



08/02/13

Technical Report for

Petroleum Field Services

Bayswater baseline water sampling

Accutest Job Number: D48438

Sampling Date: 07/22/13

Report to:

Petroleum Field Services
1801 West 13th Avenue
Denver, CO 80204
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ATTN: Heather Brown

Total number of pages in report: **55**



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

A handwritten signature in black ink, appearing to read 'Scott Heideman'.

Scott Heideman
Laboratory Director

Client Service contact: Shea Greiner 303-425-6021

Certifications: CO (CO00049), ID, NE (CO00049), ND (R-027), NJ (CO 0007), OK (D9942), UT (NELAP CO00049), TX (T104704511)

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Test results relate only to samples analyzed.

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Sample Summary

Petroleum Field Services

Job No: D48438

Bayswater baseline water sampling

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
D48438-1	07/22/13	11:30 HB	07/22/13	AQ	Ground Water	13346
D48438-1F	07/22/13	11:30 HB	07/22/13	AQ	Groundwater Filtered	13346
D48438-2	07/22/13	13:50 HB	07/22/13	AQ	Ground Water	13965
D48438-2F	07/22/13	13:50 HB	07/22/13	AQ	Groundwater Filtered	13965

Summary of Hits

Job Number: D48438
 Account: Petroleum Field Services
 Project: Bayswater baseline water sampling
 Collected: 07/22/13

Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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D48438-1 13346

Alkalinity, Bicarbonate as CaCO3	151	5.0			mg/l	SM 2320B-2011
Alkalinity, Total as CaCO3	151	5.0			mg/l	SM 2320B-2011
Chloride	3.0	0.50			mg/l	EPA 300.0/SW846 9056
Fluoride	0.88	0.10			mg/l	EPA 300.0/SW846 9056
Iron Reducing Bacteria	9000	25			CFU/ml	HACH IRB-BART
Nitrogen, Nitrate	0.14	0.010			mg/l	EPA 300.0/SW846 9056
Phosphorus, Total	0.027	0.010			mg/l	HACH8190/SM4500P-B/E
Slime Forming Bacteria	350000	500			CFU/ml	HACH SLYM-BART
Solids, Total Dissolved	292	10			mg/l	SM 2540C-2011
Specific Conductivity	455	1.0			umhos/cm	SM 2510B-2011
Sulfate	90.4	5.0			mg/l	EPA 300.0/SW846 9056
Sulfate Reducing Bacteria	18000	200			CFU/ml	HACH SRB-BART
pH	7.86				su	SM4500HB+ -2011/9040C

D48438-1F 13346

Barium	47.4	10			ug/l	EPA 200.7
Boron	63.5	50			ug/l	EPA 200.7
Calcium	53200	400			ug/l	EPA 200.7
Magnesium	23000	200			ug/l	EPA 200.7
Potassium	1400	1000			ug/l	EPA 200.7
Sodium	18300	400			ug/l	EPA 200.7
Strontium	624	5.0			ug/l	EPA 200.7

D48438-2 13965

Alkalinity, Bicarbonate as CaCO3	324	5.0			mg/l	SM 2320B-2011
Alkalinity, Total as CaCO3	324	5.0			mg/l	SM 2320B-2011
Bromide	0.20	0.10			mg/l	EPA 300.0/SW846 9056
Chloride	27.7	1.0			mg/l	EPA 300.0/SW846 9056
Fluoride	1.3	0.20			mg/l	EPA 300.0/SW846 9056
Iron Reducing Bacteria	9000	25			CFU/ml	HACH IRB-BART
Nitrogen, Nitrate	5.1	0.25			mg/l	EPA 300.0/SW846 9056
Phosphorus, Total	0.051	0.010			mg/l	HACH8190/SM4500P-B/E
Slime Forming Bacteria	350000	500			CFU/ml	HACH SLYM-BART
Solids, Total Dissolved	1040	10			mg/l	SM 2540C-2011
Specific Conductivity	1360	1.0			umhos/cm	SM 2510B-2011
Sulfate	468	13			mg/l	EPA 300.0/SW846 9056
Sulfate Reducing Bacteria	18000	200			CFU/ml	HACH SRB-BART
pH	7.61				su	SM4500HB+ -2011/9040C

Summary of Hits

Job Number: D48438
Account: Petroleum Field Services
Project: Bayswater baseline water sampling
Collected: 07/22/13

Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
D48438-2F	13965					
Barium		37.8	10		ug/l	EPA 200.7
Boron		289	50		ug/l	EPA 200.7
Calcium		131000	400		ug/l	EPA 200.7
Iron		31.4	10		ug/l	EPA 200.7
Magnesium		92300	200		ug/l	EPA 200.7
Potassium		3230	1000		ug/l	EPA 200.7
Selenium		2.1	0.80		ug/l	EPA 200.8
Sodium		74700	400		ug/l	EPA 200.7
Strontium		1720	5.0		ug/l	EPA 200.7

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	13346	Date Sampled:	07/22/13
Lab Sample ID:	D48438-1	Date Received:	07/22/13
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260B		
Project:	Bayswater baseline water sampling		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	7V21483.D	1	07/23/13	JL	n/a	n/a	V7V1177
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.25	ug/l	
108-88-3	Toluene	ND	2.0	1.0	ug/l	
100-41-4	Ethylbenzene	ND	2.0	0.25	ug/l	
1330-20-7	Xylene (total)	ND	3.0	2.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	98%		62-130%
2037-26-5	Toluene-D8	91%		70-130%
460-00-4	4-Bromofluorobenzene	87%		69-130%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	13346	Date Sampled:	07/22/13
Lab Sample ID:	D48438-1	Date Received:	07/22/13
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8015B		
Project:	Bayswater baseline water sampling		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	GB21294.D	1	07/22/13	BR	n/a	n/a	GGB1168
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	0.20	0.10	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	86%		60-140%		

(a) The pH of the sample was > 2 at time of analysis.

