 Work Order #...: CVW6A201 Matrix.....: WATER
Date Sampled...: 05/17/99 12:00 Date Received..: 05/18/99
Prep Date.....: 06/01/99 Analysis Date..: 06/18/99
Prep Batch #...: 9152315 Analysis Time..: 00:59
Dilution Factor: 5
Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	94	7.0	ng/L
Naphthalene	ND	32	ng/L
2-Methylnaphthalene	ND	20	ng/L
Acenaphthene	520	6.5	ng/L
Dibenzofuran	21	5.0	ng/L
Fluorene	140	5.0	ng/L
Phenanthrene	10	6.5	ng/L
Anthracene	ND	14	ng/L
Carbazole	7.7 J	9.5	ng/L
Fluoranthene	35	16	ng/L
Pyrene	68	7.0	ng/L
Benzo(a)anthracene	ND	12	ng/L
Chrysene	ND	14	ng/L
Benzo(b)fluoranthene	ND	12	ng/L
Benzo(k)fluoranthene	ND	12	ng/L
Benzo(a)pyrene	ND	12	ng/L
Indeno(1,2,3-cd)pyrene	ND	10	ng/L
Benzo(ghi)perylene	ND	14	ng/L
Indene	20	4.5	ng/L
1-Methylnaphthalene	38	14	ng/L
Benzo(e)pyrene	ND	9.5	ng/L
Biphenyl	9.4 J	22	ng/L
Dibenz(a,h)anthracene	ND	8.0	ng/L
Quinoline	ND	34	ng/L
2,3-Benzofuran	ND	26	ng/L
2,3-Dihydroindene	220	25	ng/L
Benzo(b)thiophene	27	4.5	ng/L
Indole	ND	12	ng/L
Acridine	ND	30	ng/L
Perylene	ND	12	ng/L
Dibenzothiophene	21	5.5	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC	(10 - 118)
Fluorene d-10	NC	(41 - 162)
Naphthalene-d8	NC	(21 - 108)

NOTE(S):

NC The recovery and/or RPD were not calculated.

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-SLP10-051799

GC/MS Semivolatiles

Lot-Sample #...: D9E180128-001 Work Order #...: CVW6A101 Matrix.....: WATER
Date Sampled...: 05/17/99 12:00 Date Received..: 05/18/99
Prep Date.....: 05/18/99 Analysis Date..: 06/18/99
Prep Batch #...: 9138269 Analysis Time..: 14:19
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	120	1.4	ng/L
Naphthalene	3.7 J	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	550	1.3	ng/L
Dibenzofuran	25	1.0	ng/L
Fluorene	150	1.0	ng/L
Phenanthrene	12	1.3	ng/L
Anthracene	6.5	2.7	ng/L
Carbazole	10	1.9	ng/L
Fluoranthene	41	3.1	ng/L
Pyrene	81	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	22	0.90	ng/L
1-Methylnaphthalene	41	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	11	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	16	6.9	ng/L
2,3-Benzofuran	2.7 J	5.1	ng/L
2,3-Dihydroindene	260	5.0	ng/L
Benzo(b)thiophene	29	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	5.1 J	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	23	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	16	(10 - 118)
Fluorene d-10	67	(41 - 162)
Naphthalene-d8	52	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-SLP10D-051799

GC/MS Semivolatiles

Lot-Sample #...: D9E180128-002 Work Order #...: CVW6X201 Matrix.....: WATER
Date Sampled...: 05/17/99 12:00 Date Received..: 05/18/99
Prep Date.....: 06/01/99 Analysis Date..: 06/18/99
Prep Batch #...: 9152315 Analysis Time..: 02:47
Dilution Factor: 5

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	79	7.0	ng/L
Naphthalene	ND	32	ng/L
2-Methylnaphthalene	ND	20	ng/L
Acenaphthene	570	6.5	ng/L
Dibenzofuran	23	5.0	ng/L
Fluorene	150	5.0	ng/L
Phenanthrene	ND	6.5	ng/L
Anthracene	ND	14	ng/L
Carbazole	7.0 J	9.5	ng/L
Fluoranthene	35	16	ng/L
Pyrene	69	7.0	ng/L
Benzo(a)anthracene	ND	12	ng/L
Chrysene	ND	14	ng/L
Benzo(b)fluoranthene	ND	12	ng/L
Benzo(k)fluoranthene	ND	12	ng/L
Benzo(a)pyrene	ND	12	ng/L
Indeno(1,2,3-cd)pyrene	ND	10	ng/L
Benzo(ghi)perylene	ND	14	ng/L
Indene	23	4.5	ng/L
1-Methylnaphthalene	40	14	ng/L
Benzo(e)pyrene	ND	9.5	ng/L
Biphenyl	9.8 J	22	ng/L
Dibenz(a,h)anthracene	ND	8.0	ng/L
Quinoline	34	34	ng/L
2,3-Benzofuran	ND	26	ng/L
2,3-Dihydroindene	270	25	ng/L
Benzo(b)thiophene	28	4.5	ng/L
Indole	ND	12	ng/L
Acridine	ND	30	ng/L
Perylene	ND	12	ng/L
Dibenzothiophene	21	5.5	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC	(10 - 118)
Fluorene d-10	NC	(41 - 162)
Naphthalene-d8	NC	(21 - 108)

NOTE(S):

NC The recovery and/or RPD were not calculated.

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-SLP10D-051799

GC/MS Semivolatiles

Lot-Sample #...: D9E180128-002 Work Order #...: CVW6X101 Matrix.....: WATER
Date Sampled...: 05/17/99 12:00 Date Received..: 05/18/99
Prep Date.....: 05/18/99 Analysis Date..: 06/18/99
Prep Batch #...: 9138269 Analysis Time..: 16:09
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	110	1.4	ng/L
Naphthalene	3.7 J	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	560	1.3	ng/L
Dibenzofuran	25	1.0	ng/L
Fluorene	160	1.0	ng/L
Phenanthrene	12	1.3	ng/L
Anthracene	6.7	2.7	ng/L
Carbazole	9.9	1.9	ng/L
Fluoranthene	38	3.1	ng/L
Pyrene	76	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	23	0.90	ng/L
1-Methylnaphthalene	41	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	11	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	3.2 J	5.1	ng/L
2,3-Dihydroindene	260	5.0	ng/L
Benzo(b)thiophene	29	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	5.8 J	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	24	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	17	(10 - 118)
Fluorene d-10	70	(41 - 162)
Naphthalene-d8	55	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-SLP10FB-051799

GC/MS Semivolatiles

Lot-Sample #...: D9E180128-003 Work Order #...: CVW7A201 Matrix.....: WATER
Date Sampled...: 05/17/99 12:00 Date Received..: 05/18/99
Prep Date.....: 06/01/99 Analysis Date..: 06/12/99
Prep Batch #...: 9152315 Analysis Time..: 02:51
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	ND	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	4.1	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	1.6 J	3.1	ng/L
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	74	(10 - 118)
Fluorene d-10	71	(41 - 162)
Naphthalene-d8	59	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-SLP10FB-051799

GC/MS Semivolatiles

Lot-Sample #...: D9E180128-003 Work Order #...: CVW7A101 Matrix.....: WATER
Date Sampled...: 05/17/99 12:00 Date Received..: 05/18/99
Prep Date.....: 05/18/99 Analysis Date..: 06/18/99
Prep Batch #...: 9138269 Analysis Time..: 16:46
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	ND	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	2.5	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	ND	3.1	ng/L
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	29	(10 - 118)
Fluorene d-10	70	(41 - 162)
Naphthalene-d8	58	(21 - 108)

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-SLP10FBD-051799

GC/MS Semivolatiles

Lot-Sample #...: D9E180128-004 Work Order #...: CVW7Q201 Matrix.....: WATER
Date Sampled...: 05/17/99 12:00 Date Received..: 05/18/99
Prep Date.....: 06/01/99 Analysis Date..: 06/12/99
Prep Batch #...: 9152315 Analysis Time..: 03:27
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	ND	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	3.4	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	ND	3.1	ng/L
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	73	(10 - 118)
Fluorene d-10	68	(41 - 162)
Naphthalene-d8	59	(21 - 108)

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-SLP10FBD-051799

GC/MS Semivolatiles

Lot-Sample #...: D9E180128-004 **Work Order #...:** CVW7Q101 **Matrix.....:** WATER
Date Sampled...: 05/17/99 12:00 **Date Received..:** 05/18/99
Prep Date.....: 05/18/99 **Analysis Date..:** 06/18/99
Prep Batch #...: 9138269 **Analysis Time..:** 17:22
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	ND	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	**2.6**	**1.3**	**ng/L**
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	ND	3.1	ng/L
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	25	(10 - 118)
Fluorene d-10	63	(41 - 162)
Naphthalene-d8	52	(21 - 108)

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-W406-051799

GC/MS Semivolatiles

Lot-Sample #...: D9E180128-005 Work Order #...: CVW80201 Matrix.....: WATER
Date Sampled...: 05/17/99 14:00 Date Received..: 05/18/99
Prep Date.....: 06/01/99 Analysis Date..: 06/12/99
Prep Batch #...: 9152315 Analysis Time..: 04:03
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	ND	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	2.2	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	1.7 J	3.1	ng/L
Pyrene	14	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	5.3 J	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	29	(10 - 118)
Fluorene d-10	70	(41 - 162)
Naphthalene-d8	56	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-W406-051799

GC/MS Semivolatiles

Lot-Sample #...: D9E180128-005 Work Order #...: CVW80101 Matrix.....: WATER
Date Sampled...: 05/17/99 14:00 Date Received..: 05/18/99
Prep Date.....: 05/18/99 Analysis Date..: 06/18/99
Prep Batch #...: 9138269 Analysis Time..: 17:58
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	**2.2 J**	**3.9**	**ng/L**
Acenaphthene	ND	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	**4.1**	**1.3**	**ng/L**
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	**2.0 J**	**3.1**	**ng/L**
Pyrene	**11**	**1.4**	**ng/L**
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	12	(10 - 118)
Fluorene d-10	62	(41 - 162)
Naphthalene-d8	48	(21 - 108)

NOTE(S):

J Estimated result Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-W29-051799

GC/MS Semivolatiles

Lot-Sample #...: D9E180128-006 Work Order #...: CVW81201 Matrix.....: WATER
Date Sampled...: 05/17/99 15:00 Date Received..: 05/18/99
Prep Date.....: 06/01/99 Analysis Date..: 06/12/99
Prep Batch #...: 9152315 Analysis Time..: 04:40
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	**12**	**1.3**	**ng/L**
Dibenzofuran	ND	1.0	ng/L
Fluorene	**1.7**	**1.0**	**ng/L**
Phenanthrene	**2.0**	**1.3**	**ng/L**
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	**5.0**	**3.1**	**ng/L**
Pyrene	**4.6**	**1.4**	**ng/L**
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	**4.8 J**	**6.9**	**ng/L**
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	**59**	**5.0**	**ng/L**
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	39	(10 - 118)
Fluorene d-10	65	(41 - 162)
Naphthalene-d8	52	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-W29-051799

GC/MS Semivolatiles

Lot-Sample #...: D9E180128-006 **Work Order #...:** CVW81101 **Matrix.....:** WATER
Date Sampled...: 05/17/99 15:00 **Date Received..:** 05/18/99
Prep Date.....: 05/18/99 **Analysis Date..:** 06/18/99
Prep Batch #...: 9138269 **Analysis Time..:** 18:35
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	2.2 J	3.9	ng/L
Acenaphthene	10	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	2.1	1.0	ng/L
Phenanthrene	4.3	1.3	ng/L
Anthracene	1.1 J	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	5.7	3.1	ng/L
Pyrene	5.1	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	48	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	2.2 J	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	12	(10 - 118)
Fluorene d-10	60	(41 - 162)
Naphthalene-d8	49	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-W403-051799

GC/MS Semivolatiles

Lot-Sample #...: D9E180128-007 Work Order #...: CVW82201 Matrix.....: WATER
Date Sampled...: 05/17/99 10:15 Date Received..: 05/18/99
Prep Date.....: 06/01/99 Analysis Date..: 06/12/99
Prep Batch #...: 9152315 Analysis Time..: 05:16
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	15	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	ND	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	14	1.3	ng/L
Anthracene	6.8	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	4.6	3.1	ng/L
Pyrene	19	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	5.5	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	6.6	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	1.5	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	14	(10 - 118)
Fluorene d-10	65	(41 - 162)
Naphthalene-d8	42	(21 - 108)

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-W403-051799

GC/MS Semivolatiles

Lot-Sample #...: D9E180128-007 **Work Order #...:** CVW82101 **Matrix.....:** WATER
Date Sampled...: 05/17/99 10:15 **Date Received..:** 05/18/99
Prep Date.....: 05/18/99 **Analysis Date..:** 06/18/99
Prep Batch #...: 9138269 **Analysis Time..:** 19:11
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	**16**	**6.5**	**ng/L**
2-Methylnaphthalene	**7.4**	**3.9**	**ng/L**
Acenaphthene	**3.6**	**1.3**	**ng/L**
Dibenzofuran	**2.1**	**1.0**	**ng/L**
Fluorene	ND	1.0	ng/L
Phenanthrene	**8.8**	**1.3**	**ng/L**
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	**4.6**	**3.1**	**ng/L**
Pyrene	**17**	**1.4**	**ng/L**
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	**5.8**	**0.90**	**ng/L**
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	**6.7**	**5.0**	**ng/L**
Benzo(b)thiophene	**5.9**	**0.90**	**ng/L**
Indole	ND	2.5	ng/L
Acridine	**75**	**6.1**	**ng/L**
Perylene	ND	2.5	ng/L
Dibenzothiophene	**1.8**	**1.1**	**ng/L**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	8.7 *	(10 - 118)
Fluorene d-10	50	(41 - 162)
Naphthalene-d8	39	(21 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-W402-051799

GC/MS Semivolatiles

Lot-Sample #...: D9E180128-008 Work Order #...: CVW84201 Matrix.....: WATER
Date Sampled...: 05/17/99 12:00 Date Received..: 05/18/99
Prep Date.....: 06/01/99 Analysis Date..: 06/12/99
Prep Batch #...: 9152315 Analysis Time..: 05:53
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	14	3.9	ng/L
Acenaphthene	12	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	27	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	12	3.1	ng/L
Pyrene	45	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	0.87 J	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	15	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	3.6 J	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	16	5.0	ng/L
Benzo(b)thiophene	15	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	16	(10 - 118)
Fluorene d-10	64	(41 - 162)
Naphthalene-d8	44	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-W402-051799

GC/MS Semivolatiles

Lot-Sample #...: D9E180128-008 **Work Order #...:** CVW84101 **Matrix.....:** WATER
Date Sampled...: 05/17/99 12:00 **Date Received..:** 05/18/99
Prep Date.....: 05/18/99 **Analysis Date..:** 06/18/99
Prep Batch #...: 9138269 **Analysis Time..:** 19:47
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	**10**	**3.9**	**ng/L**
Acenaphthene	**8.9**	**1.3**	**ng/L**
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	**14**	**1.3**	**ng/L**
Anthracene	**2.0 J**	**2.7**	**ng/L**
Carbazole	**4.4**	**1.9**	**ng/L**
Fluoranthene	**6.7**	**3.1**	**ng/L**
Pyrene	**24**	**1.4**	**ng/L**
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	**12**	**0.90**	**ng/L**
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	**2.4 J**	**4.3**	**ng/L**
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	**12**	**5.0**	**ng/L**
Benzo(b)thiophene	**10**	**0.90**	**ng/L**
Indole	**370**	**2.5**	**ng/L**
Acridine	**6.1**	**6.1**	**ng/L**
Perylene	ND	2.5	ng/L
Dibenzothiophene	**2.8**	**1.1**	**ng/L**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	7.8 *	(10 - 118)
Fluorene d-10	51	(41 - 162)
Naphthalene-d8	763 *	(21 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

J Estimated result. Result is less than RL.

QC DATA ASSOCIATION SUMMARY

D9E180128

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WATER	SW846 8270A SIM		9138269	9138100
	WATER	SW846 8270A SIM		9152315	9173050
002	WATER	SW846 8270A SIM		9138269	9138100
	WATER	SW846 8270A SIM		9152315	9173050
003	WATER	SW846 8270A SIM		9138269	9138100
	WATER	SW846 8270A SIM		9152315	9173050
004	WATER	SW846 8270A SIM		9138269	9138100
	WATER	SW846 8270A SIM		9152315	9173050
005	WATER	SW846 8270A SIM		9138269	9138100
	WATER	SW846 8270A SIM		9152315	9173050
006	WATER	SW846 8270A SIM		9138269	9138100
	WATER	SW846 8270A SIM		9152315	9173050
007	WATER	SW846 8270A SIM		9138269	9138100
	WATER	SW846 8270A SIM		9152315	9173050
008	WATER	SW846 8270A SIM		9138269	9138100
	WATER	SW846 8270A SIM		9152315	9173050

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D9E180128
MB Lot-Sample #: D9F010000-315
Work Order #...: CWE3P101
Matrix.....: WATER
Prep Date.....: 06/01/99
Analysis Time..: 15:21
Analysis Date..: 06/11/99
Prep Batch #...: 9152315
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthylene	ND	1.4	ng/L	SW846 8270A SIM
Naphthalene	ND	6.5	ng/L	SW846 8270A SIM
2-Methylnaphthalene	ND	3.9	ng/L	SW846 8270A SIM
Acenaphthene	ND	1.3	ng/L	SW846 8270A SIM
Dibenzofuran	ND	1.0	ng/L	SW846 8270A SIM
Fluorene	ND	1.0	ng/L	SW846 8270A SIM
Phenanthrene	2.4	1.3	ng/L	SW846 8270A SIM
Anthracene	ND	2.7	ng/L	SW846 8270A SIM
Carbazole	ND	1.9	ng/L	SW846 8270A SIM
Fluoranthene	ND	3.1	ng/L	SW846 8270A SIM
Pyrene	ND	1.4	ng/L	SW846 8270A SIM
Benzo(a)anthracene	ND	2.5	ng/L	SW846 8270A SIM
Chrysene	ND	2.8	ng/L	SW846 8270A SIM
Benzo(b)fluoranthene	ND	2.5	ng/L	SW846 8270A SIM
Benzo(k)fluoranthene	ND	2.3	ng/L	SW846 8270A SIM
Benzo(a)pyrene	ND	2.3	ng/L	SW846 8270A SIM
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L	SW846 8270A SIM
Benzo(ghi)perylene	ND	2.8	ng/L	SW846 8270A SIM
Indene	ND	0.90	ng/L	SW846 8270A SIM
1-Methylnaphthalene	ND	2.8	ng/L	SW846 8270A SIM
Benzo(e)pyrene	ND	1.9	ng/L	SW846 8270A SIM
Biphenyl	ND	4.3	ng/L	SW846 8270A SIM
Dibenz(a,h)anthracene	ND	1.6	ng/L	SW846 8270A SIM
Quinoline	ND	6.9	ng/L	SW846 8270A SIM
2,3-Benzofuran	ND	5.1	ng/L	SW846 8270A SIM
2,3-Dihydroindene	ND	5.0	ng/L	SW846 8270A SIM
Benzo(b)thiophene	ND	0.90	ng/L	SW846 8270A SIM
Indole	ND	2.5	ng/L	SW846 8270A SIM
Acridine	ND	6.1	ng/L	SW846 8270A SIM
Perylene	ND	2.5	ng/L	SW846 8270A SIM
Dibenzothiophene	ND	1.1	ng/L	SW846 8270A SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	68	(10 - 118)
Fluorene d-10	76	(41 - 162)
Naphthalene-d8	64	(21 - 108)

NOTE(S):

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

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D9E180128 **Work Order #...:** CWE3P102-LCS **Matrix.....:** WATER
LCS Lot-Sample#: D9F010000-315 CWE3P103-LCSD
Prep Date.....: 06/01/99 **Analysis Date..:** 06/11/99
Prep Batch #...: 9152315 **Analysis Time..:** 15:58
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Naphthalene	**10.0**	**9.52**	**ng/L**	**95**		**SW846 8270A SIM**
	10.0	**8.91**	**ng/L**	**89**	**6.7**	**SW846 8270A SIM**
2-Methylnaphthalene	**10.0**	**8.57**	**ng/L**	**86**		**SW846 8270A SIM**
	10.0	**8.22**	**ng/L**	**82**	**4.2**	**SW846 8270A SIM**
Fluorene	**10.0**	**7.38**	**ng/L**	**74**		**SW846 8270A SIM**
	10.0	**7.15**	**ng/L**	**71**	**3.2**	**SW846 8270A SIM**
Chrysene	**10.0**	**6.02**	**ng/L**	**60**		**SW846 8270A SIM**
	10.0	**6.50**	**ng/L**	**65**	**7.8**	**SW846 8270A SIM**
Indene	**10.0**	**7.77**	**ng/L**	**78**		**SW846 8270A SIM**
	10.0	**6.98**	**ng/L**	**70**	**11**	**SW846 8270A SIM**
Benzo(e)pyrene	**10.0**	**6.62**	**ng/L**	**66**		**SW846 8270A SIM**
	10.0	**7.33**	**ng/L**	**73**	**10**	**SW846 8270A SIM**
Quinoline	**10.0**	**6.36**	**ng/L**	**64**		**SW846 8270A SIM**
	10.0	**7.19**	**ng/L**	**72**	**12**	**SW846 8270A SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	70	(10 - 118)
	75	(10 - 118)
Fluorene d-10	77	(41 - 162)
	75	(41 - 162)
Naphthalene-d8	66	(21 - 108)
	63	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D9E180128 **Work Order #...:** CWE3P102-LCS **Matrix.....:** WATER
LCS Lot-Sample#: D9F010000-315 CWE3P103-LCSD
Prep Date.....: 06/01/99 **Analysis Date..:** 06/11/99
Prep Batch #...: 9152315 **Analysis Time..:** 15:58
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Naphthalene	**95**	**(20 - 150)**			**SW846 8270A SIM**
	89	**(20 - 150)**	**6.7**	**(0-20)**	**SW846 8270A SIM**
2-Methylnaphthalene	**86**	**(20 - 150)**			**SW846 8270A SIM**
	82	**(20 - 150)**	**4.2**	**(0-20)**	**SW846 8270A SIM**
Fluorene	**74**	**(69 - 118)**			**SW846 8270A SIM**
	71	**(69 - 118)**	**3.2**	**(0-20)**	**SW846 8270A SIM**
Chrysene	**60**	**(20 - 132)**			**SW846 8270A SIM**
	65	**(20 - 132)**	**7.8**	**(0-20)**	**SW846 8270A SIM**
Indene	**78**	**(20 - 150)**			**SW846 8270A SIM**
	70	**(20 - 150)**	**11**	**(0-20)**	**SW846 8270A SIM**
Benzo(e)pyrene	**66**	**(20 - 150)**			**SW846 8270A SIM**
	73	**(20 - 150)**	**10**	**(0-20)**	**SW846 8270A SIM**
Quinoline	**64**	**(20 - 150)**			**SW846 8270A SIM**
	72	**(20 - 150)**	**12**	**(0-20)**	**SW846 8270A SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	70	(10 - 118)
	75	(10 - 118)
Fluorene d-10	77	(41 - 162)
	75	(41 - 162)
Naphthalene-d8	66	(21 - 108)
	63	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D9E180128 **Work Order #...:** CVW6A104-MS **Matrix.....:** WATER
MS Lot-Sample #: D9E180128-001 CVW6A105-MSD
Date Sampled...: 05/17/99 12:00 **Date Received..:** 05/18/99
Prep Date.....: 06/01/99 **Analysis Date..:** 06/12/99
Prep Batch #...: 9152315 **Analysis Time..:** 01:03
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Naphthalene	ND	20.2	18.6	ng/L	66		SW846 8270A SIM
	ND	20.3	19.7	ng/L	70	5.1	SW846 8270A SIM
2-Methylnaphthalene	ND	20.2	16.3	ng/L	68		SW846 8270A SIM
	ND	20.3	17.7	ng/L	75	7.5	SW846 8270A SIM
Fluorene	140	20.2	186 a	ng/L	228		SW846 8270A SIM
	140	20.3	170 a	ng/L	147	9.7	SW846 8270A SIM
Chrysene	ND	20.2	10.5	ng/L	52		SW846 8270A SIM
	ND	20.3	9.35	ng/L	46	12	SW846 8270A SIM
Indene	20	20.2	38.6	ng/L	94		SW846 8270A SIM
	20	20.3	40.3	ng/L	102	3.7	SW846 8270A SIM
Benzo(e)pyrene	ND	20.2	6.50	ng/L	32		SW846 8270A SIM
	ND	20.3	6.84	ng/L	34	4.6	SW846 8270A SIM
[illegible]noline	ND	20.2	24.5	ng/L	121		SW846 8270A SIM
	ND	20.3	33.8 a,	ng/L	167	31	SW846 8270A SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC	(10 - 118)
	NC	(10 - 118)
Fluorene d-10	NC	(41 - 162)
	NC	(41 - 162)
Naphthalene-d8	NC	(21 - 108)
	NC	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

NC The recovery and/or RPD were not calculated

a Spiked analyte recovery is outside stated control limits

p Relative percent difference (RPD) is outside stated control limits

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D9E180128 **Work Order #...:** CVW6A104-MS **Matrix.....:** WATER
MS Lot-Sample #: D9E180128-001 CVW6A105-MSD
Date Sampled...: 05/17/99 12:00 **Date Received..:** 05/18/99
Prep Date.....: 06/01/99 **Analysis Date..:** 06/12/99
Prep Batch #...: 9152315 **Analysis Time..:** 01:03
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Naphthalene	**66**	**(20 - 150)**			**SW846 8270A SIM**
	70	**(20 - 150)**	**5.1**	**(0-20)**	**SW846 8270A SIM**
2-Methylnaphthalene	**68**	**(20 - 150)**			**SW846 8270A SIM**
	75	**(20 - 150)**	**7.5**	**(0-20)**	**SW846 8270A SIM**
Fluorene	**228 a**	**(69 - 118)**			**SW846 8270A SIM**
	147 a	**(69 - 118)**	**9.7**	**(0-20)**	**SW846 8270A SIM**
Chrysene	**52**	**(20 - 132)**			**SW846 8270A SIM**
	46	**(20 - 132)**	**12**	**(0-20)**	**SW846 8270A SIM**
Indene	**94**	**(20 - 150)**			**SW846 8270A SIM**
	102	**(20 - 150)**	**3.7**	**(0-20)**	**SW846 8270A SIM**
Benzo(e)pyrene	**32**	**(20 - 150)**			**SW846 8270A SIM**
	34	**(20 - 150)**	**4.6**	**(0-20)**	**SW846 8270A SIM**
Quinoline	**121**	**(20 - 150)**			**SW846 8270A SIM**
	167 a,p	**(20 - 150)**	**31**	**(0-20)**	**SW846 8270A SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC	(10 - 118)
	NC	(10 - 118)
Fluorene d-10	NC	(41 - 162)
	NC	(41 - 162)
Naphthalene-d8	NC	(21 - 108)
	NC	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

NC The recovery and/or RPD were not calculated

a Spiked analyte recovery is outside stated control limits

p Relative percent difference (RPD) is outside stated control limits

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D9E180128 **Work Order #...:** CVWKW101 **Matrix.....:** WATER
MB Lot-Sample #: D9E180000-269

Prep Date.....: 05/18/99 **Analysis Time..:** 22:45
Analysis Date..: 05/26/99 **Prep Batch #...:** 9138269
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthylene	ND	1.4	ng/L	SW846 8270A SIM
Naphthalene	15	6.5	ng/L	SW846 8270A SIM
2-Methylnaphthalene	22	3.9	ng/L	SW846 8270A SIM
Acenaphthene	ND	1.3	ng/L	SW846 8270A SIM
Dibenzofuran	ND	1.0	ng/L	SW846 8270A SIM
Fluorene	11	1.0	ng/L	SW846 8270A SIM
Phenanthrene	52	1.3	ng/L	SW846 8270A SIM
Anthracene	ND	2.7	ng/L	SW846 8270A SIM
Carbazole	ND	1.9	ng/L	SW846 8270A SIM
Fluoranthene	19	3.1	ng/L	SW846 8270A SIM
Pyrene	9.9	1.4	ng/L	SW846 8270A SIM
Benzo(a)anthracene	ND	2.5	ng/L	SW846 8270A SIM
Chrysene	ND	2.8	ng/L	SW846 8270A SIM
Benzo(b)fluoranthene	ND	2.5	ng/L	SW846 8270A SIM
Benzo(k)fluoranthene	ND	2.3	ng/L	SW846 8270A SIM
Benzo(a)pyrene	ND	2.3	ng/L	SW846 8270A SIM
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L	SW846 8270A SIM
Benzo(ghi)perylene	ND	2.8	ng/L	SW846 8270A SIM
Indene	ND	0.90	ng/L	SW846 8270A SIM
1-Methylnaphthalene	ND	2.8	ng/L	SW846 8270A SIM
Benzo(e)pyrene	ND	1.9	ng/L	SW846 8270A SIM
Biphenyl	4.3	4.3	ng/L	SW846 8270A SIM
Dibenz(a,h)anthracene	ND	1.6	ng/L	SW846 8270A SIM
Quinoline	3.9 J	6.9	ng/L	SW846 8270A SIM
2,3-Benzofuran	ND	5.1	ng/L	SW846 8270A SIM
2,3-Dihydroindene	ND	5.0	ng/L	SW846 8270A SIM
Benzo(b)thiophene	ND	0.90	ng/L	SW846 8270A SIM
Indole	ND	2.5	ng/L	SW846 8270A SIM
Acridine	ND	6.1	ng/L	SW846 8270A SIM
Perylene	ND	2.5	ng/L	SW846 8270A SIM
Dibenzothiophene	ND	1.1	ng/L	SW846 8270A SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	286 *	(10 - 118)
Fluorene d-10	85	(41 - 162)
Naphthalene-d8	79	(21 - 108)

NOTE(S):

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

* Surrogate recovery is outside stated control limits.

J Estimated result. Result is less than RL

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D9E180128 **Work Order #...:** CVWKW102-LCS **Matrix.....:** WATER
LCS Lot-Sample#: D9E180000-269 CVWKW103-LCSD
Prep Date.....: 05/18/99 **Analysis Date..:**
Prep Batch #...: 9138269 **Analysis Time..:** 00:00
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Naphthalene	10.0		ng/L	0		SW846 8270A SIM
	10.0		ng/L			SW846 8270A SIM
2-Methylnaphthalene	10.0		ng/L	0		SW846 8270A SIM
	10.0		ng/L			SW846 8270A SIM
Fluorene	10.0		ng/L	0		SW846 8270A SIM
	10.0		ng/L			SW846 8270A SIM
Chrysene	10.0		ng/L	0		SW846 8270A SIM
	10.0		ng/L			SW846 8270A SIM
Indene	10.0		ng/L	0		SW846 8270A SIM
	10.0		ng/L			SW846 8270A SIM
Benzo(e)pyrene	10.0		ng/L	0		SW846 8270A SIM
	10.0		ng/L			SW846 8270A SIM
Quinoline	10.0		ng/L	0		SW846 8270A SIM
	10.0		ng/L			SW846 8270A SI

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12		(10 - 118)
		(10 - 118)
Fluorene d-10		(41 - 162)
		(41 - 162)
Naphthalene-d8		(21 - 108)
		(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D9E180128 Work Order #...: CVWKW102-LCS Matrix.....: WATER
LCS Lot-Sample#: D9E180000-269 CVWKW103-LCSD
Prep Date.....: 05/18/99 Analysis Date..:
Prep Batch #...: 9138269 Analysis Time..: 00:00
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Naphthalene	0	(20 - 150)			SW846 8270A SIM
		(20 - 150)		(0-20)	SW846 8270A SIM
2-Methylnaphthalene	0	(20 - 150)			SW846 8270A SIM
		(20 - 150)		(0-20)	SW846 8270A SIM
Fluorene	0	(69 - 118)			SW846 8270A SIM
		(69 - 118)		(0-20)	SW846 8270A SIM
Chrysene	0	(20 - 132)			SW846 8270A SIM
		(20 - 132)		(0-20)	SW846 8270A SIM
Indene	0	(20 - 150)			SW846 8270A SIM
		(20 - 150)		(0-20)	SW846 8270A SIM
Benzo(e)pyrene	0	(20 - 150)			SW846 8270A SIM
		(20 - 150)		(0-20)	SW846 8270A SIM
Quinoline	0	(20 - 150)			SW846 8270A SIM
		(20 - 150)		(0-20)	SW846 8270A SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12		(10 - 118)
		(10 - 118)
Fluorene d-10		(41 - 162)
		(41 - 162)
Naphthalene-d8		(21 - 108)
		(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D9E180128 **Work Order #...:** CVW6A102-MS **Matrix.....:** WATER
MS Lot-Sample #: D9E180128-001 CVW6A103-MSD
Date Sampled...: 05/17/99 12:00 **Date Received..:** 05/18/99
Prep Date.....: 05/18/99 **Analysis Date..:** 06/18/99
Prep Batch #...: 9138269 **Analysis Time..:** 14:56
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Naphthalene	3.7	10.4	9.14	ng/L	53		SW846 8270A SIM
	3.7	10.4	9.15	ng/L	53	0.20	SW846 8270A SIM
2-Methylnaphthalene	ND	10.4	7.58	ng/L	73		SW846 8270A SIM
	ND	10.4	7.53	ng/L	72	0.92	SW846 8270A SIM
Fluorene	150	10.4	165 a	ng/L	123		SW846 8270A SIM
	150	10.4	156 a	ng/L	33	6.1	SW846 8270A SIM
Chrysene	ND	10.4	2.16	ng/L	21		SW846 8270A SIM
	ND	10.4	1.88 a	ng/L	18	14	SW846 8270A SIM
Indene	22	10.4	27.2	ng/L	51		SW846 8270A SIM
	22	10.4	26.9	ng/L	48	1.6	SW846 8270A SIM
Benzo(e)pyrene	ND	10.4	1.46 a	ng/L	14		SW846 8270A SIM
	ND	10.4		ng/L	0.0	200	SW846 8270A SIM
Quinoline	16	10.4	20.9	ng/L	49		SW846 8270A SIM
	16	10.4	21.7	ng/L	56	3.1	SW846 8270A SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	17	(10 - 118)
	15	(10 - 118)
Fluorene d-10	66	(41 - 162)
	65	(41 - 162)
Naphthalene-d8	53	(21 - 108)
	50	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D9E180128 **Work Order #...:** CVW6A102-MS **Matrix.....:** WATER
MS Lot-Sample #: D9E180128-001 CVW6A103-MSD
Date Sampled...: 05/17/99 12:00 **Date Received..:** 05/18/99
Prep Date.....: 05/18/99 **Analysis Date..:** 06/18/99
Prep Batch #...: 9138269 **Analysis Time..:** 14:56
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Naphthalene	**53**	**(20 - 150)**			**SW846 8270A SIM**
	53	**(20 - 150)**	**0.20**	**(0-20)**	**SW846 8270A SIM**
2-Methylnaphthalene	**73**	**(20 - 150)**			**SW846 8270A SIM**
	72	**(20 - 150)**	**0.92**	**(0-20)**	**SW846 8270A SIM**
Fluorene	**123 a**	**(69 - 118)**			**SW846 8270A SIM**
	33 a	**(69 - 118)**	**6.1**	**(0-20)**	**SW846 8270A SIM**
Chrysene	**21**	**(20 - 132)**			**SW846 8270A SIM**
	18 a	**(20 - 132)**	**14**	**(0-20)**	**SW846 8270A SIM**
Indene	**51**	**(20 - 150)**			**SW846 8270A SIM**
	48	**(20 - 150)**	**1.6**	**(0-20)**	**SW846 8270A SIM**
Benzo(e)pyrene	**14 a**	**(20 - 150)**			**SW846 8270A SIM**
	0.0	**(20 - 150)**	**200**	**(0-20)**	**SW846 8270A SIM**
[illegible]noline	**49**	**(20 - 150)**			**SW846 8270A SIM**
	56	**(20 - 150)**	**3.1**	**(0-20)**	**SW846 8270A SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	17	(10 - 118)
	15	(10 - 118)
Fluorene d-10	66	(41 - 162)
	65	(41 - 162)
Naphthalene-d8	53	(21 - 108)
	50	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits

Chain of Custody Record

Quanterra Environmental Services

QUA-412N

Client: CITY OF ST. LOUIS PARK UTILITY DIVISION	Project Manager: SCOTT ANDERSON	Date: 5-17-99	Chain Of Custody Number: 27380
Address: 3752 WOODDALE AVENUE	Telephone Number (Area Code)/Fax Number: 924-2557 (612) 924-2570	Lab Number: D9E180128	Page ____ of ____
City: ST. LOUIS PARK, MN 55416	Site Contact: SAME		
Project Name: SAME	Carrier/Waybill Number: FED EX 800846316600		
Contract/Purchase Order/Quote No			

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No	Preservative	Condition on Receipt	Analysis: PPT PAH 5
PCJ-SLP10-051799	5-17-99		WATER	1 LITER	AMBER	6	N/A		X
PCJ-SLP10D-051799	5-17-99		WATER	1 LITER	AMBER	6	N/A		X

Special Instructions: PPT 5 Cooler 0010 @ 2.3°C

Possible Hazard Identification: [X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown

Sample Disposal: [ ] Return To Client [X] Disposal By Lab [ ] Archive For ____ Months

Turn Around Time Required: [ ] Normal [ ] Rush

QC Level: [ ] I. [ ] II. [ ] III.

Project Specific (Specify):

1 Relinquished By: MZ	Date: 5-17-99	Time: 1400	1 Received By: Monica L. Edwards	Date: 5/18/99	Time: 0900
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 Sample, CANARY - Returned to Client with Report, PINK - Field Copy

Chain of Custody Record

Quanterra Environmental Services

QUA-4124

Client: CITY OF ST. LOUIS PARK UTILITY DIVISION 3752 WOODDALE AVENUE ST. LOUIS PARK, MN 55416	Project Manager: SCOTT ANDERSON	Date: 5-17-99	Chain Of Custody Number: 27381
Address	Telephone Number (Area Code)/Fax Number: 924-2557 (612) 924-2570	Lab Number: D9E180128	Page ____ of ____
City	Site Contact: SAME		
Project Name: SAME	Carrier/Waybill Number: FED EX 800846316600		
Contract/Purchase Order/Quote No			

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: PPC PAH 5
PCJ-SLP10 MS -051799	5-17-99		WATER	1LITER	AMBER	6	N/A		X
PCJ-SLP10MSD-051799	5-17-99		WATER	1LITER	AMBER	6	N/A		X

Special Instructions: PPC 5 Cooler 0004 @ 2.5°C

Possible Hazard Identification: [X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown

Sample Disposal: [ ] Return To Client [X] Disposal By Lab [ ] Archive For ____ Months

Turn Around Time Required: [ ] Normal [ ] Rush

QC Level: [ ] I. [ ] II. [ ] III.

Project Specific (Specify):

	Date	Time		Date	Time
1. Relinquished By: MJ [illegible]	5-17-99	1400	1 Received By: Monica R. Edwards	5/18/99	0900
2. Relinquished By			2 Received By		
3 Relinquished By			3 Received By		

Comments: 2-BOTTLES RECEIVED BROKEN FOR SAMPLE PCJ-SLP10MS-051799

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

Chain of Custody Record

Quanterra Environmental Services

QUA-4124

Client: CITY OF ST. LOUIS PARK	Project Manager: SCOTT ANDERSON	Date: 5-17-99	Chain Of Custody Number: 27382
Address: UTILITY DIVISION, 3752 WOODDALE AVENUE	Telephone Number (Area Code)/Fax Number: 924-2557 (612) 924-2570	Lab Number: D9E180128	Page ____ of ____
City: ST. LOUIS PARK, MN 55416	Site Contact: SAME		
Project Name: SAME	Carrier/Waybill Number: FED EX 800846316600		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: PPT PAH 5
PCJT-SLP10FB-051799	5-17-99		WATER	1 LITER	AMBER	6	N/A		X
PCJT-SLP10FBD-051799	5-17-99		WATER	1 LITER	AMBER	0	N/A		X

Special Instructions: PPT 5 Cooler 0002 @ 4.9°C

Possible Hazard Identification: [X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown

Sample Disposal: [ ] Return To Client [X] Disposal By Lab [ ] Archive For ____ Months

Turn Around Time Required: [ ] Normal [ ] Rush

QC Level: [ ] I. [ ] II. [ ] III.

Project Specific (Specify):

1. Relinquished By: MZK	Date: 5-17-99	Time: 1400	1 Received By: Marcia R. Eduardo	Date: 5-18-99	Time: 0900
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 Sample, CANARY - Returned to Client with Report, PINK - Field Copy

Chain of Custody Record

Quanterra

QUA-4124

Client: City of St Louis Park	Project Manager: Bill Gregg	Date: 5/17/99	Chain Of Custody Number: 39621
Address: 3252 Woodale Ave	Telephone Number (Area Code)/Fax Number: 612-924-2557	Lab Number: DME180128	Page 1 of 1
City: St Louis Park; State: MN; Zip Code: 55416	Site Contact: Scott Anderson		
Project Name: Reilly	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No:			

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: PPT-PAH
PCJ-W40B-051799	5/17/99	14:00	G-W	6 Liters	1 Liter	6	—		X
PCJ-W29-051799	5/17/99	15:00	G-W	6 Liters	1 Liter	6	—		X

Special Instructions: PPT-5 Cooler 0011 @ 2.1°C

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

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Turn Around Time Required: ☐ Normal ☐ Rush

QC Level: ☐ I. ☐ II. ☐ III.

Project Specific (Specify):

	Date	Time		Date	Time
1 Relinquished By: Pat Moore	5/17/99	16:00	1 Received By: Monica R Eduardo	5/18/99	0900
2 Relinquished By:			2 Received By:		
3 Relinquished By:			3 Received By:		

Comments:

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

Chain of Custody Record

Quanterra

QUA-4124

Client: City of St. Louis Park	Project Manager: Bill Gregg	Date: 5/17/99	Chain Of Custody Number: 39613
Address: 3752 Wooddale Ave	Telephone Number (Area Code)/Fax Number: (612) 924-2557	Lab Number: D9E180128	Page 1 of 1
City: St Louis Park; State: MN; Zip Code: 55416	Site Contact: Scott Anderson		
Project Name: St. Louis Park - Reilley	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No:			

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: PPT-PAH (PT-5)
PCJ-W403-051799	5/17/99	11:15	WT	6 L	1 L	6			X
PCJ-W402-051799	↓	12:00	↓	↓	↓	↓			X

Special Instructions: Cooler 0008 @ 2.1°C

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

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Turn Around Time Required: ☐ Normal ☐ Rush

QC Level: ☐ I. ☐ II. ☐ III.

Project Specific (Specify):

	Date	Time		Date	Time
1 Relinquished By: Chris Bochn	5/17/99	13:30	1 Received By: Monica R. Edwards	5-18-99	0900
2 Relinquished By:			2 Received By:		
3 Relinquished By:			3 Received By:		

Comments: 1 - 1 L[illegible]ER Bottle RECEIVED BROKEN FOR PCJ-[illegible]402-051799

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

PCJ

Quanterra

Advanced Analytical Services

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 467-9136 Fax

CASE NARRATIVE

FOR

City of St. Louis Park

June 25, 1999

Quanterra , Inc.

Project Lot Number D9E190131

Introduction

Ten aqueous samples (including matrix QC) were received at Quanterra Environmental Services, Denver Laboratory on May 19, 1999. The samples were logged in under Quanterra Denver's project lot number D9E190131. A cross reference associating Quanterra Denver's laboratory sample numbers to the actual field sample number is included. The samples were analyzed for part per trillion (ppt) PAHs.

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the October 1998 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.

The compound Indene in the LCS and LCSD samples for batch 9139390 was recovered at 259% and 237% respectively. An investigation revealed that the calibration concentrations were approximately 50% of what was entered into the method. This resulted in biased high results for Indene by approximately 2 fold. All other compounds were within acceptance limits. A new calibration curve was prepared and analyzed with the correct Indene concentrations. Samples D9E190131-001 through –006 did not contain reportable Indene concentrations higher than 2 times the reporting limit therefore were not reanalyzed. Samples D9E190131-007 through –010 were analyzed using the new curve.

The surrogate compound naphthalene-d8 in the LCS and LCSD samples were recovered at 117% and 112% which is above the 21% to 108% acceptance limits. Naphthalene-d8 was recovered within acceptance limits for all associated samples and the matrix spike and matrix spike duplicate.

The spike compound indene in the matrix spike was recovered at 41% which is outside the 49% to 108% acceptance criteria. The method blank and laboratory control sample associated with these samples was within acceptance limits. A possible matrix effect is indicated.

The spike compound fluorene in the LCS and LCSD for batch 9141129 was recovered at 66% and 65% which is below the 69% to 118% acceptance limits. Fluorene was recovered within acceptance limits in the matrix spike and matrix spike duplicate samples.

The relative percent difference (RPD) for the spike compound quinoline for the LCS/LCSD associated with batch 9141129 is reported at 41% which is above the 20% acceptance limit. The RPD for quinoline is within acceptance limits in the matrix spike and matrix spike duplicate samples.

Except for the above, this data package is in compliance with the terms and conditions of the October 1998 QAPP, both technically and for completeness

Reported By: Kurt C. Ill **Date:** June 25, 1999

Kurt C. Ill
Program Manager

ANALYTICAL REPORT

PROJECT NO. 7

Reilly Tar & Chemical NPL Site

Lot #: D9E190131

Scott Anderson

City of St. Louis Park

QUANTERRA INCORPORATED

Kurt C. Ill
Project Manager

June 25, 1999

EXECUTIVE SUMMARY - Detection Highlights

D9E190131

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
PCJ-SLP14-051899 05/18/99 11:00 001				
Acenaphthylene	6.0	1.4	ng/L	SW846 8270A SIM
Acenaphthene	18	1.3	ng/L	SW846 8270A SIM
Phenanthrene	3.2	1.3	ng/L	SW846 8270A SIM
Pyrene	2.2	1.4	ng/L	SW846 8270A SIM
Indene	2.1	0.90	ng/L	SW846 8270A SIM
2,3-Dihydroindene	17	5.0	ng/L	SW846 8270A SIM
PCJ-SLP14D-051899 05/18/99 11:00 002				
Acenaphthylene	5.2	1.4	ng/L	SW846 8270A SIM
Acenaphthene	16	1.3	ng/L	SW846 8270A SIM
Phenanthrene	2.7	1.3	ng/L	SW846 8270A SIM
Pyrene	1.6	1.4	ng/L	SW846 8270A SIM
Indene	1.8	0.90	ng/L	SW846 8270A SIM
2,3-Dihydroindene	15	5.0	ng/L	SW846 8270A SIM
PCJ-SLP14FB-051899 05/18/99 11:00 003				
Phenanthrene	2.0	1.3	ng/L	SW846 8270A SIM
PCJ-SLP7-051899 05/18/99 11:00 005				
2-Methylnaphthalene	2.3 J	3.9	ng/L	SW846 8270A SIM
Acenaphthene	6.5	1.3	ng/L	SW846 8270A SIM
Phenanthrene	2.9	1.3	ng/L	SW846 8270A SIM
Pyrene	2.4	1.4	ng/L	SW846 8270A SIM
2,3-Dihydroindene	3.2 J	5.0	ng/L	SW846 8270A SIM
PCJ-W401-051899 05/18/99 05:45 006				
Acenaphthylene	2.9	1.4	ng/L	SW846 8270A SIM
Acenaphthene	31	1.3	ng/L	SW846 8270A SIM
Fluorene	7.8	1.0	ng/L	SW846 8270A SIM
Fluoranthene	1.6 J	3.1	ng/L	SW846 8270A SIM
Indene	1.8	0.90	ng/L	SW846 8270A SIM
2,3-Dihydroindene	19	5.0	ng/L	SW846 8270A SIM
PCJ-W40-051899 05/18/99 07:30 007				
Acenaphthene	200	2.6	ng/L	SW846 8270A SIM
Phenanthrene	3.5	2.6	ng/L	SW846 8270A SIM
Anthracene	5.6	5.4	ng/L	SW846 8270A SIM
Pyrene	41	2.8	ng/L	SW846 8270A SIM

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

D9E190131

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
PCJ-W40-051899 05/18/99 07:30 007				
Indene	5.5	1.8	ng/L	SW846 8270A SIM
Quinoline	12 J	14	ng/L	SW846 8270A SIM
2,3-Dihydroindene	12	10	ng/L	SW846 8270A SIM
Benzo(b)thiophene	4.4	1.8	ng/L	SW846 8270A SIM
Acridine	15	12	ng/L	SW846 8270A SIM
PCJ-H6-051899 05/18/99 14:00 008				
Phenanthrene	3.2	1.3	ng/L	SW846 8270A SIM
Fluoranthene	1.6 J	3.1	ng/L	SW846 8270A SIM
PCJ-MTKA6-051899 05/18/99 11:15 009				
Phenanthrene	2.2	1.3	ng/L	SW846 8270A SIM
PCJ-W70-051899 05/18/99 16:30 010				
Acenaphthene	160	2.6	ng/L	SW846 8270A SIM
Fluorene	5.4	2.0	ng/L	SW846 8270A SIM
Phenanthrene	3.6	2.6	ng/L	SW846 8270A SIM
Anthracene	4.0 J	5.4	ng/L	SW846 8270A SIM
Fluoranthene	11	6.2	ng/L	SW846 8270A SIM
Pyrene	57	2.8	ng/L	SW846 8270A SIM
Quinoline	10 J	14	ng/L	SW846 8270A SIM
Dibenzothiophene	3.3	2.2	ng/L	SW846 8270A SIM

ANALYTICAL METHODS SUMMARY

D9E190131

PARAMETER	ANALYTICAL METHOD
Base/Neutrals and Acids	SW846 8270A SIM

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

METHOD / ANALYST SUMMARY

D9E190131

ANALYTICAL METHOD	ANALYST	ANALYST ID
SW846 8270A SIM	Monica R. Edwards	001685

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

D9E190131

WO #	SAMPLE#	CLIENT SAMPLE ID	DATE	TIME
CVXGQ	001	PCJ-SLP14-051899	05/18/99	11:00
CVXHM	002	PCJ-SLP14D-051899	05/18/99	11:00
CVXHP	003	PCJ-SLP14FB-051899	05/18/99	11:00
CVXHT	004	PCJ-SLP14FBD-051899	05/18/99	11:00
CVXHV	005	PCJ-SLP7-051899	05/18/99	11:00
CVXJF	006	PCJ-W401-051899	05/18/99	05:45
CVXK1	007	PCJ-W40-051899	05/18/99	07:30
CVXK7	008	PCJ-H6-051899	05/18/99	14:00
CVXKH	009	PCJ-MTKA6-051899	05/18/99	11:15
CVXKW	010	PCJ-W70-051899	05/18/99	16:30

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit
- This report must not be reproduced, except in full, without the written approval of the laboratory
- Results for the following parameters are never reported on a dry weight basis color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-SLP14-051899

GC/MS Semivolatiles

Lot-Sample #...: D9E190131-001 Work Order #...: CVXGQ101 Matrix.....: WATER
Date Sampled...: 05/18/99 11:00 Date Received..: 05/19/99
Prep Date.....: 05/19/99 Analysis Date..: 05/30/99
Prep Batch #...: 9139390 Analysis Time..: 00:35
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	**6.0**	**1.4**	**ng/L**
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	**18**	**1.3**	**ng/L**
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	**3.2**	**1.3**	**ng/L**
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	ND	3.1	ng/L
Pyrene	**2.2**	**1.4**	**ng/L**
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	**2.1**	**0.90**	**ng/L**
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	**17**	**5.0**	**ng/L**
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	31	(10 - 118)
Fluorene d-10	98	(41 - 162)
Naphthalene-d8	100	(21 - 108)

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-SLP14D-051899

GC/MS Semivolatiles

Lot-Sample #...: D9E190131-002 Work Order #...: CVXHM101 Matrix.....: WATER
Date Sampled...: 05/18/99 11:00 Date Received..: 05/19/99
Prep Date.....: 05/19/99 Analysis Date..: 05/30/99
Prep Batch #...: 9139390 Analysis Time..: 02:25
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	**5.2**	**1.4**	**ng/L**
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	**16**	**1.3**	**ng/L**
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	**2.7**	**1.3**	**ng/L**
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	ND	3.1	ng/L
Pyrene	**1.6**	**1.4**	**ng/L**
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	**1.8**	**0.90**	**ng/L**
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	**15**	**5.0**	**ng/L**
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	29	(10 - 118)
Fluorene d-10	84	(41 - 162)
Naphthalene-d8	83	(21 - 108)

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-SLP14FB-051899

GC/MS Semivolatiles

Lot-Sample #...: D9E190131-003 Work Order #...: CVXHP101 Matrix.....: WATER
Date Sampled...: 05/18/99 11:00 Date Received..: 05/19/99
Prep Date.....: 05/19/99 Analysis Date..: 05/30/99
Prep Batch #...: 9139390 Analysis Time..: 03:02
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	ND	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	2.0	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	ND	3.1	ng/L
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	52	(10 - 118)
Fluorene d-10	82	(41 - 162)
Naphthalene-d8	100	(21 - 108)

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-SLP14FBD-051899

GC/MS Semivolatiles

Lot-Sample #...: D9E190131-004 Work Order #...: CVXHT101 Matrix.....: WATER
Date Sampled...: 05/18/99 11:00 Date Received..: 05/19/99
Prep Date.....: 05/19/99 Analysis Date..: 05/30/99
Prep Batch #...: 9139390 Analysis Time..: 03:38
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	ND	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	ND	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	ND	3.1	ng/L
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	75	(10 - 118)
Fluorene d-10	101	(41 - 162)
Naphthalene-d8	100	(21 - 108)

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-SLP7-051899

GC/MS Semivolatiles

Lot-Sample #...: D9E190131-005 Work Order #...: CVXHV101 Matrix.....: WATER
Date Sampled...: 05/18/99 11:00 Date Received..: 05/19/99
Prep Date.....: 05/19/99 Analysis Date..: 05/30/99
Prep Batch #...: 9139390 Analysis Time..: 04:15
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	**2.3 J**	**3.9**	**ng/L**
Acenaphthene	**6.5**	**1.3**	**ng/L**
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	**2.9**	**1.3**	**ng/L**
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	ND	3.1	ng/L
Pyrene	**2.4**	**1.4**	**ng/L**
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	**3.2 J**	**5.0**	**ng/L**
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	28	(10 - 118)
Fluorene d-10	105	(41 - 162)
Naphthalene-d8	99	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-W401-051899

GC/MS Semivolatiles

Lot-Sample #...: D9E190131-006 **Work Order #...:** CVXJF101 **Matrix.....:** WATER
Date Sampled...: 05/18/99 05:45 **Date Received..:** 05/19/99
Prep Date.....: 05/19/99 **Analysis Date..:** 05/30/99
Prep Batch #...: 9139390 **Analysis Time..:** 04:51
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	**2.9**	**1.4**	**ng/L**
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	**31**	**1.3**	**ng/L**
Dibenzofuran	ND	1.0	ng/L
Fluorene	**7.8**	**1.0**	**ng/L**
Phenanthrene	ND	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	**1.6 J**	**3.1**	**ng/L**
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	**1.8**	**0.90**	**ng/L**
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	**19**	**5.0**	**ng/L**
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	23	(10 - 118)
Fluorene d-10	98	(41 - 162)
Naphthalene-d8	96	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-W40-051899

GC/MS Semivolatiles

Lot-Sample #...: D9E190131-007 Work Order #...: CVXK1101 Matrix.....: WATER
Date Sampled...: 05/18/99 07:30 Date Received..: 05/19/99
Prep Date.....: 05/20/99 Analysis Date..: 06/17/99
Prep Batch #...: 9141129 Analysis Time..: 22:33
Dilution Factor: 2

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	2.8	ng/L
Naphthalene	ND	13	ng/L
2-Methylnaphthalene	ND	7.8	ng/L
Acenaphthene	**200**	**2.6**	**ng/L**
Dibenzofuran	ND	2.0	ng/L
Fluorene	ND	2.0	ng/L
Phenanthrene	**3.5**	**2.6**	**ng/L**
Anthracene	**5.6**	**5.4**	**ng/L**
Carbazole	ND	3.8	ng/L
Fluoranthene	ND	6.2	ng/L
Pyrene	**41**	**2.8**	**ng/L**
Benzo(a)anthracene	ND	5.0	ng/L
Chrysene	ND	5.6	ng/L
Benzo(b)fluoranthene	ND	5.0	ng/L
Benzo(k)fluoranthene	ND	4.6	ng/L
Benzo(a)pyrene	ND	4.6	ng/L
Indeno(1,2,3-cd)pyrene	ND	4.2	ng/L
Benzo(ghi)perylene	ND	5.6	ng/L
Indene	**5.5**	**1.8**	**ng/L**
1-Methylnaphthalene	ND	5.6	ng/L
Benzo(e)pyrene	ND	3.8	ng/L
Biphenyl	ND	8.6	ng/L
Dibenz(a,h)anthracene	ND	3.2	ng/L
Quinoline	**12 J**	**14**	**ng/L**
2,3-Benzofuran	ND	10	ng/L
2,3-Dihydroindene	**12**	**10**	**ng/L**
Benzo(b)thiophene	**4.4**	**1.8**	**ng/L**
Indole	ND	5.0	ng/L
Acridine	**15**	**12**	**ng/L**
Perylene	ND	5.0	ng/L
Dibenzothiophene	ND	2.2	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	13	(10 - 118)
Fluorene d-10	67	(41 - 162)
Naphthalene-d8	46	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-H6-051899

GC/MS Semivolatiles

Lot-Sample #...: D9E190131-008 Work Order #...: CVXK7101 Matrix.....: WATER
Date Sampled...: 05/18/99 14:00 Date Received..: 05/19/99
Prep Date.....: 05/20/99 Analysis Date..: 06/11/99
Prep Batch #...: 9141129 Analysis Time..: 13:30
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	ND	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	3.2	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	1.6 J	3.1	ng/L
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	13	(10 - 118)
Fluorene d-10	64	(41 - 162)
Naphthalene-d8	54	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-MTKA6-051899

GC/MS Semivolatiles

Lot-Sample #...: D9E190131-009 **Work Order #...:** CVXKH101 **Matrix.....:** WATER
Date Sampled...: 05/18/99 11:15 **Date Received..:** 05/19/99
Prep Date.....: 05/20/99 **Analysis Date..:** 06/11/99
Prep Batch #...: 9141129 **Analysis Time..:** 14:07
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	ND	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	**2.2**	**1.3**	**ng/L**
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	ND	3.1	ng/L
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	20	(10 - 118)
Fluorene d-10	65	(41 - 162)
Naphthalene-d8	53	(21 - 108)

