US EPA RECORDS CENTER REGION 5
514081

ANNUAL MONITORING REPORT FOR 1995

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

SUBMITTED MARCH 15, 1996

CITY

ENSR — QUANTERRA

CITY OF ST. LOUIS PARK

UTILITY OPERATIONS

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

March 15, 1996

Regional Administrator
United States Environmental
Protection Agency, Region 5
ATTN: Darryl Owens
Mail Code HSR-6J
77 West Jackson Blvd.
Chicago, Illinois 60604

Director, Solid and Hazardous
Waste Division
Minnesota Pollution Control Agency
ATTN: Site Response Section
520 Lafayette Road North
ST. Paul, Minnesota 55155

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

Gentleman:

Enclosed is the 1995 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

enclosure
SEA/pmm

cc: William Gregg (w2 enclosures)
Elizabeth Thompson (w/o enclosures)
Reilly File
RAP/annmonit

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ANNUAL MONITORING REPORT

FOR 1995

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, 1996

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1.0 INTRODUCTION

Pursuant to Section 3.4 of the Consent Decree - Remedial Action Plan (CD-RAP) in the case of the United States of America, *et al.* vs. Reilly Tar & Chemical Corporation, *et al.*, this report presents the results of all chemical analyses and water level measurements for calendar year 1994 that are not presented in previous reports.

The ground water monitoring conducted in 1995 was performed in accordance with the Sampling Plan submitted in October 1994. 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 1995 by ENSR who collected ground water samples from monitoring wells, and by Quanterra Environmental Services (Quanterra), formerly Rocky Mountain Analytical Laboratory, who performed the analyses for PAH and phenolics.

The 1995 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, and St. Peter Aquifers are contained in the pockets of this report.

2.0 MT. SIMON-HINCKLEY AQUIFER

In accordance with RAP Section 5.1, four wells (SLP11, SLP12, SLP13 and SLP17) in the Mt. Simon-Hinckley Aquifer were sampled once in 1995. 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.

3.0 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 1995 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, E2, W119, and H3 were omitted from sampling during 1995 because owners have taken these wells out of service. A total of 20 wells were used to collect ground water samples during 1995.

Summaries of analytical data and ground water elevations for the sampling rounds are shown in Figures 3-1 and 3-2 (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). Typically, municipal wells in the Prairie du Chien-Jordan Aquifer (i.e. SLP10/15 and SLP4) pump at approximately 1100 gallons per minute most of the year and have considerable effect on localized ground water flow. However, at the time water levels were collected, the pumps were typically shut off and a static water level was collected. Therefore, Figure 3-1 and 3-2 are not indicative of ground water flow over a period of time.

Table 3-1 presents a historical summary of 1988 through 1995 analytical results for Prairie du Chien-Jordan Aquifer wells. Laboratory reports of the monitoring are presented in Appendix B. The amount and distribution of PAH in the aquifer in 1995 was consistent with historical patterns. In 1995, other PAH were detected in concentrations ranging from 3 ppt (E13 and H6) to 128,000 ppt (well W23). A total of nine wells exceed the drinking water criterion for other PAH (280 ppt) (W23, W48, SLP10, W402, W403, W29, W40, W70 and SLP4).

The levels of total carcinogenic PAH range from below detectable levels in several wells (including all municipal wells) to 4000 ppt in well W23. The drinking water criteria for total carcinogenic PAH is 28 ppt.

The results for wells W403 and W402 continue to exceed the drinking water criteria for PAH as they have since these wells were drilled in 1988 and 1989, respectively. Other monitoring wells between the Reilly site and wells W403 and W402 exhibit PAH levels below the drinking water criteria (e.g., see historical data for wells SLP4 and SLP6 on Table 3-1). It is not known if the PAH in wells W403 and W402 is related to contamination from the Reilly site.

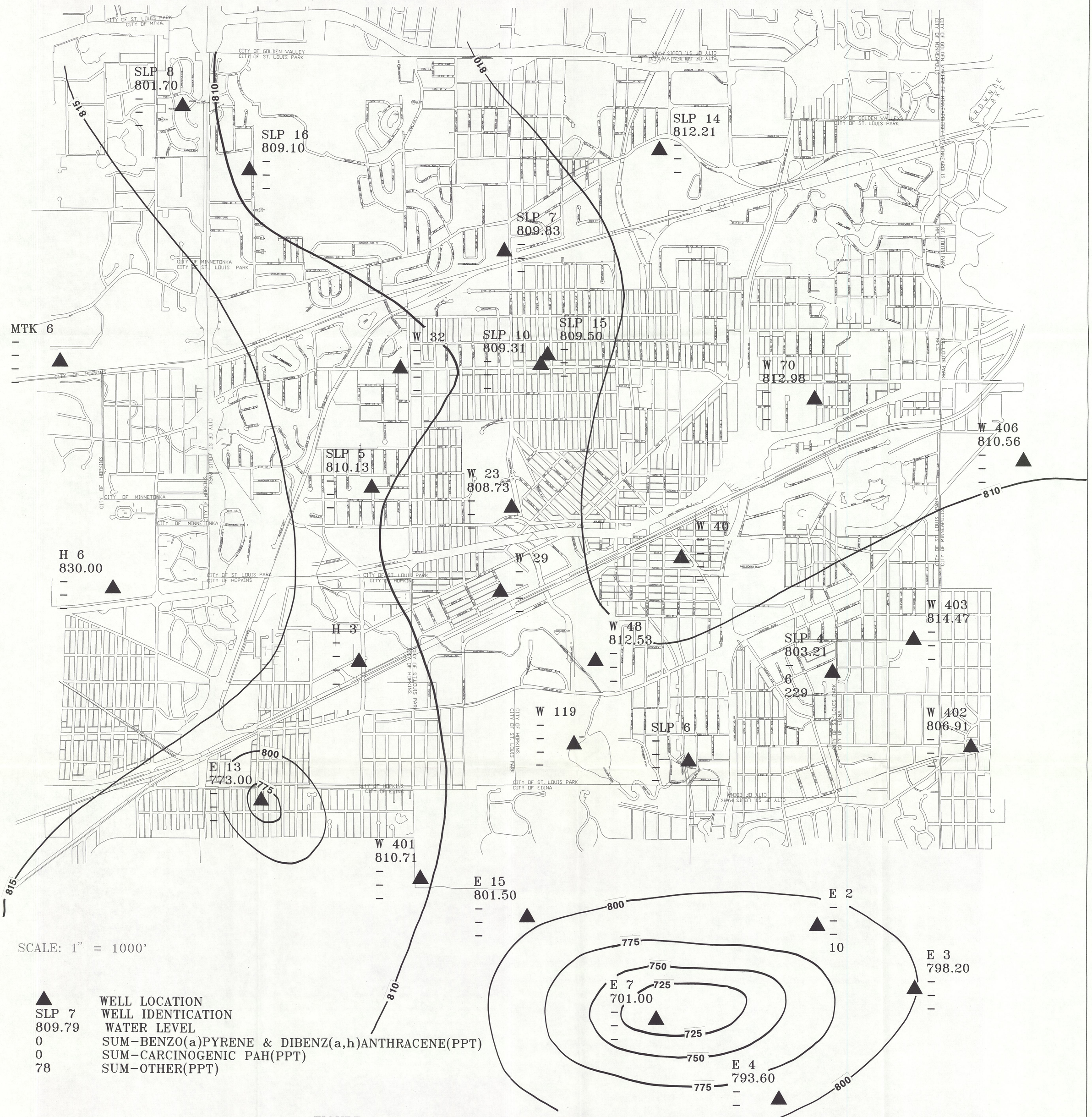


FIGURE 3 - 2 SUMMARY OF GROUND WATER MONITORING RESULTS FOR THE PRAIRIE DU CHIEN - JORDAN AQUIFER: SECOND HALF, 1995

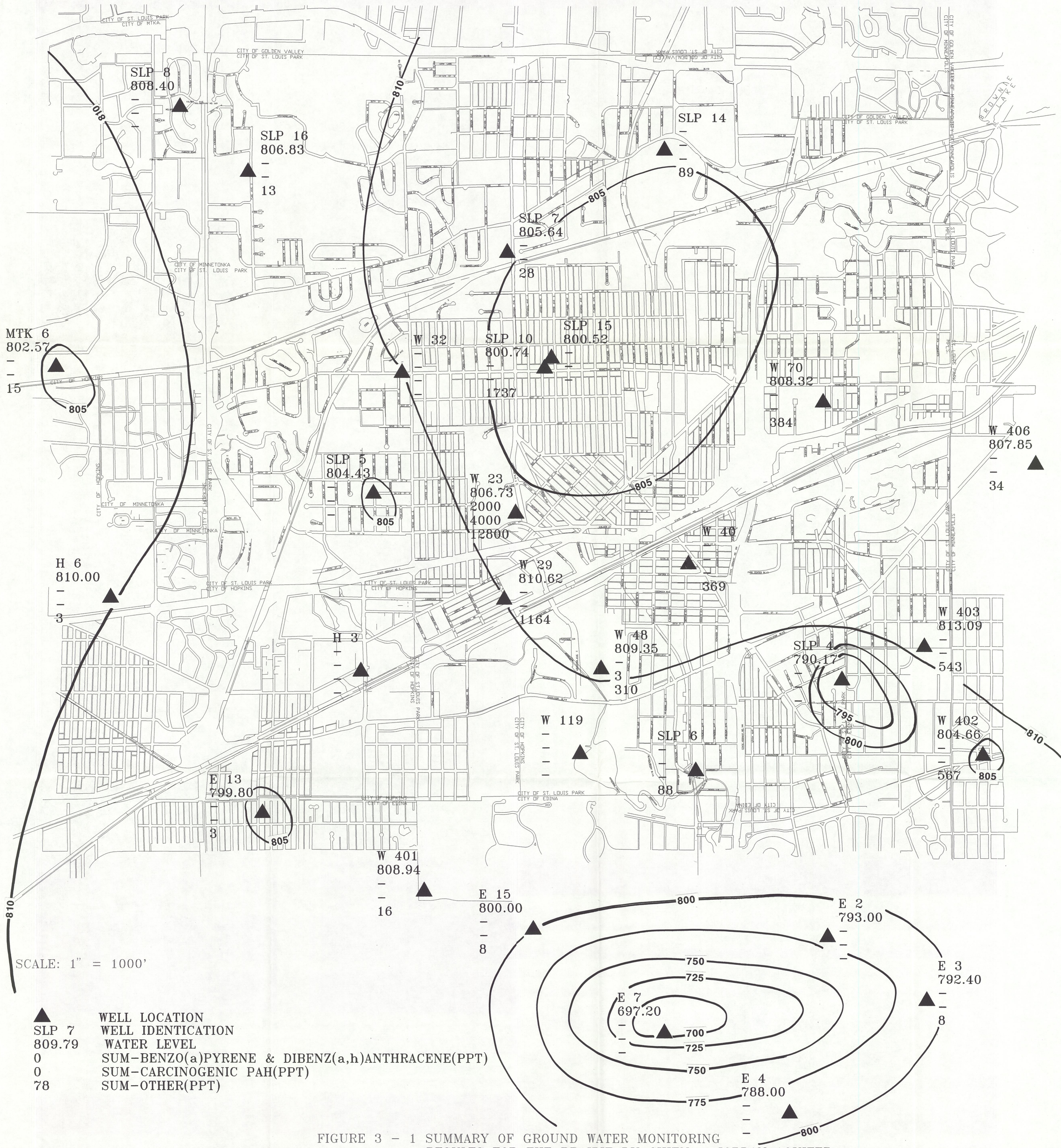


FIGURE 3 - 1 SUMMARY OF GROUND WATER MONITORING RESULTS FOR THE PRAIRIE DU CHIEN - JORDAN AQUIFER: FIRST HALF, 1995

TABLE 3-1

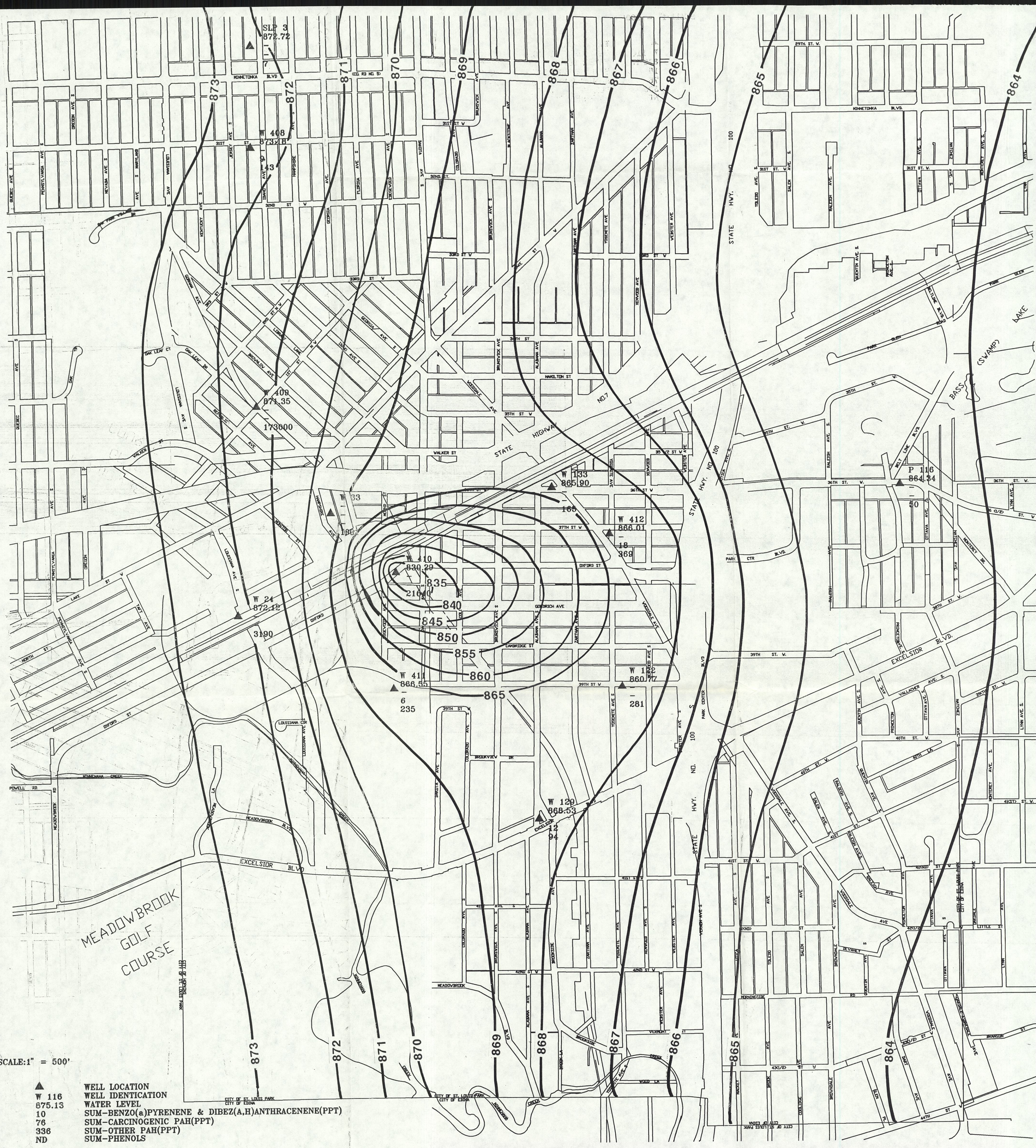
Historical Summary of Total PAH Analytical Results
Prairie du Chien-Jordan
1988 through 1995[a]

Well ID	1988	1989	1990	1991	1992	1993	1994	1995
W402	-	151	458	514[b]	908	145	109	567
W403	57	***599***	1150	1086[b]	835	516	1278	543
SLP5	61	94	48	43	72	83	-	-
H6	19	16	14	15.5	16	3	6	3
E3	15	15	18	13.3	25	5	7	8
E15	11	16	11	12.8	23	4	6	8
MTKA6	4	12	27	17	23	7	8	15
W29	495	341	376	410.6	543	1926	749	1164
W40	1062	540	721	479.5	285	350	484	369
W70	481	***711***	569	676	409	319	303	384
W401	12	15	27	27.6	10	11	8	16
SLP4	244	232	***226***	-	312	***330***	***830.5***	***400***
SLP8	-	-	15	50.1	***16***	-	-	-
W23	***117,100***	***114,700***	***121,900***	***83,350***	***64,600***	-	60,000	***102,000***
W48	2420	***1540***	***2696***	-	-	430	286	313
SLP6	***44***	***45***	***78***	***88.2***	124	***162.5***	75	88
SLP7	***65***	***39***	***58***	***50.7***	41	32	60	28
W406	29[c]	***31***	***93***	***36.4***	59	22	31	34
E2	14	***15***	***20***	***20.9***	19	9	16	10
E13	4	***13***	***19***	***12.6***	43	4	3	3
SLP15	-	4030	-	-	3206	2091	-	-
SLP10	8200	5120	***6395***	***2345.3***	3070	-	2174	1737
SLP14	112	***109***	***122***	***59.5***	91	78	57	89
SLP16	48	***26***	59	***48.8***	43	11	22	13

Bold Print Reported result is average of results of two or more samples collected during that year
a. Results presented are sum of carcinogenic PAH and other PAH in parts per trillion (ng/l)
b. Well was sampled twice- only one result reported
c. 1988 results are for the American Hardware Mutual Well
\- Signifies not sampled

R:\ensr\1620-013\tab12

FIGURE 4 - 2 SUMMARY OF GROUND WATER MONITORING RESULTS FOR THE ST. PETER AQUIFER: SECOND HALF, 1995



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

FIGURE 4 - 1 SUMMARY OF GROUND WATER MONITORING RESULTS FOR THE ST. PETER AQUIFER: FIRST HALF, 1995

4.0 ST. PETER AQUIFER

In accordance with the 1995 Sampling Plan, the St. Peter Aquifer wells were monitored twice in 1995, except for well W14. Well W14 was not sampled because the well is located in the central plume area and is known to exceed the drinking water criteria. 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 1995 are shown in Figures 4-1 and 4-2 (in pocket). Laboratory results of the monitoring are provided in Appendix C.

A historical summary of total PAH results from 1988 through 1995 is presented in Table 4-1. 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, while total PAH concentrations show a downward trend in ground water samples collected from W33, W133, and W412.

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. This is expected because ground water in the St. Peter Aquifer, in the vicinity of 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 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 1995 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 1995 water quality changes, and the water level contours shown in Figures 4-1 and 4-2. Continued monitoring in accordance with the 1996 Sampling Plan will allow continued evaluation of water quality in the St. Peter Aquifer.

TABLE 4-1

Summary of Total PAH Analytical Results
St. Peter Aquifer Wells
1988 through 1995[a]

Well	July 1988	October 1988	June 1989	October 1989	June 1990	August 1990	April 1991	August 1991	June 1992	November 1992	April 1993	July 1993	May 1994	October 1994	May 1995	October 1995
SLP3	8	10	96	15	33	19	-	24	16	13	9	5	8	5	7	16
W24	3309	3622	-	-	-	-	4023	4160	3380	3650	2950	3294	2669	4029	3190	1550
W33	16,430	12,455	-	-	-	290	17,912	9921	3448	3318	1334	1000	976	1700	1901	1062
W122	163	2246	910	133	-	-	796	863	614	186	340	354	606	384	281	231
W129	88	290	601	40	143	96	190	430	298	301	138	55	171	112	106	55
W133	52,370	29,830	37,870	21,370	19,448	14,030	2591	4610	2543	1920	1134	838	670	434	165	157
W408	153	34	150	110	24	158	358	1188	318	174	154	223	75	170	152	150
W409	2351	890	630	830	141	243	360	3833	49,660	49,399	50,060	42,440	-	151,000	173,000	167,000
W411	1274	1161	208	460	466	336	408	251	337	182	196	118	123	725	241	184
W412	1317	209	226	130	-	485	1524	5283	1331	3796	996	793	318	548	387	402
P116	204	3770	83	43	-	22	61	42	132	229	56	40	65	66	50	53
W410	1228	1435	425	360	-	-	85	5330	14,910[b]	16,470	17,600[c]	16,609[c]	14,505	29,800	21,640	13,940

a Results presented are the sum of carcinogenic PAH and other PAH in parts per trillion (ng/ℓ).
b W410 was sampled twice in first half 1992. The second result indicates a level of 12,850 ng/ℓ total PAH.
c W410 was sampled twice in first half 1993 and second half 1993. The second results for each sampling round indicates a level of 15,000 mg/ℓ and 14,000 mg/ℓ total PAH, respectively.

\- Signifies not sampled.

5.0 DRIFT-PLATTEVILLE AQUIFER

Ground water monitoring for the Drift-Platteville Aquifer in 1995 included quarterly PAH and phenolics monitoring of wells W420, W422 and W439, 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 and this is the first year of quarterly monitoring for well W439 since pumping began in early 1995. The monitoring data are presented on Figures 5-1, 5-2, 5-3, and 5-4. The laboratory reports of the analytical data are included in Appendix D.

The PAH and phenolic data for wells W420, W421, W422, and W439 are summarized in Table 5-1. Table 5-1 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.

TABLE 5-1

Summary of Analytical Results for Wells W420, W421, W422, and W439 1988 through 1995

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
March 1995	2431	142
May 1995	1873	134
September 1995	2523	91
October 1995	2332	113

TABLE 5-1

Summary of Analytical Results for Wells W420, W421, W422, and W439 1988 through 1995

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
March 1995	949	31.4
May 1995	911	19.0
September 1995	966	29.0
October 1995	764	20.3

TABLE 5-1

Summary of Analytical Results for Wells W420, W421, W422, and W439 1988 through 1995

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
March 1995	54	11.2
May 1995	62	5.1
September 1995	53	14.5
October 1995	29	10.2

TABLE 5-1

Summary of Analytical Results for Wells W420, W421, W422, and W439 1988 through 1995

Date	Total PAH[a] (µg/ℓ)	Phenols (µg/ℓ)
W439		
March 1995	3933	91.1
May 1995	4053	74.0
September 1995	2564	53.8
October 1995	2115	50.2

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

City of St. Louis Park

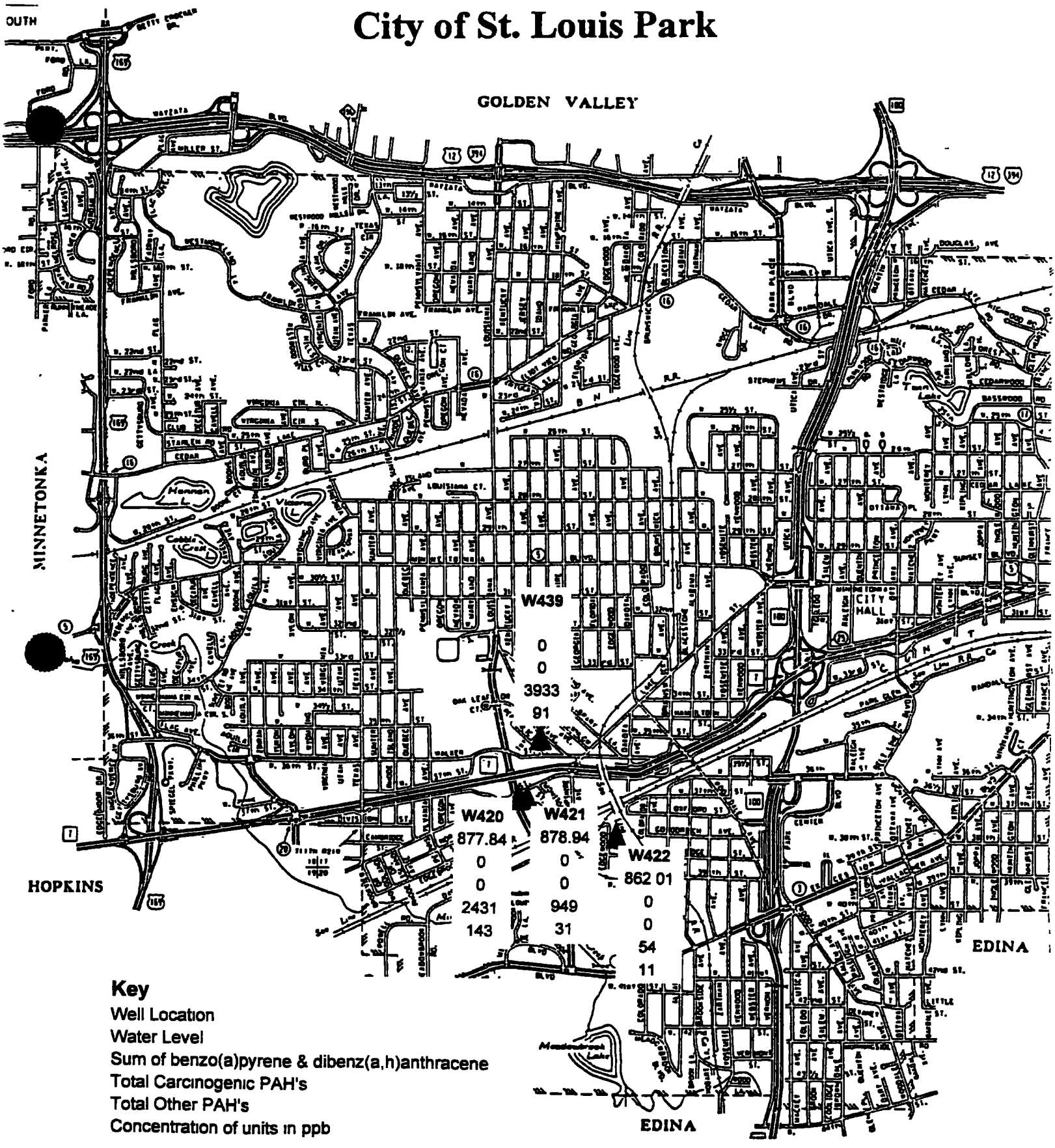


Figure 5-1
Summary of Ground Water Monitoring Results
for the Drift-Platteville Aquifer
1st Quarter 1995

City of St. Louis Park

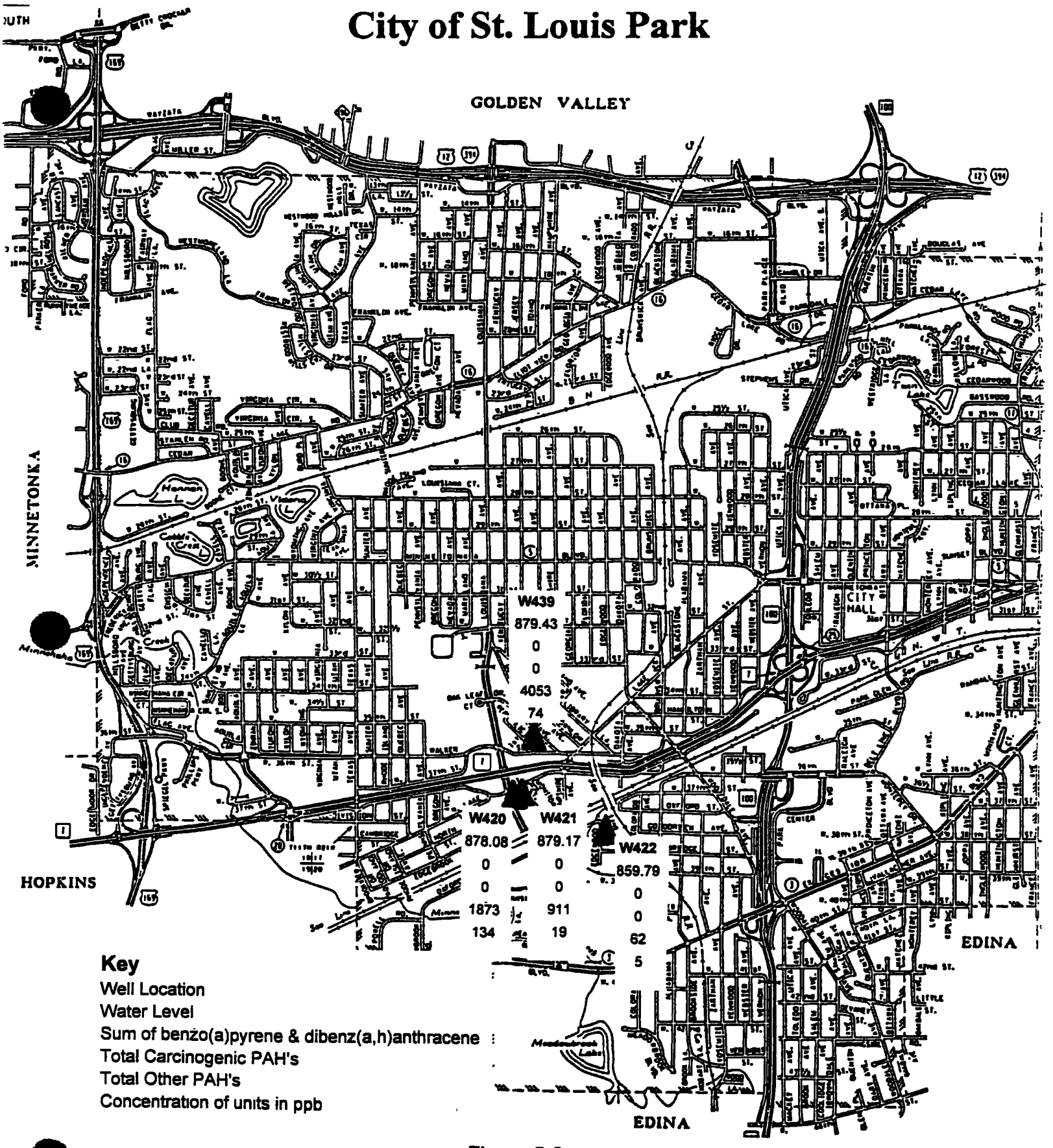


Figure 5-2
Summary of Ground Water Monitoring Results
for the Drift-Platteville Aquifer
2nd Quarter 1995

City of St. Louis Park

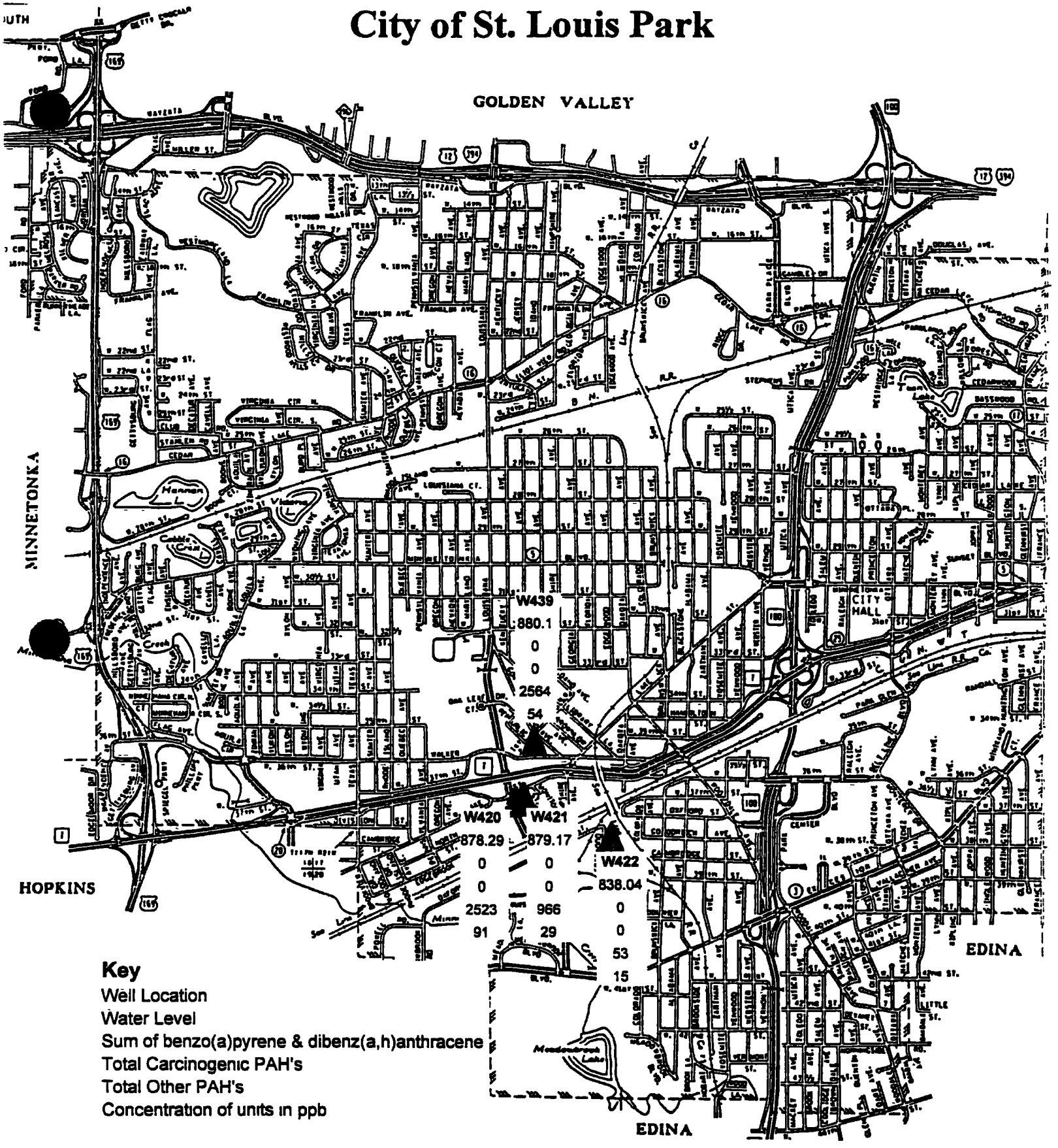
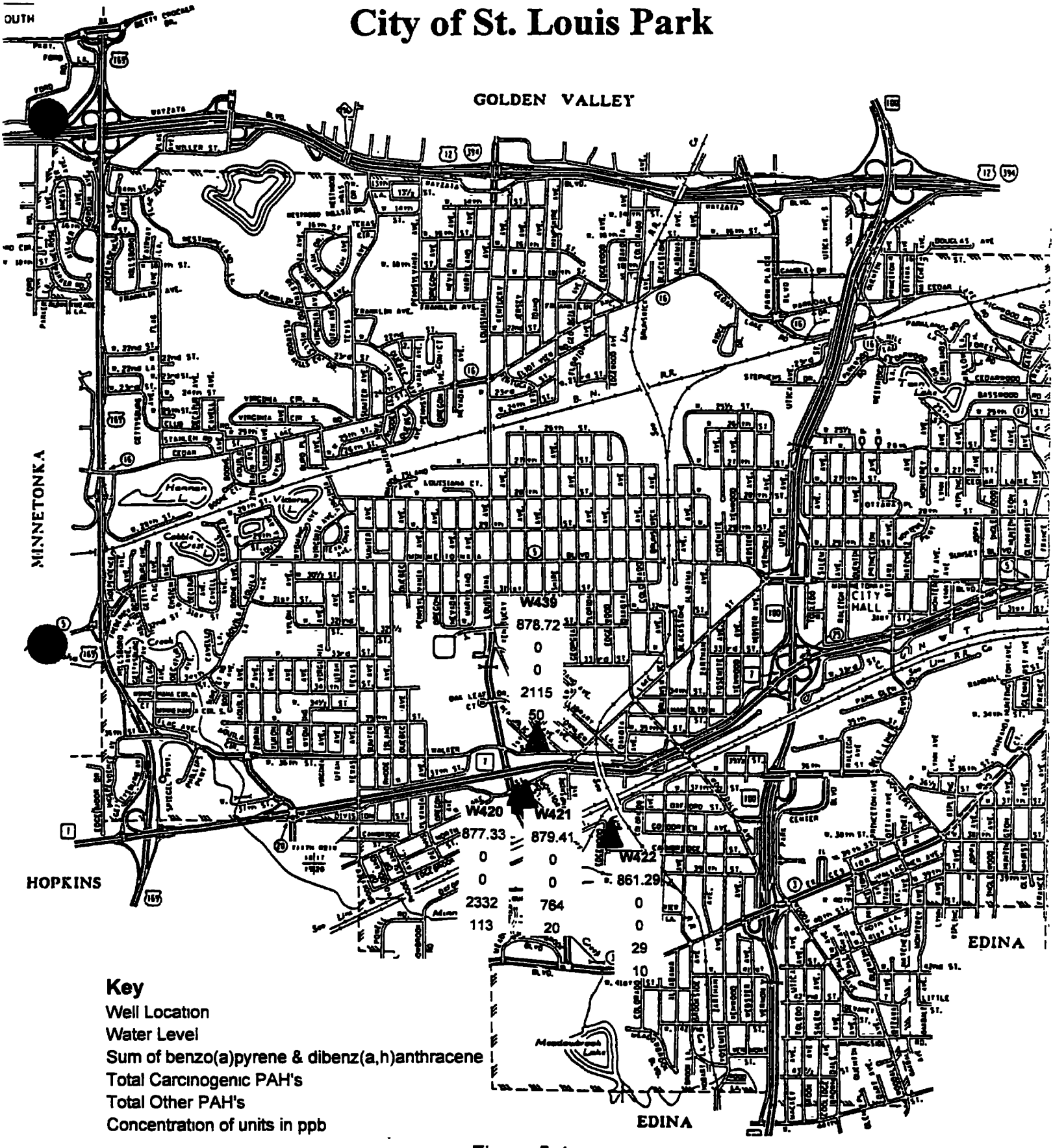


Figure 5-3
Summary of Ground Water Monitoring Results
for the Drift-Platteville Aquifer
3rd Quarter 1995

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

Concentration of units in ppb

Figure 5-4

Summary of Ground Water Monitoring Results
for the Drift-Platteville Aquifer
4th Quarter 1995

CITY OF ST. LOUIS PARK

Mount Simon Hinckley Aquifer 1995
PAH Quality Control Summary

Well No.	Date	Method Blank	Field Duplicate	Matrix Spike	Matrix Spike Dup.	Field Blank
RAP Section 5.1						
SLP11	10/2/95	44980	MSH-SLP11D-100295	MSH-SLP11MS-100295	MSH-SLP11MSD-100295	MSH-SLP11FB-100295
SLP12	10/2/95	44980	MSH-SLP11D-100295	MSH-SLP11MS-100295	MSH-SLP11MSD-100295	MSH-SLP11FB-100295
SLP13	10/2/95	44980	MSH-SLP11D-100295	MSH-SLP11MS-100295	MSH-SLP11MSD-100295	MSH-SLP11FB-100295
SLP17	10/2/95	44980	MSH-SLP11D-100295	MSH-SLP11MS-100295	MSH-SLP11MSD-100295	MSH-SLP11FB-100295

Quanterra Environmental Services

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

CASE NARRATIVE

FOR

City of St. Louis Park

November 28, 1995

Quanterra Environmental Services

Project Number 044980

Introduction

Nine aqueous samples (including matrix QC) were received at Quanterra Environmental Services, Denver Laboratory on October 3, 1995. The samples were logged in under Quanterra's Denver laboratory project number 044980. Sample MSH-SLP11FBD-100295 (044980-02FD) was extracted and held per the April 1990 QAPP. A cross reference associating Quanterra's Denver laboratory sample numbers to the actual field sample number is included. The samples were analyzed for low level part-per-trillion (ppt) polynuclear aromatic hydrocarbons (PAH).

Data Quality Assessment

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

Due to laboratory error the concentrations of the surrogate mix and the matrix spike mix were spiked in the samples at inappropriately high levels. The samples were analyzed at the lowest possible dilutions and at dilutions to bring the surrogate compounds within the calibration range of the method. The matrix spike/matrix spike duplicate samples were diluted to bring the concentrations of the spiked compounds within the calibration range of the method. The surrogate compounds were diluted out of the matrix spike and matrix spike duplicate samples. All sample surrogates and matrix spike/matrix spike duplicate compounds were in control.

Quanterra
Environmental Services

The method blank analyzed with these samples showed concentrations of some compounds near the reporting limits. The samples are annotated accordingly.

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 044980 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.

A standard is now available for Benzo(J)Fluoranthene. Laboratory studies have shown that Benzo(J)Fluoranthene will coelute with either Benzo(B)Fluoranthene or Benzo(K)Fluoranthene depending on the relative concentration of these two compounds in solution. For this project Benzo(B)Fluoranthene and Benzo(J)Fluoranthene will be reported as Benzo(B)Fluoranthene.

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: 11/28/95
Daniel Rebarchik
Program Administrator

Approved by: _____ Date: 11/29/95
Kevin McHugh
Program Manager

Quanterra Environmental Services

QUALIFIER CODES AND THEIR USAGE

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

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

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

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

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

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

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

QUALIFIER CODES AND THEIR USAGE
Page Two

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

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

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

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

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

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
044980-0001-SA	MSH-SLP11-100295	AQUEOUS	02 OCT 95		03 OCT 95
044980-0001-DU	MSH-SLP11D-100295	AQUEOUS	02 OCT 95		03 OCT 95
044980-0001-MS	MSH-SLP11MS-100295	AQUEOUS	02 OCT 95		03 OCT 95
044980-0001-SD	MSH-SLP11MSD-100295	AQUEOUS	02 OCT 95		03 OCT 95
044980-0002-FB	MSH-SLP11FB-100295	AQUEOUS	02 OCT 95		03 OCT 95
044980-0002-FD	MSH-SLP11FBD-100295	AQUEOUS	02 OCT 95		03 OCT 95
044980-0003-SA	MSH-SLP12-100295	AQUEOUS	02 OCT 95		03 OCT 95
044980-0004-SA	MSH-SLP13-100295	AQUEOUS	02 OCT 95		03 OCT 95
044980-0005-SA	MSH-SLP17-100295	AQUEOUS	02 OCT 95		03 OCT 95

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 044980	Group Code	Analysis Description	Custom Test?
0001 - 0005	A	Polynuclear Aromatic Hydrocarbons, SIM Low Level	N
		Prep - PAH/SIM by GC/MS Low Level	N
0002	B	Prep - PAH/SIM by GC/MS Low Level	N
		Polynuclear Aromatic Hydrocarbons, SIM Low Level	N

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

Enseco
A Corning Company

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

CHAIN OF CUSTODY

ENSECO CLIENT

PROJECT

City of St. Louis Park
Attention: Scott Anderson
3752 Wooddale Ave.
St. Louis Park, MN 55416

TEAM LEADER: MZK

SAMPLE SAFE™ CONDITIONS

PACKED BY: MZK
SEAL NUMBER:
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:
CONDITION OF CONTENTS:
SEALED FOR SHIPPING BY: MZK
INITIAL CONTENTS TEMP: °C
SEAL NUMBER:
SAMPLING STATUS: ☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB: ☑ Yes ☐ No
CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 5.6 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
10-2-95		MSH-SLP11-100295	1XL AMBER	6	PPE PAH	PPE 5 -1 SA
10-2-95		MSH-SLP11D-100295	1XL AMBER	6	PPE PAH	PPE 5 -1 DU

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: 2103421283
RECEIVED FOR LAB: QES
SIGNED: [signature]
DATE/TIME: 10/3/95 930
ENSECO PROJECT NUMBER: 44980

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

Scott Anderson
City of St. Louis Park
3752 Wooddale Ave.
ST. Louis Park, MN 55416

SAMPLE SAFE™ CONDITIONS

PACKED BY: MJK	SEAL NUMBER:
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:	CONDITION OF CONTENTS:
SEALED FOR SHIPPING BY: MJK	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: 6.0 °C

TEAM LEADER: MJK

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
10-2-95		MSH-SLP11MS-100295	1XLAMBER	6	PPT PAH	PPT 5 -1MS
10-2-95		MSH-SLP11MSD-100295	1XLAMBER	6	PPT PAH	PPT 5 -1SD

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MJK		
METHOD OF SHIPMENT: FED EX		AIRBILL NUMBER: 3103421283
RECEIVED FOR LAB: QSS	SIGNED: [illegible]	DATE/TIME: 10/3/95 930
ENSECO PROJECT NUMBER: 44980		

ENS—4011 White - CL Pink - LAB

CHAIN OF CUSTODY

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

Quanterra Environmental Services

QUANTERRA CLIENT

Scott Anderson
City of ST. Louis Park
3752 Wooddale Ave.
St. Louis Park, MN 55416

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: 5.9 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
10-2-95		MSH-SLP11FB-100295	1XL AMBER	6	PPL PAH	PPL 5 -2FB
10-2-95		MSH-SLP11FBD-100295	1XL AMBER	6	PPL PAH	PPL 5 -2FD

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MZR

METHOD OF SHIPMENT: FEDEX

AIRBILL NUMBER: 2103421253

RECEIVED FOR LAB: KJS

SIGNED: [illegible]

DATE/TIME: 10/3/95 930

QUANTERRA PROJECT NUMBER: 44180

QUA-4119

White - CLIENT Pink - LAB

CHAIN OF CUSTODY

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

Quanterra Environmental Services

QUANTERRA CLIENT

PROJECT
Scott Anderson
City of St. Louis Park
3752 Wooddale Ave.
St. Louis Park, MN 55416

TEAM LEADER: MZN

SAMPLE SAFE™ CONDITIONS

PACKED BY: MZN
SEAL NUMBER:
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:
CONDITION OF CONTENTS:
SEALED FOR SHIPPING BY: MZN
INITIAL CONTENTS TEMP: °C
SEAL NUMBER:
SAMPLING STATUS: ☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB: ☑ Yes ☐ No
CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 5.1 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
10-2-95		MSH-SLP 12-100295	1XL AMBER	6	PPL PAH	PPL 5 -3SA
10-2-95		MSH-SLP 13-100295	1XL AMBER	6	PPL PAH	PPL 5 -4SA
10-2-95		MSH-SLP 17-100295	1XL AMBER	6	PPL PAH	PPL 5 -5SA

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MZN
METHOD OF SHIPMENT: FED EX
AIRBILL NUMBER: 2103421283
RECEIVED FOR LAB: QES
SIGNED: [signature]
DATE/TIME: 10/3/95 930
QUANTERRA PROJECT NUMBER: 44180

QUA-4119 White – CL Pink – LAB

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MSH-SLP11

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 44980 SAS No.: SDG No.: 44980

Matrix: (soil/water) WATER Lab Sample ID: 44980-01

Sample wt/vol: 4250 (g/ml) ML Lab File ID: A0701329

Level: (low/med) LOW Date Received: 10/03/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 10/05/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 11/06/95

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
91-20-3	Naphthalene	26	
91-57-6	2-Methylnaphthalene	3	B
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	4	
132-64-9	Dibenzofuran	1	
86-73-7	Fluorene	3	
85-01-8	Phenanthrene	2	B
120-12-7	Anthracene	1	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
207-08-9	Benzo(b)fluoranthene	2	U
50-32-8	Benzo(a)pyrene	2	U
193-39-5	Indeno(1,2,3-cd)pyrene	2	U
53-70-3	Dibenzo(a,h)anthracene	2	U
191-24-2	Benzo(g,h,i)perylene	3	U
86-74-8	Carbazole	2	U
95-13-6	1H-Indene	9	
91-22-5	Quinoline	3	
90-12-0	1-Methylnaphthalene	4	
271-89-6	2,3-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	6	
95-15-8	Benzo(b)thiophene	4	
120-72-9	1H-Indole	2	U
92-52-4	Biphenyl	4	U
132-65-0	Dibenzothiophene	1	U
260-94-6	Acridine	3	U
192-97-2	Benzo(e)pyrene	2	U
198-55-0	Perylene	2	U
57-97-6	7,12-Dimethylbenz(a)anthrace	3	U
56-49-5	3-Methylcholanthrene	3	U
205-08-9	Benzo(k)fluoranthene	2	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MSH-SLP11D

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 44980 SAS No.: SDG No.: 44980

Matrix: (soil/water) WATER Lab Sample ID: 44980-01DU

Sample wt/vol: 4220 (g/ml) ML Lab File ID: A1101358

Level: (low/med) LOW Date Received: 10/03/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/05/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 11/07/95

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
91-20-3	Naphthalene	42	
91-57-6	2-Methylnaphthalene	4	B
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	7	
132-64-9	Dibenzofuran	2	
86-73-7	Fluorene	6	
85-01-8	Phenanthrene	3	B
120-12-7	Anthracene	1	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
207-08-9	Benzo(b)fluoranthene	2	U
50-32-8	Benzo(a)pyrene	2	U
193-39-5	Indeno(1,2,3-cd)pyrene	2	U
53-70-3	Dibenzo(a,h)anthracene	2	U
191-24-2	Benzo(g,h,i)perylene	3	U
86-74-8	Carbazole	2	
95-13-6	1H-Indene	18	
91-22-5	Quinoline	3	
90-12-0	1-Methylnaphthalene	7	
271-89-6	2,3-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	11	
95-15-8	Benzo(b)thiophene	6	
120-72-9	1H-Indole	2	U
92-52-4	Biphenyl	4	U
132-65-0	Dibenzothiophene	1	U
260-94-6	Acridine	3	U
192-97-2	Benzo(e)pyrene	2	
198-55-0	Perylene	2	U
57-97-6	7,12-Dimethylbenz(a)anthrace	3	U
56-49-5	3-Methylcholanthrene	3	U
205-08-9	Benzo(k)fluoranthene	2	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MSH-SLP11FB

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 44980 SAS No.: SDG No.: 44980

Matrix: (soil/water) WATER Lab Sample ID: 44980-02FB

Sample wt/vol: 4200 (g/ml) ML Lab File ID: A1201359

Level: (low/med) LOW Date Received: 10/03/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/05/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 11/07/95

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
91-20-3	Naphthalene	13	
91-57-6	2-Methylnaphthalene	6	B
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	2	
86-73-7	Fluorene	2	
85-01-8	Phenanthrene	4	BR
120-12-7	Anthracene	1	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
207-08-9	Benzo(b)fluoranthene	2	U
50-32-8	Benzo(a)pyrene	2	U
193-39-5	Indeno(1,2,3-cd)pyrene	2	U
53-70-3	Dibenzo(a,h)anthracene	2	U
191-24-2	Benzo(g,h,i)perylene	3	U
86-74-8	Carbazole	2	U
95-13-6	1H-Indene	1	
91-22-5	Quinoline	1	U
90-12-0	1-Methylnaphthalene	3	
271-89-6	2,3-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
95-15-8	Benzo(b)thiophene	0.8	U
120-72-9	1H-Indole	2	U
92-52-4	Biphenyl	4	U
132-65-0	Dibenzothiophene	1	U
260-94-6	Acridine	3	U
192-97-2	Benzo(e)pyrene	2	U
198-55-0	Perylene	2	U
57-97-6	7,12-Dimethylbenz(a)anthrace	3	U
56-49-5	3-Methylcholanthrene	3	U
205-08-9	Benzo(k)fluoranthene	2	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MSH-SLP11FBD

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 44980 SAS No.: SDG No.: 44980

Matrix: (soil/water) WATER Lab Sample ID: 44980-02FD

Sample wt/vol: 4200 (g/ml) ML Lab File ID: A1301360

Level: (low/med) LOW Date Received: 10/03/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/05/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 11/07/95

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
91-20-3	Naphthalene	16	
91-57-6	2-Methylnaphthalene	8	B
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	2	
86-73-7	Fluorene	2	
85-01-8	Phenanthrene	4	B
120-12-7	Anthracene	1	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
207-08-9	Benzo(b)fluoranthene	2	U
50-32-8	Benzo(a)pyrene	2	U
193-39-5	Indeno(1,2,3-cd)pyrene	2	U
53-70-3	Dibenzo(a,h)anthracene	2	U
191-24-2	Benzo(g,h,i)perylene	3	U
86-74-8	Carbazole	2	U
95-13-6	1H-Indene	2	
91-22-5	Quinoline	1	U
90-12-0	1-Methylnaphthalene	4	
271-89-6	2,3-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	2	
95-15-8	Benzo(b)thiophene	0.8	U
120-72-9	1H-Indole	2	U
92-52-4	Biphenyl	4	
132-65-0	Dibenzothiophene	1	U
260-94-6	Acridine	3	U
192-97-2	Benzo(e)pyrene	2	U
198-55-0	Perylene	2	U
57-97-6	7,12-Dimethylbenz(a)anthrace	3	U
56-49-5	3-Methylcholanthrene	3	U
205-08-9	Benzo(k)fluoranthene	2	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MSH-SLP12

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 44980 SAS No.: SDG No.: 44980

Matrix: (soil/water) WATER Lab Sample ID: 44980-03

Sample wt/vol: 4220 (g/ml) ML Lab File ID: A0101367

Level: (low/med) LOW Date Received: 10/03/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 10/05/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 11/08/95

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
91-20-3	Naphthalene	6	U
91-57-6	2-Methylnaphthalene	2	B
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	0.9	U
86-73-7	Fluorene	0.9	U
85-01-8	Phenanthrene	3	B
120-12-7	Anthracene	1	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
207-08-9	Benzo(b)fluoranthene	2	U
50-32-8	Benzo(a)pyrene	2	U
193-39-5	Indeno(1,2,3-cd)pyrene	2	U
53-70-3	Dibenzo(a,h)anthracene	2	U
191-24-2	Benzo(g,h,i)perylene	3	U
86-74-8	Carbazole	2	U
95-13-6	1H-Indene	0.8	U
91-22-5	Quinoline	1	U
90-12-0	1-Methylnaphthalene	2	U
271-89-6	2,3-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
95-15-8	Benzo(b)thiophene	0.8	U
120-72-9	1H-Indole	2	U
92-52-4	Biphenyl	4	U
132-65-0	Dibenzothiophene	1	U
260-94-6	Acridine	3	U
192-97-2	Benzo(e)pyrene	2	U
198-55-0	Perylene	2	U
57-97-6	7,12-Dimethylbenz(a)anthrace	3	U
56-49-5	3-Methylcholanthrene	3	U
205-08-9	Benzo(k)fluoranthene	2	U

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MSH-SLP13

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 44980 SAS No.: SDG No.: 44980

Matrix: (soil/water) WATER Lab Sample ID: 44980-04

Sample wt/vol: 4230 (g/ml) ML Lab File ID: A0201368

Level: (low/med) LOW Date Received: 10/03/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 10/05/95

Concentrated Extract Volume: 0.5 (ml) Date Analyzed: 11/08/95

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
91-20-3	Naphthalene	6	U
91-57-6	2-Methylnaphthalene	3	B
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	0.9	U
86-73-7	Fluorene	4	
85-01-8	Phenanthrene	2	B
120-12-7	Anthracene	1	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
207-08-9	Benzo(b)fluoranthene	2	U
50-32-8	Benzo(a)pyrene	2	U
193-39-5	Indeno(1,2,3-cd)pyrene	2	U
53-70-3	Dibenzo(a,h)anthracene	2	U
191-24-2	Benzo(g,h,i)perylene	3	U
86-74-8	Carbazole	2	U
95-13-6	1H-Indene	0.8	U
91-22-5	Quinoline	2	U
90-12-0	1-Methylnaphthalene	2	U
271-89-6	2,3-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
95-15-8	Benzo(b)thiophene	0.8	U
120-72-9	1H-Indole	2	U
92-52-4	Biphenyl	4	U
132-65-0	Dibenzothiophene	1	U
260-94-6	Acridine	3	U
192-97-2	Benzo(e)pyrene	2	U
198-55-0	Perylene	2	U
57-97-6	7,12-Dimethylbenz(a)anthrace	3	U
56-49-5	3-Methylcholanthrene	3	U
205-08-9	Benzo(k)fluoranthene	2	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MSH-SLP17

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 44980 SAS No.: SDG No.: 44980

Matrix: (soil/water) WATER Lab Sample ID: 44980-05

Sample wt/vol: 4250 (g/ml) ML Lab File ID: A0301369

Level: (low/med) LOW Date Received: 10/03/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/05/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 11/08/95

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
91-20-3	Naphthalene	6	U
91-57-6	2-Methylnaphthalene	2	J
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	5	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
85-01-8	Phenanthrene	2	J
120-12-7	Anthracene	2	J
206-44-0	Fluoranthene	1	U
129-00-0	Pyrene	1	U
56-55-3	Benzo(a)Anthracene	2	U
218-01-9	Chrysene	5	U
207-08-9	Benzo(b)fluoranthene	5	U
50-32-8	Benzo(a)pyrene	5	U
193-39-5	Indeno(1,2,3-cd)pyrene	5	U
53-70-3	Dibenzo(a,h)anthracene	5	U
191-24-2	Benzo(g,h,i)perylene	5	U
86-74-8	Carbazole	5	U
95-13-6	1H-Indene	5	U
91-22-5	Quinoline	2	J
90-12-0	1-Methylnaphthalene	2	U
271-89-6	2,3-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
95-15-8	Benzo(b)thiophene	1	U
120-72-9	1H-Indole	5	U
92-52-4	Biphenyl	4	U
132-65-0	Dibenzothiophene	5	U
260-94-6	Acridine	5	U
192-97-2	Benzo(e)pyrene	5	U
198-55-0	Perylene	5	U
57-97-6	7,12-Dimethylbenz(a)anthrace	5	U
56-49-5	3-Methylcholanthrene	5	U
205-08-9	Benzo(k)fluoranthene	5	U

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 44980 SAS No.: SDG No.: 44980

	EPA SAMPLE NO.	S1 #	S2 #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	SBLK01	65	70	49						0
02	MSH-SLP11	59	37	43						0
03	MSH-SLP11D	74	50	59						0
04	MSH-SLP11MS	OD	OD	OD						0
05	MSH-SLP11MSD	OD	OD	OD						0
06	MSH-SLP11FB	58	71	45						0
07	MSH-SLP11FBD	74	73	59						0
08	MSH-SLP12	59	36	46						0
09	MSH-SLP13	79	49	60						0
10	MSH-SLP17	61	37	46						0
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		QC LIMITS
S1	= Naphthalene-d8	(21-108)
S2	= Chrysene-d12	(10-118)
S3	= Fluorene-d10	(41-162)

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

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 44980 SAS No.: SDG No.: 44980

Matrix Spike - EPA Sample No.: MSH-SLP11

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC #	QC. LIMITS REC.
Naphthalene	24000	26	17000	71	20-150
2-Methylnaphthalene	24000	3	16000	67	20-150
Fluorene	24000	3	18000	75	20-150
Chrysene	24000	0.0	15000	62	20-150
1H-Indene	24000	9	18000	75	20-150
Quinoline	24000	3	14000	58	20-150
Benzo(e)pyrene	24000	0.0	20000	83	20-150

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Naphthalene	24000	16000	66	7	20	20-150
2-Methylnaphthalene	24000	14000	58	14	20	20-150
Fluorene	24000	17000	71	5	20	20-150
Chrysene	24000	14000	58	7	20	20-150
1H-Indene	24000	16000	67	11	20	20-150
Quinoline	24000	12000	50	15	20	20-150
Benzo(e)pyrene	24000	18000	75	10	20	20-150

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

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

COMMENTS: _____

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MSH-SLP11MS

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 44980 SAS No.: SDG No.: 44980

Matrix: (soil/water) WATER Lab Sample ID: 44980-01MS

Sample wt/vol: 4220 (g/ml) ML Lab File ID: A0401351

Level: (low/med) LOW Date Received: 10/03/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/05/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 11/07/95

Injection Volume: 1.0(uL) Dilution Factor: 500.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
91-20-3	Naphthalene	17000	
91-57-6	2-Methylnaphthalene	16000	B
208-96-8	Acenaphthylene	660	U
83-32-9	Acenaphthene	620	U
132-64-9	Dibenzofuran	470	U
86-73-7	Fluorene	18000	
85-01-8	Phenanthrene	620	U
120-12-7	Anthracene	520	U
206-44-0	Fluoranthene	660	U
129-00-0	Pyrene	660	U
56-55-3	Benzo(a)Anthracene	1200	U
218-01-9	Chrysene	15000	
207-08-9	Benzo(b)fluoranthene	1200	U
50-32-8	Benzo(a)pyrene	1100	U
193-39-5	Indeno(1,2,3-cd)pyrene	1000	U
53-70-3	Dibenzo(a,h)anthracene	760	U
191-24-2	Benzo(g,h,i)perylene	1300	U
86-74-8	Carbazole	900	U
95-13-6	1H-Indene	18000	
91-22-5	Quinoline	14000	
90-12-0	1-Methylnaphthalene	760	U
271-89-6	2,3-Benzofuran	2400	U
496-11-7	2,3-Dihydroindene	660	U
95-15-8	Benzo(b)thiophene	430	U
120-72-9	1H-Indole	1200	U
92-52-4	Biphenyl	2000	U
132-65-0	Dibenzothiophene	520	U
260-94-6	Acridine	1400	U
192-97-2	Benzo(e)pyrene	20000	
198-55-0	Perylene	1200	U
57-97-6	7,12-Dimethylbenz(a)anthrace	1300	U
56-49-5	3-Methylcholanthrene	1600	U
205-08-9	Benzo(k)fluoranthene	1100	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MSH-SLP11MSD

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 44980 SAS No.: SDG No.: 44980

Matrix: (soil/water) WATER Lab Sample ID: 44980-01MSD

Sample wt/vol: 4240 (g/ml) ML Lab File ID: A0501352

Level: (low/med) LOW Date Received: 10/03/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/05/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 11/07/95

Injection Volume: 1.0(uL) Dilution Factor: 500.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
91-20-3	Naphthalene	16000	
91-57-6	2-Methylnaphthalene	14000	B
208-96-8	Acenaphthylene	660	U
83-32-9	Acenaphthene	610	U
132-64-9	Dibenzofuran	470	U
86-73-7	Fluorene	17000	
85-01-8	Phenanthrene	610	U
120-12-7	Anthracene	520	U
206-44-0	Fluoranthene	660	U
129-00-0	Pyrene	660	U
56-55-3	Benzo(a)Anthracene	1200	U
218-01-9	Chrysene	14000	
207-08-9	Benzo(b)fluoranthene	1200	U
50-32-8	Benzo(a)pyrene	1100	U
193-39-5	Indeno(1,2,3-cd)pyrene	990	U
53-70-3	Dibenzo(a,h)anthracene	750	U
191-24-2	Benzo(g,h,i)perylene	1300	U
86-74-8	Carbazole	900	U
95-13-6	1H-Indene	16000	
91-22-5	Quinoline	12000	
90-12-0	1-Methylnaphthalene	750	U
271-89-6	2,3-Benzofuran	2400	U
496-11-7	2,3-Dihydroindene	660	U
95-15-8	Benzo(b)thiophene	420	U
120-72-9	1H-Indole	1200	U
92-52-4	Biphenyl	2000	U
132-65-0	Dibenzothiophene	520	U
260-94-6	Acridine	1400	U
192-97-2	Benzo(e)pyrene	18000	
198-55-0	Perylene	1200	U
57-97-6	7,12-Dimethylbenz(a)anthrace	1300	U
56-49-5	3-Methylcholanthrene	1600	U
205-08-9	Benzo(k)fluoranthene	1100	U

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO

SBLK01

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 44980 SAS No.: SDG No.: 44980

Lab File ID: A0601328 Lab Sample ID: SBLK01

Instrument ID: A Date Extracted: 10/05/95

Matrix: (soil/water) WATER Date Analyzed: 11/06/95

Level: (low/med) LOW Time Analyzed: 1607

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	MSH-SLP11	44980-01	A0701329	11/06/95
02	MSH-SLP11MS	44980-01MS	A0401351	11/07/95
03	MSH-SLP11MSD	44980-01MSD	A0501352	11/07/95
04	MSH-SLP11D	44980-01DU	A1101358	11/07/95
05	MSH-SLP11FB	44980-02FB	A1201359	11/07/95
06	MSH-SLP11FBD	44980-02FD	A1301360	11/07/95
07	MSH-SLP12	44980-03	A0101367	11/08/95
08	MSH-SLP13	44980-04	A0201368	11/08/95
09	MSH-SLP17	44980-05	A0301369	11/08/95
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COMMENTS:

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLK01

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 44980 SAS No.: SDG No.: 44980

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

Sample wt/vol: 4000 (g/ml) ML Lab File ID: A0601328

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

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/05/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 11/06/95

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
91-20-3	Naphthalene	6	U
91-57-6	2-Methylnaphthalene	3	
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
85-01-8	Phenanthrene	2	
120-12-7	Anthracene	1	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
207-08-9	Benzo(b)fluoranthene	2	U
50-32-8	Benzo(a)pyrene	2	U
193-39-5	Indeno(1,2,3-cd)pyrene	2	U
53-70-3	Dibenzo(a,h)anthracene	2	U
191-24-2	Benzo(g,h,i)perylene	3	U
86-74-8	Carbazole	2	U
95-13-6	1H-Indene	0.9	U
91-22-5	Quinoline	1	U
90-12-0	1-Methylnaphthalene	2	U
271-89-6	2,3-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
95-15-8	Benzo(b)thiophene	0.9	U
120-72-9	1H-Indole	2	U
92-52-4	Biphenyl	4	U
132-65-0	Dibenzothiophene	1	U
260-94-6	Acridine	3	U
192-97-2	Benzo(e)pyrene	2	U
198-55-0	Perylene	2	U
57-97-6	7,12-Dimethylbenz(a)anthrace	3	U
56-49-5	3-Methylcholanthrene	4	U
205-08-9	Benzo(k)fluoranthene	2	U

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 44980 SAS No.: SDG No.: 44980

Lab File ID (Standard): A322 Date Analyzed: 11/06/95

Instrument ID: A Time Analyzed: 1202

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	376625	12.73	610085	15.21	230143	21.81
	UPPER LIMIT	753250	13.23	1220170	15.71	460286	22.31
	LOWER LIMIT	188312	12.23	305042	14.71	115072	21.31
	EPA SAMPLE NO.						
01	SBLK01	292789	12.71	527356	15.20	266217	21.80
02	MSH-SLP11	223233	12.71	400268	15.20	204958	21.79
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IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = Benzo(a)pyrene-d12

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

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

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 44980 SAS No.: SDG No.: 44980

Lab File ID (Standard): A347 Date Analyzed: 11/07/95

Instrument ID: A Time Analyzed: 0919

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	84175	12.70	135107	15.18	62758	21.77
	UPPER LIMIT	168350	13.20	270214	15.68	125516	22.27
	LOWER LIMIT	42088	12.20	67554	14.68	31379	21.27
	EPA SAMPLE NO.						
01	MSH-SLP11MS	77312	12.70	110547	15.18	50097	21.77
02	MSH-SLP11MSD	73348	12.70	110491	15.18	47245	21.77
03	MSH-SLP11D	111383	12.69	200866	15.17	92530	21.77
04	MSH-SLP11FB	120292	12.69	207939	15.17	101212	21.77
05	MSH-SLP11FBD	130915	12.69	232948	15.17	117667	21.77
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IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = Benzo(a)pyrene-d12

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

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

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 44980 SAS No.: SDG No.: 44980

Lab File ID (Standard): A366 Date Analyzed: 11/08/95

Instrument ID: A Time Analyzed: 1050

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	186611	12.70	312036	15.19	183229	21.78
	UPPER LIMIT	373222	13.20	624072	15.69	366458	22.28
	LOWER LIMIT	93306	12.20	156018	14.69	91614	21.28
	EPA SAMPLE NO.						
01	MSH-SLP12	211078	12.70	378985	15.18	210459	21.78
02	MSH-SLP13	204691	12.70	369024	15.18	249332	21.78
03	MSH-SLP17	201089	12.70	363836	15.18	210811	21.78
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IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = Benzo(a)pyrene-d12

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

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

APPENDIX B
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 1995
PAH Quality Control Summary

Well No.	Sample Date	Method Blank	Field Duplicate	Matrix Spike	Matrix Spike Dup.	Field Blank
RAP Section 7.3 (A)						
SLP4	9/26/95	44896	GAC-SLP4TD-092695	GAC-SLP4TMS-092695	GAC-SLP4TMSD-092695	GAC-SLP4TFB-092695
SLP4	12/18/95	46467	PCJ-SLP10FD-121895	PCJ-SLP10FMS-121895	PCJ-SLP10FMSD-121895	PCJ-SLP10FFB-121895
RAP Section 7.3 (B)						
W23	5/9/95	42069	DPV-W420D-050995	DPV-W420MS-050995	DPV-W420MSD-050995	DPV-W420FB-050995
W23	9/19/95	44745	DPV-W420D-091995	DPV-W420MS-091995	DPV-W420MSD-091995	DPV-W420FB-091995
RAP Section 7.3 (C)						
SLP6	6/12/95	42733	PCJ-SLP10D-061295	PCJ-SLP10MS-061295	PCJ-SLP10MSD-061295	PCJ-SLP10FB-061295
SLP7	6/13/95	42771	PCJ-SLP16D-061395	PCJ-SLP10MS-061295	PCJ-SLP10MSD-061295	PCJ-SLP16FB-061395
W48	6/12/95	42733	PCJ-SLP10D-061295	PCJ-SLP10MS-061295	PCJ-SLP10MSD-061295	PCJ-SLP10FB-061295
RAP Section 7.3 (D)						
SLP10	6/12/95	42733	PCJ-SLP10D-061295	PCJ-SLP10MS-061295	PCJ-SLP10MSD-061295	PCJ-SLP10FB-061295
W402	6/12/95	42733	PCJ-SLP10D-061295	PCJ-SLP10MS-061295	PCJ-SLP10MSD-061295	PCJ-SLP10FB-061295
W403	6/12/95	42733	PCJ-SLP10D-061295	PCJ-SLP10MS-061295	PCJ-SLP10MSD-061295	PCJ-SLP10FB-061295
E2	12/18/95	46467	PCJ-SLP10FD-121895	PCJ-SLP10FMS-121895	PCJ-SLP10FMSD-121895	PCJ-SLP10FFB-121895
E13	6/13/95	42771	PCJ-SLP16D-061395	PCJ-SLP10MS-061295	PCJ-SLP10MSD-061295	PCJ-SLP16FB-061395
W406	6/19/95	42907	PCJ-SLP14D-061995	PCJ-SLP14MS-061995	PCJ-SLP14MSD-061995	PCJ-SLP14FB-061995
H3		Abandoned				

CITY OF ST. LOUIS PARK

Prairie du Chien Jordan Aquifer 1995
PAH Quality Control Summary

Well No.	Sample Date	Method Blank	Field Duplicate	Matrix Spike	Matrix Spike Dup.	Field Blank
SLP14	6/19/95	42907	PCJ-SLP14D-061995	PCJ-SLP14MS-061995	PCJ-SLP14MSD-061995	PCJ-SLP14FB-061995
SLP16	6/13/95	42771	PCJ-SLP16D-061395	PCJ-SLP10MS-061295	PCJ-SLP10MSD-061295	PCJ-SLP16FB-061395
W119	NOT AVAILABLE TO SAMPLE					

RAP Section 7.3(E)

SLP5	NOT AVAILABLE TO SAMPLE					
W40	6/12/95	42733	PCJ-SLP10D-061295	PCJ-SLP10MS-061295	PCJ-SLP10MSD-061295	PCJ-SLP10FB-061295
E3	6/13/95	42771	PCJ-SLP16D-061395	PCJ-SLP10MS-061295	PCJ-SLP10MSD-061295	PCJ-SLP16FB-061395
E15	6/13/95	42771	PCJ-SLP16D-061395	PCJ-SLP10MS-061295	PCJ-SLP10MSD-061295	PCJ-SLP16FB-061395
H6	6/13/95	42771	PCJ-SLP16D-061395	PCJ-SLP10MS-061295	PCJ-SLP10MSD-061295	PCJ-SLP16FB-061395
W70	6/13/95	42771	PCJ-SLP16D-061395	PCJ-SLP10MS-061295	PCJ-SLP10MSD-061295	PCJ-SLP16FB-061395
W401	6/19/95	42907	PCJ-SLP14D-061995	PCJ-SLP14MS-061995	PCJ-SLP14MSD-061995	PCJ-SLP14FB-061995
MTK6	6/19/95	42907	PCJ-SLP14D-061995	PCJ-SLP14MS-061995	PCJ-SLP14MSD-061995	PCJ-SLP14FB-061995
W29	6/19/95	42907	PCJ-SLP14D-061995	PCJ-SLP14MS-061995	PCJ-SLP14MSD-061995	PCJ-SLP14FB-061995

CITY OF ST. LOUIS PARK

Prairie du Chien Jordan Aquifer 1995
PAH Quality Control Summary

Well No.	Sample Date	Method Blank	Field Duplicate	Matrix Spike	Matrix Spike Dup.	Field Blank

Phenolics Quality Control Summary

SLP4	5/9/95	42070	DPV-W420TPD-050995	DPV-W420TPMS-050995	DPV-W420TPMSD-050995	DPV-W420TPFB-050995
SLP4	9/19/95	44743	DPV-W420TPD-091995	DPV-W420TPMS-091995	DPV-W420TPMSD-091995	DPV-W420TPFB-091995

RAP SECTION 7.3 (A) MONITORING

WELL

SLP 4

FIRST HALF MONITORING

PAH MONITORING

Quanterra Environmental Services

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

NOV 1995
RECEIVED

CASE NARRATIVE

FOR

City of St. Louis Park

November 22, 1995

Quanterra Environmental Services

Project Number 044896

Introduction

Eight aqueous samples (including matrix QC) were received at Quanterra Environmental Services, Denver Laboratory on September 27, 1995. The samples were logged in under Quanterra's Denver laboratory project number 044896. Sample GAC-SLP4TFBD-092695 (044896-02FD) was extracted and held per the April 1990 QAPP. A cross reference associating Quanterra's Denver laboratory sample numbers to the actual field sample number is included. The samples were analyzed for low level part-per-trillion (ppt) polynuclear aromatic hydrocarbons (PAH).

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the 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 GAC-SLP4TLE and PCJ-SLP4 (044896-03 and -04) were analyzed at the appropriate dilution to bring the concentrations of target compounds within the calibration range of the method. The reporting limits were raised accordingly.

