PBS | Engineering + Environmental

September 12, 2011

John Reeves
Roy Farms, Inc.
401 Walters Road
Moxee, Washington 98936

Re: July 2011 Quarterly Monitoring, Yakima County Parcel #201208-31001.
PBS Project No. 62357.003

Dear Mr. Reeves:

PBS Engineering + Environmental (PBS) is pleased to provide the results of quarterly groundwater monitoring and testing at the above referenced location. The monitoring was completed at three monitoring wells located to the north of the shop building, and a fourth well constructed in November 2010 downgradient and to the northwest of the shop. This report summarizes the most recent activities and monitoring at the site.

The fuel leakage was discovered during a Phase II Environmental Site Assessment in the spring of 2009. As a good faith effort, Roy Farms completed a large excavation based remedial action; some of the contamination was left in place because to remove that soil would have destabilized the adjacent shop building foundation. Contaminated soil from the remedial action was land farmed and bio-remediated on the subject property, nearby and to the northeast of the remedial action area (analytical results from the land farmed soil were found to be remediated to below cleanup levels in April 2010). After removing contaminated soil, the pit was backfilled with clean soil and the wells were installed. The wells have been sampled consistently and were last sampled in March 2011.

Roy Farms had a meeting with the WDOE on May 9, 2011, with PBS onsite. During that meeting WDOE indicated that they were still available to provide oversight through the VCP. They also indicated that they were available for limited consultation outside of the VCP and used the meeting to convey concerns about the site and environmental issues. PBS and Roy Farms had expressed a desire to complete long-term monitoring that may result in cleanup by natural attenuation. WDOE was uncomfortable with the idea of using natural attenuation without considering further natural attenuation testing. They indicated that they wanted PBS and Roy Farms to use the guidance document for natural attenuation (WDOE Publication #05-09-091). WDOE recommended that sampling be completed for manganese or reduced iron and nitrates; they also indicated a slug test was necessary.

PBS completed the July 2011 groundwater testing in the four wells on July 5, 2011. The samples were submitted to the Friedman and Bruya Laboratory in Seattle, Washington. All analysis was completed for gasoline (NWTPH-Gx), benzene, toluene, ethylbenzene and xylenes (BTEX), and diesel (NWTPH-Dx). Table 1 presents a summary of the water samples and analytical results from July 2011. Laboratory analytical reports are included with this report as an attachment.

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Table #1 - Monitoring Well Sample Results

Sample #	Sample Date	Depth to Water (feet)	pH	Conductivity micromhos/cm	Temp °C	ORP millivolts	Gasoline	BTEX	Diesel/Oil
MW #1	7/5/11	16.86	7.08	1391	13.2	+101	110	**23**/ND/ND/2.7	ND/ND
MW #2	7/5/11	20.65	6.90	1384	14.2	+92	**2,400**	**1,500**/12/ND/100	210*/ND
MW #3	7/5/11	17.80	6.88	1586	13.6	-30	**71,000**	**19,000/5,100/1,200/ 6,100**	**3,500*/** ND
MW #4	7/5/11	12.88	7.77	221	12.9	+92	ND	ND/ND/NDND	ND/ND
Cleanup Levels							800	5/1,000/700/1000	500/500

Note: Analytical results in micrograms/Liter (ug/L).
*Lab data qualifier indicates that the diesel detected was due to overlap from gasoline contamination
ND = Constituent not detected
BTEX = Benzene, Toluene, Ethylbenzene, Xylenes
Bold results exceed WDOE – Method A Cleanup Levels

Table 2 summarizes additional groundwater analysis that was conducted on the samples collected in July 2011. Methyl t-butyl ether (MTBE), naphthalene, manganese, and lead were analyzed as a further check of what is present in the groundwater in accordance with natural attenuation monitoring. The laboratory analytical report for Table 2 is attached to this report.