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-W70-051899

GC/MS Semivolatiles

Lot-Sample #...: D9E190131-010 Work Order #...: CVXKW101 Matrix.....: WATER
Date Sampled...: 05/18/99 16:30 Date Received..: 05/19/99
Prep Date.....: 05/20/99 Analysis Date..: 06/17/99
Prep Batch #...: 9141129 Analysis Time..: 23:10
Dilution Factor: 2

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	2.8	ng/L
Naphthalene	ND	13	ng/L
2-Methylnaphthalene	ND	7.8	ng/L
Acenaphthene	**160**	**2.6**	**ng/L**
Dibenzofuran	ND	2.0	ng/L
Fluorene	**5.4**	**2.0**	**ng/L**
Phenanthrene	**3.6**	**2.6**	**ng/L**
Anthracene	**4.0 J**	**5.4**	**ng/L**
Carbazole	ND	3.8	ng/L
Fluoranthene	**11**	**6.2**	**ng/L**
Pyrene	**57**	**2.8**	**ng/L**
Benzo(a)anthracene	ND	5.0	ng/L
Chrysene	ND	5.6	ng/L
Benzo(b)fluoranthene	ND	5.0	ng/L
Benzo(k)fluoranthene	ND	4.6	ng/L
Benzo(a)pyrene	ND	4.6	ng/L
Indeno(1,2,3-cd)pyrene	ND	4.2	ng/L
Benzo(ghi)perylene	ND	5.6	ng/L
Indene	ND	1.8	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Benzo(e)pyrene	ND	3.8	ng/L
Biphenyl	ND	8.6	ng/L
Dibenz(a,h)anthracene	ND	3.2	ng/L
Quinoline	**10 J**	**14**	**ng/L**
2,3-Benzofuran	ND	10	ng/L
2,3-Dihydroindene	ND	10	ng/L
Benzo(b)thiophene	ND	1.8	ng/L
Indole	ND	5.0	ng/L
Acridine	ND	12	ng/L
Perylene	ND	5.0	ng/L
Dibenzothiophene	**3.3**	**2.2**	**ng/L**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	18	(10 - 118)
Fluorene d-10	69	(41 - 162)
Naphthalene-d8	56	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

QC DATA ASSOCIATION SUMMARY

D9E190131

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WATER	SW846 8270A SIM		9139390	9139180
002	WATER	SW846 8270A SIM		9139390	9139180
003	WATER	SW846 8270A SIM		9139390	9139180
004	WATER	SW846 8270A SIM		9139390	9139180
005	WATER	SW846 8270A SIM		9139390	9139180
006	WATER	SW846 8270A SIM		9139390	9139180
007	WATER	SW846 8270A SIM		9141129	
008	WATER	SW846 8270A SIM		9141129	
009	WATER	SW846 8270A SIM		9141129	
010	WATER	SW846 8270A SIM		9141129	

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D9E190131 **Work Order #...:** CW0HK101 **Matrix.....:** WATER
MB Lot-Sample #: D9E190000-390

Prep Date.....: 05/19/99 **Analysis Time..:** 23:20
Analysis Date..: 05/26/99 **Prep Batch #...:** 9139390
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthylene	ND	1.4	ng/L	SW846 8270A SIM
Naphthalene	ND	6.5	ng/L	SW846 8270A SIM
2-Methylnaphthalene	ND	3.9	ng/L	SW846 8270A SIM
Acenaphthene	ND	1.3	ng/L	SW846 8270A SIM
Dibenzofuran	ND	1.0	ng/L	SW846 8270A SIM
Fluorene	ND	1.0	ng/L	SW846 8270A SIM
Phenanthrene	ND	1.3	ng/L	SW846 8270A SIM
Anthracene	ND	2.7	ng/L	SW846 8270A SIM
Carbazole	ND	1.9	ng/L	SW846 8270A SIM
Fluoranthene	ND	3.1	ng/L	SW846 8270A SIM
Pyrene	ND	1.4	ng/L	SW846 8270A SIM
Benzo(a)anthracene	ND	2.5	ng/L	SW846 8270A SIM
Chrysene	ND	2.8	ng/L	SW846 8270A SIM
Benzo(b)fluoranthene	ND	2.5	ng/L	SW846 8270A SIM
Benzo(k)fluoranthene	ND	2.3	ng/L	SW846 8270A SIM
Benzo(a)pyrene	ND	2.3	ng/L	SW846 8270A SIM
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L	SW846 8270A SIM
Benzo(ghi)perylene	ND	2.8	ng/L	SW846 8270A SIM
Indene	ND	0.90	ng/L	SW846 8270A SIM
1-Methylnaphthalene	ND	2.8	ng/L	SW846 8270A SIM
Benzo(e)pyrene	ND	1.9	ng/L	SW846 8270A SIM
Biphenyl	ND	4.3	ng/L	SW846 8270A SIM
Dibenz(a,h)anthracene	ND	1.6	ng/L	SW846 8270A SIM
Quinoline	ND	6.9	ng/L	SW846 8270A SIM
2,3-Benzofuran	ND	5.1	ng/L	SW846 8270A SIM
2,3-Dihydroindene	ND	5.0	ng/L	SW846 8270A SIM
Benzo(b)thiophene	ND	0.90	ng/L	SW846 8270A SIM
Indole	ND	2.5	ng/L	SW846 8270A SIM
Acridine	ND	6.1	ng/L	SW846 8270A SIM
Perylene	ND	2.5	ng/L	SW846 8270A SIM
Dibenzothiophene	ND	1.1	ng/L	SW846 8270A SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	51	(10 - 118)
Fluorene d-10	88	(41 - 162)
Naphthalene-d8	77	(21 - 108)

NOTE(S):

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

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D9E190131 **Work Order #...:** CW0HK102-LCS **Matrix.....:** WATER
LCS Lot-Sample#: D9E190000-390 CW0HK103-LCSD
Prep Date.....: 05/19/99 **Analysis Date..:** 05/29/99
Prep Batch #...: 9139390 **Analysis Time..:** 23:22
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Naphthalene	**10.0**	**14.4**	**ng/L**	**144**		**SW846 8270A SIM**
	10.0	**13.3**	**ng/L**	**133**	**8.1**	**SW846 8270A SIM**
2-Methylnaphthalene	**10.0**	**11.8**	**ng/L**	**118**		**SW846 8270A SIM**
	10.0	**11.4**	**ng/L**	**114**	**3.0**	**SW846 8270A SIM**
Fluorene	**10.0**	**9.08**	**ng/L**	**91**		**SW846 8270A SIM**
	10.0	**7.62**	**ng/L**	**76**	**18**	**SW846 8270A SIM**
Chrysene	**10.0**	**5.93**	**ng/L**	**59**		**SW846 8270A SIM**
	10.0	**6.34**	**ng/L**	**63**	**6.7**	**SW846 8270A SIM**
Indene	**10.0**	**25.9 a**	**ng/L**	**259**		**SW846 8270A SIM**
	10.0	**23.7 a**	**ng/L**	**237**	**8.7**	**SW846 8270A SIM**
Benzo(e)pyrene	**10.0**	**6.18**	**ng/L**	**62**		**SW846 8270A SIM**
	10.0	**6.69**	**ng/L**	**67**	**8.0**	**SW846 8270A SIM**
Quinoline	**10.0**	**8.48**	**ng/L**	**85**		**SW846 8270A SIM**
	10.0	**8.80**	**ng/L**	**88**	**3.6**	**SW846 8270A SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	62	(10 - 118)
	69	(10 - 118)
Fluorene d-10	108	(41 - 162)
	96	(41 - 162)
Naphthalene-d8	117 *	(21 - 108)
	112 *	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

* Surrogate recovery is outside stated control limits.

a Spiked analyte recovery is outside stated control limits.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D9E190131 **Work Order #...:** CW0HK102-LCS **Matrix.....:** WATER
LCS Lot-Sample#: D9E190000-390 CW0HK103-LCSD
Prep Date.....: 05/19/99 **Analysis Date..:** 05/29/99
Prep Batch #...: 9139390 **Analysis Time..:** 23:22
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Naphthalene	**144**	**(20 - 150)**			**SW846 8270A SIM**
	133	**(20 - 150)**	**8.1**	**(0-20)**	**SW846 8270A SIM**
2-Methylnaphthalene	**118**	**(20 - 150)**			**SW846 8270A SIM**
	114	**(20 - 150)**	**3.0**	**(0-20)**	**SW846 8270A SIM**
Fluorene	**91**	**(69 - 118)**			**SW846 8270A SIM**
	76	**(69 - 118)**	**18**	**(0-20)**	**SW846 8270A SIM**
Chrysene	**59**	**(20 - 132)**			**SW846 8270A SIM**
	63	**(20 - 132)**	**6.7**	**(0-20)**	**SW846 8270A SIM**
Indene	**259 a**	**(20 - 150)**			**SW846 8270A SIM**
	237 a	**(20 - 150)**	**8.7**	**(0-20)**	**SW846 8270A SIM**
Benzo(e)pyrene	**62**	**(20 - 150)**			**SW846 8270A SIM**
	67	**(20 - 150)**	**8.0**	**(0-20)**	**SW846 8270A SIM**
Quinoline	**85**	**(20 - 150)**			**SW846 8270A SIM**
	88	**(20 - 150)**	**3.6**	**(0-20)**	**SW846 8270A SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	62	(10 - 118)
	69	(10 - 118)
Fluorene d-10	108	(41 - 162)
	96	(41 - 162)
Naphthalene-d8	117 *	(21 - 108)
	112 *	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

* Surrogate recovery is outside stated control limits

a Spiked analyte recovery is outside stated control limits

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D9E190131 Work Order #...: CW2PE101 Matrix.....: WATER
MB Lot-Sample #: D9E210000-129

Prep Date.....: 05/20/99 Analysis Time..: 23:55
Analysis Date..: 05/26/99 Prep Batch #...: 9141129
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthylene	ND	1.4	ng/L	SW846 8270A SIM
Naphthalene	ND	6.5	ng/L	SW846 8270A SIM
2-Methylnaphthalene	ND	3.9	ng/L	SW846 8270A SIM
Acenaphthene	ND	1.3	ng/L	SW846 8270A SIM
Dibenzofuran	ND	1.0	ng/L	SW846 8270A SIM
Fluorene	ND	1.0	ng/L	SW846 8270A SIM
Phenanthrene	3.2	1.3	ng/L	SW846 8270A SIM
Anthracene	ND	2.7	ng/L	SW846 8270A SIM
Carbazole	ND	1.9	ng/L	SW846 8270A SIM
Fluoranthene	ND	3.1	ng/L	SW846 8270A SIM
Pyrene	ND	1.4	ng/L	SW846 8270A SIM
Benzo(a)anthracene	ND	2.5	ng/L	SW846 8270A SIM
Chrysene	ND	2.8	ng/L	SW846 8270A SIM
Benzo(b)fluoranthene	ND	2.5	ng/L	SW846 8270A SIM
Benzo(k)fluoranthene	ND	2.3	ng/L	SW846 8270A SIM
Benzo(a)pyrene	ND	2.3	ng/L	SW846 8270A SIM
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L	SW846 8270A SIM
Benzo(ghi)perylene	ND	2.8	ng/L	SW846 8270A SIM
Indene	ND	0.90	ng/L	SW846 8270A SIM
1-Methylnaphthalene	ND	2.8	ng/L	SW846 8270A SIM
Benzo(e)pyrene	ND	1.9	ng/L	SW846 8270A SIM
Biphenyl	ND	4.3	ng/L	SW846 8270A SIM
Dibenz(a,h)anthracene	ND	1.6	ng/L	SW846 8270A SIM
Quinoline	ND	6.9	ng/L	SW846 8270A SIM
2,3-Benzofuran	ND	5.1	ng/L	SW846 8270A SIM
2,3-Dihydroindene	ND	5.0	ng/L	SW846 8270A SIM
Benzo(b)thiophene	ND	0.90	ng/L	SW846 8270A SIM
Indole	ND	2.5	ng/L	SW846 8270A SIM
Acridine	ND	6.1	ng/L	SW846 8270A SIM
Perylene	ND	2.5	ng/L	SW846 8270A SIM
Dibenzothiophene	ND	1.1	ng/L	SW846 8270A SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	49	(10 - 118)
Fluorene d-10	82	(41 - 162)
Naphthalene-d8	75	(21 - 108)

NOTE(S):
Calculations are performed before rounding to avoid round-off errors in calculated results

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D9E190131 **Work Order #...:** CW2PE102-LCS **Matrix.....:** WATER
LCS Lot-Sample#: D9E210000-129 CW2PE103-LCSD
Prep Date.....: 05/20/99 **Analysis Date..:** 06/11/99
Prep Batch #...: 9141129 **Analysis Time..:** 11:43
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Naphthalene	10.0	8.01	ng/L	80		SW846 8270A SIM
	10.0	7.16	ng/L	72	11	SW846 8270A SIM
2-Methylnaphthalene	10.0	7.92	ng/L	79		SW846 8270A SIM
	10.0	7.36	ng/L	74	7.4	SW846 8270A SIM
Fluorene	10.0	6.58 a	ng/L	66		SW846 8270A SIM
	10.0	6.49 a	ng/L	65	1.3	SW846 8270A SIM
Chrysene	10.0	2.94	ng/L	29		SW846 8270A SIM
	10.0	3.05	ng/L	31	3.9	SW846 8270A SIM
Indene	10.0	6.49	ng/L	65		SW846 8270A SIM
	10.0	5.95	ng/L	60	8.6	SW846 8270A SIM
Benzo(e)pyrene	10.0	3.99	ng/L	40		SW846 8270A SIM
	10.0	4.10	ng/L	41	2.7	SW846 8270A SIM
Quinoline	10.0	5.21	ng/L	52		SW846 8270A SIM
	10.0	7.88 p	ng/L	79	41	SW846 8270A SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	31	(10 - 118)
	33	(10 - 118)
Fluorene d-10	66	(41 - 162)
	62	(41 - 162)
Naphthalene-d8	57	(21 - 108)
	54	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits

p Relative percent difference (RPD) is outside stated control limits.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D9E190131 Work Order #...: CW2PE102-LCS Matrix.....: WATER
LCS Lot-Sample#: D9E210000-129 CW2PE103-LCSD
Prep Date.....: 05/20/99 Analysis Date..: 06/11/99
Prep Batch #...: 9141129 Analysis Time..: 11:43
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Naphthalene	**80**	**(20 - 150)**			**SW846 8270A SIM**
	72	**(20 - 150)**	**11**	**(0-20)**	**SW846 8270A SIM**
2-Methylnaphthalene	**79**	**(20 - 150)**			**SW846 8270A SIM**
	74	**(20 - 150)**	**7.4**	**(0-20)**	**SW846 8270A SIM**
Fluorene	**66 a**	**(69 - 118)**			**SW846 8270A SIM**
	65 a	**(69 - 118)**	**1.3**	**(0-20)**	**SW846 8270A SIM**
Chrysene	**29**	**(20 - 132)**			**SW846 8270A SIM**
	31	**(20 - 132)**	**3.9**	**(0-20)**	**SW846 8270A SIM**
Indene	**65**	**(20 - 150)**			**SW846 8270A SIM**
	60	**(20 - 150)**	**8.6**	**(0-20)**	**SW846 8270A SIM**
Benzo(e)pyrene	**40**	**(20 - 150)**			**SW846 8270A SIM**
	41	**(20 - 150)**	**2.7**	**(0-20)**	**SW846 8270A SIM**
Quinoline	**52**	**(20 - 150)**			**SW846 8270A SIM**
	79 p	**(20 - 150)**	**41**	**(0-20)**	**SW846 8270A SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	31	(10 - 118)
	33	(10 - 118)
Fluorene d-10	66	(41 - 162)
	62	(41 - 162)
Naphthalene-d8	57	(21 - 108)
	54	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

p Relative percent difference (RPD) is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D9E190131 **Work Order #...:** CVXGQ102-MS **Matrix.....:** WATER
MS Lot-Sample #: D9E190131-001 CVXGQ103-MSD
Date Sampled...: 05/18/99 11:00 **Date Received..:** 05/19/99
Prep Date.....: 05/19/99 **Analysis Date..:** 05/30/99
Prep Batch #...: 9139390 **Analysis Time..:** 01:12
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Naphthalene	ND	10.4	11.8	ng/L	114		SW846 8270A SIM
	ND	10.1	13.1	ng/L	129	12	SW846 8270A SIM
2-Methylnaphthalene	ND	10.4	10.1	ng/L	97		SW846 8270A SIM
	ND	10.1	10.7	ng/L	105	8.1	SW846 8270A SIM
Fluorene	ND	10.4	7.30	ng/L	70		SW846 8270A SIM
	ND	10.1	7.16	ng/L	71	0.42	SW846 8270A SIM
Chrysene	ND	10.4	3.32	ng/L	32		SW846 8270A SIM
	ND	10.1	3.52	ng/L	35	8.0	SW846 8270A SIM
Indene	2.1	17.1	22.8	ng/L	121		SW846 8270A SIM
	2.1	16.7	24.8	ng/L	136	10	SW846 8270A SIM
Benzo(e)pyrene	ND	10.4	2.23	ng/L	22		SW846 8270A SIM
	ND	10.1	2.31	ng/L	23	6.0	SW846 8270A SIM
Quinoline	ND	10.4	7.99	ng/L	77		SW846 8270A SIM
	ND	10.1	6.59	ng/L	65	17	SW846 8270A SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	34	(10 - 118)
	36	(10 - 118)
Fluorene d-10	84	(41 - 162)
	99	(41 - 162)
Naphthalene-d8	99	(21 - 108)
	108	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D9E190131 **Work Order #...:** CVXGQ102-MS **Matrix.....:** WATER
MS Lot-Sample #: D9E190131-001 CVXGQ103-MSD
Date Sampled...: 05/18/99 11:00 **Date Received..:** 05/19/99
Prep Date.....: 05/19/99 **Analysis Date..:** 05/30/99
Prep Batch #...: 9139390 **Analysis Time..:** 01:12
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Naphthalene	**114**	**(20 - 150)**			**SW846 8270A SIM**
	129	**(20 - 150)**	**12**	**(0-20)**	**SW846 8270A SIM**
2-Methylnaphthalene	**97**	**(20 - 150)**			**SW846 8270A SIM**
	105	**(20 - 150)**	**8.1**	**(0-20)**	**SW846 8270A SIM**
Fluorene	**70**	**(69 - 118)**			**SW846 8270A SIM**
	71	**(69 - 118)**	**0.42**	**(0-20)**	**SW846 8270A SIM**
Chrysene	**32**	**(20 - 132)**			**SW846 8270A SIM**
	35	**(20 - 132)**	**8.0**	**(0-20)**	**SW846 8270A SIM**
Indene	**121**	**(20 - 150)**			**SW846 8270A SIM**
	136	**(20 - 150)**	**10**	**(0-20)**	**SW846 8270A SIM**
Benzo(e)pyrene	**22**	**(20 - 150)**			**SW846 8270A SIM**
	23	**(20 - 150)**	**6.0**	**(0-20)**	**SW846 8270A SIM**
noline	**77**	**(20 - 150)**			**SW846 8270A SIM**
	65	**(20 - 150)**	**17**	**(0-20)**	**SW846 8270A SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	34	(10 - 118)
	36	(10 - 118)
Fluorene d-10	84	(41 - 162)
	99	(41 - 162)
Naphthalene-d8	99	(21 - 108)
	108	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

Chain of Custody Record

Quanterra

QUA-4124

Client: CITY OF ST. LOUIS PARK UTILITY DIVISION	Project Manager: SCOTT ANDERSON	Date: 5-18-99	Chain Of Custody Number: 39654
Address: 3752 WOODDALE AVENUE	Telephone Number (Area Code)/Fax Number: 924-2557 (612) 924-2570	Lab Number: D9E190131	Page ____ of ____
City: ST. LOUIS PARK, MN 55416	Site Contact: SAME		
Project Name: SAME	Carrier/Waybill Number: FED EX 800846316595		
Contract/Purchase Order/Quote No			

Sample I.D No and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: PPT PAH 5
PCJ-SLP14-051899	5-18-99		WATER	1LITER	AMBER	6	N/A		X
PCJ-SLP14D-051899	5-18-99		WATER	1LITER	AMBER	6	N/A		X

Special Instructions: PPT 5 Cooler 0001 @ 3.3°C

Possible Hazard Identification: [X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown

Sample Disposal: [ ] Return To Client [X] Disposal By Lab [ ] Archive For ____ Months

Turn Around Time Required: [ ] Normal [ ] Rush

QC Level: [ ] I. [ ] II. [ ] III

Project Specific (Specify):

1 Relinquished By: MZ	Date: 5-18-99	Time: 1400	1 Received By: Monica R. Eduardo	Date: 5/19/99	Time: 0900
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 Sample, CANARY - Returned to Client with Report, PINK - Field Copy

Chain of Custody Record

Quanterra

QUA-4124

Client: CITY OF ST. LOUIS PARK UTILITY DIVISION	Project Manager: SCOTT ANDERSON	Date: 5-18-99	Chain Of Custody Number: 39655
Address: 3752 WOODDALE AVENUE	Telephone Number (Area Code)/Fax Number: 924-2557 (612) 924-2570	Lab Number: D9E190131	Page ____ of ____
City: ST. LOUIS PARK, MN 55416	Site Contact: SAME		
Project Name: SAME	Carrier/Waybill Number: FED EX 800846316595		
Contract/Purchase Order/Quote No:			

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: PPL PAH 5
PCJ-SLP14MS-051899	5-18-99		WATER	1 LITER	AMBER	6	N/A		X
PCJ-SLP14MSD-051899	5-18-99		WATER	1 LITER	AMBER	6	N/A		X

Special Instructions: PPL 5 Cooler 0014 @ 3.5°C

Possible Hazard Identification: [X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown

Sample Disposal: [ ] Return To Client [X] Disposal By Lab [ ] Archive For ____ Months

Turn Around Time Required: [ ] Normal [ ] Rush

QC Level: [ ] I. [ ] II. [ ] III.

Project Specific (Specify):

	Date	Time		Date	Time
1. Relinquished By: [signature]	5-18-99	1400	1 Received By: Monica R. Edwards	5/19/99	0900
2 Relinquished By:			2 Received By:		
3 Relinquished By:			3 Received By:		

Comments:

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

Chain of Custody Record

Quanterra

QUA-4124

Client: CITY OF ST. LOUIS PARK	Project Manager: SCOTT ANDERSON	Date: 5-18-99	Chain Of Custody Number: 39656
Address: UTILITY DIVISION, 3752 WOODDALE AVENUE	Telephone Number (Area Code)/Fax Number: 924-2557 (612) 924-2570	Lab Number: D9E190131	Page ____ of ____
City: ST. LOUIS PARK, MN 55416	Site Contact: SAME		
Project Name: SAME	Carrier/Waybill Number: FEDEX 800846316595		
Contract/Purchase Order/Quote No			

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: PPL PAH 5
PCJ-SLP14FB-051899	5-18-99		WATER	1 LITER	AMBER	6	N/A		X
PCJ-SLP14FBD-051899	5-18-99		WATER	1 LITER	AMBER	6	N/A		X

Special Instructions: PPL 5 Cooler 0013 @ 4.0°C

Possible Hazard Identification: [X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown

Sample Disposal: [ ] Return To Client [X] Disposal By Lab [ ] Archive For ____ Months

Turn Around Time Required: [ ] Normal [ ] Rush

QC Level: [ ] I. [ ] II. [ ] III.

Project Specific (Specify):

	Date	Time		Date	Time
1. Relinquished By: MJA	5-18-99	1400	1 Received By: Mercer R. Edwards	5-19-99	0900
2 Relinquished By			2 Received By		
3 Relinquished By			3 Received By		

Comments

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

Chain of Custody Record

Quanterra

QUA-4124

Client: CITY OF ST. LOUIS PARK UTILITY DIVISION	Project Manager: SCOTT ANDERSON	Date: 5-18-99	Chain Of Custody Number: 39657
Address: 3752 WOODDALE AVENUE	Telephone Number (Area Code)/Fax Number: 924-2557 (612) 924-2570	Lab Number: 9ER0131	Page ____ of ____
City: ST. LOUIS PARK, MN 55416	Site Contact: SAME		
Project Name: SAME	Carrier/Waybill Number: FED EX 800846316595		
Contract/Purchase Order/Quote No			

Analysis: PPT PAH 5

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No	Preservative	Condition on Receipt	PPT PAH 5
PCJ-SLP7-051899	5-18-99		WATER	1LITER	AMBER	6	N/A		X
PPT									

Special Instructions: PPT 5 Cooler 0001 @ 3.1°c

Possible Hazard Identification: [X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown

Sample Disposal: [ ] Return To Client [X] Disposal By Lab [ ] Archive For ____ Months

Turn Around Time Required: [ ] Normal [ ] Rush

QC Level: [ ] I. [ ] II. [ ] III.

Project Specific (Specify):

	Date	Time		Date	Time
1 Relinquished By: MJA	5-18-99	1400	1 Received By: Monica R. Edwards	5-19-99	0900
2 Relinquished By			2 Received By		
3 Relinquished By			3 Received By		

Comments

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

Chain of Custody Record

Quanterra

QUA-4124

Client: City of St Louis Park	Project Manager: Bill Gregg	Date: 5/18/99	Chain Of Custody Number: 39688
Address: 3752 Woodale Ave	Telephone Number (Area Code)/Fax Number: 612-924-2557	Lab Number: D9E190131	Page 1 of 1
City: St Louis Park; State: MN; Zip Code: 55416	Site Contact: Scott Anderson		
Project Name: Reilly	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No:			

Analysis: 4+ PPT-PAH

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No	Preservative	Condition on Receipt
PCJ-W401-051899	5-18-99	5:45	GW	6 Liters	1 Liter	6	—	
PCJ-W40-051899	5-18-99	7:30	GW	6 Liters	1 Liter	6	—	

Special Instructions: PPT-5 Cooler 0007 @ 2.0°C

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

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Turn Around Time Required: ☐ Normal ☒ Rush

QC Level: ☐ I. ☐ II. ☐ III.

Project Specific (Specify):

	Date	Time		Date	Time
1 Relinquished By: [signature]	5/18/99	8:00	1 Received By: Monica R Edwards	5:19:99	0950
2 Relinquished By:			2 Received By:		
3 Relinquished By:			3 Received By:		

Comments:

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

Chain of Custody Record

Quanterra

QUA-4124

Client: City of St Louis Park	Project Manager: B. Tillgren	Date: 5/18/99	Chain Of Custody Number: 39689
Address: 3752 Woodale Ave	Telephone Number (Area Code)/Fax Number: 612-924-2557	Lab Number: D9E190131	Page 1 of 1
City: St Louis Park; State: MN; Zip Code: 55416	Site Contact: Scott Anderson		
Project Name: Reilly	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No:			

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No	Preservative	Condition on Receipt	Analysis: PPT-PAH
PCJ-H6-051899	5-18-99	14:00	GW	6 Liter	1 Liter	6	—		X
PCJ-MTKA6-051899	5-18-99	11:15	GW	6 Liter	1 Liter	6	—		X

Special Instructions: PPT-5 Cooler 0012 @ 2.7°C

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

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Turn Around Time Required: ☐ Normal ☒ Rush

QC Level: ☐ I. ☐ II. ☐ III.

Project Specific (Specify):

1 Relinquished By: [signature]	Date: 5/18/99	Time: 14:30 ~~11:00~~	1 Received By: Monica R. Edwards	Date: 5-19-99	Time: 0900
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 Sample, CANARY - Returned to Client with Report, PINK - Field Copy

Chain of Custody Record

Quanterra

QUA-4124

Client: CITY OF ST LOUIS PARK	Project Manager: Scott Anderson	Date: 5/18/99	Chain Of Custody Number: 39690
Address: 5005 Minnetonka Blvd	Telephone Number (Area Code)/Fax Number: 612 924 2557	Lab Number: D9E190131	Page ____ of ____
City: St Louis Park; State: MN; Zip Code: 55416	Site Contact: Bill Gregg		
Project Name: Reilly Site	Carrier/Waybill Number: FedX		
Contract/Purchase Order/Quote No			

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: PAH RTS
WTO									
PCJ-WTO-051899	5/18/99	1630	Water	6 L	1 L	6	4°C		X

Special Instructions: Cooler 0009 @ 2.6°C

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

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months

Turn Around Time Required: ☐ Normal ☐ Rush

QC Level: ☐ I. ☐ II. ☐ III.

Project Specific (Specify):

	Date	Time		Date	Time
1 Relinquished By: [signature]	5-18-99	1645	1 Received By: Monica R Edwards		
2 Relinquished By			2 Received By		
3 Relinquished By			3 Received By		

Comments

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

J

PCJ

Quanterra

Advanced Analytical Services

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 467-9136 Fax

CASE NARRATIVE

FOR

City of St. Louis Park

June 22, 1999

Quanterra , Inc.

Project Lot Number D9E250114

Introduction

Eleven aqueous samples (including matrix QC) were received at Quanterra Environmental Services, Denver Laboratory on May 24, 1999. The samples were logged in under Quanterra Denver's project lot number D9E250114. A cross reference associating Quanterra Denver's laboratory sample numbers to the actual field sample number is included. The samples were analyzed for part per tillion (ppt) PAHs.

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the October 1998 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 October 1998 QAPP, both technically and for completeness

Reported By: Kurt C. Ill **Date:** June 22, 1999

Kurt C. Ill
Program Manager

ANALYTICAL REPORT

PROJECT NO. 7

Reilly Tar & Chemical NPL Site

Lot #: D9E250114

Scott Anderson

City of St. Louis Park

QUANTERRA INCORPORATED

Kurt C. Ill
Project Manager

June 22, 1999

EXECUTIVE SUMMARY - Detection Highlights

D9E250114

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
PCJ-SLP16FB-052499 05/24/99 003				
Naphthalene	3.1 J	6.5	ng/L	SW846 8270A SIM
PCJ-SLP16FBD-052499 05/24/99 004				
Naphthalene	3.0 J	6.5	ng/L	SW846 8270A SIM
PCJ-E15-052499 05/24/99 07:20 005				
2-Methylnaphthalene	9.7	3.9	ng/L	SW846 8270A SIM
Acenaphthene	10	1.3	ng/L	SW846 8270A SIM
Fluorene	1.9	1.0	ng/L	SW846 8270A SIM
1-Methylnaphthalene	6.2	2.8	ng/L	SW846 8270A SIM
Quinoline	4.7 J	6.9	ng/L	SW846 8270A SIM
2,3-Dihydroindene	5.8	5.0	ng/L	SW846 8270A SIM
PCJ-E7-052499 05/24/99 07:35 006				
Quinoline	5.2 J	6.9	ng/L	SW846 8270A SIM
PCJ-E13-052499 05/24/99 08:00 008				
Acenaphthylene	1.6	1.4	ng/L	SW846 8270A SIM
Acenaphthene	6.5	1.3	ng/L	SW846 8270A SIM
Fluorene	2.1	1.0	ng/L	SW846 8270A SIM
2,3-Dihydroindene	5.2	5.0	ng/L	SW846 8270A SIM
PCJ-W48-052499 05/24/99 09:40 009				
Naphthalene	4.5 J	6.5	ng/L	SW846 8270A SIM
Acenaphthene	120	1.3	ng/L	SW846 8270A SIM
Anthracene	8.2	2.7	ng/L	SW846 8270A SIM
Carbazole	3.0	1.9	ng/L	SW846 8270A SIM
Fluoranthene	1.7 J	3.1	ng/L	SW846 8270A SIM
Pyrene	6.7	1.4	ng/L	SW846 8270A SIM
Indene	14	0.90	ng/L	SW846 8270A SIM
Quinoline	7.3	6.9	ng/L	SW846 8270A SIM
2,3-Dihydroindene	20	5.0	ng/L	SW846 8270A SIM
Benzo(b)thiophene	9.6	0.90	ng/L	SW846 8270A SIM
Acridine	31	6.1	ng/L	SW846 8270A SIM

ANALYTICAL METHODS SUMMARY

D9E250114

PARAMETER	ANALYTICAL METHOD
Base/Neutrals and Acids	SW846 8270A SIM

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

METHOD / ANALYST SUMMARY

D9E250114

ANALYTICAL METHOD	ANALYST	ANALYST ID
SW846 8270A SIM	Monica R. Edwards	001685

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

D9E250114

WO #	SAMPLE#	CLIENT SAMPLE ID	DATE	TIME
CW6VJ	001	PCJ-SLP16-052499	05/24/99	
CW6VR	002	PCJ-SLP16D-052499	05/24/99	
CW6W0	003	PCJ-SLP16FB-052499	05/24/99	
CW6W1	004	PCJ-SLP16FBD-052499	05/24/99	
CW6W2	005	PCJ-E15-052499	05/24/99	07:20
CW6W4	006	PCJ-E7-052499	05/24/99	07:35
CW6W6	007	PCJ-E3-052499	05/24/99	07:45
CW6W7	008	PCJ-E13-052499	05/24/99	08:00
CW6W8	009	PCJ-W48-052499	05/24/99	09:40

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-SLP16-052499

GC/MS Semivolatiles

Lot-Sample #...: D9E250114-001 Work Order #...: CW6VJ101 Matrix.....: WATER
Date Sampled...: 05/24/99 Date Received..: 05/25/99
Prep Date.....: 05/25/99 Analysis Date..: 06/12/99
Prep Batch #...: 9145275 Analysis Time..: 08:20
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	ND	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	ND	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	ND	3.1	ng/L
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	34	(10 - 118)
Fluorene d-10	74	(41 - 162)
Naphthalene-d8	65	(21 - 108)

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-SLP16D-052499

GC/MS Semivolatiles

Lot-Sample #...: D9E250114-002 Work Order #...: CW6VR101 Matrix.....: WATER
Date Sampled...: 05/24/99 Date Received..: 05/25/99
Prep Date.....: 05/25/99 Analysis Date..: 06/12/99
Prep Batch #...: 9145275 Analysis Time..: 10:45
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	ND	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	ND	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	ND	3.1	ng/L
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	68	(10 - 118)
Fluorene d-10	81	(41 - 162)
Naphthalene-d8	66	(21 - 108)

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-SLP16FB-052499

GC/MS Semivolatiles

Lot-Sample #...: D9E250114-003 Work Order #...: CW6W0101 Matrix.....: WATER
Date Sampled...: 05/24/99 Date Received..: 05/25/99
Prep Date.....: 05/25/99 Analysis Date..: 06/12/99
Prep Batch #...: 9145275 Analysis Time..: 11:21
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	3.1 J	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	ND	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	ND	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	ND	3.1	ng/L
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	63	(10 - 118)
Fluorene d-10	74	(41 - 162)
Naphthalene-d8	68	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-SLP16FBD-052499

GC/MS Semivolatiles

Lot-Sample #...: D9E250114-004 Work Order #...: CW6W1101 Matrix.....: WATER
Date Sampled...: 05/24/99 Date Received..: 05/25/99
Prep Date.....: 05/25/99 Analysis Date..: 06/12/99
Prep Batch #...: 9145275 Analysis Time..: 11:56
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	3.0 J	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	ND	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	ND	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	ND	3.1	ng/L
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	68	(10 - 118)
Fluorene d-10	76	(41 - 162)
Naphthalene-d8	65	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-E15-052499

GC/MS Semivolatiles

Lot-Sample #...: D9E250114-005 Work Order #...: CW6W2101 Matrix.....: WATER
Date Sampled...: 05/24/99 07:20 Date Received..: 05/25/99
Prep Date.....: 05/25/99 Analysis Date..: 06/12/99
Prep Batch #...: 9145275 Analysis Time..: 12:32
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	9.7	3.9	ng/L
Acenaphthene	10	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	1.9	1.0	ng/L
Phenanthrene	ND	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	ND	3.1	ng/L
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	6.2	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	4.7 J	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	5.8	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	36	(10 - 118)
Fluorene d-10	74	(41 - 162)
Naphthalene-d8	62	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-E7-052499

GC/MS Semivolatiles

Lot-Sample #...: D9E250114-006 Work Order #...: CW6W4101 Matrix.....: WATER
Date Sampled...: 05/24/99 07:35 Date Received..: 05/25/99
Prep Date.....: 05/25/99 Analysis Date..: 06/12/99
Prep Batch #...: 9145275 Analysis Time..: 13:07
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	ND	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	ND	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	ND	3.1	ng/L
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	5.2 J	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	30	(10 - 118)
Fluorene d-10	77	(41 - 162)
Naphthalene-d8	61	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-E3-052499

GC/MS Semivolatiles

Lot-Sample #...: D9E250114-007 Work Order #...: CW6W6101 Matrix.....: WATER
Date Sampled...: 05/24/99 07:45 Date Received..: 05/25/99
Prep Date.....: 05/26/99 Analysis Date..: 06/12/99
Prep Batch #...: 9146327 Analysis Time..: 15:34
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	ND	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	ND	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	ND	3.1	ng/L
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	33	(10 - 118)
Fluorene d-10	69	(41 - 162)
Naphthalene-d8	60	(21 - 108)

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-E13-052499

GC/MS Semivolatiles

Lot-Sample #...: D9E250114-008 Work Order #...: CW6W7101 Matrix.....: WATER
Date Sampled...: 05/24/99 08:00 Date Received..: 05/25/99
Prep Date.....: 05/26/99 Analysis Date..: 06/12/99
Prep Batch #...: 9146327 Analysis Time..: 16:11
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	**1.6**	**1.4**	**ng/L**
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	**6.5**	**1.3**	**ng/L**
Dibenzofuran	ND	1.0	ng/L
Fluorene	**2.1**	**1.0**	**ng/L**
Phenanthrene	ND	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	ND	3.1	ng/L
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	**5.2**	**5.0**	**ng/L**
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	35	(10 - 118)
Fluorene d-10	74	(41 - 162)
Naphthalene-d8	71	(21 - 108)

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-W48-052499

GC/MS Semivolatiles

Lot-Sample #...: D9E250114-009 Work Order #...: CW6W8101 Matrix.....: WATER
Date Sampled...: 05/24/99 09:40 Date Received..: 05/25/99
Prep Date.....: 05/26/99 Analysis Date..: 06/12/99
Prep Batch #...: 9146327 Analysis Time..: 16:47
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	4.5 J	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	120	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	ND	1.3	ng/L
Anthracene	8.2	2.7	ng/L
Carbazole	3.0	1.9	ng/L
Fluoranthene	1.7 J	3.1	ng/L
Pyrene	6.7	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	14	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	7.3	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	20	5.0	ng/L
Benzo(b)thiophene	9.6	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	31	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	38	(10 - 118)
Fluorene d-10	84	(41 - 162)
Naphthalene-d8	55	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

QC DATA ASSOCIATION SUMMARY

D9E250114

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WATER	SW846 8270A SIM		9145275	9145100
002	WATER	SW846 8270A SIM		9145275	9145100
003	WATER	SW846 8270A SIM		9145275	9145100
004	WATER	SW846 8270A SIM		9145275	9145100
005	WATER	SW846 8270A SIM		9145275	9145100
006	WATER	SW846 8270A SIM		9145275	9145100
007	WATER	SW846 8270A SIM		9146327	9146136
008	WATER	SW846 8270A SIM		9146327	9146136
009	WATER	SW846 8270A SIM		9146327	9146136

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D9E250114 Work Order #...: CW7C6101 Matrix.....: WATER
MB Lot-Sample #: D9E250000-275

Prep Date.....: 05/25/99 Analysis Time..: 06:30
Analysis Date..: 06/12/99 Prep Batch #...: 9145275
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthylene	ND	1.4	ng/L	SW846 8270A SIM
Naphthalene	ND	6.5	ng/L	SW846 8270A SIM
2-Methylnaphthalene	ND	3.9	ng/L	SW846 8270A SIM
Acenaphthene	ND	1.3	ng/L	SW846 8270A SIM
Dibenzofuran	ND	1.0	ng/L	SW846 8270A SIM
Fluorene	ND	1.0	ng/L	SW846 8270A SIM
Phenanthrene	ND	1.3	ng/L	SW846 8270A SIM
Anthracene	ND	2.7	ng/L	SW846 8270A SIM
Carbazole	ND	1.9	ng/L	SW846 8270A SIM
Fluoranthene	ND	3.1	ng/L	SW846 8270A SIM
Pyrene	ND	1.4	ng/L	SW846 8270A SIM
Benzo(a)anthracene	ND	2.5	ng/L	SW846 8270A SIM
Chrysene	ND	2.8	ng/L	SW846 8270A SIM
Benzo(b)fluoranthene	ND	2.5	ng/L	SW846 8270A SIM
Benzo(k)fluoranthene	ND	2.3	ng/L	SW846 8270A SIM
Benzo(a)pyrene	ND	2.3	ng/L	SW846 8270A SIM
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L	SW846 8270A SIM
Benzo(ghi)perylene	ND	2.8	ng/L	SW846 8270A SIM
Indene	ND	0.90	ng/L	SW846 8270A SIM
1-Methylnaphthalene	ND	2.8	ng/L	SW846 8270A SIM
Benzo(e)pyrene	ND	1.9	ng/L	SW846 8270A SIM
Biphenyl	ND	4.3	ng/L	SW846 8270A SIM
Dibenz(a,h)anthracene	ND	1.6	ng/L	SW846 8270A SIM
Quinoline	ND	6.9	ng/L	SW846 8270A SIM
2,3-Benzofuran	ND	5.1	ng/L	SW846 8270A SIM
2,3-Dihydroindene	ND	5.0	ng/L	SW846 8270A SIM
Benzo(b)thiophene	ND	0.90	ng/L	SW846 8270A SIM
Indole	ND	2.5	ng/L	SW846 8270A SIM
Acridine	ND	6.1	ng/L	SW846 8270A SIM
Perylene	ND	2.5	ng/L	SW846 8270A SIM
Dibenzothiophene	ND	1.1	ng/L	SW846 8270A SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	55	(10 - 118)
Fluorene d-10	76	(41 - 162)
Naphthalene-d8	60	(21 - 108)

NOTE(S):
Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D9E250114
MB Lot-Sample #: D9E260000-327
Work Order #...: CW907101
Matrix.....: WATER
Prep Date.....: 05/26/99
Analysis Time..: 13:44
Analysis Date..: 06/12/99
Prep Batch #...: 9146327
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthylene	ND	1.4	ng/L	SW846 8270A SIM
Naphthalene	ND	6.5	ng/L	SW846 8270A SIM
2-Methylnaphthalene	ND	3.9	ng/L	SW846 8270A SIM
Acenaphthene	ND	1.3	ng/L	SW846 8270A SIM
Dibenzofuran	ND	1.0	ng/L	SW846 8270A SIM
Fluorene	ND	1.0	ng/L	SW846 8270A SIM
Phenanthrene	ND	1.3	ng/L	SW846 8270A SIM
Anthracene	ND	2.7	ng/L	SW846 8270A SIM
Carbazole	ND	1.9	ng/L	SW846 8270A SIM
Fluoranthene	ND	3.1	ng/L	SW846 8270A SIM
Pyrene	ND	1.4	ng/L	SW846 8270A SIM
Benzo(a)anthracene	ND	2.5	ng/L	SW846 8270A SIM
Chrysene	ND	2.8	ng/L	SW846 8270A SIM
Benzo(b)fluoranthene	ND	2.5	ng/L	SW846 8270A SIM
Benzo(k)fluoranthene	ND	2.3	ng/L	SW846 8270A SIM
Benzo(a)pyrene	ND	2.3	ng/L	SW846 8270A SIM
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L	SW846 8270A SIM
Benzo(ghi)perylene	ND	2.8	ng/L	SW846 8270A SIM
Indene	ND	0.90	ng/L	SW846 8270A SIM
1-Methylnaphthalene	ND	2.8	ng/L	SW846 8270A SIM
Benzo(e)pyrene	ND	1.9	ng/L	SW846 8270A SIM
Biphenyl	ND	4.3	ng/L	SW846 8270A SIM
Dibenz(a,h)anthracene	ND	1.6	ng/L	SW846 8270A SIM
Quinoline	ND	6.9	ng/L	SW846 8270A SIM
2,3-Benzofuran	ND	5.1	ng/L	SW846 8270A SIM
2,3-Dihydroindene	ND	5.0	ng/L	SW846 8270A SIM
Benzo(b)thiophene	ND	0.90	ng/L	SW846 8270A SIM
Indole	ND	2.5	ng/L	SW846 8270A SIM
Acridine	ND	6.1	ng/L	SW846 8270A SIM
Perylene	ND	2.5	ng/L	SW846 8270A SIM
Dibenzothiophene	ND	1.1	ng/L	SW846 8270A SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	63	(10 - 118)
Fluorene d-10	72	(41 - 162)
Naphthalene-d8	65	(21 - 108)

NOTE(S):

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

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D9E250114 Work Order #...: CW7C6102-LCS Matrix.....: WATER
LCS Lot-Sample#: D9E250000-275 CW7C6103-LCSD
Prep Date.....: 05/25/99 Analysis Date..: 06/12/99
Prep Batch #...: 9145275 Analysis Time..: 07:07
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Naphthalene	10.0	9.00	ng/L	90		SW846 8270A SIM
	10.0	8.94	ng/L	89	0.65	SW846 8270A SIM
2-Methylnaphthalene	10.0	8.27	ng/L	83		SW846 8270A SIM
	10.0	8.23	ng/L	82	0.46	SW846 8270A SIM
Fluorene	10.0	8.02	ng/L	80		SW846 8270A SIM
	10.0	7.90	ng/L	79	1.6	SW846 8270A SIM
Chrysene	10.0	6.63	ng/L	66		SW846 8270A SIM
	10.0	6.57	ng/L	66	0.81	SW846 8270A SIM
Indene	10.0	8.04	ng/L	80		SW846 8270A SIM
	10.0	7.92	ng/L	79	1.4	SW846 8270A SIM
Benzo(e)pyrene	10.0	6.91	ng/L	69		SW846 8270A SIM
	10.0	7.41	ng/L	74	7.0	SW846 8270A SIM
Quinoline	10.0	4.89	ng/L	49		SW846 8270A SIM
	10.0	4.40	ng/L	44	10	SW846 8270A SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	77	(10 - 118)
	70	(10 - 118)
Fluorene d-10	77	(41 - 162)
	78	(41 - 162)
Naphthalene-d8	69	(21 - 108)
	67	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D9E250114 **Work Order #...:** CW7C6102-LCS **Matrix.....:** WATER
LCS Lot-Sample#: D9E250000-275 CW7C6103-LCSD
Prep Date.....: 05/25/99 **Analysis Date..:** 06/12/99
Prep Batch #...: 9145275 **Analysis Time..:** 07:07
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Naphthalene	**90**	**(20 - 150)**			**SW846 8270A SIM**
	89	**(20 - 150)**	**0.65**	**(0-20)**	**SW846 8270A SIM**
2-Methylnaphthalene	**83**	**(20 - 150)**			**SW846 8270A SIM**
	82	**(20 - 150)**	**0.46**	**(0-20)**	**SW846 8270A SIM**
Fluorene	**80**	**(69 - 118)**			**SW846 8270A SIM**
	79	**(69 - 118)**	**1.6**	**(0-20)**	**SW846 8270A SIM**
Chrysene	**66**	**(20 - 132)**			**SW846 8270A SIM**
	66	**(20 - 132)**	**0.81**	**(0-20)**	**SW846 8270A SIM**
Indene	**80**	**(20 - 150)**			**SW846 8270A SIM**
	79	**(20 - 150)**	**1.4**	**(0-20)**	**SW846 8270A SIM**
Benzo(e)pyrene	**69**	**(20 - 150)**			**SW846 8270A SIM**
	74	**(20 - 150)**	**7.0**	**(0-20)**	**SW846 8270A SIM**
Quinoline	**49**	**(20 - 150)**			**SW846 8270A SIM**
	44	**(20 - 150)**	**10**	**(0-20)**	**SW846 8270A SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	77	(10 - 118)
	70	(10 - 118)
Fluorene d-10	77	(41 - 162)
	78	(41 - 162)
Naphthalene-d8	69	(21 - 108)
	67	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D9E250114 Work Order #...: CW907102-LCS Matrix.....: WATER
LCS Lot-Sample#: D9E260000-327 CW907103-LCSD
Prep Date.....: 05/26/99 Analysis Date..: 06/12/99
Prep Batch #...: 9146327 Analysis Time..: 14:21
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Naphthalene	**10.0**	**8.92**	**ng/L**	**89**		**SW846 8270A SIM**
	10.0	**8.59**	**ng/L**	**86**	**3.7**	**SW846 8270A SIM**
2-Methylnaphthalene	**10.0**	**7.83**	**ng/L**	**78**		**SW846 8270A SIM**
	10.0	**7.48**	**ng/L**	**75**	**4.5**	**SW846 8270A SIM**
Fluorene	**10.0**	**7.64**	**ng/L**	**76**		**SW846 8270A SIM**
	10.0	**7.30**	**ng/L**	**73**	**4.4**	**SW846 8270A SIM**
Chrysene	**10.0**	**5.97**	**ng/L**	**60**		**SW846 8270A SIM**
	10.0	**6.07**	**ng/L**	**61**	**1.6**	**SW846 8270A SIM**
Indene	**10.0**	**8.13**	**ng/L**	**81**		**SW846 8270A SIM**
	10.0	**7.32**	**ng/L**	**73**	**10**	**SW846 8270A SIM**
Benzo(e)pyrene	**10.0**	**7.12**	**ng/L**	**71**		**SW846 8270A SIM**
	10.0	**6.37**	**ng/L**	**64**	**11**	**SW846 8270A SIM**
Quinoline	**10.0**	**7.80**	**ng/L**	**78**		**SW846 8270A SIM**
	10.0	**6.75**	**ng/L**	**68**	**14**	**SW846 8270A SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	73	(10 - 118)
	72	(10 - 118)
Fluorene d-10	77	(41 - 162)
	74	(41 - 162)
Naphthalene-d8	70	(21 - 108)
	66	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D9E250114 **Work Order #...:** CW907102-LCS **Matrix.....:** WATER
LCS Lot-Sample#: D9E260000-327 CW907103-LCSD
Prep Date.....: 05/26/99 **Analysis Date..:** 06/12/99
Prep Batch #...: 9146327 **Analysis Time..:** 14:21
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Naphthalene	**89**	**(20 - 150)**			**SW846 8270A SIM**
	86	**(20 - 150)**	**3.7**	**(0-20)**	**SW846 8270A SIM**
2-Methylnaphthalene	**78**	**(20 - 150)**			**SW846 8270A SIM**
	75	**(20 - 150)**	**4.5**	**(0-20)**	**SW846 8270A SIM**
Fluorene	**76**	**(69 - 118)**			**SW846 8270A SIM**
	73	**(69 - 118)**	**4.4**	**(0-20)**	**SW846 8270A SIM**
Chrysene	**60**	**(20 - 132)**			**SW846 8270A SIM**
	61	**(20 - 132)**	**1.6**	**(0-20)**	**SW846 8270A SIM**
Indene	**81**	**(20 - 150)**			**SW846 8270A SIM**
	73	**(20 - 150)**	**10**	**(0-20)**	**SW846 8270A SIM**
Benzo(e)pyrene	**71**	**(20 - 150)**			**SW846 8270A SIM**
	64	**(20 - 150)**	**11**	**(0-20)**	**SW846 8270A SIM**
Quinoline	**78**	**(20 - 150)**			**SW846 8270A SIM**
	68	**(20 - 150)**	**14**	**(0-20)**	**SW846 8270A SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	73	(10 - 118)
	72	(10 - 118)
Fluorene d-10	77	(41 - 162)
	74	(41 - 162)
Naphthalene-d8	70	(21 - 108)
	66	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D9E250114 Work Order #...: CW6VJ102-MS Matrix.....: WATER
MS Lot-Sample #: D9E250114-001 CW6VJ103-MSD
Date Sampled...: 05/24/99 Date Received..: 05/25/99
Prep Date.....: 05/25/99 Analysis Date..: 06/12/99
Prep Batch #...: 9145275 Analysis Time..: 08:57
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Naphthalene	ND	10.1	10.6	ng/L	105		SW846 8270A SIM
	ND	10.2	10.2	ng/L	100	4.3	SW846 8270A SIM
2-Methylnaphthalene	ND	10.1	8.37	ng/L	83		SW846 8270A SIM
	ND	10.2	8.92	ng/L	88	5.6	SW846 8270A SIM
Fluorene	ND	10.1	7.72	ng/L	77		SW846 8270A SIM
	ND	10.2	8.00	ng/L	79	2.8	SW846 8270A SIM
Chrysene	ND	10.1	3.24	ng/L	32		SW846 8270A SIM
	ND	10.2	3.21	ng/L	32	1.9	SW846 8270A SIM
Indene	ND	10.1	8.16	ng/L	81		SW846 8270A SIM
	ND	10.2	8.34	ng/L	82	1.3	SW846 8270A SIM
Benzo(e)pyrene	ND	10.1	2.70	ng/L	27		SW846 8270A SIM
	ND	10.2	2.31	ng/L	23	16	SW846 8270A SIM
[illegible]noline	ND	10.1	5.47	ng/L	54		SW846 8270A SIM
	ND	10.2	6.45	ng/L	63	16	SW846 8270A SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	35	(10 - 118)
	37	(10 - 118)
Fluorene d-10	80	(41 - 162)
	78	(41 - 162)
Naphthalene-d8	73	(21 - 108)
	66	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D9E250114 Work Order #...: CW6VJ102-MS Matrix.....: WATER
MS Lot-Sample #: D9E250114-001 CW6VJ103-MSD
Date Sampled...: 05/24/99 Date Received..: 05/25/99
Prep Date.....: 05/25/99 Analysis Date..: 06/12/99
Prep Batch #...: 9145275 Analysis Time..: 08:57
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Naphthalene	**105**	**(20 - 150)**			**SW846 8270A SIM**
	100	**(20 - 150)**	**4.3**	**(0-20)**	**SW846 8270A SIM**
2-Methylnaphthalene	**83**	**(20 - 150)**			**SW846 8270A SIM**
	88	**(20 - 150)**	**5.6**	**(0-20)**	**SW846 8270A SIM**
Fluorene	**77**	**(69 - 118)**			**SW846 8270A SIM**
	79	**(69 - 118)**	**2.8**	**(0-20)**	**SW846 8270A SIM**
Chrysene	**32**	**(20 - 132)**			**SW846 8270A SIM**
	32	**(20 - 132)**	**1.9**	**(0-20)**	**SW846 8270A SIM**
Indene	**81**	**(20 - 150)**			**SW846 8270A SIM**
	82	**(20 - 150)**	**1.3**	**(0-20)**	**SW846 8270A SIM**
Benzo(e)pyrene	**27**	**(20 - 150)**			**SW846 8270A SIM**
	23	**(20 - 150)**	**16**	**(0-20)**	**SW846 8270A SIM**
Quinoline	**54**	**(20 - 150)**			**SW846 8270A SIM**
	63	**(20 - 150)**	**16**	**(0-20)**	**SW846 8270A SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	35	(10 - 118)
	37	(10 - 118)
Fluorene d-10	80	(41 - 162)
	78	(41 - 162)
Naphthalene-d8	73	(21 - 108)
	66	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D9E250114
MS Lot-Sample #: D9E260108-001
Date Sampled...: 05/25/99
Prep Date.....: 05/26/99
Prep Batch #...: 9146327
Dilution Factor: 1

Work Order #...: CW850102-MS
CW850103-MSD
Date Received..: 05/26/99
Analysis Date..: 06/12/99
Analysis Time..: 18:00

Matrix.....: WATER

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Naphthalene	**ND**	**10.3**	**10.5**	**ng/L**	**102**		**SW846 8270A SIM**
	ND	**10.3**	**10.5**	**ng/L**	**103**	**0.49**	**SW846 8270A SIM**
2-Methylnaphthalene	**ND**	**10.3**	**8.28**	**ng/L**	**80**		**SW846 8270A SIM**
	ND	**10.3**	**8.17**	**ng/L**	**80**	**1.1**	**SW846 8270A SIM**
Fluorene	**ND**	**10.3**	**7.90**	**ng/L**	**77**		**SW846 8270A SIM**
	ND	**10.3**	**8.04**	**ng/L**	**78**	**2.2**	**SW846 8270A SIM**
Chrysene	**ND**	**10.3**	**4.02**	**ng/L**	**39**		**SW846 8270A SIM**
	ND	**10.3**	**4.87**	**ng/L**	**47**	**19**	**SW846 8270A SIM**
Indene	**ND**	**10.3**	**8.19**	**ng/L**	**80**		**SW846 8270A SIM**
	ND	**10.3**	**7.70**	**ng/L**	**75**	**5.9**	**SW846 8270A SIM**
Benzo(e)pyrene	**ND**	**10.3**	**2.81**	**ng/L**	**27**		**SW846 8270A SIM**
	ND	**10.3**	**3.10**	**ng/L**	**30**	**10**	**SW846 8270A SIM**
[illegible]noline	**ND**	**10.3**	**9.12**	**ng/L**	**89**		**SW846 8270A SIM**
	ND	**10.3**	**8.86**	**ng/L**	**86**	**2.6**	**SW846 8270A SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	39	(10 - 118)
	55	(10 - 118)
Fluorene d-10	72	(41 - 162)
	77	(41 - 162)
Naphthalene-d8	64	(21 - 108)
	70	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D9E250114 Work Order #...: CW850102-MS Matrix.....: WATER
MS Lot-Sample #: D9E260108-001 CW850103-MSD
Date Sampled...: 05/25/99 Date Received..: 05/26/99
Prep Date.....: 05/26/99 Analysis Date..: 06/12/99
Prep Batch #...: 9146327 Analysis Time..: 18:00
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Naphthalene	102	(20 - 150)			SW846 8270A SIM
	103	(20 - 150)	0.49	(0-20)	SW846 8270A SIM
2-Methylnaphthalene	80	(20 - 150)			SW846 8270A SIM
	80	(20 - 150)	1.1	(0-20)	SW846 8270A SIM
Fluorene	77	(69 - 118)			SW846 8270A SIM
	78	(69 - 118)	2.2	(0-20)	SW846 8270A SIM
Chrysene	39	(20 - 132)			SW846 8270A SIM
	47	(20 - 132)	19	(0-20)	SW846 8270A SIM
Indene	80	(20 - 150)			SW846 8270A SIM
	75	(20 - 150)	5.9	(0-20)	SW846 8270A SIM
Benzo(e)pyrene	27	(20 - 150)			SW846 8270A SIM
	30	(20 - 150)	10	(0-20)	SW846 8270A SIM
Quinoline	89	(20 - 150)			SW846 8270A SIM
	86	(20 - 150)	2.6	(0-20)	SW846 8270A SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	39	(10 - 118)
	55	(10 - 118)
Fluorene d-10	72	(41 - 162)
	77	(41 - 162)
Naphthalene-d8	64	(21 - 108)
	70	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

Chain of Custody Record

Quanterra

QUA-4124

Client: CITY OF ST. LOUIS PARK UTILITY DIVISION	Project Manager: SCOTT ANDERSON	Date: 5-24-99	Chain Of Custody Number: 39695
Address: 3752 WOODDALE AVENUE	Telephone Number (Area Code)/Fax Number: 924-2557 (612) 924-2570	Lab Number: DAE250114	Page ____ of ____
City: ST. LOUIS PARK, MN 55416	Site Contact: SAME		
Project Name: SAME	Carrier/Waybill Number: FED EX 800 846 316 584		
Contract/Purchase Order/Quote No			

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: PPL PAH 5
PCJ-SLP16 - 052499	5-24-99		WATER	1 LITER	AMBER	6	N/A		X
PCJ-SLP16D - 052499	5-24-99		WATER	1 LITER	AMBER	6	N/A		X

Special Instructions: PPL 5 codes CSLP 0009 temp = 3.0°C

Possible Hazard Identification: [X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown

Sample Disposal: [ ] Return To Client [X] Disposal By Lab [ ] Archive For ____ Months

Turn Around Time Required: [ ] Normal [ ] Rush

QC Level: [ ] I. [ ] II. [ ] III.