Due to laboratory error the concentrations of the surrogate mix and the matrix spike mix were spiked in the samples at inappropriately high levels. The samples were analyzed at the lowest possible dilutions and at dilutions to bring the surrogate compounds within the calibration range of the method. The matrix spike/matrix spike duplicate samples were diluted to bring the concentrations of the spiked compounds within the calibration range of the method. The surrogate compounds were diluted out of the matrix spike and matrix spike duplicate samples. All sample surrogates and matrix spike/matrix spike duplicate compounds were in control.

The method blank analyzed with these samples showed concentrations of some compounds near the reporting limits. The samples are annotated accordingly.

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 044896 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.

A standard is now available for Benzo(J)Fluoranthene. Laboratory studies have shown that Benzo(J)Fluoranthene will coelute with either Benzo(B)Fluoranthene or Benzo(K)Fluoranthene depending on the relative concentration of these two compounds in solution. For this project Benzo(B)Fluoranthene and Benzo(J)Fluoranthene will be reported as Benzo(B)Fluoranthene.

Quanterra
Environmental Services

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:** 11/22/95
Daniel Rebarchik
Program Administrator

Approved by: _____ **Date:** 11/22/95
Kevin McHugh
Program Manager

Quanterra Environmental Services

QUALIFIER CODES AND THEIR USAGE

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

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

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

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

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

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

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

QUALIFIER CODES AND THEIR USAGE
Page Two

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

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

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

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

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

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
044896-0001-SA	GAC-SLP4T-092695	AQUEOUS	26 SEP 95		27 SEP 95
044896-0001-DU	GAC-SLP4TD-092695	AQUEOUS	26 SEP 95		27 SEP 95
044896-0001-MS	GAC-SLP4TMS-092695	AQUEOUS	26 SEP 95		27 SEP 95
044896-0001-SD	GAC-SLP4TMSD-092695	AQUEOUS	26 SEP 95		27 SEP 95
044896-0002-FB	GAC-SLP4TFB-092695	AQUEOUS	26 SEP 95		27 SEP 95
044896-0002-FD	GAC-SLP4TFBD-092695	AQUEOUS	26 SEP 95		27 SEP 95
044896-0003-SA	GAC-SLP4TLE-092695	AQUEOUS	26 SEP 95		27 SEP 95
044896-0004-SA	PCJ-SLP4-092695	AQUEOUS	26 SEP 95		27 SEP 95

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 044896	Group Code	Analysis Description	Custom Test?
0001 - 0004	A	Polynuclear Aromatic Hydrocarbons, SIM Low Level	N
		Prep - PAH/SIM by GC/MS Low Level	N
0002	B	Prep - PAH/SIM by GC/MS Low Level	N
		Polynuclear Aromatic Hydrocarbons, SIM Low Level	N

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

Scott Anderson
City of St. Louis Park
3752 Wooddale Ave.
ST. Louis Park, MN 55416

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: °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
9-26-95		GAC-SLP4T-092695	IXL AMBER	6	PPL PAH	-1
9-26-95		GAC-SLP4TD-092695	IXL AMBER	6	PPL PAH	-1 DU

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: 2103421294
RECEIVED FOR LAB
SIGNED: Steve Bindman
DATE/TIME: 9-27-95 9:30
ENSECO PROJECT NUMBER

ENS—4011 White - CL 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 770[illegible]
713/987-9767 FAX: 713/987-9769

CHAIN OF CUSTODY

ENSECO CLIENT

PROJECT
Scott Anderson
City of St. louis Park
3752 Wooddale Ave.
St. Louis Park, MN 55416

TEAM LEADER
M2H

SAMPLE SAFE™ CONDITIONS

PACKED BY: M2H
SEAL NUMBER:
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:
CONDITION OF CONTENTS:
SEALED FOR SHIPPING BY: M2H
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
9-26-95		GAC-SLP4TMS-092695	1XLAMBER	6	PPT PAH	-1 ms
9-26-95		GAC-SLP4TMSD-092695	1XLAMBER	6	PPT PAH	-1 sd

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: M2H
METHOD OF SHIPMENT: FED EX
AIRBILL NUMBER: 2103421294
RECEIVED FOR LAB:
SIGNED: Steve Bingham
DATE/TIME: 9-27-95 935
ENSECO PROJECT NUMBER:

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

PROJECT

Scott Anderson
City of St. Louis Park
3752 Wooddale Ave.
St. Louis Park, MN 55416

TEAM LEADER

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
9-26-95		GAC-SLP 4TFB-092695	1XL AMBER	6	PPL PAH	-2FB
9-26-95		GAC-SLP 4TFBD-092695	1XL AMBER	6	PPL PAH	-2FD (B)

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: 2103421294

RECEIVED FOR LAB

SIGNED: Steve Brinkman

DATE/TIME: 9-27-95 935

ENSECO PROJECT NUMBER

ENS-4011

White - CLIE

Pink - LAB

☐ 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

Enseco
A Corning Company

CHAIN OF CUSTODY

ENSECO CLIENT

PROJECT

Scott Anderson
City of St. Louis Park
3752 Woddale Ave.
St. Louis Park, MN 55416

TEAM LEADER: MZ

SAMPLE SAFE™ CONDITIONS

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

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
9-26-95		GAC-SLP4TLE-092695	1XL AMBER	6	PPL PAH	-3
9-26-95		PCT-SLP4-092695	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: MZ
METHOD OF SHIPMENT: FED EX
AIRBILL NUMBER: 2103421274
RECEIVED FOR LAB
SIGNED: Steve Burnham
DATE/TIME: 9-27-95 935
ENSECO PROJECT NUMBER

ENS—4011

White - CLIENT Pink - LAB

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GAC-SLP4TLE

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 44896 SAS No.: SDG No.: 44896

Matrix: (soil/water) WATER Lab Sample ID: 44896-03

Sample wt/vol: 4214 (g/ml) ML Lab File ID: A1101310

Level: (low/med) LOW Date Received: 09/27/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/01/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 11/03/95

Injection Volume: 1.0(uL) Dilution Factor: 4.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
91-20-3	Naphthalene	25	U
91-57-6	2-Methylnaphthalene	3	U
208-96-8	Acenaphthylene	5	U
83-32-9	Acenaphthene	89	
132-64-9	Dibenzofuran	4	U
86-73-7	Fluorene	4	U
85-01-8	Phenanthrene	5	U
120-12-7	Anthracene	4	U
206-44-0	Fluoranthene	5	U
129-00-0	Pyrene	5	U
56-55-3	Benzo(a)Anthracene	9	U
218-01-9	Chrysene	11	U
207-08-9	Benzo(b)fluoranthene	9	U
50-32-8	Benzo(a)pyrene	9	U
193-39-5	Indeno(1,2,3-cd)pyrene	8	U
53-70-3	Dibenzo(a,h)anthracene	6	U
191-24-2	Benzo(g,h,i)perylene	11	U
86-74-8	Carbazole	7	U
95-13-6	1H-Indene	6	
91-22-5	Quinoline	5	U
90-12-0	1-Methylnaphthalene	6	U
271-89-6	2,3-Benzofuran	19	U
496-11-7	2,3-Dihydroindene	110	
95-15-8	Benzo(b)thiophene	26	
120-72-9	1H-Indole	9	U
92-52-4	Biphenyl	16	U
132-65-0	Dibenzothiophene	4	U
260-94-6	Acridine	11	U
192-97-2	Benzo(e)pyrene	7	U
198-55-0	Perylene	9	U
57-97-6	7,12-Dimethylbenz(a)anthrace	11	U
56-49-5	3-Methylcholanthrene	13	U
205-08-9	Benzo(k)fluoranthene	9	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PCJ-SLP4

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 44896 SAS No.: SDG No.: 44896

Matrix: (soil/water) WATER Lab Sample ID: 44896-04

Sample wt/vol: 4212 (g/ml) ML Lab File ID: A0401326

Level: (low/med) LOW Date Received: 09/27/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/01/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 11/06/95

Injection Volume: 1.0(uL) Dilution Factor: 2.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
91-20-3	Naphthalene	12	U
91-57-6	2-Methylnaphthalene	2	BR
208-96-8	Acenaphthylene	3	U
83-32-9	Acenaphthene	210	
132-64-9	Dibenzofuran	2	U
86-73-7	Fluorene	1	J
85-01-8	Phenanthrene	9	B
120-12-7	Anthracene	4	
206-44-0	Fluoranthene	14	
129-00-0	Pyrene	11	
56-55-3	Benzo(a)Anthracene	5	U
218-01-9	Chrysene	5	U
207-08-9	Benzo(b)fluoranthene	5	U
50-32-8	Benzo(a)pyrene	4	U
193-39-5	Indeno(1,2,3-cd)pyrene	4	U
53-70-3	Dibenzo(a,h)anthracene	3	U
191-24-2	Benzo(g,h,i)perylene	5	U
86-74-8	Carbazole	36	
95-13-6	1H-Indene	13	
91-22-5	Quinoline	3	
90-12-0	1-Methylnaphthalene	3	U
271-89-6	2,3-Benzofuran	10	U
496-11-7	2,3-Dihydroindene	190	
95-15-8	Benzo(b)thiophene	60	
120-72-9	1H-Indole	5	U
92-52-4	Biphenyl	9	
132-65-0	Dibenzothiophene	2	J
260-94-6	Acridine	6	U
192-97-2	Benzo(e)pyrene	4	U
198-55-0	Perylene	5	U
57-97-6	7,12-Dimethylbenz(a)anthrace	5	U
56-49-5	3-Methylcholanthrene	7	U
205-08-9	Benzo(k)fluoranthene	4	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GAC-SLP4T

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 44896 SAS No.: SDG No.: 44896

Matrix: (soil/water) WATER Lab Sample ID: 44896-01

Sample wt/vol: 4224 (g/ml) ML Lab File ID: A0701306

Level: (low/med) LOW Date Received: 09/27/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/01/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 11/03/95

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
91-20-3	Naphthalene	7	B
91-57-6	2-Methylnaphthalene	4	BR
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	0.9	U
86-73-7	Fluorene	3	
85-01-8	Phenanthrene	3	B
120-12-7	Anthracene	1	U
206-44-0	Fluoranthene	1	J
129-00-0	Pyrene	1	U
56-55-3	Benzo(a)Anthracene	2	U
218-01-9	Chrysene	3	
207-08-9	Benzo(b)fluoranthene	2	U
50-32-8	Benzo(a)pyrene	2	U
193-39-5	Indeno(1,2,3-cd)pyrene	2	U
53-70-3	Dibenzo(a,h)anthracene	2	U
191-24-2	Benzo(g,h,i)perylene	3	U
86-74-8	Carbazole	2	U
95-13-6	1H-Indene	2	
91-22-5	Quinoline	3	
90-12-0	1-Methylnaphthalene	2	U
271-89-6	2,3-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	2	
95-15-8	Benzo(b)thiophene	0.8	U
120-72-9	1H-Indole	2	U
92-52-4	Biphenyl	4	U
132-65-0	Dibenzothiophene	1	U
260-94-6	Acridine	3	U
192-97-2	Benzo(e)pyrene	3	
198-55-0	Perylene	2	U
57-97-6	7,12-Dimethylbenz(a)anthrace	3	U
56-49-5	3-Methylcholanthrene	3	U
205-08-9	Benzo(k)fluoranthene	2	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GAC-SLP4TD

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 44896 SAS No.: SDG No.: 44896

Matrix: (soil/water) WATER Lab Sample ID: 44896-01DU

Sample wt/vol: 4220 (g/ml) ML Lab File ID: A0801307

Level: (low/med) LOW Date Received: 09/27/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/01/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 11/03/95

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
91-20-3	Naphthalene	8	B
91-57-6	2-Methylnaphthalene	5	BR
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	0.9	U
86-73-7	Fluorene	5	
85-01-8	Phenanthrene	2	B
120-12-7	Anthracene	1	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	39	
207-08-9	Benzo(b)fluoranthene	2	U
50-32-8	Benzo(a)pyrene	2	U
193-39-5	Indeno(1,2,3-cd)pyrene	2	U
53-70-3	Dibenzo(a,h)anthracene	2	U
191-24-2	Benzo(g,h,i)perylene	3	U
86-74-8	Carbazole	2	U
95-13-6	1H-Indene	3	
91-22-5	Quinoline	4	
90-12-0	1-Methylnaphthalene	2	U
271-89-6	2,3-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	2	
95-15-8	Benzo(b)thiophene	0.8	U
120-72-9	1H-Indole	2	U
92-52-4	Biphenyl	4	U
132-65-0	Dibenzothiophene	1	U
260-94-6	Acridine	3	U
192-97-2	Benzo(e)pyrene	34	
198-55-0	Perylene	2	U
57-97-6	7,12-Dimethylbenz(a)anthrace	3	U
56-49-5	3-Methylcholanthrene	3	U
205-08-9	Benzo(k)fluoranthene	2	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GAC-SLP4TFBD

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 44896 SAS No.: SDG No.: 44896

Matrix: (soil/water) WATER Lab Sample ID: 44896-02FD

Sample wt/vol: 4096 (g/ml) ML Lab File ID: A1001309

Level: (low/med) LOW Date Received: 09/27/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/01/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 11/03/95

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
91-20-3	Naphthalene	14	B
91-57-6	2-Methylnaphthalene	7	B
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	2	
86-73-7	Fluorene	2	
85-01-8	Phenanthrene	4	B
120-12-7	Anthracene	1	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
207-08-9	Benzo(b)fluoranthene	2	U
50-32-8	Benzo(a)pyrene	2	U
193-39-5	Indeno(1,2,3-cd)pyrene	2	U
53-70-3	Dibenzo(a,h)anthracene	2	U
191-24-2	Benzo(g,h,i)perylene	3	U
86-74-8	Carbazole	2	U
95-13-6	1H-Indene	1	
91-22-5	Quinoline	1	JR
90-12-0	1-Methylnaphthalene	3	
271-89-6	2,3-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	1	J
95-15-8	Benzo(b)thiophene	0.9	U
120-72-9	1H-Indole	2	U
92-52-4	Biphenyl	5	
132-65-0	Dibenzothiophene	1	U
260-94-6	Acridine	3	U
192-97-2	Benzo(e)pyrene	2	U
198-55-0	Perylene	2	U
57-97-6	7,12-Dimethylbenz(a)anthrace	3	U
56-49-5	3-Methylcholanthrene	3	U
205-08-9	Benzo(k)fluoranthene	2	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GAC-SLP4TFB

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 44896 SAS No.: SDG No.: 44896

Matrix: (soil/water) WATER Lab Sample ID: 44896-02FB

Sample wt/vol: 4198 (g/ml) ML Lab File ID: A0501327

Level: (low/med) LOW Date Received: 09/27/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/01/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 11/06/95

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
91-20-3	Naphthalene	14	B
91-57-6	2-Methylnaphthalene	7	B
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	2	
86-73-7	Fluorene	2	
85-01-8	Phenanthrene	4	B
120-12-7	Anthracene	1	U
206-44-0	Fluoranthene	2	
129-00-0	Pyrene	4	
56-55-3	Benzo(a)Anthracene	2	U
218-01-9	Chrysene	8	
207-08-9	Benzo(b)fluoranthene	6	
50-32-8	Benzo(a)pyrene	2	U
193-39-5	Indeno(1,2,3-cd)pyrene	3	
53-70-3	Dibenzo(a,h)anthracene	2	
191-24-2	Benzo(g,h,i)perylene	4	
86-74-8	Carbazole	3	
95-13-6	1H-Indene	2	
91-22-5	Quinoline	2	
90-12-0	1-Methylnaphthalene	3	
271-89-6	2,3-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
95-15-8	Benzo(b)thiophene	0.8	U
120-72-9	1H-Indole	2	U
92-52-4	Biphenyl	5	
132-65-0	Dibenzothiophene	1	U
260-94-6	Acridine	3	U
192-97-2	Benzo(e)pyrene	2	
198-55-0	Perylene	2	U
57-97-6	7,12-Dimethylbenz(a)anthrace	3	U
56-49-5	3-Methylcholanthrene	3	U
205-08-9	Benzo(k)fluoranthene	4	

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 44896 SAS No.: SDG No.: 44896

	EPA SAMPLE NO.	S1 #	S2 #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	GAC-SLP4TMS	0D	0D	0D						0
02	GAC-SLP4TMSD	0D	0D	0D						0
03	GAC-SLP4T	85	75	65						0
04	GAC-SLP4TD	98	41	76						0
05	GAC-SLP4TFB	91	80	70						0
06	GAC-SLP4TFBD	87	76	67						0
07	GAC-SLP4TLE	81	39	64						0
08	SBLK01	85	96	78						0
09	PCJ-SLP4	70	56	53						0
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		QC LIMITS
S1	= Naphthalene-d8	(21-108)
S2	= Chrysene-d12	(10-118)
S3	= Fluorene-d10	(41-162)

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

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 44896 SAS No.: SDG No.: 44896

Matrix Spike - EPA Sample No.: GAC-SLP4T

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC #	QC. LIMITS REC.
Naphthalene	24000	7	22000	92	20-150
2-Methylnaphthalene	24000	4	21000	87	20-150
Fluorene	24000	3	21000	87	20-150
Chrysene	24000	3	17000	71	20-150
1H-Indene	24000	2	23000	96	20-150
Quinoline	24000	3	10000	42	20-150
Benzo(e)pyrene	24000	3	20000	83	20-150

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Naphthalene	24000	23000	96	4	20	20-150
2-Methylnaphthalene	24000	21000	87	0	20	20-150
Fluorene	24000	21000	87	0	20	20-150
Chrysene	24000	16000	67	6	20	20-150
1H-Indene	24000	23000	96	0	20	20-150
Quinoline	24000	11000	46	9	20	20-150
Benzo(e)pyrene	24000	19000	79	5	20	20-150

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

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

COMMENTS: _____

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GAC-SLP4TMS

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 44896 SAS No.: SDG No.: 44896

Matrix: (soil/water) WATER Lab Sample ID: 44896-01MS

Sample wt/vol: 4221 (g/ml) ML Lab File ID: A1301312

Level: (low/med) LOW Date Received: 09/27/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/01/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 11/03/95

Injection Volume: 1.0(uL) Dilution Factor: 500.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
91-20-3	Naphthalene	22200	B
91-57-6	2-Methylnaphthalene	21000	B
208-96-8	Acenaphthylene	829	U
83-32-9	Acenaphthene	770	U
132-64-9	Dibenzofuran	592	U
86-73-7	Fluorene	21100	
85-01-8	Phenanthrene	770	U
120-12-7	Anthracene	652	U
206-44-0	Fluoranthene	829	U
129-00-0	Pyrene	829	U
56-55-3	Benzo(a)Anthracene	1480	U
218-01-9	Chrysene	16600	
207-08-9	Benzo(b)fluoranthene	1480	U
50-32-8	Benzo(a)pyrene	1360	U
193-39-5	Indeno(1,2,3-cd)pyrene	1240	U
53-70-3	Dibenzo(a,h)anthracene	948	U
191-24-2	Benzo(g,h,i)perylene	1660	U
86-74-8	Carbazole	1120	U
95-13-6	1H-Indene	22600	
91-22-5	Quinoline	10100	
90-12-0	1-Methylnaphthalene	948	U
271-89-6	2,3-Benzofuran	3020	U
496-11-7	2,3-Dihydroindene	829	U
95-15-8	Benzo(b)thiophene	533	U
120-72-9	1H-Indole	1480	U
92-52-4	Biphenyl	2550	U
132-65-0	Dibenzothiophene	652	U
260-94-6	Acridine	1720	U
192-97-2	Benzo(e)pyrene	20300	
198-55-0	Perylene	1480	U
57-97-6	7,12-Dimethylbenz(a)anthrace	1660	U
56-49-5	3-Methylcholanthrene	2070	U
205-08-9	Benzo(k)fluoranthene	1360	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GAC-SLP4TMSD

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 44896 SAS No.: SDG No.: 44896

Matrix: (soil/water) WATER Lab Sample ID: 44896-01MSD

Sample wt/vol: 4223 (g/ml) ML Lab File ID: A1401313

Level: (low/med) LOW Date Received: 09/27/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/01/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 11/03/95

Injection Volume: 1.0(uL) Dilution Factor: 500.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
91-20-3	Naphthalene	22700	B
91-57-6	2-Methylnaphthalene	21300	B
208-96-8	Acenaphthylene	829	U
83-32-9	Acenaphthene	770	U
132-64-9	Dibenzofuran	592	U
86-73-7	Fluorene	21300	
85-01-8	Phenanthrene	770	U
120-12-7	Anthracene	651	U
206-44-0	Fluoranthene	829	U
129-00-0	Pyrene	829	U
56-55-3	Benzo(a)Anthracene	1480	U
218-01-9	Chrysene	15900	
207-08-9	Benzo(b)fluoranthene	1480	U
50-32-8	Benzo(a)pyrene	1360	U
193-39-5	Indeno(1,2,3-cd)pyrene	1240	U
53-70-3	Dibenzo(a,h)anthracene	947	U
191-24-2	Benzo(g,h,i)perylene	1660	U
86-74-8	Carbazole	1120	U
95-13-6	1H-Indene	23200	
91-22-5	Quinoline	11100	
90-12-0	1-Methylnaphthalene	947	U
271-89-6	2,3-Benzofuran	3020	U
496-11-7	2,3-Dihydroindene	829	U
95-15-8	Benzo(b)thiophene	533	U
120-72-9	1H-Indole	1480	U
92-52-4	Biphenyl	2540	U
132-65-0	Dibenzothiophene	651	U
260-94-6	Acridine	1720	U
192-97-2	Benzo(e)pyrene	19200	
198-55-0	Perylene	1480	U
57-97-6	7,12-Dimethylbenz(a)anthrace	1660	U
56-49-5	3-Methylcholanthrene	2070	U
205-08-9	Benzo(k)fluoranthene	1360	U

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

SBLK01

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 44896 SAS No.: SDG No.: 44896

Lab File ID: A0201324 Lab Sample ID: SBLK01

Instrument ID: A Date Extracted: 10/01/95

Matrix: (soil/water) WATER Date Analyzed: 11/06/95

Level: (low/med) LOW Time Analyzed: 1332

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	GAC-SLP4T	44896-01	A0701306	11/03/95
02	GAC-SLP4TD	44896-01DU	A0801307	11/03/95
03	GAC-SLP4TFBD	44896-02FD	A1001309	11/03/95
04	GAC-SLP4TLE	44896-03	A1101310	11/03/95
05	GAC-SLP4TMS	44896-01MS	A1301312	11/03/95
06	GAC-SLP4TMSD	44896-01MSD	A1401313	11/03/95
07	PCJ-SLP4	44896-04	A0401326	11/06/95
08	GAC-SLP4TFB	44896-02FB	A0501327	11/06/95
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COMMENTS:

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLK01

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 44896 SAS No.: SDG No.: 44896

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

Sample wt/vol: 4000 (g/ml) ML Lab File ID: A0201324

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

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/01/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 11/06/95

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
91-20-3	Naphthalene	8	
91-57-6	2-Methylnaphthalene	3	R
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
85-01-8	Phenanthrene	2	
120-12-7	Anthracene	1	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
207-08-9	Benzo(b)fluoranthene	2	U
50-32-8	Benzo(a)pyrene	2	U
193-39-5	Indeno(1,2,3-cd)pyrene	2	U
53-70-3	Dibenzo(a,h)anthracene	2	U
191-24-2	Benzo(g,h,i)perylene	3	U
86-74-8	Carbazole	2	U
95-13-6	1H-Indene	0.9	U
91-22-5	Quinoline	1	U
90-12-0	1-Methylnaphthalene	2	U
271-89-6	2,3-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
95-15-8	Benzo(b)thiophene	0.9	U
120-72-9	1H-Indole	2	U
92-52-4	Biphenyl	4	U
132-65-0	Dibenzothiophene	1	U
260-94-6	Acridine	3	U
192-97-2	Benzo(e)pyrene	2	U
198-55-0	Perylene	2	U
57-97-6	7,12-Dimethylbenz(a)anthrace	3	U
56-49-5	3-Methylcholanthrene	6	R
205-08-9	Benzo(k)fluoranthene	2	U

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 44896 SAS No.: SDG No.: 44896

Lab File ID (Standard): A0501304 Date Analyzed: 11/03/95

Instrument ID: A Time Analyzed: 1226

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	351184	12.71	593025	15.20	275206	21.79
	UPPER LIMIT	702368	13.21	1186050	15.70	550412	22.29
	LOWER LIMIT	175592	12.21	296512	14.70	137603	21.29
	EPA SAMPLE NO.						
01	GAC-SLP4T	389780	12.71	718028	15.19	268086	21.79
02	GAC-SLP4TD	384007	12.71	742677	15.19	307056	21.78
03	GAC-SLP4TFBD	398400	12.70	719155	15.19	300245	21.78
04	GAC-SLP4TLE	444605	12.70	900116	15.19	266825	21.78
05	GAC-SLP4TMS	271789	12.70	432296	15.18	169997	21.78
06	GAC-SLP4TMSD	264766	12.70	415337	15.18	174927	21.78
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22							

IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = Benzo(a)pyrene-d12

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

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

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 44896 SAS No.: SDG No.: 44896

Lab File ID (Standard): A322 Date Analyzed: 11/06/95

Instrument ID: A Time Analyzed: 1202

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	376625	12.73	610085	15.21	230143	21.81
	UPPER LIMIT	753250	13.23	1220170	15.71	460286	22.31
	LOWER LIMIT	188312	12.23	305042	14.71	115072	21.31
	EPA SAMPLE NO.						
01	SBLK01	401773	12.72	935489	15.21	259250	21.79
02	PCJ-SLP4	476992	12.72	886820	15.20	365090	21.80
03	GAC-SLP4TFB	535635	12.72	1054869	15.20	388173	21.79
04							
05							
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20							
21							
22							

IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = Benzo(a)pyrene-d12

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

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

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

February 4, 1996

Quanterra Environmental Services

Project Number 046467

Introduction

Eight aqueous samples (including matrix QC) were received at Quanterra Environmental Services, Denver Laboratory on December 19, 1995. The samples were logged in under Quanterra's Denver laboratory project number 046467. Sample PCJ-SLP10FFBD-121895 (046467-02FD) was extracted and held per the April 1990 QAPP. A cross reference associating Quanterra's Denver laboratory sample numbers to the actual field sample number is included. The samples were analyzed for low level part-per-trillion (ppt) polynuclear aromatic hydrocarbons (PAH).

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the 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 PCJ-SLP10F (046467-01), PCJ-SLP10FD (046467-01DU), PCJ-SLP10FMS (046467-01MS) and PCJ-SLP10FMSD (046467-01SD) were analyzed at appropriate dilutions to bring the concentrations of target compounds within the calibration range of the method. The reporting limits were raised accordingly. The surrogates associated with these samples were diluted out of the calibration range of the method.

The matrix spike and matrix spike duplicate (samples 046467-01MS and -01SD) showed the percent recoveries and relative percent differences (RPDs) for several spiking compounds outside control limits. Due to the dilutions necessary for analyzing these samples, the spiking levels for these samples were deemed inadequate to provide useful information about these samples. However, a laboratory control sample (LCS) was prepared and analyzed with these samples and showed all spiking compounds within control limits.

There were two blanks associated with the samples due to the samples being prepared in two separate areas of the laboratory. A blank and samples PCJ-SLP10FFB and PCJ-SLP10FFBD (046467-02FB and -02FD) showed the percent recovery of the surrogate Chrysene-d12 above control limits. The results for the above mentioned sample may be biased high. There was no more sample available for repreparation and therefore the original results were reported.

The method blanks analyzed with these samples showed concentrations of some compounds near the reporting limits. The samples are annotated accordingly.

Samples PCJ-SLP10F and PCJ-SLP10FMSD (046467-01 and 01SD) showed the internal standard area (benzo(a)pyrene-d12) below control limits. Observation of the chromatograms indicate a matrix effect. Low areas for this internal standard were observed but in control for the corresponding samples PCJ-SLP10FD and PCJ-SLP10FMS (046467-01DU and -01MS).

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 046467 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.

Quanterra
Environmental Services

A standard is now available for Benzo(J)Fluoranthene. Laboratory studies have shown that Benzo(J)Fluoranthene will coelute with either Benzo(B)Fluoranthene or Benzo(K)Fluoranthene depending on the relative concentration of these two compounds in solution. For this project Benzo(B)Fluoranthene and Benzo(J)Fluoranthene will be reported as Benzo(B)Fluoranthene.

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: 2/4/96
Daniel Rebarchik
Program Administrator

Approved by: _____ Date: 2/7/96
Kevin McHugh
Program Manager

Quanterra Environmental Services

QUALIFIER CODES AND THEIR USAGE

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

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

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

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

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

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

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

QUALIFIER CODES AND THEIR USAGE
Page Two

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

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

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

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

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

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 046467	Group Code	Analysis Description	Custom Test?
0001 - 0004	A	Polynuclear Aromatic Hydrocarbons, SIM Low Level	N
		Prep - PAH/SIM by GC/MS Low Level	N
0002	B	Prep - PAH/SIM by GC/MS Low Level	N
		Polynuclear Aromatic Hydrocarbons, SIM Low Level	N

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
046467-0001-DU	PCJ-SLP10FD-121895	AQUEOUS	18 DEC 95		19 DEC 95
046467-0001-MS	PCJ-SLP10FMS-121895	AQUEOUS	18 DEC 95		19 DEC 95
046467-0001-SD	PCJ-SLP10FMSD-121895	AQUEOUS	18 DEC 95		19 DEC 95
046467-0001-SA	PCJ-SLP10F-121895	AQUEOUS	18 DEC 95		19 DEC 95
046467-0002-FB	PCJ-SLP10FFB-121895	AQUEOUS	18 DEC 95		19 DEC 95
046467-0002-FD	PCJ-SLP10FFBD-121895	AQUEOUS	18 DEC 95		19 DEC 95
046467-0003-SA	PCJ-SLP4F-121895	AQUEOUS	18 DEC 95		19 DEC 95
046467-0004-SA	PCJ-E2-121895	AQUEOUS	18 DEC 95		19 DEC 95

CHAIN OF CUSTODY

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

Quanterra Environmental Services

QUANTERRA CLIENT

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

TEAM LEADER: M2K

SAMPLE SAFE™ CONDITIONS

PACKED BY: M2K	SEAL NUMBER:
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:	CONDITION OF CONTENTS:
SEALED FOR SHIPPING BY: M2K	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: 20 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
12-18-95		PCJ-SLP10F-121895	1XL AMBER	6	PPT PAH	PPT 5
12-18-95		PCJ-SLP10FD-121895	1XL AMBER	6	PPT PAH	PPT 5
12-18-95		PCJ-SLP10FMS-121895	1XL AMBER	6	PPT PAH	PPT 5

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: M2K	
METHOD OF SHIPMENT: FED ED	AIRBILL NUMBER: 2103421331
RECEIVED FOR LAB:	SIGNED: Steve Bruchen DATE/TIME: 12-19-95 8:1
QUANTERRA PROJECT NUMBER: 46467	

QUA-4119 White – [illegible] Pink – LAB

CHAIN OF CUSTODY

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

Quanterra Environmental Services

QUANTERRA CLIENT

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

TEAM LEADER: 7 2 B

SAMPLE SAFE™ CONDITIONS

PACKED BY: 7 2 B	SEAL NUMBER
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY	CONDITION OF CONTENTS
SEALED FOR SHIPPING BY: 7 2 B	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: 1.5 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
-01SD 12-18-95		PCJ-SLP10FMSD-121895	IXL AMBER	6	PPL PAH	PPL 5
-02FB 12-18-95		PCJ-SLP10FFB-121895	IXL AMBER	6	PPL PAH	PPL 5
-02FD 12-18-95		PCJ-SLP10FFBD-121895	IXL AMBER	6	PPL PAH	PPL 5

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: 7 2 B	
METHOD OF SHIPMENT: FED EX	AIRBILL NUMBER: 2103421331
RECEIVED FOR LAB	SIGNED: Jure Binefuri — DATE/TIME: 12-19-95 8:45
QUANTERRA PROJECT NUMBER: 46467	

QUA-4119

White – CLIENT Pink – LAB

CHAIN OF CUSTODY

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

Quanterra Environmental Services

QUANTERRA CLIENT

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

TEAM LEADER: M2K

SAMPLE SAFE™ CONDITIONS

PACKED BY: M2K	SEAL NUMBER:
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:	CONDITION OF CONTENTS:
SEALED FOR SHIPPING BY: M2K	INITIAL CONTENTS TEMP: °C
SEAL NUMBER:	SAMPLING STATUS: ☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB: ☐ Yes ☐ No	CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 0.8 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
03 12-18-95		PCJ-5LP4F-121895	1XL AMBER	6	PPT PAH	PPT 5
04 12-18-95		PCJ-E2. -121895	1XL AMBER	6	PPT PAH	PPT 5

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: M2K	
METHOD OF SHIPMENT: FED EX	AIRBILL NUMBER: 8103421331
RECEIVED FOR LAB:	SIGNED: Steve Binefrus — DATE/TIME: 12-19-95 84
QUANTERRA PROJECT NUMBER: 46467	

QUA-4119 White – C Pink – LAB

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SLP10F

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 46467 SAS No.: SDG No.: 46467

Matrix: (soil/water) WATER Lab Sample ID: 46467-01

Sample wt/vol: 4240 (g/ml) ML Lab File ID: A0401065

Level: (low/med) LOW Date Received: 12/19/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 12/25/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 01/18/96

Injection Volume: 1.0(uL) Dilution Factor: 4.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
91-20-3	Naphthalene	24	U
91-57-6	2-Methylnaphthalene	5.2	B
208-96-8	Acenaphthylene	89	
83-32-9	Acenaphthene	320	
132-64-9	Dibenzofuran	9.3	
86-73-7	Fluorene	120	
85-01-8	Phenanthrene	4.9	U
120-12-7	Anthracene	4.4	
206-44-0	Fluoranthene	22	
129-00-0	Pyrene	41	
56-55-3	Benzo(a)Anthracene	9.4	U
218-01-9	Chrysene	10	U
207-08-9	Benzo(b)fluoranthene	9.4	U
50-32-8	Benzo(a)pyrene	8.7	U
193-39-5	Indeno(1,2,3-cd)pyrene	7.9	U
53-70-3	Dibenzo(a,h)anthracene	6.0	U
191-24-2	Benzo(g,h,i)perylene	10	U
86-74-8	Carbazole	7.2	U
95-13-6	1H-Indene	8.1	
91-22-5	Quinoline	5.3	U
90-12-0	1-Methylnaphthalene	6.0	U
271-89-6	2,3-Benzofuran	19	U
496-11-7	2,3-Dihydroindene	200	
95-15-8	Benzo(b)thiophene	12	
120-72-9	1H-Indole	9.4	U
92-52-4	Biphenyl	16	U
132-65-0	Dibenzothiophene	16	
260-94-6	Acridine	11	U
192-97-2	Benzo(e)pyrene	7.2	U
198-55-0	Perylene	9.4	U
192-65-4	Dibenzo(a,e)pyrene	15	U
----------	Dibenzo(a,i)pyrene	15	U
----------	Dibenzo(a,h)pyrene	15	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SLP10F

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 46467 SAS No.: SDG No.: 46467

Matrix: (soil/water) WATER Lab Sample ID: 46467-01

Sample wt/vol: 4240 (g/ml) ML Lab File ID: A0401065

Level: (low/med) LOW Date Received: 12/19/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:12/25/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 01/18/96

Injection Volume: 1.0(uL) Dilution Factor: 4.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
205-08-9	Benzo(k)fluoranthene	8.7	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SLP10FD

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 46467 SAS No.: SDG No.: 46467

Matrix: (soil/water) WATER Lab Sample ID: 46467-01DU

Sample wt/vol: 4240 (g/ml) ML Lab File ID: A0501066

Level: (low/med) LOW Date Received: 12/19/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:12/25/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 01/18/96

Injection Volume: 1.0(uL) Dilution Factor: 4.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
91-20-3	Naphthalene	24	U
91-57-6	2-Methylnaphthalene	3.4	U
208-96-8	Acenaphthylene	87	
83-32-9	Acenaphthene	320	
132-64-9	Dibenzofuran	9.5	
86-73-7	Fluorene	120	
85-01-8	Phenanthrene	4.9	U
120-12-7	Anthracene	4.2	U
206-44-0	Fluoranthene	23	
129-00-0	Pyrene	44	
56-55-3	Benzo(a)Anthracene	9.4	U
218-01-9	Chrysene	10	U
207-08-9	Benzo(b)fluoranthene	9.4	U
50-32-8	Benzo(a)pyrene	8.7	U
193-39-5	Indeno(1,2,3-cd)pyrene	7.9	U
53-70-3	Dibenzo(a,h)anthracene	6.0	U
191-24-2	Benzo(g,h,i)perylene	10	U
86-74-8	Carbazole	7.2	U
95-13-6	1H-Indene	7.6	B
91-22-5	Quinoline	5.3	U
90-12-0	1-Methylnaphthalene	6.0	U
271-89-6	2,3-Benzofuran	19	U
496-11-7	2,3-Dihydroindene	190	B
95-15-8	Benzo(b)thiophene	12	
120-72-9	1H-Indole	9.4	U
92-52-4	Biphenyl	16	U
132-65-0	Dibenzothiophene	16	
260-94-6	Acridine	11	U
192-97-2	Benzo(e)pyrene	7.2	U
198-55-0	Perylene	9.4	U
192-65-4	Dibenzo(a,e)pyrene	15	U
	Dibenzo(a,i)pyrene	15	U
	Dibenzo(a,h)pyrene	15	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SLP10FD

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 46467 SAS No.: SDG No.: 46467

Matrix: (soil/water) WATER Lab Sample ID: 46467-01DU

Sample wt/vol: 4240 (g/ml) ML Lab File ID: A0501066

Level: (low/med) LOW Date Received: 12/19/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:12/25/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 01/18/96

Injection Volume: 1.0(uL) Dilution Factor: 4.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
205-08-9--------	Benzo(k)fluoranthene	8.7	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SLP10FFB

Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 46467 SAS No.: SDG No.: 46467

Matrix: (soil/water) WATER Lab Sample ID: 46467-02FB

Sample wt/vol: 4250 (g/ml) ML Lab File ID: A1101055

Level: (low/med) LOW Date Received: 12/19/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:12/25/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 01/17/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
91-20-3	Naphthalene	8.9	
91-57-6	2-Methylnaphthalene	3.7	B
208-96-8	Acenaphthylene	1.3	U
83-32-9	Acenaphthene	1.2	U
132-64-9	Dibenzofuran	1.1	
86-73-7	Fluorene	0.94	U
85-01-8	Phenanthrene	3.6	B
120-12-7	Anthracene	1.0	U
206-44-0	Fluoranthene	1.8	
129-00-0	Pyrene	1.4	
56-55-3	Benzo(a)Anthracene	2.4	U
218-01-9	Chrysene	2.6	U
207-08-9	Benzo(b)fluoranthene	2.4	U
50-32-8	Benzo(a)pyrene	2.2	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.0	U
53-70-3	Dibenzo(a,h)anthracene	1.5	U
191-24-2	Benzo(g,h,i)perylene	2.6	U
86-74-8	Carbazole	1.8	U
95-13-6	1H-Indene	1.0	
91-22-5	Quinoline	1.3	U
90-12-0	1-Methylnaphthalene	1.9	
271-89-6	2,3-Benzofuran	4.8	U
496-11-7	2,3-Dihydroindene	2.2	
95-15-8	Benzo(b)thiophene	0.85	U
120-72-9	1H-Indole	2.4	U
92-52-4	Biphenyl	4.0	U
132-65-0	Dibenzothiophene	1.0	U
260-94-6	Acridine	2.7	U
192-97-2	Benzo(e)pyrene	1.8	U
198-55-0	Perylene	2.4	U
192-65-4	Dibenzo(a,e)pyrene	3.8	U
----------	Dibenzo(a,i)pyrene	3.8	U
----------	Dibenzo(a,h)pyrene	3.8	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SLP10FFB

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 46467 SAS No.: SDG No.: 46467

Matrix: (soil/water) WATER Lab Sample ID: 46467-02FB

Sample wt/vol: 4250 (g/ml) ML Lab File ID: A1101055

Level: (low/med) LOW Date Received: 12/19/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:12/25/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 01/17/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
205-08-9--------	Benzo(k)fluoranthene	2.2	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SLP10FFBD

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 46467 SAS No.: SDG No.: 46467

Matrix: (soil/water) WATER Lab Sample ID: 46467-02FD

Sample wt/vol: 4240 (g/ml) ML Lab File ID: A1201056

Level: (low/med) LOW Date Received: 12/19/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:12/25/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 01/17/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
91-20-3	Naphthalene	6.1	U
91-57-6	2-Methylnaphthalene	3.5	B
208-96-8	Acenaphthylene	1.3	U
83-32-9	Acenaphthene	1.2	U
132-64-9	Dibenzofuran	1.2	
86-73-7	Fluorene	0.94	U
85-01-8	Phenanthrene	5.4	B
120-12-7	Anthracene	1.0	U
206-44-0	Fluoranthene	1.4	
129-00-0	Pyrene	1.3	U
56-55-3	Benzo(a)Anthracene	2.4	U
218-01-9	Chrysene	2.6	U
207-08-9	Benzo(b)fluoranthene	2.4	U
50-32-8	Benzo(a)pyrene	2.2	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.0	U
53-70-3	Dibenzo(a,h)anthracene	1.5	U
191-24-2	Benzo(g,h,i)perylene	2.6	U
86-74-8	Carbazole	1.8	U
95-13-6	1H-Indene	0.85	U
91-22-5	Quinoline	1.3	U
90-12-0	1-Methylnaphthalene	1.5	U
271-89-6	2,3-Benzofuran	4.8	U
496-11-7	2,3-Dihydroindene	1.7	B
95-15-8	Benzo(b)thiophene	0.85	U
120-72-9	1H-Indole	2.4	U
92-52-4	Biphenyl	4.0	U
132-65-0	Dibenzothiophene	1.0	U
260-94-6	Acridine	2.7	U
192-97-2	Benzo(e)pyrene	1.8	U
198-55-0	Perylene	2.4	U
192-65-4	Dibenzo(a,e)pyrene	3.8	U
----------	Dibenzo(a,i)pyrene	3.8	U
----------	Dibenzo(a,h)pyrene	3.8	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SLP10FFBD

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 46467 SAS No.: SDG No.: 46467

Matrix: (soil/water) WATER Lab Sample ID: 46467-02FD

Sample wt/vol: 4240 (g/ml) ML Lab File ID: A1201056

Level: (low/med) LOW Date Received: 12/19/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:12/25/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 01/17/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
205-08-9--------	Benzo(k)fluoranthene	2.2	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

46458-LCS

Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 46467 SAS No.: SDG No.: 46467

Matrix: (soil/water) WATER Lab Sample ID: 46458-LCS

Sample wt/vol: 4000 (g/ml) ML Lab File ID: A1301035

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

% Moisture: _____ decanted: (Y/N)___ Date Extracted:12/25/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 01/16/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
91-20-3	Naphthalene	12	
91-57-6	2-Methylnaphthalene	9.9	B
86-73-7	Fluorene	8.7	
218-01-9	Chrysene	8.3	
95-13-6	1H-Indene	8.7	
91-22-5	Quinoline	5.4	
192-97-2	Benzo(e)pyrene	6.9	

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 46467 SAS No.: SDG No.: 46467

	EPA SAMPLE NO.	S1 #	S2 #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	SBLK01	58	112	42						0
02	46458-LCS	76	91	61						0
03	SBLK02	74	188*	65						0
04	SLP10FFB	76	183*	62						0
05	SLP10FFBD	97	140*	82						0
06	SLP4F	66	54	54						0
07	SLP10F	0D	0D	0D						0
08	SLP10FD	0D	0D	0D						0
09	SLP10FMS	0D	0D	0D						0
10	SLP10FMSD	0D	0D	0D						0
11	E2	62	41	51						0
12										
13										
14										
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		QC LIMITS
S1	= Naphthalene-d8	(21-108)
S2	= Chrysene-d12	(10-118)
S3	= Fluorene-d10	(41-162)

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

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 46467 SAS No.: SDG No.: 46467

Matrix Spike - EPA Sample No.: SLP10F

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC #	QC. LIMITS REC.
Naphthalene	9.5	0.00	0.00	0*	20-150
2-Methylnaphthalene	9.5	5.2	11	61	20-150
Fluorene	9.5	120	140	210*	20-150
Chrysene	9.5	0.00	0.00	0*	20-150
1H-Indene	9.5	8.1	17	94	20-150
Quinoline	9.5	0.00	11	116	20-150
Benzo(e)pyrene	9.5	0.00	0.00	0*	20-150

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Naphthalene	9.6	0.00	0*		20	20-150
2-Methylnaphthalene	9.6	2.4	-29*	562*	20	20-150
Fluorene	9.6	33	-906*	-319	20	20-150
Chrysene	9.6	0.00	0*		20	20-150
1H-Indene	9.6	3.9	-42*	523*	20	20-150
Quinoline	9.6	2.3	24	131*	20	20-150
Benzo(e)pyrene	9.6	0.00	0*		20	20-150

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

RPD: 3 out of 7 outside limits
Spike Recovery: 10 out of 14 outside limits

COMMENTS:

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SLP10FMS

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 46467 SAS No.: SDG No.: 46467

Matrix: (soil/water) WATER Lab Sample ID: 46467-01MS

Sample wt/vol: 4250 (g/ml) ML Lab File ID: A0601067

Level: (low/med) LOW Date Received: 12/19/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:12/25/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 01/18/96

Injection Volume: 1.0(uL) Dilution Factor: 4.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
91-20-3	Naphthalene	24	U
91-57-6	2-Methylnaphthalene	11	B
208-96-8	Acenaphthylene	100	
83-32-9	Acenaphthene	380	
132-64-9	Dibenzofuran	11	
86-73-7	Fluorene	140	
85-01-8	Phenanthrene	6.7	B
120-12-7	Anthracene	6.8	
206-44-0	Fluoranthene	26	
129-00-0	Pyrene	46	
56-55-3	Benzo(a)Anthracene	9.4	U
218-01-9	Chrysene	10	U
207-08-9	Benzo(b)fluoranthene	9.4	U
50-32-8	Benzo(a)pyrene	8.6	U
193-39-5	Indeno(1,2,3-cd)pyrene	7.9	U
53-70-3	Dibenzo(a,h)anthracene	6.0	U
191-24-2	Benzo(g,h,i)perylene	10	U
86-74-8	Carbazole	7.2	U
95-13-6	1H-Indene	17	
91-22-5	Quinoline	11	
90-12-0	1-Methylnaphthalene	6.0	U
271-89-6	2,3-Benzofuran	19	U
496-11-7	2,3-Dihydroindene	230	
95-15-8	Benzo(b)thiophene	14	
120-72-9	1H-Indole	9.4	U
92-52-4	Biphenyl	16	U
132-65-0	Dibenzothiophene	17	
260-94-6	Acridine	11	U
192-97-2	Benzo(e)pyrene	7.2	U
198-55-0	Perylene	9.4	U
192-65-4	Dibenzo(a,e)pyrene	15	U
	Dibenzo(a,i)pyrene	15	U
	Dibenzo(a,h)pyrene	15	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SLP10FMS

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 46467 SAS No.: SDG No.: 46467

Matrix: (soil/water) WATER Lab Sample ID: 46467-01MS

Sample wt/vol: 4250 (g/ml) ML Lab File ID: A0601067

Level: (low/med) LOW Date Received: 12/19/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:12/25/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 01/18/96

Injection Volume: 1.0(uL) Dilution Factor: 4.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
205-08-9--------	Benzo(k)fluoranthene_____	8.6	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SLP10FMSD

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 46467 SAS No.: SDG No.: 46467

Matrix: (soil/water) WATER Lab Sample ID: 46467-01MSD

Sample wt/vol: 4230 (g/ml) ML Lab File ID: A0701068

Level: (low/med) LOW Date Received: 12/19/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 12/25/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 01/18/96

Injection Volume: 1.0(uL) Dilution Factor: 4.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
91-20-3	Naphthalene	24	U
91-57-6	2-Methylnaphthalene	9.6	B
208-96-8	Acenaphthylene	96	
83-32-9	Acenaphthene	340	
132-64-9	Dibenzofuran	10	
86-73-7	Fluorene	130	
85-01-8	Phenanthrene	5.8	B
120-12-7	Anthracene	5.9	
206-44-0	Fluoranthene	26	
129-00-0	Pyrene	46	
56-55-3	Benzo(a)Anthracene	9.4	U
218-01-9	Chrysene	10	U
207-08-9	Benzo(b)fluoranthene	9.4	U
50-32-8	Benzo(a)pyrene	8.7	U
193-39-5	Indeno(1,2,3-cd)pyrene	7.9	U
53-70-3	Dibenzo(a,h)anthracene	6.0	U
191-24-2	Benzo(g,h,i)perylene	10	U
86-74-8	Carbazole	7.2	U
95-13-6	1H-Indene	16	
91-22-5	Quinoline	9.2	
90-12-0	1-Methylnaphthalene	8.7	
271-89-6	2,3-Benzofuran	19	U
496-11-7	2,3-Dihydroindene	200	
95-15-8	Benzo(b)thiophene	12	
120-72-9	1H-Indole	9.4	U
92-52-4	Biphenyl	16	U
132-65-0	Dibenzothiophene	17	
260-94-6	Acridine	11	U
192-97-2	Benzo(e)pyrene	7.2	U
198-55-0	Perylene	9.4	U
192-65-4	Dibenzo(a,e)pyrene	15	U
----------	Dibenzo(a,i)pyrene	15	U
----------	Dibenzo(a,h)pyrene	15	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SLP10FMSD

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 46467 SAS No.: SDG No.: 46467

Matrix: (soil/water) WATER Lab Sample ID: 46467-01MSD

Sample wt/vol: 4230 (g/ml) ML Lab File ID: A0701068

Level: (low/med) LOW Date Received: 12/19/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:12/25/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 01/18/96

Injection Volume: 1.0(uL) Dilution Factor: 4.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
205-08-9--------	Benzo(k)fluoranthene	8.7	U

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

SBLK01

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 46467 SAS No.: SDG No.: 46467

Lab File ID: A1201034 Lab Sample ID: SBLK01

Instrument ID: A Date Extracted: 12/25/95

Matrix: (soil/water) WATER Date Analyzed: 01/16/96

Level:(low/med) LOW Time Analyzed: 1950

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	46458-LCS	46458-LCS	A1301035	01/16/96
02	SLP10FFB	46467-02FB	A1101055	01/17/96
03	SLP4F	46467-03	A1301057	01/17/96
04	SLP10F	46467-01	A0401065	01/18/96
05	SLP10FMS	46467-01MS	A0601067	01/18/96
06	SLP10FMSD	46467-01MSD	A0701068	01/18/96
07	E2	46467-04	A0801069	01/18/96
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COMMENTS:

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLK01

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 46467 SAS No.: SDG No.: 46467

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

Sample wt/vol: 4000 (g/ml) ML Lab File ID: A1201034

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

% Moisture: _____ decanted: (Y/N)___ Date Extracted:12/25/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 01/16/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
91-20-3	Naphthalene	6.5	U
91-57-6	2-Methylnaphthalene	2.3	
208-96-8	Acenaphthylene	1.4	U
83-32-9	Acenaphthene	1.3	U
132-64-9	Dibenzofuran	1.0	U
86-73-7	Fluorene	1.0	U
85-01-8	Phenanthrene	2.6	
120-12-7	Anthracene	1.1	U
206-44-0	Fluoranthene	1.4	U
129-00-0	Pyrene	1.4	U
56-55-3	Benzo(a)Anthracene	2.5	U
218-01-9	Chrysene	2.8	U
207-08-9	Benzo(b)fluoranthene	2.5	U
50-32-8	Benzo(a)pyrene	2.3	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.1	U
53-70-3	Dibenzo(a,h)anthracene	1.6	U
191-24-2	Benzo(g,h,i)perylene	2.8	U
86-74-8	Carbazole	1.9	U
95-13-6	1H-Indene	0.90	U
91-22-5	Quinoline	1.4	U
90-12-0	1-Methylnaphthalene	1.6	U
271-89-6	2,3-Benzofuran	5.1	U
496-11-7	2,3-Dihydroindene	1.4	U
95-15-8	Benzo(b)thiophene	0.90	U
120-72-9	1H-Indole	2.5	U
92-52-4	Biphenyl	4.3	U
132-65-0	Dibenzothiophene	1.1	U
260-94-6	Acridine	2.9	U
192-97-2	Benzo(e)pyrene	1.9	U
198-55-0	Perylene	2.5	U
192-65-4	Dibenzo(a,e)pyrene	4.0	U
	Dibenzo(a,i)pyrene	4.0	U
	Dibenzo(a,h)pyrene	4.0	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLK01

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 46467 SAS No.: SDG No.: 46467

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

Sample wt/vol: 4000 (g/ml) ML Lab File ID: A1201034

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

% Moisture: _____ decanted: (Y/N)___ Date Extracted:12/25/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 01/16/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
205-08-9--------	Benzo(k)fluoranthene	2.3	U

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

SBLK02

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 46467 SAS No.: SDG No.: 46467

Lab File ID: A0601050 Lab Sample ID: SBLK02

Instrument ID: A Date Extracted: 12/25/95

Matrix: (soil/water) WATER Date Analyzed: 01/17/96

Level:(low/med) LOW Time Analyzed: 1422

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	SLP10FFBD	46467-02FD	A1201056	01/17/96
02	SLP10FD	46467-01DU	A0501066	01/18/96
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COMMENTS:

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLK02

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 46467 SAS No.: SDG No.: 46467

Matrix: (soil/water) WATER Lab Sample ID: SBLK02

Sample wt/vol: 4000 (g/ml) ML Lab File ID: A0601050

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

% Moisture: _____ decanted: (Y/N)___ Date Extracted:12/25/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 01/17/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
91-20-3	Naphthalene	6.5	U
91-57-6	2-Methylnaphthalene	3.0	
208-96-8	Acenaphthylene	1.4	U
83-32-9	Acenaphthene	1.3	U
132-64-9	Dibenzofuran	1.0	U
86-73-7	Fluorene	1.0	U
85-01-8	Phenanthrene	2.8	
120-12-7	Anthracene	1.1	U
206-44-0	Fluoranthene	1.4	U
129-00-0	Pyrene	1.4	U
56-55-3	Benzo(a)Anthracene	2.5	U
218-01-9	Chrysene	2.8	U
207-08-9	Benzo(b)fluoranthene	2.5	U
50-32-8	Benzo(a)pyrene	2.3	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.1	U
53-70-3	Dibenzo(a,h)anthracene	1.6	U
191-24-2	Benzo(g,h,i)perylene	2.8	U
86-74-8	Carbazole	1.9	U
95-13-6	1H-Indene	1.3	
91-22-5	Quinoline	1.4	U
90-12-0	1-Methylnaphthalene	1.6	U
271-89-6	2,3-Benzofuran	5.1	U
496-11-7	2,3-Dihydroindene	1.9	
95-15-8	Benzo(b)thiophene	0.90	U
120-72-9	1H-Indole	2.5	U
92-52-4	Biphenyl	4.3	U
132-65-0	Dibenzothiophene	1.1	U
260-94-6	Acridine	2.9	U
192-97-2	Benzo(e)pyrene	1.9	U
198-55-0	Perylene	2.5	U
192-65-4	Dibenzo(a,e)pyrene	4.0	U
----------	Dibenzo(a,i)pyrene	4.0	U
----------	Dibenzo(a,h)pyrene	4.0	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLK02

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 46467 SAS No.: SDG No.: 46467

Matrix: (soil/water) WATER Lab Sample ID: SBLK02

Sample wt/vol: 4000 (g/ml) ML Lab File ID: A0601050

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

% Moisture: _____ decanted: (Y/N)___ Date Extracted:12/25/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 01/17/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
205-08-9--------	Benzo(k)fluoranthene	2.3	U

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 46467 SAS No.: SDG No.: 46467

Lab File ID (Standard): A021 Date Analyzed: 01/16/96

Instrument ID: A Time Analyzed: 1114

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	216881	12.55	414682	15.00	186812	21.62
	UPPER LIMIT	433762	13.05	829364	15.50	373624	22.12
	LOWER LIMIT	108440	12.05	207341	14.50	93406	21.12
	EPA SAMPLE NO.						
01	SBLK01	219476	12.57	481467	15.02	148576	21.63
02	46458-LCS	156357	12.57	313241	15.02	144503	21.63
03							
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IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = Benzo(a)pyrene-d12

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

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

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QUANTERRA DENVER Contract:

Code: Case No.: 46467 SAS No.: SDG No.: 46467

Lab File ID (Standard): A043 Date Analyzed: 01/17/96

Instrument ID: A Time Analyzed: 0854

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	198727	12.58	362691	15.04	234079	21.64
	UPPER LIMIT	397454	13.08	725382	15.54	468158	22.14
	LOWER LIMIT	99364	12.08	181346	14.54	117040	21.14
	EPA SAMPLE NO.						
01	SBLK02	193806	12.55	424010	14.99	209993	21.60
02	SLP10FFB	162282	12.53	317850	14.98	142541	21.59
03	SLP10FFBD	214609	12.54	417047	14.99	218349	21.60
04	SLP4F	181162	12.53	349437	14.98	206334	21.59
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IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = Benzo(a)pyrene-d12

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

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

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 46467 SAS No.: SDG No.: 46467

Lab File ID (Standard): A060 Date Analyzed: 01/18/96

Instrument ID: A Time Analyzed: 0808

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	191635	12.52	353824	14.97	176930	21.57
	UPPER LIMIT	383270	13.02	707648	15.47	353860	22.07
	LOWER LIMIT	95818	12.02	176912	14.47	88465	21.07
	EPA SAMPLE NO.						
01	SLP10F	114265	12.52	225041	14.98	87357*	21.58
02	SLP10FD	104199	12.52	201614	14.96	96330	21.56
03	SLP10FMS	100132	12.51	207612	14.95	90190	21.56
04	SLP10FMSD	103976	12.51	203256	14.95	86827*	21.56
05	E2	210276	12.51	398898	14.95	191113	21.56
06							
07							
08							
09							
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15							
16							
17							
18							
19							
20							
21							
22							

IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = Benzo(a)pyrene-d12

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

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

ADDITIONAL MONITORING
PHENOLICS

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

4207006

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.: 42070

Matrix (soil/water): WATER Lab Sample ID: 4207006

Level (low/med): LOW Date Received: 05 10 95

% Solids: 0.0

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

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

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:
STP-SLP4TP-050995

FORM I - IN

7/88

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

4474309

.ab Name: QUANTERRA Contract: CITY_SLP

.ab Code: DENVER Case No.: Case No.: SAS No.: SDG No.: 44743

Matrix (soil/water): WATER Lab Sample ID: 4474309

.evel (low/med): LOW Date Received: 09/20/95

% 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	B		C

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

PCJ-SLP4TP-091995

FORM I - IN

7/88

RAP SECTION 7.3(B) MONITORING

WELL

W23

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PCJ-W23-050995

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 42069 SAS No.: SDG No.: 42069

Matrix: (soil/water) WATER Lab Sample ID: 42069-08

Sample wt/vol: 1056 (g/ml) ML Lab File ID: T0101881

Level: (low/med) LOW Date Received: 05/10/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/12/95

Concentrated Extract Volume: 1(ml) Date Analyzed: 05/31/95

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	35.4	
91-57-6	2-Methylnaphthalene	7.34	J
208-96-8	Acenaphthylene	1.31	J
83-32-9	Acenaphthene	14.6	
132-64-9	Dibenzofuran	5.46	J
86-73-7	Fluorene	10.8	
85-01-8	Phenanthrene	10.4	
120-12-7	Anthracene	2.32	J
206-44-0	Fluoranthene	7.45	J
129-00-0	Pyrene	7.48	J
56-55-3	Benzo(a)Anthracene	1.97	J
218-01-9	Chrysene	1.71	J
205-99-2	Benzo(b)fluoranthene	9.47	U
207-08-9	Benzo(k)fluoranthene	9.47	U
50-32-8	Benzo(a)pyrene	9.47	U
193-39-5	Indeno(1 2 3-cd)pyrene	9.47	U
53-70-3	Dibenzo(a h)anthracene	9.47	U
191-24-2	Benzo(g h i)perylene	9.47	U
86-74-8	Carbazole	2.34	J
95-13-6	1H-Indene	1.08	J
91-22-5	Quinoline	9.47	U
90-12-0	1-Methylnaphthalene	9.37	J
271-89-6	2,3-Benzofuran	9.47	U
496-11-7	2,3-Dihydroindene	8.33	J
95-15-8	Benzo(b)thiophene	1.77	J
120-72-9	1H-Indole	9.47	U
92-52-4	Biphenyl	2.85	J
132-65-0	Dibenzothiophene	1.61	J
260-94-6	Acridine	9.47	U
192-97-2	Benzo(e)pyrene	9.47	U
198-55-0	Perylene	9.47	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PCJ-W23

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 44745 SAS No.: SDG No.: 44745

Matrix: (soil/water) WATER Lab Sample ID: 44745-10

Sample wt/vol: 1050 (g/ml) ML Lab File ID: T1301378

Level: (low/med) LOW Date Received: 09/20/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 09/21/95

Concentrated Extract Volume: 1(ml) Date Analyzed: 10/11/95

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	21.0	
91-57-6	2-Methylnaphthalene	3.61	J
208-96-8	Acenaphthylene	9.52	U
83-32-9	Acenaphthene	9.87	
132-64-9	Dibenzofuran	2.92	J
86-73-7	Fluorene	7.25	J
85-01-8	Phenanthrene	4.33	J
120-12-7	Anthracene	9.52	U
206-44-0	Fluoranthene	3.34	J
129-00-0	Pyrene	3.15	J
56-55-3	Benzo(a)Anthracene	9.52	U
218-01-9	Chrysene	9.52	U
50-32-8	Benzo(a)pyrene	9.52	U
193-39-5	Indeno(1 2 3-cd)pyrene	9.52	U
53-70-3	Dibenzo(a h)anthracene	9.52	U
191-24-2	Benzo(g h i)perylene	9.52	U
86-74-8	Carbazole	9.52	U
95-13-6	1H-Indene	9.52	U
91-22-5	Quinoline	9.52	U
90-12-0	1-Methylnaphthalene	4.61	J
271-89-6	2,3-Benzofuran	9.52	U
496-11-7	2,3-Dihydroindene	7.03	J
95-15-8	Benzo(b)thiophene	1.11	J
120-72-9	1H-Indole	9.52	U
92-52-4	Biphenyl	1.51	J
132-65-0	Dibenzothiophene	9.52	U
260-94-6	Acridine	9.52	U
192-97-2	Benzo(e)pyrene	9.52	U
198-55-0	Perylene	9.52	U
	Benzo(b,j,k)fluoranthene	9.52	U

RAP SECTION 7.3(C) MONITORING

WELLS

SLP6
SLP7
W48

IX
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42771-03

PCJ-SLP7-061395

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42771 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42771-03

Sample wt/vol: 3150 (g/mL) ML Lab File ID: C0787

Level: (low/med) LOW Date Received: 06/14/95

% Moisture: decanted: (Y/N) N Date Extracted: 06/19/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/27/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	7	U
496-11-7	2,3-Dihydroindene	8	
95-13-6	1H-Indene	1	U
91-20-3	Naphthalene	8	U
4565-32-6	Benzo(B)Thiophene	1	U
91-22-5	Quinoline	2	U
120-72-9	1H-Indole	3	U
91-57-6	2-Methylnaphthalene	2	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	5	U
208-96-8	Acenaphthylene	2	U
83-32-9	Acenaphthene	9	
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	4	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	2	B
129-00-0	Pyrene	3	B
56-55-3	Benzo(A)Anthracene	3	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	3	U
207-08-9	Benzo(K)Fluoranthene	3	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	3	U
198-55-0	Perylene	3	U
193-39-5	Indeno(1,2,3-CD)Pyrene	3	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.

42733-03

PCJ-SLP6-061295

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42733 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42733-03

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C0771

Level: (low/med) LOW Date Received: 06/13/95

% Moisture: decanted: (Y/N) N Date Extracted: 06/15/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/25/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	42	
95-13-6	1H-Indene	2	
91-20-3	Naphthalene	6	U
4565-32-6	Benzo(B)Thiophene	3	
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	1	BR
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	7	R
83-32-9	Acenaphthene	21	
132-64-9	Dibenzofuran	1	
86-73-7	Fluorene	7	
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	3	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	2	B
129-00-0	Pyrene	1	
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.

42733-04

PCJ-W48-061295

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42733 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42733-04

Sample wt/vol: 4140 (g/mL) ML Lab File ID: C0772

Level: (low/med) LOW Date Received: 06/13/95

% Moisture: decanted: (Y/N) N Date Extracted: 06/15/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/25/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	95	
95-13-6	1H-Indene	21	
91-20-3	Naphthalene	6	U
4565-32-6	Benzo(B)Thiophene	14	R
91-22-5	Quinoline	3	R
120-72-9	1H-Indole	4	R
91-57-6	2-Methylnaphthalene	3	BR
90-12-0	1-Methylnaphthalene	6	R
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	7	R
83-32-9	Acenaphthene	86	
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	7	
132-65-0	Dibenzothiophene	4	R
85-01-8	Phenanthrene	4	BR
120-12-7	Anthracene	6	R
260-94-6	Acridine	22	
86-74-8	Carbazole	15	R
206-44-0	Fluoranthene	7	BR
129-00-0	Pyrene	9	
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

RAP SECTION 7.3(D) MONITORING

WELLS

SLP 10 SLP 14
SLP 16 W406
E2 E13
W402 W403

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 46467 SAS No.: SDG No.: 46467

Matrix: (soil/water) WATER Lab Sample ID: 46467-04

Sample wt/vol: 4230 (g/ml) ML Lab File ID: A0801069

Level: (low/med) LOW Date Received: 12/19/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 12/25/95

Concentrated Extract Volume: 0.5 (ml) Date Analyzed: 01/18/96

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
91-20-3	Naphthalene	6.1	U
91-57-6	2-Methylnaphthalene	1.8	B
208-96-8	Acenaphthylene	1.3	U
83-32-9	Acenaphthene	1.2	U
132-64-9	Dibenzofuran	0.94	U
86-73-7	Fluorene	0.94	U
85-01-8	Phenanthrene	2.2	B
120-12-7	Anthracene	1.0	U
206-44-0	Fluoranthene	1.3	U
129-00-0	Pyrene	1.5	
56-55-3	Benzo(a)Anthracene	2.4	U
218-01-9	Chrysene	2.6	U
207-08-9	Benzo(b)fluoranthene	2.4	U
50-32-8	Benzo(a)pyrene	2.2	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.0	U
53-70-3	Dibenzo(a,h)anthracene	1.5	U
191-24-2	Benzo(g,h,i)perylene	2.6	U
86-74-8	Carbazole	1.8	U
95-13-6	1H-Indene	0.88	
91-22-5	Quinoline	1.3	U
90-12-0	1-Methylnaphthalene	1.5	U
271-89-6	2,3-Benzofuran	4.8	U
496-11-7	2,3-Dihydroindene	3.8	
95-15-8	Benzo(b)thiophene	0.85	U
120-72-9	1H-Indole	2.4	U
92-52-4	Biphenyl	4.1	U
132-65-0	Dibenzothiophene	1.0	U
260-94-6	Acridine	2.7	U
192-97-2	Benzo(e)pyrene	1.8	U
198-55-0	Perylene	2.4	U
192-65-4	Dibenzo(a,e)pyrene	3.8	U
----------	Dibenzo(a,i)pyrene	3.8	U
----------	Dibenzo(a,h)pyrene	3.8	U
205-08-9	Benzo(k)fluoranthene	2.2	U

Quanterra Incorporated
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Quanterra
Environmental Services

CASE NARRATIVE

FOR

City of St. Louis Park

July 25, 1995

Quanterra Environmental Services

Project Number 042733

Introduction

Eleven aqueous samples (includes QC) were received at Quanterra Environmental Services, Denver Laboratory on June 13, 1995. The samples were logged in under Quanterra's Denver laboratory project number 042733. Sample PCJ-SLP10FBD-061295 (042733-02FD) was extracted and held per the April 1990 QAPP. A cross reference associating Quanterra's Denver laboratory sample numbers to the actual field sample number is included. The samples were analyzed for low level part-per-trillion (ppt) polynuclear aromatic hydrocarbons (PAH).

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the 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 PCJ-SLP10, PCJ-SLP10D, PCJ-W40, PCJ-W402 and PCJ-W403 (042733-01, 01DU and -05 through -07) showed the concentrations of target compounds above the upper calibration range. The samples were re-analyzed at a dilution. Both the original and re-analysis data were reported for the sample. The reporting limits were adjusted accordingly. The surrogates were diluted out of samples 042733-01DL, -01DUDL, -05DL, -06DL and -07DL.

The percent recoveries for Quinoline, Fluorene and Benzo(E)Pyrene were outside control limits in PCJ-SLP10MS (042733-01MS) and PCJ-SLP10MSD (042733-01SD). The relative percent difference (RPD) for Flourene and Chrysene were outside control limits. Please note that when the concentrations of the same compounds that are spiked into the matrix spike/matrix spike duplicate found in the parent sample are large relative to the spiked concentration, small variability in sample quantitation can introduce large errors into the percent recovery calculation.

A Laboratory Control Samples (LCS) was analyzed with this project. The LCS is prepared and spiked in the same manner that the matrix spike samples are. The purpose of the LCS is not to duplicate the sample matrix, but rather to provide an interference-free, homogeneous matrix from which to gather supporting data for the spiking compounds. Since the LCS results are in control, the results obtained for samples 042733-01MS and -01SD may suggest a matrix effect.

The method blank analyzed with these samples showed concentrations of some compounds near the reporting limits. The samples are annotated accordingly.

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 042733 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.

A standard is now available for Benzo(J)Fluoranthene. Laboratory studies have shown that Benzo(J)Fluoranthene will coelute with either Benzo(B)Fluoranthene or Benzo(K)Fluoranthene depending on the relative concentration of these two compounds in solution. For this project Benzo(B)Fluoranthene and Benzo(J)Fluoranthene will be reported as Benzo(B)Fluoranthene.

