COMPLIANCE MONITORING REPORT

FOR

U.S. POSTAL SERVICE
GENERAL MAIL FACILITY
2445 THIRD AVENUE SOUTH
SEATTLE, WASHINGTON

Prepared For:

Mr. Sydney C. Randell, CHMM
District Environmental Coordinator
Seattle District
United States Postal Service
PO Box 90308
Seattle, WA 98109-8871

Prepared By:

Columbia Environmental Sciences, Inc.
8428 W. Gage Blvd., #104
Kennewick, WA 99336
(509) 783-5571 (voice)
(509) 783-7938 (facsimile)

January 2000

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

APPENDICES

1.0 INTRODUCTION

The purpose of this report is to summarize the results of a compliance monitoring investigation for the U.S. Postal Service (USPS) General Mail Facility (GME) in Seattle, Washington. The south Seattle GMF property is located at 2445 Third Avenue South near the intersection of South Lander Street in Seattle, WA. Columbia Environmental Sciences, Inc. (CESI) conducted the investigation under contract to the Seattle District of the U.S. Postal Service.

Compliance monitoring of five (5) groundwater monitoring wells is a required part of a No Further Action (NFA) and Restrictive Covenant issued for the GMF property (the site) by the Washington State Department of Ecology (WDOE). The site had been previously investigated as an independent remedial action under Washington's Model Toxics Control Act (MTCA) (ICF Kaiser, 1997, 1998, 1999 and Dames & Moore, 1998). WDOE made the determination that, at the time the NFA letter was issued (April 5, 1999), releases of petroleum hydrocarbons and carcinogenic polynuclear aromatic hydrocarbons (cPAHs) did not pose a threat to human health or the environment.

A condition of the NFA letter was that groundwater from wells near the Vehicle Maintenance Facility (VMF) be sampled and analyzed annually during the wet season using EPA Method 8270 until cPAH concentrations in selected monitoring wells fall below MTCA Method B cleanup levels for four consecutive sampling events. This report summarizes the activities and analytical results for the first sampling event that took place on December 17, 1999.

1.1 Summary

CESI gained access to the site from the The Seattle Public Schools District on December 17, 1999. The five (5) wells to be sampled included the monitoring wells MW-7, MW-8, MW-9, MW-3, and MW-6A. The wells were first located using the site map in the Dames & Moore (1998) report and the condition of each well was noted. All wells were found locked and in good condition with the exception of well MW-8 which was missing a well cover. The weather was overcast and raining and three of the wells were in standing water.

Water level measurements and bottom hole depths were recorded prior to purging each well. The height of the water column in each well was used to determine a column volume. A minimum of three column volumes was purged using a bailer and the purge water was contained on the site for later disposal. Water was collected in 1-L amber bottles and the samples were delivered to the analytical laboratory (Friedman & Bruya, Inc.) under chain-of-custody procedures on the same day. Each water sample was analyzed for cPAHs using EPA Method 8270C SIM (Selected Ion Mode). We chose to use the 8270C SIM method to obtain detection limits closer to the compliance monitoring cleanup standards.

PAHs were present in all well samples above the detection limit and cPAHs were also detected in several of the wells. Carcinogenic PAHs were not detected in wells MW-6A and MW-9. The remaining 3 wells (MW-3, 7, and 8) all contained cPAHs and non-carcinogenic PAHs above the detection limit with the highest levels found in well MW-3. Wells MW-7 and 8 contained several of the cPAHs at levels at or just above the reporting limit of 0.1 µg/L.

Because of the low solubility and high adsorption capacity of cPAHs on soil, the cPAHs detected at the GMF site may be entrained on sediment particles rather than dissolved in groundwater. Two well samples in particular (MW-6A and MW-8) were very turbid water samples and the remaining water samples had some visible particulate matter in the water sample. Filtration of future water samples (either in the field or by the laboratory) may give a better indication of the amounts of cPAHs in the groundwater and their mobility in the environment.

2.0 GROUNDWATER SAMPLING

The site is the General Mail Facility (GMF) for the U.S. Postal Service located at 2445 Third Avenue South, Seattle, King County, Washington. The five (5) wells to be sampled included the monitoring wells MW-7, MW-8, MW-9, MW-3, and MW-6A. Figure 1 shows the locations of each of the monitoring wells. This section of the report summarizes the field observations and procedures used in the field.

3.1 Field Observations

All work on the first compliance monitoring sampling took place on December 17, 1999. CESI staff arrived on site at 9:15 am and were met by Seattle Public Schools personnel to gain entry to the facility. The temperature was about 43°F and was overcast and raining.