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	13346	Date Sampled:	07/22/13
Lab Sample ID:	D48438-1	Date Received:	07/22/13
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	RSK175 MOD		
Project:	Bayswater baseline water sampling		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	FB08999.D	1	07/23/13	SM	n/a	n/a	GFB394
Run #2							

Methane, Ethane and Propane

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	ND	0.00080	0.00040	mg/l	
74-84-0	Ethane	ND	0.0016	0.00080	mg/l	
74-98-6	Propane	ND	0.018	0.0090	mg/l	

(a) Sample was analyzed with headspace.

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	13346	Date Sampled:	07/22/13
Lab Sample ID:	D48438-1	Date Received:	07/22/13
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846-8015B SW846 3510C		
Project:	Bayswater baseline water sampling		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FH011518.D	1	07/25/13	TU	07/24/13	OP8258	GFH636
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	0.20	0.18	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	48%		20-140%		

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: 13346

Lab Sample ID: D48438-1

Matrix: AQ - Ground Water

Project: Bayswater baseline water sampling

Date Sampled: 07/22/13

Date Received: 07/22/13

Percent Solids: n/a

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Bicarbonate as CaC	151	5.0	mg/l	1	07/25/13	JD	SM 2320B-2011
Alkalinity, Carbonate	< 5.0	5.0	mg/l	1	07/25/13	JD	SM 2320B-2011
Alkalinity, Total as CaCO3	151	5.0	mg/l	1	07/25/13	JD	SM 2320B-2011
Bromide	< 0.050	0.050	mg/l	1	07/23/13 12:18	SK	EPA 300.0/SW846 9056
Chloride	3.0	0.50	mg/l	1	07/23/13 12:18	SK	EPA 300.0/SW846 9056
Fluoride	0.88	0.10	mg/l	1	07/23/13 12:18	SK	EPA 300.0/SW846 9056
Iron Reducing Bacteria	9000	25	CFU/ml	1	07/23/13	MM	HACH IRB-BART
Nitrogen, Nitrate	0.14	0.010	mg/l	1	07/23/13 12:18	SK	EPA 300.0/SW846 9056
Nitrogen, Nitrite	< 0.0040	0.0040	mg/l	1	07/23/13 12:18	SK	EPA 300.0/SW846 9056
Phosphorus, Total	0.027	0.010	mg/l	1	07/23/13	JD	HACH8190/SM4500P-B/E
Slime Forming Bacteria	350000	500	CFU/ml	1	07/23/13	MM	HACH SLYM-BART
Solids, Total Dissolved	292	10	mg/l	1	07/25/13	BF	SM 2540C-2011
Specific Conductivity	455	1.0	umhos/cm	1	07/25/13	JD	SM 2510B-2011
Sulfate	90.4	5.0	mg/l	10	07/23/13 17:16	SK	EPA 300.0/SW846 9056
Sulfate Reducing Bacteria	18000	200	CFU/ml	1	07/23/13	MM	HACH SRB-BART
pH	7.86		su	1	07/24/13 12:00	BF	SM4500HB+ -2011/9040C

RL = Reporting Limit

Report of Analysis

Client Sample ID: 13346

Lab Sample ID: D48438-1F

Matrix: AQ - Groundwater Filtered

Date Sampled: 07/22/13

Date Received: 07/22/13

Percent Solids: n/a

Project: Bayswater baseline water sampling

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Barium	47.4	10	ug/l	1	07/24/13	07/25/13 JB	EPA 200.7 ²	EPA 200.7 ⁴
Boron	63.5	50	ug/l	1	07/24/13	07/25/13 JB	EPA 200.7 ²	EPA 200.7 ⁴
Calcium	53200	400	ug/l	1	07/24/13	07/25/13 JB	EPA 200.7 ²	EPA 200.7 ⁴
Iron	< 10	10	ug/l	1	07/24/13	07/26/13 JB	EPA 200.7 ²	EPA 200.7 ⁴
Magnesium	23000	200	ug/l	1	07/24/13	07/25/13 JB	EPA 200.7 ²	EPA 200.7 ⁴
Manganese	< 5.0	5.0	ug/l	1	07/24/13	07/25/13 JB	EPA 200.7 ²	EPA 200.7 ⁴
Potassium	1400	1000	ug/l	1	07/24/13	07/25/13 JB	EPA 200.7 ²	EPA 200.7 ⁴
Selenium	< 0.80	0.80	ug/l	2	07/24/13	07/25/13 JB	EPA 200.8 ¹	EPA 200.8 ³
Sodium	18300	400	ug/l	1	07/24/13	07/25/13 JB	EPA 200.7 ²	EPA 200.7 ⁴
Strontium	624	5.0	ug/l	1	07/24/13	07/25/13 JB	EPA 200.7 ²	EPA 200.7 ⁴