Quanterra
Environmental Services

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: 7/25/95
Daniel Rebarchik
Program Administrator

Approved by: _____ Date: 7/26/95
Kevin McHugh
Program Manager

Quanterra Environmental Services

QUALIFIER CODES AND THEIR USAGE

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

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

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

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

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

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

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

QUALIFIER CODES AND THEIR USAGE
Page Two

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

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

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

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

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

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 042733	Group Code	Analysis Description	Custom Test?
0001 - 0007	A	Polynuclear Aromatic Hydrocarbons, SIM Low Level	N
		Prep - PAH/SIM by GC/MS Low Level	N
0002	B	Prep - PAH/SIM by GC/MS Low Level	N

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
042733-0001-SA	PCJ-SLP10-061295	AQUEOUS	12 JUN 95		13 JUN 95
042733-0001-DU	PCJ-SLP10D-061295	AQUEOUS	12 JUN 95		13 JUN 95
042733-0001-MS	PCJ-SLP10MS-061295	AQUEOUS	12 JUN 95		13 JUN 95
042733-0001-SD	PCJ-SLP10MSD-061295	AQUEOUS	12 JUN 95		13 JUN 95
042733-0002-FB	PCJ-SLP10FB-061295	AQUEOUS	12 JUN 95		13 JUN 95
042733-0002-FD	PCJ-SLP10FBD-061295	AQUEOUS	12 JUN 95		13 JUN 95
042733-0003-SA	PCJ-SLP6-061295	AQUEOUS	12 JUN 95		13 JUN 95
042733-0004-SA	PCJ-W48-061295	AQUEOUS	12 JUN 95	08:45	13 JUN 95
042733-0005-SA	PCJ-W40-061295	AQUEOUS	12 JUN 95	09:15	13 JUN 95
042733-0006-SA	PCJ-W402-061295	AQUEOUS	12 JUN 95	12:30	13 JUN 95
042733-0007-SA	PCJ-W403-061295	AQUEOUS	12 JUN 95	15:55	13 JUN 95

CHAIN OF CUSTODY

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

Quanterra Environmental Services

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

PROJECT:

SAMPLING COMPANY: SAME

SAMPLING SITE: SAME

TEAM LEADER: MJ SK

SAMPLE SAFE™ CONDITIONS

PACKED BY: MJ SK

SEAL NUMBER:

SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:

CONDITION OF CONTENTS:

SEALED FOR SHIPPING BY: MJ SK

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: 9.7 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
6-12-95		PCJ-SLP10-061295	1XL AMBER	6	PPT PAH	PPT 5 -01
6-12-95		PCJ-SLP10D-061295	1XL AMBER	6	PPT PAH	PPT 5 -01 Dn

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MJ SK

METHOD OF SHIPMENT: FED EX

AIRBILL NUMBER: 2103421213

RECEIVED FOR LAB: QES

SIGNED:

DATE/TIME: 6/13/95 830

QUANTERRA PROJECT NUMBER: 42733

QUA-4119

White – CLIENT Pink – LAB

CHAIN OF CUSTODY

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421 6611 Telephone
303 431-7171 Fax

Quanterra Environmental Services

QUANTERRA CLIENT: CITY OF ST LOUIS PARK (WATER DEPT)	SAMPLE SAFE™ CONDITIONS
PROJECT:	PACKED BY: MZW
	SEAL NUMBER:
	SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:
	CONDITION OF CONTENTS:
SAMPLING COMPANY: SAME	SEALED FOR SHIPPING BY: MZW
	INITIAL CONTENTS TEMP: °C
SAMPLING SITE: SAME	SEAL NUMBER:
	SAMPLING STATUS: ☐ Done ☐ Continuing Until
TEAM LEADER: MZW	SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No
	CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 8.2 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
6-12-95		PCJ-SLP10MS-061295	1XL AMBER	6	PPL PAH	PPL 5 -01MS
6-12-95		PCJ-SLP10MSD-061295	1XL AMBER	6	PPL PAH	PPL 5 -01SD

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MZW

METHOD OF SHIPMENT: FED EX

AIRBILL NUMBER: 2103421213

RECEIVED FOR LAB: QES

SIGNED: J Dechs

DATE/TIME: 6/13/95 830

QUANTERRA PROJECT NUMBER: 42733

QUA-4119

White – CLIENT Pink – LAB

CHAIN OF CUSTODY

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

Quanterra Environmental Services

QUANTERRA CLIENT: CITY OF ST LOUIS PK (WATER DEPT)	
PROJECT:	
SAMPLING COMPANY: SAME	
SAMPLING SITE: SAME	
TEAM LEADER: MJR	

SAMPLE SAFE™ CONDITIONS

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

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
5-12-95		PCJ-SLP 10FB-061295	1XL AMBER	6	PPL PAH	PPL 5 -02FB
-12-95		PCJ-SLP 10FBD-061295	1XL AMBER	6	PPL PAH	PPL 5 -02FD

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MJR		
METHOD OF SHIPMENT: FED EX		AIRBILL NUMBER: 2103421213
RECEIVED FOR LAB: QS	SIGNED: [signature]	DATE/TIME: 6/13/95 830
QUANTERRA PROJECT NUMBER: 42733		

QUA-4119

White – CLIENT Pink – LAB

CHAIN OF CUSTODY

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

Quanterra Environmental Services

QUANTERRA CLIENT: 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: 6.4 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
-12-95		PCJ-SLP6-061295	1XL AMBER	6	PPT PAH	PPT 5 -03

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: 2103421213

RECEIVED FOR LAB: 02 ES

SIGNED: [signature]

DATE/TIME: 6/13/95 830

QUANTERRA PROJECT NUMBER: 42733

QUA-4119

White – CLIENT Pink – LAB

CHAIN OF CUSTODY

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421 6611 Telephone
303 431-7171 Fax

Quanterra Environmental Services

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

SAMPLE SAFE™ CONDITIONS

PACKED BY: Peter Moore
SEAL NUMBER:
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY: N/A
CONDITION OF CONTENTS: OK
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: 7.0 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS	
6/12/95	8:45	PCJ-W48-061295	H_2O	6	PPT-PAH	PPT-5	-04
6/12/95	9:15	PCJ-W40-061295	↓	↓	↓	↓	-05
6/12/95	12:30	PCJ-W42-061295					-06
6/12/95	15:55	PCJ-W43-061295					-07

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME
P. Moore			

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: P. Moore/ENSR
METHOD OF SHIPMENT: FEDEX
AIRBILL NUMBER: NA
RECEIVED FOR LAB: QES
SIGNED:
DATE/TIME: 6/13/95 8:30
QUANTERRA PROJECT NUMBER: 42733

QUA-4119

White – CLIENT Pink – LAB

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42733-01

PCJ-SLPIO-061295

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42733 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42733-01

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C0767

Level: (low/med) LOW Date Received: 06/13/95

% Moisture: decanted: (Y/N) N Date Extracted: 06/15/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/25/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	200	RS
95-13-6	1H-Indene	12	
91-20-3	Naphthalene	6	U
4565-32-6	Benzo(B)Thiophene	43	
91-22-5	Quinoline	2	R
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	2	BR
90-12-0	1-Methylnaphthalene	8	
92-52-4	Biphenyl	30	
208-96-8	Acenaphthylene	78	RS
83-32-9	Acenaphthene	160	S
132-64-9	Dibenzofuran	31	
86-73-7	Fluorene	120	RS
132-65-0	Dibenzothiophene	32	
85-01-8	Phenanthrene	4	B
120-12-7	Anthracene	7	
260-94-6	Acridine	3	U
86-74-8	Carbazole	8	
206-44-0	Fluoranthene	51	B
129-00-0	Pyrene	53	R
56-55-3	Benzo(A)Anthracene	3	
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42733-01DL

PCJ-SLPIOD=061295

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42733 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 43733-01DL

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C0830

Level: (low/med) LOW Date Received: 06/13/95

% Moisture: decanted: (Y/N) N Date Extracted: 06/15/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/30/95

Injection Volume: 2.0(uL) Dilution Factor: 10.0

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-Benzofuran	49	U
496-11-7	2,3-Dihydroindene	570	D
95-13-6	1H-Indene	12	D
91-20-3	Naphthalene	62	U
4565-32-6	Benzo(B)Thiophene	45	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	15	U
92-52-4	Biphenyl	40	U
208-96-8	Acenaphthylene	170	DR
83-32-9	Acenaphthene	540	D
132-64-9	Dibenzofuran	32	D
86-73-7	Fluorene	280	D
132-65-0	Dibenzothiophene	32	D
85-01-8	Phenanthrene	12	U
120-12-7	Anthracene	10	U
260-94-6	Acridine	27	U
86-74-8	Carbazole	18	U
206-44-0	Fluoranthene	56	BD
129-00-0	Pyrene	75	D
56-55-3	Benzo(A)Anthracene	24	U
218-01-9	Chrysene	26	U
205-99-2	Benzo(B)Fluoranthene	24	U
207-08-9	Benzo(K)Fluoranthene	21	U
192-97-2	Benzo(E)Pyrene	18	U
50-32-8	Benzo(A)Pyrene	21	U
198-55-0	Perylene	24	U
193-39-5	Indeno(1,2,3-CD)Pyrene	20	U
53-70-3	Dibenz(A,H)Anthracene	15	U
191-24-2	Benzo(G,H,I)Perylene	26	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42733-01DU

PCJ-SLPIOD-061295

Lab Name: QUNATERRA Contract:

Lab Code: DENVER Case No.: 42733 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42733-01DU

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C0768

Level: (low/med) LOW Date Received: 06/13/95

% Moisture: decanted: (Y/N) N Date Extracted: 06/15/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/25/95

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) ng/L	Q
271-89-6	2,3-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	190	RS
95-13-6	1H-Indene	14	
91-20-3	Naphthalene	7	
4565-32-6	Benzo(B)Thiophene	47	
91-22-5	Quinoline	5	R
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	3	BR
90-12-0	1-Methylnaphthalene	9	R
92-52-4	Biphenyl	33	
208-96-8	Acenaphthylene	80	RS
83-32-9	Acenaphthene	150	S
132-64-9	Dibenzofuran	32	
86-73-7	Fluorene	120	S
132-65-0	Dibenzothiophene	35	
85-01-8	Phenanthrene	5	B
120-12-7	Anthracene	8	
260-94-6	Acridine	3	U
86-74-8	Carbazole	9	
206-44-0	Fluoranthene	55	B
129-00-0	Pyrene	59	RS
56-55-3	Benzo(A)Anthracene	3	
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42733-01DUDL

PCJ-SLPIOD-061295

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42733 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42733-01DUDL

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C0831

Level: (low/med) LOW Date Received: 06/13/95

% Moisture: decanted: (Y/N) N Date Extracted: 06/15/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/30/95

Injection Volume: 2.0(uL) Dilution Factor: 10.0

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-Benzofuran	49	U
496-11-7	2,3-Dihydroindene	630	D
95-13-6	1H-Indene	13	D
91-20-3	Naphthalene	62	U
4565-32-6	Benzo(B)Thiophene	48	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	15	U
92-52-4	Biphenyl	40	U
208-96-8	Acenaphthylene	200	D
83-32-9	Acenaphthene	610	D
132-64-9	Dibenzofuran	35	D
86-73-7	Fluorene	320	D
132-65-0	Dibenzothiophene	34	D
85-01-8	Phenanthrene	12	U
120-12-7	Anthracene	10	U
260-94-6	Acridine	27	U
86-74-8	Carbazole	18	U
206-44-0	Fluoranthene	64	BD
129-00-0	Pyrene	86	D
56-55-3	Benzo(A)Anthracene	24	U
218-01-9	Chrysene	26	U
205-99-2	Benzo(B)Fluoranthene	24	U
207-08-9	Benzo(K)Fluoranthene	21	U
192-97-2	Benzo(E)Pyrene	18	U
50-32-8	Benzo(A)Pyrene	21	U
198-55-0	Perylene	24	U
193-39-5	Indeno(1,2,3-CD)Pyrene	20	U
53-70-3	Dibenz(A,H)Anthracene	15	U
191-24-2	Benzo(G,H,I)Perylene	26	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42733-02FB

PCJ=SLPIOFB=061295

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42733 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42733-02FB

Sample wt/vol: 4160 (g/mL) ML Lab File ID: C0764

Level: (low/med) LOW Date Received: 06/13/95

% Moisture: decanted: (Y/N) N Date Extracted: 06/15/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/25/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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	1	U
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	6	U
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	2	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	3	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	2	B
129-00-0	Pyrene	2	
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42733-02FD

Lab Name: QUANTERRA Contract: PCJ-SLPIOFBD-061295

Lab Code: DENVER Case No.: 42733 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42733-02FD

Sample wt/vol: 4170 (g/mL) ML Lab File ID: C0765

Level: (low/med) LOW Date Received: 06/13/95

% Moisture: decanted: (Y/N) N Date Extracted: 06/15/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/25/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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	2	
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	6	U
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	2	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	4	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluorarthene	2	B
129-00-0	Pyrene	2	
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42733-06

PCJ-W402-061295

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42733 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42733-06

Sample wt/vol: 4180 (g/mL) ML Lab File ID: C0774

Level: (low/med) LOW Date Received: 06/13/95

% Moisture: decanted: (Y/N) N Date Extracted: 06/15/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/25/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	65	
95-13-6	1H-Indene	28	
91-20-3	Naphthalene	6	U
4565-32-6	Benzo(B)Thiophene	110	RS
91-22-5	Quinoline	3	R
120-72-9	1H-Indole	3	
91-57-6	2-Methylnaphthalene	6	BR
90-12-0	1-Methylnaphthalene	25	
92-52-4	Biphenyl	7	
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	19	
132-64-9	Dibenzofuran	8	
86-73-7	Fluorene	9	
132-65-0	Dibenzothiophene	4	R
85-01-8	Phenanthrene	13	BR
120-12-7	Anthracene	1	R
260-94-6	Acridine	5	
86-74-8	Carbazole	6	R
206-44-0	Fluoranthene	6	B
129-00-0	Pyrene	26	
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42733-06DL

PCJ-W402-061295

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42733 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42733-06DL

Sample wt/vol: 4180 (g/mL) ML Lab File ID: C0835

Level: (low/med) LOW Date Received: 06/13/95

% Moisture: decanted: (Y/N) N Date Extracted: 06/15/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/30/95

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) ng/L	Q
271-89-6	2,3-Benzofuran	49	U
496-11-7	2,3-Dihydroindene	83	D
95-13-6	1H-Indene	35	D
91-20-3	Naphthalene	62	U
4565-32-6	Benzo(B)Thiophene	310	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	31	D
92-52-4	Biphenyl	41	U
208-96-8	Acenaphthylene	13	U
83-32-9	Acenaphthene	23	D
132-64-9	Dibenzofuran	11	D
86-73-7	Fluorene	13	D
132-65-0	Dibenzothiophene	11	U
85-01-8	Phenanthrene	18	BD
120-12-7	Anthracene	11	U
260-94-6	Acridine	28	U
86-74-8	Carbazole	18	U
206-44-0	Fluoranthene	13	U
129-00-0	Pyrene	43	D
56-55-3	Benzo(A)Anthracene	24	U
218-01-9	Chrysene	26	U
205-99-2	Benzo(B)Fluoranthene	24	U
207-08-9	Benzo(K)Fluoranthene	22	U
192-97-2	Benzo(E)Pyrene	18	U
50-32-8	Benzo(A)Pyrene	22	U
198-55-0	Perylene	24	U
193-39-5	Indeno(1,2,3-CD)Pyrene	20	U
53-70-3	Dibenz(A,H)Anthracene	16	U
191-24-2	Benzo(G,H,I)Perylene	26	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42733-07

PCJ-W403-061295

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42733 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42733-07

Sample wt/vol: 4180 (g/mL) ML Lab File ID: C0775

Level: (low/med) LOW Date Received: 06/13/95

% Moisture: decanted: (Y/N) N Date Extracted: 06/15/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/25/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	92	
95-13-6	1H-Indene	27	
91-20-3	Naphthalene	60	RS
4565-32-6	Benzo(B)Thiophene	28	R
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	9	R
91-57-6	2-Methylnaphthalene	15	BR
90-12-0	1-Methylnaphthalene	31	R
92-52-4	Biphenyl	5	R
208-96-8	Acenaphthylene	4	R
83-32-9	Acenaphthene	25	
132-64-9	Dibenzofuran	14	
86-73-7	Fluorene	14	
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	1	U
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	R
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42733-07DL

PCJ-W403-061295

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42733 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42733-07DL

Sample wt/vol: 4180 (g/mL) ML Lab File ID: C0836

Level: (low/med) LOW Date Received: 06/13/95

% Moisture: decanted: (Y/N) N Date Extracted: 06/15/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/30/95

Injection Volume: 2.0(uL) Dilution Factor: 10.0

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-Benzofuran	49	U
496-11-7	2,3-Dihydroindene	100	D
95-13-6	1H-Indene	29	D
91-20-3	Naphthalene	120	D
4565-32-6	Benzo(B)Thiophene	34	DR
91-22-5	Quinoline	13	U
120-72-9	1H-Indole	24	U
91-57-6	2-Methylnaphthalene	21	BD
90-12-0	1-Methylnaphthalene	37	D
92-52-4	Biphenyl	41	U
208-96-8	Acenaphthylene	13	U
83-32-9	Acenaphthene	36	D
132-64-9	Dibenzofuran	18	D
86-73-7	Fluorene	21	D
132-65-0	Dibenzothiophene	11	U
85-01-8	Phenanthrene	25	BD
120-12-7	Anthracene	10	U
260-94-6	Acridine	28	U
86-74-8	Carbazole	61	D
206-44-0	Fluoranthene	13	U
129-00-0	Pyrene	41	D
56-55-3	Benzo(A)Anthracene	24	U
218-01-9	Chrysene	26	U
205-99-2	Benzo(B)Fluoranthene	24	U
207-08-9	Benzo(K)Fluoranthene	22	U
192-97-2	Benzo(E)Pyrene	18	U
50-32-8	Benzo(A)Pyrene	22	U
198-55-0	Perylene	24	U
193-39-5	Indeno(1,2,3-CD)Pyrene	20	U
53-70-3	Dibenz(A,H)Anthracene	16	U
191-24-2	Benzo(G,H,I)Perylene	26	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42733-LCS

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42733 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42733-LCS

Sample wt/vol: 4000 (g/mL) ML Lab File ID: C0766

Level: (low/med) LOW Date Received: 06/13/95

% Moisture: decanted: (Y/N) N Date Extracted: 06/15/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/25/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
95-13-6	1H-Indene	8	
91-20-3	Naphthalene	9	
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	9	R
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	9	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	9	
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	2	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	U
129-00-0	Pyrene	1	U
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	9	
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	10	
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: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42733 SAS No.: SDG No.:

	EPA SAMPLE NO.	S1 (NAP)#	S2 (FLU)#	S3 (CHR)#	TOT OUT
01	42733-01	69	76	57	0
02	42733-01DL	0 D	0 D	0 D	0
03	42733-01DU	76	84	43	0
04	42733-01DUDL	0 D	0 D	0 D	0
05	42733-02FB	80	80	80	0
06	42733-02FD	74	75	81	0
07	42733-03	76	82	35	0
08	42733-04	70	152	33	0
09	42733-05	60	135	19	0
10	42733-05DL	0 D	0 D	0 D	0
11	42733-06	66	76	26	0
12	42733-06DL	0 D	0 D	0 D	0
13	42733-07	62	50	28	0
14	42733-07DL	0 D	0 D	0 D	0
15	42733-LCS	80	84	90	0
16	42733-01MS	77	81	53	0
17	42733-01SD	77	84	27	0
18	SBLK01	86	88	79	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: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42733 SAS No.: SDG No.:

Matrix Spike - EPA Sample No.: 42733-01

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC #	QC LIMITS REC.
1H-Indene	9.520	12.38	19.16	71	20-150
Naphthalene	9.520	0	13.09	138	20-150
Quinoline	9.520	2.202	20.35	191 *	20-150
2-Methylnaphthalene	9.520	1.868	9.948	85	20-150
Fluorene	9.520	121.4	190.4	725 *	69-118
Chrysene	9.520	1.690	5.486	40	20-132
Benzo(E)Pyrene	9.520	0	0	0 *	20-150

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1H-Indene	9.520	19.87	79	11	28	20-150
Naphthalene	9.520	12.61	132	4	28	20-150
Quinoline	9.520	16.78	153 *	22	28	20-150
2-Methylnaphthalene	9.520	9.782	83	2	28	20-150
Fluorene	9.520	139.2	187 *	118 *	28	69-118
Chrysene	9.520	4.403	28	35 *	28	20-132
Benzo(E)Pyrene	9.520	0	0 *	0	28	20-150

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

COMMENTS:

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42733-01MS

PCJ-SLP10MS-061295

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42733 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42733-01MS

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C0829

Level: (low/med) LOW Date Received: 06/13/95

% Moisture: decanted: (Y/N) N Date Extracted: 06/15/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/30/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	310	ER
95-13-6	1H-Indene	19	
91-20-3	Naphthalene	13	
4565-32-6	Benzo(B)Thiophene	48	
91-22-5	Quinoline	20	R
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	10	B
90-12-0	1-Methylnaphthalene	9	R
92-52-4	Biphenyl	33	
208-96-8	Acenaphthylene	120	RS
83-32-9	Acenaphthene	230	S
132-64-9	Dibenzofuran	35	
86-73-7	Fluorene	190	S
132-65-0	Dibenzothiophene	31	
85-01-8	Phenanthrene	5	B
120-12-7	Anthracene	7	
260-94-6	Acridine	3	U
86-74-8	Carbazole	9	
206-44-0	Fluoranthene	50	B
129-00-0	Pyrene	60	
56-55-3	Benzo(A)Anthracene	2	J
218-01-9	Chrysene	5	
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42733-01SD

PCJ=SLP10MSD=061295

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42733 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42733-01SD

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C0770

Level: (low/med) LOW Date Received: 06/13/95

% Moisture: decanted: (Y/N) N Date Extracted: 06/15/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/25/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	230	RS
95-13-6	1H-Indene	20	
91-20-3	Naphthalene	13	
4565-32-6	Benzo(B)Thiophene	47	
91-22-5	Quinoline	17	
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	10	B
90-12-0	1-Methylnaphthalene	9	R
92-52-4	Biphenyl	33	
208-96-8	Acenaphthylene	91	RS
83-32-9	Acenaphthene	110	RS
132-64-9	Dibenzofuran	33	
86-73-7	Fluorene	140	S
132-65-0	Dibenzothiophene	37	
85-01-8	Phenanthrene	6	B
120-12-7	Anthracene	8	
260-94-6	Acridine	3	R
86-74-8	Carbazole	9	
206-44-0	Fluoranthene	58	B
129-00-0	Pyrene	70	
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

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

SBLK01

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42733 SAS No.: SDG No.:

Lab File ID: C0763 Lab Sample ID: BL061595

Instrument ID: 4500-C Date Extracted: 06/15/95

Matrix: (soil/water) WATER Date Analyzed: 06/25/95

Level:(low/med) LOW Time Analyzed: 1116

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	42733-01	42733-01	C0767	06/25/95
02	42733-01DL	43733-01DL	C0830	06/30/95
03	42733-01DU	42733-01DU	C0768	06/25/95
04	42733-01DUDL	42733-01DUDL	C0831	06/30/95
05	42733-02FB	42733-02FB	C0764	06/25/95
06	42733-02FD	42733-02FD	C0765	06/25/95
07	42733-03	42733-03	C0771	06/25/95
08	42733-04	42733-04	C0772	06/25/95
09	42733-05	42733-05	C0773	06/25/95
10	42733-05DL	42733-05DL	C0834	06/30/95
11	42733-06	42733-06	C0774	06/25/95
12	42733-06DL	42733-06DL	C0835	06/30/95
13	42733-07	42733-07	C0775	06/25/95
14	42733-07DL	42733-07DL	C0836	06/30/95
15	42733-LCS	42733-LCS	C0766	06/25/95
16	42733-01MS	42733-01MS	C0829	06/30/95
17	42733-01SD	42733-01SD	C0770	06/25/95

COMMENTS:

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

SBLK01

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42733 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: BL061595

Sample wt/vol: 4000 (g/mL) ML Lab File ID: C0763

Level: (low/med) LOW Date Received:

% Moisture: decanted: (Y/N) N Date Extracted: 06/15/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/25/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	6	U
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	R
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	3	
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	2	
129-00-0	Pyrene	1	U
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42733 SAS No.: SDG No.:

Lab File ID (Standard): C0762 Date Analyzed: 06/25/95

Instrument ID: 4500-C Time Analyzed: 0953

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	422476	14.44	597596	18.19	459058	28.02
	UPPER LIMIT	844952	14.94	1195192	18.69	918116	28.52
	LOWER LIMIT	211238	13.94	298798	17.69	229529	27.52
	EPA SAMPLE NO.						
01	42733-01	582144	14.32	920362	18.00	773827	27.82
02	42733-01DU	653952	14.32	972447	18.00	771886	27.82
03	42733-02FB	716132	14.39	1074590	18.07	852231	27.87
04	42733-02FD	678149	14.32	1009520	18.00	809031	27.82
05	42733-03	587031	14.35	912641	18.02	816530	27.84
06	42733-04	756160	14.35	1028080	18.02	781824	27.84
07	42733-05	620608	14.34	912806	18.02	796192	27.82
08	42733-06	516416	14.34	811086	18.02	549567	27.84
09	42733-07	750592	14.35	639274	18.24	384158	27.84
10	42733-LCS	666090	14.32	987904	18.00	769766	27.82
11	42733-01SD	505648	14.34	719612	18.02	812512	27.84
12	SBLK01	650848	14.42	1021350	18.19	794417	28.04

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

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

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

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42733 SAS No.: SDG No.:

Lab File ID (Standard): C0826 Date Analyzed: 06/30/95

Instrument ID: 4500-C Time Analyzed: 1238

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	350979	14.34	512815	18.04	416350	27.87
	UPPER LIMIT	701958	14.84	1025630	18.54	832700	28.37
	LOWER LIMIT	175490	13.84	256408	17.54	208175	27.37
	EPA SAMPLE NO.						
01	42733-01DL	345845	14.45	599922	18.22	485128	28.04
02	42733-01DUDL	310611	14.45	547094	18.20	473849	28.02
03	42733-05DL	285371	14.32	507662	18.02	474079	27.87
04	42733-06DL	238103	14.34	422021	18.02	395355	27.87
05	42733-07DL	250368	14.34	441143	18.04	383928	27.87
06	42733-01MS	391080	14.44	683483	18.20	532120	28.02

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.

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Quanterra
Environmental Services

CASE NARRATIVE

FOR

City of St. Louis Park

July 23, 1995

Quanterra Environmental Services

Project Number 042771

Introduction

Ten aqueous samples (includes QC) were received at Quanterra Environmental Services, Denver Laboratory on June 14, 1995. The samples were logged in under Quanterra's Denver laboratory project number 042771. Sample PCJ-SLP16FBD-061395 (042771-02FD) was extracted and held per the April 1990 QAPP. A cross reference associating Quanterra's Denver laboratory sample numbers to the actual field sample number is included. The samples were analyzed for low level part-per-trillion (ppt) polynuclear aromatic hydrocarbons (PAH).

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the 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 PCJ-W70 (042771-05) showed the concentrations of target compounds above the upper calibration range. The sample was re-analyzed at a dilution. Both the original and re-analysis data were reported for the sample. The reporting limits were adjusted accordingly. The surrogates were diluted out of sample PCJ-W70DIL (042771-05DL).

The reporting limits for sample PCJ-SLP7 (042771-03) was raised due to limited sample volume (3150 mL available).

Matrix spike and matrix spike duplicate samples were not requested for this project. The laboratory prepared and analyzed duplicate Laboraory Control Samples (LCS's). The LGS's are prepared and spiked in the same manner that the matrix spike samples are. The purpose of the LCS is not to duplicate the sample matrix, but rather to provide an interference-free, homogeneous matrix from which to gather supporting data for the spiking compounds. The LCS's analyzed for this project were within laboratory historical control limits.

The method blank analyzed with these samples showed concentrations of some compounds near the reporting limits. The samples are annotated accordingly. The method blank and LCS's showed the percent recovery of the surrogate Chrysene-d12 outside control limits (high). This implies that the results reported for the method blank and LCS's may be biased high.

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 042771 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.

A standard is now available for Benzo(J)Fluoranthene. Laboratory studies have shown that Benzo(J)Fluoranthene will coelute with either Benzo(B)Fluoranthene or Benzo(K)Fluoranthene depending on the relative concentration of these two compounds in solution. For this project Benzo(B)Fluoranthene and Benzo(J)Fluoranthene will be reported as Benzo(B)Fluoranthene.

Quanterra
Environmental Services

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:** 7/23/95
Daniel Rebarchik
Program Administrator

Approved by: _____ **Date:** 7/24/95
Kevin McHugh
Program Manager

Quanterra Environmental Services

QUALIFIER CODES AND THEIR USAGE

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

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

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

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

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

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

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

QUALIFIER CODES AND THEIR USAGE
Page Two

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

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

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

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

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

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 042771	Group Code	Analysis Description	Custom Test?
0001 - 0008	A	Polynuclear Aromatic Hydrocarbons, SIM Low Level	N
		Prep - PAH/SIM by GC/MS Low Level	N
0002	B	Prep - PAH/SIM by GC/MS Low Level	N

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
042771-0001-SA	PCJ-SLP16-061395	AQUEOUS	13 JUN 95		14 JUN 95
042771-0001-DU	PCJ-SLP16D-061395	AQUEOUS	13 JUN 95		14 JUN 95
042771-0002-FB	PCJ-SLP16FB-061395	AQUEOUS	13 JUN 95		14 JUN 95
042771-0002-FD	PCJ-SLP16FBD-061395	AQUEOUS	13 JUN 95		14 JUN 95
042771-0003-SA	PCJ-SLP7-061395	AQUEOUS	13 JUN 95		14 JUN 95
042771-0004-SA	PCJ-H6-061395	AQUEOUS	13 JUN 95	10:15	14 JUN 95
042771-0005-SA	PCJ-W70-061395	AQUEOUS	13 JUN 95	10:40	14 JUN 95
042771-0006-SA	PCJ-E3-061395	AQUEOUS	13 JUN 95		14 JUN 95
042771-0007-SA	PCJ-E13-061395	AQUEOUS	13 JUN 95		14 JUN 95
042771-0008-SA	PCJ-E15-061395	AQUEOUS	13 JUN 95		14 JUN 95

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Quanterra Environmental Services

SAMPLE SAFE™ CONDITIONS

QUANTERRA CLIENT: CITY OF ST LOUIS PK (WATER DEPT)	PACKED BY: [illegible]
	SEAL NUMBER:
PROJECT:	SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:
	CONDITION OF CONTENTS:
SAMPLING COMPANY: SAME	SEALED FOR SHIPPING BY: [illegible]
	INITIAL CONTENTS TEMP: °C
SAMPLING SITE: SAME	SEAL NUMBER:
	SAMPLING STATUS: ☐ Done ☐ Continuing Until
TEAM LEADER: [illegible]	SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No
	CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 6.7 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
6-13-95		PCJ-SLPK-061395	1XLAMBER	6	PPL PAH	PPL 5 -1
6-13-95		PCJ-SLPKD-061395	1XLAMBER	6	PPL PAH	PPL 5 -1 DUP

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: 2103421235
RECEIVED FOR LAB: QES	SIGNED: [illegible] DATE/TIME: 6/14/95 845
QUANTERRA PROJECT NUMBER: 42771	

QUA-4119 White - [illegible] Pink - LAB

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Quanterra Environmental Services

SAMPLE SAFE™ CONDITIONS

QUANTERRA CLIENT: CITY OF ST LOUIS PARK (WATER DEPT)	PACKED BY: [illegible]
	SEAL NUMBER:
PROJECT:	SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:
	CONDITION OF CONTENTS:
SAMPLING COMPANY: SAME	SEALED FOR SHIPPING BY: [illegible]
	INITIAL CONTENTS TEMP: °C
SAMPLING SITE: SAME	SEAL NUMBER:
	SAMPLING STATUS: ☐ Done ☐ Continuing Until
TEAM LEADER: [illegible]	SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No
	CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 7.7 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
6-13-95		PCJ-SLP16FB-061395	1XL AMBER	6	PPT PAH	PPT 5 -2FD
6-13-95		PCJ-SLP16FBD-061395	1XL AMBER	6	PPT PAH	PPT 5 -2FD

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: 2103421235
RECEIVED FOR LAB: QES	SIGNED: [illegible] DATE/TIME: 6/13/95 815
QUANTERRA PROJECT NUMBER: 42771	

QUA-4119

White – CLIENT Pink – LAB

CHAIN OF CUSTODY

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Quanterra Environmental Services

QUANTERRA 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: 5.6 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
6-13-95		PCJ-SLP7-061395	1X6 AMBER	6	PPL PAH	PPL S -3

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: 2163421235

RECEIVED FOR LAB: GES

SIGNED: [signature]

DATE/TIME: 6/14/95 8:40

QUANTERRA PROJECT NUMBER: 42771

QUA-4119

White – Pink – LAB

CHAIN OF CUSTODY

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Quanterra Environmental Services

QUANTERRA CLIENT: HyOF St Louis Park
PROJECT: SLP
SAMPLING COMPANY: ENSR
SAMPLING SITE: SLP
TEAM LEADER: Peter Moore

SAMPLE SAFE™ CONDITIONS

PACKED BY: Peter Moore
SEAL NUMBER: NA
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY: NA
CONDITION OF CONTENTS: OK
SEALED FOR SHIPPING BY: Peter Moore / ENSR
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: 4.2 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
6/13/95	10:15	PCJ-H6-061395	H_2O	6	PPT-PAH	PPT-5 -4
6/13/95	10:40	PCJ-W70-061395	H_2O	6	PPT-PAH	PPT-5 -5

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: Peter Moore ENSR
METHOD OF SHIPMENT: FED EX
AIRBILL NUMBER: 2103421235
RECEIVED FOR LAB: GES
SIGNED: [illegible]
DATE/TIME: 6/14/95 845
QUANTERRA PROJECT NUMBER: 42771

QUA-4119

White - CLIENT Pink - LAB

CHAIN OF CUSTODY

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Quanterra Environmental Services

QUANTERRA CLIENT: City of St Louis Park
PROJECT: SLP
SAMPLING COMPANY: EOSR
SAMPLING SITE: SLP
TEAM LEADER: Peter Moore

SAMPLE SAFE™ CONDITIONS

PACKED BY: Peter Moore
SEAL NUMBER: NA
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY: NA
CONDITION OF CONTENTS: OK
SEALED FOR SHIPPING BY: Peter Moore / EOSR
INITIAL CONTENTS TEMP: °C
SEAL NUMBER:
SAMPLING STATUS: ☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No
CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 3.9 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
6/13/95		PCJ-E3-061395	H_2O	6	PPT-PAH	PPT-5 -6
6/13/95		PCJ-E13-061395	↓	↓	↓	-7
6/13/95		PCJ-E15-061395	↓	↓	↓	-8

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: Peter Moore / EOSR
METHOD OF SHIPMENT: FED EX
AIRBILL NUMBER: 2103421235
RECEIVED FOR LAB: QES
SIGNED: [signature]
DATE/TIME: 6/14/95 [illegible]
QUANTERRA PROJECT NUMBER: 4277

QUA-4119

White - Client Pink - LAB

SAMPLE DATA

SUMMARY PACKAGE

for

City of St. Louis Park

QUANTERRA Denver No. 042771

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42771-01

PCJ-SLP16-061395

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42771 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42771-01

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C0785

Level: (low/med) LOW Date Received: 06/14/95

% Moisture: decanted: (Y/N) N Date Extracted: 06/19/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/26/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	3	
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	6	U
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	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	3	
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	3	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	BJ
129-00-0	Pyrene	1	BJ
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42771-01DU

PCJ-SLP16D-061395

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42771 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42771-01DU

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C0786

Level: (low/med) LOW Date Received: 06/14/95

% Moisture: decanted: (Y/N) N Date Extracted: 06/19/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/27/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	3	
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	6	U
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	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	3	
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	3	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	2	B
129-00-0	Pyrene	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.

42771-02FB

PCJ-SLP16FB-061395

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42771 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42771-02FB

Sample wt/vol: 4120 (g/mL) ML Lab File ID: C0795

Level: (low/med) LOW Date Received: 06/14/95

% Moisture: decanted: (Y/N) N Date Extracted: 06/19/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/27/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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	2	
95-13-6	1H-Indene	1	
91-20-3	Naphthalene	11	
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	2	R
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	5	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	
86-73-7	Fluorene	1	
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	4	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	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.

42771-02FD

PCJ-SLP16FBD-061395

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 12771 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42771-02FD

Sample wt/vol: 4120 (g/mL) ML Lab File ID: C0780

Level: (low/med) LOW Date Received: 06/14/95

% Moisture: decanted: (Y/N) N Date Extracted: 06/19/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/26/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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	2	
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	9	
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	
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	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.

42771-07

Lab Name: QUANTERRA Contract: PCJ-E13-061395

Lab Code: DENVER Case No.: 42771 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42771-07

Sample wt/vol: 4160 (g/mL) ML Lab File ID: C0791

Level: (low/med) LOW Date Received: 06/14/95

% Moisture: decanted: (Y/N) N Date Extracted: 06/19/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/27/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	6	U
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	1	BR
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	2	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	U
129-00-0	Pyrene	1	U
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42771-LCS

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42771 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42771-LCS

Sample wt/vol: 4000 (g/mL) ML Lab File ID: C0781

Level: (low/med) LOW Date Received:

% Moisture: decanted: (Y/N) N Date Extracted: 06/19/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/26/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
95-13-6	1H-Indene	8	
91-20-3	Naphthalene	11	
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	12	
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	10	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	10	
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	3	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	U
129-00-0	Pyrene	1	U
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	11	
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	12	
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.

42771-LCS

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42771 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42771-LCS

Sample wt/vol: 4000 (g/mL) ML Lab File ID: C0828

Level: (low/med) LOW Date Received:

% Moisture: decanted: (Y/N) N Date Extracted: 06/19/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/30/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
95-13-6	1H-Indene	7	
91-20-3	Naphthalene	9	
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	12	
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	9	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	9	
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	2	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	U
129-00-0	Pyrene	1	U
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	10	
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	10	
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: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42771 SAS No.: SDG No.:

	EPA SAMPLE NO.	S1 (NAP)#	S2 (FLU)#	S3 (CHR)#	TOT OUT
01	42771-01	88	95	98	0
02	42771-01DU	92	98	71	0
03	42771-02FB	86	91	99	0
04	42771-02FD	92	98	110	0
05	42771-03	97	104	75	0
06	42771-04	90	93	46	0
07	42771-05	84	88	52	0
08	42771-05DL	0 D	0 D	0 D	0
09	42771-06	82	86	44	0
10	42771-07	91	95	52	0
11	42771-08	91	92	46	0
12	42771-LCS	95	104	124 *	1
13	42771-LCS	88	93	132 *	1
14	SBLK01	101	98	127 *	1

	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.

SBLK01

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42771 SAS No.: SDG No.:

Lab File ID: C0778 Lab Sample ID: BL061995

Instrument ID: 4500-C Date Extracted: 06/19/95

Matrix: (soil/water) WATER Date Analyzed: 06/26/95

Level:(low/med) LOW Time Analyzed: 1826

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	42771-01	42771-01	C0785	06/26/95
02	42771-01DU	42771-01DU	C0786	06/27/95
03	42771-02FB	42771-02FB	C0795	06/27/95
04	42771-02FD	42771-02FD	C0780	06/26/95
05	42771-03	42771-03	C0787	06/27/95
06	42771-04	42771-04	C0788	06/27/95
07	42771-05	42771-05	C0789	06/27/95
08	42771-05DL	42771-05DL	C0824	06/29/95
09	42771-06	42771-06	C0822	06/29/95
10	42771-07	42771-07	C0791	06/27/95
11	42771-08	42771-08	C0823	06/29/95
12	42771-LCS	42771-LCS	C0781	06/26/95
13	42771-LCS	42771-LCS	C0828	06/30/95

COMMENTS:

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

SBLK01

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42771 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: BL061995

Sample wt/vol: 4000 (g/mL) ML Lab File ID: C0778

Level: (low/med) LOW Date Received:

% Moisture: decanted: (Y/N) N Date Extracted: 06/19/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/26/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	6	U
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	
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: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42771 SAS No.: SDG No.:

Lab File ID (Standard): C0776 Date Analyzed: 06/26/95

Instrument ID: 4500-C Time Analyzed: 1631

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	309225	14.34	449251	18.04	330748	28.02
	UPPER LIMIT	618450	14.84	898502	18.54	661496	28.52
	LOWER LIMIT	154612	13.84	224626	17.54	165374	27.52
	EPA SAMPLE NO.						
01	42771-01	518793	14.42	853881	18.12	607308	28.16
02	42771-01DU	494458	14.42	820560	18.12	601838	28.14
03	42771-02FD	477368	14.42	756673	18.12	605353	28.14
04	42771-03	508593	14.44	836162	18.14	621716	28.17
05	42771-04	439375	14.42	723576	18.14	540160	28.16
06	42771-05	480906	14.42	766928	18.14	610096	28.16
07	42771-07	468459	14.44	771809	18.15	543575	28.17
08	42771-LCS	524838	14.42	841128	18.12	564327	28.14
09	SBLK01	555889	14.42	864833	18.12	509680	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.

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42771 SAS No.: SDG No.:

Lab File ID (Standard): C0793 Date Analyzed: 06/27/95

Instrument ID: 4500-C Time Analyzed: 1107

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	353328	14.37	467674	18.09	322878	27.92
	UPPER LIMIT	706656	14.87	935348	18.59	645756	28.42
	LOWER LIMIT	176664	13.87	233837	17.59	161439	27.42
	EPA SAMPLE NO.						
01	42771-02FB	582618	14.37	812986	18.12	544157	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.

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42771 SAS No.: SDG No.:

Lab File ID (Standard): C0809 Date Analyzed: 06/29/95

Instrument ID: 4500-C Time Analyzed: 1216

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	394801	14.34	553209	18.02	398584	27.82
	UPPER LIMIT	789602	14.84	1106418	18.52	797168	28.32
	LOWER LIMIT	197400	13.84	276604	17.52	199292	27.32
	EPA SAMPLE NO.						
01	42771-05DL	627796	14.35	975560	18.05	666879	28.04
02	42771-06	585811	14.34	893819	18.02	624681	28.02
03	42771-08	461160	14.34	685646	18.02	456061	28.02

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: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42771 SAS No.: SDG No.:

Lab File ID (Standard): C0826 Date Analyzed: 06/30/95

Instrument ID: 4500-C Time Analyzed: 1238

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	350979	14.34	512815	18.04	416350	27.87
	UPPER LIMIT	701958	14.84	1025630	18.54	832700	28.37
	LOWER LIMIT	175490	13.84	256408	17.54	208175	27.37
	EPA SAMPLE NO.						
01	42771-LCS	493280	14.44	850508	18.19	582371	28.02

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.

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Quanterra
Environmental Services

CASE NARRATIVE

FOR

City of St. Louis Park

July 21, 1995

Quanterra Environmental Services

Project Number 042907

Introduction

Ten aqueous samples (includes QC) were received at Quanterra Environmental Services, Denver Laboratory on June 20, 1995. The samples were logged in under Quanterra's Denver laboratory project number 042907. Sample PCJ-SLP14FBD-061995 (042907-02FD) was extracted and held per the April 1990 QAPP. A cross reference associating Quanterra's Denver laboratory sample numbers to the actual field sample number is included. The samples were analyzed for low level part-per-trillion (ppt) polynuclear aromatic hydrocarbons (PAH).

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the 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 PCJ-W29 (042907-04) showed the concentrations of target compounds above the upper calibration range. The sample was re-analyzed at a dilution. Both the original and re-analysis data were reported for the sample. The reporting limits were adjusted accordingly. The surrogates were diluted out of sample PCJ-W29DIL (042907-04DL).

The percent recoveries for Benzo(E)Pyrene were outside control limits in PCJ-SLP14MS (042907-01MS) and PCJ-SLP14MSD (042907-01SD). Their relative percent difference (RPD) was within control limits.

A Laboratory Control Samples (LCS) was analyzed with this project. The LCS is prepared and spiked in the same manner that the matrix spike samples are. The purpose of the LCS is not to duplicate the sample matrix, but rather to provide an interference-free, homogeneous matrix from which to gather supporting data for the spiking compounds. Since the LCS results are in control, the results obtained for samples 042907-01MS and -01SD suggest a matrix effect.

The method blank analyzed with these samples showed concentrations of some compounds near the reporting limits. The samples are annotated accordingly. The method blank showed the percent recovery of the surrogate Chrysene-d12 outside control limits (high). This implies that the results reported for the method blank may be biased high.

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 042907 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.

A standard is now available for Benzo(J)Fluoranthene. Laboratory studies have shown that Benzo(J)Fluoranthene will coelute with either Benzo(B)Fluoranthene or Benzo(K)Fluoranthene depending on the relative concentration of these two compounds in solution. For this project Benzo(B)Fluoranthene and Benzo(J)Fluoranthene will be reported as Benzo(B)Fluoranthene.

Quanterra
Environmental Services

Case Narrative - Quanterra's Denver laboratory #042907
July 21, 1995
Page Three

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: 7/21/95
Daniel Rebarchik
Program Administrator

Approved by: _____ Date: 7/21/95
Kevin McHugh
Program Manager

Quanterra Environmental Services

QUALIFIER CODES AND THEIR USAGE

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

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

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

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

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

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

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

QUALIFIER CODES AND THEIR USAGE
Page Two

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

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

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

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

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

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 042907	Group Code	Analysis Description	Custom Test?
0001 - 0006	A	Polynuclear Aromatic Hydrocarbons, SIM Low Level	N
		Prep - PAH/SIM by GC/MS Low Level	N
0002	B	Prep - PAH/SIM by GC/MS Low Level	N

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
042907-0001-SA	PCJ-SLP14-061995	AQUEOUS	19 JUN 95		20 JUN 95
042907-0001-DU	PCJ-SLP14D-061995	AQUEOUS	19 JUN 95		20 JUN 95
042907-0001-MS	PCJ-SLP14MS-061995	AQUEOUS	19 JUN 95		20 JUN 95
042907-0001-SD	PCJ-SLP14MSD-061995	AQUEOUS	19 JUN 95		20 JUN 95
042907-0002-FB	PCJ-SLP14FB-061995	AQUEOUS	19 JUN 95		20 JUN 95
042907-0002-FD	PCJ-SLP14FBD-061995	AQUEOUS	19 JUN 95		20 JUN 95
042907-0003-SA	PCJ-W401-061995	AQUEOUS	19 JUN 95	10:15	20 JUN 95
042907-0004-SA	PCJ-W29-061995	AQUEOUS	19 JUN 95	11:00	20 JUN 95
042907-0005-SA	PCJ-MTK6-061995	AQUEOUS	19 JUN 95	12:30	20 JUN 95
042907-0006-SA	PCJ-W406-061995	AQUEOUS	19 JUN 95	14:15	20 JUN 95

CHAIN OF CUSTODY

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

Quanterra Environmental Services

SAMPLE SAFE™ CONDITIONS

QUANTERRA CLIENT: City of St Louis Park (Water Dept)	PACKED BY: MZH
PROJECT:	SEAL NUMBER:
SAMPLING COMPANY: Same	SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:
SAMPLING SITE: Same	CONDITION OF CONTENTS:
TEAM LEADER: MZH	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: 7.2 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
6-19-95		PCJ-SLP14-061995	1XL AMBER	6	PPT PAH	PPT 5 -1
6-19-95		PCJ-SLP14D-061995	1XL AMBER	6	PPT PAH	PPT 5 -1DN

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MZH	
METHOD OF SHIPMENT: FED E	AIRBILL NUMBER: 2103421246
RECEIVED FOR LAB: QES	SIGNED: [signature] DATE/TIME: 6/20/95 8:48
QUANTERRA PROJECT NUMBER: 42[illegible]	

[redacted]

CHAIN OF CUSTODY

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
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Quanterra Environmental Services

SAMPLE SAFE™ CONDITIONS

QUANTERRA CLIENT: CITY OF ST. LOUIS PARK (WATER DEPT)	PACKED BY: MZH
PROJECT:	SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:
SAMPLING COMPANY: SAME	SEALED FOR SHIPPING BY: MZH
SAMPLING SITE: SAME	SEAL NUMBER:
TEAM LEADER: MZH	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: 5.9 °C	

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
6-19-95		PCJ-SLP14MS-061995	1XL AMBER	6	PPL PAH	PPL 5 -1 MS
6-19-95		PCJ-SLP14MSD-061995	1XL AMBER	6	PPL-PAH	PPL 5 -1 SD

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: 2103421246
RECEIVED FOR LAB: QET	SIGNED: [signature] DATE/TIME: 6/20/95 8:15
QUANTERRA PROJECT NUMBER: K2907	

CHAIN OF CUSTODY

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

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Quanterra Environmental Services

SAMPLE SAFE™ CONDITIONS

QUANTERRA CLIENT: CITY OF ST LOUIS PARK (WATER DEPT)	PACKED BY: MZH
	SEAL NUMBER:
PROJECT:	SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:
	CONDITION OF CONTENTS:
SAMPLING COMPANY: SAME	SEALED FOR SHIPPING BY: MZH
	INITIAL CONTENTS TEMP: °C
SAMPLING SITE: SAME	SEAL NUMBER:
	SAMPLING STATUS: ☐ Done ☐ Continuing Until
TEAM LEADER: MZH	SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No
	CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 6.8 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
6-19-95		PCJ-SLP14FD-061995	1XLAMBER	6	PPL PAH	PPL 5 -2FB
6-19-95		PCJ-SLP14FRD-061995	1XLAMBER	6	PPL PAH	PPL 5 -2FD

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: 2103421246
RECEIVED FOR LAB: QES	SIGNED: [signature]	DATE/TIME: 6/20/95 8:15
QUANTERRA PROJECT NUMBER: 42907		

[redacted]AIN OF CUSTODY

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

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Quanterra Environmental Services

SAMPLE SAFE™ CONDITIONS

QUANTERRA CLIENT: City of Saint Louis Park	PACKED BY: Jeff Osberg
	SEAL NUMBER: N/A
PROJECT: SLP	SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY: N/A
	CONDITION OF CONTENTS:
SAMPLING COMPANY: ENSR	SEALED FOR SHIPPING BY: JEFF OSBERG
	INITIAL CONTENTS TEMP: 4° °C
SAMPLING SITE: SLP	SEAL NUMBER:
	SAMPLING STATUS: ☐ Done ☐ Continuing Until
TEAM LEADER: PETER MOORE	SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No
	CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 5.3°C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
6/19	10:15	PCJ-W401-061995	H_2O	6	PPT-PAH	PPT5 -3
	11:00	PCJ-W29-061995		6	PPT-PAH	PPT5 -4
	12:30	PCJ-MTK6-061995		6	PPT-PAH	PPT5 -5
	14:15	PCJ-W406-061995		6	PPT-PAH	PPT5 -6

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME
[signature]		6/19/95	15:00

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: [signature] (Jeff Osberg) ENSR

METHOD OF SHIPMENT: FED EX

AIRBILL NUMBER: 2103421246

RECEIVED FOR LAB: [illegible]

SIGNED: [signature]

DATE/TIME: 6/20/95

QUANTERRA PROJECT NUMBER: 42907

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42907-01

PCJ-SLP14-061995

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42907 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42907-01

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C0818

Level: (low/med) LOW Date Received: 06/20/95

% Moisture: decanted: (Y/N) N Date Extracted: 06/21/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/29/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	34	
95-13-6	1H-Indene	1	
91-20-3	Naphthalene	7	B
4565-32-6	Benzo(B)Thiophene	2	
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	1	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	11	R
83-32-9	Acenaphthene	23	
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	2	R
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	
206-44-0	Fluoranthene	1	U
129-00-0	Pyrene	3	R
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42907-01DU

PCJ-SLP140-061995

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42907 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42907-01DU

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C0819

Level: (low/med) LOW Date Received: 06/20/95

% Moisture: decanted: (Y/N) N Date Extracted: 06/21/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/29/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	33	
95-13-6	1H-Indene	1	
91-20-3	Naphthalene	7	B
4565-32-6	Benzo(B)Thiophene	2	
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	1	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	11	R
83-32-9	Acenaphthene	22	
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	2	
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	3	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	2	
129-00-0	Pyrene	3	R
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42907-02FB

PCJ-SLP14FB-61995

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42907 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42907-02FB

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C0810

Level: (low/med) LOW Date Received: 06/20/95

% Moisture: decanted: (Y/N) N Date Extracted: 06/21/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/29/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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	2	
95-13-6	1H-Indene	1	
91-20-3	Naphthalene	11	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-Methy.naphthalene	5	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	
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	
129-00-0	Pyrene	2	
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42907-02FD

PCJ-SLP14FBD=061995

Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42907 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42907-02FD

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C0811

Level: (low/med) LOW Date Received: 06/20/95

% Moisture: decanted: (Y/N) N Date Extracted: 06/21/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/29/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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	1	U
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	10	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	2	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	3	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	U
129-00-0	Pyrene	2	
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42907-06

PCJ-W406-061995

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42907 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42907-06

Sample wt/vol: 4140 (g/mL) ML Lab File ID: C0817

Level: (low/med) LOW Date Received: 06/20/95

% Moisture: decanted: (Y/N) N Date Extracted: 06/21/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/29/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
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	2	BR
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	J
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	3	BR
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	17	R
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42907-LCS

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42907 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42907-LCS

Sample wt/vol: 4000 (g/mL) ML Lab File ID: C0813

Level: (low/med) LOW Date Received: 06/20/95

% Moisture: decanted: (Y/N) N Date Extracted: 06/21/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/29/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
95-13-6	1H-Indene	10	
91-20-3	Naphthalene	28	B
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	12	
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	11	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	11	
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	2	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	U
129-00-0	Pyrene	2	R
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	11	
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	12	
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: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42907 SAS No.: SDG No.:

	EPA SAMPLE NO.	S1 (NAP)#	S2 (FLU)#	S3 (CHR)#	TOT OUT
01	42907-01	89	95	68	0
02	42907-01DU	86	91	47	0
03	42907-02FB	86	88	102	0
04	42907-02FD	82	86	108	0
05	42907-03	82	87	49	0
06	42907-04	84	110	42	0
07	42907-04DL	0 D	0 D	0 D	0
08	42907-05	83	84	47	0
09	42907-06	78	82	39	0
10	42907-LCS	97	96	112	0
11	42907-01MS	89	99	48	0
12	42907-01SD	86	91	49	0
13	SBLK01	91	96	126 *	1

		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: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42907 SAS No.: SDG No.:

Matrix Spike - EPA Sample No.: 42907-01

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC #	QC LIMITS REC.
1H-Indene	9.520	1.392	9.425	84	20-150
Naphthalene	9.520	7.461	17.02	100	20-150
Quinoline	9.520	0	11.64	122	20-150
2-Methylnaphthalene	9.520	1.297	10.46	96	20-150
Fluorene	9.520	1.583	11.15	100	69-118
Chrysene	9.520	0	4.141	44	20-132
Benzo(E)Pyrene	9.520	0	1.035	11*	20-150

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1H-Indene	9.520	9.127	81	4	28	20-150
Naphthalene	9.520	15.59	85	16	28	20-150
Quinoline	9.520	10.96	115	6	28	20-150
2-Methylnaphthalene	9.520	9.330	84	13	28	20-150
Fluorene	9.520	10.25	91	9	28	69-118
Chrysene	9.520	4.344	46	4	28	20-132
Benzo(E)Pyrene	9.520	1.117	12*	9	28	20-150

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

COMMENTS:

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42907-01MS

PCJ-SLP14MS-061995

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42907 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42907-01MS

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C0820

Level: (low/med) LOW Date Received: 06/20/95

% Moisture: decanted: (Y/N) N Date Extracted: 06/21/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/29/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	34	
95-13-6	1H-Indene	9	
91-20-3	Naphthalene	17	B
4565-32-6	Benzo(B)Thiophene	2	
91-22-5	Quinoline	12	
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	10	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	12	R
83-32-9	Acenaphthene	23	
132-64-9	Dibenzofuran	1	
86-73-7	Fluorene	11	
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	
129-00-0	Pyrene	4	R
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.

42907-01SD

PCJ-SLP14MSD-061995

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42907 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42907-01SD

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C0821

Level: (low/med) LOW Date Received: 06/20/95

% Moisture: decanted: (Y/N) N Date Extracted: 06/21/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/29/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	33	
95-13-6	1H-Indene	9	
91-20-3	Naphthalene	16	B
4565-32-6	Benzo(B)Thiophene	2	R
91-22-5	Quinoline	11	
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	9	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	11	R
83-32-9	Acenaphthene	22	
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	10	
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	3	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	U
129-00-0	Pyrene	3	
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

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

SBLK01

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42907 SAS No.: SDG No.:

Lab File ID: C0812 Lab Sample ID: BL062195

Instrument ID: 4500-C Date Extracted: 06/21/95

Matrix: (soil/water) WATER Date Analyzed: 06/29/95

Level:(low/med) LOW Time Analyzed: 1446

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	42907-01	42907-01	C0818	06/29/95
02	42907-01DU	42907-01DU	C0819	06/29/95
03	42907-02FB	42907-02FB	C0810	06/29/95
04	42907-02FD	42907-02FD	C0811	06/29/95
05	42907-03	42907-03	C0814	06/29/95
06	42907-04	42907-04	C0815	06/29/95
07	42907-04DL	42907-04DL	C0825	06/30/95
08	42907-05	42907-05	C0816	06/29/95
09	42907-06	42907-06	C0817	06/29/95
10	42907-LCS	42907-LCS	C0813	06/29/95
11	42907-01MS	42907-01MS	C0820	06/29/95
12	42907-01SD	42907-01SD	C0821	06/29/95

COMMENTS:

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

SBLK01

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42907 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: BL062195

Sample wt/vol: 4000 (g/mL) ML Lab File ID: C0812

Level: (low/med) LOW Date Received:

% Moisture: decanted: (Y/N) N Date Extracted: 06/21/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/29/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	11	
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	1	
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	2	
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	U
129-00-0	Pyrene	1	U
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42907 SAS No.: SDG No.:

Lab File ID (Standard): C0809 Date Analyzed: 06/29/95

Instrument ID: 4500-C Time Analyzed: 1216

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	394801	14.34	553209	18.02	398584	27.82
	UPPER LIMIT	789602	14.84	1106418	18.52	797168	28.32
	LOWER LIMIT	197400	13.84	276604	17.52	199292	27.32
	EPA SAMPLE NO.						
01	42907-01	575822	14.34	891443	18.04	499662	28.02
02	42907-01DU	578320	14.32	860033	18.02	494714	28.02
03	42907-02FB	545420	14.35	759730	18.02	501270	27.87
04	42907-02FD	633451	14.35	910864	18.05	577547	28.02
05	42907-03	597620	14.34	864215	18.04	517216	28.02
06	42907-04	549899	14.35	883232	18.05	561306	28.06
07	42907-04DL	612693	14.34	995743	18.04	686181	28.04
08	42907-05	627921	14.34	931632	18.02	587540	28.01
09	42907-06	690505	14.34	956618	18.04	610679	28.02
10	42907-LCS	635062	14.34	928335	18.04	603409	28.04
11	42907-01MS	530928	14.34	802295	18.04	522798	28.02
12	42907-01SD	542224	14.34	808073	18.02	545346	28.02
13	SBLK01	672742	14.35	982448	18.05	536760	28.06

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

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

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

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42907 SAS No.: SDG No.:

	EPA SAMPLE NO.	S1 (NAP)#	S2 (FLU)#	S3 (CHR)#	TOT OUT
01	42907-01	89	95	68	0
02	42907-01DU	86	91	47	0
03	42907-02FB	86	88	102	0
04	42907-02FD	82	86	108	0
05	42907-03	82	87	49	0
06	42907-04	84	110	42	0
07	42907-04DL	0 D	0 D	0 D	0
08	42907-05	83	84	47	0
09	42907-06	78	82	39	0
10	42907-LCS	97	96	112	0
11	42907-01MS	89	99	48	0
12	42907-01SD	86	91	49	0
13	SBLK01	91	96	126 *	1

	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

FORM II SV-1 3/90

TCCC03

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42907 SAS No.: SDG No.:

Lab File ID: BC062495T Run Date: 06/24/95

Instrument ID: 4500-C Run Time: 0939

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD040	040 PPB PAH	C0746	06/24/95	0939
02	SSTD020	020 PPB PAH	C0747	06/24/95	1053
03	SSTD1200	1200 PPB PAH	C0748	06/24/95	1146
04	SSTD600	600 PPB PAH	C0749	06/24/95	1240
05	SSTD240	240 PPB PAH	C0750	06/24/95	1334

FORM V SV 3/90

000004

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42907 SAS No.: SDG No.:

Lab File ID (Standard): C0809 Date Analyzed: 06/29/95

Instrument ID: 4500-C Time Analyzed: 1216

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	394801	14.34	553209	18.02	398584	27.82
	UPPER LIMIT	789602	14.84	1106418	18.52	797168	28.32
	LOWER LIMIT	197400	13.84	276604	17.52	199292	27.32
	EPA SAMPLE NO.						
01	42907-01	575822	14.34	891443	18.04	499662	28.02
02	42907-01DU	578320	14.32	860033	18.02	494714	28.02
03	42907-02FB	545420	14.35	759730	18.02	501270	27.87
04	42907-02FD	633451	14.35	910864	18.05	577547	28.02
05	42907-03	597620	14.34	864215	18.04	517216	28.02
06	42907-04	549899	14.35	883232	18.05	561306	28.06
07	42907-04DL	612693	14.34	995743	18.04	686181	28.04
08	42907-05	627921	14.34	931632	18.02	587540	28.01
09	42907-06	690505	14.34	956618	18.04	610679	28.02
10	42907-LCS	635062	14.34	928335	18.04	603409	28.04
11	42907-01MS	530928	14.34	802295	18.04	522798	28.02
12	42907-01SD	542224	14.34	808073	18.02	545346	28.02
13	SBLK01	672742	14.35	982448	18.05	536760	28.06

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

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

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

Quanterra Incorporated
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Quanterra
Environmental Services

CASE NARRATIVE

FOR

City of St. Louis Park

July 21, 1995

Quanterra Environmental Services

Project Number 042907

Introduction

Ten aqueous samples (includes QC) were received at Quanterra Environmental Services, Denver Laboratory on June 20, 1995. The samples were logged in under Quanterra's Denver laboratory project number 042907. Sample PCJ-SLP14FBD-061995 (042907-02FD) was extracted and held per the April 1990 QAPP. A cross reference associating Quanterra's Denver laboratory sample numbers to the actual field sample number is included. The samples were analyzed for low level part-per-trillion (ppt) polynuclear aromatic hydrocarbons (PAH).

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the 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 PCJ-W29 (042907-04) showed the concentrations of target compounds above the upper calibration range. The sample was re-analyzed at a dilution. Both the original and re-analysis data were reported for the sample. The reporting limits were adjusted accordingly. The surrogates were diluted out of sample PCJ-W29DIL (042907-04DL).

The percent recoveries for Benzo(E)Pyrene were outside control limits in PCJ-SLP14MS (042907-01MS) and PCJ-SLP14MSD (042907-01SD). Their relative percent difference (RPD) was within control limits.

A Laboratory Control Samples (LCS) was analyzed with this project. The LCS is prepared and spiked in the same manner that the matrix spike samples are. The purpose of the LCS is not to duplicate the sample matrix, but rather to provide an interference-free, homogeneous matrix from which to gather supporting data for the spiking compounds. Since the LCS results are in control, the results obtained for samples 042907-01MS and -01SD suggest a matrix effect.

The method blank analyzed with these samples showed concentrations of some compounds near the reporting limits. The samples are annotated accordingly. The method blank showed the percent recovery of the surrogate Chrysene-d12 outside control limits (high). This implies that the results reported for the method blank may be biased high.

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 042907 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.

A standard is now available for Benzo(J)Fluoranthene. Laboratory studies have shown that Benzo(J)Fluoranthene will coelute with either Benzo(B)Fluoranthene or Benzo(K)Fluoranthene depending on the relative concentration of these two compounds in solution. For this project Benzo(B)Fluoranthene and Benzo(J)Fluoranthene will be reported as Benzo(B)Fluoranthene.

Quanterra
Environmental Services

Case Narrative - Quanterra's Denver laboratory #042907
July 21, 1995
Page Three

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: 7/21/95
Daniel Rebarchik
Program Administrator

Approved by: _____ Date: 7/21/95
Kevin McHugh
Program Manager

Quanterra Environmental Services

QUALIFIER CODES AND THEIR USAGE

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

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

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

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

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

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

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

QUALIFIER CODES AND THEIR USAGE
Page Two

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

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

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

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

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

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 042907	Group Code	Analysis Description	Custom Test?
0001 - 0006	A	Polynuclear Aromatic Hydrocarbons, SIM Low Level	N
		Prep - PAH/SIM by GC/MS Low Level	N
0002	B	Prep - PAH/SIM by GC/MS Low Level	N

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
042907-0001-SA	PCJ-SLP14-061995	AQUEOUS	19 JUN 95		20 JUN 95
042907-0001-DU	PCJ-SLP14D-061995	AQUEOUS	19 JUN 95		20 JUN 95
042907-0001-MS	PCJ-SLP14MS-061995	AQUEOUS	19 JUN 95		20 JUN 95
042907-0001-SD	PCJ-SLP14MSD-061995	AQUEOUS	19 JUN 95		20 JUN 95
042907-0002-FB	PCJ-SLP14FB-061995	AQUEOUS	19 JUN 95		20 JUN 95
042907-0002-FD	PCJ-SLP14FBD-061995	AQUEOUS	19 JUN 95		20 JUN 95
042907-0003-SA	PCJ-W401-061995	AQUEOUS	19 JUN 95	10:15	20 JUN 95
042907-0004-SA	PCJ-W29-061995	AQUEOUS	19 JUN 95	11:00	20 JUN 95
042907-0005-SA	PCJ-MTK6-061995	AQUEOUS	19 JUN 95	12:30	20 JUN 95
042907-0006-SA	PCJ-W406-061995	AQUEOUS	19 JUN 95	14:15	20 JUN 95

CHAIN OF CUSTODY

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

Quanterra Environmental Services

SAMPLE SAFE™ CONDITIONS

QUANTERRA CLIENT: City of ST Louis PARK (WATER DEPT)	PACKED BY: MZH
PROJECT:	SEAL NUMBER:
SAMPLING COMPANY: SAME	SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:
SAMPLING SITE: SAME	CONDITION OF CONTENTS:
TEAM LEADER: MZH	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: 7.2 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
6-19-95		PCJ-SLP14-061995	1XLAMBER	6	PPT PAH	PPT 5 -1
6-19-95		PCJ-SLP14D-061995	1XLAMBER	6	PPT PAH	PPT 5 -1DN

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MZH	
METHOD OF SHIPMENT: FED E	AIRBILL NUMBER: 2103421246
RECEIVED FOR LAB: QES	SIGNED: [signature]
DATE/TIME: 6/20/95 8:48	
QUANTERRA PROJECT NUMBER: 42[illegible]7	

[redacted]

CHAIN OF CUSTODY

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

Quanterra Environmental Services

QUANTERRA CLIENT: CITY OF ST. LOUIS PARK (WATER DEPT)

PROJECT:

SAMPLING COMPANY: SAME

SAMPLING SITE: SAME

TEAM LEADER: MZW

SAMPLE SAFE™ CONDITIONS

PACKED BY: MZW

SEAL NUMBER:

SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:

CONDITION OF CONTENTS:

SEALED FOR SHIPPING BY: MZW

INITIAL CONTENTS TEMP: °C

SEAL NUMBER:

SAMPLING STATUS: ☐ Done ☐ Continuing Until

SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No

CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 5.9 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
6-19-95		PCJ-SLP14MS-061995	1XL AMBER	6	PPL PAH	PPL 5 -1MS
6-19-95		PCJ-SLP14MSD-061995	1XL AMBER	6	PPL PAH	PPL 5 -1SD

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MZW

METHOD OF SHIPMENT: FED EX

AIRBILL NUMBER: 2103421246

RECEIVED FOR LAB: QET

SIGNED:

DATE/TIME: 6/20/95 8:15

QUANTERRA PROJECT NUMBER: F2907

[redacted]

CHAIN OF CUSTODY

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

Quanterra Environmental Services

QUANTERRA CLIENT: CITY OF ST LOUIS PARK (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: 6.8 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
6-19-95		PCJ-SLP14FD-061995	IXLANDER	6	PPL PAH	PPL 5 -2FB
6-19-95		PCJ-SLP14FRD-061995	IXLANDER	6	PPL PAH	PPL 5 -2FD

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: 2103421246

RECEIVED FOR LAB: QES

SIGNED:

DATE/TIME: 6/20/95 8:15

QUANTERRA PROJECT NUMBER: 42907

[redacted]

CHAIN OF CUSTODY

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

Quanterra Environmental Services

SAMPLE SAFE™ CONDITIONS

QUANTERRA CLIENT: City of Saint Louis Park	PACKED BY: Jeff Osberg
	SEAL NUMBER: N/A
PROJECT: SLP	SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY: N/A
	CONDITION OF CONTENTS:
SAMPLING COMPANY: ENSR	SEALED FOR SHIPPING BY: JEFF OSBERG
	INITIAL CONTENTS TEMP: 4° °C
SAMPLING SITE: SLP	SEAL NUMBER:
	SAMPLING STATUS: ☐ Done ☒ Continuing Until
TEAM LEADER: PETER MOORE	SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No
	CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 5.3°C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
6/19	10:15	PCJ-W401-061995	H_2O	6	PPT-PAH	PPT5 -3
	11:00	PCJ-W29-061995		6	PPT-PAH	PPT5 -4
	12:30	PCJ-MTK6-061995		6	PPT-PAH	PPT5 -5
	14:15	PCJ-W406-061995		6	PPT-PAH	PPT5 -6

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME
[signature]		6/19/95	15:00

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: [signature] (Jeff Osberg) ENSR

METHOD OF SHIPMENT: FED EX

AIRBILL NUMBER: 21034212 46

RECEIVED FOR LAB: QBJ

SIGNED: [signature]

DATE/TIME: 6/20/95

QUANTERRA PROJECT NUMBER: 42907

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42907-01

PCJ-SLP14-061995

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42907 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42907-01

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C0818

Level: (low/med) LOW Date Received: 06/20/95

% Moisture: decanted: (Y/N) N Date Extracted: 06/21/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/29/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	34	
95-13-6	1H-Indene	1	
91-20-3	Naphthalene	7	B
4565-32-6	Benzo(B)Thiophene	2	
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	1	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	11	R
83-32-9	Acenaphthene	23	
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	2	R
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	
206-44-0	Fluoranthene	1	U
129-00-0	Pyrene	3	R
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42907-01DU

PCJ-SLP140-061995

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42907 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42907-01DU

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C0819

Level: (low/med) LOW Date Received: 06/20/95

% Moisture: decanted: (Y/N) N Date Extracted: 06/21/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/29/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	33	
95-13-6	1H-Indene	1	
91-20-3	Naphthalene	7	B
4565-32-6	Benzo(B)Thiophene	2	
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	1	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	11	R
83-32-9	Acenaphthene	22	
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	2	
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	3	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	2	
129-00-0	Pyrene	3	R
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42907-02FB

PCJ-SLP14FB-61995

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42907 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42907-02FB

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C0810

Level: (low/med) LOW Date Received: 06/20/95

% Moisture: decanted: (Y/N) N Date Extracted: 06/21/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/29/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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	2	
95-13-6	1H-Indene	1	
91-20-3	Naphthalene	11	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	2	
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	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	
129-00-0	Pyrene	2	
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42907-02FD

Name: QUANTERRA Contract:

PCJ-SLP14FBD-061995

Lab Code: DENVER Case No.: 42907 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42907-02FD

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C0811

Level: (low/med) LOW Date Received: 06/20/95

% Moisture: decanted: (Y/N) N Date Extracted: 06/21/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/29/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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	1	U
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	10	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	2	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	3	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	U
129-00-0	Pyrene	2	
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42907-06

PCJ-W406-061995

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42907 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42907-06

Sample wt/vol: 4140 (g/mL) ML Lab File ID: C0817

Level: (low/med) LOW Date Received: 06/20/95

% Moisture: decanted: (Y/N) N Date Extracted: 06/21/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/29/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
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	2	BR
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	J
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	3	BR
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	17	R
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42907-LCS

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42907 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42907-LCS

Sample wt/vol: 4000 (g/mL) ML Lab File ID: C0813

Level: (low/med) LOW Date Received: 06/20/95

% Moisture: decanted: (Y/N) N Date Extracted: 06/21/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/29/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
95-13-6	1H-Indene	10	
91-20-3	Naphthalene	28	B
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	12	
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	11	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	11	
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	2	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	U
129-00-0	Pyrene	2	R
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	11	
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	12	
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: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42907 SAS No.: SDG No.:

	EPA SAMPLE NO.	S1 (NAP)#	S2 (FLU)#	S3 (CHR)#	TOT OUT
01	42907-01	89	95	68	0
02	42907-01DU	86	91	47	0
03	42907-02FB	86	88	102	0
04	42907-02FD	82	86	108	0
05	42907-03	82	87	49	0
06	42907-04	84	110	42	0
07	42907-04DL	0 D	0 D	0 D	0
08	42907-05	83	84	47	0
09	42907-06	78	82	39	0
10	42907-LCS	97	96	112	0
11	42907-01MS	89	99	48	0
12	42907-01SD	86	91	49	0
13	SBLK01	91	96	126 *	1

		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: QUANTERRA Contract:

Code: DENVER Case No.: 42907 SAS No.: SDG No.:

Matrix Spike - EPA Sample No.: 42907-01

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC #	QC LIMITS REC.
1H-Indene	9.520	1.392	9.425	84	20-150
Naphthalene	9.520	7.461	17.02	100	20-150
Quinoline	9.520	0	11.64	122	20-150
2-Methylnaphthalene	9.520	1.297	10.46	96	20-150
Fluorene	9.520	1.583	11.15	100	69-118
Chrysene	9.520	0	4.141	44	20-132
Benzo(E)Pyrene	9.520	0	1.035	11*	20-150

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1H-Indene	9.520	9.127	81	4	28	20-150
Naphthalene	9.520	15.59	85	16	28	20-150
Quinoline	9.520	10.96	115	6	28	20-150
2-Methylnaphthalene	9.520	9.330	84	13	28	20-150
Fluorene	9.520	10.25	91	9	28	69-118
Chrysene	9.520	4.344	46	4	28	20-132
Benzo(E)Pyrene	9.520	1.117	12*	9	28	20-150

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

COMMENTS:

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42907-01MS

PCJ-SLPI4MS-061995

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42907 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42907-01MS

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C0820

Level: (low/med) LOW Date Received: 06/20/95

% Moisture: decanted: (Y/N) N Date Extracted: 06/21/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/29/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	34	
95-13-6	1H-Indene	9	
91-20-3	Naphthalene	17	B
4565-32-6	Benzo(B)Thiophene	2	
91-22-5	Quinoline	12	
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	10	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	12	R
83-32-9	Acenaphthene	23	
132-64-9	Dibenzofuran	1	
86-73-7	Fluorene	11	
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	
129-00-0	Pyrene	4	R
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.

