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ANNUAL MONITORING REPORT FOR 1994

K-07
3/15/95

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

SUBMITTED MARCH 15, 1995

part A

CITY

ENSR — RMAL

CITY OF ST. LOUIS PARK

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

March 15, 1995

Regional Administrator
United States Environmental
Protection Agency, Region 5
ATTN: Darryl Owens
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Chicago, Illinois 60604

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President
Reilly Industries, Inc.
1510 Market Square Center
151 North Delaware
Indianapolis, Indiana 46204

RE: United States of America, et al. vs. Reilly Tar &
Chemical Corporation, et al.
File No. Civ. 4-80-469

Gentlemen:

Enclosed is the 1994 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).

Sincerely,

Scott E. Anderson
Superintendent of Utilities

SEA/pmm
enclosure

cc: William Gregg (w/2 enclosures)
Elizabeth Thompson (w/o enclosure)
Reilly File

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ANNUAL MONITORING REPORT

FOR 1994

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

PURSUANT TO
CONSENT DECREE - REMEDIAL ACTION PLAN
SECTION 3.4

UNITED STATES OF AMERICA, ET AL.

VS.

REILLY TAR AND CHEMICAL CORPORATION, ET AL.

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

MARCH 15, 1995

CONTENTS

1.0 INTRODUCTION 1-1

2.0 MT. SIMON-HINCKLEY AQUIFER 2-1

3.0 IRONTON-GALESVILLE AQUIFER 3-1

4.0 PRAIRIE DU CHIEN-JORDAN AQUIFER 4-1

5.0 ST. PETER AQUIFER 5-1

6.0 DRIFT-PLATTEVILLE AQUIFER 6-1
- 6.1 Drift-Platteville Aquifer Source and Gradient Control Wells 6-1
- 6.2 Drift-Platteville Aquifer Monitoring 6-1

APPENDICES

LIST OF TABLES

3-1 Summary of Total PAH in Well W105 - 1988 to 1994 3-2

4-1 Summary of Total PAH Analytical Results for Prairie du Chien-Jordan Aquifer Wells - 1989 through 1994 4-2

5-1 Summary of Total PAH Analytical Results, St. Peter Aquifer - 1989 through 1994 5-2

6-1 Summary of Analytical Results for Wells W420, W421 and W422 - 1988 through 1994 6-6

LIST OF FIGURES

2-1 Summary of Ground Water Monitoring Results for the Mt. Simon-Hinckley Aquifer - 1994 2-2

3-1 Summary of Ground Water Monitoring Results for the Ironton-Galesville Aquifer - First Quarter 1994 3-3

4-1 Summary of Ground Water Monitoring Results for the Prairie du Chien-Jordan Aquifer - First Half 1994 . . . . . In Pocket

4-2 Summary of Ground Water Monitoring Results for the Prairie du Chien-Jordan Aquifer - Second Half 1994 . . . . . In Pocket

5-1 Summary of Ground Water Monitoring Results for the St. Peter Aquifer - First Half 1994 . . . . . In Pocket

5-2 Summary of Ground Water Monitoring Results for the St. Peter Aquifer - Second Half 1994 . . . . . In Pocket

6-1 Summary of Ground Water Monitoring Results for the Drift-Platteville Aquifer (Wells W420, W421, W422) - First Quarter 1994 6-2

6-2 Summary of Ground Water Monitoring Results for the Drift-Platteville Aquifer (Wells W420, W421, W422) - Second Quarter 1994 6-3

6-3 Summary of Ground Water Monitoring Results for the Drift-Platteville Aquifer (Wells W420, W421, W422) - Third Quarter 1994 6-4

6-4 Summary of Ground Water Monitoring Results for the Drift-Platteville Aquifer (Wells W420, W421, W422) - Fourth Quarter 1994 6-5

6-5 Summary of Ground Water Monitoring Results for the Platteville Aquifer . . In Pocket

6-6 Summary of Ground Water Monitoring Results for the Drift Aquifer . . . . . In Pocket

6-7 Inferred Area of Contamination in the Drift-Platteville Aquifer - 1994 6-10

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 1994 that are not presented in previous reports.

The ground water monitoring conducted in 1994 was performed in accordance with the Sampling Plan submitted in October 1993. The City of St. Louis Park (City) has overall responsibility for conducting the ground water monitoring required by the CD-RAP. In accordance with the Sampling Plan, the City was assisted in 1994 by ENSR who collected ground water samples from monitoring wells, and by Rocky Mountain Analytical Laboratory (RMAL) who performed the analyses for PAH and phenolics.

The 1994 monitoring data are presented separately for each aquifer that was monitored, starting with the Mt. Simon-Hinckley Aquifer, which is the deepest 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, Platteville, and Drift 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 1994. 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 as Appendix A.

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 drinking water criteria for these compounds. The results for all four wells are consistent with historical water quality for the aquifer. It appears that the Mt. Simon-Hinckley Aquifer has not been significantly affected by contaminants originating from the former Reilly Tar & Chemical (Reilly) site.

Figure 2-1
Summary of Ground Water Monitoring Results
for the Mt. Simon-Hinckley Aquifer 1994

3.0 IRONTON-GALESVILLE AQUIFER

Analytical results from ground water 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.

Ground water samples were collected once in 1994, as required by the CD-RAP during the second year after cessation of pumping in well W105.

Analytical results from the 1994 sampling events (2640 ppt total PAH) is provided in Appendix B and presented in Table 3-1. Water quality results from the 1994 sampling event is presented in Figure 3-1.

TABLE 3-1

Summary of Total PAH in Well W105
1988 to 1994

Sampling Date	PAH (ng/ℓ)
February 1988	9000
June 1988	2400
September 1988	3670
December 1988	2035
June 1989	1400
December 1989	1086
March 1990	2347
August 1990	2600
May 1991	2164
August 1991	1014
February 1992	2185
June 1992	5412
November 1992	29,900
January 11, 1993[1]	1649
January 19, 1993[1]	1379
March 29, 1994	2640

1 Additional samples required per CD-RAP Section 6 1 5

City of St. Louis Park

Figure 3-1
summary of Ground Water Monitoring Results
for the Ironton-Galesville Aquifer 1994

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 1994 Sampling Plan. In addition to water quality monitoring, ground water elevations were measured at the Prairie du Chien-Jordan Aquifer wells during sampling. Wells SLP5, W119, and H3 were omitted from sampling during 1994 because owners have taken these wells out of service. A total of 23 wells were used to collect ground water samples during 1994.

Summaries of analytical data and ground water elevations for the sampling rounds are shown in Figures 4-1 and 4-2 (in pocket). These two figures indicate that ground water 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).

Table 4-1 presents a summary of 1989 through 1994 analytical results for Prairie du Chien-Jordan Aquifer wells. Laboratory reports of the monitoring are presented in Appendix C. The amount and distribution of PAH in the aquifer in 1994 was consistent with historical patterns. In 1994, other PAH were detected in concentrations ranging from 3 ppt (E13) to 60,000 ppt (well W23). A total of eight wells exceed the drinking water criterion for other PAH (280 ppt) (W23, W48, SLP10, W403, W29, W40, W70 and SLP4).

The levels of total carcinogenic PAH detected range from below detectable levels to 9 ppt, (W23) which is below the drinking water criteria of 28 ppt.

The results for well W403 exceeded the drinking water criteria for PAH. Other monitoring wells between the Reilly site and well W403 exhibit PAH levels below the drinking water criteria (e.g., see historical data for wells SLP4 and SLP6 on Table 4-1). It is not known if the PAH in well W403 is related to contamination from the Reilly site.

5.0 ST. PETER AQUIFER

In accordance with the 1994 Sampling Plan, the St. Peter Aquifer wells were monitored twice in 1994. In addition to water quality monitoring, ground water elevations were measured in the St. Peter Aquifer wells during each monitoring round. Summaries of analytical data and ground water elevations for the first half and second half of 1992 are shown in Figures 5-1 and 5-2 (in pocket). Laboratory results of the monitoring are provided in Appendix D.

A summary of total PAH results from 1991 through 1994 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, W122, W129, W411, W408, and P116.

Ground water samples collected from wells W409 and W410 exhibit total PAH concentrations increasing by more than an order of magnitude when compared to previous years' analytical data. Well W409 is apparently being impacted by PAH sources at the Reilly site that are flowing to well W409 in response to pumping well W410.

The increase in total PAH concentration at well W410 is probably explained by the operation of this well to control the hydraulic gradient in the St. Peter Aquifer. This well is expected to control the flow of ground water through the impacted area of the aquifer.

In conclusion, the 1994 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 ground water as evidenced by the 1994 water quality changes, and the water level contours shown in Figures 5-1 and 5-2. Continued monitoring in accordance with the 1995 Sampling Plan will allow continued evaluation of water quality in the St. Peter Aquifer.

TABLE 4-1

Summary of Total PAH Analytical Results for Prairie du Chien-Jordan Aquifer Wells 1991 through 1994[a]

Well	1991				1992				1993				1994			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
SLP5	-	43	-	-	-	72	-	-	-	-	83	-	-	-	-	-
H6	-	15.5	-	-	-	16	-	-	-	-	3	-	-	6	-	-
E3	-	-	13.3	-	-	25	-	-	-	-	5	-	-	7	-	-
E15	-	12.8	-	-	-	23	-	-	-	-	4	-	-	6	-	-
MTKA6	-	17	-	-	-	23	-	-	-	-	7	-	-	8	-	-
W29	-	410.6	-	-	-	543	-	-	-	-	1926	-	-	749	-	-
W40	-	479.5	-	-	-	285	-	-	-	-	350	-	-	484	-	-
W70	-	676	-	-	-	409	-	-	-	-	319	-	-	303		
W401	-	27.6	-	-	-	10	-	-	-	-	11	-	-	8	-	-
SLP4	-	-	-	-	-	-	-	312	237	259	493	-	-	552	-	1109
SLP8	50.1	-	-	-	-	11	-	20	-	-	-	-	-	-	-	-

a. Results presented are the sum of carcinogenic and other PAH in parts per trillion (ng/ℓ)
b. - Signifies the well was not sampled

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TABLE 4-1

Summary of Total PAH Analytical Results for Prairie du Chien-Jordan Aquifer Wells 1991 through 1994[a]

	1991				1992				1993				1994			
Well	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
W23	87,800	71,800	91,200	82,690	67,000	-	62,000	-	-	-	-	-	-	-	-	60,000
W48	-	-	-	-	-	-	-	-	-	-	430	-	-	286	-	-
SLP6	63.4	77.8	123.3	-	-	124	-	-	212	113	-	-	75	-	-	-
SLP7	50.1	37.2	64.8	-	-	41	-	-	32	-	-	-	-	60	-	-
W406	-	31	41.7	-	-	59	-	-	-	-	22	-	-	31	-	-
E2	-	16.8	25	-	-	19	-	-	-	-	9	-	-	16	-	-
E13	-	12.1	13	-	-	43	-	-	-	-	4	-	-	3	-	-
H3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SLP15	-	-	-	-	-	-	-	3206	-	-	2091	-	-	-	-	-
SLP10	-	320.5	4370	-	-	3070	-	-	-	-	-	-	-	2174	-	-
SLP14	-	100	18.9	-	-	91	-	-	-	-	78	-	-	57	-	-
SLP16	-	33.5	64	-	-	-	-	43	-	-	11	-	-	22	-	-
W402	-	514	18,320	-	-	908	-	-	-	-	145	-	-	109	-	-
W403	-	1086	11,570	-	-	835	-	-	-	-	516	-	-	1278	-	-
W119	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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non-responsive

[redacted]

FIGURE 4 - 2 SUMMARY OF GROUND WATER MONITORING
RESULTS FOR THE PRAIRIE DU CHIEN - JORDAN AQUIFER:
SECOND HALF, 1994

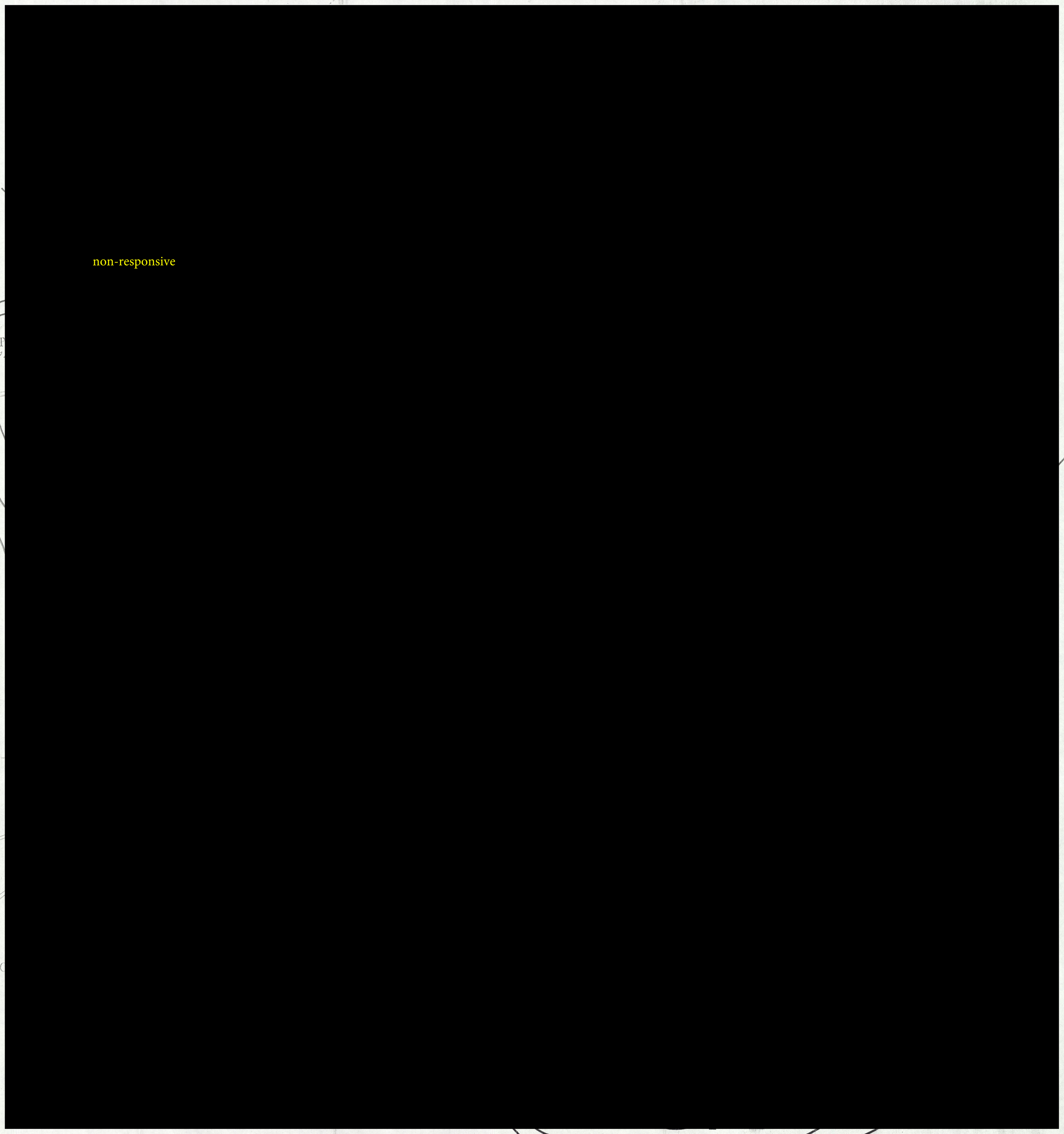


FIGURE 4 – 1 SUMMARY OF GROUND WATER MONITORING –
RESULTS FOR THE PRAIRIE DU CHIEN – JORDAN AQUIFER:
FIRST HALF, 1994

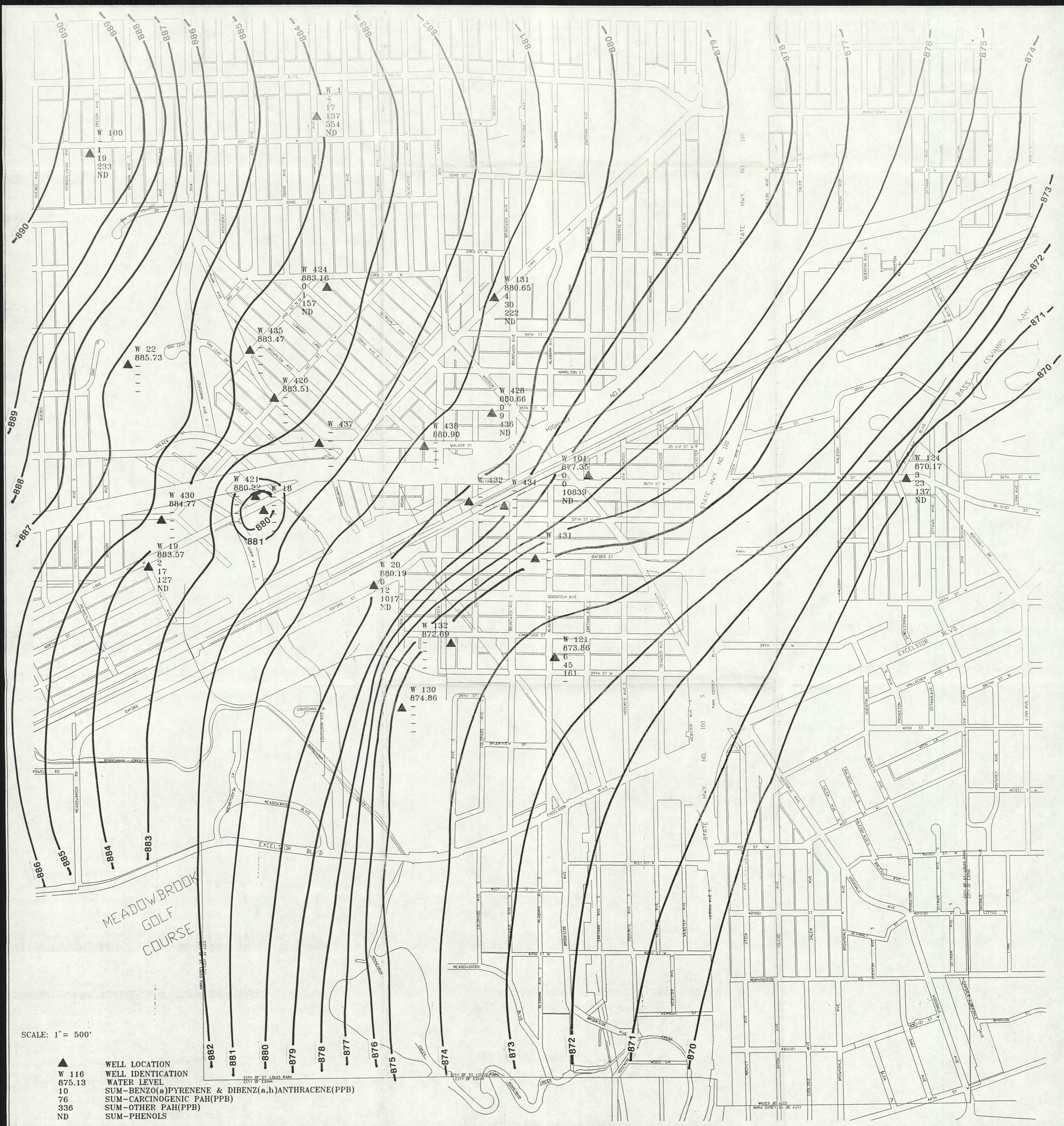


FIGURE 6 - 6 SUMMARY OF GROUND WATER MONITORING RESULTS FOR THE PLATTEVILLE AQUIFER: 1994

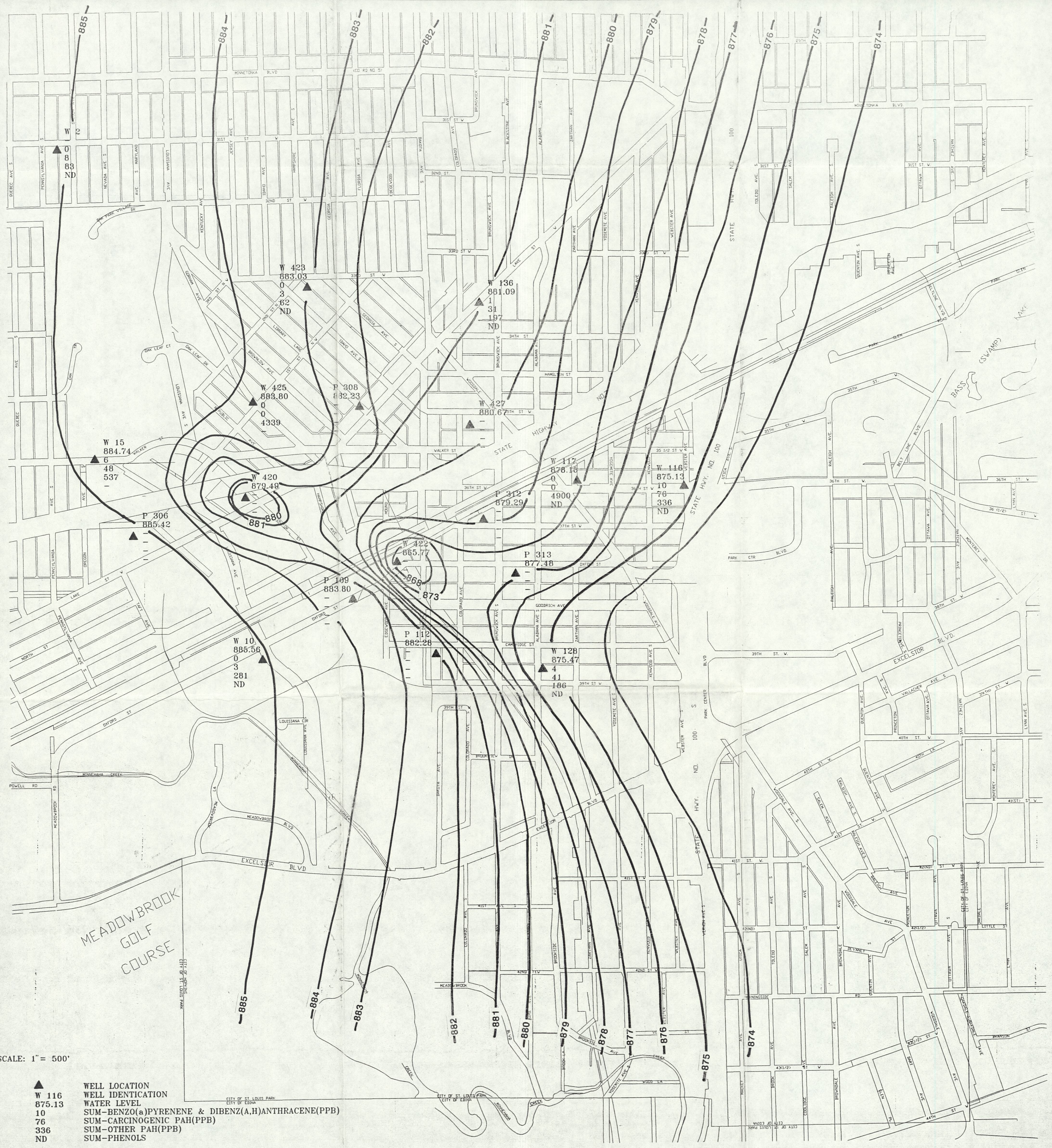
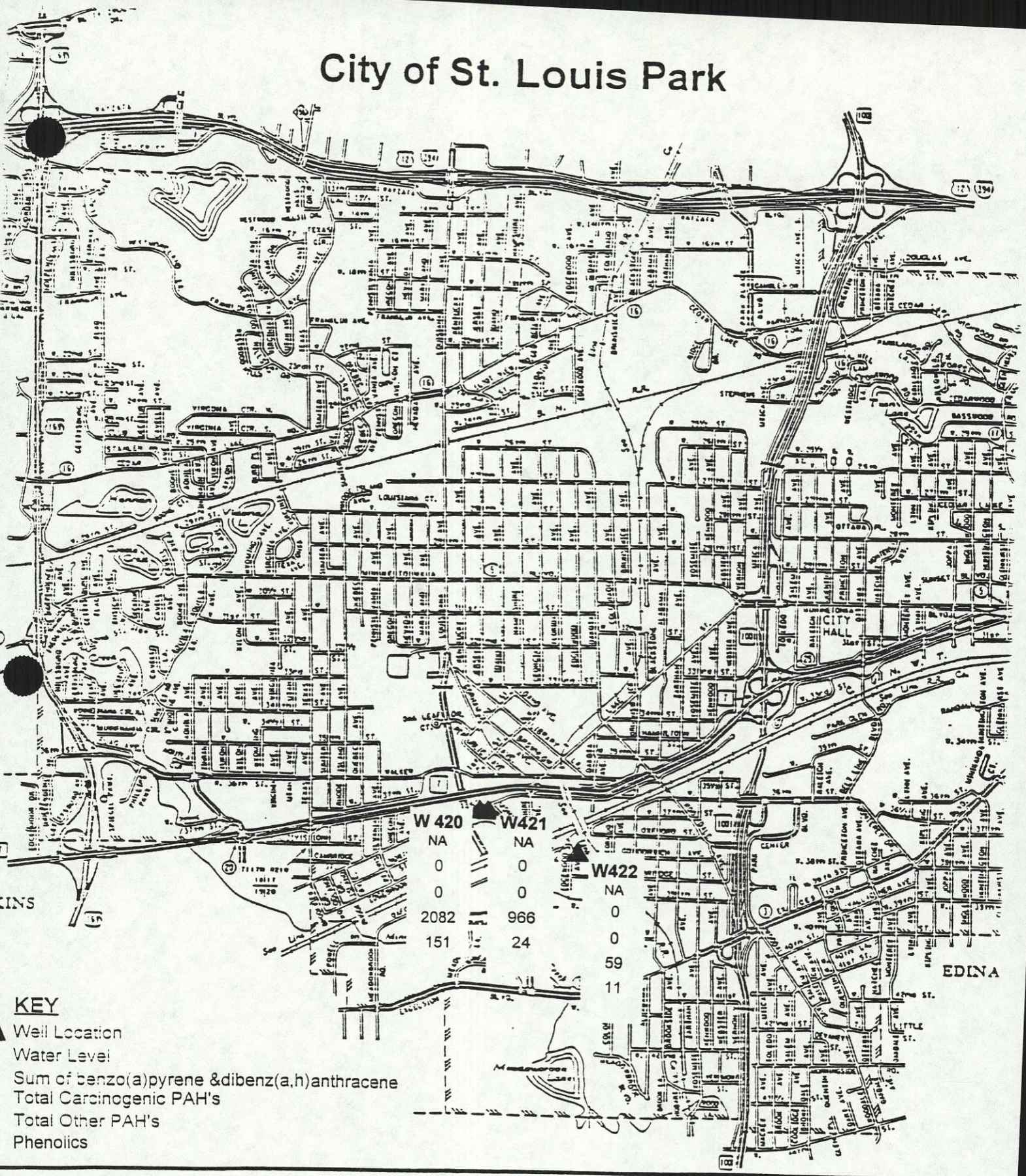


FIGURE 6 - 5 SUMMARY OF GROUND WATER MONITORING RESULTS FOR THE DRIFT AQUIFER: 1994

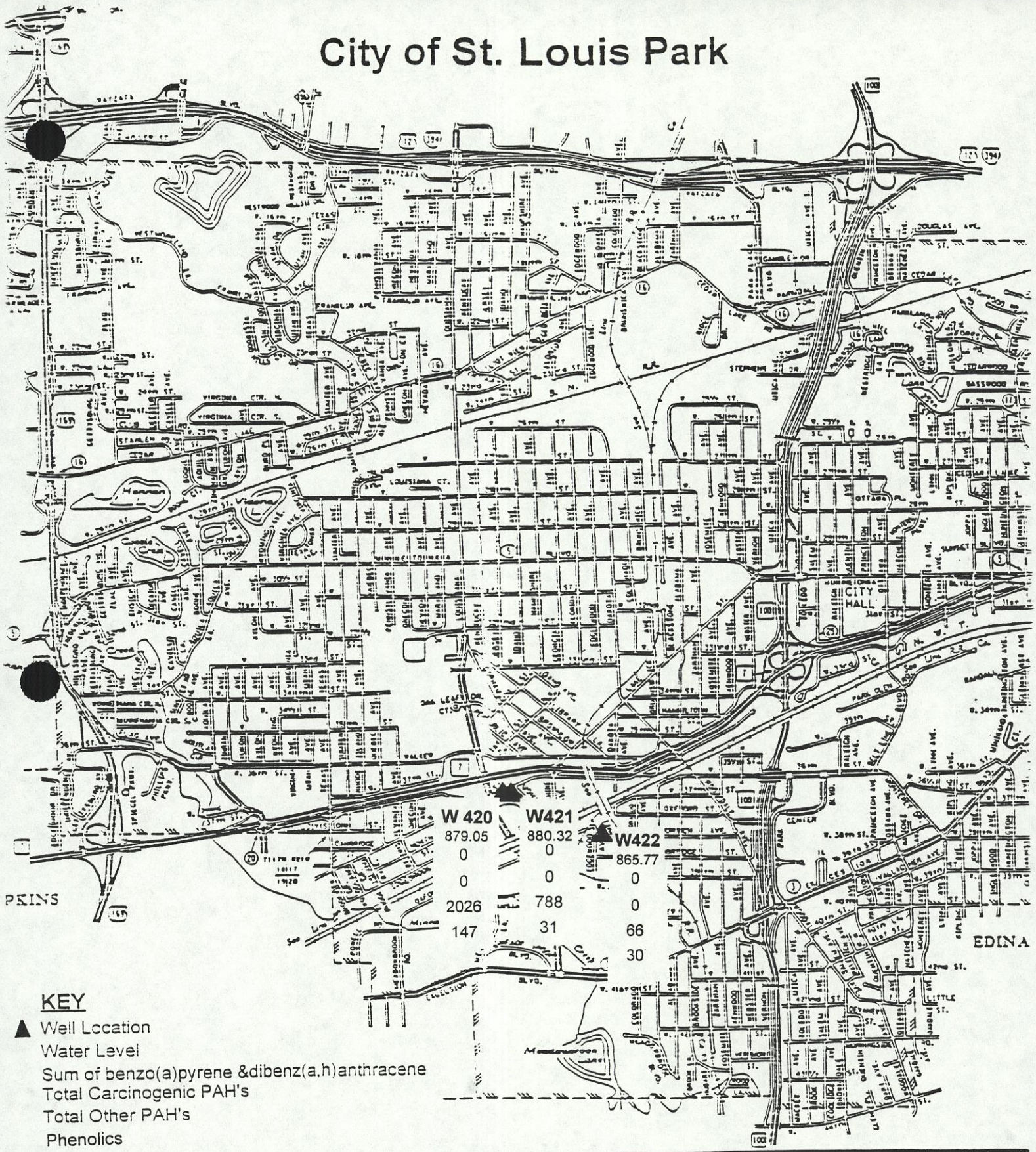
City of St. Louis Park



Concentration in PPB

Figure 6-4
Summary of Ground Water Monitoring Results
for the Drift-Platteville Aquifer
4th Quarter 1994

City of St. Louis Park



KEY

▲ Well Location

Water Level

Sum of benzo(a)pyrene &dibenz(a,h)anthracene

Total Carcinogenic PAH's

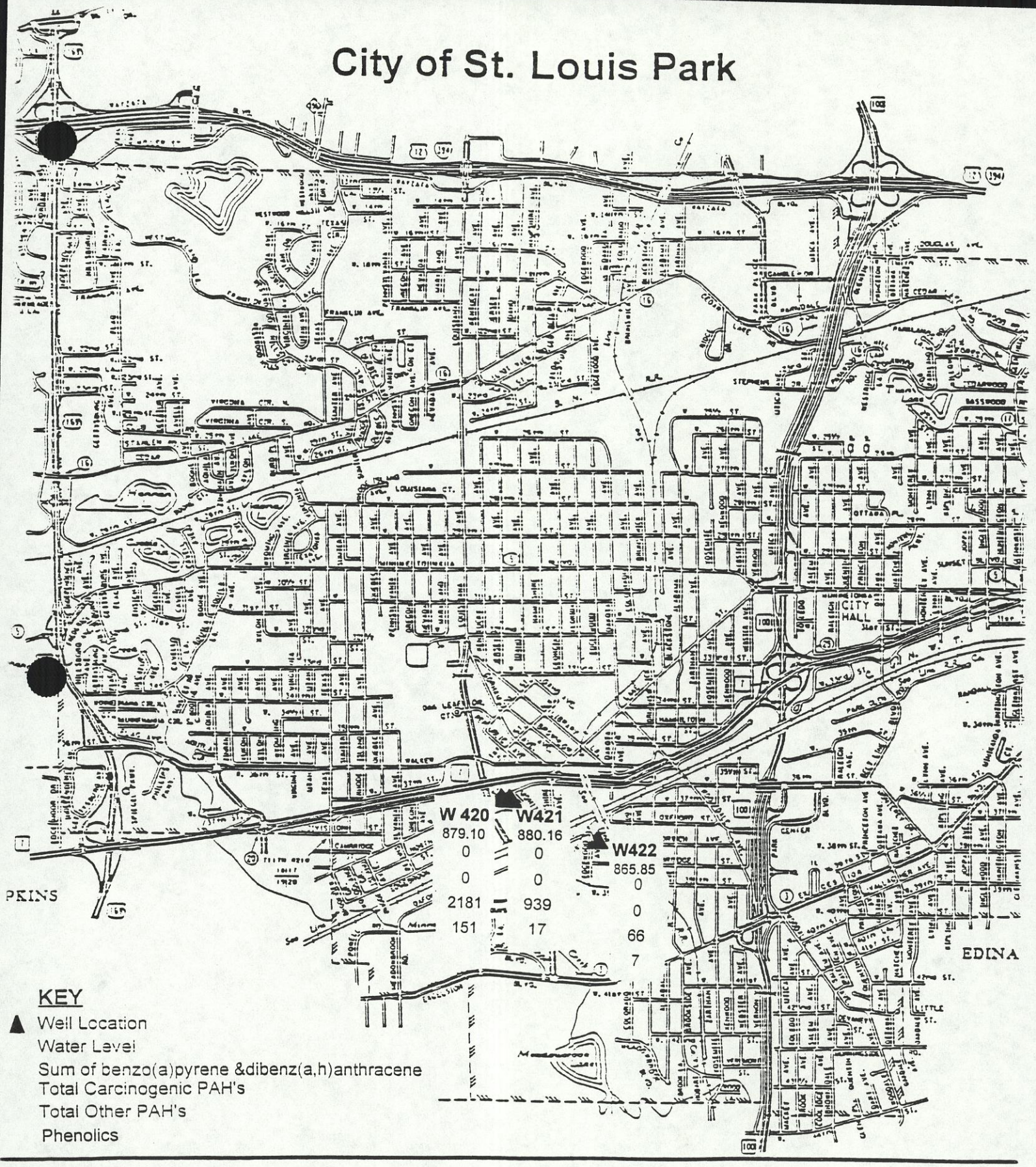
Total Other PAH's

Phenolics

Concentration in PPB

Figure 6-3
Summary of Ground Water Monitoring Results
for the Drift-Platteville Aquifer
3rd Quarter 1994

City of St. Louis Park



KEY

▲ Well Location

Water Level

Sum of benzo(a)pyrene &dibenz(a,h)anthracene

Total Carcinogenic PAH's

Total Other PAH's

Phenolics

Concentration in PPB

Figure 6-2
Summary of Ground Water Monitoring Results
for the Drift-Platteville Aquifer
2nd Quarter 1994

City of St. Louis Park

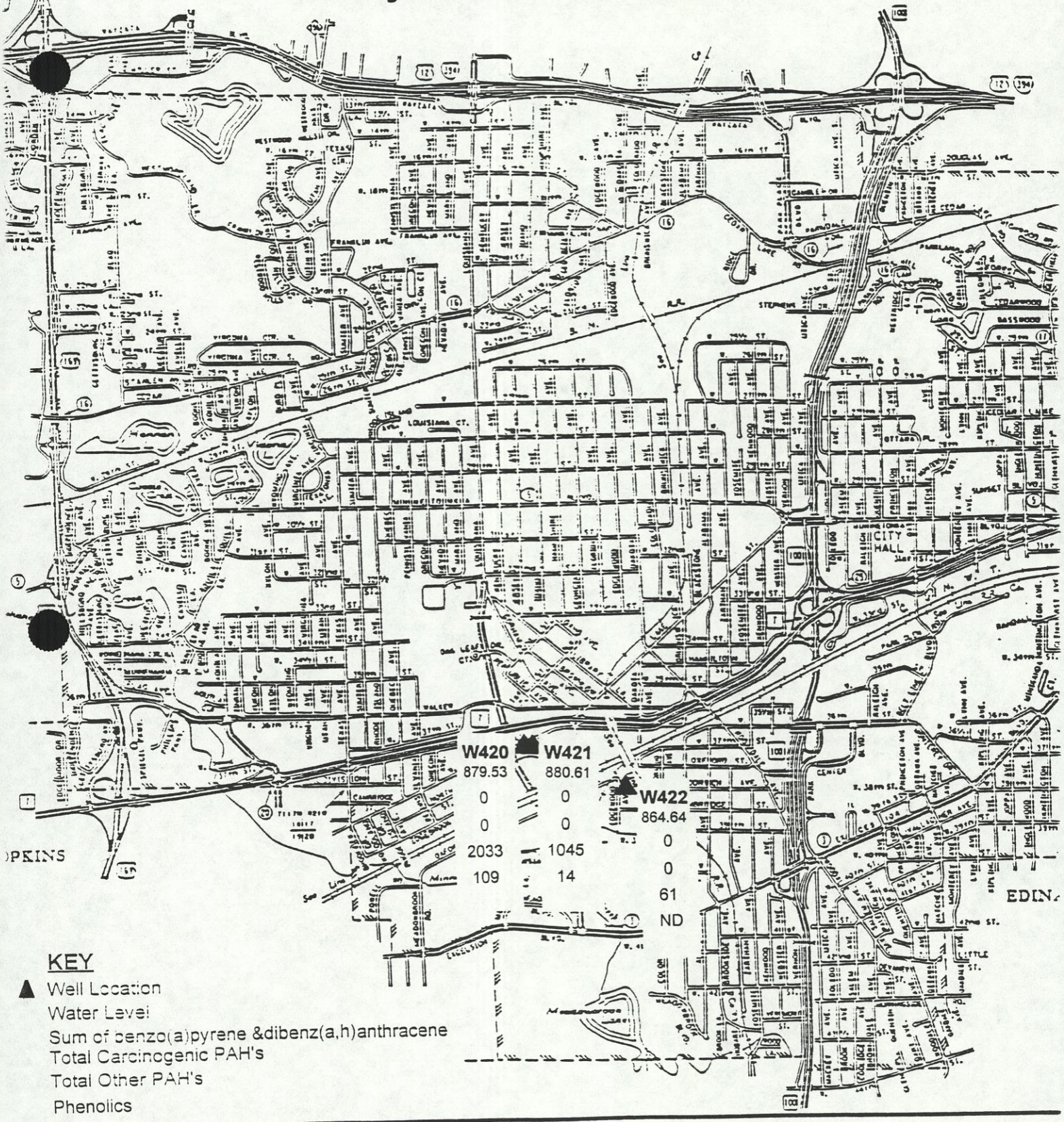


Figure 6-1
Summary of Ground Water Monitoring Results
for the Drift-Platteville Aquifer
1st Quarter 1994

TABLE 6-1

Summary of Analytical Results for Wells W420, W421 and W422 1988 through 1994

Date	Total PAH[a] (μg/ℓ)	Phenols (μg/ℓ)
W422		
August 1988	77	24
October 1988	50	14
March 1989	50	10
June 1989	50	15
September 1989	60	20
December 1989	50	15
March 1990	75	20
May 1990	60	15
August 1990	90	15
December 1990	60	20
April 1991	59	-[b]
September 1991	-	17
October 1991	88	18
February 1992	121	16
June 1992	872	-
September 1992	91	9
October 1992	89	28
March 1993	94	ND
April 1993	96	9.8
August 1993	81	16
November 1993	74	16
February 1994	61	ND
June 1994	66	7
August 1994	66	29.9
October 1994	59	10.7

a. Total PAH is the sum of carcinogenic PAH and other PAH
b. - Signifies not sampled
ND Not Detected

TABLE 6-1

Summary of Analytical Results for Wells W420, W421 and W422 1988 through 1994

Date	Total PAH[a] (μg/ℓ)	Phenols (μg/ℓ)
W421		
August 1988	760	300
October 1988	1100	35
March 1989	880	30
June 1989	1000	30
September 1989	1000	35
December 1989	730	30
March 1990	1420	35
May 1990	715	30
August 1990	1410	40
December 1990	1145	30
March 1991	1400	30
June 1991	1400	31
September 1991	1200	27
October 1991	1300	30
February 1992	988	31
June 1992	1163	26
September 1992	1547	28
October 1992	1299	45
March 1993	1332	15
April 1993	1184	21
August 1993	1025	32
November 1993	1017	29
February 1994	1045	14.1
June 1994	939	17.2
August 1994	788	31
October 1994	966	29

TABLE 6-1

Summary of Analytical Results for Wells W420, W421 and W422 1988 through 1994

Date	Total PAH[a] (μg/ℓ)	Phenols (μg/ℓ)
W420		
August 1988	4200	200
October 1988	1100	44
March 1989	2400	120
June 1989	3400	130
September 1989	3400	220
December 1989	3400	110
March 1990	3950	240
May 1990	2430	230
August 1990	3150	245
December 1990	3030	230
March 1991	4200	230
June 1991	2500	220
September 1991	5000	210
October 1991	4200	190
February 1992	1526	177
June 1992	3229	204
September 1992	2281	167
October 1992	2374	236
March 1993	4337	18
April 1993	2929	207
August 1993	1825	136
November 1993	2052	148
February 1994	2033	109
June 1994	2181	151
August 1994	2026	147
October 1994	2082	151

The Platteville Aquifer water level contours shown in Figure 6-5 support the interpretation that well W421 is an effective source control well.

Figure 6-6 shows water level contours in the Drift Aquifer monitoring wells that reflect the influence of pumping well W420 at approximately 25 gpm. Well W420 appears to be effective in controlling ground water in the Drift Aquifer in the bog area between Walker and Lake Streets.

Figure 6-6 also shows a significant degree of control exerted on the ground water in the vicinity of the Drift-Platteville Aquifer gradient control well (W422). Well W422 currently is being pumped at a rate of approximately 50 gpm and appears to be effective in controlling ground water over a large portion of the Drift-Platteville Aquifer.

The water quality data shown on Figures 6-5 and 6-6 indicate a pattern of contamination in the Drift-Platteville Aquifer that is consistent with historical observations. During 1994, it appears that the Drift-Platteville Aquifer source and gradient control wells remained effective in controlling the spread of contamination in most of the vicinity of the Reilly site. Figure 6-7 presents the inferred area of contamination based on the 1994 data, and on historical water quality data for the aquifer.

6.0 DRIFT-PLATTEVILLE AQUIFER

6.1 Drift-Platteville Aquifer Source and Gradient Control Wells

Ground water monitoring for the Drift-Platteville Aquifer in 1994 included quarterly PAH and phenolics monitoring of wells W420 and W422, the Drift Aquifer source and gradient control wells, and W421, the Platteville Aquifer source control well. Wells W420, W421, and W422 have been monitored quarterly since they began pumping in 1987. 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 Appendix E.

The PAH and phenolic data for wells W420, W421, and W422 are summarized in Table 6-1. Table 6-1 shows that near the source of contamination, PAH concentrations in ground water are consistently in the range of several hundred micrograms per liter to low milligrams per liter. The trends of these data suggest that while contaminant levels have fluctuated approximately 10 percent in the past several years, the overall levels can be described as stable.

6.2 Drift-Platteville Aquifer Monitoring

Ground water monitoring for 20 Drift-Platteville Aquifer monitoring wells in 1994 consisted of one round of sample collection and analysis for PAH and phenolics, and water level measurements. These 20 monitoring wells were required to be sampled per the CD-RAP. An additional nine Drift Aquifer monitor wells were sampled as part of the Drift Aquifer gradient control well (well W439) installation. The laboratory reports for the additional nine wells were previously submitted in *Northern Area Drift Aquifer Gradient Control Well Construction and Aquifer Test Report*, dated February 14, 1995. For this Annual Monitoring Report, the analytical data and water table measurements from only the 20 required wells are discussed below.

Figure 6-5 (in pocket) shows the results from the monitoring round for the Platteville Aquifer, and Figure 6-6 (in pocket) presents Drift Aquifer results.

The water level contours in Figures 6-5 and 6-6 show the influence of the Drift-Platteville Aquifer source and gradient control wells on the regional east-southeast ground water flow direction. Figure 6-5 shows water level contours in the Platteville Aquifer monitoring wells that reflect the influence of the Platteville Aquifer source control well (W421). Well W421 is currently being pumped at a rate of 25 gpm, in accordance with the CD-RAP, and appears to be effective in controlling ground water in an area at least the size of the bog between Walker and Lake Streets.

TABLE 5-1

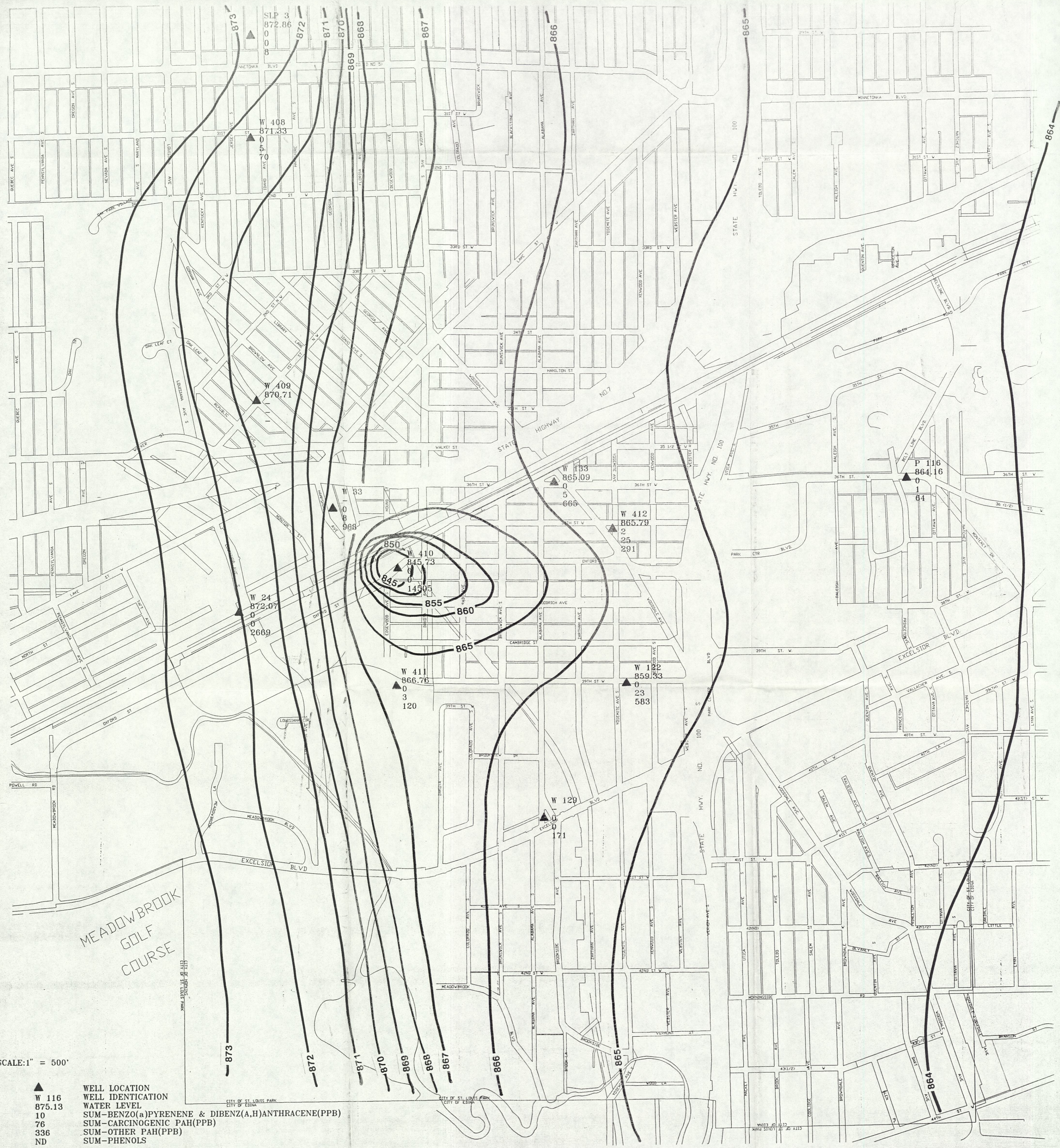
Summary of Total PAH Analytical Results
St. Peter Aquifer Wells
1991 through 1994[a]

Well	1991		1992		1993		1994	
	H1[b] April	H2 August	H1 June	H2 November	H1 April	H2 July	H1 May	H2 October
SLP3	-[c]	24	16	13	9	5	8	5
W24	4023	4160	3380	3650	2950	3294	2669	4029
W33	17,912	9921	3448	3318	1334	1000	976	1700
W122	796	863	614	186	340	354	606	384
W129	190	430	298	301	136	55	171	112
W133	2591	4610	2453	1920	1134	836	670	434
W408	358	1188	318	174	154	223	75	170
W409	360	3833	49,660	49,399	50,060	42,440	-	151,000
W411	408	251	337	182	196	118	123	725
W412	1524	5283	1331	3796	996	793	318	548
P116	61	42	132	229	56	40	65	66
W410	85	5330	14,910[d]	16,470	17,600[e]	16,609[e]	14,505	29,800

a. Results presented are the sum of carcinogenic PAH and other PAH in parts per trillion (ng/ℓ)
b. H1 = First half; H2 = Second half
c. - Signifies not sampled
d. W410 was sampled twice in H1 1992. The second result indicates a level of 12,850 ng/ℓ total PAH
e. W410 was sampled twice in H1 1993 and H2 1993. The second results for each sampling round indicates a level of 15,000 mg/ℓ and 14,000 mg/ℓ total PAH, respectively.

r:\ensr\1620-013\tab2

FIGURE 5 - 2 SUMMARY OF GROUND WATER MONITORING RESULTS FOR THE ST. PETER AQUIFER: SECOND HALF, 1994



SCALE:1" = 500'

▲	WELL LOCATION
W 116	WELL IDENTICATION
875.13	WATER LEVEL
10	SUM-BENZO(a)PYRENENE & DIBENZ(A,H)ANTHRACENE(PPB)
76	SUM-CARCINOGENIC PAH(PPB)
336	SUM-OTHER PAH(PPB)
ND	SUM-PHENOLS

FIGURE 5 - 1 SUMMARY OF GROUND WATER MONITORING RESULTS FOR THE ST. PETER AQUIFER: FIRST HALF, 1994

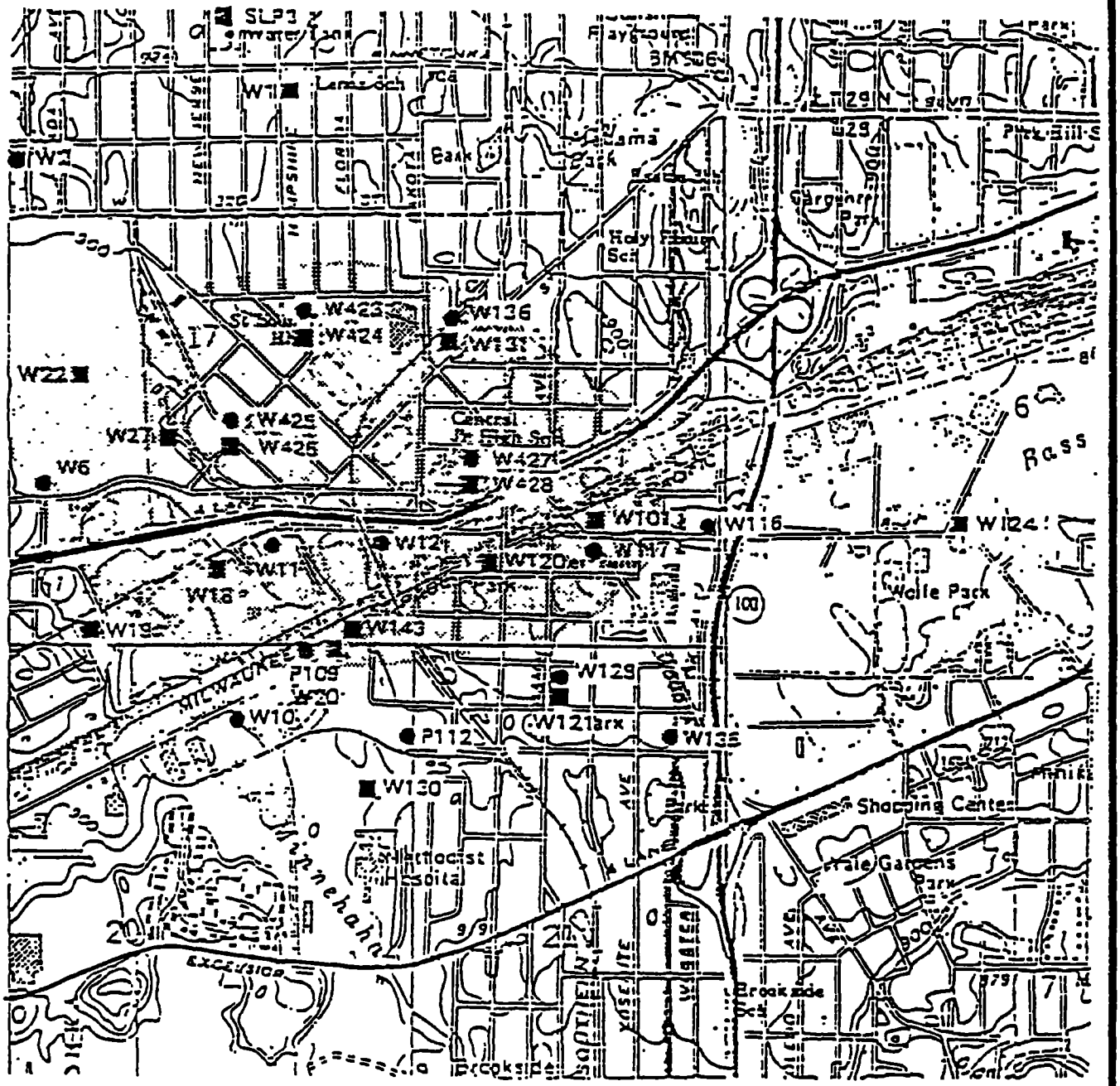


Figure 6-7
Inferred Area of Contamination
in the Drift-Platteville Aquifer: 1992

FILE 1620 012a | DATE 2/10/93 | PRJ NO 1620-013-100

APPENDIX A

APPENDIX A
LABORATORY DATA SUMMARY PACKAGE:
MOUNT SIMON - HINCKLEY AQUIFER

WELLS

SLP 11
SLP 12
SLP 13
SLP 17

CITY OF ST. LOUIS PARK

Mount Simon Hinckley Aquifer 1994
PAH Quality Control Summary

Well No.	Date	Method Blank	Field Duplicate	Matrix Spike	Matrix Spike Dup.	Field Blank
RAP Section 5.1						
SLP11	3/29/94	34563	PCJ-SLP4D-032994	PCJ-SLP4MS-032994	PCJ-SLP4MSD-032994	PCJ-SLP4FB-032994
SLP12	3/29/94	34563	PCJ-SLP4D-032994	PCJ-SLP4MS-032994	PCJ-SLP4MSD-032994	PCJ-SLP4FB-032994
SLP13	12/19/94	39936	MSH-SLP13D-121994	MSH-SLP13MS-121994	MSH-SLP13MSD-121994	MSH-SLP13FB-121994
SLP17	12/19/94	39936	MSH-SLP13D-121994	MSH-SLP13MS-121994	MSH-SLP13MSD-121994	MSH-SLP13FB-121994

Rocky Mountain
Analytical Laboratory

Enseco

CASE NARRATIVE

FOR

City of St. Louis Park

April 28, 1994

Enseco - RMAL Project Number 034563

Introduction

Nine aqueous samples (includes QC) were received at Enseco Rocky Mountain Analytical Laboratory on March 30, 1994. The samples were logged in under RMAL project number 034563. Sample PCJ-SLP4-032994 was extracted and held per the April 1990 QAPP. A cross reference associating the RMAL sample numbers to the actual field sample numbers is included. The samples were analyzed for low level part-per-trillion (ppt) polynuclear aromatic hydrocarbons (PAH).

Data Quality Assessment

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

PPT PAH

The percent recovery for Benzo(E)Pyrene was below QC limits in samples 034563-0001MS/MSD. The RPD's for 1H-Indene, Naphthalene, and 2-Methylnaphthalene were outside QC limits for samples 034563-0001MS/MSD. Since acceptable recovery was achieved for all other spike components, quantitation was checked and no further action was taken.

Samples 034563-0001MS/MSD were also analyzed at a dilution. The percent recovery for Benzo(E)Pyrene was below QC limits in samples 034563-0001MSDL/MSDDL. The RPD's for 1H-Indene and Naphthalene were outside QC limits for samples 034563-0001MSDL/MSDDL. Since acceptable recovery was achieved for all other spike components, quantitation was checked and no further action was taken.

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The percent recovery for Chrysene-d12 was outside QC limits in sample 034563-0002DL. The percent recovery for this compound was within QC limits in sample 034563-0002.

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

All samples associated with project 034563 show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion. These compounds are flagged with the letter (R) on the data sheets (Form I) as per the 1990 QAPP.

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

Reported by: Karen F. Germann **Date:** May 1 1994
Karen F. Germann
Program Administrator

Approved by: Julieann L. Kramer **Date:** May 4 1994
Julieann L. Kramer
Program Manager

Enseco

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
034563-0001-SA	PCJ-SLP4-032994	AQUEOUS	29 MAR 94		30 MAR 94
034563-0001-DU	PCJ-SLP4D-032994	AQUEOUS	29 MAR 94		30 MAR 94
034563-0001-FB	PCJ-SLP4FB-032994	AQUEOUS	29 MAR 94		30 MAR 94
034563-0001-FD	PCJ-SLP4FBD-032994	AQUEOUS	29 MAR 94		30 MAR 94
034563-0001-MS	PCJ-SLP4MS-032994	AQUEOUS	29 MAR 94		30 MAR 94
034563-0001-SD	PCJ-SLP4MSD-032994	AQUEOUS	29 MAR 94		30 MAR 94
034563-0002-SA	IGV-W105-032994	AQUEOUS	29 MAR 94		30 MAR 94
034563-0003-SA	MSH-SLP11-032994	AQUEOUS	29 MAR 94		30 MAR 94
034563-0004-SA	MSH-SLP12-032994	AQUEOUS	29 MAR 94		30 MAR 94

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 034563	Group Code	Analysis Description	Custom Test?
0001 , 0001, 0002 - 0004	C	Polynuclear Aromatic Hydrocarbons. SIM Low Level	N
		Prep - PAH/SIM by GC/MS Low Level	N
0001	D	Prep - PAH/SIM by GC/MS Low Level	N

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A Corning Company

Qualifier Codes and Their Usage

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

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

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

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

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

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

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

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

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

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

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

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

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

34563-03

MSH-SLPII-032994

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 34563 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 34563-03

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C8930

Level: (low/med) LOW Date Received: 03/30/94

% Moisture: decanted: (Y/N) N Date Extracted: 03/31/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 04/18/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

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

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

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

34563-04

MSH-SLPI2-032994

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 34563 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 34563-04

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C8943

Level: (low/med) LOW Date Received: 03/30/94

% Moisture: decanted: (Y/N) N Date Extracted: 03/31/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 04/19/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

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

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

Quanterra Incorporated
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Arvada Colorado 80002

303 421 6611 Telephone
303 431 7171 Fax

Quanterra
Environmental Services

CASE NARRATIVE

FOR

City of St. Louis Park

January 17, 1995

Quanterra Environmental Services

Project Number 039936

Introduction

Seven aqueous samples (includes QC) were received at Quanterra Environmental Services, Denver Laboratory on December 20, 1994. The samples were logged in under Quanterra's Denver laboratory project number 039936. Sample MSH-SLP13FBD-121994 (039936-01FD) was extracted and held per the April 1990 QAPP. A cross reference associating Quanterra's Denver laboratory sample numbers to the actual field sample numbers is included. The samples were analyzed for low level part-per-trillion (ppt) polynuclear aromatic hydrocarbons (PAH).

Data Quality Assessment

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

PPT PAH

The percent recovery for Naphthalene was above QC limits in MSH-SLP13MS (039936-01MS). The relative percent difference (RPD) for this compound in the matrix spike/matrix spike duplicate pair were outside QC limits. Since acceptable recovery was achieved for all other spike components, quantitation was checked and no further action was taken.

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Environmental Services

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

Some of the samples associated with project 038363 show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion. These compounds are flagged with an (R) on the data sheets (Form I) as per the 1990 QAPP.