Table #2 - Monitoring Well Sample Results

Sample #	Date	Dissolved O_2	MTBE ug/L	Manganese ug/L	Naphthalene ug/L	Lead ug/L	Nitrate mg/L
MW #1	7/5/11	3.8	ND	NA	4.0	NA	NA
MW #2	7/5/11	3.2	ND	NA	ND	NA	NA
MW #3	7/5/11	3.6	**110**	4,110	350	ND	2.35

Sample #	Date	Dissolved O_2	MTBE ug/L	Manganese ug/L	Naphthalene ug/L	Lead ug/L	Nitrate mg/L
MW #4	7/5/11	6.5	ND	NA	ND	NA	NA
Cleanup Levels			20		160	15	10

Note: Analytical results in micrograms/Liter (ug/L) or milligrams/Liter (mg/L)
ND = Constituent not detected
NA = Not analyzed
Bold results exceed WDOE – Method A Cleanup Levels

FINDINGS

Groundwater sample results found that state regulations were exceeded in MW#1, 2 and 3. Monitoring well MW#4, located approximately 270 feet northwest of MW#3, did not have any contamination, with all analyses below laboratory detection limits.

PBS continued to collect groundwater parameter data during sampling, as presented in Table 1. PBS observed that the oxidation reduction potential (ORP) appears to help provide a field indication of contamination, with a negative ORP value observed in highly contaminated well MW#3. The recently installed monitoring well, MW #4 had lower conductivity than the wells closer to the original contamination source and a higher pH and lower temperature. Some groundwater mixing with the nearby canal may be influencing MW#4.

A significant finding of the groundwater monitoring is that no contamination was detected in MW #4. This information suggests that contamination is not leaving the Roy Farms property. Results indicate that contamination is currently confined to the subject property near the northerly end of the shop.

With further fuel leakage into the aquifer stopped by source removal, PBS anticipates that slow long-term improvement in groundwater quality will occur.

SLUG TEST RESULTS

In accordance with a WDOE suggestion, PBS also completed a slug test in MW#3 on July 5, 2011, to aid in natural attenuation monitoring. A full sized, weighted slug (10' long x 0.141' diameter) was prepared by PBS to aid in completing the test. The base of the well is at 30 feet depth and static water level was 17.80 feet. Data review and calculations by PBS are ongoing.

NATURAL ATTENUATION:

Currently, work at the site continues forward as an independent or interim action. The meeting with the WDOE in May 2011 helped to clarify the future of this site. More all inclusive natural attenuation monitoring should be completed, with data compilation toward completing a Remedial Investigation (RI). Since no immediate health

and safety concerns were noted, enough long term data should be collected to observe trends before an RI or Feasibility Study (FS) is considered.

Various factors at the site help support the future of natural attenuation. In accordance with WDOE natural attenuation recommendations, a source control action has already occurred (soil excavation based remedial action). Contamination does not appear to be leaving the site, nor is the contaminated aquifer in use. No free product has been detected by using gauging paste in wells.

Further long-term and natural attenuation monitoring needs to be completed before full determination of whether natural attenuation is applicable to this site can be determined, with recommendations as provided below.

RECOMMENDATIONS

Further groundwater monitoring is recommended for the four wells, which would be planned to continue in late December 2011 or early January 2011 (sampling twice a year).

Further natural attenuation sampling is recommended, including sampling more specificly to determine the oxidation/reduction potential at the site. Oxidation/reduction comparisons should be completed between results at MW#1 and MW#3. Tested geochemical indicators for O_2, NO_3^-, Mn^{+2}, Fe^{+2}, SO_4^{-2}, CH_4, redox potential and alkalinity should be completed. Consideration should be given to adding an upgradient well and also a well approximately 100 feet northwest of MW #3

Roy Farms reports need to be submitted to WDOE.

LIMITATIONS

This work was performed in accordance with the generally accepted practices of consultants undertaking similar studies at the same time and in the same geographical area. PBS observed a degree of care and skill generally exercised by other consultants under similar circumstances and conditions. Findings and conclusions must be considered not as scientific certainties, but as opinions based on professional judgment concerning the significance of the data gathered during the course of monitoring. Other than this, no warranty is implied or intended.

We appreciate the opportunity to provide this report. If you have any questions or need further services please contact us at (509)735-2698.

