



Chain of Custody Record

Report Information

Phone: 907 355 1769 Postal Code: _____
LSD: _____ Fax: _____
Client Project #: Chinook EL470

Phone: 403 233 3047 Fax: _____

Postal code: _____

PO/AFE #: 16343208

Regulatory Requirements (Check one):

☒ CCME ☐ AB Tier 1

☐ Agricultural ☐ Natural Area

☐ Residential/Park ☐ Agricultural

☐ Commercial ☐ Residential/Park

☐ Industrial ☐ Commercial

☐ Drinking Water ☐ Industrial

☒ FWAL

☐ Other ☐ D50 (Drilling) ☐ SPIGEC

☐ Single Sample per page

☒ Multiple Samples per page

☒ Excel Format Included

Ph: 780.395.2525 • Fax: 780.462.2490

☐ Less than 24 hours (200%)

☐ 24 to 48 hours (100%)

☐ 48 to 72 hours (50%)

Laboratory Use Only

Date and Time: 14 FEB 12 11:18

Arrival Temperature: 4.4°C

AGAT Job Number: 14E810302.

Invoice To: Same (Y/N) - Circle <u>N</u>		Company: <u>ConocoPhillips</u>		Contact: <u>Sandra Marken</u>		Address: _____		Postal code: _____	
Phone: <u>403 233 3047</u>		Fax: _____		MO/AFE #: <u>16343208</u>		Other: _____		D50 (Drilling) ☐ SPIGEC ☐	
☐ Agricultural ☐ Residential/Park ☐ Commercial ☐ Industrial ☐ Drinking Water ☒ FWAL ☐ Other		☐ Natural Area ☐ Agricultural ☐ Residential/Park ☐ Commercial ☐ Industrial ☐ Drinking Water ☒ FWAL ☐ Other		☐ Natural Area ☐ Agricultural ☐ Residential/Park ☐ Commercial ☐ Industrial ☐ Drinking Water ☒ FWAL ☐ Other		☐ Natural Area ☐ Agricultural ☐ Residential/Park ☐ Commercial ☐ Industrial ☐ Drinking Water ☒ FWAL ☐ Other		☐ Natural Area ☐ Agricultural ☐ Residential/Park ☐ Commercial ☐ Industrial ☐ Drinking Water ☒ FWAL ☐ Other	

Laboratory Use (Lab ID #)	Sample Identification	Sample Matrix	Date/Time Sampled	Comments - Site/ Sample Info. Sample Containment	Number of Containers	Detailed Soil Salinity (Sat. Paste)	CCME BTEX/F1-F4	Metals ☐ HWS-B, Cr6 & Hg	Routine Water Potability	Metals ☒ Diss ☒ Total ☒ Hg	AB Class 2 Landfill	Microtox	D50 Detailed Soil Salinity (As received)	Glycol Phenols Methanol	VOC	Total Phosphorus	Hold for	Contaminated/Hazardous (Y/N)
515+154	WW02-P	Water	2/10/14 1700		21													
4166	WW09-E	Water	2/10/14 1800		21													
Please Note Dissolved Metals Need to be Filtered in lab, No preservation added to dissolved metals via																		

Samples Relinquished by (print name & sign): <u>[Signature]</u>	Date/Time: <u>2/14/2000</u>	Samples Received by (Print name & sign): <u>[Signature]</u>	Date/Time: <u>2-12-04</u>	Page <u>11</u> of <u>15</u>
Samples Relinquished by (print name & sign):	Date/Time:	Samples Received by (Print name & sign):	Date/Time:	Pink Copy - Client
Samples Relinquished by (print name & sign):	Date/Time:	Samples Received by (Print name & sign):	Date/Time:	Yellow Copy - AGAT
Samples Relinquished by (print name & sign):	Date/Time:	Samples Received by (Print name & sign):	Date/Time:	White Copy - AGAT



Laboratories

SAMPLE INTEGRITY RECEIPT FORM – Edmonton

RECEIVING BASICS

Received By: Boz Date & Time: 2-12-2014 11:08 am/pm
Company/Consultant: Hobbit/Conoco Phillips
Relinquished By: Courier Courier: Canadian North Prepaid/Collect
Waybill #: 78607734 Branch Received From: N/A
Client left without count verified: Yes No Custody Seal Intact: Yes No N/A

COC INFORMATION

Workorder #: 14E810302 COC received: Yes No/Emailed to CPM
TAT: <24hr 24-48hr 48-72hr Reg Other: _____
COC Complete? Yes No *If NO why: _____
COC Numbers: 051733
Sample Quantities: Coolers: 1 Bottles/Jars: 42 Bags: 0 Other: 0
COC Container Count: 42
* Differs from what was received why: _____

TIME SENSITIVE ISSUES

Earliest Date Sampled: 2-10-2014 ALREADY EXCEEDED? Yes No
MIBI/Time Sensitive Test*: N/A Expiry: N/A
Hydrocarbon Test: BTEX / FI - F4 Expiry: 2-17-2014
Are samples received more than 5 days after sampling: Yes No
*Residual Chlorine, DO, Turbidity, BOD, Nitrate/Nitrite, Microtox

SAMPLE INTEGRITY

Hazardous Samples Why Hazardous: N/A Precaution taken: N/A
Specialty Issues Legal Samples: Yes No
International Samples: Yes No Proper tape/labels applied: Yes No
Damaged: Yes No If YES why? No Bubble Wrap/Frozen/Courier
Other: N/A

Temperature (to be recorder from bottles/jars only)

N/A – Only Soil Bags Received

(1) (Bottle/Jar) 1.7 + 4.9 + 6.7 = 4.4 °C (2) (Bottle/Jar) _____ + _____ = _____ °C
(3) (Bottle/Jar) _____ + _____ = _____ °C (4) (Bottle/Jar) _____ + _____ = _____ °C
(5) (Bottle/Jar) _____ + _____ = _____ °C (6) (Bottle/Jar) _____ + _____ = _____ °C

(If more than 6 coolers are received use another sheet of paper and attach)

Coolant used: Icepack (Top/Bottom/Side) Bagged Ice (Top/Bottom/Side)

Free Ice None

Correct Sample Requirements for Testing (to be completed by Logistics staff during login process)

Bottles: Yes No Amount: Yes No Labels: Yes No

If NO to any of the above, explain why: _____

Visible Sediment (NA if soil): Yes No/NA

Additional Integrity Issues: Filter & Preserve for Diss

Not done in lab.

Account Project Manager: L. Stables have they been notified of the above issues: Yes No

Whom spoken to: L. Stables Date/Time: 12 FEB 2014 CPM Initial _____

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.
2100, 250 6 AVENUE SW
CALGARY, AB T2P3H7
(403) 233-4000

ATTENTION TO: Sandra Marken

PROJECT NO:

AGAT WORK ORDER: 14E811552

TRACE ORGANICS REVIEWED BY: Joydee Saez, Technical Reviewer

WATER ANALYSIS REVIEWED BY: Shanna Mills, Inorganics Manager

DATE REPORTED: Feb 21, 2014

PAGES (INCLUDING COVER): 26

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (780) 395-2525

*NOTES

All samples will be disposed of within 30 days following analysis. Please contact the lab if you require additional sample storage time.



AGAT Laboratories

Certificate of Analysis

AGAT WORK ORDER: 14E811552

PROJECT NO:

6310 ROPER ROAD
EDMONTON, ALBERTA
CANADA T6B 3P9
TEL (780)395-2525
FAX (780)462-2490
<http://www.agatlabs.com>

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

ATTENTION TO: Sandra Marken

Alcohol Analysis in Water - Methanol

DATE RECEIVED: 2014-02-16

DATE REPORTED: 2014-02-21

		SAMPLE DESCRIPTION:		WW04-A	WW05-A
		SAMPLE TYPE:		Water	Water
		DATE SAMPLED:		2/12/2014	2/14/2014
Parameter	Unit	G / S	RDL	5162668	5162677
Methanol	mg/L	1	<1	<1	
Surrogate	Unit	Acceptable Limits			
4-Methyl-2-pentanone	%	50-150	72	96	

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard
5162668-5162677 Analysis by GC/FID.
Analysis was performed by Calgary AGAT laboratory.

Certified By:



AGAT Laboratories

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CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

ATTENTION TO: Sandra Marken

ConocoPhillips - Petroleum Hydrocarbons (BTEXS/F1-F4) in Water

DATE RECEIVED: 2014-02-16

DATE REPORTED: 2014-02-21

		SAMPLE DESCRIPTION:		WW04-A	WW05-A
		SAMPLE TYPE:		Water	Water
		DATE SAMPLED:		2/12/2014	2/14/2014
Parameter	Unit	G / S	RDL	5162668	5162677
Benzene	mg/L		0.0005	0.0006	<0.0005
Toluene	mg/L		0.0005	0.0180	0.0012
Ethylbenzene	mg/L		0.0005	<0.0005	<0.0005
Xylenes	mg/L		0.0005	<0.0005	<0.0005
Styrene	mg/L		0.0005	<0.0005	<0.0005
C6 - C10 (F1)	mg/L		0.1	<0.1	<0.1
C6 - C10 (F1 minus BTEX)	mg/L		0.1	<0.1	<0.1
C>10 - C16	mg/L		0.1	<0.1	<0.1
C16 - C34	mg/L		0.1	0.8	<0.1
C>34 - C50	mg/L		0.1	<0.1	<0.1
Surrogate	Unit	Acceptable Limits			
Toluene-d8 (BTEX)	%	50-150		97	98
o-Terphenyl (F2-F4)	%	50-150		95	103

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

5162668-5162677 The C>6 - C10 fraction is calculated using the toluene response factor.

The C10 - C16 fraction is calculated using the average response factor for nC10, nC16 and nC34.

BTEX has NOT been subtracted from Fraction 1.

Sample is blank corrected.

Certified By:



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CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

ATTENTION TO: Sandra Marken

Glycols Analysis in Water

DATE RECEIVED: 2014-02-16

DATE REPORTED: 2014-02-21

		SAMPLE DESCRIPTION:		WW04-A	WW05-A
		SAMPLE TYPE:		Water	Water
		DATE SAMPLED:		2/12/2014	2/14/2014
Parameter	Unit	G / S	RDL	5162668	5162677
Propylene Glycol	mg/L		10	<10	<10
Monoethylene Glycol	mg/L		10	<10	<10
Diethylene Glycol	mg/L		5	<5	<5
Triethylene Glycol	mg/L		10	<10	<10
Tetraethylene Glycol	mg/L		10	<10	<10
Surrogate	Unit	Acceptable Limits			
Heptanol	%	50-150		86	88

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard
5162668-5162677 Identification based on retention time relative to standards.
Analysis was performed by Calgary AGAT laboratory.

Certified By:



AGAT Laboratories

Certificate of Analysis

AGAT WORK ORDER: 14E811552

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EDMONTON, ALBERTA
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<http://www.agatlabs.com>

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

ATTENTION TO: Sandra Marken

Polyaromatic Hydrocarbon Analysis - Water FWAL

DATE RECEIVED: 2014-02-16

DATE REPORTED: 2014-02-21

		SAMPLE DESCRIPTION:		WW04-A	WW05-A
		SAMPLE TYPE:		Water	Water
		DATE SAMPLED:		2/12/2014	2/14/2014
Parameter	Unit	G / S	RDL	5162668	5162677
Naphthalene	mg/L		0.00001	0.00002	0.00003
2-Methylnaphthalene	mg/L		0.00001	0.00001	0.00005
Quinoline	mg/L		0.00005	<0.00005	<0.00005
Acenaphthylene	mg/L		0.00001	<0.00001	<0.00001
Acenaphthene	mg/L		0.00001	<0.00001	<0.00001
Fluorene	mg/L		0.00001	<0.00001	<0.00001
Phenanthrene	mg/L		0.00001	<0.00001	<0.00001
Anthracene	mg/L		0.00001	<0.00001	<0.00001
Acridine	mg/L		0.00005	<0.00005	<0.00005
Fluoranthene	mg/L		0.00001	<0.00001	<0.00001
Pyrene	mg/L		0.00001	<0.00001	<0.00001
Benzo(a)anthracene	mg/L		0.00001	0.00001	0.00001
Chrysene	mg/L		0.00001	<0.00001	<0.00001
Benzo(b)fluoranthene	mg/L		0.00001	<0.00001	<0.00001
Benzo(k)fluoranthene	mg/L		0.00001	<0.00001	<0.00001
Benzo(a)pyrene	mg/L		0.00001	<0.00001	<0.00001
Indeno(1,2,3-cd)pyrene	mg/L		0.00001	<0.00001	<0.00001
Dibenzo(ah)anthracene	mg/L		0.00001	<0.00001	<0.00001
Benzo(ghi)perylene	mg/L		0.00001	<0.00001	<0.00001
Surrogate	Unit	Acceptable Limits			
2-Fluorobiphenyl	%	50-150		104	107
p-Terphenyl-d14	%	50-150		104	103

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

5162668-5162677 Based on GC/MS target ion analysis.

Isomers Benzo(b)fluoranthene and Benzo(j)fluoranthene have the same GC retention time and are reported as the sum based on the Benzo(b)fluoranthene response.

Certified By:

James M. Foy



AGAT Laboratories

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CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

ATTENTION TO: Sandra Marken

Volatile Organic Compounds in Water

DATE RECEIVED: 2014-02-16

DATE REPORTED: 2014-02-21

		SAMPLE DESCRIPTION:		WW04-A	WW05-A
		SAMPLE TYPE:		Water	Water
		DATE SAMPLED:		2/12/2014	2/14/2014
Parameter	Unit	G / S	RDL	5162668	5162677
Chloromethane	mg/L		0.001	<0.001	<0.001
Vinyl Chloride	mg/L		0.001	<0.001	<0.001
Bromomethane	mg/L		0.001	<0.001	<0.001
Chloroethane	mg/L		0.001	<0.001	<0.001
Trichlorofluoromethane	mg/L		0.001	<0.001	<0.001
Acetone	mg/L		0.01	0.09	<0.01
1,1-Dichloroethylene	mg/L		0.001	<0.001	<0.001
Methylene Chloride	mg/L		0.001	<0.001	<0.001
Methyl tert-butyl ether	mg/L		0.001	<0.001	<0.001
Methyl Ethyl Ketone	mg/L		0.01	<0.01	<0.01
trans- 1,2-dichloroethylene	mg/L		0.001	<0.001	<0.001
1,1-Dichloroethane	mg/L		0.001	<0.001	<0.001
cis- 1,2-Dichloroethylene	mg/L		0.001	<0.001	<0.001
Chloroform	mg/L		0.001	<0.001	<0.001
1,2-Dichloroethane	mg/L		0.001	<0.001	<0.001
1,1,1-Trichloroethane	mg/L		0.001	<0.001	<0.001
Carbon Tetrachloride	mg/L		0.0005	<0.0005	<0.0005
Benzene	mg/L		0.0005	0.0006	<0.0005
1,2-Dichloropropane	mg/L		0.001	<0.001	<0.001
Trichloroethylene	mg/L		0.001	<0.001	<0.001
Bromodichloromethane	mg/L		0.001	<0.001	<0.001
trans-1,3-Dichloropropene	mg/L		0.001	<0.001	<0.001
Methyl Isobutyl Ketone	mg/L		0.01	<0.01	<0.01
cis-1,3-Dichloropropene	mg/L		0.001	<0.001	<0.001
1,1,2-Trichloroethane	mg/L		0.001	<0.001	<0.001
Toluene	mg/L		0.0005	0.0184	0.0012
2-Hexanone	mg/L		0.01	<0.01	<0.01
Dibromochloromethane	mg/L		0.001	<0.001	<0.001
Ethylene Dibromide	mg/L		0.001	<0.001	<0.001
Tetrachloroethene	mg/L		0.001	<0.001	<0.001
1,1,1,2-Tetrachloroethane	mg/L		0.001	<0.001	<0.001

Certified By:

Jayden M. Fong



AGAT Laboratories

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CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

ATTENTION TO: Sandra Marken

Volatile Organic Compounds in Water

DATE RECEIVED: 2014-02-16

DATE REPORTED: 2014-02-21

		SAMPLE DESCRIPTION:		WW04-A	WW05-A
		SAMPLE TYPE:		Water	Water
		DATE SAMPLED:		2/12/2014	2/14/2014
Parameter	Unit	G / S	RDL	5162668	5162677
Chlorobenzene	mg/L		0.001	<0.001	<0.001
Ethylbenzene	mg/L		0.0005	<0.0005	<0.0005
m & p-Xylene	mg/L		0.0005	<0.0005	<0.0005
Bromoform	mg/L		0.001	<0.001	<0.001
Styrene	mg/L		0.001	<0.001	<0.001
1,1,2,2-Tetrachloroethane	mg/L		0.001	<0.001	<0.001
o-Xylene	mg/L		0.0005	<0.0005	<0.0005
1,3-Dichlorobenzene	mg/L		0.0005	<0.0005	<0.0005
1,4-Dichlorobenzene	mg/L		0.0005	<0.0005	<0.0005
1,2-Dichlorobenzene	mg/L		0.0005	<0.0005	<0.0005
1,2,4-Trichlorobenzene	mg/L		0.001	<0.001	<0.001
Total Xylenes	mg/L		0.001	<0.001	<0.001
Surrogate	Unit	Acceptable Limits			
Toluene-d8	%	50-150	99	98	

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

Certified By:



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CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

ATTENTION TO: Sandra Marken

CCME / Alberta Tier 1 Metals (Dissolved) (Full Package)

DATE RECEIVED: 2014-02-16

DATE REPORTED: 2014-02-21

Parameter	Unit	SAMPLE DESCRIPTION:		WW04-A	WW05-A
		SAMPLE TYPE:		Water	Water
		DATE SAMPLED:		2/12/2014	2/14/2014
		G / S	RDL	5162668	5162677
Dissolved Aluminum	mg/L	0.005	0.002	<0.002	0.009
Dissolved Antimony	mg/L	0.006	0.001	0.001	<0.001
Dissolved Arsenic	mg/L	0.005	0.001	<0.001	<0.001
Dissolved Barium	mg/L	1	0.05	1.36	<0.05
Dissolved Boron	mg/L	0.5	0.01	0.80	0.04
Dissolved Cadmium	mg/L	VAR	0.00005	0.00009	<0.00005
Dissolved Calcium	mg/L		0.3	5.5	47.9
Dissolved Chromium	mg/L		0.001	<0.001	<0.001
Dissolved Copper	mg/L	0.002	0.002	<0.002	<0.002
Dissolved Iron	mg/L	0.3	0.1	<0.1	0.2
Dissolved Lead	mg/L	0.001	0.001	<0.001	<0.001
Dissolved Lithium	mg/L		0.001	1.35	0.025
Dissolved Magnesium	mg/L		0.2	3.9	21.0
Dissolved Manganese	mg/L	0.05	0.005	0.044	0.055
Dissolved Mercury (Low Level)	mg/L	0.000026	0.000025	0.000076	<0.000025
Dissolved Molybdenum	mg/L		0.003	0.078	0.006
Dissolved Nickel	mg/L	VAR	0.003	<0.003	<0.003
Dissolved Phosphorus	mg/L		0.08	<0.08	<0.08
Dissolved Potassium	mg/L		0.6	13.3	7.3
Dissolved Selenium	mg/L	0.001	0.001	0.002	<0.001
Dissolved Silver	mg/L	0.0001	0.00001	0.00001	<0.00001
Dissolved Silicon	mg/L		0.032	1.19	4.64
Dissolved Sodium	mg/L	200	0.6	1590	40.9
Dissolved Strontium	mg/L		0.001	0.497	0.556
Dissolved Sulphur	mg/L		0.3	2.3	33.1
Dissolved Thallium	mg/L		0.0001	<0.0001	<0.0001
Dissolved Tin	mg/L		0.00025	<0.00025	<0.00025
Dissolved Uranium	mg/L	0.01	0.001	<0.001	<0.001
Dissolved Vanadium	mg/L		0.001	<0.001	<0.001
Dissolved Zinc	mg/L	0.03	0.001	0.008	0.009
Dissolved Zirconium	mg/L		0.06	<0.06	<0.06

Certified By:

Jmills



AGAT Laboratories

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CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

ATTENTION TO: Sandra Marken

CCME / Alberta Tier 1 Metals (Dissolved) (Full Package)

DATE RECEIVED: 2014-02-16

DATE REPORTED: 2014-02-21

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to ABTier1 GW (Ag, F)
5162668-5162677 < - Values refer to Method Detection Limit.

Certified By:

Jmills



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CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

ATTENTION TO: Sandra Marken

CCME / Alberta Tier 1 Metals (Total) (Full Package)

DATE RECEIVED: 2014-02-16

DATE REPORTED: 2014-02-21

Parameter	Unit	SAMPLE DESCRIPTION:		WW04-A	WW05-A
		SAMPLE TYPE:		Water	Water
		DATE SAMPLED:		2/12/2014	2/14/2014
		G / S	RDL	5162668	5162677
Total Aluminum	mg/L	0.005	0.002	0.155	0.040
Total Antimony	mg/L	0.006	0.001	0.011	<0.001
Total Arsenic	mg/L	0.005	0.001	0.005	<0.001
Total Barium	mg/L	1	0.05	1.89	0.05
Total Boron	mg/L	0.5	0.01	0.908	0.09
Total Cadmium	mg/L	0.000017	0.00005	0.00011	0.00005
Total Calcium	mg/L		0.3	5.5	45.9
Total Chromium	mg/L		0.001	0.008	0.003
Total Copper	mg/L	0.002	0.002	0.107	0.007
Total Iron	mg/L	0.3	0.1	4.6	0.5
Total Lead	mg/L	0.001	0.001	0.055	<0.001
Total Lithium	mg/L		0.001	1.52	0.057
Total Magnesium	mg/L		0.2	3.6	18.8
Total Manganese	mg/L	0.05	0.005	0.109	0.054
Total Mercury (Low Level)	mg/L	0.000026	0.000025	0.00122	<0.000025
Total Molybdenum	mg/L		0.003	0.080	0.016
Total Nickel	mg/L	0.025	0.01	<0.01	<0.01
Total Phosphorus	mg/L		0.08	0.15	<0.08
Total Potassium	mg/L		0.6	13.0	6.8
Total Selenium	mg/L	0.001	0.001	0.014	<0.001
Total Silicon	mg/L		0.032	1.32	4.01
Total Silver	mg/L	0.0001	0.00005	0.00009	0.00008
Total Sodium	mg/L	200	0.6	1640	38.9
Total Strontium	mg/L		0.001	0.521	0.568
Total Sulphur	mg/L		0.3	1.8	29.5
Total Thallium	mg/L		0.0005	<0.0005	<0.0005
Total Tin	mg/L		0.000025	0.000783	0.000248
Total Uranium	mg/L	0.01	0.001	<0.001	<0.001
Total Vanadium	mg/L		0.001	<0.001	<0.001
Total Zinc	mg/L	0.03	0.001	0.079	0.038
Total Zirconium	mg/L		0.01	<0.01	<0.01

Certified By:

Jmills



AGAT Laboratories

Certificate of Analysis

AGAT WORK ORDER: 14E811552

PROJECT NO:

6310 ROPER ROAD
EDMONTON, ALBERTA
CANADA T6B 3P9
TEL (780)395-2525
FAX (780)462-2490
<http://www.agatlabs.com>

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

ATTENTION TO: Sandra Marken

CCME / Alberta Tier 1 Metals (Total) (Full Package)

DATE RECEIVED: 2014-02-16

DATE REPORTED: 2014-02-21

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to ABTier1 GW (Ag, F)
5162668-5162677 < - Values refer to Report Detection Limits.

Certified By:



AGAT Laboratories

Certificate of Analysis

AGAT WORK ORDER: 14E811552

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EDMONTON, ALBERTA
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CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

ATTENTION TO: Sandra Marken

Routine Chemistry Water Analysis

DATE RECEIVED: 2014-02-16

DATE REPORTED: 2014-02-21

		SAMPLE DESCRIPTION:		WW04-A	WW05-A
		SAMPLE TYPE:		Water	Water
		DATE SAMPLED:		2/12/2014	2/14/2014
Parameter	Unit	G / S	RDL	5162668	5162677
pH	pH Units	6.5-8.5	NA	8.93	7.81
p - Alkalinity (as CaCO ₃)	mg/L		5	140	<5
T - Alkalinity (as CaCO ₃)	mg/L		5	1580	184
Bicarbonate	mg/L		5	1590	224
Carbonate	mg/L		5	168	<5
Hydroxide	mg/L		5	<5	<5
Electrical Conductivity	uS/cm		1	6150	500
Fluoride	mg/L	1.5	0.05	0.06	<0.05
Chloride	mg/L	250	1	1310	5
Nitrite	mg/L	3.2	0.05	<0.05	<0.05
Nitrate	mg/L	45	0.5	<0.5	<0.5
Sulfate	mg/L	500	1	3	104
Dissolved Calcium	mg/L		0.3	5.5	47.9
Dissolved Magnesium	mg/L		0.2	3.9	21.0
Dissolved Sodium	mg/L	200	0.6	1590	40.9
Dissolved Potassium	mg/L		0.6	13.3	7.3
Dissolved Iron	mg/L	0.3	0.1	<0.1	0.2
Dissolved Manganese	mg/L	0.05	0.005	0.044	0.055
Calculated TDS	mg/L		1	3870	337
Hardness	mg CaCO ₃ /L		1	30	206
Ion Balance	%		0.1	102	102
Nitrate + Nitrite-N	mg/L		0.02	<0.02	<0.02
Nitrate-N	mg/L		0.02	<0.02	<0.02
Nitrite-N	mg/L		0.01	<0.01	<0.01

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to CCME (D Water)

5162668-5162677 < - Values refer to Report Detection Limits.