Each monitoring well was first located using the site map shown in Figure 1. All wells were in reasonable condition, however well MW-8 was obscured by heavy vegetative cover and the well cover was missing and could not be found. With the exception of well MW-6A, all wells had standing surface water to the top of the monuments and flush with the asphalt pavement. The well monuments were pumped dry to below the top of the casing using a peristaltic pump until the well locks were exposed.

Each well was constructed as a 2-inch diameter steel casing and steel well monument with a cover. The tops of all well casings were outfitted with locked well caps. All well caps were tightly closed at the time of sampling preventing surface water from entering the well. Keys to the locks were unavailable from the USPS so each lock was cut off using a pair of bolt cutters. Each well was outfitted with a new lock at the conclusion of the sampling event. Figure 2 is a series of photographs documenting the field conditions during the compliance monitoring event.

3.2 Field Procedures

The depth to water and bottom hole depth was first measured in each well using a Solinst Model 100 electronic water level meter. A well volume equivalent to a purge volume was calculated from the difference of the depth to water and the bottom hole depth. Each well was purged 3 times using a bailer prior to collecting a water sample and all purge water was contained on site in a DOT-approved drum. Unfiltered water samples were collected in 1-L amber bottles supplied by the analytical laboratory and stored in a cooler at 4°C. The samples were delivered to the analytical laboratory (Friedman & Bruya, Inc.) under chain-of-custody procedures on the same day. The analytical protocol included measurement of cPAHs using EPA Method 8270C SIM (Selected Ion Mode) without filtration.

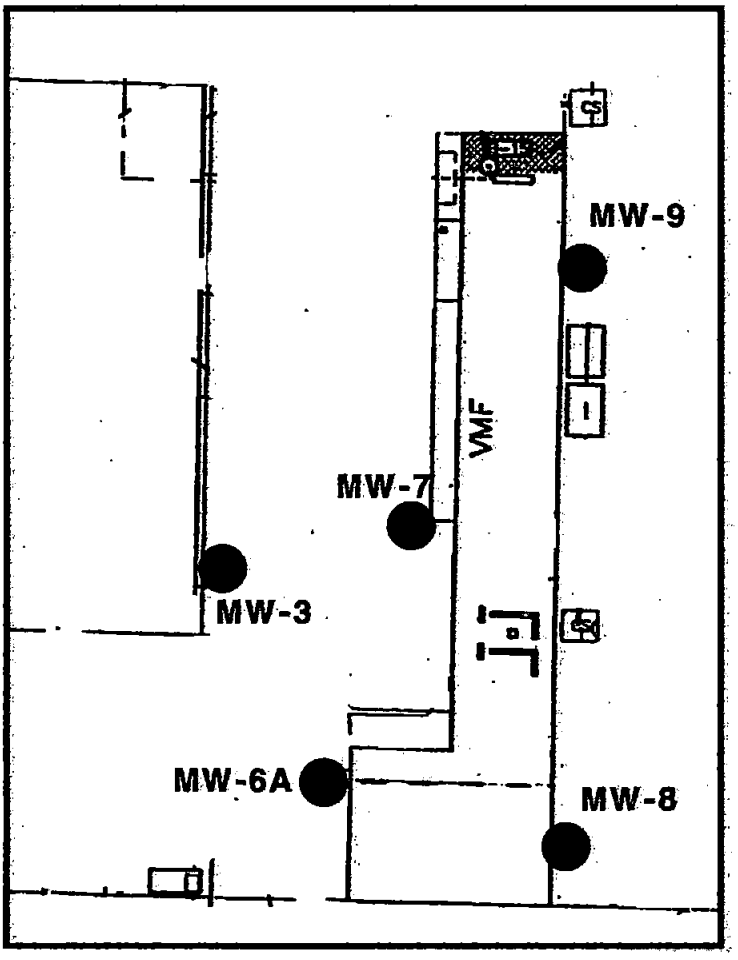

FIGURE 1. Site Map Showing the Locations of the Monitoring Wells Used for Compliance Monitoring at the US Postal Service Seattle General Mail Facility (GMF). North is to the right. Approximate scale is one inch equals 60 feet. Site map is from Dames & Moore (1998).