Project Specific (Specify):

	Date	Time		Date	Time
1 Relinquished By: MZH	5-24-99	1400	1 Received By: Christopher Butler	5/25/99	8:30
2 Relinquished By			2 Received By		
3 Relinquished By			3 Received By		

Comments

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

Chain of Custody Record

Quanterra

QUA-4124

Client: CITY OF ST. LOUIS PARK UTILITY DIVISION	Project Manager: SCOTT ANDERSON	Date: 5-24-99	Chain Of Custody Number: 39696
Address: 3752 WOODDALE AVENUE	Telephone Number (Area Code)/Fax Number: 924-2557 (612) 924-2570	Lab Number: D9E250114	Page ____ of ____
City: ST. LOUIS PARK, MN 55416	Site Contact: SAME		
Project Name: SAME	Carrier/Waybill Number: FED EX 800846316584		
Contract/Purchase Order/Quote No			

Sample I D No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No	Preservative	Condition on Receipt	Analysis: PPL PAH 5
PCJ-SLP16MS-052499	5-24-99		WATER	1 LITER	AMBER	6	N/A		X
PCJ-SLP16MSD-052499	5-24-99		WATER	1 LITER	AMBER	6	N/A		X

Special Instructions: PPL 5 Cooler # CSLP 0007 Temp 1.1°C

Possible Hazard Identification: [X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown

Sample Disposal: [ ] Return To Client [X] Disposal By Lab [ ] Archive For ____ Months

Turn Around Time Required: [ ] Normal [ ] Rush

QC Level: [ ] I. [ ] II. [ ] III.

Project Specific (Specify):

1 Relinquished By: [signature]	Date: 5-24-99	Time: 1400	1 Received By: Kurt C. [signature]	Date: 5/25/99	Time: 08:30
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 Sample, CANARY - Returned to Client with Report, PINK - Field Copy

Chain of Custody Record

Quanterra

QUA-412M

Client: CITY OF ST. LOUIS PARK	Project Manager: SCOTT ANDERSON	Date: 5-24-99	Chain Of Custody Number: 39697
Address: UTILITY DIVISION, 3752 WOODDALE AVENUE	Telephone Number (Area Code)/Fax Number: 924-2557 (612) 924-2570	Lab Number: D9E250144	Page ____ of ____
City: ST. LOUIS PARK, MN 55416	Site Contact: SAME		
Project Name: SAME	Carrier/Waybill Number: FED EX 800846316584		
Contract/Purchase Order/Quote No			

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: PPE PAHS
PEJ-SLP16FD-052499	5-24-99		WATER	1 LITER	AMBER	6	N/A		X
PEJ-SLP16FDA-052499	5-24-99		WATER	1 LITER	AMBER	6	N/A		X

Special Instructions: PPE 5 cooler CSLP 0012 temp = 1.0°C

Possible Hazard Identification: [X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown

Sample Disposal: [ ] Return To Client [X] Disposal By Lab [ ] Archive For ____ Months

Turn Around Time Required: [ ] Normal [ ] Rush

QC Level: [ ] I. [ ] II. [ ] III.

Project Specific (Specify):

1 Relinquished By: MZR	Date: 5-24-99	Time: 1400	1 Received By: Christopher Barton	Date: 5/25/99	Time: 8:30
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 Sample; CANARY - Returned to Client with Report, PINK - Field Copy

Chain of Custody Record

Quanterra

QUA-4124

Client: City of St Louis Park	Project Manager: Bill Greg	Date: 5/24/99	Chain Of Custody Number: 39693
Address: 3252 Wooddale Ave	Telephone Number (Area Code)/Fax Number: 612-924-2557	Lab Number: DAE 250449	Page 1 of 1
City: St Louis Park; State: Mn; Zip Code: 55416	Site Contact: Scott Anderson		
Project Name: Reilly	Carrier/Waybill Number		
Contract/Purchase Order/Quote No			

Sample I D No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: PDT-PAH
5 PCJ-E5-052499	5-24-99	7:20	G-W	6 Liter	1 Liter	6	—		X
4 PCJ-E7-052499	5-24-99	7:35	G-W	6 Liter	1 Liter	6	—		X

Special Instructions: PDT-5 cooler CSLP 0010 temp = -0.6°C

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

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Turn Around Time Required: ☐ Normal ☐ Rush

QC Level: ☐ I. ☐ II. ☐ III.

Project Specific (Specify)

1 Relinquished By: [signature]	Date: 5/24/99	Time: 11:00	1 Received By: Christopher Butler	Date: 5/25/99	Time: 8:30
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 Sample, CANARY - Returned to Client with Report, PINK - Field Copy

Chain of Custody Record

Quanterra

QUA-4124

Client: City of St Louis Park	Project Manager: Bill Gries	Date: 5/24/99	Chain Of Custody Number: 39692
Address: 3752 Wooddale Ave	Telephone Number (Area Code)/Fax Number: 612-924-2557	Lab Number: D9E250114	Page 1 of 1
City: St Louis Park; State: MN; Zip Code: 55416	Site Contact: Scott Anderson		
Project Name: Reilly	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No			

Analysis: PPT-PAH

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	PPT-PAH
PCJ-EB-052499	5-24-99	2:45	GW	6 Liters	Liter	6	—		X
PCJ-EB-052499	5-24-99	8:00	GW	6 Liters	Liter	6	—		X

Special Instructions: PPT-5 Cooler # CSLP 0006 Temp 1.0°C

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

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Turn Around Time Required: ☐ Normal ☐ Rush

QC Level: ☐ I. ☐ II. ☐ III.

Project Specific (Specify):

1 Relinquished By: [signature]	Date: 5/24/99	Time: 11:00	1 Received By: [signature]	Date: 5/25/99	Time: 0830
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 Sample, CANARY - Returned to Client with Report, PINK - Field Copy

Chain of Custody Record

Quanterra

QUA-4124

Client: City of St Louis Park	Project Manager: Bill Gregg	Date: 5/24/99	Chain Of Custody Number: 39694
Address: 3752 Woodale Ave	Telephone Number (Area Code)/Fax Number: 612-924-2557	Lab Number: D9E250114	Page 1 of 1
City: St Louis Park; State: Mn; Zip Code: 55416	Site Contact: Scott Anderson		
Project Name: Reille	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No:			

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: PPT-PAH
99PCJ-W48-051899	5-24-99	9:40	GW	6 Liter	1 Liter	6	—		X

Special Instructions: PPT-5 Cooler # CSLP 0001 temp 0.8°C

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

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Turn Around Time Required: ☐ Normal ☐ Rush

QC Level: ☐ I. ☐ II. ☐ III.

Project Specific (Specify):

1 Relinquished By: [signature]	Date: 5/24/99	Time: 11:00	1 Received By: Kurt C. [signature]	Date: 5/25/99	Time: 0830
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 Sample, CANARY - Returned to Client with Report, PINK - Field Copy

K

K

Advanced Analytical Services

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 467-9136 Fax

CASE NARRATIVE

FOR

City of St. Louis Park

September 17, 1999

Quanterra , Inc.

Project Lot Number D9H240121

Introduction

Sixteen aqueous samples (including matrix QC) were received at Quanterra Environmental Services, Denver Laboratory on August 24, 1999. The samples were logged in under Quanterra Denver's project lot number D9H240121. A cross reference associating Quanterra Denver's laboratory sample numbers to the actual field sample number is included. The samples were analyzed for part per billion (ppb) PAHs.

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the October 1998 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 laboratory Id's D9H240121-001, -001MS, -001SD, -002 and –007 were analyzed at a dilution due to target analytes exceeding the linear range of the instrument. The reporting limits were raised accordingly. As a result of dilutions the surrogate compounds were not calculated and are reported as "NC".

Naphthalene in both the matrix spike and matrix spike duplicate samples are reported outside of the acceptance limits. The naphthalene present in the samples was found at a concentration greater than 10 times the amount of spike added. A matrix effect is indicated.

The spike compound quinoline in the matrix spike duplicate sample was recovered at 30% which is outside the 40% to 126 acceptance limits. Quinoline was recovered within acceptance limits in the Duplicate Control Samples (DCS). A matrix effect is indicated.

Except for the above, this data package is in compliance with the terms and conditions of the October 1998 QAPP, both technically and for completeness

Reported By: Kurt C. Ill **Date:** Sept 17, 1999

Kurt C. Ill
Program Manager

ANALYTICAL REPORT

PROJECT NO. 1

Reilly Tar & Chemical NPL Site

Lot #: D9H240121

Scott Anderson

City of St. Louis Park

QUANTERRA INCORPORATED

Kurt C. Ill
Project Manager

September 17, 1999

EXECUTIVE SUMMARY - Detection Highlights

D9H240121

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
DPV-W420-082399 08/23/99 001				
Naphthalene	1100	100	ug/L	SW846 8270B
2-Methylnaphthalene	82 J	100	ug/L	SW846 8270B
Acenaphthene	90 J	100	ug/L	SW846 8270B
Dibenzofuran	36 J	100	ug/L	SW846 8270B
Fluorene	36 J	100	ug/L	SW846 8270B
Carbazole	60 J	100	ug/L	SW846 8270B
Indene	38 J	100	ug/L	SW846 8270B
1-Methylnaphthalene	100	100	ug/L	SW846 8270B
Biphenyl	18 J	100	ug/L	SW846 8270B
2,3-Benzofuran	32 J	100	ug/L	SW846 8270B
2,3-Dihydroindene	200	100	ug/L	SW846 8270B
Benzo(b)thiophene	94 J	100	ug/L	SW846 8270B
DPV-W420D-082399 08/23/99 002				
Naphthalene	1300	100	ug/L	SW846 8270B
2-Methylnaphthalene	120	100	ug/L	SW846 8270B
Acenaphthene	130	100	ug/L	SW846 8270B
Dibenzofuran	50 J	100	ug/L	SW846 8270B
Fluorene	49 J	100	ug/L	SW846 8270B
Carbazole	72 J	100	ug/L	SW846 8270B
Indene	57 J	100	ug/L	SW846 8270B
1-Methylnaphthalene	140	100	ug/L	SW846 8270B
Biphenyl	27 J	100	ug/L	SW846 8270B
2,3-Benzofuran	50 J	100	ug/L	SW846 8270B
2,3-Dihydroindene	300	100	ug/L	SW846 8270B
Benzo(b)thiophene	130	100	ug/L	SW846 8270B
DPV-W421-082399 08/23/99 005				
Naphthalene	120	10	ug/L	SW846 8270B
2-Methylnaphthalene	6.9 J	10	ug/L	SW846 8270B
Acenaphthene	33	10	ug/L	SW846 8270B
Dibenzofuran	9.5 J	10	ug/L	SW846 8270B
Fluorene	13	10	ug/L	SW846 8270B
Phenanthrene	6.0 J	10	ug/L	SW846 8270B
Carbazole	29	10	ug/L	SW846 8270B
Indene	23	10	ug/L	SW846 8270B
1-Methylnaphthalene	36	10	ug/L	SW846 8270B
Biphenyl	5.5 J	10	ug/L	SW846 8270B
2,3-Dihydroindene	73	10	ug/L	SW846 8270B
Benzo(b)thiophene	31	10	ug/L	SW846 8270B
Acridine	2.7 J	10	ug/L	SW846 8270B

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

D9H240121

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
DPV-W422-082399 08/23/99 006				
Acenaphthene	7.4 J	10	ug/L	SW846 8270B
2,3-Dihydroindene	5.5 J	10	ug/L	SW846 8270B
DPV-W439-082399 08/23/99 007				
Naphthalene	400	50	ug/L	SW846 8270B
Acenaphthene	51	50	ug/L	SW846 8270B
Indene	58	50	ug/L	SW846 8270B
1-Methylnaphthalene	63	50	ug/L	SW846 8270B
Biphenyl	6.6 J	50	ug/L	SW846 8270B
2,3-Benzofuran	4.9 J	50	ug/L	SW846 8270B
2,3-Dihydroindene	130	50	ug/L	SW846 8270B
Benzo(b)thiophene	41 J	50	ug/L	SW846 8270B
DPV-W434-082399 08/23/99 008				
Indene	0.25 J	10	ug/L	SW846 8270B
2,3-Dihydroindene	1.1 J	10	ug/L	SW846 8270B
PCJ-W23-082399 08/23/99 009				
Naphthalene	7.2 J	10	ug/L	SW846 8270B
Acenaphthene	4.8 J	10	ug/L	SW846 8270B
Indene	0.24 J	10	ug/L	SW846 8270B
Biphenyl	0.72 J	10	ug/L	SW846 8270B
2,3-Dihydroindene	1.5 J	10	ug/L	SW846 8270B
Acridine	0.39 J	10	ug/L	SW846 8270B
STP-W409-082399 08/23/99 07:55 011				
Acenaphthylene	3.5 J	10	ug/L	SW846 8270B
Naphthalene	19	10	ug/L	SW846 8270B
Acenaphthene	51	10	ug/L	SW846 8270B
Dibenzofuran	20	10	ug/L	SW846 8270B
Fluorene	21	10	ug/L	SW846 8270B
Phenanthrene	11	10	ug/L	SW846 8270B
Carbazole	15	10	ug/L	SW846 8270B
Indene	64	10	ug/L	SW846 8270B
1-Methylnaphthalene	68	10	ug/L	SW846 8270B
Biphenyl	8.5 J	10	ug/L	SW846 8270B
2,3-Dihydroindene	29	10	ug/L	SW846 8270B
Benzo(b)thiophene	32	10	ug/L	SW846 8270B

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

D9H240121

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
DPV-W426-082399 08/23/99 08:15 012				
Acenaphthylene	4.2 J	10	ug/L	SW846 8270B
Naphthalene	16	10	ug/L	SW846 8270B
Acenaphthene	56	10	ug/L	SW846 8270B
Dibenzofuran	19	10	ug/L	SW846 8270B
Fluorene	30	10	ug/L	SW846 8270B
Phenanthrene	23	10	ug/L	SW846 8270B
Anthracene	3.1 J	10	ug/L	SW846 8270B
Carbazole	8.9 J	10	ug/L	SW846 8270B
Indene	12	10	ug/L	SW846 8270B
1-Methylnaphthalene	45	10	ug/L	SW846 8270B
Biphenyl	2.5 J	10	ug/L	SW846 8270B
2,3-Benzofuran	0.41 J	10	ug/L	SW846 8270B
2,3-Dihydroindene	28	10	ug/L	SW846 8270B
Benzo(b)thiophene	7.7 J	10	ug/L	SW846 8270B
Dibenzothiophene	2.5 J	10	ug/L	SW846 8270B
DPV-W27-082399 08/23/99 09:30 013				
Naphthalene	31	10	ug/L	SW846 8270B
Acenaphthene	25	10	ug/L	SW846 8270B
Dibenzofuran	8.4 J	10	ug/L	SW846 8270B
Fluorene	9.2 J	10	ug/L	SW846 8270B
Carbazole	7.1 J	10	ug/L	SW846 8270B
Indene	15	10	ug/L	SW846 8270B
1-Methylnaphthalene	25	10	ug/L	SW846 8270B
Biphenyl	4.9 J	10	ug/L	SW846 8270B
2,3-Dihydroindene	23	10	ug/L	SW846 8270B
Benzo(b)thiophene	7.3 J	10	ug/L	SW846 8270B
Acridine	1.3 J	10	ug/L	SW846 8270B
Dibenzothiophene	0.70 J	10	ug/L	SW846 8270B
DPV-W143-82399 08/23/99 10:30 014				
Indene	0.52 J	10	ug/L	SW846 8270B
2,3-Dihydroindene	2.4 J	10	ug/L	SW846 8270B
Benzo(b)thiophene	1.5 J	10	ug/L	SW846 8270B

ANALYTICAL METHODS SUMMARY

D9H240121

PARAMETER	ANALYTICAL METHOD
Semivolatile Organic Compounds by GC/MS	SW846 8270B

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

METHOD / ANALYST SUMMARY

D9H240121

ANALYTICAL METHOD	ANALYST	ANALYST ID
SW846 8270B	Monica R. Edwards	001685

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

D9H240121

WO #	SAMPLE#	CLIENT SAMPLE ID	DATE	TIME
D1NHQ	001	DPV-W420-082399	08/23/99	
D1NHV	002	DPV-W420D-082399	08/23/99	
D1NJ0	003	DPV-W420FB-082399	08/23/99	
D1NJ1	004	DPV-W420FBD-082399	08/23/99	
D1NJ2	005	DPV-W421-082399	08/23/99	
D1NJ3	006	DPV-W422-082399	08/23/99	
D1NJ4	007	DPV-W439-082399	08/23/99	
D1NJ6	008	DPV-W434-082399	08/23/99	
D1NJ8	009	PCJ-W23-082399	08/23/99	
D1NJA	010	GTF-ACFE-082399	08/23/99	
D1NJF	011	STP-W409-082399	08/23/99	07:55
D1NJH	012	DPV-W426-082399	08/23/99	08:15
D1NJK	013	DPV-W27-082399	08/23/99	09:30
D1NJL	014	DPV-W143-82399	08/23/99	10:30

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit
- This report must not be reproduced, except in full, without the written approval of the laboratory
- Results for the following parameters are never reported on a dry weight basis color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W420-082399

GC/MS Semivolatiles

Lot-Sample #...: D9H240121-001 Work Order #...: D1NHQ101 Matrix.....: WATER
Date Sampled...: 08/23/99 Date Received..: 08/24/99
Prep Date.....: 08/24/99 Analysis Date..: 08/28/99
Prep Batch #...: 9236428 Analysis Time..: 12:38
Dilution Factor: 10

Method.....: SW846 8270B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	100	ug/L
Naphthalene	1100	100	ug/L
2-Methylnaphthalene	82 J	100	ug/L
Acenaphthene	90 J	100	ug/L
Dibenzofuran	36 J	100	ug/L
Fluorene	36 J	100	ug/L
Phenanthrene	ND	100	ug/L
Anthracene	ND	100	ug/L
Carbazole	60 J	100	ug/L
Fluoranthene	ND	100	ug/L
Pyrene	ND	100	ug/L
Benzo(a)anthracene	ND	100	ug/L
Chrysene	ND	100	ug/L
Benzo(b)fluoranthene	ND	100	ug/L
Benzo(k)fluoranthene	ND	100	ug/L
Benzo(a)pyrene	ND	100	ug/L
Indeno(1,2,3-cd)pyrene	ND	100	ug/L
Benzo(ghi)perylene	ND	100	ug/L
Indene	38 J	100	ug/L
1-Methylnaphthalene	100	100	ug/L
Benzo(e)pyrene	ND	100	ug/L
Biphenyl	18 J	100	ug/L
Dibenz(a,h)anthracene	ND	100	ug/L
Quinoline	ND	100	ug/L
2,3-Benzofuran	32 J	100	ug/L
2,3-Dihydroindene	200	100	ug/L
Benzo(b)thiophene	94 J	100	ug/L
Indole	ND	100	ug/L
Acridine	ND	100	ug/L
Perylene	ND	100	ug/L
Dibenzothiophene	ND	100	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC	(25 - 160)
Fluorene d-10	NC	(36 - 127)
Naphthalene-d8	NC	(37 - 107)

NOTE(S):

NC The recovery and/or RPD were not calculated.

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W420D-082399

GC/MS Semivolatiles

Lot-Sample #...: D9H240121-002 Work Order #...: D1NHV101 Matrix.....: WATER
Date Sampled...: 08/23/99 Date Received..: 08/24/99
Prep Date.....: 08/24/99 Analysis Date..: 08/28/99
Prep Batch #...: 9236428 Analysis Time..: 14:25
Dilution Factor: 10

Method.....: SW846 8270B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	100	ug/L
Naphthalene	1300	100	ug/L
2-Methylnaphthalene	120	100	ug/L
Acenaphthene	130	100	ug/L
Dibenzofuran	50 J	100	ug/L
Fluorene	49 J	100	ug/L
Phenanthrene	ND	100	ug/L
Anthracene	ND	100	ug/L
Carbazole	72 J	100	ug/L
Fluoranthene	ND	100	ug/L
Pyrene	ND	100	ug/L
Benzo(a)anthracene	ND	100	ug/L
Chrysene	ND	100	ug/L
Benzo(b)fluoranthene	ND	100	ug/L
Benzo(k)fluoranthene	ND	100	ug/L
Benzo(a)pyrene	ND	100	ug/L
Indeno(1,2,3-cd)pyrene	ND	100	ug/L
Benzo(ghi)perylene	ND	100	ug/L
Indene	57 J	100	ug/L
1-Methylnaphthalene	140	100	ug/L
Benzo(e)pyrene	ND	100	ug/L
Biphenyl	27 J	100	ug/L
Dibenz(a,h)anthracene	ND	100	ug/L
Quinoline	ND	100	ug/L
2,3-Benzofuran	50 J	100	ug/L
2,3-Dihydroindene	300	100	ug/L
Benzo(b)thiophene	130	100	ug/L
Indole	ND	100	ug/L
Acridine	ND	100	ug/L
Perylene	ND	100	ug/L
Dibenzothiophene	ND	100	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC	(25 - 160)
Fluorene d-10	NC	(36 - 127)
Naphthalene-d8	NC	(37 - 107)

NOTE(S):

NC The recovery and/or RPD were not calculated.

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W420FB-082399

GC/MS Semivolatiles

Lot-Sample #...: D9H240121-003 Work Order #...: D1NJ0101 Matrix.....: WATER
Date Sampled...: 08/23/99 Date Received..: 08/24/99
Prep Date.....: 08/24/99 Analysis Date..: 08/28/99
Prep Batch #...: 9236428 Analysis Time..: 15:00
Dilution Factor: 1

Method.....: SW846 8270B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	10	ug/L
Naphthalene	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
Acenaphthene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Fluorene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Anthracene	ND	10	ug/L
Carbazole	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Pyrene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Chrysene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Indene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Quinoline	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Indole	ND	10	ug/L
Acridine	ND	10	ug/L
Perylene	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	89	(25 - 160)
Fluorene d-10	67	(36 - 127)
Naphthalene-d8	58	(37 - 107)

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W420FBD-082399

GC/MS Semivolatiles

Lot-Sample #...: D9H240121-004 Work Order #...: D1NJ1101 Matrix.....: WATER
Date Sampled...: 08/23/99 Date Received..: 08/24/99
Prep Date.....: 08/24/99 Analysis Date..: 08/28/99
Prep Batch #...: 9236428 Analysis Time..: 15:35
Dilution Factor: 1

Method.....: SW846 8270B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	10	ug/L
Naphthalene	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
Acenaphthene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Fluorene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Anthracene	ND	10	ug/L
Carbazole	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Pyrene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Chrysene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Indene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Quinoline	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Indole	ND	10	ug/L
Acridine	ND	10	ug/L
Perylene	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	95	(25 - 160)
Fluorene d-10	68	(36 - 127)
Naphthalene-d8	68	(37 - 107)

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W421-082399

GC/MS Semivolatiles

Lot-Sample #...: D9H240121-005 Work Order #...: D1NJ2101 Matrix.....: WATER
Date Sampled...: 08/23/99 Date Received..: 08/24/99
Prep Date.....: 08/24/99 Analysis Date..: 08/28/99
Prep Batch #...: 9236428 Analysis Time..: 16:11
Dilution Factor: 1

Method.....: SW846 8270B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	10	ug/L
Naphthalene	120	10	ug/L
2-Methylnaphthalene	6.9 J	10	ug/L
Acenaphthene	33	10	ug/L
Dibenzofuran	9.5 J	10	ug/L
Fluorene	13	10	ug/L
Phenanthrene	6.0 J	10	ug/L
Anthracene	ND	10	ug/L
Carbazole	29	10	ug/L
Fluoranthene	ND	10	ug/L
Pyrene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Chrysene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Indene	23	10	ug/L
1-Methylnaphthalene	36	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Biphenyl	5.5 J	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Quinoline	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
2,3-Dihydroindene	73	10	ug/L
Benzo(b)thiophene	31	10	ug/L
Indole	ND	10	ug/L
Acridine	2.7 J	10	ug/L
Perylene	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	71	(25 - 160)
Fluorene d-10	60	(36 - 127)
Naphthalene-d8	52	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-W23-082399

GC/MS Semivolatiles

Lot-Sample #...: D9H240121-009 Work Order #...: D1NJ8101 Matrix.....: WATER
Date Sampled...: 08/23/99 Date Received..: 08/24/99
Prep Date.....: 08/24/99 Analysis Date..: 08/28/99
Prep Batch #...: 9236428 Analysis Time..: 18:32
Dilution Factor: 1

Method.....: SW846 8270B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	10	ug/L
Naphthalene	7.2 J	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
Acenaphthene	4.8 J	10	ug/L
Dibenzofuran	ND	10	ug/L
Fluorene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Anthracene	ND	10	ug/L
Carbazole	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Pyrene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Chrysene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Indene	0.24 J	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Biphenyl	0.72 J	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Quinoline	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
2,3-Dihydroindene	1.5 J	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Indole	ND	10	ug/L
Acridine	0.39 J	10	ug/L
Perylene	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	81	(25 - 160)
Fluorene d-10	57	(36 - 127)
Naphthalene-d8	52	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W422-082399

GC/MS Semivolatiles

Lot-Sample #...: D9H240121-006 Work Order #...: D1NJ3101 Matrix.....: WATER
Date Sampled...: 08/23/99 Date Received..: 08/24/99
Prep Date.....: 08/30/99 Analysis Date..: 09/02/99
Prep Batch #...: 9245293 Analysis Time..: 18:55
Dilution Factor: 1

Method.....: SW846 8270B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	10	ug/L
Naphthalene	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
Acenaphthene	7.4 J	10	ug/L
Dibenzofuran	ND	10	ug/L
Fluorene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Anthracene	ND	10	ug/L
Carbazole	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Pyrene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Chrysene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Indene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Quinoline	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
2,3-Dihydroindene	5.5 J	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Indole	ND	10	ug/L
Acridine	ND	10	ug/L
Perylene	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	74	(25 - 160)
Fluorene d-10	63	(36 - 127)
Naphthalene-d8	63	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W439-082399

GC/MS Semivolatiles

Lot-Sample #...: D9H240121-007 Work Order #...: D1NJ4101 Matrix.....: WATER
Date Sampled...: 08/23/99 Date Received..: 08/24/99
Prep Date.....: 08/24/99 Analysis Date..: 08/28/99
Prep Batch #...: 9236428 Analysis Time..: 17:21
Dilution Factor: 5

Method.....: SW846 8270B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	50	ug/L
Naphthalene	**400**	**50**	**ug/L**
2-Methylnaphthalene	ND	50	ug/L
Acenaphthene	**51**	**50**	**ug/L**
Dibenzofuran	ND	50	ug/L
Fluorene	ND	50	ug/L
Phenanthrene	ND	50	ug/L
Anthracene	ND	50	ug/L
Carbazole	ND	50	ug/L
Fluoranthene	ND	50	ug/L
Pyrene	ND	50	ug/L
Benzo(a)anthracene	ND	50	ug/L
Chrysene	ND	50	ug/L
Benzo(b)fluoranthene	ND	50	ug/L
Benzo(k)fluoranthene	ND	50	ug/L
Benzo(a)pyrene	ND	50	ug/L
Indeno(1,2,3-cd)pyrene	ND	50	ug/L
Benzo(ghi)perylene	ND	50	ug/L
Indene	**58**	**50**	**ug/L**
1-Methylnaphthalene	**63**	**50**	**ug/L**
Benzo(e)pyrene	ND	50	ug/L
Biphenyl	**6.6 J**	**50**	**ug/L**
Dibenz(a,h)anthracene	ND	50	ug/L
Quinoline	ND	50	ug/L
2,3-Benzofuran	**4.9 J**	**50**	**ug/L**
2,3-Dihydroindene	**130**	**50**	**ug/L**
Benzo(b)thiophene	**41 J**	**50**	**ug/L**
Indole	ND	50	ug/L
Acridine	ND	50	ug/L
Perylene	ND	50	ug/L
Dibenzothiophene	ND	50	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC	(25 - 160)
Fluorene d-10	NC	(36 - 127)
Naphthalene-d8	NC	(37 - 107)

NOTE(S):

NC The recovery and/or RPD were not calculated.

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W434-082399

GC/MS Semivolatiles

Lot-Sample #...: D9H240121-008 Work Order #...: D1NJ6101 Matrix.....: WATER
Date Sampled...: 08/23/99 Date Received..: 08/24/99
Prep Date.....: 08/30/99 Analysis Date..: 09/02/99
Prep Batch #...: 9245293 Analysis Time..: 19:30
Dilution Factor: 1

Method.....: SW846 8270B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	10	ug/L
Naphthalene	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
Acenaphthene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Fluorene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Anthracene	ND	10	ug/L
Carbazole	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Pyrene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Chrysene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Indene	**0.25 J**	**10**	**ug/L**
1-Methylnaphthalene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Quinoline	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
2,3-Dihydroindene	**1.1 J**	**10**	**ug/L**
Benzo(b)thiophene	ND	10	ug/L
Indole	ND	10	ug/L
Acridine	ND	10	ug/L
Perylene	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	69	(25 - 160)
Fluorene d-10	66	(36 - 127)
Naphthalene-d8	70	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: GTF-ACFE-082399

GC/MS Semivolatiles

Lot-Sample #...: D9H240121-010 Work Order #...: D1NJA101 Matrix.....: WATER
Date Sampled...: 08/23/99 Date Received..: 08/24/99
Prep Date.....: 08/24/99 Analysis Date..: 08/28/99
Prep Batch #...: 9236428 Analysis Time..: 19:07
Dilution Factor: 1

Method.....: SW846 8270B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	10	ug/L
Naphthalene	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
Acenaphthene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Fluorene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Anthracene	ND	10	ug/L
Carbazole	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Pyrene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Chrysene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Indene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Quinoline	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Indole	ND	10	ug/L
Acridine	ND	10	ug/L
Perylene	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	69	(25 - 160)
Fluorene d-10	67	(36 - 127)
Naphthalene-d8	67	(37 - 107)

CITY OF ST. LOUIS PARK

Client Sample ID: STP-W409-082399

GC/MS Semivolatiles

Lot-Sample #...: D9H240121-011 Work Order #...: D1NJF101 Matrix.....: WATER
Date Sampled...: 08/23/99 07:55 Date Received..: 08/24/99
Prep Date.....: 08/30/99 Analysis Date..: 09/02/99
Prep Batch #...: 9245293 Analysis Time..: 20:05
Dilution Factor: 1
Method.....: SW846 8270B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	3.5 J	10	ug/L
Naphthalene	19	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
Acenaphthene	51	10	ug/L
Dibenzofuran	20	10	ug/L
Fluorene	21	10	ug/L
Phenanthrene	11	10	ug/L
Anthracene	ND	10	ug/L
Carbazole	15	10	ug/L
Fluoranthene	ND	10	ug/L
Pyrene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Chrysene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Indene	64	10	ug/L
1-Methylnaphthalene	68	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Biphenyl	8.5 J	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Quinoline	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
2,3-Dihydroindene	29	10	ug/L
Benzo(b)thiophene	32	10	ug/L
Indole	ND	10	ug/L
Acridine	ND	10	ug/L
Perylene	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	38	(25 - 160)
Fluorene d-10	72	(36 - 127)
Naphthalene-d8	73	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W426-082399

GC/MS Semivolatiles

Lot-Sample #...: D9H240121-012 Work Order #...: D1NJH101 Matrix.....: WATER
Date Sampled...: 08/23/99 08:15 Date Received..: 08/24/99
Prep Date.....: 08/24/99 Analysis Date..: 08/28/99
Prep Batch #...: 9236428 Analysis Time..: 20:18
Dilution Factor: 1

Method.....: SW846 8270B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	4.2 J	10	ug/L
Naphthalene	16	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
Acenaphthene	56	10	ug/L
Dibenzofuran	19	10	ug/L
Fluorene	30	10	ug/L
Phenanthrene	23	10	ug/L
Anthracene	3.1 J	10	ug/L
Carbazole	8.9 J	10	ug/L
Fluoranthene	ND	10	ug/L
Pyrene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Chrysene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Indene	12	10	ug/L
1-Methylnaphthalene	45	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Biphenyl	2.5 J	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Quinoline	ND	10	ug/L
2,3-Benzofuran	0.41 J	10	ug/L
2,3-Dihydroindene	28	10	ug/L
Benzo(b)thiophene	7.7 J	10	ug/L
Indole	ND	10	ug/L
Acridine	ND	10	ug/L
Perylene	ND	10	ug/L
Dibenzothiophene	2.5 J	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	48	(25 - 160)
Fluorene d-10	66	(36 - 127)
Naphthalene-d8	60	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W27-082399

GC/MS Semivolatiles

Lot-Sample #...: D9H240121-013 Work Order #...: D1NJK101 Matrix.....: WATER
Date Sampled...: 08/23/99 09:30 Date Received..: 08/24/99
Prep Date.....: 08/24/99 Analysis Date..: 08/28/99
Prep Batch #...: 9236428 Analysis Time..: 20:53
Dilution Factor: 1

Method.....: SW846 8270B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	10	ug/L
Naphthalene	31	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
Acenaphthene	25	10	ug/L
Dibenzofuran	8.4 J	10	ug/L
Fluorene	9.2 J	10	ug/L
Phenanthrene	ND	10	ug/L
Anthracene	ND	10	ug/L
Carbazole	7.1 J	10	ug/L
Fluoranthene	ND	10	ug/L
Pyrene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Chrysene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Indene	15	10	ug/L
1-Methylnaphthalene	25	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Biphenyl	4.9 J	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Quinoline	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
2,3-Dihydroindene	23	10	ug/L
Benzo(b)thiophene	7.3 J	10	ug/L
Indole	ND	10	ug/L
Acridine	1.3 J	10	ug/L
Perylene	ND	10	ug/L
Dibenzothiophene	0.70 J	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	61	(25 - 160)
Fluorene d-10	54	(36 - 127)
Naphthalene-d8	39	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W143-82399

GC/MS Semivolatiles

Lot-Sample #...: D9H240121-014 Work Order #...: D1NJL101 Matrix.....: WATER
Date Sampled...: 08/23/99 10:30 Date Received..: 08/24/99
Prep Date.....: 08/24/99 Analysis Date..: 08/28/99
Prep Batch #...: 9236428 Analysis Time..: 21:28
Dilution Factor: 1
Method.....: SW846 8270B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	10	ug/L
Naphthalene	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
Acenaphthene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Fluorene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Anthracene	ND	10	ug/L
Carbazole	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Pyrene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Chrysene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Indene	0.52 J	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Quinoline	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
2,3-Dihydroindene	2.4 J	10	ug/L
Benzo(b)thiophene	1.5 J	10	ug/L
Indole	ND	10	ug/L
Acridine	ND	10	ug/L
Perylene	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	54	(25 - 160)
Fluorene d-10	66	(36 - 127)
Naphthalene-d8	69	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

QC DATA ASSOCIATION SUMMARY

D9H240121

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WATER	SW846 8270B		9236428	9250069
002	WATER	SW846 8270B		9236428	9250069
003	WATER	SW846 8270B		9236428	9250069
004	WATER	SW846 8270B		9236428	9250069
005	WATER	SW846 8270B		9236428	9250069
006	WATER	SW846 8270B		9245293	
007	WATER	SW846 8270B		9236428	9250069
008	WATER	SW846 8270B		9245293	
009	WATER	SW846 8270B		9236428	9250069
010	WATER	SW846 8270B		9236428	9250069
011	WATER	SW846 8270B		9245293	
012	WATER	SW846 8270B		9236428	9250069
013	WATER	SW846 8270B		9236428	9250069
014	WATER	SW846 8270B		9236428	9250069

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D9H240121 Work Order #...: D1PG9104 Matrix.....: WATER
MB Lot-Sample #: D9H240000-428

Prep Date.....: 08/24/99 Analysis Time..: 17:08

Analysis Date..: 09/02/99 Prep Batch #...: 9236428
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthylene	ND	10	ug/L	SW846 8270B
Naphthalene	ND	10	ug/L	SW846 8270B
2-Methylnaphthalene	ND	10	ug/L	SW846 8270B
Acenaphthene	ND	10	ug/L	SW846 8270B
Dibenzofuran	ND	10	ug/L	SW846 8270B
Fluorene	ND	10	ug/L	SW846 8270B
Phenanthrene	ND	10	ug/L	SW846 8270B
Anthracene	ND	10	ug/L	SW846 8270B
Carbazole	ND	10	ug/L	SW846 8270B
Fluoranthene	ND	10	ug/L	SW846 8270B
Pyrene	ND	10	ug/L	SW846 8270B
Benzo(a)anthracene	ND	10	ug/L	SW846 8270B
Chrysene	ND	10	ug/L	SW846 8270B
Benzo(b)fluoranthene	ND	10	ug/L	SW846 8270B
Benzo(k)fluoranthene	ND	10	ug/L	SW846 8270B
Benzo(a)pyrene	ND	10	ug/L	SW846 8270B
Indeno(1,2,3-cd)pyrene	ND	10	ug/L	SW846 8270B
Benzo(ghi)perylene	ND	10	ug/L	SW846 8270B
Indene	ND	10	ug/L	SW846 8270B
1-Methylnaphthalene	ND	10	ug/L	SW846 8270B
Benzo(e)pyrene	ND	10	ug/L	SW846 8270B
Biphenyl	ND	10	ug/L	SW846 8270B
Dibenz(a,h)anthracene	ND	10	ug/L	SW846 8270B
Quinoline	ND	10	ug/L	SW846 8270B
2,3-Benzofuran	ND	10	ug/L	SW846 8270B
2,3-Dihydroindene	ND	10	ug/L	SW846 8270B
Benzo(b)thiophene	ND	10	ug/L	SW846 8270B
Indole	ND	10	ug/L	SW846 8270B
Acridine	ND	10	ug/L	SW846 8270B
Perylene	ND	10	ug/L	SW846 8270B
Dibenzothiophene	ND	10	ug/L	SW846 8270B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	93	(25 - 160)
Fluorene d-10	51	(36 - 127)
Naphthalene-d8	51	(37 - 107)

NOTE(S):

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

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D9H240121
MB Lot-Sample #: D9I020000-293

Work Order #...: D22TT104

Matrix.....: WATER

Prep Date.....: 08/30/99

Analysis Time..: 15:56

Analysis Date..: 09/02/99
Prep Batch #...: 9245293
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthylene	ND	10	ug/L	SW846 8270B
Naphthalene	ND	10	ug/L	SW846 8270B
2-Methylnaphthalene	ND	10	ug/L	SW846 8270B
Acenaphthene	ND	10	ug/L	SW846 8270B
Dibenzofuran	ND	10	ug/L	SW846 8270B
Fluorene	ND	10	ug/L	SW846 8270B
Phenanthrene	ND	10	ug/L	SW846 8270B
Anthracene	ND	10	ug/L	SW846 8270B
Carbazole	ND	10	ug/L	SW846 8270B
Fluoranthene	ND	10	ug/L	SW846 8270B
Pyrene	ND	10	ug/L	SW846 8270B
Benzo(a)anthracene	ND	10	ug/L	SW846 8270B
Chrysene	ND	10	ug/L	SW846 8270B
Benzo(b)fluoranthene	ND	10	ug/L	SW846 8270B
Benzo(k)fluoranthene	ND	10	ug/L	SW846 8270B
Benzo(a)pyrene	ND	10	ug/L	SW846 8270B
Indeno(1,2,3-cd)pyrene	ND	10	ug/L	SW846 8270B
Benzo(ghi)perylene	ND	10	ug/L	SW846 8270B
Indene	ND	10	ug/L	SW846 8270B
1-Methylnaphthalene	ND	10	ug/L	SW846 8270B
Benzo(e)pyrene	ND	10	ug/L	SW846 8270B
Biphenyl	ND	10	ug/L	SW846 8270B
Dibenz(a,h)anthracene	ND	10	ug/L	SW846 8270B
Quinoline	ND	10	ug/L	SW846 8270B
2,3-Benzofuran	ND	10	ug/L	SW846 8270B
2,3-Dihydroindene	ND	10	ug/L	SW846 8270B
Benzo(b)thiophene	ND	10	ug/L	SW846 8270B
Indole	ND	10	ug/L	SW846 8270B
Acridine	ND	10	ug/L	SW846 8270B
Perylene	ND	10	ug/L	SW846 8270B
Dibenzothiophene	ND	10	ug/L	SW846 8270B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	92	(25 - 160)
Fluorene d-10	68	(36 - 127)
Naphthalene-d8	69	(37 - 107)

NOTE(S):

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

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D9H240121 Work Order #...: D1PG9102-LCS Matrix.....: WATER
LCS Lot-Sample#: D9H240000-428 D1PG9103-LCSD
Prep Date.....: 08/24/99 Analysis Date..: 08/28/99
Prep Batch #...: 9236428 Analysis Time..: 11:27
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Naphthalene	50.0	29.9	ug/L	60		SW846 8270B
	50.0	34.4	ug/L	69	14	SW846 8270B
2-Methylnaphthalene	50.0	28.1	ug/L	56		SW846 8270B
	50.0	34.1	ug/L	68	19	SW846 8270B
Fluorene	50.0	31.4	ug/L	63		SW846 8270B
	50.0	36.2	ug/L	72	14	SW846 8270B
Chrysene	50.0	40.4	ug/L	81		SW846 8270B
	50.0	41.2	ug/L	82	2.0	SW846 8270B
Indene	50.0	27.3	ug/L	55		SW846 8270B
	50.0	32.2	ug/L	64	16	SW846 8270B
Benzo(e)pyrene	50.0	37.1	ug/L	74		SW846 8270B
	50.0	37.6	ug/L	75	1.3	SW846 8270B
Quinoline	50.0	27.3	ug/L	55		SW846 8270B
	50.0	33.0	ug/L	66	19	SW846 8270B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	89	(25 - 160)
	94	(25 - 160)
Fluorene d-10	60	(36 - 127)
	70	(36 - 127)
Naphthalene-d8	59	(37 - 107)
	70	(37 - 107)

NOTE(S):

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

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D9H240121 Work Order #...: D22TT102-LCS Matrix.....: WATER
LCS Lot-Sample#: D9I020000-293 D22TT103-LCSD
Prep Date.....: 08/30/99 Analysis Date..: 09/02/99
Prep Batch #...: 9245293 Analysis Time..: 17:44
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Naphthalene	50.0	34.6	ug/L	69		SW846 8270B
	50.0	36.1	ug/L	72	4.2	SW846 8270B
2-Methylnaphthalene	50.0	34.0	ug/L	68		SW846 8270B
	50.0	34.6	ug/L	69	1.8	SW846 8270B
Fluorene	50.0	39.1	ug/L	78		SW846 8270B
	50.0	40.5	ug/L	81	3.6	SW846 8270B
Chrysene	50.0	40.1	ug/L	80		SW846 8270B
	50.0	41.2	ug/L	82	2.8	SW846 8270B
Indene	50.0	32.4	ug/L	65		SW846 8270B
	50.0	33.5	ug/L	67	3.3	SW846 8270B
Benzo(e)pyrene	50.0	37.0	ug/L	74		SW846 8270B
	50.0	37.8	ug/L	76	2.2	SW846 8270B
Quinoline	50.0	29.4	ug/L	59		SW846 8270B
	50.0	30.2	ug/L	60	2.7	SW846 8270B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	87	(25 - 160)
	93	(25 - 160)
Fluorene d-10	66	(36 - 127)
	70	(36 - 127)
Naphthalene-d8	68	(37 - 107)
	72	(37 - 107)

NOTE(S):

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

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D9H240121 Work Order #...: D1PG9102-LCS Matrix.....: WATER
LCS Lot-Sample#: D9H240000-428 D1PG9103-LCSD
Prep Date.....: 08/24/99 Analysis Date..: 08/28/99
Prep Batch #...: 9236428 Analysis Time..: 11:27
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Naphthalene	**60**	**(43 - 128)**			**SW846 8270B**
	69	**(43 - 128)**	**14**	**(0-20)**	**SW846 8270B**
2-Methylnaphthalene	**56**	**(47 - 138)**			**SW846 8270B**
	68	**(47 - 138)**	**19**	**(0-20)**	**SW846 8270B**
Fluorene	**63**	**(51 - 120)**			**SW846 8270B**
	72	**(51 - 120)**	**14**	**(0-20)**	**SW846 8270B**
Chrysene	**81**	**(43 - 124)**		-	**SW846 8270B**
	82	**(43 - 124)**	**2.0**	**(0-20)**	**SW846 8270B**
Indene	**55**	**(49 - 108)**			**SW846 8270B**
	64	**(49 - 108)**	**16**	**(0-20)**	**SW846 8270B**
Benzo(e)pyrene	**74**	**(20 - 150)**			**SW846 8270B**
	75	**(20 - 150)**	**1.3**	**(0-20)**	**SW846 8270B**
Quinoline	**55**	**(40 - 126)**			**SW846 8270B**
	66	**(40 - 126)**	**19**	**(0-20)**	**SW846 8270B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	89	(25 - 160)
	94	(25 - 160)
Fluorene d-10	60	(36 - 127)
	70	(36 - 127)
Naphthalene-d8	59	(37 - 107)
	70	(37 - 107)

NOTE(S):

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

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D9H240121 Work Order #...: D22TT102-LCS Matrix.....: WATER
LCS Lot-Sample#: D9I020000-293 D22TT103-LCSD
Prep Date.....: 08/30/99 Analysis Date..: 09/02/99
Prep Batch #...: 9245293 Analysis Time..: 17:44
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Naphthalene	69	(43 - 128)			SW846 8270B
	72	(43 - 128)	4.2	(0-20)	SW846 8270B
2-Methylnaphthalene	68	(47 - 138)			SW846 8270B
	69	(47 - 138)	1.8	(0-20)	SW846 8270B
Fluorene	78	(51 - 120)			SW846 8270B
	81	(51 - 120)	3.6	(0-20)	SW846 8270B
Chrysene	80	(43 - 124)		-	SW846 8270B
	82	(43 - 124)	2.8	(0-20)	SW846 8270B
Indene	65	(49 - 108)			SW846 8270B
	67	(49 - 108)	3.3	(0-20)	SW846 8270B
Benzo(e)pyrene	74	(20 - 150)			SW846 8270B
	76	(20 - 150)	2.2	(0-20)	SW846 8270B
Quinoline	59	(40 - 126)			SW846 8270B
	60	(40 - 126)	2.7	(0-20)	SW846 8270B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	87	(25 - 160)
	93	(25 - 160)
Fluorene d-10	66	(36 - 127)
	70	(36 - 127)
Naphthalene-d8	68	(37 - 107)
	72	(37 - 107)

NOTE(S):

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

Bold print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D9H240121 Work Order #...: D1NHQ102-MS Matrix.....: WATER
MS Lot-Sample #: D9H240121-001 D1NHQ103-MSD
Date Sampled...: 08/23/99 Date Received..: 08/24/99
Prep Date.....: 08/24/99 Analysis Date..: 08/28/99
Prep Batch #...: 9236428 Analysis Time..: 13:14
Dilution Factor: 10

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Naphthalene	1100	51.3	1100 a	ug/L	0.0		SW846 8270B
	1100	50.8	1230 a	ug/L	177	0.0	SW846 8270B
2-Methylnaphthalene	82	51.3	109	ug/L	53		SW846 8270B
	82	50.8	126	ug/L	86	15	SW846 8270B
Fluorene	36	51.3	75.7	ug/L	77		SW846 8270B
	36	50.8	76.2	ug/L	79	1.7	SW846 8270B
Chrysene	ND	51.3	34.7	ug/L	68		SW846 8270B
	ND	50.8	40.5	ug/L	80	16	SW846 8270B
Indene	38	51.3	62.6	ug/L	49		SW846 8270B
	38	50.8	74.4	ug/L	73	18	SW846 8270B
Benzo(e)pyrene	ND	51.3	31.1	ug/L	61		SW846 8270B
	ND	50.8	34.7	ug/L	68	12	SW846 8270B
Quinoline	ND	51.3		ug/L	53		SW846 8270B
	ND	50.8	a,p	ug/L	30	55	SW846 8270B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC	(25 - 160)
	NC	(25 - 160)
Fluorene d-10	NC	(36 - 127)
	NC	(36 - 127)
Naphthalene-d8	NC	(37 - 107)
	NC	(37 - 107)

NOTE(S):

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

Bold print denotes control parameters

NC The recovery and/or RPD were not calculated.

a Spiked analyte recovery is outside stated control limits.

p Relative percent difference (RPD) is outside stated control limits.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D9H240121 Work Order #...: D1NHQ102-MS Matrix.....: WATER
MS Lot-Sample #: D9H240121-001 D1NHQ103-MSD
Date Sampled...: 08/23/99 Date Received..: 08/24/99
Prep Date.....: 08/24/99 Analysis Date..: 08/28/99
Prep Batch #...: 9236428 Analysis Time..: 13:14
Dilution Factor: 10

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Naphthalene	**0.0 a**	**(43 - 128)**			**SW846 8270B**
	177 a	**(43 - 128)**	**0.0**	**(0-20)**	**SW846 8270B**
2-Methylnaphthalene	**53**	**(47 - 138)**			**SW846 8270B**
	86	**(47 - 138)**	**15**	**(0-20)**	**SW846 8270B**
Fluorene	**77**	**(51 - 120)**			**SW846 8270B**
	79	**(51 - 120)**	**1.7**	**(0-20)**	**SW846 8270B**
Chrysene	**68**	**(43 - 124)**			**SW846 8270B**
	80	**(43 - 124)**	**16**	**(0-20)**	**SW846 8270B**
Indene	**49**	**(49 - 108)**			**SW846 8270B**
	73	**(49 - 108)**	**18**	**(0-20)**	**SW846 8270B**
Benzo(e)pyrene	**61**	**(20 - 150)**			**SW846 8270B**
	68	**(20 - 150)**	**12**	**(0-20)**	**SW846 8270B**
Quinoline	**53**	**(40 - 126)**			**SW846 8270B**
	30 a,p	**(40 - 126)**	**55**	**(0-20)**	**SW846 8270B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC	(25 - 160)
	NC	(25 - 160)
Fluorene d-10	NC	(36 - 127)
	NC	(36 - 127)
Naphthalene-d8	NC	(37 - 107)
	NC	(37 - 107)

NOTE(S):

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

Bold print denotes control parameters

NC The recovery and/or RPD were not calculated.

a Spiked analyte recovery is outside stated control limits

p Relative percent difference (RPD) is outside stated control limits.

Chain of Custody Record

Quanterra

QUA-4124 0797

Client: CITY OF ST. LOUIS PARK UTILITY DIVISION	Project Manager: SCOTT ANDERSON	Date: 8-23-99	Chain of Custody Number: 02160
Address: 3752 WOODDALE AVENUE	Telephone Number (Area Code)/Fax Number: 924-2557 (612) 924-2570	Lab Number: D9H240121	Page ____ of ____
City: ST. LOUIS PARK, MN 55416	Site Contact: SAME	Lab Contact:	
Project Name: SAME	Carrier/Waybill Number: FED EX 800846316551		
Contract/Purchase Order/Quote No.			

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

Special Instructions/ Conditions of Receipt

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	N/A	PCB	PAH
-01 DPV-W420-082399	8-23-99		X										2	X	
-02 DPV-W420D-082399															
01MS DPV-W420MS-082399															
01MSD DPV-W420MSD-082399															
-03 DPV-W420FB-082399															
-04 DPV-W420FBD-082399	8-23-99		X										2	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: [signature]	8-23-99	1400	1 Received By: Kurt C. [signature]	8/24/99	0900
2. Relinquished By			2 Received By		
3 Relinquished By			3 Received By		

Comments: Cooler 0012 2.0°C

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

[redacted]

Chain of Custody Record

Quanterra

QUA-4124 0797

Client: CITY OF ST. LOUIS PARK UTILITY DIVISION 3752 WOODDALE AVENUE ST. LOUIS PARK, MN 55416	Project Manager: SCOTT ANDERSON	Date: 8-23-99	Chain of Custody Number: 02161
Address	Telephone Number (Area Code)/Fax Number: 924-2557 (612) 924-2570	Lab Number: D9H240121	Page ____ of ____
City	Site Contact: SAME	Lab Contact	
Project Name: SAME	Carrier/Waybill Number: FED EX 800846316551		
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	Sed.	Soil	Containers & Preservatives: Unpres	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	N/A	PPB PAH	Special Instructions/ Conditions of Receipt
05 DPV-W421-082399	8-23-99		X									2	X	
06 DPV-W422-082399														
07 DPV-W439-082399														
08 DPV-W434-082399														
09 PCV-W23-082399														
10 OTF-ACFE-082399	8-23-99		X									2	X	

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: MZH	8-23-99	1400	1. Received By: Kurt C. [illegible]	8/24/99	0900
2 Relinquished By			2 Received By		
3 Relinquished By			3 Received By		

Comments: Cooler 0001 S[illegible]

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

Chain of Custody Record

Quanterra

QUA-4124 0797

Client: City of St Louis Park	Project Manager: Bill Gregg	Date: 8/23/99	Chain of Custody Number: 23501
Address: 3252 Woodale Ave	Telephone Number (Area Code)/Fax Number: 612-924-2559	Lab Number: D9H240121	Page 1 of 1
City: St Louis Park; State: MN; Zip Code: 55416	Site Contact: Scott Anderson	Lab Contact: Kurt Ill	
Project Name: Reilly	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	Aqueous	Sed.	Soil		Unpres	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH		PPB-PAH	Special Instructions/ Conditions of Receipt
-11 STP-W409-082399	8-23-99	7:55	X				X								PPB
-12 DPV-W426-082399	↓	8:15	↓				↓							↓	↓
-13 DPV-W27-082399	↓	9:30	↓				↓							↓	↓
-14 DPV-W143-082399	↓	10:30	↓				↓							↓	↓

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: Pat Allen	8/23/99	11:30	1 Received By: Kurt C. Ill	8/24/99	0900
2. Relinquished By			2 Received By		
3 Relinquished By			3 Received By		

Comments: (One bottle Sample DPV-W27 Broken) Cooler 0011 1.6°C

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

L

Advanced Analytical Services

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 467-9136 Fax

CASE NARRATIVE

FOR

City of St. Louis Park

September 17, 1999

Quanterra , Inc.

Project Lot Number D9H240134

Introduction

Thirteen aqueous samples (including matrix QC) were received at Quanterra Environmental Services, Denver Laboratory on August 24, 1999. The samples were logged in under Quanterra Denver's project lot number D9H240134. 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 1998 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.

The matrix spike duplicate sample is reported at 128% recovery which is above the 76% to 121% acceptance limits. Due to the high level of phenols present in the sample a matix effect is indicated.