Prepared and submitted by:

Averie Powell
Staff Geologist

Dana Ertel, LG
Reviewer

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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July 18, 2011

Dana Ertel, Project Manager
PBS Engineering and Environmental, Inc.
320 N. Johnson St. Suite 700
Kennewick, WA 99336

Dear Mr. Ertel:

Included are the results from the testing of material submitted on July 7, 2011 from the 62357.00, F&BI 107058 project. There are 24 pages included in this report. 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.

Michael Erdahl
Project Manager

Enclosures
c: Paul Danielson
PBS0718R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on July 7, 2011 by Friedman & Bruya, Inc. from the PBS Engineering and Environmental 62357.00, F&BI 107058 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	PBS Engineering and Environmental
107058-01	62357.00-3
107058-02	62357.00-2
107058-03	62357.00-1
107058-04	62357.00-4

Sample 62357.00-3 was sent to Aquatic Research for nitrate analysis. Review of the enclosed report indicates that all quality assurance were acceptable.

All quality control requirements were acceptable.

Date of Report: 07/18/11
Date Received: 07/07/11
Project: 62357.00, F&BI 107058
Date Extracted: 07/07/11
Date Analyzed: 07/07/11

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
62357.00-3 107058-01 1/40	71,000	117
62357.00-2 107058-02	2,400	126
62357.00-1 107058-03	110	103
62357.00-4 107058-04	<100	100
Method Blank 01-1213 MB	<100	98

Date of Report: 07/18/11
Date Received: 07/07/11
Project: 62357.00, F&BI 107058
Date Extracted: 07/08/11
Date Analyzed: 07/11/11

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 50-150)
62357.00-3 107058-01	3,500 x	<250	107
62357.00-2 107058-02	210 x	<250	98
62357.00-1 107058-03	<50	<250	104
62357.00-4 107058-04	<50	<250	110
Method Blank 01-1216 MB	<50	<250	117

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	62357.00-3	Client:	PBS Engineering and Environmental
Date Received:	07/07/11	Project:	62357.00, F&BI 107058
Date Extracted:	07/07/11	Lab ID:	107058-01
Date Analyzed:	07/08/11	Data File:	107058-01.022
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	79	60	125
Holmium	93	60	125

Analyte:	Concentration ug/L (ppb)
Lead	<1
Manganese	4,110

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	PBS Engineering and Environmental
Date Received:	NA	Project:	62357.00, F&BI 107058
Date Extracted:	07/07/11	Lab ID:	I1-464 mb
Date Analyzed:	07/08/11	Data File:	I1-464 mb.010
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	86	60	125
Holmium	89	60	125

Analyte:	Concentration ug/L (ppb)
Lead	<1
Manganese	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	62357.00-3	Client:	PBS Engineering and Environmental
Date Received:	07/07/11	Project:	62357.00, F&BI 107058
Date Extracted:	07/08/11	Lab ID:	107058-01 1/100
Date Analyzed:	07/08/11	Data File:	070812.D
Matrix:	Water	Instrument:	GCMS5
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	63	127
Toluene-d8	99	65	127
4-Bromofluorobenzene	101	40	157

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	110
Benzene	22,000 ve
Toluene	5,100
Ethylbenzene	1,200
m,p-Xylene	4,700
o-Xylene	1,400
Naphthalene	350
Hexane	220

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	62357.00-3	Client:	PBS Engineering and Environmental
Date Received:	07/07/11	Project:	62357.00, F&BI 107058
Date Extracted:	07/12/11	Lab ID:	107058-01 1/1000
Date Analyzed:	07/12/11	Data File:	071210.D
Matrix:	Water	Instrument:	GCMS5
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	95	63	127
Toluene-d8	100	65	127
4-Bromofluorobenzene	104	40	157

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1,000
Benzene	19,000
Toluene	4,800
Ethylbenzene	1,200
m,p-Xylene	4,200
o-Xylene	1,300
Naphthalene	<1,000
Hexane	<1,000

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	62357.00-2	Client:	PBS Engineering and Environmental
Date Received:	07/07/11	Project:	62357.00, F&BI 107058
Date Extracted:	07/08/11	Lab ID:	107058-02 1/10
Date Analyzed:	07/08/11	Data File:	070811.D
Matrix:	Water	Instrument:	GCMS5
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	63	127
Toluene-d8	99	65	127
4-Bromofluorobenzene	100	40	157