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

Reported by: _____ Date: 1/17/95
Daniel Rebarchik
Program Administrator

Approved by: _____ Date: 1/17/95
Kevin McHugh
Program Manager

Quanterra
Environmental Services

TABLE OF CONTENTS

FOR

CITY OF ST. LOUIS PARK

QUANTERRA NO: 039936

SEMIVOLATILES

QC Summary.....A-G

Sample Data.....0001

Standards Data..... 0252

Raw QC Data.....0543

SCREENING DATA AND LOGBOOK RECORDS

Pages 0691 through 0695

Quanterra
Environmental Services

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
039936-0001-SA	MSH-SLP13-121994	AQUEOUS	19 DEC 94		20 DEC 94
039936-0001-DU	MSH-SLP13D-121994	AQUEOUS	19 DEC 94		20 DEC 94
039936-0001-MS	MSH-SLP13MS-121994	AQUEOUS	19 DEC 94		20 DEC 94
039936-0001-SD	MSH-SLP13MSD-121994	AQUEOUS	19 DEC 94		20 DEC 94
039936-0001-FB	MSH-SLP13FB-121994	AQUEOUS	19 DEC 94		20 DEC 94
039936-0001-FD	MSH-SLP13FBD-121994	AQUEOUS	19 DEC 94		20 DEC 94
039936-0002-SA	MSH-SLP17-121994	AQUEOUS	19 DEC 94		20 DEC 94

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A Corning Company

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

CHAIN OF CUSTODY

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

SAMPLE SAFE™ CONDITIONS

PACKED BY	[illegible]
SEAL NUMBER	
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY	
CONDITION OF CONTENTS	
SEALED FOR SHIPPING BY	[illegible]
INITIAL CONTENTS TEMP	°C
SEAL NUMBER	
SAMPLING STATUS	☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB	☒ Yes ☐ No
CONTENTS TEMPERATURE UPON RECEIPT BY LAB	12.3 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
12-19-94		MSH-SLP13-121994	1XL AMBER	6	PPL PAH	PPL 5 -01
12-19-94		MSH-SLP13D-121994	1XL AMBER	6	PPL PAH	PPL 5 -01DUP

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY	[illegible]
METHOD OF SHIPMENT	FED EX
AIRBILL NUMBER	2103422165
RECEIVED FOR LAB	Quantera
SIGNED	[illegible]
DATE/TIME	20DEC94/0845
ENSECO PROJECT NUMBER	39936

ENS 4011

White - CLIENT Pink - LAB

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Arvada, CO 80002
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☐ Enseco Houston
1420 East North Belt Drive
Suite 120
Houston, TX 77032
713/987-9767 FAX 713/987-9769

CHAIN OF CUSTODY

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

SAMPLE SAFE™ CONDITIONS

PACKED BY: MZB	SEAL NUMBER:
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:	CONDITION OF CONTENTS:
SEALED FOR SHIPPING BY: MZB	INITIAL CONTENTS TEMP: °C
SEAL NUMBER:	SAMPLING STATUS: ☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No	CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 7.6 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
12 19 94		WSH-SLP 13 MS-121994	1XL AMBER	6	PPC PAH	PPC 5 -01MS
12-19-94		WSH-SLP 13 MSD-121994	1XL AMBER	6	PPC PAH	PPC 5 -01SD

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MZB		
METHOD OF SHIPMENT: FED EX		AIRBILL NUMBER: 21034.1165
RECEIVED FOR LAB: QES	SIGNED: [signature]	DATE/TIME: 12/20/94 8:45
ENSECO PROJECT NUMBER: 39936		

ENS 4011

White - CLIENT Pink - LAB

Enseco
A Corning Company

☐ Rocky Mountain Analytical Laboratory
4955 Yarrow Street
Arvada, CO 80002
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☐ Enseco Houston
1420 East North Belt Drive
Suite 120
Houston, TX 77032
713/987-9767 FAX 713/987-9769

CHAIN OF CUSTODY

ENSECO CLIENT: ST LOUIS PARK WATER DEPT

PROJECT:

SAMPLING COMPANY: SAME

SAMPLING SITE: SAME

TEAM LEADER: MZ

SAMPLE SAFE™ CONDITIONS

PACKED BY: MZ

SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:

SEAL NUMBER:

CONDITION OF CONTENTS:

SEALED FOR SHIPPING BY: MZ

INITIAL CONTENTS TEMP: °C

SEAL NUMBER:

SAMPLING STATUS: ☐ Done ☐ Continuing Until

SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No

CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 10.2 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
12-19-94		195H-SLP13FB-121994	1XL AMBER	6	PPL PAH	PPL S -01FD
12-19-94		195H-SLP13FBD-121994	1XL AMBER	6	PPL PAH	PPL S -01FD
12-19-94		195H-SLP17-121994	1XL AMBER	6	PPL PAH	PPL S -02

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MZ

METHOD OF SHIPMENT: FED EX

AIRBILL NUMBER: 2103421165

RECEIVED FOR LAB: QES

SIGNED: De Ch

DATE/TIME: 12/29/94 1745

ENSECO PROJECT NUMBER: 39936

ENS-4011

White - CLIENT Pink - LAB

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

39936-01

MSH-SLP13-121994

ame: QUANTERRA Denver Contract:

ode: Case No.: 39936 SAS No.: SDG No.:

x: (soil/water) WATER Lab Sample ID: 39936-01

e wt/vol: 4200 (g/mL) ML Lab File ID: C0189

: (low/med) LOW Date Received: 12/20/94

sture: decanted: (Y/N) N Date Extracted: 12/20/94

ntrated Extract Volume: 500(uL) Date Analyzed: 12/28/94

tion Volume: 2.0(uL) Dilution Factor: 0.119

leanup: (Y/N) N pH: 7.0

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

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

39936-01DU

MSH-SLPI3D-121994

Name: QUANTERRA Denver Contract:

Code: Case No.: 39936 SAS No.: SDG No.:

ix: (soil/water) WATER Lab Sample ID: 39936-01DU

le wt/vol: 4200 (g/mL) ML Lab File ID: C0194

l: (low/med) LOW Date Received: 12/20/94

isture: decanted: (Y/N) N Date Extracted: 12/20/94

entrated Extract Volume: 500(uL) Date Analyzed: 12/28/94

ction Volume: 2.0(uL) Dilution Factor: 0.119

Cleanup: (Y/N) N pH: 7.0

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

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

39936-01FB

MSH-SLPI3FB-121994

Name: QUANTERRA Denver Contract:

Code: Case No.: 39936 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 39936-01FB

Sample wt/vol: 4160 (g/mL) ML Lab File ID: C0192

Level: (low/med) LOW Date Received: 12/20/94

Moisture: decanted: (Y/N) N Date Extracted: 12/20/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 12/28/94

Injection Volume: 2.0(uL) Dilution Factor: 0.120

GPC Cleanup: (Y/N) N pH: 5.0

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

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

39936-01FD

Name: QUANTERRA Denver Contract:

MSH-SLPI3FBD-121994

Code: Case No.: 39936 SAS No.: SDG No.:

ix: (soil/water) WATER Lab Sample ID: 39936-01FD

le wt/vol: 4160 (g/mL) ML Lab File ID: C0193

l: (low/med) LOW Date Received: 12/20/94

isture: decanted: (Y/N) N Date Extracted: 12/20/94

entrated Extract Volume: 500(uL) Date Analyzed: 12/28/94

ction Volume: 2.0(uL) Dilution Factor: 0.120

Cleanup: (Y/N) N pH: 5.0

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

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

39936-02

MSH-SLP17-121994

Name: QUANTERRA Denver Contract:

Code: Case No.: 39936 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 39936-02

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C0190

Level: (low/med) LOW Date Received: 12/20/94

Moisture: decanted: (Y/N) N Date Extracted: 12/20/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 12/28/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

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

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

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

.me: QUANTERRA Denver Contract:

:de: Case No.: 39936 SAS No.: SDG No.:

	EPA SAMPLE NO.	S1 (NAP)#	S2 (FLU)#	S3 (CHR)#	TOT OUT
01	39936-01	74	64	58	0
02	39936-01DU	75	62	57	0
03	39936-01FB	74	58	66	0
04	39936-01FD	73	60	75	0
05	39936-02	80	68	46	0
06	39936-01MS	84	69	54	0
07	39936-01SD	84	72	50	0
08	SBLK01	78	65	70	0

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

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

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

lame: QUANTERRA Denver Contract:

.ode: Case No.: 39936 SAS No.: SDG No.:

.x Spike - EPA Sample No.: 39936-01

)MPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC #	QC LIMITS REC.
-Indene	9.520	0	9.496	100	20-150
)hthalene	9.520	6.557	24.40	187 *	20-150
inoline	9.520	0	10.19	107	20-150
Methylnaphthalene	9.520	4.796	13.33	90	20-150
uorene	9.520	1.214	10.02	92	20-150
rysene	9.520	0	6.581	69	20-150
nzo(E)Pyrene	9.520	0	1.075	11	10-150

)MPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
-Indene	9.520	9.401	99	1	28	20-150
phthalene	9.520	16.42	104	57 *	28	20-150
inoline	9.520	10.88	114	6	28	20-150
Methylnaphthalene	9.520	14.40	101	12	28	20-150
uorene	9.520	10.91	102	10	28	20-150
rysene	9.520	6.700	70	1	28	20-150
nzo(E)Pyrene	9.520	1.188	12	9	28	10-150

lumn to be used to flag recovery and RPD values with an asterisk
lues outside of QC limits

ENTS:

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

39936-01MS

MSH-SLPI3MS-121994

ame: QUANTERRA Denver Contract:

ode: Case No.: 39936 SAS No.: SDG No.:

x: (soil/water) WATER Lab Sample ID: 39936-01MS

e wt/vol: 4200 (g/mL) ML Lab File ID: C0195

: (low/med) LOW Date Received: 12/20/94

sture: decanted: (Y/N) N Date Extracted: 12/20/94

ntrated Extract Volume: 500(uL) Date Analyzed: 12/28/94

tion Volume: 2.0(uL) Dilution Factor: 0.119

leanup: (Y/N) N pH: 7.0

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

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

39936-01SD

MSH-SLPI3MSD-121994

ame: QUANTERRA Denver Contract:

Code: Case No.: 39936 SAS No.: SDG No.:

x: (soil/water) WATER Lab Sample ID: 39936-01SD

e wt/vol: 4200 (g/mL) ML Lab File ID: C0196

(low/med) LOW Date Received: 12/20/94

isture: decanted: (Y/N) N Date Extracted: 12/20/94

entrated Extract Volume: 500(uL) Date Analyzed: 12/28/94

ction Volume: 2.0(uL) Dilution Factor: 0.119

Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	2	B
95-13-6	1H-Indene	9	
91-20-3	Naphthalene	16	B
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	11	R
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	14	B
90-12-0	1-Methylnaphthalene	3	B
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	
86-73-7	Fluorene	11	
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	7	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	1	JR
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	3	B
129-00-0	Pyrene	2	B
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	7	
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	1	J
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

SBLK01

ame: QUANTERRA Denver Contract:

ode: Case No.: 39936 SAS No.: SDG No.:

ile ID: C0191 Lab Sample ID: BL122094

ument ID: 4500-C Date Extracted: 12/20/94

x: (soil/water) WATER Date Analyzed: 12/28/94

:(low/med) LOW Time Analyzed: 1820

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	39936-01	39936-01	C0189	12/28/94
02	39936-01DU	39936-01DU	C0194	12/28/94
03	39936-01FB	39936-01FB	C0192	12/28/94
04	39936-01FD	39936-01FD	C0193	12/28/94
05	39936-02	39936-02	C0190	12/28/94
06	39936-01MS	39936-01MS	C0195	12/28/94
07	39936-01SD	39936-01SD	C0196	12/28/94

MTS:

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

SBLK01

-me: QUANTERRA Denver Contract:

:de: Case No.: 39936 SAS No.: SDG No.:

x: (soil/water) WATER Lab Sample ID: BL122094

e wt/vol: 4000 (g/mL) ML Lab File ID: C0191

: (low/med) LOW Date Received:

sture: decanted: (Y/N) N Date Extracted: 12/20/94

ntrated Extract Volume: 500(uL) Date Analyzed: 12/28/94

tion Volume: 2.0(uL) Dilution Factor: 0.125

leanup: (Y/N) N pH: 6.0

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

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

:me: QUANTERRA Denver Contract:

ıde: Case No.: 39936 SAS No.: SDG No.:

le ID (Standard): C0188 Date Analyzed: 12/28/94

.ment ID: 4500-C Time Analyzed: 1558

	IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
12 HOUR STD	350816	15.12	279879	18.95	197330	29.12
UPPER LIMIT	701632	15.62	559758	19.45	394660	29.62
LOWER LIMIT	175408	14.62	139940	18.45	98665	28.62
EPA SAMPLE NO.						
39936-01	525619	15.12	546398	18.95	270760	29.12
39936-01DU	587589	15.12	541413	18.94	232017	29.12
39936-01FB	497822	15.12	438084	18.95	232372	29.12
39936-01FD	520099	15.12	472040	18.95	238711	29.12
39936-02	510186	15.12	471219	18.95	281310	29.11
39936-01MS	523462	15.12	468750	18.95	240273	29.12
9936-01SD	529681	15.12	491192	18.95	238355	29.12
BLK01	524222	15.12	464887	18.95	233389	29.12

1 (ACN) = Acenaphthene-D10
2 (PHN) = Phenanthrene-D10
3 (BAP) = Benzo(A)Pyrene-D12

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

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

A

SEMIVOLATILES DATA

QC SUMMARY

15

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

ame: QUANTERRA Denver Contract:

ode: Case No.: 39936 SAS No.: SDG No.:

	EPA SAMPLE NO.	S1 (NAP)#	S2 (FLU)#	S3 (CHR)#	TOT OUT
01	39936-01	74	64	58	0
02	39936-01DU	75	62	57	0
03	39936-01FB	74	58	66	0
04	39936-01FD	73	60	75	0
05	39936-02	80	68	46	0
06	39936-01MS	84	69	54	0
07	39936-01SD	84	72	50	0
08	SBLK01	78	65	70	0

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

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

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

ame: QUANTERRA Denver Contract:

ode: Case No.: 39936 SAS No.: SDG No.:

x Spike - EPA Sample No.: 39936-01

MPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC #	QC LIMITS REC.
Indene	9.520	0	9.496	100	20-150
hthalene	9.520	6.557	24.40	187 *	20-150
noline	9.520	0	10.19	107	20-150
ethylnapnthalene	9.520	4.796	13.33	90	20-150
orene	9.520	1.214	10.02	92	20-150
ysene	9.520	0	6.581	69	20-150
zo(E)Pyrene	9.520	0	1.075	11	10-150

MPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
-Indene	9.520	9.401	99	1	28	20-150
nthalene	9.520	16.42	104	57 *	28	20-150
noline	9.520	10.88	114	6	28	20-150
ethylnapnthalene	9.520	14.40	101	12	28	20-150
orene	9.520	10.91	102	10	28	20-150
ysene	9.520	6.700	70	1	28	20-150
zo(E)Pyrene	9.520	1.188	12	9	28	10-150

umn to be used to flag recovery and RPD values with an asterisk
ues outside of QC limits

ENTS:

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

SBLK01

ame: QUANTERRA Denver Contract:

ode: Case No.: 39936 SAS No.: SDG No.:

ile ID: C0191 Lab Sample ID: BL122094

ument ID: 4500-C Date Extracted: 12/20/94

x: (soil/water) WATER Date Analyzed: 12/28/94

:(low/med) LOW Time Analyzed: 1820

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	39936-01	39936-01	C0189	12/28/94
02	39936-01DU	39936-01DU	C0194	12/28/94
03	39936-01FB	39936-01FB	C0192	12/28/94
04	39936-01FD	39936-01FD	C0193	12/28/94
05	39936-02	39936-02	C0190	12/28/94
06	39936-01MS	39936-01MS	C0195	12/28/94
07	39936-01SD	39936-01SD	C0196	12/28/94

TS:

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

ame· QUANTERRA Denver Contract:

ɔde: Case No.: 39936 SAS No.: SDG No.:

ıle ID: BC122794T Run Date: 12/27/94

ument ID: 4500-C Run Time: 1921

CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD040	040 PPB PAH	C0183	12/27/94	1614
02	SSTD1200	1200 PPB PAH	C0184	12/27/94	1700
03	SSTD600	600 PPB PAH	C0185	12/27/94	1751
04	SSTD240	240 PPB PAH	C0186	12/27/94	1836
05	SSTD020	020 PPB PAH	C0187	12/27/94	1921

FORM V SV 3/90

f

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

ame: QUANTERRA Denver Contract:

ode: Case No.: 39936 SAS No.: SDG No.:

ile ID. C0188T Run Date: 12/28/94

ument ID: 4500-C Run Time: 1558

CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD040	40 PPB PAH	C0188	12/28/94	1558
02	39936-01	39936-01	C0189	12/28/94	1644
03	39936-02	39936-02	C0190	12/28/94	1735
04	SBLK01	BL122094	C0191	12/28/94	1820
05	39936-01FB	39936-01FB	C0192	12/28/94	1906
06	39936-01FD	39936-01FD	C0193	12/28/94	1951
07	39936-01DU	39936-01DU	C0194	12/28/94	2037
08	39936-01MS	39936-01MS	C0195	12/28/94	2122
09	39936-01SD	39936-01SD	C0196	12/28/94	2207

G'

86

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QUANTERRA Denver Contract:

Lab Code: Case No.: 39936 SAS No.: SDG No.:

GC/MS File ID (Standard): C0188 Date Analyzed: 12/28/94

Instrument ID: 4500-C Time Analyzed: 1558

	IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
12 HOUR STD	350816	15.12	279879	18.95	197330	29.12
UPPER LIMIT	701632	15.62	559758	19.45	394660	29.62
LOWER LIMIT	175408	14.62	139940	18.45	98665	28.62
EPA SAMPLE NO.						
39936-01	525619	15.12	546398	18.95	270760	29.12
39936-01DU	587589	15.12	541413	18.94	232017	29.12
39936-01FB	497822	15.12	438084	18.95	232372	29.12
39936-01FD	520099	15.12	472040	18.95	238711	29.12
39936-02	510186	15.12	471219	18.95	281310	29.11
39936-01MS	523462	15.12	468750	18.95	240273	29.12
39936-01SD	529681	15.12	491192	18.95	238355	29.12
SBLK01	524222	15.12	464887	18.95	233389	29.12

IS1 (ACN) = Acenaphthene-D10
IS2 (PHN) = Phenanthrene-D10
IS3 (BAP) = Benzo(A)Pyrene-D12

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

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

APPENDIX B
LABORATORY DATA SUMMARY PACKAGE:
IRONTON - GALESVILLE AQUIFER

WELL
W105

CITY OF ST. LOUIS PARK

Ironton Galesville Aquifer 1994
PAH Quality Control Summary

Well No.	Sample Date	Method Blank	Field Duplicate	Matrix Spike	Matrix Spike Dup.	Field Blank
RAP Section 6.1.5						
W105	3/29//94	34563	PCJ-SLP4D-032994	PCJ-SLP4MS-032994	PCJ-SLP4MSD-032994	PCJ-SLP4FB-032994

Enseco

CASE NARRATIVE

FOR

City of St. Louis Park

April 28, 1994

Enseco - RMAL Project Number 034563

Introduction

Nine aqueous samples (includes QC) were received at Enseco Rocky Mountain Analytical Laboratory on March 30, 1994. The samples were logged in under RMAL project number 034563. Sample PCJ-SLP4-032994 was extracted and held per the April 1990 QAPP. A cross reference associating the RMAL sample numbers to the actual field sample numbers is included. The samples were analyzed for low level part-per-trillion (ppt) polynuclear aromatic hydrocarbons (PAH).

Data Quality Assessment

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

PPT PAH

The percent recovery for Benzo(E)Pyrene was below QC limits in samples 034563-0001MS/MSD. The RPD's for 1H-Indene, Naphthalene, and 2-Methylnaphthalene were outside QC limits for samples 034563-0001MS/MSD. Since acceptable recovery was achieved for all other spike components, quantitation was checked and no further action was taken.

Samples 034563-0001MS/MSD were also analyzed at a dilution. The percent recovery for Benzo(E)Pyrene was below QC limits in samples 034563-0001MSDL/MSDDL. The RPD's for 1H-Indene and Naphthalene were outside QC limits for samples 034563-0001MSDL/MSDDL. Since acceptable recovery was achieved for all other spike components, quantitation was checked and no further action was taken.

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

The percent recovery for Chrysene-d12 was outside QC limits in sample 034563-0002DL. The percent recovery for this compound was within QC limits in sample 034563-0002.

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

All samples associated with project 034563 show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion. These compounds are flagged with the letter (R) on the data sheets (Form I) as per the 1990 QAPP.

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

Reported by: Karen F. Germann **Date:** May 1, 1994
Karen F. Germann
Program Administrator

Approved by: Julieann L. Kramer **Date:** May 4 1994
Julieann L. Kramer
Program Manager

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
034563-0001-SA	PCJ-SLP4-032994	AQUEOUS	29 MAR 94		30 MAR 94
034563-0001-DU	PCJ-SLP4D-032994	AQUEOUS	29 MAR 94		30 MAR 94
034563-0001-FB	PCJ-SLP4FB-032994	AQUEOUS	29 MAR 94		30 MAR 94
034563-0001-FD	PCJ-SLP4FBD-032994	AQUEOUS	29 MAR 94		30 MAR 94
034563-0001-MS	PCJ-SLP4MS-032994	AQUEOUS	29 MAR 94		30 MAR 94
034563-0001-SD	PCJ-SLP4MSD-032994	AQUEOUS	29 MAR 94		30 MAR 94
034563-0002-SA	IGV-W105-032994	AQUEOUS	29 MAR 94		30 MAR 94
034563-0003-SA	MSH-SLP11-032994	AQUEOUS	29 MAR 94		30 MAR 94
034563-0004-SA	MSH-SLP12-032994	AQUEOUS	29 MAR 94		30 MAR 94

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 034563	Group Code	Analysis Description	Custom Test?
0001 , 0001, 0002 - 0004	C	Polynuclear Aromatic Hydrocarbons, SIM Low Level	N
		Prep - PAH/SIM by GC/MS Low Level	N
0001	D	Prep - PAH/SIM by GC/MS Low Level	N

Enseco
A Corning Company

Qualifier Codes and Their Usage

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

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

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

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

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

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

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Arvada, Colorado 80002
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E = This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis. If one or more compounds have a response greater than full scale, except as noted in Exhibit D, the sample or extract must be diluted and re-analyzed accordingly to the specifications in Exhibit D. All such compounds with a response greater than full scale should have the concentration flagged with an "E" on the Form I for the original analysis. If the dilution of the extract causes any compounds identified in the first analysis to be below the calibration range in the second analysis, then the results of both analyses shall be reported on separate copies of Form I. The Form I for the diluted sample shall have the "DL" suffix appended to the sample number. NOTE: For total xylenes, where three isomers are quantified as two peaks, the calibration range of each peak should be considered separately, e.g., a diluted analysis is not required for total xylenes unless the concentration of either peak separately exceeds 200 ug/L.

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

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

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

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

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

34563-02

IGV-WI05-032994

ab Name: ENSECO Contract:

ab Code: ENSECO Case No.: 34563 SAS No.: SDG No.:

atrix: (soil/water) WATER Lab Sample ID: 34562-02

ample wt/vol: 4200 (g/mL) ML Lab File ID: C8945

evel: (low/med) LOW Date Received: 03/30/94

Moisture: decanted: (Y/N) N Date Extracted: 03/31/94

oncentrated Extract Volume: 500(uL) Date Analyzed: 04/19/94

ijection Volume: 2.0(uL) Dilution Factor: 0.119

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	R
496-11-7	2,3-Dihydroindene	230	E
95-13-6	1H-Indene	64	
91-20-3	Naphthalene	180	BERT
4565-32-6	Benzo(B)Thiophene	61	
91-22-5	Quinoline	2	R
120-72-9	1H-Indole	30	
91-57-6	2-Methylnaphthalene	140	B
90-12-0	1-Methylnaphthalene	160	BET
92-52-4	Biphenyl	100	
208-96-8	Acenaphthylene	78	
83-32-9	Acenaphthene	220	ET
132-64-9	Dibenzofuran	130	R
86-73-7	Fluorene	190	ET
132-65-0	Dibenzothiophene	41	
85-01-8	Phenanthrene	170	BERT
120-12-7	Anthracene	68	
260-94-6	Acridine	24	
86-74-8	Carbazole	84	
206-44-0	Fluoranthene	170	BERT
129-00-0	Pyrene	160	BERT
56-55-3	Benzo(A)Anthracene	29	R
218-01-9	Chrysene	22	
205-99-2	Benzo(B)Fluoranthene	6	
207-08-9	Benzo(K)Fluoranthene	2	J
192-97-2	Benzo(E)Pyrene	3	
50-32-8	Benzo(A)Pyrene	4	
198-55-0	Perylene	1	J
193-39-5	Indeno(1,2,3-CD)Pyrene	2	J
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	2	J

APPENDIX C
LABORATORY DATA SUMMARY PACKAGE: PRAIRIE DU CHIEN - JORDAN AQUIFER

WELLS

SLP 4 SLP5 SLP6 SLP7 SLP8 SLP9
SLP10 SLP14 SLP15 SLP16
E2 E4 E7 E13 E15 H6 MTK6
W23 W29 W32 W40 W48 W70
W119 W401 W402 W403 W406

CITY OF ST. LOUIS PARK

Prairie du Chien Jordan Aquifer 1994
PAH Quality Control Summary

ll No.	Sample Date	Method Blank	Field Duplicate	Matrix Spike	Matrix Spike Dup.	Field Blank
P Section 7.3 (A)						
SLP4	3/29/94	34563	PCJ-SLP4D-03299	PCJ-SLP4MS-03299	PCJ-SLP4MSD-03299	PCJ-SLP4FB-03299
SLP4	10/3/94	38363	STP-SLP3D-100394	STP-SLP3MS-100394	STP-SLP3MSD-100394	STP-SLP3FB-100394
P Section 7.3 (B)						
W23	6/7/94	36008	DPV-W420D-060794	DPV-W420MS-060794	DPV-W420MSD-060794	DPV-W420FB-060794
W23	10/11/94	38528	DPV-W420D-101194	DPV-W420MS-101194	DPV-W420MSD-101194	DPV-W420FB-101194
P Section 7.3 (C)						
SLP6	2/8/94	33713	PCJ-SLP6D-020894	PCJ-SLP6MS-020894	PCJ-SLP6MSD-020894	PCJ-SLP6FB-020894
SLP7	6/7/94	36006	PCJ-SLP7D-060794	PCJ-SLP10MS-060694	PCJ-SLP10MSD-060694	PCJ-SLP7FB-060794
W48	6/6/94	35949	PCJ-SLP10D-060694	PCJ-SLP10MS-060694	PCJ-SLP10MSD-060694	PCJ-SLP10FB-060694
P Section 7.3 (D)						
LP10	6/6/94	35949	PCJ-SLP10D-060694	PCJ-SLP10MS-060694	PCJ-SLP10MSD-060694	PCJ-SLP10FB-060694
LP15						
N402	6/6/94	35949	PCJ-SLP10D-060694	PCJ-SLP10MS-060694	PCJ-SLP10MSD-060694	PCJ-SLP10FB-060694
N403	6/6/94	35949	PCJ-SLP10D-060694	PCJ-SLP10MS-060694	PCJ-SLP10MSD-060694	PCJ-SLP10FB-060694
E2	6/7/94	36006	PCJ-SLP7D-060794	PCJ-SLP10MS-060694	PCJ-SLP10MSD-060694	PCJ-SLP7FB-060794
E13	6/7/94	36006	PCJ-SLP7D-060794	PCJ-SLP10MS-060694	PCJ-SLP10MSD-060694	PCJ-SLP7FB-060794
N406	6/13/94	36157	PCJ-SLP14D-061394	PCJ-SLP14MS-061394	PCJ-SLP14MSD-061394	PCJ-SLP14FB-061394
H3		Abandoned				

CITY OF ST. LOUIS PARK

Prairie du Chien Jordan Aquifer 1994
PAH Quality Control Summary

Well No.	Sample Date	Method Blank	Field Duplicate	Matrix Spike	Matrix Spike Dup.	Field Blank
RAP Section 7.3 (D) continued						
SLP14	6/13/94	36157	PCJ-SLP14D-061394	PCJ-SLP14MS-061394	PCJ-SLP14MSD-061394	PCJ-SLP14FB-061394
SLP16	5/24/94	35695	PCJ-SLP16D-061394	PCJ-SLP16MS-061394	PCJ-SLP16MSD-061394	PCJ-SLP16FB-061394
W119	NOT AVAILABLE TO SAMPLE					
RAP Section 7.3(E)						
SLP5	NOT AVAILABLE TO SAMPLE					
W40	6/6/94	35949	PCJ-SLP10D-060694	PCJ-SLP10MS-060694	PCJ-SLP10MSD-060694	PCJ-SLP10FB-060694
E3	6/7/94	36006	PCJ-SLP7D-060794	PCJ-SLP10MS-060694	PCJ-SLP10MSD-060694	PCJ-SLP7FB-060794
E15	6/7/94	36006	PCJ-SLP7D-060794	PCJ-SLP10MS-060694	PCJ-SLP10MSD-060694	PCJ-SLP7FB-060794
H6	6/7/94	36006	PCJ-SLP7D-060794	PCJ-SLP10MS-060694	PCJ-SLP10MSD-060694	PCJ-SLP7FB-060794
W70	6/7/94	36006	PCJ-SLP7D-060794	PCJ-SLP10MS-060694	PCJ-SLP10MSD-060694	PCJ-SLP7FB-060794
W401	6/13/94	36157	PCJ-SLP14D-061394	PCJ-SLP14MS-061394	PCJ-SLP14MSD-061394	PCJ-SLP14FB-061394
MTK6	6/13/94	36157	PCJ-SLP14D-061394	PCJ-SLP14MS-061394	PCJ-SLP14MSD-061394	PCJ-SLP14FB-061394
W29	6/13/94	36157	PCJ-SLP14D-061394	PCJ-SLP14MS-061394	PCJ-SLP14MSD-061394	PCJ-SLP14FB-061394

CITY OF ST. LOUIS PARK

Prairie du Chien Jordan Aquifer 1994
Phenolics Quality Control Summary

Well No.	Sample Date	Method Blank	Field Duplicate	Matrix Spike	Matrix Spike Dup.	Field Blank
RAP Section 7.3 (A)						
SLP4	3/29/94	34564	PCJ-SLP4D-032994	PCJ-SLP4MS-032994	PCJ-SLP4MSD-032994	PCJ-SLP4FB-032994
SLP4	10/11/94	38529	DPV-W420TPD-101194	DPV-W420TPMS-101194	DPV-W420TPMSD-101194	DPV-W420TPFB-101194

RAP SECTION 7.3(A) MONITORING

WELL

SLP 4

FIRST HALF MONITORING

PAH MONITORING

Rocky Mountain
Analytical Laboratory

Enseco

CASE NARRATIVE

FOR

City of St. Louis Park

April 28, 1994

Enseco - RMAL Project Number 034563

Introduction

Nine aqueous samples (includes QC) were received at Enseco Rocky Mountain Analytical Laboratory on March 30, 1994. The samples were logged in under RMAL project number 034563. Sample PCJ-SLP4-032994 was extracted and held per the April 1990 QAPP. A cross reference associating the RMAL sample numbers to the actual field sample numbers is included. The samples were analyzed for low level part-per-trillion (ppt) polynuclear aromatic hydrocarbons (PAH).

Data Quality Assessment

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

PPT PAH

The percent recovery for Benzo(E)Pyrene was below QC limits in samples 034563-0001MS/MSD. The RPD's for 1H-Indene, Naphthalene, and 2-Methylnaphthalene were outside QC limits for samples 034563-0001MS/MSD. Since acceptable recovery was achieved for all other spike components, quantitation was checked and no further action was taken.

Samples 034563-0001MS/MSD were also analyzed at a dilution. The percent recovery for Benzo(E)Pyrene was below QC limits in samples 034563-0001MSDL/MSDDL. The RPD's for 1H-Indene and Naphthalene were outside QC limits for samples 034563-0001MSDL/MSDDL. Since acceptable recovery was achieved for all other spike components, quantitation was checked and no further action was taken.

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

The percent recovery for Chrysene-d12 was outside QC limits in sample 034563-0002DL. The percent recovery for this compound was within QC limits in sample 034563-0002.

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

All samples associated with project 034563 show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion. These compounds are flagged with the letter (R) on the data sheets (Form I) as per the 1990 QAPP.

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

Reported by: Karen F. Germann **Date:** May 1, 1994
Karen F. Germann
Program Administrator

Approved by: Julieann L. Kramer **Date:** May 4 1994
Julieann L. Kramer
Program Manager

Enseco

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 034563	Group Code	Analysis Description	Custom Test?
0001 , 0001, 0002 - 0004	C	Polynuclear Aromatic Hydrocarbons, SIM Low Level	N
		Prep - PAH/SIM by GC/MS Low Level	N
0001	D	Prep - PAH/SIM by GC/MS Low Level	N

Enseco

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
034563-0001-SA	PCJ-SLP4-032994	AQUEOUS	29 MAR 94		30 MAR 94
034563-0001-DU	PCJ-SLP4D-032994	AQUEOUS	29 MAR 94		30 MAR 94
034563-0001-FB	PCJ-SLP4FB-032994	AQUEOUS	29 MAR 94		30 MAR 94
034563-0001-FD	PCJ-SLP4FBD-032994	AQUEOUS	29 MAR 94		30 MAR 94
034563-0001-MS	PCJ-SLP4MS-032994	AQUEOUS	29 MAR 94		30 MAR 94
034563-0001-SD	PCJ-SLP4MSD-032994	AQUEOUS	29 MAR 94		30 MAR 94
034563-0002-SA	IGV-W105-032994	AQUEOUS	29 MAR 94		30 MAR 94
034563-0003-SA	MSH-SLP11-032994	AQUEOUS	29 MAR 94		30 MAR 94
034563-0004-SA	MSH-SLP12-032994	AQUEOUS	29 MAR 94		30 MAR 94

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Qualifier Codes and Their Usage

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

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

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

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

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

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

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Arvada, Colorado 80002
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E = This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis. If one or more compounds have a response greater than full scale, except as noted in Exhibit D, the sample or extract must be diluted and re-analyzed accordingly to the specifications in Exhibit D. All such compounds with a response greater than full scale should have the concentration flagged with an "E" on the Form I for the original analysis. If the dilution of the extract causes any compounds identified in the first analysis to be below the calibration range in the second analysis, then the results of both analyses shall be reported on separate copies of Form I. The Form I for the diluted sample shall have the "DL" suffix appended to the sample number. NOTE: For total xylenes, where three isomers are quantified as two peaks, the calibration range of each peak should be considered separately, e.g., a diluted analysis is not required for total xylenes unless the concentration of either peak separately exceeds 200 ug/L.

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

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

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

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

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Arvada, CO 80002
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Suite 120
Houston, TX 77032
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CHAIN OF CUSTODY

ENSECO CLIENT	City of Saint Louis Park (Water Dept)
PROJECT	
SAMPLING COMPANY	Same
SAMPLING SITE	Same
TEAM LEADER	[illegible]

SAMPLE SAFE™ CONDITIONS

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

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
3-27-94		PCJ-5LP4-032494	1YL AMBER	6	PPT PAH	34563-1
3-29-94		PCJ-5LP4D-032794	1YL AMBER	6	PPT PAH	-1 DU

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY	[illegible]
METHOD OF SHIPMENT	FED EX
AIRBILL NUMBER	2103420922
RECEIVED FOR LAB	[illegible]
SIGNED	[illegible]
DATE/TIME	3/30/94 830
ENSECO PROJECT NUMBER	34563

ENS-4011

White - CLIENT Pink - LAB

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

CHAIN OF CUSTODY

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

PROJECT:

SAMPLING COMPANY: STATE

SAMPLING SITE: STATE

TEAM LEADER: [illegible]

SAMPLE SAFE™ CONDITIONS

PACKED BY: [illegible]

SEAL NUMBER:

SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:

CONDITION OF CONTENTS:

SEALED FOR SHIPPING BY: [illegible]

INITIAL CONTENTS TEMP: °C

SEAL NUMBER:

SAMPLING STATUS: ☐ Done ☐ Continuing Until

SEAL INTACT UPON RECEIPT BY LAB: ☐ Yes ☐ No

CONTENTS TEMPERATURE UPON RECEIPT BY LAB: °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
3-29-94		PCJ-SLP4FB-032994	1L AMBER	6	PPL PAH	34563-1 FB
3-29-94		PCJ-SLP4FBD-032994	1L AMBER	6	PPL PAH	-1FD

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: [illegible]

METHOD OF SHIPMENT: FED EX

AIRBILL NUMBER: 2103-120922

RECEIVED FOR LAB: [illegible]

SIGNED: [illegible]

DATE/TIME: 3/31/94

ENSECO PROJECT NUMBER: 34563

ENS-4011

White - CLIENT Pink - LAB

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

CHAIN OF CUSTODY

ENSECO CLIENT: CITY OF SAINT LOUIS PARK (WATER)

PROJECT:

SAMPLING COMPANY: SAME

SAMPLING SITE: SAME

TEAM LEADER: M2 [illegible]

SAMPLE SAFE™ CONDITIONS

PACKED BY: M2 [illegible]

SEAL NUMBER:

SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:

CONDITION OF CONTENTS:

SEALED FOR SHIPPING BY: M2 [illegible]

INITIAL CONTENTS TEMP: °C

SEAL NUMBER:

SAMPLING STATUS: ☐ Done ☐ Continuing Until

SEAL INTACT UPON RECEIPT BY LAB: ☐ Yes ☐ No

CONTENTS TEMPERATURE UPON RECEIPT BY LAB: °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
3 29 94		PCJ-SLP4MS-032994	1XL AMBER	6	PPT PAH	-1MS
3-29-94		PCJ-SLP4MSD-032994	1XL AMBER	6	PPT PAH	-1SD

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: M2 [illegible]

METHOD OF SHIPMENT: FED EX

AIRBILL NUMBER: 2103410922

RECEIVED FOR LAB: RMAL

SIGNED: [illegible]

DATE/TIME: 3/30/94 [illegible]

ENSECO PROJECT NUMBER: 34563

ENS-4011

White - CLIENT Pink - LAB

ENSECO
A Corning Company
303/121 6611 FAX 303/131-7171
Houston, TX 77032
713/987 9767 FAX 713/987-9769

CHAIN OF CUSTODY

ENSECO CLIENT: [illegible] STATE [illegible] PARK (CONTRA)	**SAMPLE SAFE™ CONDITIONS**
PROJECT	PACKED BY: [illegible]
	SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY
	SEAL NUMBER
	CONDITION OF CONTENTS
SAMPLING COMPANY: STATE	SEALED FOR SHIPPING BY: [illegible]
	INITIAL CONTENTS TEMP °C
SAMPLING SITE: STATE	SEAL NUMBER
	SAMPLING STATUS: ☐ Done ☐ Continuing Until
TEAM LEADER: [illegible]	SEAL INTACT UPON RECEIPT BY LAB: ☐ Yes ☐ No
	CONTENTS TEMPERATURE UPON RECEIPT BY LAB °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
3-29-94		EGI-WIN5-032994	1XL AMBER	6	PPL PAH	-2
3-29-94		WSM-SLPH-032994	1XL AMBER	6	PPL PAH	-3
3-29-94		WSM-SLPH2-032994	1XL AMBER	6	PPL PAH	-4

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: [illegible]

METHOD OF SHIPMENT: FED EX

AIRBILL NUMBER: 21034.10922

RECEIVED FOR LAB: [illegible]

SIGNED: [illegible]

DATE/TIME: 3/30/94

ENSECO PROJECT NUMBER: 3A563

ENS-4011

White - CLIENT Pink - LAB

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

34563-01

Lab Name: ENSECO Contract: PCJ-SLP4-032994

Lab Code: ENSECO Case No.: 34563 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 34563-01

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C8925

Level: (low/med) LOW Date Received: 03/30/94

% Moisture: decanted: (Y/N) N Date Extracted: 03/31/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 04/18/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	1	J
496-11-7	2,3-Dihydroindene	200	ER
95-13-6	1H-Indene	13	
91-20-3	Naphthalene	6	BJ
4565-32-6	Benzo(B)Thiophene	43	
91-22-5	Quinoline	1	J
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnapnthalene	3	B
90-12-0	1-Methylnaphthalene	2	BR
92-52-4	Biphenyl	4	J
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	120	ET
132-64-9	Dibenzofuran	1	R
86-73-7	Fluorene	2	
132-65-0	Dibenzothiopnene	2	R
85-01-8	Phenanthrene	12	B
120-12-7	Anthracene	3	
260-94-6	Acridine	2	JR
86-74-8	Carbazole	30	
206-44-0	Fluoranthene	8	B
129-00-0	Pyrene	6	B
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO. 7

34563-01DL

PCJ-SLP4-032994

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 34563 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 34563-01DL

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C8946

Level: (low/med) LOW Date Received: 03/30/94

% Moisture: decanted: (Y/N) N Date Extracted: 03/31/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 04/19/94

Injection Volume: 2.0(uL) Dilution Factor: 0.238

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	10	U
496-11-7	2,3-Dihydroindene	240	D
95-13-6	1H-Indene	13	D
91-20-3	Naphthalene	6	BDJR
4565-32-6	Benzo(B)Thiophene	42	D
91-22-5	Quinoline	3	U
120-72-9	1H-Indole	5	U
91-57-6	2-Methylnaphthalene	3	BD
90-12-0	1-Methylnaphthalene	2	BDJR
92-52-4	Biphenyl	3	DJ
208-96-8	Acenaphthylene	3	U
83-32-9	Acenaphthene	180	D
132-64-9	Dibenzofuran	2	U
86-73-7	Fluorene	2	D
132-65-0	Dibenzothiophene	2	DJR
85-01-8	Phenanthrene	12	BD
120-12-7	Anthracene	4	DR
260-94-6	Acridine	2	DJR
86-74-8	Carbazole	27	D
206-44-0	Fluoranthene	8	BD
129-00-0	Pyrene	6	BD
56-55-3	Benzo(A)Anthracene	5	U
218-01-9	Chrysene	5	U
205-99-2	Benzo(B)Fluoranthene	5	U
207-08-9	Benzo(K)Fluoranthene	4	U
192-97-2	Benzo(E)Pyrene	4	U
50-32-8	Benzo(A)Pyrene	4	U
198-55-0	Perylene	5	U
193-39-5	Indeno(1,2,3-CD)Pyrene	4	U
53-70-3	Dibenz(A,H)Anthracene	3	U
191-24-2	Benzo(G,H,I)Perylene	5	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

34563-01DU

PCJ-SLP4D-032994

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 34563 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 34563-01DU

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C8935

Level: (low/med) LOW Date Received: 03/30/94

% Moisture: decanted: (Y/N) N Date Extracted: 03/31/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 04/19/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	1	J
496-11-7	2,3-Dihydroindene	170	E
95-13-6	1H-Indene	11	
91-20-3	Naphthalene	7	BR
4565-32-6	Benzo(B)Thiophene	36	
91-22-5	Quinoline	1	JR
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	4	B
90-12-0	1-Methylnaphthalene	2	BR
92-52-4	Biphenyl	6	
208-96-8	Acenaphthylene	4	R
83-32-9	Acenaphthene	110	
132-64-9	Dibenzofuran	8	
86-73-7	Fluorene	2	
132-65-0	Dibenzothiophene	2	R
85-01-8	Phenanthrene	14	B
120-12-7	Anthracene	2	
260-94-6	Acridine	2	JR
86-74-8	Carbazole	25	
206-44-0	Fluoranthene	7	B
129-00-0	Pyrene	6	B
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO. D

34563-01DUDL

PCJ-SLP4D-032994

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 34563 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 34563-01DUDL

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C8947

Level: (low/med) LOW Date Received: 03/30/94

% Moisture: decanted: (Y/N) N Date Extracted: 03/31/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 04/19/94

Injection Volume: 2.0(uL) Dilution Factor: 0.238

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	10	U
496-11-7	2,3-Dihydroindene	190	D
95-13-6	1H-Indene	10	D
91-20-3	Naphthalene	6	BDJR
4565-32-6	Benzo(B)Thiophene	35	D
91-22-5	Quinoline	3	U
120-72-9	1H-Indole	5	U
91-57-6	2-Methylnaphthalene	4	BD
90-12-0	1-Methylnaphthalene	2	BDJR
92-52-4	Biphenyl	6	DJ
208-96-8	Acenaphthylene	3	U
83-32-9	Acenaphthene	150	D
132-64-9	Dibenzofuran	8	D
86-73-7	Fluorene	2	D
132-65-0	Dibenzothiophene	2	DJ
85-01-8	Phenanthrene	14	BD
120-12-7	Anthracene	2	DJ
260-94-6	Acridine	2	DJR
86-74-8	Carbazole	21	D
206-44-0	Fluoranthene	7	BD
129-00-0	Pyrene	5	BD
56-55-3	Benzo(A)Anthracene	5	U
218-01-9	Chrysene	5	U
205-99-2	Benzo(B)Fluoranthene	5	U
207-08-9	Benzo(K)Fluoranthene	4	U
192-97-2	Benzo(E)Pyrene	4	U
50-32-8	Benzo(A)Pyrene	4	U
198-55-0	Perylene	5	U
193-39-5	Indeno(1,2,3-CD)Pyrene	4	U
53-70-3	Dibenz(A,H)Anthracene	3	U
191-24-2	Benzo(G,H,I)Perylene	5	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

34563-01FB

PCJ-SLP4FB-032994

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 34563 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 34563-01FB

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C8950

Level: (low/med) LOW Date Received: 03/30/94

% Moisture: decanted: (Y/N) N Date Extracted: 03/31/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 04/19/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

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

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

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

34563-01FBD

PCJ-SLP4FBD-032994

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 34563 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 34563-01FBD

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C8942

Level: (low/med) LOW Date Received: 03/30/94

% Moisture: decanted: (Y/N) N Date Extracted: 03/31/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 04/19/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

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

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

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

34563-01MS

PCJ-SLP4MS-032994

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 34563 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 34563-01MS

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C8944

Level: (low/med) LOW Date Received: 03/30/94

% Moisture: decanted: (Y/N) N Date Extracted: 03/31/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 04/19/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	1	J
496-11-7	2,3-Dihydroindene	240	E
95-13-6	1H-Indene	20	
91-20-3	Naphthalene	13	B
4565-32-6	Benzo(B)Thiophene	44	
91-22-5	Quinoline	9	
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	10	B
90-12-0	1-Methylnaphthalene	2	BR
92-52-4	Biphenyl	4	JR
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	180	E
132-64-9	Dibenzofuran	1	R
86-73-7	Fluorene	9	
132-65-0	Dibenzothiophene	2	R
85-01-8	Phenanthrene	12	B
120-12-7	Anthracene	3	
260-94-6	Acridine	2	J
86-74-8	Carbazole	27	
206-44-0	Fluoranthene	7	B
129-00-0	Pyrene	5	B
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	4	
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

34563-01MSDL

PCJ-SLP4MS-032994

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 34563 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 34563-01MSDL

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C8948

Level: (low/med) LOW Date Received: 03/30/94

% Moisture: decanted: (Y/N) N Date Extracted: 03/31/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 04/19/94

Injection Volume: 2.0(uL) Dilution Factor: 0.238

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	10	U
496-11-7	2,3-Dihydroindene	220	D
95-13-6	1H-Indene	19	D
91-20-3	Naphthalene	12	BDJ
4565-32-6	Benzo(B)Thiophene	40	D
91-22-5	Quinoline	9	D
120-72-9	1H-Indole	5	U
91-57-6	2-Methylnapnthalene	10	BD
90-12-0	1-Methylnaphthalene	3	U
92-52-4	Biphenyl	3	DJ
208-96-8	Acenaphthylene	3	U
83-32-9	Acenaphthene	170	D
132-64-9	Dibenzofuran	2	U
86-73-7	Fluorene	9	D
132-65-0	Dibenzothiophene	2	DJR
85-01-8	Phenanthrene	12	BD
120-12-7	Anthracene	3	D
260-94-6	Acridine	2	DJ
86-74-8	Carbazole	26	D
206-44-0	Fluoranthene	7	BD
129-00-0	Pyrene	6	BD
56-55-3	Benzo(A)Anthracene	5	U
218-01-9	Chrysene	4	DJ
205-99-2	Benzo(B)Fluoranthene	5	U
207-08-9	Benzo(K)Fluoranthene	4	U
192-97-2	Benzo(E)Pyrene	4	U
50-32-8	Benzo(A)Pyrene	4	U
198-55-0	Perylene	5	U
193-39-5	Indeno(1,2,3-CD)Pyrene	4	U
53-70-3	Dibenz(A,H)Anthracene	3	U
191-24-2	Benzo(G,H,I)Perylene	5	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

34563-01MSD

PCJ-SLP4MSD-032994

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 34563 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 34563-01MSD

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C8933

Level: (low/med) LOW Date Received: 03/30/94

% Moisture: decanted: (Y/N) N Date Extracted: 03/31/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 04/19/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	1	J
496-11-7	2,3-Dihydroindene	180	ET
95-13-6	1H-Indene	17	
91-20-3	Naphthalene	10	B
4565-32-6	Benzo(B)Thiophene	36	
91-22-5	Quinoline	9	
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	8	B
90-12-0	1-Methylnaphthalene	2	BR
92-52-4	Biphenyl	3	JR
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	120	
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	8	
132-65-0	Dibenzothiophene	2	R
85-01-8	Phenanthrene	10	B
120-12-7	Anthracene	3	R
260-94-6	Acridine	3	
86-74-8	Carbazole	28	
206-44-0	Fluoranthene	6	B
129-00-0	Pyrene	5	B
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

34563-01MSDDL

PCJ-SLP4MSD-032994

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 34563 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 34563-01MSDDL

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C8949

Level: (low/med) LOW Date Received: 03/30/94

% Moisture: decanted: (Y/N) N Date Extracted: 03/31/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 04/19/94

Injection Volume: 2.0(uL) Dilution Factor: 0.238

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	10	U
496-11-7	2,3-Dihydroindene	200	D
95-13-6	1H-Indene	17	D
91-20-3	Naphthalene	10	BDJ
4565-32-6	Benzo(B)Thiophene	36	D
91-22-5	Quinoline	8	D
120-72-9	1H-Indole	5	U
91-57-6	2-Methylnapnthalene	8	BD
90-12-0	1-Methylnaphthalene	3	U
92-52-4	Biphenyl	3	DJ
208-96-8	Acenaphthylene	3	U
83-32-9	Acenaphthene	160	D
132-64-9	Dibenzofuran	2	U
86-73-7	Fluorene	8	D
132-65-0	Dibenzothiophene	2	U
85-01-8	Phenanthrene	10	BD
120-12-7	Anthracene	3	D
260-94-6	Acridine	2	DJ
86-74-8	Carbazole	25	D
206-44-0	Fluoranthene	6	BD
129-00-0	Pyrene	5	BD
56-55-3	Benzo(A)Anthracene	5	U
218-01-9	Chrysene	3	DJ
205-99-2	Benzo(B)Fluoranthene	5	U
207-08-9	Benzo(K)Fluoranthene	4	U
192-97-2	Benzo(E)Pyrene	4	U
50-32-8	Benzo(A)Pyrene	4	U
198-55-0	Perylene	5	U
193-39-5	Indeno(1,2,3-CD)Pyrene	4	U
53-70-3	Dibenz(A,H)Anthracene	3	U
191-24-2	Benzo(G,H,I)Perylene	5	U

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 34563 SAS No.: SDG No.:

	EPA SAMPLE NO.	S1 (NAP)#	S2 (FLU)#	S3 (CHR)#	TOT OUT
01	34563-01	78	92	52	0
02	34563-01DL	74	86	52	0
03	34563-01DU	62	77	35	0
04	34563-01DUDL	62	76	42	0
05	34563-01FB	82	93	98	0
06	34563-01FBD	89	70	98	0
07	34563-02	78	90	42	0
08	34563-02DL	103	71	611 *	1
09	34563-03	88	101	52	0
10	34563-04	80	49	37	0
11	34563-01MS	76	91	42	0
12	34563-01MSD	67	80	40	0
13	34563-01MSDDL	66	80	38	0
14	34563-01MSDL	72	84	54	0
15	BLK01	78	84	86	0

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

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

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 34563 SAS No.: SDG No.:

Matrix Spike - EPA Sample No.: 34563-01

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC #	QC LIMITS REC.
1H-Indene	9.520	13.21	20.11	72	20-150
Naphthalene	9.520	5.938	12.97	74	20-150
Quinoline	9.520	1.006	9.306	87	20-150
2-Methylnaphthalene	9.520	3.058	9.948	72	20-150
Fluorene	9.520	1.856	9.472	80	20-150
Chrysene	9.520	0.245	3.951	42	20-150
Benzo(E)Pyrene	9.520	ND	0.656	7 *	10-150

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1H-Indene	9.520	17.37	44	48 *	28	20-150
Naphthalene	9.520	10.45	47	45 *	28	20-150
Quinoline	9.520	8.794	82	6	28	20-150
2-Methylnaphthalene	9.520	8.152	54	29 *	28	20-150
Fluorene	9.520	8.223	67	18	28	20-150
Chrysene	9.520	3.272	34	21	28	20-150
Benzo(E)Pyrene	9.520	0.558	6 *	15	28	10-150

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

COMMENTS:

3C
WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 34563 SAS No.: SDG No.:

Matrix Spike - EPA Sample No.: 34563-01DL

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC #	QC LIMITS REC.
1H-Indene	19.0	12.92	18.64	30	20-150
Naphthalene	19.0	5.950	12.02	32	20-150
Quinoline	19.0	0.960	8.973	42	20-150
2-Methylnaphthalene	19.0	3.165	9.639	34	20-150
Fluorene	19.0	2.111	8.996	36	20-150
Chrysene	19.0	0.849	3.856	20	20-150
Benzo(E)Pyrene	19.0	ND	0.558	3 *	10-150

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1H-Indene	19.0	16.71	20	40 *	28	20-150
Naphthalene	19.0	10.19	22	37 *	28	20-150
Quinoline	19.0	8.116	38	10	28	20-150
2-Methylnaphthalene	19.0	8.021	26	27	28	20-150
Fluorene	19.0	8.116	32	12	28	20-150
Chrysene	19.0	3.142	16	22	28	20-150
Benzo(E)Pyrene	19.0	0.554	3 *	0	28	10-150

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

COMMENTS:

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

BLK01

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 34563 SAS No.: SDG No.:

Lab File ID: C8934 Lab Sample ID: 3L033194

Instrument ID: 4500-C Date Extracted: 03/31/94

Matrix: (soil/water) WATER Date Analyzed: 04/19/94

Level:(low/med) LOW Time Analyzed: 0151

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	34563-01	34563-01	C8925	04/18/94
02	34563-01DL	34563-01DL	C8946	04/19/94
03	34563-01DU	34563-01DU	C8935	04/19/94
04	34563-01DUDL	34563-01DUDL	C8947	04/19/94
05	34563-01FB	34563-01FB	C8950	04/19/94
06	34563-01FBD	34563-01FBD	C8942	04/19/94
07	34563-02	34562-02	C8945	04/19/94
08	34563-02DL	34563-02DL	C8951	04/19/94
09	34563-03	34563-03	C8930	04/18/94
10	34563-04	34563-04	C8943	04/19/94
11	34563-01MS	34563-01MS	C8944	04/19/94
12	34563-01MSD	34563-01MSD	C8933	04/19/94
13	34563-01MSDDL	34563-01MSDDL	C8949	04/19/94
14	34563-01MSDL	34563-01MSDL	C8948	04/19/94

COMMENTS:

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

BLK01

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 34563 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: BL033194

Sample wt/vol: 4000 (g/mL) ML Lab File ID: C8934

Level: (low/med) LOW Date Received:

% Moisture: decanted: (Y/N) N Date Extracted: 03/31/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 04/19/94

Injection Volume: 2.0(uL) Dilution Factor: 0.125

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

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

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 34563 SAS No.: SDG No.:

Lab File ID (Standard): C8923 Date Analyzed: 04/18/94

Instrument ID: 4500-C Time Analyzed: 1801

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	640964	15.00	1132510	18.80	529312	28.99
	UPPER LIMIT	1281928	15.50	2265020	19.30	1058624	29.49
	LOWER LIMIT	320482	14.50	566255	18.30	264656	28.49
	EPA SAMPLE NO.						
01	34563-01	734156	15.00	1336510	18.80	709957	29.06
02	34563-01DU	849454	15.00	1525530	18.79	832311	29.04
03	34563-03	728567	15.02	1314680	18.82	730275	29.06
04	34563-01MSD	761089	15.00	1353380	18.79	728973	29.04
05	BLK01	652461	14.97	1161320	18.77	619080	29.02

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

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

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

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 34563 SAS No.: SDG No.:

Lab File ID (Standard): C8941 Date Analyzed: 04/19/94

Instrument ID: 4500-C Time Analyzed: 1110

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA =	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	329139	14.99	506100	18.77	287310	28.99
	UPPER LIMIT	658278	15.49	1012200	19.27	574620	29.49
	LOWER LIMIT	164570	14.49	253050	18.27	143655	28.49
	EPA SAMPLE NO.						
01	34563-01DL	365107	14.97	589418	18.77	331383	28.97
02	34563-01DUDL	341873	14.99	559621	18.77	347607	28.97
03	34563-01FB	358381	15.00	544258	18.77	305917	28.99
04	34563-01FBD	312781	14.97	478829	18.77	275191	28.97
05	34563-02	442691	14.97	661861	18.77	390320	28.97
06	34563-02DL	430026	14.99	897295	18.77	297968	28.99
07	34563-04	351028	14.99	533967	18.77	324704	28.99
08	34563-01MS	360018	14.99	561099	18.77	324686	28.99
09	34563-01MSDDL	348268	14.97	546037	18.77	343647	28.97
10	34563-01MSDL	329268	14.99	531726	18.77	323346	28.99

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

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

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

SECOND HALF MONITORING

PAH MONITORING

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

Quanterra Environmental Services

CASE NARRATIVE

FOR

City of St. Louis Park

November 19, 1994

Quanterra Environmental Services

Project Number 038363

Introduction

Twelve aqueous samples (includes QC) were received at Quanterra Environmental Services, Denver Laboratory on October 4, 1994 and October 5, 1994. The samples were logged in under Quanterra's Denver laboratory project number 038363. Sample STP-SLP3FBD-100394 (038363-01FBD) was extracted and held per the April 1990 QAPP. A cross reference associating Quanterra's Denver laboratory sample numbers to the actual field sample numbers is included. The samples were analyzed for low level part-per-trillion (ppt) polynuclear aromatic hydrocarbons (PAH).

Data Quality Assessment

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

PPT PAH

The analysis of samples PCJ-SLP4 (038363-02), STP-W122 (038363-06) and STP-W408 (038363-07) required that the samples be diluted due to concentrations of target compounds. Reporting limits have been raised accordingly.

The surrogate Fluorene-d10 for sample STP-W122 (038363-06) was outside control limits.

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The percent recovery for Benzo(E)Pyrene was below QC limits in STP-SLP3MS (038363-01MS). The relative percent difference (RPD) for this compound in the matrix spike/matrix spike duplicate pair were outside QC limits. The RPD for Chrysene was also outside QC limits. Since acceptable recovery was achieved for all other spike components, quantitation was checked and no further action was taken.

The internal standard area count for Acenaphthalene-D10 in sample STP-W408 (038363-07) was outside QC limits.

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

Some of the samples associated with project 038363 show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion. These compounds are flagged with the letter (R) on the data sheets (Form I) as per the 1990 QAPP.

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

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

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

Quanterra Environmental Services

TABLE OF CONTENTS

FOR

CITY OF ST. LOUIS PARK

QUANTERRA NO: 038363

SEMIVOLATILES

QC Summary.....0001

Sample Data.....0012

Standards Data.....0667

Raw QC Data.....1061

SCREENING DATA AND LOGBOOK RECORDS

Pages 1213 through 1233

Quanterra Environmental Services

QUALIFIER CODES AND THEIR USAGE

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

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

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

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

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

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

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

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

QUALIFIER CODES AND THEIR USAGE
Page Two

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

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

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

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

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
038363-0001-SA	STP-SLP3-100394	AQUEOUS	03 OCT 94		04 OCT 94
038363-0001-DU	STP-SLP3D-100394	AQUEOUS	03 OCT 94		04 OCT 94
038363-0001-FB	STP-SLP3FB-100394	AQUEOUS	03 OCT 94		04 OCT 94
038363-0001-FD	STP-SLP3FBD-100394	AQUEOUS	03 OCT 94		04 OCT 94
038363-0001-MS	STP-SLP3MS-100394	AQUEOUS	03 OCT 94		05 OCT 94
038363-0001-SD	STP-SLP3MSD-100394	AQUEOUS	03 OCT 94		05 OCT 94
038363-0002-SA	PCJ-SLP4-100394	AQUEOUS	03 OCT 94		04 OCT 94
038363-0003-SA	STP-W411-100394	AQUEOUS	03 OCT 94	12:30	04 OCT 94
038363-0004-SA	STP-W129-100394	AQUEOUS	03 OCT 94	13:15	04 OCT 94
038363-0005-SA	STP-P116-100394	AQUEOUS	03 OCT 94	16:20	04 OCT 94
038363-0006-SA	STP-W122-100394	AQUEOUS	03 OCT 94	16:00	04 OCT 94
038363-0007-SA	STP-W408-100394	AQUEOUS	03 OCT 94	16:40	04 OCT 94

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

38363-02

PCJ-SLP4-100394

Lab Name: QUANTERRA Denver Contract:

Lab Code: Case No.: 38363 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 38363-02

Sample wt/vol: 4170 (g/mL) ML Lab File ID: C9916

Level: (low/med) LOW Date Received: 10/04/94

% Moisture: decanted: (Y/N) N Date Extracted: 10/04/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 10/07/94

Injection Volume: 2.0(uL) Dilution Factor: 0.8

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Benzofuran	2	J
496-11-7	2,3-Dihydroindene	250	TER
95-13-6	1H-Indene	18	
91-20-3	Naphthalene	4	BJR
4565-32-6	Benzo(B)Thiophene	72	
91-22-5	Quinoline	1	JR
120-72-9	1H-Indole	1	JR
91-57-6	2-Methylnaphthalene	2	
90-12-0	1-Methylnaphthalene	1	JR
92-52-4	Biphenyl	11	
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	120	TE
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	
132-65-0	Dibenzothiophene	4	R
85-01-8	Phenanthrene	8	B
120-12-7	Anthracene	6	
260-94-6	Acridine	3	
86-74-8	Carbazole	46	
206-44-0	Fluoranthene	13	
129-00-0	Pyrene	8	
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

38363-02DL

lame: QUANTERRA Denver Contract:

PCJ-SLP4-100394

Code: Case No.: 38363 SAS No.: SDG No.:

ix: (soil/water) WATER Lab Sample ID: 38363-02DL

le wt/vol: 4170 (g/mL) ML Lab File ID: C9926

l: (low/med) LOW Date Received: 10/04/94

isture: decanted: (Y/N) N Date Extracted: 10/04/94

entrated Extract Volume: 500(uL) Date Analyzed: 10/12/94

ction Volume: 2.0(uL) Dilution Factor: 10.0

Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Benzofuran	49	U
496-11-7	2,3-Dihydroindene	580	D
95-13-6	1H-Indene	20	D
91-20-3	Naphthalene	62	U
4565-32-6	Benzo(B)Thiophene	90	D
91-22-5	Quinoline	13	U
120-72-9	1H-Indole	24	U
91-57-6	2-Methylnaphthalene	9	U
90-12-0	1-Methylnaphthalene	16	U
92-52-4	Biphenyl	12	DJ
208-96-8	Acenaphthylene	13	U
83-32-9	Acenaphthene	320	D
132-64-9	Dibenzofuran	10	U
86-73-7	Fluorene	10	U
132-65-0	Dibenzothiophene	11	U
85-01-8	Phenanthrene	11	BDJ
120-12-7	Anthracene	11	U
260-94-6	Acridine	28	U
86-74-8	Carbazole	50	D
206-44-0	Fluoranthene	14	D
129-00-0	Pyrene	12	DJ
56-55-3	Benzo(A)Anthracene	24	U
218-01-9	Chrysene	26	U
205-99-2	Benzo(B)Fluoranthene	24	U
207-08-9	Benzo(K)Fluoranthene	22	U
192-97-2	Benzo(E)Pyrene	18	U
50-32-8	Benzo(A)Pyrene	22	U
198-55-0	Perylene	24	U
193-39-5	Indeno(1,2,3-CD)Pyrene	20	U
53-70-3	Dibenz(A,H)Anthracene	16	U
191-24-2	Benzo(G,H,I)Perylene	26	U

ADDITIONAL MONITORING
PHENOLICS

Rocky Mountain
Analytical Laboratory

Enseco

November 4, 1994

Mr. James Grube
City of St. Louis Park
5005 Minnetonka Blvd.
St. Louis Park, MN 55416

Dear Mr. Grube:

Enclosed is the ppb phenol report for 11 aqueous samples, including matrix QC, received at Quanterra Environmental Services, Denver laboratory (formerly Enseco - Rocky Mountain Analytical Laboratory) on October 12, 1994.