(1) Instrument QC Batch: MA3799

(2) Instrument QC Batch: MA3802

(3) Prep QC Batch: MP10615

(4) Prep QC Batch: MP10616

RL = Reporting Limit

Report of Analysis

Client Sample ID:	13965	Date Sampled:	07/22/13
Lab Sample ID:	D48438-2	Date Received:	07/22/13
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260B		
Project:	Bayswater baseline water sampling		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	7V21484.D	1	07/23/13	JL	n/a	n/a	V7V1177
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.25	ug/l	
108-88-3	Toluene	ND	2.0	1.0	ug/l	
100-41-4	Ethylbenzene	ND	2.0	0.25	ug/l	
1330-20-7	Xylene (total)	ND	3.0	2.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	98%		62-130%
2037-26-5	Toluene-D8	92%		70-130%
460-00-4	4-Bromofluorobenzene	88%		69-130%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	13965	Date Sampled:	07/22/13
Lab Sample ID:	D48438-2	Date Received:	07/22/13
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8015B		
Project:	Bayswater baseline water sampling		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB21295.D	1	07/22/13	BR	n/a	n/a	GGB1168
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	0.20	0.10	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	87%		60-140%		

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	13965	Date Sampled:	07/22/13
Lab Sample ID:	D48438-2	Date Received:	07/22/13
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	RSK175 MOD		
Project:	Bayswater baseline water sampling		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FB09000.D	1	07/23/13	SM	n/a	n/a	GFB394
Run #2							

Methane, Ethane and Propane

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	ND	0.00080	0.00040	mg/l	
74-84-0	Ethane	ND	0.0016	0.00080	mg/l	
74-98-6	Propane	ND	0.018	0.0090	mg/l	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	13965	Date Sampled:	07/22/13
Lab Sample ID:	D48438-2	Date Received:	07/22/13
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846-8015B SW846 3510C		
Project:	Bayswater baseline water sampling		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FH011520.D	1	07/25/13	TU	07/24/13	OP8258	GFH636
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	0.20	0.18	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	55%		20-140%		

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	13965	Date Sampled:	07/22/13
Lab Sample ID:	D48438-2	Date Received:	07/22/13
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	Bayswater baseline water sampling		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Bicarbonate as CaC	324	5.0	mg/l	1	07/25/13	JD	SM 2320B-2011
Alkalinity, Carbonate	< 5.0	5.0	mg/l	1	07/25/13	JD	SM 2320B-2011
Alkalinity, Total as CaCO ₃	324	5.0	mg/l	1	07/25/13	JD	SM 2320B-2011
Bromide	0.20	0.10	mg/l	2	07/23/13 12:29	SK	EPA 300.0/SW846 9056
Chloride	27.7	1.0	mg/l	2	07/23/13 12:29	SK	EPA 300.0/SW846 9056
Fluoride	1.3	0.20	mg/l	2	07/23/13 12:29	SK	EPA 300.0/SW846 9056
Iron Reducing Bacteria	9000	25	CFU/ml	1	07/23/13	MM	HACH IRB-BART
Nitrogen, Nitrate	5.1	0.25	mg/l	25	07/23/13 17:28	SK	EPA 300.0/SW846 9056
Nitrogen, Nitrite ^a	< 0.0080	0.0080	mg/l	2	07/23/13 12:29	SK	EPA 300.0/SW846 9056
Phosphorus, Total	0.051	0.010	mg/l	1	07/23/13	JD	HACH8190/SM4500P-B/E
Slime Forming Bacteria	350000	500	CFU/ml	1	07/23/13	MM	HACH SLYM-BART
Solids, Total Dissolved	1040	10	mg/l	1	07/25/13	BF	SM 2540C-2011
Specific Conductivity	1360	1.0	umhos/cm	1	07/25/13	JD	SM 2510B-2011
Sulfate	468	13	mg/l	25	07/23/13 17:28	SK	EPA 300.0/SW846 9056
Sulfate Reducing Bacteria	18000	200	CFU/ml	1	07/23/13	MM	HACH SRB-BART
pH	7.61		su	1	07/24/13 12:00	BF	SM4500HB+ -2011/9040C

(a) Elevated detection limit due to matrix interference.

RL = Reporting Limit

Report of Analysis

Client Sample ID: 13965	Date Sampled: 07/22/13
Lab Sample ID: D48438-2F	Date Received: 07/22/13
Matrix: AQ - Groundwater Filtered	Percent Solids: n/a
Project: Bayswater baseline water sampling	

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Barium	37.8	10	ug/l	1	07/24/13	07/25/13 JB	EPA 200.7 ²	EPA 200.7 ⁴
Boron	289	50	ug/l	1	07/24/13	07/25/13 JB	EPA 200.7 ²	EPA 200.7 ⁴
Calcium	131000	400	ug/l	1	07/24/13	07/25/13 JB	EPA 200.7 ²	EPA 200.7 ⁴
Iron	31.4	10	ug/l	1	07/24/13	07/26/13 JB	EPA 200.7 ²	EPA 200.7 ⁴
Magnesium	92300	200	ug/l	1	07/24/13	07/25/13 JB	EPA 200.7 ²	EPA 200.7 ⁴
Manganese	< 5.0	5.0	ug/l	1	07/24/13	07/25/13 JB	EPA 200.7 ²	EPA 200.7 ⁴
Potassium	3230	1000	ug/l	1	07/24/13	07/25/13 JB	EPA 200.7 ²	EPA 200.7 ⁴
Selenium	2.1	0.80	ug/l	2	07/24/13	07/25/13 JB	EPA 200.8 ¹	EPA 200.8 ³
Sodium	74700	400	ug/l	1	07/24/13	07/25/13 JB	EPA 200.7 ²	EPA 200.7 ⁴
Strontium	1720	5.0	ug/l	1	07/24/13	07/25/13 JB	EPA 200.7 ²	EPA 200.7 ⁴