Except for the above, this data package is in compliance with the terms and conditions of the October 1998 QAPP, both technically and for completeness

Reported By: Kurt C. Ill **Date:** Sept 17, 1999

Kurt C. Ill
Program Manager

ANALYTICAL REPORT

PROJECT NO. TOTAL PHENOLS

Reilly Tar & Chemical NPL Site

Lot #: D9H240134

Scott Anderson

City of St. Louis Park

QUANTERRA INCORPORATED

Kurt C. Ill
Project Manager

September 17, 1999

EXECUTIVE SUMMARY - Detection Highlights

D9H240134

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
DPV-W420TP-082399 08/23/99 001				
Total Phenols	0.14	0.010	mg/L	MCAWW 420.1
DPV-W420TPD-082399 08/23/99 002				
Total Phenols	0.13	0.010	mg/L	MCAWW 420.1
DPV-W421TP-082399 08/23/99 005				
Total Phenols	0.025	0.0050	mg/L	MCAWW 420.1
DPV-W422TP-082399 08/23/99 006				
Total Phenols	0.010	0.0050	mg/L	MCAWW 420.1
DPV-W439TP-082399 08/23/99 007				
Total Phenols	0.045	0.0050	mg/L	MCAWW 420.1
DPV-W434TP-082399 08/23/99 008				
Total Phenols	0.0055	0.0050	mg/L	MCAWW 420.1
STP-W410TP-082399 08/23/99 011				
Total Phenols	0.0072	0.0050	mg/L	MCAWW 420.1

ANALYTICAL METHODS SUMMARY

D9H240134

PARAMETER	ANALYTICAL METHOD
Phenolics	MCAWW 420.1

References:

MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

METHOD / ANALYST SUMMARY

D9H240134

ANALYTICAL METHOD	ANALYST	ANALYST ID
MCAWW 420.1	Kurt Ill	005075

References:

MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

SAMPLE SUMMARY

D9H240134

WO #	SAMPLE#	CLIENT SAMPLE ID	DATE	TIME
D1NKX	001	DPV-W420TP-082399	08/23/99	
D1NLK	002	DPV-W420TPD-082399	08/23/99	
D1NLN	003	DPV-W420TPFB-082399	08/23/99	
D1NLT	004	DPV-W420TPFBD-082399	08/23/99	
D1NLV	005	DPV-W421TP-082399	08/23/99	
D1NM2	006	DPV-W422TP-082399	08/23/99	
D1NM4	007	DPV-W439TP-082399	08/23/99	
D1NM6	008	DPV-W434TP-082399	08/23/99	
D1NM7	009	GTF-ACFETP-082399	08/23/99	
D1NMC	010	PCJ-SLP4TP-082399	08/23/99	
D1NMF	011	STP-W410TP-082399	08/23/99	

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W420TP-082399

General Chemistry

Lot-Sample #...: D9H240134-001 Work Order #...: D1NKX Matrix.....: WATER
Date Sampled...: 08/23/99 Date Received..: 08/24/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols	0.14	0.010	mg/L	MCAWW 420.1	09/08-09/13/99	9256206

Dilution Factor: 2 Analysis Time..: 00:00

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W420TPD-082399

General Chemistry

Lot-Sample #...: D9H240134-002 Work Order #...: D1NLK Matrix.....: WATER
Date Sampled...: 08/23/99 Date Received..: 08/24/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols	0.13	0.010	mg/L	MCAWW 420.1	09/08-09/13/99	9256206

Dilution Factor: 2 Analysis Time..: 00:00

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W420TPFB-082399

General Chemistry

Lot-Sample #...: D9H240134-003 Work Order #...: D1NLN Matrix.....: WATER
Date Sampled...: 08/23/99 Date Received..: 08/24/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols	ND	0.0050	mg/L	MCAWW 420.1	09/08-09/13/99	9256206

Dilution Factor: 1 Analysis Time..: 00:00

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W420TPFBD-082399

General Chemistry

Lot-Sample #...: D9H240134-004 Work Order #...: D1NLT Matrix.....: WATER
Date Sampled...: 08/23/99 Date Received..: 08/24/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols	ND	0.0050	mg/L	MCAWW 420.1	09/08-09/13/99	9256206

Dilution Factor: 1 Analysis Time..: 00:00

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W421TP-082399

General Chemistry

Lot-Sample #...: D9H240134-005 Work Order #...: D1NLV Matrix.....: WATER
Date Sampled...: 08/23/99 Date Received..: 08/24/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols	0.025	0.0050	mg/L	MCAWW 420.1	09/08-09/13/99	9256206

Dilution Factor: 1 Analysis Time..: 00:00

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-SLP4TP-082399

General Chemistry

Lot-Sample #...: D9H240134-010 Work Order #...: D1NMC Matrix.....: WATER
Date Sampled...: 08/23/99 Date Received..: 08/24/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols	ND	0.0050	mg/L	MCAWW 420.1	09/08-09/13/99	9256206

Dilution Factor: 1 Analysis Time..: 00:00

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W422TP-082399

General Chemistry

Lot-Sample #...: D9H240134-006 Work Order #...: D1NM2 Matrix.....: WATER
Date Sampled...: 08/23/99 Date Received..: 08/24/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols	0.010	0.0050	mg/L	MCAWW 420.1	09/08-09/13/99	9256206

Dilution Factor: 1 Analysis Time..: 00:00

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W439TP-082399

General Chemistry

Lot-Sample #...: D9H240134-007 Work Order #...: D1NM4 Matrix.....: WATER
Date Sampled...: 08/23/99 Date Received..: 08/24/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols	0.045	0.0050	mg/L	MCAWW 420.1	09/08-09/13/99	9256206

Dilution Factor: 1 Analysis Time..: 00:00

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W434TP-082399

General Chemistry

Lot-Sample #...: D9H240134-008 Work Order #...: D1NM6 Matrix.....: WATER
Date Sampled...: 08/23/99 Date Received..: 08/24/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols	0.0055	0.0050	mg/L	MCAWW 420.1	09/08-09/13/99	9256206

Dilution Factor: 1 Analysis Time..: 00:00

CITY OF ST. LOUIS PARK

Client Sample ID: GTF-ACFETP-082399

General Chemistry

Lot-Sample #...: D9H240134-009 Work Order #...: D1NM7 Matrix.....: WATER
Date Sampled...: 08/23/99 Date Received..: 08/24/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols	ND	0.0050	mg/L	MCAWW 420.1	09/08-09/13/99	9256206

Dilution Factor: 1 Analysis Time..: 00:00

CITY OF ST. LOUIS PARK

Client Sample ID: STP-W410TP-082399

General Chemistry

Lot-Sample #...: D9H240134-011 Work Order #...: D1NMF Matrix.....: WATER
Date Sampled...: 08/23/99 Date Received..: 08/24/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols	0.0072	0.0050	mg/L	MCAWW 420.1	09/08-09/13/99	9256206

Dilution Factor: 1 Analysis Time..: 00:00

QC DATA ASSOCIATION SUMMARY

D9H240134

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WATER	MCAWW 420.1		9256206	9256070
002	WATER	MCAWW 420.1		9256206	9256070
003	WATER	MCAWW 420.1		9256206	9256070
004	WATER	MCAWW 420.1		9256206	9256070
005	WATER	MCAWW 420.1		9256206	9256070
006	WATER	MCAWW 420.1		9256206	9256070
007	WATER	MCAWW 420.1		9256206	9256070
008	WATER	MCAWW 420.1		9256206	9256070
009	WATER	MCAWW 420.1		9256206	9256070
010	WATER	MCAWW 420.1		9256206	9256070
011	WATER	MCAWW 420.1		9256206	9256070

METHOD BLANK REPORT

General Chemistry

Client Lot #...: D9H240134 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols		Work Order #: D2D8H101		MB Lot-Sample #:	D9I130000-206	
	ND	0.0050	mg/L	MCAWW 420.1	09/08-09/13/99	9256206
		Dilution Factor: 1				
		Analysis Time..: 00:00				

NOTE(S):

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

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Lot-Sample #...: D9H240134 **Matrix.....: WATER**

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols		WO#:D2D8H102-LCS/D2D8H103-LCSD					LCS Lot-Sample#: D9I130000-206	
	0.0500	0.0509	mg/L	102		MCAWW 420.1	09/08-09/13/99	9256206
	0.0500	0.0537	mg/L	107	5.2	MCAWW 420.1	09/08-09/13/99	9256206

Dilution Factor: 1

NOTE(S):

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

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Lot-Sample #...: D9H240134 **Matrix.....:** WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols		WO#:D2D8H102-LCS/D2D8H103-LCSD				LCS Lot-Sample#: D9I130000-206	
	102	(76 - 121)			MCAWW 420.1	09/08-09/13/99	9256206
	107	(76 - 121)	5.2	(0-16)	MCAWW 420.1	09/08-09/13/99	9256206

Dilution Factor: 1

NOTE(S):

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

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: D9H240134 **Matrix.....:** WATER
Date Sampled...: 08/23/99 **Date Received..:** 08/24/99

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols			WO#: D1NKX102-MS/D1NKX103-MSD				MS Lot-Sample #: D9H240134-001		
	0.14	0.050	0.193	mg/L	111		MCAWW 420.1	09/08-09/13/99	9256206
	0.14	0.050	0.201 N	mg/L	128	4.3	MCAWW 420.1	09/08-09/13/99	9256206

Dilution Factor: 1
Analysis Time..: 00:00

NOTE(S):

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

N Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: D9H240134 **Matrix.....:** WATER
Date Sampled...: 08/23/99 **Date Received..:** 08/24/99

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols		WO#:	D1NKX102-MS/D1NKX103-MSD			MS Lot-Sample #: D9H240134-001	
	111	(76 - 121)			MCAWW 420.1	09/08-09/13/99	9256206
	128 N	(76 - 121)	4.3	(0-16)	MCAWW 420.1	09/08-09/13/99	9256206

Dilution Factor: 1
Analysis Time..: 00:00

NOTE(S):

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

N Spiked analyte recovery is outside stated control limits.

PDE115

Quanterra, Incorporated
Inorganics Batch Review
QC Batch 9256206

Date 9/13/1999
Time 11:30:33

Method Code:UO Phenolics (Manual - 420.1)
Analyst:Kurt Ill

Work Order	Result	Units	LDL/Dil	Prep. - Anal.	Total Solids	R/R	Rounded Output Result	LDL	Dil.
D1NKX-1-01	.13723	mg/L	0.01	09/08-09/13/99	.00		0.14	0.010	2.00
D1NLK-1-01	.13217	mg/L	0.01	09/08-09/13/99	.00		0.13	0.010	2.00
D1NLN-1-01	ND	mg/L	0.005	09/08-09/13/99	.00		ND	0.0050	1.00
D1NLT-1-01	ND	mg/L	0.005	09/08-09/13/99	.00		ND	0.0050	1.00
D1NLV-1-01	.0253	mg/L	0.005	09/08-09/13/99	.00		0.025	0.0050	1.00
D1NM2-1-01	.0103	mg/L	0.005	09/08-09/13/99	.00		0.010	0.0050	1.00
D1NM4-1-01	.04511	mg/L	0.005	09/08-09/13/99	.00		0.045	0.0050	1.00
D1NM6-1-01	.00549	mg/L	0.005	09/08-09/13/99	.00		0.0055	0.0050	1.00
D1NM7-1-01	ND	mg/L	0.005	09/08-09/13/99	.00		ND	0.0050	1.00
D1NMC-1-01	ND	mg/L	0.005	09/08-09/13/99	.00		ND	0.0050	1.00
D1NMF-1-01	.00723	mg/L	0.005	09/08-09/13/99	.00		0.0072	0.0050	1.00
D2D8H-1-01	ND	mg/L	0.005	09/08-09/13/99	.00		ND	0.005	1.00

Notes:

LCS - LCSD

Work Order	Exception Code	Measured Sample	True Spike	Measured SPIKE	Measured Dup.	Pct. Recovered SPIKE	DUP	RPD	Prep. - Anal.	Dil.
D2D8H-1-02			0.05	.05094	.05366	101.88	107.32	5.20	09/08-09/13/99	1.00

Notes:

MS - MSD

Work Order	Exception Code	Measured Sample	True Spike	Measured SPIKE	Measured Dup.	Pct. Recovered SPIKE	DUP	RPD	Prep. - Anal.	Dil.
D1NKX-1-02		.13723	0.05	.19278	.20132	111.10	128.18	4.33	09/08-09/13/99	1.00

?

Notes:

PRODUCTION TOTALS

TEST	TOTAL #	SAMPLE #	QC #	MATRIX #	OTHER #	MISC #	HOURS
	0	0	0	0	0	0	.0

Quanterra

Laboratory Bench Sheet
Colorimetric Analysis
Revision 0 - January 25, 1995

Analyst: Kurt Ill	Calibration Curve Information						Instrument Information
Date: 9/10/99	CONC.(mg/L)		ABS.	CONC.(mg/L)		ABS.	Instrument: SPEC 304
QC Lot: 9256206	BLANK	0	0.00	STD 5	0.100	0.532	Wavelength (nm): 460nm
QC Run:	STD 1	0.005	0.026	STD 6	0.150	0.765	Parameter: Total Phenols
SOP Information	STD 2	0.010	0.051	STD 7			Corr. Coefficient: 99950
Number: DRN WC-0002	STD 3	0.020	0.110	STD 8			Slope: 5.14841
Revision: "0" 5/24/94	STD 4	0.050	0.274				Intercept: 0.00475

DCS Information	ICV / Matrix Spike Information	Calibration Information
Source/Ver-Lot #: Same as CAL.	Source/Ver-Lot #: Lab Chem	Source/Ver-Lot #: RICCA A243
Prep Date: Made By:	Prep Date: 9/8/99 Made By: KCL	Prep Date: 9/10/99 Made By: KCL
Concentration:	Concentration: 10ppm	Concentration: 10ppm
Expiration Date:	Expiration Date: 9/15/99	Expiration Date: 9/17/99
DCS True Value:	Spike True Value: 0.050 ppm	CCV True Value: 0.050 ppm

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 #1			0.267		0.05094			0.05094	
	LCS #2			0.281		0.05366			0.05366	
	Mth Blk			0.005		<0.005			ND	
	ICV			0.256		0.04786			0.04786	
	134-01			0.358		0.06861		2	0.13723	
	134-01MS		0.82	~~0.09639~~		0.09639		2	0.19278	
	134-01SD			0.523		0.10066		2	0.20132	
	134-02			0.345		0.06609		2	0.13217	
	134-03			0.009		<0.005		1	ND	
	134-04			0.009		<0.005		1	ND	
	134-05			~~0.02~~ 0.135		0.0253		1	0.0253	
	134-06			0.058		0.01034		1	0.0103	
	CCB			0.009		<0.005		1	ND	
	CCV			0.283		0.05404		1	0.0540	108%
	134-07			0.237		0.04511		1	0.04511	
	134-08			0.033		0.00549		1	0.00549	
	134-09			0.020		<0.005		1	ND	
	134-10			0.023		<0.005		1	ND	
	134-11			0.042		0.00723		1	0.00723	
	CCB			0.011		<0.005		1	ND	
	CCV			0.281		0.05366		1	0.05366	107%

* MS/MSD chosen by analyst

BS0003.DOC.

Laboratory Bench Sheet
Wet Chemistry Sample Preparation
Revision 0 - January 19, 1995

Analyst: Kurt III	DCS Information	ICV / Matrix Spike Information
Date: 9-8-99 Parameter: Total OOH QC Lot: QC Run:	Source: Verification/Lot Number: Prep Date: Made By: Concentration: Expiration Date:	Source: Lab Chem Verification/Lot: 10586 Prep Date: 9/8/99 Made By: Kcl Concentration: 10ppm Expiration Date: 9/15/99
SOP Information		
Number: Revision:	Solvent: 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
Method Blank							
ICV @ 0.05 ppm							
D9H240134-01	<2	#2	$S^{=}$ +	Cl_2 −	200mL	200mL	1
-01MS	<2	#2	$S^{=}$ −	Cl_2 −			
-01SD	<2	#2	$S^{=}$ −	Cl_2 −			
-02	<2	#2	$S^{=}$ +	Cl_2 −			
-03	<2	#2	$S^{=}$ −	Cl_2 −			
-04	<2	#2	$S^{=}$ −	Cl_2 −	200mL	200mL	1
-05	<2	#2	$S^{=}$ −	Cl_2 −			
-06	<2	#2	$S^{=}$ −	Cl_2 −			
-07	<2	#2	$S^{=}$ −	Cl_2 −			
-08	<2	#2	$S^{=}$ −	Cl_2 −			
-09	<2	#2	$S^{=}$ −	Cl_2 −			
-10	<2	#2	$S^{=}$ −	Cl_2 −			
-11	<2	#2	$S^{=}$ −	Cl_2 −			

Kcl 9/8/99

* MS/MSD chosen by prep analyst

BSC024.DOC.

Chain of Custody Record

Quanterra

QUA-4124 0797

Client: CITY OF ST. LOUIS PARK UTILITY DIVISION	Project Manager: SCOTT ANDERSON	Date: 8-23-99	Chain of Custody Number: 02163
Address: 3752 WOODDALE AVENUE	Telephone Number (Area Code)/Fax Number: 924-2557 (612) 924-2570	Lab Number: D9H240134	Page 1 of 2
City: ST. LOUIS PARK, MN 55416	Site Contact: SAME	Lab Contact:	
Project Name: SAME	Carrier/Waybill Number: FED EX 800846316551		
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): PHENOLS	Special Instructions/ Conditions of Receipt
-01 DPV-W420TP-082399	8-23-99		X					1						X	
-02 DPV-W420TPD-082399															
-01MS DPV-W420TPMS-082399															
-01SD DPV-W420TPMSD-082399															
-03 DPV-W420TPFB-082399															
-04 DPV-W420TPFBD-082399															
-05 DPV-W421TP-082399															
-06 DPV-W422TP-082399															
-07 DPV-W439TP-082399															
-08 DPV-W434TP-082399															
-09 GTF-ACFETP-082399															
-10 PCJ-SLD4TP-082399	8-23-99		X					1						X	

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: [signature]	Date: 8-23-99	Time: 1400	1. Received By: [signature]	Date: 8/24/99	Time: 0900
2 Relinquished By:	Date:	Time:	2 Received By:	Date:	Time:
3 Relinquished By:	Date:	Time:	3. Received By:	Date:	Time:

Comments: Cooler 0007 2.8°C

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

Chain of Custody Record

Quanterra

QUA-4124 0

Client: CITY OF ST. LOUIS PARK UTILITY DIVISION	Project Manager: SCOTT ANDERSON	Date: 8-23-99	Chain of Custody Number: 02164
Address: 3752 WOODDALE AVENUE	Telephone Number (Area Code)/Fax Number: 924-2557 (612) 924-2570	Lab Number: DAH240134	Page 2 of 2
City: ST. LOUIS PARK, MN 55416	Site Contact: SAME	Lab Contact:	
Project Name: SAME	Carrier/Waybill Number: FED EX 800846316551		
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): Phenols											Special Instructions/ Conditions of Receipt
11 STP-W410TP-082399	8-23-99		X					X					1	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: MZK	8-23-99	1400	1 Received By: Kurt C. Sell	8/24/99	0900
2 Relinquished By			2 Received By		
3 Relinquished By			3 Received By		

Comments: Cooler 000 2.8°C

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

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Advanced Analytical Services

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 467-9136 Fax

CASE NARRATIVE

FOR

City of St. Louis Park

October 8, 1999

Quanterra , Inc.

Project Lot Number D9H310127

Introduction

Ten aqueous samples (including matrix QC) were received at Quanterra Environmental Services, Denver Laboratory on August 31, 1999. The samples were logged in under Quanterra Denver's project lot number D9H310127. A cross reference associating Quanterra Denver's laboratory sample numbers to the actual field sample number is included. The samples were analyzed for part per trillion (ppt) PAHs.

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the October 1998 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.

The Relative Percent Difference (RPD) for the spike compound, indene in the LCS / LCSD samples is reported at 22% which is outside the 0% to 20% limits. Indene was recovered within acceptance limits in both samples and all surrogates were within limits.

The spike compound fluorene was recovered at 56% and 65% in the matrix spike and matrix spike duplicate samples. This is below the 69% to 118% acceptance limits. Fluorene was recovered within acceptance limits in both the Laboratory Control Samples. A matrix effect is indicated.

Except for the above, this data package is in compliance with the terms and conditions of the October 1998 QAPP, both technically and for completeness

Reported By: Kurt C. Ill **Date:** Oct. 8, 1999

Kurt C. Ill
Program Manager

ANALYTICAL REPORT

Reilly Tar & Chemical NPL Site

Lot #: D9H310127

Scott Anderson

City of St. Louis Park

QUANTERRA INCORPORATED

Kurt C. Ill
Project Manager

October 8, 1999

EXECUTIVE SUMMARY - Detection Highlights

D9H310127

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
PCJ-E2-083099 08/30/99 10:00 001				
2,3-Dihydroindene	2.9 J	5.0	ng/L	SW846 8270A SIM
PCJ-E2D-083099 08/30/99 10:00 002				
Indene	3.0	0.90	ng/L	SW846 8270A SIM
2,3-Dihydroindene	2.9 J	5.0	ng/L	SW846 8270A SIM
PCJ-E2FB-083099 08/30/99 003				
2-Methylnaphthalene	2.1 J	3.9	ng/L	SW846 8270A SIM
PCJ-E7-083099 08/30/99 09:20 005				
Phenanthrene	2.2	1.3	ng/L	SW846 8270A SIM
PCJ-E15-083099 08/30/99 09:25 006				
Acenaphthene	11	1.3	ng/L	SW846 8270A SIM
Fluorene	2.2	1.0	ng/L	SW846 8270A SIM
2,3-Dihydroindene	5.4	5.0	ng/L	SW846 8270A SIM
PCJ-E13-083099 08/30/99 09:40 007				
Acenaphthylene	3.4	1.4	ng/L	SW846 8270A SIM
Acenaphthene	15	1.3	ng/L	SW846 8270A SIM
Fluorene	5.7	1.0	ng/L	SW846 8270A SIM
2,3-Dihydroindene	11	5.0	ng/L	SW846 8270A SIM
PCJ-W48-083099 08/30/99 13:40 008				
Acenaphthylene	4.6	1.4	ng/L	SW846 8270A SIM
Naphthalene	5.5 J	6.5	ng/L	SW846 8270A SIM
Acenaphthene	95	1.3	ng/L	SW846 8270A SIM
Anthracene	6.2	2.7	ng/L	SW846 8270A SIM
Carbazole	3.4	1.9	ng/L	SW846 8270A SIM
Fluoranthene	3.2	3.1	ng/L	SW846 8270A SIM
Pyrene	11	1.4	ng/L	SW846 8270A SIM
Indene	9.3	0.90	ng/L	SW846 8270A SIM
2,3-Dihydroindene	51	5.0	ng/L	SW846 8270A SIM
Benzo(b)thiophene	8.9	0.90	ng/L	SW846 8270A SIM
Acridine	25	6.1	ng/L	SW846 8270A SIM
Dibenzothiophene	2.5	1.1	ng/L	SW846 8270A SIM

ANALYTICAL METHODS SUMMARY

D9H310127

PARAMETER	ANALYTICAL METHOD
Base/Neutrals and Acids	SW846 8270A SIM

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

METHOD / ANALYST SUMMARY

D9H310127

ANALYTICAL METHOD	ANALYST	ANALYST ID
SW846 8270A SIM	Monica R. Edwards	001685

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

D9H310127

WO #	SAMPLE#	CLIENT SAMPLE ID	DATE	TIME
D1X8M	001	PCJ-E2-083099	08/30/99	10:00
D1X8R	002	PCJ-E2D-083099	08/30/99	10:00
D1X90	003	PCJ-E2FB-083099	08/30/99	
D1X95	004	PCJ-E2FBD-083099	08/30/99	
D1X97	005	PCJ-E7-083099	08/30/99	09:20
D1X9C	006	PCJ-E15-083099	08/30/99	09:25
D1X9E	007	PCJ-E13-083099	08/30/99	09:40
D1X9G	008	PCJ-W48-083099	08/30/99	13:40

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit
- This report must not be reproduced, except in full, without the written approval of the laboratory
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-E2-083099

GC/MS Semivolatiles

Lot-Sample #...: D9H310127-001 Work Order #...: D1X8M101 Matrix.....: WATER
Date Sampled...: 08/30/99 10:00 Date Received..: 08/31/99
Prep Date.....: 09/01/99 Analysis Date..: 09/15/99
Prep Batch #...: 9244320 Analysis Time..: 22:04
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	ND	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	ND	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	ND	3.1	ng/L
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	**2.9 J**	**5.0**	**ng/L**
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	66	(10 - 118)
Fluorene d-10	77	(41 - 162)
Naphthalene-d8	69	(21 - 108)

NOTE(S):

J Estimated result Result is less than RL

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-E2D-083099

GC/MS Semivolatiles

Lot-Sample #...: D9H310127-002 Work Order #...: D1X8R101 Matrix.....: WATER
Date Sampled...: 08/30/99 10:00 Date Received..: 08/31/99
Prep Date.....: 09/01/99 Analysis Date..: 09/15/99
Prep Batch #...: 9244320 Analysis Time..: 23:54
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	ND	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	ND	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	ND	3.1	ng/L
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	**3.0**	**0.90**	**ng/L**
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	**2.9 J**	**5.0**	**ng/L**
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	52	(10 - 118)
Fluorene d-10	81	(41 - 162)
Naphthalene-d8	66	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-E2FB-083099

GC/MS Semivolatiles

Lot-Sample #...: D9H310127-003 Work Order #...: D1X90101 Matrix.....: WATER
Date Sampled...: 08/30/99 Date Received..: 08/31/99
Prep Date.....: 09/01/99 Analysis Date..: 09/16/99
Prep Batch #...: 9244320 Analysis Time..: 00:31
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	2.1 J	3.9	ng/L
Acenaphthene	ND	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	ND	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	ND	3.1	ng/L
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	91	(10 - 118)
Fluorene d-10	83	(41 - 162)
Naphthalene-d8	73	(21 - 108)

NOTE(S):

J Estimated result Result is less than RL

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-E2FBD-083099

GC/MS Semivolatiles

Lot-Sample #...: D9H310127-004 Work Order #...: D1X95101 Matrix.....: WATER
Date Sampled...: 08/30/99 Date Received..: 08/31/99
Prep Date.....: 09/01/99 Analysis Date..: 09/16/99
Prep Batch #...: 9244320 Analysis Time..: 01:07
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	ND	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	ND	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	ND	3.1	ng/L
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	67	(10 - 118)
Fluorene d-10	44	(41 - 162)
Naphthalene-d8	39	(21 - 108)

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-E7-083099

GC/MS Semivolatiles

Lot-Sample #...: D9H310127-005 **Work Order #...:** D1X97101 **Matrix.....:** WATER
Date Sampled...: 08/30/99 09:20 **Date Received..:** 08/31/99
Prep Date.....: 09/01/99 **Analysis Date..:** 09/16/99
Prep Batch #...: 9244320 **Analysis Time..:** 01:44
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	ND	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	2.2	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	ND	3.1	ng/L
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	65	(10 - 118)
Fluorene d-10	83	(41 - 162)
Naphthalene-d8	76	(21 - 108)

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-E15-083099

GC/MS Semivolatiles

Lot-Sample #...: D9H310127-006 Work Order #...: D1X9C101 Matrix.....: WATER
Date Sampled...: 08/30/99 09:25 Date Received..: 08/31/99
Prep Date.....: 09/01/99 Analysis Date..: 09/16/99
Prep Batch #...: 9244320 Analysis Time..: 02:20
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	**11**	**1.3**	**ng/L**
Dibenzofuran	ND	1.0	ng/L
Fluorene	**2.2**	**1.0**	**ng/L**
Phenanthrene	ND	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	ND	3.1	ng/L
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	**5.4**	**5.0**	**ng/L**
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	61	(10 - 118)
Fluorene d-10	81	(41 - 162)
Naphthalene-d8	74	(21 - 108)

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-E13-083099

GC/MS Semivolatiles

Lot-Sample #...: D9H310127-007 Work Order #...: D1X9E101 Matrix.....: WATER
Date Sampled...: 08/30/99 09:40 Date Received..: 08/31/99
Prep Date.....: 09/01/99 Analysis Date..: 09/16/99
Prep Batch #...: 9244320 Analysis Time..: 02:56
Dilution Factor: 1
Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	**3.4**	**1.4**	**ng/L**
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	**15**	**1.3**	**ng/L**
Dibenzofuran	ND	1.0	ng/L
Fluorene	**5.7**	**1.0**	**ng/L**
Phenanthrene	ND	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	ND	3.1	ng/L
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	**11**	**5.0**	**ng/L**
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	56	(10 - 118)
Fluorene d-10	82	(41 - 162)
Naphthalene-d8	76	(21 - 108)

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-W48-083099

GC/MS Semivolatiles

Lot-Sample #...: D9H310127-008 Work Order #...: D1X9G101 Matrix.....: WATER
Date Sampled...: 08/30/99 13:40 Date Received..: 08/31/99
Prep Date.....: 09/01/99 Analysis Date..: 09/16/99
Prep Batch #...: 9244320 Analysis Time..: 16:37
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	**4.6**	**1.4**	**ng/L**
Naphthalene	**5.5 J**	**6.5**	**ng/L**
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	**95**	**1.3**	**ng/L**
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	ND	1.3	ng/L
Anthracene	**6.2**	**2.7**	**ng/L**
Carbazole	**3.4**	**1.9**	**ng/L**
Fluoranthene	**3.2**	**3.1**	**ng/L**
Pyrene	**11**	**1.4**	**ng/L**
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	**9.3**	**0.90**	**ng/L**
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	**51**	**5.0**	**ng/L**
Benzo(b)thiophene	**8.9**	**0.90**	**ng/L**
Indole	ND	2.5	ng/L
Acridine	**25**	**6.1**	**ng/L**
Perylene	ND	2.5	ng/L
Dibenzothiophene	**2.5**	**1.1**	**ng/L**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	64	(10 - 118)
Fluorene d-10	87	(41 - 162)
Naphthalene-d8	67	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

QC DATA ASSOCIATION SUMMARY

D9H310127

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WATER	SW846 8270A SIM		9244320	9245185
002	WATER	SW846 8270A SIM		9244320	9245185
003	WATER	SW846 8270A SIM		9244320	9245185
004	WATER	SW846 8270A SIM		9244320	9245185
005	WATER	SW846 8270A SIM		9244320	9245185
006	WATER	SW846 8270A SIM		9244320	9245185
007	WATER	SW846 8270A SIM		9244320	9245185
008	WATER	SW846 8270A SIM		9244320	9245185

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D9H310127 Work Order #...: D21LJ101 Matrix.....: WATER
MB Lot-Sample #: D9I010000-320

Prep Date.....: 09/01/99 Analysis Time..: 20:13
Analysis Date..: 09/15/99 Prep Batch #...: 9244320
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthylene	ND	1.4	ng/L	SW846 8270A SIM
Naphthalene	ND	6.5	ng/L	SW846 8270A SIM
2-Methylnaphthalene	ND	3.9	ng/L	SW846 8270A SIM
Acenaphthene	ND	1.3	ng/L	SW846 8270A SIM
Dibenzofuran	ND	1.0	ng/L	SW846 8270A SIM
Fluorene	ND	1.0	ng/L	SW846 8270A SIM
Phenanthrene	ND	1.3	ng/L	SW846 8270A SIM
Anthracene	ND	2.7	ng/L	SW846 8270A SIM
Carbazole	ND	1.9	ng/L	SW846 8270A SIM
Fluoranthene	ND	3.1	ng/L	SW846 8270A SIM
Pyrene	ND	1.4	ng/L	SW846 8270A SIM
Benzo(a)anthracene	ND	2.5	ng/L	SW846 8270A SIM
Chrysene	ND	2.8	ng/L	SW846 8270A SIM
Benzo(b)fluoranthene	ND	2.5	ng/L	SW846 8270A SIM
Benzo(k)fluoranthene	ND	2.3	ng/L	SW846 8270A SIM
Benzo(a)pyrene	ND	2.3	ng/L	SW846 8270A SIM
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L	SW846 8270A SIM
Benzo(ghi)perylene	ND	2.8	ng/L	SW846 8270A SIM
Indene	ND	0.90	ng/L	SW846 8270A SIM
1-Methylnaphthalene	ND	2.8	ng/L	SW846 8270A SIM
Benzo(e)pyrene	ND	1.9	ng/L	SW846 8270A SIM
Biphenyl	ND	4.3	ng/L	SW846 8270A SIM
Dibenz(a,h)anthracene	ND	1.6	ng/L	SW846 8270A SIM
Quinoline	ND	6.9	ng/L	SW846 8270A SIM
2,3-Benzofuran	ND	5.1	ng/L	SW846 8270A SIM
2,3-Dihydroindene	ND	5.0	ng/L	SW846 8270A SIM
Benzo(b)thiophene	ND	0.90	ng/L	SW846 8270A SIM
Indole	ND	2.5	ng/L	SW846 8270A SIM
Acridine	ND	6.1	ng/L	SW846 8270A SIM
Perylene	ND	2.5	ng/L	SW846 8270A SIM
Dibenzothiophene	ND	1.1	ng/L	SW846 8270A SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	89	(10 - 118)
Fluorene d-10	70	(41 - 162)
Naphthalene-d8	63	(21 - 108)

NOTE(S):

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

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D9H310127 **Work Order #...:** D21LJ102-LCS **Matrix.....:** WATER
LCS Lot-Sample#: D9I010000-320 D21LJ103-LCSD
Prep Date.....: 09/01/99 **Analysis Date..:** 09/15/99
Prep Batch #...: 9244320 **Analysis Time..:** 20:50
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Naphthalene	**10.0**	**8.88**	**ng/L**	**89**		**SW846 8270A SIM**
	10.0	**7.50**	**ng/L**	**75**	**17**	**SW846 8270A SIM**
2-Methylnaphthalene	**10.0**	**8.48**	**ng/L**	**85**		**SW846 8270A SIM**
	10.0	**7.15**	**ng/L**	**72**	**17**	**SW846 8270A SIM**
Fluorene	**10.0**	**7.87**	**ng/L**	**79**		**SW846 8270A SIM**
	10.0	**6.93**	**ng/L**	**69**	**13**	**SW846 8270A SIM**
Chrysene	**10.0**	**9.17**	**ng/L**	**92**		**SW846 8270A SIM**
	10.0	**8.68**	**ng/L**	**87**	**5.4**	**SW846 8270A SIM**
Indene	**10.0**	**7.06**	**ng/L**	**71**		**SW846 8270A SIM**
	10.0	**5.64 p**	**ng/L**	**56**	**22**	**SW846 8270A SIM**
Benzo(e)pyrene	**10.0**	**10.2**	**ng/L**	**102**		**SW846 8270A SIM**
	10.0	**8.92**	**ng/L**	**89**	**13**	**SW846 8270A SIM**
Quinoline	**10.0**	**10.7**	**ng/L**	**107**		**SW846 8270A SIM**
	10.0	**9.66**	**ng/L**	**97**	**9.9**	**SW846 8270A SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	99	(10 - 118)
	107	(10 - 118)
Fluorene d-10	79	(41 - 162)
	76	(41 - 162)
Naphthalene-d8	67	(21 - 108)
	57	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

p Relative percent difference (RPD) is outside stated control limits

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D9H310127 **Work Order #...:** D21LJ102-LCS **Matrix.....:** WATER
LCS Lot-Sample#: D9I010000-320 D21LJ103-LCSD
Prep Date.....: 09/01/99 **Analysis Date..:** 09/15/99
Prep Batch #...: 9244320 **Analysis Time..:** 20:50
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Naphthalene	**89**	**(20 - 150)**			**SW846 8270A SIM**
	75	**(20 - 150)**	**17**	**(0-20)**	**SW846 8270A SIM**
2-Methylnaphthalene	**85**	**(20 - 150)**			**SW846 8270A SIM**
	72	**(20 - 150)**	**17**	**(0-20)**	**SW846 8270A SIM**
Fluorene	**79**	**(69 - 118)**			**SW846 8270A SIM**
	69	**(69 - 118)**	**13**	**(0-20)**	**SW846 8270A SIM**
Chrysene	**92**	**(20 - 132)**			**SW846 8270A SIM**
	87	**(20 - 132)**	**5.4**	**(0-20)**	**SW846 8270A SIM**
Indene	**71**	**(20 - 150)**			**SW846 8270A SIM**
	56 p	**(20 - 150)**	**22**	**(0-20)**	**SW846 8270A SIM**
Benzo(e)pyrene	**102**	**(20 - 150)**			**SW846 8270A SIM**
	89	**(20 - 150)**	**13**	**(0-20)**	**SW846 8270A SIM**
Quinoline	**107**	**(20 - 150)**			**SW846 8270A SIM**
	97	**(20 - 150)**	**9.9**	**(0-20)**	**SW846 8270A SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	99	(10 - 118)
	107	(10 - 118)
Fluorene d-10	79	(41 - 162)
	76	(41 - 162)
Naphthalene-d8	67	(21 - 108)
	57	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

p Relative percent difference (RPD) is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D9H310127 **Work Order #...:** D1X8M102-MS **Matrix.....:** WATER
MS Lot-Sample #: D9H310127-001 D1X8M103-MSD
Date Sampled...: 08/30/99 10:00 **Date Received..:** 08/31/99
Prep Date.....: 09/01/99 **Analysis Date..:** 09/15/99
Prep Batch #...: 9244320 **Analysis Time..:** 22:41
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Naphthalene	**ND**	**10.3**	**6.90**	**ng/L**	**67**		**SW846 8270A SIM**
	ND	**10.2**	**7.91**	**ng/L**	**77**	**14**	**SW846 8270A SIM**
2-Methylnaphthalene	**ND**	**10.3**	**6.05**	**ng/L**	**59**		**SW846 8270A SIM**
	ND	**10.2**	**6.92**	**ng/L**	**68**	**14**	**SW846 8270A SIM**
Fluorene	**ND**	**10.3**	**5.79 a**	**ng/L**	**56**		**SW846 8270A SIM**
	ND	**10.2**	**6.65 a**	**ng/L**	**65**	**14**	**SW846 8270A SIM**
Chrysene	**ND**	**10.3**	**4.60**	**ng/L**	**45**		**SW846 8270A SIM**
	ND	**10.2**	**5.12**	**ng/L**	**50**	**11**	**SW846 8270A SIM**
Indene	**ND**	**10.3**	**5.54**	**ng/L**	**54**		**SW846 8270A SIM**
	ND	**10.2**	**5.97**	**ng/L**	**58**	**7.7**	**SW846 8270A SIM**
Benzo(e)pyrene	**ND**	**10.3**	**3.21**	**ng/L**	**31**		**SW846 8270A SIM**
	ND	**10.2**	**3.39**	**ng/L**	**33**	**5.9**	**SW846 8270A SIM**
Quinoline	**ND**	**10.3**	**8.91**	**ng/L**	**87**		**SW846 8270A SIM**
	ND	**10.2**	**10.0**	**ng/L**	**98**	**12**	**SW846 8270A SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	48	(10 - 118)
	60	(10 - 118)
Fluorene d-10	57	(41 - 162)
	69	(41 - 162)
Naphthalene-d8	52	(21 - 108)
	60	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D9H310127 **Work Order #...:** D1X8M102-MS **Matrix.....:** WATER
MS Lot-Sample #: D9H310127-001 D1X8M103-MSD
Date Sampled...: 08/30/99 10:00 **Date Received..:** 08/31/99
Prep Date.....: 09/01/99 **Analysis Date..:** 09/15/99
Prep Batch #...: 9244320 **Analysis Time..:** 22:41
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Naphthalene	**67**	**(20 - 150)**			**SW846 8270A SIM**
	77	**(20 - 150)**	**14**	**(0-20)**	**SW846 8270A SIM**
2-Methylnaphthalene	**59**	**(20 - 150)**			**SW846 8270A SIM**
	68	**(20 - 150)**	**14**	**(0-20)**	**SW846 8270A SIM**
Fluorene	**56 a**	**(69 - 118)**			**SW846 8270A SIM**
	65 a	**(69 - 118)**	**14**	**(0-20)**	**SW846 8270A SIM**
Chrysene	**45**	**(20 - 132)**			**SW846 8270A SIM**
	50	**(20 - 132)**	**11**	**(0-20)**	**SW846 8270A SIM**
Indene	**54**	**(20 - 150)**			**SW846 8270A SIM**
	58	**(20 - 150)**	**7.7**	**(0-20)**	**SW846 8270A SIM**
Benzo(e)pyrene	**31**	**(20 - 150)**			**SW846 8270A SIM**
	33	**(20 - 150)**	**5.9**	**(0-20)**	**SW846 8270A SIM**
Quinoline	**87**	**(20 - 150)**			**SW846 8270A SIM**
	98	**(20 - 150)**	**12**	**(0-20)**	**SW846 8270A SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	48	(10 - 118)
	60	(10 - 118)
Fluorene d-10	57	(41 - 162)
	69	(41 - 162)
Naphthalene-d8	52	(21 - 108)
	60	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

Chain of Custody Record

Quanterra

QUA-4124 0797

Client: City of St Louis Park	Project Manager: Bill Gross	Date: 8/30/99	Chain of Custody Number: 23503
Address: 3752 Wooddale Ave	Telephone Number (Area Code)/Fax Number: 612-924-2552	Lab Number: D9H310127	Page 1 of 1
City: St Louis Park; State: MN; Zip Code: 55416	Site Contact: Scott Anderson	Lab Contact: Kurt Ill	
Project Name: Reilly	Carrier/Waybill Number		
Contract/Purchase Order/Quote No			

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

Special Instructions/ Conditions of Receipt: PPT-5

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-PAH
-01 PCJ-E2-0830-99	8/30/99	10:00	X			6						X
-02 PCJ-E2D-083099	8/30/99	10:00	X			6						X

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: [signature]	Date: 8/30/99	Time: 14:30	1. Received By: Kurt C. Ill	Date: 8/31/99	Time: 0900
2 Relinquished By	Date	Time	2 Received By	Date	Time
3 Relinquished By	Date	Time	3 Received By	Date	Time

Comments: Cooler 0011 0.8°C

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

Chain of Custody Record

Quanterra

QUA-4124 0797

Client: City of St Louis Park	Project Manager: Bill Gross	Date: 8/30/99	Chain of Custody Number: 23504
Address: 3252 Woodale Ave S	Telephone Number (Area Code)/Fax Number: 612-924-2557	Lab Number: D9H310127	Page 1 of 1
City: St Louis Park; State: Mn; Zip Code: 55416	Site Contact: Scott Anderson	Lab Contact: Kurt Ill	
Project Name: Reilly	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		PPT-MH	Special Instructions/ Conditions of Receipt
PCJ-E2MS-083099	8/30/99	10:05	X				6							X	PPT-5
PCJ-E2MSD-083099	8/30/99	10:05	X				6							X	

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: Pat Mar	Date: 8/30/99	Time: 14:30	1. Received By: Kurt C. Ill	Date: 8/31/99	Time: 0900
2. Relinquished By:	Date:	Time:	2. Received By:	Date:	Time:
3. Relinquished By:	Date:	Time:	3. Received By:	Date:	Time:

Comments: Cooler 0002 0.8°C

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

Chain of Custody Record

Quanterra

QUA-4124 0797

Client: City of St Louis Park	Project Manager: Bill Gregg	Date: 8/30/99	Chain of Custody Number: 23505
Address: 3752 Wooddale Ave	Telephone Number (Area Code)/Fax Number: 612-924-2553	Lab Number: D9H310127	Page 1 of 1
City: St Louis Park; State: MN; Zip Code: 55416	Site Contact: Scott Anderson; Lab Contact: Kurt Ill		
Project Name: Reilly	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): PAH-PAH	Special Instructions/ Conditions of Receipt
-03 PCJ-E2FB-083099	8/30/99		X			6						X	PPT-5
-04 PCJ-E2FBD-083099	8/30/99		X			6						X	

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: [signature]	Date: 8/30/99	Time: 14:30	1. Received By: Kurt C. Ill	Date: 8/31/99	Time: 0900
2. Relinquished By	Date	Time	2. Received By	Date	Time
3. Relinquished By	Date	Time	3. Received By	Date	Time

Comments: One bottle of the Field Dupe & Field Blank Broken Cooler 0012 0.7°C

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

Chain of Custody Record

Quanterra

QUA-4124 0797

Client: City of St Louis Park	Project Manager: B. Gregg	Date: 8/30/99	Chain of Custody Number: 23502
Address: 3252 Woodale Ave	Telephone Number (Area Code)/Fax Number: 612-924-2557	Lab Number: D9H310127	Page 1 of 1
City: St Louis Park; State: MN; Zip Code: 55416	Site Contact: Scott Anderson	Lab Contact:	
Project Name: Reilly	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.			

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

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-DAH	Special Instructions/ Conditions of Receipt
-05 PCJ- E7-083099	8/30/99	9:20	X				6							X	PPT-5
-06 PCJ- E5-083099	8/30/99	9:25	X				6							X	

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: [signature]	Date: 8/30/99	Time: 14:30	1. Received By: [signature]	Date: 8/31/99	Time: 0900
2 Relinquished By:	Date:	Time:	2. Received By:	Date:	Time:
3 Relinquished By:	Date:	Time:	3. Received By:	Date:	Time:

Comments: Cooler 001 1.2°C

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

Chain of Custody Record

Quanterra

QUA-4124 0797

Client: City of St Louis Park	Project Manager: Bill Gross	Date: 8/30/99	Chain of Custody Number: 23506
Address: 3250 Woodale Ave	Telephone Number (Area Code)/Fax Number: 612-924-2557	Lab Number: D9H310127	Page 1 of 1
City: St Louis Park; State: Mn; Zip Code: 55416	Site Contact: Scott Anderson; Lab Contact: Kurt Ill		
Project Name: Reilly	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	PPT-PAH	Analysis (Attach list if more space is needed)	Special Instructions/ Conditions of Receipt
07 PCJ-E13-083099	8/30/99	9:40	X			6						X		PPT-5
08 PCJ-W48-083099	8/30/99	13:40	X			6						X		

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: [signature]	8/30/99	14:30	1. Received By: Kurt C. Ill	8/31/99	0900
2 Relinquished By:			2. Received By:		
3 Relinquished By:			3 Received By:		

Comments: Cooler 0007 0.7°C

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

N

N

Advanced Analytical Services

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 467-9136 Fax

CASE NARRATIVE

FOR

City of St. Louis Park

October 8, 1999

Quanterra , Inc.

Project Lot Number D9I010121

Introduction

Eleven aqueous samples (including matrix QC) were received at Quanterra Environmental Services, Denver Laboratory on September 1, 1999. The samples were logged in under Quanterra Denver's project lot number D9I010121. A cross reference associating Quanterra Denver's laboratory sample numbers to the actual field sample number is included. The samples were analyzed for part per trillion (ppt) PAHs.

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the October 1998 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.

The extract for the Field Blank Duplicate sample was lost during the concentration step. No data is reported for this sample. The Field Blank sample was within specified QC limits.

The spike compound fluorene in the LCS and LCSD samples is reported at 57% and 58% recoveries which is below the 69% to 118% acceptance limits. The samples were reanalyzed with the same results. All surrogates were within acceptance limits. An investigation is underway to determine the root cause of the low recoveries. All other QC was within acceptance limits.

Except for the above, this data package is in compliance with the terms and conditions of the October 1998 QAPP, both technically and for completeness

Reported By: Kurt C. Ill **Date:** 10/8/99

Kurt C. Ill
Program Manager

ANALYTICAL REPORT

PROJECT NO. 1

Reilly Tar & Chemical NPL Site

Lot #: D9I010121

Scott Anderson

City of St. Louis Park

QUANTERRA INCORPORATED

Kurt C. Ill
Project Manager

October 8, 1999

EXECUTIVE SUMMARY - Detection Highlights

D9I010121

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
STP-SLP6-083199 08/31/99 12:00 005				
Acenaphthylene	19	1.4	ng/L	SW846 8270A SIM
Acenaphthene	64	1.3	ng/L	SW846 8270A SIM
Dibenzofuran	2.5	1.0	ng/L	SW846 8270A SIM
Fluorene	21	1.0	ng/L	SW846 8270A SIM
Phenanthrene	3.6	1.3	ng/L	SW846 8270A SIM
Indene	2.6	0.90	ng/L	SW846 8270A SIM
2,3-Dihydroindene	55	5.0	ng/L	SW846 8270A SIM
Benzo(b)thiophene	4.2	0.90	ng/L	SW846 8270A SIM
Acridine	2.4 J	6.1	ng/L	SW846 8270A SIM
STP-W408-083199 08/31/99 23:55 006	174.3			
Naphthalene	5.7 J	6.5	ng/L	SW846 8270A SIM
2-Methylnaphthalene	3.8 J	3.9	ng/L	SW846 8270A SIM
Acenaphthene	2.9	1.3	ng/L	SW846 8270A SIM
Fluorene	1.6	1.0	ng/L	SW846 8270A SIM
Phenanthrene	4.7	1.3	ng/L	SW846 8270A SIM
Carbazole	3.6	1.9	ng/L	SW846 8270A SIM
Fluoranthene	3.7	3.1	ng/L	SW846 8270A SIM
Pyrene	10	1.4	ng/L	SW846 8270A SIM
Benzo(a)pyrene	1.8 J	2.3	ng/L	SW846 8270A SIM
Indene	5.6	0.90	ng/L	SW846 8270A SIM
2,3-Dihydroindene	5.3	5.0	ng/L	SW846 8270A SIM
Benzo(b)thiophene	4.5	0.90	ng/L	SW846 8270A SIM
STP-P116-083199 08/31/99 14:30 007				
Naphthalene	7.4	6.5	ng/L	SW846 8270A SIM
2-Methylnaphthalene	7.3	3.9	ng/L	SW846 8270A SIM
Acenaphthene	2.2	1.3	ng/L	SW846 8270A SIM
Dibenzofuran	3.2	1.0	ng/L	SW846 8270A SIM
Phenanthrene	21	1.3	ng/L	SW846 8270A SIM
Carbazole	1.8 J	1.9	ng/L	SW846 8270A SIM
Fluoranthene	4.3	3.1	ng/L	SW846 8270A SIM
Indole	4.6	2.5	ng/L	SW846 8270A SIM
Dibenzothiophene	2.7	1.1	ng/L	SW846 8270A SIM
STP-W129-083199 08/31/99 09:30 008				
Naphthalene	20	6.5	ng/L	SW846 8270A SIM
Acenaphthene	7.0	1.3	ng/L	SW846 8270A SIM
Dibenzofuran	2.9	1.0	ng/L	SW846 8270A SIM
Phenanthrene	3.7	1.3	ng/L	SW846 8270A SIM

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

D9I010121

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
STP-W129-083199 08/31/99 09:30 008				
Anthracene	1.2 J	2.7	ng/L	SW846 8270A SIM
Carbazole	2.2	1.9	ng/L	SW846 8270A SIM
Fluoranthene	1.9 J	3.1	ng/L	SW846 8270A SIM
Indene	6.5	0.90	ng/L	SW846 8270A SIM
1-Methylnaphthalene	14	2.8	ng/L	SW846 8270A SIM
2,3-Dihydroindene	14	5.0	ng/L	SW846 8270A SIM
Benzo(b)thiophene	5.6	0.90	ng/L	SW846 8270A SIM
STP-W122-083199 08/31/99 10:40 009				
Naphthalene	4.2 J	6.5	ng/L	SW846 8270A SIM
2-Methylnaphthalene	4.8	3.9	ng/L	SW846 8270A SIM
Acenaphthene	2.9	1.3	ng/L	SW846 8270A SIM
Dibenzofuran	1.9	1.0	ng/L	SW846 8270A SIM
Phenanthrene	8.1	1.3	ng/L	SW846 8270A SIM
Carbazole	3.4	1.9	ng/L	SW846 8270A SIM
Fluoranthene	6.3	3.1	ng/L	SW846 8270A SIM
Pyrene	11	1.4	ng/L	SW846 8270A SIM
Benzo(b)fluoranthene	3.0	2.5	ng/L	SW846 8270A SIM
Benzo(ghi)perylene	2.2 J	2.8	ng/L	SW846 8270A SIM
Benzo(e)pyrene	2.0	1.9	ng/L	SW846 8270A SIM
Indole	2.9	2.5	ng/L	SW846 8270A SIM
PCJ-W401-083199 08/31/99 05:50 010				
Acenaphthene	12	1.3	ng/L	SW846 8270A SIM
Fluorene	3.7	1.0	ng/L	SW846 8270A SIM
Fluoranthene	2.2 J	3.1	ng/L	SW846 8270A SIM
2,3-Dihydroindene	4.6 J	5.0	ng/L	SW846 8270A SIM
STP-W411-083199 08/31/99 08:10 011				
Acenaphthylene	2.6	1.4	ng/L	SW846 8270A SIM
Naphthalene	8.3	6.5	ng/L	SW846 8270A SIM
2-Methylnaphthalene	7.0	3.9	ng/L	SW846 8270A SIM
Acenaphthene	3.4	1.3	ng/L	SW846 8270A SIM
Dibenzofuran	2.0	1.0	ng/L	SW846 8270A SIM
Anthracene	1.7 J	2.7	ng/L	SW846 8270A SIM
Carbazole	10	1.9	ng/L	SW846 8270A SIM
Fluoranthene	2.7 J	3.1	ng/L	SW846 8270A SIM
Pyrene	7.5	1.4	ng/L	SW846 8270A SIM
Indene	6.2	0.90	ng/L	SW846 8270A SIM
2,3-Dihydroindene	4.2 J	5.0	ng/L	SW846 8270A SIM

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

D9I010121

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
STP-W411-083199 08/31/99 08:10 011				
Benzo(b)thiophene	5.6	0.90	ng/L	SW846 8270A SIM
Indole	2.7	2.5	ng/L	SW846 8270A SIM
Acridine	15	6.1	ng/L	SW846 8270A SIM

ANALYTICAL METHODS SUMMARY

D9I010121

PARAMETER	ANALYTICAL METHOD
Base/Neutrals and Acids	SW846 8270A SIM

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

METHOD / ANALYST SUMMARY

D9I010121

ANALYTICAL METHOD	ANALYST	ANALYST ID
SW846 8270A SIM	Monica R. Edwards	001685

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

D9I010121

WO #	SAMPLE#	CLIENT SAMPLE ID	DATE	TIME
D20MF	001	STP-SLP3-083199	08/31/99	12:00
D20MT	002	STP-SLP3D-083199	08/31/99	12:00
D20MX	003	STP-SLP3FB-083199	08/31/99	12:00
D20N7	005	STP-SLP6-083199	08/31/99	12:00
D20N8	006	STP-W408-083199	08/31/99	23:55
D20NA	007	STP-P116-083199	08/31/99	14:30
D20NC	008	STP-W129-083199	08/31/99	09:30
D20ND	009	STP-W122-083199	08/31/99	10:40
D20NE	010	PCJ-W401-083199	08/31/99	05:50
D20NF	011	STP-W411-083199	08/31/99	08:10

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages
- All calculations are performed before rounding to avoid round-off errors in calculated results
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

CITY OF ST. LOUIS PARK

Client Sample ID: STP-SLP3-083199

GC/MS Semivolatiles

Lot-Sample #...: D9I010121-001 Work Order #...: D20MF101 Matrix.....: WATER
Date Sampled...: 08/31/99 12:00 Date Received..: 09/01/99
Prep Date.....: 09/03/99 Analysis Date..: 09/16/99
Prep Batch #...: 9245386 Analysis Time..: 06:32
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	ND	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	ND	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	ND	3.1	ng/L
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	54	(10 - 118)
Fluorene d-10	50	(41 - 162)
Naphthalene-d8	41	(21 - 108)

CITY OF ST. LOUIS PARK

Client Sample ID: STP-SLP3D-083199

GC/MS Semivolatiles

Lot-Sample #...: D9I010121-002 Work Order #...: D20MT101 Matrix.....: WATER
Date Sampled...: 08/31/99 12:00 Date Received..: 09/01/99
Prep Date.....: 09/03/99 Analysis Date..: 09/16/99
Prep Batch #...: 9245386 Analysis Time..: 07:09
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	ND	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	ND	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	ND	3.1	ng/L
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	54	(10 - 118)
Fluorene d-10	51	(41 - 162)
Naphthalene-d8	43	(21 - 108)

CITY OF ST. LOUIS PARK

Client Sample ID: STP-SLP3FB-083199

GC/MS Semivolatiles

Lot-Sample #...: D9I010121-003 **Work Order #...:** D20MX101 **Matrix.....:** WATER
Date Sampled...: 08/31/99 12:00 **Date Received..:** 09/01/99
Prep Date.....: 09/03/99 **Analysis Date..:** 09/16/99
Prep Batch #...: 9245386 **Analysis Time..:** 07:45
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	ND	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	ND	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	ND	3.1	ng/L
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	71	(10 - 118)
Fluorene d-10	51	(41 - 162)
Naphthalene-d8	46	(21 - 108)

CITY OF ST. LOUIS PARK

Client Sample ID: STP-SLP6-083199

GC/MS Semivolatiles

Lot-Sample #...: D9I010121-005 Work Order #...: D20N7101 Matrix.....: WATER
Date Sampled...: 08/31/99 12:00 Date Received..: 09/01/99
Prep Date.....: 09/03/99 Analysis Date..: 09/16/99
Prep Batch #...: 9245386 Analysis Time..: 08:21
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	**19**	**1.4**	**ng/L**
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	**64**	**1.3**	**ng/L**
Dibenzofuran	**2.5**	**1.0**	**ng/L**
Fluorene	**21**	**1.0**	**ng/L**
Phenanthrene	**3.6**	**1.3**	**ng/L**
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	ND	3.1	ng/L
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	**2.6**	**0.90**	**ng/L**
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	**55**	**5.0**	**ng/L**
Benzo(b)thiophene	**4.2**	**0.90**	**ng/L**
Indole	ND	2.5	ng/L
Acridine	**2.4 J**	**6.1**	**ng/L**
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	54	(10 - 118)
Fluorene d-10	79	(41 - 162)
Naphthalene-d8	70	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL

CITY OF ST. LOUIS PARK

Client Sample ID: STP-W408-083199

GC/MS Semivolatiles

Lot-Sample #...: D9I010121-006 Work Order #...: D20N8101 Matrix.....: WATER
Date Sampled...: 08/31/99 23:55 Date Received..: 09/01/99
Prep Date.....: 09/03/99 Analysis Date..: 09/16/99
Prep Batch #...: 9245386 Analysis Time..: 08:58
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	**5.7 J**	**6.5**	**ng/L**
2-Methylnaphthalene	**3.8 J**	**3.9**	**ng/L**
Acenaphthene	**2.9**	**1.3**	**ng/L**
Dibenzofuran	ND	1.0	ng/L
Fluorene	**1.6**	**1.0**	**ng/L**
Phenanthrene	**4.7**	**1.3**	**ng/L**
Anthracene	ND	2.7	ng/L
Carbazole	**3.6**	**1.9**	**ng/L**
Fluoranthene	**3.7**	**3.1**	**ng/L**
Pyrene	**10**	**1.4**	**ng/L**
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	**1.8 J**	**2.3**	**ng/L**
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	**5.6**	**0.90**	**ng/L**
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	**5.3**	**5.0**	**ng/L**
Benzo(b)thiophene	**4.5**	**0.90**	**ng/L**
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	51	(10 - 118)
Fluorene d-10	79	(41 - 162)
Naphthalene-d8	67	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL

CITY OF ST. LOUIS PARK

Client Sample ID: STP-P116-083199

GC/MS Semivolatiles

Lot-Sample #...: D9I010121-007 Work Order #...: D20NA101 Matrix.....: WATER
Date Sampled...: 08/31/99 14:30 Date Received..: 09/01/99
Prep Date.....: 09/03/99 Analysis Date..: 09/16/99
Prep Batch #...: 9245386 Analysis Time..: 09:34
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	7.4	6.5	ng/L
2-Methylnaphthalene	7.3	3.9	ng/L
Acenaphthene	2.2	1.3	ng/L
Dibenzofuran	3.2	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	21	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	1.8 J	1.9	ng/L
Fluoranthene	4.3	3.1	ng/L
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	4.6	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	2.7	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	26	(10 - 118)
Fluorene d-10	75	(41 - 162)
Naphthalene-d8	75	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: STP-W129-083199

GC/MS Semivolatiles

Lot-Sample #...: D9I010121-008 Work Order #...: D20NC101 Matrix.....: WATER
Date Sampled...: 08/31/99 09:30 Date Received..: 09/01/99
Prep Date.....: 09/03/99 Analysis Date..: 09/16/99
Prep Batch #...: 9245386 Analysis Time..: 10:12
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	**20**	**6.5**	**ng/L**
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	**7.0**	**1.3**	**ng/L**
Dibenzofuran	**2.9**	**1.0**	**ng/L**
Fluorene	ND	1.0	ng/L
Phenanthrene	**3.7**	**1.3**	**ng/L**
Anthracene	**1.2 J**	**2.7**	**ng/L**
Carbazole	**2.2**	**1.9**	**ng/L**
Fluoranthene	**1.9 J**	**3.1**	**ng/L**
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	**6.5**	**0.90**	**ng/L**
1-Methylnaphthalene	**14**	**2.8**	**ng/L**
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	**14**	**5.0**	**ng/L**
Benzo(b)thiophene	**5.6**	**0.90**	**ng/L**
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	76	(10 - 118)
Fluorene d-10	91	(41 - 162)
Naphthalene-d8	75	(21 - 108)

NOTE(S):

J Estimated result Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: STP-W122-083199