Sample DPV-W420TPMS (038529-0001MS) showed the percent recovery of spiked phenolics at 126.4% (control limit 125%). The average percent recovery for the matrix spike DPV-W420TPMS (038529-0001MS) and the matrix spike duplicate DPV-W420TPMSD (038529-0001SD) was within control limits. The data are flagged accordingly.

Please call if you have any questions.

Sincerely,

Daniel Rebarchik
Project Administrator

Reviewed by:

Kevin McHugh
Program Manager

DR/KM
Enclosures

Quanterra's Denver laboratory #038529

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

Quanterra Environmental Services

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
038529-0001-SA	DPV-W420TP-101194	AQUEOUS	11 OCT 94		12 OCT 94
038529-0001-DU	DPV-W420TPD-101194	AQUEOUS	11 OCT 94		12 OCT 94
038529-0001-MS	DPV-W420TPMS-101194	AQUEOUS	11 OCT 94		12 OCT 94
038529-0001-SD	DPV-W420TPMSD-101194	AQUEOUS	11 OCT 94		12 OCT 94
038529-0001-FB	DPV-W420TPFB-101194	AQUEOUS	11 OCT 94		12 OCT 94
038529-0001-FD	DPV-W420TPFBD-101194	AQUEOUS	11 OCT 94		12 OCT 94
038529-0002-SA	DPV-W421TP-101194	AQUEOUS	11 OCT 94		12 OCT 94
038529-0003-SA	DPV-W422TP-101194	AQUEOUS	11 OCT 94		12 OCT 94
038529-0004-SA	PCJ-SLP4TP-101194	AQUEOUS	11 OCT 94		12 OCT 94
038529-0005-SA	GTF-ACFETP-101194	AQUEOUS	11 OCT 94		12 OCT 94
038529-0006-SA	GTF-SFRTP-101194	AQUEOUS	11 OCT 94		12 OCT 94

Quanterra Environmental Services

U.S. EPA - CLP

INORGANIC ANALYSES - RESULT QUALIFIERS

C - Concentration Qualifiers:

U - The reported value is less than the Instrument Detection Limit (IDL).

B - The reported value is less than the Contract Required Detection Limit (CRDL) but greater than the Instrument Detection Limit (IDL).

Q - Quality Control Qualifiers:

E - The reported value is estimated because of the presence of interference. An explanatory note is included under Comments on the Cover Page (if the problem applies to all samples) or on the specific FORM I-IN (if it is an isolated problem).

M - Duplicate injection precision not met.

N - Spiked sample recovery not within control limits.

S - The reported value was determined by the Method of Standard Additions (MSA).

W - Post-digestion spike for Furnace AA analysis is out of control limits (85-115%), while sample absorbance is less than 50% of spike absorbance.

* - Duplicate analysis not within control limits.

+ - Correlation coefficient for the MSA is less than 0.995.

Entering "S", "W", or "+" is mutually exclusive. No combination of these qualifiers can appear in the same field for an analyte.

M - Method Qualifiers:

P - ICP
A - Flame AA
F - Furnace AA
CV - Manual Cold Vapor AA
AV - Automated Cold Vapor AA
AS - Semi-Automated Spectrophotometric
C - Manual Spectrophotometric
T - Titrimetric
NR - Not Required

U.S. EPA - CLP

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Quanterra Environmental Services

000001

ame: QUANTERRA_____ Contract: CITY_SLP__

ode: DENVER Case No.: _____ SAS No.: _____ SDG No.:38529_

o.: ILMO2

EPA Sample No.	Lab Sample ID
3852901	3852901
3852901	3852901D
3852901	3852901S
3852901	3852901FB
3852901	3852901FD
3852902	3852902
3852903	3852903
3852904	3852904
3852905	3852905
3852906	3852906

ICP interelement corrections applied ? Yes/No YES

ICP background corrections applied ? Yes/No YES
If yes - were raw data generated before application of background corrections ? Yes/No NO_

nts:
IX__WATER_SAMPLES_FOR_PHENOLIC_ANALYSIS._____

tify that this data package is in compliance with the terms and tions of the contract, both technically and for completeness, for than the conditions detailed above. Release of the data contained is hardcopy data package and in the computer-readable data submitted oppy diskette has been authorized by the Laboratory Manager or the er's designee, as verified by the following signature.

ature: [signature] Name: KEVIN McHUGH

NOVEMBER 4, 1994 Title: PROGRAM MANAGER

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

Quanterra Environmental Services

000007

EPA SAMPLE NO.

3852904

ame: QUANTERRA Contract: CITY_SLP__

ode: DENVER Case No.: ____ SAS No.: _____ SDG No.: 38529_

x (soil/water): WATER Lab Sample ID: 3852904___

(low/med): LOW__ Date Received: 10/12/94

ids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
54-30-0__	Phenolics	57.9		N	C

· Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

· After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

ents:
CJ-SLP4TP-101194

FORM I - IN

7/88

Rocky Mountain
Analytical Laboratory

Enseco

April 22, 1994

Mr. James Grube
City of St. Louis Park
5005 Minnetonka Blvd.
St. Louis Park, MN 55416

Dear Mr Grube:

Enclosed is the ppb phenol report for 6 aqueous samples, including matrix QC, received at Enseco-Rocky Mountain Analytical Laboratory on March 30, 1994.

Please call if you have any questions.

Sincerely,

Karen F. Germann
Project Administrator

Reviewed by:

Julieann L. Kramer
Program Manager

KFG/JLK
Enclosures

RMAL #034564

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

Enseco

000001

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
034564-0001-SA	PCJ-SLP4TP-032994	AQUEOUS	29 MAR 94		30 MAR 94
034564-0001-DU	PCJ-SLP4TPD-032994	AQUEOUS	29 MAR 94		30 MAR 94
034564-0001-MS	PCJ-SLP4TPMS-032994	AQUEOUS	29 MAR 94		30 MAR 94
034564-0001-SD	PCJ-SLP4TPMSD-032994	AQUEOUS	29 MAR 94		30 MAR 94
034564-0001-FB	PCJ-SLP4TPFB-032994	AQUEOUS	29 MAR 94		30 MAR 94
034564-0001-FD	PCJ-SLP4TPFBD-032994	AQUEOUS	29 MAR 94		30 MAR 94

U.S. EPA - CLP

Enseco

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.:34564_ 000002

No.: ILM02

EPA Sample No.	Lab Sample ID
3456401	3456401
3456401	3456401D
3456401	3456401SD
3456401	3456401S
3456401	3456401FB
3456401	3456401FD

: ICP interelement corrections applied ? Yes/No YES

: ICP background corrections applied ? Yes/No YES
If yes - were raw data generated before application of background corrections ? Yes/No NO_

ments:
_ONE_WATER_SAMPLE_FOR_PHENOLIC_ANALYSIS.

ertify that this data package is in compliance with the terms and ditions of the contract, both technically and for completeness, for er than the conditions detailed above. Release of the data contained this hardcopy data package and in the computer-readable data submitted floppy diskette has been authorized by the Laboratory Manager or the ager's designee, as verified by the following signature.

nature: Will Pratt Name: Will Pratt

e: 4-20-94 Title: Inorganic Group Leader

U.S. EPA - CLP

INORGANIC ANALYSES - RESULT QUALIFIERS

C - Concentration Qualifiers:

U - The reported value is less than the Instrument Detection Limit (IDL).

B - The reported value is less than the Contract Required Detection Limit (CRDL) but greater than the Instrument Detection Limit (IDL).

Q - Quality Control Qualifiers:

E - The reported value is estimated because of the presence of interference. An explanatory note is included under Comments on the Cover Page (if the problem applies to all samples) or on the specific FORM I-IN (if it is an isolated problem).

M - Duplicate injection precision not met.

N - Spiked sample recovery not within control limits.

S - The reported value was determined by the Method of Standard Additions (MSA).

W - Post-digestion spike for Furnace AA analysis is out of control limits (85-115%), while sample absorbance is less than 50% of spike absorbance.

* - Duplicate analysis not within control limits.

+ - Correlation coefficient for the MSA is less than 0.995.

Entering "S", "W", or "+" is mutually exclusive. No combination of these qualifiers can appear in the same field for an analyte.

M - Method Qualifiers:

P - ICP
A - Flame AA
F - Furnace AA
CV - Manual Cold Vapor AA
AV - Automated Cold Vapor AA
AS - Semi-Automated Spectrophotometric
C - Manual Spectrophotometric
T - Titrimetric
NR - Not Required

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

CHAIN OF CUSTODY

ENSECO CLIENT: City of St Louis Park (Water Dept)

PROJECT:

SAMPLING COMPANY: Same

SAMPLING SITE: Same

TEAM LEADER: MZH

SAMPLE SAFE™ CONDITIONS

PACKED BY: MZH

SEAL NUMBER:

SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:

CONDITION OF CONTENTS:

SEALED FOR SHIPPING BY: MZH

INITIAL CONTENTS TEMP: °C

SEAL NUMBER:

SAMPLING STATUS: ☐ Done ☐ Continuing Until

SEAL INTACT UPON RECEIPT BY LAB: ☐ Yes ☐ No

CONTENTS TEMPERATURE UPON RECEIPT BY LAB: °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
3-29-94		PCJ-SLP4TP-032994	16 oz AMBER	1	PPB Phenols	34564-1
		PCJ-SLP4TPD-032994				-1Du
		PCJ-SLP4TPMS-032994				-1ms
		PCJ-SLP4TPMSD-032994				-1sp
		PCJ-SLP4TPFB-032994				-1fg
3-29-94		PCJ-SLP4TPFBD-032994	16 oz AMBER	1	PPB Phenols	-1FD

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MZH

METHOD OF SHIPMENT: FED EX

AIRBILL NUMBER: 2103420922

RECEIVED FOR LAB: RMAL

SIGNED: [signature]

DATE/TIME: 3/30/94 0830

ENSECO PROJECT NUMBER: 34564

000018

ENS-4011

White - CLIENT Pink - LAB

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

3456401

Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 34564_

·ix (soil/water): WATER Lab Sample ID: 3456401___

ıl (low/med): LOW__ Date Received: 03/30/94

ılids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
54-30-0__	Phenolics	5.0	C		C_

ɔr Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

ɔr After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

nents:
ᴾCJ-SLP4TP-032994

Enseco 000005

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

3456401FB

ame: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

ode: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 34564_

x (soil/water): WATER Lab Sample ID: 3456401FB_

(low/med): LOW__ Date Received: 03/30/94

ds: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
54-30-0__	Phenolics	5.0	U		C_

Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

ents:
J-SLP4TPFB-032994

U.S. EPA - CLP

Enseco

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

3456401FD

Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 34564_

ix (soil/water): WATER Lab Sample ID: 3456401FD_

l (low/med): LOW__ Date Received: 03/30/94

lids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
54-30-0__	Phenolics	5.0	U		C_

or Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

or After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

ments:
PCJ-SLP4TPFBD-032994

FORM I - IN

7/88

Enseco

000007

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

lame: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

:ode: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 34564_

ial Calibration Source: SEE ADDENDUM

nuing Calibration Source: SEE ADDENDUM

Concentration Units: ug/L

lyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
ıolics	20.0	19.81	99.0	20.0	22.19	111.0			C

Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

Enseco

3
BLANKS

000008

'lame: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

:ode: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 34564_

aration Blank Matrix (soil/water): WATER

aration Blank Concentration Units (ug/L or mg/kg): UG/L_

lyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
nolics	5.0	U	5.0	U					5.000	U	C

FORM III - IN

7/88

U.S. EPA - CLP

Enseco

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

000009

lame: ROCKY_MOUNTAIN_ANALYTICAL Contract:CITY_SLP__ 3456401S

:ode: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 34564_

'x: __WATER_____ Level (low/med): _LOW____

ıds for Sample: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

lyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
ıolics	75-125	46.9300		5.0000	U	50.00	93.9		C

ıents:
ᵖCJ-SLP4TPMS-032994

U.S. EPA - CLP

Enseco

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

000010

Name: ROCKY_MOUNTAIN_ANALYTICAL Contract:CITY_SLP__ 3456401SD

Code: ENSECO Case No.: ____ SAS No.: _____ SDG No.: 34564_

ix: __WATER_____ Level (low/med): _LOW___

lids for Sample: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

alyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
enolics	75-125	44.2100		5.0000	U	50.00	88.4		C

ments:
PCJ-SLP4TPMSD-032994

U.S. EPA - CLP

Enseco

6
DUPLICATES

EPA SAMPLE NO.

3456401D

00CC11

Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 34564_

ix (soil/water): WATER Level (low/med): _LOW__

lids for Sample: __0.0 % Solids for Duplicate: ___0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Phenolics		5.0000	U	5.0000	U			C

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7

LABORATORY CONTROL SAMPLE

000012

'lame: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

:ode: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 34564_

d LCS Source: SEE ADDENDUM

ous LCS Source: SEE ADDENDUM

lyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
nolics	20.0	17.45	87.2						

FORM VII - IN

7/88

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14

ANALYSIS RUN LOG

000013

lame: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

:ode: ENSECO Case No.: _____ SAS No.: _____ SDG No.:34564_

·ument ID Number: SPEC 88_____ Method: C_

: Date: 04/16/94 End Date: 04/16/94

?A mple).	D/F	Time	% R	Analytes PH
)	1.00	1520		X
)	1.00	1522		X
.0	1.00	1524		X
.0	1.00	1526		X
.0	1.00	1528		X
).0	1.00	1530		X
	1.00	1532		X
	1.00	1533		X
	1.00	1533		X
	1.00	1534		X
01	1.00	1536		X
5401D	1.00	1536		X
5401F	1.00	1537		X
5401F	1.00	1537		X
5401S	1.00	1538		X
5401S	1.00	1539		X
	1.00	1541		X
	1.00	1541		X

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ADDENDUM

STOCK STANDARD SOURCES

000014

Lab Name. ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY__SLP____

Lab Code: ENSECO Case. No.: _____ SAS No.: N/A___ SDG No.: 34564_

STANDARD	SOURCE/LOT	EXPIRATION DATE
CALIBRATION	LabChem 3102-6	4/8/95
ICV SOLUTION	RMAL #7383	4/30/94
CCV SOLUTION	(same as calibration source above)	
LCS SOLUTION	RICCA A058	4/95
MATRIX SPIKE SOLUTION	(same as LCS solution above)	

RAP SECTION 7.3(B) MONITORING

WELL

W23

FIRST HALF MONITORING

Rocky Mountain
Analytical Laboratory

Enseco

CASE NARRATIVE

FOR

City of St. Louis Park

September 7, 1994

Quanterra Environmental Services

Project No. 036008

Introduction

10 aqueous samples (includes QC) were received at Quanterra Environmental Services, Denver laboratory (formerly Enseco-Rocky Mountain Analytical Laboratory) on June 6, 1994. The samples were logged in under Quanterra's Denver laboratory project number 036008. Sample DPV-W420FBD-060794 was extracted and held per the April 1990 QAPP. A cross reference associating the Quanterra Denver laboratory sample numbers to the actual field sample numbers is included. The samples were analyzed for part-per-billion (ppb) polynuclear aromatic hydrocarbons (PAH).

Data Quality Assessment

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

PPB PAH

Samples DPV-W420 (036008-0002), DPV-W420D (036008-0002DU) and DPV-W421 (036008-0003) showed target compounds above the upper calibration range. The samples were analyzed at a dilution. Both the original and reanalysis data were reported for each sample. The reporting limits were adjusted accordingly.

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

Sample STP-W409 (036008-0001) showed the surrogate recovery for chrysene-d12 outside QC limits. The sample was reanalyzed and showed similar results. The surrogates were diluted out of samples DPV-W420DL (036008-0002DL) and DPV-W420DDL (036008-0002DUDL).

Sample DPV-W420MS (036008-0002MS) Showed the percent recovery for naphthalene outside QC limits. The RPD for samples DPV-W420MS (036008-0002MS) and DPV-W420MSD (036008-0002SD) is outside QC limits.

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

Reported by: _____ **Date:** 9/7/94
Daniel Rebarchik
Program Administrator

Approved by: _____ **Date:** 9/7/94
Kevin McHugh
Program Manager

Rocky Mountain
Analytical Laboratory

Enseco

Qualifier Codes and Their Usage

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

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

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

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

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

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

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

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

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

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

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

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SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
036008-0001-SA	STP-W409-060794	AQUEOUS	07 JUN 94	14:00	08 JUN 94
036008-0002-SA	DPV-W420-060794	AQUEOUS	07 JUN 94		08 JUN 94
036008-0002-DU	DPV-W420D-060794	AQUEOUS	07 JUN 94		08 JUN 94
036008-0002-MS	DPV-W420MS-060794	AQUEOUS	07 JUN 94		08 JUN 94
036008-0002-SD	DPV-W420MSD-060794	AQUEOUS	07 JUN 94		08 JUN 94
036008-0002-FB	DPV-W420FB-060794	AQUEOUS	07 JUN 94		08 JUN 94
036008-0002-FD	DPV-W420FBD-060794	AQUEOUS	07 JUN 94		08 JUN 94
036008-0003-SA	DPV-W421-060794	AQUEOUS	07 JUN 94		08 JUN 94
036008-0004-SA	DPV-W422-060794	AQUEOUS	07 JUN 94		08 JUN 94
036008-0005-SA	GTF-ACFE-060794	AQUEOUS	07 JUN 94		08 JUN 94
036008-0006-SA	GTF-SFR-060794	AQUEOUS	07 JUN 94		08 JUN 94
036008-0007-SA	PCJ-W23-060894	AQUEOUS	08 JUN 94		09 JUN 94

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 036008	Group Code	Analysis Description	Custom Test?
0001 - 0002,	A	CLP/PAH Semivolatile Organics High Level PPB	N
0002 - 0006		CLP Prep - PAH Semivolatile Organics by GC/MS High Level PPB	N
0002	B	CLP Prep - PAH Semivolatile Organics by GC/MS High Level PPB	N

PHENOLICS MONITORING

Rocky Mountain
Analytical Laboratory

Enseco

March 28, 1994

Mr. James Grube
City of St. Louis Park
5005 Minnetonka Blvd.
St. Louis Park, MN 55416

Dear Mr Grube:

Enclosed is the ppb phenol report for 9 aqueous samples, including matrix QC, received at Enseco-Rocky Mountain Analytical laboratory on February 16, 1994.

Please call if you have any quest-ons.

Sincerely,

Karen F. Germann
Project Administrator

Reviewed by:

Julieann L. Kramer
Program Manager

KFG/JLK
Enclosures

RMAL #033822

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

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SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
033822-0001-SA	DPV-W422TP-021594	AQUEOUS	15 FEB 94		16 FEB 94
033822-0001-DU	DPV-W422TPD-021594	AQUEOUS	15 FEB 94		16 FEB 94
033822-0001-MS	DPV-W422TPMS-021594	AQUEOUS	15 FEB 94		16 FEB 94
033822-0001-SD	DPV-W422TPMSD-021594	AQUEOUS	15 FEB 94		16 FEB 94
033822-0001-FB	DPV-W422TPFB-021594	AQUEOUS	15 FEB 94		16 FEB 94
033822-0001-FD	DPV-W422TPFBD-021594	AQUEOUS	15 FEB 94		16 FEB 94
033822-0002-SA	DPV-W421TP-021594	AQUEOUS	15 FEB 94		16 FEB 94
033822-0003-SA	DPV-W420TP-021594	AQUEOUS	15 FEB 94		16 FEB 94
033822-0004-SA	STP-W410TP-021594	AQUEOUS	15 FEB 94		16 FEB 94

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ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 033822	Group Code	Analysis Description	Custom Test?
0001 , 0001, 0001 - 0004	A	Phenolics (4-AAP)	N

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ENSECO

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.:33822_

SOW No.: ILM02

EPA Sample No.	Lab Sample ID
3382201	3382201
3382201	3382201D
3382201	3382201SD
3382201	3382201S
3382201	3382201FB
3382201	3382201FD
3382202	3382202
3382203	3382203
3382204	3382204

Were ICP interelement corrections applied ? Yes/No YES

Were ICP background corrections applied ? Yes/No YES
If yes - were raw data generated before application of background corrections ? Yes/No NO_

Comments:
____FOUR_WATER_SAMPLES_FOR_PHENOLIC_ANALYSIS.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Will Pratt Name: Will Pratt

Date: 3/26/94 Title: Inorganic Group Leader

U.S. EPA - CLP

Enseco 000503

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

3382201FB

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 33822_

Matrix (soil/water): WATER Lab Sample ID: 3382201FB_

Level (low/med): LOW__ Date Received: 02/16/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
54-30-0__	Phenolics	5.0	U	N	C_

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
DPV-W422TPFB-021594

FORM I - IN

7/88

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

3382202

Enseco 000005

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 33822_

Matrix (soil/water): WATER Lab Sample ID: 3382202___

Level (low/med): LOW__ Date Received: 02/16/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
54-30-0__	Phenolics	14.1	_	N	C_

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
DPV-W421TP-021594
SAMPLE_INPROPERLY_PRESERVED_-_PH_=_7.

FORM I - IN

7/88

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

3382203

Enseco 000005

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 33822_

Matrix (soil/water): WATER Lab Sample ID: 3382203___

Level (low/med): LOW__ Date Received: 02/16/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
54-30-0__	Phenolics	109		N	C

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
DPV-W420TP-021594

FORM I - IN

7/88

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

3382201

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 33822_

Matrix (soil/water): WATER Lab Sample ID: 3382201___

Level (low/med): LOW__ Date Received: 02/16/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
54-30-0__	Phenolics	5.0	U	N	C

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
DPV-W422TP-021594

FORM I - IN

7/88

U.S. EPA - CLP

Enseco

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 33822_

Initial Calibration Source: SEE ADDENDUM

Continuing Calibration Source: SEE ADDENDUM

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Phenolics	20.0	21.50	107.5	20.0	21.50	107.5	21.50	107.5	C

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

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3
BLANKS

Enseco
000009

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 33822_

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L_

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Phenolics	5.0	U	5.0	U	5.0	U			5.000	U	C

FORM III - IN

7/88

U.S. EPA - CLP

Enseco

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

3382201FD

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 33822_

Matrix (soil/water): WATER Lab Sample ID: 3382201FD_

Level (low/med): LOW__ Date Received: 02/16/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
54-30-0__	Phenolics	5.0	U	N	C_

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
DPV-W422TPFBD-021594

FORM I - IN

7/88

U.S. EPA - CLP

Enseco 000010

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract:CITY_SLP__ 3382201S

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 33822_

Matrix: __WATER_____ Level (low/med): _LOW____

% Solids for Sample: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Phenolics	75-125	20.8000		5.0000	U	20.00	104.0		C

Comments:
DPV-W422TPMS-021594

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Enseco

000013

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract:CITY_SLP__ 3382201SD

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 33822_

Matrix: __WATER_____ Level (low/med): _LOW____

% Solids for Sample: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Phenolics	75-125	22.5000		5.0000	U	20.00	112.5		C

Comments:
DPV-W422TPMSD-021594

FORM V (Part 1) - IN 7/88

U.S. EPA - CLP

Enseco

6
DUPLICATES

EPA SAMPLE NO. 000012

3382201D

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 33822_

Matrix (soil/water): WATER Level (low/med): _LOW__

% Solids for Sample: __0.0 % Solids for Duplicate: ___0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Phenolics		5.0000	U	5.0000	U			C

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7

LABORATORY CONTROL SAMPLE

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 33822_

Solid LCS Source: SEE ADDENDUM

Aqueous LCS Source: SEE ADDENDUM

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Phenolics	20.0	18.50	92.5						

FORM VII - IN

7/88

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8

STANDARD ADDITION RESULTS

000014

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract:CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.:_____ SDG No.:33822_

Concentration Units: ug/L

EPA Sample No.	An	0 ADD ABS	1 ADD CON	1 ADD ABS	2 ADD CON	2 ADD ABS	3 ADD CON	3 ADD ABS	Final Conc.	r	Q

FORM VIII - IN 7/88

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14

ANALYSIS RUN LOG

300013

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.:33822_

Instrument ID Number: SPEC 88_____ Method: C_

Start Date: 03/15/94 End Date: 03/15/94

EPA Sample No.	D/F	Time	% R	Analytes PH																							
STD0	1.00	1139		X																							
STD1	1.00	1140		X																							
STD2	1.00	1141		X																							
STD3	1.00	1142		X																							
STD4	1.00	1143		X																							
STD5	1.00	1144		X																							
ICV	1.00	1145		X																							
ICB	1.00	1145		X																							
PBW	1.00	1145		X																							
LCSW	1.00	1146		X																							
3382201	1.00	1146		X																							
3382201D	1.00	1148		X																							
3382201S	1.00	1148		X																							
3382201S	1.00	1148		X																							
3382201F	1.00	1152		X																							
3382201F	1.00	1152		X																							
3382202	1.00	1152		X																							
3382203	2.00	1154		X																							
CCV	1.00	1155		X																							
CCB	1.00	1155		X																							
3382204	1.00	1156		X																							
CCV	1.00	1158		X																							
CCB	1.00	1158		X																							

FORM XIV - IN 7/88

Enseco

U S EPA - CLP

ADDENDUM

000013

STOCK STANDARD SOURCES

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract. CITY__SLP____

Lab Code: ENSECO Case No . _____ SAS No : N/A___ SDG No . 33822_

STANDARD	SOURCE/LOT	EXPIRATION DATE
CALIBRATION	LabChem 3102-6	4/8/95
ICV SOLUTION	LabChem 3102-6	4/8/95
CCV SOLUTION	(same as calibration source above)	
LCS SOLUTION	Ricca 7352	2/95
MATRIX SPIKE SOLUTION	(same as LCS solution above)	

Enseco

INORGANIC ANALYSIS EXCEPTION REPORT

000017

Document anomalies, method variances and other observations.

Analyte	Samples	Discussion
Phen-Spec-CLP-A	33802-02	Sample was incorrectly prepared. The samples all read 7. The proper range is four or below.
Phen-Spec-CLP-A	33802-01MS, SD	These samples were incorrectly spiked at the prep. They were spiked ~~with 20~~ at 20 µg/l instead of 50 µg/l.
Phen-Spec-CLP-A	All	Unable to generate CLP benchsheets. all samples were "Clear" and "Colorless" both before AND after extraction.

Analyst: UP for STM Date: 3/18/94

WP020894

COLORIMETRIC ANALYSIS

Enseco

PARAMETER CSLP- Phenolics CONTROL #7352 DATE 03-15-[illegible]

ANALYST STM SPIKE 20.0 UNITS ppb

	Concentration		Absorbance
Blank	0.0	ppb	0.058
STD 1	5.0	ppb	0.071
STD 2	10.0	ppb	0.098
STD 3	20.0	ppb	0.125
STD 4	50.0	ppb	0.204
STD 5	100.0	ppb	0.363

Corr. Coef. = 0.99[illegible]

Slope = ~~3.20561~~ 0.00[illegible]

Intercept = 0.[illegible]

SAMPLE ID	TIME	pH	INTER CHECK	ABSORBANCE SAMPLE	ABSORBANCE COLOR B	CURVE CONC (ppb)	DILUTIONS PREP	DILUTIONS ANALYT	REPORTED CONC (ppb)	% REC.
ICV (20.0)	11.45			0.125		21.5	1x	1x	21.5 (20.0)	107%
ICB	11.45			0.058		ND			ND (5u)	
PBlank	11.45			0.031		ND			ND (5u)	
LCS (20.0)	11.46			0.116		18.5			18.5 (5u)	92%
33822-01	11.46	<2	—	0.063		ND			ND (5u)	
-01D1	11.48			0.074		ND			ND (5u)	
-01MS	11.48			0.123		20.8			20.8 (20.0)	
-01SD	11.48			0.128		22.5			22.5 (20.0)	
-01FB	11.52			0.045		ND			ND (5u)	
-01FD	11.52	↓		0.058		ND			ND (5u)	
-02	11.52	7		0.103		14.1		↓	14.1 (5u)	
-03	11.54	<2	↓	0.225		~~[illegible]~~ 54.2		2x	~~[illegible] (5u)~~	109
CCV	11.55			0.125		21.5		1x	21.5 (20.0)	108%
CCB	11.55			0.059		ND			ND (5u)	
33822-04	11.56	<2	—	0.098		12.5			12.5 (5u)	
CCV	11.58			0.125		21.5			21.5 (20.0)	108%
CCB	11.58			0.059		ND	↓	↓	ND (5u)	

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☐ Enseco Houston
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Houston, TX 77032
713/987 9767 FAX 713/987 9769

CHAIN OF CUSTODY

ENSECO CLIENT: CITY OF ST LOUIS PARK (WATER DEPT)

PROJECT:

SAMPLING COMPANY: SAME

SAMPLING SITE: SAME

TEAM LEADER: [illegible]

SAMPLE SAFE™ CONDITIONS

PACKED BY: [illegible]

SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:

SEALED FOR SHIPPING BY: [illegible]

SEAL NUMBER:

SAMPLING STATUS: ☐ Done ☐ Continuing Until

SEAL INTACT UPON RECEIPT BY LAB: ☑ Yes ☐ No

SEAL NUMBER:

CONDITION OF CONTENTS:

INITIAL CONTENTS TEMP: °C

CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 4.0 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
2-15-94		DPV-W422TP-021594	16oz AMBER	1	PPB Phenols	-01
		DPV-W422TPD-021594				-01D4
		DPV-W422TPMS-021594				-01MS
		DPV-W422TPMSD-021594				-01SD
		DPV-W422TPFB-021594				-01FB
		DPV-W422TPFBD-021594				-01FD
		DPV-W421TP-021594				-02
		DPV-W420TP-021594				-03
2-15-94		STP-W440TP-021594				-04
			16oz AMBER	1	PPB Phenols	

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY:

METHOD OF SHIPMENT: FED EX

AIRBILL NUMBER: 2103420011

RECEIVED FOR LAB: [illegible]

SIGNED: [illegible]

DATE/TIME: 2/16/94 830

ENSECO PROJECT NUMBER: 33822

EHS-4011

White - CLIENT Pink - LAB

SECOND QUARTER MONITORING

PAH MONITORING

Rocky Mountain
Analytical Laboratory

Enseco

CASE NARRATIVE

FOR

City of St. Louis Park

September 7, 1994

Quanterra Environmental Services

Project No. 036008

Introduction

10 aqueous samples (includes QC) were received at Quanterra Environmental Services, Denver laboratory (formerly Enseco-Rocky Mountain Analytical Laboratory) on June 6, 1994. The samples were logged in under Quanterra's Denver laboratory project number 036008. Sample DPV-W420FBD-060794 was extracted and held per the April 1990 QAPP. A cross reference associating the Quanterra Denver laboratory sample numbers to the actual field sample numbers is included. The samples were analyzed for part-per-billion (ppb) polynuclear aromatic hydrocarbons (PAH).

Data Quality Assessment

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

PPB PAH

Samples DPV-W420 (036008-0002), DPV-W420D (036008-0002DU) and DPV-W421 (036008-0003) showed target compounds above the upper calibration range. The samples were analyzed at a dilution. Both the original and reanalysis data were reported for each sample. The reporting limits were adjusted accordingly.

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Sample STP-W409 (036008-0001) showed the surrogate recovery for chrysene-d12 outside QC limits. The sample was reanalyzed and showed similar results. The surrogates were diluted out of samples DPV-W420DL (036008-0002DL) and DPV-W420DDL (036008-0002DUDL).

Sample DPV-W420MS (036008-0002MS) Showed the percent recovery for naphthalene outside QC limits. The RPD for samples DPV-W420MS (036008-0002MS) and DPV-W420MSD (036008-0002SD) is outside QC limits.

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

Reported by: _____ **Date:** 9/7/94
Daniel Rebarchik
Program Administrator

Approved by: _____ **Date:** 9/7/94
Kevin McHugh
Program Manager

Rocky Mountain
Analytical Laboratory

Enseco

Qualifier Codes and Their Usage

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

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

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

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

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

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

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

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

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

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

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

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SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
036008-0001-SA	STP-W409-060794	AQUEOUS	07 JUN 94	14:00	08 JUN 94
036008-0002-SA	DPV-W420-060794	AQUEOUS	07 JUN 94		08 JUN 94
036008-0002-DU	DPV-W420D-060794	AQUEOUS	07 JUN 94		08 JUN 94
036008-0002-MS	DPV-W420MS-060794	AQUEOUS	07 JUN 94		08 JUN 94
036008-0002-SD	DPV-W420MSD-060794	AQUEOUS	07 JUN 94		08 JUN 94
036008-0002-FB	DPV-W420FB-060794	AQUEOUS	07 JUN 94		08 JUN 94
036008-0002-FD	DPV-W420FBD-060794	AQUEOUS	07 JUN 94		08 JUN 94
036008-0003-SA	DPV-W421-060794	AQUEOUS	07 JUN 94		08 JUN 94
036008-0004-SA	DPV-W422-060794	AQUEOUS	07 JUN 94		08 JUN 94
036008-0005-SA	GTF-ACFE-060794	AQUEOUS	07 JUN 94		08 JUN 94
036008-0006-SA	GTF-SFR-060794	AQUEOUS	07 JUN 94		08 JUN 94
036008-0007-SA	PCJ-W23-060894	AQUEOUS	08 JUN 94		09 JUN 94

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ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 036008	Group Code	Analysis Description	Custom Test?
0001 - 0002, 0002 - 0006	A	CLP/PAH Semivolatile Organics High Level PPB	N
		CLP Prep - PAH Semivolatile Organics by GC/MS High Level PPB	N
0002	B	CLP Prep - PAH Semivolatile Organics by GC/MS High Level PPB	N

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CHAIN OF CUSTODY

ENSECO CLIENT: [illegible]
PROJECT: SLP
SAMPLING COMPANY: ENSR C+E
SAMPLING SITE: SLP
TEAM LEADER: [illegible]

SAMPLE SAFE™ CONDITIONS

PACKED BY: [illegible]
SEAL NUMBER: N-A
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY: [illegible]
CONDITION OF CONTENTS: OK
SEALED FOR SHIPPING BY: [illegible]
INITIAL CONTENTS TEMP: 4 °C
SEAL NUMBER: N-A
SAMPLING STATUS: ☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No
CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 1.2 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
[illegible]	14:50	PCJ-W20-060794	H2O	6	PPT-PAH	PPT-5 36006-7
[illegible]	15:20	DPV-W1177P-060794	H2O	1	Phenolics	36005-1
[illegible]	14:55	DPV-W1TP-060794	H2O	1	Phenolics	36005-2
[illegible]	14:00	STP-W409-060794	H2O	2	PPB-PAH	36008-1

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

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

ENS-4011

White - CLIENT Pink - LAB

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CHAIN OF CUSTODY

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

SAMPLE SAFE™ CONDITIONS

PACKED BY: MZK	SEAL NUMBER:
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:	CONDITION OF CONTENTS:
SEALED FOR SHIPPING BY: MZK	INITIAL CONTENTS TEMP: °C
SEAL NUMBER:	SAMPLING STATUS: ☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No	CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 8.1 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
6-7-94		DPV-W420 - 060794	IXL AMBER	2	PPB PAH	36008 -2
		DPV-W420D - 060794	IXL AMBER	2		-2DU
		DPV-W420MS - 060794				-2MS
		DPV-W420MSD - 060794				-2SD
		DPV-W420FB - 060794				-2FB
		DPV-W420FBD - 060794				-2FD
		DPV-W421 - 060794				-3
		DPV-W422 - 060794				-4
		GTF-ACFE - 060794				-5
6-7-94		GTF-SFR - 060794	IXL AMBER	2	PPB PAH	-6

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MZK		
METHOD OF SHIPMENT: FED EX		AIRBILL NUMBER: 2103421036
RECEIVED FOR LAB: RMAL	SIGNED: [signature]	DATE/TIME: 6-8-94 820
ENSECO PROJECT NUMBER: 36008		

ENS-4011 White - CLIENT Pink

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 36008 SAS No.: SDG No.: 36008

Matrix: (soil/water) WATER Lab Sample ID: 36008-02

Sample wt/vol: 1050 (g/mL) ML Lab File ID: T0701830.D

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

% Moisture: _____ decanted: (Y/N)___ Date Extracted:06/12/94

Concentrated Extract Volume: 1(ML) Date Analyzed: 07/21/94

Injection Volume: 2.0(uL) Dilution Factor: 10.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	1170	E
91-57-6	2-Methylnaphthalene	79	J
208-96-8	Acenaphthylene	95	U
83-32-9	Acenaphthene	84	J
132-64-9	Dibenzofuran	33	J
86-73-7	Fluorene	31	J
85-01-8	Phenanthrene	17	J
120-12-7	Anthracene	95	U
206-44-0	Fluoranthene	95	U
129-00-0	Pyrene	95	U
56-55-3	Benzo(a)Anthracene	95	U
218-01-9	Chrysene	95	U
205-99-2	Benzo(b)fluoranthene	95	U
207-08-9	Benzo(k)fluoranthene	95	U
50-32-8	Benzo(a)pyrene	95	U
193-39-5	Indeno(1 2 3-cd)pyrene	95	U
53-70-3	Dibenzo(a h)anthracene	95	U
191-24-2	Benzo(g h i)perylene	95	U
86-74-8	Carbazole	54	J
95-13-6	1H-Indene	90	J
91-22-5	Quinoline	95	U
90-12-0	1-Methylnaphthalene	107	
271-89-6	2,3-Benzofuran	36	J
496-11-7	2,3-Dihydroindene	335	
95-15-8	Benzo(b)thiophene	124	
120-72-9	1H-Indole	95	U
92-52-4	Biphenyl	21	J
132-65-0	Dibenzothiophene	95	U
260-94-6	Acridine	95	U
192-97-2	Benzo(e)pyrene	95	U
198-55-0	Perylene	95	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420DL

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 36008 SAS No.: SDG No.: 36008

Matrix: (soil/water) WATER Lab Sample ID: 36008-02DL

Sample wt/vol: 1050 (g/mL) ML Lab File ID: T0601839.D

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

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 06/12/94

Concentrated Extract Volume: 1 (ML) Date Analyzed: 07/22/94

Injection Volume: 2.0 (uL) Dilution Factor: 40.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	1630	D
91-57-6	2-Methylnaphthalene	73	JD
208-96-8	Acenaphthylene	381	U
83-32-9	Acenaphthene	93	JD
132-64-9	Dibenzofuran	381	U
86-73-7	Fluorene	381	U
85-01-8	Phenanthrene	381	U
120-12-7	Anthracene	381	U
206-44-0	Fluoranthene	381	U
129-00-0	Pyrene	381	U
56-55-3	Benzo(a)Anthracene	381	U
218-01-9	Chrysene	381	U
205-99-2	Benzo(b)fluoranthene	381	U
207-08-9	Benzo(k)fluoranthene	381	U
50-32-8	Benzo(a)pyrene	381	U
193-39-5	Indeno(1 2 3-cd)pyrene	381	U
53-70-3	Dibenzo(a h)anthracene	381	U
191-24-2	Benzo(g h i)perylene	381	U
86-74-8	Carbazole	45	JD
95-13-6	1H-Indene	85	JD
91-22-5	Quinoline	381	U
90-12-0	1-Methylnaphthalene	110	JD
271-89-6	2,3-Benzofuran	381	U
496-11-7	2,3-Dihydroindene	341	JD
95-15-8	Benzo(b)thiophene	110	JD
120-72-9	1H-Indole	381	U
92-52-4	Biphenyl	381	U
132-65-0	Dibenzothiophene	381	U
260-94-6	Acridine	381	U
192-97-2	Benzo(e)pyrene	381	U
198-55-0	Perylene	381	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420D

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 36008 SAS No.: SDG No.: 36008

Matrix: (soil/water) WATER Lab Sample ID: 36008-02DU

Sample wt/vol: 1060 (g/mL) ML Lab File ID: T1001843.D

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

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 06/12/94

Concentrated Extract Volume: 1 (ML) Date Analyzed: 07/22/94

Injection Volume: 2.0 (uL) Dilution Factor: 10.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	1220	E
91-57-6	2-Methylnaphthalene	74	J
208-96-8	Acenaphthylene	94	U
83-32-9	Acenaphthene	87	J
132-64-9	Dibenzofuran	33	J
86-73-7	Fluorene	29	J
85-01-8	Phenanthrene	16	J
120-12-7	Anthracene	94	U
206-44-0	Fluoranthene	94	U
129-00-0	Pyrene	94	U
56-55-3	Benzo(a)Anthracene	94	U
218-01-9	Chrysene	94	U
205-99-2	Benzo(b)fluoranthene	94	U
207-08-9	Benzo(k)fluoranthene	94	U
50-32-8	Benzo(a)pyrene	94	U
193-39-5	Indeno(1 2 3-cd)pyrene	94	U
53-70-3	Dibenzo(a h)anthracene	94	U
191-24-2	Benzo(g h i)perylene	94	U
86-74-8	Carbazole	53	J
95-13-6	1H-Indene	90	J
91-22-5	Quinoline	94	U
90-12-0	1-Methylnaphthalene	109	
271-89-6	2,3-Benzofuran	36	J
496-11-7	2,3-Dihydroindene	331	
95-15-8	Benzo(b)thiophene	119	
120-72-9	1H-Indole	94	U
92-52-4	Biphenyl	19	J
132-65-0	Dibenzothiophene	94	U
260-94-6	Acridine	94	U
192-97-2	Benzo(e)pyrene	94	U
198-55-0	Perylene	94	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420DDL

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 36008 SAS No.: SDG No.: 36008

Matrix: (soil/water) WATER Lab Sample ID: 36008-02DUDL

Sample wt/vol: 1060 (g/mL) ML Lab File ID: T0701840.D

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

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 06/12/94

Concentrated Extract Volume: 1(ML) Date Analyzed: 07/22/94

Injection Volume: 2.0(uL) Dilution Factor: 40.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	1670	D
91-57-6	2-Methylnaphthalene	76	JD
208-96-8	Acenaphthylene	377	U
83-32-9	Acenaphthene	92	JD
132-64-9	Dibenzofuran	377	U
86-73-7	Fluorene	377	U
85-01-8	Phenanthrene	377	U
120-12-7	Anthracene	377	U
206-44-0	Fluoranthene	377	U
129-00-0	Pyrene	377	U
56-55-3	Benzo(a)Anthracene	377	U
218-01-9	Chrysene	377	U
205-99-2	Benzo(b)fluoranthene	377	U
207-08-9	Benzo(k)fluoranthene	377	U
50-32-8	Benzo(a)pyrene	377	U
193-39-5	Indeno(1 2 3-cd)pyrene	377	U
53-70-3	Dibenzo(a h)anthracene	377	U
191-24-2	Benzo(g h i)perylene	377	U
86-74-8	Carbazole	45	JD
95-13-6	1H-Indene	88	JD
91-22-5	Quinoline	377	U
90-12-0	1-Methylnaphthalene	115	JD
271-89-6	2,3-Benzofuran	377	U
496-11-7	2,3-Dihydroindene	364	JD
95-15-8	Benzo(b)thiophene	123	JD
120-72-9	1H-Indole	377	U
92-52-4	Biphenyl	377	U
132-65-0	Dibenzothiophene	377	U
260-94-6	Acridine	377	U
192-97-2	Benzo(e)pyrene	377	U
198-55-0	Perylene	377	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420FB

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 36008 SAS No.: SDG No.: 36008

Matrix: (soil/water) WATER Lab Sample ID: 36008-02FB

Sample wt/vol: 1050 (g/mL) ML Lab File ID: T0101834.D

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

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 06/12/94

Concentrated Extract Volume: 1 (ML) Date Analyzed: 07/22/94

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	10	U
91-57-6	2-Methylnaphthalene	10	U
208-96-8	Acenaphthylene	10	U
83-32-9	Acenaphthene	10	U
132-64-9	Dibenzofuran	10	U
86-73-7	Fluorene	10	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1 2 3-cd)pyrene	10	U
53-70-3	Dibenzo(a h)anthracene	10	U
191-24-2	Benzo(g h i)perylene	10	U
86-74-8	Carbazole	10	U
95-13-6	1H-Indene	10	U
91-22-5	Quinoline	10	U
90-12-0	1-Methylnaphthalene	10	U
271-89-6	2,3-Benzofuran	10	U
496-11-7	2,3-Dihydroindene	10	U
95-15-8	Benzo(b)thiophene	10	U
120-72-9	1H-Indole	10	U
92-52-4	Biphenyl	10	U
132-65-0	Dibenzothiophene	10	U
260-94-6	Acridine	10	U
192-97-2	Benzo(e)pyrene	10	U
198-55-0	Perylene	10	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420FBD

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 36008 SAS No.: SDG No.: 36008

Matrix: (soil/water) WATER Lab Sample ID: 36008-02FD

Sample wt/vol: 1050 (g/mL) ML Lab File ID: T0201835.D

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

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 06/12/94

Concentrated Extract Volume: 1 (ML) Date Analyzed: 07/22/94

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	10	U
91-57-6	2-Methylnaphthalene	10	U
208-96-8	Acenaphthylene	10	U
83-32-9	Acenaphthene	10	U
132-64-9	Dibenzofuran	10	U
86-73-7	Fluorene	10	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1 2 3-cd)pyrene	10	U
53-70-3	Dibenzo(a h)anthracene	10	U
191-24-2	Benzo(g h i)perylene	10	U
86-74-8	Carbazole	10	U
95-13-6	1H-Indene	10	U
91-22-5	Quinoline	10	U
90-12-0	1-Methylnaphthalene	10	U
271-89-6	2,3-Benzofuran	10	U
496-11-7	2,3-Dihydroindene	10	U
95-15-8	Benzo(b)thiophene	10	U
120-72-9	1H-Indole	10	U
92-52-4	Biphenyl	10	U
132-65-0	Dibenzothiophene	10	U
260-94-6	Acridine	10	U
192-97-2	Benzo(e)pyrene	10	U
198-55-0	Perylene	10	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W421

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 36008 SAS No.: SDG No.: 36008

Matrix: (soil/water) WATER Lab Sample ID: 36008-03

Sample wt/vol: 1040 (g/mL) ML Lab File ID: T0801831.D

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

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 06/12/94

Concentrated Extract Volume: 1 (ML) Date Analyzed: 07/21/94

Injection Volume: 2.0 (uL) Dilution Factor: 5.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	460	E
91-57-6	2-Methylnaphthalene	6	J
208-96-8	Acenaphthylene	48	U
83-32-9	Acenaphthene	45	J
132-64-9	Dibenzofuran	12	J
86-73-7	Fluorene	14	J
85-01-8	Phenanthrene	5	J
120-12-7	Anthracene	48	U
206-44-0	Fluoranthene	48	U
129-00-0	Pyrene	48	U
56-55-3	Benzo(a)Anthracene	48	U
218-01-9	Chrysene	48	U
205-99-2	Benzo(b)fluoranthene	48	U
207-08-9	Benzo(k)fluoranthene	48	U
50-32-8	Benzo(a)pyrene	48	U
193-39-5	Indeno(1 2 3-cd)pyrene	48	U
53-70-3	Dibenzo(a h)anthracene	48	U
191-24-2	Benzo(g h i)perylene	48	U
86-74-8	Carbazole	32	J
95-13-6	1H-Indene	78	
91-22-5	Quinoline	48	U
90-12-0	1-Methylnaphthalene	59	
271-89-6	2,3-Benzofuran	48	U
496-11-7	2,3-Dihydroindene	147	
95-15-8	Benzo(b)thiophene	72	
120-72-9	1H-Indole	48	U
92-52-4	Biphenyl	9	J
132-65-0	Dibenzothiophene	48	U
260-94-6	Acridine	48	U
192-97-2	Benzo(e)pyrene	48	U
198-55-0	Perylene	48	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W421DL

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 36008 SAS No.: SDG No.: 36008

Matrix: (soil/water) WATER Lab Sample ID: 36008-03DL

Sample wt/vol: 1040 (g/mL) ML Lab File ID: T1101844.D

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

% Moisture: _____ decanted: (Y/N)___ Date Extracted:06/12/94

Concentrated Extract Volume: 1(ML) Date Analyzed: 07/22/94

Injection Volume: 2.0(uL) Dilution Factor: 10.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	542	D
91-57-6	2-Methylnaphthalene	96	U
208-96-8	Acenaphthylene	96	U
83-32-9	Acenaphthene	46	JD
132-64-9	Dibenzofuran	11	JD
86-73-7	Fluorene	12	JD
85-01-8	Phenanthrene	96	U
120-12-7	Anthracene	96	U
206-44-0	Fluoranthene	96	U
129-00-0	Pyrene	96	U
56-55-3	Benzo(a)Anthracene	96	U
218-01-9	Chrysene	96	U
205-99-2	Benzo(b)fluoranthene	96	U
207-08-9	Benzo(k)fluoranthene	96	U
50-32-8	Benzo(a)pyrene	96	U
193-39-5	Indeno(1 2 3-cd)pyrene	96	U
53-70-3	Dibenzo(a h)anthracene	96	U
191-24-2	Benzo(g h i)perylene	96	U
86-74-8	Carbazole	31	JD
95-13-6	1H-Indene	75	JD
91-22-5	Quinoline	96	U
90-12-0	1-Methylnaphthalene	54	JD
271-89-6	2,3-Benzofuran	96	U
496-11-7	2,3-Dihydroindene	142	D
95-15-8	Benzo(b)thiophene	64	JD
120-72-9	1H-Indole	96	U
92-52-4	Biphenyl	96	U
132-65-0	Dibenzothiophene	96	U
260-94-6	Acridine	96	U
192-97-2	Benzo(e)pyrene	96	U
198-55-0	Perylene	96	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W422

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 36008 SAS No.: SDG No.: 36008

Matrix: (soil/water) WATER Lab Sample ID: 36008-04

Sample wt/vol: 1050 (g/mL) ML Lab File ID: T0301826.D

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

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 06/12/94

Concentrated Extract Volume: 1(ML) Date Analyzed: 07/21/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	10	
91-57-6	2-Methylnaphthalene	10	U
208-96-8	Acenaphthylene	10	U
83-32-9	Acenaphthene	9	J
132-64-9	Dibenzofuran	10	U
86-73-7	Fluorene	10	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1 2 3-cd)pyrene	10	U
53-70-3	Dibenzo(a h)anthracene	10	U
191-24-2	Benzo(g h i)perylene	10	U
86-74-8	Carbazole	2	J
95-13-6	1H-Indene	10	U
91-22-5	Quinoline	10	U
90-12-0	1-Methylnaphthalene	1	J
271-89-6	2,3-Benzofuran	10	U
496-11-7	2,3-Dihydroindene	44	
95-15-8	Benzo(b)thiophene	10	U
120-72-9	1H-Indole	10	U
92-52-4	Biphenyl	10	U
132-65-0	Dibenzothiophene	10	U
260-94-6	Acridine	10	U
192-97-2	Benzo(e)pyrene	10	U
198-55-0	Perylene	10	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420MS

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 36008 SAS No.: SDG No.: 36008

Matrix: (soil/water) WATER Lab Sample ID: 36008-02MS

Sample wt/vol: 1050 (g/mL) ML Lab File ID: T0801841.D

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

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 06/12/94

Concentrated Extract Volume: 1 (ML) Date Analyzed: 07/22/94

Injection Volume: 2.0 (uL) Dilution Factor: 10.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	1190	E
91-57-6	2-Methylnaphthalene	107	
208-96-8	Acenaphthylene	95	U
83-32-9	Acenaphthene	77	J
132-64-9	Dibenzofuran	29	J
86-73-7	Fluorene	68	J
85-01-8	Phenanthrene	16	J
120-12-7	Anthracene	95	U
206-44-0	Fluoranthene	95	U
129-00-0	Pyrene	95	U
56-55-3	Benzo(a)Anthracene	95	U
218-01-9	Chrysene	42	J
205-99-2	Benzo(b)fluoranthene	95	U
207-08-9	Benzo(k)fluoranthene	95	U
50-32-8	Benzo(a)pyrene	95	U
193-39-5	Indeno(1 2 3-cd)pyrene	95	U
53-70-3	Dibenzo(a h)anthracene	95	U
191-24-2	Benzo(g h i)perylene	95	U
86-74-8	Carbazole	53	J
95-13-6	1H-Indene	118	
91-22-5	Quinoline	43	J
90-12-0	1-Methylnaphthalene	105	
271-89-6	2,3-Benzofuran	32	J
496-11-7	2,3-Dihydroindene	310	
95-15-8	Benzo(b)thiophene	111	
120-72-9	1H-Indole	95	U
92-52-4	Biphenyl	18	J
132-65-0	Dibenzothiophene	95	U
260-94-6	Acridine	95	U
192-97-2	Benzo(e)pyrene	39	J
198-55-0	Perylene	95	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420MSD

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 36008 SAS No.: SDG No.: 36008

Matrix: (soil/water) WATER Lab Sample ID: 36008-02MSD

Sample wt/vol: 1060 (g/mL) ML Lab File ID: T0901842.D

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

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 06/12/94

Concentrated Extract Volume: 1 ML) Date Analyzed: 07/22/94

Injection Volume: 2.0(uL) Dilution Factor: 10.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	1220	E
91-57-6	2-Methylnaphthalene	111	
208-96-8	Acenaphthylene	94	U
83-32-9	Acenaphthene	83	J
132-64-9	Dibenzofuran	32	J
86-73-7	Fluorene	72	J
85-01-8	Phenanthrene	17	J
120-12-7	Anthracene	94	U
206-44-0	Fluoranthene	94	U
129-00-0	Pyrene	94	U
56-55-3	Benzo(a)Anthracene	94	U
218-01-9	Chrysene	46	J
205-99-2	Benzo(b)fluoranthene	94	U
207-08-9	Benzo(k)fluoranthene	94	U
50-32-8	Benzo(a)pyrene	94	U
193-39-5	Indeno(1 2 3-cd)pyrene	94	U
53-70-3	Dibenzo(a h)anthracene	94	U
191-24-2	Benzo(g h i)perylene	94	U
86-74-8	Carbazole	57	J
95-13-6	1H-Indene	122	
91-22-5	Quinoline	43	J
90-12-0	1-Methylnaphthalene	108	
271-89-6	2,3-Benzofuran	34	J
496-11-7	2,3-Dihydroindene	322	
95-15-8	Benzo(b)thiophene	118	
120-72-9	1H-Indole	94	U
92-52-4	Biphenyl	19	J
132-65-0	Dibenzothiophene	94	U
260-94-6	Acridine	94	U
192-97-2	Benzo(e)pyrene	45	J
198-55-0	Perylene	94	U

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: QUANTERRA Denver Contract:

Lab Code: Case No.: 36008 SAS No.: SDG No.: 36008

	EPA SAMPLE NO.	S1 #	S2 #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	SBLK01	92	91	87						0
02	STP-W409	70	16*	78						1
03	DPV-W422	95	62	93						0
04	GTF-ACFE	96	80	90						0
05	GTF-SFR	95	57	99						0
06	PCJ-W23	89	90	85						0
07	DPV-W420	94	84	89						0
08	DPV-W421	88	81	89						0
09	DPV-W420FB	94	103	87						0
10	DPV-W420FD	94	90	92						0
11	STP-W409RE	61	16*	73						1
12	DPV-W420DL	0D	0D	0D						0
13	DPV-W420DUDL	0D	0D	0D						0
14	DPV-W420MS	84	68	83						0
15	DPV-W420MSD	93	88	89						0
16	DPV-W420DU	93	80	91						0
17	DPV-W421DL	73	68	79						0
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										

		QC LIMITS
S1	= Naphthalene-d8	(37-107)
S2	= Chrysene-d12	(25-160)
S3	= Fluorene-d10	(36-127)
S4	= N/A	
S5	= N/A	
S6	= N/A	
S7	= N/A	
S8	= N/A	

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

3C
WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: QUANTERRA Denver Contract:

Lab Code: Case No.: 36008 SAS No.: SDG No.: 36008

Matrix Spike - EPA Sample No.: DPV-W420

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC. LIMITS REC.
Naphthalene	48	1170	1190	42*	43-128
2-Methylnaphthalene	48	79	107	58	47-138
Fluorene	48	31	68	80	51-120
Chrysene	48	0	42	88	43-124
1H-Indene	48	90	118	59	49-108
Quinoline	48	0	43	91	40-126
Benzo(e)pyrene	48	0	39	82	20-150

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Naphthalene	47	1220	106	86*	50	43-128
2-Methylnaphthalene	47	111	67	14	50	47-138
Fluorene	47	72	87	8	50	51-120
Chrysene	47	46	98	11	50	43-124
1H-Indene	47	122	68	14	50	49-108
Quinoline	47	43	92	1	50	40-126
Benzo(e)pyrene	47	45	96	16	50	20-150

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

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

COMMENTS: _____

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

SBLK01

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 36008 SAS No.: SDG No.: 36008

Lab File ID: T0101824.D Lab Sample ID: SBLK01

Instrument ID: T Date Extracted: 06/12/94

Matrix: (soil/water) WATER Date Analyzed: 07/21/94

Level:(low/med) LOW Time Analyzed: 1633

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	STP-W409	36008-01	T0201825.D	07/21/94
02	DPV-W422	36008-04	T0301826.D	07/21/94
03	GTF-ACFE	36008-05	T0401827.D	07/21/94
04	GTF-SFR	36008-06	T0501828.D	07/21/94
05	PCJ-W23	36008-07	T0601829.D	07/21/94
06	DPV-W420	36008-02	T0701830.D	07/21/94
07	DPV-W421	36008-03	T0801831.D	07/21/94
08	DPV-W420FB	36008-02FB	T0101834.D	07/22/94
09	DPV-W420FD	36008-02FD	T0201835.D	07/22/94
10	STP-W409RE	36008-01RE	T0301836.D	07/22/94
11	DPV-W420DL	36008-02DL	T0601839.D	07/22/94
12	DPV-W420DUDL	36008-02DUDL	T0701840.D	07/22/94
13	DPV-W420MS	36008-02MS	T0801841.D	07/22/94
14	DPV-W420MSD	36008-02MSD	T0901842.D	07/22/94
15	DPV-W420DU	36008-02DU	T1001843.D	07/22/94
16	DPV-W421DL	36008-03DL	T1101844.D	07/22/94
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				

COMMENTS:

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLK01

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 36008 SAS No.: SDG No.: 36008

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

Sample wt/vol: 1000 (g/mL) ML Lab File ID: T0101824.D

Level: (low/med) LOW Date Received:

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 06/12/94

Concentrated Extract Volume: 1(ML) Date Analyzed: 07/21/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	10	U
91-57-6	2-Methylnaphthalene	10	U
208-96-8	Acenaphthylene	10	U
83-32-9	Acenaphthene	10	U
132-64-9	Dibenzofuran	10	U
86-73-7	Fluorene	10	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1 2 3-cd)pyrene	10	U
53-70-3	Dibenzo(a h)anthracene	10	U
191-24-2	Benzo(g h i)perylene	10	U
86-74-8	Carbazole	10	U
95-13-6	1H-Indene	10	U
91-22-5	Quinoline	10	U
90-12-0	1-Methylnaphthalene	10	U
271-89-6	2,3-Benzofuran	10	U
496-11-7	2,3-Dihydroindene	10	U
95-15-8	Benzo(b)thiophene	10	U
120-72-9	1H-Indole	10	U
92-52-4	Biphenyl	10	U
132-65-0	Dibenzothiophene	10	U
260-94-6	Acridine	10	U
192-97-2	Benzo(e)pyrene	10	U
198-55-0	Perylene	10	U

5B
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: QUANTERRA Denver Contract:

Lab Code: Case No.: 36008 SAS No.: SDG No.: 36008

Lab File ID: T0815.D DFTPP Injection Date: 07/21/94

Instrument ID: T DFTPP Injection Time: 0847

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 80.0% of mass 198	44.7
68	Less than 2.0% of mass 69	0.4 (0.9)1
69	Mass 69 relative abundance	42.0
70	Less than 2.0% of mass 69	0.0 (0.0)1
127	25.0 - 75.0% of mass 198	38.4
197	Less than 1.0% of mass 198	0.0
198	Base peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.6
275	10.0 - 30.0% of mass 198	24.0
365	Greater than 0.75% of mass 198	2.20
441	Present, but less than mass 443	13.5
442	40.0 - 110.0% of mass 198	80.6
443	15.0 - 24.0% of mass 442	16.2 (20.1)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD050	SSTD050	T0817.D	07/21/94	1047
02	SSTD160	SSTD160	T0101818.D	07/21/94	1132
03	SSTD120	SSTD120	T0201819.D	07/21/94	1203
04	SSTD080	SSTD080	T0301820.D	07/21/94	1244
05	SSTD020	SSTD020	T0401821.D	07/21/94	1326
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5B
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: QUANTERRA Denver Contract:

Lab Code: Case No.: 36008 SAS No.: SDG No.: 36008

Lab File ID: T0822.D DFTPP Injection Date: 07/21/94

Instrument ID: T DFTPP Injection Time: 1523

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 80.0% of mass 198	44.5
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	41.3
70	Less than 2.0% of mass 69	0.3 (0.7)1
127	25.0 - 75.0% of mass 198	37.4
197	Less than 1.0% of mass 198	0.0
198	Base peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	7.0
275	10.0 - 30.0% of mass 198	23.2
365	Greater than 0.75% of mass 198	2.50
441	Present, but less than mass 443	13.6
442	40.0 - 110.0% of mass 198	83.2
443	15.0 - 24.0% of mass 442	15.5 (18.7)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD050	SSTD050	T0823.D	07/21/94	1536
02	SBLK01	SBLK01	T0101824.D	07/21/94	1633
03	STP-W409	36008-01	T0201825.D	07/21/94	1704
04	DPV-W422	36008-04	T0301826.D	07/21/94	1749
05	GTF-ACFE	36008-05	T0401827.D	07/21/94	1830
06	GTF-SFR	36008-06	T0501828.D	07/21/94	1911
07	PCJ-W23	36008-07	T0601829.D	07/21/94	1956
08	DPV-W420	36008-02	T0701830.D	07/21/94	2036
09	DPV-W421	36008-03	T0801831.D	07/21/94	2119
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5B
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: QUANTERRA Denver Contract:

Lab Code: Case No.: 36008 SAS No.: SDG No.: 36008

Lab File ID: T0832.D DFTPP Injection Date: 07/22/94

Instrument ID: T DFTPP Injection Time: 0937

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 80.0% of mass 198	47.9
68	Less than 2.0% of mass 69	0.4 (1.0)1
69	Mass 69 relative abundance	45.2
70	Less than 2.0% of mass 69	0.4 (0.8)1
127	25.0 - 75.0% of mass 198	37.9
197	Less than 1.0% of mass 198	0.0
198	Base peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	5.5
275	10.0 - 30.0% of mass 198	21.5
365	Greater than 0.75% of mass 198	2.33
441	Present, but less than mass 443	12.7
442	40.0 - 110.0% of mass 198	74.6
443	15.0 - 24.0% of mass 442	14.1 (18.9)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD050	SSTD050	T0833.D	07/22/94	0947
02	DPV-W420FB	36008-02FB	T0101834.D	07/22/94	1045
03	DPV-W420FD	36008-02FD	T0201835.D	07/22/94	1116
04	STP-W409RE	36008-01RE	T0301836.D	07/22/94	1158
05	DPV-W420DL	36008-02DL	T0601839.D	07/22/94	1405
06	DPV-W420DUDL	36008-02DUDL	T0701840.D	07/22/94	1447
07	DPV-W420MS	36008-02MS	T0801841.D	07/22/94	1529
08	DPV-W420MSD	36008-02MSD	T0901842.D	07/22/94	1613
09	DPV-W420DU	36008-02DU	T1001843.D	07/22/94	1656
10	DPV-W421DL	36008-03DL	T1101844.D	07/22/94	1739
11					
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6B
SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: QUANTERRA Denver Contract:

Lab Code: Case No.: 36008 SAS No.: SDG No.: 36008

Instrument ID: T Calibration Date(s): 07/21/94

Calibration Times: 1047 1326

LAB FILE ID: RRF20 =T0401821.D RRF50 =T0817.D
RRF80 =T0301820.D RRF120=T0201819.D RRF160=T0101818.D

COMPOUND	RRF20	RRF50	RRF80	RRF120	RRF160	$\overline{RRF}$	% RSD
Naphthalene *	2.074	1.973	1.812	1.767	1.623	1.850	9.6*
2-Methylnaphthalene *	1.460	1.403	1.180	1.184	1.190	1.283	10.7*
Acenaphthylene *	1.809	1.678	1.596	1.592	1.517	1.638	6.8*
Acenaphthene *	1.274	1.166	1.035	1.044	0.996	1.103	10.4*
Dibenzofuran *	1.593	1.500	1.460	1.397	1.349	1.480	7.7*
Fluorene *	1.276	1.318	1.159	1.176	1.097	1.205	7.4*
Phenanthrene *	1.089	1.021	0.930	0.944	0.923	0.981	7.3*
Anthracene *	1.024	1.003	0.954	0.924	0.866	0.954	6.6*
Fluoranthene *	1.053	1.037	0.926	0.888	0.888	0.959	8.4*
Pyrene *	1.096	1.074	0.972	0.956	0.915	1.003	7.8*
Benzo(a)Anthracene *	1.092	1.133	1.038	0.958	0.896	1.023	9.5*
Chrysene *	1.106	1.042	0.953	0.849	0.801	0.950	13.4*
Benzo(b)fluoranthene *	1.256	1.113	1.117	0.998	1.011	1.099	9.4*
Benzo(k)fluoranthene *	1.467	1.473	1.126	1.043	0.911	1.204	21.1*
Benzo(a)pyrene *	1.180	1.069	0.940	0.912	0.874	0.995	12.7*
Indeno(1_2_3-cd)pyrene *	1.223	1.161	1.056	1.042	1.000	1.097	8.4*
Dibenzo(a_h)anthracene *	0.978	0.945	0.858	0.841	0.805	0.885	8.2*
Benzo(g_h_i)perylene *	1.025	1.043	0.939	0.966	0.952	0.985	4.7*
Carbazole	0.953	0.897	0.838	0.841	0.789	0.863	7.3
1H-Indene	1.279	1.294	1.215	1.204	1.084	1.215	6.8
Quinoline	1.289	1.302	1.239	1.187	1.144	1.232	5.4
1-Methylnaphthalene	1.298	1.297	1.152	1.109	1.063	1.184	9.2
2,3-Benzofuran	1.113	1.115	1.083	1.041	0.969	1.064	5.7
2,3-Dihydroindene	1.079	1.074	0.975	0.956	0.892	0.995	8.1
Benzo(b)thiophene	1.751	1.652	1.525	1.469	1.398	1.559	9.1
1H-Indole	1.280	1.349	1.163	1.168	1.147	1.221	7.2
Biphenyl	1.591	1.509	1.332	1.312	1.276	1.404	9.8
Dibenzothiophene	0.932	0.908	0.859	0.853	0.806	0.872	5.7
Acridine	0.810	0.774	0.781	0.744	0.715	0.765	4.7
Benzo(e)pyrene	1.210	1.141	1.013	0.955	0.895	1.043	12.5
Perylene	0.973	0.969	0.839	0.807	0.789	0.875	10.2
Naphthalene-d8	1.858	1.725	1.590	1.527	1.416	1.623	10.6
Chrysene-d12	1.052	0.982	0.875	0.815	0.749	0.895	13.7
Fluorene-d10	0.946	1.007	0.935	0.934	0.881	0.941	4.8

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

7B
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: QUANTERRA Denver Contract:

Lab Code: Case No.: 36008 SAS No.: SDG No.: 36008

Instrument ID: T Calibration Date: 07/21/94 Time: 1536

Lab File ID: T0823.D Init. Calibration Date(s): 07/21/94

Init. Calibration Times: 1047 1326

COMPOUND	$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D
Naphthalene	1.850	1.883	0.700	-1.8	25.0
2-Methylnaphthalene	1.283	1.216	0.400	5.3	25.0
Acenaphthylene	1.638	1.617	1.300	1.3	25.0
Acenaphthene	1.103	1.131	0.800	-2.6	25.0
Dibenzofuran	1.480	1.438	0.800	2.8	25.0
Fluorene	1.205	1.154	0.900	4.3	25.0
Phenanthrene	0.981	0.932	0.700	5.0	25.0
Anthracene	0.954	0.977	0.700	-2.3	25.0
Fluoranthene	0.959	0.931	0.600	2.9	25.0
Pyrene	1.003	1.011	0.600	-0.9	25.0
Benzo(a)Anthracene	1.023	1.185	0.800	-15.8	25.0
Chrysene	0.950	1.109	0.700	-16.7	25.0
Benzo(b)fluoranthene	1.099	1.431	0.700	-30.2	25.0
Benzo(k)fluoranthene	1.204	1.242	0.700	-3.2	25.0
Benzo(a)pyrene	0.995	1.075	0.700	-8.1	25.0
Indeno(1_2_3-cd)pyrene	1.097	1.204	0.500	-9.8	25.0
Dibenzo(a_h)anthracene	0.885	0.958	0.400	-8.2	25.0
Benzo(g_h_i)perylene	0.985	1.057	0.500	-7.3	25.0
Carbazole	0.963	0.863		0.1	
1H-Indene	1.215	1.241		-2.1	
Quinoline	1.232	1.151		6.6	
1-Methylnaphthalene	1.184	1.113		6.0	
2,3-Benzofuran	1.064	1.055		0.9	
2,3-Dihydroindene	0.995	0.976		1.9	
Benzo(b)thiophene	1.559	1.476		5.3	
1H-Indole	1.221	1.124		8.0	
Biphenyl	1.404	1.358		3.3	
Dibenzothiophene	0.872	0.875		-0.4	
Acridine	0.765	0.760		0.7	
Benzo(e)pyrene	1.043	1.154		-10.6	
Perylene	0.875	1.001		-14.4	
Naphthalene-d8	1.623	1.563		3.7	
Chrysene-d12	0.895	1.059		-18.4	
Fluorene-d10	0.941	0.929		1.2	

All other compounds must meet a minimum RRF of 0.010.

7B
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: QUANTERRA Denver Contract:

Lab Code: Case No.: 36008 SAS No.: SDG No.: 36008

Instrument ID: T Calibration Date: 07/22/94 Time: 0947

Lab File ID: T0833.D Init. Calibration Date(s): 07/21/94

Init. Calibration Times: 1047 1326

COMPOUND	$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D
Naphthalene	1.850	1.821	0.700	1.6	25.0
2-Methylnaphthalene	1.283	1.292	0.400	-0.6	25.0
Acenaphthylene	1.638	1.624	1.300	0.9	25.0
Acenaphthene	1.103	1.119	0.800	-1.4	25.0
Dibenzofuran	1.480	1.478	0.800	0.1	25.0
Fluorene	1.205	1.222	0.900	-1.4	25.0
Phenanthrene	0.981	0.937	0.700	4.5	25.0
Anthracene	0.954	0.914	0.700	4.2	25.0
Fluoranthene	0.959	0.960	0.600	-0.1	25.0
Pyrene	1.003	0.997	0.600	0.6	25.0
Benzo(a)Anthracene	1.023	1.167	0.800	-14.0	25.0
Chrysene	0.950	1.105	0.700	-16.3	25.0
Benzo(b)fluoranthene	1.099	1.307	0.700	-18.9	25.0
Benzo(k)fluoranthene	1.204	1.297	0.700	-7.7	25.0
Benzo(a)pyrene	0.995	1.115	0.700	-12.1	25.0
Indeno(1_2_3-cd)pyrene	1.097	1.224	0.500	-11.6	25.0
Dibenzo(a_h)anthracene	0.885	0.970	0.400	-9.6	25.0
Benzo(g_h_i)perylene	0.985	1.067	0.500	-8.3	25.0
Carbazole	0.863	0.833		3.5	
1H-Indene	1.215	1.198		1.4	
Quinoline	1.232	1.243		-0.8	
1-Methylnaphthalene	1.184	1.134		4.2	
2,3-Benzofuran	1.064	1.057		0.7	
2,3-Dihydroindene	0.995	0.959		3.7	
Benzo(b)thiophene	1.559	1.569		-0.7	
1H-Indole	1.221	1.230		-0.7	
Biphenyl	1.404	1.357		3.3	
Dibenzothiophene	0.872	0.841		3.5	
Acridine	0.765	0.765		0.0	
Benzo(e)pyrene	1.043	1.128		-8.2	
Perylene	0.875	1.012		-15.6	
Naphthalene-d8	1.623	1.615		0.5	
Chrysene-d12	0.895	1.042		-16.5	
Fluorene-d10	0.941	0.928		1.4	

All other compounds must meet a minimum RRF of 0.010.

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QUANTERRA Denver Contract:

Lab Code: Case No.: 36008 SAS No.: SDG No.: 36008

Lab File ID (Standard): T0823.D Date Analyzed: 07/21/94

Instrument ID: T Time Analyzed: 1536

		IS1 AREA #	RT #	IS2 AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	352546	14.69	584450	17.63	460519	24.56
	UPPER LIMIT	705092	15.19	1168900	18.13	921038	25.06
	LOWER LIMIT	176273	14.19	292225	17.13	230260	24.06
	EPA SAMPLE No.						
01	SBLK01	317707	14.69	565625	17.63	390273	24.55
02	STP-W409	350670	14.70	604049	17.63	448231	24.55
03	DPV-W422	346394	14.69	624813	17.63	430981	24.56
04	GTF-ACFE	313452	14.70	564858	17.63	402456	24.55
05	GTF-SFR	337736	14.70	595543	17.63	438684	24.55
06	PCJ-W23	349314	14.69	586332	17.63	400471	24.55
07	DPV-W420	330635	14.69	625476	17.63	404343	24.55
08	DPV-W421	326294	14.69	601570	17.63	385499	24.54
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IS1 = Acenaphthene-d10
IS2 = Phenanthrene-d10
IS3 = Benzo(a)pyrene-d12

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

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

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QUANTERRA Denver Contract:

Lab Code: Case No.: 36008 SAS No.: SDG No.: 36008

Lab File ID (Standard): T0833.D Date Analyzed: 07/22/94

Instrument ID: T Time Analyzed: 0947

		IS1 AREA #	RT #	IS2 AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	305351	14.71	528754	17.64	413864	24.56
	UPPER LIMIT	610702	15.21	1057508	18.14	827728	25.06
	LOWER LIMIT	152676	14.21	264377	17.14	206932	24.06
	EPA SAMPLE No.						
01	DPV-W420FB	271272	14.69	483336	17.63	344220	24.55
02	DPV-W420FD	245655	14.69	453850	17.63	369263	24.55
03	STP-W409RE	370155	14.70	643897	17.64	485466	24.56
04	DPV-W420DL	308832	14.69	574443	17.63	365197	24.54
05	DPV-W420DUDL	298870	14.69	547972	17.63	344836	24.55
06	DPV-W420MS	317853	14.69	566960	17.63	371437	24.55
07	DPV-W420MSD	326868	14.69	591944	17.63	383775	24.55
08	DPV-W420DU	316949	14.71	576871	17.63	362682	24.55
09	DPV-W421DL	318158	14.70	546868	17.63	361699	24.56
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IS1 = Acenaphthene-d10
IS2 = Phenanthrene-d10
IS3 = Benzo(a)pyrene-d12

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

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

Enseco

TABLE OF CONTENTS

FOR

CITY OF ST. LOUIS PARK

QUANTERRA ENVIRONMENTAL SERVICES,

DENVER # 036008

PPT-PAH

QC Summary.....0001

Sample Data.....0010

Standards Data.....0226

Raw QC Data.....0262

PHENOLICS MONITORING

Rocky Mountain
Analytical Laboratory

Enseco

July 01, 1994

Mr. James Grube
City of St. Louis Park
5005 Minnetonka Blvd.
St. Louis Park, MN 55416

Dear Mr. Grube:

Enclosed is the ppb phenol report for 12 aqueous samples, including matrix QC, received at Enseco-Rocky Mountain Analytical Laboratory on June 08, 1994.

Please call if you have any questions.

Sincerely,

Karen F. Germann
Project Administrator

Reviewed by:

Julieann L. Kramer
Program Manager

KFG/JLK
Enclosures

RMAL #036005

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

Enseco
A Corning Company

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
036005-0001-SA	DPV-W117TP-060794	AQUEOUS	07 JUN 94	15:20	08 JUN 94
036005-0002-SA	DPV-W1TP-060794	AQUEOUS	07 JUN 94	14:55	08 JUN 94
036005-0003-SA	DPV-W420TP-060794	AQUEOUS	07 JUN 94		08 JUN 94
036005-0003-DU	DPV-W420TPD-060794	AQUEOUS	07 JUN 94		08 JUN 94
036005-0003-MS	DPV-W420TPMS-060794	AQUEOUS	07 JUN 94		08 JUN 94
036005-0003-SD	DPV-W420TPMSD-060794	AQUEOUS	07 JUN 94		08 JUN 94
036005-0003-FB	DPV-W420TPFB-060794	AQUEOUS	07 JUN 94		08 JUN 94
036005-0003-FD	DPV-W420TPFBD-060794	AQUEOUS	07 JUN 94		08 JUN 94
036005-0004-SA	DPV-W421TP-060794	AQUEOUS	07 JUN 94		08 JUN 94
036005-0005-SA	DPV-W422TP-060794	AQUEOUS	07 JUN 94		08 JUN 94
036005-0006-SA	GTF-ACFETP-060794	AQUEOUS	07 JUN 94		08 JUN 94
036005-0007-SA	GTF-SFRTP-060794	AQUEOUS	07 JUN 94		08 JUN 94

U.S. EPA - CLP

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__ **000001**

Lab Code: ENSECO Case No.: _____ SAS No.: N/A___ SDG No.:36005_

SOW No.: ILM02

EPA Sample No.	Lab Sample ID
3600501	3600501
3600502	3600502
3600503	3600503
3600503	3600503D
3600503	3600503S
3600503	36005C3FB
3600503	36005C3FD
3600503	3600503SD
3600504	3600504
3600505	3600505
3600506	3600506
3600507	3600507

Were ICP interelement corrections applied ? Yes/No YES

Were ICP background corrections applied ? Yes/No YES
If yes - were raw data generated before application of background corrections ? Yes/No NO_

Comments:
____SEVEN_WATER_SAMPLES_FOR_PHENOLICS_ANALYSIS.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Julieann L Kramer Name: JulieAnn L. Kramer

Date: 07-01-94 Title: Program Manager

U.S. EPA - CLP

INORGANIC ANALYSES - RESULT QUALIFIERS

C - Concentration Qualifiers:

U - The reported value is less than the Instrument Detection Limit (IDL).

B - The reported value is less than the Contract Required Detection Limit (CRDL) but greater than the Instrument Detection Limit (IDL).

Q - Quality Control Qualifiers:

E - The reported value is estimated because of the presence of interference. An explanatory note is included under Comments on the Cover Page (if the problem applies to all samples) or on the specific FORM I-IN (if it is an isolated problem).

M - Duplicate injection precision not met.

N - Spiked sample recovery not within control limits.

S - The reported value was determined by the Method of Standard Additions (MSA).

W - Post-digestion spike for Furnace AA analysis is out of control limits (85-115%), while sample absorbance is less than 50% of spike absorbance.

* - Duplicate analysis not within control limits.

+ - Correlation coefficient for the MSA is less than 0.995.

Entering "S", "W", or "+" is mutually exclusive. No combination of these qualifiers can appear in the same field for an analyte.

M - Method Qualifiers:

P - ICP
A - Flame AA
F - Furnace AA
CV - Manual Cold Vapor AA
AV - Automated Cold Vapor AA
AS - Semi-Automated Spectrophotometric
C - Manual Spectrophotometric
T - Titrimetric
NR - Not Required

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1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

3600503

000005

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: N/A___ SDG No.: 36005_

Matrix (soil/water): WATER Lab Sample ID: 3600503___

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

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
54-30-0__	Phenolics	151			C_

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
DPV-W420TP-060794

FORM I - IN

7/88

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

3600503FB

000006

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: N/A___ SDG No.: 36005_

Matrix (soil/water): WATER Lab Sample ID: 3600503FB_

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

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
54-30-0__	Phenolics	5.0			C_

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
DPV-W420TPFB-060794

FORM I - IN

7/88

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

3600503FD

000007

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: N/A___ SDG No.: 36005_

Matrix (soil/water): WATER Lab Sample ID: 3600503FD_

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

Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
54-30-0__	Phenolics	5.0			C_

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
DPV-W420TPFBD-060794

FORM I - IN

7/88

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

3600505

000009

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: N/A___ SDG No.: 36005_

Matrix (soil/water): WATER Lab Sample ID: 3600505___

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

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
54-30-0__	Phenolics	7.0			C_

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
DPV-W422TP-060794

FORM I - IN

7/88

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

3600504

000008

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: N/A___ SDG No.: 36005_

Matrix (soil/water): WATER Lab Sample ID: 3600504___

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

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
54-30-0__	Phenolics	17.2			C_

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
DPV-W421TP-060794

FORM I - IN

7/88

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2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: N/A___ SDG No.: 36005_

Initial Calibration Source: INORG.VENTUR

Continuing Calibration Source: INORG.VENTUR

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Phenolics	20.0	18.47	92.4	20.0	18.16	90.8	18.16	90.8	C

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

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3
BLANKS

000013

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: N/A___ SDG No.: 36005_

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L_

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Phenolics	5.0	U	5.0	U	5.0	U			5.000	U	C

FORM III - IN

7/88

MATRIX SPIKE/MATRIX SPIKE DUPLICATE
SAMPLE RECOVERY

CLIENT SAMPLE NO. 000014

3600503MS/MSD

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 36005_

Matrix (soil/water): WATER_ Level (low/med): LOW___

% Solids for Sample: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

Analyte	Control Limit %R	Spike Sample Result	C	Sample Result	C	Matrix Spike Duplicate Result	C	Spike Added	MS %R	MS/MSD %RPD	Q	M
Phenolic_	75-125_	197.34		150.88		199.24		50.00	92.9	0.96		C

Comments:

FORM V (Part 1) - IN

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6
DUPLICATES

EPA SAMPLE NO. 000015

3600503D

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: N/A___ SDG No.: 36005_

Matrix (soil/water): WATER Level (low/med): _LOW__

% Solids for Sample: __0.0 % Solids for Duplicate: ___0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Phenolics		150.8800		154.0400		2.1		C

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7

LABORATORY CONTROL SAMPLE

000016

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: N/A___ SDG No.: 36005_

Solid LCS Source: ERA #219____

Aqueous LCS Source: INORG.VENTUR

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Phenolics	20.0	19.11	95.6						

FORM VII - IN

7/88

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13
PREPARATION LOG

000017

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.:_____ SAS No.: N/A___ SDG No.:36005_

Method: C_

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
3600501	06/29/94		200
3600502	06/29/94		200
3600503	06/29/94		200
3600503	06/29/94		200
3600503	06/29/94		200
3600503	06/29/94		200
3600503	06/29/94		200
3600503	06/29/94		200
3600504	06/29/94		200
3600505	06/29/94		200
3600506	06/29/94		200
3600507	06/29/94		200
LCSW	06/29/94		200
PBW	06/29/94		200

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14

ANALYSIS RUN LOG

000018

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: N/A___ SDG No.:36005_

Instrument ID Number: SPEC 88_____ Method: C_

Start Date: 06/29/94 End Date: 06/29/94

EPA Sample No.	D/F	Time	% R	Analytes																						
				PH																						
0.0	1.00	1824		X																						
5.0	1.00	1825		X																						
10.0	1.00	1826		X																						
20.0	1.00	1827		X																						
50.0	1.00	1828		X																						
100.0	1.00	1829		X																						
ICV	1.00	1830		X																						
ICB	1.00	1830		X																						
PBW	1.00	1831		X																						
LCSW	1.00	1831		X																						
3600501	1.00	1831		X																						
3600502	1.00	1832		X																						
3600503	2.00	1833		X																						
3600503D	2.00	1833		X																						
3600503F	1.00	1835		X																						
3600503F	1.00	1835		X																						
3600503S	2.00	1835		X																						
3600503S	2.00	1836		X																						
CCV	1.00	1836		X																						
CCB	1.00	1838		X																						
3600504	1.00	1839		X																						
3600505	1.00	1839		X																						
3600506	1.00	1839		X																						
3600507	1.00	1840		X																						
CCV	1.00	1840		X																						
CCB	1.00	1840		X																						

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ADDENDUM

STOCK STANDARD SOURCES

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract. CITY__SLP____

Lab Code: ENSECO Case No.. _____ SAS No.: N/A___ SDG No.: 36005_

STANDARD	SOURCE/LOT	EXPIRATION DATE
CALIBRATION	LabChem 3102-6	4/8/95
ICV SOLUTION	RICCA F148	2/95
CCV SOLUTION	(same as calibration source above)	
LCS SOLUTION	(same as ICV solution above)	
MATRIX SPIKE SOLUTION	(same as ICV solution above)	

COLORIMETRIC ANALYSIS

PARAMETER: CSLP- Phenolics CONTROL: F148 DATE: 06-29-94 **000020**

ANALYST: STM SPIKE: 50.0 UNITS: ppb

	Concentration	Absorbance
Blank	0.0 ppb	0.061
STD 1	5.0 ppb	0.082
STD 2	10.0 ppb	0.091
STD 3	30.0 ppb	0.114
STD 4	50.0 ppb	0.201
STD 5	100.0 ppb	0.380

Corr. Coef. = 0.9973

Slope = 0.00314

Intercept = 0.0571

SAMPLE ID	TIME	pH	INTER CHECK	ABSORBANCE SAMPLE	ABSORBANCE COLOR BI	CURVE CONC (ppb)	DILUTIONS PREP	DILUTIONS ANALYT	REPORTED CONC (ppb)	% REC.
ICV	18:30			0.116		18.47	1x	1x	18.5 (20.0)	92%
ICB	18:30			0.059		5U			5U	
PBlank	18:31	C2	—	0.060		5U			5U	
LCS	18:31			0.118		19.11			19.1 (20.0)	96%
36005-01	18:31			0.072		5U			5U	
-02	18:32			0.058		5U			5U	
-03	18:33			0.295		75.44		2x	~~75.4~~ 151	STM 06-29
-03DU	18:33			0.300		77.02		2x	~~77.0~~ 154	STM 06-29
-03FB	18:35			0.050		5U		1x	5U	
-03FD	18:35			0.049		5U		1x	5U	
-03MS	18:35			0.368		98.67		2x	197 (50.0)	
-03SD	18:36			0.371		99.62		2x	199 (50.0)	
CCV	18:36			0.115		18.16		1x	18.2 (20.0)	91%
CCB	18:36			0.060		5U			5U	
36005-04	18:37	C2	—	0.112		17.20			17.2	
-05	18:37			0.050		7.02			7.0	
-06	18:39			0.055		5U			5U	
-07	18:40			0.081		7.34			7.3	
CCV	18:40			0.115		18.16			18.2 (20.0)	91%
CCB	18:40			0.060		5U			5U	

Enseco - Rocky Mountain Analytical Lab
Sample Description Sheet

000021

Project 036005 Case/SAS No. /NA

SDG No. Conc./Matrix /AQUEOUS

SAMPLE	LIMS SAMPLE	BEFORE DIGESTION COLOR	BEFORE DIGESTION CLARITY	AFTER DIGESTION COLOR	AFTER DIGESTION CLARITY
DPV-W117TP	0360050001SA	8	1	8	1
DPV-W1TP-0	0360050002SA				
DPV-W420TP	0360050003DU				
DPV-W420TP	0360050003FB				
DPV-W420TP	0360050003FD				
DPV-W420TP	0360050003MS				
DPV-W420TP	0360050003SA				
DPV-W420TP	0360050003SD				
DPV-W421TP	0360050004SA				
DPV-W422TP	0360050005SA				
GTF-ACFETP	0360050006SA				
GTF-SFRTP-	0360050007SA				

DESCRIPTION KEY:

COLOR:

1.RED	4.GREEN	7.WHITE	10.GREY
2.BLUE	5.ORANGE	8.COLORLESS	11.BLACK
3.YELLOW	6.VIOLET	9.BROWN	

CLARITY:
1.CLEAR
2.CLOUDY
3.OPAQUE

COMMENTS:

Enseco - Rocky Mountain Analytical Lab
Sample Preparation Sheet

000022

Project 036005 Case/SAS No. /NA

SDG No. Conc./Matrix /AQUEOUS

SAMPLE	LIMS SAMPLE	DATE RECD	PARAMETERS	ICP METALS		FURNACE METALS		MERCURY		Phenol ~~CYANIDE~~		pH
				g/mL	mL	g/mL	mL	g/mL	mL	g/mL	mL	
PBW	--------	------								200ml	200ml	
LCS	--------	------										
DPV-W117TP	0360050001SA	06/08/94										
DPV-W1TP-0	0360050002SA	06/08/94										
DPV-W420TP	0360050003DU	06/08/94										
DPV-W420TP	0360050003FB	06/08/94										
DPV-W420TP	0360050003FD	06/08/94										
DPV-W420TP	0360050003MS	06/08/94										
DPV-W420TP	0360050003SA	06/08/94										
DPV-W420TP	0360050003SD	06/08/94										
DPV-W421TP	0360050004SA	06/08/94										
DPV-W422TP	0360050005SA	06/08/94										
GTF-ACFETP	0360050006SA	06/08/94										
GTF-SFRTP-	0360050007SA	06/08/94										
DATE / INITIALS:				/		/		/		JTM	6/29/94	/

SPECIAL INSTRUCTIONS and/or CAUTIONS:

Enseco
A Corning Company

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

[illegible] Enseco Houston
1120 East North Belt Drive
Suite 120
Houston, TX 77032
713/987-9767 FAX 713/987-9769

CHAIN OF CUSTODY

ENSECO CLIENT: [illegible]

PROJECT: [illegible]

SAMPLING COMPANY: ENSECHE

SAMPLING SITE: [illegible]

TEAM LEADER: [illegible]

SAMPLE SAFE™ CONDITIONS

PACKED BY: [illegible]

SEAL NUMBER: [illegible]

SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY: [illegible]

CONDITION OF CONTENTS: [illegible]

SEALED FOR SHIPPING BY: [illegible]

INITIAL CONTENTS TEMP: [illegible] °C

SEAL NUMBER: [illegible]

SAMPLING STATUS: ☐ Done ☐ Continuing Until

SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No

CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 1.2 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] 36006 -7
[illegible]	[illegible]	[illegible] 060294	[illegible]	[illegible]	[illegible]	36005 -1
[illegible]	[illegible]	[illegible] 060294	[illegible]	[illegible]	[illegible]	36005 -2
[illegible]	[illegible]	STP-[illegible] 060294	[illegible]	[illegible]	[illegible]	36008 -1

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: [illegible]

METHOD OF SHIPMENT: FED-EX

AIRBILL NUMBER:

RECEIVED FOR LAB: RMAC

SIGNED: [illegible]

DATE/TIME: 6-8-94 820

ENSECO PROJECT NUMBER: 36005, 36006, 36008

000023

ENS-4011

White - CLIENT Pink - LAB

Enseco
A Corning Company

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

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

CHAIN OF CUSTODY

ENSECO CLIENT: CITY OF ST LOUIS PARK WATER DEPT

PROJECT:

SAMPLING COMPANY: SAME

SAMPLING SITE: SAME

TEAM LEADER: MZK

SAMPLE SAFE™ CONDITIONS

PACKED BY: MZK

SEAL NUMBER:

SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:

CONDITION OF CONTENTS:

SEALED FOR SHIPPING BY: MZK

INITIAL CONTENTS TEMP: °C

SEAL NUMBER:

SAMPLING STATUS: ☐ Done ☐ Continuing Until

SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No

CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 8.5 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
6-7-94		DPV-W420TP-060794	16 oz	1	Phenolics	36005 -3
		DPV-W420TPD-060794				-3 Dup
		DPV-W420TPMS-060794				-3 MS
		DPV-W420TPMSD-060794				-3 SD
		DPV-W420TPFB-060794				-3 FB
		DPV-W420TPFBD-060794				-3 FD
		DPV-W421TP-060794				-4
		DPV-W422TP-060794				-5
		GTF-ACFETP-060794				-6
6-7-94		GTF-SFRTP-060794	16 oz	1	Phenolics	-7

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MZK

METHOD OF SHIPMENT: FED EX

AIRBILL NUMBER: 2103421036

RECEIVED FOR LAB: LMAL

SIGNED: [illegible]

DATE/TIME: 6-8-94 820

ENSECO PROJECT NUMBER: 36005

000024

ENS—4011

White – CLIENT Pink – [illegible]

THIRD QUARTER MONITORING

PAH MONITORING

Rocky Mountain
Analytical Laboratory

Enseco

CASE NARRATIVE

FOR

City of St. Louis Park

September 29, 1994

Quanterra Environmental Services

Project No. 037724

Introduction

11 aqueous samples (includes QC) were received at Quanterra Environmental Services, Denver laboratory (formerly Enseco-Rocky Mountain Analytical Laboratory) on August 30, 1994. The samples were logged in under Quanterra's Denver laboratory project number 037724. Sample DPV-W420FBD-082994 was extracted and held per the April 1990 QAPP. A cross reference associating the Quanterra Denver laboratory sample numbers to the actual field sample numbers is included. The samples were analyzed for part-per-billion (ppb) polynuclear aromatic hydrocarbons (PAH).

Data Quality Assessment

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

PPB PAH

Samples DPV-W420 (037724-0002), DPV-W420D (037724-0001DU), DPV-W421 (037724-0002) and GTF-SRF (037724-0006) showed target compounds above the upper calibration range. The samples were analyzed at a dilution. Both the original and reanalysis data were reported for each sample. The reporting limits were adjusted accordingly.

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

Sample DPV-W420MS (037724-0001MS) and DPV-W420MSD (037724-0001MSD) showed the percent recovery for naphthalene outside QC limits. The RPD for this pair was not calculated.

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

Reported by: _____ **Date:** 9/29/94
Daniel Rebarchik
Program Administrator

Approved by: _____ **Date:** 9/29/94
Kevin McHugh
Program Manager

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
037724-0001-SA	DPV-W420-082994	AQUEOUS	29 AUG 94		30 AUG 94
037724-0001-DU	DPV-W420D-082994	AQUEOUS	29 AUG 94		30 AUG 94
037724-0001-MS	DPV-W420MS-082994	AQUEOUS	29 AUG 94		30 AUG 94
037724-0001-SD	DPV-W420MSD-082994	AQUEOUS	29 AUG 94		30 AUG 94
037724-0001-FB	DPV-W420FB-082994	AQUEOUS	29 AUG 94		30 AUG 94
037724-0001-FD	DPV-W420FBD-082994	AQUEOUS	29 AUG 94		30 AUG 94
037724-0002-SA	DPV-W421-082994	AQUEOUS	29 AUG 94		30 AUG 94
037724-0003-SA	DPV-W422-082994	AQUEOUS	29 AUG 94		30 AUG 94
037724-0004-SA	DPV-W410-082994	AQUEOUS	29 AUG 94		30 AUG 94
037724-0005-SA	GTF-ACFE-082994	AQUEOUS	29 AUG 94		30 AUG 94
037724-0006-SA	GTF-SFR-082994	AQUEOUS	29 AUG 94		30 AUG 94

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 037724	Group Code	Analysis Description	Custom Test?
0001 , 0001,	A	CLP/PAH Semivolatile Organics High Level PPB	N
0002 - 0006		CLP Prep - PAH Semivolatile Organics by GC/MS High Level PPB	N
0001	B	CLP Prep - PAH Semivolatile Organics by GC/MS High Level PPB	N

Enseco

Qualifier Codes and Their Usage

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

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

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

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

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

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

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

Qualifer Codes and Their Usage
Page Two

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

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

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

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

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

TABLE OF CONTENTS

FOR

CITY OF ST. LOUIS PARK

QUANTERRA ENVIRONMENTAL SERVICES,

DENVER # 037724

PPT-PAH

QC Summary.....0001

Sample Data.....0011

Standards Data.....0280

Raw QC Data.....0362

Enseco
A Corning Company

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

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

CHAIN OF CUSTODY

ENSECO CLIENT: CITY OF ST LOUIS PARK WATER DEPT

PROJECT:

SAMPLING COMPANY: SAME

SAMPLING SITE: SAME

TEAM LEADER: MZ

SAMPLE SAFE™ CONDITIONS

PACKED BY: MZ

SEAL NUMBER:

SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:

CONDITION OF CONTENTS: GOOD

SEALED FOR SHIPPING BY: MZ

INITIAL CONTENTS TEMP: °C

SEAL NUMBER:

SAMPLING STATUS: ☐ Done ☐ Continuing Until

SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No

CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 8.9 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
8-29-94		DPV-W420-082994	1XL AMBER	2	PPB PAH	-1
		DPV-W420D-082994				-1DU
		DPV-W420MS-082994				-1MS
		DPV-W420MSD-082994				-1SD
		DPV-W420FB-082994				-1FB
		DPV-W420FBD-082994				-1FD
		DPV-W421-082994				-2
		DPV-W422-082994				-3
		DPV-W410-082994				-4
9-29-94		[redacted]	1XL AMBER	2	PPB PAH	

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MZ

METHOD OF SHIPMENT: FED EX

AIRBILL NUMBER: 2103421023

RECEIVED FOR LAB: QES

SIGNED: [signature]

DATE/TIME: 85094 830

ENSECO PROJECT NUMBER: 37724

ENS-4011

White - CLIENT Pink - LAB

Enseco
A Corning Company

☐ Rocky Mountain Analytical Laboratory
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☐ Enseco Houston
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Houston, TX 77032
713/987-9767 FAX: 713/987-9769

CHAIN OF CUSTODY

ENSECO CLIENT: CITY OF ST LOUIS PARK WATER DEPT	SAMPLE SAFE™ CONDITIONS — PACKED BY: [illegible]
PROJECT:	SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:
SAMPLING COMPANY: SAME	SEALED FOR SHIPPING BY: [illegible]
SAMPLING SITE: SAME	SEAL NUMBER:
TEAM LEADER: [illegible]	SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No

SEAL NUMBER:
CONDITION OF CONTENTS: GOOD
INITIAL CONTENTS TEMP: °C
SAMPLING STATUS: ☐ Done ☐ Continuing Until
CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 8-9 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
8-29-94		GTF-ACFE-082994	1XLAMBER	2	PCB PAH	-S
8-29-94		GTF-ASFR-082994	1XLAMBER	2	PCB PAH	-C

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: [illegible]
METHOD OF SHIPMENT: FED EX
AIRBILL NUMBER: 2103421173
RECEIVED FOR LAB: QES
SIGNED: [illegible]
DATE/TIME: 83094 886
ENSECO PROJECT NUMBER: 37724

ENS—4011

White - CLIENT Pink - LAB

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 37724 SAS No.: SDG No.: 37724

Matrix: (soil/water) WATER Lab Sample ID: 37724-01

Sample wt/vol: 1050 (g/mL) ML Lab File ID: X8395

Level: (low/med) LOW Date Received: 08/30/94

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

Concentrated Extract Volume: 1(ML) Date Analyzed: 09/06/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	670	E
91-57-6	2-Methylnaphthalene	74	
208-96-8	Acenaphthylene	2	J
83-32-9	Acenaphthene	80	E
132-64-9	Dibenzofuran	26	
86-73-7	Fluorene	28	
85-01-8	Phenanthrene	16	
120-12-7	Anthracene	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1 2 3-cd)pyrene	10	U
53-70-3	Dibenzo(a h)anthracene	10	U
191-24-2	Benzo(g h i)perylene	10	U
86-74-8	Carbazole	53	
95-13-6	1H-Indene	89	E
91-22-5	Quinoline	10	U
90-12-0	1-Methylnaphthalene	99	E
271-89-6	2,3-Benzofuran	39	
496-11-7	2,3-Dihydroindene	360	E
95-15-8	Benzo(b)thiophene	100	E
120-72-9	1H-Indole	10	U
92-52-4	Biphenyl	16	
132-65-0	Dibenzothiophene	10	U
260-94-6	Acridine	2	J
192-97-2	Benzo(e)pyrene	10	U
198-55-0	Perylene	10	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420D

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 37724 SAS No.: SDG No.: 37724

Matrix: (soil/water) WATER Lab Sample ID: 37724-01DU

Sample wt/vol: 1050 (g/mL) ML Lab File ID: X8396

Level: (low/med) LOW Date Received: 08/30/94

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

Concentrated Extract Volume: 1(ML) Date Analyzed: 09/06/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	610	E
91-57-6	2-Methylnaphthalene	71	
208-96-8	Acenaphthylene	1	J
83-32-9	Acenaphthene	73	
132-64-9	Dibenzofuran	24	
86-73-7	Fluorene	26	
85-01-8	Phenanthrene	15	
120-12-7	Anthracene	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1 2 3-cd)pyrene	10	U
53-70-3	Dibenzo(a h)anthracene	10	U
191-24-2	Benzo(g h i)perylene	10	U
86-74-8	Carbazole	50	
95-13-6	1H-Indene	84	E
91-22-5	Quinoline	10	U
90-12-0	1-Methylnaphthalene	95	E
271-89-6	2,3-Benzofuran	10	
496-11-7	2,3-Dihydroindene	350	E
95-15-8	Benzo(b)thiophene	90	E
120-72-9	1H-Indole	10	U
92-52-4	Biphenyl	16	
132-65-0	Dibenzothiophene	3	J
260-94-6	Acridine	2	J
192-97-2	Benzo(e)pyrene	10	U
198-55-0	Perylene	10	U

4

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420DL

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 37724 SAS No.: SDG No.: 37724

Matrix: (soil/water) WATER Lab Sample ID: 37724-01DL

Sample wt/vol: 1050 (g/mL) ML Lab File ID: T0101398.D

Level: (low/med) LOW Date Received: 08/30/94

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

Concentrated Extract Volume: 1(ML) Date Analyzed: 09/12/94

Injection Volume: 2.0(uL) Dilution Factor: 20.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	1440	D
91-57-6	2-Methylnaphthalene	74	JD
208-96-8	Acenaphthylene	190	U
83-32-9	Acenaphthene	84	JD
132-64-9	Dibenzofuran	25	JD
86-73-7	Fluorene	26	JD
85-01-8	Phenanthrene	190	U
120-12-7	Anthracene	190	U
206-44-0	Fluoranthene	190	U
129-00-0	Pyrene	190	U
56-55-3	Benzo(a)Anthracene	190	U
218-01-9	Chrysene	190	U
205-99-2	Benzo(b)fluoranthene	190	U
207-08-9	Benzo(k)fluoranthene	190	U
50-32-8	Benzo(a)pyrene	190	U
193-39-5	Indeno(1 2 3-cd)pyrene	190	U
53-70-3	Dibenzo(a h)anthracene	190	U
191-24-2	Benzo(g h i)perylene	190	U
86-74-8	Carbazole	50	JD
95-13-6	1H-Indene	74	JD
91-22-5	Quinoline	190	U
90-12-0	1-Methylnaphthalene	104	JD
271-89-6	2,3-Benzofuran	28	JD
496-11-7	2,3-Dihydroindene	413	D
95-15-8	Benzo(b)thiophene	121	JD
120-72-9	1H-Indole	190	U
92-52-4	Biphenyl	190	U
132-65-0	Dibenzothiophene	190	U
260-94-6	Acridine	190	U
192-97-2	Benzo(e)pyrene	190	U
198-55-0	Perylene	190	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420DDL

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 37724 SAS No.: SDG No.: 37724

Matrix: (soil/water) WATER Lab Sample ID: 37724-01DUDL

Sample wt/vol: 1050 (g/mL) ML Lab File ID: T0601403.D

Level: (low/med) LOW Date Received: 08/30/94

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

Concentrated Extract Volume: 1(ML) Date Analyzed: 09/12/94

Injection Volume: 2.0(uL) Dilution Factor: 20.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	1360	D
91-57-6	2-Methylnaphthalene	66	JD
208-96-8	Acenaphthylene	190	U
83-32-9	Acenaphthene	83	JD
132-64-9	Dibenzofuran	23	JD
86-73-7	Fluorene	24	JD
85-01-8	Phenanthrene	190	U
120-12-7	Anthracene	190	U
206-44-0	Fluoranthene	190	U
129-00-0	Pyrene	190	U
56-55-3	Benzo(a)Anthracene	190	U
218-01-9	Chrysene	190	U
205-99-2	Benzo(b)fluoranthene	190	U
207-08-9	Benzo(k)fluoranthene	190	U
50-32-8	Benzo(a)pyrene	190	U
193-39-5	Indeno(1 2 3-cd)pyrene	190	U
53-70-3	Dibenzo(a h)anthracene	190	U
191-24-2	Benzo(g h i)perylene	190	U
86-74-8	Carbazole	49	JD
95-13-6	1H-Indene	72	JD
91-22-5	Quinoline	190	U
90-12-0	1-Methylnaphthalene	102	JD
271-89-6	2,3-Benzofuran	26	JD
496-11-7	2,3-Dihydroindene	400	D
95-15-8	Benzo(b)thiophene	118	JD
120-72-9	1H-Indole	190	U
92-52-4	Biphenyl	190	U
132-65-0	Dibenzothiophene	190	U
260-94-6	Acridine	190	U
192-97-2	Benzo(e)pyrene	190	U
198-55-0	Perylene	190	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420FB

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 37724 SAS No.: SDG No.: 37724

Matrix: (soil/water) WATER Lab Sample ID: 37724-01FB

Sample wt/vol: 1050 (g/mL) ML Lab File ID: T1001407.D

Level: (low/med) LOW Date Received: 08/30/94

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

Concentrated Extract Volume: 1(ML) Date Analyzed: 09/12/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	10	U
91-57-6	2-Methylnaphthalene	10	U
208-96-8	Acenaphthylene	10	U
83-32-9	Acenaphthene	10	U
132-64-9	Dibenzofuran	10	U
86-73-7	Fluorene	10	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1 2 3-cd)pyrene	10	U
53-70-3	Dibenzo(a h)anthracene	10	U
191-24-2	Benzo(g h i)perylene	10	U
86-74-8	Carbazole	10	U
95-13-6	1H-Indene	10	U
91-22-5	Quinoline	10	U
90-12-0	1-Methylnaphthalene	10	U
271-89-6	2,3-Benzofuran	10	U
496-11-7	2,3-Dihydroindene	10	U
95-15-8	Benzo(b)thiophene	10	U
120-72-9	1H-Indole	10	U
92-52-4	Biphenyl	10	U
132-65-0	Dibenzothiophene	10	U
260-94-6	Acridine	10	U
192-97-2	Benzo(e)pyrene	10	U
198-55-0	Perylene	10	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420FBD

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 37724 SAS No.: SDG No.: 37724

Matrix: (soil/water) WATER Lab Sample ID: 37724-01FD

Sample wt/vol: 1050 (g/mL) ML Lab File ID: T1101408.D

Level: (low/med) LOW Date Received: 08/30/94

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

Concentrated Extract Volume: 1 (ML) Date Analyzed: 09/12/94

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	10	U
91-57-6	2-Methylnaphthalene	10	U
208-96-8	Acenaphthylene	10	U
83-32-9	Acenaphthene	10	U
132-64-9	Dibenzofuran	10	U
86-73-7	Fluorene	10	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1 2 3-cd)pyrene	10	U
53-70-3	Dibenzo(a h)anthracene	10	U
191-24-2	Benzo(g h i)perylene	10	U
86-74-8	Carbazole	10	U
95-13-6	1H-Indene	10	U
91-22-5	Quinoline	10	U
90-12-0	1-Methylnaphthalene	10	U
271-89-6	2,3-Benzofuran	10	U
496-11-7	2,3-Dihydroindene	10	U
95-15-8	Benzo(b)thiophene	10	U
120-72-9	1H-Indole	10	U
92-52-4	Biphenyl	10	U
132-65-0	Dibenzothiophene	10	U
260-94-6	Acridine	10	U
192-97-2	Benzo(e)pyrene	10	U
198-55-0	Perylene	10	U

6

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W421

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 37724 SAS No.: SDG No.: 37724

Matrix: (soil/water) WATER Lab Sample ID: 37724-02

Sample wt/vol: 1050 (g/mL) ML Lab File ID: X8397

Level: (low/med) LOW Date Received: 08/30/94

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

Concentrated Extract Volume: 1 (ML) Date Analyzed: 09/06/94

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	290	E
91-57-6	2-Methylnaphthalene	6	J
208-96-8	Acenaphthylene	10	U
83-32-9	Acenaphthene	40	
132-64-9	Dibenzofuran	10	
86-73-7	Fluorene	12	
85-01-8	Phenanthrene	5	J
120-12-7	Anthracene	1	J
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1 2 3-cd)pyrene	10	U
53-70-3	Dibenzo(a h)anthracene	10	U
191-24-2	Benzo(g h i)perylene	10	U
86-74-8	Carbazole	32	
95-13-6	1H-Indene	74	
91-22-5	Quinoline	10	U
90-12-0	1-Methylnaphthalene	50	
271-89-6	2,3-Benzofuran	10	U
496-11-7	2,3-Dihydroindene	190	E
95-15-8	Benzo(b)thiophene	65	
120-72-9	1H-Indole	10	U
92-52-4	Biphenyl	8	J
132-65-0	Dibenzothiophene	2	J
260-94-6	Acridine	3	J
192-97-2	Benzo(e)pyrene	10	U
198-55-0	Perylene	10	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W421DL

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 37724 SAS No.: SDG No.: 37724

Matrix: (soil/water) WATER Lab Sample ID: 37724-02DL

Sample wt/vol: 1050 (g/mL) ML Lab File ID: T0201399.D

Level: (low/med) LOW Date Received: 08/30/94

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

Concentrated Extract Volume: 1(ML) Date Analyzed: 09/12/94

Injection Volume: 2.0(uL) Dilution Factor: 10.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	504	D
91-57-6	2-Methylnaphthalene	95	U
208-96-8	Acenaphthylene	95	U
83-32-9	Acenaphthene	41	JD
132-64-9	Dibenzofuran	95	U
86-73-7	Fluorene	12	JD
85-01-8	Phenanthrene	95	U
120-12-7	Anthracene	95	U
206-44-0	Fluoranthene	95	U
129-00-0	Pyrene	95	U
56-55-3	Benzo(a)Anthracene	95	U
218-01-9	Chrysene	95	U
205-99-2	Benzo(b)fluoranthene	95	U
207-08-9	Benzo(k)fluoranthene	95	U
50-32-8	Benzo(a)pyrene	95	U
193-39-5	Indeno(1 2 3-cd)pyrene	95	U
53-70-3	Dibenzo(a h)anthracene	95	U
191-24-2	Benzo(g h i)perylene	95	U
86-74-8	Carbazole	34	JD
95-13-6	1H-Indene	62	JD
91-22-5	Quinoline	95	U
90-12-0	1-Methylnaphthalene	48	JD
271-89-6	2,3-Benzofuran	95	U
496-11-7	2,3-Dihydroindene	173	D
95-15-8	Benzo(b)thiophene	66	JD
120-72-9	1H-Indole	95	U
92-52-4	Biphenyl	95	U
132-65-0	Dibenzothiophene	95	U
260-94-6	Acridine	95	U
192-97-2	Benzo(e)pyrene	95	U
198-55-0	Perylene	95	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GTF-ACFE

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 37724 SAS No.: SDG No.: 37724

Matrix: (soil/water) WATER Lab Sample ID: 37724-05

Sample wt/vol: 1060 (g/mL) ML Lab File ID: T0901406.D

Level: (low/med) LOW Date Received: 08/30/94

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

Concentrated Extract Volume: 1(ML) Date Analyzed: 09/12/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	9	U
91-57-6	2-Methylnaphthalene	9	U
208-96-8	Acenaphthylene	9	U
83-32-9	Acenaphthene	9	U
132-64-9	Dibenzofuran	9	U
86-73-7	Fluorene	9	U
85-01-8	Phenanthrene	9	U
120-12-7	Anthracene	9	U
206-44-0	Fluoranthene	9	U
129-00-0	Pyrene	9	U
56-55-3	Benzo(a)Anthracene	9	U
218-01-9	Chrysene	9	U
205-99-2	Benzo(b)fluoranthene	9	U
207-08-9	Benzo(k)fluoranthene	9	U
50-32-8	Benzo(a)pyrene	9	U
193-39-5	Indeno(1 2 3-cd)pyrene	9	U
53-70-3	Dibenzo(a h)anthracene	9	U
191-24-2	Benzo(g h i)perylene	9	U
86-74-8	Carbazole	9	U
95-13-6	1H-Indene	9	U
91-22-5	Quinoline	9	U
90-12-0	1-Methylnaphthalene	9	U
271-89-6	2,3-Benzofuran	9	U
496-11-7	2,3-Dihydroindene	9	U
95-15-8	Benzo(b)thiophene	9	U
120-72-9	1H-Indole	9	U
92-52-4	Biphenyl	9	U
132-65-0	Dibenzothiophene	9	U
260-94-6	Acridine	9	U
192-97-2	Benzo(e)pyrene	9	U
198-55-0	Perylene	9	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GTF-SFR

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 37724 SAS No.: SDG No.: 37724

Matrix: (soil/water) WATER Lab Sample ID: 37724-06

Sample wt/vol: 1050 (g/mL) ML Lab File ID: X8401

Level: (low/med) LOW Date Received: 08/30/94

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

Concentrated Extract Volume: 1(ML) Date Analyzed: 09/07/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	10	U
91-57-6	2-Methylnaphthalene	2	J
208-96-8	Acenaphthylene	10	U
83-32-9	Acenaphthene	27	
132-64-9	Dibenzofuran	8	J
86-73-7	Fluorene	12	
85-01-8	Phenanthrene	6	J
120-12-7	Anthracene	10	U
206-44-0	Fluoranthene	2	J
129-00-0	Pyrene	2	J
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1 2 3-cd)pyrene	10	U
53-70-3	Dibenzo(a h)anthracene	10	U
191-24-2	Benzo(g h i)perylene	10	U
86-74-8	Carbazole	17	
95-13-6	1H-Indene	13	
91-22-5	Quinoline	10	U
90-12-0	1-Methylnaphthalene	21	
271-89-6	2,3-Benzofuran	4	J
496-11-7	2,3-Dihydroindene	110	E
95-15-8	Benzo(b)thiophene	6	J
120-72-9	1H-Indole	10	U
92-52-4	Biphenyl	1	J
132-65-0	Dibenzothiophene	1	J
260-94-6	Acridine	1	J
192-97-2	Benzo(e)pyrene	10	U
198-55-0	Perylene	10	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W422

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 37724 SAS No.: SDG No.: 37724

Matrix: (soil/water) WATER Lab Sample ID: 37724-03

Sample wt/vol: 1050 (g/mL) ML Lab File ID: T0701404.D

Level: (low/med) LOW Date Received: 08/30/94

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

Concentrated Extract Volume: 1(ML) Date Analyzed: 09/12/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	7	J
91-57-6	2-Methylnaphthalene	10	U
208-96-8	Acenaphthylene	10	U
83-32-9	Acenaphthene	9	J
132-64-9	Dibenzofuran	10	U
86-73-7	Fluorene	10	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1 2 3-cd)pyrene	10	U
53-70-3	Dibenzo(a h)anthracene	10	U
191-24-2	Benzo(g h i)perylene	10	U
86-74-8	Carbazole	2	J
95-13-6	1H-Indene	10	U
91-22-5	Quinoline	10	U
90-12-0	1-Methylnaphthalene	10	U
271-89-6	2,3-Benzofuran	10	U
496-11-7	2,3-Dihydroindene	48	
95-15-8	Benzo(b)thiophene	10	U
120-72-9	1H-Indole	10	U
92-52-4	Biphenyl	10	U
132-65-0	Dibenzothiophene	10	U
260-94-6	Acridine	10	U
192-97-2	Benzo(e)pyrene	10	U
198-55-0	Perylene	10	U

9

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GTF-SFRDL

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 37724 SAS No.: SDG No.: 37724

Matrix: (soil/water) WATER Lab Sample ID: 37724-06DL

Sample wt/vol: 1050 (g/mL) ML Lab File ID: T0301400.D

Level: (low/med) LOW Date Received: 08/30/94

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

Concentrated Extract Volume: 1 (ML) Date Analyzed: 09/12/94

Injection Volume: 2.0 (uL) Dilution Factor: 2.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	19	U
91-57-6	2-Methylnaphthalene	2	JD
208-96-8	Acenaphthylene	19	U
83-32-9	Acenaphthene	28	D
132-64-9	Dibenzofuran	8	JD
86-73-7	Fluorene	11	JD
85-01-8	Phenanthrene	6	JD
120-12-7	Anthracene	19	U
206-44-0	Fluoranthene	19	U
129-00-0	Pyrene	19	U
56-55-3	Benzo(a)Anthracene	19	U
218-01-9	Chrysene	19	U
205-99-2	Benzo(b)fluoranthene	19	U
207-08-9	Benzo(k)fluoranthene	19	U
50-32-8	Benzo(a)pyrene	19	U
193-39-5	Indeno(1 2 3-cd)pyrene	19	U
53-70-3	Dibenzo(a h)anthracene	19	U
191-24-2	Benzo(g h i)perylene	19	U
86-74-8	Carbazole	18	JD
95-13-6	1H-Indene	10	JD
91-22-5	Quinoline	19	U
90-12-0	1-Methylnaphthalene	21	D
271-89-6	2,3-Benzofuran	3	JD
496-11-7	2,3-Dihydroindene	93	D
95-15-8	Benzo(b)thiophene	3	JD
120-72-9	1H-Indole	19	U
92-52-4	Biphenyl	19	U
132-65-0	Dibenzothiopnene	19	U
260-94-6	Acridine	19	U
192-97-2	Benzo(e)pyrene	19	U
198-55-0	Perylene	19	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420MS

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 37724 SAS No.: SDG No.: 37724

Matrix: (soil/water) WATER Lab Sample ID: 37724-01MS

Sample wt/vol: 1060 (g/mL) ML Lab File ID: T0401401.D

Level: (low/med) LOW Date Received: 08/30/94

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

Concentrated Extract Volume: 1 (ML) Date Analyzed: 09/12/94

Injection Volume: 2.0 (uL) Dilution Factor: 10.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	1080	E
91-57-6	2-Methylnaphthalene	113	
208-96-8	Acenaphthylene	94	U
83-32-9	Acenaphthene	80	J
132-64-9	Dibenzofuran	24	J
86-73-7	Fluorene	72	J
85-01-8	Phenanthrene	16	J
120-12-7	Anthracene	94	U
206-44-0	Fluoranthene	94	U
129-00-0	Pyrene	94	U
56-55-3	Benzo(a)Anthracene	94	U
218-01-9	Chrysene	45	J
205-99-2	Benzo(b)fluoranthene	94	U
207-08-9	Benzo(k)fluoranthene	94	U
50-32-8	Benzo(a)pyrene	94	U
193-39-5	Indeno(1 2 3-cd)pyrene	94	U
53-70-3	Dibenzo(a h)anthracene	94	U
191-24-2	Benzo(g h i)perylene	94	U
86-74-8	Carbazole	54	J
95-13-6	1H-Indene	113	
91-22-5	Quinoline	45	J
90-12-0	1-Methylnaphthalene	103	
271-89-6	2,3-Benzofuran	28	J
496-11-7	2,3-Dihydroindene	391	
95-15-8	Benzo(b)thiophene	116	
120-72-9	1H-Indole	94	U
92-52-4	Biphenyl	17	J
132-65-0	Dibenzothiophene	94	U
260-94-6	Acridine	94	U
192-97-2	Benzo(e)pyrene	45	J
198-55-0	Perylene	94	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420MSD

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 37724 SAS No.: SDG No.: 37724

Matrix: (soil/water) WATER Lab Sample ID: 37724-01MSD

Sample wt/vol: 1050 (g/mL) ML Lab File ID: T0501402.D

Level: (low/med) LOW Date Received: 08/30/94

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

Concentrated Extract Volume: 1(ML) Date Analyzed: 09/12/94

Injection Volume: 2.0(uL) Dilution Factor: 10.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	1100	E
91-57-6	2-Methylnaphthalene	120	
208-96-8	Acenaphthylene	95	U
83-32-9	Acenaphthene	82	J
132-64-9	Dibenzofuran	26	J
86-73-7	Fluorene	76	J
85-01-8	Phenanthrene	17	J
120-12-7	Anthracene	95	U
206-44-0	Fluoranthene	95	U
129-00-0	Pyrene	95	U
56-55-3	Benzo(a)Anthracene	95	U
218-01-9	Chrysene	42	J
205-99-2	Benzo(b)fluoranthene	95	U
207-08-9	Benzo(k)fluoranthene	95	U
50-32-8	Benzo(a)pyrene	95	U
193-39-5	Indeno(1 2 3-cd)pyrene	95	U
53-70-3	Dibenzo(a h)anthracene	95	U
191-24-2	Benzo(g h i)perylene	95	U
86-74-8	Carbazole	56	J
95-13-6	1H-Indene	118	
91-22-5	Quinoline	48	J
90-12-0	1-Methylnaphthalene	101	
271-89-6	2,3-Benzofuran	30	J
496-11-7	2,3-Dihydroindene	397	
95-15-8	Benzo(b)thiophene	120	
120-72-9	1H-Indole	95	U
92-52-4	Biphenyl	16	J
132-65-0	Dibenzothiophene	95	U
260-94-6	Acridine	95	U
192-97-2	Benzo(e)pyrene	45	J
198-55-0	Perylene	95	U

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 37724 SAS No.: SDG No.: 37724

	EPA SAMPLE NO.	S1 #	S2 #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	SBLK01	70	76	66						0
02	SBLK02	72	69	64						0
03	DPV-W420	84	70	78						0
04	DPV-W420DL	0D	0D	0D						0
05	DPV-W421	76	65	74						0
06	DPV-W421DL	67	47	74						0
07	GTF-SFR	76	64	72						0
08	GTF-SFRDL	73	57	76						0
09	DPV-W420MS	82	54	74						0
10	DPV-W420MSD	85	50	82						0
11	DPV-W420D	79	59	71						0
12	DPV-W420DDL	0D	0D	0D						0
13	DPV-W422	76	56	80						0
14	DPV-W410	81	66	79						0
15	GTF-ACFE	85	57	74						0
16	DPV-W420FB	87	72	79						0
17	DPV-W420FBD	80	69	74						0
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										

		QC LIMITS
S1	= Naphthalene-d8	(37-107)
S2	= Chrysene-d12	(25-160)
S3	= Fluorene-d10	(36-127)
S4	= N/A	
S5	= N/A	
S6	= N/A	
S7	= N/A	
S8	= N/A	

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

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 37724 SAS No.: SDG No.: 37724

Matrix Spike - EPA Sample No.: DPV-W420DL

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC. LIMITS REC.
Naphthalene	47	1440	1080	0*	43-128
2-Methylnaphthalene	47	74	113	83	47-138
Fluorene	47	26	72	98	51-120
Chrysene	47	0	45	95	43-124
1H-Indene	47	74	113	83	49-108
Quinoline	47	0	45	96	40-126
Benzo(e)pyrene	47	0	45	96	20-150