42907-01SD

PCJ-SLPI4MSD-061995

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42907 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42907-01SD

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C0821

Level: (low/med) LOW Date Received: 06/20/95

% Moisture: decanted: (Y/N) N Date Extracted: 06/21/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/29/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	33	
95-13-6	1H-Indene	9	
91-20-3	Naphthalene	16	B
4565-32-6	Benzo(B)Thiophene	2	R
91-22-5	Quinoline	11	
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	9	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	11	R
83-32-9	Acenaphthene	22	
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	10	
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	3	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	U
129-00-0	Pyrene	3	
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

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

SBLK01

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42907 SAS No.: SDG No.:

Lab File ID: C0812 Lab Sample ID: BL062195

Instrument ID: 4500-C Date Extracted: 06/21/95

Matrix: (soil/water) WATER Date Analyzed: 06/29/95

Level:(low/med) LOW Time Analyzed: 1446

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	42907-01	42907-01	C0818	06/29/95
02	42907-01DU	42907-01DU	C0819	06/29/95
03	42907-02FB	42907-02FB	C0810	06/29/95
04	42907-02FD	42907-02FD	C0811	06/29/95
05	42907-03	42907-03	C0814	06/29/95
06	42907-04	42907-04	C0815	06/29/95
07	42907-04DL	42907-04DL	C0825	06/30/95
08	42907-05	42907-05	C0816	06/29/95
09	42907-06	42907-06	C0817	06/29/95
10	42907-LCS	42907-LCS	C0813	06/29/95
11	42907-01MS	42907-01MS	C0820	06/29/95
12	42907-01SD	42907-01SD	C0821	06/29/95

COMMENTS:

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

SBLK01

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42907 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: BL062195

Sample wt/vol: 4000 (g/mL) ML Lab File ID: C0812

Level: (low/med) LOW Date Received:

% Moisture: decanted: (Y/N) N Date Extracted: 06/21/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/29/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	11	
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	1	
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	2	
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	U
129-00-0	Pyrene	1	U
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42907 SAS No.: SDG No.:

Lab File ID (Standard): C0809 Date Analyzed: 06/29/95

Instrument ID: 4500-C Time Analyzed: 1216

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	394801	14.34	553209	18.02	398584	27.82
	UPPER LIMIT	789602	14.84	1106418	18.52	797168	28.32
	LOWER LIMIT	197400	13.84	276604	17.52	199292	27.32
	EPA SAMPLE NO.						
01	42907-01	575822	14.34	891443	18.04	499662	28.02
02	42907-01DU	578320	14.32	860033	18.02	494714	28.02
03	42907-02FB	545420	14.35	759730	18.02	501270	27.87
04	42907-02FD	633451	14.35	910864	18.05	577547	28.02
05	42907-03	597620	14.34	864215	18.04	517216	28.02
06	42907-04	549899	14.35	883232	18.05	561306	28.06
07	42907-04DL	612693	14.34	995743	18.04	686181	28.04
08	42907-05	627921	14.34	931632	18.02	587540	28.01
09	42907-06	690505	14.34	956618	18.04	610679	28.02
10	42907-LCS	635062	14.34	928335	18.04	603409	28.04
11	42907-01MS	530928	14.34	802295	18.04	522798	28.02
12	42907-01SD	542224	14.34	808073	18.02	545346	28.02
13	SBLK01	672742	14.35	982448	18.05	536760	28.06

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

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

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

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42907 SAS No.: SDG No.:

	EPA SAMPLE NO.	S1 (NAP)#	S2 (FLU)#	S3 (CHR)#	TOT OUT
01	42907-01	89	95	68	0
02	42907-01DU	86	91	47	0
03	42907-02FB	86	88	102	0
04	42907-02FD	82	86	108	0
05	42907-03	82	87	49	0
06	42907-04	84	110	42	0
07	42907-04DL	0 D	0 D	0 D	0
08	42907-05	83	84	47	0
09	42907-06	78	82	39	0
10	42907-LCS	97	96	112	0
11	42907-01MS	89	99	48	0
12	42907-01SD	86	91	49	0
13	SBLK01	91	96	126 *	1

	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

FORM II SV-1 3/90

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42907 SAS No.: SDG No.:

Lab File ID: BC062495T Run Date: 06/24/95

Instrument ID: 4500-C Run Time: 0939

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD040	040_PPB_PAH	C0746	06/24/95	0939
02	SSTD020	020_PPB_PAH	C0747	06/24/95	1053
03	SSTD1200	1200_PPB_PAH	C0748	06/24/95	1146
04	SSTD600	600_PPB_PAH	C0749	06/24/95	1240
05	SSTD240	240_PPB_PAH	C0750	06/24/95	1334

FORM V SV 3/90

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42907 SAS No.: SDG No.:

Lab File ID (Standard): C0809 Date Analyzed: 06/29/95

Instrument ID: 4500-C Time Analyzed: 1216

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	394801	14.34	553209	18.02	398584	27.82
	UPPER LIMIT	789602	14.84	1106418	18.52	797168	28.32
	LOWER LIMIT	197400	13.84	276604	17.52	199292	27.32
	EPA SAMPLE NO.						
01	42907-01	575822	14.34	891443	18.04	499662	28.02
02	42907-01DU	578320	14.32	860033	18.02	494714	28.02
03	42907-02FB	545420	14.35	759730	18.02	501270	27.87
04	42907-02FD	633451	14.35	910864	18.05	577547	28.02
05	42907-03	597620	14.34	864215	18.04	517216	28.02
06	42907-04	549899	14.35	883232	18.05	561306	28.06
07	42907-04DL	612693	14.34	995743	18.04	686181	28.04
08	42907-05	627921	14.34	931632	18.02	587540	28.01
09	42907-06	690505	14.34	956618	18.04	610679	28.02
10	42907-LCS	635062	14.34	928335	18.04	603409	28.04
11	42907-01MS	530928	14.34	802295	18.04	522798	28.02
12	42907-01SD	542224	14.34	808073	18.02	545346	28.02
13	SBLK01	672742	14.35	982448	18.05	536760	28.06

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

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

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

RAP SECTION 7.3(E) MONITORING

WELLS

H6 E3 E15
MTK6 W26 W40
W70 W401

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42733-05

PCJ=W40=061295

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 12733 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42733-05

Sample wt/vol: 4180 (g/mL) ML Lab File ID: C0773

Level: (low/med) LOW Date Received: 06/13/95

% Moisture: decanted: (Y/N) N Date Extracted: 06/15/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/25/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	42	
95-13-6	1H-Indene	9	
91-20-3	Naphthalene	6	U
4565-32-6	Benzo(B)Thiophene	10	R
91-22-5	Quinoline	2	R
120-72-9	1H-Indole	4	R
91-57-6	2-Methylnaphthalene	2	BR
90-12-0	1-Methylnaphthalene	4	R
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	7	R
83-32-9	Acenaphthene	130	RS
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	2	R
132-65-0	Dibenzothiophene	5	R
85-01-8	Phenanthrene	5	BR
120-12-7	Anthracene	6	R
260-94-6	Acridine	10	
86-74-8	Carbazole	7	R
206-44-0	Fluoranthene	2	B
129-00-0	Pyrene	40	
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.

42733-05DL

PCJ-W40-061295

ab Name: QUANTERRA Contract:

ab Code: DENVER Case No.: 42733 SAS No.: SDG No.:

atrix: (soil/water) WATER Lab Sample ID: 42733-05DL

ample wt/vol: 4180 (g/mL) ML Lab File ID: C0834

evel: (low/med) LOW Date Received: 06/13/95

Moisture: decanted: (Y/N) N Date Extracted: 06/15/95

oncentrated Extract Volume: 500(uL) Date Analyzed: 06/30/95

njection Volume: 2.0(uL) Dilution Factor: 10.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Benzofuran	49	U
496-11-7	2,3-Dihydroindene	48	D
95-13-6	1H-Indene	12	D
91-20-3	Naphthalene	62	U
4565-32-6	Benzo(B)Thiophene	9	U
91-22-5	Quinoline	13	U
120-72-9	1H-Indole	24	U
91-57-6	2-Methylnaphthalene	9	U
90-12-0	1-Methylnaphthalene	16	U
92-52-4	Biphenyl	41	U
208-96-8	Acenaphthylene	13	U
83-32-9	Acenaphthene	260	D
132-64-9	Dibenzofuran	10	U
86-73-7	Fluorene	10	U
132-65-0	Dibenzothiophene	11	U
85-01-8	Phenanthrene	12	U
120-12-7	Anthracene	11	U
260-94-6	Acridine	28	U
86-74-8	Carbazole	18	U
206-44-0	Fluoranthene	13	U
129-00-0	Pyrene	49	D
56-55-3	Benzo(A)Anthracene	24	U
218-01-9	Chrysene	26	U
205-99-2	Benzo(B)Fluoranthene	24	U
207-08-9	Benzo(K)Fluoranthene	22	U
192-97-2	Benzo(E)Pyrene	18	U
50-32-8	Benzo(A)Pyrene	22	U
198-55-0	Perylene	24	U
193-39-5	Indeno(1,2,3-CD)Pyrene	20	U
53-70-3	Dibenz(A,H)Anthracene	16	U
191-24-2	Benzo(G,H,I)Perylene	26	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42771-06

PCJ-E3-061395

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42771 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42771-06

Sample wt/vol: 4170 (g/mL) ML Lab File ID: C0822

Level: (low/med) LOW Date Received: 06/14/95

% Moisture: decanted: (Y/N) N Date Extracted: 06/19/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/29/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	6	U
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	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	3	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	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.

42771-08

PCJ-E15-061395

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42771 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42771-08

Sample wt/vol: 4180 (g/mL) ML Lab File ID: C0823

Level: (low/med) LOW Date Received: 06/14/95

% Moisture: decanted (Y/N) N Date Extracted: 06/19/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/29/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	6	U
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	2	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	3	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	BJ
129-00-0	Pyrene	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.

42771-04

Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42771 SAS No.: SDG No.: PCJ-H6-061395

Matrix: (soil/water) WATER Lab Sample ID: 42771-04

Sample wt/vol: 4160 (g/mL) ML Lab File ID: C0788

Level: (low/med) LOW Date Received: 06/14/95

% Moisture: decanted: (Y/N) N Date Extracted: 06/19/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/27/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	6	U
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indo'e	2	U
91-57-6	2-Methylnaphthalene	1	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	2	BR
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

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ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42771-05

PCJ-W70-061395

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42771 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42771-05

Sample wt/vol: 4140 (g/mL) ML Lab File ID: C0789

Level: (low/med) LOW Date Received: 06/14/95

% Moisture: decanted: (Y/N) N Date Extracted: 06/19/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/27/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	6	U
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	2	R
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	2	BR
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	18	
83-32-9	Acenaphthene	170	S
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	4	
132-65-0	Dibenzothiophene	5	R
85-01-8	Phenanthrene	4	B
120-12-7	Anthracene	4	
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	6	B
129-00-0	Pyrene	55	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.

42771-05DL

Name: QUANTERRA Contract:

PCJ-W70-061395

Lab Code: DENVER Case No.: 42771 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42771-05DL

Sample wt/vol: 4140 (g/mL) ML Lab File ID: C0824

Level: (low/med) LOW Date Received: 06/14/95

% Moisture: decanted: (Y/N) N Date Extracted: 06/19/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/29/95

Injection Volume: 2.0(uL) Dilution Factor: 10.0

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-Benzofuran	50	U
496-11-7	2,3-Dihydroindene	13	U
95-13-6	1H-Indene	9	U
91-20-3	Naphthalene	63	U
4565-32-6	Benzo(B)Thiophene	9	U
91-22-5	Quinoline	13	U
120-72-9	1H-Indole	24	U
91-57-6	2-Methylnaphthalene	9	U
90-12-0	1-Methylnaphthalene	16	U
92-52-4	Biphenyl	41	U
208-96-8	Acenaphthylene	19	D
83-32-9	Acenaphthene	300	D
132-64-9	Dibenzofuran	10	U
86-73-7	Fluorene	10	U
132-65-0	Dibenzothiophene	11	U
85-01-8	Phenanthrene	12	U
120-12-7	Anthracene	11	U
260-94-6	Acridine	28	U
86-74-8	Carbazole	18	U
206-44-0	Fluoranthene	13	U
129-00-0	Pyrene	65	BD
56-55-3	Benzo(A)Anthracene	24	U
218-01-9	Chrysene	27	U
205-99-2	Benzo(B)Fluoranthene	24	U
207-08-9	Benzo(K)Fluoranthene	22	U
192-97-2	Benzo(E)Pyrene	18	U
50-32-8	Benzo(A)Pyrene	22	U
198-55-0	Perylene	24	U
193-39-5	Indeno(1,2,3-CD)Pyrene	21	U
53-70-3	Dibenz(A,H)Anthracene	16	U
191-24-2	Benzo(G,H,I)Perylene	27	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42907-03

Lab Name: QUANTERRA Contract: PCJ-W401-061995

Lab Code: DENVER Case No.: 42907 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42907-03

Sample wt/vol: 4160 (g/mL) ML Lab File ID: C0814

Level: (low/med) LOW Date Received: 06/20/95

% Moisture: decanted: (Y/N) N Date Extracted: 06/21/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/29/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
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	2	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	3	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	2	
129-00-0	Pyrene	2	R
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42907-05

PCJ-MTK6-061995

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42907 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42907-05

Sample wt/vol: 4150 (g/mL) ML Lab File ID: C0816

Level: (low/med) LOW Date Received: 06/20/95

% Moisture: decanted: (Y/N) N Date Extracted: 06/21/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/29/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
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	1	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	3	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	2	
129-00-0	Pyrene	2	R
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42907-04

PCJ-W29-061995

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42907 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42907-04

Sample wt/vol: 4180 (g/mL) ML Lab File ID: C0815

Level: (low/med) LOW Date Received: 06/20/95

% Moisture: decanted: (Y/N) N Date Extracted: 06/21/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/29/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	320	RS
95-13-6	1H-Indene	12	
91-20-3	Naphthalene	11	BR
4565-32-6	Benzo(B)Thiophene	6	R
91-22-5	Quinoline	11	R
120-72-9	1H-Indole	3	R
91-57-6	2-Methylnaphthalene	2	BR
90-12-0	1-Methylnaphthalene	5	R
92-52-4	Biphenyl	5	R
208-96-8	Acenaphthylene	93	RS
83-32-9	Acenaphthene	240	S
132-64-9	Dibenzofuran	2	
86-73-7	Fluorene	130	RS
132-65-0	Dibenzothiophene	69	
85-01-8	Phenanthrene	8	BR
120-12-7	Anthracene	13	
260-94-6	Acridine	11	R
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	110	RS
129-00-0	Pyrene	92	RS
56-55-3	Benzo(A)Anthracene	13	
218-01-9	Chrysene	8	
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.

42907-04DL

PCJ=W29-061995

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42907 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42907-04DL

Sample wt/vol: 4180 (g/mL) ML Lab File ID: C0825

Level: (low/med) LOW Date Received: 06/20/95

% Moisture: decanted: (Y/N) N Date Extracted: 06/21/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/30/95

Injection Volume: 2.0(uL) Dilution Factor: 10.0

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-Benzofuran	49	U
496-11-7	2,3-Dihydroindene	1300	D
95-13-6	1H-Indene	13	D
91-20-3	Naphthalene	62	U
4565-32-6	Benzo(B)Thiophene	9	U
91-22-5	Quinoline	13	U
120-72-9	1H-Indole	24	U
91-57-6	2-Methylnaphthalene	9	U
90-12-0	1-Methylnaphthalene	16	U
92-52-4	Biphenyl	41	U
208-96-8	Acenaphthylene	150	D
83-32-9	Acenaphthene	1100	D
132-64-9	Dibenzofuran	10	U
86-73-7	Fluorene	650	D
132-65-0	Dibenzothiophene	84	D
85-01-8	Phenanthrene	12	U
120-12-7	Anthracene	14	D
260-94-6	Acridine	28	U
86-74-8	Carbazole	18	U
206-44-0	Fluoranthene	270	D
129-00-0	Pyrene	200	D
56-55-3	Benzo(A)Anthracene	24	U
218-01-9	Chrysene	26	U
205-99-2	Benzo(B)Fluoranthene	24	U
207-08-9	Benzo(K)Fluoranthene	22	U
192-97-2	Benzo(E)Pyrene	18	U
50-32-8	Benzo(A)Pyrene	22	U
198-55-0	Perylene	24	U
193-39-5	Indeno(1,2,3-CD)Pyrene	20	U
53-70-3	Dibenz(A,H)Anthracene	16	U
191-24-2	Benzo(G,H,I)Perylene	26	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42733-05

PCJ=W40=061295

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42733 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42733-05

Sample wt/vol: 4180 (g/mL) ML Lab File ID: C0773

Level: (low/med) LOW Date Received: 06/13/95

% Moisture: decanted: (Y/N) N Date Extracted: 06/15/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/25/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	42	
95-13-6	1H-Indene	9	
91-20-3	Naphthalene	6	U
4565-32-6	Benzo(B)Thiophene	10	R
91-22-5	Quinoline	2	R
120-72-9	1H-Indole	4	R
91-57-6	2-Methylnaphthalene	2	BR
90-12-0	1-Methylnaphthalene	4	R
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	7	R
83-32-9	Acenaphthene	130	RS
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	2	R
132-65-0	Dibenzothiophene	5	R
85-01-8	Phenanthrene	5	BR
120-12-7	Anthracene	6	R
260-94-6	Acridine	10	
86-74-8	Carbazole	7	R
206-44-0	Fluoranthene	2	B
129-00-0	Pyrene	40	
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.

42733-05DL

PCJ-W40-061295

ab Name: QUANTERRA Contract:

ab Code: DENVER Case No.: 42733 SAS No.: SDG No.:

atrix: (soil/water) WATER Lab Sample ID: 42733-05DL

ample wt/vol: 4180 (g/mL) ML Lab File ID: C0834

evel: (low/med) LOW Date Received: 06/13/95

Moisture: decanted: (Y/N) N Date Extracted: 06/15/95

oncentrated Extract Volume: 500(uL) Date Analyzed: 06/30/95

njection Volume: 2.0(uL) Dilution Factor: 10.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6	2,3-Benzofuran	49	U
496-11-7	2,3-Dihydroindene	48	D
95-13-6	1H-Indene	12	D
91-20-3	Naphthalene	62	U
4565-32-6	Benzo(B)Thiophene	9	U
91-22-5	Quinoline	13	U
120-72-9	1H-Indole	24	U
91-57-6	2-Methylnaphthalene	9	U
90-12-0	1-Methylnaphthalene	16	U
92-52-4	Biphenyl	41	U
208-96-8	Acenaphthylene	13	U
83-32-9	Acenaphthene	260	D
132-64-9	Dibenzofuran	10	U
86-73-7	Fluorene	10	U
132-65-0	Dibenzothiophene	11	U
85-01-8	Phenanthrene	12	U
120-12-7	Anthracene	11	U
260-94-6	Acridine	28	U
86-74-8	Carbazole	18	U
206-44-0	Fluoranthene	13	U
129-00-0	Pyrene	49	D
56-55-3	Benzo(A)Anthracene	24	U
218-01-9	Chrysene	26	U
205-99-2	Benzo(B)Fluoranthene	24	U
207-08-9	Benzo(K)Fluoranthene	22	U
192-97-2	Benzo(E)Pyrene	18	U
50-32-8	Benzo(A)Pyrene	22	U
198-55-0	Perylene	24	U
193-39-5	Indeno(1,2,3-CD)Pyrene	20	U
53-70-3	Dibenz(A,H)Anthracene	16	U
191-24-2	Benzo(G,H,I)Perylene	26	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42771-06

PCJ-E3-061395

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42771 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42771-06

Sample wt/vol: 4170 (g/mL) ML Lab File ID: C0822

Level: (low/med) LOW Date Received: 06/14/95

% Moisture: decanted: (Y/N) N Date Extracted: 06/19/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/29/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	6	U
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	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	3	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	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.

42771-08

Lab Name: QUANTERRA Contract: PCJ-E15-061395

Lab Code: DENVER Case No.: 42771 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42771-08

Sample wt/vol: 4180 (g/mL) ML Lab File ID: C0823

Level: (low/med) LOW Date Received: 06/14/95

% Moisture: decanted (Y/N) N Date Extracted: 06/19/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/29/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	6	U
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	2	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	3	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	BJ
129-00-0	Pyrene	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.

42771-04

PCJ-HG-061395

Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42771 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42771-04

Sample wt/vol: 4160 (g/mL) ML Lab File ID: C0788

Level: (low/med) LOW Date Received: 06/14/95

% Moisture: decanted: (Y/N) N Date Extracted: 06/19/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/27/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	6	U
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	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	2	BR
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	U
129-00-0	Pyrene	1	U
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42771-05

PCJ-W70-061395

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42771 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42771-05

Sample wt/vol: 4140 (g/mL) ML Lab File ID: C0789

Level: (low/med) LOW Date Received: 06/14/95

% Moisture: decanted: (Y/N) N Date Extracted: 06/19/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/27/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	6	U
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	2	R
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	2	BR
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	18	
83-32-9	Acenaphthene	170	S
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	4	
132-65-0	Dibenzothiophene	5	R
85-01-8	Phenanthrene	4	B
120-12-7	Anthracene	4	
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	6	B
129-00-0	Pyrene	55	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.

42771-05DL

Name: QUANTERRA Contract: PCJ-W70-061395

Lab Code: DENVER Case No.: 42771 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42771-05DL

Sample wt/vol: 4140 (g/mL) ML Lab File ID: C0824

Level: (low/med) LOW Date Received: 06/14/95

% Moisture: decanted: (Y/N) N Date Extracted: 06/19/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/29/95

Injection Volume: 2.0(uL) Dilution Factor: 10.0

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-Benzofuran	50	U
496-11-7	2,3-Dihydroindene	13	U
95-13-6	1H-Indene	9	U
91-20-3	Naphthalene	63	U
4565-32-6	Benzo(B)Thiophene	9	U
91-22-5	Quinoline	13	U
120-72-9	1H-Indole	24	U
91-57-6	2-Methylnaphthalene	9	U
90-12-0	1-Methylnaphthalene	16	U
92-52-4	Biphenyl	41	U
208-96-8	Acenaphthylene	19	D
83-32-9	Acenaphthene	300	D
132-64-9	Dibenzofuran	10	U
86-73-7	Fluorene	10	U
132-65-0	Dibenzothiophene	11	U
85-01-8	Phenanthrene	12	U
120-12-7	Anthracene	11	U
260-94-6	Acridine	28	U
86-74-8	Carbazole	18	U
206-44-0	Fluoranthene	13	U
129-00-0	Pyrene	65	BD
56-55-3	Benzo(A)Anthracene	24	U
218-01-9	Chrysene	27	U
205-99-2	Benzo(B)Fluoranthene	24	U
207-08-9	Benzo(K)Fluoranthene	22	U
192-97-2	Benzo(E)Pyrene	18	U
50-32-8	Benzo(A)Pyrene	22	U
198-55-0	Perylene	24	U
193-39-5	Indeno(1,2,3-CD)Pyrene	21	U
53-70-3	Dibenz(A,H)Anthracene	16	U
191-24-2	Benzo(G,H,I)Perylene	27	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42907-03

PCJ-W401-061995

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42907 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42907-03

Sample wt/vol: 4160 (g/mL) ML Lab File ID: C0814

Level: (low/med) LOW Date Received: 06/20/95

% Moisture: decanted: (Y/N) N Date Extracted: 06/21/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/29/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
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	2	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	3	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	2	
129-00-0	Pyrene	2	R
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42907-05

PCJ-MTK6-061995

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42907 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42907-05

Sample wt/vol: 4150 (g/mL) ML Lab File ID: C0816

Level: (low/med) LOW Date Received: 06/20/95

% Moisture: decanted: (Y/N) N Date Extracted: 06/21/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/29/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
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	1	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	3	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	2	
129-00-0	Pyrene	2	R
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42907-04

PCJ=WZ9-061995

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42907 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42907-04

Sample wt/vol: 4180 (g/mL) ML Lab File ID: C0815

Level: (low/med) LOW Date Received: 06/20/95

% Moisture: decanted: (Y/N) N Date Extracted: 06/21/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/29/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	320	RS
95-13-6	1H-Indene	12	
91-20-3	Naphthalene	11	BR
4565-32-6	Benzo(B)Thiophene	6	R
91-22-5	Quinoline	11	R
120-72-9	1H-Indole	3	R
91-57-6	2-Methylnaphthalene	2	BR
90-12-0	1-Methylnaphthalene	5	R
92-52-4	Biphenyl	5	R
208-96-8	Acenaphthylene	93	RS
83-32-9	Acenaphthene	240	S
132-64-9	Dibenzofuran	2	
86-73-7	Fluorene	130	RS
132-65-0	Dibenzothiophene	69	
85-01-8	Phenanthrene	8	BR
120-12-7	Anthracene	13	
260-94-6	Acridine	11	R
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	110	RS
129-00-0	Pyrene	92	RS
56-55-3	Benzo(A)Anthracene	13	
218-01-9	Chrysene	8	
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.

42907-04DL

PCJ-W29-061995

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42907 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42907-04DL

Sample wt/vol: 4180 (g/mL) ML Lab File ID: C0825

Level: (low/med) LOW Date Received: 06/20/95

% Moisture: decanted: (Y/N) N Date Extracted: 06/21/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/30/95

Injection Volume: 2.0(uL) Dilution Factor: 10.0

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-Benzofuran	49	U
496-11-7	2,3-Dihydroindene	1300	D
95-13-6	1H-Indene	13	D
91-20-3	Naphthalene	62	U
4565-32-6	Benzo(B)Thiophene	9	U
91-22-5	Quinoline	13	U
120-72-9	1H-Indole	24	U
91-57-6	2-Methylnaphthalene	9	U
90-12-0	1-Methylnaphthalene	16	U
92-52-4	Biphenyl	41	U
208-96-8	Acenaphthylene	150	D
83-32-9	Acenaphthene	1100	D
132-64-9	Dibenzofuran	10	U
86-73-7	Fluorene	650	D
132-65-0	Dibenzothiophene	84	D
85-01-8	Phenanthrene	12	U
120-12-7	Anthracene	14	D
260-94-6	Acridine	28	U
86-74-8	Carbazole	18	U
206-44-0	Fluoranthene	270	D
129-00-0	Pyrene	200	D
56-55-3	Benzo(A)Anthracene	24	U
218-01-9	Chrysene	26	U
205-99-2	Benzo(B)Fluoranthene	24	U
207-08-9	Benzo(K)Fluoranthene	22	U
192-97-2	Benzo(E)Pyrene	18	U
50-32-8	Benzo(A)Pyrene	22	U
198-55-0	Perylene	24	U
193-39-5	Indeno(1,2,3-CD)Pyrene	20	U
53-70-3	Dibenz(A,H)Anthracene	16	U
191-24-2	Benzo(G,H,I)Perylene	26	U

APPENDIX C
LABORATORY DATA SUMMARY PACKAGE:
ST. PETER AQUIFER

WELLS

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

CITY OF ST. LOUIS PARK

St. Peter Aquifer 1995
PAH Quality Control Summary

Well No.	Sample Date	Method Blank	Field Duplicate	Matrix Spike	Matrix Spike Dup.	Field Blank
RAP Section 8.1.3 1st Half						
SLP3	5/8/95	42032	STP-SLP3D-050895	STP-SLP3MS-050895	STP-SLP3MSD-050895	STP-SLP3FB-050895
W129	5/8/95	42032	STP-SLP3D-050895	STP-SLP3MS-050895	STP-SLP3MSD-050895	STP-SLP3FB-050895
W122	5/8/95	42032	STP-SLP3D-050895	STP-SLP3MS-050895	STP-SLP3MSD-050895	STP-SLP3FB-050895
W410	5/9/95	42066	STP-W410D-050995	STP-W410MS-050995	STP-SLP410MSD-050995	STP-SLP410FB-050995
W24	5/9/95	42066	STP-W410D-050995	STP-W410MS-050995	STP-SLP410MSD-050995	STP-SLP410FB-050995
W33	5/8/95	42066	STP-W410D-050995	STP-W410MS-050995	STP-SLP410MSD-050995	STP-SLP410FB-050995
W133	5/9/95	42066	STP-W410D-050995	STP-W410MS-050995	STP-SLP410MSD-050995	STP-SLP410FB-050995
W412	5/9/95	42066	STP-W410D-050995	STP-W410MS-050995	STP-SLP410MSD-050995	STP-SLP410FB-050995
W408	5/8/95	42032	STP-SLP3D-050895	STP-SLP3MS-050895	STP-SLP3MSD-050895	STP-SLP3FB-050895
W411	5/8/95	42032	STP-SLP3D-050895	STP-SLP3MS-050895	STP-SLP3MSD-050895	STP-SLP3FB-050895
P116	5/8/95	42032	STP-SLP3D-050895	STP-SLP3MS-050895	STP-SLP3MSD-050895	STP-SLP3FB-050895
W409	5/9/95	42069	DPV-W420D-050995	DPV-W420MS-050995	DPV-W420MSD-050995	DPV-W420FB-050995

CITY OF ST. LOUIS PARK

St. Peter Aquifer 1995
PAH Quality Control Summary

Well No.	Sample Date	Method Blank	Field Duplicate	Matrix Spike	Matrix Spike Dup.	Field Blank
RAP Section 8.1.3 2nd Half						
SLP3	10/9/95	45083	STP-SLP3D-100995	STP-SLP3MS-100995	STP-SLP3MSD-100995	STP-SLP3FB-100995
W122	10/9/95	45083	STP-SLP3D-100995	STP-SLP3MS-100995	STP-SLP3MSD-100995	STP-SLP3FB-100995
W129	10/9/95	45083	STP-SLP3D-100995	STP-SLP3MS-100995	STP-SLP3MSD-100995	STP-SLP3FB-100995
W408	10/9/95	45083	STP-SLP3D-100995	STP-SLP3MS-100995	STP-SLP3MSD-100995	STP-SLP3FB-100995
W411	10/9/95	45083	STP-SLP3D-100995	STP-SLP3MS-100995	STP-SLP3MSD-100995	STP-SLP3FB-100995
P116	10/9/95	45083	STP-SLP3D-100995	STP-SLP3MS-100995	STP-SLP3MSD-100995	STP-SLP3FB-100995
W410	10/10/95	45108	STP-W410D-101095	STP-SLP410MS-101095	STP-SLP410MSD-101095	STP-W410FB-101095
W24	10/10/95	45108	STP-W410D-101095	STP-SLP410MS-101095	STP-SLP410MSD-101095	STP-W410FB-101095
W33	10/10/95	45108	STP-W410D-101095	STP-SLP410MS-101095	STP-SLP410MSD-101095	STP-W410FB-101095
W133	10/10/95	45108	STP-W410D-101095	STP-SLP410MS-101095	STP-SLP410MSD-101095	STP-W410FB-101095
W412	10/10/95	45108	STP-W410D-101095	STP-SLP410MS-101095	STP-SLP410MSD-101095	STP-W410FB-101095
W409	10/31/95	45512	DPV-W420D-103195	DPV-W420MS-103195	DPV-W420MSD-103195	DPV-W420FB-103195

FIRST HALF MONITORING

Quanterra Environmental Services

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

RECEIVED

CASE NARRATIVE

FOR

City of St. Louis Park

June 9, 1995

Quanterra Environmental Services

Project Number 042032

Introduction

Nine aqueous samples (includes QC) were received at Quanterra Environmental Services, Denver Laboratory on May 9, 1995 and May 10, 1995. The samples were logged in under Quanterra's Denver laboratory project number 042032. Sample STP-SLP3TFBD-050895 (042032-07FD) 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

Samples 042032-02 through -06 were analyzed at appropriate dilutions. The reporting limits were raised accordingly. The surrogates in these samples were diluted out.

Sample STP-W122 (042032-02) showed the internal standard area outside QC limits (low). The sample was reanalyzed and confirmed the original results. The reanalysis was reported as 042032-02RE.

The percent recoveries for Benzo(E)Pyrene were outside control limits in STP-SLP3MS (042032-01MS) and STP-SLP3MSD (042032-01SD). The surrogates for the samples were in control.

Quanterra
Environmental Services

The method blanks analyzed with these samples showed concentrations of compounds above the reporting limits. The samples are annotated accordingly.

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 042032 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.

A standard is now available for Benzo(J)Fluoranthene. Laboratory studies have shown that Benzo(J)Fluoranthene will coelute with either Benzo(B)Fluoranthene or Benzo(K)Fluoranthene depending on the relative concentration of these two compounds in solution. For this project Benzo(B)Fluoranthene and Benzo(J)Fluoranthene will be reported as Benzo(B)Fluoranthene.

Standards are now available for Dibenz(A,E)Pyrene, Dbenz(A,I)Pyrene and Dibenz(A,H)Pyrene. The results for these compounds are currently found on the instrument data sheets.

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: 6/9/95
Daniel Rebarchik
Program Administrator

Approved by: _____ Date: 6/9/95
Kevin McHugh
Program Manager

Quanterra Environmental Services

QUALIFIER CODES AND THEIR USAGE

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

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

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

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

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

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

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

QUALIFIER CODES AND THEIR USAGE
Page Two

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

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

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

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

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

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
042032-0001-MS	STP-SLP3MS-050895	AQUEOUS	08 MAY 95		09 MAY 95
042032-0001-SD	STP-SLP3MSD-050895	AQUEOUS	08 MAY 95		09 MAY 95
042032-0001-DU	STP-SLP3D-050895	AQUEOUS	08 MAY 95		10 MAY 95
042032-0001-SA	STP-SLP3-050895	AQUEOUS	08 MAY 95		10 MAY 95
042032-0002-SA	STP-W122-050895	AQUEOUS	08 MAY 95	15:20	09 MAY 95
042032-0003-SA	STP-W129-050895	AQUEOUS	08 MAY 95	13:15	09 MAY 95
042032-0004-SA	STP-W408-050895	AQUEOUS	08 MAY 95	10:15	09 MAY 95
042032-0005-SA	STP-W411-050895	AQUEOUS	08 MAY 95	11:20	09 MAY 95
042032-0006-SA	STP-P116-050895	AQUEOUS	08 MAY 95	16:45	09 MAY 95
042032-0007-FB	STP-SLP3FB-050895	AQUEOUS	08 MAY 95		10 MAY 95
042032-0007-FD	STP-SLP3FBD-050895	AQUEOUS	08 MAY 95		10 MAY 95

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 042032	Group Code	Analysis Description	Custom Test?
0001 - 0007	A	Polynuclear Aromatic Hydrocarbons, SIM Low Level	N
		Prep - PAH/SIM by GC/MS Low Level	N
0007	B	Prep - PAH/SIM by GC/MS Low Level	N

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 Nor[illegible]t Drive
Suite 120
Houston, TX 77032
713/987-9767 FAX: 713/987-9769

CHAIN OF CUSTODY

ENSECO CLIENT: CITY OF ST LOUIS PARK WATER

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
5-8-95		STP-SLP3FB-050895	1XL AMBER	6	PPT PAH	PPT 5 -07FB
5-8-95		STP-SLP3FBD-050895	1XL AMBER	6	PPT PAH	PPT 5 -07FB

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: 2103421180

RECEIVED FOR LAB: GES

SIGNED: [signature]

DATE/TIME: 5/10/95 9[illegible]

ENSECO PROJECT NUMBER: 42032

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: °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
5-8-95		STP-SLP3-050895	1XL AMBER	6	PPL PAH	PPL 5 -01
5-8-95		STP-SLP3D-050895	1XL AMBER	6	PPL PAH	PPL 5 -01 DU

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: 2103421180

RECEIVED FOR LAB: UES

SIGNED: [signature]

DATE/TIME: 5/10/95 915

ENSECO PROJECT NUMBER: 42032

ENS-4011

White - CLIENT Pink - LAB

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

☐ Enseco Houston
1420 East Nor[illegible]t Drive
Suite 120
Houston, TX 77032
713/987-9767 FAX: 713/987-9769

Enseco
A Corning Company

CHAIN OF CUSTODY

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

PROJECT:

SAMPLING COMPANY: SAME

SAMPLING SITE: SAME

TEAM LEADER: MZR

SAMPLE SAFE™ CONDITIONS

PACKED BY: MZR

SEAL 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: 8.9 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
5-8-95		STP-SLP3MS-080895	1XLAMBER	6	PPT PAH	PPT 5 -1ms
5-8-95		STP-SLP3MSD-050895	1XLAMBER	6	PPT PAH	PPT 5 -1SD

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: 2103421180

RECEIVED FOR LAB: (KE)

SIGNED: [illegible]

DATE/TIME: 5/9/95 8P

ENSECO PROJECT NUMBER: 42032

ENS—4011

White – CLIENT Pink – LAB

CHAIN OF CUSTODY

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431 7171 Fax

Quanterra Environmental Services

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

PROJECT: ENSR

SAMPLING COMPANY: City of St Louis Park

SAMPLING SITE: William Gregg

TEAM LEADER:

SAMPLE SAFE™ CONDITIONS

PACKED BY: Dave Jacobson

SEAL NUMBER: 012308

SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:

CONDITION OF CONTENTS:

SEALED FOR SHIPPING BY: Dave Jacobson

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: 7.1 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
5-8-95	15:20	STP-W122-050895	H_2O	6	PPT-PAH, PPT 5	-02
5-8-95	13:15	STP-W129-050895	H_2O	6	PPT-PAH, PPT 5	-03

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME
David Jacobson 5/8/95 18:00			

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: Fed X (SLP)

METHOD OF SHIPMENT:

AIRBILL NUMBER:

RECEIVED FOR LAB: QES

SIGNED:

DATE/TIME: 5/9/95 8:4

QUANTERRA PROJECT NUMBER: 42034

QUA-4119

White – Client Pink – LAB

CHAIN OF CUSTODY

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

Quanterra Environmental Services

QUANTERRA CLIENT: City of St Louis Park	
PROJECT: ENSR	
SAMPLING COMPANY: City of St Louis Park	
SAMPLING SITE: William Gregg	
TEAM LEADER:	

SAMPLE SAFE™ CONDITIONS

PACKED BY: Dave Jacobson	SEAL NUMBER: 012309
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:	CONDITION OF CONTENTS:
SEALED FOR SHIPPING BY: Dave Jacobson	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: 6.7°C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
5-8-95	1015	STP W408 050895	H_2O	6	ppt PAH, ppt S	-04
5-8-95	1120	STP W411 050895				-05
5-8-95	1645	STP P116 050895	H_2O	6	ppt PAH, ppt S	-06

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME
David Jacobson			
5/8/95 18:00			

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: FedX (sep)		
METHOD OF SHIPMENT:	AIRBILL NUMBER:	
RECEIVED FOR LAB: [illegible]	SIGNED: [illegible]	DATE/TIME: 5/9/95 [illegible]
QUANTERRA PROJECT NUMBER: 4232		

QUA-4119

White – CLIENT Pink – LAB

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42032-01

STP-SLP3-050895

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42032 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42032-01

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C0594

Level: (low/med) LOW Date Received: 05/10/95

% Moisture: decanted: (Y/N) N Date Extracted: 05/09/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/15/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
95-13-6	1H-Indene	0.9	U
91-20-3	Naphthalene	2	BJR
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	1	U
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	1	B
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	2	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	BJ
129-00-0	Pyrene	1	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.

42032-01DU

STP-SLP3D-050895

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42032 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42032-01DU

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C0595

Level: (low/med) LOW Date Received: 05/10/95

% Moisture: decanted: (Y/N) N Date Extracted: 05/09/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/15/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	1	J
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	2	R
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	4	B
90-12-0	1-Methylnaphthalene	3	R
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	2	
132-64-9	Dibenzofuran	1	
86-73-7	Fluorene	1	
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	6	BR
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	1	JR
206-44-0	Fluoranthene	4	B
129-00-0	Pyrene	11	
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	2	JR

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42032-02

Lab Name: QUANTERRA Contract: STP-WI22-050895

Lab Code: DENVER Case No.: 42032 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42032-02

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C0599

Level: (low/med) LOW Date Received: 05/09/95

% Moisture: decanted: (Y/N) N Date Extracted: 05/09/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/16/95

Injection Volume: 2.0(uL) Dilution Factor: 4.0

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-Benzofuran	20	U
496-11-7	2,3-Dihydroindene	18	
95-13-6	1H-Indene	8	
91-20-3	Naphthalene	64	B
4565-32-6	Benzo(B)Thiophene	3	U
91-22-5	Quinoline	5	U
120-72-9	1H-Indole	13	R
91-57-6	2-Methylnaphthalene	35	BR
90-12-0	1-Methylnaphthalene	29	R
92-52-4	Biphenyl	10	J
208-96-8	Acenaphthylene	3	J
83-32-9	Acenaphthene	22	
132-64-9	Dibenzofuran	14	
86-73-7	Fluorene	14	
132-65-0	Dibenzothiophene	3	J
85-01-8	Phenanthrene	14	B
120-12-7	Anthracene	4	U
260-94-6	Acridine	4	J
86-74-8	Carbazole	6	JR
206-44-0	Fluoranthene	5	BJR
129-00-0	Pyrene	19	
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	9	U
192-97-2	Benzo(E)Pyrene	7	U
50-32-8	Benzo(A)Pyrene	9	U
198-55-0	Perylene	10	U
193-39-5	Indeno(1,2,3-CD)Pyrene	8	U
53-70-3	Dibenz(A,H)Anthracene	6	U
191-24-2	Benzo(G,H,I)Perylene	10	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42032-02RE

STP-WI22-050895

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42032 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42032-02RE

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C0640

Level: (low/med) LOW Date Received: 05/09/95

% Moisture: decanted: (Y/N) N Date Extracted: 05/09/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/25/95

Injection Volume: 2.0(uL) Dilution Factor: 4.0

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-Benzofuran	5	J
496-11-7	2,3-Dihydroindene	15	
95-13-6	1H-Indene	7	
91-20-3	Naphthalene	52	B
4565-32-6	Benzo(B)Thiophene	3	U
91-22-5	Quinoline	5	JR
120-72-9	1H-Indole	6	JR
91-57-6	2-Methylnapnthalene	38	B
90-12-0	1-Methylnaphthalene	31	
92-52-4	Biphenyl	12	J
208-96-8	Acenaphthylene	5	U
83-32-9	Acenaphthene	27	
132-64-9	Dibenzofuran	15	
86-73-7	Fluorene	14	
132-65-0	Dibenzothiophene	4	U
85-01-8	Phenanthrene	20	B
120-12-7	Anthracene	4	U
260-94-6	Acridine	11	U
86-74-8	Carbazole	7	U
206-44-0	Fluoranthene	6	BR
129-00-0	Pyrene	24	
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	9	U
192-97-2	Benzo(E)Pyrene	7	U
50-32-8	Benzo(A)Pyrene	9	U
198-55-0	Perylene	10	U
193-39-5	Indeno(1,2,3-CD)Pyrene	8	U
53-70-3	Dibenz(A,H)Anthracene	6	U
191-24-2	Benzo(G,H,I)Perylene	10	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42032-03

STP-WI29-050895

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42032 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42032-03

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C0600

Level: (low/med) LOW Date Received: 05/09/95

% Moisture: decanted: (Y/N) N Date Extracted: 05/09/95

Concentrated Extract Volume: 500 (uL) Date Analyzed: 05/16/95

Injection Volume: 2.0(uL) Dilution Factor: 4.0

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-Benzofuran	20	U
496-11-7	2,3-Dihydroindene	4	J
95-13-6	1H-Indene	3	U
91-20-3	Naphthalene	18	BJR
4565-32-6	Benzo(B)Thiophene	3	U
91-22-5	Quinoline	5	U
120-72-9	1H-Indole	10	U
91-57-6	2-Methylnaphthalene	11	B
90-12-0	1-Methylnaphthalene	9	R
92-52-4	Biphenyl	16	U
208-96-8	Acenaphthylene	5	U
83-32-9	Acenaphthene	5	U
132-64-9	Dibenzofuran	4	U
86-73-7	Fluorene	4	U
132-65-0	Dibenzothiophene	4	U
85-01-8	Phenanthrene	12	B
120-12-7	Anthracene	4	U
260-94-6	Acridine	11	U
86-74-8	Carbazole	7	U
206-44-0	Fluoranthene	12	B
129-00-0	Pyrene	28	
56-55-3	Benzo(A)Anthracene	10	U
218-01-9	Chrysene	4	J
205-99-2	Benzo(B)Fluoranthene	10	U
207-08-9	Benzo(K)Fluoranthene	9	U
192-97-2	Benzo(E)Pyrene	7	U
50-32-8	Benzo(A)Pyrene	9	U
198-55-0	Perylene	10	U
193-39-5	Indeno(1,2,3-CD)Pyrene	8	U
53-70-3	Dibenz(A,H)Anthracene	6	U
191-24-2	Benzo(G,H,I)Perylene	8	JR

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42032-04

STP-W408-050895

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42032 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42032-04

Sample wt/vol: 4190 (g/mL) ML Lab File ID: C0641

Level: (low/med) LOW Date Received: 05/09/95

% Moisture: decanted: (Y/N) N Date Extracted: 05/09/95

Concentrated Extract Volume: 500 (uL) Date Analyzed: 05/25/95

Injection Volume: 2.0(uL) Dilution Factor: 4.0

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-Benzofuran	20	U
496-11-7	2,3-Dihydroindene	4	J
95-13-6	1H-Indene	3	U
91-20-3	Naphthalene	19	BJ
4565-32-6	Benzo(B)Thiophene	3	U
91-22-5	Quinoline	5	U
120-72-9	1H-Indole	10	U
91-57-6	2-Methylnaphthalene	12	B
90-12-0	1-Methylnaphthalene	10	R
92-52-4	Biphenyl	16	U
208-96-8	Acenaphthylene	5	U
83-32-9	Acenaphthene	6	
132-64-9	Dibenzofuran	4	
86-73-7	Fluorene	5	
132-65-0	Dibenzothiophene	4	U
85-01-8	Phenanthrene	19	BR
120-12-7	Anthracene	4	U
260-94-6	Acridine	11	U
86-74-8	Carbazole	8	R
206-44-0	Fluoranthene	12	B
129-00-0	Pyrene	44	
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	9	U
192-97-2	Benzo(E)Pyrene	7	U
50-32-8	Benzo(A)Pyrene	9	U
198-55-0	Perylene	10	U
193-39-5	Indeno(1,2,3-CD)Pyrene	8	U
53-70-3	Dibenz(A,H)Anthracene	6	U
191-24-2	Benzo(G,H,I)Perylene	9	J

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42032-05

STP-W411-050895

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42032 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42032-05

Sample wt/vol: 4190 (g/mL) ML Lab File ID: C0642

Level: (low/med) LOW Date Received: 05/09/95

% Moisture: decanted: (Y/N) N Date Extracted: 05/09/95

Concentrated Extract Volume: 500 (uL) Date Analyzed: 05/25/95

Injection Volume: 2.0(uL) Dilution Factor: 4.0

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-Benzofuran	20	U
496-11-7	2,3-Dihydroindene	7	
95-13-6	1H-Indene	9	
91-20-3	Naphthalene	28	B
4565-32-6	Benzo(B)Thiophene	3	U
91-22-5	Quinoline	5	U
120-72-9	1H-Indole	6	J
91-57-6	2-Methylnaphthalene	36	B
90-12-0	1-Methylnaphthalene	24	
92-52-4	Biphenyl	4	J
208-96-8	Acenaphthylene	5	U
83-32-9	Acenaphthene	9	
132-64-9	Dibenzofuran	4	R
86-73-7	Fluorene	6	
132-65-0	Dibenzothiophene	4	U
85-01-8	Phenanthrene	19	BR
120-12-7	Anthracene	4	J
260-94-6	Acridine	16	
86-74-8	Carbazole	16	
206-44-0	Fluoranthene	11	BR
129-00-0	Pyrene	36	
56-55-3	Benzo(A)Anthracene	10	U
218-01-9	Chrysene	6	JR
205-99-2	Benzo(B)Fluoranthene	10	U
207-08-9	Benzo(K)Fluoranthene	9	U
192-97-2	Benzo(E)Pyrene	7	U
50-32-8	Benzo(A)Pyrene	9	U
198-55-0	Perylene	10	U
193-39-5	Indeno(1,2,3-CD)Pyrene	8	U
53-70-3	Dibenz(A,H)Anthracene	6	U
191-24-2	Benzo(G,H,I)Perylene	10	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42032-06

STD-PI16-050895

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42032 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42032-06

Sample wt/vol: 4190 (g/mL) ML Lab File ID: C0673

Level: (low/med) LOW Date Received: 05/09/95

% Moisture: decanted: (Y/N) N Date Extracted: 05/09/95

Concentrated Extract Volume: 500 (uL) Date Analyzed: 06/01/95

Injection Volume: 2.0(uL) Dilution Factor: 4.0

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-Benzofuran	20	U
496-11-7	2,3-Dihydroindene	5	U
95-13-6	1H-Indene	3	U
91-20-3	Naphthalene	27	B
4565-32-6	Benzo(B)Thiophene	3	U
91-22-5	Quinoline	5	U
120-72-9	1H-Indole	10	U
91-57-6	2-Methylnaphthalene	9	B
90-12-0	1-Methylnaphthalene	5	JR
92-52-4	Biphenyl	16	U
208-96-8	Acenaphthylene	5	U
83-32-9	Acenaphthene	5	U
132-64-9	Dibenzofuran	4	U
86-73-7	Fluorene	4	U
132-65-0	Dibenzothiophene	4	U
85-01-8	Phenanthrene	5	B
120-12-7	Anthracene	4	U
260-94-6	Acridine	11	U
86-74-8	Carbazole	7	U
206-44-0	Fluoranthene	5	U
129-00-0	Pyrene	4	JR
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	9	U
192-97-2	Benzo(E)Pyrene	7	U
50-32-8	Benzo(A)Pyrene	9	U
198-55-0	Perylene	10	U
193-39-5	Indeno(1,2,3-CD)Pyrene	8	U
53-70-3	Dibenz(A,H)Anthracene	6	U
191-24-2	Benzo(G,H,I)Perylene	10	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42032-07FB

STP-SLP3FB-050895

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42032 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42032-07FB

Sample wt/vol: 4180 (g/mL) ML Lab File ID: C0592

Level: (low/med) LOW Date Received: 05/10/95

% Moisture: decanted: (Y/N) N Date Extracted: 05/11/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/15/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 5.5

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

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42032-07FD

STP-SLP3FBD-050895

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42032 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42032-07FD

Sample wt/vol: 4190 (g/mL) ML Lab File ID: C0593

Level: (low/med) LOW Date Received: 05/10/95

% Moisture: decanted: (Y/N) N Date Extracted: 05/11/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/15/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 5.5

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

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42032 SAS No.: SDG No.:

	EPA SAMPLE NO.	S1 (NAP)#	S2 (FLU)#	S3 (CHR)#	TOT OUT
01	42032-01	76	70	77	0
02	42032-01DU	77	104	43	0
03	42032-02	OD *	OD *	OD *	1
04	42032-02RE	OD *	OD *	OD *	2
05	42032-03	OD*	OD *	OD *	2
06	42032-04	OD *	OD *	OD *	2
07	42032-05	OD *	OD *	OD *	2
08	42032-06	OD *	OD *	OD *	2
09	42032-07FB	75	77	65	0
10	42032-07FD	84	85	67	0
11	42032-01MS	79	78	37	0
12	42032-01SD	81	78	41	0
13	SBLK01	84	78	63	0
14	SBLK02	84	85	50	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: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42032 SAS No.: SDG No.:

Matrix Spike - EPA Sample No.: 42032-01

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC #	QC LIMITS REC.
1H-Indene	9.520	0	7.628	80	20-150
Naphthalene	9.520	2.011	10.64	91	20-150
Quinoline	9.520	0	12.14	128	20-150
2-Methylnaphthalene	9.520	1.488	9.925	89	20-150
Fluorene	9.520	0	8.758	92	69-118
Chrysene	9.520	0	4.260	45	20-132
Benzo(E)Pyrene	9.520	0	1.021	11 *	20-150

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1H-Indene	9.520	7.521	79	1	28	20-150
Naphthalene	9.520	10.58	90	1	28	20-150
Quinoline	9.520	12.50	131	2	28	20-150
2-Methylnaphthalene	9.520	9.520	84	6	28	20-150
Fluorene	9.520	8.449	89	3	28	69-118
Chrysene	9.520	5.010	53	16	28	20-132
Benzo(E)Pyrene	9.520	0.9663	10*	10	28	20-150

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

COMMENTS:

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42032-01MS

STP=SLP3MS-050895

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42032 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42032-01MS

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C0596

Level: (low/med) LOW Date Received: 05/09/95

% Moisture: decanted: (Y/N) N Date Extracted: 05/09/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/15/95

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) ng/L	Q
271-89-6	2,3-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
95-13-6	1H-Indene	8	
91-20-3	Naphthalene	11	B
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	12	
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	10	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	9	
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	3	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	2	B
129-00-0	Pyrene	2	
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	4	
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	1	JR
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42032-01SD

STP-SLP3MSD-050895

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42032 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42032-01SD

Sample wt/vol: 4200 (g/mL) ML Lab File ID: C0597

Level: (low/med) LOW Date Received: 05/09/95

% Moisture: decanted: (Y/N) N Date Extracted: 05/09/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/16/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	1	U
95-13-6	1H-Indene	8	
91-20-3	Naphthalene	11	B
4565-32-6	Benzo(B)Thiophene	0.9	U
91-22-5	Quinoline	12	
120-72-9	1H-Indole	2	U
91-57-6	2-Methylnaphthalene	10	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	8	
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	2	B
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	BJR
129-00-0	Pyrene	1	J
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	5	
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	1	J
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

SBLK01

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42032 SAS No.: SDG No.:

Lab File ID: C0590 Lab Sample ID: BL050995

Instrument ID: 4500-C Date Extracted: 05/09/95

Matrix: (soil/water) WATER Date Analyzed: 05/15/95

Level:(low/med) LOW Time Analyzed: 1824

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	42032-01	42032-01	C0594	05/15/95
02	42032-01DU	42032-01DU	C0595	05/15/95
03	42032-02	42032-02	C0599	05/16/95
04	42032-02RE	42032-02RE	C0640	05/25/95
05	42032-03	42032-03	C0600	05/16/95
06	42032-04	42032-04	C0641	05/25/95
07	42032-05	42032-05	C0642	05/25/95
08	42032-06	42032-06	C0673	06/01/95
09	42032-01MS	42032-01MS	C0596	05/15/95
10	42032-01SD	42032-01SD	C0597	05/16/95

COMMENTS:

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

SBLK01

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42032 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: BL050995

Sample wt/vol: 4000 (g/mL) ML Lab File ID: C0590

Level: (low/med) LOW Date Received:

% Moisture: decanted: (Y/N) N Date Extracted: 05/09/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/15/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	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	J
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

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

SBLK02

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42032 SAS No.: SDG No.:

Lab File ID: C0591 Lab Sample ID: BL051195

Instrument ID: 4500-C Date Extracted: 05/11/95

Matrix: (soil/water) WATER Date Analyzed: 05/15/95

Level:(low/med) LOW Time Analyzed: 1918

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	42032-07FB	42032-07FB	C0592	05/15/95
02	42032-07FD	42032-07FD	C0593	05/15/95

COMMENTS:

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

SBLK02

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42032 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: BL051195

Sample wt/vol: 4000 (g/mL) ML Lab File ID: C0591

Level: (low/med) LOW Date Received:

% Moisture: decanted: (Y/N) N Date Extracted: 05/11/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/15/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	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	0.9	U
90-12-0	1-Methylnaphthalene	2	U
92-52-4	Biphenyl	4	U
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
132-65-0	Dibenzothiophene	1	U
85-01-8	Phenanthrene	1	J
120-12-7	Anthracene	1	U
260-94-6	Acridine	3	U
86-74-8	Carbazole	2	U
206-44-0	Fluoranthene	1	U
129-00-0	Pyrene	1	U
56-55-3	Benzo(A)Anthracene	2	U
218-01-9	Chrysene	3	U
205-99-2	Benzo(B)Fluoranthene	2	U
207-08-9	Benzo(K)Fluoranthene	2	U
192-97-2	Benzo(E)Pyrene	2	U
50-32-8	Benzo(A)Pyrene	2	U
198-55-0	Perylene	2	U
193-39-5	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3	Dibenz(A,H)Anthracene	2	U
191-24-2	Benzo(G,H,I)Perylene	3	U

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42032 SAS No.: SDG No.:

Lab File ID (Standard): C0589 Date Analyzed: 05/15/95

Instrument ID: 4500-C Time Analyzed: 1715

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	390219	14.10	505397	17.84	304281	27.76
	UPPER LIMIT	780438	14.60	1010794	18.34	608562	28.26
	LOWER LIMIT	195110	13.60	252698	17.34	152140	27.26
	EPA SAMPLE NO.						
01	42032-01	547344	14.09	862636	17.82	403718	27.79
02	42032-01DU	568233	14.10	704810	17.84	271017	27.82
03	42032-02	609141	14.12	804322	17.87	73472 *	27.82
04	42032-03	479086	14.12	633894	17.87	295447	27.82
05	42032-07FB	511730	14.10	641274	17.84	455675	27.81
06	42032-07FD	510998	14.10	660935	17.82	386514	27.81
07	42032-01MS	544150	14.12	689685	17.85	466766	27.82
08	42032-01SD	533719	14.12	671254	17.84	449551	27.82
09	SBLK01	490484	14.10	691910	17.84	359290	27.81
10	SBLK02	482768	14.10	610479	17.84	451276	27.81

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

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

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

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42032 SAS No.: SDG No.:

Lab File ID (Standard): C0639 Date Analyzed: 05/25/95

Instrument ID: 4500-C Time Analyzed: 1538

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	325408	14.12	409501	17.79	217102	27.52
	UPPER LIMIT	650816	14.62	819002	18.29	434204	28.02
	LOWER LIMIT	162704	13.62	204750	17.29	108551	27.02
	EPA SAMPLE NO.						
01	42032-02RE	550910	14.22	560796	17.92	44736 *	27.67
02	42032-04	543049	14.20	646244	17.90	190208	27.64
03	42032-05	620400	14.20	683760	17.90	156120	27.62

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

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

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

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42032 SAS No.: SDG No.:

Lab File ID (Standard): C0672 Date Analyzed: 06/01/95

Instrument ID: 4500-C Time Analyzed: 1111

	IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
12 HOUR STD	365581	14.19	442483	17.90	362957	27.62
UPPER LIMIT	731162	14.69	884966	18.40	725914	28.12
LOWER LIMIT	182790	13.69	221242	17.40	181478	27.12
EPA SAMPLE NO.						
01 42032-06	387158	14.12	451833	17.82	191532	27.56

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

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

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

Quanterra Environmental Services

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

CASE NARRATIVE

FOR

City of St. Louis Park

June 21, 1995

Quanterra Environmental Services

Project Number 042066

Introduction

Eleven aqueous samples (includes QC) were received at Quanterra's Denver laboratory on May 10, 1995. The samples were logged in under Quanterra's Denver laboratory project number 042066. Sample STP-W410FBD-050995 (042066-03FD) 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 STP-W410 (042066-01), STP-W410D (042066-01DU), IGV-W10S (042066-02), STP-W24 (042066-04) and STP-W33 (042066-07) required that the samples be diluted due to concentrations of target compounds. The reporting limits have been raised accordingly.

The surrogates were diluted out of samples STP-W410DL (042066-01DL), STP-W410DDL (042066-01DUDL) and IGV-W10SDL (042066-02DL).

The method blank associated with all the samples (except 042066-03) showed concentrations of the target compounds 2-methylnaphthalene and phenanthrene greater than 5 times the method detection limit (MDL). The blank was reanalyzed and confirmed the contamination.

The percent recoveries for Benzo(E)Pyrene were outside control limits in STP-W410MS (042066-01MS) and STP-W410MSD (042066-01SD). The relative percent difference (RPD) for 1H-Indene in the matrix spike/matrix spike duplicate pair was outside control limits due to the concentration found in the parent sample. Since the other spiking compounds were in control and all sample surrogates are in control the data were accepted and submitted.

The continuing calibration (lab file ID C0662) showed Benzo(K)Fluoranthene outside the maximum percent difference of 35.0%. The samples that were analyzed in association with this calibration were reanalyzed at dilutions in association with the continuing calibration (lab file ID C0672). No concentrations of Benzo(K)Fluoranthene were detected in either analysis of the samples.

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 042066 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.

A standard is now available for Benzo(J)Fluoranthene. Laboratory studies have shown that Benzo(J)Fluoranthene will coelute with either Benzo(B)Fluoranthene or Benzo(K)Fluoranthene depending on the relative concentration of these two compounds in solution. For this project Benzo(B)Fluoranthene and Benzo(J)Fluoranthene will be reported as Benzo(B)Fluoranthene.

Standards are now available for Dibenz(A,E)Pyrene, Dbenz(A,I)Pyrene and Dibenz(A,H)Pyrene. The results for these compounds are currently found on the instrument data sheets.

Quanterra
Environmental Services

Case Narrative - Quanterra's Denver laboratory #042066
June 21, 1995
Page Three

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:** 6/21/95
Daniel Rebarchik
Program Administrator

Approved by: _____ **Date:** 6/21/95
Kevin McHugh
Program Manager

QUALIFIER CODES AND THEIR USAGE

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

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

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

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

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

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

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

QUALIFIER CODES AND THEIR USAGE
Page Two

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

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

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

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

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

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
042066-0001-SA	STP-W410-050995	AQUEOUS	09 MAY 95		10 MAY 95
042066-0001-DU	STP-W410D-050995	AQUEOUS	09 MAY 95		10 MAY 95
042066-0001-MS	STP-W410MS-050995	AQUEOUS	09 MAY 95		10 MAY 95
042066-0001-SD	STP-W410MSD-050995	AQUEOUS	09 MAY 95		10 MAY 95
042066-0002-SA	IGV-W10S-050995	AQUEOUS	09 MAY 95		10 MAY 95
042066-0003-FB	STP-W410FB-050995	AQUEOUS	09 MAY 95		10 MAY 95
042066-0003-FD	STP-W410FBD-050995	AQUEOUS	09 MAY 95		10 MAY 95
042066-0004-SA	STP-W24-050995	AQUEOUS	09 MAY 95	14:30	10 MAY 95
042066-0005-SA	STP-W412-050995	AQUEOUS	09 MAY 95	13:15	10 MAY 95
042066-0006-SA	STP-W133-050995	AQUEOUS	09 MAY 95	11:00	10 MAY 95
042066-0007-SA	STP-W33-050995	AQUEOUS	09 MAY 95	09:45	10 MAY 95

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 042066	Group Code	Analysis Description	Custom Test?
0001 - 0007	A	Polynuclear Aromatic Hydrocarbons, SIM Low Level	N
		Prep - PAH/SIM by GC/MS Low Level	N
0003	B	Prep - PAH/SIM by GC/MS Low Level	N

☐ 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

Enseco
A Corning Company

CHAIN OF CUSTODY

ENSECO CLIENT: CITY OF ST LOUIS PARK WATER DEPT

PROJECT:

SAMPLING COMPANY: SAME

SAMPLING SITE: SAME

TEAM LEADER: MZ BY

SAMPLE SAFE™ CONDITIONS

PACKED BY: MZ BY

SEAL NUMBER:

SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:

CONDITION OF CONTENTS:

SEALED FOR SHIPPING BY: MZ BY

INITIAL CONTENTS TEMP: °C

SEAL NUMBER: 012039

SAMPLING STATUS: ☐ Done ☐ Continuing Until 7/9

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
5-9-95		STP-W410-050995	1XL AMBER	6	PPL PAH	PPL 75 -01
5-9-95		STP-W410D-050995	1XL AMBER	6	PPL PAH	PPL 75 -01DUP

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MZ BY

METHOD OF SHIPMENT: FED EX

AIRBILL NUMBER: 2103421191

RECEIVED FOR LAB: DES

SIGNED:

DATE/TIME: 5/10/95 9/5

ENSECO PROJECT NUMBER: 42066

ENS-4011

White - Client Pink - LAB

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

☐ Enseco Houston
1420 East N[illegible]elt Drive
Suite 120
Houston, TX 77032
713/987-9767 FAX: 713/987-9769

Enseco
A Corning Company

CHAIN OF CUSTODY

SAMPLE SAFE™ CONDITIONS

ENSECO CLIENT: CITY OF ST LOUIS PARK WATER DEPT	PACKED BY: MZK
PROJECT:	SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:
SAMPLING COMPANY: SAME	SEALED FOR SHIPPING BY: MZK
SAMPLING SITE: SAME	SEAL NUMBER: 012041
TEAM LEADER: MZK	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: 9.1 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
5-9-95		STP-W410 MS-050995	1XL AMBER	6	PPL PAH	PPL 75 -01MS
5-9-95		STP-W410 MSD-050995	1XL AMBER	6	PPL PAH	PPL 75 -01SD
5-9-95		IGV-W105-050995	1XL AMBER	6	PPL PAH	PPL 75 -02

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: 2103421191
RECEIVED FOR LAB: [illegible]	SIGNED: [illegible] DATE/TIME: 9/6/95 715
ENSECO PROJECT NUMBER: 42066	

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: MZ

SAMPLE SAFE™ CONDITIONS

PACKED BY: MZ

SEAL NUMBER:

SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:

CONDITION OF CONTENTS:

SEALED FOR SHIPPING BY: MZ

INITIAL CONTENTS TEMP: °C

SEAL NUMBER: 012310 ~~012040~~

SAMPLING STATUS: ☐ Done ☐ Continuing Until

SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No

CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 7.7 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
5-9-95		STP-W410FB-050995	1XL AMBER	6	PPT PAH	PPT 75 -03FB
5-9-95		STP-W410FBD-050995	1XL AMBER	6	PPT PAH	PPT 75 -03FD

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: 2103421191

RECEIVED FOR LAB: GES

SIGNED: [signature]

DATE/TIME: 5/10/95 9:15

ENSECO PROJECT NUMBER: 4206

ENS-4011

White - Client Pink - LAB

CHAIN OF CUSTODY

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421 6611 Telephone
303 431-7171 Fax

Quanterra Environmental Services

SAMPLE SAFE™ CONDITIONS

QUANTERRA CLIENT: City of St Louis Park	PACKED BY: Dave Jacobson
	SEAL NUMBER: 012037
PROJECT: ENSR	SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:
	CONDITION OF CONTENTS:
SAMPLING COMPANY: City of St Louis Park	SEALED FOR SHIPPING BY: Dave Jacobson
	INITIAL CONTENTS TEMP: °C
SAMPLING SITE: William Gregg	SEAL NUMBER:
	SAMPLING STATUS: ☐ Done ☐ Continuing Until
TEAM LEADER:	SEAL INTACT UPON RECEIPT BY LAB: ☑ Yes ☐ No
	CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 7.9 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
5-9-95	1520	STP-W409-050995	H_2O	2	ppb PAH	~~-04~~
5-9-95	1430	STP-W24-050995	H_2O	6	ppt PAH, ppt75	-04 ~~-05~~

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME
David W Jacobson		5/9/95	1600
to Fed X			

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: DWJ	
METHOD OF SHIPMENT: FED EX	AIRBILL NUMBER: 2103421180
RECEIVED FOR LAB: QES	SIGNED: [illegible] DATE/TIME: 5/10/95 915
QUANTERRA PROJECT NUMBER: 42066	

QUA-4119

White – CLIENT Pink – LAB

CHAIN OF CUSTODY

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421 6611 Telephone
303 431 7171 Fax

Quanterra Environmental Services

QUANTERRA CLIENT	City of St Louis Park
PROJECT	
SAMPLING COMPANY	ENSR
SAMPLING SITE	City of St Louis Park
TEAM LEADER	William Gregg

SAMPLE SAFE™ CONDITIONS

PACKED BY	Dave Jacobson
SEAL NUMBER	012038
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY	
CONDITION OF CONTENTS	
SEALED FOR SHIPPING BY	Dave Jacobson
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
5-9-95	1315	STP-W412-050995	H_2O	6	ppt PAH ppt 75	-05 ~~-06~~
5-9-95	1100	STP-W133-050995	H_2O	6	ppt PAH ppt 75	-06 ~~-07~~
5-9-95	0945	STP-W33-050995	H_2O	6	ppt PAH ppt 75	-07 ~~-08~~

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME
David W Jacobson to Fedx		5/9/95	1600

SHIPPING DETAILS

DELIVERED TO SHIPPER BY	DWJ
METHOD OF SHIPMENT	FED EX
AIRBILL NUMBER	~~210342~~ 1180 DWJ
RECEIVED FOR LAB	
SIGNED	
DATE/TIME	
QUANTERRA PROJECT NUMBER	

QUA-4119

White – CLIENT Pink – LAB

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42066-01

STD-W410-050995

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42066 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42066-01

Sample wt/vol: 1050 (g/mL) ML Lab File ID: C0645

Level: (low/med) LOW Date Received: 05/10/95

% Moisture: decanted: (Y/N) N Date Extracted: 05/11/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/25/95

Injection Volume: 2.0(uL) Dilution Factor: 4.0

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-Benzofuran	78	U
496-11-7	2,3-Dihydroindene	3700	SR
95-13-6	1H-Indene	1500	
91-20-3	Naphthalene	150	B
4565-32-6	Benzo(B)Thiophene	1200	
91-22-5	Quinoline	19	JR
120-72-9	1H-Indole	38	U
91-57-6	2-Methylnaphthalene	14	U
90-12-0	1-Methylnaphthalene	840	
92-52-4	Biphenyl	100	
208-96-8	Acenaphthylene	89	
83-32-9	Acenaphthene	1100	
132-64-9	Dibenzofuran	15	U
86-73-7	Fluorene	42	
132-65-0	Dibenzothiophene	17	U
85-01-8	Phenanthrene	31	BR
120-12-7	Anthracene	15	J
260-94-6	Acridine	40	J
86-74-8	Carbazole	600	
206-44-0	Fluoranthene	21	U
129-00-0	Pyrene	21	U
56-55-3	Benzo(A)Anthracene	38	U
218-01-9	Chrysene	42	U
205-99-2	Benzo(B)Fluoranthene	38	U
207-08-9	Benzo(K)Fluoranthene	34	U
192-97-2	Benzo(E)Pyrene	28	U
50-32-8	Benzo(A)Pyrene	34	U
198-55-0	Perylene	38	U
193-39-5	Indeno(1,2,3-CD)Pyrene	32	U
53-70-3	Dibenz(A,H)Anthracene	25	U
191-24-2	Benzo(G,H,I)Perylene	42	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42066-01DL

STP-W410DL-050995

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42066 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42066-01DL

Sample wt/vol: 1050 (g/mL) ML Lab File ID: C0664

Level: (low/med) LOW Date Received: 05/10/95

% Moisture: decanted: (Y/N) N Date Extracted: 05/11/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/31/95

Injection Volume: 2.0(uL) Dilution Factor: 40.0

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-Benzofuran	780	U
496-11-7	2,3-Dihydroindene	14000	D
95-13-6	1H-Indene	2300	D
91-20-3	Naphthalene	670	BDJ
4565-32-6	Benzo(B)Thiophene	1500	D
91-22-5	Quinoline	210	U
120-72-9	1H-Indole	380	U
91-57-6	2-Methylnaphthalene	140	U
90-12-0	1-Methylnaphthalene	1000	D
92-52-4	Biphenyl	650	U
208-96-8	Acenaphthylene	210	U
83-32-9	Acenaphthene	1400	D
132-64-9	Dibenzofuran	150	U
86-73-7	Fluorene	150	U
132-65-0	Dibenzothiophene	170	U
85-01-8	Phenanthrene	190	U
120-12-7	Anthracene	170	U
260-94-6	Acridine	440	U
86-74-8	Carbazole	770	D
206-44-0	Fluoranthene	210	U
129-00-0	Pyrene	210	U
56-55-3	Benzo(A)Anthracene	380	U
218-01-9	Chrysene	420	U
205-99-2	Benzo(B)Fluoranthene	380	U
207-08-9	Benzo(K)Fluoranthene	340	U
192-97-2	Benzo(E)Pyrene	280	U
50-32-8	Benzo(A)Pyrene	340	U
198-55-0	Perylene	380	U
193-39-5	Indeno(1,2,3-CD)Pyrene	320	U
53-70-3	Dibenz(A,H)Anthracene	250	U
191-24-2	Benzo(G,H,I)Perylene	420	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42066-01DU

STD-W4IOD-050995

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42066 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42066-01DU

Sample wt/vol: 1050 (g/mL) ML Lab File ID: C0646

Level: (low/med) LOW Date Received: 05/10/95

% Moisture: decanted: (Y/N) N Date Extracted: 05/11/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/25/95

Injection Volume: 2.0(uL) Dilution Factor: 4.0

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-Benzofuran	78	U
496-11-7	2,3-Dihydroindene	3400	RS
95-13-6	1H-Indene	1400	
91-20-3	Naphthalene	140	B
4565-32-6	Benzo(B)Thiophene	1100	
91-22-5	Quinoline	21	U
120-72-9	1H-Indole	38	U
91-57-6	2-Methylnaphthalene	14	U
90-12-0	1-Methylnaphthalene	760	
92-52-4	Biphenyl	92	
208-96-8	Acenaphthylene	80	
83-32-9	Acenaphthene	1000	
132-64-9	Dibenzofuran	15	U
86-73-7	Fluorene	39	
132-65-0	Dibenzothiophene	17	U
85-01-8	Phenanthrene	26	BR
120-12-7	Anthracene	17	U
260-94-6	Acridine	37	J
86-74-8	Carbazole	540	
206-44-0	Fluoranthene	21	U
129-00-0	Pyrene	21	U
56-55-3	Benzo(A)Anthracene	38	U
218-01-9	Chrysene	42	U
205-99-2	Benzo(B)Fluoranthene	38	U
207-08-9	Benzo(K)Fluoranthene	34	U
192-97-2	Benzo(E)Pyrene	28	U
50-32-8	Benzo(A)Pyrene	34	U
198-55-0	Perylene	38	U
193-39-5	Indeno(1,2,3-CD)Pyrene	32	U
53-70-3	Dibenz(A,H)Anthracene	25	U
191-24-2	Benzo(G,H,I)Perylene	42	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42066-01DUDL

STP-W410DDL-050995

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42066 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42066-01DUDL

Sample wt/vol: 1050 (g/mL) ML Lab File ID: C0665

Level: (low/med) LOW Date Received: 05/10/95

% Moisture: decanted: (Y/N) N Date Extracted: 05/11/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/31/95

Injection Volume: 2.0(uL) Dilution Factor: 40.0

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-Benzofuran	780	U
496-11-7	2,3-Dihydroindene	11000	D
95-13-6	1H-Indene	1800	D
91-20-3	Naphthalene	260	BDJ
4565-32-6	Benzo(B)Thiophene	1200	D
91-22-5	Quinoline	210	U
120-72-9	1H-Indole	380	U
91-57-6	2-Methylnaphthalene	140	U
90-12-0	1-Methylnaphthalene	850	D
92-52-4	Biphenyl	650	U
208-96-8	Acenaphthylene	210	U
83-32-9	Acenaphthene	1300	D
132-64-9	Dibenzofuran	150	U
86-73-7	Fluorene	150	U
132-65-0	Dibenzothiophene	170	U
85-01-8	Phenanthrene	190	U
120-12-7	Anthracene	170	U
260-94-6	Acridine	440	U
86-74-8	Carbazole	570	D
206-44-0	Fluoranthene	210	U
129-00-0	Pyrene	210	U
56-55-3	Benzo(A)Anthracene	380	U
218-01-9	Chrysene	420	U
205-99-2	Benzo(B)Fluoranthene	380	U
207-08-9	Benzo(K)Fluoranthene	340	U
192-97-2	Benzo(E)Pyrene	280	U
50-32-8	Benzo(A)Pyrene	340	U
198-55-0	Perylene	380	U
193-39-5	Indeno(1,2,3-CD)Pyrene	320	U
53-70-3	Dibenz(A,H)Anthracene	250	U
191-24-2	Benzo(G,H,I)Perylene	420	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42066-03FB

STP-410FB-050995

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42066 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42066-03

Sample wt/vol: 1050 (g/mL) ML Lab File ID: C0613

Level: (low/med) LOW Date Received: 05/10/95

% Moisture: decanted: (Y/N) N Date Extracted: 05/11/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/17/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	20	U
496-11-7	2,3-Dihydroindene	5	U
95-13-6	1H-Indene	3	U
91-20-3	Naphthalene	12	JR
4565-32-6	Benzo(B)Thiophene	3	U
91-22-5	Quinoline	5	U
120-72-9	1H-Indole	10	U
91-57-6	2-Methylnaphthalene	3	U
90-12-0	1-Methylnaphthalene	6	U
92-52-4	Biphenyl	16	U
208-96-8	Acenaphthylene	5	U
83-32-9	Acenaphthene	5	U
132-64-9	Dibenzofuran	4	U
86-73-7	Fluorene	4	U
132-65-0	Dibenzothiophene	4	U
85-01-8	Phenanthrene	5	U
120-12-7	Anthracene	4	U
260-94-6	Acridine	11	U
86-74-8	Carbazole	7	U
206-44-0	Fluoranthene	5	U
129-00-0	Pyrene	5	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	9	U
192-97-2	Benzo(E)Pyrene	7	U
50-32-8	Benzo(A)Pyrene	9	U
198-55-0	Perylene	10	U
193-39-5	Indeno(1,2,3-CD)Pyrene	8	U
53-70-3	Dibenz(A,H)Anthracene	6	U
191-24-2	Benzo(G,H,I)Perylene	10	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42066-04

STP-W24-050995

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42066 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42066-04

Sample wt/vol: 1040 (g/mL) ML Lab File ID: C0614

Level: (low/med) LOW Date Received: 05/10/95

% Moisture: decanted: (Y/N) N Date Extracted: 05/11/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/17/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	20	U
496-11-7	2,3-Dihydroindene	1200	SR
95-13-6	1H-Indene	20	
91-20-3	Naphthalene	7	BJR
4565-32-6	Benzo(B)Thiophene	6	R
91-22-5	Quinoline	5	U
120-72-9	1H-Indole	6	JR
91-57-6	2-Methylnaphthalene	5	BR
90-12-0	1-Methylnaphthalene	5	JR
92-52-4	Biphenyl	16	U
208-96-8	Acenaphthylene	7	
83-32-9	Acenaphthene	260	
132-64-9	Dibenzofuran	4	U
86-73-7	Fluorene	4	U
132-65-0	Dibenzothiophene	4	U
85-01-8	Phenanthrene	12	BR
120-12-7	Anthracene	18	R
260-94-6	Acridine	5	JR
86-74-8	Carbazole	10	R
206-44-0	Fluoranthene	7	BR
129-00-0	Pyrene	10	B
56-55-3	Benzo(A)Anthracene	10	U
218-01-9	Chrysene	11	U
205-99-2	Benzo(B)Fluoranthene	10	U
207-08-9	Benzo(K)Fluoranthene	9	U
192-97-2	Benzo(E)Pyrene	7	U
50-32-8	Benzo(A)Pyrene	9	U
198-55-0	Perylene	10	U
193-39-5	Indeno(1,2,3-CD)Pyrene	8	U
53-70-3	Dibenz(A,H)Anthracene	6	U
191-24-2	Benzo(G,H,I)Perylene	11	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42066-04DL

STP-W24DL-050995

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42066 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42066-04DL

Sample wt/vol: 1040 (g/mL) ML Lab File ID: C0650

Level: (low/med) LOW Date Received: 05/10/95

% Moisture: decanted: (Y/N) N Date Extracted: 05/11/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/26/95

Injection Volume: 2.0(uL) Dilution Factor: 10.0

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-Benzofuran	200	U
496-11-7	2,3-Dihydroindene	2900	D
95-13-6	1H-Indene	35	U
91-20-3	Naphthalene	250	U
4565-32-6	Benzo(B)Thiophene	35	U
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	63	U
92-52-4	Biphenyl	160	U
208-96-8	Acenaphthylene	53	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	53	U
129-00-0	Pyrene	53	U
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.