Certified By:

Jmills



AGAT Laboratories

Certificate of Analysis

AGAT WORK ORDER: 14E811552

PROJECT NO:

6310 ROPER ROAD
EDMONTON, ALBERTA
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TEL (780)395-2525
FAX (780)462-2490
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CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

ATTENTION TO: Sandra Marken

Water Analysis - Cr6

DATE RECEIVED: 2014-02-16

DATE REPORTED: 2014-02-21

		SAMPLE DESCRIPTION:		WW04-A	WW05-A
		SAMPLE TYPE:		Water	Water
		DATE SAMPLED:		2/12/2014	2/14/2014
Parameter	Unit	G / S	RDL	5162668	5162677
Hexavalent Chromium	µg/L	5	<5	<5	<5

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

Certified By:

gmills



AGAT Laboratories

Certificate of Analysis

AGAT WORK ORDER: 14E811552

PROJECT NO:

6310 ROPER ROAD
EDMONTON, ALBERTA
CANADA T6B 3P9
TEL (780)395-2525
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<http://www.agatlabs.com>

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

ATTENTION TO: Sandra Marken

Water Analysis - Phenols

DATE RECEIVED: 2014-02-16

DATE REPORTED: 2014-02-21

		SAMPLE DESCRIPTION:		WW04-A	WW05-A
		SAMPLE TYPE:		Water	Water
		DATE SAMPLED:		2/12/2014	2/14/2014
Parameter	Unit	G / S	RDL	5162668	5162677
Phenols	mg/L	0.002	0.02	0.002	

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

Certified By:

Jmills

Quality Assurance

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

AGAT WORK ORDER: 14E811552

PROJECT NO:

ATTENTION TO: Sandra Marken

Trace Organics Analysis

RPT Date: Feb 21, 2014			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

ConocoPhillips - Petroleum Hydrocarbons (BTEXS/F1-F4) in Water

Benzene	616	5162668	< 0.0005	< 0.0005	NA	< 0.0005	92%	80%	120%	102%	80%	120%	99%	70%	130%
Toluene	616	5162668	< 0.0005	< 0.0005	NA	< 0.0005	94%	80%	120%	102%	80%	120%	100%	70%	130%
Ethylbenzene	616	5162668	< 0.0005	< 0.0005	NA	< 0.0005	97%	80%	120%	101%	80%	120%	99%	70%	130%
Xylenes	616	5162668	< 0.0005	< 0.0005	NA	< 0.0005	93%	80%	120%	102%	80%	120%	100%	70%	130%
Styrene	616	5162668	< 0.0005	< 0.0005	NA	< 0.0005	85%	80%	120%	96%	80%	120%	92%	70%	130%
C6 - C10 (F1)	616	5162668	< 0.1	< 0.1	NA	< 0.1	118%	80%	120%	83%	80%	120%	70%	70%	130%
C>10 - C16	569	5162668	< 0.1	< 0.1	NA	< 0.1	84%	80%	120%	95%	80%	120%	83%	70%	130%
C16 - C34	569	5162668	0.8	1.0	22.2%	< 0.1	86%	80%	120%	87%	80%	120%	90%	70%	130%
C>34 - C50	569	5162668	< 0.1	< 0.1	NA	< 0.1	86%	80%	120%						

Polyaromatic Hydrocarbon Analysis - Water FWAL

Naphthalene	333	TW	0.00002	0.00002	0.0%	< 0.00001	99%	70%	130%	86%	70%	130%	88%	70%	130%
2-Methylnaphthalene	333	TW	< 0.00001	< 0.00001	NA	< 0.00001				86%	70%	130%	88%	70%	130%
Quinoline	333	TW	< 0.00005	< 0.00005	NA	< 0.00005	103%	70%	130%	90%	70%	130%	99%	70%	130%
Acenaphthylene	333	TW	< 0.00001	< 0.00001	NA	< 0.00001	88%	70%	130%	76%	70%	130%	75%	70%	130%
Acenaphthene	333	TW	< 0.00001	< 0.00001	NA	< 0.00001	103%	70%	130%	89%	70%	130%	94%	70%	130%
Fluorene	333	TW	< 0.00001	< 0.00001	NA	< 0.00001	97%	70%	130%	83%	70%	130%	89%	70%	130%
Phenanthrene	333	TW	< 0.00001	< 0.00001	NA	< 0.00001	95%	70%	130%	88%	70%	130%	91%	70%	130%
Anthracene	333	TW	< 0.00001	< 0.00001	NA	< 0.00001	87%	70%	130%	76%	70%	130%	78%	70%	130%
Acridine	333	TW	< 0.00005	< 0.00005	NA	< 0.00005	107%	70%	130%	91%	70%	130%	95%	70%	130%
Fluoranthene	333	TW	< 0.00001	< 0.00001	NA	< 0.00001	96%	70%	130%	80%	70%	130%	83%	70%	130%
Pyrene	333	TW	< 0.00001	< 0.00001	NA	< 0.00001	98%	70%	130%	81%	70%	130%	84%	70%	130%
Benzo(a)anthracene	333	TW	< 0.00001	< 0.00001	NA	< 0.00001	96%	70%	130%	77%	70%	130%	80%	70%	130%
Chrysene	333	TW	< 0.00001	< 0.00001	NA	< 0.00001	103%	70%	130%	90%	70%	130%	93%	70%	130%
Benzo(b)fluoranthene	333	TW	< 0.00001	< 0.00001	NA	< 0.00001	94%	70%	130%	80%	70%	130%	81%	70%	130%
Benzo(k)fluoranthene	333	TW	< 0.00001	< 0.00001	NA	< 0.00001	95%	70%	130%	82%	70%	130%	83%	70%	130%
Benzo(a)pyrene	333	TW	< 0.00001	< 0.00001	NA	< 0.00001	87%	70%	130%	71%	70%	130%	72%	70%	130%
Indeno(1,2,3-cd)pyrene	333	TW	< 0.00001	< 0.00001	NA	< 0.00001	88%	70%	130%	72%	70%	130%	79%	70%	130%
Dibenzo(ah)anthracene	333	TW	< 0.00001	< 0.00001	NA	< 0.00001	91%	70%	130%	75%	70%	130%	80%	70%	130%
Benzo(ghi)perylene	333	TW	< 0.00001	< 0.00001	NA	< 0.00001	91%	70%	130%	76%	70%	130%	84%	70%	130%

Volatile Organic Compounds in Water

Chloromethane	472	5153274	< 0.001	< 0.001	NA	< 0.001	131%	60%	140%	117%	60%	140%	136%	60%	140%
Vinyl Chloride	472	5153274	< 0.001	< 0.001	NA	< 0.001	140%	60%	140%	108%	60%	140%	107%	60%	140%
Bromomethane	472	5153274	< 0.001	< 0.001	NA	< 0.001	118%	60%	140%	93%	60%	140%	115%	60%	140%
Chloroethane	472	5153274	< 0.001	< 0.001	NA	< 0.001	116%	60%	140%	109%	60%	140%	109%	60%	140%
Trichlorofluoromethane	472	5153274	< 0.001	< 0.001	NA	< 0.001	127%	60%	140%	112%	60%	140%	109%	60%	140%
Acetone	472	5153274	< 0.01	< 0.01	NA	< 0.01	102%	60%	140%	99%	60%	140%	63%	60%	140%
1,1-Dichloroethylene	472	5153274	< 0.001	< 0.001	NA	< 0.001	112%	60%	140%	99%	60%	140%	101%	60%	140%
Methylene Chloride	472	5153274	< 0.001	< 0.001	NA	< 0.001	138%	60%	140%	111%	60%	140%	115%	60%	140%
Methyl tert-butyl ether	472	5154154	< 0.001	< 0.001	NA	< 0.001	71%	60%	140%	66%	60%	140%	64%	60%	140%

Quality Assurance

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

AGAT WORK ORDER: 14E811552

PROJECT NO:

ATTENTION TO: Sandra Marken

Trace Organics Analysis (Continued)

RPT Date: Feb 21, 2014			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Methyl Ethyl Ketone	472	5153274	< 0.01	< 0.01	NA	< 0.01	118%	60%	140%	131%	60%	140%	73%	60%	140%
trans- 1,2-dichloroethylene	472	5153274	0.013	0.013	0.0%	< 0.001	120%	60%	140%	104%	60%	140%	103%	60%	140%
1,1-Dichloroethane	472	5153274	< 0.001	< 0.001	NA	< 0.001	101%	60%	140%	104%	60%	140%	102%	60%	140%
cis- 1,2-Dichloroethylene	472	5153274	0.0109	0.0114	4.5%	< 0.001	120%	60%	140%	108%	60%	140%	107%	60%	140%
Chloroform	472	5153274	< 0.001	< 0.001	NA	< 0.001	111%	60%	140%	102%	60%	140%	102%	60%	140%
1,2-Dichloroethane	472	5153274	< 0.001	< 0.001	0.0%	< 0.001	105%	60%	140%	99%	60%	140%	99%	60%	140%
1,1,1-Trichloroethane	472	5153274	< 0.001	< 0.001	NA	< 0.001	139%	60%	140%	110%	60%	140%	95%	60%	140%
Carbon Tetrachloride	472	5153274	< 0.0005	< 0.0005	NA	< 0.0005	97%	60%	140%	72%	60%	140%	71%	60%	140%
Benzene	472	5153274	< 0.0005	< 0.0005	NA	< 0.0005	107%	60%	140%	102%	60%	140%	102%	60%	140%
1,2-Dichloropropane	472	5153274	< 0.001	< 0.001	NA	< 0.001	110%	60%	140%	102%	60%	140%	102%	60%	140%
Trichloroethylene	472	5153274	0.093	0.097	4.2%	< 0.001	103%	60%	140%	97%	60%	140%	90%	60%	140%
Bromodichloromethane	472	5153274	< 0.001	< 0.001	NA	< 0.001	95%	60%	140%	85%	60%	140%	87%	60%	140%
trans-1,3-Dichloropropene	472	5153274	< 0.001	< 0.001	NA	< 0.001	115%	60%	140%	117%	60%	140%	97%	60%	140%
Methyl Isobutyl Ketone	472	5153274	< 0.01	< 0.01	NA	< 0.01	105%	60%	140%	108%	60%	140%	105%	60%	140%
cis-1,3-Dichloropropene	472	5153274	< 0.001	< 0.001	NA	< 0.001	101%	60%	140%	99%	60%	140%	88%	60%	140%
1,1,2-Trichloroethane	472	5153274	< 0.001	< 0.001	NA	< 0.001	107%	60%	140%	103%	60%	140%	103%	60%	140%
Toluene	472	5153274	< 0.0005	< 0.0005	NA	< 0.0005	107%	60%	140%	102%	60%	140%	102%	60%	140%
2-Hexanone	472	5153274	< 0.01	< 0.01	NA	< 0.01	91%	60%	140%	95%	60%	140%	72%	60%	140%
Dibromochloromethane	472	5153274	< 0.001	< 0.001	NA	< 0.001	94%	60%	140%	91%	60%	140%	85%	60%	140%
Ethylene Dibromide	472	5153274	< 0.001	< 0.001	NA	< 0.001	121%	60%	140%	117%	60%	140%	104%	60%	140%
Tetrachloroethene	472	5154154	< 0.001	< 0.001	NA	< 0.001	105%	60%	140%	70%	60%	140%	108%	60%	140%
1,1,1,2-Tetrachloroethane	472	5153274	< 0.001	< 0.001	NA	< 0.001	100%	60%	140%	92%	60%	140%	91%	60%	140%
Chlorobenzene	472	5153274	< 0.001	< 0.001	NA	< 0.001	108%	60%	140%	100%	60%	140%	101%	60%	140%
Ethylbenzene	472	5153274	< 0.0005	< 0.0005	NA	< 0.0005	107%	60%	140%	104%	60%	140%	104%	60%	140%
m & p-Xylene	472	5153274	< 0.0005	< 0.0005	NA	< 0.0005	103%	60%	140%	100%	60%	140%	100%	60%	140%
Bromoform	472	5153274	< 0.001	< 0.001	NA	< 0.001	103%	60%	140%	97%	60%	140%	93%	60%	140%
Styrene	472	5153274	< 0.001	< 0.001	NA	< 0.001	101%	60%	140%	95%	60%	140%	95%	60%	140%
1,1,2,2-Tetrachloroethane	472	5153274	< 0.001	< 0.001	NA	< 0.001	119%	60%	140%	112%	60%	140%	115%	60%	140%
o-Xylene	472	5153274	< 0.0005	< 0.0005	NA	< 0.0005	103%	60%	140%	100%	60%	140%	101%	60%	140%
1,3-Dichlorobenzene	472	5153274	< 0.0005	< 0.0005	NA	< 0.0005	107%	60%	140%	98%	60%	140%	99%	60%	140%
1,4-Dichlorobenzene	472	5153274	< 0.0005	< 0.0005	NA	< 0.0005	108%	60%	140%	100%	60%	140%	100%	60%	140%
1,2-Dichlorobenzene	472	5153274	< 0.0005	< 0.0005	NA	< 0.0005	106%	60%	140%	99%	60%	140%	99%	60%	140%
1,2,4-Trichlorobenzene	472	5153274	< 0.001	< 0.001	NA	< 0.001	114%	60%	140%	102%	60%	140%	101%	60%	140%
Alcohol Analysis in Water - Methanol															
Methanol	4066	5162668	<1	<1	NA	< 1	102%	80%	120%	85%	70%	130%	93%	70%	130%
Glycols Analysis in Water															
Propylene Glycol	19	5162677	<10	<10	NA	< 10	79%	70%	130%	86%	70%	130%	88%	60%	140%
Monoethylene Glycol	19	5162677	<10	<10	NA	< 10	79%	70%	130%	86%	70%	130%	88%	60%	140%

Quality Assurance

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

AGAT WORK ORDER: 14E811552

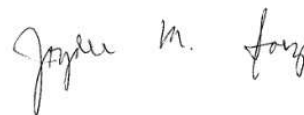
PROJECT NO:

ATTENTION TO: Sandra Marken

Trace Organics Analysis (Continued)

RPT Date: Feb 21, 2014			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Diethylene Glycol	19	5162677	<5	<5	NA	< 5	77%	70%	130%	86%	70%	130%	87%	60%	140%
Triethylene Glycol	19	5162677	<10	<10	NA	< 10	75%	70%	130%	83%	70%	130%	83%	60%	140%
Tetraethylene Glycol	19	5162677	<10	<10	NA	< 10	78%	70%	130%	75%	70%	130%	77%	60%	140%

Certified By:



Quality Assurance

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

AGAT WORK ORDER: 14E811552

PROJECT NO:

ATTENTION TO: Sandra Marken

Water Analysis															
RPT Date: Feb 21, 2014			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

CCME / Alberta Tier 1 Metals (Total) (Full Package)

Total Aluminum	50	5161401	0.835	0.812	2.8%	< 0.002	96%	80%	120%				95%	80%	120%
Total Antimony	49	5161401	0.048	0.048	0.0%	< 0.001	106%	80%	120%				88%	80%	120%
Total Arsenic	49	5161401	0.001	0.001	NA	< 0.001	97%	80%	120%				100%	80%	120%
Total Barium	49	5161401	0.15	0.15	NA	< 0.05	104%	80%	120%				94%	80%	120%
Total Boron	49	5161401	0.04	0.04	NA	< 0.01	110%	80%	120%				99%	80%	120%
Total Cadmium	49	5161401	0.00052	0.00053	1.9%	< 0.00005	92%	80%	120%				98%	80%	120%
Total Calcium	49	5161401	27.0	27.0	0.0%	< 0.3	100%	80%	120%				97%	80%	120%
Total Chromium	49	5161401	0.0083	0.0087	4.7%	< 0.001	87%	80%	120%				96%	80%	120%
Total Copper	49	5161401	0.220	0.213	3.2%	< 0.002	95%	80%	120%				82%	80%	120%
Total Iron	49	5161401	2.0	2.0	0.0%	< 0.1	92%	80%	120%				93%	80%	120%
Total Lead	49	5161401	0.036	0.036	NA	< 0.001	98%	80%	120%				96%	80%	120%
Total Lithium	49	5161401	0.032	0.031	3.2%	< 0.001	92%	80%	120%				95%	80%	120%
Total Magnesium	49	5161401	9.0	9.0	0.0%	< 0.2	96%	80%	120%				95%	80%	120%
Total Manganese	49	5161401	0.033	0.033	NA	< 0.005	91%	80%	120%				92%	80%	120%
Total Mercury (Low Level)	50	5161401	<0.	<0.	NA	< 0.000025	111%	80%	120%				91%	80%	120%
Total Molybdenum	49	5161401	0.003	0.003	NA	< 0.003	97%	80%	120%				94%	80%	120%
Total Nickel	49	5161401	< 0.01	< 0.01	NA	< 0.01	92%	80%	120%				97%	80%	120%
Total Phosphorus	49	5161401	0.31	0.30	3.3%	< 0.08	82%	80%	120%				89%	80%	120%
Total Potassium	49	5161401	2.0	2.0	0.0%	< 0.6	91%	80%	120%				91%	80%	120%
Total Selenium	49	5161401	< 0.001	< 0.001	NA	< 0.001	94%	80%	120%				99%	80%	120%
Total Silicon	49	5161401	13.0	13.0	0.0%	< 0.032	91%	80%	120%				98%	80%	120%
Total Silver	49	5161401	0.00011	< 0.00005	NA	< 0.00005	94%	80%	120%				96%	80%	120%
Total Sodium	49	5161401	172	178	3.4%	< 0.6	92%	80%	120%				101%	80%	120%
Total Strontium	49	5161401	0.088	0.082	7.1%	< 0.001	88%	80%	120%				96%	80%	120%
Total Sulphur	49	5161401	12.0	12.0	0.0%	< 0.3	81%	80%	120%				90%	80%	120%
Total Thallium	49	5161401	< 0.0005	< 0.0005	NA	< 0.0005	96%	80%	120%				98%	80%	120%
Total Tin	49	5161401	0.00132	0.00119	10.4%	< 0.000025	102%	80%	120%				99%	80%	120%
Total Uranium	49	5161401	< 0.001	< 0.001	NA	< 0.001	97%	80%	120%				101%	80%	120%
Total Vanadium	49	5161401	0.005	0.005	NA	< 0.001	89%	80%	120%				95%	80%	120%
Total Zinc	49	5161401	1.07	1.10	2.8%	< 0.001	90%	80%	120%				85%	80%	120%
Total Zirconium	49	5161401	<0.01	<0.01	NA	< 0.01	98%	80%	120%				92%	80%	120%

CCME / Alberta Tier 1 Metals (Dissolved) (Full Package)

Dissolved Aluminum	50	5162668	<0.002	<0.002	NA	< 0.002	98%	80%	120%				114%	80%	120%
Dissolved Antimony	50	5162668	0.001	0.001	NA	< 0.001	98%	80%	120%				82%	80%	120%
Dissolved Arsenic	50	5162668	< 0.001	< 0.001	NA	< 0.001	96%	80%	120%				107%	80%	120%
Dissolved Barium	50	5162668	1.41	1.33	5.8%	< 0.05	94%	80%	120%				80%	80%	120%
Dissolved Boron	50	5162668	0.80	0.85	6.1%	< 0.01	101%	80%	120%				93%	80%	120%
Dissolved Cadmium	50	5162668	0.00009	0.00010	10.5%	< 0.00005	91%	80%	120%				81%	80%	120%

Quality Assurance

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

AGAT WORK ORDER: 14E811552

PROJECT NO:

ATTENTION TO: Sandra Marken

Water Analysis (Continued)

RPT Date: Feb 21, 2014			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Dissolved Calcium	49	5162668	5.5	5.7	3.5%	< 0.3	105%	80%	120%				103%	80%	120%
Dissolved Chromium	50	5162668	< 0.001	< 0.001	NA	< 0.001	97%	80%	120%				95%	80%	120%
Dissolved Copper	50	5162668	< 0.002	< 0.002	NA	< 0.002	92%	80%	120%				94%	80%	120%
Dissolved Iron	49	5162668	<0.1	<0.1	0.0%	< 0.1	101%	80%	120%				97%	80%	120%
Dissolved Lead	50	5162668	< 0.001	< 0.001	NA	< 0.001	90%	80%	120%				86%	80%	120%
Dissolved Lithium	50	5162668	1.35	1.39	2.9%	< 0.001	93%	80%	120%				88%	80%	120%
Dissolved Magnesium	49	5162668	3.9	3.8	2.6%	< 0.2	107%	80%	120%				104%	80%	120%
Dissolved Manganese	49	5162668	0.044	0.049	11.4%	< 0.005	93%	80%	120%				95%	80%	120%
Dissolved Mercury (Low Level)	50	5162668	0.00200	0.00200	NA	< 0.000025	81%	80%	120%				97%	80%	120%
Dissolved Molybdenum	50	5162668	0.078	0.076	2.6%	< 0.003	94%	80%	120%				83%	80%	120%
Dissolved Nickel	50	5162668	< 0.003	< 0.003	NA	< 0.003	85%	80%	120%				100%	80%	120%
Dissolved Phosphorus	49	5162668	<0.08	<0.08	NA	< 0.08	92%	80%	120%				96%	80%	120%
Dissolved Potassium	49	5162668	13.4	13.4	0.3%	< 0.6	96%	80%	120%				98%	80%	120%
Dissolved Selenium	50	5162668	< 0.001	< 0.001	NA	< 0.001	102%	80%	120%				106%	80%	120%
Dissolved Silver	50	5162668	0.00002	<0.00001	NA	< 0.00001	91%	80%	120%				80%	80%	120%
Dissolved Silicon	49	5162668	1.19	1.21	1.7%	< 0.032	98%	80%	120%				106%	80%	120%
Dissolved Sodium	49	5162668	1590	1630	2.5%	< 0.6	100%	80%	120%				102%	80%	120%
Dissolved Strontium	49	5162668	0.497	0.520	4.5%	< 0.001	95%	80%	120%				96%	80%	120%
Dissolved Sulphur	49	5162668	2.3	2.5	8.3%	< 0.3	90%	80%	120%				98%	80%	120%
Dissolved Thallium	50	5162668	< 0.0001	< 0.0001	NA	< 0.0001	89%	80%	120%				87%	80%	120%
Dissolved Tin	50	5162668	< 0.00025	< 0.00025	NA	< 0.00025	96%	80%	120%				83%	80%	120%
Dissolved Uranium	50	5162668	< 0.001	< 0.001	NA	< 0.001	90%	80%	120%				86%	80%	120%
Dissolved Vanadium	50	5162668	< 0.001	< 0.001	NA	< 0.001	80%	80%	120%				100%	80%	120%
Dissolved Zinc	50	5162668	0.008	0.007	13.3%	< 0.001	96%	80%	120%				100%	80%	120%
Dissolved Zirconium	49	5162668	<0.06	<0.06	0.0%	< 0.06	110%	80%	120%				94%	80%	120%
Routine Chemistry Water Analysis															
pH	539	5161401	9.87	9.88	0.1%		100%	80%	120%						
p - Alkalinity (as CaCO ₃)	539	5161401	119	119	0.0%	< 5									
T - Alkalinity (as CaCO ₃)	539	5161401	334	332	0.6%	< 5	103%	80%	120%						
Bicarbonate	539	5161401	118	116	1.7%	< 5									
Carbonate	539	5161401	142	142	0.0%	< 5									
Electrical Conductivity	539	5161401	760	784	3.1%	< 1	108%	80%	120%						
Fluoride	586	5162677	< 0.05	< 0.05	NA	< 0.05	95%	80%	120%	103%	80%	120%	104%	80%	120%
Chloride	586	5162677	5	5	0.0%	< 1	88%	80%	120%	93%	80%	120%	98%	80%	120%
Nitrite	586	5162677	< 0.05	< 0.05	NA	< 0.05	91%	80%	120%	96%	80%	120%	99%	80%	120%
Nitrate	586	5162677	< 0.5	< 0.5	NA	< 0.5	87%	80%	120%	95%	80%	120%	98%	80%	120%
Sulfate	586	5162677	104	104	0.0%	< 1	87%	80%	120%	93%	80%	120%	102%	80%	120%
Dissolved Calcium	49	5162668	5.5	5.7	3.5%	< 0.3	105%	80%	120%				103%	80%	120%
Dissolved Magnesium	49	5162668	3.9	3.8	2.9%	< 0.2	107%	80%	120%				104%	80%	120%

Quality Assurance

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

AGAT WORK ORDER: 14E811552

PROJECT NO:

ATTENTION TO: Sandra Marken

Water Analysis (Continued)

RPT Date: Feb 21, 2014			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Dissolved Sodium	49	5162668	1590	1630	2.5%	< 0.6	100%	80%	120%				102%	80%	120%
Dissolved Potassium	49	5162668	13.4	13.4	0.3%	< 0.6	96%	80%	120%				98%	80%	120%
Dissolved Iron	49	5162668	<0.1	<0.1	NA	< 0.1	101%	80%	120%				97%	80%	120%
Dissolved Manganese	49	5162668	0.044	0.049	10.8%	< 0.005	93%	80%	120%				95%	80%	120%
Comments: N/A - Not Available.															
Water Analysis - Phenols															
Phenols	116	5162668	0.02	0.02	0.0%	< 0.002	91%	80%	120%	98%	80%	120%	94%	80%	120%
Water Analysis - Cr6															
Hexavalent Chromium	52	5162677	< 5	< 5	0.0%	< 5	90%	80%	120%	98%	80%	120%	103%	80%	120%

Certified By:



Method Summary

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

AGAT WORK ORDER: 14E811552

PROJECT NO:

ATTENTION TO: Sandra Marken

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Methanol	TO 1420	EPA SW-846 3500 & 8015	GC/FID
4-Methyl-2-pentanone	TO 1420	EPA 8015	GC/FID
Benzene	ORG-170-5110/5140/5430/5440	EPA 8260-W	GC/MS
Toluene	ORG-170-5110/5140/5430/5440	EPA 8260-W	GC/MS
Ethylbenzene	ORG-170-5110/5140/5430/5440	EPA 8260-W	GC/MS
Xylenes	ORG-170-5110/5140/5430/5440	EPA 8260-W	GC/MS
Styrene	ORG-170-5110/5140/5430/5440	EPA 8260-W	GC/MS
C6 - C10 (F1)	ORG-170-5110/5140/5430/5440	CCME Tier 1 Method-W L	GC/FID
C6 - C10 (F1 minus BTEX)	ORG-170-5110/5140/5430/5440	CCME Tier 1 Method-W L	GC/FID
C>10 - C16	ORG-170-5120/5300	CCME Tier 1 Method-W H	GC/FID
C16 - C34	ORG-170-5120/5300	CCME Tier 1 Method-W H	GC/FID
C>34 - C50	ORG-170-5120/5300	CCME Tier 1 Method-W H	GC/FID
Toluene-d8 (BTEX)	ORG-170-5110/5140/5430/5440	EPA 8260-W	GC/MS
o-Terphenyl (F2-F4)	ORG-170-5120/5300	CCME Tier 1 Method-W H	GC/FID
Propylene Glycol	TO 1410	EPA SW-846 8015-W	GC/FID
Monoethylene Glycol	TO 1410	EPA SW-846 8015-W	GC/FID
Diethylene Glycol	TO 1410	EPA SW-846 8015-W	GC/FID
Triethylene Glycol	TO 1410	EPA SW-846 8015-W	GC/FID
Tetraethylene Glycol	TO 1410	EPA SW-846 8015-W	GC/FID
Heptanol	TO 1410	EPA SW-846 8015	GC/FID
Naphthalene	ORG-170-5421	EPA SW-846 3510 & 8270	GC/MS
2-Methylnaphthalene	ORG-170-5421	EPA SW-846 3510 & 8270	GC/MS
Quinoline	ORG-170-5421	EPA SW-846 3510 & 8270	GC/MS
Acenaphthylene	ORG-170-5421	EPA SW-846 3510 & 8270	GC/MS
Acenaphthene	ORG-170-5421	EPA SW-846 3510 & 8270	GC/MS
Fluorene	ORG-170-5421	EPA SW-846 3510 & 8270	GC/MS
Phenanthrene	ORG-170-5421	EPA SW-846 3510 & 8270	GC/MS
Anthracene	ORG-170-5421	EPA SW-846 3510 & 8270	GC/MS
Acridine	ORG-170-5421	EPA SW-846 3510 & 8270	GC/MS
Fluoranthene	ORG-170-5421	EPA SW-846 3510 & 8270	GC/MS
Pyrene	ORG-170-5421	EPA SW-846 3510 & 8270	GC/MS
Benzo(a)anthracene	ORG-170-5421	EPA SW-846 3510 & 8270	GC/MS
Chrysene	ORG-170-5421	EPA SW-846 3510 & 8270	GC/MS
Benzo(b)fluoranthene	ORG-170-5421	EPA SW-846 3510 & 8270	GC/MS
Benzo(k)fluoranthene	ORG-170-5421	EPA SW-846 3510 & 8270	GC/MS
Benzo(a)pyrene	ORG-170-5421	EPA SW-846 3510 & 8270	GC/MS
Indeno(1,2,3-cd)pyrene	ORG-170-5421	EPA SW-846 3510 & 8270	GC/MS
Dibenzo(ah)anthracene	ORG-170-5421	EPA SW-846 3510 & 8270	GC/MS
Benzo(ghi)perylene	ORG-170-5421	EPA SW-846 3510 & 8270	GC/MS
2-Fluorobiphenyl	ORG-170-5420/-5421	EPA SW-846 3510 & 8270	GC/MS
p-Terphenyl-d14	ORG-170-5420/-5421	EPA SW-846 3510 & 8270	GC/MS
Chloromethane	ORG-170-5400 & ORG-170-5410	EPA SW-846 5230B & 8260	GC/MS

Method Summary

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

AGAT WORK ORDER: 14E811552

PROJECT NO:

ATTENTION TO: Sandra Marken

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Vinyl Chloride	ORG-170-5400 & ORG-170-5410	EPA SW-846 5230B & 8260	GC/MS
Bromomethane	ORG-170-5400 & ORG-170-5410	EPA SW-846 5230B & 8260	GC/MS
Chloroethane	ORG-170-5400 & ORG-170-5410	EPA SW-846 5230B & 8260	GC/MS
Trichlorofluoromethane	ORG-170-5400 & ORG-170-5410	EPA SW-846 5230B & 8260	GC/MS
Acetone	ORG-170-5400 & ORG-170-5410	EPA SW-846 5230B & 8260	GC/MS
1,1-Dichloroethylene	ORG-170-5400 & ORG-170-5410	EPA SW-846 5230B & 8260	GC/MS
Methylene Chloride	ORG-170-5400 & ORG-170-5410	EPA SW-846 5230B & 8260	GC/MS
Methyl tert-butyl ether	ORG-170-5400 & ORG-170-5410	EPA SW-846 5230B & 8260	GC/MS
Methyl Ethyl Ketone	ORG-170-5400 & ORG-170-5410	EPA SW-846 5230B & 8260	GC/MS
trans- 1,2-dichloroethylene	ORG-170-5400 & ORG-170-5410	EPA SW-846 5230B & 8260	GC/MS
1,1-Dichloroethane	ORG-170-5400 & ORG-170-5410	EPA SW-846 5230B & 8260	GC/MS
cis- 1,2-Dichloroethylene	ORG-170-5400 & ORG-170-5410	EPA SW-846 5230B & 8260	GC/MS
Chloroform	ORG-170-5400 & ORG-170-5410	EPA SW-846 5230B & 8260	GC/MS
1,2-Dichloroethane	ORG-170-5400 & ORG-170-5410	EPA SW-846 5230B & 8260	GC/MS
1,1,1-Trichloroethane	ORG-170-5400 & ORG-170-5410	EPA SW-846 5230B & 8260	GC/MS
Carbon Tetrachloride	ORG-170-5400 & ORG-170-5410	EPA SW-846 5230B & 8260	GC/MS
Benzene	ORG-170-5400 & ORG-170-5410	EPA SW-846 5230B & 8260	GC/MS
1,2-Dichloropropane	ORG-170-5400 & ORG-170-5410	EPA SW-846 5230B & 8260	GC/MS
Trichloroethylene	ORG-170-5400 & ORG-170-5410	EPA SW-846 5230B & 8260	GC/MS
Bromodichloromethane	ORG-170-5400 & ORG-170-5410	EPA SW-846 5230B & 8260	GC/MS
trans-1,3-Dichloropropene	ORG-170-5400 & ORG-170-5410	EPA SW-846 5230B & 8260	GC/MS
Methyl Isobutyl Ketone	ORG-170-5400 & ORG-170-5410	EPA SW-846 5230B & 8260	GC/MS
cis-1,3-Dichloropropene	ORG-170-5400 & ORG-170-5410	EPA SW-846 5230B & 8260	GC/MS
1,1,2-Trichloroethane	ORG-170-5400 & ORG-170-5410	EPA SW-846 5230B & 8260	GC/MS
Toluene	ORG-170-5400 & ORG-170-5410	EPA SW-846 5230B & 8260	GC/MS
2-Hexanone	ORG-170-5400 & ORG-170-5410	EPA SW-846 5230B & 8260	GC/MS
Dibromochloromethane	ORG-170-5400 & ORG-170-5410	EPA SW-846 5230B & 8260	GC/MS
Ethylene Dibromide	ORG-170-5400 & ORG-170-5410	EPA SW-846 5230B & 8260	GC/MS

Method Summary

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AGAT WORK ORDER: 14E811552

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PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Tetrachloroethene	ORG-170-5400 & ORG-170-5410	EPA SW-846 5230B & 8260	GC/MS
1,1,1,2-Tetrachloroethane	ORG-170-5400 & ORG-170-5410	EPA SW-846 5230B & 8260	GC/MS
Chlorobenzene	ORG-170-5400 & ORG-170-5410	EPA SW-846 5230B & 8260	GC/MS
Ethylbenzene	ORG-170-5400 & ORG-170-5410	EPA SW-846 5230B & 8260	GC/MS
m & p-Xylene	ORG-170-5400 & ORG-170-5410	EPA SW-846 5230B & 8260	GC/MS
Bromoform	ORG-170-5400 & ORG-170-5410	EPA SW-846 5230B & 8260	GC/MS
Styrene	ORG-170-5400 & ORG-170-5410	EPA SW-846 5230B & 8260	GC/MS
1,1,2,2-Tetrachloroethane	ORG-170-5400 & ORG-170-5410	EPA SW-846 5230B & 8260	GC/MS
o-Xylene	ORG-170-5400 & ORG-170-5410	EPA SW-846 5230B & 8260	GC/MS
1,3-Dichlorobenzene	ORG-170-5400 & ORG-170-5410	EPA SW-846 5230B & 8260	GC/MS
1,4-Dichlorobenzene	ORG-170-5400 & ORG-170-5410	EPA SW-846 5230B & 8260	GC/MS
1,2-Dichlorobenzene	ORG-170-5400 & ORG-170-5410	EPA SW-846 5230B & 8260	GC/MS
1,2,4-Trichlorobenzene	ORG-170-5400 & ORG-170-5410	EPA SW-846 5230B & 8260	GC/MS
Total Xylenes	ORG-170-5400 & ORG-170-5410	EPA SW-846 5230B & 8260	GC/MS
Toluene-d8	ORG-170-5400 & ORG-170-5410	EPA SW-846 5230B & 8260	GC/MS

Method Summary

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

AGAT WORK ORDER: 14E811552

PROJECT NO:

ATTENTION TO: Sandra Marken

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Dissolved Aluminum	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP/MS
Dissolved Antimony	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP-MS
Dissolved Arsenic	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP-MS
Dissolved Barium	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP-MS
Dissolved Boron	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP-MS
Dissolved Cadmium	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP/MS
Dissolved Calcium	INOR-171-6202, INOR-171-6100	SM 3120 B	ICP/OES
Dissolved Chromium	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP/MS
Dissolved Copper	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP-MS
Dissolved Iron	INOR-171-6202, INOR-171-6100	SM 3120 B	ICP/OES
Dissolved Lead	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP/MS
Dissolved Lithium	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP/MS
Dissolved Magnesium	INOR-171-6201, INOR-171-6100	SM 3120 B	ICP/OES
Dissolved Manganese	INOR-171-6202, INOR-171-6100	SM 3120 B	ICP/OES
Dissolved Mercury (Low Level)	INOR-171-6202, INOR-171-6100	SM 3112 B	ICP/MS
Dissolved Molybdenum	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP/MS
Dissolved Nickel	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP/MS
Dissolved Phosphorus	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP/OES
Dissolved Potassium	INOR-171-6201, INOR-171-6100	SM 3120 B	ICP/OES
Dissolved Selenium	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP/MS
Dissolved Silver	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP/MS
Dissolved Silicon	INOR-171-6201, INOR-171-6100	SM 3120 B	ICP/OES
Dissolved Sodium	INOR-171-6201, INOR-171-6100	SM 3120 B	ICP/OES
Dissolved Strontium	INOR-171-6202, INOR-171-6100	SM 3120 B	ICP/OES
Dissolved Sulphur	INOR-171-6201, INOR-171-6100	SM 3120 B	ICP/OES
Dissolved Thallium	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP/MS
Dissolved Tin	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP/MS

Method Summary

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

AGAT WORK ORDER: 14E811552

PROJECT NO:

ATTENTION TO: Sandra Marken

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Dissolved Uranium	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP/MS
Dissolved Vanadium	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP/MS
Dissolved Zinc	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP-MS
Dissolved Zirconium	INOR-171-6201, INOR-171-6100	SM 3120 B	ICP/OES
Total Aluminum	INOR-171-6202, INOR-171-6100	SM 3030 E; SM 3125 B	ICP/MS
Total Antimony	INOR-171-6202, INOR-171-6100	SM 3030 E; SM 3125 B	ICP-MS
Total Arsenic	INOR-171-6202, INOR-171-6100	SM 3030 E; SM 3125 B	ICP-MS
Total Barium	INOR-171-6202, INOR-171-6100	SM 3030 E; SM 3125 B	ICP/MS
Total Boron	INOR-171-6202, INOR-171-6100	SM 3030 E; SM 3125 B	ICP/MS
Total Cadmium	INOR-171-6202, INOR-171-6100	SM 3030 E; SM 3125 B	ICP/MS
Total Calcium	INOR-171-6202, INOR-171-6100	SM 3030 E; SM 3120 B	ICP/OES
Total Chromium	INOR-171-6202, INOR-171-6100	SM 3030 E; SM 3125 B	ICP/MS
Total Copper	INOR-171-6202, INOR-171-6100	SM 3030 E; SM 3125 B	ICP/MS
Total Iron	INOR-171-6202, INOR-171-6100	SM 3030 E; SM 3120 B	ICP/OES
Total Lead	INOR-171-6202, INOR-171-6100	SM 3030 E; SM 3125 B	ICP-MS
Total Lithium	INOR-171-6202, INOR-171-6100	SM 3030 E; SM 3125 B	ICP/MS
Total Magnesium	INOR-171-6201, INOR-171-6100	SM 3030 E; SM 3120 B	ICP/OES
Total Manganese	INOR-171-6202, INOR-171-6100	SM 3030 E; SM 3120 B	ICP/OES
Total Mercury (Low Level)	INOR-171-6202, INOR-171-6100	SM 3030 E; SM 3112 B	ICP/MS
Total Molybdenum	INOR-171-6202, INOR-171-6100	SM 3030 E; SM 3125 B	ICP/MS
Total Nickel	INOR-171-6202, INOR-171-6100	SM 3030 E; SM 3125 B	ICP/MS
Total Phosphorus	INOR-171-6202, INOR-171-6100	SM 3030 E; SM 3125 B	ICP/OES
Total Potassium	INOR-171-6201, INOR-171-6100	SM 3030 E; SM 3120 B	ICP/OES
Total Selenium	INOR-171-6202, INOR-171-6100	SM 3030 E; SM 3125 B	ICP-MS
Total Silicon	INOR-171-6201, INOR-171-6100	SM 3030 E; SM 3120 B	ICP/OES
Total Silver	INOR-171-6202, INOR-171-6100	SM 3030 E; SM 3125 B	ICP/MS
Total Sodium	INOR-171-6201, INOR-171-6100	SM 3030 E; SM 3120 B	ICP/OES
Total Strontium	INOR-171-6202, INOR-171-6100	SM 3030 E; SM 3120 B	ICP/OES

Method Summary

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

AGAT WORK ORDER: 14E811552

PROJECT NO:

ATTENTION TO: Sandra Marken

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Total Sulphur	INOR-171-6201, INOR-171-6100	SM 3030 E; SM 3120 B	ICP/OES
Total Thallium	INOR-171-6202, INOR-171-6100	SM 3030 E; SM 3125 B	ICP/MS
Total Tin	INOR-171-6202, INOR-171-6100	SM 3030 E; SM 3125 B	ICP/MS
Total Uranium	INOR-171-6202, INOR-171-6100	SM 3030 E; SM 3125 B	ICP/MS
Total Vanadium	INOR-171-6202, INOR-171-6100	SM 3030 E; SM 3125 B	ICP/MS
Total Zinc	INOR-171-6202, INOR-171-6100	SM 3030 E; SM 3125 B	ICP/MS
Total Zirconium	INOR-171-6202, INOR-171-6100	SM 3030 E; SM 3120 B	ICP/OES
pH	INOR-171-6205	SM 4500 H+	PC Titrate
p - Alkalinity (as CaCO ₃)	INOR-171-6205	SM 2320 B	PC Titrate
T - Alkalinity (as CaCO ₃)	INOR-171-6205	SM 2320 B	PC Titrate
Bicarbonate	INOR-171-6205	SM 2320 B	PC Titrate
Carbonate	INOR-171-6205	SM 2320 B	PC Titrate
Hydroxide	INOR-171-6205	SM 2320 B	PC Titrate
Electrical Conductivity	INOR-171-6205	SM 2510 B	PC Titrate
Fluoride	INOR-171-6200	SM 4110 B	ION CHROMATOGRAPH
Chloride	INOR-171-6200	SM 4110 B	ION CHROMATOGRAPH
Nitrite	INOR-171-6200	SM 4110 B	ION CHROMATOGRAPH
Nitrate	INOR-171-6200	SM 4110 B	ION CHROMATOGRAPH
Sulfate	INOR-171-6200	SM 4110 B	ION CHROMATOGRAPH
Dissolved Calcium	INOR-171-6201, INOR-171-6100	SM 3120 B	ICP/OES
Dissolved Magnesium	INOR-171-6201, INOR-171-6100	SM 3120 B	ICP/OES
Dissolved Sodium	INOR-171-6201, INOR-171-6100	SM 3120 B	ICP/OES
Dissolved Potassium	INOR-171-6201, INOR-171-6100	SM 3120 B	ICP/OES
Dissolved Iron	INOR-171-6201, INOR-171-6100	SM 3120 B	ICP/OES
Dissolved Manganese	INOR-171-6201, INOR-171-6100	SM 3120 B	ICP/OES
Hexavalent Chromium	SPE 0101	EPA SW 846-6010B, SM 3030B	SPECTROPHOTOMETER
Phenols	INST 0300	SM 420.2	CONTINUOUS FLOW ANALYZER



Chromatogram Image

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

AGAT WORK ORDER: 14E811552

PROJECT NO:

ATTENTION TO: Sandra Marken

IMAGE001: 5162668, WW04-A

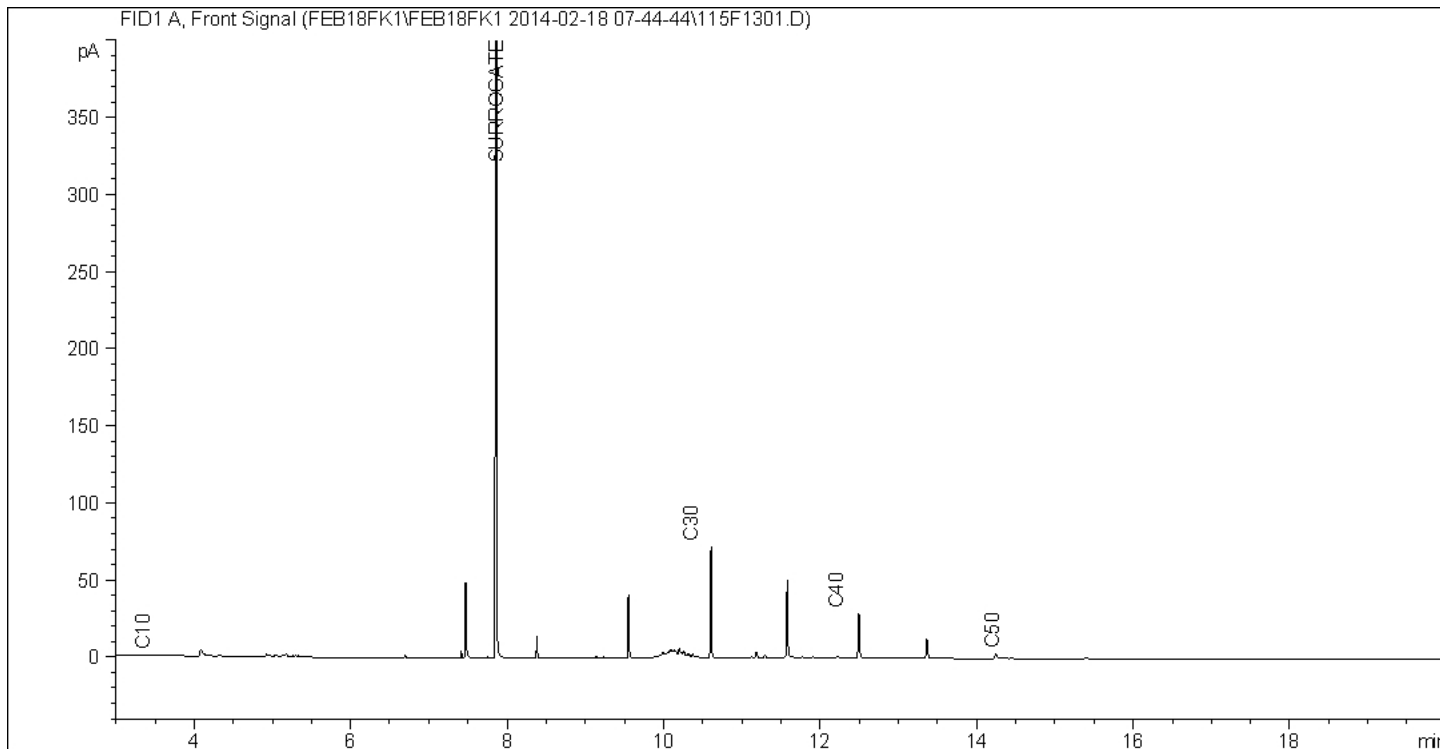
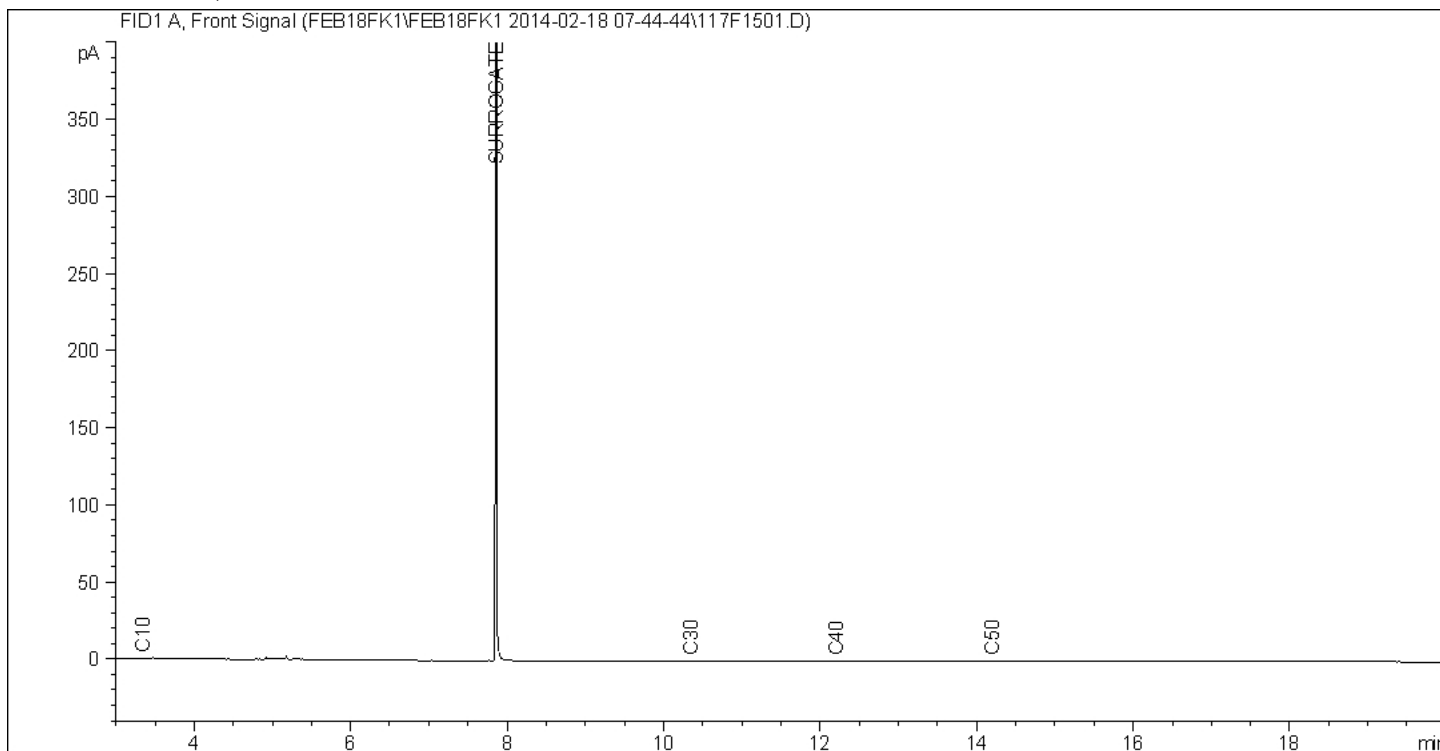


IMAGE002: 5162677, WW05-A





Environmental

Chain of Custody / Analytical Request Form
Canada Toll Free: 1 800 668 9878
www.alsglobal.com

10-321881

14E811552

99C

Page

of

Report To: Jeff Poulet

Company: Hebb

Contact: 907 745 1315 / 907 335 1769

Address:

Phone:

Fax:

Invoice To: Same as Report? (circle) Yes or No, if No, provide details

Copy of Invoice with Report? (circle) Yes or No

Company: Genoco Phillips

Contact: Sandra Marken

Address:

Phone: 403 233 3047 Fax:

Quote #:

Lab Work Order # (lab use only)

ALS Contact:

ALS

Contact:

Sample Identification

(This description will appear on the report)

Date

(dd-mm-yy)

Time

(hh:mm)

Sample Type

Sampler:

(Indicate Filtered or Preserved, F/P)

Analysis Request

Service Request (Rush subject to availability - Contact ALS to confirm TAT)

Regular (Standard Turnaround Times - Business Days)

Priority (2-4 Business Days)-50% surcharge - Contact ALS to confirm TAT

Emergency (1-2 Business Days)-100% Surcharge - Contact ALS to confirm TAT

Supply or Weekend Emergency - Contact ALS to confirm TAT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

SHIPMENT RELEASE (client use)

Released by:

Date:

Time:

Received by:

Date:

Time:

Temperature:

Verified by:

Date:

Time:

Observations
Yes / No ?
If Yes add S/N

SHIPMENT RECEPTION (lab use only)

SHIPMENT VERIFICATION (lab use only)

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY

YELLOW - CLIENT COPY

GENE 18.01 Front

AGAT Laboratories

SAMPLE INTEGRITY RECEIPT FORM - Edmonton

RECEIVING BASICS

Received By: AE Date & Time: 2-16-2014 10:08 am/pm
 Company/Consultant: Conoco Phillips
 Relinquished By: AE Courier: Pick up Prepaid/Collect
 Waybill #: 700 78609591 Branch Received From: N/A
 Client left without count verified: Yes/No Custody Seal Intact: Yes/No/NA

COC INFORMATION

Workorder #: 145811552 COC received: Yes/No Emailed to CPM
 TAT: <24hr 24-48hr 48-72hr Reg Other _____
 COC Complete? Yes/No *If NO why: _____
 COC Numbers: 10-321881, 10-321882
 Sample Quantities: Coolers: 1 Bottles/Jars: 42 Bags: 0 Other: 0
 COC Container Count: 42
 *Differs from what was received why: _____

TIME SENSITIVE ISSUES

Earliest Date Sampled: 2-12-2014 ALREADY EXCEEDED? Yes/No
 MIB/Time Sensitive Test*: N/A Expiry: N/A
 Hydrocarbon Test: BTEX/PI-F4, PAH Expiry: 2-19-2014
 Are samples received more than 5 days after sampling: Yes/No
 *Residual Chlorine, DO, Turbidity, BOD, Nitrate/Nitrite, Microtox

SAMPLE INTEGRITY

Hazardous Samples Why Hazardous: N/A Precaution taken: N/A
 Specialty Issues Legal Samples: Yes/No
 International Samples: Yes/No Proper tape/labels applied: Yes/No
 Damaged: Yes/No If YES why? No Bubble Wrap/Frozen/Courier
 Other: _____

Temperature (to be recorder from bottles/jars only)
 N/A - Only Soil Bags Received

(1) (Bottle/Jar) 11.6 + 11.1 = 22.7 °C (2) (Bottle/Jar) _____ + _____ = _____ °C
 (3) (Bottle/Jar) _____ + _____ = _____ °C (4) (Bottle/Jar) _____ + _____ = _____ °C
 (5) (Bottle/Jar) _____ + _____ = _____ °C (6) (Bottle/Jar) _____ + _____ = _____ °C
 (If more than 6 coolers are received use another sheet of paper and attach)
 Coolant used: Icepack Top/Bottom/Side Bagged Ice (Top/Bottom/Side)

Free Ice None

Correct Sample Requirements for Testing (to be completed by Logistics staff during login process)

Bottles: Yes/No Amount: Yes/No Labels: Yes/No

If NO to any of the above, explain why: _____

Visible Sediment (NA if soil): Yes/No/NA

Additional Integrity Issues: Diss Mt Filtered & preserved in LC.

Sending 10X ADM vials to COT for methanol & glycol.

Account Project Manager: _____ have they been notified of the above issues: Yes/No

Whom spoken to: _____ Date/Time: _____ CPM Initial _____

518 YVQ 78609591

0++

518 YVQ 78609591

Shipper's Name and Address Nom et adresse de l'expéditeur ConocoPhillips Canada Norman wells, NT 907-355-1769 RSDZJN5569281		Shipper's Account Number Numéro de compte de l'expéditeur CON106CW		Not negotiable / Non négociable Air Waybill Lettre de transport aérien Issued by / Émise par Canadian North 3731 52 Ave E Edmonton, AB T5J 2T2 Canada																									
Consignee's Name and Address Nom et adresse du destinataire AGAT Laboratories Ltd 6310 Roper Road Edmonton, AB T6B 3P9 780-395-2525 403-735-2745		Consignee's Account Number Numéro de compte du destinataire AGA100CW		Copies 1, 2 and 3 of this Air Waybill are originals and have the same validity Les exemplaires 1, 2 et 3 de cette lettre de transport aérien ont la même validité It is agreed that the goods described herein are accepted for carriage in apparent good order and condition (except as noted) and SUBJECT TO THE CONDITIONS OF CONTRACT ON THE REVERSE HEREOF. ALL GOODS MAY BE CARRIED BY ANY OTHER MEANS INCLUDING ROAD OR ANY OTHER CARRIER UNLESS SPECIFIC CONTRARY INSTRUCTIONS ARE GIVEN HEREON BY THE SHIPPER, AND SHIPPER AGREES THAT THE SHIPMENT MAY BE CARRIED VIA INTERMEDIATE STOPPING PLACES WHICH THE CARRIER DEEMS APPROPRIATE. THE SHIPPER'S ATTENTION IS DRAWN TO THE NOTICE CONCERNING CARRIER'S LIMITATION OF LIABILITY. Il est convenu que les marchandises décrites dans le présent document sont acceptées pour le transport en bon état apparent (sauf annotation contraire) et que le transport est SOUMIS AUX CONDITIONS DU CONTRAT QUI FIGURENT AU VERSO. LES MARCHANDISES PEUVENT ÊTRE TRANSPORTÉES PAR TOUT AUTRE MOYEN Y COMPRIS PAR ROUTE OU PAR TOUT AUTRE TRANSPORTEUR À MOINS QUE DES INSTRUCTIONS CONTRAIRES PRÉCISES. À CE SUJET NE SOIENT DONNÉES PAR L'EXPÉDITEUR L'ATTENTION DE L'EXPÉDITEUR EST ATTIRÉE SUR L'AVIS CONCERNANT LA LIMITATION DE RESPONSABILITÉ DU TRANSPORTEUR.																									
Issuing Carrier's Agent Name and City / Nom et ville de l'agent du transporteur émetteur Agent's IATA Code / Code IATA de l'agent Account Number / Numéro de compte Airport of Departure (Address of first Carrier) and Requested Routing Aéroport de départ (Adresse du premier transporteur) et itinéraire demandé Norman Wells		Accounting Information / Renseignements comptables Acc.#: CON106CW ConocoPhillips Canada PO Box 130, Stn. M 1600, 401-9th Ave. SW Calgary, AB T2P 2H7																											
Routing and Destination Routage et destination to / à By first Carrier Par premier transport Routing and Destination Routage et destination to / à by / par to / à by / par		Currency Monnaie CAD		Declared Value of Carriage Valeur déclarée pour le transport NVD																									
Airport of Destination (Address of first Carrier) Aéroport de destination (Adresse du premier transporteur) Edmonton		Flight Date Vol. / Date Edmonton		Insurance - If carrier offers insurance and such insurance is requested in accordance with the conditions thereof, indicate amount to be insured in figures in box marked "Amount of Insurance". Assurance - si le transporteur propose une assurance et que l'expéditeur en fait la demande conformément aux présentes conditions indiquer le montant à assurer en chiffres dans la case "Montant de l'assurance". NIL																									
Handling Information / Renseignements pour le traitement de l'expédition HFPU																													
<table border="1"> <thead> <tr> <th>Number of Pieces Nombre de colis RCP</th> <th>Gross Weight Poids brut</th> <th>kg</th> <th>Rate Class / Classif. du tarif Commodity Item No. N° d'article de la marchandise</th> <th>Chargeable Weight Poids de taxation</th> <th>Rate / Charge Tarif / Montant</th> <th>Total</th> <th>Nature and Quantity of Goods (Including Dimensions or Volume) Nature et quantité des marchandises (y compris dimensions ou volume)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>14</td> <td>K</td> <td>GAD 20</td> <td>14</td> <td>5.31</td> <td>74.34</td> <td>Water Samples (Keep 5T DIMS 23x13x14IN (bulk)</td> </tr> <tr> <td>1</td> <td>14</td> <td>K</td> <td></td> <td></td> <td></td> <td>74.34</td> <td></td> </tr> </tbody> </table>						Number of Pieces Nombre de colis RCP	Gross Weight Poids brut	kg	Rate Class / Classif. du tarif Commodity Item No. N° d'article de la marchandise	Chargeable Weight Poids de taxation	Rate / Charge Tarif / Montant	Total	Nature and Quantity of Goods (Including Dimensions or Volume) Nature et quantité des marchandises (y compris dimensions ou volume)	1	14	K	GAD 20	14	5.31	74.34	Water Samples (Keep 5T DIMS 23x13x14IN (bulk)	1	14	K				74.34	
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1	14	K				74.34																							
Prepaid / Port payé 74.34		Weight Charge / Taxation au poids 0.00		Collect / Port dû 0.00		Other Charges / Autres frais Nav Canada Charge 3.72 Fuel Surcharge 22.30 Goods/Service Tax 5.02																							
Valuation charge / Taxation à la valeur 0.00		Tax / Taxe 0.00		Total other Charges Due Agent / Total des autres frais dus à l'agent 0.00		Shipper certifies that the particulars on the face hereof are correct and that insofar as any part of the consignment contains dangerous goods, such part is properly described by name and is in proper condition for carriage by air according to the applicable Dangerous Goods Regulations. L'expéditeur certifie que les indications portées sur le présent document sont exactes et que dans la mesure où une partie quelconque de l'expédition contient des marchandises dangereuses, cette partie d'expédition est correctement dénommée et bien préparée pour le transport par air conformément à la réglementation applicable.																							
Total other Charges Due Carrier / Total des autres frais dus au transporteur 26.02		Total prepaid / Total port payé 0.00		Total collect / Total port dû 0.00		Signature of Shipper or his Agent / Signature de l'expéditeur ou de son agent X																							
Currency Conversion Rates Taux de conversion monétaire 105		Conversion Rates in Destination Currency Taux de conversion monétaire du pays de destination 100		Executed on / Fait le 12-05-2004		Signature of Issuing Carrier or its Agent Signature du transporteur émetteur ou de son agent 991809																							

CS002 (10/01)

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.
2100, 250 6 AVENUE SW
CALGARY, AB T2P3H7
(403) 233-4000

ATTENTION TO: Sandra Marken

PROJECT NO: 25500214 / 2013 Summer Surface Water Program

AGAT WORK ORDER: 13C762049

TRACE ORGANICS REVIEWED BY: Elena Gorobets, Senior Analyst

WATER ANALYSIS REVIEWED BY: Jennifer Liu, Analyst

DATE REPORTED: Oct 01, 2013

PAGES (INCLUDING COVER): 21

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (403) 735-2005

*NOTES

All samples will be disposed of within 30 days following analysis. Please contact the lab if you require additional sample storage time.