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Naphthalene	48	1100	0*	0	50	43-128
2-Methylnaphthalene	48	120	97	16	50	47-138
Fluorene	48	76	106	8	50	51-120
Chrysene	48	42	89	6	50	43-124
1H-Indene	48	118	93	11	50	49-108
Quinoline	48	48	101	5	50	40-126
Benzo(e)pyrene	48	45	94	2	50	20-150

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

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

COMMENTS: _____

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

SBLK01

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 37724 SAS No.: SDG No.: 37724

Lab File ID: X8392 Lab Sample ID: SBLK01

Instrument ID: X Date Extracted: 09/02/94

Matrix: (soil/water) WATER Date Analyzed: 09/06/94

Level: (low/med) LOW Time Analyzed: 1854

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	DPV-W420	37724-01	X8395	09/06/94
02	DPV-W421	37724-02	X8397	09/06/94
03	GTF-SFR	37724-06	X8401	09/07/94
04	DPV-W420D	37724-01DU	X8396	09/06/94
05				
06				
07				
08				
09				
10				
11				
12				
13				
14				
15				
16				
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30				

COMMENTS:

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLK01

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 37724 SAS No.: SDG No.: 37724

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

Sample wt/vol: 1000 (g/mL) ML Lab File ID: X8392

Level: (low/med) LOW Date Received:

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

Concentrated Extract Volume: 1(ML) Date Analyzed: 09/06/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	10	U
91-57-6	2-Methylnaphthalene	10	U
208-96-8	Acenaphthylene	10	U
83-32-9	Acenaphthene	10	U
132-64-9	Dibenzofuran	10	U
86-73-7	Fluorene	10	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1 2 3-cd)pyrene	10	U
53-70-3	Dibenzo(a h)anthracene	10	U
191-24-2	Benzo(g h i)perylene	10	U
86-74-8	Carbazole	10	U
95-13-6	1H-Indene	10	U
91-22-5	Quinoline	10	U
90-12-0	1-Methylnaphthalene	10	U
271-89-6	2,3-Benzofuran	10	U
496-11-7	2,3-Dihydroindene	10	U
95-15-8	Benzo(b)thiophene	10	U
120-72-9	1H-Indole	10	U
92-52-4	Biphenyl	10	U
132-65-0	Dibenzothiophene	10	U
260-94-6	Acridine	10	U
192-97-2	Benzo(e)pyrene	10	U
198-55-0	Perylene	10	U

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

SBLK02

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 37724 SAS No.: SDG No.: 37724

Lab File ID: T0397.D Lab Sample ID: SBLK02

Instrument ID: T Date Extracted: 09/02/94

Matrix: (soil/water) WATER Date Analyzed: 09/12/94

Level:(low/med) LOW Time Analyzed: 1606

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	DPV-W420DL	37724-01DL	T0101398.D	09/12/94
02	DPV-W421DL	37724-02DL	T0201399.D	09/12/94
03	GTF-SFRDL	37724-06DL	T0301400.D	09/12/94
04	DPV-W420MS	37724-01MS	T0401401.D	09/12/94
05	DPV-W420MSD	37724-01MSD	T0501402.D	09/12/94
06	DPV-W420DDL	37724-01DUDL	T0601403.D	09/12/94
07	DPV-W422	37724-03	T0701404.D	09/12/94
08	DPV-W410	37724-04	T0801405.D	09/12/94
09	GTF-ACFE	37724-05	T0901406.D	09/12/94
10	DPV-W420FB	37724-01FB	T1001407.D	09/12/94
11	DPV-W420FBD	37724-01FD	T1101408.D	09/12/94
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COMMENTS:

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLK02

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 37724 SAS No.: SDG No.: 37724

Matrix: (soil/water) WATER Lab Sample ID: SBLK02

Sample wt/vol: 1000 (g/mL) ML Lab File ID: T0397.D

Level: (low/med) LOW Date Received:

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

Concentrated Extract Volume: 1(ML) Date Analyzed: 09/12/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	10	U
91-57-6	2-Methylnaphthalene	10	U
208-96-8	Acenaphthylene	10	U
83-32-9	Acenaphthene	10	U
132-64-9	Dibenzofuran	10	U
86-73-7	Fluorene	10	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1 2 3-cd)pyrene	10	U
53-70-3	Dibenzo(a h)anthracene	10	U
191-24-2	Benzo(g h i)perylene	10	U
86-74-8	Carbazole	10	U
95-13-6	1H-Indene	10	U
91-22-5	Quinoline	10	U
90-12-0	1-Methylnaphthalene	10	U
271-89-6	2,3-Benzofuran	10	U
496-11-7	2,3-Dihydroindene	10	U
95-15-8	Benzo(b)thiophene	10	U
120-72-9	1H-Indole	10	U
92-52-4	Biphenyl	10	U
132-65-0	Dibenzothiophene	10	U
260-94-6	Acridine	10	U
192-97-2	Benzo(e)pyrene	10	U
198-55-0	Perylene	10	U

5B
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 37724 SAS No.: SDG No.: 37724

Lab File ID: X8386 DFTPP Injection Date: 09/06/94

Instrument ID: X DFTPP Injection Time: 1500

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 80.0% of mass 198	44.2
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	42.6
70	Less than 2.0% of mass 69	0.0 (0.0)1
127	25.0 - 75.0% of mass 198	41.6
197	Less than 1.0% of mass 198	0.0
198	Base peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.7
275	10.0 - 30.0% of mass 198	17.5
365	Greater than 0.75% of mass 198	1.7
441	Present, but less than mass 443	61.8
442	40.0 - 110.0% of mass 198	71.7
443	15.0 - 24.0% of mass 442	13.8 (19.4)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD050	SSTD025	X8387	09/06/94	1518
02	SSTD120	SSTD060	X8388	09/06/94	1613
03	SSTD160	SSTD080	X8389	09/06/94	1653
04	SSTD080	SSTD040	X8390	09/06/94	1733
05	SSTD020	SSTD010	X8391	09/06/94	1814
06	SBLK01	37724-BL	X8392	09/06/94	1854
07	DPV-W420	37724-01	X8395	09/06/94	2055
08	DPV-W420D	37724-01DU	X8396	09/06/94	2136
09	DPV-W421	37724-02	X8397	09/06/94	2216
10	GTF-SFR	37724-06	X8401	09/07/94	0058
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6B

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: QUANTERRA Denver Contract:

Lab Code: Case No.: 37724 SAS No.: SDG No.: 37724

Instrument ID: T Calibration Date(s): 09/12/94

Calibration Times: 1026 1317

LAB FILE ID: RRF20 =T0401394.D RRF50 =T0390.D
RRF80 =T0301393.D RRF120=T0101391.D RRF160=T0201392.D

COMPOUND	RRF20	RRF50	RRF80	RRF120	RRF160	$\overline{RRF}$	% RSD
Naphthalene *	1.842	2.108	1.780	1.645	1.617	1.798	10.9*
2-Methylnaphthalene *	1.291	1.331	1.161	1.129	1.064	1.195	9.4*
Acenaphthylene *	1.438	1.741	1.553	1.471	1.441	1.529	8.3*
Acenaphthene *	1.081	1.146	1.055	0.978	0.942	1.040	7.8*
Dibenzofuran *	1.619	1.701	1.436	1.439	1.371	1.513	9.2*
Fluorene *	1.176	1.225	1.044	0.981	1.007	1.087	9.9*
Phenanthrene *	0.964	0.997	0.877	0.846	0.812	0.899	8.7*
Anthracene *	0.911	0.935	0.853	0.821	0.826	0.869	5.9*
Fluoranthene *	0.821	0.889	0.828	0.814	0.754	0.821	5.8*
Pyrene *	0.856	0.980	0.844	0.805	0.807	0.859	8.3*
Benzo(a)Anthracene *	0.947	1.034	0.978	0.973	0.884	0.963	5.6*
Chrysene *	1.181	1.151	1.014	0.962	0.900	1.042	11.6*
Benzo(b)fluoranthene *	1.345	1.406	1.057	1.041	1.111	1.192	14.3*
Benzo(k)fluoranthene *	1.210	1.182	1.121	1.093	1.002	1.121	7.3*
Benzo(a)pyrene *	1.128	1.163	1.019	0.978	0.880	1.033	11.1*
Indeno(1_2_3-cd)pyrene *	1.124	1.192	1.112	1.149	1.074	1.130	3.9*
Dibenzo(a_h)anthracene *	1.026	1.071	0.898	0.936	0.837	0.954	9.9*
Benzo(g_h_i)perylene *	1.124	1.230	1.112	1.149	1.074	1.138	5.1*
Carbazole	0.816	0.871	0.754	0.764	0.743	0.790	6.8
1H-Indene	1.183	1.311	1.181	1.223	1.203	1.220	4.4
Quinoline	1.096	1.341	1.138	1.166	1.149	1.178	8.0
1-Methylnaphthalene	1.150	1.243	1.073	1.077	1.024	1.114	7.7
2,3-Benzofuran	0.926	1.093	0.964	1.013	1.001	0.999	6.3
2,3-Dihydroindene	0.693	0.805	0.695	0.732	0.744	0.734	6.2
Benzo(b)thiophene	1.372	1.573	1.310	1.333	1.257	1.369	8.9
1H-Indole	1.153	1.304	1.186	1.186	1.206	1.207	4.8
Biphenyl	1.437	1.534	1.359	1.305	1.202	1.367	9.2
Dibenzothiophene	0.869	0.866	0.784	0.755	0.764	0.808	6.9
Acridine	0.776	0.869	0.808	0.813	0.742	0.802	5.9
Benzo(e)pyrene	1.165	1.232	1.047	0.983	0.911	1.068	12.3
Perylene	1.096	1.167	1.013	0.941	0.936	1.031	9.7
Naphthalene-d8	1.561	1.795	1.526	1.471	1.490	1.569	8.4
Chrysene-d12	1.105	1.069	0.938	0.910	0.830	0.970	11.7
Fluorene-d10	0.930	0.974	0.844	0.841	0.808	0.879	7.9

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

6B
SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 37724 SAS No.: SDG No.: 37724

Instrument ID: X Calibration Date(s): 09/06/94

Calibration Times: 1518 1814

LAB FILE ID: RRF20 =X8391 RRF50 =X8387
RRF80 =X8390 RRF120=X8388 RRF160=X8389

COMPOUND		RRF20	RRF50	RRF80	RRF120	RRF160	$\overline{RRF}$	% RSD
Naphthalene	*	1.712	1.795	1.696	1.850	1.709	1.752	3.8*
2-Methylnaphthalene	*	1.116	1.178	1.118	1.231	1.156	1.160	4.1*
Acenaphthylene	*	1.612	1.687	1.629	1.717	1.674	1.664	2.6*
Acenaphthene	*	0.947	0.990	0.942	0.991	0.972	0.968	2.4*
Dibenzofuran	*	1.574	1.669	1.575	1.650	1.600	1.614	2.7*
Fluorene	*	1.125	1.236	1.141	1.193	1.175	1.174	3.7*
Phenanthrene	*	0.913	0.947	0.916	0.955	0.992	0.945	3.4*
Anthracene	*	0.968	0.993	0.966	0.999	1.009	0.987	1.9*
Fluoranthene	*	0.837	0.876	0.824	0.853	0.822	0.842	2.7*
Pyrene	*	0.867	0.873	0.822	0.854	0.813	0.846	3.2*
Benzo(a)Anthracene	*	1.511	1.549	1.571	1.616	1.929	1.635	10.3*
Chrysene	*	1.396	1.411	1.361	1.305	1.491	1.393	4.9*
Benzo(b)fluoranthene	*	1.343	1.342	1.350	1.421	1.572	1.406	7.0*
Benzo(k)fluoranthene	*	1.077	1.234	1.198	1.225	1.208	1.188	5.4*
Benzo(a)pyrene	*	0.982	1.044	1.038	1.030	1.044	1.028	2.5*
Indeno(1_2_3-cd)pyrene	*	1.030	1.084	1.033	1.110	0.874	1.026	8.9*
Dibenzo(a_h)anthracene	*	0.766	0.856	0.858	0.896	0.933	0.862	7.2*
Benzo(g_h_i)perylene	*	0.868	0.976	0.906	0.980	0.956	0.937	5.2*
Carbazole		0.868	0.906	0.885	0.916	0.927	0.900	2.6
1H-Indene		1.075	1.145	1.080	1.232	1.095	1.125	5.8
Quinoline		1.211	1.309	1.238	1.344	1.258	1.272	4.2
1-Methylnaphthalene		1.073	1.143	1.048	1.162	1.083	1.102	4.4
2,3-Benzofuran		0.895	0.972	0.871	1.022	0.876	0.927	7.2
2,3-Dihydroindene		0.556	0.594	0.554	0.647	0.574	0.585	6.5
Benzo(b)thiophene		1.342	1.412	1.315	1.476	1.377	1.384	4.5
1H-Indole		1.131	1.223	1.143	1.245	1.181	1.185	4.2
Biphenyl		1.351	1.414	1.343	1.437	1.379	1.385	2.9
Dibenzothiophene		0.863	0.922	0.877	0.902	0.926	0.898	2.7
Acridine		0.801	0.863	0.818	0.840	0.850	0.834	3.0
Benzo(e)pyrene		1.086	1.243	1.158	1.215	1.232	1.187	5.5
Perylene		0.941	1.044	1.027	1.040	1.052	1.021	2.5
Naphthalene-d8		1.588	1.657	1.552	1.735	1.580	1.622	4.6
Chrysene-d12		1.307	1.372	1.342	1.347	1.602	1.394	8.5
Fluorene-d10		0.922	1.001	0.943	0.982	0.964	0.962	3.2

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

7B
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: QUANTERRA Denver Contract:

Lab Code: Case No.: 37724 SAS No.: SDG No.: 37724

Instrument ID: T Calibration Date: 09/12/94 Time: 1509

Lab File ID: T0396.D Init. Calibration Date(s): 09/12/94

Init. Calibration Times: 1026 1317

COMPOUND	$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D
Naphthalene	1.798	1.942	0.700	-8.0	25.0
2-Methylnaphthalene	1.195	1.355	0.400	-13.3	25.0
Acenaphthylene	1.529	1.676	1.300	-9.6	25.0
Acenaphthene	1.040	1.125	0.800	-8.2	25.0
Dibenzofuran	1.513	1.713	0.800	-13.2	25.0
Fluorene	1.087	1.221	0.900	-12.3	25.0
Phenanthrene	0.899	0.948	0.700	-5.4	25.0
Anthracene	0.869	0.947	0.700	-9.0	25.0
Fluoranthene	0.821	0.833	0.600	-1.5	25.0
Pyrene	0.859	0.939	0.600	-9.4	25.0
Benzo(a)Anthracene	0.963	1.030	0.800	-6.9	25.0
Chrysene	1.042	1.144	0.700	-9.8	25.0
Benzo(b)fluoranthene	1.192	1.238	0.700	-3.9	25.0
Benzo(k)fluoranthene	1.121	1.302	0.700	-16.1	25.0
Benzo(a)pyrene	1.033	1.114	0.700	-7.8	25.0
Indeno(1_2_3-cd)pyrene	1.130	1.157	0.500	-2.4	25.0
Dibenzo(a_h)anthracene	0.954	1.037	0.400	-8.7	25.0
Benzo(g_h_i)perylene	1.138	1.157	0.500	-1.7	25.0
Carbazole	0.790	0.809		-2.4	
1H-Indene	1.220	1.322		-8.3	
Quinoline	1.178	1.266		-7.5	
1-Methylnaphthalene	1.114	1.210		-8.7	
2,3-Benzofuran	0.999	1.033		-3.4	
2,3-Dihydroindene	0.734	0.775		-5.7	
Benzo(b)thiophene	1.369	1.430		-4.4	
1H-Indole	1.207	1.315		-9.0	
Biphenyl	1.367	1.571		-14.9	
Dibenzothiophene	0.808	0.855		-5.8	
Acridine	0.802	0.837		-4.5	
Benzo(e)pyrene	1.068	1.162		-8.8	
Perylene	1.031	1.100		-6.7	
Naphthalene-d8	1.569	1.733		-10.5	
Chrysene-d12	0.970	1.106		-13.9	
Fluorene-d10	0.879	1.003		-14.1	

All other compounds must meet a minimum RRF of 0.010.

7B
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 37724 SAS No.: SDG No.: 37724

Instrument ID: X Calibration Date: 09/06/94 Time: 1518

Lab File ID: X8387 Init. Calibration Date(s): 09/06/94

Init. Calibration Times: 1518 1814

COMPOUND	$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D
Naphthalene	1.752	1.795	0.700	-2.5	25.0
2-Methylnaphthalene	1.160	1.178	0.400	-1.6	25.0
Acenaphthylene	1.664	1.687	1.300	-1.4	25.0
Acenaphthene	0.968	0.990	0.800	-2.3	25.0
Dibenzofuran	1.614	1.669	0.800	-3.4	25.0
Fluorene	1.174	1.236	0.900	-5.3	25.0
Phenanthrene	0.945	0.947	0.700	-0.2	25.0
Anthracene	0.987	0.993	0.700	-0.6	25.0
Fluoranthene	0.842	0.876	0.600	-4.0	25.0
Pyrene	0.846	0.873	0.600	-3.2	25.0
Benzo(a)Anthracene	1.635	1.549	0.800	5.3	25.0
Chrysene	1.393	1.411	0.700	-1.3	25.0
Benzo(b)fluoranthene	1.406	1.342	0.700	4.6	25.0
Benzo(k)fluoranthene	1.188	1.234	0.700	-3.9	25.0
Benzo(a)pyrene	1.028	1.044	0.700	-1.6	25.0
Indeno(1_2_3-cd)pyrene	1.026	1.084	0.500	-5.7	25.0
Dibenzo(a_h)anthracene	0.862	0.856	0.400	0.7	25.0
Benzo(g_h_i)perylene	0.937	0.976	0.500	-4.2	25.0
Carbazole	0.900	0.906		-0.7	
1H-Indene	1.125	1.145		-1.8	
Quinoline	1.272	1.309		-2.9	
1-Methylnaphthalene	1.102	1.143		-3.7	
2,3-Benzofuran	0.927	0.972		-4.9	
2,3-Dihydroindene	0.585	0.594		-1.5	
Benzo(b)thiophene	1.384	1.412		-2.0	
1H-Indole	1.185	1.223		-3.2	
Biphenyl	1.385	1.414		-2.1	
Dibenzothiophene	0.898	0.922		-2.7	
Acridine	0.834	0.863		-3.5	
Benzo(e)pyrene	1.187	1.243		-4.7	
Perylene	0.846	1.044		-2.3	
Naphthalene-d8	1.622	1.657		-2.2	
Chrysene-d12	1.394	1.372		1.6	
Fluorene-d10	0.962	1.001		-4.1	

All other compounds must meet a minimum RRF of 0.010.

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QUANTERRA Denver Contract:

Lab Code: Case No.: 37724 SAS No.: SDG No.: 37724

Lab File ID (Standard): T0396.D Date Analyzed: 09/12/94

Instrument ID: T Time Analyzed: 1509

		IS1 AREA #	RT #	IS2 AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	262740	14.06	422601	16.99	299548	23.95
	UPPER LIMIT	525480	14.56	845202	17.49	599096	24.45
	LOWER LIMIT	131370	13.56	211300	16.49	149774	23.45
	EPA SAMPLE No.						
01	SBLK02	230484	14.06	380822	16.99	245766	23.94
02	DPV-W420DL	272028	14.06	460224	16.99	274901	23.94
03	DPV-W421DL	252868	14.06	418138	16.99	251276	23.94
04	GTF-SFRDL	280056	14.06	476276	16.98	301176	23.94
05	DPV-W420MS	283876	14.06	470851	16.99	274544	23.94
06	DPV-W420MSD	292851	14.06	481901	16.99	293542	23.94
07	DPV-W420DDL	267780	14.06	472349	16.97	270757	23.94
08	DPV-W422	273640	14.06	464278	16.98	293508	23.94
09	DPV-W410	287053	14.06	480971	16.97	305911	23.93
10	GTF-ACFE	230088	14.06	406829	16.97	261838	23.94
11	DPV-W420FB	160968	14.06	291856	16.97	183398	23.94
12	DPV-W420FBD	210447	14.06	361897	16.97	238278	23.94
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IS1 = Acenaphthene-d10
IS2 = Phenanthrene-d10
IS3 = Benzo(a)pyrene-d12

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

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

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 37724 SAS No.: SDG No.: 37724

Lab File ID (Standard): X8387 Date Analyzed: 09/06/94

Instrument ID: X Time Analyzed: 1518

		IS1 AREA #	SCAN #	IS2 AREA #	SCAN #	IS3 AREA #	SCAN #
	12 HOUR STD	21729	1114	35866	1414	14857	2209
	UPPER LIMIT	43458	1144	71732	1444	29714	2239
	LOWER LIMIT	10864	1084	17933	1384	7428	2179
	EPA SAMPLE No.						
01	SBLK01	32725	1112	54276	1412	19259	2207
02	DPV-W420	29500	1111	48349	1411	16961	2206
03	DPV-W421	34695	1111	54215	1411	18395	2206
04	GTF-SFR	36259	1111	58330	1412	18616	2207
05	DPV-W420D	32801	1111	51483	1411	16705	2205
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IS1 = Acenaphthene-d10
IS2 = Phenanthrene-d10
IS3 = Benzo(a)pyrene-d12

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

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

PHENOLICS MONITORING

Rocky Mountain
Analytical Laboratory

Enseco

September 29, 1994

Mr. James Grube
City of St. Louis Park
5005 Minnetonka Blvd.
St. Louis Park, MN 55416

Dear Mr. Grube:

Enclosed is the ppb phenol report for 9 aqueous samples, including matrix QC, received at Quanterra Environmental Services, Denver laboratory (formerly Enseco - Rocky Mountain Analytical Laboratory) on August 30, 1994.

Please call if you have any questions.

Sincerely,

Daniel Rebarchik
Project Administrator

Reviewed by:

Kevin McHugh
Program Manager

DR/KM
Enclosures

Quanterra's Denver laboratory #037725

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

Enseco

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
037725-0001-SA	DPV-W420TP-082994	AQUEOUS	29 AUG 94		30 AUG 94
037725-0001-DU	DPV-W420TPD-082994	AQUEOUS	29 AUG 94		30 AUG 94
037725-0001-MS	DPV-W420TPMS-082994	AQUEOUS	29 AUG 94		30 AUG 94
037725-0001-SD	DPV-W420TPMSD-082994	AQUEOUS	29 AUG 94		30 AUG 94
037725-0001-FB	DPV-W420TPFB-082994	AQUEOUS	29 AUG 94		30 AUG 94
037725-0001-FD	DPV-W420TPFBD-082994	AQUEOUS	29 AUG 94		30 AUG 94
037725-0002-SA	DPV-W421TP-082994	AQUEOUS	29 AUG 94		30 AUG 94
037725-0003-SA	DPV-W422TP-082994	AQUEOUS	29 AUG 94		30 AUG 94
037725-0004-SA	DPV-W410TP-082994	AQUEOUS	29 AUG 94		30 AUG 94

Enseco

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 037725	Group Code	Analysis Description	Custom Test?
0001 , 0001, 0001 - 0004	A	Phenolics (4-AAP)	N

U.S. EPA - CLP

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: QUANTERRA_____ Contract: CITY_SLP__

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.:37725_

SOW No.: ILM02

EPA Sample No.	Lab Sample ID
3772501	3772501
3772501	3772501D
3772501	3772501S
3772501	3772501FB
3772501	3772501FD
3772502	3772502
3772503	3772503
3772504	3772504

Were ICP interelement corrections applied ? Yes/No YES

Were ICP background corrections applied ? Yes/No YES
If yes - were raw data generated before application of background corrections ? Yes/No NO_

Comments:
____FOUR_WATER_SAMPLES_FOR_PHENOLIC_ANALYSIS._____

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: [signature] Name: [signature]

Date: 9/29/94 Title: PA

COVER PAGE - IN Rev.6/89

U.S. EPA - CLP

INORGANIC ANALYSES - RESULT QUALIFIERS

C - Concentration Qualifiers:

U - The reported value is less than the Instrument Detection Limit (IDL).

B - The reported value is less than the Contract Required Detection Limit (CRDL) but greater than the Instrument Detection Limit (IDL).

Q - Quality Control Qualifiers:

E - The reported value is estimated because of the presence of interference. An explanatory note is included under Comments on the Cover Page (if the problem applies to all samples) or on the specific FORM I-IN (if it is an isolated problem).

M - Duplicate injection precision not met.

N - Spiked sample recovery not within control limits.

S - The reported value was determined by the Method of Standard Additions (MSA).

W - Post-digestion spike for Furnace AA analysis is out of control limits (85-115%), while sample absorbance is less than 50% of spike absorbance.

* - Duplicate analysis not within control limits.

+ - Correlation coefficient for the MSA is less than 0.995.

Entering "S", "W", or "+" is mutually exclusive. No combination of these qualifiers can appear in the same field for an analyte.

M - Method Qualifiers:

P - ICP
A - Flame AA
F - Furnace AA
CV - Manual Cold Vapor AA
AV - Automated Cold Vapor AA
AS - Semi-Automated Spectrophotometric
C - Manual Spectrophotometric
T - Titrimetric
NR - Not Required

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

3772501

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: ____ SAS No.: ____ SDG No.: 37725

Matrix (soil/water): WATER Lab Sample ID: 3772501

Level (low/med): LOW Date Received: 08/30/94

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
54-30-0	Phenolics	147			C

Color Before: COLORLESS Clarity Before: CLEAR Texture: ____

Color After: COLORLESS Clarity After: CLEAR Artifacts: ____

Comments:
DPV-W420TP-082994

FORM I - IN

7/88

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

3772501FB

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: ____ SAS No.: ____ SDG No.: 37725

Matrix (soil/water): WATER Lab Sample ID: 3772501FB

Level (low/med): LOW Date Received: 08/30/94

Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
54-30-0	Phenolics	5.0	U		C

Color Before: COLORLESS Clarity Before: CLEAR Texture: ____

Color After: COLORLESS Clarity After: CLEAR Artifacts: ____

Comments:
DPV-W420TPFB-082994

FORM I - IN

7/88

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

3772501FD

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: ____ SAS No.: ____ SDG No.: 37725

Matrix (soil/water): WATER Lab Sample ID: 3772501FD

Level (low/med): LOW Date Received: 08/30/94

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
54-30-0	Phenolics	5.0	U		C

Color Before: COLORLESS Clarity Before: CLEAR Texture: ____

Color After: COLORLESS Clarity After: CLEAR Artifacts: ____

Comments:
DPV-W420TPFBD-082994

FORM I - IN

7/88

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

3772502

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: SAS No.: SDG No.: 37725

Matrix (soil/water): WATER Lab Sample ID: 3772502

Level (low/med): LOW Date Received: 08/30/94

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
54-30-0	Phenolics	31.0			C

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:
DPV-W421TP-082994

FORM I - IN

7/88

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

3772503

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.: 37725

Matrix (soil/water): WATER Lab Sample ID: 3772503

Level (low/med): LOW Date Received: 08/30/94

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
54-30-0	Phenolics	29.9			C

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:
DPV-W422TP-082994

FORM I - IN

7/88

U.S. EPA - CLP

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

ab Name: QUANTERRA_____ Contract: CITY_SLP__

ab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.: 37725_

nitial Calibration Source: INORG.VENTUR

ontinuing Calibration Source: INORG.VENTUR

Concentration Units: ug/L

Analyte	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(1)	Found	%R(1)	M
Phenolics	20.0	20.08	100.4	10.0	9.87	98.7	9.87	98.7	C

1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

FORM II (PART 1) - IN

7/88

U.S. EPA - CLP

3
BLANKS

Lab Name: QUANTERRA Contract: CITY_SLP__

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.: 37725_

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L_

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Phenolics	5.0	U	5.0	U	5.0	U			5.000	U	C

FORM III - IN

7/88

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

ab Name: QUANTERRA Contract:CITY_SLP 3772501S

ab Code: DENVER Case No.: SAS No.: SDG No.: 37725

atrix: WATER Level (low/med): LOW

Solids for Sample: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Phenolics	75-125	193.3000		146.6200		50.00	93.4		C

Comments:
DPV-W420TPMS-082994

FORM V (Part 1) - IN 7/88

U.S. EPA - CLP

5B
POST DIGEST SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

Lab Name: QUANTERRA Contract: CITY_SLP 3772501SD

Lab Code: DENVER Case No.: ____ SAS No.: ____ SDG No.: 37725_

Matrix: WATER Level (low/med): LOW

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Added (SA)	%R	Q	M
Phenolics		179.44		146.62		50.0	65.6		C

Comments:
DPV-W420TPMSD-082994

FORM V (Part 2) - IN 8/89

U.S. EPA - CLP

6
DUPLICATES

EPA SAMPLE NO.

3772501D

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: ____ SAS No.: ____ SDG No.: 37725

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0 % Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Phenolics		146.6200		148.8200		1.5		C

FORM VI - IN

7/88

U.S. EPA - CLP

7

LABORATORY CONTROL SAMPLE

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: ____ SAS No.: ____ SDG No.: 37725

Solid LCS Source: ERA #219

Aqueous LCS Source: INORG.VENTUR

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Phenolics	20.0	19.35	96.8						

FORM VII - IN

7/88

U.S. EPA - CLP

8
STANDARD ADDITION RESULTS

Lab Name: QUANTERRA_____ Contract:CITY_SLP__

Lab Code: DENVER Case No.: _____ SAS No.:_____ SDG No.:37725_

Concentration Units: ug/L

EPA Sample No.	An	0 ADD ABS	1 ADD CON	1 ADD ABS	2 ADD CON	2 ADD ABS	3 ADD CON	3 ADD ABS	Final Conc.	r	Q

FORM VIII - IN 7/88

U.S. EPA - CLP

13
PREPARATION LOG

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: SAS No.: SDG No.:37725

Method: C

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
3772501	09/21/94		200
3772501	09/21/94		200
3772501	09/21/94		200
3772501	09/21/94		200
3772501	09/21/94		200
3772502	09/21/94		200
3772503	09/21/94		200
3772504	09/21/94		200
LCSW	09/21/94		200
PBW	09/21/94		200

FORM XIII - IN 7/88

U.S. EPA - CLP

14
ANALYSIS RUN LOG

Lab Name: QUANTERRA

Contract: CITY_SLP__

Lab Code: DENVER Case No.: _____

SAS No.: _____ SDG No.:37725_

Instrument ID Number: SPEC 88_____

Method: C_

Start Date: 09/22/94

End Date: 09/22/94

EPA Sample No.	D/F	Time	% R	Analytes PH																						
0.0	1.00	1523		X																						
5.0	1.00	1524		X																						
10.0	1.00	1525		X																						
20.0	1.00	1526		X																						
50.0	1.00	1527		X																						
100.0	1.00	1528		X																						
ICV	1.00	1530		X																						
ICB	1.00	1531		X																						
PBW	1.00	1531		X																						
LCSW	1.00	1533		X																						
3772501	2.00	1534		X																						
3772501D	2.00	1537		X																						
3772501F	1.00	1537		X																						
3772501F	1.00	1537		X																						
3772501S	2.00	1538		X																						
3772501S	2.00	1540		X																						
3772502	1.00	1541		X																						
3772503	1.00	1543		X																						
CCV	1.00	1543		X																						
CCB	1.00	1543		X																						
3772504	1.00	1544		X																						
CCV	1.00	1544		X																						
CCB	1.00	1545		X																						

FORM XIV - IN 7/88

U S EPA - CLP

ADDENDUM

STOCK STANDARD SOURCES

Lab Name: QUANTERRA Contract. CITY__SLP____

Lab Code DENVER Case No.. _____ SAS No . N/A___ SDG No · 37725_

STANDARD	SOURCE/LOT	EXPIRATION DATE
CALIBRATION	LabChem 3102-6	4/8/95
ICV SOLUTION	RICCA F148	2/95
CCV SOLUTION	(same as calibration source above)	
LCS SOLUTION	(same as ICV solution above)	
MATRIX SPIKE SOLUTION	(same as ICV solution above)	

COLORIMETRIC ANALYSIS

PARAMETER: CSLP- Phenolics CONTROL: EPA F118 20.0 DATE: 09-22-94

ANALYST: STM SPIKE: 10.0 500 UNITS: ppb

STM 09-22-94

	Concentration		Absorbance
Blank	0.0	ppb	0.064
STD 1	5.0	ppb	0.079
STD 2	10.0	ppb	0.094
STD 3	20.0	ppb	0.131
STD 4	50.0	ppb	0.199
STD 5	100.0	ppb	0.342

Corr. Coef. = 0.9989

Slope = 0.00274

Intercept = 0.0664

SAMPLE ID	TIME	pH	INTER CHECK	ABSORBANCE SAMPLE	ABSORBANCE COLOR B	CURVE CONC (ppb)	DILUTIONS PREP	DILUTIONS ANALYT	REPORTED CONC (ppb)	% REC.
ICV	15:30			0.122	~~20.00~~ STM 09-22-94	20.08	1x	1x	20.1 (20.0)	
ICB	:31			0.045		5U			5U	
PBlank	:31			0.048		5U			5U	
LCS	:33			0.120		19.35			19.4 (20.0)	
37725-01	:34	<2	—	0.268		73.31		2x STM 09-22-94	~~73.3~~ 147 (10.0)	
-01DU	:37			0.271		74.41		2x	149 (10.0)	
-01FB	:37			0.072		5U		1x	5U	
-01FD	:37			0.063		5U		1x	5U	
-01MS	:38			0.332		96.65		2x	193 (50.0)	88%
-01SD	:40			0.313		89.72		2x	179 (50.0)	60%
-02	:41			0.152		31.02		1x	31.0 (5.0)	
-03	:43			0.149		29.92			29.9 (5.0)	
CCV	:43			0.094		9.87			9.87 (10.0)	
CCB	:43			0.062		5U			5U	
37725-04	:44			0.137		25.55			25.6 (5.0)	
CCV	:44			0.094		9.87			9.87 (10.0)	
CCB	:45			0.062		5U			5U	

000021

Enseco - Rocky Mountain Analytical Lab
Sample Description Sheet

Project 037725 Case/SAS No. /NA

SDG No. Conc./Matrix /AQUEOUS

SAMPLE	LIMS SAMPLE	BEFORE DIGESTION COLOR	BEFORE DIGESTION CLARITY	AFTER DIGESTION COLOR	AFTER DIGESTION CLARITY
DPV-W410TP	0377250004SA	08	01	08	01
DPV-W420TP	0377250001FB				
DPV-W420TP	0377250001FD				
DPV-W420TP	0377250001MS				
DPV-W420TP	0377250001SA				
DPV-W420TP	0377250001SD				
DPV-W420TP	0377250001DU				
DPV-W421TP	0377250002SA				
DPV-W422TP	0377250003SA				

DESCRIPTION KEY:

COLOR:

1.RED	4.GREEN	7.WHITE	10.GREY	
2.BLUE	5.ORANGE	8.COLORLESS	11.BLACK	
3.YELLOW	6.VIOLET	9.BROWN		

CLARITY:
1.CLEAR
2.CLOUDY
3.OPAQUE

COMMENTS:

Enseco - Rocky Mountain Analytical Lab
Sample Preparation Sheet

Project 037725 Case/SAS No. /NA

SDG No. Conc./Matrix /AQUEOUS

SAMPLE	LIMS SAMPLE	DATE RECD	PARAMETERS	ICP METALS		FURNACE METALS		MERCURY		Phenol ~~CYANIDE~~		pH
				g/mL	mL	g/mL	mL	g/mL	mL	g/mL	mL	
PBW	--------	------								200ml	200ml	
CS	--------	------										
PV-W410TP	0377250004SA	08/30/94										
PV-W420TP	0377250001FB	08/30/94										
PV-W420TP	0377250001FD	08/30/94										
PV-W420TP	0377250001MS	08/30/94										
PV-W420TP	0377250001SA	08/30/94										
PV-W420TP	0377250001SD	08/30/94										
PV-W420TP	0377250001DU	08/30/94										
V-W421TP	0377250002SA	08/30/94										
PV-W422TP	0377250003SA	08/30/94										
			DATE / INITIALS:		/		/		/	SIM	9/21/94	/

SPECIAL INSTRUCTIONS and/or CAUTIONS:

Enseco
A Corning Company

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

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

CHAIN OF CUSTODY

ENSECO CLIENT: CITY OF ST LOUIS PARK WATER DEPT

PROJECT:

SAMPLING COMPANY: SAME

SAMPLING SITE: SAME

TEAM LEADER:

SAMPLE SAFE™ CONDITIONS

PACKED BY: [illegible]

SEAL NUMBER:

SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:

CONDITION OF CONTENTS:

SEALED FOR SHIPPING BY: [illegible]

INITIAL CONTENTS TEMP: °C

SEAL NUMBER:

SAMPLING STATUS: ☐ Done ☐ Continuing Until

SEAL INTACT UPON RECEIPT BY LAB: ☑ Yes ☐ No

CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 4.1 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
8-29-94		DPV-W420TP-082994	16oz AMBER	1	Phenols	-1
		DPV-W420TPD-082994				-1DU
		DPV-W420TPMS-082994				-1MS
		DPV-W420TPMSD-082994				-1SD
		DPV-W420TPFB-082994				-1FB
		DPV-W420TPFBD-082994				-1FD
		DPV-W421TP-082994				-2
		DPV-W422TP-082994				-3
		DPV-W410TP-082994				-4
8-29-94			16oz AMBER	1	Phenols	

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY:

METHOD OF SHIPMENT:

AIRBILL NUMBER:

RECEIVED FOR LAB: DES

SIGNED: [illegible]

DATE/TIME: 83094 830

ENSECO PROJECT NUMBER: 37725

000024

ENS-4011

White - CLIENT Pink

FOURTH QUARTER MONITORING

PAH MONITORING

Quanterra Incorporated
4955 Yarrow Street
Arvada Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

Quanterra
Environmental Services

CASE NARRATIVE

FOR

City of St. Louis Park

November 19, 1994

Quanterra Environmental Services

Project No. 038528

Introduction

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

Data Quality Assessment

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

PPB PAH

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

Quanterra
Environmental Services

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

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

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

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

Quanterra Environmental Services

TABLE OF CONTENTS

FOR

CITY OF ST. LOUIS PARK

QUANTERRA NO: 038528

SEMIVOLATILES

QC Summary.....0001

Sample Data.....0009

Standards Data.....0179

Raw QC Data.....0211

SCREENING DATA AND LOGBOOK RECORDS

Pages 0277 through 0319

Quanterra Environmental Services

QUALIFIER CODES AND THEIR USAGE

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

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

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

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

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

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

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

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

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QUALIFIER CODES AND THEIR USAGE
Page Two

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

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

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

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

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

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

Enseco
A Corning Company

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

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

CHAIN OF CUSTODY

ENSECO CLIENT: CITY OF ST LOUIS PARK (WATER DEPT)

PROJECT:

SAMPLING COMPANY: SAME

SAMPLING SITE: SAME

TEAM LEADER:

SAMPLE SAFE™ CONDITIONS

PACKED BY: [illegible]

SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:

SEALED FOR SHIPPING BY: [illegible]

SEAL NUMBER:

SEAL NUMBER:

CONDITION OF CONTENTS:

INITIAL CONTENTS TEMP: °C

SAMPLING STATUS: ☐ Done ☐ Continuing Until

SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No

CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 14.4 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
10-11-94		DPV-W420-101194	1XL AMBER	2	PPB PAH	-1
		DPV-W420D-101194				-1Dup
		DPV-W420MS-101194				-1ms
		DPV-W420MSD-101194				-1sn
		DPV-W420FB-101194				-1FB
		DPV-W420FBD-101194				-1FD
		DPV-W421-101194				-2
		DPV-W422-101194				-3
		DPEJ-W23-101194				-4
10-11-94		STP-W409-101194	1XL AMBER	2	PPB PAH	-5

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: [illegible]

METHOD OF SHIPMENT: FEDEX

AIRBILL NUMBER: 2103421106

RECEIVED FOR LAB: Quanterra

SIGNED: [illegible]

DATE/TIME: 12OCT94/0700

ENSECO PROJECT NUMBER: 38528

ENS-4011

White - CLIENT Pink - LAB

Enseco
A Corning Company

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

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

CHAIN OF CUSTODY

ENSECO CLIENT: CITY OF ST LOUIS PARK (WATER DEPT)

PROJECT:

SAMPLING COMPANY: SAME

SAMPLING SITE: SAME

TEAM LEADER: MJH

SAMPLE SAFE™ CONDITIONS

PACKED BY: MJH

SEAL NUMBER:

SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:

CONDITION OF CONTENTS:

SEALED FOR SHIPPING BY: MJH

INITIAL CONTENTS TEMP: °C

SEAL NUMBER:

SAMPLING STATUS: ☐ Done ☐ Continuing Until

SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No

CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 14.4 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
10-11-94		GTF-ACFE-101194	1XLAMBER	2	PPB PAH	-6
10-11-94		GTF-SFR-101194	1XLAMBER	2	PPB PAH	-7

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MJH

METHOD OF SHIPMENT: FED EX

AIRBILL NUMBER: 2103421106

RECEIVED FOR LAB: Quanterra

SIGNED: [signature]

DATE/TIME: 12OCT94/1900

ENSECO PROJECT NUMBER: 38528

ENS-4011

White - CLIENT Pi[illegible]AB

SUMMARY

DATA

PACKAGE

FOR

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420

Lab Name: QUANTERRA DENVER Contract:

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

Matrix: (soil/water) WATER Lab Sample ID: 38528-01

Sample wt/vol: 1060 (g/mL) ML Lab File ID: T0601780.D

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

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

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

Injection Volume: 2.0(uL) Dilution Factor: 10.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	1150	E
91-57-6	2-Methylnaphthalene	71	J
208-96-8	Acenaphthylene	94	U
83-32-9	Acenaphthene	79	J
132-64-9	Dibenzofuran	24	J
86-73-7	Fluorene	28	J
85-01-8	Phenanthrene	15	J
120-12-7	Anthracene	94	U
206-44-0	Fluoranthene	94	U
129-00-0	Pyrene	94	U
56-55-3	Benzo(a)Anthracene	94	U
218-01-9	Chrysene	94	U
205-99-2	Benzo(b)fluoranthene	94	U
207-08-9	Benzo(k)fluoranthene	94	U
50-32-8	Benzo(a)pyrene	94	U
193-39-5	Indeno(1 2 3-cd)pyrene	94	U
53-70-3	Dibenzo(a h)anthracene	94	U
191-24-2	Benzo(g h i)perylene	94	U
86-74-8	Carbazole	54	J
95-13-6	1H-Indene	74	J
91-22-5	Quinoline	94	U
90-12-0	1-Methylnaphthalene	90	J
271-89-6	2,3-Benzofuran	27	J
496-11-7	2,3-Dihydroindene	369	
4565-32-6	Benzo(b)thiophene	104	
120-72-9	1H-Indole	94	U
92-52-4	Biphenyl	15	J
132-65-0	Dibenzothiophene	94	U
260-94-6	Acridine	94	U
192-97-2	Benzo(e)pyrene	94	U
198-55-0	Perylene	94	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420DL

Lab Name: QUANTERRA DENVER Contract:

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

Matrix: (soil/water) WATER Lab Sample ID: 38524-01DL

Sample wt/vol: 1060 (g/mL) ML Lab File ID: T0301791.D

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

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

Concentrated Extract Volume: 1.0 (ML) Date Analyzed: 10/28/94

Injection Volume: 2.0 (uL) Dilution Factor: 20.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	1510	ED
91-57-6	2-Methylnaphthalene	74	JD
208-96-8	Acenaphthylene	189	U
83-32-9	Acenaphthene	84	JD
132-64-9	Dibenzofuran	26	JD
86-73-7	Fluorene	26	JD
85-01-8	Phenanthrene	189	U
120-12-7	Anthracene	189	U
206-44-0	Fluoranthene	189	U
129-00-0	Pyrene	189	U
56-55-3	Benzo(a)Anthracene	189	U
218-01-9	Chrysene	189	U
205-99-2	Benzo(b)fluoranthene	189	U
207-08-9	Benzo(k)fluoranthene	189	U
50-32-8	Benzo(a)pyrene	189	U
193-39-5	Indeno(1 2 3-cd)pyrene	189	U
53-70-3	Dibenzo(a h)anthracene	189	U
191-24-2	Benzo(g h i)perylene	189	U
86-74-8	Carbazole	48	JD
95-13-6	1H-Indene	77	JD
91-22-5	Quinoline	189	U
90-12-0	1-Methylnaphthalene	102	JD
271-89-6	2,3-Benzofuran	26	JD
496-11-7	2,3-Dihydroindene	425	D
4565-32-6	Benzo(b)thiophene	109	JD
120-72-9	1H-Indole	189	U
92-52-4	Biphenyl	189	U
132-65-0	Dibenzothiophene	189	U
260-94-6	Acridine	189	U
192-97-2	Benzo(e)pyrene	189	U
198-55-0	Perylene	189	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420D

Lab Name: QUANTERRA DENVER Contract:

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

Matrix: (soil/water) WATER Lab Sample ID: 38524-01DU

Sample wt/vol: 1060 (g/mL) ML Lab File ID: T0501793.D

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

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

Concentrated Extract Volume: 1.0 (ML) Date Analyzed: 10/28/94

Injection Volume: 2.0 (uL) Dilution Factor: 10.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	1120	E
91-57-6	2-Methylnaphthalene	66	J
208-96-8	Acenaphthylene	94	U
83-32-9	Acenaphthene	76	J
132-64-9	Dibenzofuran	23	J
86-73-7	Fluorene	26	J
85-01-8	Phenanthrene	14	J
120-12-7	Anthracene	94	U
206-44-0	Fluoranthene	94	U
129-00-0	Pyrene	94	U
56-55-3	Benzo(a)Anthracene	94	U
218-01-9	Chrysene	94	U
205-99-2	Benzo(b)fluoranthene	94	U
207-08-9	Benzo(k)fluoranthene	94	U
50-32-8	Benzo(a)pyrene	94	U
193-39-5	Indeno(1 2 3-cd)pyrene	94	U
53-70-3	Dibenzo(a h)anthracene	94	U
191-24-2	Benzo(g h i)perylene	94	U
86-74-8	Carbazole	47	J
95-13-6	1H-Indene	67	J
91-22-5	Quinoline	94	U
90-12-0	1-Methylnaphthalene	94	J
271-89-6	2,3-Benzofuran	24	J
496-11-7	2,3-Dihydroindene	351	
4565-32-6	Benzo(b)thiophene	96	
120-72-9	1H-Indole	94	U
92-52-4	Biphenyl	14	J
132-65-0	Dibenzothiophene	94	U
260-94-6	Acridine	94	U
192-97-2	Benzo(e)pyrene	94	U
198-55-0	Perylene	94	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420DDL

Lab Name: QUANTERRA DENVER Contract:

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

Matrix: (soil/water) WATER Lab Sample ID: 38524-01DUDL

Sample wt/vol: 1060 (g/mL) ML Lab File ID: T0401792.D

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

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

Concentrated Extract Volume: 1.0 (ML) Date Analyzed: 10/28/94

Injection Volume: 2.0 (uL) Dilution Factor: 20.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	1380	D
91-57-6	2-Methylnaphthalene	67	JD
208-96-8	Acenaphthylene	189	U
83-32-9	Acenaphthene	77	JD
132-64-9	Dibenzofuran	24	JD
86-73-7	Fluorene	26	JD
85-01-8	Phenanthrene	189	U
120-12-7	Anthracene	189	U
206-44-0	Fluoranthene	189	U
129-00-0	Pyrene	189	U
56-55-3	Benzo(a)Anthracene	189	U
218-01-9	Chrysene	189	U
205-99-2	Benzo(b)fluoranthene	189	U
207-08-9	Benzo(k)fluoranthene	189	U
50-32-8	Benzo(a)pyrene	189	U
193-39-5	Indeno(1 2 3-cd)pyrene	189	U
53-70-3	Dibenzo(a h)anthracene	189	U
191-24-2	Benzo(g h i)perylene	189	U
86-74-8	Carbazole	41	JD
95-13-6	1H-Indene	66	JD
91-22-5	Quinoline	189	U
90-12-0	1-Methylnaphthalene	97	JD
271-89-6	2,3-Benzofuran	26	JD
496-11-7	2,3-Dihydroindene	368	D
4565-32-6	Benzo(b)thiophene	99	JD
120-72-9	1H-Indole	189	U
92-52-4	Biphenyl	189	U
132-65-0	Dibenzothiophene	189	U
260-94-6	Acridine	189	U
192-97-2	Benzo(e)pyrene	189	U
198-55-0	Perylene	189	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420FBD

Lab Name: QUANTERRA DENVER Contract:

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

Matrix: (soil/water) WATER Lab Sample ID: 38524-01FD

Sample wt/vol: 1050 (g/mL) ML Lab File ID: T0201790.D

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

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

Concentrated Extract Volume: 1.0(ML) Date Analyzed: 10/28/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

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

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420FB

Lab Name: QUANTERRA DENVER Contract:

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

Matrix: (soil/water) WATER Lab Sample ID: 38528-01FB

Sample wt/vol: 1050 (g/mL) ML Lab File ID: T0101789.D

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

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

Concentrated Extract Volume: 1.0 (ML) Date Analyzed: 10/28/94

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

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

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

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W421

Lab Name: QUANTERRA DENVER Contract:

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

Matrix: (soil/water) WATER Lab Sample ID: 38528-02

Sample wt/vol: 1060 (g/mL) ML Lab File ID: T0701781.D

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

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

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

Injection Volume: 2.0(uL) Dilution Factor: 10.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	516	
91-57-6	2-Methylnaphthalene	94	U
208-96-8	Acenaphthylene	94	U
83-32-9	Acenaphthene	43	J
132-64-9	Dibenzofuran	94	U
86-73-7	Fluorene	12	J
85-01-8	Phenanthrene	94	U
120-12-7	Anthracene	94	U
206-44-0	Fluoranthene	94	U
129-00-0	Pyrene	94	U
56-55-3	Benzo(a)Anthracene	94	U
218-01-9	Chrysene	94	U
205-99-2	Benzo(b)fluoranthene	94	U
207-08-9	Benzo(k)fluoranthene	94	U
50-32-8	Benzo(a)pyrene	94	U
193-39-5	Indeno(1 2 3-cd)pyrene	94	U
53-70-3	Dibenzo(a h)anthracene	94	U
191-24-2	Benzo(g h i)perylene	94	U
86-74-8	Carbazole	26	J
95-13-6	1H-Indene	69	J
91-22-5	Quinoline	94	U
90-12-0	1-Methylnaphthalene	47	J
271-89-6	2,3-Benzofuran	94	U
496-11-7	2,3-Dihydroindene	187	
4565-32-6	Benzo(b)thiophene	66	J
120-72-9	1H-Indole	94	U
92-52-4	Biphenyl	94	U
132-65-0	Dibenzothiophene	94	U
260-94-6	Acridine	94	U
192-97-2	Benzo(e)pyrene	94	U
198-55-0	Perylene	94	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W422

Lab Name: QUANTERRA DENVER Contract:

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

Matrix: (soil/water) WATER Lab Sample ID: 38528-03

Sample wt/vol: 1050 (g/mL) ML Lab File ID: T0901783.D

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

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

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

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	5	J
91-57-6	2-Methylnaphthalene	10	U
208-96-8	Acenaphthylene	10	U
83-32-9	Acenaphthene	8	J
132-64-9	Dibenzofuran	10	U
86-73-7	Fluorene	10	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1 2 3-cd)pyrene	10	U
53-70-3	Dibenzo(a h)anthracene	10	U
191-24-2	Benzo(g h i)perylene	10	U
86-74-8	Carbazole	1	J
95-13-6	1H-Indene	10	U
91-22-5	Quinoline	10	U
90-12-0	1-Methylnaphthalene	10	U
271-89-6	2,3-Benzofuran	10	U
496-11-7	2,3-Dihydroindene	45	
4565-32-6	Benzo(b)thiophene	10	U
120-72-9	1H-Indole	10	U
92-52-4	Biphenyl	10	U
132-65-0	Dibenzothiophene	10	U
260-94-6	Acridine	10	U
192-97-2	Benzo(e)pyrene	10	U
198-55-0	Perylene	10	U

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: Quanterra Denver Contract:

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

	EPA SAMPLE NO.	S1 NAP #	S2 CHR #	S3 FLU #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	SBLK01	82	75	70						0
02	DPV-W420	68	56	79						0
03	DPV-W421	72	59	70						0
04	DPV-W422	71	66	80						0
05	PCJ-W23	81	72	79						0
06	GTF-ACFE	81	69	75						0
07	GTF-SFR	64	62	73						0
08	DPV-W420FB	89	72	80						0
09	DPV-W420FBD	92	75	87						0
10	DPV-W420DL	0D	0D	0D						0
11	DPV-W420DDL	0D	0D	0D						0
12	DPV-W420D	68	58	73						0
13	DPV-W420MS	72	64	76						0
14	DPV-W420MSD	69	68	78						0
15	STP-W409	62	58	83						0
16										
17										
18										
19										
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22										
23										
24										
25										
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30										

		QC LIMITS
S1 NAP	= Naphthalene-d8	(37-107)
S2 CHR	= Chrysene-d12	(25-160)
S3 FLU	= Fluorene-d10	(36-127)
S4	= N/A	
S5	= N/A	
S6	= N/A	
S7	= N/A	
S8	= N/A	

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

3C
WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Quanterra Denver Contract:

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

Matrix Spike - EPA Sample No.: DPV-W420

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC. LIMITS REC.
Naphthalene	47	1150	1190	85	43-128
2-Methylnaphthalene	47	71	122	108	47-138
Fluorene	47	28	85	120	51-120
Chrysene	47	0	48	102	43-124
1H-Indene	47	74	112	81	49-108
Quinoline	47	0	44	92	40-126
Benzo(e)pyrene	47	0	54	115	20-150

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Naphthalene	47	1100	0*	200*	50	43-128
2-Methylnaphthalene	47	105	72	40	50	47-138
Fluorene	47	79	108	10	50	51-120
Chrysene	47	46	98	4	50	43-124
1H-Indene	47	93	42*	63*	50	49-108
Quinoline	47	42	88	4	50	40-126
Benzo(e)pyrene	47	49	104	10	50	20-150

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

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

COMMENTS: _____

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420MS

Lab Name: QUANTERRA DENVER Contract:

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

Matrix: (soil/water) WATER Lab Sample ID: 38524-01MS

Sample wt/vol: 1060 (g/mL) ML Lab File ID: T0601794.D

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

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

Concentrated Extract Volume: 1.0 (ML) Date Analyzed: 10/28/94

Injection Volume: 2.0 (uL) Dilution Factor: 10.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	1190	E
91-57-6	2-Methylnaphthalene	122	
208-96-8	Acenaphthylene	94	U
83-32-9	Acenaphthene	83	J
132-64-9	Dibenzofuran	27	J
86-73-7	Fluorene	85	J
85-01-8	Phenanthrene	15	J
120-12-7	Anthracene	94	U
206-44-0	Fluoranthene	94	U
129-00-0	Pyrene	94	U
56-55-3	Benzo(a)Anthracene	94	U
218-01-9	Chrysene	48	J
205-99-2	Benzo(b)fluoranthene	94	U
207-08-9	Benzo(k)fluoranthene	94	U
50-32-8	Benzo(a)pyrene	94	U
193-39-5	Indeno(1 2 3-cd)pyrene	94	U
53-70-3	Dibenzo(a h)anthracene	94	U
191-24-2	Benzo(g h i)perylene	94	U
86-74-8	Carbazole	51	J
95-13-6	1H-Indene	112	
91-22-5	Quinoline	44	J
90-12-0	1-Methylnaphthalene	99	
271-89-6	2,3-Benzofuran	27	J
496-11-7	2,3-Dihydroindene	381	
4565-32-6	Benzo(b)thiophene	107	
120-72-9	1H-Indole	94	U
92-52-4	Biphenyl	16	J
132-65-0	Dibenzothiophene	94	U
260-94-6	Acridine	94	U
192-97-2	Benzo(e)pyrene	54	J
198-55-0	Perylene	94	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420MSD

Lab Name: QUANTERRA DENVER Contract:

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

Matrix: (soil/water) WATER Lab Sample ID: 38524-01MSD

Sample wt/vol: 1060 (g/mL) ML Lab File ID: T0701795.D

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

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

Concentrated Extract Volume: 1.0 (ML) Date Analyzed: 10/28/94

Injection Volume: 2.0 (uL) Dilution Factor: 10.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	1100	E
91-57-6	2-Methylnaphthalene	105	
208-96-8	Acenaphthylene	94	U
83-32-9	Acenaphthene	80	J
132-64-9	Dibenzofuran	26	J
86-73-7	Fluorene	79	J
85-01-8	Phenanthrene	14	J
120-12-7	Anthracene	94	U
206-44-0	Fluoranthene	94	U
129-00-0	Pyrene	94	U
56-55-3	Benzo(a)Anthracene	94	U
218-01-9	Chrysene	46	J
205-99-2	Benzo(b)fluoranthene	94	U
207-08-9	Benzo(k)fluoranthene	94	U
50-32-8	Benzo(a)pyrene	94	U
193-39-5	Indeno(1 2 3-cd)pyrene	94	U
53-70-3	Dibenzo(a h)anthracene	94	U
191-24-2	Benzo(g h i)perylene	94	U
86-74-8	Carbazole	49	J
95-13-6	1H-Indene	93	J
91-22-5	Quinoline	42	J
90-12-0	1-Methylnaphthalene	96	
271-89-6	2,3-Benzofuran	22	J
496-11-7	2,3-Dihydroindene	322	
4565-32-6	Benzo(b)thiophene	95	
120-72-9	1H-Indole	94	U
92-52-4	Biphenyl	15	J
132-65-0	Dibenzothiophene	94	U
260-94-6	Acridine	94	U
192-97-2	Benzo(e)pyrene	49	J
198-55-0	Perylene	94	U

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

BLK01

Lab Name: QUANTERRA DENVER Contract:

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

Lab File ID: T0501779.D Lab Sample ID: BLK01

Instrument ID: T Date Extracted: 10/16/94

Matrix: (soil/water) WATER Date Analyzed: 10/27/94

Level:(low/med) LOW Time Analyzed: 1420

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	DPV-W420	38528-01	T0601780.D	10/27/94
02	DPV-W421	38528-02	T0701781.D	10/27/94
03	DPV-W422	38528-03	T0901783.D	10/27/94
04	PCJ-W23	38528-04	T1001784.D	10/27/94
05	GTF-ACFE	38528-06	T1101785.D	10/27/94
06	GTF-SFR	38528-07	T1201786.D	10/27/94
07	DPV-W420FB	38528-01FB	T0101789.D	10/28/94
08	DPV-W420FBD	38524-01FD	T0201790.D	10/28/94
09	DPV-W420DL	38524-01DL	T0301791.D	10/28/94
10	DPV-W420DDL	38524-01DUDL	T0401792.D	10/28/94
11	DPV-W420D	38524-01DU	T0501793.D	10/28/94
12	DPV-W420MS	38524-01MS	T0601794.D	10/28/94
13	DPV-W420MSD	38524-01MSD	T0701795.D	10/28/94
14	STP-W409	38524-05	T0801796.D	10/28/94
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COMMENTS:

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BLK01

Lab Name: QUANTERRA DENVER Contract:

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

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

Sample wt/vol: 1000 (g/mL) ML Lab File ID: T0501779.D

Level: (low/med) HIGH Date Received: 00/00/00

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

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

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

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

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Quanterra Denver Contract:

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

Lab File ID (Standard): T0774.D Date Analyzed: 10/27/94

Instrument ID: T Time Analyzed: 0956

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	184625	14.25	246310	17.17	177031	24.10
	UPPER LIMIT	369250	14.75	492620	17.67	354062	24.60
	LOWER LIMIT	92312	13.75	123155	16.67	88516	23.60
	EPA SAMPLE No.						
01	SBLK01	142356	14.25	187497	17.17	123822	24.10
02	DPV-W420	187184	14.25	262630	17.17	164145	24.11
03	DPV-W421	154815	14.26	220113	17.17	144741	24.10
04	DPV-W422	178544	14.25	243158	17.16	172202	24.10
05	PCJ-W23	191777	14.25	265128	17.18	179785	24.10
06	GTF-ACFE	166224	14.25	224254	17.17	163649	24.10
07	GTF-SFR	205365	14.25	259543	17.17	199258	24.10
08							
09							
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22							

IS1 ACN = Acenaphthene-d10
IS2 PHN = Phenanthrene-d10
IS3 BAP = Benzo(a)pyrene-d12

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

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

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Quanterra Denver Contract:

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

Lab File ID (Standard): T0788.D Date Analyzed: 10/28/94

Instrument ID: T Time Analyzed: 1040

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	204115	14.26	257588	17.19	203890	24.11
	UPPER LIMIT	408230	14.76	515176	17.69	407780	24.61
	LOWER LIMIT	102058	13.76	128794	16.69	101945	23.61
	EPA SAMPLE No.						
01	DPV-W420FB	181257	14.26	242178	17.18	168973	24.11
02	DPV-W420FBD	172068	14.26	225625	17.18	163773	24.11
03	DPV-W420DL	194949	14.26	268693	17.19	176921	24.11
04	DPV-W420DDL	209799	14.26	291310	17.18	190762	24.11
05	DPV-W420D	205865	14.27	288623	17.19	181340	24.11
06	DPV-W420MS	226232	14.27	299381	17.18	191747	24.11
07	DPV-W420MSD	228284	14.27	312134	17.18	207122	24.11
08	STP-W409	220705	14.27	278577	17.18	220394	24.11
09							
10							
11							
12							
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21							
22							

IS1 ACN = Acenaphthene-d10
IS2 PHN = Phenanthrene-d10
IS3 BAP = Benzo(a)pyrene-d12

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

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

PHENOLICS MONITORING

Rocky Mountain
Analytical Laboratory

Enseco

November 4, 1994

Mr. James Grube
City of St. Louis Park
5005 Minnetonka Blvd.
St. Louis Park, MN 55416

Dear Mr. Grube:

Enclosed is the ppb phenol report for 11 aqueous samples, including matrix QC, received at Quanterra Environmental Services, Denver laboratory (formerly Enseco - Rocky Mountain Analytical Laboratory) on October 12, 1994.