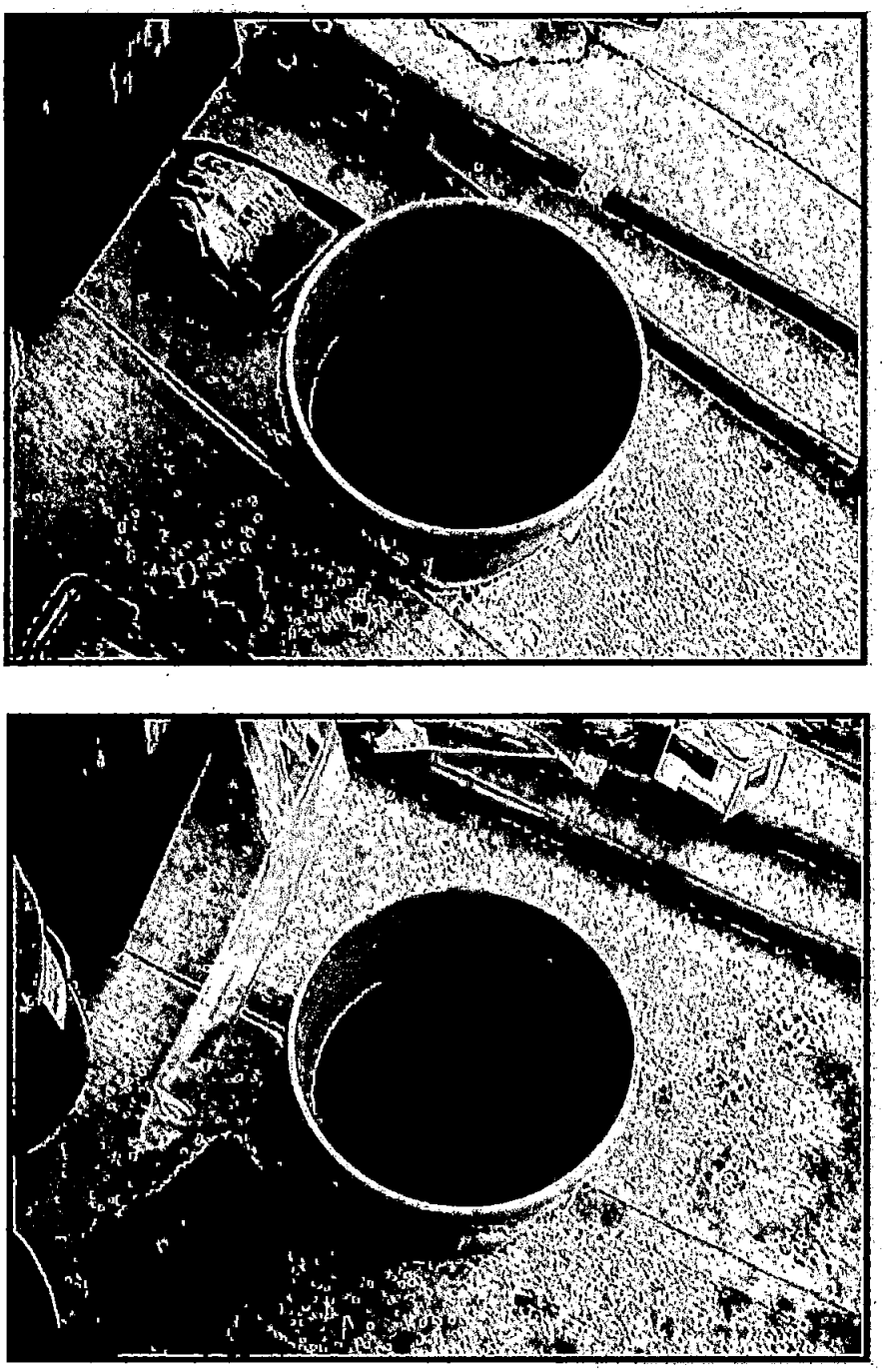

FIGURE 2. Site Photographs from First Compliance Monitoring Event on December 17, 1999. Purge water from MW-6A was moderately turbid with fine black particulates (top). Purge water from MW-8 was highly turbid with reddish-brown sediment (bottom).