AGAT Laboratories

Certificate of Analysis

AGAT WORK ORDER: 13C762049

PROJECT NO: 25500214 / 2013 Summer Surface Water Program

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
<http://www.agatlabs.com>

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

ATTENTION TO: Sandra Marken

ConocoPhillips - Petroleum Hydrocarbons (BTEXS/F1) in Water

DATE RECEIVED: 2013-09-24

DATE REPORTED: 2013-10-01

		SAMPLE DESCRIPTION:		Trip Blank
		SAMPLE TYPE:		Water
		DATE SAMPLED:		9/22/2013
Parameter	Unit	G / S	RDL	4766416
Benzene	mg/L		0.0005	<0.0005
Toluene	mg/L		0.0005	<0.0005
Ethylbenzene	mg/L		0.0005	<0.0005
Xylenes	mg/L		0.0005	<0.0005
Styrene	mg/L		0.0005	<0.0005
C6 - C10 (F1)	mg/L		0.1	<0.1
C6 - C10 (F1 minus BTEX)	mg/L		0.1	<0.1
Surrogate	Unit	Acceptable Limits		
Toluene-d8 (BTEX)	%	50-150		102

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

4766416 The F1 (C6 - C10) fraction is determined by integrating the FID chromatogram from the beginning of the n-C6 peak to the apex of the last n-C10 peak.

The C6 - C10 fraction is calculated from the FID toluene response factor.

Quality control for the calibration follows the guidelines set out in the CCME Contaminated Sites Method for Soils.

The (F1 minus BTEX) has been calculated by subtracting the BTEX concentration from Fraction 1.

Certified By:

Elena Gorobets



AGAT Laboratories

Certificate of Analysis

AGAT WORK ORDER: 13C762049

PROJECT NO: 25500214 / 2013 Summer Surface Water Program

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
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FAX (403)735-2771
<http://www.agatlabs.com>

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

ATTENTION TO: Sandra Marken

ConocoPhillips - Petroleum Hydrocarbons (BTEXS/F1-F4) in Water

DATE RECEIVED: 2013-09-24

DATE REPORTED: 2013-10-01

		SAMPLE DESCRIPTION: WW04	
		SAMPLE TYPE: Water	
		DATE SAMPLED: 9/22/2013	
Parameter	Unit	G / S	RDL
			4766415
Benzene	mg/L	0.0005	0.0012
Toluene	mg/L	0.0005	0.0061
Ethylbenzene	mg/L	0.0005	<0.0005
Xylenes	mg/L	0.0005	<0.0005
Styrene	mg/L	0.0005	<0.0005
C6 - C10 (F1)	mg/L	0.1	<0.1
C6 - C10 (F1 minus BTEX)	mg/L	0.1	<0.1
C>10 - C16	mg/L	0.1	0.2
C16 - C34	mg/L	0.1	0.2
C>34 - C50	mg/L	0.1	<0.1
Surrogate	Unit	Acceptable Limits	
Toluene-d8 (BTEX)	%	50-150	102
o-Terphenyl (F2-F4)	%	50-150	113

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard
4766415
The C>6 - C10 fraction is calculated using the toluene response factor.
The C10 - C16 fraction is calculated using the average response factor for nC10, nC16 and nC34.
BTEX has NOT been subtracted from Fraction 1.
Sample is blank corrected.

Certified By: Elena Gorobets



AGAT Laboratories

Certificate of Analysis

AGAT WORK ORDER: 13C762049

PROJECT NO: 25500214 / 2013 Summer Surface Water Program

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
<http://www.agatlabs.com>

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

ATTENTION TO: Sandra Marken

Glycols Analysis in Water

DATE RECEIVED: 2013-09-24

DATE REPORTED: 2013-10-01

SAMPLE DESCRIPTION: WW04

SAMPLE TYPE: Water

DATE SAMPLED: 9/22/2013

Parameter	Unit	G / S	RDL	4766415
Propylene Glycol	mg/L		10	<10
Monoethylene Glycol	mg/L		10	<10
Diethylene Glycol	mg/L		5	<5
Triethylene Glycol	mg/L		10	<10
Tetraethylene Glycol	mg/L		10	<10
Surrogate	Unit	Acceptable Limits		
Heptanol	%	50-150		82

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard
4766415 Identification based on retention time relative to standards.

Certified By:

Elena Gorobets



AGAT Laboratories

Certificate of Analysis

AGAT WORK ORDER: 13C762049

PROJECT NO: 25500214 / 2013 Summer Surface Water Program

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
<http://www.agatlabs.com>

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

ATTENTION TO: Sandra Marken

Methanol Analysis in Water

DATE RECEIVED: 2013-09-24

DATE REPORTED: 2013-10-01

SAMPLE DESCRIPTION: WW04

SAMPLE TYPE: Water

DATE SAMPLED: 9/22/2013

Parameter	Unit	G / S	RDL	4766415
Methanol	mg/L		1	<1
Surrogate	Unit	Acceptable Limits		
4-Methyl-2-pentanone	%	50-150		93

Comments: 4766415 RDL - Reported Detection Limit; Analysis by GC/FID. G / S - Guideline / Standard

Certified By:

Elena Gorobets



Certificate of Analysis

AGAT WORK ORDER: 13C762049

PROJECT NO: 25500214 / 2013 Summer Surface Water Program

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
<http://www.agatlabs.com>

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

ATTENTION TO: Sandra Marken

Polyaromatic Hydrocarbon Analysis - Water FWAL

DATE RECEIVED: 2013-09-24

DATE REPORTED: 2013-10-01

		SAMPLE DESCRIPTION: WW04	
		SAMPLE TYPE: Water	
		DATE SAMPLED: 9/22/2013	
Parameter	Unit	G / S	RDL
			4766415
Acridine	mg/L	0.0001	<0.0001
Quinoline	mg/L	0.0001	<0.0001
2-Methylnaphthalene	mg/L	0.00001	0.00016
Naphthalene	mg/L	0.00001	0.00025
Acenaphthylene	mg/L	0.00001	<0.00001
Acenaphthene	mg/L	0.00001	<0.00001
Fluorene	mg/L	0.00001	<0.00001
Phenanthrene	mg/L	0.00001	0.00008
Anthracene	mg/L	0.00001	<0.00001
Fluoranthene	mg/L	0.00001	<0.00001
Pyrene	mg/L	0.00001	<0.00001
Benzo[a]anthracene	mg/L	0.00001	<0.00001
Chrysene	mg/L	0.00001	<0.00001
Benzo[b+j]fluoranthene	mg/L	0.00001	<0.00001
Benzo[k]fluoranthene	mg/L	0.00001	<0.00001
Benzo[a]pyrene	mg/L	0.00001	<0.00001
Indeno[1,2,3-cd]pyrene	mg/L	0.00001	<0.00001
Benzo[ghi]perylene	mg/L	0.00001	<0.00001
Dibenzo[ah]anthracene	mg/L	0.00001	<0.00001
B[a]P TPE (water) (Calgary)		0.00001	<0.00001
Surrogate	Unit	Acceptable Limits	
2-Fluorobiphenyl (PAH)	%	50-150	114
p-Terphenyl-d14 (PAH)	%	50-150	127

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

4766415

Based on GC/MS target ion analysis.

Isomers Benzo(b)fluoranthene and Benzo(j)fluoranthene have the same GC retention time and are reported as the sum based on the Benzo(b)fluoranthene response.

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 13C762049

PROJECT NO: 25500214 / 2013 Summer Surface Water Program

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
<http://www.agatlabs.com>

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

ATTENTION TO: Sandra Marken

Volatile Organic Compounds in Water

DATE RECEIVED: 2013-09-24

DATE REPORTED: 2013-10-01

		SAMPLE DESCRIPTION:		WW04	Trip Blank
		SAMPLE TYPE:		Water	Water
		DATE SAMPLED:		9/22/2013	9/22/2013
Parameter	Unit	G / S	RDL	4766415	4766416
Chloromethane	mg/L		0.001	<0.001	<0.001
Vinyl Chloride	mg/L		0.001	<0.001	<0.001
Bromomethane	mg/L		0.001	<0.001	<0.001
Chloroethane	mg/L		0.001	<0.001	<0.001
Trichlorofluoromethane	mg/L		0.001	<0.001	<0.001
Acetone	mg/L		0.01	<0.01	<0.01
1,1-Dichloroethylene	mg/L		0.001	<0.001	<0.001
Methylene Chloride	mg/L		0.001	<0.001	<0.001
Methyl tert-butyl ether	mg/L		0.001	<0.001	<0.001
Methyl Ethyl Ketone	mg/L		0.01	<0.01	<0.01
trans- 1,2-dichloroethylene	mg/L		0.001	<0.001	<0.001
1,1-Dichloroethane	mg/L		0.001	<0.001	<0.001
cis- 1,2-Dichloroethylene	mg/L		0.001	<0.001	<0.001
Chloroform	mg/L		0.001	<0.001	<0.001
1,2-Dichloroethane	mg/L		0.001	<0.001	<0.001
1,1,1-Trichloroethane	mg/L		0.001	<0.001	<0.001
Carbon Tetrachloride	mg/L		0.0005	<0.0005	<0.0005
Benzene	mg/L		0.0005	0.0012	<0.0005
1,2-Dichloropropane	mg/L		0.001	<0.001	<0.001
Trichloroethylene	mg/L		0.001	<0.001	<0.001
Bromodichloromethane	mg/L		0.001	<0.001	<0.001
trans-1,3-Dichloropropene	mg/L		0.001	<0.001	<0.001
Methyl Isobutyl Ketone	mg/L		0.01	<0.01	<0.01
cis-1,3-Dichloropropene	mg/L		0.001	<0.001	<0.001
1,1,2-Trichloroethane	mg/L		0.001	<0.001	<0.001
Toluene	mg/L		0.0005	0.0061	<0.0005
2-Hexanone	mg/L		0.01	<0.01	<0.01
Dibromochloromethane	mg/L		0.001	<0.001	<0.001
Ethylene Dibromide	mg/L		0.001	<0.001	<0.001
Tetrachloroethene	mg/L		0.001	<0.001	<0.001
1,1,1,2-Tetrachloroethane	mg/L		0.001	<0.001	<0.001

Certified By: Elena Gorobets



AGAT Laboratories

Certificate of Analysis

AGAT WORK ORDER: 13C762049

PROJECT NO: 25500214 / 2013 Summer Surface Water Program

2910 12TH STREET NE
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TEL (403)735-2005
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CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

ATTENTION TO: Sandra Marken

Volatile Organic Compounds in Water

DATE RECEIVED: 2013-09-24

DATE REPORTED: 2013-10-01

		SAMPLE DESCRIPTION:		WW04	Trip Blank
		SAMPLE TYPE:		Water	Water
		DATE SAMPLED:		9/22/2013	9/22/2013
Parameter	Unit	G / S	RDL	4766415	4766416
Chlorobenzene	mg/L		0.001	<0.001	<0.001
Ethylbenzene	mg/L		0.0005	<0.0005	<0.0005
m & p-Xylene	mg/L		0.0005	<0.0005	<0.0005
Bromoform	mg/L		0.001	<0.001	<0.001
Styrene	mg/L		0.001	<0.001	<0.001
1,1,2,2-Tetrachloroethane	mg/L		0.001	<0.001	<0.001
o-Xylene	mg/L		0.0005	<0.0005	<0.0005
1,3-Dichlorobenzene	mg/L		0.0005	<0.0005	<0.0005
1,4-Dichlorobenzene	mg/L		0.0005	<0.0005	<0.0005
1,2-Dichlorobenzene	mg/L		0.0005	<0.0005	<0.0005
1,2,4-Trichlorobenzene	mg/L		0.001	<0.001	<0.001
Total Xylenes	mg/L		0.0005	<0.0005	<0.0005
Surrogate	Unit	Acceptable Limits			
Toluene-d8 (BTEX)	%	50-150	97	99	

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

Certified By:

Elena Gorobets



Certificate of Analysis

AGAT WORK ORDER: 13C762049

PROJECT NO: 25500214 / 2013 Summer Surface Water Program

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CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

ATTENTION TO: Sandra Marken

CCME / Alberta Tier 1 Metals (Dissolved) + Cr6 and LL Hg

DATE RECEIVED: 2013-09-24

DATE REPORTED: 2013-10-01

		SAMPLE DESCRIPTION:		WW04
		SAMPLE TYPE:		Water
		DATE SAMPLED:		9/22/2013
Parameter	Unit	G / S	RDL	4766415
Dissolved Aluminum	mg/L	0.005	0.002	0.004
Dissolved Antimony	mg/L	0.006	0.001	0.002
Dissolved Arsenic	mg/L	0.005	0.001	0.009
Dissolved Barium	mg/L	1	0.05	1.48
Dissolved Boron	mg/L	0.5	0.01	0.96
Dissolved Cadmium	mg/L	0.000017	0.000016	0.000341
Dissolved Chromium	mg/L		0.001	<0.001
Dissolved Copper	mg/L	0.002	0.002	0.019
Dissolved Iron	mg/L	0.3	0.1	<0.1
Dissolved Lead	mg/L	0.001	0.001	<0.001
Dissolved Manganese	mg/L	0.05	0.005	0.032
Dissolved Molybdenum	mg/L		0.003	0.173
Dissolved Nickel	mg/L	0.025	0.01	<0.01
Dissolved Selenium	mg/L	0.001	0.001	0.017
Dissolved Silver	mg/L	0.0001	0.00005	<0.00005
Dissolved Sodium	mg/L	200	0.6	1660
Dissolved Thallium	mg/L		0.0005	<0.0005
Dissolved Uranium	mg/L	0.01	0.001	<0.001
Dissolved Zinc	mg/L	0.03	0.001	0.002
Dissolved Bismuth	mg/L		0.001	<0.001
Dissolved Magnesium	mg/L		0.2	4.9
Dissolved Sulphur	mg/L		0.3	5.4
Chromium (VI) - Dissolved	mg/L		0.01	<0.01
Dissolved Mercury- Ultra Low Level	mg/L	0.000026	0.	< 2.50E-06

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to AB Tier 1 GW (Ag, F)
4766415 < - Values refer to Report Detection Limit.

Certified By:



AGAT Laboratories

Certificate of Analysis

AGAT WORK ORDER: 13C762049

PROJECT NO: 25500214 / 2013 Summer Surface Water Program

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CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

ATTENTION TO: Sandra Marken

CCME / Alberta Tier 1 Metals (Total) + Cr6, LL Hg and Total Phosphorus

DATE RECEIVED: 2013-09-24

DATE REPORTED: 2013-10-01

		SAMPLE DESCRIPTION:		WW04
		SAMPLE TYPE:		Water
		DATE SAMPLED:		9/22/2013
Parameter	Unit	G / S	RDL	4766415
Total Aluminum	mg/L	0.005	0.020	1.77
Total Antimony	mg/L	0.006	0.001	0.002
Total Arsenic	mg/L	0.005	0.001	0.008
Total Barium	mg/L	1	0.05	1.94
Total Boron	mg/L	0.5	0.01	1.24
Total Cadmium	mg/L	0.000017	0.000016	0.000381
Total Chromium	mg/L		0.001	0.102
Total Copper	mg/L	0.002	0.002	0.061
Total Iron	mg/L	0.3	0.1	6.8
Total Lead	mg/L	0.001	0.001	0.066
Total Manganese	mg/L	0.05	0.005	0.105
Total Molybdenum	mg/L		0.003	0.214
Total Nickel	mg/L	0.025	0.01	0.05
Total Selenium	mg/L	0.001	0.001	0.017
Total Silver	mg/L	0.0001	0.00005	<0.00005
Total Sodium	mg/L	200	0.6	1590
Total Thallium	mg/L		0.0005	<0.0005
Total Uranium	mg/L	0.01	0.001	<0.001
Total Zinc	mg/L	0.03	0.001	0.027
Total Bismuth	mg/L		0.001	<0.001
Total Calcium	mg/L		0.3	7.7
Total Magnesium	mg/L		0.2	5.2
Total Sulphur	mg/L		0.3	5.2
Chromium (VI)	mg/L		0.01	<0.01
Total Phosphorus	mg/L		0.001	0.226
Total Mercury- Ultra Low Level	mg/L		0.	0.0000026

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to ABTier1 GW (Ag, F)
4766415 < - Values refer to Report Detection Limit.

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 13C762049

PROJECT NO: 25500214 / 2013 Summer Surface Water Program

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CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

ATTENTION TO: Sandra Marken

Routine Chemistry Water Analysis

DATE RECEIVED: 2013-09-24

DATE REPORTED: 2013-10-01

		SAMPLE DESCRIPTION:		WW04
		SAMPLE TYPE:		Water
		DATE SAMPLED:		9/22/2013
Parameter	Unit	G / S	RDL	4766415
pH	pH Units	6.5-8.5	0.02	9.37
p - Alkalinity (as CaCO ₃)	mg/L		5	210
T - Alkalinity (as CaCO ₃)	mg/L		5	1570
Bicarbonate	mg/L		5	1400
Carbonate	mg/L		5	252
Hydroxide	mg/L		5	<5
Electrical Conductivity	uS/cm		5	6680
Chloride	mg/L	250	1	1230
Fluoride	mg/L	1.5	0.01	0.75
Nitrate	mg/L	45	0.5	<0.5
Nitrite	mg/L	3.2	0.05	<0.05
Sulphate	mg/L	500	1	12
Dissolved Calcium	mg/L		0.3	5.8
Dissolved Magnesium	mg/L		0.2	4.9
Dissolved Sodium	mg/L	200	0.6	1660
Dissolved Potassium	mg/L		0.6	26.7
Dissolved Iron	mg/L	0.3	0.1	<0.1
Dissolved Manganese	mg/L	0.05	0.005	0.032
Calculated TDS	mg/L		1	3880
Hardness	mg CaCO ₃ /L		0.5	34.7
Ion Balance	%		0.001	111
Nitrate + Nitrite-N	mg/L		0.01	<0.01
Nitrate-N	mg/L		0.113	<0.113
Nitrite-N	mg/L		0.015	<0.015
SAR	N/A			123

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to CCME (D Water)
4766415 < - Values refer to Report Detection Limits.

Certified By:



AGAT Laboratories

Certificate of Analysis

AGAT WORK ORDER: 13C762049

PROJECT NO: 25500214 / 2013 Summer Surface Water Program

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CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

ATTENTION TO: Sandra Marken

Water Analysis - Phenols

DATE RECEIVED: 2013-09-24

DATE REPORTED: 2013-10-01

SAMPLE DESCRIPTION: WW04

SAMPLE TYPE: Water

DATE SAMPLED: 9/22/2013

Parameter	Unit	G / S	RDL	4766415
Phenols	mg/L	0.002	0.048	

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

Certified By:

Quality Assurance

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

AGAT WORK ORDER: 13C762049

PROJECT NO: 25500214 / 2013 Summer Surface Water Program

ATTENTION TO: Sandra Marken

Trace Organics Analysis															
RPT Date: Oct 01, 2013			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

Volatile Organic Compounds in Water

Chloromethane	3947	4766415	<0.001	<0.001	NA	< 0.001	123%	60%	140%	104%	60%	140%	108%	60%	140%
Vinyl Chloride	3947	4766415	<0.001	<0.001	NA	< 0.001	97%	60%	140%	137%	60%	140%	119%	60%	140%
Bromomethane	3947	4766415	<0.001	<0.001	NA	< 0.001	129%	60%	140%	128%	60%	140%	116%	60%	140%
Chloroethane	3947	4766415	<0.001	<0.001	NA	< 0.001	118%	60%	140%	125%	60%	140%	121%	60%	140%
Trichlorofluoromethane	3947	4766415	<0.001	<0.001	NA	< 0.001	127%	60%	140%	122%	60%	140%	103%	60%	140%
Acetone	3947	4766415	<0.01	<0.01	NA	< 0.01	111%	60%	140%	112%	60%	140%	73%	60%	140%
1,1-Dichloroethylene	3947	4766415	<0.001	<0.001	NA	< 0.001	124%	60%	140%	116%	60%	140%	100%	60%	140%
Methylene Chloride	3947	4766415	<0.001	<0.001	NA	< 0.001	102%	60%	140%	105%	60%	140%	102%	60%	140%
Methyl tert-butyl ether	3947	4766415	<0.001	<0.001	NA	< 0.001	102%	60%	140%	103%	60%	140%	107%	60%	140%
Methyl Ethyl Ketone	3947	4766415	<0.01	<0.01	NA	< 0.01	85%	60%	140%	99%	60%	140%	76%	60%	140%
trans- 1,2-dichloroethylene	3947	4766415	<0.001	<0.001	NA	< 0.001	126%	60%	140%	121%	60%	140%	107%	60%	140%
1,1-Dichloroethane	3947	4766415	<0.001	<0.001	NA	< 0.001	117%	60%	140%	114%	60%	140%	107%	60%	140%
cis- 1,2-Dichloroethylene	3947	4766415	<0.001	<0.001	NA	< 0.001	117%	60%	140%	113%	60%	140%	106%	60%	140%
Chloroform	3947	4766415	<0.001	<0.001	NA	< 0.001	115%	60%	140%	110%	60%	140%	107%	60%	140%
1,2-Dichloroethane	3947	4766415	<0.001	<0.001	NA	< 0.001	107%	60%	140%	92%	60%	140%	99%	60%	140%
1,1,1-Trichloroethane	3947	4766415	<0.001	<0.001	NA	< 0.001	116%	60%	140%	114%	60%	140%	105%	60%	140%
Carbon Tetrachloride	3947	4766415	<0.0005	<0.0005	NA	< 0.0005	106%	60%	140%	109%	60%	140%	96%	60%	140%
Benzene	3947	4766415	0.0012	0.0013	NA	< 0.0005	107%	60%	140%	100%	60%	140%	100%	60%	140%
1,2-Dichloropropane	3947	4766415	<0.001	<0.001	NA	< 0.001	107%	60%	140%	92%	60%	140%	98%	60%	140%
Trichloroethylene	3947	4766415	<0.001	<0.001	NA	< 0.001	108%	60%	140%	99%	60%	140%	66%	60%	140%
Bromodichloromethane	3947	4766415	<0.001	<0.001	NA	< 0.001	100%	60%	140%	90%	60%	140%	98%	60%	140%
trans-1,3-Dichloropropene	3947	4766415	<0.001	<0.001	NA	< 0.001	100%	60%	140%	87%	60%	140%	139%	60%	140%
Methyl Isobutyl Ketone	3947	4766415	<0.01	<0.01	NA	< 0.01	104%	60%	140%	78%	60%	140%	83%	60%	140%
cis-1,3-Dichloropropene	3947	4766415	<0.001	<0.001	NA	< 0.001	113%	60%	140%	99%	60%	140%	105%	60%	140%
1,1,2-Trichloroethane	3947	4766415	<0.001	<0.001	NA	< 0.001	88%	60%	140%	79%	60%	140%	94%	60%	140%
Toluene	3947	4766415	0.0061	0.0063	3.2%	< 0.0005	108%	60%	140%	104%	60%	140%	101%	60%	140%
2-Hexanone	3947	4766415	<0.01	<0.01	NA	< 0.01	85%	60%	140%	85%	60%	140%	64%	60%	140%
Dibromochloromethane	3947	4766415	<0.001	<0.001	NA	< 0.001	97%	60%	140%	91%	60%	140%	104%	60%	140%
Ethylene Dibromide	3947	4766415	<0.001	<0.001	NA	< 0.001	97%	60%	140%	86%	60%	140%	94%	60%	140%
Tetrachloroethene	3947	4766415	<0.001	<0.001	NA	< 0.001	110%	60%	140%	101%	60%	140%	97%	60%	140%
1,1,1,2-Tetrachloroethane	3947	4766415	<0.001	<0.001	NA	< 0.001	94%	60%	140%	83%	60%	140%	93%	60%	140%
Chlorobenzene	3947	4766415	<0.001	<0.001	NA	< 0.001	99%	60%	140%	90%	60%	140%	95%	60%	140%
Ethylbenzene	3947	4766415	<0.0005	<0.0005	NA	< 0.0005	95%	60%	140%	93%	60%	140%	95%	60%	140%
m & p-Xylene	3947	4766415	<0.0005	<0.0005	NA	< 0.0005	93%	60%	140%	94%	60%	140%	93%	60%	140%
Bromoform	3947	4766415	<0.001	<0.001	NA	< 0.001	95%	60%	140%	87%	60%	140%	106%	60%	140%
Styrene	3947	4766415	<0.001	<0.001	NA	< 0.001	88%	60%	140%	101%	60%	140%	102%	60%	140%
1,1,2,2-Tetrachloroethane	3947	4766415	<0.001	<0.001	NA	< 0.001	61%	60%	140%	60%	60%	140%	61%	60%	140%
o-Xylene	3947	4766415	<0.0005	<0.0005	NA	< 0.0005	87%	60%	140%	88%	60%	140%	87%	60%	140%
1,3-Dichlorobenzene	3947	4766415	<0.0005	<0.0005	NA	< 0.0005	97%	60%	140%	97%	60%	140%	98%	60%	140%

Quality Assurance

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

AGAT WORK ORDER: 13C762049

PROJECT NO: 25500214 / 2013 Summer Surface Water Program

ATTENTION TO: Sandra Marken

Trace Organics Analysis (Continued)

RPT Date: Oct 01, 2013			DUPLICATE			Method Blank	REFERENCE MATERIAL		METHOD BLANK SPIKE			MATRIX SPIKE			
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

1,4-Dichlorobenzene	3947	4766415	<0.0005	<0.0005	NA	< 0.0005	102%	60%	140%	100%	60%	140%	104%	60%	140%
1,2-Dichlorobenzene	3947	4766415	<0.0005	<0.0005	NA	< 0.0005	98%	60%	140%	95%	60%	140%	100%	60%	140%
1,2,4-Trichlorobenzene	3947	4766415	<0.001	<0.001	NA	< 0.001	99%	60%	140%	96%	60%	140%	101%	60%	140%