(1) Instrument QC Batch: MA3799

(2) Instrument QC Batch: MA3802

(3) Prep QC Batch: MP10615

(4) Prep QC Batch: MP10616

RL = Reporting Limit

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

Accutest Laboratories Mountain States
4036 Youngfield Street Wheat Ridge, Co 80033
TEL: 303-425-6021 877-737-4521
FAX: 303-425-6021

FED-EX Tracking #
Accutest Quote #
Bottle Order Control #
Accutest Job # **D48438**

Client / Reporting Information			Project Information			Requested Analysis (see TEST CODE sheet)															Matrix Codes	
Company Name Petroleum Field Services			Project Name Baywater Baseline																		DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge SED - Sediment OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe PB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank	
Street Address 1801 W 13th Ave			Street Baywater Baseline																			
City Denver CO			City Baywater Baseline																			
State CO			State Baywater Baseline																			
Zip 80204			Zip Baywater Baseline																			
Project Contact Heather Brown			Project Contact Heather Brown																			
Phone # 303-928-7128			Phone # 303-928-7128																			
Fax #			Fax #																			
Sampler(s) Name(s) H. Brown			Sampler(s) Name(s) H. Brown																			
Phone #			Phone #																			
Project Manager			Project Manager																			
Attention:			Attention:																			
PO#			PO#																			
Accutest Sample #			Accutest Sample #																			
Field ID / Point of Collection			Field ID / Point of Collection																			
MEOH/ID Vial #			MEOH/ID Vial #																			
Date			Date																			
Time			Time																			
Sampled by			Sampled by																			
Matrix			Matrix																			
# of bottles			# of bottles																			
HCl			HCl																			
NaOH			NaOH																			
HNO3			HNO3																			
H2SO4			H2SO4																			
NONE			NONE																			
DI Water			DI Water																			
MEOH			MEOH																			
ENCORE			ENCORE																			
Blank			Blank																			
LAB USE ONLY			LAB USE ONLY																			
01			01																			
02			02																			
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D48438: Chain of Custody

Page 1 of 2

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D48438

Client: PETROTEUM FIELD SERVICES

Immediate Client Services Action Required: No

Date / Time Received: 7/22/2013 4:00:00 PM

No. Coolers: 1

Client Service Action Required at Login: No

Project: BAYSWATER BASELINE

Airbill #'s: hd

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	3. COC Present:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Custody Seals Intact:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	4. Smpl Dates/Time OK	<input checked="" type="checkbox"/>		<input type="checkbox"/>

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Cooler temp verification:			Infrared gun
3. Cooler media:			Ice (bag)

Quality Control Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	<input type="checkbox"/>		<input type="checkbox"/>	
2. Trip Blank listed on COC:	<input type="checkbox"/>		<input type="checkbox"/>	
3. Samples preserved properly:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
4. VOCs headspace free:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Container labeling complete:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
3. Sample container label / COC agree:	<input checked="" type="checkbox"/>		<input type="checkbox"/>

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. All containers accounted for:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
3. Condition of sample:			Intact

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
2. Bottles received for unspecified tests	<input type="checkbox"/>		<input checked="" type="checkbox"/>	
3. Sufficient volume rec'd for analysis:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
4. Compositing instructions clear:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Filtering instructions clear:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>

Comments

 Accutest Laboratories
 V: (303) 425-6021

 4036 Youngfield Street
 F: (303) 425-6854

 Wheat Ridge, CO
 www.accutest.com

GC/MS Volatiles

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QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Page 1 of 1

Job Number: D48438
Account: PTFSCOD Petroleum Field Services
Project: Bayswater baseline water sampling

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V7V1177-MB	7V21469.D	1	07/23/13	JL	n/a	n/a	V7V1177

The QC reported here applies to the following samples:

Method: SW846 8260B

D48438-1, D48438-2

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.25	ug/l	
100-41-4	Ethylbenzene	ND	2.0	0.25	ug/l	
108-88-3	Toluene	ND	2.0	1.0	ug/l	
1330-20-7	Xylene (total)	ND	3.0	2.0	ug/l	

CAS No.	Surrogate Recoveries	Limits
17060-07-0	1,2-Dichloroethane-D4	96% 62-130%
2037-26-5	Toluene-D8	98% 70-130%
460-00-4	4-Bromofluorobenzene	100% 69-130%

Blank Spike Summary

Page 1 of 1

Job Number: D48438
Account: PTFSCOD Petroleum Field Services
Project: Bayswater baseline water sampling

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V7V1177-BS	7V21470.D	1	07/23/13	JL	n/a	n/a	V7V1177

The QC reported here applies to the following samples:

Method: SW846 8260B

D48438-1, D48438-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	50	48.3	97	70-130
100-41-4	Ethylbenzene	50	48.4	97	70-130
108-88-3	Toluene	50	47.1	94	70-130
1330-20-7	Xylene (total)	150	145	97	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
17060-07-0	1,2-Dichloroethane-D4	95%	62-130%
2037-26-5	Toluene-D8	97%	70-130%
460-00-4	4-Bromofluorobenzene	107%	69-130%

* = Outside of Control Limits.

Matrix Spike Summary

Page 1 of 1

Job Number: D48438
Account: PTFSCOD Petroleum Field Services
Project: Bayswater baseline water sampling

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D48365-1MS	7V21471.D	1	07/23/13	JL	n/a	n/a	V7V1177
D48365-1	7V21472.D	1	07/23/13	JL	n/a	n/a	V7V1177

The QC reported here applies to the following samples:

Method: SW846 8260B

D48438-1, D48438-2

CAS No.	Compound	D48365-1 ug/l	Spike Q	MS ug/l	MS %	Limits
71-43-2	Benzene	ND	50	49.3	99	62-130
100-41-4	Ethylbenzene	ND	50	47.5	95	63-130
108-88-3	Toluene	ND	50	46.1	92	60-130
1330-20-7	Xylene (total)	ND	150	142	95	67-130

CAS No.	Surrogate Recoveries	MS	D48365-1	Limits
17060-07-0	1,2-Dichloroethane-D4	94%	95%	62-130%
2037-26-5	Toluene-D8	97%	95%	70-130%
460-00-4	4-Bromofluorobenzene	105%	99%	69-130%

* = Outside of Control Limits.