Sample DPV-W420TPMS (038529-0001MS) showed the percent recovery of spiked phenolics at 126.4% (control limit 125%). The average percent recovery for the matrix spike DPV-W420TPMS (038529-0001MS) and the matrix spike duplicate DPV-W420TPMSD (038529-0001SD) was within control limits. The data are flagged accordingly.

Please call if you have any questions.

Sincerely,

Daniel Rebarchik
Project Administrator

Reviewed by:

Kevin McHugh
Program Manager

DR/KM
Enclosures

Quanterra's Denver laboratory #038529

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

Quanterra Environmental Services

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
038529-0001-SA	DPV-W420TP-101194	AQUEOUS	11 OCT 94		12 OCT 94
038529-0001-DU	DPV-W420TPD-101194	AQUEOUS	11 OCT 94		12 OCT 94
038529-0001-MS	DPV-W420TPMS-101194	AQUEOUS	11 OCT 94		12 OCT 94
038529-0001-SD	DPV-W420TPMSD-101194	AQUEOUS	11 OCT 94		12 OCT 94
038529-0001-FB	DPV-W420TPFB-101194	AQUEOUS	11 OCT 94		12 OCT 94
038529-0001-FD	DPV-W420TPFBD-101194	AQUEOUS	11 OCT 94		12 OCT 94
038529-0002-SA	DPV-W421TP-101194	AQUEOUS	11 OCT 94		12 OCT 94
038529-0003-SA	DPV-W422TP-101194	AQUEOUS	11 OCT 94		12 OCT 94
038529-0004-SA	PCJ-SLP4TP-101194	AQUEOUS	11 OCT 94		12 OCT 94
038529-0005-SA	GTF-ACFETP-101194	AQUEOUS	11 OCT 94		12 OCT 94
038529-0006-SA	GTF-SFRTP-101194	AQUEOUS	11 OCT 94		12 OCT 94

Quanterra Environmental Services

U.S. EPA - CLP

INORGANIC ANALYSES - RESULT QUALIFIERS

C - Concentration Qualifiers:

U - The reported value is less than the Instrument Detection Limit (IDL).

B - The reported value is less than the Contract Required Detection Limit (CRDL) but greater than the Instrument Detection Limit (IDL).

Q - Quality Control Qualifiers:

E - The reported value is estimated because of the presence of interference. An explanatory note is included under Comments on the Cover Page (if the problem applies to all samples) or on the specific FORM I-IN (if it is an isolated problem).

M - Duplicate injection precision not met.

N - Spiked sample recovery not within control limits.

S - The reported value was determined by the Method of Standard Additions (MSA).

W - Post-digestion spike for Furnace AA analysis is out of control limits (85-115%), while sample absorbance is less than 50% of spike absorbance.

* - Duplicate analysis not within control limits.

+ - Correlation coefficient for the MSA is less than 0.995.

Entering "S", "W", or "+" is mutually exclusive. No combination of these qualifiers can appear in the same field for an analyte.

M - Method Qualifiers:

P - ICP
A - Flame AA
F - Furnace AA
CV - Manual Cold Vapor AA
AV - Automated Cold Vapor AA
AS - Semi-Automated Spectrophotometric
C - Manual Spectrophotometric
T - Titrimetric
NR - Not Required

U.S. EPA - CLP

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Quanterra Environmental Services

000001

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: ____ SAS No.: ____ SDG No.:38529

SOW No.: ILM02

EPA Sample No.	Lab Sample ID
3852901	3852901
3852901	3852901D
3852901	3852901S
3852901	3852901FB
3852901	3852901FD
3852902	3852902
3852903	3852903
3852904	3852904
3852905	3852905
3852906	3852906

Were ICP interelement corrections applied ? Yes/No YES

Were ICP background corrections applied ? Yes/No YES

If yes - were raw data generated before application of background corrections ? Yes/No NO

Comments:

SIX WATER SAMPLES FOR PHENOLIC ANALYSIS.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: [signature] Name: KEVIN McHUGH

Date: NOVEMBER 4, 1994 Title: PROGRAM MANAGER

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

Quanterra Environmental Services

000002

EPA SAMPLE NO.

3852901

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.: 38529

Matrix (soil/water): WATER Lab Sample ID: 3852901

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

Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
54-30-0	Phenolics	151		N	C

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:
DPV-W420TP-101194

FORM I - IN

7/88

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

Quanterra Environmental Services

0003

EPA SAMPLE NO.

3852901FB

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.: 38529

Matrix (soil/water): WATER Lab Sample ID: 3852901FB

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

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
54-30-0	Phenolics	5.0	U	N	C

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:
DPV-W420TPFB-101194

FORM I - IN

7/88

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

Quanterra Environmental Services

000004

EPA SAMPLE NO.

3852901FD

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.: 38529

Matrix (soil/water): WATER Lab Sample ID: 3852901FD

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

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
54-30-0	Phenolics	5.0	U	N	C

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:
DPV-W420TPFBD-101194

FORM I - IN

7/88

U.S. EPA - CLP

Quanterra Environmental Services 00005

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

3852902

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: ____ SAS No.: ____ SDG No.: 38529

Matrix (soil/water): WATER Lab Sample ID: 3852902

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

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
54-30-0	Phenolics	24.3		N	C

Color Before: COLORLESS Clarity Before: CLEAR Texture: ____

Color After: COLORLESS Clarity After: CLEAR Artifacts: ____

Comments:
DPV-W421TP-101194

FORM I - IN

7/88

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

Quanterra Environmental Services 00006

EPA SAMPLE NO.

3852903

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.: 38529

Matrix (soil/water): WATER Lab Sample ID: 3852903

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

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
54-30-0	Phenolics	10.7		N	C

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:
DPV-W422TP-101194

FORM I - IN

7/88

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Quanterra Environmental Services

000010

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: ____ SAS No.: ____ SDG No.: 38529

Initial Calibration Source: INORG.VENTUR

Continuing Calibration Source: INORG.VENTUR

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Phenolics	20.0	21.43	107.2	20.0	20.94	104.7	20.94	104.7	C

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

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3
BLANKS

Quanterra Environmental Services

T00011

ab Name: QUANTERRA Contract: CITY_SLP

ab Code: DENVER Case No.: ____ SAS No.: ____ SDG No.: 38529

reparation Blank Matrix (soil/water): WATER

reparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Phenolics	5.0	U	5.0	U	5.0	U			5.000	U	C

FORM III - IN

7/88

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

Quanterra Environmental Services

00012

EPA SAMPLE NO.

Lab Name: QUANTERRA Contract: CITY_SLP 3852901S

Lab Code: DENVER Case No.: ____ SAS No.: ____ SDG No.: 38529

Matrix: WATER Level (low/med): LOW

% Solids for Sample: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Phenolics	75-125	214.1000		150.9000		50.00	126.4	N	C

Comments:
DPV-W420TPMS-101194

FORM V (Part 1) - IN 7/88

U.S. EPA - CLP

5B
POST DIGEST SPIKE SAMPLE RECOVERY

Quanterra Environmental Services 00013

EPA SAMPLE NO.

ab Name: QUANTERRA Contract: CITY_SLP 3852901SD

b Code: DENVER Case No.: ____ SAS No.: ____ SDG No.: 38529_

atrix: WATER Level (low/med): LOW

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Added (SA)	%R	Q	M
Phenolics		199.55		150.90		50.0	97.3		C

Comments:
DPV-W420TPMSD-101194

U.S. EPA - CLP

6
DUPLICATES

Quanterra Environmental Services

00014

EPA SAMPLE NO.

3852901D

ab Name: QUANTERRA Contract: CITY_SLP

ab Code: DENVER Case No.: ____ SAS No.: ____ SDG No.: 38529

atrix (soil/water): WATER Level (low/med): LOW

Solids for Sample: 0.0 % Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Phenolics		150.9000		158.2000		4.7		C

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7

LABORATORY CONTROL SAMPLE

Quanterra Environmental Services

000015

ab Name: QUANTERRA Contract: CITY_SLP

ab Code: DENVER Case No.: ____ SAS No.: ____ SDG No.: 38529

olid LCS Source: ERA #219

ueous LCS Source: INORG.VENTUR

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Phenolics	20.0	22.40	112.0						

FORM VII - IN

7/88

U.S. EPA - CLP

13
PREPARATION LOG

Quanterra Environmental Services 00016

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: SAS No.: SDG No.:38529

Method: C

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
3852901	10/31/94		200
3852901	10/31/94		200
3852901	10/31/94		200
3852901	10/31/94		200
3852901	10/31/94		200
3852902	10/31/94		200
3852903	10/31/94		200
3852904	10/31/94		200
3852905	10/31/94		200
3852906	10/31/94		200
LCSW	10/31/94		200
PBW	10/31/94		200

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14
ANALYSIS RUN LOG

Quanterra Environmental Services 000017

ab Name: QUANTERRA_____ Contract: CITY_SLP__

.b Code: DENVER Case No.: _____ SAS No.: _____ SDG No.:38529_

strument ID Number: SPEC 88_____ Method: C_

.art Date: 11/01/94 End Date: 11/01/94

EPA Sample No.	D/F	Time	% R	Analytes PH
0.0	1.00	1510		X
5.0	1.00	1511		X
10.0	1.00	1512		X
S20.0	1.00	1513		X
S50.0	1.00	1514		X
S100.0	1.00	1515		X
ICV	1.00	1516		X
ICB	1.00	1517		X
PBW	1.00	1517		X
LCSW	1.00	1518		X
3852901	5.00	1520		X
3852901D	5.00	1520		X
3852901F	1.00	1520		X
3852901F	1.00	1521		X
3852901S	5.00	1540		X
3852901S	5.00	1541		X
3852902	1.00	1541		X
3852903	1.00	1541		X
CCV	1.00	1541		X
CCB	1.00	1542		X
3852904	1.00	1543		X
3852905	1.00	1543		X
3852906	1.00	1543		X
CCV	1.00	1543		X
CCB	1.00	1544		X

FORM XIV - IN 7/88

Quanterra Environmental Services

00018

U S EPA - CLP

ADDENDUM

STOCK STANDARD SOURCES

Lab Name QUANTERRA Denver Contract. CITY__SLP____

Lab Code· Case No _____ SAS No . N/A___ SDG No . 38529_

STANDARD	SOURCE/LOT	EXPIRATION DATE
CALIBRATION	LabChem 3102-6	4/8/95
ICV SOLUTION	RICCA F148	2/95
CCV SOLUTION	(same as calibration source above)	
LCS SOLUTION	(same as ICV solution above)	
MATRIX SPIKE SOLUTION	(same as ICV solution above)	

COLORIMETRIC ANALYSIS

Quanterra Environmental Services 00019

PARAMETER CSLP- Phenolics CONTROL RICCA FIAS DATE 11-01-94

ANALYST STM SPIKE 50.0 UNITS ppb

	Concentration		Absorbance
Blank	0.0	ppb	0.032
STD 1	5.0	ppb	0.046
STD 2	10.0	ppb	0.054
STD 3	20.0	ppb	0.077
STD 4	50.0	ppb	0.135
STD 5	100.0	ppb	0.240

Corr. Coef. = 0.99977

Slope = 0.00206

Intercept = 0.03393

SAMPLE ID	TIME	pH	INTER CHECK	ABSORBANCE SAMPLE	ABSORBANCE COLOR B	CURVE CONC (ppb)	DILUTIONS PREP	DILUTIONS ANALYT	REPORTED CONC (ppb)	% REC.
ICV	15:16			0.078	~~0.079~~ 11-01-94	21.43	1x	1x	21.4 (20.0)	107%
ICB	:17			0.039		5u			5u	
PBlank	.17	<2	—	0.037		5u			5u	
LCS	:18			0.080		22.40			22.4 (20.0)	112%
38529-01	:20			0.096		30.18		5x	151 (25.0)	
-01DU	:20			0.099		31.64		5x	158 (25.0)	
-01FB	:20			0.037		5u		1x	5u	
-01FD	:21			0.037		5u		1x	5u	
-01MS	:40			0.122		42.82		5x	214 (50.0)	REC 105%
-01SD	.41			0.116		39.91		5x	200 (50.0)	RPD 6.8
-02	.41			0.084		24.34		1x	24.3 (5.0)	
-03	:41			0.056		10.73			10.7 (5.0)	
CCV	.41			0.077		20.94			20.9 (20.0)	105%
CCB	.42			0.033		5u			5u	
38529-04	:43			0.153		57.90			57.9 (5.0)	
-05	:43			0.041		5u			5u	
-06	:43			0.140		75.89			75.9 (5.0)	
CCV	.43			0.077		20.94			20.9 (20.0)	105%
CCB	15:44	?	?	0.033		5u	?	?	5u	

Enseco - Rocky Mountain Analytical Lab
Sample Description Sheet

Quanterra Environmental Services

000020

Project 038529 Case/SAS No. NA

SDG No. _____ Conc./Matrix AQUEOUS

SAMPLE	LIMS SAMPLE	BEFORE DIGESTION COLOR	BEFORE DIGESTION CLARITY	AFTER DIGESTION COLOR	AFTER DIGESTION CLARITY
PV-W420TP	0385290001DU	08	01	08	01
PV-W420TP	0385290001FB				
PV-W420TP	0385290001FD				
PV-W420TP	0385290001MS				
PV-W420TP	0385290001SA				
PV-W420TP	0385290001SD				
PV-W421TP	0385290002SA				
PV-W422TP	0385290003SA				
TF-ACFETP	0385290005SA				
TF-SFRTP-	0385290006SA				
CJ-SLP4TP	0385290004SA				

DESCRIPTION KEY:

COLOR:

1.RED	4.GREEN	7.WHITE	10.GREY
2.BLUE	5.ORANGE	8.COLORLESS	11.BLACK
3.YELLOW	6.VIOLET	9.BROWN	

CLARITY:
1.CLEAR
2.CLOUDY
3.OPAQUE

COMMENTS:

Enseco - Rocky Mountain Analytical Lab
Sample Preparation Sheet

Quanterra Environmental Services

000021

Project 038529 Case/SAS No. /NA

SDG No. _____ Conc./Matrix /AQUEOUS

SAMPLE	LIMS SAMPLE	DATE RECD	PARAMETERS	ICP METALS g/mL	ICP METALS mL	FURNACE METALS g/mL	FURNACE METALS mL	MERCURY g/mL	MERCURY mL	Phenol/ ~~CYANIDE~~ g/mL	Phenol/ ~~CYANIDE~~ mL	pH
PBW	--------	------								200ml	200	
LCS	--------	------										
PV-W420TP	0385290001DU	10/12/94										
PV-W420TP	0385290001FB	10/12/94										
PV-W420TP	0385290001FD	10/12/94										
PV-W420TP	0385290001MS	10/12/94										
PV-W420TP	0385290001SA	10/12/94										
PV-W420TP	0385290001SD	10/12/94										
PV-W421TP	0385290002SA	10/12/94										
PV-W422TP	0385290003SA	10/12/94										
TF-ACFETP	0385290005SA	10/12/94										
TF-SFRTP-	0385290006SA	10/12/94										
CJ-SLP4TP	0385290004SA	10/12/94								0	0	
		DATE / INITIALS:		/		/		/		10 31 ~~SJM~~		/

SPECIAL INSTRUCTIONS and/or CAUTIONS:

Enseco
A Corning Company

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

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

CHAIN OF CUSTODY

ENSECO CLIENT: CITY OF ST LOUIS MO (WATER DEPT)

PROJECT:

SAMPLING COMPANY: SAME

SAMPLING SITE: SAME

TEAM LEADER: MZR

SAMPLE SAFE™ CONDITIONS

PACKED BY: MZR

SEAL NUMBER:

SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:

CONDITION OF CONTENTS:

SEALED FOR SHIPPING BY: MZR

INITIAL CONTENTS TEMP: °C

SEAL NUMBER:

SAMPLING STATUS: ☐ Done ☐ Continuing Until

SEAL INTACT UPON RECEIPT BY LAB: ☑ Yes ☐ No

CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 4.5 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
10-11-94		DPV-W420TP-101194	16oz AMBER	1	Phenols	-1
		DPV-W420TPD-101194				-1D
		DPV-W420TPMS-101194				-1MS
		DPV-W420TPMSD-101194				-1SD
		DPV-W420TPFB-101194				-1FB
		DPV-W420TPFBD-101194				-1FD
		DPV-W421TP-101194				-2
		DPV-W422TP-101194				-3
		PCJ-SLP4TP-101194				-4
10-11-94		GTF-ACFETP-101194	16oz AMBER	1	Phenols	-5

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MZR

METHOD OF SHIPMENT: FED EX

AIRBILL NUMBER: 2103421106

RECEIVED FOR LAB: Quanterra

SIGNED:

DATE/TIME: 12 OCT 94 0900

ENSECO PROJECT NUMBER: 38529

ENS-4011

White - CLIENT Pink - LAB

Enseco
A Corning Company

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

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

CHAIN OF CUSTODY

ENSECO CLIENT: City of Saint Louis Park (Water Dept)

PROJECT:

SAMPLING COMPANY: SAME

SAMPLING SITE: SAME

TEAM LEADER: MZB

SAMPLE SAFE™ CONDITIONS

PACKED BY: MZB

SEAL NUMBER:

SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:

CONDITION OF CONTENTS:

SEALED FOR SHIPPING BY: MZB

INITIAL CONTENTS TEMP: °C

SEAL NUMBER:

SAMPLING STATUS: ☐ Done ☐ Continuing Until

SEAL INTACT UPON RECEIPT BY LAB: ☑ Yes ☐ No

CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 4.5 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
10-11-94		GTF- SFR TP -101194	16oz AMBER	1	Phenols	-6

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MZB

METHOD OF SHIPMENT: FED EX

AIRBILL NUMBER: 2103421166 3

RECEIVED FOR LAB: Quanterra

SIGNED:

DATE/TIME: 12 Oct 94 / 0900

ENSECO PROJECT NUMBER: 38529

ENS-4011

White - CLIENT Pink - LAB

RAP SECTION 9.6 MONITORING

WELLS

DRIFT

W2 W10 W15 W116
W117 W128 W135 W136
W423 W425

PLATTEVILLE

W1 W19 W20 W100
W101 W121 W124
W131 W424 W428

DRIFT AQUIFER

PAH MONITORING

Rocky Mountain
Analytical Laboratory

Enseco

CASE NARRATIVE

FOR

City of St. Louis Park

June 08, 1994

Enseco - RMAL Project Number 035332

Introduction

Ten aqueous samples (includes QC) were received at Enseco Rocky Mountain Analytical Laboratory on May 10, 1994. The samples were logged in under RMAL project number 035332. Sample STP-SLP3FBD-050994 was extracted and held per the April 1990 QAPP. A cross reference associating the RMAL sample numbers to the actual field sample numbers is included. The samples were analyzed for low level part-per-trillion (ppt) polynuclear aromatic hydrocarbons (PAH).

Data Quality Assessment

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

PPT PAH

The percent recovery for Benzo(E)Pyrene was below QC limits in samples 035332-0001MS. The RPD's for Benzo(E)Pyrene and Chrysene was outside QC limits for samples 035332-0001MS/SD. Since acceptable recovery was achieved for all other spike components, quantitation was checked and no further action was taken.

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

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

All samples associated with project 035332 show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion. These compounds are flagged with the letter (R) on the data sheets (Form I) as per the 1990 QAPP.

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

Reported by: Karen F. Germann **Date:** 6/8/94
Karen F. Germann
Program Administrator

Approved by: Julieann L. Kramer **Date:** 6/8/94
Julieann L. Kramer
Program Manager

Enseco

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
035332-0001-SA	STP-SLP3-050994	AQUEOUS	09 MAY 94		10 MAY 94
035332-0001-DU	STP-SLP3D-050994	AQUEOUS	09 MAY 94		10 MAY 94
035332-0001-MS	STP-SLP3MS-050994	AQUEOUS	09 MAY 94		10 MAY 94
035332-0001-SD	STP-SLP3MSD-050994	AQUEOUS	09 MAY 94		10 MAY 94
035332-0001-FB	STP-SLP3FB-050994	AQUEOUS	09 MAY 94		10 MAY 94
035332-0001-FD	STP-SLP3FBD-050994	AQUEOUS	09 MAY 94		10 MAY 94
035332-0002-SA	DPV-W2-050994	AQUEOUS	09 MAY 94	16:10	10 MAY 94
035332-0003-SA	DPV-W423-050994	AQUEOUS	09 MAY 94	17:40	10 MAY 94
035332-0004-SA	DPV-W135-050994	AQUEOUS	09 MAY 94	13:40	10 MAY 94
035332-0005-SA	DPV-W128-050994	AQUEOUS	09 MAY 94	15:00	10 MAY 94

Enseco

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 035332	Group Code	Analysis Description	Custom Test?
0001 , 0001, 0002 - 0005	A	Polynuclear Aromatic Hydrocarbons, SIM Low Level	N
		Prep - PAH/SIM by GC/MS Low Level	N
0001	B	Prep - PAH/SIM by GC/MS Low Level	N

Enseco
A Corning Company

4955 Yarrow Street
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303/421 6611 FAX 303/431 7171

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

CHAIN OF CUSTODY

ENSECO CLIENT: CITY OF ST LOUIS PARK (WATER DEPT)

PROJECT:

SAMPLING COMPANY: SAME

SAMPLING SITE: SAME

TEAM LEADER: [illegible]

SAMPLE SAFE™ CONDITIONS

PACKED BY: [illegible]

SEAL NUMBER:

SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:

CONDITION OF CONTENTS:

SEALED FOR SHIPPING BY: [illegible]

INITIAL CONTENTS TEMP: °C

SEAL NUMBER:

SAMPLING STATUS: ☐ Done ☐ Continuing Until

SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No

CONTENTS TEMPERATURE UPON RECEIPT BY LAB: °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
5-9-94		STP-SLP3-050994	1XLAMBER	6	PPT PAH	PPT 5 -1
5-9-94		STP-SLP3D-050994	1XLAMBER	6	PPT PAH	PPT 5 -2 -1pm
5-9-94		STP-SLP3MS-050994	1XLAMBER	6	PPT PAH	PPT 5 -3 1ms

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: [illegible]

METHOD OF SHIPMENT: FED EX

AIRBILL NUMBER: 2103420953

RECEIVED FOR LAB: [illegible]

SIGNED: [illegible]

DATE/TIME: 5/10/94 900

ENSECO PROJECT NUMBER: 35332

ENS-4011

White - CLIENT Pink - LAB

Enseco
A Corning Company

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

CHAIN OF CUSTODY

ENSECO CLIENT: City of ST Louis Park (WATER Dept)

PROJECT:

SAMPLING COMPANY: SAME

SAMPLING SITE: SAME

TEAM LEADER: MZK

SAMPLE SAFE™ CONDITIONS

PACKED BY: MZK

SEAL NUMBER:

SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:

CONDITION OF CONTENTS:

SEALED FOR SHIPPING BY: MZK

INITIAL CONTENTS TEMP: °C

SEAL NUMBER:

SAMPLING STATUS: ☐ Done ☐ Continuing Until

SEAL INTACT UPON RECEIPT BY LAB: ☐ Yes ☐ No

CONTENTS TEMPERATURE UPON RECEIPT BY LAB: °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
5-9-94		STP-SLP3MSD-050994	1XL AMBER	6	PPL PAH	PPL 5 -1SD
5-9-94		STP-SLP3FB-050994	1XL AMBER	5	PPL PAH	PPL 5 -1FB
5-9-94		STP-SLP3FBD-050994	1XL AMBER	5	PPL PAH	PPL 5 -1FD

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MZK

METHOD OF SHIPMENT: FED EX

AIRBILL NUMBER: 2103420955

RECEIVED FOR LAB: RMAL

SIGNED: [illegible]

DATE/TIME: 5/10/94 900

ENSECO PROJECT NUMBER: 35332

ENS-4011

White - CLIENT Pink

Enseco
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4955 Yarrow Street
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1420 East North Belt Drive
Suite 120
Houston, TX 77032
713/987-9767 FAX. 713/987-9769

CHAIN OF CUSTODY

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

SAMPLE SAFE™ CONDITIONS

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

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
5/9/94	16:10	DPV-W2 - 050994	H2O	6	PPT-PAH	PPT-5 -2
5/9/94	12:40	DPV-W23 - 050994	H2O	6	PPT-PAH	PPT-5 -3
5/9/94	16:10	DPV-W2 - 050994	H2O	1	PPB-Pesticides	-2
5/9/94	12:40	DPV-W23 - 050994	H2O	1	PPB-Pesticides	-3

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: Peter Moore
METHOD OF SHIPMENT: FED-EX
AIRBILL NUMBER:
RECEIVED FOR LAB: [illegible]
SIGNED: [illegible]
DATE/TIME: 5/11/94 900
ENSECO PROJECT NUMBER: 35332/3533

ENS-4011

White - CLIENT Pink - LAB

Enseco
A Corning Company
4955 Yarrow Street
Arvada, CO 80002
303/421-6611 FAX. 303/431-7171
1420 East North Belt Drive
Suite 120
Houston, TX 77032
713/987 9767 FAX 713/987-9769

CHAIN OF CUSTODY

ENSECO CLIENT: City of St Louis Park
PROJECT: SLP
SAMPLING COMPANY: ENSR C&E
SAMPLING SITE: SXP
TEAM LEADER: Peter Moore

SAMPLE SAFE™ CONDITIONS

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

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
5/9/94	13:40	DPV-W135-050994	1.0	6	PPT-PAH	PPT-5 -4
5/9/94	15:00	DPV-W128-050994	↓	6	PPT-PAH	PPT-5 -5
5/9/94	13:40	DPV-W135-050994	↓	1	PPB-Phenolics	-4
5/9/94	15:00	DPV-W128-050994	↓	1	PPB-Phenolics	-5

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: Peter Moore
METHOD OF SHIPMENT: FEDEX
AIRBILL NUMBER:
RECEIVED FOR LAB: EVAL
SIGNED: [signature]
DATE/TIME: 5/10/94 900
ENSECO PROJECT NUMBER: 35332/35336

ENS-4011

White - CLIENT Pink -

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A Corning Company

Qualifier Codes and Their Usage

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

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

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

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

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

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

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

Qualifer Codes and Their Usage
Page Two

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

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

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

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

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

Enseco

TABLE OF CONTENTS

FOR

CITY OF ST. LOUIS PARK

RMAL PROJECT# 035332

PPT-PAH

QC Summary.....0001

Sample Data.....0008

Standards Data.....0420

Raw QC Data.....0721

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35332-02

DPV-W2-050994

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35332 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35332-02

Sample wt/vol: 4190 (g/mL) ML Lab File ID: C9111

Level: (low/med) LOW Date Received: 05/10/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/10/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/13/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	4	
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	2	BJ
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	JR
120-72-9	1H-Indole	5	R
91-57-6	2-Methylnaphthalene	4	B
90-12-0	1-Methylnaphthalene	5	
92-52-4	Biphenyl	2	JR
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	3	
132-64-9	Dibenzofuran	4	R
86-73-7	Fluorene	5	
132-65-0	Dibenzothiophene	2	R
85-01-8	Phenanthrene	11	B
120-12-7	Anthracene	2	R
260-94-6	Acridine	5	
86-74-8	Carbazole	7	R
206-44-0	Fluoranthene	8	B
129-00-0	Pyrene	17	B
56-55-3	Benzo(A)Anthracene	1	JR
218-01-9	Chrysene	2	JR
205-99-2	Benzo(B)Fluoranthene	2	JR
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	1	JR
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	2	J

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35332-03

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35332 SAS No.: SDG No.: DPV-W423-050994

Matrix: (soil/water) WATER Lab Sample ID: 35332-03

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9112

Level: (low/med) LOW Date Received: 05/10/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/10/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/13/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	2	
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	29	B
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	1	JR
91-57-6	2-Methylnaphthalene	9	B
90-12-0	1-Methylnaphthalene	6	
92-52-4	Biphenyl	2	J
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	J
132-64-9	Dibenzofuran	1	R
86-73-7	Fluorene	1	
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	3	B
120-12-7	Anthracene	3	
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	2	BR
129-00-0	Pyrene	2	B
56-55-3	Benzo(A)Anthracene	1	J
218-01-9	Chrysene	2	J
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35332-04

Lab Name: ENSECO Contract: DPV-W135-050994

Lab Code: ENSECO Case No.: 35332 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35332-04

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9123

Level: (low/med) LOW Date Received: 05/10/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/10/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/13/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	62	
496-11-7	2,3-Dihydroindene	17	
95-13-6	1H-Indene	12	
91-20-3	Naphthalene	76	BR
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	2	
120-72-9	1H-Indole	29	
91-57-6	2-Methylnapnthalene	86	B
90-12-0	1-Methylnaphthalene	55	
92-52-4	Biphenyl	38	
208-96-8	Acenaphthylene	13	
83-32-9	Acenaphthene	12	
132-64-9	Dibenzofuran	70	
86-73-7	Fluorene	31	
132-65-0	Dibenzothiophene	7	R
85-01-8	Phenanthrene	41	B
120-12-7	Anthracene	28	
260-94-6	Acridine	6	
86-74-8	Carbazole	14	R
206-44-0	Fluoranthene	13	B
129-00-0	Pyrene	25	B
56-55-3	Benzo(A)Anthracene	5	
218-01-9	Chrysene	4	
205-99-2	Benzo(B)Fluoranthene	3	
207-08-9	Benzo(K)Fluoranthene	1	JR
192-97-2	Benzo(E)Pyrene	1	J
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	1	J
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	2	J

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35332-05

Lab Name: ENSECO Contract: DPV-WI28-050994

Lab Code: ENSECO Case No.: 35332 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35332-05

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9114

Level: (low/med) LOW Date Received: 05/10/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/10/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/13/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	5	
95-13-6	1H-Indene	2	
91-20-3	Naphthalene	5	BJR
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	2	
120-72-9	1H-Indole	38	
91-57-6	2-Methylnaphthalene	14	B
90-12-0	1-Methylnaphthalene	13	R
92-52-4	Biphenyl	3	JR
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	7	
132-64-9	Dibenzofuran	4	R
86-73-7	Fluorene	6	
132-65-0	Dibenzothiophene	3	R
85-01-8	Phenanthrene	23	BR
120-12-7	Anthracene	4	R
260-94-6	Acridine	6	R
86-74-8	Carbazole	13	
206-44-0	Fluoranthene	18	B
129-00-0	Pyrene	22	B
56-55-3	Benzo(A)Anthracene	9	
218-01-9	Chrysene	8	
205-99-2	Benzo(B)Fluoranthene	7	
207-08-9	Benzo(K)Fluoranthene	1	JR
192-97-2	Benzo(E)Pyrene	3	
50-32-8	Benzo(A)Pyrene	4	
198-55-0	Perylene	2	JR
193-39-5	Indeno(1,2,3-CD)Pyrene	4	
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	5	

Rocky Mountain
Analytical Laboratory

Enseco

CASE NARRATIVE

FOR

City of St. Louis Park

June 03, 1994

Enseco - RMAL Project Number 035526

Introduction

Eight aqueous samples (includes QC) were received at Enseco Rocky Mountain Analytical Laboratory on May 18, 1994. The samples were logged in under RMAL project number 035526. Sample DPV-W117FBD-051794 was extracted and held per the April 1990 QAPP. A cross reference associating the RMAL sample numbers to the actual field sample numbers is included. The samples were analyzed for low level part-per-trillion (ppt) polynuclear aromatic hydrocarbons (PAH).

Data Quality Assessment

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

PPT PAH

Samples 035526-0001, -0001DU, and -0006 show target compounds above the upper calibration range. The samples were reanalyzed at a dilution. Both the original and reanalysis data are reported for each sample.

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

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

All samples associated with project 035526 show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion. These compounds are flagged with the letter (R) on the data sheets (Form I) as per the 1990 QAPP.

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

Reported by: Karen F. Germann — **Date:** June 03 1994
Karen F. Germann
Program Administrator

Approved by: Julieann L. Kramer — **Date:** June 03 1994
Julieann L. Kramer
Program Manager

Enseco

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
035526-0001-SA	DPV-W117-051794	AQUEOUS	17 MAY 94	15:30	18 MAY 94
035526-0001-DU	DPV-W117D-051794	AQUEOUS	17 MAY 94	15:30	18 MAY 94
035526-0001-FB	DPV-W117FB-051794	AQUEOUS	17 MAY 94	15:00	18 MAY 94
035526-0001-FD	DPV-W117FBD-051794	AQUEOUS	17 MAY 94	15:00	18 MAY 94
035526-0002-SA	DPV-W15-051794	AQUEOUS	17 MAY 94	18:30	18 MAY 94
035526-0003-SA	DPV-W136-051794	AQUEOUS	17 MAY 94	11:00	18 MAY 94
035526-0004-SA	DPV-W10-051794	AQUEOUS	17 MAY 94	11:45	18 MAY 94
035526-0005-SA	DPV-W116-051794	AQUEOUS	17 MAY 94	17:00	18 MAY 94
035526-0006-SA	DPV-W425-051794	AQUEOUS	17 MAY 94	10:30	18 MAY 94

Enseco

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 035526	Group Code	Analysis Description	Custom Test?
0001 , 0001, 0002 - 0006	A	Polynuclear Aromatic Hydrocarbons, SIM Low Level	N
		Prep - PAH/SIM by GC/MS Low Level	N
0001	B	Prep - PAH/SIM by GC/MS Low Level	N

Rocky Mountain
Analytical Laboratory

Enseco

Qualifier Codes and Their Usage

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

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

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

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

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

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

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4955 Yarrow Street
Arvada, Colorado 80002
303/421-6611 Fax. 303/431-7171

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

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

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

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

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

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A Corning Company

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Arvada, CO 80002
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☐ Enseco Houston
1420 East North Belt Drive
Suite 120
Houston, TX 77032
713/987-9767 FAX 713/987-9769

CHAIN OF CUSTODY

ENSECO CLIENT: City of St Louis Park
PROJECT: S2A
SAMPLING COMPANY: ENSR CHS
SAMPLING SITE: SLP
TEAM LEADER: Peter Moore

SAMPLE SAFE™ CONDITIONS

PACKED BY: Peter Moore
SEAL NUMBER: N/A
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY: NA
CONDITION OF CONTENTS: Good
SEALED FOR SHIPPING BY: Peter Moore
INITIAL CONTENTS TEMP: °C
SEAL NUMBER: NA
SAMPLING STATUS: ☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB: ☐ Yes ☐ No
CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 10.7 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
5/17/94	15:30	DPV-W112-051794	H_2O	6	PPT-PAH	PPT-25 35526-1
5/17/94	15:30	DPV-W112D-051794		6	PPT-PAH	PPT-25 -1DU
5/17/94	15:30	DPV-W112TP-051794		1	Phenolics	35525-1
5/17/94	15:30	DPV-W112TPD-051794		1	Phenolics	-1DU

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME
P. Moore		5/19	20:00

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: Peter Moore
METHOD OF SHIPMENT: FED-EX
AIRBILL NUMBER:
RECEIVED FOR LAB: RMAL
SIGNED: K. Herman
DATE/TIME: 5/18/94 0830
ENSECO PROJECT NUMBER: 35526 / 35525

ENS-4011

White - CLIENT Pink - LAB

Enseco
A Corning Company

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

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

CHAIN OF CUSTODY

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

SAMPLE SAFE™ CONDITIONS

PACKED BY: Peter Moore
SEAL NUMBER: NA
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY: NA
CONDITION OF CONTENTS: Good
SEALED FOR SHIPPING BY: Peter Moore
INITIAL CONTENTS TEMP: °C
SEAL NUMBER: NA
SAMPLING STATUS: ☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB: ☐ Yes ☐ No
CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 10.7 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
5/17/94	15:00	DPV-W117FB-051794	H_2O	6	PPT-PAH	PPT-75 35526-1FB
	15:00	DPV-W117FBD-051794	↓	6	PPT-PAH	PPT-75 -1FD
	15:00	DPV-W117TPFB-051794		1	Phenolics	35525-1FB
	15:00	DPV-W117TPFBD-051794	↓	1	Phenolics	-1FD
	18:30	DPV-W15-051794	H_2O	6	PPT-PAH	PPT-75 35526-2
	18:30	DPV-W15TP-051794	↓	1	Phenolics	35525-2
						*Bottle for 035525-01FB and -02 were broken. K. Hurmann 5/18/94

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME
Peter Moore		5/17/94	2020

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: Peter Moore
METHOD OF SHIPMENT: FED-EX
AIRBILL NUMBER:
RECEIVED FOR LAB: RMAL
SIGNED: K. Hurmann
DATE/TIME: 5/18/94 0830
ENSECO PROJECT NUMBER: 35526 / 35525

ENS-4011

White - CLIENT Pink - LAB

Enseco
A Corning Company

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4955 Yarrow Street
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☐ Enseco Houston
1420 East North Belt Drive
Suite 120
Houston, TX 77032
713/987 9767 FAX 713/987-9769

CHAIN OF CUSTODY

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

SAMPLE SAFE™ CONDITIONS

PACKED BY: Peter Moore
SEAL NUMBER: NA
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY: NA
CONDITION OF CONTENTS: Good
SEALED FOR SHIPPING BY: Peter Moore
INITIAL CONTENTS TEMP: °C
SEAL NUMBER: NA
SAMPLING STATUS: ☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB: ☐ Yes ☐ No
CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 5.7 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
5/12/94	11:00	DPV-W136-051794	H2O	6	PPT-PAH	PPT-25 35526-3
5/12/94	11:45	DPV-W10-051794		6	PPT-PAH	PPT-25 -4
5/12/94	11:00	DPV-W136-051794		1	Phenolics	35525-3
5/12/94	11:45	DPV-W10TP-051794	✓	1	Phenolics	-4

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME
Peter Moore		5/12/94	20:00

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: Peter Moore
METHOD OF SHIPMENT: FED-EX
AIRBILL NUMBER:
RECEIVED FOR LAB: RMAL
SIGNED: K. Herman
DATE/TIME: 5/18/94 0830
ENSECO PROJECT NUMBER: 35526/35525

ENS-4011

White - CLIENT Pink

Enseco
A Corning Company

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

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

CHAIN OF CUSTODY

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

SAMPLE SAFE™ CONDITIONS

PACKED BY: Peter Moore
SEAL NUMBER: NA
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY: NA
CONDITION OF CONTENTS: Good
SEALED FOR SHIPPING BY: Peter Moore
INITIAL CONTENTS TEMP: °C
SEAL NUMBER: NA
SAMPLING STATUS: ☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB: ☐ Yes ☐ No
CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 35 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
5/17/94	17:00	~~W116~~ DPV-W116-051794	H2O	6	PPT-PAH	PPT-75 35526 -5
5/17/94	10:30	DPV-W425-051794	↓	6	PPT-PAH	PPT-75 -6
5/17/94	17:00	DPV-W116TP-051794	↓	1	Phenolics	35526 -5
5/17/94	10:30	DPV-~~W116~~ W425TP-051794	↓	1	Phenolics	-6

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME
Peter Moore		5/17/94	20:00

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: [signature]
METHOD OF SHIPMENT: FED-EX
AIRBILL NUMBER:
RECEIVED FOR LAB: RMAL
SIGNED: K. Hermann
DATE/TIME: 5/18/94 0830
ENSECO PROJECT NUMBER: 35526/35523

ENS-4011

White - CLIENT Pink - LAB

SUMMARY

DATA

PACKAGE

FOR

City of Saint Louis Park
RMAL No. 35526

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35526-01

Lab Name: ENSECO Contract: DPV-W117-051794

Lab Code: ENSECO Case No.: 35526 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35526-01

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9185

Level: (low/med) LOW Date Received: 05/18/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/19/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/24/94

Injection Volume: 2.0(uL) Dilution Factor: 1.19

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	49	U
496-11-7	2,3-Dihydroindene	2500	ERT
95-13-6	1H-Indene	25	
91-20-3	Naphthalene	110	B
4565-32-6	Benzo(B)Thiophene	120	
91-22-5	Quinoline	16	R
120-72-9	1H-Indole	19	JR
91-57-6	2-Methylnaphthalene	44	BR
90-12-0	1-Methylnaphthalene	97	R
92-52-4	Biphenyl	40	U
208-96-8	Acenaphthylene	29	R
83-32-9	Acenaphthene	1100	
132-64-9	Dibenzofuran	11	
86-73-7	Fluorene	18	R
132-65-0	Dibenzothiophene	11	R
85-01-8	Phenanthrene	35	BR
120-12-7	Anthracene	10	U
260-94-6	Acridine	42	
86-74-8	Carbazole	130	
206-44-0	Fluoranthene	18	B
129-00-0	Pyrene	38	B
56-55-3	Benzo(A)Anthracene	24	U
218-01-9	Chrysene	26	U
205-99-2	Benzo(B)Fluoranthene	24	U
207-08-9	Benzo(K)Fluoranthene	21	U
192-97-2	Benzo(E)Pyrene	18	U
50-32-8	Benzo(A)Pyrene	21	U
198-55-0	Perylene	24	U
193-39-5	Indeno(1,2,3-CD)Pyrene	20	U
53-70-3	Dibenz(A,H)Anthracene	15	U
191-24-2	Benzo(G,H,I)Perylene	26	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35526-01DL

Lab Name: ENSECO Contract: DPV-WI17-051794

Lab Code: ENSECO Case No.: 35526 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35526-01DL

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9195

Level: (low/med) LOW Date Received: 05/18/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/19/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/25/94

Injection Volume: 2.0(uL) Dilution Factor: 4.76

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	200	U
496-11-7	2,3-Dihydroindene	3200	D
95-13-6	1H-Indene	36	U
91-20-3	Naphthalene	110	BDJ
4565-32-6	Benzo(B)Thiophene	130	DR
91-22-5	Quinoline	56	U
120-72-9	1H-Indole	100	U
91-57-6	2-Methylnaphthalene	49	BDR
90-12-0	1-Methylnaphthalene	99	DR
92-52-4	Biphenyl	170	U
208-96-8	Acenaphthylene	56	U
83-32-9	Acenaphthene	1100	D
132-64-9	Dibenzofuran	40	U
86-73-7	Fluorene	40	U
132-65-0	Dibenzothiophene	44	U
85-01-8	Phenanthrene	41	BDJR
120-12-7	Anthracene	44	U
260-94-6	Acridine	120	U
86-74-8	Carbazole	120	D
206-44-0	Fluoranthene	54	U
129-00-0	Pyrene	51	BDJ
56-55-3	Benzo(A)Anthracene	100	U
218-01-9	Chrysene	110	U
205-99-2	Benzo(B)Fluoranthene	100	U
207-08-9	Benzo(K)Fluoranthene	92	U
192-97-2	Benzo(E)Pyrene	76	U
50-32-8	Benzo(A)Pyrene	92	U
198-55-0	Perylene	100	U
193-39-5	Indeno(1,2,3-CD)Pyrene	84	U
53-70-3	Dibenz(A,H)Anthracene	64	U
191-24-2	Benzo(G,H,I)Perylene	110	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35526-01DU

Lab Name: ENSECO Contract: DPV-W117D-051794

Lab Code: ENSECO Case No.: 35526 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35526-01DU

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9197

Level: (low/med) LOW Date Received: 05/18/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/19/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/25/94

Injection Volume: 2.0(uL) Dilution Factor: 1.19

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	50	U
496-11-7	2,3-Dihydroindene	2400	R
95-13-6	1H-Indene	31	
91-20-3	Naphthalene	120	BR
4565-32-6	Benzo(B)Thiophene	140	
91-22-5	Quinoline	17	R
120-72-9	1H-Indole	21	JR
91-57-6	2-Methylnaphthalene	46	BR
90-12-0	1-Methylnaphthalene	110	R
92-52-4	Biphenyl	43	U
208-96-8	Acenaphthylene	29	R
83-32-9	Acenaphthene	1200	
132-64-9	Dibenzofuran	11	R
86-73-7	Fluorene	18	R
132-65-0	Dibenzothiophene	12	R
85-01-8	Phenanthrene	33	BR
120-12-7	Anthracene	11	U
260-94-6	Acridine	44	
86-74-8	Carbazole	130	
206-44-0	Fluoranthene	16	B
129-00-0	Pyrene	36	B
56-55-3	Benzo(A)Anthracene	25	U
218-01-9	Chrysene	28	U
205-99-2	Benzo(B)Fluoranthene	25	U
207-08-9	Benzo(K)Fluoranthene	23	U
192-97-2	Benzo(E)Pyrene	18	U
50-32-8	Benzo(A)Pyrene	23	U
198-55-0	Perylene	25	U
193-39-5	Indeno(1,2,3-CD)Pyrene	21	U
53-70-3	Dibenz(A,H)Anthracene	16	U
191-24-2	Benzo(G,H,I)Perylene	28	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35526-01DUDL

Lab Name: ENSECO Contract: DPV-WI17D-051794

Lab Code: ENSECO Case No.: 35526 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35526-01DUDL

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9196

Level: (low/med) LOW Date Received: 05/18/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/19/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/25/94

Injection Volume: 2.0(uL) Dilution Factor: 4.76

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	200	U
496-11-7	2,3-Dihydroindene	4200	D
95-13-6	1H-Indene	36	U
91-20-3	Naphthalene	140	BDJR
4565-32-6	Benzo(B)Thiophene	160	DR
91-22-5	Quinoline	54	U
120-72-9	1H-Indole	100	U
91-57-6	2-Methylnaphthalene	52	BDR
90-12-0	1-Methylnaphthalene	120	DR
92-52-4	Biphenyl	170	U
208-96-8	Acenaphthylene	54	U
83-32-9	Acenaphthene	1300	D
132-64-9	Dibenzofuran	40	U
86-73-7	Fluorene	40	U
132-65-0	Dibenzothiophene	44	U
85-01-8	Phenanthrene	44	BDJR
120-12-7	Anthracene	44	U
260-94-6	Acridine	42	DJ
86-74-8	Carbazole	130	D
206-44-0	Fluoranthene	54	U
129-00-0	Pyrene	55	BD
56-55-3	Benzo(A)Anthracene	100	U
218-01-9	Chrysene	110	U
205-99-2	Benzo(B)Fluoranthene	100	U
207-08-9	Benzo(K)Fluoranthene	92	U
192-97-2	Benzo(E)Pyrene	76	U
50-32-8	Benzo(A)Pyrene	92	U
198-55-0	Perylene	100	U
193-39-5	Indeno(1,2,3-CD)Pyrene	84	U
53-70-3	Dibenz(A,H)Anthracene	64	U
191-24-2	Benzo(G,H,I)Perylene	110	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35526-01FB

DPV-WII7FB-051794

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35526 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35526-01FB

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9175

Level: (low/med) LOW Date Received: 05/18/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/19/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/24/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 1.0

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

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35526-01FBD

Lab Name: ENSECO Contract: DPV-WI17FBD-051794

Lab Code: ENSECO Case No.: 35526 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35526-01FBD

Sample wt/vol: 4195 (g/mL) ML Lab File ID: C9176

Level: (low/med) LOW Date Received: 05/18/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/19/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/24/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

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

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

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35526-02

DPV-W15-051794

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35526 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35526-02

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9192

Level: (low/med) LOW Date Received: 05/18/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/19/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/25/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	1	JR
496-11-7	2,3-Dihydroindene	140	
95-13-6	1H-Indene	19	
91-20-3	Naphthalene	23	BR
4565-32-6	Benzo(B)Thiophene	19	
91-22-5	Quinoline	1	J
120-72-9	1H-Indole	2	JR
91-57-6	2-Methylnaphthalene	10	BR
90-12-0	1-Methylnaphthalene	9	R
92-52-4	Biphenyl	3	J
208-96-8	Acenaphthylene	4	
83-32-9	Acenaphthene	19	
132-64-9	Dibenzofuran	12	
86-73-7	Fluorene	18	
132-65-0	Dibenzothiophene	8	R
85-01-8	Phenanthrene	50	B
120-12-7	Anthracene	40	
260-94-6	Acridine	14	
86-74-8	Carbazole	28	
206-44-0	Fluoranthene	69	B
129-00-0	Pyrene	50	B
56-55-3	Benzo(A)Anthracene	10	
218-01-9	Chrysene	12	
205-99-2	Benzo(B)Fluoranthene	9	
207-08-9	Benzo(K)Fluoranthene	4	
192-97-2	Benzo(E)Pyrene	4	
50-32-8	Benzo(A)Pyrene	6	
198-55-0	Perylene	2	J
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	5	B

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35526-03

DPV-W136-051/94

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35526 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35526-03

Sample wt/vol: 4170 (g/mL) ML Lab File ID: C9193

Level: (low/med) LOW Date Received: 05/18/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/19/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/25/94

Injection Volume: 2.0(uL) Dilution Factor: 0.120

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	20	
95-13-6	1H-Indene	1	R
91-20-3	Naphthalene	15	B
4565-32-6	Benzo(B)Thiophene	4	
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	JR
91-57-6	2-Methylnaphthalene	9	B
90-12-0	1-Methylnaphthalene	8	
92-52-4	Biphenyl	3	J
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	4	
132-64-9	Dibenzofuran	3	R
86-73-7	Fluorene	7	R
132-65-0	Dibenzothiophene	29	
85-01-8	Phenanthrene	37	B
120-12-7	Anthracene	4	
260-94-6	Acridine	29	R
86-74-8	Carbazole	2	R
206-44-0	Fluoranthene	4	BR
129-00-0	Pyrene	15	B
56-55-3	Benzo(A)Anthracene	6	R
218-01-9	Chrysene	20	
205-99-2	Benzo(B)Fluoranthene	3	JR
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	3	R
50-32-8	Benzo(A)Pyrene	1	J
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	1	BJR

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35526-04

DPV-W10-051794

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35526 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35526-04

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9194

Level: (low/med) LOW Date Received: 05/18/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/19/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/25/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

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

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

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35526-05

DPV-W116-051794

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35526 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35526-05

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9208

Level: (low/med) LOW Date Received: 05/18/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/19/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/26/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	15	
95-13-6	1H-Indene	6	
91-20-3	Naphthalene	50	B
4565-32-6	Benzo(B)Thiophene	3	
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	6	R
91-57-6	2-Methylnaphthalene	29	B
90-12-0	1-Methylnaphthalene	22	
92-52-4	Biphenyl	6	
208-96-8	Acenaphthylene	4	
83-32-9	Acenaphthene	11	
132-64-9	Dibenzofuran	8	
86-73-7	Fluorene	10	
132-65-0	Dibenzothiophene	9	R
85-01-8	Phenanthrene	37	B
120-12-7	Anthracene	4	
260-94-6	Acridine	18	
86-74-8	Carbazole	15	
206-44-0	Fluoranthene	34	B
129-00-0	Pyrene	49	B
56-55-3	Benzo(A)Anthracene	10	
218-01-9	Chrysene	18	R
205-99-2	Benzo(B)Fluoranthene	12	R
207-08-9	Benzo(K)Fluoranthene	5	R
192-97-2	Benzo(E)Pyrene	7	
50-32-8	Benzo(A)Pyrene	10	R
198-55-0	Perylene	3	
193-39-5	Indeno(1,2,3-CD)Pyrene	6	
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	12	B

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35526-06

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35526 SAS No.: SDG No.: DPV-W425-051794

Matrix: (soil/water) WATER Lab Sample ID: 35526-06

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9191

Level: (low/med) LOW Date Received: 05/18/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/19/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/25/94

Injection Volume: 2.0(uL) Dilution Factor: 1.19

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	49	U
496-11-7	2,3-Dihydroindene	430	
95-13-6	1H-Indene	21	
91-20-3	Naphthalene	45	BJR
4565-32-6	Benzo(B)Thiopnene	31	R
91-22-5	Quinoline	16	R
120-72-9	1H-Indole	24	U
91-57-6	2-Methylnapnthalene	18	BR
90-12-0	1-Methylnaphthalene	23	R
92-52-4	Biphenyl	40	U
208-96-8	Acenaphthylene	38	R
83-32-9	Acenaphthene	1200	ET
132-64-9	Dibenzofuran	10	R
86-73-7	Fluorene	42	
132-65-0	Dibenzothiopnene	10	U
85-01-8	Phenanthrene	24	BR
120-12-7	Anthracene	11	R
260-94-6	Acridine	27	U
86-74-8	Carbazole	620	
206-44-0	Fluoranthene	21	B
129-00-0	Pyrene	18	BR
56-55-3	Benzo(A)Anthracene	24	U
218-01-9	Chrysene	26	U
205-99-2	Benzo(B)Fluoranthene	24	U
207-08-9	Benzo(K)Fluoranthene	21	U
192-97-2	Benzo(E)Pyrene	18	U
50-32-8	Benzo(A)Pyrene	21	U
198-55-0	Perylene	24	U
193-39-5	Indeno(1,2,3-CD)Pyrene	20	U
53-70-3	Dibenz(A,H)Anthracene	15	U
191-24-2	Benzo(G,H,I)Perylene	26	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35526-06DL

Lab Name: ENSECO Contract: DPV-W425-051794

Lab Code: ENSECO Case No.: 35526 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35526-06DL

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9209

Level: (low/med) LOW Date Received: 05/18/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/19/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/26/94

Injection Volume: 2.0(uL) Dilution Factor: 2.38

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	98	U
496-11-7	2,3-Dihydroindene	630	D
95-13-6	1H-Indene	33	D
91-20-3	Naphthalene	66	BDJR
4565-32-6	Benzo(B)Thiophene	44	DR
91-22-5	Quinoline	26	U
120-72-9	1H-Indole	48	U
91-57-6	2-Methylnaphthalene	26	BDR
90-12-0	1-Methylnaphthalene	33	DR
92-52-4	Biphenyl	81	U
208-96-8	Acenaphthylene	53	D
83-32-9	Acenaphthene	2300	D
132-64-9	Dibenzofuran	19	U
86-73-7	Fluorene	54	D
132-65-0	Dibenzothiophene	21	U
85-01-8	Phenanthrene	24	U
120-12-7	Anthracene	21	U
260-94-6	Acridine	55	U
86-74-8	Carbazole	1100	D
206-44-0	Fluoranthene	26	U
129-00-0	Pyrene	26	U
56-55-3	Benzo(A)Anthracene	48	U
218-01-9	Chrysene	52	U
205-99-2	Benzo(B)Fluoranthene	48	U
207-08-9	Benzo(K)Fluoranthene	43	U
192-97-2	Benzo(E)Pyrene	36	U
50-32-8	Benzo(A)Pyrene	43	U
198-55-0	Perylene	48	U
193-39-5	Indeno(1,2,3-CD)Pyrene	40	U
53-70-3	Dibenz(A,H)Anthracene	31	U
191-24-2	Benzo(G,H,I)Perylene	52	U

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35526 SAS No.: SDG No.:

	EPA SAMPLE NO.	S1 (NAP)#	S2 (FLU)#	S3 (CHR)#	TOT OUT
01	35526-01	71	118	17	0
02	35526-01DL	0 D	0 D	0 D	0
03	35526-01DU	81	126	27	0
04	35526-01DUDL	0 D	0 D	0 D	0
05	35526-01FB	95	106	88	0
06	35526-01FBD	92	106	86	0
07	35526-02	65	78	24	0
08	35526-03	62	89	27	0
09	35526-04	66	96	25	0
10	35526-05	64	76	18	0
11	35526-06	53	83	31	0
12	35526-06DL	0 D	0 D	0 D	0
13	BLK01	100	112	92	0

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

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

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

BLK01

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35526 SAS No.: SDG No.:

Lab File ID: C9174 Lab Sample ID: BL051994

Instrument ID: 4500-C Date Extracted: 05/19/94

Matrix: (soil/water) WATER Date Analyzed: 05/24/94

Level:(low/med) LOW Time Analyzed: 1101

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	35526-01	35526-01	C9185	05/24/94
02	35526-01DL	35526-01DL	C9195	05/25/94
03	35526-01DU	35526-01DU	C9197	05/25/94
04	35526-01DUDL	35526-01DUDL	C9196	05/25/94
05	35526-01FB	35526-01FB	C9175	05/24/94
06	35526-01FBD	35526-01FBD	C9176	05/24/94
07	35526-02	35526-02	C9192	05/25/94
08	35526-03	35526-03	C9193	05/25/94
09	35526-04	35526-04	C9194	05/25/94
10	35526-05	35526-05	C9208	05/26/94
11	35526-06	35526-06	C9191	05/25/94
12	35526-06DL	35526-06DL	C9209	05/26/94

COMMENTS:

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

BLK01

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35526 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: BL051994

Sample wt/vol: 4000 (g/mL) ML Lab File ID: C9174

Level: (low/med) LOW Date Received:

% Moisture: decanted: (Y/N) N Date Extracted: 05/19/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/24/94

Injection Volume: 2.0(uL) Dilution Factor: 0.125

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

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

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35526 SAS No.: SDG No.:

Lab File ID (Standard): C9173 Date Analyzed: 05/24/94

Instrument ID: 4500-C Time Analyzed: 0956

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	423065	14.20	684026	17.97	243581	27.81
	UPPER LIMIT	846130	14.70	1368052	18.47	487162	28.31
	LOWER LIMIT	211532	13.70	342013	17.47	121790	27.31
	EPA SAMPLE NO.						
01	35526-01	486110	14.19	886049	17.95	325556	27.77
02	35526-01FB	413653	14.24	654652	18.07	268011	28.02
03	35526-01FBD	416470	14.20	692580	18.02	290864	27.99
04	BLK01	343988	14.22	590752	17.99	241674	27.94

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

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

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

88

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35526 SAS No.: SDG No.:

Lab File ID (Standard): C9189 Date Analyzed: 05/25/94

Instrument ID: 4500-C Time Analyzed: 1530

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	488763	14.19	812697	17.92	323237	27.77
	UPPER LIMIT	977526	14.69	1625394	18.42	646474	28.27
	LOWER LIMIT	244382	13.69	406348	17.42	161618	27.27
	EPA SAMPLE NO.						
01	35526-01DL	435449	14.20	758036	17.94	385364	27.79
02	35526-01DU	508669	14.20	928716	17.94	330074	27.77
03	35526-01DUDL	445093	14.20	762591	17.94	371171	27.79
04	35526-02	672845	14.17	1087350	17.94	249184	27.81
05	35526-03	580224	14.22	1095940	17.97	576501	27.81
06	35526-04	562129	14.20	1020420	17.95	315840	27.81
07	35526-06	766824	14.22	1514930	17.94	541563	27.77

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

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

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

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35526 SAS No.: SDG No.:

Lab File ID (Standard): C9204 Date Analyzed: 05/26/94

Instrument ID: 4500-C Time Analyzed: 1705

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	376652	14.10	662237	17.84	216836	27.71
	UPPER LIMIT	753304	14.60	1324474	18.34	433672	28.21
	LOWER LIMIT	188326	13.60	331118	17.34	108418	27.21
	EPA SAMPLE NO.						
01	35526-05	377287	14.30	706612	18.04	174176	27.92
02	35526-06DL	356928	14.37	656080	18.09	239664	27.96

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

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

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

Enseco

TABLE OF CONTENTS

FOR

CITY OF ST. LOUIS PARK

RMAL PROJECT# 035526

PPT-PAH

QC Summary.....0001

Sample Data.....0010

Standards Data.....0611

Raw QC Data.....1001

PHENOLICS MONITORING

Rocky Mountain
Analytical Laboratory

Enseco
A CORNING Company

June 17, 1994

Mr. James Grube
City of St. Louis Park
5005 Minnetonka Blvd.
St. Louis Park, MN 55416

Dear Mr. Grube:

Enclosed is the ppb phenol report for 10 aqueous samples, including matrix QC, received at Enseco-Rocky Mountain Analytical Laboratory on May 10, 1994.

Please call if you have any questions.

Sincerely,

Karen F. Germann
Project Administrator

Reviewed by:

Julieann L. Kramer
Program Manager

KFG/JLK
Enclosures

RMAL #035336

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

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
035336-0001-SA	STP-SLP3TP-050994	AQUEOUS	09 MAY 94		10 MAY 94
035336-0001-DU	STP-SLP3TPD-050994	AQUEOUS	09 MAY 94		10 MAY 94
035336-0001-MS	STP-SLP3TPMS-050994	AQUEOUS	09 MAY 94		10 MAY 94
035336-0001-SD	STP-SLP3TPMSD-050994	AQUEOUS	09 MAY 94		10 MAY 94
035336-0001-FB	STP-SLP3TPFB-050994	AQUEOUS	09 MAY 94		10 MAY 94
035336-0001-FD	STP-SLP3TPFBD-050994	AQUEOUS	09 MAY 94		10 MAY 94
035336-0002-SA	DPV-W2-050994	AQUEOUS	09 MAY 94	16:10	10 MAY 94
035336-0003-SA	DPV-W423-050994	AQUEOUS	09 MAY 94	17:40	10 MAY 94
035336-0004-SA	DPV-W135-050994	AQUEOUS	09 MAY 94	13:40	10 MAY 94
035336-0005-SA	DPV-W128-050994	AQUEOUS	09 MAY 94	15:00	10 MAY 94

U.S. EPA - CLP

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

000001

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.:35336_

SOW No.: ILM02

EPA Sample No.	Lab Sample ID
3533601	3533601
3533601	3533601D
3533601	3533601S
3533601	3533601FB
3533601	3533601FD
3533601	3533601SD
3533602	3533602
3533603	3533603
3533604	3533604
3533605	3533605

Were ICP interelement corrections applied ? Yes/No YES

Were ICP background corrections applied ? Yes/No YES
If yes - were raw data generated before application of background corrections ? Yes/No NO_

Comments:
____TEN_WATER_SAMPLE_FOR_PHENOLIC_ANALYSIS.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Julieann L Kramer Name: Julieann L Kramer

Date: 06-21-94 Title: Program Manager

U.S. EPA - CLP

INORGANIC ANALYSES - RESULT QUALIFIERS

C - Concentration Qualifiers:

U - The reported value is less than the Instrument Detection Limit (IDL).

B - The reported value is less than the Contract Required Detection Limit (CRDL) but greater than the Instrument Detection Limit (IDL).

Q - Quality Control Qualifiers:

E - The reported value is estimated because of the presence of interference. An explanatory note is included under Comments on the Cover Page (if the problem applies to all samples) or on the specific FORM I-IN (if it is an isolated problem).

M - Duplicate injection precision not met.

N - Spiked sample recovery not within control limits.

S - The reported value was determined by the Method of Standard Additions (MSA).

W - Post-digestion spike for Furnace AA analysis is out of control limits (85-115%), while sample absorbance is less than 50% of spike absorbance.