Polyaromatic Hydrocarbon Analysis - Water FWAL

Acridine	140	4770264	<0.0001	<0.0001	NA	< 0.0001	94%	70%	130%	84%	70%	130%	127%	70%	130%
Quinoline	140	4770264	<0.0001	<0.0001	NA	< 0.0001	81%	70%	130%	72%	70%	130%	129%	70%	130%
2-Methylnaphthalene	140	4770264	0.00003	0.00002	NA	< 0.00001	117%	70%	130%	113%	70%	130%	112%	70%	130%
Naphthalene	140	4770264	0.00005	0.00005	NA	< 0.00001	115%	70%	130%	113%	70%	130%	113%	70%	130%
Acenaphthylene	140	4770264	<0.00001	<0.00001	NA	< 0.00001	105%	70%	130%	104%	70%	130%	104%	70%	130%
Acenaphthene	140	4770264	0.00008	0.00008	NA	< 0.00001	125%	70%	130%	122%	70%	130%	124%	70%	130%
Fluorene	140	4770264	0.00005	0.00005	NA	< 0.00001	124%	70%	130%	121%	70%	130%	123%	70%	130%
Phenanthrene	140	4770264	0.00012	0.00011	9.0%	< 0.00001	119%	70%	130%	117%	70%	130%	117%	70%	130%
Anthracene	140	4770264	<0.00001	<0.00001	NA	< 0.00001	111%	70%	130%	101%	70%	130%	104%	70%	130%
Fluoranthene	140	4770264	0.00012	0.00010	18.2%	< 0.00001	105%	70%	130%	94%	70%	130%	106%	70%	130%
Pyrene	140	4770264	0.00009	0.00007	25.0%	< 0.00001	112%	70%	130%	126%	70%	130%	124%	70%	130%
Benzo[a]anthracene	140	4770264	<0.00001	<0.00001	NA	< 0.00001	110%	70%	130%	100%	70%	130%	105%	70%	130%
Chrysene	140	4770264	<0.00001	<0.00001	NA	< 0.00001	121%	70%	130%	123%	70%	130%	122%	70%	130%
Benzo[b+j]fluoranthene	140	4770264	<0.00001	<0.00001	NA	< 0.00001	96%	70%	130%	106%	70%	130%	110%	70%	130%
Benzo[k]fluoranthene	140	4770264	<0.00001	<0.00001	NA	< 0.00001	96%	70%	130%	114%	70%	130%	113%	70%	130%
Benzo[a]pyrene	140	4770264	<0.00001	<0.00001	NA	< 0.00001	100%	70%	130%	106%	70%	130%	100%	70%	130%
Indeno[1,2,3-cd]pyrene	140	4770264	<0.00001	<0.00001	NA	< 0.00001	111%	70%	130%	96%	70%	130%	100%	70%	130%
Benzo[ghi]perylene	140	4770264	<0.00001	<0.00001	NA	< 0.00001	110%	70%	130%	97%	70%	130%	102%	70%	130%
Dibenzo[ah]anthracene	140	4770264	<0.00001	<0.00001	NA	< 0.00001	112%	70%	130%	93%	70%	130%	97%	70%	130%

Glycols Analysis in Water

Propylene Glycol	157	4762980	<10	<10	NA	< 10	74%	70%	130%	71%	70%	130%	71%	60%	140%
Monoethylene Glycol	157	4762980	<10	<10	NA	< 10	74%	70%	130%	74%	70%	130%	75%	60%	140%
Diethylene Glycol	157	4762980	<5	<5	NA	< 5	72%	70%	130%	70%	70%	130%	72%	60%	140%
Triethylene Glycol	157	4762980	<10	<10	NA	< 10	75%	70%	130%	76%	70%	130%	73%	60%	140%
Tetraethylene Glycol	157	4762980	<10	<10	NA	< 10	74%	70%	130%	72%	70%	130%	74%	60%	140%

Methanol Analysis in Water

Methanol	3947	4766415	<1	<1	NA	< 1	101%	80%	120%	103%	70%	130%	101%	60%	140%
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ConocoPhillips - Petroleum Hydrocarbons (BTEXS/F1-F4) in Water

Benzene	1149	4770264	<0.0005	<0.0005	NA	< 0.0005	107%	80%	120%	96%	80%	120%	93%	70%	130%
Toluene	1149	4770264	<0.0005	<0.0005	NA	< 0.0005	106%	80%	120%	96%	80%	120%	96%	70%	130%
Ethylbenzene	1149	4770264	<0.0005	<0.0005	NA	< 0.0005	104%	80%	120%	94%	80%	120%	97%	70%	130%
Xylenes	1149	4770264	<0.0005	<0.0005	NA	< 0.0005	108%	80%	120%	99%	80%	120%	105%	70%	130%
Styrene	1149	4770264	<0.0005	<0.0005	NA	< 0.0005	109%	80%	120%	102%	80%	120%	102%	70%	130%
C6 - C10 (F1)	1149	4770264	<0.1	<0.1	NA	< 0.1	85%	80%	120%	105%	80%	120%	106%	70%	130%

Quality Assurance

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

AGAT WORK ORDER: 13C762049

PROJECT NO: 25500214 / 2013 Summer Surface Water Program

ATTENTION TO: Sandra Marken

Trace Organics Analysis (Continued)

RPT Date: Oct 01, 2013			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
C>10 - C16	121	4767545	<0.1	<0.1	NA	< 0.1	104%	80%	120%	106%	80%	120%	112%	70%	130%
C16 - C34	121	4767545	<0.1	<0.1	NA	< 0.1	104%	80%	120%	109%	80%	120%	102%	70%	130%

Certified By:



Quality Assurance

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

AGAT WORK ORDER: 13C762049

PROJECT NO: 25500214 / 2013 Summer Surface Water Program

ATTENTION TO: Sandra Marken

Water Analysis															
RPT Date: Oct 01, 2013			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

CCME / Alberta Tier 1 Metals (Dissolved) + Cr6 and LL Hg

Dissolved Aluminum	1026	852	0.004	0.004	0.0%	< 0.002	114%	80%	120%				107%	80%	120%
Dissolved Antimony	1026	852	< 0.001	< 0.001	NA	< 0.001	115%	80%	120%				92%	80%	120%
Dissolved Arsenic	1026	852	0.002	0.002	0.0%	< 0.001	95%	80%	120%				95%	80%	120%
Dissolved Barium	1026	852	< 0.05	< 0.05	NA	< 0.05	96%	80%	120%				98%	80%	120%
Dissolved Boron	1026	852	0.316	0.314	0.6%	< 0.01	104%	80%	120%				91%	80%	120%
Dissolved Cadmium	1026	852	0.000176	0.000177	0.6%	< 0.000016	94%	80%	120%				96%	80%	120%
Dissolved Chromium	1026	852	< 0.001	< 0.001	NA	< 0.001	96%	80%	120%				85%	80%	120%
Dissolved Copper	1026	852	0.008	0.008	0.0%	< 0.002	106%	80%	120%				102%	80%	120%
Dissolved Iron	948	5454	1.2	1.2	0.2%	< 0.1	103%	80%	120%				98%	80%	120%
Dissolved Lead	1026	852	< 0.001	< 0.001	NA	< 0.001	102%	80%	120%				95%	80%	120%
Dissolved Manganese	948	5454	0.254	0.253	0.4%	< 0.005	103%	80%	120%				99%	80%	120%
Dissolved Molybdenum	1026	852	< 0.003	< 0.003	NA	< 0.003	100%	80%	120%				94%	80%	120%
Dissolved Nickel	1026	852	0.02	0.02	0.0%	< 0.01	110%	80%	120%				107%	80%	120%
Dissolved Selenium	1026	852	0.001	< 0.001	0.0%	< 0.001	94%	80%	120%				88%	80%	120%
Dissolved Silver	1026	852	< 0.00005	< 0.00005	NA	< 0.00005	92%	80%	120%				91%	80%	120%
Dissolved Sodium	948	5454	4.5	4.5	0.2%	< 0.6	101%	80%	120%				101%	80%	120%
Dissolved Thallium	1026	852	< 0.0005	< 0.0005	NA	< 0.0005	101%	80%	120%				95%	80%	120%
Dissolved Uranium	1026	852	0.0675	0.0673	0.3%	< 0.001	95%	80%	120%				90%	80%	120%
Dissolved Zinc	1026	852	0.0142	0.0147	3.5%	< 0.001	101%	80%	120%				106%	80%	120%
Dissolved Bismuth	1026	852	<0.001	<0.001	NA	< 0.001	103%	80%	120%	0%	0%		82%	80%	120%
Dissolved Magnesium	948	5454	4.1	4.1	0.2%	< 0.2	102%	80%	120%	80%	120%		102%	80%	120%
Dissolved Sulphur	948	5454	3.7	3.7	0.7%	< 0.3	98%	80%	120%	80%	120%		93%	80%	120%
Chromium (VI) - Dissolved	6444	6415	< 0.01	< 0.01	NA	< 0.01	90%	80%	120%	88%	80%	120%	85%	80%	120%
Dissolved Mercury- Ultra Low Level	124	6415	< 2.50E-06	< 2.50E-06	NA	< 2.50E-06	100%	90%	110%	110%	90%	110%	109%	80%	120%

CCME / Alberta Tier 1 Metals (Total) + Cr6, LL Hg and Total Phosphorus

Total Aluminum	2198	5865	0.257	0.273	6.0%	< 0.002	109%	80%	120%				108%	80%	120%
Total Antimony	2198	5865	< 0.001	< 0.001	NA	< 0.001	95%	80%	120%				91%	80%	120%
Total Arsenic	2198	5865	0.005	0.005	0.0%	< 0.001	100%	80%	120%				93%	80%	120%
Total Barium	2198	5865	0.22	0.23	4.4%	< 0.05	117%	80%	120%				103%	80%	120%
Total Boron	2198	5865	0.05	0.05	0.0%	< 0.01	91%	80%	120%				99%	80%	120%
Total Cadmium	2198	5865	< 0.000016	< 0.000016	NA	< 0.000016	103%	80%	120%				96%	80%	120%
Total Chromium	2198	5865	< 0.001	< 0.001	NA	< 0.001	91%	80%	120%				80%	80%	120%
Total Copper	2198	5865	0.003	0.003	0.0%	< 0.002	115%	80%	120%				113%	80%	120%
Total Iron	948	2341	<0.1	<0.1	NA	< 0.1	103%	80%	120%				98%	80%	120%
Total Lead	2198	5865	< 0.001	< 0.001	NA	< 0.001	96%	80%	120%				104%	80%	120%
Total Manganese	948	2341	0.017	0.018	4.7%	< 0.005	103%	80%	120%				99%	80%	120%
Total Molybdenum	2198	5865	0.003	0.003	0.0%	< 0.003	107%	80%	120%				105%	80%	120%
Total Nickel	2198	5865	< 0.01	< 0.01	NA	< 0.01	114%	80%	120%				106%	80%	120%
Total Selenium	2198	5865	< 0.001	< 0.001	NA	< 0.001	105%	80%	120%				95%	80%	120%

Quality Assurance

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

AGAT WORK ORDER: 13C762049

PROJECT NO: 25500214 / 2013 Summer Surface Water Program

ATTENTION TO: Sandra Marken

Water Analysis (Continued)

RPT Date: Oct 01, 2013			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Total Silver	2198	5865	< 0.00005	< 0.00005	NA	< 0.00005	118%	80%	120%				89%	80%	120%
Total Sodium	948	2341	36.4	37.5	3.0%	< 0.6	101%	80%	120%				101%	80%	120%
Total Thallium	2198	5865	< 0.0005	< 0.0005	NA	< 0.0005	97%	80%	120%				107%	80%	120%
Total Uranium	2198	5865	0.001	0.001	0.0%	< 0.001	96%	80%	120%				119%	80%	120%
Total Zinc	2198	5865	0.004	0.004	0.0%	< 0.001	92%	80%	120%				89%	80%	120%
Total Bismuth	2198	5865	<0.001	<0.001	0.0%	< 0.001	91%	80%	120%		0%	0%	99%	80%	120%
Total Calcium	948	2341	136	141	3.5%	< 0.3	106%	80%	120%		0%	0%	103%	80%	120%
Total Magnesium	948	2341	41.9	43.3	3.3%	< 0.2	102%	80%	120%		0%	0%	102%	80%	120%
Total Sulphur	948	2341	81.8	84.8	3.6%	< 0.3	98%	80%	120%		0%	0%	93%	80%	120%
Chromium (VI)	6444	7706	< 0.01	< 0.01	NA	< 0.01	90%	80%	120%	88%	80%	120%	85%	80%	120%
Total Phosphorus	2198	5865	0.421	0.425	0.9%	< 0.001	108%	80%	120%		0%	0%	106%	80%	120%
Total Mercury- Ultra Low Level	124	6415	0.	0.	0.0%	< 1.90E-06	100%	90%	110%	110%	90%	110%	109%	80%	120%
Water Analysis - Phenols															
Phenols	312	887	0.006	0.006	0.0%	< 0.002	104%	80%	120%				83%	80%	120%
Routine Chemistry Water Analysis															
pH	4758826	4758826	8.65	8.69	0.5%	< 0.02	102%	90%	110%						
T - Alkalinity (as CaCO ₃)	4758826	4758826	1070	1090	1.9%	< 5	95%	80%	120%						
Electrical Conductivity	4758826	4758826	1970	2000	1.5%	< 5	100%	80%	120%						
Chloride	4762163	4762163	<1	<1	NA	< 1	90%	80%	120%		80%	120%	110%	80%	120%
Fluoride	4762163	4762163	<0.01	<0.01	NA	< 0.01	101%	80%	120%		80%	120%	90%	80%	120%
Nitrate	4762163	4762163	<0.5	<0.5	NA	< 0.5	91%	80%	120%		80%	120%	90%	80%	120%
Nitrite	4762163	4762163	<0.05	<0.05	NA	< 0.05	92%	80%	120%		80%	120%	86%	80%	120%
Sulphate	4762163	4762163	<1	<1	NA	< 1	90%	80%	120%		80%	120%	108%	80%	120%
Dissolved Calcium	948	5454	4.2	4.2	0.1%	< 0.3	106%	80%	120%				103%	80%	120%
Dissolved Magnesium	948	5454	4.1	4.1	0.2%	< 0.2	102%	80%	120%				102%	80%	120%
Dissolved Sodium	948	5454	4.5	4.5	0.2%	< 0.6	101%	80%	120%				101%	80%	120%
Dissolved Potassium	948	5454	4.0	4.1	0.8%	< 0.6	95%	80%	120%				96%	80%	120%
Dissolved Iron	948	5454	1.2	1.2	0.2%	< 0.1	103%	80%	120%				98%	80%	120%
Dissolved Manganese	948	5454	0.254	0.253	0.4%	< 0.005	103%	80%	120%				99%	80%	120%

Comments: N/A - Not Available.

Certified By:



Method Summary

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

AGAT WORK ORDER: 13C762049

PROJECT NO: 25500214 / 2013 Summer Surface Water Program

ATTENTION TO: Sandra Marken

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Benzene	TO 0540	EPA SW-846 8260	GC/MS
Toluene	TO 0540	EPA SW-846 8260	GC/MS
Ethylbenzene	TO 0540	EPA SW-846 8260	GC/MS
Xylenes	TO 0540	EPA SW-846 8260	GC/MS
Styrene	TO 0540	EPA SW-846 8260	GC/MS
C6 - C10 (F1)	TO 0540	CCME Tier 1 Method	GC/FID
C6 - C10 (F1 minus BTEX)	TO 0540	CCME Tier 1 Method	GC/FID
Toluene-d8 (BTEX)	TO 0540	EPA SW-846 8260	GC/MS
Benzene	TO 0540	EPA 8260	GC/MS
Toluene	TO 0540	EPA 8260	GC/MS
Ethylbenzene	TO 0540	EPA 8260	GC/MS
Xylenes	TO 0540	EPA 8260	GC/MS
Styrene	TO 0540	EPA 8260	GC/MS
C6 - C10 (F1)	TO 0540	CCME Tier 1 Method	GC/FID
C6 - C10 (F1 minus BTEX)	TO 0540	CCME Tier 1 Method	GC/FID
C>10 - C16	TO 0511	CCME Tier 1 Method	GC/FID
C16 - C34	TO 0511	CCME Tier 1 Method	GC/FID
C>34 - C50	TO 0511	CCME Tier 1 Method	GC/FID
Toluene-d8 (BTEX)	TO 0340	EPA 8260	GC/FID
o-Terphenyl (F2-F4)	TO 0511	CCME Tier 1 Method	GC/FID
Propylene Glycol	TO 1410	EPA SW-846 8015-W	GC/FID
Monoethylene Glycol	TO 1410	EPA SW-846 8015-W	GC/FID
Diethylene Glycol	TO 1410	EPA SW-846 8015-W	GC/FID
Triethylene Glycol	TO 1410	EPA SW-846 8015-W	GC/FID
Tetraethylene Glycol	TO 1410	EPA SW-846 8015-W	GC/FID
Heptanol	TO 1410	EPA SW-846 8015	GC/FID
Methanol	TO 1420	EPA SW-846 3500 & 8015	GC/FID
4-Methyl-2-pentanone	TO 1420	EPA SW-846 3500 & 8015	GC/FID
Acridine	TO 0200	EPA 8270-W	GC/MS
Quinoline	TO 0200	EPA 8270-W	GC/MS
2-Methylnaphthalene	TO 0200	EPA 8270-W	GC/MS
Naphthalene	TO 0200	EPA 8270-W	GC/MS
Acenaphthylene	TO 0200	EPA 8270-W	GC/MS
Acenaphthene	TO 0200	EPA 8270-W	GC/MS
Fluorene	TO 0200	EPA 8270-W	GC/MS
Phenanthrene	TO 0200	EPA 8270-W	GC/MS
Anthracene	TO 0200	EPA 8270-W	GC/MS
Fluoranthene	TO 0200	EPA 8270-W	GC/MS
Pyrene	TO 0200	EPA 8270-W	GC/MS
Benzo[a]anthracene	TO 0200	EPA 8270-W	GC/MS
Chrysene	TO 0200	EPA 8270-W	GC/MS
Benzo[b+j]fluoranthene	TO 0200	EPA 8270-W	GC/MS
Benzo[k]fluoranthene	TO 0200	EPA 8270-W	GC/MS
Benzo[a]pyrene	TO 0200	EPA 8270-W	GC/MS
Indeno[1,2,3-cd]pyrene	TO 0200	EPA 8270-W	GC/MS
Benzo[ghi]perylene	TO 0200	EPA 8270-W	GC/MS
Dibenzo[ah]anthracene	TO 0200	EPA 8270-W	GC/MS
2-Fluorobiphenyl (PAH)	TO 0200	EPA 8270	GC/MS
p-Terphenyl-d14 (PAH)	TO 0200	EPA 8270	GC/MS

Method Summary

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

AGAT WORK ORDER: 13C762049

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PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Chloromethane	TO 0330	EPA SW-846 8260-VOCW	GC/MS
Vinyl Chloride	TO 0330	EPA SW-846 8260-VOCW	GC/MS
Bromomethane	TO 0330	EPA SW-846 8260-VOCW	GC/MS
Chloroethane	TO 0330	EPA SW-846 8260-VOCW	GC/MS
Trichlorofluoromethane	TO 0330	EPA SW-846 8260-VOCW	GC/MS
Acetone	TO 0330	EPA SW-846 8260-VOCW	GC/MS
1,1-Dichloroethylene	TO 0330	EPA SW-846 8260-VOCW	GC/MS
Methylene Chloride	TO 0330	EPA SW-846 8260-VOCW	GC/MS
Methyl tert-butyl ether	TO 0330	EPA SW-846 8260-VOCW	GC/MS
Methyl Ethyl Ketone	TO 0330	EPA SW-846 8260-VOCW	GC/MS
trans- 1,2-dichloroethylene	TO 0330	EPA SW-846 8260-VOCW	GC/MS
1,1-Dichloroethane	TO 0330	EPA SW-846 8260-VOCW	GC/MS
cis- 1,2-Dichloroethylene	TO 0330	EPA SW-846 8260-VOCW	GC/MS
Chloroform	TO 0330	EPA SW-846 8260-VOCW	GC/MS
1,2-Dichloroethane	TO 0330	EPA SW-846 8260-VOCW	GC/MS
1,1,1-Trichloroethane	TO 0330	EPA SW-846 8260-VOCW	GC/MS
Carbon Tetrachloride	TO 0330	EPA SW-846 8260-VOCW	GC/MS
Benzene	TO 0330	EPA SW-846 8260-VOCW	GC/MS
1,2-Dichloropropane	TO 0330	EPA SW-846 8260-VOCW	GC/MS
Trichloroethylene	TO 0330	EPA SW-846 8260-VOCW	GC/MS
Bromodichloromethane	TO 0330	EPA SW-846 8260-VOCW	GC/MS
trans-1,3-Dichloropropene	TO 0330	EPA SW-846 8260-VOCW	GC/MS
Methyl Isobutyl Ketone	TO 0330	EPA SW-846 8260-VOCW	GC/MS
cis-1,3-Dichloropropene	TO 0330	EPA SW-846 8260-VOCW	GC/MS
1,1,2-Trichloroethane	TO 0330	EPA SW-846 8260-VOCW	GC/MS
Toluene	TO 0330	EPA SW-846 8260-VOCW	GC/MS
2-Hexanone	TO 0330	EPA SW-846 8260-VOCW	GC/MS
Dibromochloromethane	TO 0330	EPA SW-846 8260-VOCW	GC/MS
Ethylene Dibromide	TO 0330	EPA SW-846 8260-VOCW	GC/MS
Tetrachloroethene	TO 0330	EPA SW-846 8260-VOCW	GC/MS
1,1,1,2-Tetrachloroethane	TO 0330	EPA SW-846 8260-VOCW	GC/MS
Chlorobenzene	TO 0330	EPA SW-846 8260-VOCW	GC/MS
Ethylbenzene	TO 0330	EPA SW-846 8260-VOCW	GC/MS
m & p-Xylene	TO 0330	EPA SW-846 8260-VOCW	GC/MS
Bromoform	TO 0330	EPA SW-846 8260-VOCW	GC/MS
Styrene	TO 0330	EPA SW-846 8260-VOCW	GC/MS
1,1,2,2-Tetrachloroethane	TO 0330	EPA SW-846 8260-VOCW	GC/MS
o-Xylene	TO 0330	EPA SW-846 8260-VOCW	GC/MS
1,3-Dichlorobenzene	TO 0330	EPA SW-846 8260-VOCW	GC/MS
1,4-Dichlorobenzene	TO 0330	EPA SW-846 8260-VOCW	GC/MS
1,2-Dichlorobenzene	TO 0330	EPA SW-846 8260-VOCW	GC/MS
1,2,4-Trichlorobenzene	TO 0330	EPA SW-846 8260-VOCW	GC/MS
Total Xylenes	TO 0330	EPA SW-846 8260-VOCW	GC/MS
Toluene-d8 (BTEX)	TO 0330	EPA SW-846 8260	GC/FID

Method Summary

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

AGAT WORK ORDER: 13C762049

PROJECT NO: 25500214 / 2013 Summer Surface Water Program

ATTENTION TO: Sandra Marken

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Dissolved Aluminum	INST 0141	SM 3125 B DW	ICP/MS
Dissolved Antimony	INST 0141	SM 3125 B DW	ICP/MS
Dissolved Arsenic	INST 0141	SM 3125 B DW	ICP/MS
Dissolved Barium	INST 0141	SM 3125 B DW	ICP/MS
Dissolved Boron	INST 0141	SM 3125 B DW	ICP/MS
Dissolved Cadmium	INST 0141	SM 3125 B DW	ICP/MS
Dissolved Chromium	INST 0141	SM 3125 B DW	ICP/MS
Dissolved Copper	INST 0141	SM 3125 B DW	ICP/MS
Dissolved Iron	INST 0140	SM 3120 B DW	ICP/OES
Dissolved Lead	INST 0141	SM 3125 B DW	ICP/MS
Dissolved Manganese	INST 0140	SM 3120 B DW	ICP/OES
Dissolved Molybdenum	INST 0141	SM 3125 B DW	ICP/MS
Dissolved Nickel	INST 0141	SM 3125 B DW	ICP/MS
Dissolved Selenium	INST 0141	SM 3125 B DW	ICP/MS
Dissolved Silver	INST 0141	SM 3125 B DW	ICP/MS
Dissolved Sodium	INST 0140	SM 3120 B DW	ICP/OES
Dissolved Thallium	INST 0141	SM 3125 B DW	ICP/MS
Dissolved Uranium	INST 0141	SM 3125 B DW	ICP/MS
Dissolved Zinc	INST 0141	SM 3125 B DW	ICP/MS
Dissolved Bismuth	INST 0141	SM 3125 B	ICP-MS
Dissolved Magnesium	INST 0140	SM 3120 B	ICP/OES
Dissolved Sulphur	INST 0140	SM 3120 B DW	ICP/OES
Chromium (VI) - Dissolved	SPE 0101	EPA SW 846-6010B, SM 3030B	SPECTROPHOTOMETER
Dissolved Mercury- Ultra Low Level	INST 0162	EPA 1631 DW	CV/AFS
Total Aluminum	WATR 0200; INST 0141	SM 3030 E; SM 3125 B TW	ICP/MS
Total Antimony	WATR 0200; INST 0141	SM 3030 E; SM 3125 B TW	ICP/MS
Total Arsenic	WATR 0200; INST 0141	SM 3030 E; SM 3125 B TW	ICP/MS
Total Barium	WATR 0200; INST 0141	SM 3030 E; SM 3125 B TW	ICP/MS
Total Boron	WATR 0200; INST 0141	SM 3030 E; SM 3125 B TW	ICP/MS
Total Cadmium	WATR 0200; INST 0141	SM 3030 E; SM 3125 B TW	ICP/MS
Total Chromium	WATR 0200; INST 0141	SM 3030 E; SM 3125 B TW	ICP/MS
Total Copper	WATR 0200; INST 0141	SM 3030 E; SM 3125 B TW	ICP/MS
Total Iron	WATR 0200; INST 0140	SM 3030 E; SM 3120 B TW	ICP/OES
Total Lead	WATR 0200; INST 0141	SM 3030 E; SM 3125 B TW	ICP/MS
Total Manganese	WATR 0200; INST 0140	SM 3030 E; SM 3120 B TW	ICP/OES
Total Molybdenum	WATR 0200; INST 0141	SM 3030 E; SM 3125 B TW	ICP/MS
Total Nickel	WATR 0200; INST 0141	SM 3030 E; SM 3125 B TW	ICP/MS
Total Selenium	WATR 0200; INST 0141	SM 3030 E; SM 3125 B TW	ICP/MS
Total Silver	WATR 0200; INST 0141	SM 3030 E; SM 3125 B TW	ICP/MS
Total Sodium	WATR 0200; INST 0140	SM 3030 E; SM 3120 B TW	ICP/OES
Total Thallium	WATR 0200; INST 0141	SM 3030 E; SM 3125 B TW	ICP/MS
Total Uranium	WATR 0200; INST 0141	SM 3030 E; SM 3125 B TW	ICP/MS
Total Zinc	WATR 0200; INST 0141	SM 3030 E; SM 3125 B TW	ICP/MS
Total Bismuth	WATR 0200; INST 0141	SM 3030 E; SM 3125 B	ICP-MS
Total Calcium	WATR 0200; INST 0140	SM 3030 E; SM 3120 B TW	ICP/OES
Total Magnesium	WATR 0200; INST 0140	SM 3030 E; SM 3120 B TW	ICP/OES
Total Sulphur	WATR 0200; INST 0140	SM 3030 E; SM 3120 B TW	ICP/OES
Chromium (VI)	SOIL 0600	REISENAUER	SPECTROPHOTOMETER
Total Phosphorus	WATR 0200; INST 0141	SM 3030 E; SM 3125 B	ICP-MS