Duplicate Summary

Page 1 of 1

Job Number: D48438

Account: PTFSCOD Petroleum Field Services

Project: Bayswater baseline water sampling

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D48420-1DUP	7V21474.D	1	07/23/13	JL	n/a	n/a	V7V1177
D48420-1	7V21473.D	1	07/23/13	JL	n/a	n/a	V7V1177

The QC reported here applies to the following samples:

Method: SW846 8260B

D48438-1, D48438-2

CAS No.	Compound	D48420-1 ug/l	DUP Q	ug/l	Q	RPD	Limits
71-43-2	Benzene	1.1		1.1		0	30
100-41-4	Ethylbenzene	ND		ND		nc	30
108-88-3	Toluene	ND		ND		nc	30
1330-20-7	Xylene (total)	ND		ND		nc	30

CAS No.	Surrogate Recoveries	DUP	D48420-1	Limits
17060-07-0	1,2-Dichloroethane-D4	93%	90%	62-130%
2037-26-5	Toluene-D8	92%	94%	70-130%
460-00-4	4-Bromofluorobenzene	96%	96%	69-130%

* = Outside of Control Limits.

GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Page 1 of 1

Job Number: D48438
Account: PTFSCOD Petroleum Field Services
Project: Bayswater baseline water sampling

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB1168-MB	GB21280.D	1	07/22/13	BR	n/a	n/a	GGB1168

The QC reported here applies to the following samples:

Method: SW846 8015B

D48438-1, D48438-2

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	0.20	0.10	mg/l	

CAS No.	Surrogate Recoveries	Limits
120-82-1	1,2,4-Trichlorobenzene	86% 60-140%

Method Blank Summary

Page 1 of 1

Job Number: D48438
Account: PTFSCOD Petroleum Field Services
Project: Bayswater baseline water sampling

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GC3747-MB	FB08983.D	1	07/23/13	SM	n/a	n/a	GFB394

The QC reported here applies to the following samples:

Method: RSK175 MOD

D48438-1, D48438-2

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	ND	0.00080	0.00040	mg/l	
74-84-0	Ethane	ND	0.0016	0.00080	mg/l	
74-98-6	Propane	ND	0.018	0.0090	mg/l	

Blank Spike Summary

Page 1 of 1

Job Number: D48438

Account: PTFSCOD Petroleum Field Services

Project: Bayswater baseline water sampling

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB1168-BS	GB21281.D	1	07/22/13	BR	n/a	n/a	GGB1168

The QC reported here applies to the following samples:

Method: SW846 8015B

D48438-1, D48438-2

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	Limits
	TPH-GRO (C6-C10)	2.2	2.31	105	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	91%	60-140%

* = Outside of Control Limits.

Blank Spike Summary

Page 1 of 1

Job Number: D48438
Account: PTFSCOD Petroleum Field Services
Project: Bayswater baseline water sampling

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GC3747-BS	FB08984.D	10	07/23/13	SM	n/a	n/a	GFB394

The QC reported here applies to the following samples:

Method: RSK175 MOD

D48438-1, D48438-2

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	Limits
74-82-8	Methane	0.51	0.615	121	70-146
74-84-0	Ethane	0.956	0.970	101	70-130
74-98-6	Propane	1.4	1.28	91	67-130

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D48438

Account: PTFSCOD Petroleum Field Services

Project: Bayswater baseline water sampling

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D48389-1MS	GB21283.D	1	07/22/13	BR	n/a	n/a	GGB1168
D48389-1MSD	GB21284.D	1	07/22/13	BR	n/a	n/a	GGB1168
D48389-1	GB21282.D	1	07/22/13	BR	n/a	n/a	GGB1168

The QC reported here applies to the following samples:

Method: SW846 8015B

D48438-1, D48438-2

CAS No.	Compound	D48389-1 mg/l	Spike Q	MS mg/l	MS %	MSD mg/l	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	0.276	2.2	2.38	96	2.33	93	2	60-145/30

CAS No.	Surrogate Recoveries	MS	MSD	D48389-1	Limits
120-82-1	1,2,4-Trichlorobenzene	89%	90%	70%	60-140%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D48438

Account: PTFSCOD Petroleum Field Services

Project: Bayswater baseline water sampling

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D48415-1AMS ^a	FB08986.D	10	07/23/13	SM	n/a	n/a	GFB394
D48415-1AMSD ^a	FB08987.D	10	07/23/13	SM	n/a	n/a	GFB394
D48415-1A	FB08985.D	1	07/23/13	SM	n/a	n/a	GFB394

The QC reported here applies to the following samples:

Method: RSK175 MOD

D48438-1, D48438-2

CAS No.	Compound	D48415-1A mg/l	Spike Q	MS mg/l	MS %	MSD mg/l	MSD %	RPD	Limits Rec/RPD
74-82-8	Methane	0.000090	0.51	0.474	93	0.498	98	5	67-155/30
74-84-0	Ethane	ND	0.956	0.751	79	0.790	83	5	55-130/30
74-98-6	Propane	ND	1.4	0.995	71	1.05	75	5	53-130/30

(a) Sample was analyzed with headspace.