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<10
Benzene	1,500
Toluene	12
Ethylbenzene	<10
m,p-Xylene	<20
o-Xylene	100
Naphthalene	<10
Hexane	65

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	62357.00-1	Client:	PBS Engineering and Environmental
Date Received:	07/07/11	Project:	62357.00, F&BI 107058
Date Extracted:	07/08/11	Lab ID:	107058-03
Date Analyzed:	07/08/11	Data File:	070806.D
Matrix:	Water	Instrument:	GCMS5
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	63	127
Toluene-d8	99	65	127
4-Bromofluorobenzene	104	40	157

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
Benzene	23
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	2.7
Naphthalene	4.0
Hexane	2.3

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	62357.00-4	Client:	PBS Engineering and Environmental
Date Received:	07/07/11	Project:	62357.00, F&BI 107058
Date Extracted:	07/08/11	Lab ID:	107058-04
Date Analyzed:	07/08/11	Data File:	070807.D
Matrix:	Water	Instrument:	GCMS5
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	63	127
Toluene-d8	99	65	127
4-Bromofluorobenzene	102	40	157

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1
Naphthalene	<1
Hexane	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	PBS Engineering and Environmental
Date Received:	NA	Project:	62357.00, F&BI 107058
Date Extracted:	07/08/11	Lab ID:	01-1189 mb
Date Analyzed:	07/08/11	Data File:	070805.D
Matrix:	Water	Instrument:	GCMS5
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	63	127
Toluene-d8	99	65	127
4-Bromofluorobenzene	107	40	157

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1
Naphthalene	<1
Hexane	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	PBS Engineering and Environmental
Date Received:	NA	Project:	62357.00, F&BI 107058
Date Extracted:	07/12/11	Lab ID:	01-1196 mb
Date Analyzed:	07/12/11	Data File:	071205.D
Matrix:	Water	Instrument:	GCMS5
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	63	127
Toluene-d8	99	65	127
4-Bromofluorobenzene	105	40	157

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1
Naphthalene	<1
Hexane	<1

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	62357.00-3	Client:	PBS Engineering and Environmental
Date Received:	07/07/11	Project:	62357.00, F&BI 107058
Date Extracted:	07/08/11	Lab ID:	107058-01 1/100
Date Analyzed:	07/11/11	Data File:	071104.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	0 ds	50	150
Benzo(a)anthracene-d12	127	50	129

Compounds:	Concentration ug/L (ppb)
Naphthalene	230
2-Methylnaphthalene	58
1-Methylnaphthalene	32

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	62357.00-2	Client:	PBS Engineering and Environmental
Date Received:	07/07/11	Project:	62357.00, F&BI 107058
Date Extracted:	07/08/11	Lab ID:	107058-02
Date Analyzed:	07/08/11	Data File:	070808.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	88	50	150
Benzo(a)anthracene-d12	85	50	129

Compounds:	Concentration ug/L (ppb)
Naphthalene	1.2
2-Methylnaphthalene	2.3
1-Methylnaphthalene	2.0

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	62357.00-1	Client:	PBS Engineering and Environmental
Date Received:	07/07/11	Project:	62357.00, F&BI 107058
Date Extracted:	07/08/11	Lab ID:	107058-03
Date Analyzed:	07/08/11	Data File:	070807.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	96	50	150
Benzo(a)anthracene-d12	89	50	129

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.1
2-Methylnaphthalene	<0.1
1-Methylnaphthalene	<0.1

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	62357.00-4	Client:	PBS Engineering and Environmental
Date Received:	07/07/11	Project:	62357.00, F&BI 107058
Date Extracted:	07/08/11	Lab ID:	107058-04
Date Analyzed:	07/08/11	Data File:	070806.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	88	50	150
Benzo(a)anthracene-d12	85	50	129

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.1
2-Methylnaphthalene	<0.1
1-Methylnaphthalene	<0.1

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	PBS Engineering and Environmental
Date Received:	NA	Project:	62357.00, F&BI 107058
Date Extracted:	07/08/11	Lab ID:	01-1215 mb
Date Analyzed:	07/08/11	Data File:	070805.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	75	50	150
Benzo(a)anthracene-d12	77	50	129