42066-05

STP-W412-050995

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42066 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42066-05

Sample wt/vol: 1040 (g/mL) ML Lab File ID: C0616

Level: (low/med) LOW Date Received: 05/10/95

% Moisture: decanted: (Y/N) N Date Extracted: 05/11/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/18/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	20	U
496-11-7	2,3-Dihydroindene	31	
95-13-6	1H-Indene	11	
91-20-3	Naphthalene	39	B
4565-32-6	Benzo(B)Thiophene	7	
91-22-5	Quinoline	5	U
120-72-9	1H-Indole	10	U
91-57-6	2-Methylnaphthalene	22	B
90-12-0	1-Methylnaphthalene	25	R
92-52-4	Biphenyl	5	JR
208-96-8	Acenaphthylene	5	U
83-32-9	Acenaphthene	25	
132-64-9	Dibenzofuran	10	R
86-73-7	Fluorene	13	
132-65-0	Dibenzothiophene	11	R
85-01-8	Phenanthrene	43	B
120-12-7	Anthracene	6	R
260-94-6	Acridine	14	R
86-74-8	Carbazole	31	
206-44-0	Fluoranthene	22	B
129-00-0	Pyrene	47	B
56-55-3	Benzo(A)Anthracene	4	JR
218-01-9	Chrysene	8	JR
205-99-2	Benzo(B)Fluoranthene	10	U
207-08-9	Benzo(K)Fluoranthene	9	U
192-97-2	Benzo(E)Pyrene	7	J
50-32-8	Benzo(A)Pyrene	9	U
198-55-0	Perylene	10	U
193-39-5	Indeno(1,2,3-CD)Pyrene	8	U
53-70-3	Dibenz(A,H)Anthracene	6	U
191-24-2	Benzo(G,H,I)Perylene	6	J

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42066-06

STP-WI33-050995

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42066 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42066-06

Sample wt/vol: 1040 (g/mL) ML Lab File ID: C0615

Level: (low/med) LOW Date Received: 05/10/95

% Moisture: decanted: (Y/N) N Date Extracted: 05/11/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/17/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	20	U
496-11-7	2,3-Dihydroindene	90	
95-13-6	1H-Indene	7	
91-20-3	Naphthalene	12	BJR
4565-32-6	Benzo(B)Thiophene	3	U
91-22-5	Quinoline	5	U
120-72-9	1H-Indole	10	U
91-57-6	2-Methylnaphthalene	6	BR
90-12-0	1-Methylnaphthalene	4	JR
92-52-4	Biphenyl	16	U
208-96-8	Acenaphthylene	5	U
83-32-9	Acenaphthene	5	U
132-64-9	Dibenzofuran	4	U
86-73-7	Fluorene	4	U
132-65-0	Dibenzothiophene	4	U
85-01-8	Phenanthrene	10	B
120-12-7	Anthracene	4	U
260-94-6	Acridine	10	J
86-74-8	Carbazole	7	U
206-44-0	Fluoranthene	7	B
129-00-0	Pyrene	19	B
56-55-3	Benzo(A)Anthracene	10	U
218-01-9	Chrysene	11	U
205-99-2	Benzo(B)Fluoranthene	10	U
207-08-9	Benzo(K)Fluoranthene	9	U
192-97-2	Benzo(E)Pyrene	7	U
50-32-8	Benzo(A)Pyrene	9	U
198-55-0	Perylene	10	U
193-39-5	Indeno(1,2,3-CD)Pyrene	8	U
53-70-3	Dibenz(A,H)Anthracene	6	U
191-24-2	Benzo(G,H,I)Perylene	11	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42066-07

Lab Name: QUANTERRA Contract: STP-W33-050995

Lab Code: DENVER Case No.: 42066 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42066-07

Sample wt/vol: 1040 (g/mL) ML Lab File ID: C0617

Level: (low/med) LOW Date Received: 05/10/95

% Moisture: decanted: (Y/N) N Date Extracted: 05/11/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/18/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	20	U
496-11-7	2,3-Dihydroindene	620	S
95-13-6	1H-Indene	190	
91-20-3	Naphthalene	67	B
4565-32-6	Benzo(B)Thiophene	180	
91-22-5	Quinoline	5	U
120-72-9	1H-Indole	10	U
91-57-6	2-Methylnaphthalene	34	B
90-12-0	1-Methylnaphthalene	67	
92-52-4	Biphenyl	13	J
208-96-8	Acenaphthylene	5	U
83-32-9	Acenaphthene	66	
132-64-9	Dibenzofuran	8	
86-73-7	Fluorene	12	
132-65-0	Dibenzothiophene	4	U
85-01-8	Phenanthrene	23	B
120-12-7	Anthracene	4	U
260-94-6	Acridine	6	JR
86-74-8	Carbazole	46	
206-44-0	Fluoranthene	11	BR
129-00-0	Pyrene	26	B
56-55-3	Benzo(A)Anthracene	10	U
218-01-9	Chrysene	11	U
205-99-2	Benzo(B)Fluoranthene	10	U
207-08-9	Benzo(K)Fluoranthene	9	U
192-97-2	Benzo(E)Pyrene	7	U
50-32-8	Benzo(A)Pyrene	9	U
198-55-0	Perylene	10	U
193-39-5	Indeno(1,2,3-CD)Pyrene	8	U
53-70-3	Dibenz(A,H)Anthracene	6	U
191-24-2	Benzo(G,H,I)Perylene	11	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42066-07DL

STP-W33-050995

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42066 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42066-07DL

Sample wt/vol: 1040 (g/mL) ML Lab File ID: C0651

Level: (low/med) LOW Date Received: 05/10/95

% Moisture: decanted: (Y/N) N Date Extracted: 05/11/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/26/95

Injection Volume: 2.0(uL) Dilution Factor: 10.0

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-Benzofuran	200	U
496-11-7	2,3-Dihydroindene	880	D
95-13-6	1H-Indene	240	D
91-20-3	Naphthalene	97	BDJ
4565-32-6	Benzo(B)Thiophene	250	D
91-22-5	Quinoline	53	U
120-72-9	1H-Indole	96	U
91-57-6	2-Methylnaphthalene	43	BD
90-12-0	1-Methylnaphthalene	84	D
92-52-4	Biphenyl	160	U
208-96-8	Acenaphthylene	53	U
83-32-9	Acenaphthene	66	D
132-64-9	Dibenzofuran	38	U
86-73-7	Fluorene	38	U
132-65-0	Dibenzothiophene	42	U
85-01-8	Phenanthrene	39	BDJ
120-12-7	Anthracene	42	U
260-94-6	Acridine	110	U
86-74-8	Carbazole	60	DJ
206-44-0	Fluoranthene	50	BDJ
129-00-0	Pyrene	92	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: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42066 SAS No.: SDG No.:

	EPA SAMPLE NO.	S1 (NAP)#	S2 (FLU)#	S3 (CHR)#	TOT OUT
01	42066-01	77.7	93.2	35.8	0
02	42066-01DL	0 D	0 D	0 D	0
03	42066-01DU	66.3	77.4	24.3	0
04	42066-01DUDL	0 D	0 D	0 D	0
05	42066-02	73.5	74.3	51.3	0
06	42066-02DL	0 D	0 D	0 D	0
07	42066-03FB	68.6	74.4	53.2	0
08	42066-04	61.4	79.1	33.9	0
09	42066-04DL	80.6	75.8	43.4	0
10	42066-05	36.3	57.2	20.8	0
11	42066-06	55.7	76.9	18.8	0
12	42066-07	49.2	66.7	22.9	0
13	42066-07DL	64.7	64.0	32.7	0
14	42066-01MS	76.0	82.0	30.2	0
15	42066-01SD	77.7	93.4	32.7	0
16	SBKL01	79.6	90.0	54.5	0
17	SBLK02	76.8	81.3	58.0	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: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42066 SAS No.: SDG No.:

Matrix Spike - EPA Sample No.: 42066-01

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC #	QC LIMITS REC.
1H-Indene	142.00	1455	1524	49	20-150
Naphthalene	142.00	151.4	254.6	73	20-150
Quinoline	142.00	18.98	165.5	103	20-150
2-Methylnaphthalene	142.00	0	127.1	90	20-150
Fluorene	142.00	42.18	147.8	74	69-118
Chrysene	142.00	0	58.90	41	20-132
Benzo(E)Pyrene	142.00	0	0	0 *	20-150

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1H-Indene	142.00	1486	22	76 *	28	20-150
Naphthalene	142.00	243.2	65	12	28	20-150
Quinoline	142.00	168.0	105	2	28	20-150
2-Methylnaphthalene	142.00	125.4	88	1	28	20-150
Fluorene	142.00	167.4	88	17	28	69-118
Chrysene	142.00	68.21	48	15	28	20-132
Benzo(E)Pyrene	142.00	0	0 *	0	28	20-150

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

COMMENTS:

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42066-01MS

STP-W4IOMS-050995

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42066 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42066-01MS

Sample wt/vol: 1050 (g/mL) ML Lab File ID: C0647

Level: (low/med) LOW Date Received: 05/10/95

% Moisture: decanted: (Y/N) N Date Extracted: 05/11/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/25/95

Injection Volume: 2.0(uL) Dilution Factor: 4.0

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-Benzofuran	78	U
496-11-7	2,3-Dihydroindene	3400	SR
95-13-6	1H-Indene	1500	S
91-20-3	Naphthalene	250	B
4565-32-6	Benzo(B)Thiophene	1200	
91-22-5	Quinoline	170	
120-72-9	1H-Indole	38	U
91-57-6	2-Methylnaphthalene	130	B
90-12-0	1-Methylnaphthalene	870	
92-52-4	Biphenyl	110	
208-96-8	Acenaphthylene	87	
83-32-9	Acenaphthene	1100	
132-64-9	Dibenzofuran	15	U
86-73-7	Fluorene	150	
132-65-0	Dibenzothiophene	17	U
85-01-8	Phenanthrene	36	B
120-12-7	Anthracene	16	J
260-94-6	Acridine	44	
86-74-8	Carbazole	640	
206-44-0	Fluoranthene	31	B
129-00-0	Pyrene	40	B
56-55-3	Benzo(A)Anthracene	38	U
218-01-9	Chrysene	59	
205-99-2	Benzo(B)Fluoranthene	38	U
207-08-9	Benzo(K)Fluoranthene	34	U
192-97-2	Benzo(E)Pyrene	28	U
50-32-8	Benzo(A)Pyrene	34	U
198-55-0	Perylene	38	U
193-39-5	Indeno(1,2,3-CD)Pyrene	32	U
53-70-3	Dibenz(A,H)Anthracene	25	U
191-24-2	Benzo(G,H,I)Perylene	42	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

42066-01SD

STP=W410MSD-050995

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42066 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 42066-01SD

Sample wt/vol: 1050 (g/mL) ML Lab File ID: C0648

Level: (low/med) LOW Date Received: 05/10/95

% Moisture: decanted: (Y/N) N Date Extracted: 05/11/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/26/95

Injection Volume: 2.0(uL) Dilution Factor: 4.0

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-Benzofuran	78	U
496-11-7	2,3-Dihydroindene	3400	SR
95-13-6	1H-Indene	1500	S
91-20-3	Naphthalene	240	B
4565-32-6	Benzo(B)Thiophene	1200	
91-22-5	Quinoline	170	
120-72-9	1H-Indole	38	U
91-57-6	2-Methylnaphthalene	130	B
90-12-0	1-Methylnaphthalene	880	
92-52-4	Biphenyl	110	
208-96-8	Acenaphthylene	92	
83-32-9	Acenaphthene	1200	
132-64-9	Dibenzofuran	15	U
86-73-7	Fluorene	170	
132-65-0	Dibenzothiophene	17	U
85-01-8	Phenanthrene	27	BR
120-12-7	Anthracene	17	U
260-94-6	Acridine	47	
86-74-8	Carbazole	630	
206-44-0	Fluoranthene	21	U
129-00-0	Pyrene	21	U
56-55-3	Benzo(A)Anthracene	38	U
218-01-9	Chrysene	68	
205-99-2	Benzo(B)Fluoranthene	38	U
207-08-9	Benzo(K)Fluoranthene	34	U
192-97-2	Benzo(E)Pyrene	28	U
50-32-8	Benzo(A)Pyrene	34	U
198-55-0	Perylene	38	U
193-39-5	Indeno(1,2,3-CD)Pyrene	32	U
53-70-3	Dibenz(A,H)Anthracene	25	U
191-24-2	Benzo(G,H,I)Perylene	42	U

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

SBKL01

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42066 SAS No.: SDG No.:

Lab File ID: C0606 Lab Sample ID: BL051195

Instrument ID: 4500-C Date Extracted: 05/11/95

Matrix: (soil/water) WATER Date Analyzed: 05/17/95

Level:(low/med) LOW Time Analyzed: 1511

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	42066-01	42066-01	C0645	05/25/95
02	42066-01DL	42066-01DL	C0664	05/31/95
03	42066-01DU	42066-01DU	C0646	05/25/95
04	42066-01DUDL	42066-01DUDL	C0665	05/31/95
05	42066-02	42066-02	C0649	05/26/95
06	42066-02DL	42066-02DL	C0677	06/01/95
07	42066-04	42066-04	C0614	05/17/95
08	42066-04DL	42066-04DL	C0650	05/26/95
09	42066-05	42066-05	C0616	05/18/95
10	42066-06	42066-06	C0615	05/17/95
11	42066-07	42066-07	C0617	05/18/95
12	42066-07DL	42066-07DL	C0651	05/26/95
13	42066-01MS	42066-01MS	C0647	05/25/95
14	42066-01SD	42066-01SD	C0648	05/26/95

COMMENTS:

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

SBKL01

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42066 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: BL051195

Sample wt/vol: 1000 (g/mL) ML Lab File ID: C0606

Level: (low/med) LOW Date Received:

% Moisture: decanted: (Y/N) N Date Extracted: 05/11/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/17/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	20	U
496-11-7	2,3-Dihydroindene	6	U
95-13-6	1H-Indene	4	U
91-20-3	Naphthalene	7	J
4565-32-6	Benzo(B)Thiophene	4	U
91-22-5	Quinoline	6	U
120-72-9	1H-Indole	10	U
91-57-6	2-Methylnaphthalene	6	
90-12-0	1-Methylnaphthalene	6	U
92-52-4	Biphenyl	17	U
208-96-8	Acenaphthylene	6	U
83-32-9	Acenaphthene	5	U
132-64-9	Dibenzofuran	4	U
86-73-7	Fluorene	4	U
132-65-0	Dibenzothiophene	4	U
85-01-8	Phenanthrene	12	
120-12-7	Anthracene	4	U
260-94-6	Acridine	12	U
86-74-8	Carbazole	8	U
206-44-0	Fluoranthene	5	J
129-00-0	Pyrene	5	J
56-55-3	Benzo(A)Anthracene	10	U
218-01-9	Chrysene	11	U
205-99-2	Benzo(B)Fluoranthene	10	U
207-08-9	Benzo(K)Fluoranthene	9	U
192-97-2	Benzo(E)Pyrene	8	U
50-32-8	Benzo(A)Pyrene	9	U
198-55-0	Perylene	10	U
193-39-5	Indeno(1,2,3-CD)Pyrene	8	U
53-70-3	Dibenz(A,H)Anthracene	6	U
191-24-2	Benzo(G,H,I)Perylene	11	U

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

SBLK02

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42066 SAS No.: SDG No.:

Lab File ID: C0607 Lab Sample ID: BL051295

Instrument ID: 4500-C Date Extracted: 05/11/95

Matrix: (soil/water) WATER Date Analyzed: 05/17/95

Level:(low/med) LOW Time Analyzed: 1605

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	42066-03FB	42066-03FB	C0613	05/17/95

COMMENTS:

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

SBLK02

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42066 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: BL051295

Sample wt/vol: 1000 (g/mL) ML Lab File ID: C0607

Level: (low/med) LOW Date Received:

% Moisture: decanted: (Y/N) N Date Extracted: 05/11/95

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/17/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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-Benzofuran	20	U
496-11-7	2,3-Dihydroindene	6	U
95-13-6	1H-Indene	4	U
91-20-3	Naphthalene	26	U
4565-32-6	Benzo(B)Thiophene	4	U
91-22-5	Quinoline	6	U
120-72-9	1H-Indole	10	U
91-57-6	2-Methylnaphthalene	4	U
90-12-0	1-Methylnaphthalene	6	U
92-52-4	Biphenyl	17	U
208-96-8	Acenaphthylene	6	U
83-32-9	Acenaphthene	5	U
132-64-9	Dibenzofuran	4	U
86-73-7	Fluorene	4	U
132-65-0	Dibenzothiophene	4	U
85-01-8	Phenanthrene	5	
120-12-7	Anthracene	4	U
260-94-6	Acridine	12	U
86-74-8	Carbazole	8	U
206-44-0	Fluoranthene	6	U
129-00-0	Pyrene	6	U
56-55-3	Benzo(A)Anthracene	10	U
218-01-9	Chrysene	11	U
205-99-2	Benzo(B)Fluoranthene	10	U
207-08-9	Benzo(K)Fluoranthene	9	U
192-97-2	Benzo(E)Pyrene	8	U
50-32-8	Benzo(A)Pyrene	9	U
198-55-0	Perylene	10	U
193-39-5	Indeno(1,2,3-CD)Pyrene	8	U
53-70-3	Dibenz(A,H)Anthracene	6	U
191-24-2	Benzo(G,H,I)Perylene	11	U

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42066 SAS No.: SDG No.:

Lab File ID (Standard): C0605 Date Analyzed: 05/17/95

Instrument ID: 4500-C Time Analyzed: 1418

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	291607	14.10	411940	17.75	288377	27.62
	UPPER LIMIT	583214	14.60	823880	18.25	576754	28.12
	LOWER LIMIT	145804	13.60	205970	17.25	144188	27.12
	EPA SAMPLE NO.						
01	42066-03FB	391740	14.07	526864	17.74	421578	27.69
02	42066-04	404700	14.07	614699	17.74	552060	27.69
03	42066-05	496576	14.09	671861	17.77	314732	27.71
04	42066-06	409262	14.09	579307	17.75	282624	27.71
05	42066-07	422169	14.09	591266	17.75	282591	27.71
06	SBKL01	329672	14.07	505829	17.74	440623	27.67
07	SBLK02	342469	14.09	494076	17.75	350381	27.69

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

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

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

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42066 SAS No.: SDG No.:

Lab File ID (Standard): C0639 Date Analyzed: 05/25/95

Instrument ID: 4500-C Time Analyzed: 1538

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	325408	14.12	409501	17.79	217102	27.52
	UPPER LIMIT	650816	14.62	819002	18.29	434204	28.02
	LOWER LIMIT	162704	13.62	204750	17.29	108551	27.02
	EPA SAMPLE NO.						
01	42066-01	504647	14.19	579156	17.90	284816	27.66
02	42066-01DU	521817	14.20	578902	17.92	287380	27.67
03	42066-02	423104	14.22	494549	17.92	243868	27.69
04	42066-04DL	402040	14.22	448532	17.92	237048	27.67
05	42066-07DL	413533	14.22	459704	17.92	345107	27.67
06	42066-01MS	497800	14.22	532880	17.92	408752	27.67
07	42066-01SD	519408	14.22	585819	17.92	300644	27.67

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

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

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

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42066 SAS No.: SDG No.:

Lab File ID (Standard): C0662 Date Analyzed: 05/31/95

Instrument ID: 4500-C Time Analyzed: 1314

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	370324	13.84	392205	17.47	332045	27.22
	UPPER LIMIT	740648	14.34	784410	17.97	664090	27.72
	LOWER LIMIT	185162	13.34	196102	16.97	166022	26.72
	EPA SAMPLE NO.						
01	42066-01DL	398328	13.94	437479	17.62	343465	27.37
02	42066-01DUDL	439851	13.94	391636	17.64	412115	27.37

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

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

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

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QUANTERRA Contract:

Lab Code: DENVER Case No.: 42066 SAS No.: SDG No.:

Lab File ID (Standard): C0672 Date Analyzed: 06/01/95

Instrument ID: 4500-C Time Analyzed: 1111

		IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	365581	14.19	442483	17.90	362957	27.62
	UPPER LIMIT	731162	14.69	884966	18.40	725914	28.12
	LOWER LIMIT	182790	13.69	221242	17.40	181478	27.12
	EPA SAMPLE NO.						
01	42066-02DL	340831	14.17	399348	17.89	287010	27.62

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.

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

STP-W409-050995

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 42069 SAS No.: SDG No.: 42069

Matrix: (soil/water) WATER Lab Sample ID: 42069-09

Sample wt/vol: 1062 (g/ml) ML Lab File ID: T0801871

Level: (low/med) LOW Date Received: 05/10/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/12/95

Concentrated Extract Volume: 1(ml) Date Analyzed: 05/30/95

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	48.2	
91-57-6	2-Methylnaphthalene	9.42	U
208-96-8	Acenaphthylene	9.42	U
83-32-9	Acenaphthene	12.9	
132-64-9	Dibenzofuran	4.47	J
86-73-7	Fluorene	4.64	J
85-01-8	Phenanthrene	3.16	J
120-12-7	Anthracene	9.42	U
206-44-0	Fluoranthene	9.42	U
129-00-0	Pyrene	9.42	U
56-55-3	Benzo(a)Anthracene	9.42	U
218-01-9	Chrysene	9.42	U
205-99-2	Benzo(b)fluoranthene	9.42	U
207-08-9	Benzo(k)fluoranthene	9.42	U
50-32-8	Benzo(a)pyrene	9.42	U
193-39-5	Indeno(1 2 3-cd)pyrene	9.42	U
53-70-3	Dibenzo(a h)anthracene	9.42	U
191-24-2	Benzo(g h i)perylene	9.42	U
86-74-8	Carbazole	5.46	J
95-13-6	1H-Indene	27.1	
91-22-5	Quinoline	9.42	U
90-12-0	1-Methylnaphthalene	17.2	
271-89-6	2,3-Benzofuran	2.28	J
496-11-7	2,3-Dihydroindene	35.0	
95-15-8	Benzo(b)thiophene	13.7	
120-72-9	1H-Indole	9.42	U
92-52-4	Biphenyl	3.00	J
132-65-0	Dibenzothiophene	9.42	U
260-94-6	Acridine	9.42	U
192-97-2	Benzo(e)pyrene	9.42	U
198-55-0	Perylene	9.42	U

SECOND HALF MONITORING

Quanterra Environmental Services

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

NOV 1995
RECEIVED

CASE NARRATIVE

FOR

City of St. Louis Park

November 22, 1995

Quanterra Environmental Services

Project Number 045083

Introduction

Eight aqueous samples (including matrix QC) were received at Quanterra Environmental Services, Denver Laboratory on October 10, 1995. The samples were logged in under Quanterra's Denver laboratory project number 045083. Sample STP-SLP3FBD-100995 (045083-02FD) was extracted and held per the April 1990 QAPP. A cross reference associating Quanterra's Denver laboratory sample numbers to the actual field sample number is included. The samples were analyzed for low level part-per-trillion (ppt) polynuclear aromatic hydrocarbons (PAH).

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the 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 STP-W408 (045083-04) was analyzed at the appropriate dilution to bring the concentrations of target compounds within the calibration range of the method. The reporting limits were raised accordingly.

Due to laboratory error the concentrations of the surrogate mix and the matrix spike mix were spiked in the samples at inappropriately high levels. The samples were analyzed at the lowest possible dilutions and at dilutions to bring the surrogate compounds within the calibration range of the method. The matrix spike/matrix spike duplicate samples were diluted to bring the concentrations of the spiked compounds within the calibration range of the method. The surrogate compounds were diluted out of the matrix spike and matrix spike duplicate samples. All sample surrogates and matrix spike/matrix spike duplicate compounds were in control.

Sample STP-P116 (045083-05) showed the surrogate chrysene-d12 outside control limits (low). Inspection of the chromatogram for this sample indicates a possible matrix effect. The internal standards for this sample were in control.

Due to laboratory error sample STP-SLP3FB (045083-02FB) was prepared incorrectly. STP-SLP3FBD (045083-02FD) was reported in its place.

The method blank analyzed with these samples showed concentrations of some compounds near the reporting limits. The samples are annotated accordingly.

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 045083 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.

A standard is now available for Benzo(J)Fluoranthene. Laboratory studies have shown that Benzo(J)Fluoranthene will coelute with either Benzo(B)Fluoranthene or Benzo(K)Fluoranthene depending on the relative concentration of these two compounds in solution. For this project Benzo(B)Fluoranthene and Benzo(J)Fluoranthene will be reported as Benzo(B)Fluoranthene.

Quanterra
Environmental Services

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:** 11/22/95
Daniel Rebarchik
Program Administrator

Approved by: _____ **Date:** 11/22/95
Kevin McHugh
Program Manager

Quanterra Environmental Services

QUALIFIER CODES AND THEIR USAGE

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

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

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

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

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

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

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

QUALIFIER CODES AND THEIR USAGE
Page Two

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

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

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

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

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

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 045083	Group Code	Analysis Description	Custom Test?
0001 - 0007	A	Polynuclear Aromatic Hydrocarbons, SIM Low Level	N
		Prep - PAH/SIM by GC/MS Low Level	N
0002	B	Prep - PAH/SIM by GC/MS Low Level	N
		Polynuclear Aromatic Hydrocarbons, SIM Low Level	N

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
045083-0001-SA	STP-SLP3-100995	AQUEOUS	09 OCT 95		10 OCT 95
045083-0001-DU	STP-SLP3D-100995	AQUEOUS	09 OCT 95		10 OCT 95
045083-0001-MS	STP-SLP3MS-100995	AQUEOUS	09 OCT 95		10 OCT 95
045083-0001-SD	STP-SLP3MSD-100995	AQUEOUS	09 OCT 95		10 OCT 95
045083-0002-FB	STP-SLP3FB-100995	AQUEOUS	09 OCT 95		10 OCT 95
045083-0002-FD	STP-SLP3FBD-100995	AQUEOUS	09 OCT 95		10 OCT 95
045083-0003-SA	STP-W122-100995	AQUEOUS	09 OCT 95	15:05	10 OCT 95
045083-0004-SA	STP-W408-100995	AQUEOUS	09 OCT 95	16:20	10 OCT 95
045083-0005-SA	STP-P116-100995	AQUEOUS	09 OCT 95	14:00	10 OCT 95
045083-0006-SA	STP-W129-100995	AQUEOUS	09 OCT 95	12:40	10 OCT 95
045083-0007-SA	STP-W411-100995	AQUEOUS	09 OCT 95	11:40	10 OCT 95

CHAIN OF CUSTODY

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431 7171 Fax

Quanterra Environmental Services

QUANTERRA CLIENT

PROJECT

Scott Anderson
SA City of St. Louis Park
3752 Wooddale Ave.
SA St. Louis PArk, MN 55416

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: 6.4 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
10-9-95		STP-SLP3-100995	1XL AMBER	6	PPL PAH	PPL5 -1
10-9-95		STP-SLP3D-100995	1XL AMBER	6	PPL PAH	PPL5 -1 DUP

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MZR

METHOD OF SHIPMENT: FED EX

AIRBILL NUMBER: 2103421316

RECEIVED FOR LAB: QES

SIGNED: DDechow

DATE/TIME: 10/10/95 845

QUANTERRA PROJECT NUMBER: 45083

QUA-4119

White – Client Pink – LAB

CHAIN OF CUSTODY

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

Quanterra Environmental Services

SAMPLE SAFE™ CONDITIONS

QUANTERRA CLIENT: CITY OF ST LOUIS PARK	PACKED BY: MJH
	SEAL NUMBER:
PROJECT:	SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:
	CONDITION OF CONTENTS:
SAMPLING COMPANY: SAME	SEALED FOR SHIPPING BY: MJH
	INITIAL CONTENTS TEMP: °C
SAMPLING SITE: SAME	SEAL NUMBER:
	SAMPLING STATUS: ☐ Done ☐ Continuing Until
TEAM LEADER: MJH	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
10-9-95		STP-SLP3MS-100995	1XL AMBER	6	PPE PAH	PPE -1MS
10-9-95		STP-SLP3MSD-100995	1XL AMBER	6	PPE PAH	PPES -1SD

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: 2103421316
RECEIVED FOR LAB: GES	SIGNED: [signature] DATE/TIME: 10/10/95 8:45
QUANTERRA PROJECT NUMBER: 95083	

QUA-4119

White - CLIENT Pink - LAB

CHAIN OF CUSTODY

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

Quanterra Environmental Services

QUANTERRA CLIENT: City of ST Louis Park

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: 4.1 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
10-9-95		STP-SLP3FB -100995	1XL AMBER	6	PPL PAH	PPL 5 -2FB
10-9-95		STP-SLP3FBD-100995	1XL AMBER	6	PPL PAH	PPL 5 -2FD

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: 2103421316

RECEIVED FOR LAB: RES

SIGNED: [signature]

DATE/TIME: 10/10/95 800

QUANTERRA PROJECT NUMBER: 4583

QUA-4119

White - CLIENT Pink - LAB

CHAIN OF CUSTODY

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

Quanterra Environmental Services

QUANTERRA CLIENT: City of St Louis Park	
PROJECT: SLP	
SAMPLING COMPANY: ENSR	
SAMPLING SITE: SLP	
TEAM LEADER: Pika Moore	

SAMPLE SAFE™ CONDITIONS

PACKED BY: Pika Moore / ENSR	SEAL NUMBER: NA
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY: NA	CONDITION OF CONTENTS: OK
SEALED FOR SHIPPING BY: Pika Moore / ENSR	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: 6.0 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
10/9/95	15:05	STP-WD2-100995	H_2O	6	PPT-PAH	PPT-S--- -3
10/9/95	16:20	STP-W408-100995	H_2O	6	PPT-PAH	PPT-S--- -4

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME
[signature]		10/9/95	16:40

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: ENSR		
METHOD OF SHIPMENT: FED-EX		AIRBILL NUMBER:
RECEIVED FOR LAB: QES	SIGNED: [signature]	DATE/TIME: 10/10/95 845
QUANTERRA PROJECT NUMBER: 45083		

QUA-4119

White - CLIENT Pink - LAB

CHAIN OF CUSTODY

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421 6611 Telephone
303 431-7171 Fax

Quanterra Environmental Services

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

SAMPLE SAFE™ CONDITIONS

PACKED BY: Peter Moore ENSR	SEAL NUMBER: NA
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY: NA	CONDITION OF CONTENTS: OK
SEALED FOR SHIPPING BY: Peter Moore / ENSR	INITIAL CONTENTS TEMP: °C
SEAL NUMBER: NA	SAMPLING STATUS: ☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB: ☑ Yes ☐ No	CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 3.9 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
10/9/95	14:00	STP-P116-100995	H2O	6	PPT-PAH	PPT-5-5
10/9/95	12:40	STP-W129-100995	H2O	6	PPT-PAH	PPT-5-6
10/9/95	11:40	STP-W411-100995	H2O	6	PPT-PAH	PPT-5-7

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME
[signature]		10/9/95	

SHIPPING DETAILS

DELIVERED TO SHIPPER BY		
METHOD OF SHIPMENT		AIRBILL NUMBER
RECEIVED FOR LAB: QES	SIGNED: [signature]	DATE/TIME: 10/10/95 845
QUANTERRA PROJECT NUMBER: 45083		

QUA-4119

White - CLIENT Pink - LAB

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

STP-SLP3

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 45083 SAS No.: SDG No.: 45083

Matrix: (soil/water) WATER Lab Sample ID: 45083-01

Sample wt/vol: 4240 (g/ml) ML Lab File ID: A1601382

Level: (low/med) LOW Date Received: 10/10/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/11/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 11/08/95

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
91-20-3	Naphthalene	6	B
91-57-6	2-Methylnaphthalene	3	B
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	0.9	U
86-73-7	Fluorene	1	R
85-01-8	Phenanthrene	2	B
120-12-7	Anthracene	1	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
207-08-9	Benzo(b)fluoranthene	2	U
50-32-8	Benzo(a)pyrene	2	U
193-39-5	Indeno(1,2,3-cd)pyrene	2	U
53-70-3	Dibenzo(a,h)anthracene	2	U
191-24-2	Benzo(g,h,i)perylene	3	U
86-74-8	Carbazole	2	U
95-13-6	1H-Indene	1	B
91-22-5	Quinoline	1	U
90-12-0	1-Methylnaphthalene	2	U
271-89-6	2,3-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	3	B
95-15-8	Benzo(b)thiophene	0.8	U
120-72-9	1H-Indole	2	U
92-52-4	Biphenyl	4	U
132-65-0	Dibenzothiophene	1	U
260-94-6	Acridine	3	U
192-97-2	Benzo(e)pyrene	2	U
198-55-0	Perylene	2	U
57-97-6	7,12-Dimethylbenz(a)anthrace	3	U
56-49-5	3-Methylcholanthrene	3	U
205-08-9	Benzo(k)fluoranthene	2	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

STP-SLP3D

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 45083 SAS No.: SDG No.: 45083

Matrix: (soil/water) WATER Lab Sample ID: 45083-01DU

Sample wt/vol: 4240 (g/ml) ML Lab File ID: A1701383

Level: (low/med) LOW Date Received: 10/10/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/11/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 11/08/95

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
91-20-3	Naphthalene	8	B
91-57-6	2-Methylnaphthalene	5	B
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	
86-73-7	Fluorene	1	
85-01-8	Phenanthrene	5	B
120-12-7	Anthracene	1	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
207-08-9	Benzo(b)fluoranthene	2	U
50-32-8	Benzo(a)pyrene	2	U
193-39-5	Indeno(1,2,3-cd)pyrene	2	U
53-70-3	Dibenzo(a,h)anthracene	2	U
191-24-2	Benzo(g,h,i)perylene	3	U
86-74-8	Carbazole	2	U
95-13-6	1H-Indene	1	B
91-22-5	Quinoline	1	U
90-12-0	1-Methylnaphthalene	2	B
271-89-6	2,3-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	3	B
95-15-8	Benzo(b)thiophene	0.8	U
120-72-9	1H-Indole	2	U
92-52-4	Biphenyl	4	U
132-65-0	Dibenzothiophene	1	U
260-94-6	Acridine	3	U
192-97-2	Benzo(e)pyrene	2	U
198-55-0	Perylene	2	U
57-97-6	7,12-Dimethylbenz(a)anthrace	3	U
56-49-5	3-Methylcholanthrene	3	U
205-08-9	Benzo(k)fluoranthene	2	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

STP-SLP3FBD

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 45083 SAS No.: SDG No.: 45083

Matrix: (soil/water) WATER Lab Sample ID: 45083-02FD

Sample wt/vol: 4230 (g/ml) ML Lab File ID: A0301389

Level: (low/med) LOW Date Received: 10/10/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/11/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 11/09/95

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
91-20-3	Naphthalene	8	B
91-57-6	2-Methylnaphthalene	4	B
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	0.9	U
86-73-7	Fluorene	0.9	U
85-01-8	Phenanthrene	2	B
120-12-7	Anthracene	1	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
207-08-9	Benzo(b)fluoranthene	2	U
50-32-8	Benzo(a)pyrene	2	U
193-39-5	Indeno(1,2,3-cd)pyrene	2	U
53-70-3	Dibenzo(a,h)anthracene	2	U
191-24-2	Benzo(g,h,i)perylene	3	U
86-74-8	Carbazole	2	U
95-13-6	1H-Indene	1	B
91-22-5	Quinoline	1	U
90-12-0	1-Methylnaphthalene	2	B
271-89-6	2,3-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	4	B
95-15-8	Benzo(b)thiophene	0.8	U
120-72-9	1H-Indole	2	U
92-52-4	Biphenyl	4	U
132-65-0	Dibenzothiophene	1	U
260-94-6	Acridine	3	U
192-97-2	Benzo(e)pyrene	2	U
198-55-0	Perylene	2	U
57-97-6	7,12-Dimethylbenz(a)anthrace	3	U
56-49-5	3-Methylcholanthrene	3	U
205-08-9	Benzo(k)fluoranthene	2	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

STP-W122

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 45083 SAS No.: SDG No.: 45083

Matrix: (soil/water) WATER Lab Sample ID: 45083-03

Sample wt/vol: 4240 (g/ml) ML Lab File ID: A0301411

Level: (low/med) LOW Date Received: 10/10/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/11/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 11/10/95

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
91-20-3	Naphthalene	52	B
91-57-6	2-Methylnaphthalene	28	B
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	13	
132-64-9	Dibenzofuran	10	
86-73-7	Fluorene	9	
85-01-8	Phenanthrene	1	U
120-12-7	Anthracene	1	U
206-44-0	Fluoranthene	8	
129-00-0	Pyrene	48	
56-55-3	Benzo(a)Anthracene	2	U
218-01-9	Chrysene	3	U
207-08-9	Benzo(b)fluoranthene	2	U
50-32-8	Benzo(a)pyrene	2	U
193-39-5	Indeno(1,2,3-cd)pyrene	2	U
53-70-3	Dibenzo(a,h)anthracene	2	U
191-24-2	Benzo(g,h,i)perylene	9	
86-74-8	Carbazole	12	
95-13-6	1H-Indene	6	B
91-22-5	Quinoline	2	
90-12-0	1-Methylnaphthalene	20	B
271-89-6	2,3-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	7	B
95-15-8	Benzo(b)thiophene	0.8	U
120-72-9	1H-Indole	2	U
92-52-4	Biphenyl	7	
132-65-0	Dibenzothiophene	1	U
260-94-6	Acridine	3	U
192-97-2	Benzo(e)pyrene	2	U
198-55-0	Perylene	2	U
57-97-6	7,12-Dimethylbenz(a)anthrace	3	U
56-49-5	3-Methylcholanthrene	3	U
205-08-9	Benzo(k)fluoranthene	2	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

STP-W408

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 45083 SAS No.: SDG No.: 45083

Matrix: (soil/water) WATER Lab Sample ID: 45083-04

Sample wt/vol: 4220 (g/ml) ML Lab File ID: A0801416

Level: (low/med) LOW Date Received: 10/10/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/11/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 11/10/95

Injection Volume: 1.0(uL) Dilution Factor: 4.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
91-20-3	Naphthalene	28	B
91-57-6	2-Methylnaphthalene	14	BR
208-96-8	Acenaphthylene	5	U
83-32-9	Acenaphthene	12	
132-64-9	Dibenzofuran	8	
86-73-7	Fluorene	8	
85-01-8	Phenanthrene	8	B
120-12-7	Anthracene	4	U
206-44-0	Fluoranthene	7	
129-00-0	Pyrene	15	
56-55-3	Benzo(a)Anthracene	9	U
218-01-9	Chrysene	11	U
207-08-9	Benzo(b)fluoranthene	15	
50-32-8	Benzo(a)pyrene	9	U
193-39-5	Indeno(1,2,3-cd)pyrene	8	U
53-70-3	Dibenzo(a,h)anthracene	6	U
191-24-2	Benzo(g,h,i)perylene	11	U
86-74-8	Carbazole	19	
95-13-6	1H-Indene	4	B
91-22-5	Quinoline	6	U
90-12-0	1-Methylnaphthalene	12	BR
271-89-6	2,3-Benzofuran	19	U
496-11-7	2,3-Dihydroindene	6	U
95-15-8	Benzo(b)thiophene	3	U
120-72-9	1H-Indole	9	U
92-52-4	Biphenyl	16	U
132-65-0	Dibenzothiophene	4	U
260-94-6	Acridine	11	U
192-97-2	Benzo(e)pyrene	7	U
198-55-0	Perylene	9	U
57-97-6	7,12-Dimethylbenz(a)anthrace	11	U
56-49-5	3-Methylcholanthrene	13	U
205-08-9	Benzo(k)fluoranthene	9	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

STP-P116

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 45083 SAS No.: SDG No.: 45083

Matrix: (soil/water) WATER Lab Sample ID: 45083-05

Sample wt/vol: 4220 (g/ml) ML Lab File ID: A0601392

Level: (low/med) LOW Date Received: 10/10/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/11/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 11/09/95

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
91-20-3	Naphthalene	13	B
91-57-6	2-Methylnaphthalene	12	B
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	2	
132-64-9	Dibenzofuran	2	
86-73-7	Fluorene	2	
85-01-8	Phenanthrene	5	B
120-12-7	Anthracene	1	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
207-08-9	Benzo(b)fluoranthene	2	U
50-32-8	Benzo(a)pyrene	2	U
193-39-5	Indeno(1,2,3-cd)pyrene	2	U
53-70-3	Dibenzo(a,h)anthracene	2	U
191-24-2	Benzo(g,h,i)perylene	3	U
86-74-8	Carbazole	2	U
95-13-6	1H-Indene	1	BR
91-22-5	Quinoline	1	U
90-12-0	1-Methylnaphthalene	6	B
271-89-6	2,3-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	2	B
95-15-8	Benzo(b)thiophene	0.8	U
120-72-9	1H-Indole	2	U
92-52-4	Biphenyl	4	U
132-65-0	Dibenzothiophene	1	U
260-94-6	Acridine	3	U
192-97-2	Benzo(e)pyrene	2	U
198-55-0	Perylene	3	
57-97-6	7,12-Dimethylbenz(a)anthrace	3	U
56-49-5	3-Methylcholanthrene	3	U
205-08-9	Benzo(k)fluoranthene	2	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

STP-W129

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 45083 SAS No.: SDG No.: 45083

Matrix: (soil/water) WATER Lab Sample ID: 45083-06

Sample wt/vol: 4170 (g/ml) ML Lab File ID: A0701393

Level: (low/med) LOW Date Received: 10/10/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/11/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 11/09/95

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
91-20-3	Naphthalene	12	B
91-57-6	2-Methylnaphthalene	7	B
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	3	R
132-64-9	Dibenzofuran	2	
86-73-7	Fluorene	2	
85-01-8	Phenanthrene	7	B
120-12-7	Anthracene	1	U
206-44-0	Fluoranthene	3	
129-00-0	Pyrene	7	
56-55-3	Benzo(a)Anthracene	2	U
218-01-9	Chrysene	3	U
207-08-9	Benzo(b)fluoranthene	2	U
50-32-8	Benzo(a)pyrene	2	U
193-39-5	Indeno(1,2,3-cd)pyrene	2	U
53-70-3	Dibenzo(a,h)anthracene	2	U
191-24-2	Benzo(g,h,i)perylene	3	U
86-74-8	Carbazole	4	
95-13-6	1H-Indene	1	B
91-22-5	Quinoline	1	U
90-12-0	1-Methylnaphthalene	4	B
271-89-6	2,3-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	3	B
95-15-8	Benzo(b)thiophene	0.9	U
120-72-9	1H-Indole	2	U
92-52-4	Biphenyl	4	U
132-65-0	Dibenzothiophene	1	U
260-94-6	Acridine	3	U
192-97-2	Benzo(e)pyrene	2	U
198-55-0	Perylene	2	U
57-97-6	7,12-Dimethylbenz(a)anthrace	3	U
56-49-5	3-Methylcholanthrene	3	U
205-08-9	Benzo(k)fluoranthene	2	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

STP-W411

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 45083 SAS No.: SDG No.: 45083

Matrix: (soil/water) WATER Lab Sample ID: 45083-07

Sample wt/vol: 4220 (g/ml) ML Lab File ID: A0501413

Level: (low/med) LOW Date Received: 10/10/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/11/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 11/10/95

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
91-20-3	Naphthalene	18	B
91-57-6	2-Methylnaphthalene	12	B
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	6	
132-64-9	Dibenzofuran	5	
86-73-7	Fluorene	5	
85-01-8	Phenanthrene	16	B
120-12-7	Anthracene	1	U
206-44-0	Fluoranthene	8	
129-00-0	Pyrene	33	
56-55-3	Benzo(a)Anthracene	2	U
218-01-9	Chrysene	3	U
207-08-9	Benzo(b)fluoranthene	2	U
50-32-8	Benzo(a)pyrene	2	U
193-39-5	Indeno(1,2,3-cd)pyrene	2	U
53-70-3	Dibenzo(a,h)anthracene	2	U
191-24-2	Benzo(g,h,i)perylene	3	U
86-74-8	Carbazole	16	
95-13-6	1H-Indene	7	B
91-22-5	Quinoline	1	
90-12-0	1-Methylnaphthalene	8	B
271-89-6	2,3-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	4	B
95-15-8	Benzo(b)thiophene	0.8	U
120-72-9	1H-Indole	2	U
92-52-4	Biphenyl	4	U
132-65-0	Dibenzothiophene	1	U
260-94-6	Acridine	45	
192-97-2	Benzo(e)pyrene	2	U
198-55-0	Perylene	2	U
57-97-6	7,12-Dimethylbenz(a)anthrace	3	U
56-49-5	3-Methylcholanthrene	3	U
205-08-9	Benzo(k)fluoranthene	2	U

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 45083 SAS No.: SDG No.: 45083

	EPA SAMPLE NO.	S1 #	S2 #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	SBLK01	84	83	67						0
02	STP-SLP3	80	58	64						0
03	STP-SLP3D	82	43	66						0
04	STP-SLP3MS	0D	0D	0D						0
05	STP-SLP3MSD	0D	0D	0D						0
06	STP-SLP3FBD	80	68	60						0
07	STP-W122	45	13	48						0
08	STP-W408	57	11	55						0
09	STP-P116	57	9*	48						0
10	STP-W129	58	31	50						0
11	STP-W411	39	11	42						0
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										

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

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

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 45083 SAS No.: SDG No.: 45083

Matrix Spike - EPA Sample No.: STP-SLP3

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC #	QC. LIMITS REC.
Naphthalene	23800	6.56	18700	78	20-150
2-Methylnaphthalene	23800	2.99	17300	73	20-150
Fluorene	23800	1.07	18100	76	20-150
Chrysene	23800	0.000	15600	66	20-150
1H-Indene	23800	1.26	20300	85	20-150
Quinoline	23800	0.000	13300	56	20-150
Benzo(e)pyrene	23800	0.000	19400	82	20-150

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Naphthalene	23600	17500	74	5	20	20-150
2-Methylnaphthalene	23600	16400	69	6	20	20-150
Fluorene	23600	17800	75	1	20	20-150
Chrysene	23600	16600	70	6	20	20-150
1H-Indene	23600	17400	74	14	20	20-150
Quinoline	23600	12700	54	4	20	20-150
Benzo(e)pyrene	23600	20400	86	5	20	20-150

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

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

COMMENTS: _____

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

STP-SLP3MS

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 45083 SAS No.: SDG No.: 45083

Matrix: (soil/water) WATER Lab Sample ID: 45083-01MS

Sample wt/vol: 4210 (g/ml) ML Lab File ID: A0701373

Level: (low/med) LOW Date Received: 10/10/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/11/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 11/08/95

Injection Volume: 1.0(uL) Dilution Factor: 500.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
91-20-3	Naphthalene	19000	B
91-57-6	2-Methylnaphthalene	17000	B
208-96-8	Acenaphthylene	660	U
83-32-9	Acenaphthene	620	U
132-64-9	Dibenzofuran	480	U
86-73-7	Fluorene	18000	
85-01-8	Phenanthrene	620	U
120-12-7	Anthracene	520	U
206-44-0	Fluoranthene	660	U
129-00-0	Pyrene	660	U
56-55-3	Benzo(a)Anthracene	1200	U
218-01-9	Chrysene	16000	
207-08-9	Benzo(b)fluoranthene	1200	U
50-32-8	Benzo(a)pyrene	1100	U
193-39-5	Indeno(1,2,3-cd)pyrene	1000	U
53-70-3	Dibenzo(a,h)anthracene	760	U
191-24-2	Benzo(g,h,i)perylene	1300	U
86-74-8	Carbazole	900	U
95-13-6	1H-Indene	20000	B
91-22-5	Quinoline	13000	
90-12-0	1-Methylnaphthalene	760	U
271-89-6	2,3-Benzofuran	2400	U
496-11-7	2,3-Dihydroindene	660	U
95-15-8	Benzo(b)thiophene	430	U
120-72-9	1H-Indole	1200	U
92-52-4	Biphenyl	2000	U
132-65-0	Dibenzothiophene	520	U
260-94-6	Acridine	1400	U
192-97-2	Benzo(e)pyrene	19000	
198-55-0	Perylene	1200	U
57-97-6	7,12-Dimethylbenz(a)anthrace	1300	U
56-49-5	3-Methylcholanthrene	1700	U
205-08-9	Benzo(k)fluoranthene	1100	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

STP-SLP3MSD

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 45083 SAS No.: SDG No.: 45083

Matrix: (soil/water) WATER Lab Sample ID: 45083-01MSD

Sample wt/vol: 4230 (g/ml) ML Lab File ID: A0801374

Level: (low/med) LOW Date Received: 10/10/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/11/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 11/08/95

Injection Volume: 1.0(uL) Dilution Factor: 500.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
91-20-3	Naphthalene	18000	B
91-57-6	2-Methylnaphthalene	16000	B
208-96-8	Acenaphthylene	660	U
83-32-9	Acenaphthene	610	U
132-64-9	Dibenzofuran	470	U
86-73-7	Fluorene	18000	
85-01-8	Phenanthrene	610	U
120-12-7	Anthracene	520	U
206-44-0	Fluoranthene	660	U
129-00-0	Pyrene	660	U
56-55-3	Benzo(a)Anthracene	1200	U
218-01-9	Chrysene	17000	
207-08-9	Benzo(b)fluoranthene	1200	U
50-32-8	Benzo(a)pyrene	1100	U
193-39-5	Indeno(1,2,3-cd)pyrene	990	U
53-70-3	Dibenzo(a,h)anthracene	760	U
191-24-2	Benzo(g,h,i)perylene	1300	U
86-74-8	Carbazole	900	U
95-13-6	1H-Indene	17000	B
91-22-5	Quinoline	13000	
90-12-0	1-Methylnaphthalene	760	U
271-89-6	2,3-Benzofuran	2400	U
496-11-7	2,3-Dihydroindene	660	U
95-15-8	Benzo(b)thiophene	420	U
120-72-9	1H-Indole	1200	U
92-52-4	Biphenyl	2000	U
132-65-0	Dibenzothiophene	520	U
260-94-6	Acridine	1400	U
192-97-2	Benzo(e)pyrene	20000	
198-55-0	Perylene	1200	U
57-97-6	7,12-Dimethylbenz(a)anthrace	1300	U
56-49-5	3-Methylcholanthrene	1600	U
205-08-9	Benzo(k)fluoranthene	1100	U

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

SBLK01

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 45083 SAS No.: SDG No.: 45083

Lab File ID: A1501381 Lab Sample ID: SBLK01

Instrument ID: A Date Extracted: 10/11/95

Matrix: (soil/water) WATER Date Analyzed: 11/08/95

Level:(low/med) LOW Time Analyzed: 2051

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	STP-SLP3MS	45083-01MS	A0701373	11/08/95
02	STP-SLP3MSD	45083-01MSD	A0801374	11/08/95
03	STP-SLP3	45083-01	A1601382	11/08/95
04	STP-SLP3D	45083-01DU	A1701383	11/08/95
05	STP-SLP3FBD	45083-02FD	A0301389	11/09/95
06	STP-P116	45083-05	A0601392	11/09/95
07	STP-W129	45083-06	A0701393	11/09/95
08	STP-W122	45083-03	A0301411	11/10/95
09	STP-W411	45083-07	A0501413	11/10/95
10	STP-W408	45083-04	A0801416	11/10/95
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COMMENTS:

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLK01

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 45083 SAS No.: SDG No.: 45083

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

Sample wt/vol: 4000 (g/ml) ML Lab File ID: A1501381

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

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/11/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 11/08/95

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
91-20-3	Naphthalene	8	
91-57-6	2-Methylnaphthalene	3	
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	1	U
86-73-7	Fluorene	1	U
85-01-8	Phenanthrene	2	
120-12-7	Anthracene	1	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
207-08-9	Benzo(b)fluoranthene	2	U
50-32-8	Benzo(a)pyrene	2	U
193-39-5	Indeno(1,2,3-cd)pyrene	2	U
53-70-3	Dibenzo(a,h)anthracene	2	U
191-24-2	Benzo(g,h,i)perylene	3	U
86-74-8	Carbazole	2	U
95-13-6	1H-Indene	2	
91-22-5	Quinoline	1	U
90-12-0	1-Methylnaphthalene	2	
271-89-6	2,3-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	4	
95-15-8	Benzo(b)thiophene	0.9	U
120-72-9	1H-Indole	2	U
92-52-4	Biphenyl	4	U
132-65-0	Dibenzothiophene	1	U
260-94-6	Acridine	3	U
192-97-2	Benzo(e)pyrene	2	U
198-55-0	Perylene	2	U
57-97-6	7,12-Dimethylbenz(a)anthrace	3	U
56-49-5	3-Methylcholanthrene	4	U
205-08-9	Benzo(k)fluoranthene	2	U

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 45083 SAS No.: SDG No.: 45083

Lab File ID (Standard): A366 Date Analyzed: 11/08/95

Instrument ID: A Time Analyzed: 1050

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	186611	12.70	312036	15.19	183229	21.78
	UPPER LIMIT	373222	13.20	624072	15.69	366458	22.28
	LOWER LIMIT	93306	12.20	156018	14.69	91614	21.28
	EPA SAMPLE NO.						
01	STP-SLP3MS	180889	12.70	282911	15.19	110675	21.78
02	STP-SLP3MSD	183264	12.71	274009	15.19	114030	21.78
03	SBLK01	268143	12.70	478660	15.19	284221	21.78
04	STP-SLP3	280189	12.71	507897	15.19	280049	21.78
05	STP-SLP3D	290918	12.70	540414	15.20	365607	21.79
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IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = Benzo(a)pyrene-d12

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

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

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 45083 SAS No.: SDG No.: 45083

Lab File ID (Standard): A386 Date Analyzed: 11/09/95

Instrument ID: A Time Analyzed: 0811

		IS1 (ANT) AREA #	RT #	IS2 (PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	223815	12.73	357123	15.21	149506	21.80
	UPPER LIMIT	447630	13.23	714246	15.71	299012	22.30
	LOWER LIMIT	111908	12.23	178562	14.71	74753	21.30
	EPA SAMPLE NO.						
01	STP-SLP3FBD	300440	12.72	533670	15.21	295216	21.80
02	STP-P116	287583	12.72	538518	15.21	273427	21.80
03	STP-W129	280543	12.72	474165	15.21	287269	21.80
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22							

IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = Benzo(a)pyrene-d12

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

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

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 45083 SAS No.: SDG No.: 45083

Lab File ID (Standard): A408 Date Analyzed: 11/10/95

Instrument ID: A Time Analyzed: 0830

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	208863	12.68	352097	15.16	193298	21.75
	UPPER LIMIT	417726	13.18	704194	15.66	386596	22.25
	LOWER LIMIT	104432	12.18	176048	14.66	96649	21.25
	EPA SAMPLE NO.						
01	STP-W122	337475	12.68	638776	15.16	315367	21.75
02	STP-W411	325339	12.68	481241	15.16	334811	21.75
03	STP-W408	153297	12.68	449906	15.16	296775	21.75
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22							

IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = Benzo(a)pyrene-d12

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

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

Quanterra Environmental Services

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CASE NARRATIVE

FOR

City of St. Louis Park

December 8, 1995

Quanterra Environmental Services

Project Number 045108

Introduction

Ten aqueous samples (includes QC) were received at Quanterra's Denver laboratory on October 11, 1995. The samples were logged in under Quanterra's Denver laboratory project number 045108. Sample STP-W410FBD-101095 (045108-06FD) 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 STP-W412 (045108-01), STP-W33 (045108-02), STP-W133 (045108-03), STP-W24 (045108-04), STP-W410 (045108-05) and STP-W410D (042066-05DU) required that the samples be diluted due to concentrations of target compounds. The reporting limits have been raised accordingly.

The surrogates were diluted out of samples STP-W410 (045108-05), STP-W410D (045108-05DU), STP-W410MS (045108-05MS) and STP-W410MSD (045108-05SD).

Due to laboratory error the concentrations of the surrogate mix and the matrix spike mix were spiked in the samples at inappropriately high levels. The samples were analyzed at the lowest possible dilutions and/or at dilutions to bring the surrogate compounds within the calibration range of the method. The matrix spike/matrix spike duplicate samples were diluted to bring the concentrations of the spiked compounds within the calibration range of the method. All reportable sample surrogates and matrix spike/matrix spike duplicate compounds were in control.

The method blank associated with all the samples showed concentrations of the target compounds dibenzofuran and anthracene greater than 5 times the method detection limit (MDL). The blank was reanalyzed and confirmed the contamination and the samples were annotated accordingly.

The relative percent difference (RPD) for 1H-Indene in the matrix spike/matrix spike duplicate pair STP-W410MS (045108-05MS) and STP-W410MSD (045108-05SD) was outside control limits. Since the spiking compounds were in control the data were accepted and submitted.

The continuing calibration (lab file ID A408) showed 3-Methylcholanthrene outside the maximum percent difference of 35.0%. For this project this compound was not a target compound. Therefore, no further action was necessary.

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 045108 may 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.

A standard is now available for Benzo(J)Fluoranthene. Laboratory studies have shown that Benzo(J)Fluoranthene will coelute with either Benzo(B)Fluoranthene or Benzo(K)Fluoranthene depending on the relative concentration of these two compounds in solution. For this project Benzo(B)Fluoranthene and Benzo(J)Fluoranthene will be reported as Benzo(B)Fluoranthene.

Quanterra
Environmental Services

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:** 12/8/95
Daniel Rebarchik
Program Administrator

Approved by: _____ **Date:** 12/8/95
Kevin McHugh
Program Manager

Quanterra Environmental Services

QUALIFIER CODES AND THEIR USAGE

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

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

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

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

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

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

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

QUALIFIER CODES AND THEIR USAGE
Page Two

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

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

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

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

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

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
045108-0001-SA	STP-W412-101095	AQUEOUS	10 OCT 95	08:25	11 OCT 95
045108-0002-SA	STP-W33-101095	AQUEOUS	10 OCT 95	09:40	11 OCT 95
045108-0003-SA	STP-W133-101095	AQUEOUS	10 OCT 95	11:30	11 OCT 95
045108-0004-SA	STP-W24-101095	AQUEOUS	10 OCT 95	12:40	11 OCT 95
045108-0005-SA	STP-W410-101095	AQUEOUS	10 OCT 95		11 OCT 95
045108-0005-DU	STP-W410D-101095	AQUEOUS	10 OCT 95		11 OCT 95
045108-0005-MS	STP-W410MS-101095	AQUEOUS	10 OCT 95		11 OCT 95
045108-0005-SD	STP-W410MSD-101095	AQUEOUS	10 OCT 95		11 OCT 95
045108-0006-FB	STP-W410FB-101095	AQUEOUS	10 OCT 95		11 OCT 95
045108-0006-FD	STP-W410FBD-101095	AQUEOUS	10 OCT 95		11 OCT 95

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 045108	Group Code	Analysis Description	Custom Test?
0001 - 0006	A	Polynuclear Aromatic Hydrocarbons, SIM Low Level	N
		Prep - PAH/SIM by GC/MS Low Level	N
0006	B	Prep - PAH/SIM by GC/MS Low Level	N

CHAIN OF CUSTODY

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

Quanterra Environmental Services

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

SAMPLE SAFE™ CONDITIONS

PACKED BY: Peter Moore	SEAL NUMBER: NA
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY: NA	CONDITION OF CONTENTS: OK
SEALED FOR SHIPPING BY: Peter Moore	INITIAL CONTENTS TEMP: °C
SEAL NUMBER: NA	SAMPLING STATUS: ☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB: ☑ Yes ☐ No	CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 3.0°C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
10/10/95	8:25	STP-W412-101095	H_2O	6	PPT-PAH	PPT-75 -1
10/10/95	9:40	STP-W33-101095	H_2O	6	PPT-PAH	PPT-75 -2

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: Peter Moore / ENSR	
METHOD OF SHIPMENT: FED-EX	AIRBILL NUMBER: NA
RECEIVED FOR LAB: QES	SIGNED: [signature] DATE/TIME: 10/11/95 915
QUANTERRA PROJECT NUMBER: 45108	

QUA-4119

White – CLIENT Pink – LAB

CHAIN OF CUSTODY

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

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303 431-7171 Fax

Quanterra Environmental Services

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

SAMPLE SAFE™ CONDITIONS

PACKED BY: Peter Moore / ENSR
SEAL NUMBER: NA
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY: NA
CONDITION OF CONTENTS: OK
SEALED FOR SHIPPING BY: Peter Moore / ENSR
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: 5.9 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
10/10/95	11:30	STP-W133-101095	H_2O	6	PPT-PAH	PPT-75-3
10/10/95	~~12:20~~ 12:40 PM	STP-W24-101095	H_2O	6	PPT-PAH	PPT-75-4

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: Peter Moore / ENSR
METHOD OF SHIPMENT: FED-EX
AIRBILL NUMBER:
RECEIVED FOR LAB: QES
SIGNED: T Reich
DATE/TIME: 10/11/95 9:
QUANTERRA PROJECT NUMBER: 4-5108

QUA-4119

White - CLIENT Pink - LAB

CHAIN OF CUSTODY

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

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303 431-7171 Fax

Quanterra Environmental Services

QUANTERRA CLIENT

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

SAMP

SAMP

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: 6.4 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
10-10-95		STP-W410 -101095	1XL AMBER	6	PPL PAH	PPL 75 -5
10-10-95		STP-W410D -101095	1XL AMBER	6	PPL PAH	PPL 75 -5 DUP

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: 2103421320

RECEIVED FOR LAB: CES

SIGNED: [signature]

DATE/TIME: 10/11/95 915

QUANTERRA PROJECT NUMBER: 95107

QUA-4119

White – [illegible]T Pink – LAB

CHAIN OF CUSTODY

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431 7171 Fax

Quanterra Environmental Services

QUANTERRA CLIENT

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

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: 5.7°C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
10-10-95		STP-W410MS-101095	1XL AMBER	6	PPT PAH	PPT 75 -Sms
10-10-95		STP-W410MSD-101095	1XL AMBER	6	PPT PAH	PPT 75 -SSD

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MJH	
METHOD OF SHIPMENT: FED EX	AIRBILL NUMBER: 2103421320
RECEIVED FOR LAB: QES	SIGNED: J Dech
DATE/TIME: 10/11/95 915	
QUANTERRA PROJECT NUMBER: 45108	

QUA-41.19

White - CLIENT Pink - LAB

CHAIN OF CUSTODY

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

Quanterra Environmental Services

QUANTERRA CLIENT

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

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: 3.9 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
10-10-95		STP-W410FB-101095	1XL AMBER	6	PPL PAH	PPL 75 -6
10-10-95		STP-W410FBD-101095	1XL AMBER	6	PPL PAH	PPL 75 -6 F

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: 2103421320
RECEIVED FOR LAB: QES	SIGNED: [signature] DATE/TIME: 10/11/95 91
QUANTERRA PROJECT NUMBER: 45168	

QUA-4119 White – [illegible]NT Pink – LAB

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

STP-W412

Lab Name: QUANTERRA DENVER Contract:

Code: Case No.: 45108 SAS No.: SDG No.: 45108

Matrix: (soil/water) WATER Lab Sample ID: 45108-01

Sample wt/vol: 4220 (g/ml) ML Lab File ID: A1001418

Level: (low/med) LOW Date Received: 10/11/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/13/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 11/10/95

Injection Volume: 1.0(uL) Dilution Factor: 10.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
91-20-3	Naphthalene	92	
91-57-6	2-Methylnaphthalene	44	B
208-96-8	Acenaphthylene	13	U
83-32-9	Acenaphthene	22	
132-64-9	Dibenzofuran	13	B
86-73-7	Fluorene	14	B
85-01-8	Phenanthrene	32	B
120-12-7	Anthracene	10	U
206-44-0	Fluoranthene	19	
129-00-0	Pyrene	55	
56-55-3	Benzo(a)Anthracene	24	U
218-01-9	Chrysene	26	U
207-08-9	Benzo(b)fluoranthene	24	U
50-32-8	Benzo(a)pyrene	22	U
193-39-5	Indeno(1,2,3-cd)pyrene	20	U
53-70-3	Dibenzo(a,h)anthracene	15	U
191-24-2	Benzo(g,h,i)perylene	26	U
86-74-8	Carbazole	20	
95-13-6	1H-Indene	22	B
91-22-5	Quinoline	13	U
90-12-0	1-Methylnaphthalene	36	
271-89-6	2,3-Benzofuran	48	U
496-11-7	2,3-Dihydroindene	22	
95-15-8	Benzo(b)thiophene	11	
120-72-9	1H-Indole	24	U
92-52-4	Biphenyl	41	U
132-65-0	Dibenzothiophene	10	U
260-94-6	Acridine	27	U
192-97-2	Benzo(e)pyrene	18	U
198-55-0	Perylene	24	U
57-97-6	7,12-Dimethylbenz(a)anthrace	26	U
56-49-5	3-Methylcholanthrene	33	U
205-08-9	Benzo(k)fluoranthene	22	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

STP-W33

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: SAS No.: SDG No.: 45108

Matrix: (soil/water) WATER Lab Sample ID: 45108-02

Sample wt/vol: 4190 (g/ml) ML Lab File ID: A1101419

Level: (low/med) LOW Date Received: 10/11/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/13/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 11/10/95

Injection Volume: 1.0(uL) Dilution Factor: 10.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
91-20-3	Naphthalene	84	
91-57-6	2-Methylnaphthalene	36	B
208-96-8	Acenaphthylene	13	U
83-32-9	Acenaphthene	47	
132-64-9	Dibenzofuran	11	B
86-73-7	Fluorene	14	B
85-01-8	Phenanthrene	22	B
120-12-7	Anthracene	10	U
206-44-0	Fluoranthene	13	U
129-00-0	Pyrene	31	
56-55-3	Benzo(a)Anthracene	24	U
218-01-9	Chrysene	27	U
207-08-9	Benzo(b)fluoranthene	24	U
50-32-8	Benzo(a)pyrene	22	U
193-39-5	Indeno(1,2,3-cd)pyrene	20	U
53-70-3	Dibenzo(a,h)anthracene	15	U
191-24-2	Benzo(g,h,i)perylene	27	U
86-74-8	Carbazole	54	
95-13-6	1H-Indene	200	B
91-22-5	Quinoline	13	U
90-12-0	1-Methylnaphthalene	43	
271-89-6	2,3-Benzofuran	49	U
496-11-7	2,3-Dihydroindene	360	
95-15-8	Benzo(b)thiophene	160	
120-72-9	1H-Indole	24	U
92-52-4	Biphenyl	41	U
132-65-0	Dibenzothiophene	10	U
260-94-6	Acridine	28	U
192-97-2	Benzo(e)pyrene	18	U
198-55-0	Perylene	24	U
57-97-6	7,12-Dimethylbenz(a)anthrace	27	U
56-49-5	3-Methylcholanthrene	33	U
205-08-9	Benzo(k)fluoranthene	22	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

STP-W133

Lab Name: QUANTERRA DENVER Contract:

Code: Case No.: SAS No.: SDG No.: 45108

Matrix: (soil/water) WATER Lab Sample ID: 45108-03

Sample wt/vol: 4230 (g/ml) ML Lab File ID: A1201420

Level: (low/med) LOW Date Received: 10/11/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 10/13/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 11/10/95

Injection Volume: 1.0(uL) Dilution Factor: 10.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
91-20-3	Naphthalene	61	U
91-57-6	2-Methylnaphthalene	24	B
208-96-8	Acenaphthylene	13	U
83-32-9	Acenaphthene	12	U
132-64-9	Dibenzofuran	9	U
86-73-7	Fluorene	9	U
85-01-8	Phenanthrene	12	U
120-12-7	Anthracene	10	U
206-44-0	Fluoranthene	13	U
129-00-0	Pyrene	15	
56-55-3	Benzo(a)Anthracene	24	U
218-01-9	Chrysene	26	U
207-08-9	Benzo(b)fluoranthene	24	U
50-32-8	Benzo(a)pyrene	22	U
193-39-5	Indeno(1,2,3-cd)pyrene	20	U
53-70-3	Dibenzo(a,h)anthracene	15	U
191-24-2	Benzo(g,h,i)perylene	26	U
86-74-8	Carbazole	18	U
95-13-6	1H-Indene	12	B
91-22-5	Quinoline	13	U
90-12-0	1-Methylnaphthalene	17	
271-89-6	2,3-Benzofuran	48	U
496-11-7	2,3-Dihydroindene	89	
95-15-8	Benzo(b)thiophene	8	U
120-72-9	1H-Indole	24	U
92-52-4	Biphenyl	41	U
132-65-0	Dibenzothiophene	10	U
260-94-6	Acridine	27	U
192-97-2	Benzo(e)pyrene	18	U
198-55-0	Perylene	24	U
57-97-6	7,12-Dimethylbenz(a)anthrace	26	U
56-49-5	3-Methylcholanthrene	33	U
205-08-9	Benzo(k)fluoranthene	22	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

STP-W24

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 45108 SAS No.: SDG No.: 45108

Matrix: (soil/water) WATER Lab Sample ID: 45108-04

Sample wt/vol: 4210 (g/ml) ML Lab File ID: A0101434

Level: (low/med) LOW Date Received: 10/11/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/13/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 11/14/95

Injection Volume: 1.0(uL) Dilution Factor: 20.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
91-20-3	Naphthalene	120	U
91-57-6	2-Methylnaphthalene	17	U
208-96-8	Acenaphthylene	27	U
83-32-9	Acenaphthene	250	
132-64-9	Dibenzofuran	19	U
86-73-7	Fluorene	19	U
85-01-8	Phenanthrene	25	U
120-12-7	Anthracene	21	U
206-44-0	Fluoranthene	27	U
129-00-0	Pyrene	27	U
56-55-3	Benzo(a)Anthracene	48	U
218-01-9	Chrysene	53	U
207-08-9	Benzo(b)fluoranthene	48	U
50-32-8	Benzo(a)pyrene	44	U
193-39-5	Indeno(1,2,3-cd)pyrene	40	U
53-70-3	Dibenzo(a,h)anthracene	30	U
191-24-2	Benzo(g,h,i)perylene	53	U
86-74-8	Carbazole	36	U
95-13-6	1H-Indene	17	U
91-22-5	Quinoline	27	U
90-12-0	1-Methylnaphthalene	30	U
271-89-6	2,3-Benzofuran	97	U
496-11-7	2,3-Dihydroindene	1300	
95-15-8	Benzo(b)thiophene	17	U
120-72-9	1H-Indole	48	U
92-52-4	Biphenyl	82	U
132-65-0	Dibenzothiophene	21	U
260-94-6	Acridine	55	U
192-97-2	Benzo(e)pyrene	36	U
198-55-0	Perylene	48	U
57-97-6	7,12-Dimethylbenz(a)anthrace	53	U
56-49-5	3-Methylcholanthrene	66	U
205-08-9	Benzo(k)fluoranthene	44	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