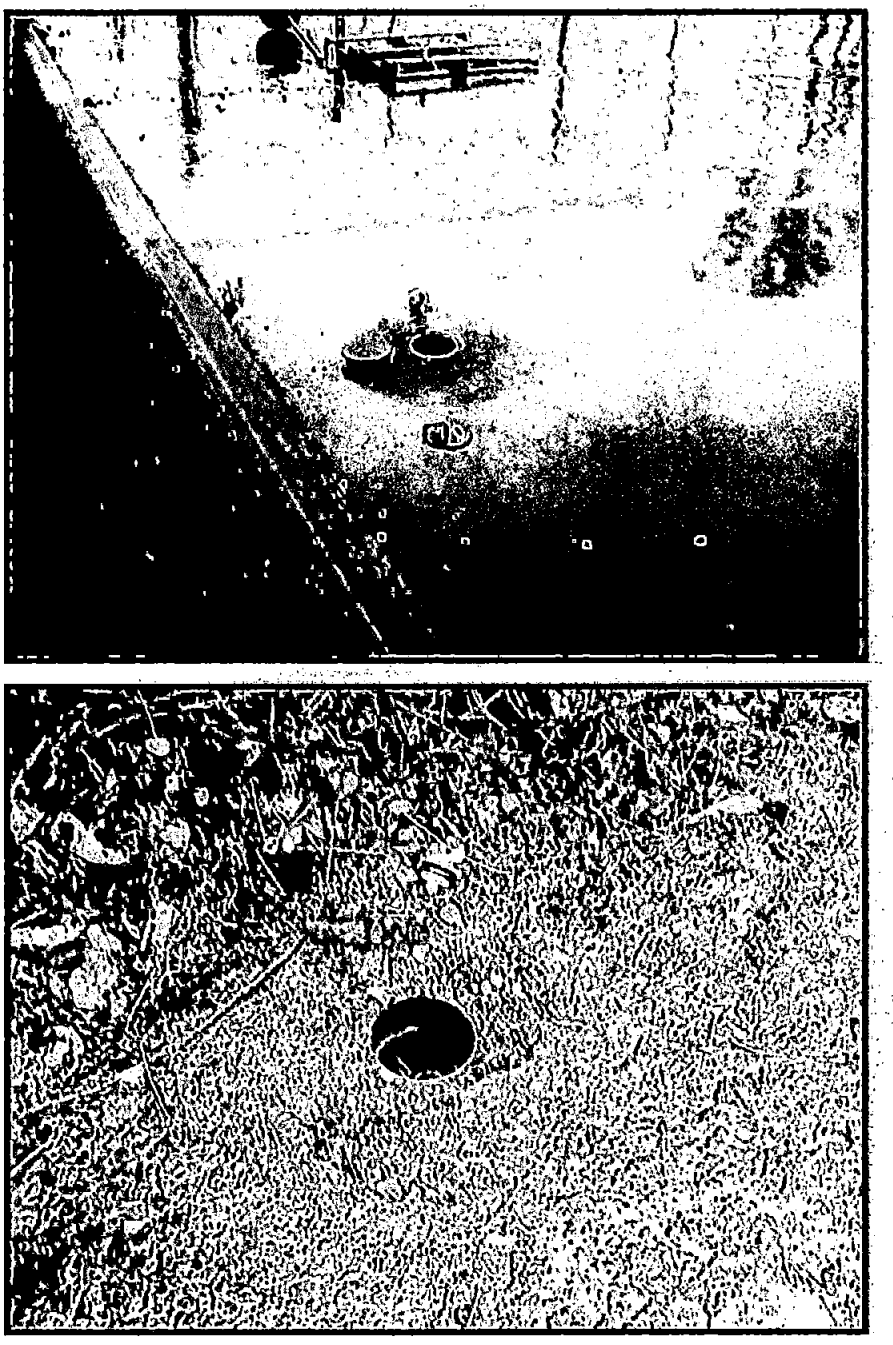

FIGURE 2 (contd). Site Photographs from First Compliance Monitoring Event on December 17, 1999. MW-6A was observed to be in good shape (top). MW-8 was covered by blackberry brambles, missing its well cover (but not its cap), and the interior of the monument cap was filled with sediment and water (bottom).

3.0 GROUNDWATER ANALYSES

The field and analytical results of the first compliance monitoring event are listed in Table 1 below. The elevation of the water table at the site during the compliance sampling ranged from about 9.5 to 10.5 feet above mean sea level. Compared to the previous measurements of Dames & Moore (1998), the water levels measured in December, 1999 are within about 0.5 foot of previous water level measurements recorded on 5/15/98. Current water levels were lower in two wells (MW-3 &6-A) and higher in the other three wells (MW-7,8, & 9). The bottom hole depths for three of the wells (MW-3,7, &9) were the same as reported by Dames & Moore (1998) but the remaining two wells (MW-6A and 8) are currently shallower indicating there may be sediment collecting in these wells.

The analytical results for PAHs using EPA Method 8270C SIM are summarized in Table 1. Those PAHs denoted with a "(c)" are the cPAHs that are part of the compliance monitoring protocol. The full analytical report is attached as Appendix A.