* = Outside of Control Limits.

GC Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: D48438
Account: PTFSCOD Petroleum Field Services
Project: Bayswater baseline water sampling

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8258-MB	FH011484.D	1	07/25/13	TU	07/24/13	OP8258	GFH636

The QC reported here applies to the following samples: Method: SW846-8015B

D48438-1, D48438-2

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	0.20	0.18	mg/l	

CAS No.	Surrogate Recoveries	Limits
84-15-1	o-Terphenyl	62% 20-140%

7.1.1
7

Blank Spike Summary

Page 1 of 1

Job Number: D48438
Account: PTFSCOD Petroleum Field Services
Project: Bayswater baseline water sampling

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8258-BS	FH011486.D	1	07/25/13	TU	07/24/13	OP8258	GFH636

The QC reported here applies to the following samples:

Method: SW846-8015B

D48438-1, D48438-2

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	Limits
	TPH-DRO (C10-C28)	20	10.7	54	36-140

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	67%	20-140%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D48438
 Account: PTFSCOD Petroleum Field Services
 Project: Bayswater baseline water sampling

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8258-MS	FH011488.D	1	07/25/13	TU	07/24/13	OP8258	GFH636
OP8258-MSD	FH011490.D	1	07/25/13	TU	07/24/13	OP8258	GFH636
D48200-19	FH011492.D	1	07/25/13	TU	07/24/13	OP8258	GFH636

The QC reported here applies to the following samples:

Method: SW846-8015B

D48438-1, D48438-2

CAS No.	Compound	D48200-19 mg/l	Spike Q	MS mg/l	MS %	MSD mg/l	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	ND	20	11.0	55	10.6	53	4	28-140/30

CAS No.	Surrogate Recoveries	MS	MSD	D48200-19	Limits
84-15-1	o-Terphenyl	70%	65%	63%	20-140%

* = Outside of Control Limits.

Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D48438
Account: PTFSCOD - Petroleum Field Services
Project: Bayswater baseline water sampling

QC Batch ID: MP10615
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 07/24/13

Metal	RL	IDL	MDL	MB raw	final
Aluminum	50	1.1	2		
Antimony	0.40	.0022	.011		
Arsenic	0.20	.017	.044		
Barium	2.0	.016	.079		
Beryllium	0.20	.016	.069		
Boron	40	.49	2.1		
Cadmium	0.10	.036	.042		
Calcium	400	5.6	12		
Chromium	2.0	.053	.053		
Cobalt	0.20	.0049	.015		
Copper	2.0	.06	.13		
Iron	10	3.5	4.6		
Lead	0.50	.0079	.008		
Magnesium	100	1.3	1.3		
Manganese	1.0	.12	.13		
Molybdenum	1.0	.049	.029		
Nickel	2.0	.0088	.027		
Phosphorus	60	2.6	4.3		
Potassium	200	2.9	2.9		
Selenium	0.40	.06	.21	0.038	<0.40
Silver	0.10	.0019	.008		
Sodium	500	4.9	4.9		
Strontium	20	.01	.015		
Thallium	0.20	.0024	.005		
Thorium	0.50	.0079	.016		
Tin	10	.063	1.3		
Titanium	2.0	.059	.092		
Uranium	0.20	.0017	.002		
Vanadium	1.0	.037	.2		
Zinc	10	.21	.96		

Associated samples MP10615: D48438-1F, D48438-2F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D48438
 Account: PTFSCOD - Petroleum Field Services
 Project: Bayswater baseline water sampling

QC Batch ID: MP10615
 Matrix Type: AQUEOUS

Methods: EPA 200.8
 Units: ug/l

Prep Date: 07/24/13

Metal	D48429-1FA Original MS		SpikeLot ICPAL2 % Rec		QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper	anr				
Iron					
Lead					
Magnesium					
Manganese	anr				
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium	0.44	205	200	102.3	70-130
Silver					
Sodium					
Strontium					
Thallium					
Thorium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc	anr				

Associated samples MP10615: D48438-1F, D48438-2F

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (N) Matrix Spike Rec. outside of QC limits
 (anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D48438
 Account: PTFSCOD - Petroleum Field Services
 Project: Bayswater baseline water sampling

QC Batch ID: MP10615
 Matrix Type: AQUEOUS

Methods: EPA 200.8
 Units: ug/l

Prep Date: 07/24/13

Metal	D48429-1FA Original MSD	Spikelot ICPAL2	% Rec	MSD RPD	QC Limit
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper	anr				
Iron					
Lead					
Magnesium					
Manganese	anr				
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium	0.44	203	200	101.3	1.0
Silver					20
Sodium					
Strontium					
Thallium					
Thorium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc	anr				

Associated samples MP10615: D48438-1F, D48438-2F

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (N) Matrix Spike Rec. outside of QC limits
 (anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D48438
 Account: PTFSCOD - Petroleum Field Services
 Project: Bayswater baseline water sampling

QC Batch ID: MP10615
 Matrix Type: AQUEOUS

Methods: EPA 200.8
 Units: ug/l

Prep Date: 07/24/13

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper	anr			
Iron				
Lead				
Magnesium				
Manganese	anr			
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium	205	200	102.5	85-115
Silver				
Sodium				
Strontium				
Thallium				
Thorium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	anr			

Associated samples MP10615: D48438-1F, D48438-2F

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (anr) Analyte not requested

8.1.3
8

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D48438
Account: PTFSCOD - Petroleum Field Services
Project: Bayswater baseline water sampling