Method Summary

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

AGAT WORK ORDER: 13C762049

PROJECT NO: 25500214 / 2013 Summer Surface Water Program

ATTENTION TO: Sandra Marken

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Total Mercury- Ultra Low Level	INST 0162	EPA 1631 TW	CV/AFS
pH	INST 0101	SM 4500 H+ W	pH METER
p - Alkalinity (as CaCO ₃)	INST 0101	SM 2320 B W	TITRATION
T - Alkalinity (as CaCO ₃)	INST 0101	SM 2320 B W	TITRATION
Bicarbonate	INST 0101	SM 2320 B W	TITRATION
Carbonate	INST 0101	SM 2320 B W	TITRATION
Hydroxide	WAT 0310	SM 2320 B	TITRATION
Electrical Conductivity	INST 0101	SM 2510 B	CONDUCTIVITY METER
Chloride	INST 0150	SM 4110 B	ION CHROMATOGRAPH
Fluoride	INST 0150	SM 4110 B	ION CHROMATOGRAPH
Nitrate	INST 0150	SM 4110 B	ION CHROMATOGRAPH
Nitrite	INST 0150	SM 4110 B	ION CHROMATOGRAPH
Sulphate	INST 0150	SM 4110 B	ION CHROMATOGRAPH
Dissolved Calcium	INST 0140	SM 3120 B	ICP/OES
Dissolved Magnesium	INST 0140	SM 3120 B	ICP/OES
Dissolved Sodium	INST 0140	SM 3120 B	ICP/OES
Dissolved Potassium	INST 0140	SM 3120 B	ICP/OES
Dissolved Iron	INST 0140	SM 3120 B	ICP/OES
Dissolved Manganese	INST 0140	SM 3120 B	ICP/OES
Phenols	INST 0300	SM 420.2	CONTINUOUS FLOW ANALYZER



Laboratories

LABORATORY USE ONLY

Arrival Condition: 4

Arrival Temperature: _____

Notes: _____

Good ☐ Poor (complete "notes")

AGAT Job Number: 1276004

CHAIN OF CUSTODY RECORD

Client Project #: 25500214

DO/ACE #:

sandra.lukas-lukas-amulung@mwhglobal.com

Sandra Lukas-Amulung

☐ D50 (Drilling)

Trip Blank

otles

100

Date/Time

sample requisition by (print name & sign)

Date/Time

Page 1 of 1

E 35977

[illegible]



AGAT

Laboratories

SAMPLE INTEGRITY RECEIPT FORM – Calgary

RECEIVING BASICS

Received By: AGAT Date & Time: SEP 24/13 11:07 am/pm
Company/Consultant: CPC / MW4
Relinquished By: _____ Courier: Canada Post Prepaid/Collect
Waybill #: 9560296 Branch Received From: _____
Client left without count verified: Yes/No Custody Seal Intact: Yes/No/NA

COC INFORMATION

Workorder #: 136762049 COC received: Yes/No/Emailed to CPM
TAT: <24hr 24-48hr 48-72hr Reg Other _____
COC Complete? Yes/No *If NO why: _____
COC Numbers: 535777
Sample Quantities: Coolers: 1 Bottles/Jars: 27 Bags: _____ Other: _____
COC Container Count: 27
*Differs from what was received why: _____

TIME SENSITIVE ISSUES

Earliest Date Sampled: SEP 22/13 ALREADY EXCEEDED? Yes/No
MIBI/Time Sensitive Test*: FORUW Expiry: SEP 24/13
Hydrocarbon Test: _____ Expiry: _____
Are samples received more than 5 days after sampling: Yes/No
*Residual Chlorine, DO, Turbidity, BOD, Nitrate/Nitrite, Microtox

SAMPLE INTEGRITY

Hazardous Samples Why Hazardous: _____ Precaution taken: _____
Specialty Issues Legal Samples: Yes/No
International Samples: Yes/No Proper tape/labels applied: Yes/No
Damaged: Yes/No If YES why? No Bubble Wrap/Frozen/Courier
Other: _____

Temperature (to be recorder from bottles/jars only)

N/A – Only Soil Bags Received

(1) (Bottle/Jar) 3 + 4 + 5 = 4 °C (2) (Bottle/Jar) _____ + _____ = _____ °C
(3) (Bottle/Jar) _____ + _____ = _____ °C (4) (Bottle/Jar) _____ + _____ = _____ °C
(5) (Bottle/Jar) _____ + _____ = _____ °C (6) (Bottle/Jar) _____ + _____ = _____ °C

(If more than 6 coolers are received use another sheet of paper and attach)

Coolant used: Icepack (Top/Bottom/Side) Bagged Ice (Top/Bottom/Side)

Free Ice None

Correct Sample Requirements for Testing (to be completed by Logistics staff during login process)

Bottles: Yes/No Amount: Yes/No Labels: Yes/No
If NO to any of the above, explain why: _____

Visible Sediment (NA if soil): Yes/No/NA

Additional Integrity Issues: 1. ISBAKEN CAP ON 16 AG 812
2. WWO4-A / USE 2nd BZ AS PER CPA'S
INSTRUCTIONS

Account Project Manager: VEVETIA have they been notified of the above issues: Yes/No

Whom spoken to: VEVETIA Date/Time: SEP 24/13 11:05 CPM Initial VD

Shipper's Name and Address Norman Wells, NT 867 587 4585 RSR03018913		Shipper's Account Number AGAT Laboratories Ltd 2910 - 12th Street NE Calgary, AB T2E 7P7 403 736 2000	
Issuing Carrier's Name and City / Nom et ville de l'agent du transporteur émetteur AGAT Laboratories Ltd 2910 - 12th Street NE Calgary, AB T2E 7P7 403 736 2000		Flight Date / Date du vol Vol. / Date	
Routing and Destination / Routage et destination To / À By / Par By / Par By / Par By / Par		Flight Date / Date du vol Vol. / Date	
Agent's IATA Code / Code IATA de l'agent Account Number / Numéro de compte		Flight Date / Date du vol Vol. / Date	
Airport of Departure (Address of first Carrier) and Requested Routing Adress du premier transporteur et itinéraire demandé Norman Wells		Flight Date / Date du vol Vol. / Date	
Acc.#: MAC115CM Mackay Expediting & Logistics Ltd (MXL) 18, Yellowknife Airport 100 McMillan Street Yellowknife, NT X1A 3T2		Flight Date / Date du vol Vol. / Date	
Accounting Information / Renseignements comptables Signature of Comptroller or his agent / Signature du contrôleur ou de son agent Date/Time / Date/Heure		Flight Date / Date du vol Vol. / Date	
Copies 1, 2 and 3 of this Air Waybill are originals and have the same validity Les exemplaires 1, 2 et 3 de cette lettre de transport aérien sont originaux et ont la même validité		Flight Date / Date du vol Vol. / Date	

Number of Pieces / Nombre de colis	Gross Weight / Poids brut	Rate Class / Classe de tarif	Commodity Item No. / N° d'article de la marchandise	Chargeable Weight / Poids de taxation	Rate / Charge	Tariff / Montant	Nature and Quantity of Goods (including Dimensions or Volume) / Nature et quantité des marchandises (y compris dimensions ou volume)
1	14	K	GAD 30	14	4.94		Water Samples DIMS 23x13x13IN (bulk) 5T
1	14	K			69.16		
Total							

Prepaid / Port payé	Weight Charge / Taxation au poids	Collect / Port d0	Other Charges / Autres frais
69.16	0.00	0.00	Nav Canada Charge 3.46 Fuel Surcharge 12.00 Goods/Service Tax 5.20
Valuation charge / Taxation à la valeur	0.00		
Tax / Taxe	0.00		
Total other Charges Due Agent / Total des autres frais dus à l'agent	0.00		
Total other Charges Due Carrier / Total des autres frais dus au transporteur	0.00		
34.82	0.00		
Total prepaid / Total port payé	0.00		
109.48	0.00		
Charges at Destination / Frais à l'arrivée	0.00		
Excise on Fuel / Taxe sur le carburant	0.00		
Signature of Shipper or his Agent / Signature de l'expéditeur ou de son agent			
Date / Date			
Place / Lieu			
Signature of Issuing Carrier or its Agent / Signature du transporteur émetteur ou de son agent			
Date / Date			
Place / Lieu			

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.
2100, 250 6 AVENUE SW
CALGARY, AB T2P3H7
(403) 233-4000

ATTENTION TO: Cyril Jenkins

PROJECT: Chinook

AGAT WORK ORDER: 13E731518

TRACE ORGANICS REVIEWED BY: Jennifer Jones, Trace Organics Supervisor

WATER ANALYSIS REVIEWED BY: Shanna Mills, Inorganics Manager

DATE REPORTED: Jul 04, 2013

PAGES (INCLUDING COVER): 10

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (780) 395-2525

***NOTES**

VERSION 1: The data for sample 546 has been updated - April 24/2014 DW

All samples will be disposed of within 30 days following analysis. Please contact the lab if you require additional sample storage time.



AGAT Laboratories

Certificate of Analysis

AGAT WORK ORDER: 13E731518

PROJECT: Chinook

6310 ROPER ROAD
EDMONTON, ALBERTA
CANADA T6B 3P9
TEL (780)395-2525
FAX (780)462-2490
<http://www.agatlabs.com>

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

ATTENTION TO: Cyril Jenkins

ConocoPhillips - Petroleum Hydrocarbons (BTEXS/F1-F4) in Water

DATE RECEIVED: 2013-06-29

DATE REPORTED: 2013-07-04

		SAMPLE DESCRIPTION:		WW04A	WW05A
		SAMPLE TYPE:		Water	Water
		DATE SAMPLED:		6/26/2013	6/26/2013
Parameter	Unit	G / S	RDL	4508544	4508546
Benzene	mg/L		0.0005	0.0023	0.0010
Toluene	mg/L		0.0005	0.0074	0.0100
Ethylbenzene	mg/L		0.0005	<0.0005	<0.0005
Xylenes	mg/L		0.0005	<0.0005	0.0008
Styrene	mg/L		0.0005	<0.0005	<0.0005
C6 - C10 (F1)	mg/L		0.1	<0.1	<0.1
C6 - C10 (F1 minus BTEX)	mg/L		0.1	<0.1	<0.1
C>10 - C16	mg/L		0.1	<0.1	0.1
C16 - C34	mg/L		0.1	<0.1	<0.1
C>34 - C50	mg/L		0.1	<0.1	<0.1
Surrogate	Unit	Acceptable Limits			
Toluene-d8 (BTEX)	%	50-150		105	100
o-Terphenyl (F2-F4)	%	50-150		90	93

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

4508544-4508546 The C>6 - C10 fraction is calculated using the toluene response factor.

The C10 - C16 fraction is calculated using the average response factor for nC10, nC16 and nC34.

BTEX has NOT been subtracted from Fraction 1.

Sample is blank corrected.

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 13E731518

PROJECT: Chinook

6310 ROPER ROAD
EDMONTON, ALBERTA
CANADA T6B 3P9
TEL (780)395-2525
FAX (780)462-2490
<http://www.agatlabs.com>

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

ATTENTION TO: Cyril Jenkins

CCME / Alberta Tier 1 Metals (Dissolved)

DATE RECEIVED: 2013-06-29

DATE REPORTED: 2013-07-04

		SAMPLE DESCRIPTION:		WW04A	WW05A
		SAMPLE TYPE:		Water	Water
		DATE SAMPLED:		6/26/2013	6/26/2013
Parameter	Unit	G / S	RDL	4508544	4508546
Dissolved Aluminum	mg/L	0.005	0.002	0.005	0.081
Dissolved Antimony	mg/L	0.006	0.001	0.003	0.002
Dissolved Arsenic	mg/L	0.005	0.001	0.001	0.001
Dissolved Barium	mg/L	1	0.05	2.75	0.28
Dissolved Boron	mg/L	0.5	0.01	0.81	<0.01
Dissolved Cadmium	mg/L	VAR	0.000016	0.000160	0.000175
Dissolved Chromium	mg/L		0.001	<0.001	<0.001
Dissolved Copper	mg/L	0.002	0.002	<0.002	<0.002
Dissolved Iron	mg/L	0.3	0.1	<0.1	<0.1
Dissolved Lead	mg/L	0.001	0.001	0.002	0.006
Dissolved Manganese	mg/L	0.05	0.005	0.020	<0.005
Dissolved Molybdenum	mg/L		0.003	0.148	0.150
Dissolved Nickel	mg/L	VAR	0.01	<0.01	<0.01
Dissolved Selenium	mg/L	0.001	0.001	0.02	0.005
Dissolved Silver	mg/L	0.0001	0.00005	<0.00005	0.00005
Dissolved Sodium	mg/L	200	0.6	1140	113
Dissolved Thallium	mg/L		0.0005	<0.0005	<0.0005
Dissolved Uranium	mg/L	0.01	0.001	<0.001	<0.001
Dissolved Zinc	mg/L	0.03	0.001	<0.001	<0.001

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to ABTier1 GW (Ag, F)
4508544-4508546 < - Values refer to Report Detection Limit.

Certified By:



AGAT Laboratories

Certificate of Analysis

AGAT WORK ORDER: 13E731518

PROJECT: Chinook

6310 ROPER ROAD
EDMONTON, ALBERTA
CANADA T6B 3P9
TEL (780)395-2525
FAX (780)462-2490
<http://www.agatlabs.com>

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

ATTENTION TO: Cyril Jenkins

Routine Chemistry Water Analysis

DATE RECEIVED: 2013-06-29

DATE REPORTED: 2013-07-04

		SAMPLE DESCRIPTION:		WW04A	WW05A
		SAMPLE TYPE:		Water	Water
		DATE SAMPLED:		6/26/2013	6/26/2013
Parameter	Unit	G / S	RDL	4508544	4508546
pH	pH Units	6.5-8.5	NA	9.02	11.5
p - Alkalinity (as CaCO ₃)	mg/L		5	<5	354
T - Alkalinity (as CaCO ₃)	mg/L		5	1550	391
Bicarbonate	mg/L		5	1530	<5
Carbonate	mg/L		5	<5	73
Hydroxide	mg/L		5	<5	318
Electrical Conductivity	uS/cm		1	5780	1870
Fluoride	mg/L	1.5	0.05	<0.05	<0.05
Chloride	mg/L	250	1	1230	105
Nitrite	mg/L	3.2	0.05	<0.05	<0.05
Nitrate	mg/L	45	0.5	<0.5	<0.5
Sulfate	mg/L	500	1	6	45
Dissolved Calcium	mg/L		0.3	5.1	142
Dissolved Magnesium	mg/L		0.2	3	<0.2
Dissolved Sodium	mg/L	200	0.6	1140	113
Dissolved Potassium	mg/L		0.6	26.7	31.4
Dissolved Iron	mg/L	0.3	0.1	<0.1	<0.1
Dissolved Manganese	mg/L	0.05	0.005	0.020	<0.005
Calculated TDS	mg/L		1	3340	534
Hardness	mg CaCO ₃ /L		1	25	355
Ion Balance	%		0.001	84.8	51.1
Nitrate+Nitrite-N	mg/L		0.02	<0.02	<0.02
Nitrate-N	mg/L		0.02	<0.02	<0.02
Nitrite-Nitrogen	mg/L		0.01	<0.01	<0.01

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to CCME (D Water)

4508544-4508546 < - Values refer to Report Detection Limits.

Certified By:

Jmills

Quality Assurance

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

AGAT WORK ORDER: 13E731518

PROJECT: Chinook

ATTENTION TO: Cyril Jenkins

Trace Organics Analysis

RPT Date: Jul 04, 2013

DUPLICATE

PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
							Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

ConocoPhillips - Petroleum Hydrocarbons (BTEXS/F1-F4) in Water

Benzene	416	4509926	< 0.0005	< 0.0005	0.0%	< 0.0005	95%	80%	120%	96%	80%	120%	94%	70%	130%
Toluene	416	4509926	< 0.0005	< 0.0005	0.0%	< 0.0005	97%	80%	120%	89%	80%	120%	92%	70%	130%
Ethylbenzene	416	4509926	< 0.0005	< 0.0005	0.0%	< 0.0005	104%	80%	120%	93%	80%	120%	94%	70%	130%
Xylenes	416	4509926	< 0.0005	< 0.0005	0.0%	< 0.0005	90%	80%	120%	103%	80%	120%	109%	70%	130%
Styrene	416	4509926	< 0.0005	< 0.0005	0.0%	< 0.0005	91%	80%	120%	86%	80%	120%	93%	70%	130%
C6 - C10 (F1)	416	4509926	< 0.1	< 0.1	0.0%	< 0.1	112%	80%	120%	83%	80%	120%	70%	70%	130%
C>10 - C16	423	4508455	< 0.1	< 0.1	0.0%	< 0.1	106%	80%	120%	99%	80%	120%	108%	70%	130%
C16 - C34	423	4508455	< 0.1	< 0.1	0.0%	< 0.1	109%	80%	120%	114%	80%	120%	121%	70%	130%
C>34 - C50	423	4508455	< 0.1	< 0.1	0.0%	< 0.1	110%	80%	120%						

Certified By:



Quality Assurance

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

AGAT WORK ORDER: 13E731518

PROJECT: Chinook

ATTENTION TO: Cyril Jenkins

Water Analysis															
RPT Date: Jul 04, 2013			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

CCME / Alberta Tier 1 Metals (Dissolved)

Dissolved Aluminum	591	4508544	0.005	0.005	0.0%	< 0.002	94%	80%	120%				93%	80%	120%
Dissolved Antimony	591	4508544	0.003	0.002	NA	< 0.001	109%	80%	120%				94%	80%	120%
Dissolved Arsenic	591	4508544	0.001	0.001	0.0%	< 0.001	100%	80%	120%				103%	80%	120%
Dissolved Barium	591	4508544	3.00	3.03	1.0%	< 0.05	117%	80%	120%				83%	80%	120%
Dissolved Boron	591	4508544	0.80	0.80	0.0%	< 0.01	94%	80%	120%				94%	80%	120%
Dissolved Cadmium	591	4508544	0.000257	0.000200	24.9%	< 0.000016	97%	80%	120%				94%	80%	120%
Dissolved Chromium	591	4508544	< 0.001	< 0.001	0.0%	< 0.001	98%	80%	120%				99%	80%	120%
Dissolved Copper	591	4508544	0.001	0.001	0.0%	< 0.002	93%	80%	120%				84%	80%	120%
Dissolved Iron	625	4510158	1.7	1.6	6.1%	< 0.1	97%	80%	120%				91%	80%	120%
Dissolved Lead	591	4508544	0.002	0.002	0.0%	< 0.001	99%	80%	120%				97%	80%	120%
Dissolved Manganese	625	4510158	0.026	0.023	12.2%	< 0.005	94%	80%	120%				87%	80%	120%
Dissolved Molybdenum	591	4508544	0.148	0.151	2.0%	< 0.003	99%	80%	120%				99%	80%	120%
Dissolved Nickel	591	4508544	< 0.01	< 0.01	0.0%	< 0.01	91%	80%	120%				92%	80%	120%
Dissolved Selenium	591	4508544	0.0269	0.0262	2.6%	< 0.001	99%	80%	120%				102%	80%	120%
Dissolved Silver	591	4508544	< 0.00005	< 0.00005	0.0%	< 0.00005	102%	80%	120%				98%	80%	120%
Dissolved Sodium	625	4510158	350	348	0.6%	< 0.6	95%	80%	120%				99%	80%	120%
Dissolved Thallium	591	4508544	< 0.0005	< 0.0005	0.0%	< 0.0005	98%	80%	120%				95%	80%	120%
Dissolved Uranium	591	4508544	< 0.001	< 0.001	0.0%	< 0.001	99%	80%	120%				103%	80%	120%
Dissolved Zinc	591	4508544	< 0.001	< 0.001	0.0%	< 0.001	99%	80%	120%				92%	80%	120%

Routine Chemistry Water Analysis

pH	750	4508544	9.02	9.02	0.0%		100%	90%	110%						
T - Alkalinity (as CaCO3)	750	4508544	1550	1550	0.0%	< 5	100%	80%	120%						
Bicarbonate	750	4508544	1530	1530	0.0%	< 5									
Electrical Conductivity	750	4508544	5780	5780	0.0%	< 1	100%	80%	120%						
Fluoride	496	4508522	< 0.05	< 0.05	0.0%	< 0.05	97%	80%	120%	99%	80%	120%	107%	80%	120%
Chloride	496	4508522	30	30	0.0%	< 1	99%	80%	120%	96%	80%	120%	100%	80%	120%
Nitrite	496	4508522	< 0.05	< 0.05	0.0%	< 0.05	99%	80%	120%	99%	80%	120%	99%	80%	120%
Nitrate	496	4508522	< 0.5	< 0.5	0.0%	< 0.5	95%	80%	120%	94%	80%	120%	97%	80%	120%
Sulfate	496	4508522	19	19	0.0%	< 1	99%	80%	120%	100%	80%	120%	100%	80%	120%
Dissolved Calcium	625	4510105	322	323	0.3%	< 0.3	104%	80%	120%				106%	80%	120%
Dissolved Magnesium	625	4510105	239	239	0.0%	< 0.2	101%	80%	120%				99%	80%	120%
Dissolved Sodium	625	4510105	350	348	0.6%	< 0.6	95%	80%	120%				99%	80%	120%
Dissolved Potassium	625	4510105	12.1	12.1	0.0%	< 0.6	91%	80%	120%				95%	80%	120%
Dissolved Iron	625	4510105	1.7	1.6	6.1%	< 0.1	97%	80%	120%				91%	80%	120%
Dissolved Manganese	625	4510105	0.026	0.023	12.2%	< 0.005	94%	80%	120%				87%	80%	120%

Comments: If the RPD value is NA, the results of the duplicates are under 5X the RDL and will not be calculated.

Quality Assurance

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

AGAT WORK ORDER: 13E731518

PROJECT: Chinook

ATTENTION TO: Cyril Jenkins

Water Analysis (Continued)

RPT Date: Jul 04, 2013			DUPLICATE			Method Blank	REFERENCE MATERIAL		METHOD BLANK SPIKE			MATRIX SPIKE			
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

Certified By:



Method Summary

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

AGAT WORK ORDER: 13E731518

PROJECT: Chinook

ATTENTION TO: Cyril Jenkins

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Benzene	ORG-170-5110/5140/5430/5440	EPA 8260	GC/MS
Toluene	ORG-170-5110/5140/5430/5440	EPA 8260	GC/MS
Ethylbenzene	ORG-170-5110/5140/5430/5440	EPA 8260	GC/MS
Xylenes	ORG-170-5110/5140/5430/5440	EPA 8260	GC/MS
Styrene	ORG-170-5110/5140/5430/5440	EPA 8260	GC/MS
C6 - C10 (F1)	ORG-170-5110/5140/5430/5440	CCME Tier 1 Method	GC/FID
C6 - C10 (F1 minus BTEX)	ORG-170-5110/5140/5430/5440	CCME Tier 1 Method	GC/FID
C>10 - C16	ORG-170-5120/5300	CCME Tier 1 Method	GC/FID
C16 - C34	ORG-170-5120/5300	CCME Tier 1 Method	GC/FID
C>34 - C50	ORG-170-5120/5300	CCME Tier 1 Method	GC/FID
Toluene-d8 (BTEX)	ORG-170-5110/5140/5430/5440	EPA 8260	GC/MS
o-Terphenyl (F2-F4)	ORG-170-5120/5300	CCME Tier 1 Method	GC/FID

Method Summary

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

AGAT WORK ORDER: 13E731518

PROJECT: Chinook

ATTENTION TO: Cyril Jenkins

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Dissolved Aluminum	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP/MS
Dissolved Antimony	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP/MS
Dissolved Arsenic	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP-MS
Dissolved Barium	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP-MS
Dissolved Boron	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP-MS
Dissolved Cadmium	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP/MS
Dissolved Chromium	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP/MS
Dissolved Copper	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP-MS
Dissolved Iron	INOR-171-6202, INOR-171-6100	SM 3120 B	ICP/OES
Dissolved Lead	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP/MS
Dissolved Manganese	INOR-171-6202, INOR-171-6100	SM 3120 B	ICP/OES
Dissolved Molybdenum	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP/MS
Dissolved Nickel	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP/MS
Dissolved Selenium	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP/MS
Dissolved Silver	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP/MS
Dissolved Sodium	INOR-171-6201, INOR-171-6100	SM 3120 B	ICP/OES
Dissolved Thallium	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP/MS
Dissolved Uranium	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP/MS
Dissolved Zinc	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP-MS
pH	INOR-171-6205	SM 4500 H+	PC Titrate
p - Alkalinity (as CaCO ₃)	INOR-171-6205	SM 2320 B	PC Titrate
T - Alkalinity (as CaCO ₃)	INOR-171-6205	SM 2320 B	PC Titrate
Bicarbonate	INOR-171-6205	CARTER & GREGORICH 2007	PC TITRATE
Carbonate	INOR-171-6205	CARTER & GREGORICH 2007	PC TITRATE
Hydroxide	INOR-171-6205	SM 2320 B	TITRATION
Electrical Conductivity	INOR-171-6205	SM 2510 B	PC Titrate
Fluoride	INST 0150	SM 4110 B	ION CHROMATOGRAPH
Chloride	INST 0150	SM 4110 B	ION CHROMATOGRAPH
Nitrite	INST 0150	SM 4110 B	ION CHROMATOGRAPH
Nitrate	INST-0150	SM 4110 B	ION CHROMATOGRAPH
Sulfate	INOR-171-6200	SM 4110 B	ION CHROMATOGRAPH
Dissolved Calcium	INOR-171-6201	SM 3120 B	ICP/OES
Dissolved Magnesium	INST 0140	SM 3120 B	ICP/OES
Dissolved Sodium	INOR-171-6201	SM 3120 B	ICP/OES

Method Summary

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

AGAT WORK ORDER: 13E731518

PROJECT: Chinook

ATTENTION TO: Cyril Jenkins

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Dissolved Potassium	INST 0140	SM 3120 B	ICP/OES
Dissolved Iron	INOR-171-6201	SM 3120 B	ICP/OES
Dissolved Manganese	INOR-171-6201	SM 3120 B	ICP/OES



Laboratories

6310 Roper Road NW
Edmonton, Alberta
T6B 3P9
webearth.agatlabs.com

Chain of Custody Record

Company: Conoco Phillips
Contact: Cyril Jenkins
Address: _____
Postal Code: _____
Phone: 463 233 2633 Fax: _____
LSD: _____
Client Project #: Chinook

1. Name: Jeff Powers
Email: je.powers@mtkonline.net
2. Name: Cyril Jenkins
Email: cyril.b.jenkins@comcast.net

☐ Single Sample per page
☒ Multiple Samples per page
☒ Excel Format Included

Company: Please forward copy of
Contact: invoice to Jeff Powers of
Address: Hobbit for re view
ja-power@comonline.net
Postal code: _____
Phone: _____ Fax: _____
PO/A/E #: _____

Regulatory Requirements (Check one):

☒ CCME ☐ AB Tier 1

- ☐ Agricultural
- ☐ Residential/Park
- ☐ Commercial
- ☐ Industrial
- ☐ Drinking Water
- ☐ Natural Area
- ☐ Agricultural
- ☐ Residential/Park
- ☐ Commercial
- ☐ Industrial

☐ Other ☐ D50 (Drilling) ☐ SPIGEC

Rush Turnaround Requests

Upon filling out this section, client accepts that surcharges will be attached to this analysis. If NOT completed, regular TAT will be default.