The analytical results indicate that there are PAHs present in all well samples above the detection limit and that there also were cPAHs detected in several of the wells. Carcinogenic PAHs were not detected in wells MW-6A and MW-9, however, there are low levels of acenapthene (a non-carcinogenic PAH) present in these wells. The remaining 3 wells (MW-3, 7, and 8) all contained cPAHs and non-carcinogenic PAHs above the detection limit with the highest levels found in well MW-3. Wells MW-7 and 8 contained several of the cPAHs at levels at or just above the reporting limit of 0.1 µg/L.

The quality assurance for the sample delivery group (Appendix A) was excellent. The accuracy as indicated by the surrogate recovery and recovery of the laboratory control sample (LCS) were all within the acceptance criteria. Sample DS-1 (Appendix A) is a field duplicate sample of sample MW-6A that was submitted to the analytical laboratory as a blind duplicate. Comparison of the analytical results for the MW-6A sample and the blind duplicate (DS-1) suggests a precision based the RPD (relative percent difference) for detection of acenapthene at an acceptable 25%.

The compliance monitoring program requires comparison of cPAHs in groundwater to MTCA Method B cleanup levels in groundwater and surface water. The MTCA Method B cleanup levels are listed on the far right-hand-side of Table 1. All cPAH concentrations exceed the MTCA Method B cleanup levels, however, the 8270C SIM analytical method (even in the Selected Ion Mode) is not sensitive enough to obtain a detection limit (0.1 µg/L) close to the applicable cleanup levels (0.01 - 0.03 µg/L).

TABLE 1. Analytical Results For Groundwater Samples And Depth To Water At The USPS Seattle GMF Facility. All PAH concentrations are in µg/L.

						MTCA Method B Values	
WELL ID	MW-3	MW-6A	MW-7	MW-8	MW-9	Ground Water	Surface Water
DTW (Feet BGS)*	5.07	6.68	6.45	6.43	6.36		
BHD (Feet BGS)*	14.05	12.20	12.95	11.35	12.95		
TOC EL (Feet AMSL)**	14.73	16.48	16.22	16.66	16.25		
GW EL (Feet AMSL)***	9.66	9.80	9.77	10.23	9.89		
Acenapthalene	0.3	0.1U	0.1U	0.1U	0.1U	-----	-----
Acenapthene	15	1.7	0.8	0.1U	0.6	960	643
Anthracene	2.5	0.1U	0.1U	0.1U	0.1U	4800	25900
Benz(a)anthracene (c)	1.0	0.1U	0.1	0.1	0.1U	0.012	0.0296
Benzo(b)fluoranthene	0.8	0.1U	0.1	0.2	0.1U	0.012	0.0296
Benzo(k)fluoranthene (c)	0.9	0.1U	0.2	0.2	0.1U	0.012	0.0296
Benzo(g,h,i)perylene	0.6	0.1U	0.1	0.1	0.1U	-----	-----
Benzo(a)pyrene (c)	1.1	0.1U	0.2	0.2	0.1U	0.012	0.0296
Chrysene (c)	1.4	0.1U	0.2	0.2	0.1U	0.012	0.0296
Dibenzo(a,h)anthracene (c)	0.2	0.1U	0.1U	0.1U	0.1U	0.012	0.0296
Fluoranthene	11	0.1U	0.2	0.2	0.1U	640	90.2
Fluorene	8.2	0.1U	0.1U	0.1U	0.1U	640	3460
Indeno(1,2,3 cd)pyrene (c)	0.5	0.1U	0.1U	0.1	0.1U	0.012	0.0296
Naphthalene	2.5	0.1U	0.1U	0.1U	0.1U	320	9880
Phenanthrene	9.4	0.1U	0.1	0.1	0.1U	-----	-----
Pyrene	9.8	0.1U	0.4	0.3	0.1U	480	2590
(c) signifies a carcinogenic PAH (cPAH).							
U signifies a non-detect value. The value listed is the reporting limit.							
* DTW = Depth To Water Below Ground Surface. BHD = Bottom Hole Depth Be							
Ground Surface. Both values recorded on 12/17/99							
** TOC EL = Top-of-Casing Elevation in Feet Above Mean Sea Level. Data are f							
Dames & Moore (1998).							
*** GW EL = Groundwater Elevation in Feet Above Mean Sea Level Recorded							
on 12/17/99.							