QC Batch ID: MP10616
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 07/24/13

Metal	RL	IDL	MDL	MB raw	final
Aluminum	100	11	11		
Antimony	30	2.1	21		
Arsenic	25	3.8	9		
Barium	10	.2	1.4	-0.10	<10
Beryllium	10	.9	1.7		
Boron	50	.8	6.6	0.10	<50
Cadmium	10	.2	.36		
Calcium	400	2.4	66	6.0	<400
Chromium	10	.3	1.4		
Cobalt	5.0	.5	.51		
Copper	10	.8	1.5		
Iron	10	1.5	3.2	-1.3	<10
Lead	50	2.1	4.1		
Lithium	5.0	.4	1.9		
Magnesium	200	6.8	29	-0.90	<200
Manganese	5.0	.5	.29	-0.10	<5.0
Molybdenum	10	.4	1.1		
Nickel	30	.5	.87		
Phosphorus	100	15	24		
Potassium	1000	99	230	48.2	<1000
Selenium	50	7.1	9.3		
Silicon	50	4.7	5.6		
Silver	30	.3	.4		
Sodium	400	7.3	36	16.6	<400
Strontium	5.0	.01	.12	0.0	<5.0
Thallium	10	1.8	4.9		
Tin	50	12	13		
Titanium	10	.1	.43		
Uranium	50	2.9	3.9		
Vanadium	10	.4	.39		
Zinc	30	.4	1.9		

Associated samples MP10616: D48438-1F, D48438-2F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D48438
Account: PTFSCOD - Petroleum Field Services
Project: Bayswater baseline water sampling

QC Batch ID: MP10616
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested

82.1

8

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D48438
 Account: PTFSCOD - Petroleum Field Services
 Project: Bayswater baseline water sampling

QC Batch ID: MP10616
 Matrix Type: AQUEOUS

Methods: EPA 200.7
 Units: ug/l

Prep Date: 07/24/13

Metal	D48424-1 Original MS		Spikelot ICPAL2	% Rec	QC Limits
Aluminum	anr				
Antimony					
Arsenic					
Barium	74.8	2010	2000	96.8	70-130
Beryllium					
Boron	49.6	1140	1000	109.0	70-130
Cadmium					
Calcium	17100	44100	25000	108.0	70-130
Chromium					
Cobalt					
Copper					
Iron	1380	6610	5000	104.6	70-130
Lead					
Lithium					
Magnesium	1370	27800	25000	105.7	70-130
Manganese	64.7	563	500	99.7	70-130
Molybdenum					
Nickel					
Phosphorus					
Potassium	18900	44900	25000	104.0	70-130
Selenium					
Silicon					
Silver					
Sodium	12900	37900	25000	100.0	70-130
Strontium	78.6	569	500	98.1	70-130
Thallium					
Tin	anr				
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP10616: D48438-1F, D48438-2F

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D48438
Account: PTFSCOD - Petroleum Field Services
Project: Bayswater baseline water sampling

QC Batch ID: MP10616
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date:

Metal

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

82.2

8

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D48438
 Account: PTFSCOD - Petroleum Field Services
 Project: Bayswater baseline water sampling

QC Batch ID: MP10616
 Matrix Type: AQUEOUS

Methods: EPA 200.7
 Units: ug/l

Prep Date: 07/24/13

Metal	D48424-1 Original	MSD	SpikeLot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum	anr					
Antimony						
Arsenic						
Barium	74.8	2030	2000	97.8	1.0	20
Beryllium						
Boron	49.6	1150	1000	110.0	0.9	20
Cadmium						
Calcium	17100	44100	25000	108.0	0.0	20
Chromium						
Cobalt						
Copper						
Iron	1380	6630	5000	105.0	0.3	20
Lead						
Lithium						
Magnesium	1370	27700	25000	105.3	0.4	20
Manganese	64.7	564	500	99.9	0.2	20
Molybdenum						
Nickel						
Phosphorus						
Potassium	18900	44800	25000	103.6	0.2	20
Selenium						
Silicon						
Silver						
Sodium	12900	38200	25000	101.2	0.8	20
Strontium	78.6	576	500	99.5	1.2	20
Thallium						
Tin	anr					
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP10616: D48438-1F, D48438-2F

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D48438
Account: PTFSCOD - Petroleum Field Services
Project: Bayswater baseline water sampling

QC Batch ID: MP10616
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date:

Metal

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

82.2

8

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D48438
Account: PTFSCOD - Petroleum Field Services
Project: Bayswater baseline water sampling

QC Batch ID: MP10616
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 07/24/13

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum	anr			
Antimony				
Arsenic				
Barium	1930	2000	96.5	85-115
Beryllium				
Boron	1090	1000	109.0	85-115
Cadmium				
Calcium	27400	25000	109.6	85-115
Chromium				
Cobalt				
Copper				
Iron	4990	5000	99.8	85-115
Lead				
Lithium				
Magnesium	26400	25000	105.6	85-115
Manganese	510	500	102.0	85-115
Molybdenum				
Nickel				
Phosphorus				
Potassium	25800	25000	103.2	85-115
Selenium				
Silicon				
Silver				
Sodium	25100	25000	100.4	85-115
Strontium	490	500	98.0	85-115
Thallium				
Tin	anr			
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP10616: D48438-1F, D48438-2F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D48438
Account: PTFSCOD - Petroleum Field Services
Project: Bayswater baseline water sampling

QC Batch ID: MP10616
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested

8.2.3

8

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D48438
Account: PTFSCOD - Petroleum Field Services
Project: Bayswater baseline water sampling