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.1
2-Methylnaphthalene	<0.1
1-Methylnaphthalene	<0.1

Date of Report: 07/18/11
Date Received: 07/07/11
Project: 62357.00, F&BI 107058

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 107043-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference (Limit 20)
Gasoline	ug/L (ppb)	<100	<100	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	102	70-119

Date of Report: 07/18/11
Date Received: 07/07/11
Project: 62357.00, F&BI 107058

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	103	103	63-142	0

Date of Report: 07/18/11
Date Received: 07/07/11
Project: 62357.00, F&BI 107058

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR DISSOLVED METALS USING EPA METHOD 200.8

Laboratory Code: 107060-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Lead	ug/L (ppb)	10	<1	105	105	76-125	0
Manganese	ug/L (ppb)	20	1.53	97	99	50-150	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	ug/L (ppb)	10	104	67-135
Manganese	ug/L (ppb)	20	96	70-130

Date of Report: 07/18/11
Date Received: 07/07/11
Project: 62357.00, F&BI 107058

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Hexane	ug/L (ppb)	50	105	103	63-149	2
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	101	107	54-156	6
Benzene	ug/L (ppb)	50	102	104	77-121	2
Toluene	ug/L (ppb)	50	104	104	81-113	0
Ethylbenzene	ug/L (ppb)	50	104	103	83-116	1
m,p-Xylene	ug/L (ppb)	100	105	106	84-120	1
o-Xylene	ug/L (ppb)	50	105	106	83-120	1
Naphthalene	ug/L (ppb)	50	109	110	66-135	1

Date of Report: 07/18/11
Date Received: 07/07/11
Project: 62357.00, F&BI 107058

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 107083-07 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Hexane	ug/L (ppb)	50	<1	102	39-154
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	93	49-139
Benzene	ug/L (ppb)	50	<0.35	94	62-144
Toluene	ug/L (ppb)	50	<1	97	68-131
Ethylbenzene	ug/L (ppb)	50	<1	100	51-150
m,p-Xylene	ug/L (ppb)	100	<2	101	72-137
o-Xylene	ug/L (ppb)	50	<1	98	67-133
Naphthalene	ug/L (ppb)	50	<1	95	40-166

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Hexane	ug/L (ppb)	50	100	97	63-149	3
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	95	100	54-156	5
Benzene	ug/L (ppb)	50	95	96	77-121	1
Toluene	ug/L (ppb)	50	98	98	81-113	0
Ethylbenzene	ug/L (ppb)	50	99	98	83-116	1
m,p-Xylene	ug/L (ppb)	100	102	101	84-120	1
o-Xylene	ug/L (ppb)	50	98	100	83-120	2
Naphthalene	ug/L (ppb)	50	95	101	66-135	6

Date of Report: 07/18/11
Date Received: 07/07/11
Project: 62357.00, F&BI 107058

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	1	93	81	64-100	14
2-Methylnaphthalene	ug/L (ppb)	1	96	84	41-130	13
1-Methylnaphthalene	ug/L (ppb)	1	97	85	64-109	13

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 – More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

fc – The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

AQUATIC RESEARCH INCORPORATED

LABORATORY & CONSULTING SERVICES

3927 AURORA AVENUE NORTH, SEATTLE, WA 98103

PHONE: (206) 632-2715 FAX: (206) 632-2417

CASE FILE NUMBER:	**FBI008-35**	**PAGE 1**	
REPORT DATE:	**07/12/11**		
DATE SAMPLED:	**07/05/11**	**DATE RECEIVED:**	**07/07/11**

FINAL REPORT, LABORATORY ANALYSIS OF SELECTED PARAMETERS ON WATER SAMPLES FROM FRIEDMAN & BRUYA, INC. / PROJECT NO. 107058

CASE NARRATIVE

One water sample was received by the laboratory in good condition and analyzed according to the chain of custody. No difficulties were encountered in the preparation or analysis of this sample. Sample data follows while QA/QC data is contained on subsequent pages.