6.0 CONCLUSIONS AND RECOMMENDATIONS

The first compliance monitoring sampling event for U.S. Postal Service (USPS) General Mail Facility (GMF) accomplished the following:

- the required monitoring wells (MW-3, 6A, 7, 8, & 9) were sampled during the wet season and tested for the presence of cPAHs according to the requirements of the Department of Ecology No Further Action (NFA) letter.
- PAHs were found above the detection limits in all wells and cPAHs were found in three of the five monitoring wells.
- The current detection limits, even using EPA Method 8270C SIM, are higher than the regulatory compliance limits.
- The groundwater gradient appears to be from the northeast to the southwest, at approximately 0.006 ft/ft.

The solubilities of cPAHs are typically very low and they also have a very high affinity for adsorption onto soil and sediment particles which can maintain their concentrations in groundwater to below the limit of detection. The analytical results of the first compliance monitoring event may indicate that the cPAHs found at the GMF facility are not dissolved in groundwater but are present instead on particulate matter entrained in the groundwater samples. Two well samples in particular (MW-6A and MW-8) were very turbid water samples and the remaining water samples had some visible particulate matter in the water sample. CESI recommends analysis of a filtered sample (either in the field or by the laboratory) during the next sampling event for an indication of the amounts of cPAHs actually in the groundwater and their mobility in the environment.

CESI also recommends replacement of the well cap on MW-8, and removal of the blackberry brambles from the vicinity.

Recommendations for possible changes in analytical protocol (aimed at lowering detection limits for cPAHs) will be presented following the next sampling event in April, 2000.

7.0 REFERENCES

Dames & Moore, 1998. Report - Soil and Groundwater Investigation at USPS General Mail Facility, Seattle, WA, 16 pp., July 27, 1998.

ICF Kaiser, 1997. Phase I Environmental Site Assessment at General Mail Facility, Seattle, WA, 47pp., October 15, 1997.

ICF Kaiser, 1998. Supplemental Soil and Groundwater Sampling at General Mail Facility, Seattle, WA, 10 pp., October 5, 1998.

ICF Kaiser, 1999. Washington State Model Toxics Control Act, Method C Calculations for the General Mail Facility, Seattle, WA, 6 pp., letter report dated January 21, 1999.

APPENDIX A

LABORATORY ANALYTICAL REPORT

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Charlene Jensen, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
FAX: (206) 283-5044
e-mail: fbi@isomedia.com

January 7, 2000

Bob Erikson, Project Manager
Columbia Environmental Services, Inc.
8428 West Gage Boulevard, #104
Kennewick, WA 99336

Dear Mr. Erickson:

Included are the results from the testing of material submitted on December 17, 1999 from your USPS SSPO, PO# 239-01 project. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Diane C. Hunt for

Charlene Jensen
Chemist

Enclosures
COL0107R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PNA Compounds By 8270C SIM Method

Client Sample ID:	MW-6A	Client:	Columbia Environmental Services
Date Received:	12/17/00	Project:	USPS SSPO, PO# 239-01
Date Extracted:	12/20/99	Lab ID:	912092-01
Date Analyzed:	12/29/99	Data File:	122904.D
Matrix:	Water	Instrument:	GCMS#2
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery	Lower Limit	Upper Limit
Anthracene-d10	81	50	150
Benzo(a)anthracene-d12	98	50	150

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.1
Acenaphthylene	<0.1
Acenaphthene	1.7
Fluorene	<0.1
Phenanthrene	<0.1
Anthracene	<0.1
Fluoranthene	<0.1
Pyrene	<0.1
Benz(a)anthracene	<0.1
Chrysene	<0.1
Benzo(b)fluoranthene	<0.1
Benzo(k)fluoranthene	<0.1
Benzo(a)pyrene	<0.1
Indeno(1,2,3-cd)pyrene	<0.1
Dibenzo(a,h)anthracene	<0.1
Benzo(g,h,i)perylene	<0.1

Analysis For PNA Compounds By 8270C SIM Method

Client Sample ID:	MW-3	Client:	Columbia Environmental Services
Date Received:	12/17/00	Project:	USPS SSPO, PO# 239-01
Date Extracted:	12/20/99	Lab ID:	912092-02
Date Analyzed:	12/30/99	Data File:	123012.D
Matrix:	Water	Instrument:	GCMS#2
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery	Lower Limit	Upper Limit
Anthracene-d10	81	50	150
Benzo(a)anthracene-d12	103	50	150