GC/MS Semivolatiles

Lot-Sample #...: D9I010121-009 Work Order #...: D20ND101 Matrix.....: WATER
Date Sampled...: 08/31/99 10:40 Date Received..: 09/01/99
Prep Date.....: 09/03/99 Analysis Date..: 09/16/99
Prep Batch #...: 9245386 Analysis Time..: 10:50
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	**4.2 J**	**6.5**	**ng/L**
2-Methylnaphthalene	**4.8**	**3.9**	**ng/L**
Acenaphthene	**2.9**	**1.3**	**ng/L**
Dibenzofuran	**1.9**	**1.0**	**ng/L**
Fluorene	ND	1.0	ng/L
Phenanthrene	**8.1**	**1.3**	**ng/L**
Anthracene	ND	2.7	ng/L
Carbazole	**3.4**	**1.9**	**ng/L**
Fluoranthene	**6.3**	**3.1**	**ng/L**
Pyrene	**11**	**1.4**	**ng/L**
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	**3.0**	**2.5**	**ng/L**
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	**2.2 J**	**2.8**	**ng/L**
Indene	ND	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	**2.0**	**1.9**	**ng/L**
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	**2.9**	**2.5**	**ng/L**
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	32	(10 - 118)
Fluorene d-10	62	(41 - 162)
Naphthalene-d8	55	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-W401-083199

GC/MS Semivolatiles

Lot-Sample #...: D9I010121-010 Work Order #...: D20NE101 Matrix.....: WATER
Date Sampled...: 08/31/99 05:50 Date Received..: 09/01/99
Prep Date.....: 09/03/99 Analysis Date..: 09/16/99
Prep Batch #...: 9245386 Analysis Time..: 11:27
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	**12**	**1.3**	**ng/L**
Dibenzofuran	ND	1.0	ng/L
Fluorene	**3.7**	**1.0**	**ng/L**
Phenanthrene	ND	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	**2.2 J**	**3.1**	**ng/L**
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	**4.6 J**	**5.0**	**ng/L**
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	36	(10 - 118)
Fluorene d-10	42	(41 - 162)
Naphthalene-d8	38	(21 - 108)

NOTE(S):

J Estimated result Result is less than RL

CITY OF ST. LOUIS PARK

Client Sample ID: STP-W411-083199

GC/MS Semivolatiles

Lot-Sample #...: D9I010121-011 Work Order #...: D20NF101 Matrix.....: WATER
Date Sampled...: 08/31/99 08:10 Date Received..: 09/01/99
Prep Date.....: 09/03/99 Analysis Date..: 09/16/99
Prep Batch #...: 9245386 Analysis Time..: 12:05
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	**2.6**	**1.4**	**ng/L**
Naphthalene	**8.3**	**6.5**	**ng/L**
2-Methylnaphthalene	**7.0**	**3.9**	**ng/L**
Acenaphthene	**3.4**	**1.3**	**ng/L**
Dibenzofuran	**2.0**	**1.0**	**ng/L**
Fluorene	ND	1.0	ng/L
Phenanthrene	ND	1.3	ng/L
Anthracene	**1.7 J**	**2.7**	**ng/L**
Carbazole	**10**	**1.9**	**ng/L**
Fluoranthene	**2.7 J**	**3.1**	**ng/L**
Pyrene	**7.5**	**1.4**	**ng/L**
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	**6.2**	**0.90**	**ng/L**
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	**4.2 J**	**5.0**	**ng/L**
Benzo(b)thiophene	**5.6**	**0.90**	**ng/L**
Indole	**2.7**	**2.5**	**ng/L**
Acridine	**15**	**6.1**	**ng/L**
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	32	(10 - 118)
Fluorene d-10	66	(41 - 162)
Naphthalene-d8	59	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL

QC DATA ASSOCIATION SUMMARY

D9I010121

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WATER	SW846 8270A SIM		9245386	
002	WATER	SW846 8270A SIM		9245386	
003	WATER	SW846 8270A SIM		9245386	
005	WATER	SW846 8270A SIM		9245386	
006	WATER	SW846 8270A SIM		9245386	
007	WATER	SW846 8270A SIM		9245386	
008	WATER	SW846 8270A SIM		9245386	
009	WATER	SW846 8270A SIM		9245386	
010	WATER	SW846 8270A SIM		9245386	
011	WATER	SW846 8270A SIM		9245386	

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D9I010121 **Work Order #...:** D239A101 **Matrix.....:** WATER
MB Lot-Sample #: D9I020000-386

Prep Date.....: 09/03/99 **Analysis Time..:** 04:44
Analysis Date..: 09/16/99 **Prep Batch #...:** 9245386
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthylene	ND	1.4	ng/L	SW846 8270A SIM
Naphthalene	ND	6.5	ng/L	SW846 8270A SIM
2-Methylnaphthalene	ND	3.9	ng/L	SW846 8270A SIM
Acenaphthene	ND	1.3	ng/L	SW846 8270A SIM
Dibenzofuran	ND	1.0	ng/L	SW846 8270A SIM
Fluorene	ND	1.0	ng/L	SW846 8270A SIM
Phenanthrene	ND	1.3	ng/L	SW846 8270A SIM
Anthracene	ND	2.7	ng/L	SW846 8270A SIM
Carbazole	ND	1.9	ng/L	SW846 8270A SIM
Fluoranthene	ND	3.1	ng/L	SW846 8270A SIM
Pyrene	ND	1.4	ng/L	SW846 8270A SIM
Benzo(a)anthracene	ND	2.5	ng/L	SW846 8270A SIM
Chrysene	ND	2.8	ng/L	SW846 8270A SIM
Benzo(b)fluoranthene	ND	2.5	ng/L	SW846 8270A SIM
Benzo(k)fluoranthene	ND	2.3	ng/L	SW846 8270A SIM
Benzo(a)pyrene	ND	2.3	ng/L	SW846 8270A SIM
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L	SW846 8270A SIM
Benzo(ghi)perylene	ND	2.8	ng/L	SW846 8270A SIM
Indene	ND	0.90	ng/L	SW846 8270A SIM
1-Methylnaphthalene	ND	2.8	ng/L	SW846 8270A SIM
Benzo(e)pyrene	ND	1.9	ng/L	SW846 8270A SIM
Biphenyl	ND	4.3	ng/L	SW846 8270A SIM
Dibenz(a,h)anthracene	ND	1.6	ng/L	SW846 8270A SIM
Quinoline	ND	6.9	ng/L	SW846 8270A SIM
2,3-Benzofuran	ND	5.1	ng/L	SW846 8270A SIM
2,3-Dihydroindene	ND	5.0	ng/L	SW846 8270A SIM
Benzo(b)thiophene	ND	0.90	ng/L	SW846 8270A SIM
Indole	ND	2.5	ng/L	SW846 8270A SIM
Acridine	ND	6.1	ng/L	SW846 8270A SIM
Perylene	ND	2.5	ng/L	SW846 8270A SIM
Dibenzothiophene	ND	1.1	ng/L	SW846 8270A SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	82	(10 - 118)
Fluorene d-10	57	(41 - 162)
Naphthalene-d8	48	(21 - 108)

NOTE(S):

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

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D9I010121 **Work Order #...:** D239A102-LCS **Matrix.....:** WATER
LCS Lot-Sample#: D9I020000-386 D239A103-LCSD
Prep Date.....: 09/03/99 **Analysis Date..:** 09/16/99
Prep Batch #...: 9245386 **Analysis Time..:** 17:14
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Naphthalene	10.0	6.17	ng/L	62		SW846 8270A SIM
	10.0	6.18	ng/L	62	0.21	SW846 8270A SIM
2-Methylnaphthalene	10.0	5.83	ng/L	58		SW846 8270A SIM
	10.0	5.90	ng/L	59	1.2	SW846 8270A SIM
Fluorene	10.0	5.71 a	ng/L	57		SW846 8270A SIM
	10.0	5.82 a	ng/L	58	1.8	SW846 8270A SIM
Chrysene	10.0	7.26	ng/L	73		SW846 8270A SIM
	10.0	7.48	ng/L	75	2.9	SW846 8270A SIM
Indene	10.0	5.04	ng/L	50		SW846 8270A SIM
	10.0	5.01	ng/L	50	0.63	SW846 8270A SIM
Benzo(e)pyrene	10.0	7.28	ng/L	73		SW846 8270A SIM
	10.0	7.40	ng/L	74	1.7	SW846 8270A SIM
Quinoline	10.0	8.98	ng/L	90		SW846 8270A SIM
	10.0	9.09	ng/L	91	1.2	SW846 8270A SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	87	(10 - 118)
	90	(10 - 118)
Fluorene d-10	62	(41 - 162)
	64	(41 - 162)
Naphthalene-d8	49	(21 - 108)
	49	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D9I010121 Work Order #...: D239A102-LCS Matrix.....: WATER
LCS Lot-Sample#: D9I020000-386 D239A103-LCSD
Prep Date.....: 09/03/99 Analysis Date..: 09/16/99
Prep Batch #...: 9245386 Analysis Time..: 17:14
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Naphthalene	62	(20 - 150)			SW846 8270A SIM
	62	(20 - 150)	0.21	(0-20)	SW846 8270A SIM
2-Methylnaphthalene	58	(20 - 150)			SW846 8270A SIM
	59	(20 - 150)	1.2	(0-20)	SW846 8270A SIM
Fluorene	57 a	(69 - 118)			SW846 8270A SIM
	58 a	(69 - 118)	1.8	(0-20)	SW846 8270A SIM
Chrysene	73	(20 - 132)		-	SW846 8270A SIM
	75	(20 - 132)	2.9	(0-20)	SW846 8270A SIM
Indene	50	(20 - 150)			SW846 8270A SIM
	50	(20 - 150)	0.63	(0-20)	SW846 8270A SIM
Benzo(e)pyrene	73	(20 - 150)			SW846 8270A SIM
	74	(20 - 150)	1.7	(0-20)	SW846 8270A SIM
Quinoline	90	(20 - 150)			SW846 8270A SIM
	91	(20 - 150)	1.2	(0-20)	SW846 8270A SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	87	(10 - 118)
	90	(10 - 118)
Fluorene d-10	62	(41 - 162)
	64	(41 - 162)
Naphthalene-d8	49	(21 - 108)
	49	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits

Chain of Custody Record

Quanterra

QUA-4124 0797

Client: CITY OF ST. LOUIS PARK UTILITY DIVISION	Project Manager: SCOTT ANDERSON	Date: 8-31-99	Chain of Custody Number: 02166
Address: 3752 WOODDALE AVENUE	Telephone Number (Area Code)/Fax Number: 924-2557 (612) 924-2520	Lab Number: D9I010121	Page ____ of ____
City: ST. LOUIS PARK, MN 55416	Site Contact: SAME	Lab Contact:	
Project Name: SAME	Carrier/Waybill Number: FED EX 800846316540		
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	N/A	Analysis (Attach list if more space is needed): PPT PAH 5										Special Instructions/ Conditions of Receipt
001 STP-SLP3-083199	8-31-99		X										6	X										PPT 5
002 STP-SLP3D-083199	8-31-99		X										6	X										PPT 5

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):

1 Relinquished By: MZ	Date: 8-31-99	Time: 14:00	1 Received By: Monica R. Edwards	Date: 9-1-99	Time: 0830
2 Relinquished By:	Date:	Time:	2 Received By:	Date:	Time:
3. Relinquished By:	Date:	Time:	3 Received By:	Date:	Time:

Comments: 1 BOTTLE BROKEN STP-SLP3-083199 COOLER 0003 = 1.8°C

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

Chain of Custody Record

Quanterra

QUA-4124 0797

Client: CITY OF ST. LOUIS PARK	Project Manager: Scott Anderson	Date: 8-31-99	Chain of Custody Number: 02167
Address: UTILITY DIVISION, 3752 WOODDALE AVENUE	Telephone Number (Area Code)/Fax Number: 924-2557 (612) 924-2570	Lab Number: 09I010121	Page ____ of ____
City: ST. LOUIS PARK, MN 55416	Site Contact: SAME	Lab Contact:	
Project Name: SAME	Carrier/Waybill Number: FED EX 800846316540		
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	N/A	Analysis (Attach list if more space is needed): PPL PAH 5											Special Instructions/ Conditions of Receipt
03 STP-SLP3FB-083199	8-31-99		X										6	X											PPL 5
04 STP-SLP3FBD-083199	8-31-99		X										6	X											PPL 5

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: MZR	8-31-99	1400	1. Received By: Monica R. Edwards	9-1-99	0830
2. Relinquished By:			2. Received By:		
3. Relinquished By:			3. Received By:		

Comments: COOLER 0006 = 3.4°C

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

Chain of Custody Record

Quanterra

QUA-4124 0797

Client: CITY OF ST. LOUIS PARK UTILITY DIVISION	Project Manager: SCOTT ANDERSON	Date: 8-31-99	Chain of Custody Number: 02155
Address: 3752 WOODDALE AVENUE	Telephone Number (Area Code)/Fax Number: 924-2557 (612) 924-2570	Lab Number: D9I010121	Page ____ of ____
City: ST. LOUIS PARK, MN 55416	Site Contact: SAME	Lab Contact:	
Project Name: SAME	Carrier/Waybill Number: FED EX 800846316540		
Contract/Purchase Order/Quote No:			

Analysis (Attach list if more space is needed): PPL PAH 5

Special Instructions/ Conditions of Receipt

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	N/A	PPL PAH 5	Special Instructions/ Conditions of Receipt
305 STP-SLPG-083199			X										6	X	PPL 5
			~~X~~										~~6~~	~~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: MZ [illegible]	8-31-99	1400	1. Received By: Monica R. Eduardo	9-1-99	0830
2 Relinquished By:			2 Received By:		
3 Relinquished By:			3. Received By:		

Comments: COOLER 0008 = 5.6°C

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

Chain of Custody Record

Quanterra

QUA-4124

Client: City of St Louis Park	Project Manager: Bill Gregg	Date: 8/31/99	Chain Of Custody Number: 24397
Address: 3752 Woodale Ave	Telephone Number (Area Code)/Fax Number: 612-924-2557	Lab Number: DAI 010121	Page 1 of 1
City: St Louis Park; State: MN; Zip Code: 55416	Site Contact: Scott Anderson		
Project Name: Reilly	Carrier/Waybill Number		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: PPT-PAH
006 STP-W408-083199	8/31/99	11:55	G-W	6 Liter	1 Liter	6	—		X
007 STP-P116-083199	8/31/99	14:30	G-W	6 Liter	1 Liter	6	—		X

Special Instructions: PPT-5

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

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Turn Around Time Required: ☐ Normal ☐ Rush

QC Level: ☐ I. ☐ II. ☐ III.

Project Specific (Specify):

1 Relinquished By: [signature]	Date: 8/31/99	Time: 15:00	1 Received By: Monica R. Edwards	Date: 9-1-99	Time: 0830
2 Relinquished By	Date	Time	2 Received By	Date	Time
3 Relinquished By	Date	Time	3 Received By	Date	Time

Comments: COOLER 0015 = 2.8°C

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

[redacted]

Chain of Custody Record

Quanterra

QUA-4124 0797

Client: City of St Louis Park	Project Manager: Bill Gregg	Date: 8/31/99	Chain of Custody Number: 23508
Address: 3752 Woodale Ave	Telephone Number (Area Code)/Fax Number: 612-924-2557	Lab Number: D9F010121	Page 1 of 1
City: St Louis Park; State: Mn; Zip Code: 55416	Site Contact: Scott Anderson	Lab Contact: Kurt ILL	
Project Name: Reilly	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.			

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

Special Instructions/ Conditions of Receipt: PPT 5.

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	PAH
008 STP-W129-083199	8/31/99	9:30	X			6						X
009 STP-W122-083199	8/31/99	10:40	X			6						X

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: [signature]	Date: 8/31/99	Time: 15:00	1. Received By: Marna R Edwards	Date: 9-1-99	Time: 0830
2 Relinquished By:	Date:	Time:	2 Received By:	Date:	Time:
3 Relinquished By:	Date:	Time:	3 Received By:	Date:	Time:

Comments: COOLER 0004 = 1.8°C

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

[redacted]

Chain of Custody Record

Quanterra

QUA-4124 0797

Client: City of St Louis Park	Project Manager: Bill Gregg	Date: 8/31/99	Chain of Custody Number: 23507
Address: 3752 Woodlake Ave	Telephone Number (Area Code)/Fax Number: 612-924-2557	Lab Number: D9I010121	Page 1 of 1
City: St Louis Park; State: Mn; Zip Code: 55416	Site Contact: Scott Anderson	Lab Contact: Kurt ILL	
Project Name: Reilly	Carrier/Waybill Number		
Contract/Purchase Order/Quote No			

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

	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	DOT-PAH	Special Instructions/ Conditions of Receipt
010	PCJ-W401-083199	8/31/99	5:50	X			6						X	DPT-5
011	STP-W411-083199	8/31/99	8:10	X			6						X	

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: Pat Moe	Date: 8/31/99	Time: 15:00	1. Received By: Monica L. Edwards	Date: 9-1-99	Time: 0830
2. Relinquished By	Date	Time	2. Received By	Date	Time
3. Relinquished By	Date	Time	3. Received By	Date	Time

Comments: COOLER 0009 = 1.0°C

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

Advanced Analytical Services

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 467-9136 Fax

CASE NARRATIVE

FOR

City of St. Louis Park

October 20, 1999

Quanterra Environmental Services

Project Lot Number D9I140125

Introduction

Thirteen aqueous samples (including matrix QC) were received at Quanterra Environmental Services, Denver Laboratory on September 14, 1999. The samples were logged in under Quanterra Denver's project lot number D9I140125. A cross reference associating Quanterra Denver's laboratory sample numbers to the actual field sample number is included. The samples were analyzed for part per trillion (ppt) PAHs.

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the October 1998 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 laboratory Id's D9I140125-006 and -009 were analyzed at a dilution due to target analytes exceeding the linear range of the instrument. The reporting limits were raised accordingly. As a result of the dilution, the surrogate compounds were not detected and are reported as "NC".

The surrogate compound naphthalene-d8 in sample D9I140125-008 was recovered at 309% which is ablve the 21%-108% recovery limits. Naphthalene-d8 was recovered within recovery limits in the method blank and duplicate control samples. A matrix effect is indicated.

The spike compound fluorene in the duplicate control samples was recovered at 62% and 65% respectively which is below the 69% to118% recovery limits but within the 53% to 105% historical limits.

The relative percent difference (RPD) for the spike compounds chrysene and quinoline in the laboratory control samples are reported at 24% and 32% which is outside the 20% limit. The RPDs for chrysene and quinoline were within limits in the matrix spike and matrix spike duplicate samples.

Fluorene was recovered at 53% and 56% in the matrix spike and matrix spike duplicate samples which is below the 69% to 118% recovery limits but within the 53% to 105% historical limits.

Except for the above, this data package is in compliance with the terms and conditions of the October 1998 QPP both technically and for completeness.

Reported By: Kurt C. Ill **Date:** October 20, 1999

Kurt C. Ill
Program Manager, AASG

EXECUTIVE SUMMARY - Detection Highlights

D9I140125

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
PCJ-SLP4-091399 09/13/99 001				
Acenaphthene	120	1.3	ng/L	SW846 8270A SIM
Phenanthrene	2.5	1.3	ng/L	SW846 8270A SIM
Carbazole	17	1.9	ng/L	SW846 8270A SIM
Fluoranthene	7.5	3.1	ng/L	SW846 8270A SIM
Pyrene	8.1	1.4	ng/L	SW846 8270A SIM
Indene	12	0.90	ng/L	SW846 8270A SIM
2,3-Dihydroindene	120	5.0	ng/L	SW846 8270A SIM
Benzo(b)thiophene	16	0.90	ng/L	SW846 8270A SIM
PCJ-SLP4D-091399 09/13/99 002				
Acenaphthene	130	1.3	ng/L	SW846 8270A SIM
Phenanthrene	2.6	1.3	ng/L	SW846 8270A SIM
Carbazole	17	1.9	ng/L	SW846 8270A SIM
Fluoranthene	7.8	3.1	ng/L	SW846 8270A SIM
Pyrene	8.4	1.4	ng/L	SW846 8270A SIM
Indene	14	0.90	ng/L	SW846 8270A SIM
2,3-Dihydroindene	130	5.0	ng/L	SW846 8270A SIM
Benzo(b)thiophene	18	0.90	ng/L	SW846 8270A SIM
PCJ-SLP4FB-091399 09/13/99 003				
Acridine	3.5 J	6.1	ng/L	SW846 8270A SIM
DPV-W19-091399 09/13/99 14:00 005				
Naphthalene	7.7	6.5	ng/L	SW846 8270A SIM
2-Methylnaphthalene	7.5	3.9	ng/L	SW846 8270A SIM
Acenaphthene	2.9	1.3	ng/L	SW846 8270A SIM
Phenanthrene	6.8	1.3	ng/L	SW846 8270A SIM
Carbazole	4.5	1.9	ng/L	SW846 8270A SIM
Fluoranthene	5.2	3.1	ng/L	SW846 8270A SIM
Pyrene	19	1.4	ng/L	SW846 8270A SIM
Benzo(a)pyrene	0.93 J	2.3	ng/L	SW846 8270A SIM
Benzo(ghi)perylene	2.3 J	2.8	ng/L	SW846 8270A SIM
Indene	2.9	0.90	ng/L	SW846 8270A SIM
1-Methylnaphthalene	5.7	2.8	ng/L	SW846 8270A SIM
Benzo(e)pyrene	2.0	1.9	ng/L	SW846 8270A SIM
2,3-Dihydroindene	1.7 J	5.0	ng/L	SW846 8270A SIM
Indole	1.9 J	2.5	ng/L	SW846 8270A SIM

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

D9I140125

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
DPV-W20-091399 09/13/99 11:10 006				
Naphthalene	31 J	65	ng/L	SW846 8270A SIM
2-Methylnaphthalene	37 J	39	ng/L	SW846 8270A SIM
Phenanthrene	65	13	ng/L	SW846 8270A SIM
Carbazole	14 J	19	ng/L	SW846 8270A SIM
Fluoranthene	38	31	ng/L	SW846 8270A SIM
Pyrene	31	14	ng/L	SW846 8270A SIM
Indene	38	9.0	ng/L	SW846 8270A SIM
2,3-Dihydroindene	460	50	ng/L	SW846 8270A SIM
Benzo(b)thiophene	46	9.0	ng/L	SW846 8270A SIM
DPV-W121-091399 09/13/99 12:10 007				
Acenaphthylene	2.2	1.4	ng/L	SW846 8270A SIM
Naphthalene	33	6.5	ng/L	SW846 8270A SIM
2-Methylnaphthalene	15	3.9	ng/L	SW846 8270A SIM
Acenaphthene	11	1.3	ng/L	SW846 8270A SIM
Dibenzofuran	4.3	1.0	ng/L	SW846 8270A SIM
Fluorene	4.3	1.0	ng/L	SW846 8270A SIM
Phenanthrene	4.4	1.3	ng/L	SW846 8270A SIM
Carbazole	4.4	1.9	ng/L	SW846 8270A SIM
Fluoranthene	1.8 J	3.1	ng/L	SW846 8270A SIM
Indene	13	0.90	ng/L	SW846 8270A SIM
1-Methylnaphthalene	23	2.8	ng/L	SW846 8270A SIM
2,3-Dihydroindene	26	5.0	ng/L	SW846 8270A SIM
Benzo(b)thiophene	10	0.90	ng/L	SW846 8270A SIM
Indole	76	2.5	ng/L	SW846 8270A SIM
Acridine	23	6.1	ng/L	SW846 8270A SIM
DPV-W1-091399 09/13/99 07:50 008				
Naphthalene	27	6.5	ng/L	SW846 8270A SIM
2-Methylnaphthalene	21	3.9	ng/L	SW846 8270A SIM
Acenaphthene	6.4	1.3	ng/L	SW846 8270A SIM
Dibenzofuran	4.9	1.0	ng/L	SW846 8270A SIM
Anthracene	3.4	2.7	ng/L	SW846 8270A SIM
Carbazole	20	1.9	ng/L	SW846 8270A SIM
Fluoranthene	27	3.1	ng/L	SW846 8270A SIM
Pyrene	34	1.4	ng/L	SW846 8270A SIM
Benzo(a)anthracene	16	2.5	ng/L	SW846 8270A SIM
Chrysene	19	2.8	ng/L	SW846 8270A SIM
Benzo(b)fluoranthene	19	2.5	ng/L	SW846 8270A SIM
Benzo(k)fluoranthene	6.7	2.3	ng/L	SW846 8270A SIM
Benzo(a)pyrene	13	2.3	ng/L	SW846 8270A SIM

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

D9I140125

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
DPV-W1-091399 09/13/99 07:50 008				
Indeno(1,2,3-cd)pyrene	8.2	2.1	ng/L	SW846 8270A SIM
Benzo(ghi)perylene	8.2	2.8	ng/L	SW846 8270A SIM
Indene	13	0.90	ng/L	SW846 8270A SIM
Benzo(e)pyrene	12	1.9	ng/L	SW846 8270A SIM
Dibenz(a,h)anthracene	2.6	1.6	ng/L	SW846 8270A SIM
2,3-Dihydroindene	16	5.0	ng/L	SW846 8270A SIM
Benzo(b)thiophene	19	0.90	ng/L	SW846 8270A SIM
Perylene	3.4	2.5	ng/L	SW846 8270A SIM
DPV-W18-091399 09/13/99 08:30 009				
Acenaphthylene	15	7.0	ng/L	SW846 8270A SIM
Naphthalene	33	32	ng/L	SW846 8270A SIM
Acenaphthene	300	6.5	ng/L	SW846 8270A SIM
Fluorene	7.6	5.0	ng/L	SW846 8270A SIM
Phenanthrene	13	6.5	ng/L	SW846 8270A SIM
Carbazole	16	9.5	ng/L	SW846 8270A SIM
Indene	130	4.5	ng/L	SW846 8270A SIM
2,3-Benzofuran	12 J	26	ng/L	SW846 8270A SIM
2,3-Dihydroindene	360	25	ng/L	SW846 8270A SIM
Benzo(b)thiophene	420	4.5	ng/L	SW846 8270A SIM
Dibenzothiophene	16	5.5	ng/L	SW846 8270A SIM
GAC-SLP10T-091399 09/13/99 011				
Acenaphthene	7.9	1.3	ng/L	SW846 8270A SIM
Fluorene	1.8	1.0	ng/L	SW846 8270A SIM
2,3-Dihydroindene	7.9	5.0	ng/L	SW846 8270A SIM

ANALYTICAL METHODS SUMMARY

D9I140125

PARAMETER	ANALYTICAL METHOD
Base/Neutrals and Acids	SW846 8270A SIM

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

METHOD / ANALYST SUMMARY

D9I140125

ANALYTICAL METHOD	ANALYST	ANALYST ID
SW846 8270A SIM	Monica R. Edwards	001685

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

D9I140125

WO #	SAMPLE#	CLIENT SAMPLE ID	DATE	TIME
D2E9E	001	PCJ-SLP4-091399	09/13/99	
D2E9F	002	PCJ-SLP4D-091399	09/13/99	
D2E9G	003	PCJ-SLP4FB-091399	09/13/99	
D2E9H	004	PCJ-SLP4FBD-091399	09/13/99	
D2E9J	005	DPV-W19-091399	09/13/99	14:00
D2E9L	006	DPV-W20-091399	09/13/99	11:10
D2E9R	007	DPV-W121-091399	09/13/99	12:10
D2E9T	008	DPV-W1-091399	09/13/99	07:50
D2E9W	009	DPV-W18-091399	09/13/99	08:30
D2E9X	010	GAC-SLP4T-091399	09/13/99	
D2EA2	011	GAC-SLP10T-091399	09/13/99	

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-SLP4-091399

GC/MS Semivolatiles

Lot-Sample #...: D9I140125-001 Work Order #...: D2E9E101 Matrix.....: WATER
Date Sampled...: 09/13/99 Date Received..: 09/14/99
Prep Date.....: 09/14/99 Analysis Date..: 09/18/99
Prep Batch #...: 9258415 Analysis Time..: 13:36
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	**120**	**1.3**	**ng/L**
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	**2.5**	**1.3**	**ng/L**
Anthracene	ND	2.7	ng/L
Carbazole	**17**	**1.9**	**ng/L**
Fluoranthene	**7.5**	**3.1**	**ng/L**
Pyrene	**8.1**	**1.4**	**ng/L**
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	**12**	**0.90**	**ng/L**
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	**120**	**5.0**	**ng/L**
Benzo(b)thiophene	**16**	**0.90**	**ng/L**
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	48	(10 - 118)
Fluorene d-10	54	(41 - 162)
Naphthalene-d8	47	(21 - 108)

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-SLP4D-091399

GC/MS Semivolatiles

Lot-Sample #...: D9I140125-002 **Work Order #...:** D2E9F101 **Matrix.....:** WATER
Date Sampled...: 09/13/99 **Date Received..:** 09/14/99
Prep Date.....: 09/14/99 **Analysis Date..:** 09/18/99
Prep Batch #...: 9258415 **Analysis Time..:** 15:26
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	**130**	**1.3**	**ng/L**
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	**2.6**	**1.3**	**ng/L**
Anthracene	ND	2.7	ng/L
Carbazole	**17**	**1.9**	**ng/L**
Fluoranthene	**7.8**	**3.1**	**ng/L**
Pyrene	**8.4**	**1.4**	**ng/L**
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	**14**	**0.90**	**ng/L**
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	**130**	**5.0**	**ng/L**
Benzo(b)thiophene	**18**	**0.90**	**ng/L**
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	47	(10 - 118)
Fluorene d-10	60	(41 - 162)
Naphthalene-d8	53	(21 - 108)

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-SLP4FB-091399

GC/MS Semivolatiles

Lot-Sample #...: D9I140125-003 Work Order #...: D2E9G101 Matrix.....: WATER
Date Sampled...: 09/13/99 Date Received..: 09/14/99
Prep Date.....: 09/14/99 Analysis Date..: 09/18/99
Prep Batch #...: 9258415 Analysis Time..: 16:03
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	ND	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	ND	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	ND	3.1	ng/L
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	3.5 J	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	118	(10 - 118)
Fluorene d-10	86	(41 - 162)
Naphthalene-d8	80	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-SLP4FBD-091399

GC/MS Semivolatiles

Lot-Sample #...: D9I140125-004 Work Order #...: D2E9H101 Matrix.....: WATER
Date Sampled...: 09/13/99 Date Received..: 09/14/99
Prep Date.....: 09/14/99 Analysis Date..: 09/18/99
Prep Batch #...: 9258415 Analysis Time..: 16:40
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	ND	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	ND	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	ND	3.1	ng/L
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	118	(10 - 118)
Fluorene d-10	88	(41 - 162)
Naphthalene-d8	75	(21 - 108)

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W19-091399

GC/MS Semivolatiles

Lot-Sample #...: D9I140125-005 Work Order #...: D2E9J101 Matrix.....: WATER
Date Sampled...: 09/13/99 14:00 Date Received..: 09/14/99
Prep Date.....: 09/14/99 Analysis Date..: 09/18/99
Prep Batch #...: 9258415 Analysis Time..: 17:16
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	**7.7**	**6.5**	**ng/L**
2-Methylnaphthalene	**7.5**	**3.9**	**ng/L**
Acenaphthene	**2.9**	**1.3**	**ng/L**
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	**6.8**	**1.3**	**ng/L**
Anthracene	ND	2.7	ng/L
Carbazole	**4.5**	**1.9**	**ng/L**
Fluoranthene	**5.2**	**3.1**	**ng/L**
Pyrene	**19**	**1.4**	**ng/L**
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	**0.93 J**	**2.3**	**ng/L**
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	**2.3 J**	**2.8**	**ng/L**
Indene	**2.9**	**0.90**	**ng/L**
1-Methylnaphthalene	**5.7**	**2.8**	**ng/L**
Benzo(e)pyrene	**2.0**	**1.9**	**ng/L**
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	**1.7 J**	**5.0**	**ng/L**
Benzo(b)thiophene	ND	0.90	ng/L
Indole	**1.9 J**	**2.5**	**ng/L**
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	29	(10 - 118)
Fluorene d-10	69	(41 - 162)
Naphthalene-d8	62	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W20-091399

GC/MS Semivolatiles

Lot-Sample #...: D9I140125-006 Work Order #...: D2E9L101 Matrix.....: WATER
Date Sampled...: 09/13/99 11:10 Date Received..: 09/14/99
Prep Date.....: 09/14/99 Analysis Date..: 09/21/99
Prep Batch #...: 9258415 Analysis Time..: 15:48
Dilution Factor: 10

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	14	ng/L
Naphthalene	**31 J**	**65**	**ng/L**
2-Methylnaphthalene	**37 J**	**39**	**ng/L**
Acenaphthene	ND	13	ng/L
Dibenzofuran	ND	10	ng/L
Fluorene	ND	10	ng/L
Phenanthrene	**65**	**13**	**ng/L**
Anthracene	ND	27	ng/L
Carbazole	**14 J**	**19**	**ng/L**
Fluoranthene	**38**	**31**	**ng/L**
Pyrene	**31**	**14**	**ng/L**
Benzo(a)anthracene	ND	25	ng/L
Chrysene	ND	28	ng/L
Benzo(b)fluoranthene	ND	25	ng/L
Benzo(k)fluoranthene	ND	23	ng/L
Benzo(a)pyrene	ND	23	ng/L
Indeno(1,2,3-cd)pyrene	ND	21	ng/L
Benzo(ghi)perylene	ND	28	ng/L
Indene	**38**	**9.0**	**ng/L**
1-Methylnaphthalene	ND	28	ng/L
Benzo(e)pyrene	ND	19	ng/L
Biphenyl	ND	43	ng/L
Dibenz(a,h)anthracene	ND	16	ng/L
Quinoline	ND	69	ng/L
2,3-Benzofuran	ND	51	ng/L
2,3-Dihydroindene	**460**	**50**	**ng/L**
Benzo(b)thiophene	**46**	**9.0**	**ng/L**
Indole	ND	25	ng/L
Acridine	ND	61	ng/L
Perylene	ND	25	ng/L
Dibenzothiophene	ND	11	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC	(10 - 118)
Fluorene d-10	NC	(41 - 162)
Naphthalene-d8	NC	(21 - 108)

NOTE(S):

NC The recovery and/or RPD were not calculated

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W121-091399

GC/MS Semivolatiles

Lot-Sample #...: D9I140125-007 Work Order #...: D2E9R101 Matrix.....: WATER
Date Sampled...: 09/13/99 12:10 Date Received..: 09/14/99
Prep Date.....: 09/14/99 Analysis Date..: 09/18/99
Prep Batch #...: 9258415 Analysis Time..: 18:29
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	2.2	1.4	ng/L
Naphthalene	33	6.5	ng/L
2-Methylnaphthalene	15	3.9	ng/L
Acenaphthene	11	1.3	ng/L
Dibenzofuran	4.3	1.0	ng/L
Fluorene	4.3	1.0	ng/L
Phenanthrene	4.4	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	4.4	1.9	ng/L
Fluoranthene	1.8 J	3.1	ng/L
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	13	0.90	ng/L
1-Methylnaphthalene	23	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	26	5.0	ng/L
Benzo(b)thiophene	10	0.90	ng/L
Indole	76	2.5	ng/L
Acridine	23	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	33	(10 - 118)
Fluorene d-10	82	(41 - 162)
Naphthalene-d8	67	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W1-091399

GC/MS Semivolatiles

Lot-Sample #...: D9I140125-008 Work Order #...: D2E9T101 Matrix.....: WATER
Date Sampled...: 09/13/99 07:50 Date Received..: 09/14/99
Prep Date.....: 09/14/99 Analysis Date..: 09/18/99
Prep Batch #...: 9258415 Analysis Time..: 19:05
Dilution Factor: 1
Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	27	6.5	ng/L
2-Methylnaphthalene	21	3.9	ng/L
Acenaphthene	6.4	1.3	ng/L
Dibenzofuran	4.9	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	ND	1.3	ng/L
Anthracene	3.4	2.7	ng/L
Carbazole	20	1.9	ng/L
Fluoranthene	27	3.1	ng/L
Pyrene	34	1.4	ng/L
Benzo(a)anthracene	16	2.5	ng/L
Chrysene	19	2.8	ng/L
Benzo(b)fluoranthene	19	2.5	ng/L
Benzo(k)fluoranthene	6.7	2.3	ng/L
Benzo(a)pyrene	13	2.3	ng/L
Indeno(1,2,3-cd)pyrene	8.2	2.1	ng/L
Benzo(ghi)perylene	8.2	2.8	ng/L
Indene	13	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	12	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	2.6	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	16	5.0	ng/L
Benzo(b)thiophene	19	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	3.4	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	30	(10 - 118)
Fluorene d-10	72	(41 - 162)
Naphthalene-d8	309 *	(21 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W18-091399

GC/MS Semivolatiles

Lot-Sample #...: D9I140125-009 Work Order #...: D2E9W101 Matrix.....: WATER
Date Sampled...: 09/13/99 08:30 Date Received..: 09/14/99
Prep Date.....: 09/14/99 Analysis Date..: 09/21/99
Prep Batch #...: 9258415 Analysis Time..: 17:01
Dilution Factor: 5

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	**15**	**7.0**	**ng/L**
Naphthalene	**33**	**32**	**ng/L**
2-Methylnaphthalene	ND	20	ng/L
Acenaphthene	**300**	**6.5**	**ng/L**
Dibenzofuran	ND	5.0	ng/L
Fluorene	**7.6**	**5.0**	**ng/L**
Phenanthrene	**13**	**6.5**	**ng/L**
Anthracene	ND	14	ng/L
Carbazole	**16**	**9.5**	**ng/L**
Fluoranthene	ND	16	ng/L
Pyrene	ND	7.0	ng/L
Benzo(a)anthracene	ND	12	ng/L
Chrysene	ND	14	ng/L
Benzo(b)fluoranthene	ND	12	ng/L
Benzo(k)fluoranthene	ND	12	ng/L
Benzo(a)pyrene	ND	12	ng/L
Indeno(1,2,3-cd)pyrene	ND	10	ng/L
Benzo(ghi)perylene	ND	14	ng/L
Indene	**130**	**4.5**	**ng/L**
1-Methylnaphthalene	ND	14	ng/L
Benzo(e)pyrene	ND	9.5	ng/L
Biphenyl	ND	22	ng/L
Dibenz(a,h)anthracene	ND	8.0	ng/L
Quinoline	ND	34	ng/L
2,3-Benzofuran	**12 J**	**26**	**ng/L**
2,3-Dihydroindene	**360**	**25**	**ng/L**
Benzo(b)thiophene	**420**	**4.5**	**ng/L**
Indole	ND	12	ng/L
Acridine	ND	30	ng/L
Perylene	ND	12	ng/L
Dibenzothiophene	**16**	**5.5**	**ng/L**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC	(10 - 118)
Fluorene d-10	NC	(41 - 162)
Naphthalene-d8	NC	(21 - 108)

NOTE(S):

NC The recovery and/or RPD were not calculated.

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: GAC-SLP4T-091399

GC/MS Semivolatiles

Lot-Sample #...: D9I140125-010 **Work Order #...:** D2E9X101 **Matrix.....:** WATER
Date Sampled...: 09/13/99 **Date Received..:** 09/14/99
Prep Date.....: 09/14/99 **Analysis Date..:** 09/18/99
Prep Batch #...: 9258415 **Analysis Time..:** 20:18
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	ND	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	ND	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	ND	3.1	ng/L
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	55	(10 - 118)
Fluorene d-10	78	(41 - 162)
Naphthalene-d8	67	(21 - 108)

CITY OF ST. LOUIS PARK

Client Sample ID: GAC-SLP10T-091399

GC/MS Semivolatiles

Lot-Sample #...: D9I140125-011 Work Order #...: D2EA2101 Matrix.....: WATER
Date Sampled...: 09/13/99 Date Received..: 09/14/99
Prep Date.....: 09/14/99 Analysis Date..: 09/18/99
Prep Batch #...: 9258415 Analysis Time..: 20:54
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	**7.9**	**1.3**	**ng/L**
Dibenzofuran	ND	1.0	ng/L
Fluorene	**1.8**	**1.0**	**ng/L**
Phenanthrene	ND	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	ND	3.1	ng/L
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	**7.9**	**5.0**	**ng/L**
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	58	(10 - 118)
Fluorene d-10	61	(41 - 162)
Naphthalene-d8	54	(21 - 108)

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D9I140125 **Work Order #...:** D2H08101 **Matrix.....:** WATER
MB Lot-Sample #: D9I150000-415

Prep Date.....: 09/14/99 **Analysis Time..:** 11:46
Analysis Date..: 09/18/99 **Prep Batch #...:** 9258415
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthylene	ND	1.4	ng/L	SW846 8270A SIM
Naphthalene	ND	6.5	ng/L	SW846 8270A SIM
2-Methylnaphthalene	ND	3.9	ng/L	SW846 8270A SIM
Acenaphthene	ND	1.3	ng/L	SW846 8270A SIM
Dibenzofuran	ND	1.0	ng/L	SW846 8270A SIM
Fluorene	ND	1.0	ng/L	SW846 8270A SIM
Phenanthrene	ND	1.3	ng/L	SW846 8270A SIM
Anthracene	ND	2.7	ng/L	SW846 8270A SIM
Carbazole	ND	1.9	ng/L	SW846 8270A SIM
Fluoranthene	ND	3.1	ng/L	SW846 8270A SIM
Pyrene	ND	1.4	ng/L	SW846 8270A SIM
Benzo(a)anthracene	ND	2.5	ng/L	SW846 8270A SIM
Chrysene	ND	2.8	ng/L	SW846 8270A SIM
Benzo(b)fluoranthene	ND	2.5	ng/L	SW846 8270A SIM
Benzo(k)fluoranthene	ND	2.3	ng/L	SW846 8270A SIM
Benzo(a)pyrene	ND	2.3	ng/L	SW846 8270A SIM
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L	SW846 8270A SIM
Benzo(ghi)perylene	ND	2.8	ng/L	SW846 8270A SIM
Indene	ND	0.90	ng/L	SW846 8270A SIM
1-Methylnaphthalene	ND	2.8	ng/L	SW846 8270A SIM
Benzo(e)pyrene	ND	1.9	ng/L	SW846 8270A SIM
Biphenyl	ND	4.3	ng/L	SW846 8270A SIM
Dibenz(a,h)anthracene	ND	1.6	ng/L	SW846 8270A SIM
Quinoline	ND	6.9	ng/L	SW846 8270A SIM
2,3-Benzofuran	ND	5.1	ng/L	SW846 8270A SIM
2,3-Dihydroindene	ND	5.0	ng/L	SW846 8270A SIM
Benzo(b)thiophene	ND	0.90	ng/L	SW846 8270A SIM
Indole	ND	2.5	ng/L	SW846 8270A SIM
Acridine	ND	6.1	ng/L	SW846 8270A SIM
Perylene	ND	2.5	ng/L	SW846 8270A SIM
Dibenzothiophene	ND	1.1	ng/L	SW846 8270A SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	102	(10 - 118)
Fluorene d-10	62	(41 - 162)
Naphthalene-d8	51	(21 - 108)

NOTE(S):

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

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D9I140125 Work Order #...: D2H08102-LCS Matrix.....: WATER
LCS Lot-Sample#: D9I150000-415 D2H08103-LCSD
Prep Date.....: 09/14/99 Analysis Date..: 09/18/99
Prep Batch #...: 9258415 Analysis Time..: 12:23
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Naphthalene	10.0	7.57	ng/L	76		SW846 8270A SIM
	10.0	7.44	ng/L	74	1.7	SW846 8270A SIM
2-Methylnaphthalene	10.0	7.09	ng/L	71		SW846 8270A SIM
	10.0	6.92	ng/L	69	2.4	SW846 8270A SIM
Fluorene	10.0	6.18 a	ng/L	62		SW846 8270A SIM
	10.0	6.53 a	ng/L	65	5.4	SW846 8270A SIM
Chrysene	10.0	8.38	ng/L	84		SW846 8270A SIM
	10.0	6.61 p	ng/L	66	24	SW846 8270A SIM
Indene	10.0	6.34	ng/L	63		SW846 8270A SIM
	10.0	6.79	ng/L	68	6.8	SW846 8270A SIM
Benzo(e)pyrene	10.0	8.71	ng/L	87		SW846 8270A SIM
	10.0	7.20	ng/L	72	19	SW846 8270A SIM
Quinoline	10.0	6.16	ng/L	62		SW846 8270A SIM
	10.0	4.47 p	ng/L	45	32	SW846 8270A SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	118	(10 - 118)
	90	(10 - 118)
Fluorene d-10	75	(41 - 162)
	80	(41 - 162)
Naphthalene-d8	66	(21 - 108)
	69	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits

p Relative percent difference (RPD) is outside stated control limits.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D9I140125 **Work Order #...:** D2H08102-LCS **Matrix.....:** WATER
LCS Lot-Sample#: D9I150000-415 D2H08103-LCSD
Prep Date.....: 09/14/99 **Analysis Date..:** 09/18/99
Prep Batch #...: 9258415 **Analysis Time..:** 12:23
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Naphthalene	**76**	**(20 - 150)**			**SW846 8270A SIM**
	74	**(20 - 150)**	**1.7**	**(0-20)**	**SW846 8270A SIM**
2-Methylnaphthalene	**71**	**(20 - 150)**			**SW846 8270A SIM**
	69	**(20 - 150)**	**2.4**	**(0-20)**	**SW846 8270A SIM**
Fluorene	**62 a**	**(69 - 118)**			**SW846 8270A SIM**
	65 a	**(69 - 118)**	**5.4**	**(0-20)**	**SW846 8270A SIM**
Chrysene	**84**	**(20 - 132)**			**SW846 8270A SIM**
	66 p	**(20 - 132)**	**24**	**(0-20)**	**SW846 8270A SIM**
Indene	**63**	**(20 - 150)**			**SW846 8270A SIM**
	68	**(20 - 150)**	**6.8**	**(0-20)**	**SW846 8270A SIM**
Benzo(e)pyrene	**87**	**(20 - 150)**			**SW846 8270A SIM**
	72	**(20 - 150)**	**19**	**(0-20)**	**SW846 8270A SIM**
Quinoline	**62**	**(20 - 150)**			**SW846 8270A SIM**
	45 p	**(20 - 150)**	**32**	**(0-20)**	**SW846 8270A SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	118	(10 - 118)
	90	(10 - 118)
Fluorene d-10	75	(41 - 162)
	80	(41 - 162)
Naphthalene-d8	66	(21 - 108)
	69	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

p Relative percent difference (RPD) is outside stated control limits

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D9I140125 Work Order #...: D2E9E102-MS Matrix.....: WATER
MS Lot-Sample #: D9I140125-001 D2E9E103-MSD
Date Sampled...: 09/13/99 Date Received..: 09/14/99
Prep Date.....: 09/14/99 Analysis Date..: 09/18/99
Prep Batch #...: 9258415 Analysis Time..: 14:13
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Naphthalene	ND	10.2	7.20	ng/L	71		SW846 8270A SIM
	ND	10.2	7.30	ng/L	71	1.2	SW846 8270A SIM
2-Methylnaphthalene	ND	10.2	6.10	ng/L	60		SW846 8270A SIM
	ND	10.2	6.17	ng/L	60	0.98	SW846 8270A SIM
Fluorene	ND	10.2	5.46 a	ng/L	53		SW846 8270A SIM
	ND	10.2	5.70 a	ng/L	56	4.3	SW846 8270A SIM
Chrysene	ND	10.2	4.39	ng/L	43		SW846 8270A SIM
	ND	10.2	4.10	ng/L	40	7.2	SW846 8270A SIM
Indene	12	10.2	17.7	ng/L	51		SW846 8270A SIM
	12	10.2	18.2	ng/L	56	2.7	SW846 8270A SIM
Benzo(e)pyrene	ND	10.2	2.72	ng/L	27		SW846 8270A SIM
	ND	10.2	2.35	ng/L	23	15	SW846 8270A SIM
Quinoline	ND	10.2	8.85	ng/L	87		SW846 8270A SIM
	ND	10.2	9.68	ng/L	95	8.9	SW846 8270A SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	53	(10 - 118)
	53	(10 - 118)
Fluorene d-10	62	(41 - 162)
	66	(41 - 162)
Naphthalene-d8	51	(21 - 108)
	52	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D9I140125 **Work Order #...:** D2E9E102-MS **Matrix.....:** WATER
MS Lot-Sample #: D9I140125-001 D2E9E103-MSD
Date Sampled...: 09/13/99 **Date Received..:** 09/14/99
Prep Date.....: 09/14/99 **Analysis Date..:** 09/18/99
Prep Batch #...: 9258415 **Analysis Time..:** 14:13
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Naphthalene	**71**	**(20 - 150)**			**SW846 8270A SIM**
	71	**(20 - 150)**	**1.2**	**(0-20)**	**SW846 8270A SIM**
2-Methylnaphthalene	**60**	**(20 - 150)**			**SW846 8270A SIM**
	60	**(20 - 150)**	**0.98**	**(0-20)**	**SW846 8270A SIM**
Fluorene	**53 a**	**(69 - 118)**			**SW846 8270A SIM**
	56 a	**(69 - 118)**	**4.3**	**(0-20)**	**SW846 8270A SIM**
Chrysene	**43**	**(20 - 132)**			**SW846 8270A SIM**
	40	**(20 - 132)**	**7.2**	**(0-20)**	**SW846 8270A SIM**
Indene	**51**	**(20 - 150)**			**SW846 8270A SIM**
	56	**(20 - 150)**	**2.7**	**(0-20)**	**SW846 8270A SIM**
Benzo(e)pyrene	**27**	**(20 - 150)**			**SW846 8270A SIM**
	23	**(20 - 150)**	**15**	**(0-20)**	**SW846 8270A SIM**
Quinoline	**87**	**(20 - 150)**			**SW846 8270A SIM**
	95	**(20 - 150)**	**8.9**	**(0-20)**	**SW846 8270A SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	53	(10 - 118)
	53	(10 - 118)
Fluorene d-10	62	(41 - 162)
	66	(41 - 162)
Naphthalene-d8	51	(21 - 108)
	52	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits

QC DATA ASSOCIATION SUMMARY

D9I140125

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WATER	SW846 8270A SIM		9258415	9258189
002	WATER	SW846 8270A SIM		9258415	9258189
003	WATER	SW846 8270A SIM		9258415	9258189
004	WATER	SW846 8270A SIM		9258415	9258189
005	WATER	SW846 8270A SIM		9258415	9258189
006	WATER	SW846 8270A SIM		9258415	9258189
007	WATER	SW846 8270A SIM		9258415	9258189
008	WATER	SW846 8270A SIM		9258415	9258189
009	WATER	SW846 8270A SIM		9258415	9258189
010	WATER	SW846 8270A SIM		9258415	9258189
011	WATER	SW846 8270A SIM		9258415	9258189

Chain of Custody Record

Quanterra

QUA-4124 0797

Client	CITY OF ST. LOUIS PARK UTILITY DIVISION
Address	3752 WOODDALE AVENUE
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) 924-2570
Site Contact	SAME
Lab Contact	
Carrier/Waybill Number	FED EX 800846316529
Date	9-13-99
Chain of Custody Number	02158
Lab Number	D9I140125
Page ____ of ____	

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	HNOS	HCl	NaOH	ZnAc/NaOH	N/A	Analysis (Attach list if more space is needed): PPT PAH 5	Special Instructions/ Conditions of Receipt
01 PCJ-SLP4-091399	9-13-99		X										6	X	PPT 5
02 PCJ-SLP4D-091399	9-13-99		X										6	X	PPT 5

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: MZK	9-13-99	1400	1 Received By: Kurt C. Ill	9/14/99	0900
2. Relinquished By			2 Received By		
3 Relinquished By			3 Received By		

Comments: Cooler 0015 1.2°C

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

Chain of Custody Record

Quanterra

QUA-4124 0797

Client: CITY OF ST. LOUIS PARK	Project Manager: SCOTT ANDERSON	Date: 9-13-99	Chain of Custody Number: 02157
Address: UTILITY DIVISION, 3752 WOODDALE AVENUE	Telephone Number (Area Code)/Fax Number: 924-2557 (612) 9242570	Lab Number: D9I140125	Page ____ of ____
City: ST. LOUIS PARK, MN 55416	Site Contact: SAME	Lab Contact:	
Project Name: SAME	Carrier/Waybill Number: FED EX 800846316529		
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	N/A	PPL PAH 5	Special Instructions/ Conditions of Receipt
PCJ-SLP4MS -091399	9-13-99		X										6	X	PPL 5
PCJ-SLP4MSD -091399	9-13-99		X										6	X	PPL 5

Analysis (Attach list if more space is needed)

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: [illegible]	9-13-99	1400	1. Received By: [illegible]	9/14/99	0900
2. Relinquished By:			2. Received By:		
3. Relinquished By:			3. Received By:		

Comments: Cooler 0003 0.8°C 3 Bottles of SLP4MS Broken in transit

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

Chain of Custody Record

Quanterra

QUA-4124 0797

Client: CITY OF ST. LOUIS PARK	Project Manager: SCOTT ANDERSON	Date: 9-13-99	Chain of Custody Number: 02156
Address: UTILITY DIVISION, 3752 WOODDALE AVENUE	Telephone Number (Area Code)/Fax Number: 924-2557 (612) 924-2570	Lab Number: D9I140125	Page ____ of ____
City: ST. LOUIS PARK, MN 55416	Site Contact: SAME	Lab Contact:	
Project Name: SAME	Carrier/Waybill Number: FED EX 800846316529		
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	N/A	Analysis (Attach list if more space is needed): PPT PAH S												Special Instructions/ Conditions of Receipt
03 PCJ-SLP4FB-091399	9-13-99		X										6	X												PPT S
04 PCJ-SLP4FBD-091399	9-13-99		X										6	X												PPT S

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):

1. Relinquished By: MZW	Date: 9-13-99	Time: 1400	1. Received By: Kurt C. Sell	Date: 9/14/99	Time: 0900
2. Relinquished By	Date	Time	2. Received By	Date	Time
3. Relinquished By	Date	Time	3. Received By	Date	Time

Comments: Cooler 0008 3.6°C

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

Chain of Custody Record

Quanterra

QUA-4124 0797

Client: City of St. Louis Park	Project Manager: Bill Gregg	Date: 9/13/99	Chain of Custody Number: 23509
Address: 3152 Wooddale Ave	Telephone Number (Area Code)/Fax Number: (612) 924-2557	Lab Number: D9I140125	Page 1 of 1
City: St. Louis Park; State: MN; Zip Code: 55416	Site Contact: Scott Anderson; Lab Contact:		
Project Name: Reilly	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.: 1620-013-400			

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		PPT-PAH											Special Instructions/ Conditions of Receipt
.05 DPV-W19-091399	9/13/99	14:00	X				6							X											PPT-5

Analysis (Attach list if more space is needed)

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: Chris Bock	9/13/99	15:00	1. Received By: Kurt C. Lell	9/14/99	0900
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments: Cooler 0001 0.7°C / Bottle of DPV-W19 Broken in transit

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

Chain of Custody Record

Quanterra

QUA-4124 0797

Client: City of St. Louis Park	Project Manager: Bill Gregg	Date: 9/13/99	Chain of Custody Number: 23510
Address: 3752 Wooddale Ave	Telephone Number (Area Code)/Fax Number: (612)924-2557	Lab Number: DAI 140125	Page 1 of 1
City: St. Louis Park; State: MN; Zip Code: 55416	Site Contact: Scott Anderson	Lab Contact:	
Project Name: Kelly	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No: 1620-013-400			

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	PAH-PPT (PPT-5)	Special Instructions/ Conditions of Receipt
.06 DPV-W20-091399	9/13/99	11:10	X			6						X	
.07 DPV-W121-091399	↓	12:10	X			6						X	

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: [signature]	Date: 9/13/99	Time: 15:00	1. Received By: [signature]	Date: 9/14/99	Time: 0900
2. Relinquished By	Date	Time	2. Received By	Date	Time
3. Relinquished By	Date	Time	3. Received By	Date	Time

Comments: Cooler 0012 3.1°

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

Chain of Custody Record

Quanterra

QUA-4124

Client: City of St. Louis Park	Project Manager: Bill Gregg	Date: 9/13/99	Chain Of Custody Number: 39614
Address: 3752 Wooddale Ave	Telephone Number (Area Code)/Fax Number: (612) 924-2557	Lab Number: D9I140125	Page 1 of 1
City: St. Louis Park; State: MN; Zip Code: 55416	Site Contact: Scott Anderson		
Project Name: Reilly	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.: 1620-013-400			

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: XXPPT-PAH (PPT 5)
.08 DPV-W1-091399	9/13/99	7:50	WT	6L	amber	6	none		X
.09 BPV-W18-091399	↓	8:30	↓	↓	↓	↓	↓		X

Special Instructions

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

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Turn Around Time Required: ☒ Normal ☐ Rush

QC Level: ☐ I. ☐ II. ☐ III.

Project Specific (Specify):

	Date	Time		Date	Time
1. Relinquished By: [signature]	9/13/99	15:00	1. Received By: [signature]	9/14/99	0900
2. Relinquished By:			2. Received By:		
3. Relinquished By:			3. Received By:		

Comments: Cooler 0011 6.6°C

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

Chain of Custody Record

Quanterra

QUA-4124 0797

Client: CITY OF ST. LOUIS PARK	Project Manager: SCOTT ANDERSON	Date: 9-13-99	Chain of Custody Number: 02159
Address: UTILITY DIVISION, 3752 WOODDALE AVENUE	Telephone Number (Area Code)/Fax Number: 924-2557 (612) 924-2570	Lab Number:	Page ____ of ____
City: ST. LOUIS PARK, MN 55416	Site Contact: SAME	Lab Contact:	
Project Name: SAME	Carrier/Waybill Number: FED EX 8008463165 29		
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	HNOS	HCl	NaOH	ZnAc/NaOH	N/A	Analysis (Attach list if more space is needed): PPT PAH 5											Special Instructions/ Conditions of Receipt
10	BAC-SLP4T-091399	9-13-99		X										6	X											PPT 5
11	BAC-SLP10T-091399	9-13-99		X										6	X											PPT 5

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: MZK	9-13-99	1400	1. Received By: Kurt C. [illegible]	9/14/99	0900
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments: Cooler 0004 1.8°C One bottle SLP4T & 2 Bottles SLP10T Broken in transit

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

P

P

Advanced Analytical Services

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 467-9136 Fax

CASE NARRATIVE

FOR

City of St. Louis Park

October 20, 1999

Quanterra Environmental Services

Project Lot Number D9I150143

Introduction

Ten aqueous samples (including QC) were received at Quanterra Environmental Services, Denver Laboratory on September 15, 1999. The samples were logged in under Quanterra Denver's project number D9I150143. A cross reference associating Quanterra Denver's laboratory sample numbers to the actual field sample number is included. The samples were analyzed for part per trillion (ppt) PAHs.