☐ Less than 24 hours (200%)

☐ 24 to 48 hours (100%)

☐ 48 to 72 hours (50%)

Date Required:
Please contact laboratory to notify

Laboratory Use Only

Date and Time:	13 JUN 29 10:12
----------------	-----------------

Arrival Temperature:

AGAT Job Number:

[illegible]



SAMPLE INTEGRITY RECEIPT FORM - Edmonton

RECEIVING BASICS:

Complete CoC as well where required

Date & Time: Jun 29 '13 10:12 am pm
Courier: Canadian North Prepaid / Collect
Waybill#: 518 YVQ 7853045
Branch received from: _____
Received by: PHILIP F.
Relinquished by: Courier
Company: CPC
Consultant: _____
Client left without count verified: _____
Custody Seal Intact: Yes No NA

COC INFORMATION:

Received Yes No Emailed to PM
Completed in full: Yes No If NO, why: _____
Turnaround Time: 24hr 24-48hr 48-72hr Reg Other: _____
COC Numbers: 052358
Workorder Number: 13E 731518

SAMPLE QUANTITIES:

Coolers: 1 Bottles/Jars: 14 Bags: 0 Other: 0
CoC Container Count: 14 (If this count differs from what was received please make mention under the "Additional Notes" section)

TIME SENSITIVE ISSUES:

Earliest Date Sampled: Jun 26
Microbiology/Time Sensitive Test*: _____
Hydrocarbon Test: BTEX
Are samples received more than 5 days after sampling: Yes No
ALREADY EXCEEDED? Yes No
Expiry: _____
Expiry: Jul 3
**Residual Chlorine, Dissolved Oxygen, Turbidity, BOD, Nitrate/Nitrite, Microtox*

SPECIALTY ISSUES:

Legal Samples: Yes No
International Samples: Yes No
Proper tape/labels applied: Yes No
Hazardous Samples:
Why hazardous: _____
Precaution taken: _____

SAMPLE REQUIREMENTS:

To be completed as samples are being logged by Logistics staff.
Correct bottles used for testing: Yes No
If No, explain: _____
Correct amount of sample for analysis: Yes No
If No, explain: _____
Are all samples labeled correctly: Yes No
If No, explain: _____

3 temperatures of samples* and average of each cooler (record differing temperatures on the CoC next to sample ID'S):

BOTTLES *use jars when available*
(1) (Jar | Bag) 20 + 2.9 + 1.4 = 2.1 °C (2) (Jar | Bag) _____ + _____ + _____ = _____ °C (3) (Jar | Bag) _____ + _____ + _____ = _____ °C
(4) (Jar | Bag) _____ + _____ + _____ = _____ °C (5) (Jar | Bag) _____ + _____ + _____ = _____ °C (6) (Jar | Bag) _____ + _____ + _____ = _____ °C
(If more than 6 coolers are received use another sheet of paper and attach)

Was ice or ice pack present? Yes No

Additional integrity issues (Indicate issues below and on the CoC next to the sample ID):

- 1) Dissolved Metals filtered & preserved in LC.
- 2) _____
- 3) _____

Account Project Manager: _____ have they been notified of the above/below issues: Yes No
Whom spoken to: _____ Date and Time: _____

ADDITIONAL NOTES:

518 YVQ 78530045

Shipper's Name and Address Nom et adresse de l'expéditeur Hobbit c/o Conoco Phillips		Shipper's Account Number Numéro de compte de l'expéditeur AGA100CW	
Norman Wells, NT		Not negotiable / Non négociable Air Waybill Lettre de transport aérien Issued by / Émise par Canadian North 300, 5201 50th Ave Yellowknife, NT X1A 3S9 Canada	
Consignee's Name and Address Nom et adresse du destinataire AGAT Laboratories Ltd 6310 Roper Road Edmonton, AB T6B 3P9 780-395-2525 403-735-2745		Consignee's Account Number Numéro de compte du destinataire AGA100CW	
Issuing Carrier's Agent Name and City / Nom et ville de l'agent du transporteur émetteur Norman Wells		Accounting information / Renseignements comptables Acc. #: CON106CW ConocoPhillips Canada PO Box 130, Stn. M 1600, 401-9th Ave. SW Calgary, AB T2P 2H7	
Agent's IATA Code / Code IATA de l'agent YEG		Account Number / Numéro de compte AGA100CW	
Airport of Departure (Address of first Carrier) and Requested Routing Aéroport de départ (Adresse du premier transporteur) et itinéraire demandé Norman Wells		It is agreed that the goods described herein are accepted for carriage in apparent good order and condition (except as noted) and SUBJECT TO THE CONDITIONS OF CONTRACT ON THE REVERSE HEREOF. ALL GOODS MAY BE CARRIED BY ANY OTHER MEANS INCLUDING ROAD OR ANY OTHER CARRIER UNLESS SPECIFIC CONTRARY INSTRUCTIONS ARE GIVEN HEREON BY THE SHIPPER, AND SHIPPER AGREES THAT THE SHIPMENT MAY BE CARRIED VIA INTERMEDIATE STOPPING PLACES WHICH THE CARRIER DEEMS APPROPRIATE. THE SHIPPER'S ATTENTION IS DRAWN TO THE NOTICE CONCERNING CARRIER'S LIMITATION OF LIABILITY. Il est convenu que les marchandises décrites dans le présent document sont acceptées pour le transport en bon état apparent (sauf annotation contraire) et que le transport est SOUMIS AUX CONDITIONS DU CONTRAT QUI FIGURENT AU VERSO. LES MARCHANDISES PEUVENT ÊTRE TRANSPORTÉES PAR TOUT AUTRE MOYEN Y COMPRIS PAR ROUTE OU PAR TOUT AUTRE TRANSPORTEUR À MOINS QUE DES INSTRUCTIONS CONTRAIRES PRÉCISES. À CE SUIET NE SOIENT DONNÉES PAR L'EXPÉDITEUR L'ATTENTION DE L'EXPÉDITEUR EST ATTIRÉE SUR L'AVIS CONCERNANT LA LIMITATION DE RESPONSABILITÉ DU TRANSPORTEUR.	
to / à YEG		by first Carrier / Par premier transporteur Canadian North	
Routing and Destination Routage et destination Edmonton		Currency / Monnaie CAD	
Flight Date / Date 2013-09-01		Declared Value of Carriage / Valeur déclarée pour le transport NVD	
For Carrier Use Only / Réservé au transporteur Nil		Declared Value for Customs / Valeur déclarée pour la douane NCV	
Handling Information / Renseignements pour le traitement de l'expédition Hold for Pickup Keep Cool Do not freeze Time Sensitive			
Canada			
Guaranteed			
SCL			
Number of Pieces / Nombre de colis RCP	Gross Weight / Poids brut	Rate Class / Classif. du tarif Commodity Item No. / N° d'article de la marchandise	Chargeable Weight / Poids de taxation
2	37	K GAD 20	37
			5.31
			196.47
			196.47
Prepaid / Port payé 196.47		Weight Charge / Taxation au poids 0.00	
Valuation charge / Taxation à la valeur 0.00		Tax / Taxes 0.00	
Total other Charges Due Agent / Total des autres frais dûs à l'agent 0.00		Total other Charges Due Carrier / Total des autres frais dûs au transporteur 66.44	
Total prepaid / Total port payé 276.06		Total collect / Total port dû 0.00	
Currency Conversion Rates / Taux de conversion monétaire 276.06		CC Charges in Destination Currency / Port dû en monnaie du pays de destination 0.00	
For Carrier's Use only at Destination / Réservé au transporteur à destination Charges at Destination / Frais à l'arrivée		Shipper certifies that the particulars on the face hereof are correct and that insofar as any part of the consignment contains dangerous goods, such part is properly described by name and is in proper condition for carriage by air according to the applicable Dangerous Goods Regulations. L'expéditeur certifie que les indications portées sur le présent document sont exactes et que dans la mesure où une partie quelconque de l'expédition contient des marchandises dangereuses, cette partie d'expédition est correctement dénommée et bien préparée pour le transport par air conformément à la réglementation applicable.	
Signature of Shipper or his Agent X		Signature of Issuing Carrier or its Agent Signature of the transporter / émetteur ou de son agent	
Executed on / Exécuté le 26/09/2013		at / à YYZ	
Total collect / Total dû 0.00		Signature of Issuing Carrier or its Agent Signature of the transporter / émetteur ou de son agent	

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.
2100, 250 6 AVENUE SW
CALGARY, AB T2P3H7
(403) 233-4000

ATTENTION TO: Jeff Powers/Cyril Jenkins

PROJECT NO: Chinook

AGAT WORK ORDER: 13E696481

TRACE ORGANICS REVIEWED BY: Melinda Guay, Technical Reviewer

WATER ANALYSIS REVIEWED BY: Joydee Saez, Technical Reviewer

DATE REPORTED: Mar 19, 2013

PAGES (INCLUDING COVER): 10

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (780) 395-2525

*NOTES

All samples will be disposed of within 30 days following analysis. Please contact the lab if you require additional sample storage time.



AGAT Laboratories

Certificate of Analysis

AGAT WORK ORDER: 13E696481

PROJECT NO: Chinook

6310 ROPER ROAD
EDMONTON, ALBERTA
CANADA T6B 3P9
TEL (780)395-2525
FAX (780)462-2490
<http://www.agatlabs.com>

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

ATTENTION TO: Jeff Powers/Cyril Jenkins

ConocoPhillips - Petroleum Hydrocarbons (BTEXS/F1-F2) in Water

DATE RECEIVED: 2013-03-13

DATE REPORTED: 2013-03-19

		SAMPLE DESCRIPTION:		MW05-A	MW02-A
		SAMPLE TYPE:		Water	Water
		DATE SAMPLED:		3/11/2013	3/11/2013
Parameter	Unit	G / S	RDL	4188050	4188054
Benzene	mg/L		0.0005	<0.0005	<0.0005
Toluene	mg/L		0.0005	0.0008	<0.0005
Ethylbenzene	mg/L		0.0005	<0.0005	<0.0005
Xylenes	mg/L		0.0005	<0.0005	<0.0005
Styrene	mg/L		0.0005	<0.0005	<0.0005
C6 - C10 (F1)	mg/L		0.1	<0.1	<0.1
C6 - C10 (F1 minus BTEX)	mg/L		0.1	<0.1	<0.1
C10 - C16 (F2)	mg/L		0.1	<0.1	3
Surrogate	Unit	Acceptable Limits			
Toluene-d8 (BTEX)	%		50-150	100	100
o-Terphenyl (F2)	%		50-150	<11	<11

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

4188050-4188054 The F1 (C6 - C10) fraction is determined by integrating the FID chromatogram from the beginning of the nC6 peak to the apex of the last nC10 peak.

The C6 - C10 fraction is calculated from the FID toluene response factor.

The F2 (C10 - C16) fraction is determined by integrating the FID chromatogram from the apex of the nC10 peak to the apex of the nC16 peak.

The F2 (C10 - C16) fraction is calculated using the average response factor for nC10, nC16, and nC34.

Quality control for the calibration follows the guidelines set out in the CCME Contaminated Sites Method for Soils.

The (F1 minus BTEX) has been calculated by subtracting the BTEX concentration from Fraction 1.

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 13E696481

PROJECT NO: Chinook

6310 ROPER ROAD
EDMONTON, ALBERTA
CANADA T6B 3P9
TEL (780)395-2525
FAX (780)462-2490
<http://www.agatlabs.com>

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

ATTENTION TO: Jeff Powers/Cyril Jenkins

CCME / Alberta Tier 1 Metals (Dissolved)

DATE RECEIVED: 2013-03-13

DATE REPORTED: 2013-03-19

Parameter	Unit	SAMPLE DESCRIPTION:		MW05-A	MW02-A
		SAMPLE TYPE:		Water	Water
		DATE SAMPLED:		3/11/2013	3/11/2013
		G / S	RDL	4188050	4188054
Dissolved Aluminum	mg/L	0.005	0.002	0.021	0.390
Dissolved Antimony	mg/L	0.006	0.001	0.004	0.004
Dissolved Arsenic	mg/L	0.005	0.001	0.001	0.005
Dissolved Barium	mg/L	1	0.05	<0.05	0.75
Dissolved Boron	mg/L	0.5	0.01	0.03	0.08
Dissolved Cadmium	mg/L	0.000017	0.000016	0.000088	0.000121
Dissolved Chromium	mg/L		0.001	0.001	0.012
Dissolved Copper	mg/L	0.002	0.002	<0.002	0.021
Dissolved Iron	mg/L	0.3	0.1	<0.1	23.3
Dissolved Lead	mg/L	0.001	0.001	<0.001	0.052
Dissolved Manganese	mg/L	0.05	0.005	<0.005	0.406
Dissolved Molybdenum	mg/L		0.003	0.065	0.039
Dissolved Nickel	mg/L	0.025	0.01	<0.01	0.01
Dissolved Selenium	mg/L	0.001	0.001	0.002	0.004
Dissolved Silver	mg/L	0.0001	0.00005	<0.00005	<0.00005
Dissolved Sodium	mg/L	200	0.6	46.1	136
Dissolved Thallium	mg/L		0.0005	<0.0005	<0.0005
Dissolved Uranium	mg/L	0.01	0.001	<0.001	0.003
Dissolved Zinc	mg/L	0.03	0.001	0.009	0.174

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to ABTier1 GW (Ag, F)
4188050-4188054 < - Values refer to Report Detection Limit.

Certified By:



AGAT Laboratories

Certificate of Analysis

AGAT WORK ORDER: 13E696481

PROJECT NO: Chinook

6310 ROPER ROAD
EDMONTON, ALBERTA
CANADA T6B 3P9
TEL (780)395-2525
FAX (780)462-2490
<http://www.agatlabs.com>

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

ATTENTION TO: Jeff Powers/Cyril Jenkins

Routine Chemistry Water Analysis

DATE RECEIVED: 2013-03-13

DATE REPORTED: 2013-03-19

Parameter	Unit	SAMPLE DESCRIPTION:		MW05-A	MW02-A
		SAMPLE TYPE:		Water	Water
		DATE SAMPLED:		3/11/2013	3/11/2013
		G / S	RDL	4188050	4188054
pH	pH Units	6.5-8.5	NA	9.73	9.77
p - Alkalinity (as CaCO ₃)	mg/L		5	19	54
T - Alkalinity (as CaCO ₃)	mg/L		5	38	203
Bicarbonate	mg/L		5	<5	117
Carbonate	mg/L		5	23	64
Hydroxide	mg/L		5	<5	<5
Electrical Conductivity	uS/cm		1	427	681
Fluoride	mg/L	1.5	0.05	0.70	<0.05
Chloride	mg/L	250	1	25	28
Nitrite	mg/L	3.2	0.05	<0.05	<0.05
Nitrate	mg/L	45	0.5	<0.5	<0.5
Sulfate	mg/L	500	1	126	127
Dissolved Calcium	mg/L		0.3	16.1	29.7
Dissolved Magnesium	mg/L		0.2	8.8	7.2
Dissolved Sodium	mg/L	200	0.6	46.1	136
Dissolved Potassium	mg/L		0.6	11.3	7.8
Dissolved Iron	mg/L	0.3	0.1	<0.1	23.3
Dissolved Manganese	mg/L	0.05	0.005	<0.005	0.406
Calculated TDS	mg/L		1	257	458
Hardness	mg CaCO ₃ /L		1	76	104
Ion Balance	%			92.5	121
Nitrate + Nitrite-N	mg/L		0.01	<0.01	<0.01
Nitrate-N	mg/L		0.113	<0.113	<0.113
Nitrite-N	mg/L		0.015	<0.015	<0.015

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to CCME (D Water)

4188050-4188054 < - Values refer to Report Detection Limits.

Certified By:

Quality Assurance

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

AGAT WORK ORDER: 13E696481

PROJECT NO: Chinook

ATTENTION TO: Jeff Powers/Cyril Jenkins

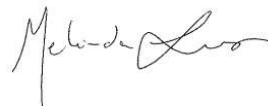
Trace Organics Analysis

RPT Date: Mar 19, 2013			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

ConocoPhillips - Petroleum Hydrocarbons (BTEXS/F1-F2) in Water

Benzene	348	4188050	< 0.0005	< 0.0005	0.0%	< 0.0005	91%	80%	120%	87%	80%	120%	77%	70%	130%
Toluene	348	4188050	0.0008	0.0008	0.0%	< 0.0005	98%	80%	120%	92%	80%	120%	82%	70%	130%
Ethylbenzene	348	4188050	< 0.0005	< 0.0005	0.0%	< 0.0005	101%	80%	120%	98%	80%	120%	85%	70%	130%
Xylenes	348	4188050	< 0.0005	< 0.0005	0.0%	< 0.0005	103%	80%	120%	104%	80%	120%	91%	70%	130%
Styrene	348	4188050	< 0.0005	< 0.0005	0.0%	< 0.0005	89%	80%	120%	90%	80%	120%	80%	70%	130%
C6 - C10 (F1)	348	4188050	< 0.1	< 0.1	0.0%	< 0.1	97%	80%	120%	116%	80%	120%	112%	70%	130%
C10 - C16 (F2)	207	4188054	3	3	0.0%	< 0.1	107%	80%	120%	100%	80%	120%	83%	70%	130%

Certified By:



Quality Assurance

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

AGAT WORK ORDER: 13E696481

PROJECT NO: Chinook

ATTENTION TO: Jeff Powers/Cyril Jenkins

Water Analysis															
RPT Date: Mar 19, 2013			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

Routine Chemistry Water Analysis

pH	286	4188050	9.73	9.83	1.0%		100%	80%	120%						
T - Alkalinity (as CaCO ₃)	286	4188050	38	36	5.4%	< 5	105%	80%	120%						
Bicarbonate	286	4188050	<5	<5	0.0%	< 5									
Electrical Conductivity	286	4188050	427	427	0.0%	< 1	103%	80%	120%						
Fluoride	301	4182496	< 0.05	< 0.05	0.0%	< 0.05	98%	80%	120%	103%	80%	120%	100%	80%	120%
Chloride	301	4182496	76	77	1.3%	< 1	103%	80%	120%	101%	80%	120%	105%	80%	120%
Nitrite	301	4182496	< 0.05	< 0.05	0.0%	< 0.05	102%	80%	120%	97%	80%	120%	104%	80%	120%
Nitrate	301	4182496	< 0.5	< 0.5	0.0%	< 0.5	101%	80%	120%	99%	80%	120%	104%	80%	120%
Sulfate	301	4182496	2900	2880	0.7%	< 1	103%	80%	120%	102%	80%	120%	102%	80%	120%
Dissolved Calcium	545	4188050	16.1	16.2	0.6%	< 0.3	104%	80%	120%				100%	80%	120%
Dissolved Magnesium	545	4188050	8.8	8.7	1.1%	< 0.2	110%	80%	120%				102%	80%	120%
Dissolved Sodium	545	4188050	46.1	46.3	0.4%	< 0.6	100%	80%	120%				99%	80%	120%
Dissolved Potassium	545	4188050	11.3	11.3	0.0%	< 0.6	98%	80%	120%				96%	80%	120%
Dissolved Iron	545	4188050	<0.1	<0.1	0.0%	< 0.1	106%	80%	120%				103%	80%	120%
Dissolved Manganese	545	4188050	<0.005	<0.005	0.0%	< 0.005	105%	80%	120%				103%	80%	120%

Comments: N/A - Not Available.

CCME / Alberta Tier 1 Metals (Dissolved)

Dissolved Aluminum	494	4188050	0.021	0.020	4.9%	< 0.002	97%	80%	120%				96%	80%	120%
Dissolved Antimony	494	4188050	0.004	0.003	NA	< 0.001	112%	80%	120%				94%	80%	120%
Dissolved Arsenic	494	4188050	0.001	0.001	0.0%	< 0.001	99%	80%	120%				103%	80%	120%
Dissolved Barium	494	4188050	< 0.05	< 0.05	0.0%	< 0.05	104%	80%	120%				99%	80%	120%
Dissolved Boron	494	4188050	0.03	0.03	0.0%	< 0.01	101%	80%	120%				98%	80%	120%
Dissolved Cadmium	494	4188050	0.000088	0.000078	12.0%	< 0.000016	94%	80%	120%				101%	80%	120%
Dissolved Chromium	494	4188050	0.001	0.001	0.0%	< 0.001	96%	80%	120%				97%	80%	120%
Dissolved Copper	494	4188050	< 0.002	< 0.002	0.0%	< 0.002	93%	80%	120%				91%	80%	120%
Dissolved Iron	545	4188050	< 0.1	< 0.1	0.0%	< 0.1	106%	80%	120%				103%	80%	120%
Dissolved Lead	494	4188050	< 0.001	< 0.001	0.0%	< 0.001	95%	80%	120%				98%	80%	120%
Dissolved Manganese	545	4188050	< 0.005	< 0.005	0.0%	< 0.005	105%	80%	120%				103%	80%	120%
Dissolved Molybdenum	494	4188050	0.065	0.067	3.0%	< 0.003	93%	80%	120%				95%	80%	120%
Dissolved Nickel	494	4188050	< 0.01	< 0.01	0.0%	< 0.01	95%	80%	120%				91%	80%	120%
Dissolved Selenium	494	4188050	0.002	0.003	NA	< 0.001	96%	80%	120%				106%	80%	120%
Dissolved Silver	494	4188050	< 0.00005	< 0.00005	0.0%	< 0.00005	88%	80%	120%				88%	80%	120%
Dissolved Sodium	545	4188050	46.1	46.3	0.4%	< 0.6	100%	80%	120%				99%	80%	120%
Dissolved Thallium	494	4188050	< 0.0005	< 0.0005	0.0%	< 0.0005	93%	80%	120%				97%	80%	120%
Dissolved Uranium	494	4188050	< 0.001	< 0.001	0.0%	< 0.001	95%	80%	120%				103%	80%	120%
Dissolved Zinc	494	4188050	0.009	0.010	10.5%	< 0.001	97%	80%	120%				99%	80%	120%

Quality Assurance

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

AGAT WORK ORDER: 13E696481

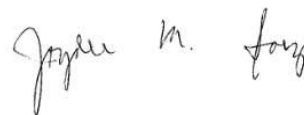
PROJECT NO: Chinook

ATTENTION TO: Jeff Powers/Cyril Jenkins

Water Analysis (Continued)

RPT Date: Mar 19, 2013			DUPLICATE			Method Blank	REFERENCE MATERIAL		METHOD BLANK SPIKE			MATRIX SPIKE			
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

Certified By:



Method Summary

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

AGAT WORK ORDER: 13E696481

PROJECT NO: Chinook

ATTENTION TO: Jeff Powers/Cyril Jenkins

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Benzene	ORG-170-5400 & ORG-170-5410	EPA 8260	GC/MS
Toluene	ORG-170-5400 & ORG-170-5410	EPA 8260	GC/MS
Ethylbenzene	ORG-170-5400 & ORG-170-5410	EPA 8260	GC/MS
Xylenes	ORG-170-5400 & ORG-170-5410	EPA 8260	GC/MS
Styrene	ORG-170-5400 & ORG-170-5410	EPA 8260	GC/MS
C6 - C10 (F1)	ORG-170-5400 & ORG-170-5410	CCME Tier 1 Method	GC/FID
C6 - C10 (F1 minus BTEX)	ORG-170-5400 & ORG-170-5410	CCME Tier 1 Method	GC/FID
C10 - C16 (F2)	ORG-170-5130	CCME Tier 1 Method	GC/FID
Toluene-d8 (BTEX)	ORG-170-5400 & ORG-170-5410	EPA 624 & SW-846 5030	GC/MS
o-Terphenyl (F2)	ORG-170-5130	CCME Tier 1 Method	GC/FID

Method Summary

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

AGAT WORK ORDER: 13E696481

PROJECT NO: Chinook

ATTENTION TO: Jeff Powers/Cyril Jenkins

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Dissolved Aluminum	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP/MS
Dissolved Antimony	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP/MS
Dissolved Arsenic	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP-MS
Dissolved Barium	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP-MS
Dissolved Boron	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP-MS
Dissolved Cadmium	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP/MS
Dissolved Chromium	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP/MS
Dissolved Copper	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP-MS
Dissolved Iron	INOR-171-6202, INOR-171-6100	SM 3120 B	ICP/OES
Dissolved Lead	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP/MS
Dissolved Manganese	INOR-171-6202, INOR-171-6100	SM 3120 B	ICP/OES
Dissolved Molybdenum	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP/MS
Dissolved Nickel	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP/MS
Dissolved Selenium	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP/MS
Dissolved Silver	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP/MS
Dissolved Sodium	INOR-171-6201, INOR-171-6100	SM 3120 B	ICP/OES
Dissolved Thallium	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP/MS
Dissolved Uranium	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP/MS
Dissolved Zinc	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP-MS
pH	INOR-171-6205	SM 4500 H+	PC Titrate
p - Alkalinity (as CaCO ₃)	INOR-171-6205	SM 2320 B	PC Titrate
T - Alkalinity (as CaCO ₃)	INOR-171-6205	SM 2320 B	PC Titrate
Bicarbonate	INOR-171-6205	SM 2320 B	PC Titrate
Carbonate	INOR-171-6205	SM 2320 B	PC Titrate
Hydroxide	INOR-171-6205	SM 2320 B	PC Titrate
Electrical Conductivity	INOR-171-6205	SM 2510 B	PC Titrate
Fluoride	INOR-171-6200	SM 4110 B	ION CHROMATOGRAPH
Chloride	INOR-171-6200	SM 4110 B	ION CHROMATOGRAPH
Nitrite	INOR-171-6200	SM 4110 B	ION CHROMATOGRAPH
Nitrate	INOR-171-6200	SM 4110 B	ION CHROMATOGRAPH
Sulfate	INOR-171-6200	SM 4110 B	ION CHROMATOGRAPH
Dissolved Calcium	INOR-171-6201, INOR-171-6100	SM 3120 B	ICP/OES
Dissolved Magnesium	INOR-171-6201, INOR-171-6100	SM 3120 B	ICP/OES

Method Summary

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

AGAT WORK ORDER: 13E696481

PROJECT NO: Chinook

ATTENTION TO: Jeff Powers/Cyril Jenkins

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Dissolved Sodium	INOR-171-6201, INOR-171-6100	SM 3120 B	ICP/OES
Dissolved Potassium	INOR-171-6201, INOR-171-6100	SM 3120 B	ICP/OES
Dissolved Iron	INOR-171-6201, INOR-171-6100	SM 3120 B	ICP/OES
Dissolved Manganese	INOR-171-6201, INOR-171-6100	SM 3120 B	ICP/OES



AGAT Laboratories

SAMPLE INTEGRITY RECEIPT FORM - Edmonton

RECEIVING BASICS:

Complete CoC as well where required

Date & Time: 13 MAR 13 @ 1003 am pm
Courier: Canadian North Prepaid / Collect
Waybill# 518 YNQ 7849441
Branch received from: N/A
Received by: Brittany Walker
Relinquished by: Canadian North
Company: Conoco Phillips
Consultant: " "
Client left without count verified: yes
Custody Seal Intact: Yes No NA

COC INFORMATION:

Received: Yes No Emailed to PM
Completed in full: Yes No If NO, why: _____
Turnaround Time: 24hr 24-48hr 48-72hr Reg Other: _____
COC Numbers: 044038
Workorder Number: 135696481

SAMPLE QUANTITIES:

Coolers: 1 Bottles/Jars: 14 Bags: 0 Other: 0
CoC Container Count: 14 (If this count differs from what was received please make mention under the "Additional Notes" section)

TIME SENSITIVE ISSUES:

Earliest Date Sampled: 11 MAR 13 ALREADY EXCEEDED? Yes No
Microbiology/Time Sensitive Test*: NO Expiry: N/A
Hydrocarbon Test: BTEX Expiry: 18 MAR 13
Are samples received more than 5 days after sampling: Yes No
*Residual Chlorine, Dissolved Oxygen, Turbidity, BOD, Nitrate/Nitrite, Microtox

SPECIALTY ISSUES:

Legal Samples: Yes No
International Samples: Yes No
Proper tape/labels applied: Yes No N/A
Hazardous Samples:
Why hazardous:
Precaution taken:

SAMPLE REQUIREMENTS:

To be completed as samples are being logged by Logistics staff.
Correct bottles used for testing: Yes No
If No, explain: _____
Correct amount of sample for analysis: Yes No
If No, explain: _____
Are all samples labeled correctly: Yes No
If No, explain: _____

3 temperatures of samples* and average of each cooler (record differing temperatures on the CoC next to sample ID'S):

use jars when available

(1) Bottle (Jar | Bag) -3.8 + -4.3 + -2.4 = -3.5 °C (2) (Jar | Bag) ____ + ____ + ____ = ____ °C (3) (Jar | Bag) ____ + ____ + ____ = ____ °C
(4) (Jar | Bag) ____ + ____ + ____ = ____ °C (5) (Jar | Bag) ____ + ____ + ____ = ____ °C (6) (Jar | Bag) ____ + ____ + ____ = ____ °C
(If more than 6 coolers are received use another sheet of paper and attach)

Was ice or ice pack present? Yes No

Additional integrity issues (Indicate issues below and on the CoC next to the sample ID):

- 1) Samples rec'd were preserved & filtered in lab.
- 2) _____
- 3) _____

Account Project Manager: STEVEN T. have they been notified of the above/below issues: Yes No
Whom spoken to: STEVEN T. Date and Time: 13 MAR 13 @ 1030AM

ADDITIONAL NOTES:

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.
2100, 250 6 AVENUE SW
CALGARY, AB T2P3H7
(403) 233-4000

ATTENTION TO: Cyril Jenkins/Jeff Powers

PROJECT NO:

AGAT WORK ORDER: 13E699744

TRACE ORGANICS REVIEWED BY: Jarrod Roberts, Operations Manager

WATER ANALYSIS REVIEWED BY: Joydee Saez, Technical Reviewer

DATE REPORTED: Mar 28, 2013

PAGES (INCLUDING COVER): 10

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (780) 395-2525

*NOTES

All samples will be disposed of within 30 days following analysis. Please contact the lab if you require additional sample storage time.