STP-W410

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 45108 SAS No.: SDG No.: 45108

Matrix: (soil/water) WATER Lab Sample ID: 45108-05

Sample wt/vol: 4220 (g/ml) ML Lab File ID: A0201435

Level: (low/med) LOW Date Received: 10/11/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/13/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 11/14/95

Injection Volume: 1.0(uL) Dilution Factor: 200.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
91-20-3	Naphthalene	1200	U
91-57-6	2-Methylnaphthalene	170	U
208-96-8	Acenaphthylene	260	U
83-32-9	Acenaphthene	1100	
132-64-9	Dibenzofuran	190	U
86-73-7	Fluorene	190	U
85-01-8	Phenanthrene	250	U
120-12-7	Anthracene	210	U
206-44-0	Fluoranthene	260	U
129-00-0	Pyrene	260	U
56-55-3	Benzo(a)Anthracene	470	U
218-01-9	Chrysene	530	U
207-08-9	Benzo(b)fluoranthene	470	U
50-32-8	Benzo(a)pyrene	440	U
193-39-5	Indeno(1,2,3-cd)pyrene	400	U
53-70-3	Dibenzo(a,h)anthracene	300	U
191-24-2	Benzo(g,h,i)perylene	530	U
86-74-8	Carbazole	530	
95-13-6	1H-Indene	2700	B
91-22-5	Quinoline	260	U
90-12-0	1-Methylnaphthalene	910	
271-89-6	2,3-Benzofuran	970	U
496-11-7	2,3-Dihydroindene	7200	
95-15-8	Benzo(b)thiophene	1500	
120-72-9	1H-Indole	470	U
92-52-4	Biphenyl	820	U
132-65-0	Dibenzothiophene	210	U
260-94-6	Acridine	550	U
192-97-2	Benzo(e)pyrene	360	U
198-55-0	Perylene	470	U
57-97-6	7,12-Dimethylbenz(a)anthrace	530	U
56-49-5	3-Methylcholanthrene	660	U
205-08-9	Benzo(k)fluoranthene	440	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

STP-W410D

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 45108 SAS No.: SDG No.: 45108

Matrix: (soil/water) WATER Lab Sample ID: 45108-05DU

Sample wt/vol: 4210 (g/ml) ML Lab File ID: A0301436

Level: (low/med) LOW Date Received: 10/11/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/13/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 11/14/95

Injection Volume: 1.0(uL) Dilution Factor: 200.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
91-20-3	Naphthalene	1200	U
91-57-6	2-Methylnaphthalene	170	U
208-96-8	Acenaphthylene	270	U
83-32-9	Acenaphthene	1300	
132-64-9	Dibenzofuran	190	U
86-73-7	Fluorene	190	U
85-01-8	Phenanthrene	250	U
120-12-7	Anthracene	210	U
206-44-0	Fluoranthene	270	U
129-00-0	Pyrene	270	U
56-55-3	Benzo(a)Anthracene	480	U
218-01-9	Chrysene	530	U
207-08-9	Benzo(b)fluoranthene	480	U
50-32-8	Benzo(a)pyrene	440	U
193-39-5	Indeno(1,2,3-cd)pyrene	400	U
53-70-3	Dibenzo(a,h)anthracene	300	U
191-24-2	Benzo(g,h,i)perylene	530	U
86-74-8	Carbazole	590	
95-13-6	1H-Indene	3400	B
91-22-5	Quinoline	270	U
90-12-0	1-Methylnaphthalene	1100	
271-89-6	2,3-Benzofuran	970	U
496-11-7	2,3-Dihydroindene	9300	
95-15-8	Benzo(b)thiophene	1900	
120-72-9	1H-Indole	480	U
92-52-4	Biphenyl	820	U
132-65-0	Dibenzothiophene	210	U
260-94-6	Acridine	550	U
192-97-2	Benzo(e)pyrene	360	U
198-55-0	Perylene	480	U
57-97-6	7,12-Dimethylbenz(a)anthrace	530	U
56-49-5	3-Methylcholanthrene	660	U
205-08-9	Benzo(k)fluoranthene	440	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

STP-W410FB

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 45108 SAS No.: SDG No.: 45108

Matrix: (soil/water) WATER Lab Sample ID: 45108-06FB

Sample wt/vol: 4190 (g/ml) ML Lab File ID: A0701440

Level: (low/med) LOW Date Received: 10/11/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/13/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 11/14/95

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
91-20-3	Naphthalene	17	
91-57-6	2-Methylnaphthalene	9	B
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	
132-64-9	Dibenzofuran	2	B
86-73-7	Fluorene	3	B
85-01-8	Phenanthrene	4	B
120-12-7	Anthracene	1	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
207-08-9	Benzo(b)fluoranthene	2	U
50-32-8	Benzo(a)pyrene	2	U
193-39-5	Indeno(1,2,3-cd)pyrene	2	U
53-70-3	Dibenzo(a,h)anthracene	2	U
191-24-2	Benzo(g,h,i)perylene	3	U
86-74-8	Carbazole	2	U
95-13-6	1H-Indene	2	B
91-22-5	Quinoline	1	U
90-12-0	1-Methylnaphthalene	5	
271-89-6	2,3-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	4	
95-15-8	Benzo(b)thiophene	0.8	U
120-72-9	1H-Indole	2	U
92-52-4	Biphenyl	5	B
132-65-0	Dibenzothiophene	1	U
260-94-6	Acridine	3	U
192-97-2	Benzo(e)pyrene	2	U
198-55-0	Perylene	2	U
57-97-6	7,12-Dimethylbenz(a)anthrace	3	U
56-49-5	3-Methylcholanthrene	3	U
205-08-9	Benzo(k)fluoranthene	2	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

STP-W410FBD

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 45108 SAS No.: SDG No.: 45108

Matrix: (soil/water) WATER Lab Sample ID: 45108-06FD

Sample wt/vol: 4190 (g/ml) ML Lab File ID: A0801441

Level: (low/med) LOW Date Received: 10/11/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/13/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 11/14/95

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
91-20-3	Naphthalene	14	
91-57-6	2-Methylnaphthalene	7	B
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	2	B
86-73-7	Fluorene	2	B
85-01-8	Phenanthrene	4	B
120-12-7	Anthracene	1	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
207-08-9	Benzo(b)fluoranthene	2	U
50-32-8	Benzo(a)pyrene	2	U
193-39-5	Indeno(1,2,3-cd)pyrene	2	U
53-70-3	Dibenzo(a,h)anthracene	2	U
191-24-2	Benzo(g,h,i)perylene	3	U
86-74-8	Carbazole	2	U
95-13-6	1H-Indene	2	B
91-22-5	Quinoline	1	U
90-12-0	1-Methylnaphthalene	4	
271-89-6	2,3-Benzofuran	5	U
496-11-7	2,3-Dihydroindene	2	
95-15-8	Benzo(b)thiophene	0.8	U
120-72-9	1H-Indole	2	U
92-52-4	Biphenyl	4	U
132-65-0	Dibenzothiophene	1	U
260-94-6	Acridine	3	U
192-97-2	Benzo(e)pyrene	2	U
198-55-0	Perylene	2	U
57-97-6	7,12-Dimethylbenz(a)anthrace	3	U
56-49-5	3-Methylcholanthrene	3	U
205-08-9	Benzo(k)fluoranthene	2	U

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 45108 SAS No.: SDG No.: 45108

	EPA SAMPLE NO.	S1 #	S2 #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	STP-W412	63	14	60						0
02	STP-W33	61	16	60						0
03	STP-W133	65	16	59						0
04	STP-W410FB	82	51	63						0
05	STP-W410FBD	68	46	53						0
06	STP-W24	71	42	61						0
07	STP-W410	0D	0D	0D						0
08	STP-W410D	0D	0D	0D						0
09	STP-W410MS	0D	0D	0D						0
10	STP-W410MSD	0D	0D	0D						0
11	SBLK01	49	29	39						0
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										

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

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

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 45108 SAS No.: SDG No.: 45108

Matrix Spike - EPA Sample No.: STP-W410

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC #	QC. LIMITS REC.
Naphthalene	24000	0.0	16000	67	20-150
2-Methylnaphthalene	24000	0.0	15000	62	20-150
Fluorene	24000	0.0	18000	75	20-150
Chrysene	24000	0.0	12000	50	20-150
1H-Indene	24000	2700	20000	72	20-150
Quinoline	24000	0.0	13000	54	20-150
Benzo(e)pyrene	24000	0.0	15000	62	20-150

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Naphthalene	24000	19000	79	16	20	20-150
2-Methylnaphthalene	24000	17000	71	14	20	20-150
Fluorene	24000	18000	75	0	20	20-150
Chrysene	24000	11000	46	8	20	20-150
1H-Indene	24000	24000	89	21*	20	20-150
Quinoline	24000	15000	62	14	20	20-150
Benzo(e)pyrene	24000	15000	62	0	20	20-150

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

RPD: 1 out of 7 outside limits
Spike Recovery: 0 out of 14 outside limits

COMMENTS: _____

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

STP-W410MS

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 45108 SAS No.: SDG No.: 45108

Matrix: (soil/water) WATER Lab Sample ID: 45108-05MS

Sample wt/vol: 4240 (g/ml) ML Lab File ID: A0601487

Level: (low/med) LOW Date Received: 10/11/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 10/13/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 11/17/95

Injection Volume: 1.0(uL) Dilution Factor: 500.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
91-20-3	Naphthalene	16500	
91-57-6	2-Methylnaphthalene	15300	B
208-96-8	Acenaphthylene	660	U
83-32-9	Acenaphthene	1020	
132-64-9	Dibenzofuran	472	U
86-73-7	Fluorene	17600	B
85-01-8	Phenanthrene	613	U
120-12-7	Anthracene	519	U
206-44-0	Fluoranthene	660	U
129-00-0	Pyrene	660	U
56-55-3	Benzo(a)Anthracene	1180	U
218-01-9	Chrysene	11700	
207-08-9	Benzo(b)fluoranthene	1180	U
50-32-8	Benzo(a)pyrene	1080	U
193-39-5	Indeno(1,2,3-cd)pyrene	990	U
53-70-3	Dibenzo(a,h)anthracene	755	U
191-24-2	Benzo(g,h,i)perylene	1320	U
86-74-8	Carbazole	362	J
95-13-6	1H-Indene	20000	B
91-22-5	Quinoline	12600	
90-12-0	1-Methylnaphthalene	938	
271-89-6	2,3-Benzofuran	2400	U
496-11-7	2,3-Dihydroindene	7370	
95-15-8	Benzo(b)thiophene	1510	
120-72-9	1H-Indole	1180	U
92-52-4	Biphenyl	2030	U
132-65-0	Dibenzothiophene	519	U
260-94-6	Acridine	1370	U
192-97-2	Benzo(e)pyrene	15000	
198-55-0	Perylene	1180	U
57-97-6	7,12-Dimethylbenz(a)anthrace	1320	U
56-49-5	3-Methylcholanthrene	1650	U
205-08-9	Benzo(k)fluoranthene	1080	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

STP-W410MSD

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 45108 SAS No.: SDG No.: 45108

Matrix: (soil/water) WATER Lab Sample ID: 45108-05MSD

Sample wt/vol: 4210 (g/ml) ML Lab File ID: A0701488

Level: (low/med) LOW Date Received: 10/11/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/13/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 11/17/95

Injection Volume: 1.0(uL) Dilution Factor: 500.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
91-20-3	Naphthalene	19000	
91-57-6	2-Methylnaphthalene	17200	B
208-96-8	Acenaphthylene	665	U
83-32-9	Acenaphthene	1110	
132-64-9	Dibenzofuran	475	U
86-73-7	Fluorene	18200	B
85-01-8	Phenanthrene	618	U
120-12-7	Anthracene	522	U
206-44-0	Fluoranthene	665	U
129-00-0	Pyrene	665	U
56-55-3	Benzo(a)Anthracene	1190	U
218-01-9	Chrysene	10900	
207-08-9	Benzo(b)fluoranthene	1190	U
50-32-8	Benzo(a)pyrene	1090	U
193-39-5	Indeno(1,2,3-cd)pyrene	998	U
53-70-3	Dibenzo(a,h)anthracene	760	U
191-24-2	Benzo(g,h,i)perylene	1330	U
86-74-8	Carbazole	386	J
95-13-6	1H-Indene	23900	B
91-22-5	Quinoline	15200	
90-12-0	1-Methylnaphthalene	997	
271-89-6	2,3-Benzofuran	2420	U
496-11-7	2,3-Dihydroindene	8640	
95-15-8	Benzo(b)thiophene	1670	
120-72-9	1H-Indole	1190	U
92-52-4	Biphenyl	2040	U
132-65-0	Dibenzothiophene	522	U
260-94-6	Acridine	1380	U
192-97-2	Benzo(e)pyrene	14700	
198-55-0	Perylene	1190	U
57-97-6	7,12-Dimethylbenz(a)anthrace	1330	U
56-49-5	3-Methylcholanthrene	1660	U
205-08-9	Benzo(k)fluoranthene	1090	U

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

SBLK01

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 45108 SAS No.: SDG No.: 45108

Lab File ID: A0401437 Lab Sample ID: SBLK01

Instrument ID: A Date Extracted: 10/13/95

Matrix: (soil/water) WATER Date Analyzed: 11/14/95

Level: (low/med) LOW Time Analyzed: 1733

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	STP-W412	45108-01	A1001418	11/10/95
02	STP-W33	45108-02	A1101419	11/10/95
03	STP-W133	45108-03	A1201420	11/10/95
04	STP-W24	45108-04	A0101434	11/14/95
05	STP-W410	45108-05	A0201435	11/14/95
06	STP-W410D	45108-05DU	A0301436	11/14/95
07	STP-W410FB	45108-06FB	A0701440	11/14/95
08	STP-W410FBD	45108-06FD	A0801441	11/14/95
09	STP-W410MS	45108-05MS	A0601487	11/17/95
10	STP-W410MSD	45108-05MSD	A0701488	11/17/95
11				
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COMMENTS:

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLK01

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 45108 SAS No.: SDG No.: 45108

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

Sample wt/vol: 4000 (g/ml) ML Lab File ID: A0401437

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

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/13/95

Concentrated Extract Volume: 0.5(ml) Date Analyzed: 11/14/95

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) NG/L	Q
91-20-3	Naphthalene	6	U
91-57-6	2-Methylnaphthalene	2	
208-96-8	Acenaphthylene	1	U
83-32-9	Acenaphthene	1	U
132-64-9	Dibenzofuran	61	
86-73-7	Fluorene	2	
85-01-8	Phenanthrene	2	
120-12-7	Anthracene	6	
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
207-08-9	Benzo(b)fluoranthene	2	U
50-32-8	Benzo(a)pyrene	2	U
193-39-5	Indeno(1,2,3-cd)pyrene	2	U
53-70-3	Dibenzo(a,h)anthracene	2	U
191-24-2	Benzo(g,h,i)perylene	3	U
86-74-8	Carbazole	2	U
95-13-6	1H-Indene	2	
91-22-5	Quinoline	1	U
90-12-0	1-Methylnaphthalene	2	U
271-89-6	2,3-Benzofuran	19	
496-11-7	2,3-Dihydroindene	1	U
95-15-8	Benzo(b)thiophene	0.9	U
120-72-9	1H-Indole	2	U
92-52-4	Biphenyl	10	
132-65-0	Dibenzothiophene	1	U
260-94-6	Acridine	3	U
192-97-2	Benzo(e)pyrene	2	U
198-55-0	Perylene	2	U
57-97-6	7,12-Dimethylbenz(a)anthrace	3	U
56-49-5	3-Methylcholanthrene	4	U
205-08-9	Benzo(k)fluoranthene	2	U

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 45108 SAS No.: SDG No.: 45108

Lab File ID (Standard): A408 Date Analyzed: 11/10/95

Instrument ID: A Time Analyzed: 0830

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	208863	12.68	352097	15.16	193298	21.75
	UPPER LIMIT	417726	13.18	704194	15.66	386596	22.25
	LOWER LIMIT	104432	12.18	176048	14.66	96649	21.25
	EPA SAMPLE NO.						
01	SBLK01	188215	12.68	324586	15.15	221687	21.75
02	STP-W412	200905	12.67	382977	15.15	261269	21.74
03	STP-W33	216029	12.67	406156	15.15	265950	21.74
04	STP-W133	202870	12.67	379148	15.14	245693	21.74
05	STP-W410FB	172037	12.66	288811	15.13	192537	21.73
06	STP-W410FBD	186918	12.66	361413	15.13	199271	21.73
07							
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22							

IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = Benzo(a)pyrene-d12

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

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

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 45108 SAS No.: SDG No.: 45108

Lab File ID (Standard): A433 Date Analyzed: 11/14/95

Instrument ID: A Time Analyzed: 1500

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	223024	12.64	395503	15.11	220878	21.70
	UPPER LIMIT	446048	13.14	791006	15.61	441756	22.20
	LOWER LIMIT	111512	12.14	197752	14.61	110439	21.20
	EPA SAMPLE NO.						
01	STP-W24	252490	12.64	521212	15.11	252631	21.70
02	STP-W410	212358	12.63	371329	15.10	183473	21.70
03	STP-W410D	205244	12.63	347628	15.10	156703	21.69
04	STP-W410FB	331098	12.60	627213	15.09	395986	21.69
05	STP-W410FBD	333442	12.61	604549	15.09	367642	21.69
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22							

IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = Benzo(a)pyrene-d12

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

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

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 45108 SAS No.: SDG No.: 45108

Lab File ID (Standard): A480 Date Analyzed: 11/17/95

Instrument ID: A Time Analyzed: 1127

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	212548	12.60	364659	15.07	264279	21.67
	UPPER LIMIT	425096	13.10	729318	15.57	528558	22.17
	LOWER LIMIT	106274	12.10	182330	14.57	132140	21.17
	EPA SAMPLE NO.						
01	STP-W410MS	234254	12.60	366561	15.07	241756	21.66
02	STP-W410MSD	228927	12.60	368814	15.07	222070	21.66
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22							

IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = Benzo(a)pyrene-d12

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

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

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

STP-W409

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 45512 SAS No.: SDG No.: 45512

Matrix: (soil/water) WATER Lab Sample ID: 45512-09

Sample wt/vol: 1050 (g/ml) ML Lab File ID: T1501617

Level: (low/med) LOW Date Received: 11/01/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:11/03/95

Concentrated Extract Volume: 1.0(ml) Date Analyzed: 11/15/95

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	48.4	
91-57-6	2-Methylnaphthalene	9.52	U
208-96-8	Acenaphthylene	9.52	U
83-32-9	Acenaphthene	12.4	
132-64-9	Dibenzofuran	4.19	J
86-73-7	Fluorene	4.23	J
85-01-8	Phenanthrene	2.36	J
120-12-7	Anthracene	9.52	U
206-44-0	Fluoranthene	9.52	U
129-00-0	Pyrene	9.52	U
56-55-3	Benzo(a)Anthracene	9.52	U
218-01-9	Chrysene	9.52	U
205-99-2	Benzo(b)fluoranthene	9.52	U
207-08-9	Benzo(k)fluoranthene	9.52	U
50-32-8	Benzo(a)pyrene	9.52	U
193-39-5	Indeno(1 2 3-cd)pyrene	9.52	U
53-70-3	Dibenzo(a h)anthracene	9.52	U
191-24-2	Benzo(g h i)perylene	9.52	U
86-74-8	Carbazole	4.95	J
95-13-6	1H-Indene	33.3	
91-22-5	Quinoline	9.52	U
90-12-0	1-Methylnaphthalene	15.4	
271-89-6	2,3-Benzofuran	1.90	J
496-11-7	2,3-Dihydroindene	22.5	
95-15-8	Benzo(b)thiophene	14.4	
120-72-9	1H-Indole	9.52	U
92-52-4	Biphenyl	3.10	J
132-65-0	Dibenzothiophene	9.52	U
260-94-6	Acridine	9.52	U
192-97-2	Benzo(e)pyrene	9.52	U
198-55-0	Perylene	9.52	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

STP-W409RE

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 45512 SAS No.: SDG No.: 44512

Matrix: (soil/water) WATER Lab Sample ID: 44512-09RE

Sample wt/vol: 1050 (g/ml) ML Lab File ID: T0701626

Level: (low/med) LOW Date Received: 11/01/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:11/03/95

Concentrated Extract Volume: 1.0(ml) Date Analyzed: 11/16/95

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	43.4	
91-57-6	2-Methylnaphthalene	9.52	U
208-96-8	Acenaphthylene	9.52	U
83-32-9	Acenaphthene	12.0	
132-64-9	Dibenzofuran	4.80	J
86-73-7	Fluorene	4.28	J
85-01-8	Phenanthrene	2.38	J
120-12-7	Anthracene	9.52	U
206-44-0	Fluoranthene	9.52	U
129-00-0	Pyrene	9.52	U
56-55-3	Benzo(a)Anthracene	9.52	U
218-01-9	Chrysene	9.52	U
205-99-2	Benzo(b)fluoranthene	9.52	U
207-08-9	Benzo(k)fluoranthene	9.52	U
50-32-8	Benzo(a)pyrene	9.52	U
193-39-5	Indeno(1 2 3-cd)pyrene	9.52	U
53-70-3	Dibenzo(a h)anthracene	9.52	U
191-24-2	Benzo(g h i)perylene	9.52	U
86-74-8	Carbazole	6.07	J
95-13-6	1H-Indene	29.3	
91-22-5	Quinoline	9.52	U
90-12-0	1-Methylnaphthalene	16.1	
271-89-6	2,3-Benzofuran	1.82	J
496-11-7	2,3-Dihydroindene	22.3	
95-15-8	Benzo(b)thiophene	13.9	
120-72-9	1H-Indole	9.52	U
92-52-4	Biphenyl	2.86	J
132-65-0	Dibenzothiophene	9.52	U
260-94-6	Acridine	9.52	U
192-97-2	Benzo(e)pyrene	9.52	U
198-55-0	Perylene	9.52	U

ADDITIONAL MONITORING
PHENOLICS

Quanterra
Environmental Services

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

April 14, 1995

Mr. Scott Anderson
City of St. Louis Park
5005 Minnetonka Blvd.
St. Louis Park, MN 55416

Dear Mr. Anderson:

Enclosed is the ppb phenolics report for 12 aqueous samples, including matrix QC, received at Quanterra Environmental Services, Denver laboratory on March 21, 1995.

Samples DPV-W420TPMS (041070-0001MS) and DPV-W420TPMSD (041070-001SD) showed the percent recoveries of the spiked phenolics at 142% and 152% (control limit 125%). The data were 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 #041070

Quanterra Environmental Services

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
041070-0001-SA	DPV-W420TP-032095	AQUEOUS	20 MAR 95		21 MAR 95
041070-0001-DU	DPV-W420TPD-032095	AQUEOUS	20 MAR 95		21 MAR 95
041070-0001-MS	DPV-W420TPMS-032095	AQUEOUS	20 MAR 95		21 MAR 95
041070-0001-SD	DPV-W420TPMSD-032095	AQUEOUS	20 MAR 95		21 MAR 95
041070-0002-FB	DPV-W420TPFB-032095	AQUEOUS	20 MAR 95		21 MAR 95
041070-0002-FD	DPV-W420TPFBD-032095	AQUEOUS	20 MAR 95		21 MAR 95
041070-0003-SA	DPV-W421TP-032095	AQUEOUS	20 MAR 95		21 MAR 95
041070-0004-SA	DPV-W422TP-032095	AQUEOUS	20 MAR 95		21 MAR 95
041070-0005-SA	STP-W410TP-032095	AQUEOUS	20 MAR 95		21 MAR 95
041070-0006-SA	DPV-W439TP-032095	AQUEOUS	20 MAR 95		21 MAR 95
041070-0007-SA	GTF-ACFETP-032095	AQUEOUS	20 MAR 95		21 MAR 95
041070-0008-SA	GTF-SFRTP-032095	AQUEOUS	20 MAR 95		21 MAR 95

RESULT QUALIFIERS

C - Concentration Qualifier:

Enter a "B" if the reported value is less than the Contract Required Detection Limit (CRDL) but greater than the Instrument Detection Limit (IDL). If the analyte was analyzed for but not detected, a "U" must be entered.

Q - Quality Control Qualifiers:

E - The reported value is estimated because of the presence of interference. An explanatory note must be 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 Qualifier:

"P" for ICP
"A" for Flame AA
"F" for Furnace AA
"CV" for Manual Cold Vapor AA
"AV" for Automated Cold Vapor AA
"AS" for Semi-Automated Spectrophotometric
"C" for Manual Spectrophotometric
"T" for Titrimetric
"NR" if the analyte is not required to be analyzed.

U.S. EPA - CLP

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Quanterra Environmental Services

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.:41070

SOW No.: ILM02

EPA Sample No.	Lab Sample ID
4107001	4107001
4107001D	4107001D
4107001S	4107001S
4107002FB	4107002FB
4107002FD	4107002FD
4107003	4107003
4107004	4107004
4107005	4107005
4107006	4107006
4107007	4107007
4107008	4107008

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:
ELEVEN_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: _____ Name: _____

Date: _____ Title: _____

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

Quanterra Environmental Services

EPA SAMPLE NO.

4107005

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.: 41070

Matrix (soil/water): WATER Lab Sample ID: 4107005

Level (low/med): LOW Date Received: 03/21/95

% 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:
STP-W410TP-032095

FORM I - IN

7/88

Quanterra Environmental Services

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

October 18, 1995

Mr. Scott Anderson
City of St. Louis Park
5005 Minnetonka Blvd.
St. Louis Park, MN 55416

Dear Mr. Anderson:

Enclosed is the ppb phenolics report for eleven aqueous samples, received at Quanterra Environmental Services, Denver laboratory on September 20, 1995, and September 22, 1995.

No anomalies were observed.

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 #044743

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
044743-0001-SA	DPV-W420TP-091995	AQUEOUS	19 SEP 95		20 SEP 95
044743-0001-DU	DPV-W420TPD-091995	AQUEOUS	19 SEP 95		20 SEP 95
044743-0001-MS	DPV-W420TPMS-091995	AQUEOUS	19 SEP 95		20 SEP 95
044743-0001-SD	DPV-W420TPMSD-091995	AQUEOUS	19 SEP 95		20 SEP 95
044743-0002-FB	DPV-W420TPFB-091995	AQUEOUS	19 SEP 95		20 SEP 95
044743-0002-FD	DPV-W420TPFBD-091995	AQUEOUS	19 SEP 95		20 SEP 95
044743-0003-SA	DPV-W421TP-091995	AQUEOUS	19 SEP 95		20 SEP 95
044743-0004-SA	DPV-W439TP-091995	AQUEOUS	19 SEP 95		20 SEP 95
044743-0005-SA	STP-W410-091995	AQUEOUS	19 SEP 95		20 SEP 95
044743-0006-SA	OAK LAKETP	AQUEOUS	19 SEP 95		20 SEP 95
044743-0007-SA	GTF-ACFETP-091995	AQUEOUS	19 SEP 95		20 SEP 95
044743-0008-SA	GTF-SFRTP-091995	AQUEOUS	19 SEP 95		20 SEP 95
044743-0009-SA	PCJ-SLP4TP-091995	AQUEOUS	19 SEP 95		20 SEP 95
044743-0010-SA	PCJ-W23TP-091995	AQUEOUS	19 SEP 95		20 SEP 95
044743-0011-SA	DPV-W422TP-091995	AQUEOUS	20 SEP 95		22 SEP 95

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.:44743

SOW No.: ILM02

EPA Sample No.	Lab Sample ID
4474301	4474301
4374301DU	4474301DU
4474301S	4474301S
4474301SD	4474301SD
4474302FB	4474302FB
4474302FD	4474302FD
4474303	4474303
4474304	4474304
4474305	4474305
4474306	4474306
4474307	4474307
4474308	4474308
4474309	4474309
4474310	4474310
4474311	4474311

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:
ELEVEN 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: _____ Name: DAN REBARCHIK

Date: 10/18/95 Title: PROGRAM MANAGER

COVER PAGE - IN Rev.6/89

RESULT QUALIFIERS

C - Concentration Qualifier:

Enter a "B" if the reported value is less than the Contract Required Detection Limit (CRDL) but greater than the Instrument Detection Limit (IDL). If the analyte was analyzed for but not detected, a "U" must be entered.

Q - Quality Control Qualifiers:

E - The reported value is estimated because of the presence of interference. An explanatory note must be 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 Qualifier:

"P" for ICP
"A" for Flame AA
"F" for Furnace AA
"CV" for Manual Cold Vapor AA
"AV" for Automated Cold Vapor AA
"AS" for Semi-Automated Spectrophotometric
"C" for Manual Spectrophotometric
"T" for Titrimetric
"NR" if the analyte is not required to be analyzed.

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

4474305

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.: 44743

Matrix (soil/water): WATER Lab Sample ID: 4474305

Level (low/med): LOW Date Received: 09/20/95

% 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	8.8			C

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:
STP=W410-091995

FORM I - IN

7/88

Quanterra
Environmental Services

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

NOV 1995
RECEIVED

November 21, 1995

Mr. Scott Anderson
City of St. Louis Park
5005 Minnetonka Blvd.
St. Louis Park, MN 55416

Dear Mr. Anderson:

Enclosed is the ppb phenolics report for eleven aqueous samples, received at Quanterra Environmental Services, Denver laboratory on November 1, 1995.

No anomalies were observed.

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 #045511

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
045511-0001-SA	DPV-W420TP-103195	AQUEOUS	31 OCT 95		01 NOV 95
045511-0001-DU	DPV-W420TPD-103195	AQUEOUS	31 OCT 95		01 NOV 95
045511-0001-MS	DPV-W420TPMS-103195	AQUEOUS	31 OCT 95		01 NOV 95
045511-0001-SD	DPV-W420TPMSD-103195	AQUEOUS	31 OCT 95		01 NOV 95
045511-0002-FB	DPV-W420TPFB-103195	AQUEOUS	31 OCT 95		01 NOV 95
045511-0002-FD	DPV-W420TPFBD-103195	AQUEOUS	31 OCT 95		01 NOV 95
045511-0003-SA	DPV-W421TP-103195	AQUEOUS	31 OCT 95		01 NOV 95
045511-0004-SA	DPV-W422TP-103195	AQUEOUS	31 OCT 95		01 NOV 95
045511-0005-SA	DPV-W439TP-103195	AQUEOUS	31 OCT 95		01 NOV 95
045511-0006-SA	STP-W410TP-103195	AQUEOUS	31 OCT 95		01 NOV 95
045511-0007-SA	GTF-SFRTP-103195	AQUEOUS	31 OCT 95		01 NOV 95
045511-0008-SA	STP-W409TP-103195	AQUEOUS	31 OCT 95		01 NOV 95

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.:45511

SOW No.: ILM02

EPA Sample No.	Lab Sample ID
4551101	4551101
4551101DU	4551101DU
4551101S	4551101S
4551101D	4551101D
4551102FB	4551102FB
4551102FD	4551102FD
4551103	4551103
4551104	4551104
4551105	4551105
4551106	4551106
4551107	4551107
4551108	4551108

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 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: _____ Name: DAN REBARCHIK

Date: 11/21/95 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.

4551108

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.: 45511

Matrix (soil/water): WATER Lab Sample ID: 4551108

Level (low/med): LOW Date Received: 11/01/95

% 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	7.4			C

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:
STP-W409TP-103195

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U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

4551106

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.: 45511

Matrix (soil/water): WATER Lab Sample ID: 4551106

Level (low/med): LOW Date Received: 11/01/95

% 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	4.3	U		C

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:
DPV-W410TP-103195

FORM I - IN

7/88

APPENDIX D
LABORATORY DATA SUMMARY PACKAGE:
DRIFT - PLATTEVILLE AQUIFER

WELLS

W420
W421
W422
W439

CITY OF ST. LOUIS PARK

Drift Platteville Aquifer 1995
PAH Quality Control Summary

Well No.	Sample Date	Method Blank	Field Duplicate	Matrix Spike	Matrix Spike Dup.	Field Blank
RAP Section 9.1.3 & 9.2.3 1st Quarter						
W420	3/20/95	41071	DPV-W420D-032095	DPV-W420MS-032095	DPV-W420MSD-032095	DPV-W420FB-032095
W421	3/20/95	41071	DPV-W420D-032095	DPV-W420MS-032095	DPV-W420MSD-032095	DPV-W420FB-032095
W422	3/20/95	41071	DPV-W420D-032095	DPV-W420MS-032095	DPV-W420MSD-032095	DPV-W420FB-032095
W439	3/20/95	41071	DPV-W420D-032095	DPV-W420MS-032095	DPV-W420MSD-032095	DPV-W420FB-032095
RAP Section 9.1.3 & 9.2.3 2nd Quarter						
W420	5/9/95	42069	DPV-W420D-050995	DPV-W420MS-050995	DPV-W420MSD-050995	DPV-W420FB-050995
W421	5/9/95	42069	DPV-W420D-050995	DPV-W420MS-050995	DPV-W420MSD-050995	DPV-W420FB-050995
W422	5/9/95	42069	DPV-W420D-050995	DPV-W420MS-050995	DPV-W420MSD-050995	DPV-W420FB-050995
W439	5/9/95	42069	DPV-W420D-050995	DPV-W420MS-050995	DPV-W420MSD-050995	DPV-W420FB-050995
RAP Section 9.1.3 & 9.2.3 3rd Quarter						
W420	9/19/95	44745	DPV-W420D-091995	DPV-W420MS-091995	DPV-W420MSD-091995	DPV-W420FB-091995
W421	9/19/95	44745	DPV-W420D-091995	DPV-W420MS-091995	DPV-W420MSD-091995	DPV-W420FB-091995
W422	9/19/95	44745	DPV-W420D-091995	DPV-W420MS-091995	DPV-W420MSD-091995	DPV-W420FB-091995
W439	9/19/95	44745	DPV-W420D-091995	DPV-W420MS-091995	DPV-W420MSD-091995	DPV-W420FB-091995
RAP Section 9.1.3 & 9.2.3 4th Quarter						
W420	10/31/95	45512	DPV-W420D-103195	DPV-W420MS-103195	DPV-W420MSD-103195	DPV-W420FB-103195
W421	10/31/95	45512	DPV-W420D-103195	DPV-W420MS-103195	DPV-W420MSD-103195	DPV-W420FB-103195
W422	10/31/95	45512	DPV-W420D-103195	DPV-W420MS-103195	DPV-W420MSD-103195	DPV-W420FB-103195
W439	10/31/95	45512	DPV-W420D-103195	DPV-W420MS-103195	DPV-W420MSD-103195	DPV-W420FB-103195

CITY OF ST. LOUIS PARK

DriftPlatteville Aquifer 1995
Phenolic Quality Control Summary

Well No.	Sample Date	Method Blank	Field Duplicate	Matrix Spike	Matrix Spike Dup.	Field Blank
RAP Section 9.1.3 & 9.2.3 1st Quarter						
W420	3/20/95	41070	DPV-W420TPD-032095	DPV-W420TPMS-032095	DPV-W420TPMSD-032095	DPV-W420TPFB-032095
W421	3/20/95	41070	DPV-W420TPD-032095	DPV-W420TPMS-032095	DPV-W420TPMSD-032095	DPV-W420TPFB-032095
W422	3/20/95	41070	DPV-W420TPD-032095	DPV-W420TPMS-032095	DPV-W420TPMSD-032095	DPV-W420TPFB-032095
W439	3/20/95	41070	DPV-W420TPD-032095	DPV-W420TPMS-032095	DPV-W420TPMSD-032095	DPV-W420TPFB-032095
RAP Section 9.1.3 & 9.2.3 2nd Quarter						
W420	5/19/95	42070	DPV-W420TPD-050995	DPV-W420TPMS-050995	DPV-W420TPMSD-050995	DPV-W420TPFB-050995
W421	5/19/95	42070	DPV-W420TPD-050995	DPV-W420TPMS-050995	DPV-W420TPMSD-050995	DPV-W420TPFB-050995
W422	5/19/95	42070	DPV-W420TPD-050995	DPV-W420TPMS-050995	DPV-W420TPMSD-050995	DPV-W420TPFB-050995
W439	5/19/95	42070	DPV-W420TPD-050995	DPV-W420TPMS-050995	DPV-W420TPMSD-050995	DPV-W420TPFB-050995
RAP Section 9.1.3 & 9.2.3 3rd Quarter						
W420	10/31/95	44743	DPV-W420TPD-091995	DPV-W420TPMS-091995	DPV-W420TPMSD-091995	DPV-W420TPFB-091995
W421	10/31/95	44743	DPV-W420TPD-091995	DPV-W420TPMS-091995	DPV-W420TPMSD-091995	DPV-W420TPFB-091995
W422	10/31/95	44743	DPV-W420TPD-091995	DPV-W420TPMS-091995	DPV-W420TPMSD-091995	DPV-W420TPFB-091995
W439	10/31/95	44743	DPV-W420TPD-091995	DPV-W420TPMS-091995	DPV-W420TPMSD-091995	DPV-W420TPFB-091995
RAP Section 9.1.3 & 9.2.3 4th Quarter						
W420	10/31/95	45511	DPV-W420TPD-103195	DPV-W420TPMS-103195	DPV-W420TPMSD-103195	DPV-W420TPFB-103195
W421	10/31/95	45511	DPV-W420TPD-103195	DPV-W420TPMS-103195	DPV-W420TPMSD-103195	DPV-W420TPFB-103195
W422	10/31/95	45511	DPV-W420TPD-103195	DPV-W420TPMS-103195	DPV-W420TPMSD-103195	DPV-W420TPFB-103195
W439	10/31/95	45511	DPV-W420TPD-103195	DPV-W420TPMS-103195	DPV-W420TPMSD-103195	DPV-W420TPFB-103195

RAP SECTION 9.1.3 & 9.2.3 MONITORING

WELLS

W420
W421
W422

FIRST QUARTER MONITORING

PAH MONITORING

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

Quanterra
Environmental Services

CASE NARRATIVE

FOR

City of St. Louis Park

May 23, 1995

Quanterra Environmental Services

Project No. 041071

Introduction

12 aqueous samples (includes QC) were received at Quanterra Environmental Services, Denver laboratory on March 21, 1995. The samples were logged in under Quanterra's Denver laboratory project number 041071. Sample DPV-W420FBD-032095 (041071-0002FD) 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

Due to laboratory error the the extractions on these samples were performed five days passed the recommended criteria listed in the April, 1990 QAPP. Per our disscussion of March 31, 1995, Quanterra was instructed to proceed with the extractions and analyses. The results of the entire project have been discounted 25%.

Samples DPV-W420 (041071-0001), DPV-W420D (041071-0001DU), DPV-421 (041071-0003) and DPV-W439 (041071-0006) showed target compounds above the upper calibration range. The samples were re-analyzed at a dilution. Both the original and re-analysis data were reported for each sample. The reporting limits were adjusted accordingly. The surrogates were diluted out of samples DPV-W420DL, DPV-W420DUDL, DPV-420MS, DPV-420MSD, DPV-421DL and DPV-439DL.

Quanterra
Environmental Services

All spiking compounds were diluted out of samples DPV-W420MS (041071-0001MS) and DPV-420MSD (041071-0001SD). The results as well as the raw data were submitted at no charge.

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: 5/23/95
Daniel Rebarchik
Program Administrator

Approved by: _____ Date: 5/23/95
Kevin McHugh
Program Manager

Quanterra Environmental Services

QUALIFIER CODES AND THEIR USAGE

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

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

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

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

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

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

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

QUALIFIER CODES AND THEIR USAGE
Page Two

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

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

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

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

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

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 041071	Group Code	Analysis Description	Custom Test?
0001 - 0008	A	CLP/PAH Semivolatile Organics High Level PPB	N
		CLP Prep - PAH Semivolatile Organics by GC/MS High Level PPB	N
0002	B	CLP Prep - PAH Semivolatile Organics by GC/MS High Level PPB	N

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
041071-0001-SA	DPV-W420-032095	AQUEOUS	20 MAR 95		21 MAR 95
041071-0001-DU	DPV-W420D-032095	AQUEOUS	20 MAR 95		21 MAR 95
041071-0001-MS	DPV-W420MS-032095	AQUEOUS	20 MAR 95		21 MAR 95
041071-0001-SD	DPV-W420MSD-032095	AQUEOUS	20 MAR 95		21 MAR 95
041071-0002-FB	DPV-W420FB-032095	AQUEOUS	20 MAR 95		21 MAR 95
041071-0002-FD	DPV-W420FBD-032095	AQUEOUS	20 MAR 95		21 MAR 95
041071-0003-SA	DPV-W421-032095	AQUEOUS	20 MAR 95		21 MAR 95
041071-0004-SA	DPV-W422-032095	AQUEOUS	20 MAR 95		21 MAR 95
041071-0005-SA	STP-W410-032095	AQUEOUS	20 MAR 95		21 MAR 95
041071-0006-SA	DPV-W439-032095	AQUEOUS	20 MAR 95		21 MAR 95
041071-0007-SA	GTF-ACFE-032095	AQUEOUS	20 MAR 95		21 MAR 95
041071-0008-SA	GTF-SFR-032095	AQUEOUS	20 MAR 95		21 MAR 95

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

Enseco
A Corning Company

☐ 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 PK WATER DEPT	PACKED BY: [illegible]
PROJECT:	SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:
SAMPLING COMPANY: SAME	SEALED FOR SHIPPING BY: [illegible]
SAMPLING SITE: SAME	SEAL NUMBER: / SAMPLING STATUS: ☐ Done ☐ Continuing Until
TEAM LEADER: [illegible]	SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No / CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 5.4 °C

SAMPLE SAFE™ CONDITIONS

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

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
3-20-95		DPV-W420 -032095	1XL AMBER	2	PPB PAH	-01
		DPV-W420D -032095	1XL AMBER	2		-01p
		DPV-W420MS -032095				-01ms
		DPV-W420MSD -032095				-01sp
		DPV-W420 FB -032095				-02FB
		DPV-W420 FBD -032095				-02FD
		DPV-W421 -032095				-03
		DPV-W422 -032095				-04
		STP-W410 -032095				-05
3-20-95		DPV-W439-032095	1XL AMBER	2	PPB PAH	-06

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: [illegible]	
METHOD OF SHIPMENT: ~~[illegible]~~ FED EX	AIRBILL NUMBER: 210342.1.0
RECEIVED FOR LAB: QES	SIGNED: [signature] / DATE/TIME: 3/21/95 0930
ENSECO PROJECT NUMBER: 4107	

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 PK WATER DEPT	
PROJECT:	
SAMPLING COMPANY: SAME	
SAMPLING SITE: SAME	
TEAM LEADER: [illegible]	

SAMPLE SAFE™ CONDITIONS

PACKED BY: [illegible]	SEAL NUMBER:
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:	CONDITION OF CONTENTS:
SEALED FOR SHIPPING BY: [illegible]	INITIAL CONTENTS TEMP: °C
SEAL NUMBER:	SAMPLING STATUS: ☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB: ☒ Yes ☐ No	CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 7.2 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
3-20-95		GTF-ACFE-032095	1XL AMBER	2	PPB PAH	-07
3-20-95		GTF-SFR-032095	1XL AMBER	2	PPB PAH	-08

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: 2103431120
RECEIVED FOR LAB: QGS	SIGNED: [signature]	DATE/TIME: 3/21/95 0930
ENSECO PROJECT NUMBER: 4107(		

ENS—4011

White - CLI[illegible] Pink - LAB

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W420

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 41071 SAS No.: SDG No.: 41071

Matrix: (soil/water) WATER Lab Sample ID: 41071-01

Sample wt/vol: 1060 (g/ml) ML Lab File ID: A0201265

Level: (low/med) LOW Date Received: 03/21/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/31/95

Concentrated Extract Volume: 1(ml) Date Analyzed: 04/20/95

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	864	E
91-57-6	2-Methylnaphthalene	81.2	J
208-96-8	Acenaphthylene	94.3	U
83-32-9	Acenaphthene	95.2	
132-64-9	Dibenzofuran	32.6	J
86-73-7	Fluorene	37.5	J
85-01-8	Phenanthrene	20.6	J
120-12-7	Anthracene	94.3	U
206-44-0	Fluoranthene	94.3	U
129-00-0	Pyrene	94.3	U
56-55-3	Benzo(a)Anthracene	94.3	U
218-01-9	Chrysene	94.3	U
205-99-2	Benzo(b)fluoranthene	94.3	U
207-08-9	Benzo(k)fluoranthene	94.3	U
50-32-8	Benzo(a)pyrene	94.3	U
193-39-5	Indeno(1 2 3-cd)pyrene	94.3	U
53-70-3	Dibenzo(a h)anthracene	94.3	U
191-24-2	Benzo(g h i)perylene	94.3	U
86-74-8	Carbazole	67.9	J
95-13-6	1H-Indene	87.4	J
91-22-5	Quinoline	94.3	U
90-12-0	1-Methylnaphthalene	109	
271-89-6	2,3-Benzofuran	37.6	J
496-11-7	2,3-Dihydroindene	369	
95-15-8	Benzo(b)thiophene	123	B
120-72-9	1H-Indole	94.3	U
92-52-4	Biphenyl	19.8	J
132-65-0	Dibenzothiophene	94.3	U
260-94-6	Acridine	94.3	U
192-97-2	Benzo(e)pyrene	94.3	U
198-55-0	Perylene	94.3	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

W420

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 41071 SAS No.: SDG No.: 41071

Matrix: (soil/water) WATER Lab Sample ID: 41071-01

Sample wt/vol: 1060 (g/ml) ML Lab File ID: A0201265

Level: (low/med) LOW Date Received: 03/21/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:03/31/95

Concentrated Extract Volume: 1(ml) Date Analyzed: 04/20/95

Injection Volume: 2.0(uL) Dilution Factor: 10.0

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

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 108-68-9	PHENOL, 3,5-DIMETHYL-	9.28	70.7	NJ
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1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W420DL

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 41071 SAS No.: SDG No.: 41071

Matrix: (soil/water) WATER Lab Sample ID: 41071-01

Sample wt/vol: 1060 (g/ml) ML Lab File ID: A0101293

Level: (low/med) LOW Date Received: 03/21/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/31/95

Concentrated Extract Volume: 1(ml) Date Analyzed: 04/21/95

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	1250	D
91-57-6	2-Methylnaphthalene	86.9	DJ
208-96-8	Acenaphthylene	189	U
83-32-9	Acenaphthene	96.9	DJ
132-64-9	Dibenzofuran	33.1	DJ
86-73-7	Fluorene	37.8	DJ
85-01-8	Phenanthrene	21.8	DJ
120-12-7	Anthracene	21.0	DJ
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	73.1	DJ
95-13-6	1H-Indene	92.6	DJ
91-22-5	Quinoline	189	U
90-12-0	1-Methylnaphthalene	116	DJ
271-89-6	2,3-Benzofuran	39.4	DJ
496-11-7	2,3-Dihydroindene	424	D
95-15-8	Benzo(b)thiophene	124	DJB
120-72-9	1H-Indole	189	U
92-52-4	Biphenyl	19.1	DJ
132-65-0	Dibenzothiophene	189	U
260-94-6	Acridine	189	U
192-97-2	Benzo(e)pyrene	189	U
198-55-0	Perylene	189	U

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

W420DL

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 41071 SAS No.: SDG No.: 41071

Matrix: (soil/water) WATER Lab Sample ID: 41071-01

Sample wt/vol: 1060 (g/ml) ML Lab File ID: A0101293

Level: (low/med) LOW Date Received: 03/21/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/31/95

Concentrated Extract Volume: 1(ml) Date Analyzed: 04/21/95

Injection Volume: 2.0(uL) Dilution Factor: 20.0

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

Number TICs found: 3

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 4265-25-2	BENZOFURAN, 2-METHYL-	8.70	44.1	NJD
2. 105-67-9	PHENOL, 2,4-DIMETHYL-	9.07	68.0	NJD
3. 108-68-9	PHENOL, 3,5-DIMETHYL-	9.27	76.6	NJD
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1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W420DU

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 41071 SAS No.: SDG No.: 41071

Matrix: (soil/water) WATER Lab Sample ID: 41071-01DU

Sample wt/vol: 1060 (g/ml) ML Lab File ID: A1101274

Level: (low/med) LOW Date Received: 03/21/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/31/95

Concentrated Extract Volume: 1(ml) Date Analyzed: 04/20/95

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	937	E
91-57-6	2-Methylnaphthalene	81.6	J
208-96-8	Acenaphthylene	94.3	U
83-32-9	Acenaphthene	86.9	J
132-64-9	Dibenzofuran	29.4	J
86-73-7	Fluorene	33.8	J
85-01-8	Phenanthrene	18.1	J
120-12-7	Anthracene	94.3	U
206-44-0	Fluoranthene	94.3	U
129-00-0	Pyrene	94.3	U
56-55-3	Benzo(a)Anthracene	94.3	U
218-01-9	Chrysene	94.3	U
205-99-2	Benzo(b)fluoranthene	94.3	U
207-08-9	Benzo(k)fluoranthene	94.3	U
50-32-8	Benzo(a)pyrene	94.3	U
193-39-5	Indeno(1 2 3-cd)pyrene	94.3	U
53-70-3	Dibenzo(a h)anthracene	94.3	U
191-24-2	Benzo(g h i)perylene	94.3	U
86-74-8	Carbazole	62.6	J
95-13-6	1H-Indene	87.2	J
91-22-5	Quinoline	94.3	U
90-12-0	1-Methylnaphthalene	110	
271-89-6	2,3-Benzofuran	34.1	J
496-11-7	2,3-Dihydroindene	372	
95-15-8	Benzo(b)thiophene	122	B
120-72-9	1H-Indole	94.3	U
92-52-4	Biphenyl	18.4	J
132-65-0	Dibenzothiophene	94.3	U
260-94-6	Acridine	94.3	U
192-97-2	Benzo(e)pyrene	94.3	U
198-55-0	Perylene	94.3	U

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

W420DU

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 41071 SAS No.: SDG No.: 41071

Matrix: (soil/water) WATER Lab Sample ID: 41071-01DU

Sample wt/vol: 1060 (g/ml) ML Lab File ID: A1101274

Level: (low/med) LOW Date Received: 03/21/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/31/95

Concentrated Extract Volume: 1(ml) Date Analyzed: 04/20/95

Injection Volume: 2.0(uL) Dilution Factor: 10.0

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

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 95-87-4	PHENOL, 2,5-DIMETHYL-	9.28	69.7	NJ
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1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W420DUDL

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 41071 SAS No.: SDG No.: 41071

Matrix: (soil/water) WATER Lab Sample ID: 41071-01DU

Sample wt/vol: 1060 (g/ml) ML Lab File ID: A0401296

Level: (low/med) LOW Date Received: 03/21/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/31/95

Concentrated Extract Volume: 1(ml) Date Analyzed: 04/21/95

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	1190	D
91-57-6	2-Methylnaphthalene	78.0	DJ
208-96-8	Acenaphthylene	189	U
83-32-9	Acenaphthene	83.5	DJ
132-64-9	Dibenzofuran	29.7	DJ
86-73-7	Fluorene	32.1	DJ
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	60.2	DJ
95-13-6	1H-Indene	85.9	DJ
91-22-5	Quinoline	189	U
90-12-0	1-Methylnaphthalene	107	DJ
271-89-6	2,3-Benzofuran	38.5	DJ
496-11-7	2,3-Dihydroindene	406	D
95-15-8	Benzo(b)thiophene	112	DJB
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

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

W420DUDL

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 41071 SAS No.: SDG No.: 41071

Matrix: (soil/water) WATER Lab Sample ID: 41071-01DU

Sample wt/vol: 1060 (g/ml) ML Lab File ID: A0401296

Level: (low/med) LOW Date Received: 03/21/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/31/95

Concentrated Extract Volume: 1(ml) Date Analyzed: 04/21/95

Injection Volume: 2.0(uL) Dilution Factor: 20.0

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

Number TICs found: 4

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 13610-02-1	BENZENE, (2-PROPYNYLOXY)-	8.69	43.8	NJD
2. 105-67-9	PHENOL, 2,4-DIMETHYL-	9.05	64.5	NJD
3. 526-75-0	PHENOL, 2,3-DIMETHYL-	9.26	66.7	NJD
4. 3652-91-3	9H-CARBAZOLE, 2-METHYL-	18.67	52.0	NJD
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1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W420FB

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 41071 SAS No.: SDG No.: 41071

Matrix: (soil/water) WATER Lab Sample ID: 41071-02FB

Sample wt/vol: 1050 (g/ml) ML Lab File ID: A0301266

Level: (low/med) LOW Date Received: 03/21/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:03/31/95

Concentrated Extract Volume: 1(ml) Date Analyzed: 04/20/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	9.52	U
91-57-6	2-Methylnaphthalene	9.52	U
208-96-8	Acenaphthylene	9.52	U
83-32-9	Acenaphthene	9.52	U
132-64-9	Dibenzofuran	9.52	U
86-73-7	Fluorene	9.52	U
85-01-8	Phenanthrene	9.52	U
120-12-7	Anthracene	9.52	U
206-44-0	Fluoranthene	9.52	U
129-00-0	Pyrene	9.52	U
56-55-3	Benzo(a)Anthracene	9.52	U
218-01-9	Chrysene	9.52	U
205-99-2	Benzo(b)fluoranthene	9.52	U
207-08-9	Benzo(k)fluoranthene	9.52	U
50-32-8	Benzo(a)pyrene	9.52	U
193-39-5	Indeno(1 2 3-cd)pyrene	9.52	U
53-70-3	Dibenzo(a h)anthracene	9.52	U
191-24-2	Benzo(g h i)perylene	9.52	U
86-74-8	Carbazole	9.52	U
95-13-6	1H-Indene	9.52	U
91-22-5	Quinoline	9.52	U
90-12-0	1-Methylnaphthalene	9.52	U
271-89-6	2,3-Benzofuran	9.52	U
496-11-7	2,3-Dihydroindene	9.52	U
95-15-8	Benzo(b)thiophene	2.20	JB
120-72-9	1H-Indole	9.52	U
92-52-4	Biphenyl	9.52	U
132-65-0	Dibenzothiophene	9.52	U
260-94-6	Acridine	9.52	U
192-97-2	Benzo(e)pyrene	9.52	U
198-55-0	Perylene	9.52	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

W420FB

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 41071 SAS No.: SDG No.: 41071

Matrix: (soil/water) WATER Lab Sample ID: 41071-02FB

Sample wt/vol: 1050 (g/ml) ML Lab File ID: A0301266

Level: (low/med) LOW Date Received: 03/21/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/31/95

Concentrated Extract Volume: 1(ml) Date Analyzed: 04/20/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W420FBD

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 41071 SAS No.: SDG No.: 41071

Matrix: (soil/water) WATER Lab Sample ID: 41071-02FD

Sample wt/vol: 1050 (g/ml) ML Lab File ID: A0401267

Level: (low/med) LOW Date Received: 03/21/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/31/95

Concentrated Extract Volume: 1(ml) Date Analyzed: 04/20/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	9.52	U
91-57-6	2-Methylnaphthalene	9.52	U
208-96-8	Acenaphthylene	9.52	U
83-32-9	Acenaphthene	9.52	U
132-64-9	Dibenzofuran	9.52	U
86-73-7	Fluorene	9.52	U
85-01-8	Phenanthrene	9.52	U
120-12-7	Anthracene	9.52	U
206-44-0	Fluoranthene	9.52	U
129-00-0	Pyrene	9.52	U
56-55-3	Benzo(a)Anthracene	9.52	U
218-01-9	Chrysene	9.52	U
205-99-2	Benzo(b)fluoranthene	9.52	U
207-08-9	Benzo(k)fluoranthene	9.52	U
50-32-8	Benzo(a)pyrene	9.52	U
193-39-5	Indeno(1 2 3-cd)pyrene	9.52	U
53-70-3	Dibenzo(a h)anthracene	9.52	U
191-24-2	Benzo(g h i)perylene	9.52	U
86-74-8	Carbazole	9.52	U
95-13-6	1H-Indene	9.52	U
91-22-5	Quinoline	9.52	U
90-12-0	1-Methylnaphthalene	9.52	U
271-89-6	2,3-Benzofuran	9.52	U
496-11-7	2,3-Dihydroindene	9.52	U
95-15-8	Benzo(b)thiophene	2.09	JB
120-72-9	1H-Indole	9.52	U
92-52-4	Biphenyl	9.52	U
132-65-0	Dibenzothiophene	9.52	U
260-94-6	Acridine	9.52	U
192-97-2	Benzo(e)pyrene	9.52	U
198-55-0	Perylene	9.52	U

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

W420FBD

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 41071 SAS No.: SDG No.: 41071

Matrix: (soil/water) WATER Lab Sample ID: 41071-02FD

Sample wt/vol: 1050 (g/ml) ML Lab File ID: A0401267

Level: (low/med) LOW Date Received: 03/21/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/31/95

Concentrated Extract Volume: 1(ml) Date Analyzed: 04/20/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 27554-26-3	1,2-BENZENEDICARBOXYLIC ACID	19.64	2.52	NJ
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W421

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 41071 SAS No.: SDG No.: 41071

Matrix: (soil/water) WATER Lab Sample ID: 41071-03

Sample wt/vol: 1050 (g/ml) ML Lab File ID: A1401277

Level: (low/med) LOW Date Received: 03/21/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/31/95

Concentrated Extract Volume: 1(ml) Date Analyzed: 04/20/95

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	236	E
91-57-6	2-Methylnaphthalene	6.94	J
208-96-8	Acenaphthylene	19.0	U
83-32-9	Acenaphthene	42.4	
132-64-9	Dibenzofuran	11.0	J
86-73-7	Fluorene	14.9	J
85-01-8	Phenanthrene	6.10	J
120-12-7	Anthracene	6.15	J
206-44-0	Fluoranthene	19.0	U
129-00-0	Pyrene	19.0	U
56-55-3	Benzo(a)Anthracene	19.0	U
218-01-9	Chrysene	19.0	U
205-99-2	Benzo(b)fluoranthene	19.0	U
207-08-9	Benzo(k)fluoranthene	19.0	U
50-32-8	Benzo(a)pyrene	19.0	U
193-39-5	Indeno(1 2 3-cd)pyrene	19.0	U
53-70-3	Dibenzo(a h)anthracene	19.0	U
191-24-2	Benzo(g h i)perylene	19.0	U
86-74-8	Carbazole	34.2	
95-13-6	1H-Indene	58.7	
91-22-5	Quinoline	19.0	U
90-12-0	1-Methylnaphthalene	50.4	
271-89-6	2,3-Benzofuran	19.0	U
496-11-7	2,3-Dihydroindene	135	
95-15-8	Benzo(b)thiophene	62.2	B
120-72-9	1H-Indole	19.0	U
92-52-4	Biphenyl	8.72	J
132-65-0	Dibenzothiophene	2.17	J
260-94-6	Acridine	19.0	U
192-97-2	Benzo(e)pyrene	19.0	U
198-55-0	Perylene	19.0	U

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

W421

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 41071 SAS No.: SDG No.: 41071

Matrix: (soil/water) WATER Lab Sample ID: 41071-03

Sample wt/vol: 1050 (g/ml) ML Lab File ID: A1401277

Level: (low/med) LOW Date Received: 03/21/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/31/95

Concentrated Extract Volume: 1(ml) Date Analyzed: 04/20/95

Injection Volume: 2.0(uL) Dilution Factor: 2.0

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

Number TICs found: 25

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 95-36-3	1,2,4-TRIMETHYLBENZENE	7.22	5.07	NJ
2. 95-36-3	1,2,4-TRIMETHYLBENZENE	7.41	5.24	NJ
3. 108-67-8	BENZENE, 1,3,5-TRIMETHYL-	7.75	7.06	NJ
4. 4265-25-2	BENZOFURAN, 2-METHYL-	8.62	7.02	NJ
5. 104-55-2	2-PROPENAL, 3-PHENYL-	8.70	18.4	NJ
6. 874-35-1	1H-INDENE, 2,3-DIHYDRO-5-MET	9.09	5.85	NJ
7. 2039-89-6	BENZENE, 2-ETHENYL-1,4-DIMET	9.21	16.0	NJ
8. 15677-15-3	CYCLOPROP[A]INDENE, 1,1A,6,6	9.27	12.9	NJ
9. 4565-32-6	BENZO[B]THIOPHENE, 2,3-DIHYD	10.36	6.68	NJ
10. 581-42-0	NAPHTHALENE, 2,6-DIMETHYL-	11.76	8.95	NJ
11. 575-37-1	NAPHTHALENE, 1,7-DIMETHYL-	11.87	10.6	NJ
12. 20294-32-0	6-METHYL-4-INDANOL	12.01	4.71	NJ
13. 571-58-4	NAPHTHALENE, 1,4-DIMETHYL-	12.06	4.60	NJ
14. 7469-77-4	1-NAPHTHALENOL, 2-METHYL-	13.45	5.68	NJ
15. 0-00-0	BENZALDEHYDE, 2,4-DIFLUORO-3	13.51	6.88	NJ
16. 1719-21-7	PHENOL, 2,4,6-TRIMETHYL-3-NI	13.69	5.93	NJ
17. 635-46-1	QUINOLINE, 1,2,3,4-TETRAHYDR	13.92	9.19	NJ
18. 607-66-9	2(1H)-QUINOLINONE, 4-METHYL-	14.43	4.91	NJ
19. 260-94-6	ACRIDINE	15.05	4.64	NJ
20. 578-95-0	9(10H)-ACRIDINONE	18.14	4.71	NJ
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W421DL

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 41071 SAS No.: SDG No.: 41071

Matrix: (soil/water) WATER Lab Sample ID: 41071-03DL

Sample wt/vol: 1050 (g/ml) ML Lab File ID: A0301341

Level: (low/med) LOW Date Received: 12/14/94

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 12/15/94

Concentrated Extract Volume: 1(ml) Date Analyzed: 04/24/95

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	440	D
91-57-6	2-Methylnaphthalene	95.2	U
208-96-8	Acenaphthylene	95.2	U
83-32-9	Acenaphthene	50.1	DJ
132-64-9	Dibenzofuran	11.8	DJ
86-73-7	Fluorene	15.3	DJ
85-01-8	Phenanthrene	95.2	U
120-12-7	Anthracene	95.2	U
206-44-0	Fluoranthene	95.2	U
129-00-0	Pyrene	95.2	U
56-55-3	Benzo(a)Anthracene	95.2	U
218-01-9	Chrysene	95.2	U
205-99-2	Benzo(b)fluoranthene	95.2	U
207-08-9	Benzo(k)fluoranthene	95.2	U
50-32-8	Benzo(a)pyrene	95.2	U
193-39-5	Indeno(1 2 3-cd)pyrene	95.2	U
53-70-3	Dibenzo(a h)anthracene	95.2	U
191-24-2	Benzo(g h i)perylene	95.2	U
86-74-8	Carbazole	37.2	DJ
95-13-6	1H-Indene	74.0	DJ
91-22-5	Quinoline	95.2	U
90-12-0	1-Methylnaphthalene	59.6	DJ
271-89-6	2,3-Benzofuran	95.2	U
496-11-7	2,3-Dihydroindene	192	D
95-15-8	Benzo(b)thiophene	71.8	DJ
120-72-9	1H-Indole	95.2	U
92-52-4	Biphenyl	95.2	U
132-65-0	Dibenzothiophene	95.2	U
260-94-6	Acridine	95.2	U
192-97-2	Benzo(e)pyrene	95.2	U
198-55-0	Perylene	95.2	U

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

W421DL

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 41071 SAS No.: SDG No.: 41071

Matrix: (soil/water) WATER Lab Sample ID: 41071-03DL

Sample wt/vol: 1050 (g/ml) ML Lab File ID: A0301341

Level: (low/med) LOW Date Received: 12/14/94

% Moisture: _____ decanted: (Y/N)___ Date Extracted:12/15/94

Concentrated Extract Volume: 1(ml) Date Analyzed: 04/24/95

Injection Volume: 2.0(uL) Dilution Factor: 10.0

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

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 4265-25-2	BENZOFURAN, 2-METHYL-	8.41	19.7	NJD
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W422

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 41071 SAS No.: SDG No.: 41071

Matrix: (soil/water) WATER Lab Sample ID: 41071-04

Sample wt/vol: 1060 (g/ml) ML Lab File ID: A0601269

Level: (low/med) LOW Date Received: 03/21/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/31/95

Concentrated Extract Volume: 1(ml) Date Analyzed: 04/20/95

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	2.83	J
91-57-6	2-Methylnaphthalene	9.43	U
208-96-8	Acenaphthylene	9.43	U
83-32-9	Acenaphthene	8.98	J
132-64-9	Dibenzofuran	9.43	U
86-73-7	Fluorene	9.43	U
85-01-8	Phenanthrene	9.43	U
120-12-7	Anthracene	9.43	U
206-44-0	Fluoranthene	9.43	U
129-00-0	Pyrene	9.43	U
56-55-3	Benzo(a)Anthracene	9.43	U
218-01-9	Chrysene	9.43	U
205-99-2	Benzo(b)fluoranthene	9.43	U
207-08-9	Benzo(k)fluoranthene	9.43	U
50-32-8	Benzo(a)pyrene	9.43	U
193-39-5	Indeno(1 2 3-cd)pyrene	9.43	U
53-70-3	Dibenzo(a h)anthracene	9.43	U
191-24-2	Benzo(g h i)perylene	9.43	U
86-74-8	Carbazole	1.56	J
95-13-6	1H-Indene	9.43	U
91-22-5	Quinoline	9.43	U
90-12-0	1-Methylnaphthalene	9.43	U
271-89-6	2,3-Benzofuran	9.43	U
496-11-7	2,3-Dihydroindene	40.7	
95-15-8	Benzo(b)thiophene	9.43	U
120-72-9	1H-Indole	9.43	U
92-52-4	Biphenyl	9.43	U
132-65-0	Dibenzothiophene	9.43	U
260-94-6	Acridine	9.43	U
192-97-2	Benzo(e)pyrene	9.43	U
198-55-0	Perylene	9.43	U

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

W422

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 41071 SAS No.: SDG No.: 41071

Matrix: (soil/water) WATER Lab Sample ID: 41071-04

Sample wt/vol: 1060 (g/ml) ML Lab File ID: A0601269

Level: (low/med) LOW Date Received: 03/21/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/31/95

Concentrated Extract Volume: 1(ml) Date Analyzed: 04/20/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

Number TICs found: 1

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 52562-19-3	BENZENAMINE, 2-(1-METHYLETHE	13.91	5.35	NJ
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W439

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 41071 SAS No.: SDG No.: 41071

Matrix: (soil/water) WATER Lab Sample ID: 41071-06

Sample wt/vol: 1060 (g/ml) ML Lab File ID: A1501278

Level: (low/med) LOW Date Received: 03/21/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/31/95

Concentrated Extract Volume: 1(ml) Date Analyzed: 04/20/95

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	1260	E
91-57-6	2-Methylnaphthalene	106	
208-96-8	Acenaphthylene	94.3	U
83-32-9	Acenaphthene	129	
132-64-9	Dibenzofuran	43.2	J
86-73-7	Fluorene	25.7	J
85-01-8	Phenanthrene	29.9	J
120-12-7	Anthracene	30.1	J
206-44-0	Fluoranthene	94.3	U
129-00-0	Pyrene	94.3	U
56-55-3	Benzo(a)Anthracene	94.3	U
218-01-9	Chrysene	94.3	U
205-99-2	Benzo(b)fluoranthene	94.3	U
207-08-9	Benzo(k)fluoranthene	94.3	U
50-32-8	Benzo(a)pyrene	94.3	U
193-39-5	Indeno(1 2 3-cd)pyrene	94.3	U
53-70-3	Dibenzo(a h)anthracene	94.3	U
191-24-2	Benzo(g h i)perylene	94.3	U
86-74-8	Carbazole	28.8	J
95-13-6	1H-Indene	343	
91-22-5	Quinoline	94.3	U
90-12-0	1-Methylnaphthalene	210	
271-89-6	2,3-Benzofuran	38.4	J
496-11-7	2,3-Dihydroindene	599	
95-15-8	Benzo(b)thiophene	182	B
120-72-9	1H-Indole	94.3	U
92-52-4	Biphenyl	25.3	J
132-65-0	Dibenzothiophene	94.3	U
260-94-6	Acridine	94.3	U
192-97-2	Benzo(e)pyrene	94.3	U
198-55-0	Perylene	94.3	U

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

W439

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 41071 SAS No.: SDG No.: 41071

Matrix: (soil/water) WATER Lab Sample ID: 41071-06

Sample wt/vol: 1060 (g/ml) ML Lab File ID: A1501278

Level: (low/med) LOW Date Received: 03/21/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/31/95

Concentrated Extract Volume: 1(ml) Date Analyzed: 04/20/95

Injection Volume: 2.0(uL) Dilution Factor: 10.0

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

Number TICs found: 19

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 526-73-8	BENZENE, 1,2,3-TRIMETHYL-	7.09	52.4	NJ
2. 620-14-4	BENZENE, 1-ETHYL-3-METHYL-	7.22	42.0	NJ
3. 95-36-3	1,2,4-TRIMETHYLBENZENE	7.41	177	NJ
4. 108-67-8	BENZENE, 1,3,5-TRIMETHYL-	7.75	54.2	NJ
5. 105-05-5	BENZENE, 1,4-DIETHYL-	8.13	20.0	NJ
6. 934-80-5	BENZENE, 4-ETHYL-1,2-DIMETHY	8.38	23.4	NJ
7. 527-84-4	BENZENE, 1-METHYL-2-(1-METHY	8.45	23.4	NJ
8. 27133-93-3	2,3-DIHYDRO-1-METHYLINDENE	8.50	19.5	NJ
9. 4265-25-2	BENZOFURAN, 2-METHYL-	8.62	25.8	NJ
10. 13610-02-1	BENZENE, (2-PROPYNYLOXY)-	8.70	70.8	NJ
11. 874-35-1	1H-INDENE, 2,3-DIHYDRO-5-MET	9.09	30.5	NJ
12. 2039-89-6	BENZENE, 2-ETHENYL-1,4-DIMET	9.21	106	NJ
13. 767-59-9	1H-INDENE, 1-METHYL-	9.27	94.6	NJ
14. 1127-76-0	NAPHTHALENE, 1-ETHYL-	11.64	19.4	NJ
15. 571-61-9	NAPHTHALENE, 1,5-DIMETHYL-	11.74	33.3	NJ
16. 581-40-8	NAPHTHALENE, 2,3-DIMETHYL-	11.87	32.9	NJ
17. 7469-77-4	1-NAPHTHALENOL, 2-METHYL-	13.44	29.3	NJ
18. 658-87-7	4-FLUORO-2,6-DIMETHOXYPYRIMI	13.52	27.5	NJ
19. 635-46-1	QUINOLINE, 1,2,3,4-TETRAHYDR	13.92	28.6	NJ
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1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W439DL

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 41071 SAS No.: SDG No.: 41071

Matrix: (soil/water) WATER Lab Sample ID: 41071-06DL

Sample wt/vol: 1060 (g/ml) ML Lab File ID: A0401342

Level: (low/med) LOW Date Received: 12/14/94

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 12/15/94

Concentrated Extract Volume: 1(ml) Date Analyzed: 04/24/95

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	2020	D
91-57-6	2-Methylnaphthalene	113	DJ
208-96-8	Acenaphthylene	377	U
83-32-9	Acenaphthene	136	DJ
132-64-9	Dibenzofuran	44.8	DJ
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	377	U
95-13-6	1H-Indene	404	D
91-22-5	Quinoline	377	U
90-12-0	1-Methylnaphthalene	223	DJ
271-89-6	2,3-Benzofuran	42.1	DJ
496-11-7	2,3-Dihydroindene	761	D
95-15-8	Benzo(b)thiophene	190	DJ
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

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

W439DL

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 41071 SAS No.: SDG No.: 41071

Matrix: (soil/water) WATER Lab Sample ID: 41071-06DL

Sample wt/vol: 1060 (g/ml) ML Lab File ID: A0401342

Level: (low/med) LOW Date Received: 12/14/94

% Moisture: _____ decanted: (Y/N)___ Date Extracted:12/15/94

Concentrated Extract Volume: 1(ml) Date Analyzed: 04/24/95

Injection Volume: 2.0(uL) Dilution Factor: 40.0

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

Number TICs found: 3

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 95-36-3	1,2,4-TRIMETHYLBENZENE	7.11	191	NJD
2. 767-59-9	1H-INDENE, 1-METHYL-	8.92	102	NJD
3. 65051-83-4	BENZENE, (1-METHYL-2-CYCLOPR	8.97	100	NJD
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1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

W420MSD

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 41071 SAS No.: SDG No.: 41071

Matrix: (soil/water) WATER Lab Sample ID: 41071-01MSD

Sample wt/vol: 1060 (g/ml) ML Lab File ID: A0301295

Level: (low/med) LOW Date Received: 03/21/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/31/95

Concentrated Extract Volume: 1(ml) Date Analyzed: 04/21/95

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
		189	U
91-20-3	Naphthalene	189	U
91-57-6	2-Methylnaphthalene	189	U
208-96-8	Acenaphthylene	189	U
83-32-9	Acenaphthene	189	U
132-64-9	Dibenzofuran	189	U
86-73-7	Fluorene	189	U
85-01-8	Phenanthrene	189	U
120-12-7	Anthracene	189	U
206-44-0	Fluoranthene	189	U
129-00-0	Pyrene	189	U
56-55-3	Benzo(a)Anthracene	189	U
218-01-9	Chrysene	189	U
205-99-2	Benzo(b)fluoranthene	189	U
207-08-9	Benzo(k)fluoranthene	189	U
50-32-8	Benzo(a)pyrene	189	U
193-39-5	Indeno(1 2 3-cd)pyrene	189	U
53-70-3	Dibenzo(a h)anthracene	189	U
191-24-2	Benzo(g h i)perylene	189	U
86-74-8	Carbazole	189	U
95-13-6	1H-Indene	189	U
91-22-5	Quinoline	189	U
90-12-0	1-Methylnaphthalene	189	U
271-89-6	2,3-Benzofuran	189	U
496-11-7	2,3-Dihydroindene	189	U
95-15-8	Benzo(b)thiophene	189	U
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

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

SBLK01

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 41071 SAS No.: SDG No.: 41071

Lab File ID: A0101264 Lab Sample ID: SBLK01

Instrument ID: A Date Extracted: 03/31/95

Matrix: (soil/water) WATER Date Analyzed: 04/20/95

Level: (low/med) LOW Time Analyzed: 0901

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	W420FB	41071-02FB	A0301266	04/20/95
02	W420FBD	41071-02FD	A0401267	04/20/95
03	W422	41071-04	A0601269	04/20/95
04	W410	41071-05	A0701270	04/20/95
05	ACFE	41071-07	A0901272	04/20/95
06	W421	41071-03	A1401277	04/20/95
07	W439	41071-06	A1501278	04/20/95
08	W420	41071-01	A0101293	04/21/95
09	W420MS	41071-01MS	A0201294	04/21/95
10	W420MSD	41071-01MSD	A0301295	04/21/95
11	W420D	41071-01DU	A0401296	04/21/95
12	SFR	41071-08	A0501297	04/21/95
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COMMENTS:

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLK01

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 41071 SAS No.: SDG No.: 41071

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

Sample wt/vol: 1000 (g/ml) ML Lab File ID: A0101264

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

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/31/95

Concentrated Extract Volume: 1(ml) Date Analyzed: 04/20/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	10.0	U
91-57-6	2-Methylnaphthalene	10.0	U
208-96-8	Acenaphthylene	10.0	U
83-32-9	Acenaphthene	10.0	U
132-64-9	Dibenzofuran	10.0	U
86-73-7	Fluorene	10.0	U
85-01-8	Phenanthrene	10.0	U
120-12-7	Anthracene	10.0	U
206-44-0	Fluoranthene	10.0	U
129-00-0	Pyrene	10.0	U
56-55-3	Benzo(a)Anthracene	10.0	U
218-01-9	Chrysene	10.0	U
205-99-2	Benzo(b)fluoranthene	10.0	U
207-08-9	Benzo(k)fluoranthene	10.0	U
50-32-8	Benzo(a)pyrene	10.0	U
193-39-5	Indeno(1 2 3-cd)pyrene	10.0	U
53-70-3	Dibenzo(a h)anthracene	10.0	U
191-24-2	Benzo(g h i)perylene	10.0	U
86-74-8	Carbazole	10.0	U
95-13-6	1H-Indene	10.0	U
91-22-5	Quinoline	10.0	U
90-12-0	1-Methylnaphthalene	10.0	U
271-89-6	2,3-Benzofuran	10.0	U
496-11-7	2,3-Dihydroindene	10.0	U
95-15-8	Benzo(b)thiophene	10.0	U
120-72-9	1H-Indole	10.0	U
92-52-4	Biphenyl	10.0	U
132-65-0	Dibenzothiophene	10.0	U
260-94-6	Acridine	10.0	U
192-97-2	Benzo(e)pyrene	10.0	U
198-55-0	Perylene	10.0	U

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SBLK01

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 41071 SAS No.: SDG No.: 41071

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

Sample wt/vol: 1000 (g/ml) ML Lab File ID: A0101264

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

% Moisture: _____ decanted: (Y/N)___ Date Extracted:03/31/95

Concentrated Extract Volume: 1(ml) Date Analyzed: 04/20/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 41071 SAS No.: SDG No.: 41071

Lab File ID (Standard): A263 Date Analyzed: 04/20/95

Instrument ID: A Time Analyzed: 0823

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	245752	12.43	289313	14.86	134544	21.50
	UPPER LIMIT	491504	12.93	578626	15.36	269088	22.00
	LOWER LIMIT	122876	11.93	144656	14.36	67272	21.00
	EPA SAMPLE NO.						
01	SBLK01	233196	12.42	315403	14.86	172102	21.49
02	W420FB	205646	12.42	261797	14.85	147451	21.48
03	W420FBD	210131	12.41	280993	14.85	162095	21.48
04	W422	217947	12.42	298844	14.85	174679	21.48
05	W410	239349	12.42	326955	14.85	194531	21.48
06	ACFE	235002	12.42	307942	14.85	183343	21.48
07	W421	229387	12.42	310892	14.85	190304	21.48
08	W439	225752	12.42	316959	14.86	187068	21.47
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IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 (BAP) = Benzo(a)pyrene-d12

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

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

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 41071 SAS No.: SDG No.: 41071

Lab File ID (Standard): A338 Date Analyzed: 04/24/95

Instrument ID: A Time Analyzed: 1350

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	277032	12.12	342628	14.52	199630	21.17
	UPPER LIMIT	554064	12.62	685256	15.02	399260	21.67
	LOWER LIMIT	138516	11.62	171314	14.02	99815	20.67
	EPA SAMPLE NO.						
01	W421DL	233910	12.12	288238	14.52	192790	21.16
02	W439DL	243398	12.12	306599	14.52	197207	21.16
03							
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IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 (BAP) = Benzo(a)pyrene-d12

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

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

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 41071 SAS No.: SDG No.: 41071

Lab File ID (Standard): A292 Date Analyzed: 04/21/95

Instrument ID: A Time Analyzed: 0913

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	248483	12.42	295173	14.85	146566	21.48
	UPPER LIMIT	496966	12.92	590346	15.35	293132	21.98
	LOWER LIMIT	124242	11.92	147586	14.35	73283	20.98
	EPA SAMPLE NO.						
01	W420DL	213772	12.41	279708	14.85	169014	21.48
02	W420MS	215324	12.41	286205	14.84	175693	21.47
03	W420MSD	204457	12.41	280983	14.84	175486	21.47
04	W420DUDL	214356	12.41	283008	14.83	178107	21.48
05	SFR	208931	12.41	288056	14.84	164431	21.47
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IS1 (ANT) = 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.