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the October 1998 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 laboratory Id's D9I150143-006 and –008 were analyzed at a dilution due to target analytes exceeding the linear range of the instrument. The reporting limits were raised accordingly.

The surrogate compound naphthalene-d8 in sample D9I150143-008 was recovered at 234% which is above the 21% to 108% reporting limit. Naphthalene-d8 was recovered within acceptance limits in the method blank and duplicate control samples. A matrix effect is indicated.

The relative percent difference for the spike compound quinoline is reported at 59% which is above the 20% limit. The samples were reanalyzed with similar results.

Except for the above, this data package is in compliance with the terms and conditions of the October 1998 QAPP both technically and for completeness

Reported By: Kurt C. Ill **Date:** October 20, 1999

Kurt C. Ill
Program Manager, AASG

EXECUTIVE SUMMARY - Detection Highlights

D9I150143

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
MSH-SLP12-091499 09/14/99 001				
Acenaphthene	2.9	1.3	ng/L	SW846 8270A SIM
2,3-Dihydroindene	3.5 J	5.0	ng/L	SW846 8270A SIM
Indole	3.1	2.5	ng/L	SW846 8270A SIM
MSH-SLP12D-091499 09/14/99 002				
Acenaphthene	2.5	1.3	ng/L	SW846 8270A SIM
2,3-Dihydroindene	3.2 J	5.0	ng/L	SW846 8270A SIM
Indole	2.7	2.5	ng/L	SW846 8270A SIM
DPV-W130-091499 09/14/99 08:00 005				
Naphthalene	10	6.5	ng/L	SW846 8270A SIM
2-Methylnaphthalene	8.4	3.9	ng/L	SW846 8270A SIM
Acenaphthene	2.6	1.3	ng/L	SW846 8270A SIM
Anthracene	6.3	2.7	ng/L	SW846 8270A SIM
Carbazole	5.1	1.9	ng/L	SW846 8270A SIM
Fluoranthene	2.5 J	3.1	ng/L	SW846 8270A SIM
Pyrene	8.2	1.4	ng/L	SW846 8270A SIM
Indene	8.1	0.90	ng/L	SW846 8270A SIM
2,3-Dihydroindene	5.4	5.0	ng/L	SW846 8270A SIM
Benzo(b)thiophene	3.4	0.90	ng/L	SW846 8270A SIM
Indole	7.6	2.5	ng/L	SW846 8270A SIM
Acridine	6.9	6.1	ng/L	SW846 8270A SIM
DPV-W431-091499 09/14/99 08:50 006				
Naphthalene	36	13	ng/L	SW846 8270A SIM
2-Methylnaphthalene	19	7.8	ng/L	SW846 8270A SIM
Acenaphthene	22	2.6	ng/L	SW846 8270A SIM
Anthracene	3.7 J	5.4	ng/L	SW846 8270A SIM
Carbazole	5.5	3.8	ng/L	SW846 8270A SIM
Fluoranthene	3.6 J	6.2	ng/L	SW846 8270A SIM
Pyrene	12	2.8	ng/L	SW846 8270A SIM
Indene	13	1.8	ng/L	SW846 8270A SIM
2,3-Dihydroindene	180	10	ng/L	SW846 8270A SIM
Benzo(b)thiophene	10	1.8	ng/L	SW846 8270A SIM
Indole	10	5.0	ng/L	SW846 8270A SIM
Acridine	51	12	ng/L	SW846 8270A SIM

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

D9I150143

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
DPV-W131-091499 09/14/99 10:10 007				
Naphthalene	33	6.5	ng/L	SW846 8270A SIM
2-Methylnaphthalene	15	3.9	ng/L	SW846 8270A SIM
Acenaphthene	11	1.3	ng/L	SW846 8270A SIM
Dibenzofuran	4.0	1.0	ng/L	SW846 8270A SIM
Phenanthrene	5.5	1.3	ng/L	SW846 8270A SIM
Carbazole	4.9	1.9	ng/L	SW846 8270A SIM
Fluoranthene	7.3	3.1	ng/L	SW846 8270A SIM
Pyrene	7.6	1.4	ng/L	SW846 8270A SIM
Benzo(a)anthracene	1.7 J	2.5	ng/L	SW846 8270A SIM
Chrysene	2.7 J	2.8	ng/L	SW846 8270A SIM
Benzo(b)fluoranthene	3.5	2.5	ng/L	SW846 8270A SIM
Benzo(k)fluoranthene	1.5 J	2.3	ng/L	SW846 8270A SIM
Benzo(a)pyrene	2.5	2.3	ng/L	SW846 8270A SIM
Indene	13	0.90	ng/L	SW846 8270A SIM
1-Methylnaphthalene	23	2.8	ng/L	SW846 8270A SIM
Benzo(e)pyrene	1.8 J	1.9	ng/L	SW846 8270A SIM
2,3-Dihydroindene	27	5.0	ng/L	SW846 8270A SIM
Benzo(b)thiophene	10	0.90	ng/L	SW846 8270A SIM
Indole	8.3	2.5	ng/L	SW846 8270A SIM
Acridine	3.6 J	6.1	ng/L	SW846 8270A SIM
DPV-W428-091499 09/14/99 11:30 008				
Naphthalene	33	13	ng/L	SW846 8270A SIM
2-Methylnaphthalene	23	7.8	ng/L	SW846 8270A SIM
Acenaphthene	9.0	2.6	ng/L	SW846 8270A SIM
Dibenzofuran	4.5	2.0	ng/L	SW846 8270A SIM
Carbazole	7.5	3.8	ng/L	SW846 8270A SIM
Fluoranthene	8.2	6.2	ng/L	SW846 8270A SIM
Pyrene	20	2.8	ng/L	SW846 8270A SIM
Indene	25	1.8	ng/L	SW846 8270A SIM
2,3-Dihydroindene	250	10	ng/L	SW846 8270A SIM
Benzo(b)thiophene	96	1.8	ng/L	SW846 8270A SIM
DPV-W424-091499 09/14/99 12:45 009				
Naphthalene	9.2	6.5	ng/L	SW846 8270A SIM
2-Methylnaphthalene	4.3	3.9	ng/L	SW846 8270A SIM
Fluorene	2.6	1.0	ng/L	SW846 8270A SIM
Phenanthrene	5.0	1.3	ng/L	SW846 8270A SIM
Carbazole	1.5 J	1.9	ng/L	SW846 8270A SIM
Fluoranthene	1.5 J	3.1	ng/L	SW846 8270A SIM
Indene	3.0	0.90	ng/L	SW846 8270A SIM

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

D9I150143

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
DPV-W424-091499 09/14/99 12:45 009				
1-Methylnaphthalene	6.3	2.8	ng/L	SW846 8270A SIM
2,3-Dihydroindene	6.4	5.0	ng/L	SW846 8270A SIM
Benzo(b)thiophene	2.6	0.90	ng/L	SW846 8270A SIM
DPV-W124-091499 09/14/99 14:30 010				
Naphthalene	3.2 J	6.5	ng/L	SW846 8270A SIM
2-Methylnaphthalene	2.9 J	3.9	ng/L	SW846 8270A SIM
Phenanthrene	9.0	1.3	ng/L	SW846 8270A SIM
Anthracene	1.3 J	2.7	ng/L	SW846 8270A SIM
Fluoranthene	3.7	3.1	ng/L	SW846 8270A SIM
Pyrene	7.6	1.4	ng/L	SW846 8270A SIM
1-Methylnaphthalene	2.8	2.8	ng/L	SW846 8270A SIM

ANALYTICAL METHODS SUMMARY

D9I150143

PARAMETER	ANALYTICAL METHOD
Base/Neutrals and Acids	SW846 8270A SIM

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

METHOD / ANALYST SUMMARY

D9I150143

ANALYTICAL METHOD	ANALYST	ANALYST ID
SW846 8270A SIM	Monica R. Edwards	001685

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

D9I150143

WO #	SAMPLE#	CLIENT SAMPLE ID	DATE	TIME
D2FTE	001	MSH-SLP12-091499	09/14/99	
D2FTJ	002	MSH-SLP12D-091499	09/14/99	
D2FTM	003	MSH-SLP12FB-091499	09/14/99	
D2FTR	004	MSH-SLP12FBD-091499	09/14/99	
D2FV2	005	DPV-W130-091499	09/14/99	08:00
D2FV4	006	DPV-W431-091499	09/14/99	08:50
D2FV7	007	DPV-W131-091499	09/14/99	10:10
D2FV8	008	DPV-W428-091499	09/14/99	11:30
D2FVJ	009	DPV-W424-091499	09/14/99	12:45
D2FVN	010	DPV-W124-091499	09/14/99	14:30

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages
- All calculations are performed before rounding to avoid round-off errors in calculated results
- Results noted as "ND" were not detected at or above the stated limit
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight

CITY OF ST. LOUIS PARK

Client Sample ID: MSH-SLP12-091499

GC/MS Semivolatiles

Lot-Sample #...: D9I150143-001 Work Order #...: D2FTE101 Matrix.....: WATER
Date Sampled...: 09/14/99 Date Received..: 09/15/99
Prep Date.....: 09/16/99 Analysis Date..: 09/18/99
Prep Batch #...: 9259379 Analysis Time..: 23:55
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	**2.9**	**1.3**	**ng/L**
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	ND	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	ND	3.1	ng/L
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	**3.5 J**	**5.0**	**ng/L**
Benzo(b)thiophene	ND	0.90	ng/L
Indole	**3.1**	**2.5**	**ng/L**
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	55	(10 - 118)
Fluorene d-10	64	(41 - 162)
Naphthalene-d8	73	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: MSH-SLP12D-091499

GC/MS Semivolatiles

Lot-Sample #...: D9I150143-002 Work Order #...: D2FTJ101 Matrix.....: WATER
Date Sampled...: 09/14/99 Date Received..: 09/15/99
Prep Date.....: 09/16/99 Analysis Date..: 09/19/99
Prep Batch #...: 9259379 Analysis Time..: 00:31
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	**2.5**	**1.3**	**ng/L**
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	ND	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	ND	3.1	ng/L
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	**3.2 J**	**5.0**	**ng/L**
Benzo(b)thiophene	ND	0.90	ng/L
Indole	**2.7**	**2.5**	**ng/L**
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	65	(10 - 118)
Fluorene d-10	61	(41 - 162)
Naphthalene-d8	68	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL

CITY OF ST. LOUIS PARK

Client Sample ID: MSH-SLP12FB-091499

GC/MS Semivolatiles

Lot-Sample #...: D9I150143-003 Work Order #...: D2FTM101 Matrix.....: WATER
Date Sampled...: 09/14/99 Date Received..: 09/15/99
Prep Date.....: 09/16/99 Analysis Date..: 09/21/99
Prep Batch #...: 9259379 Analysis Time..: 17:37
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	ND	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	ND	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	ND	3.1	ng/L
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	47	(10 - 118)
Fluorene d-10	35 *	(41 - 162)
Naphthalene-d8	38	(21 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits

CITY OF ST. LOUIS PARK

Client Sample ID: MSH-SLP12FBD-091499

GC/MS Semivolatiles

Lot-Sample #...: D9I150143-004 Work Order #...: D2FTR102 Matrix.....: WATER
Date Sampled...: 09/14/99 Date Received..: 09/15/99
Prep Date.....: 09/16/99 Analysis Date..: 09/19/99
Prep Batch #...: 9259379 Analysis Time..: 01:44
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	ND	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	ND	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	ND	3.1	ng/L
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	112	(10 - 118)
Fluorene d-10	69	(41 - 162)
Naphthalene-d8	75	(21 - 108)

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W130-091499

GC/MS Semivolatiles

Lot-Sample #...: D9I150143-005 Work Order #...: D2FV2101 Matrix.....: WATER
Date Sampled...: 09/14/99 08:00 Date Received..: 09/15/99
Prep Date.....: 09/16/99 Analysis Date..: 09/19/99
Prep Batch #...: 9259379 Analysis Time..: 02:20
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	**10**	**6.5**	**ng/L**
2-Methylnaphthalene	**8.4**	**3.9**	**ng/L**
Acenaphthene	**2.6**	**1.3**	**ng/L**
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	ND	1.3	ng/L
Anthracene	**6.3**	**2.7**	**ng/L**
Carbazole	**5.1**	**1.9**	**ng/L**
Fluoranthene	**2.5 J**	**3.1**	**ng/L**
Pyrene	**8.2**	**1.4**	**ng/L**
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	**8.1**	**0.90**	**ng/L**
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	**5.4**	**5.0**	**ng/L**
Benzo(b)thiophene	**3.4**	**0.90**	**ng/L**
Indole	**7.6**	**2.5**	**ng/L**
Acridine	**6.9**	**6.1**	**ng/L**
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	42	(10 - 118)
Fluorene d-10	69	(41 - 162)
Naphthalene-d8	76	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W431-091499

GC/MS Semivolatiles

Lot-Sample #...: D9I150143-006 Work Order #...: D2FV4101 Matrix.....: WATER
Date Sampled...: 09/14/99 08:50 Date Received..: 09/15/99
Prep Date.....: 09/16/99 Analysis Date..: 09/21/99
Prep Batch #...: 9259379 Analysis Time..: 18:14
Dilution Factor: 2
Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	2.8	ng/L
Naphthalene	**36**	**13**	**ng/L**
2-Methylnaphthalene	**19**	**7.8**	**ng/L**
Acenaphthene	**22**	**2.6**	**ng/L**
Dibenzofuran	ND	2.0	ng/L
Fluorene	ND	2.0	ng/L
Phenanthrene	ND	2.6	ng/L
Anthracene	**3.7 J**	**5.4**	**ng/L**
Carbazole	**5.5**	**3.8**	**ng/L**
Fluoranthene	**3.6 J**	**6.2**	**ng/L**
Pyrene	**12**	**2.8**	**ng/L**
Benzo(a)anthracene	ND	5.0	ng/L
Chrysene	ND	5.6	ng/L
Benzo(b)fluoranthene	ND	5.0	ng/L
Benzo(k)fluoranthene	ND	4.6	ng/L
Benzo(a)pyrene	ND	4.6	ng/L
Indeno(1,2,3-cd)pyrene	ND	4.2	ng/L
Benzo(ghi)perylene	ND	5.6	ng/L
Indene	**13**	**1.8**	**ng/L**
1-Methylnaphthalene	ND	5.6	ng/L
Benzo(e)pyrene	ND	3.8	ng/L
Biphenyl	ND	8.6	ng/L
Dibenz(a,h)anthracene	ND	3.2	ng/L
Quinoline	ND	14	ng/L
2,3-Benzofuran	ND	10	ng/L
2,3-Dihydroindene	**180**	**10**	**ng/L**
Benzo(b)thiophene	**10**	**1.8**	**ng/L**
Indole	**10**	**5.0**	**ng/L**
Acridine	**51**	**12**	**ng/L**
Perylene	ND	5.0	ng/L
Dibenzothiophene	ND	2.2	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	58	(10 - 118)
Fluorene d-10	69	(41 - 162)
Naphthalene-d8	71	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W131-091499

GC/MS Semivolatiles

Lot-Sample #...: D9I150143-007 Work Order #...: D2FV7101 Matrix.....: WATER
Date Sampled...: 09/14/99 10:10 Date Received..: 09/15/99
Prep Date.....: 09/16/99 Analysis Date..: 09/20/99
Prep Batch #...: 9259379 Analysis Time..: 12:11
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	33	6.5	ng/L
2-Methylnaphthalene	15	3.9	ng/L
Acenaphthene	11	1.3	ng/L
Dibenzofuran	4.0	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	5.5	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	4.9	1.9	ng/L
Fluoranthene	7.3	3.1	ng/L
Pyrene	7.6	1.4	ng/L
Benzo(a)anthracene	1.7 J	2.5	ng/L
Chrysene	2.7 J	2.8	ng/L
Benzo(b)fluoranthene	3.5	2.5	ng/L
Benzo(k)fluoranthene	1.5 J	2.3	ng/L
Benzo(a)pyrene	2.5	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	13	0.90	ng/L
1-Methylnaphthalene	23	2.8	ng/L
Benzo(e)pyrene	1.8 J	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	27	5.0	ng/L
Benzo(b)thiophene	10	0.90	ng/L
Indole	8.3	2.5	ng/L
Acridine	3.6 J	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	32	(10 - 118)
Fluorene d-10	57	(41 - 162)
Naphthalene-d8	59	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W428-091499

GC/MS Semivolatiles

Lot-Sample #...: D9I150143-008 Work Order #...: D2FV8101 Matrix.....: WATER
Date Sampled...: 09/14/99 11:30 Date Received..: 09/15/99
Prep Date.....: 09/16/99 Analysis Date..: 09/21/99
Prep Batch #...: 9259379 Analysis Time..: 18:50
Dilution Factor: 2

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	2.8	ng/L
Naphthalene	**33**	**13**	**ng/L**
2-Methylnaphthalene	**23**	**7.8**	**ng/L**
Acenaphthene	**9.0**	**2.6**	**ng/L**
Dibenzofuran	**4.5**	**2.0**	**ng/L**
Fluorene	ND	2.0	ng/L
Phenanthrene	ND	2.6	ng/L
Anthracene	ND	5.4	ng/L
Carbazole	**7.5**	**3.8**	**ng/L**
Fluoranthene	**8.2**	**6.2**	**ng/L**
Pyrene	**20**	**2.8**	**ng/L**
Benzo(a)anthracene	ND	5.0	ng/L
Chrysene	ND	5.6	ng/L
Benzo(b)fluoranthene	ND	5.0	ng/L
Benzo(k)fluoranthene	ND	4.6	ng/L
Benzo(a)pyrene	ND	4.6	ng/L
Indeno(1,2,3-cd)pyrene	ND	4.2	ng/L
Benzo(ghi)perylene	ND	5.6	ng/L
Indene	**25**	**1.8**	**ng/L**
1-Methylnaphthalene	ND	5.6	ng/L
Benzo(e)pyrene	ND	3.8	ng/L
Biphenyl	ND	8.6	ng/L
Dibenz(a,h)anthracene	ND	3.2	ng/L
Quinoline	ND	14	ng/L
2,3-Benzofuran	ND	10	ng/L
2,3-Dihydroindene	**250**	**10**	**ng/L**
Benzo(b)thiophene	**96**	**1.8**	**ng/L**
Indole	ND	5.0	ng/L
Acridine	ND	12	ng/L
Perylene	ND	5.0	ng/L
Dibenzothiophene	ND	2.2	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	18	(10 - 118)
Fluorene d-10	61	(41 - 162)
Naphthalene-d8	234 *	(21 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W424-091499

GC/MS Semivolatiles

Lot-Sample #...: D9I150143-009 Work Order #...: D2FVJ101 Matrix.....: WATER
Date Sampled...: 09/14/99 12:45 Date Received..: 09/15/99
Prep Date.....: 09/16/99 Analysis Date..: 09/20/99
Prep Batch #...: 9259379 Analysis Time..: 15:32
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	9.2	6.5	ng/L
2-Methylnaphthalene	4.3	3.9	ng/L
Acenaphthene	ND	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	2.6	1.0	ng/L
Phenanthrene	5.0	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	1.5 J	1.9	ng/L
Fluoranthene	1.5 J	3.1	ng/L
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	3.0	0.90	ng/L
1-Methylnaphthalene	6.3	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	6.4	5.0	ng/L
Benzo(b)thiophene	2.6	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	45	(10 - 118)
Fluorene d-10	76	(41 - 162)
Naphthalene-d8	49	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W124-091499

GC/MS Semivolatiles

Lot-Sample #...: D9I150143-010 **Work Order #...:** D2FVN101 **Matrix.....:** WATER
Date Sampled...: 09/14/99 14:30 **Date Received..:** 09/15/99
Prep Date.....: 09/16/99 **Analysis Date..:** 09/20/99
Prep Batch #...: 9259379 **Analysis Time..:** 16:09
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	**3.2 J**	**6.5**	**ng/L**
2-Methylnaphthalene	**2.9 J**	**3.9**	**ng/L**
Acenaphthene	ND	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	**9.0**	**1.3**	**ng/L**
Anthracene	**1.3 J**	**2.7**	**ng/L**
Carbazole	ND	1.9	ng/L
Fluoranthene	**3.7**	**3.1**	**ng/L**
Pyrene	**7.6**	**1.4**	**ng/L**
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	**2.8**	**2.8**	**ng/L**
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	52	(10 - 118)
Fluorene d-10	72	(41 - 162)
Naphthalene-d8	46	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

QC DATA ASSOCIATION SUMMARY

D9I150143

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WATER	SW846 8270A SIM		9259379	
002	WATER	SW846 8270A SIM		9259379	
003	WATER	SW846 8270A SIM		9259379	
004	WATER	SW846 8270A SIM		9259379	
005	WATER	SW846 8270A SIM		9259379	
006	WATER	SW846 8270A SIM		9259379	
007	WATER	SW846 8270A SIM		9259379	
008	WATER	SW846 8270A SIM		9259379	
009	WATER	SW846 8270A SIM		9259379	
010	WATER	SW846 8270A SIM		9259379	

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D9I150143 Work Order #...: D2JQG101 Matrix.....: WATER
MB Lot-Sample #: D9I160000-379

Prep Date.....: 09/16/99 Analysis Time..: 22:06
Analysis Date..: 09/18/99 Prep Batch #...: 9259379
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthylene	ND	1.4	ng/L	SW846 8270A SIM
Naphthalene	ND	6.5	ng/L	SW846 8270A SIM
2-Methylnaphthalene	ND	3.9	ng/L	SW846 8270A SIM
Acenaphthene	ND	1.3	ng/L	SW846 8270A SIM
Dibenzofuran	ND	1.0	ng/L	SW846 8270A SIM
Fluorene	ND	1.0	ng/L	SW846 8270A SIM
Phenanthrene	ND	1.3	ng/L	SW846 8270A SIM
Anthracene	ND	2.7	ng/L	SW846 8270A SIM
Carbazole	ND	1.9	ng/L	SW846 8270A SIM
Fluoranthene	ND	3.1	ng/L	SW846 8270A SIM
Pyrene	ND	1.4	ng/L	SW846 8270A SIM
Benzo(a)anthracene	ND	2.5	ng/L	SW846 8270A SIM
Chrysene	ND	2.8	ng/L	SW846 8270A SIM
Benzo(b)fluoranthene	ND	2.5	ng/L	SW846 8270A SIM
Benzo(k)fluoranthene	ND	2.3	ng/L	SW846 8270A SIM
Benzo(a)pyrene	ND	2.3	ng/L	SW846 8270A SIM
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L	SW846 8270A SIM
Benzo(ghi)perylene	ND	2.8	ng/L	SW846 8270A SIM
Indene	ND	0.90	ng/L	SW846 8270A SIM
1-Methylnaphthalene	ND	2.8	ng/L	SW846 8270A SIM
Benzo(e)pyrene	ND	1.9	ng/L	SW846 8270A SIM
Biphenyl	ND	4.3	ng/L	SW846 8270A SIM
Dibenz(a,h)anthracene	ND	1.6	ng/L	SW846 8270A SIM
Quinoline	ND	6.9	ng/L	SW846 8270A SIM
2,3-Benzofuran	ND	5.1	ng/L	SW846 8270A SIM
2,3-Dihydroindene	ND	5.0	ng/L	SW846 8270A SIM
Benzo(b)thiophene	ND	0.90	ng/L	SW846 8270A SIM
Indole	ND	2.5	ng/L	SW846 8270A SIM
Acridine	ND	6.1	ng/L	SW846 8270A SIM
Perylene	ND	2.5	ng/L	SW846 8270A SIM
Dibenzothiophene	ND	1.1	ng/L	SW846 8270A SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	88	(10 - 118)
Fluorene d-10	62	(41 - 162)
Naphthalene-d8	64	(21 - 108)

NOTE(S):

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

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D9I150143 Work Order #...: D2JQG102-LCS Matrix.....: WATER
LCS Lot-Sample#: D9I160000-379 D2JQG103-LCSD
Prep Date.....: 09/16/99 Analysis Date..: 10/15/99
Prep Batch #...: 9259379 Analysis Time..: 14:37
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Naphthalene	10.0	8.22	ng/L	82		SW846 8270A SIM
	10.0	8.86	ng/L	89	7.4	SW846 8270A SIM
2-Methylnaphthalene	10.0	7.89	ng/L	79		SW846 8270A SIM
	10.0	8.36	ng/L	84	5.7	SW846 8270A SIM
Fluorene	10.0	8.54	ng/L	85		SW846 8270A SIM
	10.0	7.26	ng/L	73	16	SW846 8270A SIM
Chrysene	10.0	3.92	ng/L	39		SW846 8270A SIM
	10.0	4.14	ng/L	41	5.3	SW846 8270A SIM
Indene	10.0	6.40	ng/L	64		SW846 8270A SIM
	10.0	7.33	ng/L	73	13	SW846 8270A SIM
Benzo(e)pyrene	10.0	4.92	ng/L	49		SW846 8270A SIM
	10.0	5.23	ng/L	52	6.2	SW846 8270A SIM
Quinoline	10.0	7.17	ng/L	72		SW846 8270A SIM
	10.0	3.92 p	ng/L	39	59	SW846 8270A SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	44	(10 - 118)
	45	(10 - 118)
Fluorene d-10	74	(41 - 162)
	66	(41 - 162)
Naphthalene-d8	68	(21 - 108)
	77	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

p Relative percent difference (RPD) is outside stated control limits.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D9I150143 **Work Order #...:** D2JQG102-LCS **Matrix.....:** WATER
LCS Lot-Sample#: D9I160000-379 D2JQG103-LCSD
Prep Date.....: 09/16/99 **Analysis Date..:** 10/15/99
Prep Batch #...: 9259379 **Analysis Time..:** 14:37
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Naphthalene	**82**	**(20 - 150)**			**SW846 8270A SIM**
	89	**(20 - 150)**	**7.4**	**(0-20)**	**SW846 8270A SIM**
2-Methylnaphthalene	**79**	**(20 - 150)**			**SW846 8270A SIM**
	84	**(20 - 150)**	**5.7**	**(0-20)**	**SW846 8270A SIM**
Fluorene	**85**	**(69 - 118)**			**SW846 8270A SIM**
	73	**(69 - 118)**	**16**	**(0-20)**	**SW846 8270A SIM**
Chrysene	**39**	**(20 - 132)**			**SW846 8270A SIM**
	41	**(20 - 132)**	**5.3**	**(0-20)**	**SW846 8270A SIM**
Indene	**64**	**(20 - 150)**			**SW846 8270A SIM**
	73	**(20 - 150)**	**13**	**(0-20)**	**SW846 8270A SIM**
Benzo(e)pyrene	**49**	**(20 - 150)**			**SW846 8270A SIM**
	52	**(20 - 150)**	**6.2**	**(0-20)**	**SW846 8270A SIM**
Quinoline	**72**	**(20 - 150)**			**SW846 8270A SIM**
	39 p	**(20 - 150)**	**59**	**(0-20)**	**SW846 8270A SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	44	(10 - 118)
	45	(10 - 118)
Fluorene d-10	74	(41 - 162)
	66	(41 - 162)
Naphthalene-d8	68	(21 - 108)
	77	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

p Relative percent difference (RPD) is outside stated control limits

Chain of Custody Record

Quanterra

QUA-4124

Client: CITY OF ST. LOUIS PARK UTILITY DIVISION 3752 WOODDALE AVENUE ST. LOUIS PARK, MN 55416	Project Manager: SCOTT ANDERSON	Date: 9-14-99	Chain Of Custody Number: 39662
Address	Telephone Number (Area Code)/Fax Number: 924-2557 (612) 924-2570	Lab Number: D9I150143	Page 1 of 1
City	Site Contact: SAME		
Project Name: SAME	Carrier/Waybill Number: FED EX 80084631530		
Contract/Purchase Order/Quote No			

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	PPT PAH 5
01 MSH-SLP12-091499	9/14/99		WATER	1 LITER	AMBER	6	N/A		X
02 MSH-SLP12D-091499	9/14/99		WATER	1 LITER	AMBER	6	N/A		X

Special Instructions: PPT 5

Possible Hazard Identification: [X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown

Sample Disposal: [ ] Return To Client [X] Disposal By Lab [ ] Archive For _____ Months

Turn Around Time Required: [ ] Normal [ ] Rush

QC Level: [ ] I. [ ] II. [ ] III.

Project Specific (Specify)

	Date	Time		Date	Time
1. Relinquished By: MZH	9-14-99	1400	1 Received By: [signature]	9/15/99	0845
2 Relinquished By			2 Received By		
3 Relinquished By			3 Received By		

Comments: Cooler 0002 1.1°C

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

Chain of Custody Record

Quanterra

QUA-4124

Client: CITY OF ST. LOUIS PARK UTILITY DIVISION	Project Manager: SCOTT ANDERSON	Date: 9-14-99	Chain Of Custody Number: 39661
Address: 3752 WOODDALE AVENUE	Telephone Number (Area Code)/Fax Number: 924-2557 (612) 924-2570	Lab Number: D9I150143	Page 1 of 1
City: ST. LOUIS PARK, MN 55416	Site Contact: SAME		
Project Name: SAME	Carrier/Waybill Number: FED EX 800846316530		
Contract/Purchase Order/Quote No			

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No	Preservative	Condition on Receipt	Analysis: PPT PAH 5
03 MSH-SLP12 FB -091499	9-14-99		WATER	1 LITER	AMBER	6	N/A		X
04 MSH-SLP12 FBD-091499	9-14-99		WATER	1 LITER	AMBER	6	N/A		X

Special Instructions: PPT 5

Possible Hazard Identification: [X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown

Sample Disposal: [ ] Return To Client [X] Disposal By Lab [ ] Archive For _____ Months

Turn Around Time Required: [ ] Normal [ ] Rush

QC Level: [ ] I. [ ] II. [ ] III.

Project Specific (Specify):

	Date	Time		Date	Time
1 Relinquished By: [signature]	9-14-99	1400	1 Received By: Kurt C. [signature]	9/15/99	08:30
2 Relinquished By			2 Received By		
3 Relinquished By			3 Received By		

Comments: Cooler # 0009 1.9°C

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

Chain of Custody Record

Quanterra

QUA-4124

Client: City of St. Louis Park	Project Manager: Bill Gregg	Date: 9/14/99	Chain Of Custody Number: 39615
Address: 3752 Wooddale Ave	Telephone Number (Area Code)/Fax Number: (612) 924-2557	Lab Number: DAI150143	Page 1 of 1
City: St. Louis Park; State: MN; Zip Code: 55416	Site Contact: Scott Anderson		
Project Name: Reilly	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.: 1620-013-400			

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: PPT-PAH (PPT-5)
05 DPV-W130-091499	9/14/99	8:00	WT	6 L	amber	6	none		X
06 DPV-W431-091499	↓	8:50	↓	↓	↓	↓	↓		X

Special Instructions

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

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Turn Around Time Required: ☒ Normal ☐ Rush

QC Level: ☐ I. ☐ II. ☐ III.

Project Specific (Specify):

	Date	Time		Date	Time
1. Relinquished By: Chris Boch	9/14/99	15:30	1. Received By: Kurt C. Jell	9/15/99	0845
2. Relinquished By:			2. Received By:		
3. Relinquished By:			3. Received By:		

Comments: Cooler 0006 1.7°C

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

Chain of Custody Record

Quanterra

QUA-4124

Client: City of St. Louis Park	Project Manager: Bill Gregg	Date: 9/14/99	Chain Of Custody Number: 39616
Address: 3752 Wooddale Ave	Telephone Number (Area Code)/Fax Number: (612) 924-2557	Lab Number: D9I150143	Page 1 of 1
City: St. Louis Park; State: MN; Zip Code: 55416	Site Contact: Scott Anderson		
Project Name: Reilly	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No: 1620-013-400			

Sample I.D No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: PPL-PAH (GC-MS)
DPV-W131-091499	9/14/99	10:10	WT	6 L	Amber	6	none		X
DPV-W128-091499	9/14/99	11:30	WT	6L	Amber	6	none		X

Special Instructions

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

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Turn Around Time Required: ☒ Normal ☐ Rush

QC Level: ☐ I. ☐ II. ☐ III.

Project Specific (Specify):

	Date	Time		Date	Time
1. Relinquished By: Chris Bock	9/14/99	15:30	1 Received By: Kurt C. Hill	9/15/99	0845
2. Relinquished By:			2 Received By:		
3 Relinquished By:			3 Received By:		

Comments: Cooler 0010 0.8°C

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

Chain of Custody Record

Quanterra

QUA-4124

Client: City of St. Louis Park	Project Manager: Bill Gregg	Date: 9/14/99	Chain Of Custody Number: 39620
Address: 3752 Wooddale Ave	Telephone Number (Area Code)/Fax Number: (612) 924-2557	Lab Number: DQI 150143	Page 1 of 1
City: St. Louis Park; State: MN; Zip Code: 55416	Site Contact: Scott Anderson		
Project Name: Reilly	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No: 1620-013-400			

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: TPT-PAH (APE-5)
-09 -08 DPV-W424-091499	9/14/99	12:45	WT	6L	Amber	6	none		X
-07 DPV-W124-091499 -10	↓	14:30	↓	↓	↓	↓	↓		X

Special Instructions:

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

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Turn Around Time Required: ☒ Normal ☐ Rush

QC Level: ☐ I. ☐ II. ☐ III.

Project Specific (Specify):

1 Relinquished By: Chris Bock	Date: 9/14/99	Time: 15:30	1 Received By: Kurt C. [illegible]	Date: 9/15/99	Time: 0845
2 Relinquished By:	Date:	Time:	2 Received By:	Date:	Time:
3 Relinquished By:	Date:	Time:	3 Received By:	Date:	Time:

Comments: Cooler 0013 2.3°C

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

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Advanced Analytical Services

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 467-9136 Fax

CASE NARRATIVE

FOR

City of St. Louis Park

October 22, 1999

Quanterra Environmental Services

Project Lot Number D9I210119

Introduction

Nine aqueous samples (including matrix QC) were received at Quanterra Environmental Services, Denver Laboratory on September 21, 1999. The samples were logged in under Quanterra Denver's project lot number D9I210119. A cross reference associating Quanterra Denver's laboratory sample numbers to the actual field sample number is included. The samples were analyzed for part per trillion (ppt75) PAHs.

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the October 1998 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 laboratory Id's D9I210119-001, -001MS/MSD, -002, -005 and -006T were analyzed at a dilution due to target analytes exceeding the linear range of the instrument. The reporting limits were raised accordingly. As a result of the dilution, the surrogate compounds were not detected and are reported as "NC".

The surrogate compound chrysene-d12 in sample D9I210119-003 was recovered at 151% which is above thd 10% to118% reporting limits. Chrysene-d12 was also recovered high in the method blank and laboratory control samples. An investigation is underway to determine the cause of the high recoveries. Chrysene was not detected above the reporting limit in any of the samples in this sample lot.

The spike compound chrysene in the laboratory control sample duplicate was recovered at 211% which is above the 21% to 132% reporting limits. As a result of this recovery the relative percent difference (RPD) for chrysene is 65%. This is above the 20% reporting limits. Chrysene was not detected above the reporting limit is any of the samples associated with these control samples.

The spike compound Benzo (e) pyrene in the laboratory control sample duplicate was recovered at 225% which is above the 20% to 150% reporting limits. As a result of this recovery the RPD for benzo (e) pyrene is 60%. This is above thd 20% reporting limits. Benzo (e) pyrene was not detected above the reporting limit is nay of the samples associated with these control samples.

The spike compound indene in the matrix spike and matrix spike duplicate samples is reported at 0%. Indene native to the sample was present at a concentration >25 times the spike amount added.

The relative percent difference for the spike compounds naphthalene and 2-methylnaphthalene in the matrix spike/matrix spike duplicate samples are reported at 22% and 21% respectively. This is above the 20% reporting limits. The RPDs for naphthalene and 2-methylnaphthalene are within reporting limits in the laboratory control samples. Matrix effects may be indicated.

The spike compound quinoline in the matrix spike and matrix spike duplicate samples was recovered at 356% and 354% respectively. This is above the 20% to 150% reporting limits. Quinoline was recovered within reporting limits in the laboratory control samples. A matrix effect is indicated.

Except for the above, this data package is in compliance with the terms and conditions of the October 1998 QPP both technically and for completeness.

Reported By: Kurt C Ill **Date:** October 22, 1999

Kurt C. Ill
Program Manager, AASG

EXECUTIVE SUMMARY - Detection Highlights

D9I210119

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
STP-W410-092099 09/20/99 12:00 001				
Acenaphthene	360	130	ng/L	SW846 8270A SIM
Carbazole	150 J	190	ng/L	SW846 8270A SIM
Indene	2200	90	ng/L	SW846 8270A SIM
1-Methylnaphthalene	470	280	ng/L	SW846 8270A SIM
2,3-Dihydroindene	4300	500	ng/L	SW846 8270A SIM
Benzo(b)thiophene	1300	90	ng/L	SW846 8270A SIM
STP-W410D-092099 09/20/99 12:00 002				
Acenaphthene	300	130	ng/L	SW846 8270A SIM
Carbazole	130 J	190	ng/L	SW846 8270A SIM
Indene	2000	90	ng/L	SW846 8270A SIM
1-Methylnaphthalene	380	280	ng/L	SW846 8270A SIM
2,3-Dihydroindene	4000	500	ng/L	SW846 8270A SIM
Benzo(b)thiophene	1200	90	ng/L	SW846 8270A SIM
STP-W410FB-092099 09/20/99 12:00 003				
Naphthalene	8.3	6.5	ng/L	SW846 8270A SIM
2-Methylnaphthalene	4.2	3.9	ng/L	SW846 8270A SIM
1-Methylnaphthalene	2.1 J	2.8	ng/L	SW846 8270A SIM
2,3-Dihydroindene	5.0	5.0	ng/L	SW846 8270A SIM
STP-W410FBD-092099 09/20/99 12:00 004				
Naphthalene	6.5	6.5	ng/L	SW846 8270A SIM
2-Methylnaphthalene	3.2 J	3.9	ng/L	SW846 8270A SIM
2,3-Dihydroindene	3.4 J	5.0	ng/L	SW846 8270A SIM
STP-W412-092099 09/20/99 07:50 005				
Acenaphthene	74	13	ng/L	SW846 8270A SIM
2,3-Dihydroindene	690	50	ng/L	SW846 8270A SIM
STP-W24-092099 09/20/99 08:45 006				
Benzo(b)thiophene	190	45	ng/L	SW846 8270A SIM
Acridine	3400	300	ng/L	SW846 8270A SIM

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

D9I210119

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
STP-W133-092099 09/20/99 10:15 007				
Naphthalene	31	6.5	ng/L	SW846 8270A SIM
2-Methylnaphthalene	14	3.9	ng/L	SW846 8270A SIM
Acenaphthene	11	1.3	ng/L	SW846 8270A SIM
Dibenzofuran	3.8	1.0	ng/L	SW846 8270A SIM
Fluorene	7.6	1.0	ng/L	SW846 8270A SIM
Phenanthrene	8.2	1.3	ng/L	SW846 8270A SIM
Carbazole	6.4	1.9	ng/L	SW846 8270A SIM
Fluoranthene	3.4	3.1	ng/L	SW846 8270A SIM
Indene	15	0.90	ng/L	SW846 8270A SIM
1-Methylnaphthalene	21	2.8	ng/L	SW846 8270A SIM
Biphenyl	3.1 J	4.3	ng/L	SW846 8270A SIM
2,3-Dihydroindene	34	5.0	ng/L	SW846 8270A SIM
Benzo(b)thiophene	11	0.90	ng/L	SW846 8270A SIM
Acridine	20	6.1	ng/L	SW846 8270A SIM

ANALYTICAL METHODS SUMMARY

D9I210119

PARAMETER	ANALYTICAL METHOD
Base/Neutrals and Acids	SW846 8270A SIM

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

METHOD / ANALYST SUMMARY

D9I210119

ANALYTICAL METHOD	ANALYST	ANALYST ID
SW846 8270A SIM	Monica R. Edwards	001685

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

D9I210119

WO #	SAMPLE#	CLIENT SAMPLE ID	DATE	TIME
D2NA3	001	STP-W410-092099	09/20/99	12:00
D2NA8	002	STP-W410D-092099	09/20/99	12:00
D2NAA	003	STP-W410FB-092099	09/20/99	12:00
D2NAC	004	STP-W410FBD-092099	09/20/99	12:00
D2NAE	005	STP-W412-092099	09/20/99	07:50
D2NAG	006	STP-W24-092099	09/20/99	08:45
D2NAH	007	STP-W133-092099	09/20/99	10:15

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

CITY OF ST. LOUIS PARK

Client Sample ID: STP-W410-092099

GC/MS Semivolatiles

Lot-Sample #...: D9I210119-001 Work Order #...: D2NA3101 Matrix.....: WATER
Date Sampled...: 09/20/99 12:00 Date Received..: 09/21/99
Prep Date.....: 09/22/99 Analysis Date..: 10/18/99
Prep Batch #...: 9265463 Analysis Time..: 19:07
Dilution Factor: 100

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	140	ng/L
Naphthalene	ND	650	ng/L
2-Methylnaphthalene	ND	390	ng/L
Acenaphthene	**360**	**130**	**ng/L**
Dibenzofuran	ND	100	ng/L
Fluorene	ND	100	ng/L
Phenanthrene	ND	130	ng/L
Anthracene	ND	270	ng/L
Carbazole	**150 J**	**190**	**ng/L**
Fluoranthene	ND	310	ng/L
Pyrene	ND	140	ng/L
Benzo(a)anthracene	ND	250	ng/L
Chrysene	ND	280	ng/L
Benzo(b)fluoranthene	ND	250	ng/L
Benzo(k)fluoranthene	ND	230	ng/L
Benzo(a)pyrene	ND	230	ng/L
Indeno(1,2,3-cd)pyrene	ND	210	ng/L
Benzo(ghi)perylene	ND	280	ng/L
Indene	**2200**	**90**	**ng/L**
1-Methylnaphthalene	**470**	**280**	**ng/L**
Benzo(e)pyrene	ND	190	ng/L
Biphenyl	ND	430	ng/L
Dibenz(a,h)anthracene	ND	160	ng/L
Quinoline	ND	690	ng/L
2,3-Benzofuran	ND	510	ng/L
2,3-Dihydroindene	**4300**	**500**	**ng/L**
Benzo(b)thiophene	**1300**	**90**	**ng/L**
Indole	ND	250	ng/L
Acridine	ND	610	ng/L
Perylene	ND	250	ng/L
Dibenzothiophene	ND	110	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC	(10 - 118)
Fluorene d-10	NC	(41 - 162)
Naphthalene-d8	NC	(21 - 108)

NOTE(S):

NC The recovery and/or RPD were not calculated

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: STP-W410D-092099

GC/MS Semivolatiles

Lot-Sample #...: D9I210119-002 Work Order #...: D2NA8101 Matrix.....: WATER
Date Sampled...: 09/20/99 12:00 Date Received..: 09/21/99
Prep Date.....: 09/22/99 Analysis Date..: 10/18/99
Prep Batch #...: 9265463 Analysis Time..: 20:57
Dilution Factor: 100

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	140	ng/L
Naphthalene	ND	650	ng/L
2-Methylnaphthalene	ND	390	ng/L
Acenaphthene	**300**	**130**	**ng/L**
Dibenzofuran	ND	100	ng/L
Fluorene	ND	100	ng/L
Phenanthrene	ND	130	ng/L
Anthracene	ND	270	ng/L
Carbazole	**130 J**	**190**	**ng/L**
Fluoranthene	ND	310	ng/L
Pyrene	ND	140	ng/L
Benzo(a)anthracene	ND	250	ng/L
Chrysene	ND	280	ng/L
Benzo(b)fluoranthene	ND	250	ng/L
Benzo(k)fluoranthene	ND	230	ng/L
Benzo(a)pyrene	ND	230	ng/L
Indeno(1,2,3-cd)pyrene	ND	210	ng/L
Benzo(ghi)perylene	ND	280	ng/L
Indene	**2000**	**90**	**ng/L**
1-Methylnaphthalene	**380**	**280**	**ng/L**
Benzo(e)pyrene	ND	190	ng/L
Biphenyl	ND	430	ng/L
Dibenz(a,h)anthracene	ND	160	ng/L
Quinoline	ND	690	ng/L
2,3-Benzofuran	ND	510	ng/L
2,3-Dihydroindene	**4000**	**500**	**ng/L**
Benzo(b)thiophene	**1200**	**90**	**ng/L**
Indole	ND	250	ng/L
Acridine	ND	610	ng/L
Perylene	ND	250	ng/L
Dibenzothiophene	ND	110	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC	(10 - 118)
Fluorene d-10	NC	(41 - 162)
Naphthalene-d8	NC	(21 - 108)

NOTE(S):

NC The recovery and/or RPD were not calculated.

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: STP-W410FB-092099

GC/MS Semivolatiles

Lot-Sample #...: D9I210119-003 Work Order #...: D2NAA101 Matrix.....: WATER
Date Sampled...: 09/20/99 12:00 Date Received..: 09/21/99
Prep Date.....: 09/22/99 Analysis Date..: 10/20/99
Prep Batch #...: 9265463 Analysis Time..: 12:32
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	**8.3**	**6.5**	**ng/L**
2-Methylnaphthalene	**4.2**	**3.9**	**ng/L**
Acenaphthene	ND	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	ND	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	ND	3.1	ng/L
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	**2.1 J**	**2.8**	**ng/L**
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	**5.0**	**5.0**	**ng/L**
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	151 *	(10 - 118)
Fluorene d-10	82	(41 - 162)
Naphthalene-d8	72	(21 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: STP-W410FBD-092099

GC/MS Semivolatiles

Lot-Sample #...: D9I210119-004 Work Order #...: D2NAC101 Matrix.....: WATER
Date Sampled...: 09/20/99 12:00 Date Received..: 09/21/99
Prep Date.....: 09/22/99 Analysis Date..: 10/18/99
Prep Batch #...: 9265463 Analysis Time..: 22:47
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	**6.5**	**6.5**	**ng/L**
2-Methylnaphthalene	**3.2 J**	**3.9**	**ng/L**
Acenaphthene	ND	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	ND	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	ND	3.1	ng/L
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	**3.4 J**	**5.0**	**ng/L**
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	116	(10 - 118)
Fluorene d-10	81	(41 - 162)
Naphthalene-d8	83	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: STP-W412-092099

GC/MS Semivolatiles

Lot-Sample #...: D9I210119-005 Work Order #...: D2NAE101 Matrix.....: WATER
Date Sampled...: 09/20/99 07:50 Date Received..: 09/21/99
Prep Date.....: 09/22/99 Analysis Date..: 10/20/99
Prep Batch #...: 9265463 Analysis Time..: 13:08
Dilution Factor: 10

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	14	ng/L
Naphthalene	ND	65	ng/L
2-Methylnaphthalene	ND	39	ng/L
Acenaphthene	**74**	**13**	**ng/L**
Dibenzofuran	ND	10	ng/L
Fluorene	ND	10	ng/L
Phenanthrene	ND	13	ng/L
Anthracene	ND	27	ng/L
Carbazole	ND	19	ng/L
Fluoranthene	ND	31	ng/L
Pyrene	ND	14	ng/L
Benzo(a)anthracene	ND	25	ng/L
Chrysene	ND	28	ng/L
Benzo(b)fluoranthene	ND	25	ng/L
Benzo(k)fluoranthene	ND	23	ng/L
Benzo(a)pyrene	ND	23	ng/L
Indeno(1,2,3-cd)pyrene	ND	21	ng/L
Benzo(ghi)perylene	ND	28	ng/L
Indene	ND	9.0	ng/L
1-Methylnaphthalene	ND	28	ng/L
Benzo(e)pyrene	ND	19	ng/L
Biphenyl	ND	43	ng/L
Dibenz(a,h)anthracene	ND	16	ng/L
Quinoline	ND	69	ng/L
2,3-Benzofuran	ND	51	ng/L
2,3-Dihydroindene	**690**	**50**	**ng/L**
Benzo(b)thiophene	ND	9.0	ng/L
Indole	ND	25	ng/L
Acridine	ND	61	ng/L
Perylene	ND	25	ng/L
Dibenzothiophene	ND	11	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC	(10 - 118)
Fluorene d-10	NC	(41 - 162)
Naphthalene-d8	NC	(21 - 108)

NOTE(S):

NC The recovery and/or RPD were not calculated.

CITY OF ST. LOUIS PARK

Client Sample ID: STP-W24-092099

GC/MS Semivolatiles

Lot-Sample #...: D9I210119-006 Work Order #...: D2NAG101 Matrix.....: WATER
Date Sampled...: 09/20/99 08:45 Date Received..: 09/21/99
Prep Date.....: 09/22/99 Analysis Date..: 10/20/99
Prep Batch #...: 9265463 Analysis Time..: 13:45
Dilution Factor: 50

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	70	ng/L
Naphthalene	ND	320	ng/L
2-Methylnaphthalene	ND	200	ng/L
Acenaphthene	ND	65	ng/L
Dibenzofuran	ND	50	ng/L
Fluorene	ND	50	ng/L
Phenanthrene	ND	65	ng/L
Anthracene	ND	140	ng/L
Carbazole	ND	95	ng/L
Fluoranthene	ND	160	ng/L
Pyrene	ND	70	ng/L
Benzo(a)anthracene	ND	120	ng/L
Chrysene	ND	140	ng/L
Benzo(b)fluoranthene	ND	120	ng/L
Benzo(k)fluoranthene	ND	120	ng/L
Benzo(a)pyrene	ND	120	ng/L
Indeno(1,2,3-cd)pyrene	ND	100	ng/L
Benzo(ghi)perylene	ND	140	ng/L
Indene	ND	45	ng/L
1-Methylnaphthalene	ND	140	ng/L
Benzo(e)pyrene	ND	95	ng/L
Biphenyl	ND	220	ng/L
Dibenz(a,h)anthracene	ND	80	ng/L
Quinoline	ND	340	ng/L
2,3-Benzofuran	ND	260	ng/L
2,3-Dihydroindene	ND	250	ng/L
Benzo(b)thiophene	**190**	**45**	**ng/L**
Indole	ND	120	ng/L
Acridine	**3400**	**300**	**ng/L**
Perylene	ND	120	ng/L
Dibenzothiophene	ND	55	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC	(10 - 118)
Fluorene d-10	NC	(41 - 162)
Naphthalene-d8	NC	(21 - 108)

NOTE(S):

NC The recovery and/or RPD were not calculated

CITY OF ST. LOUIS PARK

Client Sample ID: STP-W133-092099

GC/MS Semivolatiles

Lot-Sample #...: D9I210119-007 Work Order #...: D2NAH101 Matrix.....: WATER
Date Sampled...: 09/20/99 10:15 Date Received..: 09/21/99
Prep Date.....: 09/22/99 Analysis Date..: 10/20/99
Prep Batch #...: 9265463 Analysis Time..: 14:22
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	31	6.5	ng/L
2-Methylnaphthalene	14	3.9	ng/L
Acenaphthene	11	1.3	ng/L
Dibenzofuran	3.8	1.0	ng/L
Fluorene	7.6	1.0	ng/L
Phenanthrene	8.2	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	6.4	1.9	ng/L
Fluoranthene	3.4	3.1	ng/L
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	15	0.90	ng/L
1-Methylnaphthalene	21	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	3.1 J	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	34	5.0	ng/L
Benzo(b)thiophene	11	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	20	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	20	(10 - 118)
Fluorene d-10	79	(41 - 162)
Naphthalene-d8	51	(21 - 108)

NOTE(S):

J Estimated result Result is less than RL.