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Alkalinity, Bicarbonate as CaC	GN21181	5.0	0.0	mg/l	100	93.5	93.5	90-110%
Alkalinity, Carbonate	GN21182	5.0	0.0	mg/l	100	93.5	93.5	80-120%
Alkalinity, Total as CaCO3	GN21180	5.0	0.0	mg/l	100	93.5	93.5	90-110%
Bromide	GP10490/GN21130	0.050	0.0	mg/l	20	20.1	100.5	90-110%
Chloride	GP10490/GN21130	0.50	0.0	mg/l	20	20.0	100.0	90-110%
Fluoride	GP10490/GN21130	0.10	0.0	mg/l	10	9.51	95.1	90-110%
Iron Reducing Bacteria	MB221	25	<25	CFU/ml				
Nitrogen, Nitrate	GP10490/GN21130	0.010	0.0	mg/l	4.52	4.45	98.5	90-110%
Nitrogen, Nitrite	GP10490/GN21130	0.0040	0.0	mg/l	6.09	5.97	98.0	90-110%
Phosphorus, Total	GP10502/GN21143	0.010	0.0	mg/l	.304	0.30	99.6	80-120%
Slime Forming Bacteria	MB222	500	<500	CFU/ml				
Solids, Total Dissolved	GN21167	10	0.0	mg/l	400	396	99.0	90-110%
Specific Conductivity	GP10515/GN21170			umhos/cm	100.8	99.9	99.1	90-110%
Sulfate	GP10490/GN21130	0.50	0.0	mg/l	30	29.9	99.7	90-110%
Sulfate Reducing Bacteria	MB223	200	<200	CFU/ml				
pH	GN21156			su	8.00	8.02	100.3	99.3-100.7%

Associated Samples:

Batch MB221: D48438-1, D48438-2
Batch MB222: D48438-1, D48438-2
Batch MB223: D48438-1, D48438-2
Batch GN21156: D48438-1, D48438-2
Batch GN21167: D48438-1, D48438-2
Batch GN21180: D48438-1, D48438-2
Batch GN21181: D48438-1, D48438-2
Batch GN21182: D48438-1, D48438-2
Batch GP10490: D48438-1, D48438-2
Batch GP10502: D48438-1, D48438-2
Batch GP10515: D48438-1, D48438-2

(*) Outside of QC limits

9.1

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DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D48438
Account: PTFSCOD - Petroleum Field Services
Project: Bayswater baseline water sampling

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Alkalinity, Total as CaCO ₃	GN21180	D48415-1	mg/l	142	142	0.3	0-20%
Phosphorus, Total	GP10502/GN21143	D48415-1	mg/l	0.069	0.076	9.7	0-20%
Solids, Total Dissolved	GN21167	D48361-1	mg/l	2360	2360	0.0	0-20%
Specific Conductivity	GP10515/GN21170	D48438-1	umhos/cm	455	463	1.7	0-20%

Associated Samples:

Batch GN21167: D48438-1, D48438-2

Batch GN21180: D48438-1, D48438-2

Batch GP10502: D48438-1, D48438-2

Batch GP10515: D48438-1, D48438-2

(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D48438
Account: PTFSCOD - Petroleum Field Services
Project: Bayswater baseline water sampling

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Alkalinity, Total as CaCO ₃	GN21180	D48415-1	mg/l	142	100	233	91.6	80-120%
Bromide	GP10490/GN21130	D48419-1	mg/l	2.5	50	53.9	102.8	80-120%
Chloride	GP10490/GN21130	D48419-1	mg/l	297	200	506	104.5	80-120%
Fluoride	GP10490/GN21130	D48419-1	mg/l	2.4	50	49.9	95.0	80-120%
Nitrogen, Nitrate	GP10490/GN21130	D48419-1	mg/l	0.0	11.3	11.6	102.7	80-120%
Nitrogen, Nitrite	GP10490/GN21130	D48419-1	mg/l	0.0	6.09	6.3	103.4	80-120%
Phosphorus, Total	GP10502/GN21143	D48415-1	mg/l	0.069	.4	0.45	96.4	80-120%
Sulfate	GP10490/GN21130	D48419-1	mg/l	99.7	200	305	102.7	80-120%

Associated Samples:

Batch GN21180: D48438-1, D48438-2

Batch GP10490: D48438-1, D48438-2

Batch GP10502: D48438-1, D48438-2

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D48438
Account: PTFSCOD - Petroleum Field Services
Project: Bayswater baseline water sampling

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Alkalinity, Total as CaCO ₃	GN21180	D48415-1	mg/l	142	100	231	1.1	20%
Bromide	GP10490/GN21130	D48419-1	mg/l	2.5	50	53.6	0.6	20%
Chloride	GP10490/GN21130	D48419-1	mg/l	297	200	506	0.0	20%
Fluoride	GP10490/GN21130	D48419-1	mg/l	2.4	50	50.0	0.2	20%
Nitrogen, Nitrate	GP10490/GN21130	D48419-1	mg/l	0.0	11.3	11.5	0.9	20%
Nitrogen, Nitrite	GP10490/GN21130	D48419-1	mg/l	0.0	6.09	6.2	1.6	20%
Phosphorus, Total	GP10502/GN21143	D48415-1	mg/l	0.069	.4	0.480	4.7	20%
Sulfate	GP10490/GN21130	D48419-1	mg/l	99.7	200	305	0.0	20%

Associated Samples:

Batch GN21180: D48438-1, D48438-2

Batch GP10490: D48438-1, D48438-2

Batch GP10502: D48438-1, D48438-2

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

9.4

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