* - Duplicate analysis not within control limits.

+ - Correlation coefficient for the MSA is less than 0.995.

Entering "S", "W", or "+" is mutually exclusive. No combination of these qualifiers can appear in the same field for an analyte.

M - Method Qualifiers:

P - ICP
A - Flame AA
F - Furnace AA
CV - Manual Cold Vapor AA
AV - Automated Cold Vapor AA
AS - Semi-Automated Spectrophotometric
C - Manual Spectrophotometric
T - Titrimetric
NR - Not Required

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

3533602

000006

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 35336_

Matrix (soil/water): WATER Lab Sample ID: 3533602___

Level (low/med): LOW__ Date Received: 05/10/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
54-30-0__	Phenolics	5.0	U		C_

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
DPV-W2-050994

FORM I - IN

7/88

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

000007

3533603

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 35336_

Matrix (soil/water): WATER Lab Sample ID: 3533603___

Level (low/med): LOW__ Date Received: 05/10/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
54-30-0__	Phenolics	5.0	U		C_

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
DPV-W423-050994

FORM I - IN

7/88

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO. 000008

3533604

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 35336_

Matrix (soil/water): WATER Lab Sample ID: 3533604___

Level (low/med): LOW__ Date Received: 05/10/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
54-30-0__	Phenolics	105			C_

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
DPV-W135-050994

FORM I - IN

7/88

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO. 000009

3533605

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 35336_

Matrix (soil/water): WATER Lab Sample ID: 3533605___

Level (low/med): LOW__ Date Received: 05/10/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
54-30-0__	Phenolics	5.0	U		C_

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
DPV-W128-050994

FORM I - IN

7/88

Rocky Mountain
Analytical Laboratory

Enseco

June 22, 1994

Mr. James Grube
City of St. Louis Park
5005 Minnetonka Blvd.
St. Louis Park, MN 55416

Dear Mr. Grube:

Enclosed is the ppb phenol report for 7 aqueous samples, including matrix QC, received at Enseco-Rocky Mountain Analytical Laboratory on May 18, 1994.

Please call if you have any questions.

Sincerely,

Karen F. Germann
Project Administrator

Reviewed by:

Julieann L. Kramer
Program Manager

KFG/JLK
Enclosures

RMAL #035525

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

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
035525-0001-SA	DPV-W117TP-051794	AQUEOUS	17 MAY 94	15:30	18 MAY 94
035525-0001-DU	DPV-W117TPD-051794	AQUEOUS	17 MAY 94	15:30	18 MAY 94
035525-0001-FD	DPV-W117TPFBD-051794	AQUEOUS	17 MAY 94	15:00	18 MAY 94
035525-0003-SA	DPV-W136-051794	AQUEOUS	17 MAY 94	11:00	18 MAY 94
035525-0004-SA	DPV-W10TP-051794	AQUEOUS	17 MAY 94	11:45	18 MAY 94
035525-0005-SA	DPV-W116TP-051794	AQUEOUS	17 MAY 94	17:00	18 MAY 94
035525-0006-SA	DPV-W425TP-051794	AQUEOUS	17 MAY 94	10:30	18 MAY 94

U.S. EPA - CLP

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

000002

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.:35525_

SOW No.: ILM02

EPA Sample No.	Lab Sample ID
3552501	3552501
3552501	3552501D
3552501	3552501FD
3552503	3552503
3552504	3552504
3552505	3552505
3552506	3552506

Were ICP interelement corrections applied ? Yes/No YES

Were ICP background corrections applied ? Yes/No YES
If yes - were raw data generated before application of background corrections ? Yes/No NO_

Comments:
____SEVEN_WATER_SAMPLES_FOR_PHENOLIC_ANALYSIS.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: David B Roberts Jr Name: David B Roberts Jr

Date: 6/23/94 Title: Team Manager

U.S. EPA - CLP

INORGANIC ANALYSES - RESULT QUALIFIERS

C - Concentration Qualifiers:

U - The reported value is less than the Instrument Detection Limit (IDL).

B - The reported value is less than the Contract Required Detection Limit (CRDL) but greater than the Instrument Detection Limit (IDL).

Q - Quality Control Qualifiers:

E - The reported value is estimated because of the presence of interference. An explanatory note is included under Comments on the Cover Page (if the problem applies to all samples) or on the specific FORM I-IN (if it is an isolated problem).

M - Duplicate injection precision not met.

N - Spiked sample recovery not within control limits.

S - The reported value was determined by the Method of Standard Additions (MSA).

W - Post-digestion spike for Furnace AA analysis is out of control limits (85-115%), while sample absorbance is less than 50% of spike absorbance.

* - Duplicate analysis not within control limits.

+ - Correlation coefficient for the MSA is less than 0.995.

Entering "S", "W", or "+" is mutually exclusive. No combination of these qualifiers can appear in the same field for an analyte.

M - Method Qualifiers:

P - ICP
A - Flame AA
F - Furnace AA
CV - Manual Cold Vapor AA
AV - Automated Cold Vapor AA
AS - Semi-Automated Spectrophotometric
C - Manual Spectrophotometric
T - Titrimetric
NR - Not Required

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

000004

3552501

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 35525_

Matrix (soil/water): WATER Lab Sample ID: 3552501___

Level (low/med): LOW__ Date Received: 05/18/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
54-30-0__	Phenolics	5.0	U		C_

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
DPV-W117TP-051794

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO. 000005

3552501FD

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 35525_

Matrix (soil/water): WATER Lab Sample ID: 3552501FD_

Level (low/med): LOW__ Date Received: 05/18/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
54-30-0__	Phenolics	5.0	U		C_

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
DPV-W117TPFBD-051794

FORM I - IN

7/88

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO. 00006

3552503

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 35525_

Matrix (soil/water): WATER Lab Sample ID: 3552503___

Level (low/med): LOW__ Date Received: 05/18/94

Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
54-30-0__	Phenolics	5.0	U		C_

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
DPV-W136TP-051794

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

000007

3552504

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 35525_

Matrix (soil/water): WATER Lab Sample ID: 3552504___

Level (low/med): LOW__ Date Received: 05/18/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
54-30-0__	Phenolics	5.0	U		C_

Color Before: YELLOW___ Clarity Before: CLEAR_ Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
DPV-W10TP-051794

FORM I - IN

7/88

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO. 000008

3552505

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 35525_

Matrix (soil/water): WATER Lab Sample ID: 3552505___

Level (low/med): LOW__ Date Received: 05/18/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
54-30-0__	Phenolics	5.0	U		C_

Color Before: YELLOW___ Clarity Before: CLEAR_ Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
DPV-W116TP-051794

FORM I - IN

7/88

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO. 000009

3552506

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 35525_

Matrix (soil/water): WATER Lab Sample ID: 3552506___

Level (low/med): LOW__ Date Received: 05/18/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
54-30-0__	Phenolics	5.0	U		C_

Color Before: YELLOW___ Clarity Before: CLEAR_ Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
DPV-W425TP-051794

FORM I - IN

7/88

U.S. EPA - CLP

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

000010

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 35525_

Initial Calibration Source: SEE ADDENDUM

Continuing Calibration Source: SEE ADDENDUM

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Phenolics	20.0	19.08	95.4	10.0	10.36	103.6	10.71	107.1	C

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

3
BLANKS

000011

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 35525_

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L_

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Phenolics	5.0	U	5.0	U	5.0	U			5.000	U	C

FORM III - IN

7/88

U.S. EPA - CLP

6
DUPLICATES

EPA SAMPLE NO. 000012

3552501D

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 35525_

Matrix (soil/water): WATER Level (low/med): _LOW__

% Solids for Sample: __0.0 % Solids for Duplicate: ___0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Phenolics		5.0000	U	5.0000	U			C

FORM VI - IN

7/88

U.S. EPA - CLP

00013

7

LABORATORY CONTROL SAMPLE

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 35525_

Solid LCS Source: SEE ADDENDUM

Aqueous LCS Source: SEE ADDENDUM

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Phenolics	20.0	21.53	107.6						

FORM VII - IN

7/88

U.S. EPA - CLP

:00014

13
PREPARATION LOG

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

.ab Code: ENSECO Case No.:_____ SAS No.: _____ SDG No.:35525_

lethod: C_

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
3552501	06/13/94		200
3552501	06/13/94		200
3552501	06/13/94		200
3552503	06/13/94		200
3552504	06/13/94		200
3552505	06/13/94		200
3552506	06/13/94		200
LCSW	06/13/94		200
PBW	06/13/94		200

U.S. EPA - CLP

14
ANALYSIS RUN LOG

000015

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.:35525_

Instrument ID Number: SPEC 88_____ Method: C_

Start Date: 06/13/94 End Date: 06/13/94

EPA Sample No.	D/F	Time	% R	Analytes																						
				PH																						
S0.0	1.00	1948		X																						
S5.0	1.00	1949		X																						
S10.0	1.00	1950		X																						
S20.0	1.00	1951		X																						
S50.0	1.00	1952		X																						
S100.0	1.00	1953		X																						
ICV	1.00	1954		X																						
ICB	1.00	1955		X																						
PBW	1.00	1955		X																						
LCSW	1.00	1956		X																						
ZZZZZZ	1.00	1957																								
ZZZZZZ	1.00	1957																								
ZZZZZZ	1.00	2001																								
ZZZZZZ	1.00	2001																								
ZZZZZZ	1.00	2001																								
ZZZZZZ	1.00	2002																								
ZZZZZZ	1.00	2002																								
ZZZZZZ	1.00	2004																								
CCV	1.00	2004		X																						
CCB	1.00	2004		X																						
ZZZZZZ	1.00	2004																								
ZZZZZZ	1.00	2005																								
3552501	1.00	2006		X																						
3552501D	1.00	2006		X																						
3552501F	1.00	2007		X																						
3552503	1.00	2007		X																						
3552504	1.00	2007		X																						
3552505	1.00	2008		X																						
3552506	1.00	2009		X																						
CCV	1.00	2009		X																						
CCB	1.00	2009		X																						

U S. EPA - CLP

ADDENDUM

STOCK STANDARD SOURCES

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract. CITY__SLP____

Lab Code: ENSECO Case No : _____ SAS No.: N/A___ SDG No.: 35525_

STANDARD	SOURCE/LOT	EXPIRATION DATE
CALIBRATION	LabChem 3102-6	4/8/95
ICV SOLUTION	RICCA F148	2/95
CCV SOLUTION	(same as calibration source above)	
LCS SOLUTION	(same as ICV solution above)	
MATRIX SPIKE SOLUTION	(same as ICV solution above)	

COLORIMETRIC ANALYSIS

PARAMETER CSLF- Phenolics CONTROL _____ DATE 06-13-94 000017

ANALYST STM SPIKE 50.0 UNITS ppb

	Concentration		Absorbance
Blank	0.0	ppb	0.061
STD 1	5.0	ppb	0.068
STD 2	10.0	ppb	0.074
STD 3	20.0	ppb	0.103
STD 4	50.0	ppb	0.189
STD 5	100.0	ppb	0.345

Corr. Coef. = 0.9983

Slope = 0.0029

Intercept = 0.0553

SAMPLE ID	TIME	pH	INTER CHECK	ABSORBANCE SAMPLE	ABSORBANCE COLOR B	CURVE CONC (ppb)	DILUTIONS PREP	DILUTIONS ANALYT	REPORTED CONC (ppb)	% REC
ICV	19:54		STM 06-13-94	~~0.059~~	0.108	19.08	1x	1x	19.1 (20.0)	95%
ICB	19:55			0.059		5u			5u	
PBlank	19:55			0.060		5u			5u	
LCS	19:56			0.115		21.53			21.5 (20.0)	108%
35463-01	19:57	<2	—	0.053		5u			5u	
-01DU	19:57			0.058		5u			5u	
-01MS	20:01			0.205		52.93			52.9 (50.0)	
-01SD	20:01			0.198		50.49			50.5 (50.0)	
-01FB	20:01			0.048		5u			5u	
-01FD	20:02			0.051		5u			5u	
-02	20:02			0.051		5u			5u	
-05	20:04	↓	↓	0.061		5u			5u	
CCV	20:04			0.085		10.36			10.4 (10.0)	104%
CCB	20:04			0.060		5u			5u	
35463-04	20:04	<2	—	0.058		5u			5u	
-05	20:05			0.057		5u			5u	
35525-01	20:06			0.063		5u			5u	
-01DU	20:06			0.058		5u			5u	
-01FD	20:07			0.049		5u			5u	
-03	20:07			0.050		5u			5u	
-04	20:07			0.060		5u			5u	
-05	20:08			0.051		5u			5u	
-06	20:09	↓	↓	0.055		5u			5u	
CCV	20:09			0.084		10.71			10.7 (10.0)	107%
CCB	20:09			0.060		5u	↓	↓	5u	

Enseco - Rocky Mountain Analytical Lab 000018

Sample Description Sheet

Project 035525 Case/SAS No. /NA

SDG No. Conc./Matrix /AQUEOUS

SAMPLE	LIMS SAMPLE	BEFORE DIGESTION COLOR	BEFORE DIGESTION CLARITY	AFTER DIGESTION COLOR	AFTER DIGESTION CLARITY
DPV-W10TP-	0355250004SA	~~8~~ 3	1	8	1
DPV-W116TP	0355250005SA	3			
DPV-W117TP	0355250001SA	8			
DPV-W117TP	0355250001FD	8			
DPV-W117TP	0355250001DU	8			
DPV-W136-0	0355250003SA	8			
DPV-W425TP	0355250006SA	3			

DESCRIPTION KEY:

COLOR:

1.RED	4.GREEN	7.WHITE	10.GREY	
2.BLUE	5.ORANGE	8.COLORLESS	11.BLACK	
3.YELLOW	6.VIOLET	9.BROWN		

CLARITY:

1.CLEAR
2.CLOUDY
3.OPAQUE

COMMENTS:

Enseco - Rocky Mountain Analytical Lab
Sample Preparation Sheet

000019

Project 035525 Case/SAS No. /NA

SDG No. Conc./Matrix /AQUEOUS

SAMPLE	LIMS SAMPLE	DATE RECD	PARAMETERS	ICP METALS		FURNACE METALS		MERCURY		~~CYANIDE~~ Phenol		pH
				g/mL	mL	g/mL	mL	g/mL	mL	g/mL	mL	
PBW	-------	------								200ml	200ml	
LCS	-------	------										
DPV-W10TP-	0355250004SA	05/18/94										
DPV-W116TP	0355250005SA	05/18/94										
DPV-W117TP	0355250001SA	05/18/94										
DPV-W117TP	0355250001FD	05/18/94										
DPV-W117TP	0355250001DU	05/18/94										
DPV-W136-0	0355250003SA	05/18/94										
DPV-W425TP	0355250006SA	05/18/94										
			DATE / INITIALS:	/		/		/		/		/

SPECIAL INSTRUCTIONS and/or CAUTIONS:

STM 06-13-94

Enseco
A Corning Company

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

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

CHAIN OF CUSTODY

ENSECO CLIENT: City of St Louis Park
PROJECT: S2A
SAMPLING COMPANY: ENSR CHS
SAMPLING SITE: SYP
TEAM LEADER: Peter Moore

SAMPLE SAFE™ CONDITIONS

PACKED BY: Peter Moore
SEAL NUMBER: NA
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY: NA
CONDITION OF CONTENTS: Good
SEALED FOR SHIPPING BY: Peter Moore
INITIAL CONTENTS TEMP: °C
SEAL NUMBER: NA
SAMPLING STATUS: ☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB: ☐ Yes ☐ No
CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 10.7 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
5/17/94	15:30	DPV-W117-051794	H_2O	6	PPT-PAH	PPT-75 35526-1
5/17/94	15:30	DPV-W117D-051794	↓	6	PPT-PAH	PPT-75 -1pu
5/17/94	15:30	DPV-W117TP-051794	↓	1	Phenolics	35525-1
5/17/94	15:30	DPV-W117TPD-051794	↓	1	Phenolics	-1pu

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME
P. Moore		5/17/94	20:00

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: Peter Moore
METHOD OF SHIPMENT: FED-EX
AIRBILL NUMBER:
RECEIVED FOR LAB: RMAL
SIGNED: K. German
DATE/TIME: 5/18/94 0830
ENSECO PROJECT NUMBER: 35526 / 35525

000020

ENS-4011

White - CLIENT Pink - LAB

Enseco
A Corning Company

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

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

CHAIN OF CUSTODY

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

SAMPLE SAFE™ CONDITIONS

PACKED BY: Peter Moore
SEAL NUMBER: NA
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY: NA
CONDITION OF CONTENTS: Good
SEALED / SHIPPING BY: Peter Moore
INITIAL CONTENTS TEMP: °C
SEAL NUMBER: NA
SAMPLING STATUS: ☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB: ☐ Yes ☐ No
CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 10.7 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
5/17/94	15:00	DPV-W117FB-051794	H_2O	6	PPT-PAH	PPT-75 35526-1F
	15:00	DPV-W117FBD-051794		6	PPT-PAH	PPT-75 -1F1
	15:00	DPV-W117TPFB-051794		1	Phenolics	35525 -1FB
	15:00	DPV-W117TPFBD-051794		1	Phenolics	-1FD
	18:30	DPV-W15-051794	H_2O	6	PPT-PAH	PPT-75 35526 -2
	18:30	DPV-W15TP-051794		1	Phenolics	35525 -2
						*Bottle for 035525-01FB and -02 were broken. K. Hemann 5/18/94

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME
P. Moore		5/17/94	2020

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: P. Moore
METHOD OF SHIPMENT: FED-EX
AIRBILL NUMBER:
RECEIVED FOR LAB: RMAL
SIGNED: K. Hemann
DATE/TIME: 5/18/94 083
ENSECO PROJECT NUMBER: 35526 / 35525

00002

ENS-4011

White - CLIENT Pink - LAB

Enseco
A Corning Company

☑ Rocky Mountain Analytical Laboratory
4955 Yarrow Street
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303/421-6611 FAX. 303/431-7171

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

CHAIN OF CUSTODY

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

SAMPLE SAFE™ CONDITIONS

PACKED BY: Peter Moore
SEAL NUMBER: NA
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY: NA
CONDITION OF CONTENTS: Good
SEALED FOR SHIPPING BY: Peter Moore
INITIAL CONTENTS TEMP: °C
SEAL NUMBER: NA
SAMPLING STATUS: ☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB: ☐ Yes ☐ No
CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 5.7 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
5/17/94	11:00	DPV-W136-051794	H2O	6	PPT-PAH	PPT-25 35526-3
5/17/94	11:45	DPV-W10-051794		6	PPT-PAH	PPT-25 -4
5/17/94	11:00	DPV-W136-051794		1	Phenolics	35525-3
5/17/94	11:45	DPV-W10TP-051794	↓	1	Phenolics	-4

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME
Peter Moore		5/17/94	2000

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: Peter Moore
METHOD OF SHIPMENT: FED-EX
AIRBILL NUMBER:
RECEIVED FOR LAB: RMAL
SIGNED: K. Herman
DATE/TIME: 5/18/94 0830
ENSECO PROJECT NUMBER: 35526/35525

000022

FNS-4011

White - CLIENT Pink - LAB

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CHAIN OF CUSTODY

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

SAMPLE SAFE™ CONDITIONS

PACKED BY: Peter Moore
SEAL NUMBER: NA
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY: NA
CONDITION OF CONTENTS: Good
SEALED FOR SHIPPING BY: Peter Moore
INITIAL CONTENTS TEMP: °C
SEAL NUMBER: NA
SAMPLING STATUS: ☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB: ☐ Yes ☐ No
CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 35 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
5/17/94	17:00	~~W116~~ DPV-W116-051794	H_2O	6	PPT-PAH	PPT-75 35526 -5
5/17/94	10:30	DPV-W425-051794	↓	6	PPT-PAH	PPT-75 -6
5/17/94	17:00	DPV-W116TP-051794	↓	1	Phenolics	35526 -5
5/17/94	10:30	DPV-~~W116~~ W425TP-051794	↓	1	Phenolics	-6

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME
Peter Moore		5/17/94	20:00

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: Peter Moore
METHOD OF SHIPMENT: FED-EX
AIRBILL NUMBER:
RECEIVED FOR LAB: RMAL
SIGNED: K. Hermann
DATE/TIME: 5/18/94 0830
ENSECO PROJECT NUMBER: 35526/35523

300023

ENS-4011

White - CLIENT Pink - LAB

PLATTEVILLE AQUIFER

PAH MONITORING

Rocky Mountain
Analytical Laboratory

Enseco

CASE NARRATIVE

FOR

City of St. Louis Park

May 27, 1994

Enseco - RMAL Project Number 035354

Introduction

Ten aqueous samples (includes QC) were received at Enseco Rocky Mountain Analytical Laboratory on May 11, 1994. The samples were logged in under RMAL project number 035354. Sample DPV-W19FBD-051094 was extracted and held per the April 1990 QAPP. A cross reference associating the RMAL sample numbers to the actual field sample numbers is included. The samples were analyzed for low level part-per-trillion (ppt) polynuclear aromatic hydrocarbons (PAH).

Data Quality Assessment

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

PPT PAH

The surrogate percent recovery for Chrysene-d12 was above QC limits in samples 035354-0002 and -0007FB. The surrogate percent recovery for Fluorene-d10 was above QC limits for sample 035354-0004. Since surrogate recovery was achieved for all other surrogate components, quantitation was checked and no further action was taken.

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

All samples associated with project 035354 show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion. These compounds are flagged with the letter (R) on the data sheets (Form I) as per the 1990 QAPP.

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

Reported by: Karen F. Germann **Date:** May 27, 1994
Karen F. Germann
Program Administrator

Approved by: Julieann L. Kramer **Date:** May 27, 1994
Julieann L. Kramer
Program Manager

Enseco

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 035354	Group Code	Analysis Description	Custom Test?
0001 - 0007, 0007	A	Polynuclear Aromatic Hydrocarbons, SIM Low Level	N
		Prep - PAH/SIM by GC/MS Low Level	N
0007	B	Prep - PAH/SIM by GC/MS Low Level	N

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Qualifier Codes and Their Usage

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

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

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

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

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

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

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

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

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

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

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

Enseco

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
035354-0001-SA	STP-W122-051094	AQUEOUS	10 MAY 94	15:40	11 MAY 94
035354-0002-SA	DPV-W121-051094	AQUEOUS	10 MAY 94	15:45	11 MAY 94
035354-0003-SA	DPV-W124-051094	AQUEOUS	10 MAY 94	17:30	11 MAY 94
035354-0004-SA	DPV-W100-051094	AQUEOUS	10 MAY 94	12:45	11 MAY 94
035354-0005-SA	DPV-W1-051094	AQUEOUS	10 MAY 94	13:40	11 MAY 94
035354-0006-SA	~~DPV~~-W129-051094	AQUEOUS	10 MAY 94	11:00	11 MAY 94
035354-0007-SA	DPV-W19-051094	AQUEOUS	10 MAY 94	13:00	11 MAY 94
035354-0007-DU	DPV-W19D-051094	AQUEOUS	10 MAY 94	13:00	11 MAY 94
035354-0007-FB	DPV-W19FB-051094	AQUEOUS	10 MAY 94	09:45	11 MAY 94
035354-0007-FD	DPV-W19FBD-051094	AQUEOUS	10 MAY 94	09:45	11 MAY 94

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713/987 9767 FAX: 713/987 9769

CHAIN OF CUSTODY

ENSECO CLIENT	City of St Louis Park
PROJECT	SP Reilly Site
SAMPLING COMPANY	ENSR
SAMPLING SITE	
TEAM LEADER	Billingg / Scott Anderson

SAMPLE SAFE™ CONDITIONS

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

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
5-10-94	1540	STP-W122-051094	H_2O	6	PPT-PAH	ppt 5 35354-1
5-10-94	1545	DPV-W121-051094	H_2O	6	PPT-PAH	ppt 5 35354-2
5-10-94	1545	DPV-W121TP-051094	H_2O	1	ppb phenolics	35356-1
5-10-94	1730	DPV-W124-051094	H_2O	6	ppt PAH	ppt 5 35354-3
5-10-94	1730	DPV-W124TP-051094	H_2O	1	ppb Phenolics	35356-2

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME
David W Jacobson			

SHIPPING DETAILS

DELIVERED TO SHIPPER BY		
METHOD OF SHIPMENT		AIRBILL NUMBER
RECEIVED FOR LAB	SIGNED	DATE/TIME
ENSECO PROJECT NUMBER		

ENS-4011

White - CLIENT Pink - LAB

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A Corning Company

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Houston, TX 77032
713/987-9767 FAX 713/987-9769

CHAIN OF CUSTODY

ENSECO CLIENT: City of St. Louis Park

PROJECT: SLP Reilly Site

SAMPLING COMPANY: ENSR

SAMPLING SITE:

TEAM LEADER: Bill Greco / Scott Anderson

SAMPLE SAFE™ CONDITIONS

PACKED BY:

SEAL NUMBER:

SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:

CONDITION OF CONTENTS:

SEALED FOR SHIPPING BY:

INITIAL CONTENTS TEMP: °C

SEAL NUMBER:

SAMPLING STATUS: ☐ Done ☐ Continuing Until

SEAL INTACT UPON RECEIPT BY LAB: ☐ Yes ☐ No

CONTENTS TEMPERATURE UPON RECEIPT BY LAB: °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
[illegible]	1245	DPV-W100-051094	GROUND WATER	6	PAH PT 5	35354-4
5/10/94	1340	DPV-W1-051094	"	6	PAH PT 5	35354-5
[illegible]	1100	DPV-W129-051094	"	6	PAH PT 5	35354-6
[illegible]	1215	DPV-W100TP-051094	"	1	Total Phenols	35356-3
[illegible]	1340	DPV-W1TP-051094	"	1	Total Phenols	35356-4

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY:

METHOD OF SHIPMENT:

AIRBILL NUMBER:

RECEIVED FOR LAB: RMAL

SIGNED: [illegible]

DATE/TIME: 5/11/94 930

ENSECO PROJECT NUMBER:

ENS-4011

White – CLIENT Pink – LAB

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CHAIN OF CUSTODY

ENSECO CLIENT: City of St. Louis Park	SAMPLE SAFE™ CONDITIONS — PACKED BY: Dave Jacobson ENSR
PROJECT: SLP Reilly Site	SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:
SAMPLING COMPANY: ENSR	SEALED FOR SHIPPING BY:
SAMPLING SITE:	SEAL NUMBER:
TEAM LEADER: Bill Gregg / Scott Anderson	SEAL INTACT UPON RECEIPT BY LAB: ☐ Yes ☐ No

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

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
5-10-94	1300	DPV-W19-051094	GROUND WATER	6	PAH PPT 5	35354-7
		DPV-W19D-051094	"	6	PAH PPT 5	35354-7DU
		DPV-W19FB-051094	"	1	PPB Phenolics	35356-9FB
		DPV W19FBD-051094	"	1	PPB Phenolics	DPV W19FBD 35356-9FD
5-10-94	1300	DPV W19TP-051094	"	1	PPB Phenolics	35356-5
5-10-94	1300	DPV-W19TPD-051094	"	1	PPB Phenolics	35356-5DU

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME
William M Gregg			

SHIPPING DETAILS

DELIVERED TO SHIPPER BY:
METHOD OF SHIPMENT:
AIRBILL NUMBER:
RECEIVED FOR LAB: MAL
SIGNED:
DATE/TIME: 5/11/94 930
ENSECO PROJECT NUMBER:

ENS-4011

White - CLIENT Pink - LAB

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CHAIN OF CUSTODY

ENSECO CLIENT: City of St Louis Park

PROJECT: SLP Railly Site

SAMPLING COMPANY: ENSR

SAMPLING SITE: SLP

TEAM LEADER: Bill Gregg / Scott Anderson

SAMPLE SAFE™ CONDITIONS

PACKED BY:

SEAL NUMBER:

SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:

CONDITION OF CONTENTS:

SEALED FOR SHIPPING BY:

INITIAL CONTENTS TEMP: °C

SEAL NUMBER:

SAMPLING STATUS: ☐ Done ☐ Continuing Until

SEAL INTACT UPON RECEIPT BY LAB: ☐ Yes ☐ No

CONTENTS TEMPERATURE UPON RECEIPT BY LAB: °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
5-10-94	0945	DPV-W19FB-051094	GROUND WATER	6	PAH PPT-5	35354-7FB
		DPV-W19FBD-051094		6	PAH PPT-5	hold 35354-7FD
		~~DPV-W19TP-051094~~		~~1~~	Total Phenols	other cool DWJ 5/11/94
		DPV-W19TPD-051094		1	Total Phenols	DWJ 5/11/94 other cooler

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME
William M. Gregg			

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: ENSR - Pete Moore - 5-10-94

METHOD OF SHIPMENT: FED X

AIRBILL NUMBER: 2103-12 0566

RECEIVED FOR LAB: [illegible]

SIGNED: [illegible]

DATE/TIME: 5/11/94 930

ENSECO PROJECT NUMBER:

ENS-4011

White - CLIENT Pi[illegible] LAB

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35354-02

Lab Name: ENSECO Contract: DPV-WI21-051094

Lab Code: ENSECO Case No.: 35354 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35354-02

Sample wt/vol: 4010 (g/mL) ML Lab File ID: C9140

Level: (low/med) LOW Date Received: 05/11/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/12/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/18/94

Injection Volume: 2.0(uL) Dilution Factor: 0.125

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	1	J
496-11-7	2,3-Dihydroindene	4	
95-13-6	1H-Indene	2	
91-20-3	Naphthalene	17	B
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	JR
120-72-9	1H-Indole	2	J
91-57-6	2-Methylnaphthalene	14	B
90-12-0	1-Methylnaphthalene	12	
92-52-4	Biphenyl	3	J
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	6	
132-64-9	Dibenzofuran	4	R
86-73-7	Fluorene	5	
132-65-0	Dibenzothiophene	4	R
85-01-8	Phenanthrene	16	B
120-12-7	Anthracene	3	
260-94-6	Acridine	21	
86-74-8	Carbazole	4	R
206-44-0	Fluoranthene	18	
129-00-0	Pyrene	21	
56-55-3	Benzo(A)Anthracene	6	
218-01-9	Chrysene	9	
205-99-2	Benzo(B)Fluoranthene	9	
207-08-9	Benzo(K)Fluoranthene	3	R
192-97-2	Benzo(E)Pyrene	4	
50-32-8	Benzo(A)Pyrene	6	
198-55-0	Perylene	2	J
193-39-5	Indeno(1,2,3-CD)Pyrene	4	
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	5	

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35354-03

Lab Name: ENSECO Contract: DPV-WI24-051094

Lab Code: ENSECO Case No.: 35354 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35354-03

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9141

Level: (low/med) LOW Date Received: 05/11/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/12/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/18/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	5	
95-13-6	1H-Indene	2	
91-20-3	Naphthalene	21	B
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	J
91-57-6	2-Methylnaphthalene	16	B
90-12-0	1-Methylnaphthalene	12	
92-52-4	Biphenyl	2	JR
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	5	
132-64-9	Dibenzofuran	3	
86-73-7	Fluorene	4	
132-65-0	Dibenzothiophene	2	R
85-01-8	Phenanthrene	14	B
120-12-7	Anthracene	1	J
260-94-6	Acridine	2	JR
86-74-8	Carbazole	3	R
206-44-0	Fluoranthene	13	
129-00-0	Pyrene	28	
56-55-3	Benzo(A)Anthracene	3	R
218-01-9	Chrysene	5	
205-99-2	Benzo(B)Fluoranthene	4	R
207-08-9	Benzo(K)Fluoranthene	2	JR
192-97-2	Benzo(E)Pyrene	2	
50-32-8	Benzo(A)Pyrene	3	
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	J
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	4	

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35354-04

Lab Name: ENSECO Contract: DPV-WI00-051094

Lab Code: ENSECO Case No.: 35354 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35354-04

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9142

Level: (low/med) LOW Date Received: 05/11/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/12/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/18/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	1	J
496-11-7	2,3-Dihydroindene	7	
95-13-6	1H-Indene	4	
91-20-3	Naphthalene	32	B
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	2	
120-72-9	1H-Indole	15	
91-57-6	2-Methylnaphthalene	23	B
90-12-0	1-Methylnaphthalene	18	
92-52-4	Biphenyl	4	J
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	7	
132-64-9	Dibenzofuran	4	R
86-73-7	Fluorene	5	
132-65-0	Dibenzothiophene	5	R
85-01-8	Phenanthrene	18	B
120-12-7	Anthracene	1	J
260-94-6	Acridine	10	
86-74-8	Carbazole	6	R
206-44-0	Fluoranthene	15	
129-00-0	Pyrene	58	
56-55-3	Benzo(A)Anthracene	1	JR
218-01-9	Chrysene	3	
205-99-2	Benzo(B)Fluoranthene	2	J
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	1	J
50-32-8	Benzo(A)Pyrene	1	J
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	1	J
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	8	

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35354-05

DPV-WI-051094

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35354 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35354-05

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9134

Level: (low/med) LOW Date Received: 05/11/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/12/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/17/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	12	
95-13-6	1H-Indene	7	
91-20-3	Naphthalene	50	B
4565-32-6	Benzo(B)Thiophene	7	R
91-22-5	Quinoline	2	
120-72-9	1H-Indole	4	
91-57-6	2-Methylnapnthalene	31	B
90-12-0	1-Methylnaphthalene	35	
92-52-4	Biphenyl	8	R
208-96-8	Acenaphthylene	5	R
83-32-9	Acenaphthene	19	
132-64-9	Dibenzofuran	13	
86-73-7	Fluorene	15	
132-65-0	Dibenzothiophene	10	R
85-01-8	Phenanthrene	55	B
120-12-7	Anthracene	8	
260-94-6	Acridine	9	
86-74-8	Carbazole	65	
206-44-0	Fluoranthene	98	
129-00-0	Pyrene	91	
56-55-3	Benzo(A)Anthracene	25	
218-01-9	Chrysene	40	
205-99-2	Benzo(B)Fluoranthene	24	
207-08-9	Benzo(K)Fluoranthene	7	R
192-97-2	Benzo(E)Pyrene	12	
50-32-8	Benzo(A)Pyrene	14	
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	9	
53-70-3	Dibenz(A,H)Anthracene	3	
191-24-2	Benzo(G,H,I)Perylene	13	

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35354-07

DPV-W19-051994

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35354 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35354-07

Sample wt/vol: 4185 (g/mL) ML Lab File ID: C9143

Level: (low/med) LOW Date Received: 05/11/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/12/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/18/94

Injection Volume: 2.0(uL) Dilution Factor: 0.120

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	1	JR
496-11-7	2,3-Dihydroindene	6	
95-13-6	1H-Indene	2	
91-20-3	Naphthalene	17	B
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1-	U
120-72-9	1H-Indole	2	J
91-57-6	2-Methylnaphthalene	10	B
90-12-0	1-Methylnaphthalene	9	
92-52-4	Biphenyl	2	J
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	4	
132-64-9	Dibenzofuran	2	
86-73-7	Fluorene	3	
132-65-0	Dibenzothiophene	4	R
85-01-8	Phenanthrene	14	B
120-12-7	Anthracene	1	JR
260-94-6	Acridine	5	
86-74-8	Carbazole	5	R
206-44-0	Fluoranthene	12	
129-00-0	Pyrene	26	
56-55-3	Benzo(A)Anthracene	2	JR
218-01-9	Chrysene	4	
205-99-2	Benzo(B)Fluoranthene	4	
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2-	R
50-32-8	Benzo(A)Pyrene	2	J
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	JR
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35354-07DU

Lab Name: ENSECO Contract: DPV-WI9D-051994

Lab Code: ENSECO Case No.: 35354 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35354-07DU

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9144

Level: (low/med) LOW Date Received: 05/11/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/12/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/18/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	1	JR
496-11-7	2,3-Dihydroindene	7	
95-13-6	1H-Indene	2	
91-20-3	Naphthalene	19	B
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	3	
91-57-6	2-Methylnapnthalene	12	B
90-12-0	1-Methylnaphthalene	10	
92-52-4	Biphenyl	2	J
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	4	
132-64-9	Dibenzofuran	3	
86-73-7	Fluorene	3	
132-65-0	Dibenzothiophene	4	
85-01-8	Phenanthrene	14	B
120-12-7	Anthracene	1	J
260-94-6	Acridine	5	
86-74-8	Carbazole	6	R
206-44-0	Fluoranthene	12	
129-00-0	Pyrene	24	
56-55-3	Benzo(A)Anthracene	2	JR
218-01-9	Chrysene	4	R
205-99-2	Benzo(B)Fluoranthene	3	
207-08-9	Benzo(K)Fluoranthene	2	JR
192-97-2	Benzo(E)Pyrene	2	R
50-32-8	Benzo(A)Pyrene	2	J
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	1	JR
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35354-07FB

Lab Name: ENSECO Contract: DPV-W19FB-051094

Lab Code: ENSECO Case No.: 35354 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35354-07FB

Sample wt/vol: 4115 (g/mL) ML Lab File ID: C9128

Level: (low/med) LOW Date Received: 05/11/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/12/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/17/94

Injection Volume: 2.0(uL) Dilution Factor: 0.121

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

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

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35354-07FBD

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35354 SAS No.: SDG No.: DPV-WI9FBD-051094

Matrix: (soil/water) WATER Lab Sample ID: 35354-07FBD

Sample wt/vol: 4095 (g/mL) ML Lab File ID: C9129

Level: (low/med) LOW Date Received: 05/11/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/12/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/17/94

Injection Volume: 2.0(uL) Dilution Factor: 0.122

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

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

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

BLK01

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35354 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: BL051294

Sample wt/vol: 4000 (g/mL) ML Lab File ID: C9127

Level: (low/med) LOW Date Received:

% Moisture: decanted: (Y/N) N Date Extracted: 05/12/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/17/94

Injection Volume: 2.0(uL) Dilution Factor: 0.125

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

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

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35354 SAS No.: SDG No.:

	EPA SAMPLE NO.	S1 (NAP)#	S2 (FLU)#	S3 (CHR)#	TOT OUT
01	35354-01	77	72	27	0
02	35354-02	56	95	129 *	1
03	35354-03	52	83	56	0
04	35354-04	70	188 *	42	1
05	35354-05	56	89	35	0
06	35354-06	65	66	19	0
07	35354-07	49	81	41	0
08	35354-07DU	64	87	35	0
09	35354-07FB	68	80	133 *	1
10	35354-07FBD	71	81	76	0
11	BLK01	90	96	84	0

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

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

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

BLK01

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35354 SAS No.: SDG No.:

Lab File ID: C9127 Lab Sample ID: BL051294

Instrument ID: 4500-C Date Extracted: 05/12/94

Matrix: (soil/water) WATER Date Analyzed: 05/17/94

Level:(low/med) LOW Time Analyzed: 1310

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	35354-01	35354-01	C9130	05/17/94
02	35354-02	35354-02	C9140	05/18/94
03	35354-03	35354-03	C9141	05/18/94
04	35354-04	35354-04	C9142	05/18/94
05	35354-05	35354-05	C9134	05/17/94
06	35354-06	35354-06	C9135	05/17/94
07	35354-07	35354-07	C9143	05/18/94
08	35354-07DU	35354-07DU	C9144	05/18/94
09	35354-07FB	35354-07FB	C9128	05/17/94
10	35354-07FBD	35354-07FBD	C9129	05/17/94

COMMENTS:

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35354 SAS No.: SDG No.:

Lab File ID (Standard): C9126 Date Analyzed: 05/17/94

Instrument ID: 4500-C Time Analyzed: 1149

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	343780	14.47	529107	18.22	227380	28.21
	UPPER LIMIT	687560	14.97	1058214	18.72	454760	28.71
	LOWER LIMIT	171890	13.97	264554	17.72	113690	27.71
	EPA SAMPLE NO.						
01	35354-01	477268	14.45	659406	18.20	151498	28.19
02	35354-05	296706	14.45	505568	18.20	119184	28.21
03	35354-06	267097	14.45	394700	18.20	146794	28.21
04	35354-07FB	296176	14.45	479593	18.20	240264	28.19
05	35354-07FBD	285250	14.44	416656	18.20	237270	28.17
06	BLK01	237376	14.47	408791	18.22	220793	28.19

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

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

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

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35354 SAS No.: SDG No.:

Lab File ID (Standard): C9138 Date Analyzed: 05/18/94

Instrument ID: 4500-C Time Analyzed: 1607

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	325454	14.39	531339	18.15	324737	28.14
	UPPER LIMIT	650908	14.89	1062678	18.65	649474	28.64
	LOWER LIMIT	162727	13.89	265670	17.65	162368	27.64
	EPA SAMPLE NO.						
01	35354-02	492548	14.37	954869	18.14	366489	28.14
02	35354-03	465793	14.40	832953	18.17	440933	28.17
03	35354-04	516044	14.40	802923	18.17	562379	28.17
04	35354-07	446092	14.39	740041	18.15	431594	28.14
05	35354-07DU	402169	14.37	712299	18.14	409236	28.14

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

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

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

Enseco

TABLE OF CONTENTS

FOR

CITY OF ST. LOUIS PARK

RMAL PROJECT# 035354

PPT-PAH

QC Summary.....0001

Sample Data.....0009

Standards Data.....0517

Raw QC Data.....0868

SEMIVOLATILES DATA

QC SUMMARY

CITY OF SAINT LOUIS PARK

RMAL No: 35354

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35354 SAS No.: SDG No.:

	EPA SAMPLE NO.	S1 (NAP)#	S2 (FLU)#	S3 (CHR)#	TOT OUT
01	35354-01	77	72	27	0
02	35354-02	56	95	129 *	1
03	35354-03	52	83	56	0
04	35354-04	70	188 *	42	1
05	35354-05	56	89	35	0
06	35354-06	65	66	19	0
07	35354-07	49	81	41	0
08	35354-07DU	64	87	35	0
09	35354-07FB	68	80	133 *	1
10	35354-07FBD	71	81	76	0
11	BLK01	90	96	84	0

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

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

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO. 000003

BLK01

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35354 SAS No.: SDG No.:

Lab File ID: C9127 Lab Sample ID: BL051294

Instrument ID: 4500-C Date Extracted: 05/12/94

Matrix: (soil/water) WATER Date Analyzed: 05/17/94

Level:(low/med) LOW Time Analyzed: 1310

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	35354-01	35354-01	C9130	05/17/94
02	35354-02	35354-02	C9140	05/18/94
03	35354-03	35354-03	C9141	05/18/94
04	35354-04	35354-04	C9142	05/18/94
05	35354-05	35354-05	C9134	05/17/94
06	35354-06	35354-06	C9135	05/17/94
07	35354-07	35354-07	C9143	05/18/94
08	35354-07DU	35354-07DU	C9144	05/18/94
09	35354-07FB	35354-07FB	C9128	05/17/94
10	35354-07FBD	35354-07FBD	C9129	05/17/94

COMMENTS:

5B
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35354 SAS No.: SDG No.:

Lab File ID: C8878T Run Date: 04/13/94

Instrument ID: 4500-C Run Time: 1344

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD040	40 PPB PAH	C8878	04/13/94	1344
02	SSTD020	20 PPB PAH	C8879	04/13/94	1437
03	SSTD240	240 PPB PAH	C8880	04/13/94	1531
04	SSTD600	600 PPB PAH	C8881	04/13/94	1624
05	SSTD1200	1200 PPB PAH	C8882	04/13/94	1711

5B
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35354 SAS No.: SDG No.:

Lab File ID: C9126T Run Date: 05/17/94

Instrument ID: 4500-C Run Time: 1149

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD050	50PPBPAH	C9126	05/17/94	1149
02	BLK01	BL051294	C9127	05/17/94	1310
03	35354-07FB	35354-07FB	C9128	05/17/94	1357
04	35354-07FBD	35354-07FBD	C9129	05/17/94	1444
05	35354-01	35354-01	C9130	05/17/94	1531
06	35354-05	35354-05	C9134	05/17/94	1839
07	35354-06	35354-06	C9135	05/17/94	1926

5B
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35354 SAS No.: SDG No.:

Lab File ID: C9138T Run Date: 05/18/94

Instrument ID: 4500-C Run Time: 1607

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD050	50PPBPAH	C9138	05/18/94	1607
02	35354-02	35354-02	C9140	05/18/94	1802
03	35354-03	35354-03	C9141	05/18/94	1853
04	35354-04	35354-04	C9142	05/18/94	1942
05	35354-07	35354-07	C9143	05/18/94	2025
06	35354-07DU	35354-07DU	C9144	05/18/94	2108

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35354 SAS No.: SDG No.:

Lab File ID (Standard): C9126 Date Analyzed: 05/17/94

Instrument ID: 4500-C Time Analyzed: 1149

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	343780	14.47	529107	18.22	227380	28.21
	UPPER LIMIT	687560	14.97	1058214	18.72	454760	28.71
	LOWER LIMIT	171890	13.97	264554	17.72	113690	27.71
	EPA SAMPLE NO.						
01	35354-01	477268	14.45	659406	18.20	151498	28.19
02	35354-05	296706	14.45	505568	18.20	119184	28.21
03	35354-06	267097	14.45	394700	18.20	146794	28.21
04	35354-07FB	296176	14.45	479593	18.20	240264	28.19
05	35354-07FBD	285250	14.44	416656	18.20	237270	28.17
06	BLK01	237376	14.47	408791	18.22	220793	28.19

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

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

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

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35354 SAS No.: SDG No.:

Lab File ID (Standard): C9138 Date Analyzed: 05/18/94

Instrument ID: 4500-C Time Analyzed: 1607

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	325454	14.39	531339	18.15	324737	28.14
	UPPER LIMIT	650908	14.89	1062678	18.65	649474	28.64
	LOWER LIMIT	162727	13.89	265670	17.65	162368	27.64
	EPA SAMPLE NO.						
01	35354-02	492548	14.37	954869	18.14	366489	28.14
02	35354-03	465793	14.40	832953	18.17	440933	28.17
03	35354-04	516044	14.40	802923	18.17	562379	28.17
04	35354-07	446092	14.39	740041	18.15	431594	28.14
05	35354-07DU	402169	14.37	712299	18.14	409236	28.14

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

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

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

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Suite 120
Houston, TX 77032
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CHAIN OF CUSTODY

ENSECO CLIENT: City of St Louis Park	PACKED BY: Peter Moore
PROJECT: SLP	SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:
SAMPLING COMPANY: ENSR CAE	SEALED FOR SHIPPING BY: Peter Moore
SAMPLING SITE:	SEAL NUMBER:
TEAM LEADER: Peter Moore	SEAL INTACT UPON RECEIPT BY LAB: ☐ Yes ☐ No

SAMPLE SAFE™ CONDITIONS

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

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
5/9/94	16:10	DPV-W2-050994	H_2O	6	PPT-PAH	PPT-5
5/9/94	17:40	DPV-W423-050994	H_2O	6	PPT-PAH	PPT-5
5/9/94	16:10	DPV-W2-050994	H_2O	1	PPB-Phenolics	
5/9/94	17:40	DPV-W423-050994	H_2O	1	PPB-Phenolics	

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

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

ENS 4011

White - CLIENT Pink - LAB

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CHAIN OF CUSTODY

ENSECO CLIENT: City of St Louis Park
PROJECT: SLP Reilly Site
SAMPLING COMPANY: ENSR
SAMPLING SITE:
TEAM LEADER: Bill Gregg / Scott Anderson

SAMPLE SAFE™ CONDITIONS

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

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
5-10-94	1540	STP-W122-051094	H_2O	6	PPT-PAH	ppt 5
5-10-94	1545	DPV-W121-051094	H_2O	6	PPT-PAH	ppt 5
5-10-94	1545	DPV-W121TP-051094	H_2O	1	ppb phenolics	
5-10-94	1730	DPV-W124-051094	H_2O	6	ppt PAH	ppt 5
5-10-94	1730	DPV-W124TP-051094	H_2O	1	ppb Phenolics	

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME
David W Jacobsen			

SHIPPING DETAILS

DELIVERED TO SHIPPER BY:
METHOD OF SHIPMENT:
AIRBILL NUMBER:
RECEIVED FOR LAB:
SIGNED:
DATE/TIME:
ENSECO PROJECT NUMBER:

ENS-4011

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Rocky Mountain
Analytical Laboratory

Enseco

CASE NARRATIVE

FOR

City of St. Louis Park

June 28, 1994

Enseco - RMAL Project Number 035462

Introduction

10 aqueous samples (includes QC) were received at Enseco Rocky Mountain Analytical Laboratory on May 17, 1994. The samples were logged in under RMAL project number 035462. Sample DPV-W101FBD-051694 was extracted and held per the April 1990 QAPP. A cross reference associating the RMAL sample numbers to the actual field sample numbers is included. The samples were analyzed for low level part-per-trillion (ppt) polynuclear aromatic hydrocarbons (PAH).

Data Quality Assessment

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

PPT PAH

Sample 035462-0001 is reported at three different dilutions: at a dilution factor of 1.0 (no dilution), at a dilution factor of 4.81, and at a dilution factor of 12.0. An MS/SD pair was analyzed for sample 035462-0001 (no dilution) and for sample 035462-0001DL1 (dilution factor = 4.81); however, an MS/SD pair was not analyzed for sample 035462-0001DL2 (dilution factor = 12.0) because this sample was diluted to the extent that MS/SD percent recoveries could no longer be calculated.

The percent recoveries and RPD's for chrysene and benzo(e)pyrene were below QC limits in samples 035462-0001MS/SD.

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The percent recovery for benzo(e)pyrene was below QC limits in sample 035462-0001DL1 matrix spike. The percent recoveries for chrysene and benzo(e)pyrene were below QC limits in samples 035462-0001DL1 matrix spike duplicate. The average MS/SD percent recovery for chrysene in sample 035462-0001DL1 was 20%. The RPD's for 1H-indene, naphthalene, and benzo(e)pyrene were above the MS/SD QC limits for sample 035462-0001DL1.

It is likely that the inconsistent QC results are due to sample matrix and the concentrations of target compounds present in sample 035462-0001.

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

All samples associated with project 035462 show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion. These compounds are flagged with the letter (R) on the data sheets (Form I) as per the 1990 QAPP.

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

Reported by: Karen F. Germann Date: 6-28-94
Karen F. Germann
Program Administrator

Approved by: (FOR) Date: 6-28-94
Julieann L. Kramer
Program Manager

Enseco

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
035462-0001-SA	DPV-W101-051694	AQUEOUS	16 MAY 94	14:45	17 MAY 94
035462-0001-DU	DPV-W101D-051694	AQUEOUS	16 MAY 94	14:45	17 MAY 94
035462-0001-MS	DPV-W101MS-051694	AQUEOUS	16 MAY 94	14:45	17 MAY 94
035462-0001-SD	DPV-W101MSD-051694	AQUEOUS	16 MAY 94	14:45	17 MAY 94
035462-0001-FB	DPV-W101FB-051694	AQUEOUS	16 MAY 94	14:30	17 MAY 94
035462-0001-FD	DPV-W101FBD-051694	AQUEOUS	16 MAY 94	14:30	17 MAY 94
035462-0002-SA	DPV-W131-051694	AQUEOUS	16 MAY 94	12:00	17 MAY 94
035462-0003-SA	DPV-W20-051694	AQUEOUS	16 MAY 94	13:50	17 MAY 94
035462-0004-SA	DPV-W424-051694	AQUEOUS	16 MAY 94	09:30	17 MAY 94
035462-0005-SA	DPV-W428-051694	AQUEOUS	16 MAY 94	10:45	17 MAY 94

Enseco

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 035462	Group Code	Analysis Description	Custom Test?
0001 , 0001, 0001 - 0005	A	Polynuclear Aromatic Hydrocarbons, SIM Low Level	N
		Prep - PAH/SIM by GC/MS Low Level	N

Rocky Mountain
Analytical Laboratory

Enseco

Qualifier Codes and Their Usage

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

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

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

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

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

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

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Qualifer Codes and Their Usage
Page Two

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

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

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

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

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

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

CHAIN OF CUSTODY

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

SAMPLE SAFE™ CONDITIONS

PACKED BY: Peter Moore
SEAL NUMBER: NA
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY: NA
CONDITION OF CONTENTS:
SEALED FOR SHIPPING BY: Peter Moore
INITIAL CONTENTS TEMP: °C
SEAL NUMBER: NA
SAMPLING STATUS: ☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB: ☑ Yes ☐ No
CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 7.8 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
5/16/94	14:45	DPV-W101-051694	H_2O	6	PPT-PAH	PPT-25 35462-1
5/16/94		DPV-W101D-051694		6	PPT-PAH	PPT-25 -1DU
5/16/94		DPV-W101MS-051694		6	PPT-PAH	PPT-25 -1MS
5/16/94		DPV-W101-051694		1	Phenolics	~~PPT-2~~ PIM 35463-1
5/16/94		DPV-W101D-051694		1	Phenolics	-1DU
5/16/94		DPV-W101MS-051694		1	Phenolics	-1MS

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME
[signature]		5/16/94	17:00

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: Peter Moore
METHOD OF SHIPMENT: FED-EX
AIRBILL NUMBER: 2105420781
RECEIVED FOR LAB: RMAL
SIGNED: K. Hemm
DATE/TIME: 5/17/94 0830
ENSECO PROJECT NUMBER: 35462/35463

ENS-4011

White - CLIENT Pink - LAB

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Houston, TX 77032
713/987-9767 FAX 713/987-9769

CHAIN OF CUSTODY

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

SAMPLE SAFE™ CONDITIONS

PACKED BY: Peter Moore
SEAL NUMBER: NA
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY: NA
CONDITION OF CONTENTS:
SEALED FOR SHIPPING BY: Peter Moore
INITIAL CONTENTS TEMP: °C
SEAL NUMBER: NA
SAMPLING STATUS: ☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No
CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 11.0 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
5/16/94	14:45	DPV-W101 MSD-051694	H_2O	6	PPT-PAH	PPT-25 35462-1SD
	14:30	DPV-W101 FB-051694		6	PPT-PAH	PPT-25 35462-1EB
	14:30	DPV-W101 FBD-051694		6	PPT-PAH	PPT-25 35462-1ED
	14:45	DPV-W101 MSD-051694		1	Phenolics	35463-1G
	14:30	DPV-W101 FB-051694		1	Phenolics	-1FB
5/16/94	14:30	DPV-W101 FBD-051694		1	Phenolics	-1FD

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME
Peter Moore		5/16/94	12:00

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: Peter Moore
METHOD OF SHIPMENT: FED-EX
AIRBILL NUMBER: 2103420981
RECEIVED FOR LAB: RMAL
SIGNED: J Dell
DATE/TIME: 5/17/94 830
ENSECO PROJECT NUMBER: 35462/35463

LNS 4011 White - CLIENT Pink

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Rocky Mountain Analytical Laboratory
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Arvada, CO 80002
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Enseco Houston
1120 East North Belt Drive
Suite 120
Houston, TX 77032
713/987 9767 FAX 713/987-9769

CHAIN OF CUSTODY

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

SAMPLE SAFE™ CONDITIONS

PACKED BY: Peter Moore
SEAL NUMBER: NA
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY: NA
CONDITION OF CONTENTS:
SEALED FOR SHIPPING BY: Peter Moore
INITIAL CONTENTS TEMP: °C
SEAL NUMBER: NA
SAMPLING STATUS: ☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No
CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 8.5 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
5/16/94	12:00	~~W131~~ MW DPV-W131-051694	H_2O	G	PPT-PAH	PPT-25 35462-2
5/16/94	12:00	~~W131~~ MW DPV-W131-051694		1	Phenolics	35463-2
5/16/94	13:50	~~W20~~ MW DPV-W20-051694		G	PPT-PAH	PPT-25 35462-3
5/16/94	13:50	~~W20~~ MW DPV-W20-051694		1	Phenolics	35463-3

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME
Peter Moore		5/16/94	12:00

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: Peter Moore
METHOD OF SHIPMENT: FED-EX
AIRBILL NUMBER: 210 3420981
RECEIVED FOR LAB: LMAC
SIGNED: J DeCho
DATE/TIME: 5/17/94 830
ENSECO PROJECT NUMBER: 35462/35463

LNS 4011

White - CLIENT Pink - LAB

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713/987-9767 FAX 713/987-9769

CHAIN OF CUSTODY

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

SAMPLE SAFE™ CONDITIONS

PACKED BY: Peter Moore
SEAL NUMBER: NA
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY: NA
CONDITION OF CONTENTS:
SEALED FOR SHIPPING BY: Peter Moore
INITIAL CONTENTS TEMP: °C
SEAL NUMBER: NA
SAMPLING STATUS: ☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No
CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 4.9 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
5/16/94	9:30	DPV-W424-051694	H_2O	6	PPT-PAH	PPT-75 35462-4
5/16/94	9:30	DPV-W424-051694	H_2O	1	Phenolics	35463-4
5/16/94	10:45	DPV-W428-051694	H_2O	6	PPT-PAH	PPT-75 35462-5
5/16/94	10:45	DPV-W428-051694	H_2O	1	Phenolics	35463-5

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME
Peter Moore		5/16/94	1200

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: Peter Moore
METHOD OF SHIPMENT: FED-EX
AIRBILL NUMBER: 2163420981
RECEIVED FOR LAB: LNAL
SIGNED: [illegible]
DATE/TIME: 5/17/94 8:30
ENSECO PROJECT NUMBER: 35462/35463

ENS-4011

White - CLIENT Pink -

SUMMARY

DATA

PACKAGE

FOR

CITY OF SAINT LOUIS PARK

RMAL No: 35462

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35462-01

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35462 SAS No.: SDG No.: DPV-W101-051694

Matrix: (soil/water) WATER Lab Sample ID: 35462-01

Sample wt/vol: 4160 (g/mL) ML Lab File ID: C9177

Level: (low/med) LOW Date Received: 05/17/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/17/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/24/94

Injection Volume: 2.0(uL) Dilution Factor: 1.20

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	49	U
496-11-7	2,3-Dihydroindene	3300	ERT
95-13-6	1H-Indene	120	
91-20-3	Naphthalene	97	BR
4565-32-6	Benzo(B)Thiophene	1300	RT
91-22-5	Quinoline	13	U
120-72-9	1H-Indole	14	JR
91-57-6	2-Methylnaphthalene	31	BR
90-12-0	1-Methylnaphthalene	190	R
92-52-4	Biphenyl	41	U
208-96-8	Acenaphthylene	26	
83-32-9	Acenaphthene	310	
132-64-9	Dibenzofuran	10	U
86-73-7	Fluorene	10	U
132-65-0	Dibenzothiophene	11	U
85-01-8	Phenanthrene	35	BR
120-12-7	Anthracene	11	U
260-94-6	Acridine	15	J
86-74-8	Carbazole	30	
206-44-0	Fluoranthene	29	B
129-00-0	Pyrene	36	B
56-55-3	Benzo(A)Anthracene	24	U
218-01-9	Chrysene	12	J
205-99-2	Benzo(B)Fluoranthene	14	J
207-08-9	Benzo(K)Fluoranthene	22	U
192-97-2	Benzo(E)Pyrene	18	U
50-32-8	Benzo(A)Pyrene	10	JR
198-55-0	Perylene	24	U
193-39-5	Indeno(1,2,3-CD)Pyrene	20	U
53-70-3	Dibenz(A,H)Anthracene	16	U
191-24-2	Benzo(G,H,I)Perylene	10	J

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35462-01DL1

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35462 SAS No.: SDG No.: DPV-W101-051694

Matrix: (soil/water) WATER Lab Sample ID: 35462-01DL1

Sample wt/vol: 4160 (g/mL) ML Lab File ID: C9210

Level: (low/med) LOW Date Received: 05/17/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/17/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/26/94

Injection Volume: 2.0(uL) Dilution Factor: 4.81

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	200	U
496-11-7	2,3-Dihydroindene	7100	DE
95-13-6	1H-Indene	160	D
91-20-3	Naphthalene	120	BDJR
4565-32-6	Benzo(B)Thiophene	2800	D
91-22-5	Quinoline	53	U
120-72-9	1H-Indole	96	U
91-57-6	2-Methylnaphthalene	35	U
90-12-0	1-Methylnaphthalene	220	DR
92-52-4	Biphenyl	160	U
208-96-8	Acenaphthylene	53	U
83-32-9	Acenaphthene	340	D
132-64-9	Dibenzofuran	38	U
86-73-7	Fluorene	38	U
132-65-0	Dibenzothiophene	42	U
85-01-8	Phenanthrene	44	BDJR
120-12-7	Anthracene	42	U
260-94-6	Acridine	110	U
86-74-8	Carbazole	72	U
206-44-0	Fluoranthene	53	U
129-00-0	Pyrene	55	BD
56-55-3	Benzo(A)Anthracene	96	U
218-01-9	Chrysene	110	U
205-99-2	Benzo(B)Fluoranthene	96	U
207-08-9	Benzo(K)Fluoranthene	87	U
192-97-2	Benzo(E)Pyrene	72	U
50-32-8	Benzo(A)Pyrene	87	U
198-55-0	Perylene	96	U
193-39-5	Indeno(1,2,3-CD)Pyrene	82	U
53-70-3	Dibenz(A,H)Anthracene	63	U
191-24-2	Benzo(G,H,I)Perylene	110	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35462-01DL2

DPV-WI01-051694

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35462 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35462-01DL2

Sample wt/vol: 4160 (g/mL) ML Lab File ID: C9229

Level: (low/med) LOW Date Received: 05/17/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/17/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/31/94

Injection Volume: 2.0(uL) Dilution Factor: 12.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	490	U
496-11-7	2,3-Dihydroindene	6900	D
95-13-6	1H-Indene	170	D
91-20-3	Naphthalene	120	BDJR
4565-32-6	Benzo(B)Thiophene	2800	D
91-22-5	Quinoline	130	U
120-72-9	1H-Indole	240	U
91-57-6	2-Methylnaphthalene	86	U
90-12-0	1-Methylnaphthalene	230	DR
92-52-4	Biphenyl	410	U
208-96-8	Acenaphthylene	130	U
83-32-9	Acenaphthene	350	D
132-64-9	Dibenzofuran	96	U
86-73-7	Fluorene	96	U
132-65-0	Dibenzothiophene	110	U
85-01-8	Phenanthrene	120	U
120-12-7	Anthracene	110	U
260-94-6	Acridine	280	U
86-74-8	Carbazole	180	U
206-44-0	Fluoranthene	130	U
129-00-0	Pyrene	130	U
56-55-3	Benzo(A)Anthracene	240	U
218-01-9	Chrysene	260	U
205-99-2	Benzo(B)Fluoranthene	240	U
207-08-9	Benzo(K)Fluoranthene	220	U
192-97-2	Benzo(E)Pyrene	180	U
50-32-8	Benzo(A)Pyrene	220	U
198-55-0	Perylene	240	U
193-39-5	Indeno(1,2,3-CD)Pyrene	200	U
53-70-3	Dibenz(A,H)Anthracene	160	U
191-24-2	Benzo(G,H,I)Perylene	260	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35462-01DU