Compounds:	Concentration ug/L (ppb)
Naphthalene	2.5
Acenaphthylene	0.3
Acenaphthene	15
Fluorene	8.2
Phenanthrene	9.4
Anthracene	2.5
Fluoranthene	11
Pyrene	9.8
Benz(a)anthracene	1.0
Chrysene	1.4
Benzo(b)fluoranthene	0.8
Benzo(k)fluoranthene	0.9
Benzo(a)pyrene	1.1
Indeno(1,2,3-cd)pyrene	0.5
Dibenzo(a,h)anthracene	0.2
Benzo(g,h,i)perylene	0.6

Analysis For PNA Compounds By 8270C SIM Method

Client Sample ID:	MW-7	Client:	Columbia Environmental Services
Date Received:	12/17/00	Project:	USPS SSPO, PO# 239-01
Date Extracted:	12/20/99	Lab ID:	912092-03
Date Analyzed:	12/30/99	Data File:	123005.D
Matrix:	Water	Instrument:	GCMS#2
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery	Lower Limit	Upper Limit
Anthracene-d10	75	50	150
Benzo(a)anthracene-d12	95	50	150

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.1
Acenaphthylene	<0.1
Acenaphthene	0.8
Fluorene	<0.1
Phenanthrene	0.1
Anthracene	<0.1
Fluoranthene	0.2
Pyrene	0.4
Benz(a)anthracene	0.1
Chrysene	0.2
Benzo(b)fluoranthene	0.1
Benzo(k)fluoranthene	0.2
Benzo(a)pyrene	0.2
Indeno(1,2,3-cd)pyrene	<0.1
Dibenzo(a,h)anthracene	<0.1
Benzo(g,h,i)perylene	0.1

Analysis For PNA Compounds By 8270C SIM Method

Client Sample ID:	MW-9	Client:	Columbia Environmental Services
Date Received:	12/17/00	Project:	USPS SSPO, PO# 239-01
Date Extracted:	12/20/99	Lab ID:	912092-04
Date Analyzed:	12/30/99	Data File:	123006.D
Matrix:	Water	Instrument:	GCMS#2
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery	Lower Limit	Upper Limit
Anthracene-d10	67	50	150
Benzo(a)anthracene-d12	82	50	150

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.1
Acenaphthylene	<0.1
Acenaphthene	0.6
Fluorene	<0.1
Phenanthrene	<0.1
Anthracene	<0.1
Fluoranthene	<0.1
Pyrene	<0.1
Benz(a)anthracene	<0.1
Chrysene	<0.1
Benzo(b)fluoranthene	<0.1
Benzo(k)fluoranthene	<0.1
Benzo(a)pyrene	<0.1
Indeno(1,2,3-cd)pyrene	<0.1
Dibenzo(a,h)anthracene	<0.1
Benzo(g,h,i)perylene	<0.1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PNA Compounds By 8270C SIM Method

Client Sample ID:	MW-8	Client:	Columbia Environmental Services
Date Received:	12/17/00	Project:	USPS SSPO, PO# 239-01
Date Extracted:	12/20/99	Lab ID:	912092-05
Date Analyzed:	12/30/99	Data File:	123007.D
Matrix:	Water	Instrument:	GCMS#2
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery	Lower Limit	Upper Limit
Anthracene-d10	77	50	150
Benzo(a)anthracene-d12	95	50	150

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.1
Acenaphthylene	<0.1
Acenaphthene	<0.1
Fluorene	<0.1
Phenanthrene	0.1
Anthracene	<0.1
Fluoranthene	0.2
Pyrene	0.3
Benz(a)anthracene	0.1
Chrysene	0.2
Benzo(b)fluoranthene	0.2
Benzo(k)fluoranthene	0.2
Benzo(a)pyrene	0.2
Indeno(1,2,3-cd)pyrene	0.1
Dibenzo(a,h)anthracene	<0.1
Benzo(g,h,i)perylene	0.1

Analysis For PNA Compounds By 8270C SIM Method

Client Sample ID:	DS-1	Client:	Columbia Environmental Services
Date Received:	12/17/00	Project:	USPS SSPO, PO# 239-01
Date Extracted:	12/20/99	Lab ID:	912092-07
Date Analyzed:	12/30/99	Data File:	123008.D
Matrix:	Water	Instrument:	GCMS#2
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery	Lower Limit	Upper Limit
Anthracene-d10	80	50	150
Benzo(a)anthracene-d12	91	50	150

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.1
Acenaphthylene	<0.1
Acenaphthene	2.0
Fluorene	<0.1
Phenanthrene	0.1
Anthracene	<0.1
Fluoranthene	<0.1
Pyrene	<0.1
Benz(a)anthracene	<0.1
Chrysene	<0.1
Benzo(b)fluoranthene	<0.1
Benzo(k)fluoranthene	<0.1
Benzo(a)pyrene	<0.1
Indeno(1,2,3-cd)pyrene	<0.1
Dibenzo(a,h)anthracene	<0.1
Benzo(g,h,i)perylene	<0.1