PHENOLICS MONITORING

Quanterra
Environmental Services

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

April 14, 1995

Mr. Scott Anderson
City of St. Louis Park
5005 Minnetonka Blvd.
St. Louis Park, MN 55416

Dear Mr. Anderson:

Enclosed is the ppb phenolics report for 12 aqueous samples, including matrix QC, received at Quanterra Environmental Services, Denver laboratory on March 21, 1995.

Samples DPV-W420TPMS (041070-0001MS) and DPV-W420TPMSD (041070-001SD) showed the percent recoveries of the spiked phenolics at 142% and 152% (control limit 125%). The data were 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 #041070

Quanterra Environmental Services

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
041070-0001-SA	DPV-W420TP-032095	AQUEOUS	20 MAR 95		21 MAR 95
041070-0001-DU	DPV-W420TPD-032095	AQUEOUS	20 MAR 95		21 MAR 95
041070-0001-MS	DPV-W420TPMS-032095	AQUEOUS	20 MAR 95		21 MAR 95
041070-0001-SD	DPV-W420TPMSD-032095	AQUEOUS	20 MAR 95		21 MAR 95
041070-0002-FB	DPV-W420TPFB-032095	AQUEOUS	20 MAR 95		21 MAR 95
041070-0002-FD	DPV-W420TPFBD-032095	AQUEOUS	20 MAR 95		21 MAR 95
041070-0003-SA	DPV-W421TP-032095	AQUEOUS	20 MAR 95		21 MAR 95
041070-0004-SA	DPV-W422TP-032095	AQUEOUS	20 MAR 95		21 MAR 95
041070-0005-SA	STP-W410TP-032095	AQUEOUS	20 MAR 95		21 MAR 95
041070-0006-SA	DPV-W439TP-032095	AQUEOUS	20 MAR 95		21 MAR 95
041070-0007-SA	GTF-ACFETP-032095	AQUEOUS	20 MAR 95		21 MAR 95
041070-0008-SA	GTF-SFRTP-032095	AQUEOUS	20 MAR 95		21 MAR 95

RESULT QUALIFIERS

C - Concentration Qualifier:

Enter a "B" if the reported value is less than the Contract Required Detection Limit (CRDL) but greater than the Instrument Detection Limit (IDL). If the analyte was analyzed for but not detected, a "U" must be entered.

Q - Quality Control Qualifiers:

E - The reported value is estimated because of the presence of interference. An explanatory note must be 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 Qualifier:

"P" for ICP
"A" for Flame AA
"F" for Furnace AA
"CV" for Manual Cold Vapor AA
"AV" for Automated Cold Vapor AA
"AS" for Semi-Automated Spectrophotometric
"C" for Manual Spectrophotometric
"T" for Titrimetric
"NR" if the analyte is not required to be analyzed.

U.S. EPA - CLP

Quanterra Environmental Services

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: ____ SAS No.: ____ SDG No.:41070

SOW No.: ILM02

EPA Sample No.	Lab Sample ID
4107001	4107001
4107001D	4107001D
4107001S	4107001S
4107002FB	4107002FB
4107002FD	4107002FD
4107003	4107003
4107004	4107004
4107005	4107005
4107006	4107006
4107007	4107007
4107008	4107008

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:

ELEVEN_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: ____ Name: ____

Date: ____ Title: ____

U.S. EPA - CLP

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INORGANIC ANALYSES DATA SHEET

Quanterra Environmental Services

EPA SAMPLE NO.

4107001

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.: 41070

Matrix (soil/water): WATER Lab Sample ID: 4107001

Level (low/med): LOW Date Received: 03/21/95

% 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	142		N	C

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:
DPV-W420TP-032095

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U.S. EPA - CLP

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INORGANIC ANALYSES DATA SHEET

Quanterra Environmental Services

EPA SAMPLE NO.

4107002FB

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.: 41070

Matrix (soil/water): WATER Lab Sample ID: 4107002FB

Level (low/med): LOW Date Received: 03/21/95

% 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-032095

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INORGANIC ANALYSES DATA SHEET

Quanterra Environmental Services

EPA SAMPLE NO.

4107002FD

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.: 41070

Matrix (soil/water): WATER Lab Sample ID: 4107002FD

Level (low/med): LOW Date Received: 03/21/95

% 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-032095

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INORGANIC ANALYSES DATA SHEET

Quanterra Environmental Services

EPA SAMPLE NO.

4107003

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.: 41070_

Matrix (soil/water): WATER Lab Sample ID: 4107003

Level (low/med): LOW Date Received: 03/21/95

% 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	31.4		N	C

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:
DPV-W421TP-032095

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INORGANIC ANALYSES DATA SHEET

Quanterra Environmental Services

EPA SAMPLE NO.

4107006

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.: 41070

Matrix (soil/water): WATER Lab Sample ID: 4107006

Level (low/med): LOW Date Received: 03/21/95

% 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	91.1		N	C

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:
DPV-W439TP-032095

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INORGANIC ANALYSES DATA SHEET

Quanterra Environmental Services

EPA SAMPLE NO.

4107004

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.: 41070

Matrix (soil/water): WATER Lab Sample ID: 4107004

Level (low/med): LOW Date Received: 03/21/95

% 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	11.2		N	C

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:
DPV-W422TP-032095

FORM I - IN

7/88

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Quanterra Environmental Services

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.: 41070

Initial Calibration Source: IN HOUSE STD

Continuing Calibration Source: IN HOUSE STD

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	50.0	43.72	87.4	50.0	47.96	95.9	49.30	98.6	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

Quanterra Environmental Services

Lab Name: QUANTERRA Contract: CITY_SLP__

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.: 41070_

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			5.000	U	C

FORM III - IN

7/88

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

Quanterra Environmental Services

EPA SAMPLE NO.

4107001S

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.: 41070_

Matrix (soil/water): WATER_ Level (low/med): LOW

% Solids for Sample: 0.0

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

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Phenolics	75-125	210.9200		142.2000		50.00	137.4	N	C

Comments:
DPV-W420TPMS-032095

FORM V (Part 1) - IN 7/88

U.S. EPA - CLP

6
DUPLICATES

Quanterra Environmental Services

EPA SAMPLE NO.

4107001D

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: Sas No.: SDG No.: 41070

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		142.2000		128.4000		10.2		C

FORM VI - IN

7/88

U.S. EPA - CLP

7

LABORATORY CONTROL SAMPLE

Quanterra Environmental Services

Lab Name: QUANTERRA Contract: CITY_SLP__

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.: 41070_

Solid LCS Source: IN HOUSE STD

Aqueous LCS Source: IN HOUSE STD

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Phenolics	50.0	48.32	96.6						

FORM VII - IN

7/88

SECOND QUARTER MONITORING

PAH MONITORING

Quanterra Environmental Services

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

CASE NARRATIVE

FOR

City of St. Louis Park

June 18, 1995

Quanterra Environmental Services

Project No. 042069

Introduction

13 aqueous samples (includes QC) were received at Quanterra Environmental Services, Denver laboratory on May 10, 1995. The samples were logged in under Quanterra's Denver laboratory project number 042069. Sample DPV-W420FBD-050995 (042069-0002FD) 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 (042069-0001), DPV-W420D (042069-0001DU), DPV-421 (042069-0003), DPV-W439 (042069-0005) and GTF-SFR (042069-0006) showed target compounds above the upper calibration range. The samples were re-analyzed at a dilution. Both the original and re-analysis data were reported for each sample. The reporting limits were adjusted accordingly. The surrogates were diluted out of samples DPV-W420DL, DPV-W420DUDL, DPV-420MS, DPV-420MSD, DPV-421DL, DPV-439 and DPV-439DL.

Quanterra
Environmental Services

Due to the concentrations of the spiking compounds in the parent sample, some of the percent recoveries for the spiking compounds in samples DPV-W420MS (042069-0001MS) and DPV-420MSD (042069-0001SD) were 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: 6/18/95
Daniel Rebarchik
Program Administrator

Approved by: _____ Date: 6/19/95
Kevin McHugh
Program Manager

Quanterra Environmental Services

QUALIFIER CODES AND THEIR USAGE

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

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

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

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

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

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

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

QUALIFIER CODES AND THEIR USAGE
Page Two

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

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

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

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

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

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 042069	Group Code	Analysis Description	Custom Test?
0001 - 0009	A	CLP/PAH Semivolatile Organics High Level PPB	N
		CLP Prep - PAH Semivolatile Organics by GC/MS High Level PPB	N
0002	B	CLP Prep - PAH Semivolatile Organics by GC/MS High Level PPB	N

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
042069-0001-SA	DPV-W420-050995	AQUEOUS	09 MAY 95		10 MAY 95
042069-0001-DU	DPV-W420D-050995	AQUEOUS	09 MAY 95		10 MAY 95
042069-0001-MS	DPV-W420MS-050995	AQUEOUS	09 MAY 95		10 MAY 95
042069-0001-SD	DPV-W420MSD-050995	AQUEOUS	09 MAY 95		10 MAY 95
042069-0002-FB	DPV-W420FB-050995	AQUEOUS	09 MAY 95		10 MAY 95
042069-0002-FD	DPV-W420FBD-050995	AQUEOUS	09 MAY 95		10 MAY 95
042069-0003-SA	DPV-W421-050995	AQUEOUS	09 MAY 95		10 MAY 95
042069-0004-SA	DPV-W422-050995	AQUEOUS	09 MAY 95		10 MAY 95
042069-0005-SA	DPV-W439-050995	AQUEOUS	09 MAY 95		10 MAY 95
042069-0006-SA	GTF-SFR-050995	AQUEOUS	09 MAY 95		10 MAY 95
042069-0007-SA	GTF-ACFE-050995	AQUEOUS	09 MAY 95		10 MAY 95
042069-0008-SA	PCJ-W23-050995	AQUEOUS	09 MAY 95		10 MAY 95
042069-0009-SA	STP-W409-050995	AQUEOUS	09 MAY 95	15:20	10 MAY 95

☐ 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

Enseco
A Corning Company

CHAIN OF CUSTODY

ENSECO CLIENT: City of ST Louis PK (WATER DEPT)

PROJECT:

SAMPLING COMPANY: SAME

SAMPLING SITE: SAME

TEAM LEADER: MZ

SAMPLE SAFE™ CONDITIONS

PACKED BY: MZ

SEAL NUMBER:

SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:

CONDITION OF CONTENTS:

SEALED FOR SHIPPING BY: MZ

INITIAL CONTENTS TEMP: °C

SEAL NUMBER: 012 312

SAMPLING STATUS: ☐ Done ☐ Continuing Until

SEAL INTACT UPON RECEIPT BY LAB: ☑ Yes ☐ No

CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 8.4 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
5-9-95		DPV-W 420 - 050995	1XL AMBER	2	PPB PAH	-01
		DPV-W 420D - 050995				-01DUP
		DPV-W 420MS - 050995				-03MS
		DPV-W 420MSD - 050995				-01SD
		DPV-W 420FB - 050995				-02FB
		DPV-W 420FBD - 050995				-02FD
		DPV-W 421 - 050995				-03
		DPV-W 422 - 050995				-04
		DPV-W 439 - 050995				-05
5-9-95		PGT-[illegible]995	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: 2103421191

RECEIVED FOR LAB: QES

SIGNED: [signature]

DATE/TIME: 5/11/95 9:03

ENSECO PROJECT NUMBER: 42069

ENS-4011

White - CLIENT Pink - LAB

4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

Quanterra Environmental Services

SAMPLE SAFE™ CONDITIONS

QUANTERRA CLIENT: CITY OF SAINT LOUIS PARK (WATER DEPT)	PACKED BY: [illegible]
PROJECT:	SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:
SAMPLING COMPANY: SAME	SEALED FOR SHIPPING BY: [illegible]
SAMPLING SITE: SAME	SEAL NUMBER: 012040
TEAM LEADER: [illegible]	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: 7.9 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
5-09-95		GTF-SFR-050995	1XL AMBER	2	PPB PAH	-06
5-9-95		GTF-ACFE-050995	1XL AMBER	2	PPB PAH	-07
5-9-95		PCJ-W23-050995	1XL AMBER	2	PPB PAH	-08

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: 2103421191
RECEIVED FOR LAB: [illegible]
SIGNED: [illegible]
DATE/TIME: [illegible]
QUANTERRA PROJECT NUMBER: 42069

QUA-4119

White – CLIENT Pink – LAB

4955 Yarrow Street
Arvada, Colorado 80002

303 421 6611 Telephone
303 431 7171 Fax

QUANTERRA Environmental Services

SAMPLE SAFE™ CONDITIONS

QUANTERRA CLIENT: City of St Louis Park
PROJECT: ENSR
SAMPLING COMPANY: City of St Louis Park
SAMPLING SITE: William Gregg
TEAM LEADER:

PACKED BY: Dave Jacobson
SEAL NUMBER: 012037
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:
CONDITION OF CONTENTS:
SEALED FOR SHIPPING BY: Dave Jacobson
INITIAL CONTENTS TEMP: °C
SEAL NUMBER:
SAMPLING STATUS: ☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB: ☑ Yes ☐ No
CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 7.9 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
5-9-95	1520	STP-W409-050995	H_2O	2	ppt PAH	-09 ~~-04~~
5-9-95	1430	STP-W24-050995	H_2O	6	ppt PAH, ppt75	~~-09~~ ~~-04~~ ~~-05~~

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME
David W Jacobson to Fed X		5/9/95	1600

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: DWJ
METHOD OF SHIPMENT: FED EX
AIRBILL NUMBER: 2703427180
RECEIVED FOR LAB: KES
SIGNED: [illegible]
DATE/TIME: 5/10/95 [illegible]
QUANTERRA PROJECT NUMBER: 42-67

QUA-4119

White - CLIENT Pink - LAB

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420-050995

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 42069 SAS No.: SDG No.: 42069

Matrix: (soil/water) WATER Lab Sample ID: 42069-01

Sample wt/vol: 1063 (g/ml) ML Lab File ID: T0101864

Level: (low/med) LOW Date Received: 05/10/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/12/95

Concentrated Extract Volume: 1(ml) Date Analyzed: 05/30/95

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	322	E
91-57-6	2-Methylnaphthalene	64.6	
208-96-8	Acenaphthylene	1.72	J
83-32-9	Acenaphthene	69.4	
132-64-9	Dibenzofuran	28.2	
86-73-7	Fluorene	32.1	
85-01-8	Phenanthrene	19.1	
120-12-7	Anthracene	1.35	J
206-44-0	Fluoranthene	9.41	U
129-00-0	Pyrene	9.41	U
56-55-3	Benzo(a)Anthracene	9.41	U
218-01-9	Chrysene	9.41	U
205-99-2	Benzo(b)fluoranthene	9.41	U
207-08-9	Benzo(k)fluoranthene	9.41	U
50-32-8	Benzo(a)pyrene	9.41	U
193-39-5	Indeno(1 2 3-cd)pyrene	9.41	U
53-70-3	Dibenzo(a h)anthracene	9.41	U
191-24-2	Benzo(g h i)perylene	9.41	U
86-74-8	Carbazole	54.2	
95-13-6	1H-Indene	64.4	
91-22-5	Quinoline	9.41	U
90-12-0	1-Methylnaphthalene	80.4	E
271-89-6	2,3-Benzofuran	34.7	
496-11-7	2,3-Dihydroindene	221	E
95-15-8	Benzo(b)thiophene	76.5	E
120-72-9	1H-Indole	9.41	U
92-52-4	Biphenyl	17.9	
132-65-0	Dibenzothiophene	3.27	J
260-94-6	Acridine	9.41	U
192-97-2	Benzo(e)pyrene	9.41	U
198-55-0	Perylene	9.41	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420
DL-050995

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 42069 SAS No.: SDG No.: 42069

Matrix: (soil/water) WATER Lab Sample ID: 42069-01DL

Sample wt/vol: 1063 (g/ml) ML Lab File ID: T0201882

Level: (low/med) LOW Date Received: 05/10/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/12/95

Concentrated Extract Volume: 1(ml) Date Analyzed: 05/31/95

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	1270	D
91-57-6	2-Methylnaphthalene	77.5	JD
208-96-8	Acenaphthylene	188	U
83-32-9	Acenaphthene	91.7	JD
132-64-9	Dibenzofuran	29.4	JD
86-73-7	Fluorene	27.1	JD
85-01-8	Phenanthrene	21.0	JD
120-12-7	Anthracene	188	U
206-44-0	Fluoranthene	188	U
129-00-0	Pyrene	188	U
56-55-3	Benzo(a)Anthracene	188	U
218-01-9	Chrysene	188	U
205-99-2	Benzo(b)fluoranthene	188	U
207-08-9	Benzo(k)fluoranthene	188	U
50-32-8	Benzo(a)pyrene	188	U
193-39-5	Indeno(1 2 3-cd)pyrene	188	U
53-70-3	Dibenzo(a h)anthracene	188	U
191-24-2	Benzo(g h i)perylene	188	U
86-74-8	Carbazole	52.1	JD
95-13-6	1H-Indene	58.4	JD
91-22-5	Quinoline	188	U
90-12-0	1-Methylnaphthalene	104	JD
271-89-6	2,3-Benzofuran	30.6	JD
496-11-7	2,3-Dihydroindene	374	D
95-15-8	Benzo(b)thiophene	114	JD
120-72-9	1H-Indole	188	U
92-52-4	Biphenyl	188	U
132-65-0	Dibenzothiophene	188	U
260-94-6	Acridine	188	U
192-97-2	Benzo(e)pyrene	188	U
198-55-0	Perylene	188	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420
D-050995

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 42069 SAS No.: SDG No.: 42069

Matrix: (soil/water) WATER Lab Sample ID: 42069-01DU

Sample wt/vol: 1061 (g/ml) ML Lab File ID: T1501878

Level: (low/med) LOW Date Received: 05/10/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/12/95

Concentrated Extract Volume: 1(ml) Date Analyzed: 05/30/95

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	301	E
91-57-6	2-Methylnaphthalene	62.5	
208-96-8	Acenaphthylene	1.74	J
83-32-9	Acenaphthene	65.9	
132-64-9	Dibenzofuran	25.4	
86-73-7	Fluorene	32.8	
85-01-8	Phenanthrene	18.9	
120-12-7	Anthracene	1.43	J
206-44-0	Fluoranthene	9.42	U
129-00-0	Pyrene	9.42	U
56-55-3	Benzo(a)Anthracene	9.42	U
218-01-9	Chrysene	9.42	U
205-99-2	Benzo(b)fluoranthene	9.42	U
207-08-9	Benzo(k)fluoranthene	9.42	U
50-32-8	Benzo(a)pyrene	9.42	U
193-39-5	Indeno(1 2 3-cd)pyrene	9.42	U
53-70-3	Dibenzo(a h)anthracene	9.42	U
191-24-2	Benzo(g h i)perylene	9.42	U
86-74-8	Carbazole	52.1	
95-13-6	1H-Indene	63.6	
91-22-5	Quinoline	9.42	U
90-12-0	1-Methylnaphthalene	77.5	E
271-89-6	2,3-Benzofuran	34.9	
496-11-7	2,3-Dihydroindene	212	E
95-15-8	Benzo(b)thiophene	73.0	
120-72-9	1H-Indole	9.42	U
92-52-4	Biphenyl	17.2	
132-65-0	Dibenzothiophene	3.37	J
260-94-6	Acridine	9.42	U
192-97-2	Benzo(e)pyrene	9.42	U
198-55-0	Perylene	9.42	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420D
DL-050995

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 42069 SAS No.: SDG No.: 42069

Matrix: (soil/water) WATER Lab Sample ID: 42069-01DUDL

Sample wt/vol: 1061 (g/ml) ML Lab File ID: T0301883

Level: (low/med) LOW Date Received: 05/10/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:05/12/95

Concentrated Extract Volume: 1(ml) Date Analyzed: 05/31/95

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	89.0	JD
208-96-8	Acenaphthylene	188	U
83-32-9	Acenaphthene	98.4	JD
132-64-9	Dibenzofuran	32.3	JD
86-73-7	Fluorene	31.1	JD
85-01-8	Phenanthrene	23.6	JD
120-12-7	Anthracene	188	U
206-44-0	Fluoranthene	188	U
129-00-0	Pyrene	188	U
56-55-3	Benzo(a)Anthracene	188	U
218-01-9	Chrysene	188	U
205-99-2	Benzo(b)fluoranthene	188	U
207-08-9	Benzo(k)fluoranthene	188	U
50-32-8	Benzo(a)pyrene	188	U
193-39-5	Indeno(1 2 3-cd)pyrene	188	U
53-70-3	Dibenzo(a h)anthracene	188	U
191-24-2	Benzo(g h i)perylene	188	U
86-74-8	Carbazole	56.7	JD
95-13-6	1H-Indene	67.1	JD
91-22-5	Quinoline	188	U
90-12-0	1-Methylnaphthalene	120	JD
271-89-6	2,3-Benzofuran	29.8	JD
496-11-7	2,3-Dihydroindene	377	D
95-15-8	Benzo(b)thiophene	122	JD
120-72-9	1H-Indole	188	U
92-52-4	Biphenyl	188	U
132-65-0	Dibenzothiophene	188	U
260-94-6	Acridine	188	U
192-97-2	Benzo(e)pyrene	188	U
198-55-0	Perylene	188	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420
FB-050995

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 42069 SAS No.: SDG No.: 42069

Matrix: (soil/water) WATER Lab Sample ID: 42069-02FB

Sample wt/vol: 1057 (g/ml) ML Lab File ID: T1201875

Level: (low/med) LOW Date Received: 05/10/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/12/95

Concentrated Extract Volume: 1(ml) Date Analyzed: 05/30/95

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	9.46	U
91-57-6	2-Methylnaphthalene	9.46	U
208-96-8	Acenaphthylene	9.46	U
83-32-9	Acenaphthene	9.46	U
132-64-9	Dibenzofuran	9.46	U
86-73-7	Fluorene	9.46	U
85-01-8	Phenanthrene	9.46	U
120-12-7	Anthracene	9.46	U
206-44-0	Fluoranthene	9.46	U
129-00-0	Pyrene	9.46	U
56-55-3	Benzo(a)Anthracene	9.46	U
218-01-9	Chrysene	9.46	U
205-99-2	Benzo(b)fluoranthene	9.46	U
207-08-9	Benzo(k)fluoranthene	9.46	U
50-32-8	Benzo(a)pyrene	9.46	U
193-39-5	Indeno(1 2 3-cd)pyrene	9.46	U
53-70-3	Dibenzo(a h)anthracene	9.46	U
191-24-2	Benzo(g h i)perylene	9.46	U
86-74-8	Carbazole	9.46	U
95-13-6	1H-Indene	9.46	U
91-22-5	Quinoline	9.46	U
90-12-0	1-Methylnaphthalene	9.46	U
271-89-6	2,3-Benzofuran	9.46	U
496-11-7	2,3-Dihydroindene	9.46	U
95-15-8	Benzo(b)thiophene	9.46	U
120-72-9	1H-Indole	9.46	U
92-52-4	Biphenyl	9.46	U
132-65-0	Dibenzothiophene	9.46	U
260-94-6	Acridine	9.46	U
192-97-2	Benzo(e)pyrene	9.46	U
198-55-0	Perylene	9.46	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420F
BD-050995

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 42069 SAS No.: SDG No.: 42069

Matrix: (soil/water) WATER Lab Sample ID: 42069-02FD

Sample wt/vol: 1056 (g/ml) ML Lab File ID: T1301876

Level: (low/med) LOW Date Received: 05/10/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/12/95

Concentrated Extract Volume: 1(ml) Date Analyzed: 05/30/95

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	9.47	U
91-57-6	2-Methylnaphthalene	9.47	U
208-96-8	Acenaphthylene	9.47	U
83-32-9	Acenaphthene	9.47	U
132-64-9	Dibenzofuran	9.47	U
86-73-7	Fluorene	9.47	U
85-01-8	Phenanthrene	9.47	U
120-12-7	Anthracene	9.47	U
206-44-0	Fluoranthene	9.47	U
129-00-0	Pyrene	9.47	U
56-55-3	Benzo(a)Anthracene	9.47	U
218-01-9	Chrysene	9.47	U
205-99-2	Benzo(b)fluoranthene	9.47	U
207-08-9	Benzo(k)fluoranthene	9.47	U
50-32-8	Benzo(a)pyrene	9.47	U
193-39-5	Indeno(1 2 3-cd)pyrene	9.47	U
53-70-3	Dibenzo(a h)anthracene	9.47	U
191-24-2	Benzo(g h i)perylene	9.47	U
86-74-8	Carbazole	9.47	U
95-13-6	1H-Indene	9.47	U
91-22-5	Quinoline	9.47	U
90-12-0	1-Methylnaphthalene	9.47	U
271-89-6	2,3-Benzofuran	9.47	U
496-11-7	2,3-Dihydroindene	9.47	U
95-15-8	Benzo(b)thiophene	9.47	U
120-72-9	1H-Indole	9.47	U
92-52-4	Biphenyl	9.47	U
132-65-0	Dibenzothiophene	9.47	U
260-94-6	Acridine	9.47	U
192-97-2	Benzo(e)pyrene	9.47	U
198-55-0	Perylene	9.47	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W421-050995

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 42069 SAS No.: SDG No.: 42069

Matrix: (soil/water) WATER Lab Sample ID: 42069-03

Sample wt/vol: 1055 (g/ml) ML Lab File ID: T0201865

Level: (low/med) LOW Date Received: 05/10/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/12/95

Concentrated Extract Volume: 1(ml) Date Analyzed: 05/30/95

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	165	E
91-57-6	2-Methylnaphthalene	7.40	J
208-96-8	Acenaphthylene	1.26	J
83-32-9	Acenaphthene	42.5	
132-64-9	Dibenzofuran	11.1	
86-73-7	Fluorene	15.8	
85-01-8	Phenanthrene	5.91	J
120-12-7	Anthracene	1.02	J
206-44-0	Fluoranthene	9.48	U
129-00-0	Pyrene	9.48	U
56-55-3	Benzo(a)Anthracene	9.48	U
218-01-9	Chrysene	9.48	U
205-99-2	Benzo(b)fluoranthene	9.48	U
207-08-9	Benzo(k)fluoranthene	9.48	U
50-32-8	Benzo(a)pyrene	9.48	U
193-39-5	Indeno(1 2 3-cd)pyrene	9.48	U
53-70-3	Dibenzo(a h)anthracene	9.48	U
191-24-2	Benzo(g h i)perylene	9.48	U
86-74-8	Carbazole	30.7	
95-13-6	1H-Indene	58.4	
91-22-5	Quinoline	9.48	U
90-12-0	1-Methylnaphthalene	47.1	
271-89-6	2,3-Benzofuran	9.48	U
496-11-7	2,3-Dihydroindene	145	E
95-15-8	Benzo(b)thiophene	53.6	
120-72-9	1H-Indole	9.48	U
92-52-4	Biphenyl	8.90	J
132-65-0	Dibenzothiophene	1.56	J
260-94-6	Acridine	1.86	J
192-97-2	Benzo(e)pyrene	9.48	U
198-55-0	Perylene	9.48	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W421
DL-050995

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 42069 SAS No.: SDG No.: 42069

Matrix: (soil/water) WATER Lab Sample ID: 42069-03DL

Sample wt/vol: 1055 (g/ml) ML Lab File ID: T0701887

Level: (low/med) LOW Date Received: 05/10/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/12/95

Concentrated Extract Volume: 1(ml) Date Analyzed: 05/31/95

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	460	D
91-57-6	2-Methylnaphthalene	94.8	U
208-96-8	Acenaphthylene	94.8	U
83-32-9	Acenaphthene	45.0	JD
132-64-9	Dibenzofuran	10.4	JD
86-73-7	Fluorene	13.4	JD
85-01-8	Phenanthrene	94.8	U
120-12-7	Anthracene	94.8	U
206-44-0	Fluoranthene	94.8	U
129-00-0	Pyrene	94.8	U
56-55-3	Benzo(a)Anthracene	94.8	U
218-01-9	Chrysene	94.8	U
205-99-2	Benzo(b)fluoranthene	94.8	U
207-08-9	Benzo(k)fluoranthene	94.8	U
50-32-8	Benzo(a)pyrene	94.8	U
193-39-5	Indeno(1 2 3-cd)pyrene	94.8	U
53-70-3	Dibenzo(a h)anthracene	94.8	U
191-24-2	Benzo(g h i)perylene	94.8	U
86-74-8	Carbazole	30.6	JD
95-13-6	1H-Indene	54.1	JD
91-22-5	Quinoline	94.8	U
90-12-0	1-Methylnaphthalene	51.2	JD
271-89-6	2,3-Benzofuran	94.8	U
496-11-7	2,3-Dihydroindene	183	D
95-15-8	Benzo(b)thiophene	65.6	JD
120-72-9	1H-Indole	94.8	U
92-52-4	Biphenyl	94.8	U
132-65-0	Dibenzothiophene	94.8	U
260-94-6	Acridine	94.8	U
192-97-2	Benzo(e)pyrene	94.8	U
198-55-0	Perylene	94.8	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W439-050995

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 42069 SAS No.: SDG No.: 42069

Matrix: (soil/water) WATER Lab Sample ID: 42069-05

Sample wt/vol: 1057 (g/ml) ML Lab File ID: T0401867

Level: (low/med) LOW Date Received: 05/10/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/12/95

Concentrated Extract Volume: 1(ml) Date Analyzed: 05/30/95

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	1110	E
91-57-6	2-Methylnaphthalene	92.8	J
208-96-8	Acenaphthylene	94.6	U
83-32-9	Acenaphthene	128	
132-64-9	Dibenzofuran	37.0	J
86-73-7	Fluorene	22.3	J
85-01-8	Phenanthrene	27.6	J
120-12-7	Anthracene	94.6	U
206-44-0	Fluoranthene	94.6	U
129-00-0	Pyrene	94.6	U
56-55-3	Benzo(a)Anthracene	94.6	U
218-01-9	Chrysene	94.6	U
205-99-2	Benzo(b)fluoranthene	94.6	U
207-08-9	Benzo(k)fluoranthene	94.6	U
50-32-8	Benzo(a)pyrene	94.6	U
193-39-5	Indeno(1 2 3-cd)pyrene	94.6	U
53-70-3	Dibenzo(a h)anthracene	94.6	U
191-24-2	Benzo(g h i)perylene	94.6	U
86-74-8	Carbazole	22.2	J
95-13-6	1H-Indene	342	
91-22-5	Quinoline	94.6	U
90-12-0	1-Methylnaphthalene	200	
271-89-6	2,3-Benzofuran	38.3	J
496-11-7	2,3-Dihydroindene	585	
95-15-8	Benzo(b)thiophene	162	
120-72-9	1H-Indole	94.6	U
92-52-4	Biphenyl	21.9	J
132-65-0	Dibenzothiophene	94.6	U
260-94-6	Acridine	94.6	U
192-97-2	Benzo(e)pyrene	94.6	U
198-55-0	Perylene	94.6	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W439
DL-050995

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 42069 SAS No.: SDG No.: 42069

Matrix: (soil/water) WATER Lab Sample ID: 42069-05DL

Sample wt/vol: 1057 (g/ml) ML Lab File ID: T0801888

Level: (low/med) LOW Date Received: 05/10/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/12/95

Concentrated Extract Volume: 1(ml) Date Analyzed: 05/31/95

Injection Volume: 2.0(uL) Dilution Factor: 50.0

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	2420	D
91-57-6	2-Methylnaphthalene	84.0	JD
208-96-8	Acenaphthylene	473	U
83-32-9	Acenaphthene	150	JD
132-64-9	Dibenzofuran	473	U
86-73-7	Fluorene	473	U
85-01-8	Phenanthrene	473	U
120-12-7	Anthracene	473	U
206-44-0	Fluoranthene	473	U
129-00-0	Pyrene	473	U
56-55-3	Benzo(a)Anthracene	473	U
218-01-9	Chrysene	473	U
205-99-2	Benzo(b)fluoranthene	473	U
207-08-9	Benzo(k)fluoranthene	473	U
50-32-8	Benzo(a)pyrene	473	U
193-39-5	Indeno(1 2 3-cd)pyrene	473	U
53-70-3	Dibenzo(a h)anthracene	473	U
191-24-2	Benzo(g h i)perylene	473	U
86-74-8	Carbazole	473	U
95-13-6	1H-Indene	369	JD
91-22-5	Quinoline	473	U
90-12-0	1-Methylnaphthalene	208	JD
271-89-6	2,3-Benzofuran	473	U
496-11-7	2,3-Dihydroindene	650	D
95-15-8	Benzo(b)thiophene	172	JD
120-72-9	1H-Indole	473	U
92-52-4	Biphenyl	473	U
132-65-0	Dibenzothiophene	473	U
260-94-6	Acridine	473	U
192-97-2	Benzo(e)pyrene	473	U
198-55-0	Perylene	473	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W422-050995

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 42069 SAS No.: SDG No.: 42069

Matrix: (soil/water) WATER Lab Sample ID: 42069-04

Sample wt/vol: 1051 (g/ml) ML Lab File ID: T0301866

Level: (low/med) LOW Date Received: 05/10/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/12/95

Concentrated Extract Volume: 1(ml) Date Analyzed: 05/30/95

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	3.72	J
91-57-6	2-Methylnaphthalene	9.51	U
208-96-8	Acenaphthylene	9.51	U
83-32-9	Acenaphthene	9.34	J
132-64-9	Dibenzofuran	9.51	U
86-73-7	Fluorene	9.51	U
85-01-8	Phenanthrene	9.51	U
120-12-7	Anthracene	9.51	U
206-44-0	Fluoranthene	9.51	U
129-00-0	Pyrene	9.51	U
56-55-3	Benzo(a)Anthracene	9.51	U
218-01-9	Chrysene	9.51	U
205-99-2	Benzo(b)fluoranthene	9.51	U
207-08-9	Benzo(k)fluoranthene	9.51	U
50-32-8	Benzo(a)pyrene	9.51	U
193-39-5	Indeno(1 2 3-cd)pyrene	9.51	U
53-70-3	Dibenzo(a h)anthracene	9.51	U
191-24-2	Benzo(g h i)perylene	9.51	U
86-74-8	Carbazole	1.25	J
95-13-6	1H-Indene	9.51	U
91-22-5	Quinoline	9.51	U
90-12-0	1-Methylnaphthalene	9.51	U
271-89-6	2,3-Benzofuran	9.51	U
496-11-7	2,3-Dihydroindene	47.9	
95-15-8	Benzo(b)thiophene	9.51	U
120-72-9	1H-Indole	9.51	U
92-52-4	Biphenyl	9.51	U
132-65-0	Dibenzothiophene	9.51	U
260-94-6	Acridine	9.51	U
192-97-2	Benzo(e)pyrene	9.51	U
198-55-0	Perylene	9.51	U

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 42069 SAS No.: SDG No.: 42069

	EPA SAMPLE NO.	S1 (NAP) #	S2 (CHR) #	S3 (FLU) #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	SBLK01	100	114	92						0
02	DPV-W420-050	60	93	95						0
03	DPV-W421-050	82	96	94						0
04	DPV-W422-050	102	106	90						0
05	DPV-W439-050	0D	0D	0D						0
06	GTF-SFR-0509	90	86	84						0
07	GTF-ACFE-050	103	71	92						0
08	STP-W409-050	86	78	91						0
09	DPV-W420MS-0	0D	0D	0D						0
10	DPV-W420MSD-	0D	0D	0D						0
11	DPV-W420FB-0	103	115	98						0
12	DPV-W420FBD-	81	92	75						0
13	DPV-W420D-05	54	96	88						0
14	PCJ-W23-0509	87	103	92						0
15	DPV-W420DL-0	0D	0D	0D						0
16	DPV-W420DDL-	0D	0D	0D						0
17	GTF-SFRDL-05	93	90	99						0
18	DPV-W421DL-0	0D	0D	0D						0
19	DPV-W439DL-0	0D	0D	0D						0
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										

		QC LIMITS
S1 (NAP)	= Naphthalene-d8	(37-107)
S2 (CHR)	= Chrysene-d12	(25-160)
S3 (FLU)	= Fluorene-d10	(36-127)

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

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420
MS-050995

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 42069 SAS No.: SDG No.: 42069

Matrix: (soil/water) WATER Lab Sample ID: 42069-01MS

Sample wt/vol: 1054 (g/ml) ML Lab File ID: T1001873

Level: (low/med) LOW Date Received: 05/10/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/12/95

Concentrated Extract Volume: 1(ml) Date Analyzed: 05/30/95

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	979	ED
91-57-6	2-Methylnaphthalene	138	D
208-96-8	Acenaphthylene	94.9	U
83-32-9	Acenaphthene	108	D
132-64-9	Dibenzofuran	32.0	JD
86-73-7	Fluorene	86.9	JD
85-01-8	Phenanthrene	22.1	JD
120-12-7	Anthracene	94.9	U
206-44-0	Fluoranthene	94.9	U
129-00-0	Pyrene	94.9	U
56-55-3	Benzo(a)Anthracene	94.9	U
218-01-9	Chrysene	46.6	JD
205-99-2	Benzo(b)fluoranthene	94.9	U
207-08-9	Benzo(k)fluoranthene	94.9	U
50-32-8	Benzo(a)pyrene	94.9	U
193-39-5	Indeno(1 2 3-cd)pyrene	94.9	U
53-70-3	Dibenzo(a h)anthracene	94.9	U
191-24-2	Benzo(g h i)perylene	94.9	U
86-74-8	Carbazole	67.2	JD
95-13-6	1H-Indene	118	D
91-22-5	Quinoline	50.1	JD
90-12-0	1-Methylnaphthalene	128	D
271-89-6	2,3-Benzofuran	29.9	JD
496-11-7	2,3-Dihydroindene	418	D
95-15-8	Benzo(b)thiophene	128	D
120-72-9	1H-Indole	94.9	U
92-52-4	Biphenyl	21.0	JD
132-65-0	Dibenzothiophene	94.9	U
260-94-6	Acridine	94.9	U
192-97-2	Benzo(e)pyrene	51.7	JD
198-55-0	Perylene	94.9	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420M
SD-050995

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 42069 SAS No.: SDG No.: 42069

Matrix: (soil/water) WATER Lab Sample ID: 42069-01MSD

Sample wt/vol: 1055 (g/ml) ML Lab File ID: T1101874

Level: (low/med) LOW Date Received: 05/10/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/12/95

Concentrated Extract Volume: 1(ml) Date Analyzed: 05/30/95

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	946	ED
91-57-6	2-Methylnaphthalene	124	D
208-96-8	Acenaphthylene	94.8	U
83-32-9	Acenaphthene	98.2	D
132-64-9	Dibenzofuran	30.4	JD
86-73-7	Fluorene	86.0	JD
85-01-8	Phenanthrene	18.5	JD
120-12-7	Anthracene	94.8	U
206-44-0	Fluoranthene	94.8	U
129-00-0	Pyrene	94.8	U
56-55-3	Benzo(a)Anthracene	94.8	U
218-01-9	Chrysene	45.1	JD
205-99-2	Benzo(b)fluoranthene	94.8	U
207-08-9	Benzo(k)fluoranthene	94.8	U
50-32-8	Benzo(a)pyrene	94.8	U
193-39-5	Indeno(1 2 3-cd)pyrene	94.8	U
53-70-3	Dibenzo(a h)anthracene	94.8	U
191-24-2	Benzo(g h i)perylene	94.8	U
86-74-8	Carbazole	57.1	JD
95-13-6	1H-Indene	114	D
91-22-5	Quinoline	47.1	JD
90-12-0	1-Methylnaphthalene	124	D
271-89-6	2,3-Benzofuran	30.7	JD
496-11-7	2,3-Dihydroindene	393	D
95-15-8	Benzo(b)thiophene	121	D
120-72-9	1H-Indole	94.8	U
92-52-4	Biphenyl	19.9	JD
132-65-0	Dibenzothiophene	94.8	U
260-94-6	Acridine	94.8	U
192-97-2	Benzo(e)pyrene	49.3	JD
198-55-0	Perylene	94.8	U

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

SBLK01

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 42069 SAS No.: SDG No.: 42069

Lab File ID: T0863 Lab Sample ID: SBLK01

Instrument ID: T Date Extracted: 05/12/95

Matrix: (soil/water) WATER Date Analyzed: 05/30/95

Level:(low/med) LOW Time Analyzed: 1024

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	DPV-W420-050	42069-01	T0101864	05/30/95
02	DPV-W421-050	42069-03	T0201865	05/30/95
03	DPV-W422-050	42069-04	T0301866	05/30/95
04	DPV-W439-050	42069-05	T0401867	05/30/95
05	GTF-SFR-0509	42069-06	T0501868	05/30/95
06	GTF-ACFE-050	42069-07	T0601869	05/30/95
07	STP-W409-050	42069-09	T0801871	05/30/95
08	DPV-W420MS-0	42069-01MS	T1001873	05/30/95
09	DPV-W420MSD-	42069-01MSD	T1101874	05/30/95
10	DPV-W420FB-0	42069-02FB	T1201875	05/30/95
11	DPV-W420FBD-	42069-02FD	T1301876	05/30/95
12	DPV-W420D-05	42069-01DU	T1501878	05/30/95
13	PCJ-W23-0509	42069-08	T0101881	05/31/95
14	DPV-W420DL-0	42069-01DL	T0201882	05/31/95
15	DPV-W420DDL-	42069-01DUDL	T0301883	05/31/95
16	GTF-SFRDL-05	42069-06DL	T0601886	05/31/95
17	DPV-W421DL-0	42069-03DL	T0701887	05/31/95
18	DPV-W439DL-0	42069-05DL	T0801888	05/31/95
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.: 42069 SAS No.: SDG No.: 42069

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

Sample wt/vol: 1000 (g/ml) ML Lab File ID: T0863

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

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/12/95

Concentrated Extract Volume: 1(ml) Date Analyzed: 05/30/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	10.0	U
91-57-6	2-Methylnaphthalene	10.0	U
208-96-8	Acenaphthylene	10.0	U
83-32-9	Acenaphthene	10.0	U
132-64-9	Dibenzofuran	10.0	U
86-73-7	Fluorene	10.0	U
85-01-8	Phenanthrene	10.0	U
120-12-7	Anthracene	10.0	U
206-44-0	Fluoranthene	10.0	U
129-00-0	Pyrene	10.0	U
56-55-3	Benzo(a)Anthracene	10.0	U
218-01-9	Chrysene	10.0	U
205-99-2	Benzo(b)fluoranthene	10.0	U
207-08-9	Benzo(k)fluoranthene	10.0	U
50-32-8	Benzo(a)pyrene	10.0	U
193-39-5	Indeno(1 2 3-cd)pyrene	10.0	U
53-70-3	Dibenzo(a h)anthracene	10.0	U
191-24-2	Benzo(g h i)perylene	10.0	U
86-74-8	Carbazole	10.0	U
95-13-6	1H-Indene	10.0	U
91-22-5	Quinoline	10.0	U
90-12-0	1-Methylnaphthalene	10.0	U
271-89-6	2,3-Benzofuran	10.0	U
496-11-7	2,3-Dihydroindene	10.0	U
95-15-8	Benzo(b)thiophene	10.0	U
120-72-9	1H-Indole	10.0	U
92-52-4	Biphenyl	10.0	U
132-65-0	Dibenzothiophene	10.0	U
260-94-6	Acridine	10.0	U
192-97-2	Benzo(e)pyrene	10.0	U
198-55-0	Perylene	10.0	U

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 42069 SAS No.: SDG No.: 42069

Lab File ID (Standard): T0880 Date Analyzed: 05/31/95

Instrument ID: T Time Analyzed: 0954

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
	12 HOUR STD	338228	11.46	455676	13.34	341775	19.49
	UPPER LIMIT	676456	11.96	911352	13.84	683550	19.99
	LOWER LIMIT	169114	10.96	227838	12.84	170888	18.99
	EPA SAMPLE NO.						
01	PCJ-W23-0509	339493	11.46	440749	13.34	285757	19.49
02	DPV-W420DL-0	317111	11.46	433417	13.34	250063	19.49
03	DPV-W420DDL-	306151	11.46	415970	13.33	274235	19.49
04	GTF-SFRDL-05	348874	11.45	490768	13.33	344783	19.49
05	DPV-W421DL-0	341753	11.46	447825	13.33	295887	19.47
06	DPV-W439DL-0	313157	11.46	439352	13.33	240834	19.48
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

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

PHENOLICS MONITORING

Quanterra Environmental Services

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

June 7, 1995

Mr. Scott Anderson
City of St. Louis Park
5005 Minnetonka Blvd.
St. Louis Park, MN 55416

Dear Mr. Anderson:

Enclosed is the ppb phenolics report for 13 aqueous samples, including matrix QC, received at Quanterra Environmental Services, Denver laboratory on May 10, 1995. Sample GTF-SFETP-050995 was broken upon receipt.

Sample DPV-W420TPMSD (042070-001SD) showed the percent recovery of the spiked phenolics at 134% (control limit 125%). Since the matrix spike and the relative percent difference (RPD) between the sample and the sample duplicate were in control, no further action was necessary.

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 #042070

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.:42070

SOW No.: ILM02

EPA Sample No.	Lab Sample ID
4207001	4207001
4207001D	4207001D
4207001SD	4207001SD
4207001S	4207001S
4207002FB	4207002FB
4207002FD	4207002FD
4207003	4207003
4207004	4207004
4207005	4207005
4207006	4207006
4207007	4207007
4207008	4207008
4207009	4207009

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:
NINE 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: PROGRAM MANAGER/ADMINISTRATOR

Date: 6/7/95 Title: DAN REBARCHIK

COVER PAGE - IN Rev.6/89

RESULT QUALIFIERS

C - Concentration Qualifier:

Enter a "B" if the reported value is less than the Contract Required Detection Limit (CRDL) but greater than the Instrument Detection Limit (IDL). If the analyte was analyzed for but not detected, a "U" must be entered.

Q - Quality Control Qualifiers:

E - The reported value is estimated because of the presence of interference. An explanatory note must be 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 Qualifier:

"P" for ICP
"A" for Flame AA
"F" for Furnace AA
"CV" for Manual Cold Vapor AA
"AV" for Automated Cold Vapor AA
"AS" for Semi-Automated Spectrophotometric
"C" for Manual Spectrophotometric
"T" for Titrimetric
"NR" if the analyte is not required to be analyzed.

U.S. EPA - CLP

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

4207001

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.: 42070_

Matrix (soil/water): WATER Lab Sample ID: 4207001

Level (low/med): LOW Date Received: 05/10/95

% 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	134			C

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:
DPV-W420TP-050995

FORM I - IN

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U.S. EPA - CLP

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

4207002FB

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.: 42070

Matrix (soil/water): WATER Lab Sample ID: 4207002FB

Level (low/med): LOW Date Received: 05/10/95

% 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-050995

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U.S. EPA - CLP

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

4207002FD

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.: 42070

Matrix (soil/water): WATER Lab Sample ID: 4207002FD

Level (low/med): LOW Date Received: 05/10/95

% 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-050995

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U.S. EPA - CLP

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

4207003

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.: 42070

Matrix (soil/water): WATER Lab Sample ID: 4207003

Level (low med): LOW Date Received: 05/10/95

% 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	19.0			C

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:
DPV-W421TP-050995

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U.S. EPA - CLP

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

4207004

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.: 42070

Matrix (soil/water): WATER Lab Sample ID: 4207004

Level (low/med): LOW Date Received: 05/10/95

% 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	5.1			C

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:
DPV-W422TP-050995

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U.S. EPA - CLP

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

4207005

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.: 42070

Matrix (soil/water): WATER Lab Sample ID: 4207005

Level (low,med): LOW Date Received: 05/10/95

% 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	74.0			C

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:
DPV=W439TP-050995

FORM I - IN

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U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.: 42070

Initial Calibration Source. QUANTERRA

Continuing Calibration Source: RICCA/9652

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	50.0	43.30	86.6	20.0	19.80	99.0	20.20	101.0	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

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: QUANTERRA_____ Contract: CITY_SLP__

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.: 42070_

Initial Calibration Source: QUANTERRA___

Continuing Calibration Source: RICCA/9652__

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	20.60	103.0			C

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

FORM II (PART 1) - IN

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U.S. EPA - CLP

3
BLANKS

Lab Name: QUANTERRA Contract: CITY_SLP__

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.: 42070_

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	5.0	U	5.000	U	C

FORM III - IN

7/88

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

4207001S

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.: 42070_

Matrix (soil/water): WATER_ Level (low/med): LOW___

% Solids for Sample: __0.0

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

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Phenolics		154.0000		134.0000		20.00	100.0		C

Comments:
DPV-W420TPMS-050995

FORM V (Part 1) - IN 7/88

000017

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

4207001SD

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.: 42070_

Matrix (soil/water): WATER_ Level (low/med): LOW

% Solids for Sample: 0.0

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

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Phenolics		160.8000		134.5000		20.00	134.0		C

Comments:
DPV-W420TPMSD-050995

FORM V (Part 1) - IN 7/88

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6
DUPLICATES

EPA SAMPLE NO.

4207001D

Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: ____ SAS No.: ____ SDG No.: 42070

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		134.0000		137.2000		2.4		C

FORM VI - IN

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U.S. EPA - CLP

7

LABORATORY CONTROL SAMPLE

Lab Name: QUANTERRA Contract: CITY_SLP__

Lab Code: DENVER Case No.: ____ SAS No.: _____ SDG No.: 42070_

Solid LCS Source: ERA STANDARD

Aqueous LCS Source: LABCHEM 9534

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Phenolics	50.0	44.50	89.0						

FORM VII - IN

7/88

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U.S. EPA - CLP

8
STANDARD ADDITION RESULTS

Name: QUANTERRA_____ Contract:CITY_SLP__

Lab Code: DENVER Case No.: _____ SAS No.:_____ SDG No.:42070_

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

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PREPARATION LOG

Lab Name: QUANTERRA_____ Contract: CITY_SLP__

Lab Code: DENVER Case No.:_____ SAS No.: _____ SDG No.:42070_

Method: C_

Sample No	Preparation Date	Weight (gram)	Volume (mL)
4207001	05/25/95		200
4207001	05/25/95		200
4207001	05/25/95		200
4207002	05/25/95		200
4207002	05/25/95		200
4207003	05/25/95		200
4207004	05/25/95		200
4207005	05/25/95		200
4207006	05/25/95		200
4207007	05/25/95		200
4207008	05/25/95		200
4207009	05/25/95		200
LCSW	05/25/95		200
PBW	05/25/95		200

FORM XIII - IN 7/88

U.S. EPA - CLP

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ANALYSIS RUN LOG

Name: QUANTERRA

Contract: CITY_SLP__

Lab Code: DENVER Case No.: _____

SAS No.: _____ SDG No.:42070_

Instrument ID Number: SPEC 301_____

Method: C_

Start Date: 05/26/95

End Date: 05/26/95

EPA Sample No.	D/F	Time	% R	Analytes: PH																					
S0.0	1.00	1250		X																					
S5.0	1.00	1251		X																					
S10.0	1.00	1252		X																					
S20.0	1.00	1253		X																					
S50.0	1.00	1254		X																					
S100.0	1.00	1255		X																					
ICB	1.00	1256		X																					
PBW	1.00	1256		X																					
ICV	1.00	1257		X																					
LCSW	1.00	1258		X																					
ZZZZZZ	1.00	1259																							
4207001	1.00	1300																							
4207001D	1.00	1301																							
4207001S	1.00	1302																							
[illegible]7001S	1.00	1303																							
[illegible]07002F	1.00	1304		X																					
4207002F	1.00	1305		X																					
CCV	1.00	1306		X																					
CCB	1.00	1307		X																					
4207003	1.00	1308		X																					
4207004	1.00	1309		X																					
4207005	1.00	1310		X																					
4207006	1.00	1311		X																					
4207007	1.00	1312		X																					
4207008	1.00	1313		X																					
4207009	1.00	1314		X																					
ZZZZZZ	1.00	1315																							
CCV	1.00	1316		X																					
CCB	1.00	1317		X																					
4207001	2.00	1318		X																					
4207001D	2.00	1319		X																					
4207001S	2.00	1320		X																					

FORM XIV - IN 7/88

U.S. EPA - CLP

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ANALYSIS RUN LOG

Lab Name: QUANTERRA

Contract: CITY_SLP__

Lab Code: DENVER Case No.: _____

SAS No.: _____ SDG No.:42070_

Instrument ID Number: SPEC 301_____

Method: C_

Start Date: 05/26/95

End Date: 05/26/95

EPA Sample No.	D/F	Time	% R	Analytes: PH
42070015	2.00	1321		X
CCV	1.00	1322		X
CCB	1.00	1323		X

FORM XIV - IN 7/88

THIRD QUARTER MONITORING

PAH MONITORING

Quanterra Environmental Services

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

CASE NARRATIVE

FOR

City of St. Louis Park

November 8, 1995

Quanterra Environmental Services

Project No. 044745

Introduction

14 aqueous samples (includes QC) were received at Quanterra Environmental Services, Denver laboratory on September 20, 1995. The samples were logged in under Quanterra's Denver laboratory project number 044745. Sample DPV-W420FBD-091995 (044745-0002FD) 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 (044745-0001), DPV-W420D (044745-0001DU) and DPV-421 (044745-0003) showed target compounds above the upper calibration range. The samples were re-analyzed at a dilution. Both the original and re-analysis data were reported for each sample. The reporting limits were adjusted accordingly. The surrogates were diluted out of samples DPV-W420, DPV-W420DL, DPV-W420D, DPV-W420DDL, DPV-420MS, DPV-420MSD, DPV-421DL and DPV-439.

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Environmental Services

At the client's request, all samples in this project were reanalyzed for PAHs with an analytical standard which contained only the benzo (b), (k), (e) and (a) isomers. Because response factor for 2,3-dihydroindene was higher for the standard used in the reanalysis, the quantitations for this compound are lower than those reported in the original analysis.

Due to the concentrations of the spiking compounds in the parent sample, some of the percent recoveries for the spiking compounds in samples DPV-W420MS (044745-0001MS) and DPV-420MSD (044745-0001SD) were 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:** 11/3/95
Daniel Rebarchik
Program Administrator

Approved by: _____ **Date:** 11/8/95
Kevin McHugh
Program Manager

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 044745	Group Code	Analysis Description	Custom Test?
0001 - 0010	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

Quanterra Environmental Services

QUALIFIER CODES AND THEIR USAGE

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

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

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

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

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

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

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

QUALIFIER CODES AND THEIR USAGE
Page Two

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

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

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

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

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

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

Scott Anderson
City of ST. Louis Park
3752 Wooddale Ave.
ST. Louis Park, MN 55416

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: 2.9 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
9-19-95		DPV-W420 -091995	1XL AMBER	2	PPB PAH	-1
		DPV-W420D -091995				-1DU
		DPV-W420MS -091995				-1MS
		DPV-W420MSD-091995				-1SD
		DPV-W420FB -091995				-2FB
		DPV-W420FBD -091995				-2FD
		DPV-W421 -091995				-3
		DPV-W422 -091995				-4
9-19-95		DPV -W439-091995	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: FED EX
AIRBILL NUMBER: 2103421305
RECEIVED FOR LAB: QES
SIGNED: [illegible]
DATE/TIME: 9/20/95 9:30
ENSECO PROJECT NUMBER: 44745

ENS-4011 White - C 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 7
713/987-9767 FAX: 713/987-9769

CHAIN OF CUSTODY

SAMPLE SAFE™ CONDITIONS

ENSECO CLIENT

PROJECT

Scott Anderson
City of St. Louis Park
3752 Wooddale Ave.
ST. Louis Park, MN 55416

TEAM LEADER: MJB

PACKED BY: MJB

SEAL NUMBER:

SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:

CONDITION OF CONTENTS:

SEALED FOR SHIPPING BY: MJB

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: 2.8 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
9-19-95		STP-W410-091995	1XL AMBER	2	PPB PAH	BOTTLES LABELED DPV-W41 -6
		OAK LAKE				-7
		BTF-ACFE-091995				-8
9-19-95		BTF-SFR-091995	1XL AMBER	2	PPB PAH	-9
9-19-95		PCJ-W23-091995	1XL AMBER	2	PPB PAH	-10

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MJB

METHOD OF SHIPMENT: FED EX

AIRBILL NUMBER: 2103421305

RECEIVED FOR LAB: QES

SIGNED: [signature]

DATE/TIME: 9/20/95 930

ENSECO PROJECT NUMBER: 44745

000035

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.: 44745 SAS No.: SDG No.: 44745

Matrix: (soil/water) WATER Lab Sample ID: 44745-01

Sample wt/vol: 1060 (g/ml) ML Lab File ID: T1401379

Level: (low/med) LOW Date Received: 09/20/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 09/21/95

Concentrated Extract Volume: 1(ml) Date Analyzed: 10/11/95

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	914	E
91-57-6	2-Methylnaphthalene	83.1	J
208-96-8	Acenaphthylene	94.3	U
83-32-9	Acenaphthene	91.2	J
132-64-9	Dibenzofuran	29.8	J
86-73-7	Fluorene	30.1	J
85-01-8	Phenanthrene	15.7	J
120-12-7	Anthracene	94.3	U
206-44-0	Fluoranthene	94.3	U
129-00-0	Pyrene	94.3	U
56-55-3	Benzo(a)Anthracene	94.3	U
218-01-9	Chrysene	94.3	U
50-32-8	Benzo(a)pyrene	94.3	U
193-39-5	Indeno(1 2 3-cd)pyrene	94.3	U
53-70-3	Dibenzo(a h)anthracene	94.3	U
191-24-2	Benzo(g h i)perylene	94.3	U
86-74-8	Carbazole	52.3	J
95-13-6	1H-Indene	93.9	J
91-22-5	Quinoline	94.3	U
90-12-0	1-Methylnaphthalene	112	
271-89-6	2,3-Benzofuran	27.5	J
496-11-7	2,3-Dihydroindene	455	
95-15-8	Benzo(b)thiophene	123	
120-72-9	1H-Indole	94.3	U
92-52-4	Biphenyl	19.0	J
132-65-0	Dibenzothiophene	94.3	U
260-94-6	Acridine	94.3	U
192-97-2	Benzo(e)pyrene	94.3	U
198-55-0	Perylene	94.3	U
----------	Benzo(b,j,k)fluoranthene	94.3	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420DL

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 44745 SAS No.: SDG No.: 44745

Matrix: (soil/water) WATER Lab Sample ID: 44745-01DL

Sample wt/vol: 1060 (g/ml) ML Lab File ID: T0701391

Level: (low/med) LOW Date Received: 09/20/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 09/21/95

Concentrated Extract Volume: 1(ml) Date Analyzed: 10/12/95

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	1500	D
91-57-6	2-Methylnaphthalene	75.2	DJ
208-96-8	Acenaphthylene	189	U
83-32-9	Acenaphthene	92.2	DJ
132-64-9	Dibenzofuran	30.0	DJ
86-73-7	Fluorene	28.2	DJ
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
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	37.6	DJ
95-13-6	1H-Indene	79.9	DJ
91-22-5	Quinoline	189	U
90-12-0	1-Methylnaphthalene	114	DJ
271-89-6	2,3-Benzofuran	19.6	DJ
496-11-7	2,3-Dihydroindene	428	D
95-15-8	Benzo(b)thiophene	121	DJ
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
	Benzo(b,j,k)fluoranthene	189	U

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420D

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 44745 SAS No.: SDG No.: 44745

Matrix: (soil/water) WATER Lab Sample ID: 44745-01DU

Sample wt/vol: 1050 (g/ml) ML Lab File ID: T0501389

Level: (low/med) LOW Date Received: 09/20/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 09/21/95

Concentrated Extract Volume: 1(ml) Date Analyzed: 10/12/95

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	998	E
91-57-6	2-Methylnaphthalene	73.0	J
208-96-8	Acenaphthylene	95.2	U
83-32-9	Acenaphthene	86.1	J
132-64-9	Dibenzofuran	28.6	J
86-73-7	Fluorene	29.1	J
85-01-8	Phenanthrene	14.8	J
120-12-7	Anthracene	95.2	U
206-44-0	Fluoranthene	95.2	U
129-00-0	Pyrene	95.2	U
56-55-3	Benzo(a)Anthracene	95.2	U
218-01-9	Chrysene	95.2	U
50-32-8	Benzo(a)pyrene	95.2	U
193-39-5	Indeno(1 2 3-cd)pyrene	95.2	U
53-70-3	Dibenzo(a h)anthracene	95.2	U
191-24-2	Benzo(g h i)perylene	95.2	U
86-74-8	Carbazole	46.0	J
95-13-6	1H-Indene	78.2	J
91-22-5	Quinoline	95.2	U
90-12-0	1-Methylnaphthalene	108	
271-89-6	2,3-Benzofuran	22.5	J
496-11-7	2,3-Dihydroindene	377	
95-15-8	Benzo(b)thiophene	104	
120-72-9	1H-Indole	95.2	U
92-52-4	Biphenyl	17.3	J
132-65-0	Dibenzothiophene	95.2	U
260-94-6	Acridine	95.2	U
192-97-2	Benzo(e)pyrene	95.2	U
198-55-0	Perylene	95.2	U
	Benzo(b,j,k)fluoranthene	95.2	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420DDL

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 44745 SAS No.: SDG No.: 44745

Matrix: (soil/water) WATER Lab Sample ID: 44745-01DUDL

Sample wt/vol: 1050 (g/ml) ML Lab File ID: T0601390

Level: (low/med) LOW Date Received: 09/20/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 09/21/95

Concentrated Extract Volume: 1(ml) Date Analyzed: 10/12/95

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	1400	D
91-57-6	2-Methylnaphthalene	67.8	DJ
208-96-8	Acenaphthylene	190	U
83-32-9	Acenaphthene	85.8	DJ
132-64-9	Dibenzofuran	27.6	DJ
86-73-7	Fluorene	25.8	DJ
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
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	39.8	DJ
95-13-6	1H-Indene	68.3	DJ
91-22-5	Quinoline	190	U
90-12-0	1-Methylnaphthalene	103	DJ
271-89-6	2,3-Benzofuran	190	U
496-11-7	2,3-Dihydroindene	381	D
95-15-8	Benzo(b)thiophene	113	DJ
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
----------	Benzo(b,j,k)fluoranthene	190	U

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420FB

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 44745 SAS No.: SDG No.: 44745

Matrix: (soil/water) WATER Lab Sample ID: 44745-02FB

Sample wt/vol: 1050 (g/ml) ML Lab File ID: T0701372

Level: (low/med) LOW Date Received: 09/20/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 09/21/95

Concentrated Extract Volume: 1(ml) Date Analyzed: 10/11/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	9.52	U
91-57-6	2-Methylnaphthalene	9.52	U
208-96-8	Acenaphthylene	9.52	U
83-32-9	Acenaphthene	9.52	U
132-64-9	Dibenzofuran	9.52	U
86-73-7	Fluorene	9.52	U
85-01-8	Phenanthrene	9.52	U
120-12-7	Anthracene	9.52	U
206-44-0	Fluoranthene	9.52	U
129-00-0	Pyrene	9.52	U
56-55-3	Benzo(a)Anthracene	9.52	U
218-01-9	Chrysene	9.52	U
50-32-8	Benzo(a)pyrene	9.52	U
193-39-5	Indeno(1 2 3-cd)pyrene	9.52	U
53-70-3	Dibenzo(a h)anthracene	9.52	U
191-24-2	Benzo(g h i)perylene	9.52	U
86-74-8	Carbazole	9.52	U
95-13-6	1H-Indene	9.52	U
91-22-5	Quinoline	9.52	U
90-12-0	1-Methylnaphthalene	9.52	U
271-89-6	2,3-Benzofuran	9.52	U
496-11-7	2,3-Dihydroindene	9.52	U
95-15-8	Benzo(b)thiophene	9.52	U
120-72-9	1H-Indole	9.52	U
92-52-4	Biphenyl	9.52	U
132-65-0	Dibenzothiophene	9.52	U
260-94-6	Acridine	9.52	U
192-97-2	Benzo(e)pyrene	9.52	U
198-55-0	Perylene	9.52	U
----------	Benzo(b,j,k)fluoranthene	9.52	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420FBD

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 44745 SAS No.: SDG No.: 44745

Matrix: (soil/water) WATER Lab Sample ID: 44745-02FD

Sample wt/vol: 1050 (g/ml) ML Lab File ID: T0801373

Level: (low/med) LOW Date Received: 09/20/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 09/21/95

Concentrated Extract Volume: 1(ml) Date Analyzed: 10/11/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	9.52	U
91-57-6	2-Methylnaphthalene	9.52	U
208-96-8	Acenaphthylene	9.52	U
83-32-9	Acenaphthene	9.52	U
132-64-9	Dibenzofuran	9.52	U
86-73-7	Fluorene	9.52	U
85-01-8	Phenanthrene	9.52	U
120-12-7	Anthracene	9.52	U
206-44-0	Fluoranthene	9.52	U
129-00-0	Pyrene	9.52	U
56-55-3	Benzo(a)Anthracene	9.52	U
218-01-9	Chrysene	9.52	U
50-32-8	Benzo(a)pyrene	9.52	U
193-39-5	Indeno(1 2 3-cd)pyrene	9.52	U
53-70-3	Dibenzo(a h)anthracene	9.52	U
191-24-2	Benzo(g h i)perylene	9.52	U
86-74-8	Carbazole	9.52	U
95-13-6	1H-Indene	9.52	U
91-22-5	Quinoline	9.52	U
90-12-0	1-Methylnaphthalene	9.52	U
271-89-6	2,3-Benzofuran	9.52	U
496-11-7	2,3-Dihydroindene	9.52	U
95-15-8	Benzo(b)thiophene	9.52	U
120-72-9	1H-Indole	9.52	U
92-52-4	Biphenyl	9.52	U
132-65-0	Dibenzothiophene	9.52	U
260-94-6	Acridine	9.52	U
192-97-2	Benzo(e)pyrene	9.52	U
198-55-0	Perylene	9.52	U
	Benzo(b,j,k)fluoranthene	9.52	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W421

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 44745 SAS No.: SDG No.: 44745

Matrix: (soil/water) WATER Lab Sample ID: 44745-03

Sample wt/vol: 1050 (g/ml) ML Lab File ID: T0901374

Level: (low/med) LOW Date Received: 09/20/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 09/21/95

Concentrated Extract Volume: 1(ml) Date Analyzed: 10/11/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	9.52	U
91-57-6	2-Methylnaphthalene	8.30	J
208-96-8	Acenaphthylene	1.10	J
83-32-9	Acenaphthene	44.5	
132-64-9	Dibenzofuran	11.9	
86-73-7	Fluorene	14.3	
85-01-8	Phenanthrene	5.31	J
120-12-7	Anthracene	9.52	U
206-44-0	Fluoranthene	9.52	U
129-00-0	Pyrene	9.52	U
56-55-3	Benzo(a)Anthracene	9.52	U
218-01-9	Chrysene	9.52	U
50-32-8	Benzo(a)pyrene	9.52	U
193-39-5	Indeno(1 2 3-cd)pyrene	9.52	U
53-70-3	Dibenzo(a h)anthracene	9.52	U
191-24-2	Benzo(g h i)perylene	9.52	U
86-74-8	Carbazole	33.7	
95-13-6	1H-Indene	67.5	
91-22-5	Quinoline	9.52	U
90-12-0	1-Methylnaphthalene	50.3	
271-89-6	2,3-Benzofuran	9.52	U
496-11-7	2,3-Dihydroindene	185	E
95-15-8	Benzo(b)thiophene	64.1	
120-72-9	1H-Indole	9.52	U
92-52-4	Biphenyl	9.13	J
132-65-0	Dibenzothiophene	1.06	J
260-94-6	Acridine	3.33	J
192-97-2	Benzo(e)pyrene	9.52	U
198-55-0	Perylene	9.52	U
----------	Benzo(b,j,k)fluoranthene	9.52	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W421DL