QC DATA ASSOCIATION SUMMARY

D9I210119

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WATER	SW846 8270A SIM		9265463	9265201
002	WATER	SW846 8270A SIM		9265463	9265201
003	WATER	SW846 8270A SIM		9265463	9265201
004	WATER	SW846 8270A SIM		9265463	9265201
005	WATER	SW846 8270A SIM		9265463	9265201
006	WATER	SW846 8270A SIM		9265463	9265201
007	WATER	SW846 8270A SIM		9265463	9265201

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D9I210119
MB Lot-Sample #: D9I220000-463
Work Order #...: D2QTC101
Matrix.....: WATER
Prep Date.....: 09/22/99
Analysis Time..: 10:42
Analysis Date..: 10/20/99
Prep Batch #...: 9265463
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthylene	ND	1.4	ng/L	SW846 8270A SIM
Naphthalene	ND	6.5	ng/L	SW846 8270A SIM
2-Methylnaphthalene	ND	3.9	ng/L	SW846 8270A SIM
Acenaphthene	ND	1.3	ng/L	SW846 8270A SIM
Dibenzofuran	ND	1.0	ng/L	SW846 8270A SIM
Fluorene	ND	1.0	ng/L	SW846 8270A SIM
Phenanthrene	ND	1.3	ng/L	SW846 8270A SIM
Anthracene	ND	2.7	ng/L	SW846 8270A SIM
Carbazole	ND	1.9	ng/L	SW846 8270A SIM
Fluoranthene	ND	3.1	ng/L	SW846 8270A SIM
Pyrene	ND	1.4	ng/L	SW846 8270A SIM
Benzo(a)anthracene	ND	2.5	ng/L	SW846 8270A SIM
Chrysene	ND	2.8	ng/L	SW846 8270A SIM
Benzo(b)fluoranthene	ND	2.5	ng/L	SW846 8270A SIM
Benzo(k)fluoranthene	ND	2.3	ng/L	SW846 8270A SIM
Benzo(a)pyrene	ND	2.3	ng/L	SW846 8270A SIM
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L	SW846 8270A SIM
Benzo(ghi)perylene	ND	2.8	ng/L	SW846 8270A SIM
Indene	ND	0.90	ng/L	SW846 8270A SIM
1-Methylnaphthalene	ND	2.8	ng/L	SW846 8270A SIM
Benzo(e)pyrene	ND	1.9	ng/L	SW846 8270A SIM
Biphenyl	ND	4.3	ng/L	SW846 8270A SIM
Dibenz(a,h)anthracene	ND	1.6	ng/L	SW846 8270A SIM
Quinoline	ND	6.9	ng/L	SW846 8270A SIM
2,3-Benzofuran	ND	5.1	ng/L	SW846 8270A SIM
2,3-Dihydroindene	ND	5.0	ng/L	SW846 8270A SIM
Benzo(b)thiophene	ND	0.90	ng/L	SW846 8270A SIM
Indole	ND	2.5	ng/L	SW846 8270A SIM
Acridine	ND	6.1	ng/L	SW846 8270A SIM
Perylene	ND	2.5	ng/L	SW846 8270A SIM
Dibenzothiophene	ND	1.1	ng/L	SW846 8270A SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	136 *	(10 - 118)
Fluorene d-10	79	(41 - 162)
Naphthalene-d8	66	(21 - 108)

NOTE(S):

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

* Surrogate recovery is outside stated control limits

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D9I210119 Work Order #...: D2QTC102-LCS Matrix.....: WATER
LCS Lot-Sample#: D9I220000-463 D2QTC103-LCSD
Prep Date.....: 09/22/99 Analysis Date..: 10/21/99
Prep Batch #...: 9265463 Analysis Time..: 12:46
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Naphthalene	75.0	68.6	ng/L	92		SW846 8270A SIM
	75.0	70.3	ng/L	94	2.4	SW846 8270A SIM
2-Methylnaphthalene	75.0	70.4	ng/L	94		SW846 8270A SIM
	75.0	73.1	ng/L	97	3.7	SW846 8270A SIM
Fluorene	75.0	75.3	ng/L	100		SW846 8270A SIM
	75.0	77.7	ng/L	104	3.2	SW846 8270A SIM
Chrysene	75.0	80.6	ng/L	107		SW846 8270A SIM
	75.0	158 a,p	ng/L	211	65	SW846 8270A SIM
Indene	75.0	66.0	ng/L	88		SW846 8270A SIM
	75.0	55.5	ng/L	74	17	SW846 8270A SIM
Benzo(e)pyrene	75.0	91.1	ng/L	121		SW846 8270A SIM
	75.0	169 a,p	ng/L	225	60	SW846 8270A SIM
Quinoline	75.0	70.6	ng/L	94		SW846 8270A SIM
	75.0	80.7	ng/L	108	13	SW846 8270A SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	117	(10 - 118)
	237 *	(10 - 118)
Fluorene d-10	95	(41 - 162)
	101	(41 - 162)
Naphthalene-d8	92	(21 - 108)
	98	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

* Surrogate recovery is outside stated control limits.

a Spiked analyte recovery is outside stated control limits

p Relanve percent difference (RPD) is outside stated control limits.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D9I210119 **Work Order #...:** D2QTC102-LCS **Matrix.....:** WATER
LCS Lot-Sample#: D9I220000-463 D2QTC103-LCSD
Prep Date.....: 09/22/99 **Analysis Date..:** 10/21/99
Prep Batch #...: 9265463 **Analysis Time..:** 12:46
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Naphthalene	**92**	**(20 - 150)**			**SW846 8270A SIM**
	94	**(20 - 150)**	**2.4**	**(0-20)**	**SW846 8270A SIM**
2-Methylnaphthalene	**94**	**(20 - 150)**			**SW846 8270A SIM**
	97	**(20 - 150)**	**3.7**	**(0-20)**	**SW846 8270A SIM**
Fluorene	**100**	**(69 - 118)**			**SW846 8270A SIM**
	104	**(69 - 118)**	**3.2**	**(0-20)**	**SW846 8270A SIM**
Chrysene	**107**	**(20 - 132)**		-	**SW846 8270A SIM**
	211 a,p	**(20 - 132)**	**65**	**(0-20)**	**SW846 8270A SIM**
Indene	**88**	**(20 - 150)**			**SW846 8270A SIM**
	74	**(20 - 150)**	**17**	**(0-20)**	**SW846 8270A SIM**
Benzo(e)pyrene	**121**	**(20 - 150)**			**SW846 8270A SIM**
	225 a,p	**(20 - 150)**	**60**	**(0-20)**	**SW846 8270A SIM**
Quinoline	**94**	**(20 - 150)**			**SW846 8270A SIM**
	108	**(20 - 150)**	**13**	**(0-20)**	**SW846 8270A SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	117	(10 - 118)
	237 *	(10 - 118)
Fluorene d-10	95	(41 - 162)
	101	(41 - 162)
Naphthalene-d8	92	(21 - 108)
	98	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

* Surrogate recovery is outside stated control limits

a Spiked analyte recovery is outside stated control limits

p Relative percent difference (RPD) is outside stated control limits

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D9I210119 Work Order #...: D2NA3102-MS Matrix.....: WATER
MS Lot-Sample #: D9I210119-001 D2NA3103-MSD
Date Sampled...: 09/20/99 12:00 Date Received..: 09/21/99
Prep Date.....: 09/22/99 Analysis Date..: 10/21/99
Prep Batch #...: 9265463 Analysis Time..: 13:59
Dilution Factor: 100

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Naphthalene	ND	77.0		ng/L	62		SW846 8270A SIM
	ND	77.0	p	ng/L	25	22	SW846 8270A SIM
2-Methylnaphthalene	ND	77.0		ng/L	105		SW846 8270A SIM
	ND	77.0	p	ng/L	85	21	SW846 8270A SIM
Fluorene	ND	77.0		ng/L	90		SW846 8270A SIM
	ND	77.0		ng/L	77	15	SW846 8270A SIM
Chrysene	ND	77.0		ng/L	63		SW846 8270A SIM
	ND	77.0		ng/L	53	19	SW846 8270A SIM
Indene	2200	77.0	1870 a	ng/L	0.0		SW846 8270A SIM
	2200	77.0	1450 a	ng/L	0.0	0.0	SW846 8270A SIM
Benzo(e)pyrene	ND	77.0		ng/L	39		SW846 8270A SIM
	ND	77.0		ng/L	37	5.9	SW846 8270A SIM
Quinoline	ND	77.0	a	ng/L	356		SW846 8270A SIM
	ND	77.0	a	ng/L	354	0.69	SW846 8270A SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC	(10 - 118)
	NC	(10 - 118)
Fluorene d-10	NC	(41 - 162)
	NC	(41 - 162)
Naphthalene-d8	NC	(21 - 108)
	NC	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

NC The recovery and/or RPD were not calculated.

p Relative percent difference (RPD) is outside stated control limits.

a Spiked analyte recovery is outside stated control limits

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D9I210119 **Work Order #...:** D2NA3102-MS **Matrix.....:** WATER
MS Lot-Sample #: D9I210119-001 D2NA3103-MSD
Date Sampled...: 09/20/99 12:00 **Date Received..:** 09/21/99
Prep Date.....: 09/22/99 **Analysis Date..:** 10/21/99
Prep Batch #...: 9265463 **Analysis Time..:** 13:59
Dilution Factor: 100

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Naphthalene	**62**	**(20 - 150)**			**SW846 8270A SIM**
	25 p	**(20 - 150)**	**22**	**(0-20)**	**SW846 8270A SIM**
2-Methylnaphthalene	**105**	**(20 - 150)**			**SW846 8270A SIM**
	85 p	**(20 - 150)**	**21**	**(0-20)**	**SW846 8270A SIM**
Fluorene	**90**	**(69 - 118)**			**SW846 8270A SIM**
	77	**(69 - 118)**	**15**	**(0-20)**	**SW846 8270A SIM**
Chrysene	**63**	**(20 - 132)**			**SW846 8270A SIM**
	53	**(20 - 132)**	**19**	**(0-20)**	**SW846 8270A SIM**
Indene	**0.0 a**	**(20 - 150)**			**SW846 8270A SIM**
	0.0 a	**(20 - 150)**	**0.0**	**(0-20)**	**SW846 8270A SIM**
Benzo(e)pyrene	**39**	**(20 - 150)**			**SW846 8270A SIM**
	37	**(20 - 150)**	**5.9**	**(0-20)**	**SW846 8270A SIM**
Quinoline	**356 a**	**(20 - 150)**			**SW846 8270A SIM**
	354 a	**(20 - 150)**	**0.69**	**(0-20)**	**SW846 8270A SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC	(10 - 118)
	NC	(10 - 118)
Fluorene d-10	NC	(41 - 162)
	NC	(41 - 162)
Naphthalene-d8	NC	(21 - 108)
	NC	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

NC The recovery and/or RPD were not calculated

p Relative percent difference (RPD) is outside stated control limits

a Spiked analyte recovery is outside stated control limits

[redacted]

Chain of Custody Record

Quanterra

QUA-4124 0797

Client: CITY OF ST. LOUIS PARK UTILITY DIVISION 3752 WOODDALE AVENUE ST. LOUIS PARK, MN 55416	Project Manager: SCOTT ANDERSON	Date: 9-20-99	Chain of Custody Number: 23534
Address	Telephone Number (Area Code)/Fax Number: 924-2557 (612) 9242570	Lab Number: D9I210119	Page ____ of ____
City	Site Contact: SAME	Lab Contact:	
Project Name: SAME	Carrier/Waybill Number: FED EX		
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	Sed	Soil		Containers & Preservatives: Unpres	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	W/A	PPT PAH											Special Instructions/ Conditions of Receipt
.01	STP-W410-092099	9-20-99		X										6	X											PPT 75
.02	STP-W410D-092099	9-20-99		X										6	X											PPT 75

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: MZ [signature]	9-20-99	1400	1. Received By: Monica R. Edwards	9/21/99	0845
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments: Cooler temp -2.5°C Cap not on one bottle STP-W410-092099:

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

50% [illegible]

Chain of Custody Record

Quanterra

QUA-4124 0797

Client: CITY OF ST. LOUIS PARK UTILITY DIVISION	Project Manager: SCOTT ANDERSON	Date: 9-20-99	Chain of Custody Number: 23536
Address: 3752 WOODDALE AVENUE	Telephone Number (Area Code)/Fax Number: 924-2557 (612) 924-2570	Lab Number: D9I210119	Page ____ of ____
City: ST. LOUIS PARK, MN 55416	Site Contact: SAME	Lab Contact:	
Project Name: SAME	Carrier/Waybill Number: FED EX		
Contract/Purchase Order/Quote No:			

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	N/A	PPL PAH 75											Special Instructions/ Conditions of Receipt
01MS STP-W410MS-092099	9-20-99		X										6	X											PPL 75
01SD STP-W410MSD-092099	9-20-99		X										6	X											PPL 75

Analysis (Attach list if more space is needed)

Matrix / Containers & Preservatives

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: [signature]	9-20-99	1400	1. Received By: Monica R. Edwards	9/21/99	0845
2. Relinquished By:			2. Received By:		
3. Relinquished By:			3. Received By:		

Comments: Cooler temp. = 2.6°

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

Chain of Custody Record

Quanterra

QUA-4124 0797

Client: CITY OF ST. LOUIS PARK UTILITY DIVISION	Project Manager: SCOTT ANDERSON	Date: 9-20-99	Chain of Custody Number: 23535
Address: 3752 WOODDALE AVENUE	Telephone Number (Area Code)/Fax Number: 924-2557 (612) 924-2570	Lab Number: D9I216119	Page ____ of ____
City: ST. LOUIS PARK, MN 55416	Site Contact: SAME	Lab Contact:	
Project Name: SAME	Carrier/Waybill Number: FED EX		
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): PPL PAH 75	Special Instructions/ Conditions of Receipt
STP-W410FB-092099	9-20-99		X										6	X	PPL 75
STP-W410FBD-092099	9-20-99		X										6	X	PPL 75

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: [signature]	Date: 9-20-99	Time:	1. Received By: Monica R. Edwards	Date: 9/21/99	Time: 0845
2. Relinquished By:	Date:	Time:	2. Received By:	Date:	Time:
3. Relinquished By:	Date:	Time:	3. Received By:	Date:	Time:

Comments: Cooler temp = 3.6°C

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

Chain of Custody Record

Quanterra

QUA-4124

Client: City of St. Louis Park	Project Manager: Bill Gregg	Date: 9/20/99	Chain Of Custody Number: 39619
Address: 3752 Wooddale Ave	Telephone Number (Area Code)/Fax Number: (612) 924-2557	Lab Number: D9I210119	Page 1 of 1
City: St. Louis Park; State: MN; Zip Code: 55416	Site Contact: Scott Anderson		
Project Name: Reilly	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No: 1620-013-400			

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: PPT-PAH-75
05 STP-W412-092099	9/20/99	7:50	Amber	6L	1L	6	none		X
06 STP-W24-092099	↓	8:45	↓	↓	↓	↓	↓		X

Special Instructions:

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

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Turn Around Time Required: ☒ Normal ☐ Rush

QC Level: ☐ I. ☐ II. ☐ III.

Project Specific (Specify):

	Date	Time		Date	Time
1 Relinquished By: Chris Boehm	9/20/99	13:00	1 Received By: Monica L Edwards	9/21/99	0845
2 Relinquished By:			2 Received By:		
3 Relinquished By:			3 Received By:		

Comments: Cooler temp. - 0.8°C

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

Chain of Custody Record

Quanterra

QUA-4124

Client	Project Manager	Date	Chain Of Custody Number
City of St. Louis Park	Bill Gregg	9/20/99	39617
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	
3752 Wooddale Ave	(612) 924-2557	DAT210119	Page 1 of 1
City / State / Zip Code	**Site Contact**		
St Louis Park / MN / 55416	Scott Anderson		
Project Name	**Carrier/Waybill Number**		
Reilly			
Contract/Purchase Order/Quote No.			
1620-013-400			

Sample I D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: PPT-PAH-75
STP-W133-092099	9/20/99	10:15	(CB) ~~Amber WT~~	6L	Amber	6	none		X

Special Instructions

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

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Turn Around Time Required: ☒ Normal ☐ Rush

QC Level: ☐ I. ☐ II. ☐ III.

Project Specific (Specify)

	Date	Time		Date	Time
1 Relinquished By: Chris Bach	9/20/99	13:00	1 Received By: Monica R. Edwards	9/21/99	0845
2 Relinquished By			2 Received By		
3 Relinquished By			3 Received By		

Comments: Cooler Temp = 3.4°C One bottle received broken

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

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Advanced Analytical Services

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 467-9136 Fax

CASE NARRATIVE

FOR

City of St. Louis Park

October 22, 1999

Quanterra Environmental Services

Project Lot Number D9I220131

Introduction

Nine aqueous samples (including matrix QC) were received at Quanterra Environmental Services, Denver Laboratory on September 22, 1999. The samples were logged in under Quanterra Denver's project lot number D9I220131. A cross reference associating Quanterra Denver's laboratory sample numbers to the actual field sample number is included. The samples were analyzed for part per trillion (ppt75) PAHs.

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the October 1998 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 laboratory Id's D9I220131-001, -001MS/MSD, -002 and –005 through -009 were analyzed at a dilution due to target analytes exceeding the linear range of the instrument. The reporting limits were raised accordingly. As a result of the dilution, the surrogate compounds were not detected and are reported as "NC".

The relative percent difference (RPD) for the spike compound chrysene in the laboratory control samples is reported at 21%. This is above the 20% reporting limit. Chrysene is not present above the reporting limit in any of the samples associated with these control samples.

The relative percent difference (RPD) for the spike compound benzo (e) pyrene in the laboratory control samples is reported at 27%. This is above the 20% reporting limit. Benzo (e) pyrene is not present above the reporting limit in any of the samples associated with these control samples.

The surrogate compound chrysene-d12 was recovered at 156% and 127% in the laboratory control samples. This is above the 10% to 118% reporting limits. Chrysene-d12 was recovered within limits for the field blanks and method blanks. An investigation is underway to determine the root cause of the high results.

Except for the above, this data package is in compliance with the terms and conditions of the October 1998 QPP both technically and for completeness.

Reported By: Kurt C. Ill **Date:** October 22, 1999

Kurt C. Ill
Program Manager, AASG

EXECUTIVE SUMMARY - Detection Highlights

D9I220131

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
DPV-W22-092199 09/21/99 13:20 001				
Naphthalene	9300	650	ng/L	SW846 8270A SIM
Indene	2600	90	ng/L	SW846 8270A SIM
2,3-Benzofuran	1800	510	ng/L	SW846 8270A SIM
2,3-Dihydroindene	2000	500	ng/L	SW846 8270A SIM
Benzo(b)thiophene	1300	90	ng/L	SW846 8270A SIM
DPV-W22D-092199 09/21/99 13:20 002				
Naphthalene	13000	650	ng/L	SW846 8270A SIM
Indene	3800	90	ng/L	SW846 8270A SIM
2,3-Benzofuran	2700	510	ng/L	SW846 8270A SIM
2,3-Dihydroindene	2900	500	ng/L	SW846 8270A SIM
Benzo(b)thiophene	1900	90	ng/L	SW846 8270A SIM
DPV-W22FBD-092199 09/21/99 14:10 004				
Naphthalene	2.9 J	6.5	ng/L	SW846 8270A SIM
DPV-W432-092199 09/21/99 10:00 005				
Naphthalene	1700	650	ng/L	SW846 8270A SIM
Indene	2400	90	ng/L	SW846 8270A SIM
2,3-Dihydroindene	5200	500	ng/L	SW846 8270A SIM
Benzo(b)thiophene	2300	90	ng/L	SW846 8270A SIM
DPV-W101-092199 09/21/99 10:50 006				
2,3-Dihydroindene	20000	2500	ng/L	SW846 8270A SIM
Benzo(b)thiophene	4200	450	ng/L	SW846 8270A SIM
STP-W33-092199 09/21/99 12:20 007				
Naphthalene	31 J	65	ng/L	SW846 8270A SIM
Acenaphthene	110	13	ng/L	SW846 8270A SIM
Phenanthrene	20	13	ng/L	SW846 8270A SIM
Carbazole	100	19	ng/L	SW846 8270A SIM
Indene	84	9.0	ng/L	SW846 8270A SIM
2,3-Dihydroindene	810	50	ng/L	SW846 8270A SIM
Benzo(b)thiophene	200	9.0	ng/L	SW846 8270A SIM

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

D9I220131

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
DPV-W120-092199 09/21/99 07:40 008				
Acenaphthene	57	26	ng/L	SW846 8270A SIM
Carbazole	99	38	ng/L	SW846 8270A SIM
Indene	57	18	ng/L	SW846 8270A SIM
2,3-Dihydroindene	620	100	ng/L	SW846 8270A SIM
Benzo(b)thiophene	250	18	ng/L	SW846 8270A SIM
Indole	73	50	ng/L	SW846 8270A SIM
Acridine	1100	120	ng/L	SW846 8270A SIM
DPV-W433-092199 09/21/99 09:20 009				
Indene	59	18	ng/L	SW846 8270A SIM
2,3-Dihydroindene	700	100	ng/L	SW846 8270A SIM
Benzo(b)thiophene	250	18	ng/L	SW846 8270A SIM
Acridine	42 J	120	ng/L	SW846 8270A SIM

ANALYTICAL METHODS SUMMARY

D9I220131

PARAMETER	ANALYTICAL METHOD
Base/Neutrals and Acids	SW846 8270A SIM

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

METHOD / ANALYST SUMMARY

D9I220131

ANALYTICAL METHOD	ANALYST	ANALYST ID
SW846 8270A SIM	Monica R. Edwards	001685

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

D9I220131

WO #	SAMPLE#	CLIENT SAMPLE ID	DATE	TIME
D2PNQ	001	DPV-W22-092199	09/21/99	13:20
D2PP1	002	DPV-W22D-092199	09/21/99	13:20
D2PP2	003	DPV-W22FB-092199	09/21/99	14:10
D2PP4	004	DPV-W22FBD-092199	09/21/99	14:10
D2PP6	005	DPV-W432-092199	09/21/99	10:00
D2PP8	006	DPV-W101-092199	09/21/99	10:50
D2PP9	007	STP-W33-092199	09/21/99	12:20
D2PPA	008	DPV-W120-092199	09/21/99	07:40
D2PPF	009	DPV-W433-092199	09/21/99	09:20

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W22-092199

GC/MS Semivolatiles

Lot-Sample #...: D9I220131-001 Work Order #...: D2PNQ101 Matrix.....: WATER
Date Sampled...: 09/21/99 13:20 Date Received..: 09/22/99
Prep Date.....: 09/24/99 Analysis Date..: 10/20/99
Prep Batch #...: 9267337 Analysis Time..: 18:23
Dilution Factor: 100

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	140	ng/L
Naphthalene	**9300**	**650**	**ng/L**
2-Methylnaphthalene	ND	390	ng/L
Acenaphthene	ND	130	ng/L
Dibenzofuran	ND	100	ng/L
Fluorene	ND	100	ng/L
Phenanthrene	ND	130	ng/L
Anthracene	ND	270	ng/L
Carbazole	ND	190	ng/L
Fluoranthene	ND	310	ng/L
Pyrene	ND	140	ng/L
Benzo(a)anthracene	ND	250	ng/L
Chrysene	ND	280	ng/L
Benzo(b)fluoranthene	ND	250	ng/L
Benzo(k)fluoranthene	ND	230	ng/L
Benzo(a)pyrene	ND	230	ng/L
Indeno(1,2,3-cd)pyrene	ND	210	ng/L
Benzo(ghi)perylene	ND	280	ng/L
Indene	**2600**	**90**	**ng/L**
1-Methylnaphthalene	ND	280	ng/L
Benzo(e)pyrene	ND	190	ng/L
Biphenyl	ND	430	ng/L
Dibenz(a,h)anthracene	ND	160	ng/L
Quinoline	ND	690	ng/L
2,3-Benzofuran	**1800**	**510**	**ng/L**
2,3-Dihydroindene	**2000**	**500**	**ng/L**
Benzo(b)thiophene	**1300**	**90**	**ng/L**
Indole	ND	250	ng/L
Acridine	ND	610	ng/L
Perylene	ND	250	ng/L
Dibenzothiophene	ND	110	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC	(10 - 118)
Fluorene d-10	NC	(41 - 162)
Naphthalene-d8	NC	(21 - 108)

NOTE(S):

NC The recovery and/or RPD were not calculated.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W22D-092199

GC/MS Semivolatiles

Lot-Sample #...: D9I220131-002 Work Order #...: D2PP1101 Matrix.....: WATER
Date Sampled...: 09/21/99 13:20 Date Received..: 09/22/99
Prep Date.....: 09/24/99 Analysis Date..: 10/19/99
Prep Batch #...: 9267337 Analysis Time..: 03:41
Dilution Factor: 100

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	140	ng/L
Naphthalene	**13000**	**650**	**ng/L**
2-Methylnaphthalene	ND	390	ng/L
Acenaphthene	ND	130	ng/L
Dibenzofuran	ND	100	ng/L
Fluorene	ND	100	ng/L
Phenanthrene	ND	130	ng/L
Anthracene	ND	270	ng/L
Carbazole	ND	190	ng/L
Fluoranthene	ND	310	ng/L
Pyrene	ND	140	ng/L
Benzo(a)anthracene	ND	250	ng/L
Chrysene	ND	280	ng/L
Benzo(b)fluoranthene	ND	250	ng/L
Benzo(k)fluoranthene	ND	230	ng/L
Benzo(a)pyrene	ND	230	ng/L
Indeno(1,2,3-cd)pyrene	ND	210	ng/L
Benzo(ghi)perylene	ND	280	ng/L
Indene	**3800**	**90**	**ng/L**
1-Methylnaphthalene	ND	280	ng/L
Benzo(e)pyrene	ND	190	ng/L
Biphenyl	ND	430	ng/L
Dibenz(a,h)anthracene	ND	160	ng/L
Quinoline	ND	690	ng/L
2,3-Benzofuran	**2700**	**510**	**ng/L**
2,3-Dihydroindene	**2900**	**500**	**ng/L**
Benzo(b)thiophene	**1900**	**90**	**ng/L**
Indole	ND	250	ng/L
Acridine	ND	610	ng/L
Perylene	ND	250	ng/L
Dibenzothiophene	ND	110	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC	(10 - 118)
Fluorene d-10	NC	(41 - 162)
Naphthalene-d8	NC	(21 - 108)

NOTE(S):

NC The recovery and/or RPD were not calculated.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W22FB-092199

GC/MS Semivolatiles

Lot-Sample #...: D9I220131-003 Work Order #...: D2PP2101 Matrix.....: WATER
Date Sampled...: 09/21/99 14:10 Date Received..: 09/22/99
Prep Date.....: 09/24/99 Analysis Date..: 10/19/99
Prep Batch #...: 9267337 Analysis Time..: 04:18
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	ND	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	ND	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	ND	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	ND	3.1	ng/L
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	60	(10 - 118)
Fluorene d-10	50	(41 - 162)
Naphthalene-d8	51	(21 - 108)

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W22FBD-092199

GC/MS Semivolatiles

Lot-Sample #...: D9I220131-004 Work Order #...: D2PP4101 Matrix.....: WATER
Date Sampled...: 09/21/99 14:10 Date Received..: 09/22/99
Prep Date.....: 09/24/99 Analysis Date..: 10/19/99
Prep Batch #...: 9267337 Analysis Time..: 04:55
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	1.4	ng/L
Naphthalene	2.9 J	6.5	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Acenaphthene	ND	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Phenanthrene	ND	1.3	ng/L
Anthracene	ND	2.7	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	ND	3.1	ng/L
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	96	(10 - 118)
Fluorene d-10	82	(41 - 162)
Naphthalene-d8	84	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W432-092199

GC/MS Semivolatiles

Lot-Sample #...: D9I220131-005 Work Order #...: D2PP6101 Matrix.....: WATER
Date Sampled...: 09/21/99 10:00 Date Received..: 09/22/99
Prep Date.....: 09/24/99 Analysis Date..: 10/19/99
Prep Batch #...: 9267337 Analysis Time..: 05:31
Dilution Factor: 100

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	140	ng/L
Naphthalene	**1700**	**650**	**ng/L**
2-Methylnaphthalene	ND	390	ng/L
Acenaphthene	ND	130	ng/L
Dibenzofuran	ND	100	ng/L
Fluorene	ND	100	ng/L
Phenanthrene	ND	130	ng/L
Anthracene	ND	270	ng/L
Carbazole	ND	190	ng/L
Fluoranthene	ND	310	ng/L
Pyrene	ND	140	ng/L
Benzo(a)anthracene	ND	250	ng/L
Chrysene	ND	280	ng/L
Benzo(b)fluoranthene	ND	250	ng/L
Benzo(k)fluoranthene	ND	230	ng/L
Benzo(a)pyrene	ND	230	ng/L
Indeno(1,2,3-cd)pyrene	ND	210	ng/L
Benzo(ghi)perylene	ND	280	ng/L
Indene	**2400**	**90**	**ng/L**
1-Methylnaphthalene	ND	280	ng/L
Benzo(e)pyrene	ND	190	ng/L
Biphenyl	ND	430	ng/L
Dibenz(a,h)anthracene	ND	160	ng/L
Quinoline	ND	690	ng/L
2,3-Benzofuran	ND	510	ng/L
2,3-Dihydroindene	**5200**	**500**	**ng/L**
Benzo(b)thiophene	**2300**	**90**	**ng/L**
Indole	ND	250	ng/L
Acridine	ND	610	ng/L
Perylene	ND	250	ng/L
Dibenzothiophene	ND	110	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC	(10 - 118)
Fluorene d-10	NC	(41 - 162)
Naphthalene-d8	NC	(21 - 108)

NOTE(S):

NC The recovery and/or RPD were not calculated.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W101-092199

GC/MS Semivolatiles

Lot-Sample #...: D9I220131-006 Work Order #...: D2PP8101 Matrix.....: WATER
Date Sampled...: 09/21/99 10:50 Date Received..: 09/22/99
Prep Date.....: 09/24/99 Analysis Date..: 10/19/99
Prep Batch #...: 9267337 Analysis Time..: 06:44
Dilution Factor: 500

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	700	ng/L
Naphthalene	ND	3200	ng/L
2-Methylnaphthalene	ND	2000	ng/L
Acenaphthene	ND	650	ng/L
Dibenzofuran	ND	500	ng/L
Fluorene	ND	500	ng/L
Phenanthrene	ND	650	ng/L
Anthracene	ND	1400	ng/L
Carbazole	ND	950	ng/L
Fluoranthene	ND	1600	ng/L
Pyrene	ND	700	ng/L
Benzo(a)anthracene	ND	1200	ng/L
Chrysene	ND	1400	ng/L
Benzo(b)fluoranthene	ND	1200	ng/L
Benzo(k)fluoranthene	ND	1200	ng/L
Benzo(a)pyrene	ND	1200	ng/L
Indeno(1,2,3-cd)pyrene	ND	1000	ng/L
Benzo(ghi)perylene	ND	1400	ng/L
Indene	ND	450	ng/L
1-Methylnaphthalene	ND	1400	ng/L
Benzo(e)pyrene	ND	950	ng/L
Biphenyl	ND	2200	ng/L
Dibenz(a,h)anthracene	ND	800	ng/L
Quinoline	ND	3400	ng/L
2,3-Benzofuran	ND	2600	ng/L
2,3-Dihydroindene	**20000**	**2500**	**ng/L**
Benzo(b)thiophene	**4200**	**450**	**ng/L**
Indole	ND	1200	ng/L
Acridine	ND	3000	ng/L
Perylene	ND	1200	ng/L
Dibenzothiophene	ND	550	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC	(10 - 118)
Fluorene d-10	NC	(41 - 162)
Naphthalene-d8	NC	(21 - 108)

NOTE(S):

NC The recovery and/or RPD were not calculated

CITY OF ST. LOUIS PARK

Client Sample ID: STP-W33-092199

GC/MS Semivolatiles

Lot-Sample #...: D9I220131-007 Work Order #...: D2PP9101 Matrix.....: WATER
Date Sampled...: 09/21/99 12:20 Date Received..: 09/22/99
Prep Date.....: 09/24/99 Analysis Date..: 10/20/99
Prep Batch #...: 9267337 Analysis Time..: 19:00
Dilution Factor: 10

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	14	ng/L
Naphthalene	**31 J**	**65**	**ng/L**
2-Methylnaphthalene	ND	39	ng/L
Acenaphthene	**110**	**13**	**ng/L**
Dibenzofuran	ND	10	ng/L
Fluorene	ND	10	ng/L
Phenanthrene	**20**	**13**	**ng/L**
Anthracene	ND	27	ng/L
Carbazole	**100**	**19**	**ng/L**
Fluoranthene	ND	31	ng/L
Pyrene	ND	14	ng/L
Benzo(a)anthracene	ND	25	ng/L
Chrysene	ND	28	ng/L
Benzo(b)fluoranthene	ND	25	ng/L
Benzo(k)fluoranthene	ND	23	ng/L
Benzo(a)pyrene	ND	23	ng/L
Indeno(1,2,3-cd)pyrene	ND	21	ng/L
Benzo(ghi)perylene	ND	28	ng/L
Indene	**84**	**9.0**	**ng/L**
1-Methylnaphthalene	ND	28	ng/L
Benzo(e)pyrene	ND	19	ng/L
Biphenyl	ND	43	ng/L
Dibenz(a,h)anthracene	ND	16	ng/L
Quinoline	ND	69	ng/L
2,3-Benzofuran	ND	51	ng/L
2,3-Dihydroindene	**810**	**50**	**ng/L**
Benzo(b)thiophene	**200**	**9.0**	**ng/L**
Indole	ND	25	ng/L
Acridine	ND	61	ng/L
Perylene	ND	25	ng/L
Dibenzothiophene	ND	11	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC	(10 - 118)
Fluorene d-10	NC	(41 - 162)
Naphthalene-d8	NC	(21 - 108)

NOTE(S):

NC The recovery and/or RPD were not calculated

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W120-092199

GC/MS Semivolatiles

Lot-Sample #...: D9I220131-008 Work Order #...: D2PPA101 Matrix.....: WATER
Date Sampled...: 09/21/99 07:40 Date Received..: 09/22/99
Prep Date.....: 09/24/99 Analysis Date..: 10/20/99
Prep Batch #...: 9267337 Analysis Time..: 19:37
Dilution Factor: 20

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	28	ng/L
Naphthalene	ND	130	ng/L
2-Methylnaphthalene	ND	78	ng/L
Acenaphthene	**57**	**26**	**ng/L**
Dibenzofuran	ND	20	ng/L
Fluorene	ND	20	ng/L
Phenanthrene	ND	26	ng/L
Anthracene	ND	54	ng/L
Carbazole	**99**	**38**	**ng/L**
Fluoranthene	ND	62	ng/L
Pyrene	ND	28	ng/L
Benzo(a)anthracene	ND	50	ng/L
Chrysene	ND	56	ng/L
Benzo(b)fluoranthene	ND	50	ng/L
Benzo(k)fluoranthene	ND	46	ng/L
Benzo(a)pyrene	ND	46	ng/L
Indeno(1,2,3-cd)pyrene	ND	42	ng/L
Benzo(ghi)perylene	ND	56	ng/L
Indene	**57**	**18**	**ng/L**
1-Methylnaphthalene	ND	56	ng/L
Benzo(e)pyrene	ND	38	ng/L
Biphenyl	ND	86	ng/L
Dibenz(a,h)anthracene	ND	32	ng/L
Quinoline	ND	140	ng/L
2,3-Benzofuran	ND	100	ng/L
2,3-Dihydroindene	**620**	**100**	**ng/L**
Benzo(b)thiophene	**250**	**18**	**ng/L**
Indole	**73**	**50**	**ng/L**
Acridine	**1100**	**120**	**ng/L**
Perylene	ND	50	ng/L
Dibenzothiophene	ND	22	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC	(10 - 118)
Fluorene d-10	NC	(41 - 162)
Naphthalene-d8	NC	(21 - 108)

NOTE(S):

NC The recovery and/or RPD were not calculated.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W433-092199

GC/MS Semivolatiles

Lot-Sample #...: D9I220131-009 **Work Order #...:** D2PPF101 **Matrix.....:** WATER
Date Sampled...: 09/21/99 09:20 **Date Received..:** 09/22/99
Prep Date.....: 09/24/99 **Analysis Date..:** 10/20/99
Prep Batch #...: 9267337 **Analysis Time..:** 20:15
Dilution Factor: 20

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	28	ng/L
Naphthalene	ND	130	ng/L
2-Methylnaphthalene	ND	78	ng/L
Acenaphthene	ND	26	ng/L
Dibenzofuran	ND	20	ng/L
Fluorene	ND	20	ng/L
Phenanthrene	ND	26	ng/L
Anthracene	ND	54	ng/L
Carbazole	ND	38	ng/L
Fluoranthene	ND	62	ng/L
Pyrene	ND	28	ng/L
Benzo(a)anthracene	ND	50	ng/L
Chrysene	ND	56	ng/L
Benzo(b)fluoranthene	ND	50	ng/L
Benzo(k)fluoranthene	ND	46	ng/L
Benzo(a)pyrene	ND	46	ng/L
Indeno(1,2,3-cd)pyrene	ND	42	ng/L
Benzo(ghi)perylene	ND	56	ng/L
Indene	**59**	**18**	**ng/L**
1-Methylnaphthalene	ND	56	ng/L
Benzo(e)pyrene	ND	38	ng/L
Biphenyl	ND	86	ng/L
Dibenz(a,h)anthracene	ND	32	ng/L
Quinoline	ND	140	ng/L
2,3-Benzofuran	ND	100	ng/L
2,3-Dihydroindene	**700**	**100**	**ng/L**
Benzo(b)thiophene	**250**	**18**	**ng/L**
Indole	ND	50	ng/L
Acridine	**42 J**	**120**	**ng/L**
Perylene	ND	50	ng/L
Dibenzothiophene	ND	22	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC	(10 - 118)
Fluorene d-10	NC	(41 - 162)
Naphthalene-d8	NC	(21 - 108)

NOTE(S):

NC The recovery and/or RPD were not calculated

J Estimated result. Result is less than RL.

QC DATA ASSOCIATION SUMMARY

D9I220131

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WATER	SW846 8270A SIM		9267337	
002	WATER	SW846 8270A SIM		9267337	
003	WATER	SW846 8270A SIM		9267337	
004	WATER	SW846 8270A SIM		9267337	
005	WATER	SW846 8270A SIM		9267337	
006	WATER	SW846 8270A SIM		9267337	
007	WATER	SW846 8270A SIM		9267337	
008	WATER	SW846 8270A SIM		9267337	
009	WATER	SW846 8270A SIM		9267337	

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D9I220131 Work Order #...: D2W3F101 Matrix.....: WATER
MB Lot-Sample #: D9I240000-337
Prep Date.....: 09/24/99 Analysis Time..: 16:11
Analysis Date..: 10/20/99 Prep Batch #...: 9267337
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthylene	ND	1.4	ng/L	SW846 8270A SIM
Naphthalene	ND	6.5	ng/L	SW846 8270A SIM
2-Methylnaphthalene	ND	3.9	ng/L	SW846 8270A SIM
Acenaphthene	ND	1.3	ng/L	SW846 8270A SIM
Dibenzofuran	ND	1.0	ng/L	SW846 8270A SIM
Fluorene	ND	1.0	ng/L	SW846 8270A SIM
Phenanthrene	ND	1.3	ng/L	SW846 8270A SIM
Anthracene	ND	2.7	ng/L	SW846 8270A SIM
Carbazole	ND	1.9	ng/L	SW846 8270A SIM
Fluoranthene	ND	3.1	ng/L	SW846 8270A SIM
Pyrene	ND	1.4	ng/L	SW846 8270A SIM
Benzo(a)anthracene	ND	2.5	ng/L	SW846 8270A SIM
Chrysene	ND	2.8	ng/L	SW846 8270A SIM
Benzo(b)fluoranthene	ND	2.5	ng/L	SW846 8270A SIM
Benzo(k)fluoranthene	ND	2.3	ng/L	SW846 8270A SIM
Benzo(a)pyrene	ND	2.3	ng/L	SW846 8270A SIM
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L	SW846 8270A SIM
Benzo(ghi)perylene	ND	2.8	ng/L	SW846 8270A SIM
Indene	ND	0.90	ng/L	SW846 8270A SIM
1-Methylnaphthalene	ND	2.8	ng/L	SW846 8270A SIM
Benzo(e)pyrene	ND	1.9	ng/L	SW846 8270A SIM
Biphenyl	ND	4.3	ng/L	SW846 8270A SIM
Dibenz(a,h)anthracene	ND	1.6	ng/L	SW846 8270A SIM
Quinoline	ND	6.9	ng/L	SW846 8270A SIM
2,3-Benzofuran	ND	5.1	ng/L	SW846 8270A SIM
2,3-Dihydroindene	ND	5.0	ng/L	SW846 8270A SIM
Benzo(b)thiophene	ND	0.90	ng/L	SW846 8270A SIM
Indole	ND	2.5	ng/L	SW846 8270A SIM
Acridine	ND	6.1	ng/L	SW846 8270A SIM
Perylene	ND	2.5	ng/L	SW846 8270A SIM
Dibenzothiophene	ND	1.1	ng/L	SW846 8270A SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	106	(10 - 118)
Fluorene d-10	80	(41 - 162)
Naphthalene-d8	69	(21 - 108)

NOTE(S):

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

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D9I220131 Work Order #...: D2W3F102-LCS Matrix.....: WATER
LCS Lot-Sample#: D9I240000-337 D2W3F103-LCSD
Prep Date.....: 09/24/99 Analysis Date..: 10/21/99
Prep Batch #...: 9267337 Analysis Time..: 15:13
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Naphthalene	75.0	65.1	ng/L	87		SW846 8270A SIM
	75.0	68.0	ng/L	91	4.4	SW846 8270A SIM
2-Methylnaphthalene	75.0	66.6	ng/L	89		SW846 8270A SIM
	75.0	69.0	ng/L	92	3.6	SW846 8270A SIM
Fluorene	75.0	69.8	ng/L	93		SW846 8270A SIM
	75.0	70.9	ng/L	95	1.5	SW846 8270A SIM
Chrysene	75.0	110 a	ng/L	146		SW846 8270A SIM
	75.0	88.7 p	ng/L	118	21	SW846 8270A SIM
Indene	75.0	56.7	ng/L	76		SW846 8270A SIM
	75.0	64.7	ng/L	86	13	SW846 8270A SIM
Benzo(e)pyrene	75.0	119 a	ng/L	159		SW846 8270A SIM
	75.0	90.3 p	ng/L	120	27	SW846 8270A SIM
Quinoline	75.0	58.2	ng/L	78		SW846 8270A SIM
	75.0	59.1	ng/L	79	1.6	SW846 8270A SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	156 *	(10 - 118)
	127 *	(10 - 118)
Fluorene d-10	87	(41 - 162)
	89	(41 - 162)
Naphthalene-d8	86	(21 - 108)
	90	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

* Surrogate recovery is outside stated control limits

p Relative percent difference (RPD) is outside stated control limits

a Spiked analyte recovery is outside stated control limits

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D9I220131 Work Order #...: D2W3F102-LCS Matrix.....: WATER
LCS Lot-Sample#: D9I240000-337 D2W3F103-LCSD
Prep Date.....: 09/24/99 Analysis Date..: 10/21/99
Prep Batch #...: 9267337 Analysis Time..: 15:13
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Naphthalene	**87**	**(20 - 150)**			**SW846 8270A SIM**
	91	**(20 - 150)**	**4.4**	**(0-20)**	**SW846 8270A SIM**
2-Methylnaphthalene	**89**	**(20 - 150)**			**SW846 8270A SIM**
	92	**(20 - 150)**	**3.6**	**(0-20)**	**SW846 8270A SIM**
Fluorene	**93**	**(69 - 118)**			**SW846 8270A SIM**
	95	**(69 - 118)**	**1.5**	**(0-20)**	**SW846 8270A SIM**
Chrysene	**146 a**	**(20 - 132)**			**SW846 8270A SIM**
	118 p	**(20 - 132)**	**21**	**(0-20)**	**SW846 8270A SIM**
Indene	**76**	**(20 - 150)**			**SW846 8270A SIM**
	86	**(20 - 150)**	**13**	**(0-20)**	**SW846 8270A SIM**
Benzo(e)pyrene	**159 a**	**(20 - 150)**			**SW846 8270A SIM**
	120 p	**(20 - 150)**	**27**	**(0-20)**	**SW846 8270A SIM**
Quinoline	**78**	**(20 - 150)**			**SW846 8270A SIM**
	79	**(20 - 150)**	**1.6**	**(0-20)**	**SW846 8270A SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	156 *	(10 - 118)
	127 *	(10 - 118)
Fluorene d-10	87	(41 - 162)
	89	(41 - 162)
Naphthalene-d8	86	(21 - 108)
	90	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

* Surrogate recovery is outside stated control limits

p Relative percent difference (RPD) is outside stated control limits

a Spiked analyte recovery is outside stated control limits

[redacted]

Chain of Custody Record

Quanterra

QUA-4124 0797

Client: City of St Louis Park	Project Manager: Bill Gregg	Date: 9/21/99	Chain of Custody Number: 23538
Address: 3752 Woodale Ave	Telephone Number (Area Code)/Fax Number: 612 924-2557	Lab Number: D9I220131	Page 1 of 1
City: St Louis Park; State: Mn; Zip Code: 55410	Site Contact: Scott Anderson; Lab Contact: Kurt Ill		
Project Name: Reilly	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
.01 DPV-W22-092199	9/21/99	13:20	X			6						X	PPT-75
.02 DPV-W22D-092199	9/21/99	13:20	X			6						X	

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: [signature]	9/21/99	14:30	1. Received By: [signature]	9/22/99	0900
2. Relinquished By:			2. Received By:		
3. Relinquished By:			3. Received By:		

Comments: Cooler 0007 Temp @ 2.2°C

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

[redacted]

Chain of Custody Record

Quanterra

QUA-4124 0797

Client: Citgo St Louis Park	Project Manager: Bill Gregg	Date: 9/21/99	Chain of Custody Number: 23540
Address: 3752 Woodside Ave	Telephone Number (Area Code)/Fax Number: 612-924-2557	Lab Number: D9I220131	Page 1 of 1
City: St Louis Park; State: Mn; Zip Code: 55416	Site Contact: Scott Anderson	Lab Contact: Kurt Ill	
Project Name: Reilly	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.:			

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

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	HNOS	HCl	NaOH	ZnAc/NaOH	Special Instructions/ Conditions of Receipt
03 DPV-W22FB-092199	9/21/99	14:10	X			6						PPT-75
04 DPV-W22FBD-092199	9/21/99	14:10	X			6						

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: [signature]	9/21/99	14:30	1. Received By: [signature]	9/22/99	09:00
2. Relinquished By:			2. Received By:		
3. Relinquished By:			3. Received By:		

Comments: Cooler 0005 temp @ 1.1°C

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

[redacted]

Chain of Custody Record

Quanterra

QUA-4124

Client: City of St Louis Park	Project Manager: Bill Gregg	Date: 9/21/99	Chain Of Custody Number: 39618
Address: 3752 Woodale Ave	Telephone Number (Area Code)/Fax Number: 612-924-2557	Lab Number: DAI 220131	Page 1 of 1
City: St Louis Park; State: Mn; Zip Code: 55416	Site Contact: Scott Anderson		
Project Name: Reilly	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No:			

Analysis: PPT-PAH

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt
-05 DPV-W432-092199	9/21/99	10:00	GW	6 Liter	1 Liter	6	—	
-06 DPV-W101-092199	9/21/99	10:50	GW	6 Liter	1 Liter	6	—	

Special Instructions: PPT-75

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

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Turn Around Time Required: ☐ Normal ☑ Rush

QC Level: ☐ I. ☐ II. ☐ III.

Project Specific (Specify):

	Date	Time		Date	Time
1. Relinquished By: Pat Moore	9/21/99	14:30	1. Received By: [signature]	9/22/99	0900
2. Relinquished By:			2. Received By:		
3. Relinquished By:			3. Received By:		

Comments: Cooler 0011 temp @ 1.4°C

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

[redacted]

Chain of Custody Record

Quanterra

QUA-4124 0797

Client: City of St Louis Park	Project Manager: Bill Gregg	Date: 9/21/99	Chain of Custody Number: 23541
Address: 3752 Woodale Ave S	Telephone Number (Area Code)/Fax Number: 612-924-2557	Lab Number: DQI220131	Page 1 of 1
City: St Louis Park; State: Mn; Zip Code: 55416	Site Contact: Scott Anderson; Lab Contact: Kurt Ill		
Project Name: Reilly	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	HNOS	HCl	NaOH	ZnAc/NaOH	Analysis (Attach list if more space is needed): PPT-PAH	Special Instructions/ Conditions of Receipt
GSTP-W33-092099	9/21/99	12:20	L			6							PPT-75

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: Pat Moore	9/21/99	14:30	1 Received By: Kurt C. Ill	9/22/99	0900
2 Relinquished By:			2 Received By:		
3 Relinquished By:			3 Received By:		

Comments: Cooler 0008 temp @ 1.3°C

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

[redacted]

Chain of Custody Record

Quanterra

QUA-4124 0797

Client: City of St Louis Park	Project Manager: Bill Gregg	Date: 9/21/99	Chain of Custody Number: 23537
Address: 3752 Woodale Ave	Telephone Number (Area Code)/Fax Number: 612-924-2557	Lab Number: D9I220131	Page 1 of 1
City: St Louis Park; State: MN; Zip Code: 55416	Site Contact: Scott Anderson	Lab Contact: Kurt ILC	
Project Name: Reilly	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
08 DPV-W120-092199	9/21/99	7:40	X				X							X	PPT-75
09 DPV-W433-092199	9/21/99	9:20	X				X							X	

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: [signature]	Date: 9/21/99	Time: 14:30	1 Received By: Kurt C. Sell	Date: 9/22/99	Time: 0900
2. Relinquished By	Date	Time	2 Received By	Date	Time
3. Relinquished By	Date	Time	3 Received By	Date	Time

Comments: Cooler arrs temp @ 2.5°C

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

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Advanced Analytical Services

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 467-9136 Fax

CASE NARRATIVE

FOR

City of St. Louis Park

December 20, 1999

Quanterra Environmental Services

Project Lot Number D9K160131

Introduction

Thirteen aqueous samples (including matrix QC) were received at Quanterra Environmental Services. Denver Laboratory on November 16, 1999. The samples were logged in under Quanterra Denver's project lot number D9K160131. A cross reference associating Quanterra Denver's laboratory sample numbers to the actual field sample number is included. The samples were analyzed for part per billion (ppb) PAHs and total recoverable phenolics.

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the October 1999 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 laboratory Ids D9K160131-001, -002 and –007 were analyzed at a dilution for PAHs by method 8270 due to target analytes exceeding the linear range of the instrument. The reporting limits were raised accordingly. As a result of dilutions, the surrogate compounds were not detected and are reported as "NC" not calculated.

Client samples with laboratory Ids D9K160131-001 and –002 were analyzed at a dilution for total recoverable phenolics due to analytes exceeding the linear range of the instrument.

The percent recovery for the matrix spike and matrix spike duplicate samples for total recoverable phenolics are reported below the acceptance criteria. The amount of analyte present in the sample exceeded three times the amount of spike added resulting in low recoveries.

Except for the above, this data package is in compliance with the terms and conditions of the October 1998 QPP both technically and for completeness.

Reported By: Kurt C. Ill **Date:** December 20, 1999

Kurt C. Ill
Program Manager, AASG

EXECUTIVE SUMMARY - Detection Highlights

D9K160131

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
DPV-W420-111599 11/15/99 12:00 001				
Acenaphthene	100	100	ug/L	SW846 8270B
Biphenyl	16 J	100	ug/L	SW846 8270B
Fluorene	34 J	100	ug/L	SW846 8270B
2-Methylnaphthalene	82 J	100	ug/L	SW846 8270B
Naphthalene	1500	100	ug/L	SW846 8270B
Carbazole	50 J	100	ug/L	SW846 8270B
1-Methylnaphthalene	110	100	ug/L	SW846 8270B
Indene	40 J	100	ug/L	SW846 8270B
2,3-Benzofuran	33 J	100	ug/L	SW846 8270B
2,3-Dihydroindene	280	100	ug/L	SW846 8270B
Benzo(b)thiophene	100	100	ug/L	SW846 8270B
Total Phenols	0.17 Q	0.025	mg/L	MCAWW 420.1
DPV-W420D-111599 11/15/99 12:00 002				
Acenaphthene	85 J	100	ug/L	SW846 8270B
Biphenyl	13 J	100	ug/L	SW846 8270B
2-Methylnaphthalene	65 J	100	ug/L	SW846 8270B
Naphthalene	1200	100	ug/L	SW846 8270B
Carbazole	47 J	100	ug/L	SW846 8270B
1-Methylnaphthalene	89 J	100	ug/L	SW846 8270B
Indene	30 J	100	ug/L	SW846 8270B
2,3-Benzofuran	25 J	100	ug/L	SW846 8270B
2,3-Dihydroindene	210	100	ug/L	SW846 8270B
Benzo(b)thiophene	82 J	100	ug/L	SW846 8270B
Total Phenols	0.13 X,Q	0.025	mg/L	MCAWW 420.1
DPV-W421-111599 11/15/99 12:00 005				
Acenaphthene	41	20	ug/L	SW846 8270B
Biphenyl	4.3 J	20	ug/L	SW846 8270B
Dibenzofuran	7.8 J	20	ug/L	SW846 8270B
Fluorene	12 J	20	ug/L	SW846 8270B
Naphthalene	170	20	ug/L	SW846 8270B
Carbazole	22	20	ug/L	SW846 8270B
1-Methylnaphthalene	44	20	ug/L	SW846 8270B
Indene	27	20	ug/L	SW846 8270B
2,3-Dihydroindene	110	20	ug/L	SW846 8270B
Benzo(b)thiophene	39	20	ug/L	SW846 8270B
Acridine	1.5 J	20	ug/L	SW846 8270B
Total Phenols	0.012	0.0050	mg/L	MCAWW 420.1

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

D9K160131

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
DPV-W422-111599 11/15/99 12:00 006				
Acenaphthene	7.6 J	10	ug/L	SW846 8270B
2,3-Dihydroindene	5.3 J	10	ug/L	SW846 8270B
Total Phenols	0.0043 B	0.0050	mg/L	MCAWW 420.1
DPV-W439-111599 11/15/99 12:00 007				
Acenaphthene	63	50	ug/L	SW846 8270B
Biphenyl	6.5 J	50	ug/L	SW846 8270B
Naphthalene	590	50	ug/L	SW846 8270B
1-Methylnaphthalene	84	50	ug/L	SW846 8270B
Indene	82	50	ug/L	SW846 8270B
2,3-Benzofuran	5.8 J	50	ug/L	SW846 8270B
2,3-Dihydroindene	240	50	ug/L	SW846 8270B
Benzo(b)thiophene	52	50	ug/L	SW846 8270B
Total Phenols	0.017	0.0050	mg/L	MCAWW 420.1
DPV-W434-111599 11/15/99 12:00 008				
2,3-Dihydroindene	0.96 J	10	ug/L	SW846 8270B
STP-W410-111599 11/15/99 12:00 011				
Indene	1.2 J	10	ug/L	SW846 8270B
2,3-Dihydroindene	2.6 J	10	ug/L	SW846 8270B
Total Phenols	0.0035 B	0.0050	mg/L	MCAWW 420.1

ANALYTICAL METHODS SUMMARY

D9K160131

PARAMETER	ANALYTICAL METHOD
Phenolics	MCAWW 420.1
Semivolatile Organic Compounds by GC/MS	SW846 8270B

References:

MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

METHOD / ANALYST SUMMARY

D9K160131

ANALYTICAL METHOD	ANALYST	ANALYST ID
MCAWW 420.1	Chris Stevenson	004564
SW846 8270B	Monica R. Edwards	001685

References:

MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

D9K160131

WO #	SAMPLE#	CLIENT SAMPLE ID	DATE	TIME
D53EL	001	DPV-W420-111599	11/15/99	12:00
D53EX	002	DPV-W420D-111599	11/15/99	12:00
D53F3	003	DPV-W420FB-111599	11/15/99	12:00
D53F8	004	DPV-W420FBD-111599	11/15/99	12:00
D53FE	005	DPV-W421-111599	11/15/99	12:00
D53FL	006	DPV-W422-111599	11/15/99	12:00
D53FN	007	DPV-W439-111599	11/15/99	12:00
D53FP	008	DPV-W434-111599	11/15/99	12:00
D53FQ	009	GTF-BW-111599	11/15/99	12:00
D53G0	010	GTF-ACFE-111599	11/15/99	12:00
D53G5	011	STP-W410-111599	11/15/99	12:00
D53G7	012	PCJ-SLP4TP-111599	11/15/99	12:00

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results
- Results noted as "ND" were not detected at or above the stated limit
- This report must not be reproduced, except in full, without the written approval of the laboratory
- Results for the following parameters are never reported on a dry weight basis color, corrosivity, density, flashpoint, ignitability, layers, odor, [illegible]t filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W420-111599

GC/MS Semivolatiles

Lot-Sample #...: D9K160131-001 Work Order #...: D53EL101 Matrix.....: WATER
Date Sampled...: 11/15/99 12:00 Date Received..: 11/16/99
Prep Date.....: 11/20/99 Analysis Date..: 12/07/99
Prep Batch #...: 9324214 Analysis Time..: 11:31
Dilution Factor: 10

Method.....: SW846 8270B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**100**	**100**	**ug/L**
Acenaphthylene	ND	100	ug/L
Anthracene	ND	100	ug/L
Benzo(ghi)perylene	ND	100	ug/L
Benzo(a)pyrene	ND	100	ug/L
Benzo(e)pyrene	ND	100	ug/L
Benzo(a)anthracene	ND	100	ug/L
Benzo(b)fluoranthene	ND	100	ug/L
Benzo(k)fluoranthene	ND	100	ug/L
Biphenyl	**16 J**	**100**	**ug/L**
Chrysene	ND	100	ug/L
Dibenzofuran	ND	100	ug/L
Fluoranthene	ND	100	ug/L
Fluorene	**34 J**	**100**	**ug/L**
Indeno(1,2,3-cd)pyrene	ND	100	ug/L
2-Methylnaphthalene	**82 J**	**100**	**ug/L**
Naphthalene	**1500**	**100**	**ug/L**
Phenanthrene	ND	100	ug/L
Pyrene	ND	100	ug/L
Carbazole	**50 J**	**100**	**ug/L**
1-Methylnaphthalene	**110**	**100**	**ug/L**
Indene	**40 J**	**100**	**ug/L**
Quinoline	ND	100	ug/L
2,3-Benzofuran	**33 J**	**100**	**ug/L**
2,3-Dihydroindene	**280**	**100**	**ug/L**
Benzo(b)thiophene	**100**	**100**	**ug/L**
Indole	ND	100	ug/L
Acridine	ND	100	ug/L
Perylene	ND	100	ug/L
Dibenzothiophene	ND	100	ug/L
Dibenz(a,h)anthracene	ND	100	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC	(25 - 160)
Fluorene d-10	NC	(36 - 127)
Naphthalene-d8	NC	(37 - 107)

NOTE(S):

NC The recovery and/or RPD were not calculated

J Estimated result Result is less than RL

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W420D-111599

GC/MS Semivolatiles

Lot-Sample #...: D9K160131-002 Work Order #...: D53EX101 Matrix.....: WATER
Date Sampled...: 11/15/99 12:00 Date Received..: 11/16/99
Prep Date.....: 11/20/99 Analysis Date..: 12/07/99
Prep Batch #...: 9324214 Analysis Time..: 13:23
Dilution Factor: 10

Method.....: SW846 8270B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**85 J**	**100**	**ug/L**
Acenaphthylene	ND	100	ug/L
Anthracene	ND	100	ug/L
Benzo(a)anthracene	ND	100	ug/L
Benzo(b)fluoranthene	ND	100	ug/L
Benzo(k)fluoranthene	ND	100	ug/L
Benzo(ghi)perylene	ND	100	ug/L
Benzo(a)pyrene	ND	100	ug/L
Benzo(e)pyrene	ND	100	ug/L
Biphenyl	**13 J**	**100**	**ug/L**
Chrysene	ND	100	ug/L
Dibenzofuran	ND	100	ug/L
Fluoranthene	ND	100	ug/L
Fluorene	ND	100	ug/L
Indeno(1,2,3-cd)pyrene	ND	100	ug/L
2-Methylnaphthalene	**65 J**	**100**	**ug/L**
Naphthalene	**1200**	**100**	**ug/L**
Phenanthrene	ND	100	ug/L
Pyrene	ND	100	ug/L
Carbazole	**47 J**	**100**	**ug/L**
1-Methylnaphthalene	**89 J**	**100**	**ug/L**
Indene	**30 J**	**100**	**ug/L**
Quinoline	ND	100	ug/L
2,3-Benzofuran	**25 J**	**100**	**ug/L**
2,3-Dihydroindene	**210**	**100**	**ug/L**
Benzo(b)thiophene	**82 J**	**100**	**ug/L**
Indole	ND	100	ug/L
Acridine	ND	100	ug/L
Perylene	ND	100	ug/L
Dibenzothiophene	ND	100	ug/L
Dibenz(a,h)anthracene	ND	100	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC	(25 - 160)
Fluorene d-10	NC	(36 - 127)
Naphthalene-d8	NC	(37 - 107)

NOTE(S):

NC The recovery and/or RPD were not calculated

J Estimated result. Result is less than RL

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W420FB-111599

GC/MS Semivolatiles

Lot-Sample #...: D9K160131-003 Work Order #...: D53F3101 Matrix.....: WATER
Date Sampled...: 11/15/99 12:00 Date Received..: 11/16/99
Prep Date.....: 11/20/99 Analysis Date..: 12/07/99
Prep Batch #...: 9324214 Analysis Time..: 18:12
Dilution Factor: 1

Method.....: SW846 8270B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Carbazole	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Indene	ND	10	ug/L
Quinoline	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Indole	ND	10	ug/L
Acridine	ND	10	ug/L
Perylene	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	86	(25 - 160)
Fluorene d-10	76	(36 - 127)
Naphthalene-d8	74	(37 - 107)

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W420FBD-111599

GC/MS Semivolatiles

Lot-Sample #...: D9K160131-004 Work Order #...: D53F8102 Matrix.....: WATER
Date Sampled...: 11/15/99 12:00 Date Received..: 11/16/99
Prep Date.....: 11/20/99 Analysis Date..: 12/07/99
Prep Batch #...: 9324214 Analysis Time..: 14:01
Dilution Factor: 1

Method.....: SW846 8270B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	ND	10	ug/L
Naphthalene	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
Acenaphthene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Fluorene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Anthracene	ND	10	ug/L
Carbazole	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Pyrene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Chrysene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Indene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Quinoline	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Indole	ND	10	ug/L
Acridine	ND	10	ug/L
Perylene	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	80	(25 - 160)
Fluorene d-10	76	(36 - 127)
Naphthalene-d8	71	(37 - 107)

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W421-111599

GC/MS Semivolatiles

Lot-Sample #...: D9K160131-005 **Work Order #...:** D53FE101 **Matrix.....:** WATER
Date Sampled...: 11/15/99 12:00 **Date Received..:** 11/16/99
Prep Date.....: 11/20/99 **Analysis Date..:** 12/07/99
Prep Batch #...: 9324214 **Analysis Time..:** 14:38
Dilution Factor: 2

Method.....: SW846 8270B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**41**	**20**	**ug/L**
Acenaphthylene	ND	20	ug/L
Anthracene	ND	20	ug/L
Benzo(a)anthracene	ND	20	ug/L
Benzo(b)fluoranthene	ND	20	ug/L
Benzo(k)fluoranthene	ND	20	ug/L
Benzo(ghi)perylene	ND	20	ug/L
Benzo(a)pyrene	ND	20	ug/L
Benzo(e)pyrene	ND	20	ug/L
Biphenyl	**4.3 J**	**20**	**ug/L**
Chrysene	ND	20	ug/L
Dibenzofuran	**7.8 J**	**20**	**ug/L**
Fluoranthene	ND	20	ug/L
Fluorene	**12 J**	**20**	**ug/L**
Indeno(1,2,3-cd)pyrene	ND	20	ug/L
2-Methylnaphthalene	ND	20	ug/L
Naphthalene	**170**	**20**	**ug/L**
Phenanthrene	ND	20	ug/L
Pyrene	ND	20	ug/L
Carbazole	**22**	**20**	**ug/L**
1-Methylnaphthalene	**44**	**20**	**ug/L**
2,3-Dihydroindene	**110**	**20**	**ug/L**
Benzo(b)thiophene	**39**	**20**	**ug/L**
Indene	**27**	**20**	**ug/L**
Quinoline	ND	20	ug/L
2,3-Benzofuran	ND	20	ug/L
Indole	ND	20	ug/L
Acridine	**1.5 J**	**20**	**ug/L**
Perylene	ND	20	ug/L
Dibenzothiophene	ND	20	ug/L
Dibenz(a,h)anthracene	ND	20	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	60	(25 - 160)
Fluorene d-10	63	(36 - 127)
Naphthalene-d8	63	(37 - 107)

NOTE(S):

J Estimated result Result is less than RL

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W422-111599

GC/MS Semivolatiles

Lot-Sample #...: D9K160131-006 Work Order #...: D53FL101 Matrix.....: WATER
Date Sampled...: 11/15/99 12:00 Date Received..: 11/16/99
Prep Date.....: 11/20/99 Analysis Date..: 12/07/99
Prep Batch #...: 9324214 Analysis Time..: 15:16
Dilution Factor: 1