SAMPLE DATA

SAMPLE ID	NITRATE (mg/L)
62357.00-3	2.35

AQUATIC RESEARCH INCORPORATED

LABORATORY & CONSULTING SERVICES

3927 AURORA AVENUE NORTH, SEATTLE, WA 98103

PHONE: (206) 632-2715 FAX: (206) 632-2417

CASE FILE NUMBER:	**FBI008-35**	**PAGE 2**	
REPORT DATE:	**07/12/11**		
DATE SAMPLED:	**07/05/11**	**DATE RECEIVED:**	**07/07/11**

FINAL REPORT, LABORATORY ANALYSIS OF SELECTED PARAMETERS ON WATER SAMPLES FROM FRIEDMAN & BRUYA, INC. / PROJECT NO. 107058

QA/QC DATA

QC PARAMETER	NITRATE (mg/L)
METHOD	SM184500N03F
DATE ANALYZED	07/07/11
DETECTION LIMIT	0.010
DUPLICATE	
SAMPLE ID	BATCH
ORIGINAL	0.032
DUPLICATE	0.031
RPD	4.28%
SPIKE SAMPLE	
SAMPLE ID	BATCH
ORIGINAL	0.032
SPIKED SAMPLE	0.233
SPIKE ADDED	0.200
% RECOVERY	100.35%
QC CHECK	
FOUND	0.412
TRUE	0.408
% RECOVERY	100.94%
BLANK	<0.010

RPD = RELATIVE PERCENT DIFFERENCE.
NA = NOT APPLICABLE OR NOT AVAILABLE.
NC = NOT CALCULABLE DUE TO ONE OR MORE VALUES BEING BELOW THE DETECTION LIMIT.
OR = RECOVERY NOT CALCULABLE DUE TO SPIKE SAMPLE OUT OF RANGE OR SPIKE TO LOW RELATIVE TOO SAMPLE CONCENTRATION.

SUBMITTED BY:

Steven Lazoff
Laboratory Director

SUBCONTRACT SAMPLE CHAIN OF CUSTODY

FB1008-35

Page # 1 of 1

Send Report To Michael Erdahl

Company Friedman and Bruya, Inc.

Address 3012 16th Ave W

City, State, ZIP Seattle, WA 98119

Phone # (206) 285-8282 Fax # (206) 283-5044

SUBCONTRACTER Ag. Research

PROJECT NAME/NO. 107058

PO # B-171

REMARKS

Please Email Results
merdahl@friedmanandbruya.com

TURNAROUND TIME
☒ Standard (2 Weeks)
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	ANALYSES REQUESTED: Oil and Grease	EPH	VPH	Nitrate	Sulfate	Alkalinity					Notes
62357.00-3		7/5/11	2PM	W	1				X							

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Michael Erdahl	Friedman & Bruya	7/7/11	11:10AM.
Received by:		S. HIGSON	ARI	7/7/11	1230
Relinquished by:					
Received by:					

107058

SAMPLE CHAIN OF CUSTODY

ME 7/7/11 V2/AI4/A04

Page # _____ of _____

Send Report To Dan Ertel / Pat Drumheller

Company PBS Environmental

Address 320 N. Johnson #700

City, State, ZIP Kennewick WA 99336

Phone # 509 735-2697 Fax # _____

SAMPLERS *(signature)*

PROJECT NAME/NO. 62357.03 <

PO# >

REMARKS

TURNAROUND TIME
- [X] Standard (2 Weeks)
- [ ] RUSH _____

Rush charges authorized by _____

SAMPLE DISPOSAL
- [ ] Dispose after 30 days
- [ ] Return samples
- [ ] Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	MTBE	2 EDC	1,2 DCA	Naphthalene	Naphthalene only	1,2 DCA only	Notes
62357.03-3	01 AF	7-5-11	12pm	H_2O	6	X	X	X				X	X	X	X	X	X	
2	02					X	X	X				X				X	X	
1	03					X	X	X				X				X	X	
4	04					X	X	X				X				X	X	

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Pat Drumheller	PBS	7-6-11	1344
Received by:	HONG NGUYEN	FBI	7/7/11	9:50
Relinquished by:				
Received by:	Samples received at 11 °C			

FORMS\COC\COC.DOC