Analysis For PNA Compounds By 8270C SIM Method

Client Sample ID:	Method Blank	Client:	Columbia Environmental Services
Date Received:	12/17/00	Project:	USPS SSPO, PO# 239-01
Date Extracted:	12/20/99	Lab ID:	09-601 mb
Date Analyzed:	12/28/99	Data File:	122805.D
Matrix:	Water	Instrument:	GCMS#2
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery	Lower Limit	Upper Limit
Anthracene-d10	85	50	150
Benzo(a)anthracene-d12	97	50	150

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.1
Acenaphthylene	<0.1
Acenaphthene	<0.1
Fluorene	<0.1
Phenanthrene	<0.1
Anthracene	<0.1
Fluoranthene	<0.1
Pyrene	<0.1
Benz(a)anthracene	<0.1
Chrysene	<0.1
Benzo(b)fluoranthene	<0.1
Benzo(k)fluoranthene	<0.1
Benzo(a)pyrene	<0.1
Indeno(1,2,3-cd)pyrene	<0.1
Dibenzo(a,h)anthracene	<0.1
Benzo(g,h,i)perylene	<0.1

Date of Report: 01/07/00
Date Received: 12/17/99
Project: USPS SSPO, PO# 239-01

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR PNA'S BY EPA METHOD 8270C SIM

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	% Recovery LCS	% Recovery LCSD	Acceptance Criteria	RPD
Napthalene	µg/L (ppb)	5	93	99	56-126	6
Acenapthylene	µg/L (ppb)	5	92	99	61-128	7
Acenapthene	µg/L (ppb)	5	89	99	63-124	11
Fluorene	µg/L (ppb)	5	94	101	64-130	7
Phenanthrene	µg/L (ppb)	5	88	97	69-124	9
Anthracene	µg/L (ppb)	5	84	92	68-122	10
Fluoranthene	µg/L (ppb)	5	82	88	73-129	6
Pyrene	µg/L (ppb)	5	80	86	68-125	7
Benz(a)anthracene	µg/L (ppb)	5	85	86	69-122	1
Chrysene	µg/L (ppb)	5	88	93	68-122	6
Benzo(b)fluoranthene	µg/L (ppb)	5	126	108	67-132	15
Benzo(k)fluoranthene	µg/L (ppb)	5	104	121	68-132	15
Benzo(a)pyrene	µg/L (ppb)	5	108	105	71-132	3
Indeno(1,2,3-cd)pyrene	µg/L (ppb)	5	108	97	58-130	11
Dibenzo(a,h)anthracene	µg/L (ppb)	5	115	100	59-137	14
Benzo(g,h,i)perylene	µg/L (ppb)	5	102	93	58-130	9

FRIEDMAN & BRUYA, INC.
3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282

CJ 12/17/99 DO 2

91209Z

SAMPLE CHAIN OF CUSTODY

Send Report To:
Company Bob Erikson / CEST Contact Bob Erikson
Address 8428 W. Gage Blvd. #104
City, State, Zip Kennewick, WA 99336
Phone # 509-783-5571 FAX # 509-783-7938 Date 12/17/99

SITE NO.	PROJECT NAME	PURCHASE ORDER #
#239	USPS SSPO	239-01

SAMPLERS *(signature)*: Robert L Erikson

PROJECT LOCATION: Seattle

REMARKS: See Kurt for instructions

SAMPLE DISPOSAL INFORMATION
- [x] Dispose after 30 days
- [ ] Return Samples
- [ ] Call for Instructions

Sample #	Date/Time Sampled	Type of Sample	# of Jars	Lab Sample #	Analyses Requested
MW-6A	12/17/99-0953	Water	1	01	8270 SIM
MW-3	12/17/99-1045			02	
MW-7	12/17/99-1102			03	
MW-9	12/17/99-1126			04	
MW-8	12/17/99-1143			05	
	12/17/99-				
PW-1	12/17/99-1155		1	06	NWTPH-Dx
DS-1	12/17/99-1000		1	07	8270 SIM

	SIGNATURE	PRINT NAME	COMPANY	Date	Time
Relinquished by:	Robert L Erikson	R L Erikson	CESI	12/17/99	1418
Received by:	S. Olson	S. Olson	F&B, Inc.	12/17/99	14:19
Relinquished by:					
Received by:					