Method.....: SW846 8270B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**7.6 J**	**10**	**ug/L**
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Carbazole	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Indene	ND	10	ug/L
Quinoline	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
2,3-Dihydroindene	**5.3 J**	**10**	**ug/L**
Benzo(b)thiophene	ND	10	ug/L
Indole	ND	10	ug/L
Acridine	ND	10	ug/L
Perylene	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	69	(25 - 160)
Fluorene d-10	74	(36 - 127)
Naphthalene-d8	75	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W439-111599

GC/MS Semivolatiles

Lot-Sample #...: D9K160131-007 Work Order #...: D53FN101 Matrix.....: WATER
Date Sampled...: 11/15/99 12:00 Date Received..: 11/16/99
Prep Date.....: 11/20/99 Analysis Date..: 12/07/99
Prep Batch #...: 9324214 Analysis Time..: 15:53
Dilution Factor: 5

Method.....: SW846 8270B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**63**	**50**	**ug/L**
Acenaphthylene	ND	50	ug/L
Anthracene	ND	50	ug/L
Benzo(a)anthracene	ND	50	ug/L
Benzo(b)fluoranthene	ND	50	ug/L
Benzo(k)fluoranthene	ND	50	ug/L
Benzo(ghi)perylene	ND	50	ug/L
Benzo(a)pyrene	ND	50	ug/L
Benzo(e)pyrene	ND	50	ug/L
Biphenyl	**6.5 J**	**50**	**ug/L**
Chrysene	ND	50	ug/L
Dibenzofuran	ND	50	ug/L
Fluoranthene	ND	50	ug/L
Fluorene	ND	50	ug/L
Indeno(1,2,3-cd)pyrene	ND	50	ug/L
2-Methylnaphthalene	ND	50	ug/L
Carbazole	ND	50	ug/L
1-Methylnaphthalene	**84**	**50**	**ug/L**
Indene	**82**	**50**	**ug/L**
Naphthalene	**590**	**50**	**ug/L**
Phenanthrene	ND	50	ug/L
Pyrene	ND	50	ug/L
Quinoline	ND	50	ug/L
2,3-Benzofuran	**5.8 J**	**50**	**ug/L**
2,3-Dihydroindene	**240**	**50**	**ug/L**
Benzo(b)thiophene	**52**	**50**	**ug/L**
Indole	ND	50	ug/L
Acridine	ND	50	ug/L
Perylene	ND	50	ug/L
Dibenzothiophene	ND	50	ug/L
Dibenz(a,h)anthracene	ND	50	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC	(25 - 160)
Fluorene d-10	NC	(36 - 127)
Naphthalene-d8	NC	(37 - 107)

NOTE(S):

NC The recovery and/or RPD were not calculated

J Estimated result Result is less than RL

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W434-111599

GC/MS Semivolatiles

Lot-Sample #...: D9K160131-008 Work Order #...: D53FP101 Matrix.....: WATER
Date Sampled...: 11/15/99 12:00 Date Received..: 11/16/99
Prep Date.....: 11/20/99 Analysis Date..: 12/07/99
Prep Batch #...: 9324214 Analysis Time..: 16:31
Dilution Factor: 1

Method.....: SW846 8270B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Carbazole	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Indene	ND	10	ug/L
Quinoline	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
2,3-Dihydroindene	**0.96 J**	**10**	**ug/L**
Benzo(b)thiophene	ND	10	ug/L
Indole	ND	10	ug/L
Acridine	ND	10	ug/L
Perylene	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	77	(25 - 160)
Fluorene d-10	71	(36 - 127)
Naphthalene-d8	73	(37 - 107)

NOTE(S):

J Estimated result Result is less than RL

CITY OF ST. LOUIS PARK

Client Sample ID: GTF-BW-111599

GC/MS Semivolatiles

Lot-Sample #...: D9K160131-009 Work Order #...: D53FQ101 Matrix.....: WATER
Date Sampled...: 11/15/99 12:00 Date Received..: 11/16/99
Prep Date.....: 11/20/99 Analysis Date..: 12/07/99
Prep Batch #...: 9324214 Analysis Time..: 17:08
Dilution Factor: 1

Method.....: SW846 8270B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Carbazole	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Indene	ND	10	ug/L
Quinoline	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Indole	ND	10	ug/L
Acridine	ND	10	ug/L
Perylene	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	44	(25 - 160)
Fluorene d-10	57	(36 - 127)
Naphthalene-d8	59	(37 - 107)

CITY OF ST. LOUIS PARK

Client Sample ID: GTF-ACFE-111599

GC/MS Semivolatiles

Lot-Sample #...: D9K160131-010 Work Order #...: D53G0101 Matrix.....: WATER
Date Sampled...: 11/15/99 12:00 Date Received..: 11/16/99
Prep Date.....: 11/20/99 Analysis Date..: 12/07/99
Prep Batch #...: 9324214 Analysis Time..: 18:49
Dilution Factor: 1

Method.....: SW846 8270B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Naphthalene	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
[illegible]phenyl	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Carbazole	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Indene	ND	10	ug/L
Quinoline	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
2,3-Dihydroindene	ND	10	ug/L
Benzo(b)thiophene	ND	10	ug/L
Indole	ND	10	ug/L
Acridine	ND	10	ug/L
Perylene	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	50	(25 - 160)
Fluorene d-10	78	(36 - 127)
Naphthalene-d8	76	(37 - 107)

CITY OF ST. LOUIS PARK

Client Sample ID: STP-W410-111599

GC/MS Semivolatiles

Lot-Sample #...: D9K160131-011 Work Order #...: D53G5101 Matrix.....: WATER
Date Sampled...: 11/15/99 12:00 Date Received..: 11/16/99
Prep Date.....: 11/20/99 Analysis Date..: 12/07/99
Prep Batch #...: 9324214 Analysis Time..: 19:26
Dilution Factor: 1

Method.....: SW846 8270B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(e)pyrene	ND	10	ug/L
Biphenyl	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L
Carbazole	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
Indene	**1.2 J**	**10**	**ug/L**
Quinoline	ND	10	ug/L
2,3-Benzofuran	ND	10	ug/L
2,3-Dihydroindene	**2.6 J**	**10**	**ug/L**
Benzo(b)thiophene	ND	10	ug/L
Indole	ND	10	ug/L
Acridine	ND	10	ug/L
Perylene	ND	10	ug/L
Dibenzothiophene	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Naphthalene	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	49	(25 - 160)
Fluorene d-10	62	(36 - 127)
Naphthalene-d8	65	(37 - 107)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W420-111599

General Chemistry

Lot-Sample #...: D9K160131-001 Work Order #...: D53EL Matrix.....: WATER
Date Sampled...: 11/15/99 12:00 Date Received..: 11/16/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols	0.17 Q	0.025	mg/L	MCAWW 420.1	12/07/99	9341436

Dilution Factor: 5 Analysis Time..: 15:00

NOTE(S):

RL Reporting Limit

Q Elevated reporting limit The reporting limit is elevated due to high analyte levels

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W420D-111599

General Chemistry

Lot-Sample #...: D9K160131-002 Work Order #...: D53EX Matrix.....: WATER
Date Sampled...: 11/15/99 12:00 Date Received..: 11/16/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols	0.13 X,Q	0.025	mg/L	MCAWW 420.1	12/07/99	9341436

Dilution Factor: 5 Analysis Time..: 00:00

NOTE(S):

RL Reporting Limit

X Recovered amount of spike is less than the project reporting limit

Q Elevated reporting limit The reporting limit is elevated due to high analyte levels

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W420FB-111599

General Chemistry

Lot-Sample #...: D9K160131-003 **Work Order #...:** D53F3 **Matrix.....:** WATER
Date Sampled...: 11/15/99 12:00 **Date Received..:** 11/16/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols	ND	0.0050	mg/L	MCAWW 420.1	12/07/99	9341436

Dilution Factor: 1 Analysis Time..: 15:00

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W420FBD-111599

General Chemistry

Lot-Sample #...: D9K160131-004 **Work Order #...:** D53F8 **Matrix.....:** WATER
Date Sampled...: 11/15/99 12:00 **Date Received..:** 11/16/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols	ND	0.0050	mg/L	MCAWW 420.1	12/07/99	9341436

Dilution Factor: 1 Analysis Time..: 15:00

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W421-111599

General Chemistry

Lot-Sample #...: D9K160131-005 Work Order #...: D53FE Matrix.....: WATER
Date Sampled...: 11/15/99 12:00 Date Received..: 11/16/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols	0.012	0.0050	mg/L	MCAWW 420.1	12/09/99	9343285
		Dilution Factor: 1		Analysis Time..: 00:00		

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W422-111599

General Chemistry

Lot-Sample #...: D9K160131-006 Work Order #...: D53FL Matrix.....: WATER
Date Sampled...: 11/15/99 12:00 Date Received..: 11/16/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols	0.0043 B	0.0050	mg/L	MCAWW 420.1	12/07/99	9341436
		Dilution Factor: 1		Analysis Time..: 15:00		

NOTE(S):

RL Reporting Limit

B Estimated result Result is less than RL

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W439-111599

General Chemistry

Lot-Sample #...: D9K160131-007 Work Order #...: D53FN Matrix.....: WATER
Date Sampled...: 11/15/99 12:00 Date Received..: 11/16/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols	0.017	0.0050	mg/L	MCAWW 420.1	12/07/99	9341436

Dilution Factor: 1 Analysis Time..: 15:00

CITY OF ST. LOUIS PARK

Client Sample ID: DPV-W434-111599

General Chemistry

Lot-Sample #...: D9K160131-008 **Work Order #...:** D53FP **Matrix.....:** WATER
Date Sampled...: 11/15/99 12:00 **Date Received..:** 11/16/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols	ND	0.0050	mg/L	MCAWW 420.1	12/07/99	9341436

Dilution Factor: 1 Analysis Time..: 15.00

CITY OF ST. LOUIS PARK

Client Sample ID: GTF-BW-111599

General Chemistry

Lot-Sample #...: D9K160131-009 Work Order #...: D53FQ Matrix.....: WATER
Date Sampled...: 11/15/99 12:00 Date Received..: 11/16/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols	ND	0.0050	mg/L	MCAWW 420.1	12/09/99	9343285

Dilution Factor: 1 Analysis Time..: 00:00

CITY OF ST. LOUIS PARK

Client Sample ID: GTF-ACFE-111599

General Chemistry

Lot-Sample #...: D9K160131-010 **Work Order #...:** D53G0 **Matrix.....:** WATER
Date Sampled...: 11/15/99 12:00 **Date Received..:** 11/16/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols	ND	0.0050	mg/L	MCAWW 420.1	12/07/99	9341436

Dilution Factor: 1 Analysis Time..: 15:00

CITY OF ST. LOUIS PARK

Client Sample ID: STP-W410-111599

General Chemistry

Lot-Sample #...: D9K160131-011 Work Order #...: D53G5 Matrix.....: WATER
Date Sampled...: 11/15/99 12:00 Date Received..: 11/16/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols	0.0035 B	0.0050	mg/L	MCAWW 420.1	12/07/99	9341436

Dilution Factor: 1 Analysis Time..: 15:00

NOTE(S):

RL Reporting Limit

B Estimated result Result is less than RL

CITY OF ST. LOUIS PARK

Client Sample ID: PCJ-SLP4TP-111599

General Chemistry

Lot-Sample #...: D9K160131-012 **Work Order #...:** D53G7 **Matrix.....:** WATER
Date Sampled...: 11/15/99 12:00 **Date Received..:** 11/16/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols	ND	0.0050	mg/L	MCAWW 420.1	12/09/99	9343285

Dilution Factor: 1 Analysis Time..: 00:00

QC DATA ASSOCIATION SUMMARY

D9K160131

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WATER	SW846 8270B		9324214	9324080
	WATER	MCAWW 420.1		9341436	9341184
002	WATER	SW846 8270B		9324214	9324080
	WATER	MCAWW 420.1		9341436	9341184
003	WATER	SW846 8270B		9324214	9324080
	WATER	MCAWW 420.1		9341436	9341184
004	WATER	SW846 8270B		9324214	9324080
	WATER	MCAWW 420.1		9341436	9341184
005	WATER	SW846 8270B		9324214	9324080
	WATER	MCAWW 420.1		9343285	
006	WATER	SW846 8270B		9324214	9324080
	WATER	MCAWW 420.1		9341436	9341184
007	WATER	SW846 8270B		9324214	9324080
	WATER	MCAWW 420.1		9341436	9341184
008	WATER	SW846 8270B		9324214	9324080
	WATER	MCAWW 420.1		9341436	9341184
009	WATER	SW846 8270B		9324214	9324080
	WATER	MCAWW 420.1		9343285	
010	WATER	SW846 8270B		9324214	9324080
	WATER	MCAWW 420.1		9341436	9341184
011	WATER	SW846 8270B		9324214	9324080
	WATER	MCAWW 420.1		9341436	9341184
012	WATER	MCAWW 420.1		9343285	

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D9K160131 **Work Order #...:** D5D3J101 **Matrix.....:** WATER
MB Lot-Sample #: D9K200000-214

Prep Date.....: 11/20/99 **Analysis Time..:** 09:38

Analysis Date..: 12/07/99 **Prep Batch #...:** 9324214
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthene	ND	10	ug/L	SW846 8270B
Acenaphthylene	ND	10	ug/L	SW846 8270B
Anthracene	ND	10	ug/L	SW846 8270B
Benzo(a)anthracene	ND	10	ug/L	SW846 8270B
Benzo(b)fluoranthene	ND	10	ug/L	SW846 8270B
Benzo(k)fluoranthene	ND	10	ug/L	SW846 8270B
Benzo(ghi)perylene	ND	10	ug/L	SW846 8270B
Benzo(a)pyrene	ND	10	ug/L	SW846 8270B
Benzo(e)pyrene	ND	10	ug/L	SW846 8270B
Biphenyl	ND	10	ug/L	SW846 8270B
Chrysene	ND	10	ug/L	SW846 8270B
Dibenz(a,h)anthracene	ND	10	ug/L	SW846 8270B
Dibenzofuran	ND	10	ug/L	SW846 8270B
Fluoranthene	ND	10	ug/L	SW846 8270B
Fluorene	ND	10	ug/L	SW846 8270B
Indeno(1,2,3-cd)pyrene	ND	10	ug/L	SW846 8270B
2-Methylnaphthalene	ND	10	ug/L	SW846 8270B
Naphthalene	ND	10	ug/L	SW846 8270B
Phenanthrene	ND	10	ug/L	SW846 8270B
Pyrene	ND	10	ug/L	SW846 8270B
Carbazole	ND	10	ug/L	SW846 8270B
1-Methylnaphthalene	ND	10	ug/L	SW846 8270B
Indene	ND	10	ug/L	SW846 8270B
Quinoline	ND	10	ug/L	SW846 8270B
2,3-Benzofuran	ND	10	ug/L	SW846 8270B
2,3-Dihydroindene	ND	10	ug/L	SW846 8270B
Benzo(b)thiophene	ND	10	ug/L	SW846 8270B
Indole	ND	10	ug/L	SW846 8270B
Acridine	ND	10	ug/L	SW846 8270B
Perylene	ND	10	ug/L	SW846 8270B
Dibenzothiophene	ND	10	ug/L	SW846 8270B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	77	(25 - 160)
Fluorene d-10	95	(36 - 127)
Naphthalene-d8	77	(37 - 107)

NOTE(S):

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

METHOD BLANK REPORT

General Chemistry

Client Lot #...: D9K160131 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols		Work Order #: D5XCR101		MB Lot-Sample #:	D9L070000-436	
	ND	0.0050	mg/L	MCAWW 420.1	12/07/99	9341436
		Dilution Factor: 1				
		Analysis Time..: 15:00				
Total Phenols		Work Order #: D62LX101		MB Lot-Sample #:	D9L090000-285	
	ND	0.0050	mg/L	MCAWW 420.1	12/09/99	9343285
		Dilution Factor: 1				
		Analysis Time..: 00:00				

NOTE(S):

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

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D9K160131 **Work Order #...:** D5D3J102-LCS **Matrix.....:** WATER
LCS Lot-Sample#: D9K200000-214 D5D3J103-LCSD
Prep Date.....: 11/20/99 **Analysis Date..:** 12/07/99
Prep Batch #...: 9324214 **Analysis Time..:** 10:16
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
2-Methylnaphthalene	**50.0**	**32.8**	**ug/L**	**66**		**SW846 8270B**
	50.0	**36.6**	**ug/L**	**73**	**11**	**SW846 8270B**
Benzo(e)pyrene	**50.0**	**42.3**	**ug/L**	**85**		**SW846 8270B**
	50.0	**46.8**	**ug/L**	**94**	**10**	**SW846 8270B**
Chrysene	**50.0**	**42.7**	**ug/L**	**85**		**SW846 8270B**
	50.0	**47.0**	**ug/L**	**94**	**9.6**	**SW846 8270B**
Fluorene	**50.0**	**51.8**	**ug/L**	**104**		**SW846 8270B**
	50.0	**55.0**	**ug/L**	**110**	**5.9**	**SW846 8270B**
Indene	**50.0**	**29.4**	**ug/L**	**59**		**SW846 8270B**
	50.0	**33.4**	**ug/L**	**67**	**12**	**SW846 8270B**
Naphthalene	**50.0**	**33.2**	**ug/L**	**66**		**SW846 8270B**
	50.0	**37.3**	**ug/L**	**75**	**12**	**SW846 8270B**
Quinoline	**50.0**	**30.3**	**ug/L**	**61**		**SW846 8270B**
	50.0	**33.4**	**ug/L**	**67**	**9.7**	**SW846 8270B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	79	(25 - 160)
	81	(25 - 160)
Fluorene d-10	89	(36 - 127)
	91	(36 - 127)
Naphthalene-d8	64	(37 - 107)
	69	(37 - 107)

NOTE(S):

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

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Lot-Sample #...: D9K160131 **Matrix.....:** WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols		WO#:D62LX102-LCS/D62LX103-LCSD				LCS Lot-Sample#: D9L090000-285		
	0.0500	0.0455	mg/L	91		MCAWW 420.1	12/09/99	9343285
	0.0500	0.0427	mg/L	85	6.3	MCAWW 420.1	12/09/99	9343285

Dilution Factor: 1

NOTE(S):

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

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D9K160131 **Work Order #...:** D5D3J102-LCS **Matrix.....:** WATER
LCS Lot-Sample#: D9K200000-214 D5D3J103-LCSD
Prep Date.....: 11/20/99 **Analysis Date..:** 12/07/99
Prep Batch #...: 9324214 **Analysis Time..:** 10:16
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
2-Methylnaphthalene	**66**	**(47 - 138)**			**SW846 8270B**
	73	**(47 - 138)**	**11**	**(0-20)**	**SW846 8270B**
Benzo(e)pyrene	**85**	**(20 - 150)**			**SW846 8270B**
	94	**(20 - 150)**	**10**	**(0-20)**	**SW846 8270B**
Chrysene	**85**	**(43 - 124)**			**SW846 8270B**
	94	**(43 - 124)**	**9.6**	**(0-20)**	**SW846 8270B**
Fluorene	**104**	**(51 - 120)**		-	**SW846 8270B**
	110	**(51 - 120)**	**5.9**	**(0-20)**	**SW846 8270B**
Indene	**59**	**(49 - 108)**			**SW846 8270B**
	67	**(49 - 108)**	**12**	**(0-20)**	**SW846 8270B**
Naphthalene	**66**	**(43 - 128)**			**SW846 8270B**
	75	**(43 - 128)**	**12**	**(0-20)**	**SW846 8270B**
Quinoline	**61**	**(40 - 126)**			**SW846 8270B**
	67	**(40 - 126)**	**9.7**	**(0-20)**	**SW846 8270B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	79	(25 - 160)
	81	(25 - 160)
Fluorene d-10	89	(36 - 127)
	91	(36 - 127)
Naphthalene-d8	64	(37 - 107)
	69	(37 - 107)

NOTE(S):

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

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Lot-Sample #...: D9K160131 **Matrix.....:** WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols		WO#:D62LX102-LCS/D62LX103-LCSD				LCS Lot-Sample#: D9L090000-285	
	91	(76 - 121)			MCAWW 420.1	12/09/99	9343285
	85	(76 - 121)	6.3	(0-16)	MCAWW 420.1	12/09/99	9343285

Dilution Factor: 1

NOTE(S):

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

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Client Lot #...: D9K160131 **Matrix.....:** WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols			Work Order #:	D5XCR102	LCS Lot-Sample#:	D9L070000-436	
	0.0500	0.0536	mg/L	107	MCAWW 420.1	12/07/99	9341436

Dilution Factor: 1

Analysis Time..: 15:00

NOTE(S):

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

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: D9K160131 **Matrix.....:** WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols		Work Order #: D5XCR102	LCS Lot-Sample#: D9L070000-436		
	107	(76 - 121)	MCAWW 420.1	12/07/99	9341436
		Dilution Factor: 1			
		Analysis Time..: 15:00			

NOTE(S):

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

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D9K160131 **Work Order #...:** D53EL102-MS **Matrix.....:** WATER
MS Lot-Sample #: D9K160131-001 D53EL103-MSD
Date Sampled...: 11/15/99 12:00 **Date Received..:** 11/16/99
Prep Date.....: 11/20/99 **Analysis Date..:** 12/07/99
Prep Batch #...: 9324214 **Analysis Time..:** 12:08
Dilution Factor: 10

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
2-Methylnaphthalene	82	50.6	122	ug/L	81		SW846 8270B
	82	51.0	113	ug/L	62	8.4	SW846 8270B
Benzo(e)pyrene	ND	50.6	25.0	ug/L	49		SW846 8270B
	ND	51.0	24.0	ug/L	47	5.0	SW846 8270B
Chrysene	ND	50.6		ug/L	57		SW846 8270B
	ND	51.0		ug/L	56	1.4	SW846 8270B
Fluorene	34	50.6	75.6	ug/L	82		SW846 8270B
	34	51.0	76.1	ug/L	82	0.16	SW846 8270B
Indene	40	50.6	72.7	ug/L	65		SW846 8270B
	40	51.0	66.7	ug/L	53	9.5	SW846 8270B
Naphthalene	1500	50.6	1490 a	ug/L	12		SW846 8270B
	1500	51.0	1380 a	ug/L	0.0	0.0	SW846 8270B
Quinoline	ND	50.6		ug/L	59		SW846 8270B
	ND	51.0		ug/L	60	1.1	SW846 8270B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC	(25 - 160)
	NC	(25 - 160)
Fluorene d-10	NC	(36 - 127)
	NC	(36 - 127)
Naphthalene-d8	NC	(37 - 107)
	NC	(37 - 107)

NOTE(S):

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

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits

NC The recovery and/or RPD were not calculated

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D9K160131 **Work Order #...:** D53EL102-MS **Matrix.....:** WATER
MS Lot-Sample #: D9K160131-001 D53EL103-MSD
Date Sampled...: 11/15/99 12:00 **Date Received..:** 11/16/99
Prep Date.....: 11/20/99 **Analysis Date..:** 12/07/99
Prep Batch #...: 9324214 **Analysis Time..:** 12:08
Dilution Factor: 10

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
2-Methylnaphthalene	**81**	**(47 - 138)**			**SW846 8270B**
	62	**(47 - 138)**	**8.4**	**(0-20)**	**SW846 8270B**
Benzo(e)pyrene	**49**	**(20 - 150)**			**SW846 8270B**
	47	**(20 - 150)**	**5.0**	**(0-20)**	**SW846 8270B**
Chrysene	**57**	**(43 - 124)**			**SW846 8270B**
	56	**(43 - 124)**	**1.4**	**(0-20)**	**SW846 8270B**
Fluorene	**82**	**(51 - 120)**			**SW846 8270B**
	82	**(51 - 120)**	**0.16**	**(0-20)**	**SW846 8270B**
Indene	**65**	**(49 - 108)**			**SW846 8270B**
	53	**(49 - 108)**	**9.5**	**(0-20)**	**SW846 8270B**
Naphthalene	**12 a**	**(43 - 128)**			**SW846 8270B**
	0.0 a	**(43 - 128)**	**0.0**	**(0-20)**	**SW846 8270B**
Quinoline	**59**	**(40 - 126)**			**SW846 8270B**
	60	**(40 - 126)**	**1.1**	**(0-20)**	**SW846 8270B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC	(25 - 160)
	NC	(25 - 160)
Fluorene d-10	NC	(36 - 127)
	NC	(36 - 127)
Naphthalene-d8	NC	(37 - 107)
	NC	(37 - 107)

NOTE(S):

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

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits

NC The recovery and/or RPD were not calculated

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: D9K160131 **Matrix.....:** WATER
Date Sampled...: 11/15/99 12:00 **Date Received..:** 11/16/99

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols			WO#: D53EL105-MS/D53EL106-MSD				MS Lot-Sample #: D9K160131-001		
	0.17	0.050	0.178	mg/L	18		MCAWW 420.1	12/07/99	9341436
			Qualifiers: DIL,N						
	0.17	0.050	0.172 N	mg/L	5.7	3.6	MCAWW 420.1	12/07/99	9341436
			Dilution Factor: 1						
			Analysis Time..: 15:01						

NOTE(S):

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

N Spiked analyte recovery is outside stated control limits

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: D9K160131 **Matrix.....:** WATER
Date Sampled...: 11/15/99 12:00 **Date Received..:** 11/16/99

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Phenols		WO#:	D53EL105-MS/D53EL106-MSD			MS Lot-Sample #:	D9K160131-001
	18 DIL,N	(76 - 121)			MCAWW 420.1	12/07/99	9341436
	5.7 N	(76 - 121)	3.6	(0-16)	MCAWW 420.1	12/07/99	9341436

Dilution Factor: 1
Analysis Time..: 15:01

NOTE(S):

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

N *Spiked analyte recovery is outside stated control limits*

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes

Chain of Custody Record

Quanterra

2.1°C

QUA-4124 07

Client: CITY OF ST. LOUIS PARK, UTILITY DIVISION	Project Manager: SCOTT ANDERSON	Date: 11-15-99	Chain of Custody Number: 23552
Address: 3752 WOODDALE AVENUE	Telephone Number (Area Code)/Fax Number: 924-2557 (612) 924-2570	Lab Number: D9K160131	Page 1 of 4
City: ST. LOUIS PARK, MN 55416	Site Contact: SAME	Lab Contact:	
Project Name: SAME	Carrier/Waybill Number: FED EX 800846316481		
Contract/Purchase Order/Quote No.			

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	N/A	PPB PAH	Special Instructions/ Conditions of Receipt
01 DPV-W420 - 111599	11-15-99		X										2	X	
02 DPV-W420D - 111599															
03 DPV-W420MS - 111599															
04 DPV-W420MSD - 111599															
05 DPV-W420FB - 111599															
06 DPV-W420FBD - 111599	11-15-99		X										2	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: [signature]	11-15-99	1400	1. Received By: [signature]	11/16/99	9:00
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments: cooler temp 2.1°C

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

[redacted]

Chain of Custody Record

Quanterra

1.2°C

OUA-4124 0797

Client: CITY OF ST. LOUIS PARK UTILITY DIVISION 3752 WOODDALE AVENUE ST. LOUIS PARK, MN 55416	Project Manager: SCOTT ANDERSON	Date: 11-15-99	Chain of Custody Number: 23553
Address	Telephone Number (Area Code)/Fax Number: 924-2557 (612) 924-2570	Lab Number: D9K160131	Page ____ of ____
City	Site Contact: SAME	Lab Contact	
Project No.: SAME	Carrier/Waybill Number: FED EX 800846316481		
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	N/A	PPB PAH	Special Instructions/ Conditions of Receipt
05 DPV-W421-111599	11-15-99		X										2	X	
06 DPV-W422-111599															
07 DPV-W439-111599															
08 DPV-W434-111599															
09 BTF-BW-111599															
10 BTF-ACFE-111599															
11 STP-W410-111599	11-15-99		X										2	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: MZK	11-15-99	1400	1. Received By: [signature]	11/16/99	9:00
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments: cooler temp 1.2°C

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

Chain of Custody Record

Quanterra

1.0°C

QUA-4124 07F

Client: CITY OF ST. LOUIS PARK UTILITY DIVISION	Project Manager: SCOTT ANDERSON	Date: 11-15-99	Chain of Custody Number: 23554
Address: 3752 WOODDALE AVENUE	Telephone Number (Area Code)/Fax Number: 924-2557 (612) 924-2570	Lab Number: DAK160131	Page 3 of 4
City: ST. LOUIS PARK, MN 55416	Site Contact: SAME	Lab Contact:	
Project Name: SAME	Carrier/Waybill Number: FED EX 800846316481		
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): PHENOLS	Special Instructions/ Conditions of Receipt
01 DPV-W420TP-111599	11-15-99		X					X					1	X	
02 DPV-W420TPD-111599															
03 DPV-W420TPMS-111599															
04 DPV-W420TPMSD-111599															
05 DPV-W420TPFB-111599															
06 DPV-W420TPFBD-111599															
07 DPV-W421TP-111599															
08 DPV-W422TP-111599															
09 DPV-W439TP-111599															
10 DPV-W434TP-111599															
11 BTF-BWTP-111599															
12 BTF-ACFETP-111599	11-15-99		X					X					1	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):

1 Relinquished By: [signature]	Date: 11-15-99	Time: 1400	1 Received By: [signature]	Date: 11/16/99	Time: 9:00
2 Relinquished By:	Date:	Time:	2 Received By:	Date:	Time:
3. Relinquished By:	Date:	Time:	3 Received By:	Date:	Time:

Comments: cooler temp 1.0°C

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

[redacted]

Chain of Custody Record

Quanterra 1.0°C

QUA-4124 079

Client: CITY OF ST. LOUIS PARK UTILITY DIVISION	Project Manager: Scott Anderson	Date: 11-15-99	Chain of Custody Number: 23555
Address: 3752 WOODDALE AVENUE	Telephone Number (Area Code)/Fax Number: 924-2557 (612) 924-2570	Lab Number: 09K160131	Page 4 of 4
City: ST. LOUIS PARK, MN 55416	Site Contact: SAME	Lab Contact:	
Project Name: SAME	Carrier/Waybill Number: FED EX 800846316481		
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): PHENOLS	Special Instructions/ Conditions of Receipt
12	PCJ-SLP4TP-111599	11-15-99		X				1	X					1	X	
11	STP-W410TP-111599	11-15-99		X					X					1	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: MZM	11-15-99	1400	1. Received By: [signature]	11/16/99	9:00
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments: cooler temp 1.0°C

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

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Advanced Analytical Services

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 467-9136 Fax

CASE NARRATIVE

FOR

City of St. Louis Park

December 20, 1999

Quanterra Environmental Services

Project Lot Number D9K160118

Introduction

Eight aqueous samples (including matrix QC) were received at Quanterra Environmental Services, Denver Laboratory on November 16, 1999. The samples were logged in under Quanterra Denver's project lot number D9K160118. A cross reference associating Quanterra Denver's laboratory sample numbers to the actual field sample number is included. The samples were analyzed for part per trillion (ppt) PAHs.

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the October 1999 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.

The spike compound phenanthrene was reported in the method blank at a concentration of 3.3 ng/L which is above the 1.3ng/L reporting limit but below the 5 times allowable in the QAPP.

The spike compound quinoline was not recovered in the laboratory control sample and recovered at 139% in the duplicate laboratory control sample. Quinoline was recovered within acceptance limits in the matrix spike and matrix spike duplicate samples. All surrogates were recovered within acceptance limits for all client and QC samples.

Except for the above, this data package is in compliance with the terms and conditions of the October 1998 QPP both technically and for completeness.

Reported By: Kurt C. Ill **Date:** December 20, 1999

Kurt C. Ill
Program Manager, AASG

EXECUTIVE SUMMARY - Detection Highlights

D9K160118

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
GAC-SLP4T-111599 11/15/99 12:00 001				
2-Methylnaphthalene	2.6 J	3.9	ng/L	SW846 8270A SIM
Naphthalene	4.7 J	6.5	ng/L	SW846 8270A SIM
Phenanthrene	4.4	1.3	ng/L	SW846 8270A SIM
GAC-SLP4TD-111599 11/15/99 12:00 002				
Fluoranthene	2.4 J	3.1	ng/L	SW846 8270A SIM
Fluorene	2.0	1.0	ng/L	SW846 8270A SIM
2-Methylnaphthalene	4.3	3.9	ng/L	SW846 8270A SIM
Naphthalene	5.8 J	6.5	ng/L	SW846 8270A SIM
Phenanthrene	6.2	1.3	ng/L	SW846 8270A SIM
1-Methylnaphthalene	2.2 J	2.8	ng/L	SW846 8270A SIM
GAC-SLP4TFB-111599 11/15/99 12:00 003				
Fluoranthene	1.6 J	3.1	ng/L	SW846 8270A SIM
2-Methylnaphthalene	2.9 J	3.9	ng/L	SW846 8270A SIM
Naphthalene	5.0 J	6.5	ng/L	SW846 8270A SIM
Phenanthrene	3.7	1.3	ng/L	SW846 8270A SIM
GAC-SLP4TFBD-111599 11/15/99 12:00 004				
Naphthalene	4.4 J	6.5	ng/L	SW846 8270A SIM
2-Methylnaphthalene	2.2 J	3.9	ng/L	SW846 8270A SIM
Phenanthrene	3.6	1.3	ng/L	SW846 8270A SIM
GAC-SLP4TLE-111599 11/15/99 12:00 005				
Acenaphthene	88	1.3	ng/L	SW846 8270A SIM
Fluoranthene	6.5	3.1	ng/L	SW846 8270A SIM
Fluorene	1.6	1.0	ng/L	SW846 8270A SIM
2-Methylnaphthalene	2.8 J	3.9	ng/L	SW846 8270A SIM
Naphthalene	5.7 J	6.5	ng/L	SW846 8270A SIM
Phenanthrene	5.6	1.3	ng/L	SW846 8270A SIM
Pyrene	6.5	1.4	ng/L	SW846 8270A SIM
Carbazole	12	1.9	ng/L	SW846 8270A SIM
Indene	13	0.90	ng/L	SW846 8270A SIM
2,3-Dihydroindene	100	5.0	ng/L	SW846 8270A SIM
Benzo(b)thiophene	9.8	0.90	ng/L	SW846 8270A SIM

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

D9K160118

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
GAC-SLP10T-111599 11/15/99 12:00 006				
Acenaphthene	28	1.3	ng/L	SW846 8270A SIM
Acenaphthylene	4.9	1.4	ng/L	SW846 8270A SIM
Fluoranthene	2.0 J	3.1	ng/L	SW846 8270A SIM
Fluorene	7.5	1.0	ng/L	SW846 8270A SIM
Naphthalene	4.3 J	6.5	ng/L	SW846 8270A SIM
Phenanthrene	4.8	1.3	ng/L	SW846 8270A SIM
Indene	1.8	0.90	ng/L	SW846 8270A SIM
2,3-Dihydroindene	23	5.0	ng/L	SW846 8270A SIM

ANALYTICAL METHODS SUMMARY

D9K160118

PARAMETER	ANALYTICAL METHOD
Base/Neutrals and Acids	SW846 8270A SIM

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

METHOD / ANALYST SUMMARY

D9K160118

ANALYTICAL METHOD	ANALYST	ANALYST ID
SW846 8270A SIM	Monica R. Edwards	001685

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

D9K160118

WO #	SAMPLE#	CLIENT SAMPLE ID	DATE	TIME
D53AM	001	GAC-SLP4T-111599	11/15/99	12:00
D53C3	002	GAC-SLP4TD-111599	11/15/99	12:00
D53C5	003	GAC-SLP4TFB-111599	11/15/99	12:00
D53DC	004	GAC-SLP4TFBD-111599	11/15/99	12:00
D53DL	005	GAC-SLP4TLE-111599	11/15/99	12:00
D53DT	006	GAC-SLP10T-111599	11/15/99	12:00

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight

CITY OF ST. LOUIS PARK

Client Sample ID: GAC-SLP4T-111599

GC/MS Semivolatiles

Lot-Sample #...: D9K160118-001 Work Order #...: D53AM101 Matrix.....: WATER
Date Sampled...: 11/15/99 12:00 Date Received..: 11/16/99
Prep Date.....: 11/20/99 Analysis Date..: 11/30/99
Prep Batch #...: 9324209 Analysis Time..: 17:21
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	1.3	ng/L
Acenaphthylene	ND	1.4	ng/L
Anthracene	ND	2.7	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Chrysene	ND	2.8	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluoranthene	ND	3.1	ng/L
Fluorene	ND	1.0	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
2-Methylnaphthalene	**2.6 J**	**3.9**	**ng/L**
Naphthalene	**4.7 J**	**6.5**	**ng/L**
Phenanthrene	**4.4**	**1.3**	**ng/L**
Pyrene	ND	1.4	ng/L
Carbazole	ND	1.9	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	69	(10 - 118)
Fluorene d-10	74	(41 - 162)
Naphthalene-d8	84	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: GAC-SLP4TD-111599

GC/MS Semivolatiles

Lot-Sample #...: D9K160118-002 Work Order #...: D53C3101 Matrix.....: WATER
Date Sampled...: 11/15/99 12:00 Date Received..: 11/16/99
Prep Date.....: 11/20/99 Analysis Date..: 11/30/99
Prep Batch #...: 9324209 Analysis Time..: 19:17
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	1.3	ng/L
Acenaphthylene	ND	1.4	ng/L
Anthracene	ND	2.7	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Chrysene	ND	2.8	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluoranthene	2.4 J	3.1	ng/L
Fluorene	2.0	1.0	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
2-Methylnaphthalene	4.3	3.9	ng/L
Naphthalene	5.8 J	6.5	ng/L
Phenanthrene	6.2	1.3	ng/L
Pyrene	ND	1.4	ng/L
Carbazole	ND	1.9	ng/L
1-Methylnaphthalene	2.2 J	2.8	ng/L
Indene	ND	0.90	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	67	(10 - 118)
Fluorene d-10	81	(41 - 162)
Naphthalene-d8	90	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: GAC-SLP4TFB-111599

GC/MS Semivolatiles

Lot-Sample #...: D9K160118-003 Work Order #...: D53C5101 Matrix.....: WATER
Date Sampled...: 11/15/99 12:00 Date Received..: 11/16/99
Prep Date.....: 11/20/99 Analysis Date..: 11/30/99
Prep Batch #...: 9324209 Analysis Time..: 19:56
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	1.3	ng/L
Acenaphthylene	ND	1.4	ng/L
Anthracene	ND	2.7	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Chrysene	ND	2.8	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluoranthene	**1.6 J**	**3.1**	**ng/L**
Fluorene	ND	1.0	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
2-Methylnaphthalene	**2.9 J**	**3.9**	**ng/L**
Naphthalene	**5.0 J**	**6.5**	**ng/L**
Phenanthrene	**3.7**	**1.3**	**ng/L**
Pyrene	ND	1.4	ng/L
Carbazole	ND	1.9	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Indene	ND	0.90	ng/L
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	104	(10 - 118)
Fluorene d-10	83	(41 - 162)
Naphthalene-d8	93	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: GAC-SLP4TFBD-111599

GC/MS Semivolatiles

Lot-Sample #...: D9K160118-004 Work Order #...: D53DC102 Matrix.....: WATER
Date Sampled...: 11/15/99 12:00 Date Received..: 11/16/99
Prep Date.....: 11/20/99 Analysis Date..: 11/30/99
Prep Batch #...: 9324209 Analysis Time..: 20:34
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Indene	ND	0.90	ng/L
Naphthalene	**4.4 J**	**6.5**	**ng/L**
Benzo(b)thiophene	ND	0.90	ng/L
Quinoline	ND	6.9	ng/L
Indole	ND	2.5	ng/L
2-Methylnaphthalene	**2.2 J**	**3.9**	**ng/L**
1-Methylnaphthalene	ND	2.8	ng/L
Biphenyl	ND	4.3	ng/L
Acenaphthylene	ND	1.4	ng/L
Acenaphthene	ND	1.3	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluorene	ND	1.0	ng/L
Dibenzothiophene	ND	1.1	ng/L
Phenanthrene	**3.6**	**1.3**	**ng/L**
Anthracene	ND	2.7	ng/L
Acridine	ND	6.1	ng/L
Carbazole	ND	1.9	ng/L
Fluoranthene	ND	3.1	ng/L
Pyrene	ND	1.4	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Chrysene	ND	2.8	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Perylene	ND	2.5	ng/L
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	83	(10 - 118)
Fluorene d-10	70	(41 - 162)
Naphthalene-d8	80	(21 - 108)

NOTE(S):

Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: GAC-SLP4TLE-111599

GC/MS Semivolatiles

Lot-Sample #...: D9K160118-005 Work Order #...: D53DL101 Matrix.....: WATER
Date Sampled...: 11/15/99 12:00 Date Received..: 11/16/99
Prep Date.....: 11/20/99 Analysis Date..: 11/30/99
Prep Batch #...: 9324209 Analysis Time..: 21:13
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**88**	**1.3**	**ng/L**
Acenaphthylene	ND	1.4	ng/L
Anthracene	ND	2.7	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Chrysene	ND	2.8	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluoranthene	**6.5**	**3.1**	**ng/L**
Fluorene	**1.6**	**1.0**	**ng/L**
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
2-Methylnaphthalene	**2.8 J**	**3.9**	**ng/L**
Naphthalene	**5.7 J**	**6.5**	**ng/L**
Phenanthrene	**5.6**	**1.3**	**ng/L**
Pyrene	**6.5**	**1.4**	**ng/L**
Carbazole	**12**	**1.9**	**ng/L**
1-Methylnaphthalene	ND	2.8	ng/L
Indene	**13**	**0.90**	**ng/L**
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	**100**	**5.0**	**ng/L**
Benzo(b)thiophene	**9.8**	**0.90**	**ng/L**
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	59	(10 - 118)
Fluorene d-10	75	(41 - 162)
Naphthalene-d8	80	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: GAC-SLP10T-111599

GC/MS Semivolatiles

Lot-Sample #...: D9K160118-006 Work Order #...: D53DT101 Matrix.....: WATER
Date Sampled...: 11/15/99 12:00 Date Received..: 11/16/99
Prep Date.....: 11/20/99 Analysis Date..: 11/30/99
Prep Batch #...: 9324209 Analysis Time..: 21:51
Dilution Factor: 1

Method.....: SW846 8270A SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**28**	**1.3**	**ng/L**
Acenaphthylene	**4.9**	**1.4**	**ng/L**
Anthracene	ND	2.7	ng/L
Benzo(a)anthracene	ND	2.5	ng/L
Benzo(b)fluoranthene	ND	2.5	ng/L
Benzo(k)fluoranthene	ND	2.3	ng/L
Benzo(ghi)perylene	ND	2.8	ng/L
Benzo(a)pyrene	ND	2.3	ng/L
Benzo(e)pyrene	ND	1.9	ng/L
Biphenyl	ND	4.3	ng/L
Chrysene	ND	2.8	ng/L
Dibenz(a,h)anthracene	ND	1.6	ng/L
Dibenzofuran	ND	1.0	ng/L
Fluoranthene	**2.0 J**	**3.1**	**ng/L**
Fluorene	**7.5**	**1.0**	**ng/L**
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L
2-Methylnaphthalene	ND	3.9	ng/L
Naphthalene	**4.3 J**	**6.5**	**ng/L**
Phenanthrene	**4.8**	**1.3**	**ng/L**
Pyrene	ND	1.4	ng/L
Carbazole	ND	1.9	ng/L
1-Methylnaphthalene	ND	2.8	ng/L
Indene	**1.8**	**0.90**	**ng/L**
Quinoline	ND	6.9	ng/L
2,3-Benzofuran	ND	5.1	ng/L
2,3-Dihydroindene	**23**	**5.0**	**ng/L**
Benzo(b)thiophene	ND	0.90	ng/L
Indole	ND	2.5	ng/L
Acridine	ND	6.1	ng/L
Perylene	ND	2.5	ng/L
Dibenzothiophene	ND	1.1	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	70	(10 - 118)
Fluorene d-10	75	(41 - 162)
Naphthalene-d8	79	(21 - 108)

NOTE(S):

J Estimated result. Result is less than RL

QC DATA ASSOCIATION SUMMARY

D9K160118

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WATER	SW846 8270A SIM		9324209	9324078
002	WATER	SW846 8270A SIM		9324209	9324078
003	WATER	SW846 8270A SIM		9324209	9324078
004	WATER	SW846 8270A SIM		9324209	9324078
005	WATER	SW846 8270A SIM		9324209	9324078
006	WATER	SW846 8270A SIM		9324209	9324078

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D9K160118 **Work Order #...:** D5D2T101 **Matrix.....:** WATER
MB Lot-Sample #: D9K200000-209

Prep Date.....: 11/20/99 **Analysis Time..:** 15:26
Analysis Date..: 11/30/99 **Prep Batch #...:** 9324209
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthene	ND	1.3	ng/L	SW846 8270A SIM
Acenaphthylene	ND	1.4	ng/L	SW846 8270A SIM
Anthracene	ND	2.7	ng/L	SW846 8270A SIM
Benzo(a)anthracene	ND	2.5	ng/L	SW846 8270A SIM
Benzo(b)fluoranthene	ND	2.5	ng/L	SW846 8270A SIM
Benzo(k)fluoranthene	ND	2.3	ng/L	SW846 8270A SIM
Benzo(ghi)perylene	ND	2.8	ng/L	SW846 8270A SIM
Benzo(a)pyrene	ND	2.3	ng/L	SW846 8270A SIM
Benzo(e)pyrene	ND	1.9	ng/L	SW846 8270A SIM
Biphenyl	ND	4.3	ng/L	SW846 8270A SIM
Chrysene	ND	2.8	ng/L	SW846 8270A SIM
Dibenz(a,h)anthracene	ND	1.6	ng/L	SW846 8270A SIM
Dibenzofuran	ND	1.0	ng/L	SW846 8270A SIM
Fluoranthene	ND	3.1	ng/L	SW846 8270A SIM
Fluorene	ND	1.0	ng/L	SW846 8270A SIM
Indeno(1,2,3-cd)pyrene	ND	2.1	ng/L	SW846 8270A SIM
2-Methylnaphthalene	ND	3.9	ng/L	SW846 8270A SIM
Naphthalene	ND	6.5	ng/L	SW846 8270A SIM
Phenanthrene	**3.3**	**1.3**	**ng/L**	**SW846 8270A SIM**
Pyrene	ND	1.4	ng/L	SW846 8270A SIM
Carbazole	ND	1.9	ng/L	SW846 8270A SIM
1-Methylnaphthalene	ND	2.8	ng/L	SW846 8270A SIM
Indene	ND	0.90	ng/L	SW846 8270A SIM
Quinoline	ND	6.9	ng/L	SW846 8270A SIM
2,3-Benzofuran	ND	5.1	ng/L	SW846 8270A SIM
2,3-Dihydroindene	ND	5.0	ng/L	SW846 8270A SIM
Benzo(b)thiophene	ND	0.90	ng/L	SW846 8270A SIM
Indole	ND	2.5	ng/L	SW846 8270A SIM
Acridine	ND	6.1	ng/L	SW846 8270A SIM
Perylene	ND	2.5	ng/L	SW846 8270A SIM
Dibenzothiophene	ND	1.1	ng/L	SW846 8270A SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	85	(10 - 118)
Fluorene d-10	76	(41 - 162)
Naphthalene-d8	80	(21 - 108)

NOTE(S):

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

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D9K160118 Work Order #...: D5D2T102-LCS Matrix.....: WATER
LCS Lot-Sample#: D9K200000-209 D5D2T103-LCSD
Prep Date.....: 11/20/99 Analysis Date..: 11/30/99
Prep Batch #...: 9324209 Analysis Time..: 16:04
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
2-Methylnaphthalene	10.0	9.94	ng/L	99		SW846 8270A SIM
	10.0	9.49	ng/L	95	4.6	SW846 8270A SIM
Benzo(e)pyrene	10.0	8.73	ng/L	87		SW846 8270A SIM
	10.0	8.80	ng/L	88	0.77	SW846 8270A SIM
Chrysene	10.0	8.34	ng/L	83		SW846 8270A SIM
	10.0	8.18	ng/L	82	1.9	SW846 8270A SIM
Fluorene	10.0	9.49	ng/L	95		SW846 8270A SIM
	10.0	9.45	ng/L	94	0.44	SW846 8270A SIM
Indene	10.0	8.02	ng/L	80		SW846 8270A SIM
	10.0	7.91	ng/L	79	1.3	SW846 8270A SIM
Naphthalene	10.0	10.7	ng/L	107		SW846 8270A SIM
	10.0	10.5	ng/L	105	1.4	SW846 8270A SIM
Quinoline	10.0		ng/L	0.0		SW846 8270A SIM
	10.0	13.9 p	ng/L	139	200	SW846 8270A SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	87	(10 - 118)
	86	(10 - 118)
Fluorene d-10	74	(41 - 162)
	76	(41 - 162)
Naphthalene-d8	82	(21 - 108)
	82	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

p Relative percent difference (RPD) is outside stated control limits

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D9K160118 Work Order #...: D5D2T102-LCS Matrix.....: WATER
LCS Lot-Sample#: D9K200000-209 D5D2T103-LCSD
Prep Date.....: 11/20/99 Analysis Date..: 11/30/99
Prep Batch #...: 9324209 Analysis Time..: 16:04
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
2-Methylnaphthalene	99	(20 - 150)			SW846 8270A SIM
	95	(20 - 150)	4.6	(0-20)	SW846 8270A SIM
Benzo(e)pyrene	87	(20 - 150)			SW846 8270A SIM
	88	(20 - 150)	0.77	(0-20)	SW846 8270A SIM
Chrysene	83	(20 - 132)			SW846 8270A SIM
	82	(20 - 132)	1.9	(0-20)	SW846 8270A SIM
Fluorene	95	(69 - 118)			SW846 8270A SIM
	94	(69 - 118)	0.44	(0-20)	SW846 8270A SIM
Indene	80	(20 - 150)			SW846 8270A SIM
	79	(20 - 150)	1.3	(0-20)	SW846 8270A SIM
Naphthalene	107	(20 - 150)			SW846 8270A SIM
	105	(20 - 150)	1.4	(0-20)	SW846 8270A SIM
Quinoline	0.0	(20 - 150)			SW846 8270A SIM
	139 p	(20 - 150)	200	(0-20)	SW846 8270A SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	87	(10 - 118)
	86	(10 - 118)
Fluorene d-10	74	(41 - 162)
	76	(41 - 162)
Naphthalene-d8	82	(21 - 108)
	82	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

p Relative percent difference (RPD) is outside stated control limits

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D9K160118 **Work Order #...:** D53AM102-MS **Matrix.....:** WATER
MS Lot-Sample #: D9K160118-001 D53AM103-MSD
Date Sampled...: 11/15/99 12:00 **Date Received..:** 11/16/99
Prep Date.....: 11/20/99 **Analysis Date..:** 11/30/99
Prep Batch #...: 9324209 **Analysis Time..:** 18:00
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
2-Methylnaphthalene	**2.6**	**10.1**	**10.2**	**ng/L**	**74**		**SW846 8270A SIM**
	2.6	**10.2**	**11.3**	**ng/L**	**86**	**10**	**SW846 8270A SIM**
Benzo(e)pyrene	**ND**	**10.1**	**4.14**	**ng/L**	**41**		**SW846 8270A SIM**
	ND	**10.2**	**4.16**	**ng/L**	**41**	**0.47**	**SW846 8270A SIM**
Chrysene	**ND**	**10.1**	**6.53**	**ng/L**	**64**		**SW846 8270A SIM**
	ND	**10.2**	**6.73**	**ng/L**	**66**	**2.8**	**SW846 8270A SIM**
Fluorene	**ND**	**10.1**	**9.04**	**ng/L**	**89**		**SW846 8270A SIM**
	ND	**10.2**	**9.69**	**ng/L**	**95**	**6.9**	**SW846 8270A SIM**
Indene	**ND**	**10.1**	**7.46**	**ng/L**	**74**		**SW846 8270A SIM**
	ND	**10.2**	**8.54**	**ng/L**	**84**	**13**	**SW846 8270A SIM**
Naphthalene	**4.7**	**10.1**	**11.8**	**ng/L**	**71**		**SW846 8270A SIM**
	4.7	**10.2**	**13.0**	**ng/L**	**82**	**9.2**	**SW846 8270A SIM**
Quinoline	**ND**	**10.1**	**8.26**	**ng/L**	**81**		**SW846 8270A SIM**
	ND	**10.2**	**9.96**	**ng/L**	**98**	**19**	**SW846 8270A SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	65	(10 - 118)
	70	(10 - 118)
Fluorene d-10	72	(41 - 162)
	78	(41 - 162)
Naphthalene-d8	81	(21 - 108)
	89	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D9K160118 **Work Order #...:** D53AM102-MS **Matrix.....:** WATER
MS Lot-Sample #: D9K160118-001 D53AM103-MSD
Date Sampled...: 11/15/99 12:00 **Date Received..:** 11/16/99
Prep Date.....: 11/20/99 **Analysis Date..:** 11/30/99
Prep Batch #...: 9324209 **Analysis Time..:** 18:00
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
2-Methylnaphthalene	**74**	**(20 - 150)**			**SW846 8270A SIM**
	86	**(20 - 150)**	**10**	**(0-20)**	**SW846 8270A SIM**
Benzo(e)pyrene	**41**	**(20 - 150)**			**SW846 8270A SIM**
	41	**(20 - 150)**	**0.47**	**(0-20)**	**SW846 8270A SIM**
Chrysene	**64**	**(20 - 132)**			**SW846 8270A SIM**
	66	**(20 - 132)**	**2.8**	**(0-20)**	**SW846 8270A SIM**
Fluorene	**89**	**(69 - 118)**			**SW846 8270A SIM**
	95	**(69 - 118)**	**6.9**	**(0-20)**	**SW846 8270A SIM**
Indene	**74**	**(20 - 150)**			**SW846 8270A SIM**
	84	**(20 - 150)**	**13**	**(0-20)**	**SW846 8270A SIM**
Naphthalene	**71**	**(20 - 150)**			**SW846 8270A SIM**
	82	**(20 - 150)**	**9.2**	**(0-20)**	**SW846 8270A SIM**
Quinoline	**81**	**(20 - 150)**			**SW846 8270A SIM**
	98	**(20 - 150)**	**19**	**(0-20)**	**SW846 8270A SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	65	(10 - 118)
	70	(10 - 118)
Fluorene d-10	72	(41 - 162)
	78	(41 - 162)
Naphthalene-d8	81	(21 - 108)
	89	(21 - 108)

NOTE(S):

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

Bold print denotes control parameters

Chain of Custody Record

Quanterra

2.6°C

QUA-4124 0797

Client: CITY OF ST. LOUIS PARK UTILITY DIVISION 3752 WOODDALE AVENUE ST. LOUIS PARK, MN 55416	Project Manager: SCOTT ANDERSON	Date: 11-15-99	Chain of Custody Number: 23551
Address	Telephone Number (Area Code)/Fax Number: 924-2557 (612) 924-2570	Lab Number: D9K166118	Page 1 of 4
City	Site Contact: SAME / Lab Contact:		
Project Name: SAME	Carrier/Waybill Number: FED EX 800846316481		
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	N/A	Analysis (Attach list if more space is needed): PPL PAH	Special Instructions/ Conditions of Receipt
01MS BAC-SLP4TMS-111599	11-15-99		X										6	X	
02SD BAC-SLP4TMSD-111599	11-15-99		X										6	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: MZK	11-15-99	1400	1 Received By: [signature]	11/16/99	9:00
2. Relinquished By			2 Received By		
3. Relinquished By			3 Received By		

Comments: cooler temp 2.6°C

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

[redacted]

Chain of Custody Record

Quanterra

0.9°C

QUA-4124 0797

Client: CITY OF ST. LOUIS PARK UTILITY DIVISION	Project Manager: SCOTT ANDERSON	Date: 11-15-99	Chain of Custody Number: 23549
Address: 3752 WOODDALE AVENUE	Telephone Number (Area Code)/Fax Number: 924-2557 (612) 924-2570	Lab Number: D9K160118	Page 2 of 4
City: ST. LOUIS PARK, MN 55416	Site Contact: SAME	Lab Contact:	
Project Name: SAME	Carrier/Waybill Number: FEDEX 800846316481		
Contract/Purchase Order/Quote No.			

Analysis (Attach list if more space is needed): PPL PAH

Special Instructions/ Conditions of Receipt

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	N/A	PPL PAH
01 GAC-SLP4T-111599	11-15-99		X										6	X
02 GAC-SLP4TD-111599			X										6	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: [signature]	11-15-99	1400	1 Received By: [signature]	11/16/99	9:00
2 Relinquished By			2. Received By		
3. Relinquished By			3 Received By		

Comments: cooler temp 0.9°C

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

[redacted]

Chain of Custody Record

Quanterra

2.2°C

QUA-4124 0797

Client: CITY OF ST. LOUIS PARK UTILITY DIVISION	Project Manager: Scott Anderson	Date: 11-15-99	Chain of Custody Number: 23550
Address: 3752 WOODDALE AVENUE	Telephone Number (Area Code)/Fax Number: 924-2557 (612) 924-2570	Lab Number: 09K160118	Page 3 of 4
City: ST. LOUIS PARK, MN 55416	Site Contact: SAME	Lab Contact:	
Project Name: SAME	Carrier/Waybill Number: FED EX 800846316481		
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	N/A	Analysis (Attach list if more space is needed): PPT PAH	Special Instructions/ Conditions of Receipt
03 GAC-SLP4TFB-111599	11-15-99		X										6	X	
04 GAC-SLP4TFBD-111599	11-15-99		X										6	X	

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: MZH	11-15-99	1400	1 Received By: [signature]	11/16/99	9:00
2 Relinquished By:			2 Received By:		
3 Relinquished By:			3 Received By:		

Comments: cooler temperature 2.2°C

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

[redacted]

Chain of Custody Record

Quanterra 2.7°C

QUA-4124 0797

Client: CITY OF ST. LOUIS PARK UTILITY DIVISION 3752 WOODDALE AVENUE ST. LOUIS PARK, MN 55416	Project Manager: SCOTT ANDERSON	Date: 11-15-99	Chain of Custody Number: 23548
Address	Telephone Number (Area Code)/Fax Number: 924-2557 (612) 924-2570	Lab Number: DAK160118	Page 4 of 4
City	Site Contact: SAME	Lab Contact:	
Project Name: SAME	Carrier/Waybill Number: FED EX 800846316481		
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	N/A	PET_PAH	Special Instructions/ Conditions of Receipt
05 GAC-SLP4TLE-111599	11-15-99		X										6	X	
06 GAC-SLP10T-111599	11-15-99		X										6	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: MZ	11-15-99	1400	1. Received By: [signature]	11/16/99	9:00am
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments: cooler temp 2.7°C

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