DPV-W101D-051694

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35462 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35462-01DU

Sample wt/vol: 4190 (g/mL) ML Lab File ID: C9178

Level: (low/med) LOW Date Received: 05/17/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/17/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/24/94

Injection Volume: 2.0(uL) Dilution Factor: 1.19

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	15	JR
496-11-7	2,3-Dihydroindene	3200	ERT
95-13-6	1H-Indene	110	
91-20-3	Naphthalene	90	BR
4565-32-6	Benzo(B)Thiophene	1300	RT
91-22-5	Quinoline	13	U
120-72-9	1H-Indole	13	JR
91-57-6	2-Methylnaphthalene	29	BR
90-12-0	1-Methylnaphthalene	180	R
92-52-4	Biphenyl	40	U
208-96-8	Acenaphthylene	25	
83-32-9	Acenaphthene	280	
132-64-9	Dibenzofuran	10	U
86-73-7	Fluorene	16	R
132-65-0	Dibenzothiophene	13	R
85-01-8	Phenanthrene	31	BR
120-12-7	Anthracene	10	U
260-94-6	Acridine	17	JR
86-74-8	Carbazole	33	
206-44-0	Fluoranthene	23	B
129-00-0	Pyrene	38	B
56-55-3	Benzo(A)Anthracene	24	U
218-01-9	Chrysene	26	U
205-99-2	Benzo(B)Fluoranthene	24	U
207-08-9	Benzo(K)Fluoranthene	21	U
192-97-2	Benzo(E)Pyrene	18	U
50-32-8	Benzo(A)Pyrene	21	U
198-55-0	Perylene	24	U
193-39-5	Indeno(1,2,3-CD)Pyrene	20	U
53-70-3	Dibenz(A,H)Anthracene	15	U
191-24-2	Benzo(G,H,I)Perylene	26	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35462-01DUDL

DPV-WI01D-051694

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35462 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35462-01DUDL

Sample wt/vol: 4190 (g/mL) ML Lab File ID: C9211

Level: (low/med) LOW Date Received: 05/17/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/17/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/26/94

Injection Volume: 2.0(uL) Dilution Factor: 4.77

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	200	U
496-11-7	2,3-Dihydroindene	5000	D
95-13-6	1H-Indene	130	D
91-20-3	Naphthalene	98	BDJR
4565-32-6	Benzo(B)Thiophene	2200	D
91-22-5	Quinoline	52	U
120-72-9	1H-Indole	95	U
91-57-6	2-Methylnaphthalene	34	U
90-12-0	1-Methylnaphthalene	190	DR
92-52-4	Biphenyl	160	U
208-96-8	Acenaphthylene	52	U
83-32-9	Acenaphthene	290	D
132-64-9	Dibenzofuran	38	U
86-73-7	Fluorene	38	U
132-65-0	Dibenzothiophene	42	U
85-01-8	Phenanthrene	48	U
120-12-7	Anthracene	42	U
260-94-6	Acridine	110	U
86-74-8	Carbazole	72	U
206-44-0	Fluoranthene	52	U
129-00-0	Pyrene	52	BDJ
56-55-3	Benzo(A)Anthracene	95	U
218-01-9	Chrysene	100	U
205-99-2	Benzo(B)Fluoranthene	95	U
207-08-9	Benzo(K)Fluoranthene	86	U
192-97-2	Benzo(E)Pyrene	72	U
50-32-8	Benzo(A)Pyrene	86	U
198-55-0	Perylene	95	U
193-39-5	Indeno(1,2,3-CD)Pyrene	81	U
53-70-3	Dibenz(A,H)Anthracene	62	U
191-24-2	Benzo(G,H,I)Perylene	100	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35462-01FB

DPV-W101FB-051694

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35462 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35462-01FB

Sample wt/vol: 4160 (g/mL) ML Lab File ID: C9160

Level: (low/med) LOW Date Received: 05/17/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/17/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/20/94

Injection Volume: 2.0(uL) Dilution Factor: 0.120

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

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

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35462-01FBD

DPV-W101FBD-051694

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35462 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35462-01FBD

Sample wt/vol: 3990 (g/mL) ML Lab File ID: C9161

Level: (low/med) LOW Date Received: 05/17/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/17/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/20/94

Injection Volume: 2.0(uL) Dilution Factor: 0.125

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

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

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35462-02

DPV-W131-051694

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35462 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35462-02

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9164

Level: (low/med) LOW Date Received: 05/17/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/17/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/20/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	11	
95-13-6	1H-Indene	6	
91-20-3	Naphthalene	14	B
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	J
120-72-9	1H-Indole	3	R
91-57-6	2-Methylnaphthalene	19	B
90-12-0	1-Methylnaphthalene	29	
92-52-4	Biphenyl	8	
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	15	
132-64-9	Dibenzofuran	9	
86-73-7	Fluorene	10	
132-65-0	Dibenzothiophene	4	R
85-01-8	Phenanthrene	22	B
120-12-7	Anthracene	2	
260-94-6	Acridine	3	
86-74-8	Carbazole	14	
206-44-0	Fluoranthene	17	B
129-00-0	Pyrene	35	B
56-55-3	Benzo(A)Anthracene	4	R
218-01-9	Chrysene	6	
205-99-2	Benzo(B)Fluoranthene	8	
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	3	R
50-32-8	Benzo(A)Pyrene	4	
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	3	
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	5	

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35462-03

Lab Name: ENSECO Contract: DPV-W20-051694

Lab Code: ENSECO Case No.: 35462 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35462-03

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9165

Level: (low/med) LOW Date Received: 05/17/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/17/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/20/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	1	JR
496-11-7	2,3-Dihydroindene	220	ERT
95-13-6	1H-Indene	17	
91-20-3	Naphthalene	38	B
4565-32-6	Benzo(B)Thiophene	62	R
91-22-5	Quinoline	4	R
120-72-9	1H-Indole	10	R
91-57-6	2-Methylnapnthalene	25	BR
90-12-0	1-Methylnaphthalene	22	R
92-52-4	Biphenyl	4	JR
208-96-8	Acenapnthylene	5	R
83-32-9	Acenaphthene	12	
132-64-9	Dibenzofuran	5	
86-73-7	Fluorene	9	R
132-65-0	Dibenzothiophene	3	R
85-01-8	Phenanthrene	15	BR
120-12-7	Anthracene	6	R
260-94-6	Acridine	28	
86-74-8	Carbazole	11	
206-44-0	Fluoranthene	13	B
129-00-0	Pyrene	38	B
56-55-3	Benzo(A)Anthracene	4	R
218-01-9	Chrysene	6	
205-99-2	Benzo(B)Fluoranthene	5	R
207-08-9	Benzo(K)Fluoranthene	2	J
192-97-2	Benzo(E)Pyrene	3	R
50-32-8	Benzo(A)Pyrene	4	R
198-55-0	Perylene	1	JR
193-39-5	Indeno(1,2,3-CD)Pyrene	3	R
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	11	

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35462-03DL

Lab Name: ENSECO Contract: DPV-W20-051694

Lab Code: ENSECO Case No.: 35462 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 36462-03DL

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9182

Level: (low/med) LOW Date Received: 05/17/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/17/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/24/94

Injection Volume: 2.0(uL) Dilution Factor: 1.19

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	49	U
496-11-7	2,3-Dihydroindene	550	D
95-13-6	1H-Indene	26	D
91-20-3	Naphthalene	56	BDJ
4565-32-6	Benzo(B)Thiophene	87	D
91-22-5	Quinoline	13	U
120-72-9	1H-Indole	13	DJR
91-57-6	2-Methylnapnthalene	36	BDR
90-12-0	1-Methylnapnthalene	28	DR
92-52-4	Biphenyl	40	U
208-96-8	Acenaphthylene	13	U
83-32-9	Acenaphthene	16	D
132-64-9	Dibenzofuran	10	U
86-73-7	Fluorene	11	DR
132-65-0	Dibenzothiophene	10	U
85-01-8	Phenanthrene	23	BDR
120-12-7	Anthracene	10	DJ
260-94-6	Acridine	42	D
86-74-8	Carbazole	17	DJ
206-44-0	Fluoranthene	25	BD
129-00-0	Pyrene	77	BD
56-55-3	Benzo(A)Anthracene	24	U
218-01-9	Chrysene	26	U
205-99-2	Benzo(B)Fluoranthene	24	U
207-08-9	Benzo(K)Fluoranthene	21	U
192-97-2	Benzo(E)Pyrene	18	U
50-32-8	Benzo(A)Pyrene	21	U
198-55-0	Perylene	24	U
193-39-5	Indeno(1,2,3-CD)Pyrene	20	U
53-70-3	Dibenz(A,H)Anthracene	15	U
191-24-2	Benzo(G,H,I)Perylene	12	DJ

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35462-04

Lab Name: ENSECO Contract: DPV-W424-051694

Lab Code: ENSECO Case No.: 35462 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35462-04

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9166

Level: (low/med) LOW Date Received: 05/17/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/17/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/20/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	6	
95-13-6	1H-Indene	3	
91-20-3	Naphthalene	27	B
4565-32-6	Benzo(B)Thiophene	4	R
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	1	JR
91-57-6	2-Methylnaphthalene	18	B
90-12-0	1-Methylnaphthalene	20	
92-52-4	Biphenyl	4	J
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	10	
132-64-9	Dibenzofuran	6	
86-73-7	Fluorene	7	
132-65-0	Dibenzothiophene	2	R
85-01-8	Phenanthrene	13	B
120-12-7	Anthracene	1	JR
260-94-6	Acridine	4	
86-74-8	Carbazole	8	
206-44-0	Fluoranthene	6	B
129-00-0	Pyrene	17	B
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	1	JR
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H.I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35462-05

Lab Name: ENSECO Contract: DPV-W428-051694

Lab Code: ENSECO Case No.: 35462 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35462-05

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C9202

Level: (low/med) LOW Date Received: 05/17/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/17/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/26/94

Injection Volume: 2.0(uL) Dilution Factor: 0.119

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	5	U
496-11-7	2,3-Dihydroindene	120	
95-13-6	1H-Indene	15	
91-20-3	Naphthalene	61	B
4565-32-6	Benzo(B)Thiophene	36	R
91-22-5	Quinoline	1	J
120-72-9	1H-Indole	12	R
91-57-6	2-Methylnaphthalene	22	B
90-12-0	1-Methylnaphthalene	25	R
92-52-4	Biphenyl	5	R
208-96-8	Acenaphthylene	5	R
83-32-9	Acenaphthene	18	
132-64-9	Dibenzofuran	8	
86-73-7	Fluorene	12	
132-65-0	Dibenzothiophene	4	R
85-01-8	Phenanthrene	20	BR
120-12-7	Anthracene	2	R
260-94-6	Acridine	14	
86-74-8	Carbazole	20	
206-44-0	Fluoranthene	9	BR
129-00-0	Pyrene	27	B
56-55-3	Benzo(A)Anthracene	2	JR
218-01-9	Chrysene	2	J
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	1	JR
50-32-8	Benzo(A)Pyrene	2	J
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	4	

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35462-01MS

Lab Name: ENSECO Contract: DPV-W101MS-051694

Lab Code: ENSECO Case No.: 35462 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35462-01MS

Sample wt/vol: 4170 (g/mL) ML Lab File ID: C9179

Level: (low/med) LOW Date Received: 05/17/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/17/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/24/94

Injection Volume: 2.0(uL) Dilution Factor: 1.20

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	15	JR
496-11-7	2,3-Dihydroindene	3300	ERT
95-13-6	1H-Indene	170	
91-20-3	Naphthalene	150	BR
4565-32-6	Benzo(B)Thiophene	1500	ER
91-22-5	Quinoline	75	
120-72-9	1H-Indole	14	JR
91-57-6	2-Methylnapnthalene	89	BR
90-12-0	1-Methylnaphthalene	200	R
92-52-4	Biphenyl	41	U
208-96-8	Acenaphthylene	26	
83-32-9	Acenaphthene	310	
132-64-9	Dibenzofuran	10	R
86-73-7	Fluorene	82	
132-65-0	Dibenzothiophene	11	U
85-01-8	Phenanthrene	40	BR
120-12-7	Anthracene	11	U
260-94-6	Acridine	15	J
86-74-8	Carbazole	35	
206-44-0	Fluoranthene	33	B
129-00-0	Pyrene	45	B
56-55-3	Benzo(A)Anthracene	24	U
218-01-9	Chrysene	25	J
205-99-2	Benzo(B)Fluoranthene	13	J
207-08-9	Benzo(K)Fluoranthene	22	U
192-97-2	Benzo(E)Pyrene	12	J
50-32-8	Benzo(A)Pyrene	22	U
198-55-0	Perylene	24	U
193-39-5	Indeno(1,2,3-CD)Pyrene	20	U
53-70-3	Dibenz(A,H)Anthracene	16	U
191-24-2	Benzo(G,H,I)Perylene	26	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35462-01MSDL

DPV-W101MS-051694

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35462 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35462-01MSDL

Sample wt/vol: 4170 (g/mL) ML Lab File ID: C9212

Level: (low/med) LOW Date Received: 05/17/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/17/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/26/94

Injection Volume: 2.0(uL) Dilution Factor: 4.80

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	200	U
496-11-7	2,3-Dihydroindene	6100	DE
95-13-6	1H-Indene	200	D
91-20-3	Naphthalene	180	BDJR
4565-32-6	Benzo(B)Thiophene	2600	D
91-22-5	Quinoline	82	D
120-72-9	1H-Indole	96	U
91-57-6	2-Methylnaphthalene	110	BDR
90-12-0	1-Methylnaphthalene	230	DR
92-52-4	Biphenyl	160	U
208-96-8	Acenaphthylene	53	U
83-32-9	Acenaphthene	330	D
132-64-9	Dibenzofuran	38	U
86-73-7	Fluorene	83	D
132-65-0	Dibenzothiophene	42	U
85-01-8	Phenanthrene	48	BDR
120-12-7	Anthracene	42	U
260-94-6	Acridine	110	U
86-74-8	Carbazole	72	U
206-44-0	Fluoranthene	39	BDJ
129-00-0	Pyrene	60	BD
56-55-3	Benzo(A)Anthracene	96	U
218-01-9	Chrysene	110	U
205-99-2	Benzo(B)Fluoranthene	96	U
207-08-9	Benzo(K)Fluoranthene	86	U
192-97-2	Benzo(E)Pyrene	72	U
50-32-8	Benzo(A)Pyrene	86	U
198-55-0	Perylene	96	U
193-39-5	Indeno(1,2,3-CD)Pyrene	82	U
53-70-3	Dibenz(A,H)Anthracene	62	U
191-24-2	Benzo(G,H,I)Perylene	110	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35462-01MSD

DPV-W101MSD-051694

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35462 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35462-01MSD

Sample wt/vol: 4150 (g/mL) ML Lab File ID: C9180

Level: (low/med) LOW Date Received: 05/17/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/17/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/24/94

Injection Volume: 2.0(uL) Dilution Factor: 1.20

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2.3-Dibenzofuran	49	U
496-11-7	2,3-Dihydroindene	3400	ERT
95-13-6	1H-Indene	170	
91-20-3	Naphthalene	150	B
4565-32-6	Benzo(B)Thiophene	1400	R
91-22-5	Quinoline	70	
120-72-9	1H-Indole	13	JR
91-57-6	2-Methylnapnthalene	83	BR
90-12-0	1-Methylnaphthalene	190	R
92-52-4	Biphenyl	41	U
208-96-8	Acenaphthylene	26	
83-32-9	Acenaphthene	300	
132-64-9	Dibenzofuran	10	U
86-73-7	Fluorene	78	
132-65-0	Dibenzothiophene	11	U
85-01-8	Phenanthrene	36	BR
120-12-7	Anthracene	11	U
260-94-6	Acridine	17	JR
86-74-8	Carbazole	34	
206-44-0	Fluoranthene	24	B
129-00-0	Pyrene	39	B
56-55-3	Benzo(A)Anthracene	24	U
218-01-9	Chrysene	21	J
205-99-2	Benzo(B)Fluoranthene	24	U
207-08-9	Benzo(K)Fluoranthene	22	U
192-97-2	Benzo(E)Pyrene	18	U
50-32-8	Benzo(A)Pyrene	22	U
198-55-0	Perylene	24	U
193-39-5	Indeno(1,2,3-CD)Pyrene	20	U
53-70-3	Dibenz(A,H)Anthracene	16	U
191-24-2	Benzo(G,H,I)Perylene	26	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

35462-01MSDDL

DPV-W101MSD-051694

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35462 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 35462-01MSDDL

Sample wt/vol: 4150 (g/mL) ML Lab File ID: C9213

Level: (low/med) LOW Date Received: 05/17/94

% Moisture: decanted: (Y/N) N Date Extracted: 05/17/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/27/94

Injection Volume: 2.0(uL) Dilution Factor: 4.82

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Dibenzofuran	200	U
496-11-7	2,3-Dihydroindene	5600	D
95-13-6	1H-Indene	190	D
91-20-3	Naphthalene	160	BDJR
4565-32-6	Benzo(B)Thiophene	2400	D
91-22-5	Quinoline	75	D
120-72-9	1H-Indole	96	U
91-57-6	2-Methylnapnthalene	94	BDR
90-12-0	1-Methylnaphthalene	210	DR
92-52-4	Biphenyl	160	U
208-96-8	Acenaphthylene	53	U
83-32-9	Acenaphthene	320	D
132-64-9	Dibenzofuran	39	U
86-73-7	Fluorene	80	D
132-65-0	Dibenzothiophene	42	U
85-01-8	Phenanthrene	40	BDJ
120-12-7	Anthracene	42	U
260-94-6	Acridine	110	U
86-74-8	Carbazole	72	U
206-44-0	Fluoranthene	53	U
129-00-0	Pyrene	54	BD
56-55-3	Benzo(A)Anthracene	96	U
218-01-9	Chrysene	110	U
205-99-2	Benzo(B)Fluoranthene	96	U
207-08-9	Benzo(K)Fluoranthene	87	U
192-97-2	Benzo(E)Pyrene	72	U
50-32-8	Benzo(A)Pyrene	87	U
198-55-0	Perylene	96	U
193-39-5	Indeno(1,2,3-CD)Pyrene	82	U
53-70-3	Dibenz(A,H)Anthracene	63	U
191-24-2	Benzo(G,H,I)Perylene	110	U

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35462 SAS No.: SDG No.:

	EPA SAMPLE NO.	S1 (NAP)#	S2 (FLU)#	S3 (CHR)#	TOT OUT
01	35462-01	67	101	35	0
02	35462-01DL1	0 D	0 D	0 D	0
03	35462-01DL2	0 D	0 D	0 D	0
04	35462-01DU	68	98	23	0
05	35462-01DUDL	0 D	0 D	0 D	0
06	35462-01FB	70	86	85	0
07	35462-01FBD	83	102	93	0
08	35462-02	62	93	27	0
09	35462-03	44	77	17	0
10	35462-03DL	62	99	19	0
11	35462-04	65	100	40	0
12	35462-05	56	81	22	0
13	35462-01MS	69	108	21	0
14	35462-01MSD	66	106	20	0
15	35462-01MSDDL	0 D	0 D	0 D	0
16	35462-01MSDL	0 D	0 D	0 D	0
17	BLK01	85	95	84	0

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

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

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35462 SAS No.: SDG No.:

Matrix Spike - EPA Sample No.: 35462-01

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC #	QC LIMITS REC.
1H-Indene	71.9	123.6	172.8	68	20-150
Naphthalene	71.9	97.32	153.6	78	20-150
Quinoline	71.9	8.32	75.48	93	20-150
2-Methylnapnthalene	71.9	30.60	88.68	81	20-150
Fluorene	71.9	0.751	82.32	113	20-150
Chrysene	71.9	12.36	25.20	18 *	20-150
Benzo(E)Pyrene	71.9	6.52	11.74	7 *	10-150

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1H-Indene	72.3	169.2	63	8	28	20-150
Naphthalene	72.3	148.8	72	8	28	20-150
Quinoline	72.3	69.84	85	9	28	20-150
2-Methylnapnthalene	72.3	83.16	73	10	28	20-150
Fluorene	72.3	77.76	107	5	28	20-150
Chrysene	72.3	20.64	12 *	40 *	28	20-150
Benzo(E)Pyrene	72.3	8.41	3 *	80 *	28	10-150

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

COMMENTS:

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35462 SAS No.: SDG No.:

Matrix Spike - EPA Sample No.: 35462-01DL1

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC #	QC LIMITS REC.
1H-Indene	71.9	159.2	203.9	62	20-150
Naphthalene	71.9	119.8	177.1	80	20-150
Quinoline	71.9	ND	81.96	114	20-150
2-Methylnaphthalene	71.9	34.34	105.6	99	20-150
Fluorene	71.9	15.63	82.97	94	20-150
Chrysene	71.9	11.39	27.50	22	20-150
Benzo(E)Pyrene	71.9	16.31	22.80	9 *	10-150

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1H-Indene	72.3	185.6	36	53 *	28	20-150
Naphthalene	72.3	162.6	59	30 *	28	20-150
Quinoline	72.3	72.25	100	13	28	20-150
2-Methylnaphthalene	72.3	93.30	82	19	28	20-150
Fluorene	72.3	80.67	90	4	28	20-150
Chrysene	72.3	24.22	18 *	20	28	20-150
Benzo(E)Pyrene	72.3	ND	- 1 *	63 *	28	10-150

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

COMMENTS:

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

BLK01

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35462 SAS No.: SDG No.:

Lab File ID: C9146 Lab Sample ID: BL051794

Instrument ID: 4500-C Date Extracted: 05/17/94

Matrix: (soil/water) WATER Date Analyzed: 05/19/94

Level:(low/med) LOW Time Analyzed: 1659

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	35462-01	35462-01	C9177	05/24/94
02	35462-01DL1	35462-01DL1	C9210	05/26/94
03	35462-01DL2	35462-01DL2	C9229	05/31/94
04	35462-01DU	35462-01DU	C9178	05/24/94
05	35462-01DUDL	35462-01DUDL	C9211	05/26/94
06	35462-01FB	35462-01FB	C9160	05/20/94
07	35462-01FBD	35462-01FBD	C9161	05/20/94
08	35462-02	35462-02	C9164	05/20/94
09	35462-03	35462-03	C9165	05/20/94
10	35462-03DL	36462-03DL	C9182	05/24/94
11	35462-04	35462-04	C9166	05/20/94
12	35462-05	35462-05	C9202	05/26/94
13	35462-01MS	35462-01MS	C9179	05/24/94
14	35462-01MSD	35462-01MSD	C9180	05/24/94
15	35462-01MSDDL	35462-01MSDDL	C9213	05/27/94
16	35462-01MSDL	35462-01MSDL	C9212	05/26/94

COMMENTS:

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

BLK01

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35462 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: BL051794

Sample wt/vol: 4000 (g/mL) ML Lab File ID: C9146

Level: (low/med) LOW Date Received:

% Moisture: decanted: (Y/N) N Date Extracted: 05/17/94

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/19/94

Injection Volume: 2.0(uL) Dilution Factor: 0.125

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

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

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35462 SAS No.: SDG No.:

Lab File ID (Standard): C9145 Date Analyzed: 05/19/94

Instrument ID: 4500-C Time Analyzed: 1530

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	307496	14.37	453854	18.12	280572	28.07
	UPPER LIMIT	614992	14.87	907708	18.62	561144	28.57
	LOWER LIMIT	153748	13.87	226927	17.62	140286	27.57
	EPA SAMPLE NO.						
01	BLK01	251381	14.37	433204	18.12	259370	28.09

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

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

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

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35462 SAS No.: SDG No.:

Lab File ID (Standard): C9158 Date Analyzed: 05/20/94

Instrument ID: 4500-C Time Analyzed: 1148

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	346886	14.32	663134	18.07	421658	28.02
	UPPER LIMIT	693772	14.82	1326268	18.57	843316	28.52
	LOWER LIMIT	173443	13.82	331567	17.57	210829	27.52
	EPA SAMPLE NO.						
01	35462-01FB	448092	14.34	1049980	18.07	507572	28.02
02	35462-01FBD	384282	14.34	758382	18.07	449966	28.02
03	35462-02	433069	14.32	804848	18.07	287371	28.02
04	35462-03	547437	14.32	1248190	18.07	349312	28.02
05	35462-04	379472	14.32	750764	18.07	301776	28.01

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

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

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

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35462 SAS No.: SDG No.:

Lab File ID (Standard): C9173 Date Analyzed: 05/24/94

Instrument ID: 4500-C Time Analyzed: 0956

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	423065	14.20	684026	17.97	243581	27.81
	UPPER LIMIT	846130	14.70	1368052	18.47	487162	28.31
	LOWER LIMIT	211532	13.70	342013	17.47	121790	27.31
	EPA SAMPLE NO.						
01	35462-01	550026	14.20	993559	18.04	348802	28.01
02	35462-01DU	513197	14.20	870625	18.02	348377	27.84
03	35462-03DL	468323	14.20	867000	17.97	332724	27.79
04	35462-01MS	442357	14.22	799635	17.97	314548	27.86
05	35462-01MSD	493401	14.20	848975	18.02	344512	27.99

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

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

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

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35462 SAS No.: SDG No.:

Lab File ID (Standard): C9189 Date Analyzed: 05/25/94

Instrument ID: 4500-C Time Analyzed: 1530

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	488763	14.19	812697	17.92	323237	27.77
	UPPER LIMIT	977526	14.69	1625394	18.42	646474	28.27
	LOWER LIMIT	244382	13.69	406348	17.42	161618	27.27
	EPA SAMPLE NO.						
01	35462-05	531528	14.22	941805	17.94	181195	27.77

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

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

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

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35462 SAS No.: SDG No.:

Lab File ID (Standard): C9204 Date Analyzed: 05/26/94

Instrument ID: 4500-C Time Analyzed: 1705

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	376652	14.10	662237	17.84	216836	27.71
	UPPER LIMIT	753304	14.60	1324474	18.34	433672	28.21
	LOWER LIMIT	188326	13.60	331118	17.34	108418	27.21
	EPA SAMPLE NO.						
01	35462-01DL1	352926	14.37	660496	18.10	237608	27.97
02	35462-01DUDL	299980	14.09	577923	17.82	191808	27.72
03	35462-01MSDDL	293020	14.09	544584	17.82	183555	27.71
04	35462-01MSDL	275660	14.07	523387	17.82	180096	27.71

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

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

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

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 35462 SAS No.: SDG No.:

Lab File ID (Standard): C9223 Date Analyzed: 05/31/94

Instrument ID: 4500-C Time Analyzed: 1829

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	279776	14.00	496963	17.77	202068	27.64
	UPPER LIMIT	559552	14.50	993926	18.27	404136	28.14
	LOWER LIMIT	139888	13.50	248482	17.27	101034	27.14
	EPA SAMPLE NO.						
01	35462-01DL2	279809	14.00	492030	17.82	200288	27.72

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

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

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

PHENOLICS MONITORING

Rocky Mountain
Analytical Laboratory

Enseco
A CORNING Company

June 17, 1994

Mr. James Grube
City of St. Louis Park
5005 Minnetonka Blvd.
St. Louis Park, MN 55416

Dear Mr. Grube:

Enclosed is the ppb phenol report for 8 aqueous samples, including matrix QC, received at Enseco-Rocky Mountain Analytical Laboratory on May 11, 1994.

Please call if you have any questions.

Sincerely,

Karen F. Germann
Project Administrator

Reviewed by:

Julieann L. Kramer
Program Manager

KFG/JLK
Enclosures

RMAL #035356

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

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
035356-0001-SA	DPV-W121TP-051094	AQUEOUS	10 MAY 94	15:45	11 MAY 94
035356-0002-SA	DPV-W124TP-051094	AQUEOUS	10 MAY 94	17:30	11 MAY 94
035356-0003-SA	DPV-W100TP-051094	AQUEOUS	10 MAY 94	12:45	11 MAY 94
035356-0004-SA	DPV-W1TP-051094	AQUEOUS	10 MAY 94	13:40	11 MAY 94
035356-0005-SA	DPV-W19TP-051094	AQUEOUS	10 MAY 94	13:00	11 MAY 94
035356-0005-DU	DPV-W19TPD-051094	AQUEOUS	10 MAY 94	13:00	11 MAY 94
035356-0005-FB	DPV-W19FB-051094	AQUEOUS	10 MAY 94	13:00	11 MAY 94
035356-0005-FD	DPV-W19FBD-051094	AQUEOUS	10 MAY 94	13:00	11 MAY 94

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COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

000001

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.:35356_

SOW No.: ILM02

EPA Sample No.	Lab Sample ID
3535601	3535601
3535602	3535602
3535603	3535603
3535604	3535604
3535605	3535605
3535605	3535605D
3535605	3535605FB
3535605	3535605FD

Were ICP interelement corrections applied ? Yes/No YES

Were ICP background corrections applied ? Yes/No YES

If yes - were raw data generated before application of background corrections ? Yes/No NO_

Comments:
___EIGHT_WATER_SAMPLES_FOR_PHENOLIC_ANALYSIS.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Juliann L Kramer Name: Juliann L Kramer

Date: 06 21 90 Title: Program Manager

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INORGANIC ANALYSES - RESULT QUALIFIERS

C - Concentration Qualifiers:

U - The reported value is less than the Instrument Detection Limit (IDL).

B - The reported value is less than the Contract Required Detection Limit (CRDL) but greater than the Instrument Detection Limit (IDL).

Q - Quality Control Qualifiers:

E - The reported value is estimated because of the presence of interference. An explanatory note is included under Comments on the Cover Page (if the problem applies to all samples) or on the specific FORM I-IN (if it is an isolated problem).

M - Duplicate injection precision not met.

N - Spiked sample recovery not within control limits.

S - The reported value was determined by the Method of Standard Additions (MSA).

W - Post-digestion spike for Furnace AA analysis is out of control limits (85-115%), while sample absorbance is less than 50% of spike absorbance.

* - Duplicate analysis not within control limits.

+ - Correlation coefficient for the MSA is less than 0.995.

Entering "S", "W", or "+" is mutually exclusive. No combination of these qualifiers can appear in the same field for an analyte.

M - Method Qualifiers:

P - ICP
A - Flame AA
F - Furnace AA
CV - Manual Cold Vapor AA
AV - Automated Cold Vapor AA
AS - Semi-Automated Spectrophotometric
C - Manual Spectrophotometric
T - Titrimetric
NR - Not Required

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1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

000003

3535601

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 35356_

Matrix (soil/water): WATER Lab Sample ID: 3535601___

Level (low/med): LOW__ Date Received: 05/11/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
54-30-0__	Phenolics	5.0	U		C_

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
DPV-W121TP-051094

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1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

3535602

000004

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 35356_

Matrix (soil/water): WATER Lab Sample ID: 3535602___

Level (low/med): LOW__ Date Received: 05/11/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
54-30-0__	Phenolics	5.0	U		C_

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
DPV-W124TP-051094

FORM I - IN

7/88

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1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

000005

3535603

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 35356_

Matrix (soil/water): WATER Lab Sample ID: 3535603___

Level (low/med): LOW__ Date Received: 05/11/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
54-30-0__	Phenolics	5.0	U		C_

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
DPV-W100TP-051094

FORM I - IN

7/88

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1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

3535604

000006

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 35356_

Matrix (soil/water): WATER Lab Sample ID: 3535604___

Level (low/med): LOW__ Date Received: 05/11/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
54-30-0__	Phenolics	5.0	U		C_

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
DPV-W1TP-051094

FORM I - IN

7/88

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1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

3535605

000007

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 35356_

Matrix (soil/water): WATER Lab Sample ID: 3535605___

Level (low/med): LOW__ Date Received: 05/11/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
54-30-0__	Phenolics	5.0	U		C_

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
DPV-W19TP-051094

FORM I - IN

7/88

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1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

3535605FB

00008

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 35356_

Matrix (soil/water): WATER Lab Sample ID: 3535605FB_

Level (low/med): LOW__ Date Received: 05/11/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
54-30-0__	Phenolics	5.0	U		C_

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
DPV-W19FB-051094

FORM I - IN

7/88

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

000009

3535605FD

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 35356_

Matrix (soil/water): WATER Lab Sample ID: 3535605FD_

Level (low/med): LOW__ Date Received: 05/11/94

Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
54-30-0__	Phenolics	5.0	U		C_

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
DPV-W19FBD-051094

FORM I - IN

7/88

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2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

000010

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 35356_

Initial Calibration Source: SEE ADDENDUM

Continuing Calibration Source: SEE ADDENDUM

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Phenolics	20.0	20.21	101.0	20.0	19.19	96.0	19.19	96.0	C

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

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3
BLANKS

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: ____ SAS No.: _____ SDG No.: 35356_

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L_

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Phenolics	5.0	U	5.0	U	5.0	U			5.000	U	C

FORM III - IN

7/88

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6
DUPLICATES

EPA SAMPLE NO.

3535605D

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 35356_

Matrix (soil/water): WATER Level (low/med): _LOW__

% Solids for Sample: __0.0 % Solids for Duplicate: ___0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Phenolics		5.0000	U	5.0000	U			C

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000013

7

LABORATORY CONTROL SAMPLE

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 35356_

Solid LCS Source: SEE ADDENDUM

Aqueous LCS Source: SEE ADDENDUM

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Phenolics	20.0	21.93	109.6						

FORM VII - IN

7/88

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8

STANDARD ADDITION RESULTS

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract:CITY_SLP__

Lab Code: ENSECO Case No.: ____ SAS No.:_____ SDG No.:35356_

Concentration Units: ug/L

EPA Sample No.	An	0 ADD ABS	1 ADD CON	1 ADD ABS	2 ADD CON	2 ADD ABS	3 ADD CON	3 ADD ABS	Final Conc.	r	Q

FORM VIII - IN 7/88

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13
PREPARATION LOG

000015

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.:_____ SAS No.: _____ SDG No.:35356_

Method: C_

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
3535601	06/06/94		200
3535602	06/06/94		200
3535603	06/06/94		200
3535604	06/06/94		200
3535605	06/06/94		200
3535605	06/06/94		200
3535605	06/06/94		200
3535605	06/06/94		200
LCSW	06/06/94		200
PBW	06/06/94		200

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000016

14

ANALYSIS RUN LOG

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.:35356_

Instrument ID Number: SPEC 88_____ Method: C_

Start Date: 06/06/94 End Date: 06/06/94

EPA Sample No.	D/F	Time	% R	Analytes PH
0.0	1.00	2124		X
5.0	1.00	2125		X
10.0	1.00	2126		X
20.0	1.00	2127		X
50.0	1.00	2128		X
100.0	1.00	2129		X
ICV	1.00	2130		X
ICB	1.00	2130		X
PBW	1.00	2131		X
LCSW	1.00	2131		X
ZZZZZZ	1.00	2131		
ZZZZZZ	1.00	2132		
ZZZZZZ	1.00	2132		
ZZZZZZ	1.00	2135		
ZZZZZZ	1.00	2135		
ZZZZZZ	1.00	2135		
ZZZZZZ	1.00	2135		
ZZZZZZ	1.00	2136		
CCV	1.00	2136		X
CCB	1.00	2137		X
ZZZZZZ	2.00	2139		
ZZZZZZ	1.00	2141		
3535601	1.00	2141		X
3535602	1.00	2141		X
3535603	1.00	2143		X
3535604	1.00	2143		X
3535605	1.00	2143		X
3535605D	1.00	2144		X
3535605F	1.00	2146		X
3535605F	1.00	2146		X
CCV	1.00	2146		X
CCB	1.00	2146		X

FORM XIV - IN 7/88

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ADDENDUM

STOCK STANDARD SOURCES

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY__SLP____

Lab Code: ENSECO Case No.. _____ SAS No.: N/A___ SDG No.: 35356_

STANDARD	SOURCE/LOT	EXPIRATION DATE
CALIBRATION	LabChem 3102-6	4/8/95
ICV SOLUTION	RICCA F148	2/95
CCV SOLUTION	(same as calibration source above)	
LCS SOLUTION	(same as ICV solution above)	
MATRIX SPIKE SOLUTION	(same as ICV solution above)	

Enseco - Rocky Mountain Analytical Lab
Sample Description Sheet

Project 035356 Case/SAS No. /NA

SDG No. Conc./Matrix /AQUEOUS

SAMPLE	LIMS SAMPLE	BEFORE DIGESTION COLOR	BEFORE DIGESTION CLARITY	AFTER DIGESTION COLOR	AFTER DIGESTION CLARITY
DPV-W100TP	0353560003SA	Colorless	Clear	Colorless	Clear
DPV-W121TP	0353560001SA				
DPV-W124TP	0353560002SA				
DPV-W19FB-	0353560005FB				
DPV-W19FBD	0353560005FD				
DPV-W19TP-	0353560005SA				
DPV-W19TPD	0353560005DU				
DPV-W1TP-0	0353560004SA				

DESCRIPTION KEY:

COLOR:

1.RED	4.GREEN	7.WHITE	10.GREY
2.BLUE	5.ORANGE	8.COLORLESS	11.BLACK
3.YELLOW	6.VIOLET	9.BROWN	

CLARITY:
1.CLEAR
2.CLOUDY
3.OPAQUE

COMMENTS:

Enseco - Rocky Mountain Analytical Lab
Sample Preparation Sheet

CC0019

Project 035356 Case/SAS No. /NA

SDG No. Conc./Matrix /AQUEOUS

SAMPLE	LIMS SAMPLE	DATE RECD	PARAMETERS	ICP METALS		FURNACE METALS		MERCURY		Phenol/ ~~CYANIDE~~		pH
				g/mL	mL	g/mL	mL	g/mL	mL	g/mL	mL	
9W	--------	------								200	200	< 2
LCS	--------	------										
PV-W100TP	0353560003SA	05/11/94										
PV-W121TP	0353560001SA	05/11/94										
PV-W124TP	0353560002SA	05/11/94										
PV-W19FB-	0353560005FB	05/11/94										
PV-W19FBD	0353560005FD	05/11/94										
PV-W19TP-	0353560005SA	05/11/94										
PV-W19TPD	0353560005DU	05/11/94										
PV-W1TP-0	0353560004SA	05/11/94										
			DATE / INITIALS:		/		/		/	STM	/	/

SPECIAL INSTRUCTIONS and/or CAUTIONS:

Enseco
A Corning Company

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

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

CHAIN OF CUSTODY

ENSECO CLIENT: City of St Louis Park	SAMPLE SAFE™ CONDITIONS — PACKED BY: Dave Jacobson ENSR
PROJECT: S.P Reilly Site	SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:
SAMPLING COMPANY: ENSR	SEALED FOR SHIPPING BY:
SAMPLING SITE:	SEAL NUMBER:
TEAM LEADER: Billings / Scott Anderson	SEAL INTACT UPON RECEIPT BY LAB: ☐ Yes ☐ No

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

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
5-10-94	1540	STP-W122-051094	H_2O	6	PPT-PAH	ppt 5 35354-1
5-10-94	1545	DPV-W121-051094	H_2O	6	PPT-PAH	ppt 5 35354-2
5-10-94	1545	DPV-W121TP-051094	H_2O	1	ppb phenolics	35356-1
5-10-94	1730	DPV-W124-051094	H_2O	6	ppt PAH	ppt 5 35354-3
5-10-94	1730	DPV-W124TP-051094	H_2O	1	ppb Phenolics	35356-2

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME
Dwight W Jacobson			

SHIPPING DETAILS

DELIVERED TO SHIPPER BY:
METHOD OF SHIPMENT:
AIRBILL NUMBER:
RECEIVED FOR LAB: DMA
SIGNED:
DATE/TIME: 5/11/94 9:21
ENSECO PROJECT NUMBER:

ENS-4011

White - CLIENT LAB

Enseco
A Corning Company
4955 Yarrow Street
Arvada, CO 80002
303/421-6611 FAX. 303/431-7171
1420 East North Belt Drive
Suite 120
Houston, TX 77032
713/987 9767 FAX 713/987 9769

CHAIN OF CUSTODY

ENSECO CLIENT: City of St. Louis Park
PROJECT: LLP Reilly Site
SAMPLING COMPANY: ENSR
SAMPLING SITE:
TEAM LEADER: Bill Greg / Scott Anderson

SAMPLE SAFE™ CONDITIONS

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

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
[illegible] 94	1245	DPV-W100-051094	GROUND WATER	6	PAH PPT 5	35354-4
5/10/94	1340	DPV-W1-051094	"	6	PAH PPT 5	35354-5
[illegible] 94	1100	DPV-W129-051094	"	6	PAH PPT 5	35354-6
[illegible] 94	1245	DPV-W100TP-051094	"	1	Total Phenols	35356-3
[illegible] 94	1340	DPV-W1TP-051094	"	1	Total Phenols	35356-[illegible]

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY:
METHOD OF SHIPMENT:
AIRBILL NUMBER:
RECEIVED FOR LAB: [illegible]
SIGNED: [illegible]
DATE/TIME: 5/11/94 [illegible]
ENSECO PROJECT NUMBER:

000021

ENS-4011

White – CLIENT Pink – LAB

Enseco
A Corning Company

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713/987 9767 FAX 713/987-9769

CHAIN OF CUSTODY

SAMPLE SAFE™ CONDITIONS

ENSECO CLIENT: City of St. Louis Park
PROJECT: SLP Reilly site
SAMPLING COMPANY: ENSR
SAMPLING SITE:
TEAM LEADER: [illegible] Gregg / Scott Anderson

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

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
[illegible] 94	1300	DPV-W19 051094	GROUND WATER	6	PAH PPT 5	35354 -7
↓	↓	DPV W19D-051094	"	6	PAH PPT 5	35354 -7DU
↓	↓	DPV-W19FB-051094	"	1	PPB Phenolics	35356 -5FB
↓	↓	DPV W19FBD-051094	"	1	PPB Phenolics	DPV W19FBD 35356 -5FD
5-10-94	1300	DPV W19TP-051094	"	1	PPB Phenolics	35356 -5
5-10-94	1300	DPV-W19TPD-051094	"	1	PPB Phenolics	35356 -5DU

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME
William M. [illegible]			

SHIPPING DETAILS

DELIVERED TO SHIPPER BY:
METHOD OF SHIPMENT:
AIRBILL NUMBER:
RECEIVED FOR LAB: MAL
SIGNED: [illegible]
DATE/TIME: 5/11/94 [illegible]
ENSECO PROJECT NUMBER:

000032

ENS-4011

White - CLIENT [illegible] - LAB

Rocky Mountain
Analytical Laboratory

Enseco

June 22, 1994

Mr. James Grube
City of St. Louis Park
5005 Minnetonka Blvd.
St. Louis Park, MN 55416

Dear Mr. Grube:

Enclosed is the ppb phenol report for 10 aqueous samples, including matrix QC, received at Enseco-Rocky Mountain Analytical Laboratory on May 17, 1994.

Please call if you have any questions.

Sincerely,

Karen F. Germann
Project Administrator

Reviewed by:

Julieann L. Kramer
Program Manager

KFG/JLK
Enclosures

RMAL #035463

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

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
035463-0001-SA	DPV-W101-051694	AQUEOUS	16 MAY 94	14:45	17 MAY 94
035463-0001-DU	DPV-W101D-051694	AQUEOUS	16 MAY 94	14:45	17 MAY 94
035463-0001-MS	DPV-W101MS-051694	AQUEOUS	16 MAY 94	14:45	17 MAY 94
035463-0001-SD	DPV-W101MSD-051694	AQUEOUS	16 MAY 94	14:45	17 MAY 94
035463-0001-FB	DPV-W101FB-051694	AQUEOUS	16 MAY 94	14:30	17 MAY 94
035463-0001-FD	DPV-W101FBD-051694	AQUEOUS	16 MAY 94	14:30	17 MAY 94
035463-0002-SA	DPV-W131-051694	AQUEOUS	16 MAY 94	12:00	17 MAY 94
035463-0003-SA	DPV-W20-051694	AQUEOUS	16 MAY 94	13:50	17 MAY 94
035463-0004-SA	DPV-W424-051694	AQUEOUS	16 MAY 94	09:30	17 MAY 94
035463-0005-SA	DPV-W428-051694	AQUEOUS	16 MAY 94	10:45	17 MAY 94

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COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

000001

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.:35463_

SOW No.: ILM02

EPA Sample No.	Lab Sample ID
3546301	3546301
3546301	3546301D
3546301	3546301S
3546301	3546301FB
3546301	3546301FD
3546301	3546301SD
3546302	3546302
3546303	3546303
3546304	3546304
3546305	3546305

Were ICP interelement corrections applied ? Yes/No YES

Were ICP background corrections applied ? Yes/No YES
If yes - were raw data generated before application of background corrections ? Yes/No NO_

Comments:
TEN_WATER_SAMPLE_FOR_PHENOLIC_ANALYSIS.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: David B Roberts Jr Name: David B Roberts Jr

Date: 6/23/94 Title: Team Manager

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INORGANIC ANALYSES - RESULT QUALIFIERS

C - Concentration Qualifiers:

U - The reported value is less than the Instrument Detection Limit (IDL).

B - The reported value is less than the Contract Required Detection Limit (CRDL) but greater than the Instrument Detection Limit (IDL).

Q - Quality Control Qualifiers:

E - The reported value is estimated because of the presence of interference. An explanatory note is included under Comments on the Cover Page (if the problem applies to all samples) or on the specific FORM I-IN (if it is an isolated problem).

M - Duplicate injection precision not met.

N - Spiked sample recovery not within control limits.

S - The reported value was determined by the Method of Standard Additions (MSA).

W - Post-digestion spike for Furnace AA analysis is out of control limits (85-115%), while sample absorbance is less than 50% of spike absorbance.

* - Duplicate analysis not within control limits.

+ - Correlation coefficient for the MSA is less than 0.995.

Entering "S", "W", or "+" is mutually exclusive. No combination of these qualifiers can appear in the same field for an analyte.

M - Method Qualifiers:

P - ICP
A - Flame AA
F - Furnace AA
CV - Manual Cold Vapor AA
AV - Automated Cold Vapor AA
AS - Semi-Automated Spectrophotometric
C - Manual Spectrophotometric
T - Titrimetric
NR - Not Required

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1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

000003

3546301

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 35463_

Matrix (soil/water): WATER Lab Sample ID: 3546301___

Level (low/med): LOW__ Date Received: 05/17/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
54-30-0__	Phenolics	5.0	U		C_

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
DPV-W101-051694

FORM I - IN

7/88

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1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

000004

3546301FB

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 35463_

Matrix (soil/water): WATER Lab Sample ID: 3546301FB_

Level (low/med): LOW__ Date Received: 05/17/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
54-30-0__	Phenolics	5.0	U		C_

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
DPV-W101FB-051694

FORM I - IN

7/88

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1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO. 000005

3546301FD

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 35463_

Matrix (soil/water): WATER Lab Sample ID: 3546301FD_

Level (low/med): LOW__ Date Received: 05/17/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
54-30-0__	Phenolics	5.0	U		C_

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
DPV-W101FBD-051694

FORM I - IN

7/88

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1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO. 000006

3546302

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 35463_

Matrix (soil/water): WATER Lab Sample ID: 3546302___

Level (low/med): LOW__ Date Received: 05/17/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
54-30-0__	Phenolics	5.0	U		C_

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
DPV-W131-051694

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1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

000007

3546303

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 35463_

Matrix (soil/water): WATER Lab Sample ID: 3546303___

Level (low/med): LOW__ Date Received: 05/17/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
54-30-0__	Phenolics	5.0	U		C_

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
DPV-W20-051694

FORM I - IN

7/88

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1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO. 000008

3546304

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 35463_

Matrix (soil/water): WATER Lab Sample ID: 3546304___

Level (low/med): LOW__ Date Received: 05/17/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
54-30-0__	Phenolics	5.0	U		C_

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
DPV-W424-051694

FORM I - IN

7/88

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1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

000009

3546305

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 35463_

Matrix (soil/water): WATER Lab Sample ID: 3546305___

Level (low/med): LOW__ Date Received: 05/17/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
54-30-0__	Phenolics	5.0	U		C_

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
DPV-W428-051694

FORM I - IN

7/88

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2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

000010

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 35463_

Initial Calibration Source: SEE ADDENDUM

Continuing Calibration Source: SEE ADDENDUM

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Phenolics	20.0	19.08	95.4	20.0	10.36	51.8	10.71	53.6	C

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

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3
BLANKS

000011

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 35463_

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L_

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Phenolics	5.0	U	5.0	U	5.0	U			5.000	U	C

FORM III - IN

7/88

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000012

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract:CITY_SLP__ 3546301S

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 35463_

Matrix: __WATER_____ Level (low/med): _LOW____

% Solids for Sample: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Phenolics	75-125	52.9300		5.0000	U	50.00	105.9		C

Comments:
DPV-W101MS-051694

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6
DUPLICATES

EPA SAMPLE NO. 000013

3546301D

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 35463_

Matrix (soil/water): WATER Level (low/med): _LOW__

% Solids for Sample: __0.0 % Solids for Duplicate: ___0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Phenolics		5.0000	U	5.0000	U			C

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7

LABORATORY CONTROL SAMPLE

000014

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.: 35463_

Solid LCS Source: SEE ADDENDUM

Aqueous LCS Source: SEE ADDENDUM

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Phenolics	20.0	21.53	107.6						

FORM VII - IN

7/88

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13
PREPARATION LOG

000015

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.:_____ SAS No.: _____ SDG No.:35463_

Method: C_

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
3546301	06/13/94		200
3546301	06/13/94		200
3546301	06/13/94		200
3546301	06/13/94		200
3546301	06/13/94		200
3546301	06/13/94		200
3546302	06/13/94		200
3546303	06/13/94		200
3546304	06/13/94		200
3546305	06/13/94		200
LCSW	06/13/94		200
PBW	06/13/94		200

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14
ANALYSIS RUN LOG

000016

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract: CITY_SLP__

Lab Code: ENSECO Case No.: _____ SAS No.: _____ SDG No.:35463_

Instrument ID Number: SPEC 88_____ Method: C_

Start Date: 06/13/94 End Date: 06/13/94

EPA Sample No.	D/F	Time	% R	Analytes: PH
S0.0	1.00	1948		X
S5.0	1.00	1949		X
S10.0	1.00	1950		X
S20.0	1.00	1951		X
S50.0	1.00	1952		X
S100.0	1.00	1953		X
ICV	1.00	1954		X
ICB	1.00	1955		X
PBW	1.00	1955		X
LCSW	1.00	1956		X
3546301	1.00	1957		X
3546301D	1.00	1957		X
3546301S	1.00	2001		X
3546301S	1.00	2001		X
3546301F	1.00	2001		X
3546301F	1.00	2002		X
3546302	1.00	2002		X
3546303	1.00	2004		X
CCV	1.00	2004		X
CCB	1.00	2004		X
3546304	1.00	2004		X
3546305	1.00	2005		X
ZZZZZZ	1.00	2006		
ZZZZZZ	1.00	2006		
ZZZZZZ	1.00	2007		
ZZZZZZ	1.00	2007		
ZZZZZZ	1.00	2007		
ZZZZZZ	1.00	2008		
ZZZZZZ	1.00	2009		
CCV	1.00	2009		X
CCB	1.00	2009		X

FORM XIV - IN 7/88

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ADDENDUM

STOCK STANDARD SOURCES

Lab Name: ROCKY_MOUNTAIN_ANALYTICAL Contract. CITY__SLP____

Lab Code: ENSECO Case No.: _____ SAS No.: N/A___ SDG No.: 35463_

STANDARD	SOURCE/LOT	EXPIRATION DATE
CALIBRATION	LabChem 3102-6	4/8/95
ICV SOLUTION	RICCA F148	2/95
CCV SOLUTION	(same as calibration source above)	
LCS SOLUTION	(same as ICV solution above)	
MATRIX SPIKE SOLUTION	(same as ICV solution above)	

COLORIMETRIC ANALYSIS

000018

PARAMETER: CSLP- Phenolics CONTROL _____ DATE: 06-13-94

ANALYST: STM SPIKE: 50.0 UNITS: ppb

	Concentration		Absorbance
Blank	0.0	ppb	0.061
STD 1	5.0	ppb	0.068
STD 2	10.0	ppb	0.084
STD 3	20.0	ppb	0.103
STD 4	50.0	ppb	0.189
STD 5	100.0	ppb	0.345

Corr. Coef. = 0.9983

Slope = 0.0029

Intercept = 0.0553

SAMPLE ID	TIME	pH	INTER CHECK	ABSORBANCE SAMPLE	ABSORBANCE COLOR B	CURVE CONC (ppb)	DILUTIONS PREP	DILUTIONS ANALYT	REPORTED CONC (ppb)	% REC
ICV	19:54		STM 06-13-94	~~0.057~~	0.108	19.08	1x	1x	19.1 (20.0)	95%
ICB	19:55			0.059		5u			5u	
PBlank	19:55			0.060		5u			5u	
LCS	19:56			0.115		21.53			21.5 (20.0)	108%
35463-01	19:57	<2	—	0.053		5u			5u	
-01DU	19:57			0.058		5u			5u	
-01MS	20:01			0.205		52.93			52.9 (50.0)	
-01SD	20:01			0.198		50.49			50.5 (50.0)	
-01FB	20:01			0.048		5u			5u	
-01FD	20:02			0.051		5u			5u	
-02	20:02			0.051		5u			5u	
-03	20:04	7	7	0.061		5u			5u	
CCV	20:04			0.083		10.36			10.4 (10.0)	104%
CCB	20:04			0.060		5u			5u	
35463-04	20:04	<2	—	0.058		5u			5u	
-05	20:05			0.057		5u			5u	
35525-01	20:06			0.063		5u			5u	
-01DU	20:06			0.058		5u			5u	
-01FD	20:07			0.049		5u			5u	
-03	20:07			0.050		5u			5u	
-04	20:07			0.060		5u			5u	
-05	20:08			0.051		5u			5u	
-06	20:09	7	7	0.055		5u			5u	
CCV	20:09			0.084		10.71			10.7 (10.0)	107%
CCB	20:09			0.060		5u	7	7	5u	

Enseco - Rocky Mountain Analytical Lab
Sample Description Sheet

000019

Project 035463 Case/SAS No. /NA

SDG No. Conc./Matrix /AQUEOUS

SAMPLE	LIMS SAMPLE	BEFORE DIGESTION COLOR	BEFORE DIGESTION CLARITY	AFTER DIGESTION COLOR	AFTER DIGESTION CLARITY
DPV-W101-0	0354630001SA	8	1	8	1
DPV-W101D-	0354630001DU				
DPV-W101FB	0354630001FD				
DPV-W101FB	0354630001FB				
DPV-W101MS	0354630001MS				
DPV-W101MS	0354630001SD				
DPV-W131-0	0354630002SA				
DPV-W20-05	0354630003SA				
DPV-W424-0	0354630004SA				
DPV-W428-0	0354630005SA				

DESCRIPTION KEY:

COLOR:

1.RED	4.GREEN	7.WHITE	10.GREY	
2.BLUE	5.ORANGE	8.COLORLESS	11.BLACK	
3.YELLOW	6.VIOLET	9.BROWN		

CLARITY:
1.CLEAR
2.CLOUDY
3.OPAQUE

COMMENTS:

Enseco - Rocky Mountain Analytical Lab
Sample Preparation Sheet

000020

Project 035463 Case/SAS No. /NA

SDG No. Conc./Matrix /AQUEOUS

SAMPLE	LIMS SAMPLE	DATE RECD	PARAMETERS	ICP METALS		FURNACE METALS		MERCURY		Phenol ~~CYANIDE~~		pH
				g/mL	mL	g/mL	mL	g/mL	mL	g/mL	mL	
PBW	--------	------								200ml	200ml	
LCS	--------	------										
DPV-W101-0	0354630001SA	05/17/94										
DPV-W101D-	0354630001DU	05/17/94										
DPV-W101FB	0354630001FD	05/17/94										
DPV-W101FB	0354630001FB	05/17/94										
DPV-W101MS	0354630001MS	05/17/94										
DPV-W101MS	0354630001SD	05/17/94										
DPV-W131-0	0354630002SA	05/17/94										
DPV-W20-05	0354630003SA	05/17/94										
DPV-W424-0	0354630004SA	05/17/94										
DPV-W428-0	0354630005SA	05/17/94										
DATE / INITIALS:				/		/		/		/		/

SPECIAL INSTRUCTIONS and/or CAUTIONS:

STM 06-13-94

Enseco
A Corning Company

[illegible] Analytical Laboratory
4955 Yarrow Street
Arvada, CO 80002
303/421 6611 FAX 303/431 7171

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

CHAIN OF CUSTODY

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

SAMPLE SAFE™ CONDITIONS

PACKED BY: Peter Moore
SEAL NUMBER: NA
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY: NA
CONDITION OF CONTENTS:
SEALED FOR SHIPPING BY: Peter Moore
INITIAL CONTENTS TEMP: °C
SEAL NUMBER: NA
SAMPLING STATUS: ☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB: ☑ Yes ☐ No
CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 7.8 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
5/16/94	14:45	DPV-W101-051694	H_2O	6	PPT-PAH	PPT-25 35462 -1
5/16/94	↓	DPV-W101D-051694	↓	6	PPT-PAH	PPT-25 -1du
5/16/94	↓	DPV-W101MS-051694	↓	6	PPT-PAH	PPT-25 -1ms
5/16/94	↓	DPV-W101-051694	↓	1	Phenolics	~~PPT-2~~ NM 354[illegible] 1
5/16/94	↓	DPV-W101D-051694	↓	1	Phenolics	-1d
5/16/94	↓	DPV-W101MS-051694	↓	1	Phenolics	-1m

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME
Peter Moore		5/16/94	17:00

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: Peter Moore
METHOD OF SHIPMENT: FED-Ex
AIRBILL NUMBER: 2103420958
RECEIVED FOR LAB: RMAL
SIGNED: K. German
DATE/TIME: 5/17/94 08:
ENSECO PROJECT NUMBER: 35462/35462

ENS-4011

White - CLIENT Pink - LAB

Enseco
A Corning Company

☒ Rocky Mountain Analytical Laboratory
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CHAIN OF CUSTODY

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

SAMPLE SAFE™ CONDITIONS

PACKED BY: Peter Moore
SEAL NUMBER: NA
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY: NA
CONDITION OF CONTENTS:
SEALED FOR SHIPPING BY: Peter Moore
INITIAL CONTENTS TEMP: °C
SEAL NUMBER: NA
SAMPLING STATUS: ☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No
CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 11.0 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
5/16/94	14:45	DPV-W101 MSD-051694	H_2O	6	PPT-PAH	PPT-25 35462-1SD
	14:30	DPV-W101 FB-051694		6	PPT-PAH	PPT-25 35462-1FB
	14:30	DPV-W101 FBD-051694		6	PPT-PAH	PPT-25 35462-1FD
	14:45	DPV-W101 MSD-051694		1	Phenolics	35463-1S
	14:30	DPV-W101 FB-051694		1	Phenolics	-1FB
5/16/94	14:30	DPV-W101 FBD-051694		1	Phenolics	-1FD

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME
Peter Moore		5/16/94	1700

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: Peter Moore
METHOD OF SHIPMENT: FED-EX
AIRBILL NUMBER: 2103420988
RECEIVED FOR LAB: RMAL
SIGNED: J Dello
DATE/TIME: 5/17/94 830
ENSECO PROJECT NUMBER: 35462/35463

000022

ENS-4011

White - CLIENT Pink - LAB

Enseco
A Corning Company

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Enseco Houston
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CHAIN OF CUSTODY

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

SAMPLE SAFE™ CONDITIONS

PACKED BY: Peter Moore
SEAL NUMBER: NA
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY: NA
CONDITION OF CONTENTS:
SEALED FOR SHIPPING BY: Peter Moore
INITIAL CONTENTS TEMP: °C
SEAL NUMBER: NA
SAMPLING STATUS: ☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No
CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 8.5 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
5/16/94	12:00	~~W131~~ DPV-W131-051694	H_2O	6	PPT-PAH	PPT-25 35462-2
5/16/94	12:00	~~W131~~ DPV-W131-051694		1	Phenolics	35463-2
5/16/94	13:50	~~W20~~ DPV-W20-051694		6	PPT-PAH	PPT-25 35462-3
5/16/94	13:50	~~W20~~ DPV-W20-051694		1	Phenolics	35463-3

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME
Peter Moore		5/16/94	12:00

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: Peter Moore
METHOD OF SHIPMENT: FED-EX
AIRBILL NUMBER: 210 3420981
RECEIVED FOR LAB: RMAL
SIGNED: J DeCho
DATE/TIME: 5/17/94 8:
ENSECO PROJECT NUMBER: 35462/35463

000023

ENS-4011

White - CLIENT Pink - LAB

Enseco
A Corning Company

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Houston, TX 77032
713/987 9767 FAX 713/987 9769

CHAIN OF CUSTODY

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

SAMPLE SAFE™ CONDITIONS

PACKED BY: Peter Moore
SEAL NUMBER: NA
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY: NA
CONDITION OF CONTENTS:
SEALED FOR SHIPPING BY: Peter Moore
INITIAL CONTENTS TEMP: °C
SEAL NUMBER: NA
SAMPLING STATUS: ☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No
CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 4.9 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
5/16/94	9:30	DPV-W424-051694	H_2O	6	PPT-PAH	PPT-75 35462-4
5/16/94	9:30	DPV-W424-051694	H_2O	1	Phenolics	35462-4
5/16/94	10:45	DPV-W428-051694	H_2O	6	PPT-PAH	PPT-75 35463-5
5/16/94	10:45	DPV-W428-051694	H_2O	1	Phenolics	35463-5

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME
Peter Moore		5/16/94	1200

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: Peter Moore
METHOD OF SHIPMENT: FED-EX
AIRBILL NUMBER: 2103420981
RECEIVED FOR LAB: LNAL
SIGNED: [illegible]
DATE/TIME: 5/17/94 8 3
ENSECO PROJECT NUMBER: 35462/35463

000024

ENS-4011

White - CLIENT Pink - [illegible]