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 44745 SAS No.: SDG No.: 44745

Matrix: (soil/water) WATER Lab Sample ID: 44745-03DL

Sample wt/vol: 1050 (g/ml) ML Lab File ID: T1001394

Level: (low/med) LOW Date Received: 09/20/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 09/21/95

Concentrated Extract Volume: 1(ml) Date Analyzed: 10/12/95

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	508	D
91-57-6	2-Methylnaphthalene	95.2	U
208-96-8	Acenaphthylene	95.2	U
83-32-9	Acenaphthene	46.5	DJ
132-64-9	Dibenzofuran	9.99	DJ
86-73-7	Fluorene	11.1	DJ
85-01-8	Phenanthrene	95.2	U
120-12-7	Anthracene	95.2	U
206-44-0	Fluoranthene	95.2	U
129-00-0	Pyrene	95.2	U
56-55-3	Benzo(a)Anthracene	95.2	U
218-01-9	Chrysene	95.2	U
50-32-8	Benzo(a)pyrene	95.2	U
193-39-5	Indeno(1 2 3-cd)pyrene	95.2	U
53-70-3	Dibenzo(a h)anthracene	95.2	U
191-24-2	Benzo(g h i)perylene	95.2	U
86-74-8	Carbazole	19.9	DJ
95-13-6	1H-Indene	56.0	DJ
91-22-5	Quinoline	95.2	U
90-12-0	1-Methylnaphthalene	53.4	DJ
271-89-6	2,3-Benzofuran	95.2	U
496-11-7	2,3-Dihydroindene	198	D
95-15-8	Benzo(b)thiophene	63.5	DJ
120-72-9	1H-Indole	95.2	U
92-52-4	Biphenyl	95.2	U
132-65-0	Dibenzothiophene	95.2	U
260-94-6	Acridine	95.2	U
192-97-2	Benzo(e)pyrene	95.2	U
198-55-0	Perylene	95.2	U
----------	Benzo(b,j,k)fluoranthene	95.2	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W422

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 44745 SAS No.: SDG No.: 44745

Matrix: (soil/water) WATER Lab Sample ID: 44745-04

Sample wt/vol: 1050 (g/ml) ML Lab File ID: T1001375

Level: (low/med) LOW Date Received: 09/20/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 09/21/95

Concentrated Extract Volume: 1(ml) Date Analyzed: 10/11/95

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	2.53	J
91-57-6	2-Methylnaphthalene	9.52	U
208-96-8	Acenaphthylene	9.52	U
83-32-9	Acenaphthene	8.44	J
132-64-9	Dibenzofuran	9.52	U
86-73-7	Fluorene	9.52	U
85-01-8	Phenanthrene	9.52	U
120-12-7	Anthracene	9.52	U
206-44-0	Fluoranthene	9.52	U
129-00-0	Pyrene	9.52	U
56-55-3	Benzo(a)Anthracene	9.52	U
218-01-9	Chrysene	9.52	U
50-32-8	Benzo(a)pyrene	9.52	U
193-39-5	Indeno(1 2 3-cd)pyrene	9.52	U
53-70-3	Dibenzo(a h)anthracene	9.52	U
191-24-2	Benzo(g h i)perylene	9.52	U
86-74-8	Carbazole	9.52	U
95-13-6	1H-Indene	9.52	U
91-22-5	Quinoline	9.52	U
90-12-0	1-Methylnaphthalene	9.52	U
271-89-6	2,3-Benzofuran	9.52	U
496-11-7	2,3-Dihydroindene	41.7	
95-15-8	Benzo(b)thiophene	9.52	U
120-72-9	1H-Indole	9.52	U
92-52-4	Biphenyl	9.52	U
132-65-0	Dibenzothiophene	9.52	U
260-94-6	Acridine	9.52	U
192-97-2	Benzo(e)pyrene	9.52	U
198-55-0	Perylene	9.52	U
----------	Benzo(b,j,k)fluoranthene	9.52	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W439

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 44745 SAS No.: SDG No.: 44745

Matrix: (soil/water) WATER Lab Sample ID: 44745-05

Sample wt/vol: 1050 (g/ml) ML Lab File ID: T1501380

Level: (low/med) LOW Date Received: 09/20/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 09/21/95

Concentrated Extract Volume: 1(ml) Date Analyzed: 10/11/95

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	1260	
91-57-6	2-Methylnaphthalene	48.9	J
208-96-8	Acenaphthylene	190	U
83-32-9	Acenaphthene	101	J
132-64-9	Dibenzofuran	26.7	J
86-73-7	Fluorene	190	U
85-01-8	Phenanthrene	19.7	J
120-12-7	Anthracene	190	U
206-44-0	Fluoranthene	190	U
129-00-0	Pyrene	190	U
56-55-3	Benzo(a)Anthracene	190	U
218-01-9	Chrysene	190	U
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	190	U
95-13-6	1H-Indene	236	
91-22-5	Quinoline	190	U
90-12-0	1-Methylnaphthalene	153	J
271-89-6	2,3-Benzofuran	190	U
496-11-7	2,3-Dihydroindene	603	
95-15-8	Benzo(b)thiophene	116	J
120-72-9	1H-Indole	190	U
92-52-4	Biphenyl	190	U
132-65-0	Dibenzothiophene	190	U
260-94-6	Acridine	190	U
192-97-2	Benzo(e)pyrene	190	U
198-55-0	Perylene	190	U
----------	Benzo(b,j,k)fluoranthene	190	U

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 44745 SAS No.: SDG No.: 44745

	EPA SAMPLE NO.	S1 #	S2 #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	SBLK01	101	158	87						0
02	DPV-W420FB	99	148	84						0
03	DPV-W420FBD	102	155	87						0
04	DPV-W421	101	87	81						0
05	DPV-W422	105	65	83						0
06	GTF-ACFE	106	76	93						0
07	PCJ-W23	92	90	77						0
08	DPV-W420	0D	0D	0D						0
09	DPV-W439	0D	0D	0D						0
10	OAKLAKE	94	67	83						0
11	STP-W410	97	97	94						0
12	DPV-W420MS	0D	0D	0D						0
13	DPV-W420MSD	0D	0D	0D						0
14	DPV-W420D	0D	0D	0D						0
15	DPV-W420DDL	0D	0D	0D						0
16	DPV-W420DL	0D	0D	0D						0
17	GTF-SFR	106	37	96						0
18	DPV-W421DL	0D	0D	0D						0
19										
20										
21										
22										
23										
24										
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27										
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		QC LIMITS
S1	= Naphthalene-d8	(37-107)
S2	= Chrysene-d12	(25-160)
S3	= Fluorene-d10	(36-127)

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

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 44745 SAS No.: SDG No.: 44745

Matrix Spike - EPA Sample No.: DPV-W420

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC. LIMITS REC.
Naphthalene	47.6	914	1020	223*	43-128
2-Methylnaphthalene	47.6	83.1	118	73	47-138
Fluorene	47.6	30.1	86.1	118	51-120
Chrysene	47.6	0.000	43.1	90	43-124
1H-Indene	47.6	93.9	134	84	49-108
Quinoline	47.6	0.000	41.0	86	40-126
Benzo(e)pyrene	47.6	0.000	28.1	59	20-150

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Naphthalene	47.6	920	13*	178*	50	43-128
2-Methylnaphthalene	47.6	105	46*	45	50	47-138
Fluorene	47.6	73.8	92	25	50	51-120
Chrysene	47.6	37.8	79	13	50	43-124
1H-Indene	47.6	112	38*	75*	50	49-108
Quinoline	47.6	36.4	76	12	50	40-126
Benzo(e)pyrene	47.6	22.8	48	20	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: 4 out of 14 outside limits

COMMENTS:

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420MS

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 44745 SAS No.: SDG No.: 44745

Matrix: (soil/water) WATER Lab Sample ID: 44745-01MS

Sample wt/vol: 1050 (g/ml) ML Lab File ID: T0301387

Level: (low/med) LOW Date Received: 09/20/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 09/21/95

Concentrated Extract Volume: 1(ml) Date Analyzed: 10/12/95

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	1020	E
91-57-6	2-Methylnaphthalene	118	
208-96-8	Acenaphthylene	95.2	U
83-32-9	Acenaphthene	91.4	J
132-64-9	Dibenzofuran	30.0	J
86-73-7	Fluorene	86.1	J
85-01-8	Phenanthrene	15.9	J
120-12-7	Anthracene	95.2	U
206-44-0	Fluoranthene	95.2	U
129-00-0	Pyrene	95.2	U
56-55-3	Benzo(a)Anthracene	95.2	U
218-01-9	Chrysene	43.1	J
50-32-8	Benzo(a)pyrene	95.2	U
193-39-5	Indeno(1 2 3-cd)pyrene	95.2	U
53-70-3	Dibenzo(a h)anthracene	95.2	U
191-24-2	Benzo(g h i)perylene	95.2	U
86-74-8	Carbazole	47.0	J
95-13-6	1H-Indene	134	
91-22-5	Quinoline	41.0	J
90-12-0	1-Methylnaphthalene	112	
271-89-6	2,3-Benzofuran	26.1	J
496-11-7	2,3-Dihydroindene	399	
95-15-8	Benzo(b)thiophene	115	
120-72-9	1H-Indole	95.2	U
92-52-4	Biphenyl	17.8	J
132-65-0	Dibenzothiophene	95.2	U
260-94-6	Acridine	95.2	U
192-97-2	Benzo(e)pyrene	28.1	J
198-55-0	Perylene	95.2	U
	Benzo(b,j,k)fluoranthene	95.2	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420MSD

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 44745 SAS No.: SDG No.: 44745

Matrix: (soil/water) WATER Lab Sample ID: 44745-01MSD

Sample wt/vol: 1050 (g/ml) ML Lab File ID: T0401388

Level: (low/med) LOW Date Received: 09/20/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 09/21/95

Concentrated Extract Volume: 1(ml) Date Analyzed: 10/12/95

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	920	E
91-57-6	2-Methylnaphthalene	105	
208-96-8	Acenaphthylene	95.2	U
83-32-9	Acenaphthene	77.0	J
132-64-9	Dibenzofuran	24.5	J
86-73-7	Fluorene	73.8	J
85-01-8	Phenanthrene	14.5	J
120-12-7	Anthracene	95.2	U
206-44-0	Fluoranthene	95.2	U
129-00-0	Pyrene	95.2	U
56-55-3	Benzo(a)Anthracene	95.2	U
218-01-9	Chrysene	37.8	J
50-32-8	Benzo(a)pyrene	95.2	U
193-39-5	Indeno(1 2 3-cd)pyrene	95.2	U
53-70-3	Dibenzo(a h)anthracene	95.2	U
191-24-2	Benzo(g h i)perylene	95.2	U
86-74-8	Carbazole	42.9	J
95-13-6	1H-Indene	112	
91-22-5	Quinoline	36.4	J
90-12-0	1-Methylnaphthalene	102	
271-89-6	2,3-Benzofuran	25.7	J
496-11-7	2,3-Dihydroindene	352	
95-15-8	Benzo(b)thiophene	103	
120-72-9	1H-Indole	95.2	U
92-52-4	Biphenyl	16.5	J
132-65-0	Dibenzothiophene	95.2	U
260-94-6	Acridine	95.2	U
192-97-2	Benzo(e)pyrene	22.8	J
198-55-0	Perylene	95.2	U
----------	Benzo(b,j,k)fluoranthene	95.2	U

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

SBLK01

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 44745 SAS No.: SDG No.: 44745

Lab File ID: T0601371 Lab Sample ID: SBLK01

Instrument ID: T Date Extracted: 09/21/95

Matrix: (soil/water) WATER Date Analyzed: 10/11/95

Level: (low/med) LOW Time Analyzed: 1605

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	DPV-W420FB	44745-02FB	T0701372	10/11/95
02	DPV-W420FBD	44745-02FD	T0801373	10/11/95
03	DPV-W421	44745-03	T0901374	10/11/95
04	DPV-W422	44745-04	T1001375	10/11/95
05	GTF-ACFE	44745-08	T1201377	10/11/95
06	PCJ-W23	44745-10	T1301378	10/11/95
07	DPV-W420	44745-01	T1401379	10/11/95
08	DPV-W439	44745-05	T1501380	10/11/95
09	OAKLAKE	44745-07	T0101385	10/12/95
10	STP-W410	44745-06	T0201386	10/12/95
11	DPV-W420MS	44745-01MS	T0301387	10/12/95
12	DPV-W420MSD	44745-01MSD	T0401388	10/12/95
13	DPV-W420D	44745-01DU	T0501389	10/12/95
14	DPV-W420DDL	44745-01DUDL	T0601390	10/12/95
15	DPV-W420DL	44745-01DL	T0701391	10/12/95
16	GTF-SFR	44745-09	T0901393	10/12/95
17	DPV-W421DL	44745-03DL	T1001394	10/12/95
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COMMENTS:

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLK01

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 44745 SAS No.: SDG No.: 44745

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

Sample wt/vol: 1000 (g/ml, ML Lab File ID: T0601371

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

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 09/21/95

Concentrated Extract Volume: 1(ml) Date Analyzed: 10/11/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	10.0	U
91-57-6	2-Methylnaphthalene	10.0	U
208-96-8	Acenaphthylene	10.0	U
83-32-9	Acenaphthene	10.0	U
132-64-9	Dibenzofuran	10.0	U
86-73-7	Fluorene	10.0	U
85-01-8	Phenanthrene	10.0	U
120-12-7	Anthracene	10.0	U
206-44-0	Fluoranthene	10.0	U
129-00-0	Pyrene	10.0	U
56-55-3	Benzo(a)Anthracene	10.0	U
218-01-9	Chrysene	10.0	U
205-99-2	Benzo(b)fluoranthene	10.0	U
207-08-9	Benzo(k)fluoranthene	10.0	U
50-32-8	Benzo(a)pyrene	10.0	U
193-39-5	Indeno(1 2 3-cd)pyrene	10.0	U
53-70-3	Dibenzo(a h)anthracene	10.0	U
191-24-2	Benzo(g h i)perylene	10.0	U
86-74-8	Carbazole	10.0	U
95-13-6	1H-Indene	10.0	U
91-22-5	Quinoline	10.0	U
90-12-0	1-Methylnaphthalene	10.0	U
271-89-6	2,3-Benzofuran	10.0	U
496-11-7	2,3-Dihydroindene	10.0	U
95-15-8	Benzo(b)thiophene	10.0	U
120-72-9	1H-Indole	10.0	U
92-52-4	Biphenyl	10.0	U
132-65-0	Dibenzothiophene	10.0	U
260-94-6	Acridine	10.0	U
192-97-2	Benzo(e)pyrene	10.0	U
198-55-0	Perylene	10.0	U
205-82-3	Benzo(j)fluoranthene	10.0	U
----------	Benzo(b,j,k)fluoranthene	10.0	U

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 44745 SAS No.: SDG No.: 44745

Lab File ID (Standard): T0501370 Date Analyzed: 10/11/95

Instrument ID: T Time Analyzed: 1455

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	344070	11.76	597688	13.71	150320	19.86
	UPPER LIMIT	688140	12.26	1195376	14.21	300640	20.36
	LOWER LIMIT	172035	11.26	298844	13.21	75160	19.36
	EPA SAMPLE NO.						
01	SBLK01	337898	11.76	628559	13.71	144906	19.86
02	DPV-W420FB	352873	11.76	643460	13.71	152666	19.85
03	DPV-W420FBD	342082	11.76	667744	13.71	157660	19.86
04	DPV-W421	333054	11.76	604094	13.71	128334	19.86
05	DPV-W422	372635	11.76	640676	13.71	156211	19.86
06	GTF-ACFE	352213	11.76	688764	13.71	160302	19.85
07	PCJ-W23	396168	11.76	667957	13.71	163516	19.85
08	DPV-W420	393522	11.76	691436	13.71	165322	19.85
09	DPV-W439	363598	11.76	642566	13.71	147288	19.85
10							
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12							
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14							
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16							
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20							
21							
22							

IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = Benzo(a)pyrene-d12

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

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

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 44745 SAS No.: SDG No.: 44745

Lab File ID (Standard): T0384 Date Analyzed: 10/12/95

Instrument ID: T Time Analyzed: 1041

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	372445	11.77	596831	13.71	192098	19.87
	UPPER LIMIT	744890	12.27	1193662	14.21	384196	20.37
	LOWER LIMIT	186222	11.27	298416	13.21	96049	19.37
	EPA SAMPLE NO.						
01	OAKLAKE	364354	11.76	679405	13.71	172740	19.86
02	STP-W410	377117	11.77	695778	13.71	177921	19.87
03	DPV-W420MS	390095	11.77	701061	13.73	166389	19.87
04	DPV-W420MSD	401993	11.77	706246	13.73	168743	19.86
05	DPV-W420D	389216	11.77	728739	13.71	166982	19.86
06	DPV-W420DDL	407618	11.77	699171	13.73	156186	19.87
07	DPV-W420DL	397165	11.76	680096	13.71	163279	19.86
08	GTF-SFR	387578	11.77	705344	13.71	165167	19.86
09	DPV-W421DL	414110	11.77	746267	13.71	168428	19.85
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = Benzo(a)pyrene-d12

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

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

PHENOLICS MONITORING

Quanterra Environmental Services

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

October 18, 1995

Mr. Scott Anderson
City of St. Louis Park
5005 Minnetonka Blvd.
St. Louis Park, MN 55416

Dear Mr. Anderson:

Enclosed is the ppb phenolics report for eleven aqueous samples, received at Quanterra Environmental Services, Denver laboratory on September 20, 1995, and September 22, 1995.

No anomalies were observed.

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 #044743

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
044743-0001-SA	DPV-W420TP-091995	AQUEOUS	19 SEP 95		20 SEP 95
044743-0001-DU	DPV-W420TPD-091995	AQUEOUS	19 SEP 95		20 SEP 95
044743-0001-MS	DPV-W420TPMS-091995	AQUEOUS	19 SEP 95		20 SEP 95
044743-0001-SD	DPV-W420TPMSD-091995	AQUEOUS	19 SEP 95		20 SEP 95
044743-0002-FB	DPV-W420TPFB-091995	AQUEOUS	19 SEP 95		20 SEP 95
044743-0002-FD	DPV-W420TPFBD-091995	AQUEOUS	19 SEP 95		20 SEP 95
044743-0003-SA	DPV-W421TP-091995	AQUEOUS	19 SEP 95		20 SEP 95
044743-0004-SA	DPV-W439TP-091995	AQUEOUS	19 SEP 95		20 SEP 95
044743-0005-SA	STP-W410-091995	AQUEOUS	19 SEP 95		20 SEP 95
044743-0006-SA	OAK LAKETP	AQUEOUS	19 SEP 95		20 SEP 95
044743-0007-SA	GTF-ACFETP-091995	AQUEOUS	19 SEP 95		20 SEP 95
044743-0008-SA	GTF-SFRTP-091995	AQUEOUS	19 SEP 95		20 SEP 95
044743-0009-SA	PCJ-SLP4TP-091995	AQUEOUS	19 SEP 95		20 SEP 95
044743-0010-SA	PCJ-W23TP-091995	AQUEOUS	19 SEP 95		20 SEP 95
044743-0011-SA	DPV-W422TP-091995	AQUEOUS	20 SEP 95		22 SEP 95

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COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: QUANTERRA Contract: CITY_SLP__

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.:44743_

SOW No.: ILM02

EPA Sample No.	Lab Sample ID
4474301	4474301
4374301DU	4474301DU
4474301S	4474301S
4474301SD	4474301SD
4474302FB	4474302FB
4474302FD	4474302FD
4474303	4474303
4474304	4474304
4474305	4474305
4474306	4474306
4474307	4474307
4474308	4474308
4474309	4474309
4474310	4474310
4474311	4474311

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:

ELEVEN_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: _____ Name: DAN REBARCHIK

Date: 10/18/95 Title: PROGRAM MANAGER

RESULT QUALIFIERS

C - Concentration Qualifier:

Enter a "B" if the reported value is less than the Contract Required Detection Limit (CRDL) but greater than the Instrument Detection Limit (IDL). If the analyte was analyzed for but not detected, a "U" must be entered.

Q - Quality Control Qualifiers:

E - The reported value is estimated because of the presence of interference. An explanatory note must be 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 Qualifier:

"P" for ICP
"A" for Flame AA
"F" for Furnace AA
"CV" for Manual Cold Vapor AA
"AV" for Automated Cold Vapor AA
"AS" for Semi-Automated Spectrophotometric
"C" for Manual Spectrophotometric
"T" for Titrimetric
"NR" if the analyte is not required to be analyzed.

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

4474301

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: SAS No.: SDG No.: 44743

Matrix (soil/water): WATER Lab Sample ID: 4474301

Level (low/med): LOW Date Received: 09/20/95

% 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	90.8			C

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:
DPV-W420TP-091995

FORM I - IN

7/88

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

4474302FB

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.: 44743

Matrix (soil/water): WATER Lab Sample ID: 4474302FB

Level (low/med): LOW Date Received: 09/20/95

% 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	4.3	U		C

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:
DPV-W420TPFB-091995

FORM I - IN

7/88

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

4474302FD

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.: 44743

Matrix (soil/water): WATER Lab Sample ID: 4474302FD

Level (low/med): LOW Date Received: 09/20/95

% 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	4.3	U		C

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:
DPV-W420TPFBD-091995

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U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

4474303

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.: 44743

Matrix (soil/water): WATER Lab Sample ID: 4474303

Level (low/med): LOW Date Received: 09/20/95

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
54-30-0	Phenolics	28.7			C

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:
DPV-W421TP-091995

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U.S. EPA - CLP

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

4474304

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.: 44743

Matrix (soil/water): WATER Lab Sample ID: 4474304

Level (low/med): LOW Date Received: 09/20/95

% 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	53.8			C

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:
DPV-W439TP-091995

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U.S. EPA - CLP

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

4474311

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: SAS No.: SDG No.: 44743

Matrix (soil/water): WATER Lab Sample ID: 4474311

Level (low/med): LOW Date Received: 09/22/95

% 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	14.5			C

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:
DPV-W422TP-091995

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U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: QUANTERRA_____ Contract: CITY_SLP__

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.: 44743_

Initial Calibration Source: HIGH PURITY_

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	21.11	105.6	20.0	21.10	105.5	18.74	93.7	C

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

FORM II (PART 1) - IN

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U.S. EPA - CLP

3
BLANKS

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.: 44743

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	4.3	U	4.3	U	4.3	U			4.300	U	C

FORM III - IN

7/88

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

4474301S

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.: 44743

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

% Solids for Sample: 0.0

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

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Phenolics	75-125	142.7600		90.8200		50.00	103.9		C

Comments:
DPV-W420TPMS-091995

FORM V (Part 1) - IN 7/88

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

4474301SD

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: Sas No.: SDG No.: 44743

Matrix (soil/water): WATER Lab Sample ID: 4474301SD

Level (low/med): LOW Date Received: 09/20/95

% 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	131			C

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:
DPV-W420TPMSD-091995

FORM I - IN

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U.S. EPA - CLP

6
DUPLICATES

EPA SAMPLE NO.

4374301DU

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.: 44743

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		90.8200		95.3400		4.9		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.: 44743

Solid LCS Source: EPA STANDARD

Aqueous LCS Source: INORG VENTUR

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Phenolics	50.0	42.45	84.9						

FORM VII - IN

7/88

U.S. EPA - CLP

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STANDARD ADDITION RESULTS

Lab Name: QUANTERRA Contract:CITY_SLP__

Lab Code: DENVER Case No.: _____ SAS No.:_____ SDG No.:44743_

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.:44743

Method: C

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
4374301	10/10/95		200
4474301	10/10/95		200
4474301	10/10/95		200
4474301	10/10/95		200
4474302	10/10/95		200
4474302	10/10/95		200
4474303	10/10/95		200
4474304	10/10/95		200
4474305	10/10/95		200
4474306	10/10/95		200
4474307	10/10/95		200
4474308	10/10/95		200
4474309	10/10/95		200
4474310	10/10/95		200
4474311	10/10/95		200
LCSW	10/10/95		200
PBW	10/10/95		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.:44743

Instrument ID Number: SPEC 301

Method: C

Start Date: 10/11/95

End Date: 10/11/95

EPA Sample No.	D/F	Time	% R	Analytes PH																					
S0.0	1.00	1030		X																					
S5.0	1.00	1031		X																					
S10.0	1.00	1032		X																					
S20.0	1.00	1033		X																					
S50.0	1.00	1034		X																					
ICV	1.00	1036		X																					
ICB	1.00	1037		X																					
PBW	1.00	1038		X																					
LCSW	1.00	1039		X																					
ZZZZZZ	1.00	1040																							
4474301	1.00	1041		X																					
4474301D	1.00	1042		X																					
4474301S	1.00	1043		X																					
4[illegible]01D	1.00	1044																							
44[illegible]302F	1.00	1045		X																					
4474303	1.00	1046		X																					
CCV	1.00	1047		X																					
CCB	1.00	1048		X																					
4474304	1.00	1049		X																					
4474305	1.00	1050		X																					
4474306	1.00	1051		X																					
4474307	1.00	1052		X																					
4474308	1.00	1053		X																					
4474309	1.00	1054		X																					
4474310	1.00	1055		X																					
4474311	1.00	1056		X																					
4474302F	1.00	1057		X																					
CCV	1.00	1058		X																					
CCB	1.00	1059		X																					
ZZZZZZ	1.00	1100																							
ZZZZZZ	1.00	1101																							
ZZZZZZ	1.00	1102																							

FORM XIV - 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.:44743

Instrument ID Number: SPEC 301

Method: C

Start Date: 10/11/95

End Date: 10/11/95

EPA Sample No.	D/F	Time	% R	Analytes																							
				PH																							
ZZZZZZ	1.00	1103																									
CCV	1.00	1104																									
CCB	1.00	1105																									

FORM XIV - IN 7/88

CHAIN OF CUSTODY

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

Quanterra Environmental Services

QUANT
Scott Anderson
PROJE City of St. Louis Park
3752 Wooddale Ave.
SAMPL St. Louis Park, MN 55416

SAMPLING SITE

TEAM LEADER: MJW

SAMPLE SAFE™ CONDITIONS

PACKED BY: MJW	SEAL NUMBER
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY	CONDITION OF CONTENTS
SEALED FOR SHIPPING BY: MJW	INITIAL CONTENTS TEMP °C
SEAL NUMBER	SAMPLING STATUS: ☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB: ☑ Yes ☐ No	CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 3.4 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
9-19-95		DPV-W420TP-091995	16g ~~CLEAR~~ AMBER	1	Phenolics	-1
		DPV-W420TPD-091995				-1DU ~~-2~~ JM
		DPV-W420TPMS-091995				-1MS ~~-3~~ JM
		DPV-W420TPMSD-091995				-1SD ~~-4~~ JM
		DPV-W420TPFB-091995				-2FB ~~-5~~ JM
		DPV-W420TPFBD-091995				-2FD ~~-6~~ JM
		DPV-W421TP-091995				-3 ~~-7~~
		DPV-W422TP-091995				BROKEN ~~-8~~ 11
		DPV-W439TP-091995				~~-9~~ ~~-8~~ -4
9-19-19		STP-W410-091995	16g ~~CLEAR~~ AMBER	1	Phenolics	~~-10~~ ~~-9~~ -5

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MJW	
METHOD OF SHIPMENT: FED EX	AIRBILL NUMBER: 2105421305
RECEIVED FOR LAB: JES	SIGNED: [signature] DATE/TIME: 9/20/95 930
QUANTERRA PROJECT NUMBER: 44743	

000030

QUA-4119

White - CLIENT Pink - LAB

☐ 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

Enseco
A Corning Company

CHAIN OF CUSTODY

ENSECO CLIENT

PROJECT

Scott Anderson
City of St. Louis Park
3752 Wooddale Ave.
ST. Louis Park, MN 55416

TEAM LEADER

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 34 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
9-19-95		OAK LAKE TP	16oz AMBER CLEAR	1	Phenolics	-6 ~~-10~~
		GTF-ACFE TP-091995				-7 ~~-11~~ -12 JD
		STF-SERTP-091995				-8 ~~-12~~ -13 JD
		PCJ-SLP4TP-091995				-9 ~~-13~~ 14 JD
9-19-95		PCJ-W23TP-091995	16oz AMBER CLEAR	1	Phenolics	-10 ~~-14~~ 15 JD

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

RECEIVED FOR LAB QES

SIGNED

DATE/TIME 9/20/95 930

ENSECO PROJECT NUMBER 44793

0000031

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 770[illegible]
713/987-9767 FAX. 713/987-9769

CHAIN OF CUSTODY

ENSECO CLIENT

PROJECT

Scott Anderson
City of St. Louis Park
3752 Wooddale Ave.
St. Louis Park, MN 55416

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
9-19-95		DPU-W422TP-091995	16 oz AMBER	1	Phenolics	44743-11

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: 2103421222
RECEIVED FOR LAB: [illegible]	SIGNED: [illegible] DATE/TIME: 9/22/95 905
ENSECO PROJECT NUMBER: 44743	

000032

ENS-4011

White - CLIENT Pink - LAB

FOURTH QUARTER MONITORING

PAH MONITORING

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

Quanterra Environmental Services

NOV 1995
RECEIVED

CASE NARRATIVE

FOR

City of St. Louis Park

November 22, 1995

Quanterra Environmental Services

Project No. 045512

Introduction

Thirteen aqueous samples (including matrix QC) were received at Quanterra Environmental Services, Denver laboratory on November 1, 1995. The samples were logged in under Quanterra's Denver laboratory project number 045512. Sample DPV-W420FBD-103195 (045512-0002FD) 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 (045512-0001), DPV-W420D (045512-0001DU) and GTF-SFR (045512-08) showed target compounds above the upper calibration range. The samples were re-analyzed at a dilution. Both the original and re-analysis data were reported for each sample. Samples DPV-W421 (045512-0003) and DPV-W439 (045512-0005) were reported at a dilution. The reporting limits were raised accordingly. The surrogates were diluted out of samples DPV-W420DL, DPV-W420DDL and DPV-439.

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Environmental Services

Sample DPV-W420DDL (045512-01DUDL) showed the concentration of naphthalene just above the recommended linear range of the instrument. The results agree very well between the sample and the duplicate.

Sample STP-W409 (045512-09) showed the surrogate chrysene-d12 outside control limits (low). The sample was re-analyzed as STP-W409RE (0455512-09RE) and showed similar results. Per the 1990 QAPP no further action was necessary.

Due to the concentrations of the spiking compounds in the parent sample, some of the percent recoveries for the spiking compounds in samples DPV-W420MS (044745-0001MS) and DPV-420MSD (044745-0001SD) were 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:** 11/22/95
Daniel Rebarchik
Program Administrator

Approved by: _____ **Date:** 11/22/95
Kevin McHugh
Program Manager

Quanterra Environmental Services

QUALIFIER CODES AND THEIR USAGE

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

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

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

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

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

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

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

QUALIFIER CODES AND THEIR USAGE
Page Two

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

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

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

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

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

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 045512	Group Code	Analysis Description	Custom Test?
0001 - 0009	A	CLP/PAH Semivolatile Organics High Level PPB	N
		CLP Prep - PAH Semivolatile Organics by GC/MS High Level PPB	N
0002	B	CLP Prep - PAH Semivolatile Organics by GC/MS High Level PPB	N

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
045512-0001-SA	DPV-W420-103195	AQUEOUS	31 OCT 95		01 NOV 95
045512-0001-DU	DPV-W420D-103195	AQUEOUS	31 OCT 95		01 NOV 95
045512-0001-MS	DPV-W420MS-103195	AQUEOUS	31 OCT 95		01 NOV 95
045512-0001-SD	DPV-W420MSD-103195	AQUEOUS	31 OCT 95		01 NOV 95
045512-0002-FB	DPV-W420FB-103195	AQUEOUS	31 OCT 95		01 NOV 95
045512-0002-FD	DPV-W420FBD-103195	AQUEOUS	31 OCT 95		01 NOV 95
045512-0003-SA	DPV-W421-103195	AQUEOUS	31 OCT 95		01 NOV 95
045512-0004-SA	DPV-W422-103195	AQUEOUS	31 OCT 95		01 NOV 95
045512-0005-SA	DPV-W439-103195	AQUEOUS	31 OCT 95		01 NOV 95
045512-0006-SA	STP-W410-103195	AQUEOUS	31 OCT 95		01 NOV 95
045512-0007-SA	GTF-ACFE-103195	AQUEOUS	31 OCT 95		01 NOV 95
045512-0008-SA	GTF-SFR-103195	AQUEOUS	31 OCT 95		01 NOV 95
045512-0009-SA	STP-W409-103195	AQUEOUS	31 OCT 95		01 NOV 95

CHAIN OF CUSTODY

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421 6611 Telephone
303 431 7171 Fax

Quanterra Environmental Services

QUANTERRA CLIENT

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

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: 5.6 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
10-31-95		DPV-W420-103195	1XL AMBER	2	PPB PAH	-1
		DPV-W420D-103195				-1 Dn
		DPV-W420MS-103195				-1 ms
		DPV-W420MSD-1031-95				-1 sd
		DPV-W420FB-103195				-2 FB
		DPV-W420FBD-103195				-2 FD
		DPV-W421-103195				-3
		DPV-W422-103195				-4
		DPV-W439-103195				-5
10-31-95		STP-W410-103195	1XL AMBER	2	PPB PAH	-6

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: MJH	
METHOD OF SHIPMENT: FED EX	AIRBILL NUMBER: 2103421121
RECEIVED FOR LAB: QES	SIGNED: [signature] DATE/TIME: 11/1/95 1140
QUANTERRA PROJECT NUMBER: 45512	

QUA-4119

White - CLIENT Pink - LAB

CHAIN OF CUSTODY

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Quanterra Environmental Services

QUANTERRA CLIENT

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

TEAM LEADER: M J H

SAMPLE SAFE™ CONDITIONS

PACKED BY: M J H	SEAL NUMBER:
SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY:	CONDITION OF CONTENTS:
SEALED FOR SHIPPING BY: M J H	INITIAL CONTENTS TEMP: °C
SEAL NUMBER:	SAMPLING STATUS: ☐ Done ☐ Continuing Until
SEAL INTACT UPON RECEIPT BY LAB: ☑ Yes ☐ No	CONTENTS TEMPERATURE UPON RECEIPT BY LAB: 5.6 °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
10-31-95		GTF-ACFE-103195	1XL AMBER	2	PPB PAH	-7
10-31-95		GTF-SFR-103195	1XL AMBER	2	PPB PAH	-8
10-31-95		STP-W409-103195	1XL AMBER	2	PPB PAH	-9

CUSTODY TRANSFERS PRIOR TO SHIPPING

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

SHIPPING DETAILS

DELIVERED TO SHIPPER BY: M J H	
METHOD OF SHIPMENT: FD EX	AIRBILL NUMBER: 810 35 21121
RECEIVED FOR LAB: Q=S	SIGNED: [signature] DATE/TIME: 11/1/95 1040
QUANTERRA PROJECT NUMBER: 95512	

QUA-4119 White - CLI[illegible] Pink - LAB

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 45512 SAS No.: SDG No.: 45512

Matrix: (soil/water) WATER Lab Sample ID: 45512-01

Sample wt/vol: 1060 (g/ml) ML Lab File ID: T0801610

Level: (low/med) LOW Date Received: 11/01/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:11/03/95

Concentrated Extract Volume: 1.0(ml) Date Analyzed: 11/15/95

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	926	E
91-57-6	2-Methylnaphthalene	72.7	J
208-96-8	Acenaphthylene	94.3	U
83-32-9	Acenaphthene	84.8	J
132-64-9	Dibenzofuran	27.0	J
86-73-7	Fluorene	27.3	J
85-01-8	Phenanthrene	15.9	J
120-12-7	Anthracene	94.3	U
206-44-0	Fluoranthene	94.3	U
129-00-0	Pyrene	94.3	U
56-55-3	Benzo(a)Anthracene	94.3	U
218-01-9	Chrysene	94.3	U
205-99-2	Benzo(b)fluoranthene	94.3	U
207-08-9	Benzo(k)fluoranthene	94.3	U
50-32-8	Benzo(a)pyrene	94.3	U
193-39-5	Indeno(1 2 3-cd)pyrene	94.3	U
53-70-3	Dibenzo(a h)anthracene	94.3	U
191-24-2	Benzo(g h i)perylene	94.3	U
86-74-8	Carbazole	52.4	J
95-13-6	1H-Indene	75.0	J
91-22-5	Quinoline	94.3	U
90-12-0	1-Methylnaphthalene	88.0	J
271-89-6	2,3-Benzofuran	33.7	J
496-11-7	2,3-Dihydroindene	232	
95-15-8	Benzo(b)thiophene	113	
120-72-9	1H-Indole	94.3	U
92-52-4	Biphenyl	17.1	J
132-65-0	Dibenzothiophene	94.3	U
260-94-6	Acridine	94.3	U
192-97-2	Benzo(e)pyrene	94.3	U
198-55-0	Perylene	94.3	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420DL

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 45512 SAS No.: SDG No.: 44512

Matrix: (soil/water) WATER Lab Sample ID: 44512-01DL

Sample wt/vol: 1060 (g/ml) ML Lab File ID: T0101620

Level: (low/med) LOW Date Received: 11/01/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:11/03/95

Concentrated Extract Volume: 1.0(ml) Date Analyzed: 11/16/95

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	1460	D
91-57-6	2-Methylnaphthalene	75.7	DJ
208-96-8	Acenaphthylene	189	U
83-32-9	Acenaphthene	87.2	DJ
132-64-9	Dibenzofuran	32.9	DJ
86-73-7	Fluorene	26.8	DJ
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	51.4	DJ
95-13-6	1H-Indene	72.3	DJ
91-22-5	Quinoline	189	U
90-12-0	1-Methylnaphthalene	102	DJ
271-89-6	2,3-Benzofuran	39.2	DJ
496-11-7	2,3-Dihydroindene	263	D
95-15-8	Benzo(b)thiophene	121	DJ
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.: 45512 SAS No.: SDG No.: 44512

Matrix: (soil/water) WATER Lab Sample ID: 44512-01DU

Sample wt/vol: 1060 (g/ml) ML Lab File ID: T0301622

Level: (low/med) LOW Date Received: 11/01/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:11/03/95

Concentrated Extract Volume: 1.0(ml) Date Analyzed: 11/16/95

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	985	E
91-57-6	2-Methylnaphthalene	64.3	J
208-96-8	Acenaphthylene	94.3	U
83-32-9	Acenaphthene	73.4	J
132-64-9	Dibenzofuran	30.1	J
86-73-7	Fluorene	27.9	J
85-01-8	Phenanthrene	17.7	J
120-12-7	Anthracene	94.3	U
206-44-0	Fluoranthene	94.3	U
129-00-0	Pyrene	94.3	U
56-55-3	Benzo(a)Anthracene	94.3	U
218-01-9	Chrysene	94.3	U
205-99-2	Benzo(b)fluoranthene	94.3	U
207-08-9	Benzo(k)fluoranthene	94.3	U
50-32-8	Benzo(a)pyrene	94.3	U
193-39-5	Indeno(1 2 3-cd)pyrene	94.3	U
53-70-3	Dibenzo(a h)anthracene	94.3	U
191-24-2	Benzo(g h i)perylene	94.3	U
86-74-8	Carbazole	56.0	J
95-13-6	1H-Indene	70.5	J
91-22-5	Quinoline	94.3	U
90-12-0	1-Methylnaphthalene	93.0	J
271-89-6	2,3-Benzofuran	33.1	J
496-11-7	2,3-Dihydroindene	220	
95-15-8	Benzo(b)thiophene	105	
120-72-9	1H-Indole	94.3	U
92-52-4	Biphenyl	17.1	J
132-65-0	Dibenzothiophene	94.3	U
260-94-6	Acridine	94.3	U
192-97-2	Benzo(e)pyrene	94.3	U
198-55-0	Perylene	94.3	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420DDL

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 45512 SAS No.: SDG No.: 44512

Matrix: (soil/water) WATER Lab Sample ID: 44512-01DUDL

Sample wt/vol: 1060 (g/ml) ML Lab File ID: T0201621

Level: (low/med) LOW Date Received: 11/01/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:11/03/95

Concentrated Extract Volume: 1.0(ml) Date Analyzed: 11/16/95

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	1580	DE
91-57-6	2-Methylnaphthalene	76.7	DJ
208-96-8	Acenaphthylene	189	U
83-32-9	Acenaphthene	92.8	DJ
132-64-9	Dibenzofuran	35.8	DJ
86-73-7	Fluorene	32.3	DJ
85-01-8	Phenanthrene	19.4	DJ
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	54.2	DJ
95-13-6	1H-Indene	87.1	DJ
91-22-5	Quinoline	189	U
90-12-0	1-Methylnaphthalene	110	DJ
271-89-6	2,3-Benzofuran	39.1	DJ
496-11-7	2,3-Dihydroindene	264	D
95-15-8	Benzo(b)thiophene	132	DJ
120-72-9	1H-Indole	189	U
92-52-4	Biphenyl	19.5	DJ
132-65-0	Dibenzothiophene	189	U
260-94-6	Acridine	189	U
192-97-2	Benzo(e)pyrene	189	U
198-55-0	Perylene	189	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420FB

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 45512 SAS No.: SDG No.: 45512

Matrix: (soil/water) WATER Lab Sample ID: 45512-02FB

Sample wt/vol: 1050 (g/ml) ML Lab File ID: T0601608

Level: (low/med) LOW Date Received: 11/01/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:11/03/95

Concentrated Extract Volume: 1.0(ml) Date Analyzed: 11/15/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	9.52	U
91-57-6	2-Methylnaphthalene	9.52	U
208-96-8	Acenaphthylene	9.52	U
83-32-9	Acenaphthene	9.52	U
132-64-9	Dibenzofuran	9.52	U
86-73-7	Fluorene	9.52	U
85-01-8	Phenanthrene	9.52	U
120-12-7	Anthracene	9.52	U
206-44-0	Fluoranthene	9.52	U
129-00-0	Pyrene	9.52	U
56-55-3	Benzo(a)Anthracene	9.52	U
218-01-9	Chrysene	9.52	U
205-99-2	Benzo(b)fluoranthene	9.52	U
207-08-9	Benzo(k)fluoranthene	9.52	U
50-32-8	Benzo(a)pyrene	9.52	U
193-39-5	Indeno(1 2 3-cd)pyrene	9.52	U
53-70-3	Dibenzo(a h)anthracene	9.52	U
191-24-2	Benzo(g h i)perylene	9.52	U
86-74-8	Carbazole	9.52	U
95-13-6	1H-Indene	9.52	U
91-22-5	Quinoline	9.52	U
90-12-0	1-Methylnaphthalene	9.52	U
271-89-6	2,3-Benzofuran	9.52	U
496-11-7	2,3-Dihydroindene	9.52	U
95-15-8	Benzo(b)thiophene	9.52	U
120-72-9	1H-Indole	9.52	U
92-52-4	Biphenyl	9.52	U
132-65-0	Dibenzothiophene	9.52	U
260-94-6	Acridine	9.52	U
192-97-2	Benzo(e)pyrene	9.52	U
198-55-0	Perylene	9.52	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420FBD

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 45512 SAS No.: SDG No.: 45512

Matrix: (soil/water) WATER Lab Sample ID: 45512-02FD

Sample wt/vol: 1040 (g/ml) ML Lab File ID: T0701609

Level: (low/med) LOW Date Received: 11/01/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:11/03/95

Concentrated Extract Volume: 1.0(ml) Date Analyzed: 11/15/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	9.62	U
91-57-6	2-Methylnaphthalene	9.62	U
208-96-8	Acenaphthylene	9.62	U
83-32-9	Acenaphthene	9.62	U
132-64-9	Dibenzofuran	9.62	U
86-73-7	Fluorene	9.62	U
85-01-8	Phenanthrene	9.62	U
120-12-7	Anthracene	9.62	U
206-44-0	Fluoranthene	9.62	U
129-00-0	Pyrene	9.62	U
56-55-3	Benzo(a)Anthracene	9.62	U
218-01-9	Chrysene	9.62	U
205-99-2	Benzo(b)fluoranthene	9.62	U
207-08-9	Benzo(k)fluoranthene	9.62	U
50-32-8	Benzo(a)pyrene	9.62	U
193-39-5	Indeno(1 2 3-cd)pyrene	9.62	U
53-70-3	Dibenzo(a h)anthracene	9.62	U
191-24-2	Benzo(g h i)perylene	9.62	U
86-74-8	Carbazole	9.62	U
95-13-6	1H-Indene	9.62	U
91-22-5	Quinoline	9.62	U
90-12-0	1-Methylnaphthalene	9.62	U
271-89-6	2,3-Benzofuran	9.62	U
496-11-7	2,3-Dihydroindene	9.62	U
95-15-8	Benzo(b)thiophene	9.62	U
120-72-9	1H-Indole	9.62	U
92-52-4	Biphenyl	9.62	U
132-65-0	Dibenzothiophene	9.62	U
260-94-6	Acridine	9.62	U
192-97-2	Benzo(e)pyrene	9.62	U
198-55-0	Perylene	9.62	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W421

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 45512 SAS No.: SDG No.: 45512

Matrix: (soil/water) WATER Lab Sample ID: 45512-03

Sample wt/vol: 1060 (g/ml) ML Lab File ID: T0901611

Level: (low/med) LOW Date Received: 11/01/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:11/03/95

Concentrated Extract Volume: 1.0(ml) Date Analyzed: 11/15/95

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	424	
91-57-6	2-Methylnaphthalene	94.3	U
208-96-8	Acenaphthylene	94.3	U
83-32-9	Acenaphthene	40.0	J
132-64-9	Dibenzofuran	9.67	J
86-73-7	Fluorene	12.1	J
85-01-8	Phenanthrene	94.3	U
120-12-7	Anthracene	94.3	U
206-44-0	Fluoranthene	94.3	U
129-00-0	Pyrene	94.3	U
56-55-3	Benzo(a)Anthracene	94.3	U
218-01-9	Chrysene	94.3	U
205-99-2	Benzo(b)fluoranthene	94.3	U
207-08-9	Benzo(k)fluoranthene	94.3	U
50-32-8	Benzo(a)pyrene	94.3	U
193-39-5	Indeno(1 2 3-cd)pyrene	94.3	U
53-70-3	Dibenzo(a h)anthracene	94.3	U
191-24-2	Benzo(g h i)perylene	94.3	U
86-74-8	Carbazole	25.4	J
95-13-6	1H-Indene	51.7	J
91-22-5	Quinoline	94.3	U
90-12-0	1-Methylnaphthalene	38.4	J
271-89-6	2,3-Benzofuran	94.3	U
496-11-7	2,3-Dihydroindene	105	
95-15-8	Benzo(b)thiophene	57.6	J
120-72-9	1H-Indole	94.3	U
92-52-4	Biphenyl	94.3	U
132-65-0	Dibenzothiophene	94.3	U
260-94-6	Acridine	94.3	U
192-97-2	Benzo(e)pyrene	94.3	U
198-55-0	Perylene	94.3	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W422

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 45512 SAS No.: SDG No.: 45512

Matrix: (soil/water) WATER Lab Sample ID: 45512-04

Sample wt/vol: 1060 (g/ml) ML Lab File ID: T1001612

Level: (low/med) LOW Date Received: 11/01/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:11/03/95

Concentrated Extract Volume: 1.0(ml) Date Analyzed: 11/15/95

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	2.13	J
91-57-6	2-Methylnaphthalene	9.43	U
208-96-8	Acenaphthylene	9.43	U
83-32-9	Acenaphthene	7.67	J
132-64-9	Dibenzofuran	9.43	U
86-73-7	Fluorene	9.43	U
85-01-8	Phenanthrene	9.43	U
120-12-7	Anthracene	9.43	U
206-44-0	Fluoranthene	9.43	U
129-00-0	Pyrene	9.43	U
56-55-3	Benzo(a)Anthracene	9.43	U
218-01-9	Chrysene	9.43	U
205-99-2	Benzo(b)fluoranthene	9.43	U
207-08-9	Benzo(k)fluoranthene	9.43	U
50-32-8	Benzo(a)pyrene	9.43	U
193-39-5	Indeno(1 2 3-cd)pyrene	9.43	U
53-70-3	Dibenzo(a h)anthracene	9.43	U
191-24-2	Benzo(g h i)perylene	9.43	U
86-74-8	Carbazole	9.43	U
95-13-6	1H-Indene	9.43	U
91-22-5	Quinoline	9.43	U
90-12-0	1-Methylnaphthalene	9.43	U
271-89-6	2,3-Benzofuran	9.43	U
496-11-7	2,3-Dihydroindene	19.2	
95-15-8	Benzo(b)thiophene	9.43	U
120-72-9	1H-Indole	9.43	U
92-52-4	Biphenyl	9.43	U
132-65-0	Dibenzothiophene	9.43	U
260-94-6	Acridine	9.43	U
192-97-2	Benzo(e)pyrene	9.43	U
198-55-0	Perylene	9.43	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W439

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 45512 SAS No.: SDG No.: 45512

Matrix: (soil/water) WATER Lab Sample ID: 45512-05

Sample wt/vol: 1060 (g/ml) ML Lab File ID: T1101613

Level: (low/med) LOW Date Received: 11/01/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:11/03/95

Concentrated Extract Volume: 1.0(ml) Date Analyzed: 11/15/95

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	1220	
91-57-6	2-Methylnaphthalene	47.3	J
208-96-8	Acenaphthylene	189	U
83-32-9	Acenaphthene	81.7	J
132-64-9	Dibenzofuran	22.3	J
86-73-7	Fluorene	189	U
85-01-8	Phenanthrene	189	U
120-12-7	Anthracene	189	U
206-44-0	Fluoranthene	189	U
129-00-0	Pyrene	189	U
56-55-3	Benzo(a)Anthracene	189	U
218-01-9	Chrysene	189	U
205-99-2	Benzo(b)fluoranthene	189	U
207-08-9	Benzo(k)fluoranthene	189	U
50-32-8	Benzo(a)pyrene	189	U
193-39-5	Indeno(1 2 3-cd)pyrene	189	U
53-70-3	Dibenzo(a h)anthracene	189	U
191-24-2	Benzo(g h i)perylene	189	U
86-74-8	Carbazole	189	U
95-13-6	1H-Indene	204	
91-22-5	Quinoline	189	U
90-12-0	1-Methylnaphthalene	116	J
271-89-6	2,3-Benzofuran	189	U
496-11-7	2,3-Dihydroindene	314	
95-15-8	Benzo(b)thiophene	110	J
120-72-9	1H-Indole	189	U
92-52-4	Biphenyl	189	U
132-65-0	Dibenzothiophene	189	U
260-94-6	Acridine	189	U
192-97-2	Benzo(e)pyrene	189	U
198-55-0	Perylene	189	U

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 45512 SAS No.: SDG No.: 45512

	EPA SAMPLE NO.	S1 #	S2 #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	SBLK01	77	88	59						0
02	DPV-W420FB	77	90	65						0
03	DPV-W420FBD	71	82	54						0
04	DPV-W420	74	60	57						0
05	DPV-W421	70	46	53						0
06	DPV-W422	73	47	58						0
07	DPV-W439	0D	0D	0D						0
08	STP-W410	77	52	59						0
09	GTF-ACFE	75	43	59						0
10	GTF-SFR	87	47	58						0
11	STP-W409	74	12*	56						1
12	DPV-W420DL	0D	0D	0D						0
13	DPV-W420DDL	0D	0D	0D						0
14	DPV-W420D	70	39	52						0
15	DPV-W420MS	80	60	64						0
16	DPV-W420MSD	81	60	61						0
17	GTF-SFRDL	92	36	60						0
18	STP-W409RE	70	9*	52						1
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										

		QC LIMITS
S1	= Naphthalene-d8	(37-107)
S2	= Chrysene-d12	(25-160)
S3	= Fluorene-d10	(36-127)

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

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 45512 SAS No.: SDG No.: 45512

Matrix Spike - EPA Sample No.: DPV-W420

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC. LIMITS REC.
Naphthalene	47.6	926	1000	155*	43-128
2-Methylnaphthalene	47.6	72.7	108	74	47-138
Fluorene	47.6	27.3	79.9	110	51-120
Chrysene	47.6	0.000	39.1	82	43-124
1H-Indene	47.6	75.0	110	74	49-108
Quinoline	47.6	0.000	36.1	76	40-126
Benzo(e)pyrene	47.6	0.000	26.9	56	20-150

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Naphthalene	47.6	970	92	51*	50	43-128
2-Methylnaphthalene	47.6	107	72	3	50	47-138
Fluorene	47.6	73.7	97	12	50	51-120
Chrysene	47.6	38.3	80	2	50	43-124
1H-Indene	47.6	110	74	0	50	49-108
Quinoline	47.6	36.6	77	1	50	40-126
Benzo(e)pyrene	47.6	28.6	60	7	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:

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420MS

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 45512 SAS No.: SDG No.: 44512

Matrix: (soil/water) WATER Lab Sample ID: 44512-01MS

Sample wt/vol: 1050 (g/ml) ML Lab File ID: T0401623

Level: (low/med) LOW Date Received: 11/01/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:11/03/95

Concentrated Extract Volume: 1.0(ml) Date Analyzed: 11/16/95

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	1000	E
91-57-6	2-Methylnaphthalene	108	
208-96-8	Acenaphthylene	95.2	U
83-32-9	Acenaphthene	82.8	J
132-64-9	Dibenzofuran	30.5	J
86-73-7	Fluorene	79.9	J
85-01-8	Phenanthrene	17.3	J
120-12-7	Anthracene	95.2	U
206-44-0	Fluoranthene	95.2	U
129-00-0	Pyrene	95.2	U
56-55-3	Benzo(a)Anthracene	95.2	U
218-01-9	Chrysene	39.1	J
205-99-2	Benzo(b)fluoranthene	95.2	U
207-08-9	Benzo(k)fluoranthene	95.2	U
50-32-8	Benzo(a)pyrene	95.2	U
193-39-5	Indeno(1 2 3-cd)pyrene	95.2	U
53-70-3	Dibenzo(a h)anthracene	95.2	U
191-24-2	Benzo(g h i)perylene	95.2	U
86-74-8	Carbazole	60.7	J
95-13-6	1H-Indene	110	
91-22-5	Quinoline	36.1	J
90-12-0	1-Methylnaphthalene	94.3	J
271-89-6	2,3-Benzofuran	34.2	J
496-11-7	2,3-Dihydroindene	228	
95-15-8	Benzo(b)thiophene	111	
120-72-9	1H-Indole	95.2	U
92-52-4	Biphenyl	17.0	J
132-65-0	Dibenzothiophene	95.2	U
260-94-6	Acridine	95.2	U
192-97-2	Benzo(e)pyrene	26.9	J
198-55-0	Perylene	95.2	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DPV-W420MSD

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 45512 SAS No.: SDG No.: 44512

Matrix: (soil/water) WATER Lab Sample ID: 44512-01MSD

Sample wt/vol: 1050 (g/ml) ML Lab File ID: T0501624

Level: (low/med) LOW Date Received: 11/01/95

% Moisture: _____ decanted: (Y/N)___ Date Extracted:11/03/95

Concentrated Extract Volume: 1.0(ml) Date Analyzed: 11/16/95

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	970	E
91-57-6	2-Methylnaphthalene	107	
208-96-8	Acenaphthylene	95.2	U
83-32-9	Acenaphthene	78.7	J
132-64-9	Dibenzofuran	30.4	J
86-73-7	Fluorene	73.7	J
85-01-8	Phenanthrene	16.9	J
120-12-7	Anthracene	95.2	U
206-44-0	Fluoranthene	95.2	U
129-00-0	Pyrene	95.2	U
56-55-3	Benzo(a)Anthracene	95.2	U
218-01-9	Chrysene	38.3	J
205-99-2	Benzo(b)fluoranthene	95.2	U
207-08-9	Benzo(k)fluoranthene	95.2	U
50-32-8	Benzo(a)pyrene	95.2	U
193-39-5	Indeno(1 2 3-cd)pyrene	95.2	U
53-70-3	Dibenzo(a h)anthracene	95.2	U
191-24-2	Benzo(g h i)perylene	95.2	U
86-74-8	Carbazole	53.7	J
95-13-6	1H-Indene	110	
91-22-5	Quinoline	36.6	J
90-12-0	1-Methylnaphthalene	90.7	J
271-89-6	2,3-Benzofuran	31.9	J
496-11-7	2,3-Dihydroindene	215	
95-15-8	Benzo(b)thiophene	108	
120-72-9	1H-Indole	95.2	U
92-52-4	Biphenyl	17.2	J
132-65-0	Dibenzothiophene	95.2	U
260-94-6	Acridine	95.2	U
192-97-2	Benzo(e)pyrene	28.6	J
198-55-0	Perylene	95.2	U

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

SBLK01

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 45512 SAS No.: SDG No.: 45512

Lab File ID: T0501607 Lab Sample ID: SBLK01

Instrument ID: T Date Extracted: 11/03/95

Matrix: (soil/water) WATER Date Analyzed: 11/15/95

Level:(low/med) LOW Time Analyzed: 1434

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	DPV-W420FB	45512-02FB	T0601608	11/15/95
02	DPV-W420FBD	45512-02FD	T0701609	11/15/95
03	DPV-W420	45512-01	T0801610	11/15/95
04	DPV-W421	45512-03	T0901611	11/15/95
05	DPV-W422	45512-04	T1001612	11/15/95
06	DPV-W439	45512-05	T1101613	11/15/95
07	STP-W410	45512-06	T1201614	11/15/95
08	GTF-ACFE	45512-07	T1301615	11/15/95
09	GTF-SFR	45512-08	T1401616	11/15/95
10	STP-W409	45512-09	T1501617	11/15/95
11	DPV-W420DL	44512-01DL	T0101620	11/16/95
12	DPV-W420DDL	44512-01DUDL	T0201621	11/16/95
13	DPV-W420D	44512-01DU	T0301622	11/16/95
14	DPV-W420MS	44512-01MS	T0401623	11/16/95
15	DPV-W420MSD	44512-01MSD	T0501624	11/16/95
16	GTF-SFRDL	44512-08DL	T0601625	11/16/95
17	STP-W409RE	44512-09RE	T0701626	11/16/95
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COMMENTS:

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLK01

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 45512 SAS No.: SDG No.: 45512

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

Sample wt/vol: 1000 (g/ml) ML Lab File ID: T0501607

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

% Moisture: _____ decanted: (Y/N)___ Date Extracted:11/03/95

Concentrated Extract Volume: 1.0(ml) Date Analyzed: 11/15/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	10.0	U
91-57-6	2-Methylnaphthalene	10.0	U
208-96-8	Acenaphthylene	10.0	U
83-32-9	Acenaphthene	10.0	U
132-64-9	Dibenzofuran	10.0	U
86-73-7	Fluorene	10.0	U
85-01-8	Phenanthrene	10.0	U
120-12-7	Anthracene	10.0	U
206-44-0	Fluoranthene	10.0	U
129-00-0	Pyrene	10.0	U
56-55-3	Benzo(a)Anthracene	10.0	U
218-01-9	Chrysene	10.0	U
205-99-2	Benzo(b)fluoranthene	10.0	U
207-08-9	Benzo(k)fluoranthene	10.0	U
50-32-8	Benzo(a)pyrene	10.0	U
193-39-5	Indeno(1 2 3-cd)pyrene	10.0	U
53-70-3	Dibenzo(a h)anthracene	10.0	U
191-24-2	Benzo(g h i)perylene	10.0	U
86-74-8	Carbazole	10.0	U
95-13-6	1H-Indene	10.0	U
91-22-5	Quinoline	10.0	U
90-12-0	1-Methylnaphthalene	10.0	U
271-89-6	2,3-Benzofuran	10.0	U
496-11-7	2,3-Dihydroindene	10.0	U
95-15-8	Benzo(b)thiophene	10.0	U
120-72-9	1H-Indole	10.0	U
92-52-4	Biphenyl	10.0	U
132-65-0	Dibenzothiophene	10.0	U
260-94-6	Acridine	10.0	U
192-97-2	Benzo(e)pyrene	10.0	U
198-55-0	Perylene	10.0	U

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 45512 SAS No.: SDG No.: 45512

Lab File ID (Standard): T0401606 Date Analyzed: 11/15/95

Instrument ID: T Time Analyzed: 1253

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	275110	11.65	410873	13.62	170969	19.74
	UPPER LIMIT	550220	12.15	821746	14.12	341938	20.24
	LOWER LIMIT	137555	11.15	205436	13.12	85484	19.24
	EPA SAMPLE NO.						
01	SBLK01	286978	11.66	397891	13.64	192392	19.75
02	DPV-W420FB	273144	11.65	404207	13.62	189747	19.73
03	DPV-W420FBD	281668	11.65	386866	13.61	190810	19.73
04	DPV-W420	279999	11.66	391335	13.62	229207	19.72
05	DPV-W421	268082	11.65	391751	13.61	216281	19.72
06	DPV-W422	285850	11.66	421224	13.61	194197	19.73
07	DPV-W439	291019	11.65	405547	13.61	215258	19.74
08	STP-W410	282720	11.66	403653	13.62	221046	19.72
09	GTF-ACFE	289584	11.65	402160	13.62	202770	19.73
10	GTF-SFR	280372	11.66	375322	13.62	199352	19.73
11	STP-W409	296845	11.66	449505	13.63	180749	19.74
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = Benzo(a)pyrene-d12

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

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

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: QUANTERRA DENVER Contract:

Lab Code: Case No.: 45512 SAS No.: SDG No.: 45512

Lab File ID (Standard): T0619 Date Analyzed: 11/16/95

Instrument ID: T Time Analyzed: 1015

		IS1(ANT) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	271555	11.67	403586	13.64	186425	19.75
	UPPER LIMIT	543110	12.17	807172	14.14	372850	20.25
	LOWER LIMIT	135778	11.17	201793	13.14	93212	19.25
	EPA SAMPLE NO.						
01	DPV-W420DL	265344	11.67	392106	13.64	193602	19.75
02	DPV-W420DDL	257198	11.67	382612	13.63	207729	19.73
03	DPV-W420D	297798	11.66	399146	13.62	218292	19.73
04	DPV-W420MS	286803	11.66	413105	13.62	227657	19.73
05	DPV-W420MSD	290542	11.66	405401	13.62	232226	19.73
06	GTF-SFRDL	271568	11.65	388062	13.62	204480	19.73
07	STP-W409RE	331082	11.65	497134	13.62	237128	19.72
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS1 (ANT) = Acenaphthene-d10
IS2 (PHN) = Phenanthrene-d10
IS3 = Benzo(a)pyrene-d12

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

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

PHENOLICS MONITORING

Quanterra Environmental Services

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

NOV 1995
RECEIVED

November 21, 1995

Mr. Scott Anderson
City of St. Louis Park
5005 Minnetonka Blvd.
St. Louis Park, MN 55416

Dear Mr. Anderson:

Enclosed is the ppb phenolics report for eleven aqueous samples, received at Quanterra Environmental Services, Denver laboratory on November 1, 1995.

No anomalies were observed.

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 #045511

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
045511-0001-SA	DPV-W420TP-103195	AQUEOUS	31 OCT 95		01 NOV 95
045511-0001-DU	DPV-W420TPD-103195	AQUEOUS	31 OCT 95		01 NOV 95
045511-0001-MS	DPV-W420TPMS-103195	AQUEOUS	31 OCT 95		01 NOV 95
045511-0001-SD	DPV-W420TPMSD-103195	AQUEOUS	31 OCT 95		01 NOV 95
045511-0002-FB	DPV-W420TPFB-103195	AQUEOUS	31 OCT 95		01 NOV 95
045511-0002-FD	DPV-W420TPFBD-103195	AQUEOUS	31 OCT 95		01 NOV 95
045511-0003-SA	DPV-W421TP-103195	AQUEOUS	31 OCT 95		01 NOV 95
045511-0004-SA	DPV-W422TP-103195	AQUEOUS	31 OCT 95		01 NOV 95
045511-0005-SA	DPV-W439TP-103195	AQUEOUS	31 OCT 95		01 NOV 95
045511-0006-SA	STP-W410TP-103195	AQUEOUS	31 OCT 95		01 NOV 95
045511-0007-SA	GTF-SFRTP-103195	AQUEOUS	31 OCT 95		01 NOV 95
045511-0008-SA	STP-W409TP-103195	AQUEOUS	31 OCT 95		01 NOV 95

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COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.:45511

SOW No.: ILM02

EPA Sample No.	Lab Sample ID
4551101	4551101
4551101DU	4551101DU
4551101S	4551101S
4551101D	4551101D
4551102FB	4551102FB
4551102FD	4551102FD
4551103	4551103
4551104	4551104
4551105	4551105
4551106	4551106
4551107	4551107
4551108	4551108

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 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: _____ Name: DAN REBARCHIK

Date: 11/21/95 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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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

4551108

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: SAS No.: SDG No.: 45511

Matrix (soil/water): WATER Lab Sample ID: 4551108

Level (low/med): LOW Date Received: 11/01/95

% 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	7.4			C

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:
STP-W409TP-103195

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U.S. EPA - CLP

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

4551101D

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.: 45511

Matrix (soil/water): WATER Lab Sample ID: 4551101D

Level (low/med): LOW Date Received: 11/01/95

% 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	182			C

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:
DPV-W420TPMSD-103195

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U.S. EPA - CLP

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

4551102FB

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: Sas No.: SDG No.: 45511

Matrix (soil/water): WATER Lab Sample ID: 4551102FB

Level (low/med): LOW Date Received: 11/01/95

% 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	4.3	U		C

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:
DPV-W420TPFB-103195

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

4551102FD

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: ____ SAS No.: ____ SDG No.: 45511

Matrix (soil/water): WATER Lab Sample ID: 4551102FD

Level (low/med): LOW Date Received: 11/01/95

% 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	4.3	U		C

Color Before: COLORLESS Clarity Before: CLEAR Texture: ____

Color After: COLORLESS Clarity After: CLEAR Artifacts: ____

Comments:
DPV-W420TPFBD-103195

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U.S. EPA - CLP

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

4551101

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.: 45511

Matrix (soil/water): WATER Lab Sample ID: 4551101

Level (low/med): LOW Date Received: 11/01/95

% 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	113			C

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:
DPV-W420TP-103195

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U.S. EPA - CLP

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

4551103

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.: 45511

Matrix (soil/water): WATER Lab Sample ID: 4551103

Level (low/med): LOW Date Received: 11/01/95

% 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	20.3			C

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:
DPV-W421TP-103195

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

4551104

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.: 45511

Matrix (soil/water): WATER Lab Sample ID: 4551104

Level (low/med): LOW Date Received: 11/01/95

% 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	10.2			C

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:
DPV-W422TP-103195

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

4551105

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.: 45511

Matrix (soil/water): WATER Lab Sample ID: 4551105

Level (low/med): LOW Date Received: 11/01/95

% 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	50.2			C

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:
DPV-W439TP-103195

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2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: QUANTERRA Contract: CITY_SLP__

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.: 45511_

Initial Calibration Source: HIGH PURITY_

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	50.0	50.20	100.4	50.0	50.70	101.4	50.20	100.4	C

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

FORM II (PART 1) - IN

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BLANKS

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.: 45511

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	4.3	U	4.3	U	4.3	U			4.300	U	C

FORM III - IN

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U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

4551101S

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.: 45511

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

% Solids for Sample: 0.0

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

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Phenolics	75-125	187.0000		113.4000		75.00	98.1		C

Comments:
DPV-W420TPMS-103195

FORM V (Part 1) - IN 7/88

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DUPLICATES

EPA SAMPLE NO.

4551101DU

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.: 45511

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		113.4000		107.0000		5.8		C

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U.S. EPA - CLP

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LABORATORY CONTROL SAMPLE

Lab Name: QUANTERRA Contract: CITY_SLP__

Lab Code: DENVER Case No.: _____ SAS No.: _____ SDG No.: 45511_

Solid LCS Source: EPA STANDARD

Aqueous LCS Source: INORG VENTUR

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Phenolics	50.0	50.70	101.4						

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U.S. EPA - CLP

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STANDARD ADDITION RESULTS

Lab Name: QUANTERRA_____ Contract:CITY_SLP__

Lab Code: DENVER Case No.: _____ SAS No.:_____ SDG No.:45511_

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

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PREPARATION LOG

Lab Name: QUANTERRA Contract: CITY_SLP

Lab Code: DENVER Case No.: SAS No.: SDG No.:45511

Method: C

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
4551101	11/06/95		200
4551101	11/06/95		200
4551101	11/06/95		200
4551101	11/06/95		200
4551102	11/06/95		200
4551102	11/06/95		200
4551103	11/06/95		200
4551104	11/06/95		200
4551105	11/06/95		200
4551106	11/06/95		200
4551107	11/06/95		200
4551108	11/06/95		200
LCSW	11/06/95		200
PBW	11/06/95		200

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U.S. EPA - CLP

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ANALYSIS RUN LOG

Lab Name: QUANTERRA

Contract: CITY_SLP

Lab Code: DENVER Case No.:

SAS No.: SDG No.:45511

Instrument ID Number: SPEC 301

Method: C

Start Date: 11/06/95

End Date: 11/06/95

EPA Sample No.	D/F	Time	% R	Analytes PH
S0.0	1.00	2159		X
S5.0	1.00	2200		X
S10.0	1.00	2201		X
S20.0	1.00	2202		X
S50.0	1.00	2203		X
S100.0	1.00	2204		X
ICV	1.00	2205		X
ICB	1.00	2206		X
LCSW	1.00	2207		X
ZZZZZZ	1.00	2208		
PBW	1.00	2209		X
4551101	2.00	2210		X
4551101D	2.00	2211		X
4551101S	2.00	2212		X
4551101D	2.00	2213		X
4551102F	1.00	2214		X
4551102F	1.00	2215		X
4551103	1.00	2216		X
CCV	1.00	2217		X
CCB	1.00	2218		X
4551104	1.00	2219		X
4551105	1.00	2220		X
4551106	1.00	2221		X
4551107	1.00	2222		X
4551108	1.00	2223		X
CCV	1.00	2224		X
CCB	1.00	2225		X

FORM XIV - IN 7/88

Quanterra Environmental Services

000449

Laboratory Bench Sheet
Colorimetric Analysis
Revision 0 - January 25, 1995

Analyst: D LONA	**Calibration Curve Information**						**Instrument Information**
Date: 11/6/95	CONC.(mg/L)		ABS.	CONC.(mg/L)		ABS.	Instrument: SPEC(301)
QC Lot: 06 NOV 95-N1	BLANK	0.00	0.043	STD 5	0.10	0.259	Wavelength (nm): 460
QC Run: ↓	STD 1	0.005	0.051	STD 6	–	–	Parameter: PHEN-CLP-A
SOP Information	STD 2	0.01	0.064	STD 7	–	–	Corr. Coefficient: 0.99993
Number: LM-RMA-1048	STD 3	0.02	0.085	STD 8	–	–	Slope: 2.17336
Revision: –	STD 4	0.05	0.151	–	–	–	Intercept: 0.04182

DCS Information	**Matrix Spike Information**	**Calibration Information**
Source/Ver-Lot #: RMAL/9534	Source/Ver-Lot #: Same As CAL	Source/Ver-Lot #: RMAL/9652
Prep Date: N/A Made By: LAB CHEM	Prep Date ↓ Made By:	Prep Date: N/A Made By: RICCA
Concentration: 1000 mg/L	Concentration ↓	Concentration: 1000 mg/L
Expiration Date: 10/26/96	Expiration Date ↓	Expiration Date: 9/96
DCS True Value: 0.050 mg/L	Spike True Value: 0.050 mg/L	CCV True Value: 0.050 mg/L

Int./ Notes	LIMS ID	pH	Sample Amount (mL/g)	Sample Absorbance	Color Blank Absorbance	Concentration (mg/L-mg/kg)	Prep D.F.	Anal. D.F.	Final Conc. (mg/L-mg/kg)	%REC /RPD
22 05	ICV	/	/	0.151	/	0.0502	/	/	0.050	
22 06	ICB	/	/	0.043	/	0.0005	/	/	ND	
:07	DCS	<2	200	0.152	N/A	0.0507	1X	1X	0.051	
.08	DCS	↓	↓	0.149	↓	0.0493	↓	↓	0.049	
:09	PBLK	↓	↓	0.037	↓	-0.0022	↓	↓	ND	
.10	45511-1	↓	↓	0.165	↓	0.0567	↓	2X	0.113	(0.01)
11	-1DU	↓	↓	0.158	↓	0.0535	↓	↓	0.107	↓
.2	-1MS	↓	↓	0.245	↓	0.0935	↓	↓	0.187(0.10)	
13	-1SD	↓	↓	0.240	↓	0.0912	↓	↓	0.182(0.10)	
.14	-2FB	↓	↓	0.045	↓	0.0015	↓	1X	ND	
:15	-2FD	↓	↓	0.043	↓	0.0005	↓	↓	ND	
16	-3	↓	↓	0.086	↓	0.0203	↓	↓	0.020	
:17	CCV	/	/	0.152	/	0.0507	/	/	0.051	
:18	CCB	/	/	0.045	/	0.0015	/	/	ND	
.19	45511-4	≈7	200	0.064	N/A	0.0102	1X	1X	0.010	
:20	-5	↓	↓	0.151	↓	0.0502	↓	↓	0.050	
:21	-6	↓	↓	0.049	↓	0.0033	↓	↓	ND	
:22	-7	<2	↓	DL 11/6 ~~0.0~~ 0.191	↓	0.0686	↓	↓	0.069	
.23	-8	↓	↓	0.058	↓	0.0074	↓	↓	0.007	
:24	CCV	/	/	0.151	/	0.0502	/	/	0.050	
.25	CCB	/	/	0.044	/	0.0010	/	/	ND	

DL 11/6/95

000022

* MS/MSD chosen by analyst

BS0003.DOC.