Certificate of Analysis

AGAT WORK ORDER: 13E699744

PROJECT NO:

6310 ROPER ROAD
EDMONTON, ALBERTA
CANADA T6B 3P9
TEL (780)395-2525
FAX (780)462-2490
<http://www.agatlabs.com>

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

ATTENTION TO: Cyril Jenkins/Jeff Powers

ConocoPhillips - Petroleum Hydrocarbons (BTEXS/F1-F2) in Water

DATE RECEIVED: 2013-03-25

DATE REPORTED: 2013-03-28

		SAMPLE DESCRIPTION:		12.5km Seep	29km Seep	WW02-B	WW04 Ground
		SAMPLE TYPE:		Water	Water	Water	Water
		DATE SAMPLED:		3/22/2013	3/22/2013	3/22/2013	3/22/2013
Parameter	Unit	G / S	RDL	4219060	4219061	4219062	4219063
Benzene	mg/L		0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Toluene	mg/L		0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ethylbenzene	mg/L		0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Xylenes	mg/L		0.0005	<0.0005	<0.0005	<0.0005	0.0010
Styrene	mg/L		0.0005	<0.0005	<0.0005	<0.0005	<0.0005
C6 - C10 (F1)	mg/L		0.1	<0.1	<0.1	<0.1	<0.1
C6 - C10 (F1 minus BTEX)	mg/L		0.1	<0.1	<0.1	<0.1	<0.1
C10 - C16 (F2)	mg/L		0.1	0.2	0.3	0.2	160
Surrogate	Unit	Acceptable Limits					
Toluene-d8 (BTEX)	%		50-150	104	104	103	105
o-Terphenyl (F2)	%		50-150	92	94	104	109

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

4219060-4219063 The F1 (C6 - C10) fraction is determined by integrating the FID chromatogram from the beginning of the nC6 peak to the apex of the last nC10 peak.

The C6 - C10 fraction is calculated from the FID toluene response factor.

The F2 (C10 - C16) fraction is determined by integrating the FID chromatogram from the apex of the nC10 peak to the apex of the nC16 peak.

The F2 (C10 - C16) fraction is calculated using the average response factor for nC10, nC16, and nC34.

Quality control for the calibration follows the guidelines set out in the CCME Contaminated Sites Method for Soils.

The (F1 minus BTEX) has been calculated by subtracting the BTEX concentration from Fraction 1.

Certified By:



AGAT Laboratories

Certificate of Analysis

AGAT WORK ORDER: 13E699744

PROJECT NO:

6310 ROPER ROAD
EDMONTON, ALBERTA
CANADA T6B 3P9
TEL (780)395-2525
FAX (780)462-2490
<http://www.agatlabs.com>

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

ATTENTION TO: Cyril Jenkins/Jeff Powers

CCME / Alberta Tier 1 Metals (Dissolved)

DATE RECEIVED: 2013-03-25

DATE REPORTED: 2013-03-28

Parameter	Unit	SAMPLE DESCRIPTION:				
		12.5km Seep		29km Seep		WW02-B
		SAMPLE TYPE:		Water		Water
		DATE SAMPLED:		3/22/2013		3/22/2013
		G / S	RDL	4219060	4219061	4219062
Dissolved Aluminum	mg/L	0.005	0.002	0.002	<0.002	0.861
Dissolved Antimony	mg/L	0.006	0.001	0.006	0.006	0.006
Dissolved Arsenic	mg/L	0.005	0.001	<0.001	0.001	0.003
Dissolved Barium	mg/L	1	0.05	0.13	0.40	0.13
Dissolved Boron	mg/L	0.5	0.01	<0.01	0.01	0.03
Dissolved Cadmium	mg/L	0.000017	0.000016	<0.000016	<0.000016	0.000039
Dissolved Chromium	mg/L		0.001	0.006	0.050	0.005
Dissolved Copper	mg/L	0.002	0.002	<0.002	<0.002	0.004
Dissolved Iron	mg/L	0.3	0.1	<0.1	<0.1	1.7
Dissolved Lead	mg/L	0.001	0.001	<0.001	<0.001	0.002
Dissolved Manganese	mg/L	0.05	0.005	0.166	0.277	0.018
Dissolved Molybdenum	mg/L		0.003	<0.003	0.003	0.043
Dissolved Nickel	mg/L	0.025	0.01	<0.01	<0.01	<0.01
Dissolved Selenium	mg/L	0.001	0.001	0.001	0.001	<0.001
Dissolved Silver	mg/L	0.0001	0.00005	0.00012	0.00009	<0.00005
Dissolved Sodium	mg/L	200	0.6	12.6	3.0	48.4
Dissolved Thallium	mg/L		0.0005	<0.0005	<0.0005	<0.0005
Dissolved Uranium	mg/L	0.01	0.001	<0.001	0.001	<0.001
Dissolved Zinc	mg/L	0.03	0.001	0.011	0.021	0.035

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to ABTier1 GW (Ag, F)
4219060-4219062 < - Values refer to Report Detection Limit.

Value verified with repeat analysis.

Certified By:



AGAT Laboratories

Certificate of Analysis

AGAT WORK ORDER: 13E699744

PROJECT NO:

6310 ROPER ROAD
EDMONTON, ALBERTA
CANADA T6B 3P9
TEL (780)395-2525
FAX (780)462-2490
<http://www.agatlabs.com>

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

ATTENTION TO: Cyril Jenkins/Jeff Powers

Routine Chemistry Water Analysis

DATE RECEIVED: 2013-03-25

DATE REPORTED: 2013-03-28

Parameter	Unit	SAMPLE DESCRIPTION:				
		SAMPLE TYPE:				
		DATE SAMPLED:				
		G / S	RDL	12.5km Seep	29km Seep	WW02-B
				Water	Water	Water
				3/22/2013	3/22/2013	3/22/2013
				4219060	4219061	4219062
pH	pH Units	6.5-8.5	NA	7.39	7.81	10.0
p - Alkalinity (as CaCO3)	mg/L		5	<5	<5	21
T - Alkalinity (as CaCO3)	mg/L		5	257	337	70
Bicarbonate	mg/L		5	313	411	34
Carbonate	mg/L		5	<5	<5	25
Hydroxide	mg/L		5	<5	<5	<5
Electrical Conductivity	uS/cm		1	619	585	290
Fluoride	mg/L	1.5	0.05	<0.05	0.10	<0.05
Chloride	mg/L	250	1	3	1	17
Nitrite	mg/L	3.2	0.05	<0.05	<0.05	<0.05
Nitrate	mg/L	45	0.5	<0.5	<0.5	<0.5
Sulfate	mg/L	500	1	77	14	50
Dissolved Calcium	mg/L		0.3	77.9	78.8	8.3
Dissolved Magnesium	mg/L		0.2	37.7	33.9	2.1
Dissolved Sodium	mg/L	200	0.6	12.6	3.0	48.4
Dissolved Potassium	mg/L		0.6	4.1	3.4	8.7
Dissolved Iron	mg/L	0.3	0.1	<0.1	<0.1	1.7
Dissolved Manganese	mg/L	0.05	0.005	0.166	0.277	0.018
Calculated TDS	mg/L		1	367	336	177
Hardness	mg CaCO3/L		1	350	336	29
Ion Balance	%			112	98.8	102
Nitrate + Nitrite-N	mg/L		0.01	<0.01	<0.01	<0.01
Nitrate-N	mg/L		0.113	<0.113	<0.113	<0.113
Nitrite-N	mg/L		0.015	<0.015	<0.015	<0.015

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to CCME (D Water)

4219060-4219062 < - Values refer to Report Detection Limits.

Certified By:

Quality Assurance

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

AGAT WORK ORDER: 13E699744

PROJECT NO:

ATTENTION TO: Cyril Jenkins/Jeff Powers

Trace Organics Analysis

RPT Date: Mar 28, 2013			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

ConocoPhillips - Petroleum Hydrocarbons (BTEXS/F1-F2) in Water

Benzene	388	4219149	< 0.0005	< 0.0005	0.0%	< 0.0005	85%	80%	120%	107%	80%	120%	106%	70%	130%
Toluene	388	4219149	< 0.0005	< 0.0005	0.0%	< 0.0005	97%	80%	120%	110%	80%	120%	111%	70%	130%
Ethylbenzene	388	4219149	< 0.0005	< 0.0005	0.0%	< 0.0005	105%	80%	120%	108%	80%	120%	110%	70%	130%
Xylenes	388	4219149	< 0.0005	< 0.0005	0.0%	< 0.0005	107%	80%	120%	112%	80%	120%	116%	70%	130%
Styrene	388	4219149	< 0.0005	< 0.0005	0.0%	< 0.0005	88%	80%	120%	93%	80%	120%	97%	70%	130%
C6 - C10 (F1)	388	4219149	< 0.1	< 0.1	0.0%	< 0.1	96%	80%	120%	106%	80%	120%	89%	70%	130%
C10 - C16 (F2)	358	TW	< 0.1	< 0.1	0.0%	< 0.1	110%	80%	120%	94%	80%	120%	100%	70%	130%

Certified By:



Quality Assurance

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

AGAT WORK ORDER: 13E699744

PROJECT NO:

ATTENTION TO: Cyril Jenkins/Jeff Powers

Water Analysis															
RPT Date: Mar 28, 2013			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

Routine Chemistry Water Analysis

pH	288	4219060	7.39	7.40	0.1%		101%	80%	120%						
T - Alkalinity (as CaCO ₃)	288	4219060	257	254	1.0%	< 5	96%	80%	120%						
Bicarbonate	288	4219060	313	310	1.0%	< 5									
Electrical Conductivity	288	4219060	619	633	2.2%	< 1	100%	80%	120%						
Fluoride	1268	845	0.09	0.08	11.8%	< 0.05	100%	80%	120%		80%	120%	99%	80%	120%
Chloride	1268	845	6	6	0.0%	< 1	100%	80%	120%		80%	120%	102%	80%	120%
Nitrite	1268	845	0.06	0.06	0.0%	< 0.05	100%	80%	120%		80%	120%	97%	80%	120%
Nitrate	1268	845	9.3	9.3	0.0%	< 0.5	100%	80%	120%		80%	120%	103%	80%	120%
Sulfate	1268	845	6	6	0.0%	< 1	100%	80%	120%		80%	120%	101%	80%	120%
Dissolved Calcium	554	4217703	65.0	65.4	0.6%	< 0.3	100%	80%	120%				101%	80%	120%
Dissolved Magnesium	554	4217703	13.2	13.0	1.5%	< 0.2	101%	80%	120%				100%	80%	120%
Dissolved Sodium	554	4217703	80.9	81.4	0.7%	< 0.6	99%	80%	120%				98%	80%	120%
Dissolved Potassium	554	4217703	1.7	1.8	2.7%	< 0.6	93%	80%	120%				98%	80%	120%
Dissolved Iron	554	4217703	<0.1	<0.1	0.0%	< 0.1	103%	80%	120%				105%	80%	120%
Dissolved Manganese	554	4217703	0.252	0.249	1.0%	< 0.005	100%	80%	120%				102%	80%	120%

Comments: N/A - Not Available.

CCME / Alberta Tier 1 Metals (Dissolved)

Dissolved Aluminum	508	4219060	0.002	0.002	0.0%	< 0.002	97%	80%	120%				103%	80%	120%
Dissolved Antimony	508	4219060	0.006	0.002	NA	< 0.001	110%	80%	120%				85%	80%	120%
Dissolved Arsenic	508	4219060	< 0.001	0.001	0.0%	< 0.001	99%	80%	120%				103%	80%	120%
Dissolved Barium	508	4219060	0.13	0.13	0.0%	< 0.05	106%	80%	120%				104%	80%	120%
Dissolved Boron	508	4219060	< 0.01	< 0.01	0.0%	< 0.01	81%	80%	120%				89%	80%	120%
Dissolved Cadmium	508	4219060	< 0.000016	< 0.000016	0.0%	< 0.000016	96%	80%	120%				100%	80%	120%
Dissolved Chromium	508	4219060	0.006	0.007	15.4%	< 0.001	106%	80%	120%				105%	80%	120%
Dissolved Copper	508	4219060	< 0.002	< 0.002	0.0%	< 0.002	96%	80%	120%				101%	80%	120%
Dissolved Iron	554	4217703	<0.1	<0.1	0.0%	< 0.1	103%	80%	120%				105%	80%	120%
Dissolved Lead	508	4219060	< 0.001	< 0.001	0.0%	< 0.001	104%	80%	120%				110%	80%	120%
Dissolved Manganese	554	4217703	0.252	0.249	1.2%	< 0.005	100%	80%	120%				102%	80%	120%
Dissolved Molybdenum	508	4219060	< 0.003	< 0.003	0.0%	< 0.003	94%	80%	120%				92%	80%	120%
Dissolved Nickel	508	4219060	< 0.01	< 0.01	0.0%	< 0.01	97%	80%	120%				103%	80%	120%
Dissolved Selenium	508	4219060	0.001	0.002	NA	< 0.001	98%	80%	120%				103%	80%	120%
Dissolved Silver	508	4219060	0.00012	< 0.00005	0.0%	< 0.00005	90%	80%	120%				87%	80%	120%
Dissolved Sodium	554	4217703	80.9	81.4	0.6%	< 0.6	99%	80%	120%				98%	80%	120%
Dissolved Thallium	508	4219060	< 0.0005	< 0.0005	0.0%	< 0.0005	103%	80%	120%				109%	80%	120%
Dissolved Uranium	508	4219060	< 0.001	< 0.001	0.0%	< 0.001	107%	80%	120%				112%	80%	120%
Dissolved Zinc	508	4219060	0.011	0.012	8.7%	< 0.001	99%	80%	120%				103%	80%	120%

Quality Assurance

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

AGAT WORK ORDER: 13E699744

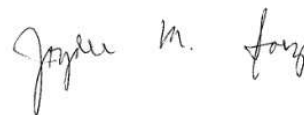
PROJECT NO:

ATTENTION TO: Cyril Jenkins/Jeff Powers

Water Analysis (Continued)

RPT Date: Mar 28, 2013			DUPLICATE			Method Blank	REFERENCE MATERIAL		METHOD BLANK SPIKE			MATRIX SPIKE			
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

Certified By:



Method Summary

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

AGAT WORK ORDER: 13E699744

PROJECT NO:

ATTENTION TO: Cyril Jenkins/Jeff Powers

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Benzene	ORG-170-5400 & ORG-170-5410	EPA 8260	GC/MS
Toluene	ORG-170-5400 & ORG-170-5410	EPA 8260	GC/MS
Ethylbenzene	ORG-170-5400 & ORG-170-5410	EPA 8260	GC/MS
Xylenes	ORG-170-5400 & ORG-170-5410	EPA 8260	GC/MS
Styrene	ORG-170-5400 & ORG-170-5410	EPA 8260	GC/MS
C6 - C10 (F1)	ORG-170-5400 & ORG-170-5410	CCME Tier 1 Method	GC/FID
C6 - C10 (F1 minus BTEX)	ORG-170-5400 & ORG-170-5410	CCME Tier 1 Method	GC/FID
C10 - C16 (F2)	ORG-170-5130	CCME Tier 1 Method	GC/FID
Toluene-d8 (BTEX)	ORG-170-5400 & ORG-170-5410	EPA 624 & SW-846 5030	GC/MS
o-Terphenyl (F2)	ORG-170-5130	CCME Tier 1 Method	GC/FID

Method Summary

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

AGAT WORK ORDER: 13E699744

PROJECT NO:

ATTENTION TO: Cyril Jenkins/Jeff Powers

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Dissolved Aluminum	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP/MS
Dissolved Antimony	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP/MS
Dissolved Arsenic	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP-MS
Dissolved Barium	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP-MS
Dissolved Boron	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP-MS
Dissolved Cadmium	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP/MS
Dissolved Chromium	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP/MS
Dissolved Copper	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP-MS
Dissolved Iron	INOR-171-6202, INOR-171-6100	SM 3120 B	ICP/OES
Dissolved Lead	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP/MS
Dissolved Manganese	INOR-171-6202, INOR-171-6100	SM 3120 B	ICP/OES
Dissolved Molybdenum	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP/MS
Dissolved Nickel	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP/MS
Dissolved Selenium	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP/MS
Dissolved Silver	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP/MS
Dissolved Sodium	INOR-171-6201, INOR-171-6100	SM 3120 B	ICP/OES
Dissolved Thallium	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP/MS
Dissolved Uranium	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP/MS
Dissolved Zinc	INOR-171-6202, INOR-171-6100	SM 3125 B	ICP-MS
pH	INOR-171-6205	SM 4500 H+	PC Titrate
p - Alkalinity (as CaCO ₃)	INOR-171-6205	SM 2320 B	PC Titrate
T - Alkalinity (as CaCO ₃)	INOR-171-6205	SM 2320 B	PC Titrate
Bicarbonate	INOR-171-6205	SM 2320 B	PC Titrate
Carbonate	INOR-171-6205	SM 2320 B	PC Titrate
Hydroxide	INOR-171-6205	SM 2320 B	PC Titrate
Electrical Conductivity	INOR-171-6205	SM 2510 B	PC Titrate
Fluoride	INOR-171-6200	SM 4110 B	ION CHROMATOGRAPH
Chloride	INOR-171-6200	SM 4110 B	ION CHROMATOGRAPH
Nitrite	INOR-171-6200	SM 4110 B	ION CHROMATOGRAPH
Nitrate	INOR-171-6200	SM 4110 B	ION CHROMATOGRAPH
Sulfate	INOR-171-6200	SM 4110 B	ION CHROMATOGRAPH
Dissolved Calcium	INOR-171-6201, INOR-171-6100	SM 3120 B	ICP/OES
Dissolved Magnesium	INOR-171-6201, INOR-171-6100	SM 3120 B	ICP/OES

Method Summary

CLIENT NAME: CONOCOPHILLIPS CANADA RES. CORP.

AGAT WORK ORDER: 13E699744

PROJECT NO:

ATTENTION TO: Cyril Jenkins/Jeff Powers

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Dissolved Sodium	INOR-171-6201, INOR-171-6100	SM 3120 B	ICP/OES
Dissolved Potassium	INOR-171-6201, INOR-171-6100	SM 3120 B	ICP/OES
Dissolved Iron	INOR-171-6201, INOR-171-6100	SM 3120 B	ICP/OES
Dissolved Manganese	INOR-171-6201, INOR-171-6100	SM 3120 B	ICP/OES



AGAT

Laboratories

6310 Roper Road NW
Edmonton, Alberta
T6B 3P9
webearth.agatlabs.com

Chain of Custody Record

Report To:

Company: Conoco Phillips
Contact: Cyril Jenkins/Jeff Powers
Address: P.O. Box 130 Stn
907 745 1815 Postal Code: 403 233 3326
Phone: 403 233 3326 Fax:
LSD: 9
Client Project #:

Invoice To: Same (Y/N) - Circle

Company: Conoco Phillips
Contact: Cyril Jenkins
Address:
Postal code: 403 233-3326
Phone: 403 233-3326 Fax:
PO/AFE #:

Report Information

1. Name: Jeff Powers
Email: jpowers@agatlab.com.net
2. Name: Cyril Jenkins
Email: cyril.jenkins@conocophillips.com

Regulatory Requirements (Check one):

☒ CCME ☐ AB Tier 1 ☐ Natural Area
☐ Agricultural ☐ Agricultural/Park
☐ Residential/Park ☐ Residential/Commercial
☐ Commercial ☐ Commercial
☐ Industrial ☐ Industrial
☐ Drinking Water ☒ FWAL
☐ Other ☐ D50 (Drilling) ☐ SPIGEC

Report Format

☐ Single Sample per page
☒ Multiple Samples per page
☒ Excel Format Included

Rush Turnaround Requests

Upon filling out this section, client accepts that surcharges will be attached to this analysis. If NOT completed, regular TAT will be default.

☐ Less than 24 hours (200%)
☐ 24 to 48 hours (100%)
☐ 48 to 72 hours (50%)

Date Required:
Please contact laboratory to notify

Laboratory Use Only

Date and Time: '13 MAR 25 10:43
Arrival Temperature: -4.5°C
AGAT Job Number: 13E699744

Laboratory Use (Lab ID #)

4219000 12.5 Km Deep
" 061 29 Km Deep
" 062 W102-B
" 063 W102-C Ground

Sample Matrix

Water 3/22/13 1745
Water 3/22/13 1620
Water 3/22/13 1545
Water 3/22/13 1700

Date/Time Sampled

3/22/13 1745
3/22/13 1620
3/22/13 1545
3/22/13 1700

Comments - Site/Sample Info. Sample Containment

Filter For Metals

Number of Containers	Detailed Soil Salinity (Sat. Paste)	CCME BTEX/PAH/FA-P2	Metals ☐ HWS-B, Cr6 & Hg	Routine Water Potability	Metals ☒ Diss ☐ Total ☐ Hg	AB Class 2 Landfill	Microtox	D50 Detailed Soil Salinity (As received)	Hold for	Contaminated/Hazardous (Y/N)
7		X		X	X					
7		X		X	X					
7		X		X	X					
3		X		X	X					

Samples Relinquished by (print name & sign): Jeff Powers
Samples Relinquished by (print name & sign): Jeff Powers
Samples Relinquished by (print name & sign): Jeff Powers

Date/Time: 3/22/13 1100
Date/Time:
Date/Time:

Samples Received by (Print name & sign): Jeff Powers
Samples Received by (Print name & sign): Jeff Powers
Samples Received by (Print name & sign): Jeff Powers

Date/Time:
Date/Time:
Date/Time:

Pink Copy - Client
Yellow Copy - AGAT
White Copy - AGAT

Page of
NO: 044044

AGAT Laboratories

SAMPLE INTEGRITY RECEIPT FORM - Edmonton

RECEIVING BASICS:

Complete CoC as well where required

Date & Time: Mar 25 13 10:43 am / pm
 Courier: Canadian North Prepaid / Collect
 Waybill# 518 7VQ 78498184
 Branch received from: n/a
 Received by: PHILLIPS
 Relinquished by: Courier
 Company: CONOCO PHILLIPS
 Consultant: n/a
 Client left without count verified: Yes
 Custody Seal Intact: Yes No NA

COC INFORMATION:

Received: Yes No Yes Emailed to PM
 Completed in full: Yes No If NO, why: Reg Other: Other
 Turnaround Time: 24hr 24-48hr 48-72hr Reg Other: Other
 COC Numbers: 044074
 Workorder Number: 13E699744

SAMPLE QUANTITIES:

Coolers: 1 Bottles/Jars: 14 Bags: 0 Vials: 12 Other: 12
 CoC Container Count: 26 (If this count differs from what was received please mention under the "Additional Notes" section)

TIME SENSITIVE ISSUES:

Earliest Date Sampled: Mar 22 ALREADY EXCEEDED? Yes No
 Microbiology/Time Sensitive Test*: n/a Expiry: n/a
 Hydrocarbon Test: ASTM Expiry: Mar 29
 Are samples received more than 5 days after sampling: Yes No

*Residual Chlorine, Dissolved Oxygen, Turbidity, BOD, Nitrate/Nitrite, Microtox

SPECIALTY ISSUES:

Legal Samples: Yes No
 International Samples: Yes No
 Proper tape/labels applied: Yes No
 Hazardous Samples:
 Why hazardous:
 Precaution taken:

SAMPLE REQUIREMENTS:

To be completed as samples are being logged by Logistics staff.
 Correct bottles used for testing: Yes No
 If No, explain: Other
 Correct amount of sample for analysis: Yes No
 If No, explain: Other
 Are all samples labeled correctly: Yes No
 If No, explain: Other

3 temperatures of samples* and average of each cooler (record differing temperatures on the CoC next to sample ID'S):

use jars when available

(1) (Jar | Bag) 42 + 50 + 36 = -45°C (2) (Jar | Bag) + + = °C (3) (Jar | Bag) + + = °C
 (4) (Jar | Bag) + + = °C (5) (Jar | Bag) + + = °C (6) (Jar | Bag) + + = °C
 (If more than 6 coolers are received use another sheet of paper and attach)

Was ice or ice pack present? Yes No

Additional integrity issues (Indicate issues below and on the CoC next to the sample ID):

- 1) Sample 4219060B: bottle is labeled 12km Seep
- 2) 060D, 060F, 060G bottles & vials labeled 12.6km Seep
- 3) 4th line of CoC, # of containers should be 5 not 3.

Account Project Manager: Abelyn Pasco have they been notified of the above/below issues: Yes No
 Whom spoken to: Abelyn Pasco Date and Time: 25 Mar 13

ADDITIONAL NOTES: * Dissolved Metals filtered & preserved in LC

518 YVO 78498184 Shipper's Name and Address Nom et adresse de l'expéditeur ConocoPhillips Canada Norman Welss, NT XOE OVO 403-648-3718 BSKTSU5272140		Shipper's Account Number Numéro de compte de l'expéditeur CON105CW		Not negotiable / Non négociable Air Waybill Lettre de transport aérien Issued by / Émise par Spour North 500, 5201 50th Ave Yellowknife, NT X1A 3S9 Canada					
Consignee's Name and Address Nom et adresse du destinataire AGAT Laboratories Ltd 6310 Roper Road Edmonton, AB T6B 3P9 780-395-2525 403-735-2745		Consignee's Account Number Numéro de compte du destinataire AGA100CW		Copies 1, 2 and 3 of this Air Waybill are originals and have the same validity Les exemplaires 1, 2 et 3 de cette lettre de transport aérien sont originaux et ont la même validité It is agreed that the goods described herein are accepted for carriage in apparent good order and condition (except as noted) and SUBJECT TO THE CONDITIONS OF CONTRACT ON THE REVERSE HEREOF. ALL GOODS MAY BE CARRIED BY ANY OTHER MEANS INCLUDING ROAD OR ANY OTHER CARRIER UNLESS SPECIFIC CONTRARY INSTRUCTIONS ARE GIVEN HEREON BY THE SHIPPER. AND SHIPPER AGREES THAT THE SHIPMENT MAY BE CARRIED VIA INTERMEDIATE STOPPING PLACES WHICH THE CARRIER DEEMS APPROPRIATE. THE SHIPPER'S ATTENTION IS DRAWN TO THE NOTICE CONCERNING CARRIER'S LIMITATION OF LIABILITY. Il est convenu que les marchandises décrites dans le présent document sont acceptées pour le transport en bon état apparent (sauf annotation contraire) et que le transport est SOUMIS AUX CONDITIONS DU CONTRAT QUI FIGURENT AU VERSO. LES MARCHANDISES PEUVENT ÊTRE TRANSPORTÉES PAR TOUT AUTRE MOYEN Y COMPRIS PAR ROUTE OU PAR TOUT AUTRE TRANSPORTEUR À MOINS QUE DES INSTRUCTIONS CONTRAIRES PRÉCISES. À CE SUJET NE SOIENT DONNÉES PAR L'EXPÉDITEUR. L'ATTENTION DE L'EXPÉDITEUR EST ATTIRÉE SUR L'AVIS CONCERNANT LA LIMITATION DE RESPONSABILITÉ DU TRANSPORTEUR.					
Issuing Carrier's Agent Name and City / Nom et ville de l'agent du transporteur émetteur 		Accounting Information / Renseignements comptables 							
Agent's IATA Code / Code IATA de l'agent 		Account Number / Numéro de compte 							
Airport of Departure (Address of first Carrier) and Requested Routing Aéroport de départ (Adresse du premier transporteur) et Itinéraire demandé Norman Wells									
to / à By first Carrier / Par premier transporteur Routing and Destination / Routage et destination Edmonton		to / à by / par to / à by / par		Currency / Monnaie CAD CHGS / Code / Frais PPD / Payé COLL / Do PPD / Payé COLL / Do Declared Value of Carriage / Valeur déclarée pour le transport Declared Value for Customs / Valeur déclarée pour la douane					
Amount of Insurance / Montant de l'assurance NIL		INSURANCE - If carrier offers insurance and such insurance is requested in accordance with the conditions thereof, indicate amount to be insured in figures in box marked "Amount of insurance". ASSURANCE - si le transporteur propose une assurance et que l'expéditeur en fait la demande conformément aux présentes conditions indiquer le montant à assurer en chiffres dans la case "Montant de l'assurance".							
Handling information / Renseignements pour le traitement de l'expédition Please Deliver									
Number of Pieces / Nombre de colis RCP Gross Weight / Poids brut kg Rate Class / Classeur du tarif Commodity Item No. / N° d'article de la marchandise Chargeable Weight / Poids de taxation Rate / Charge Tarif / Montant Total Nature and Quantity of Goods (including Dimensions or Volume) Nature et quantité des marchandises (y compris dimensions ou volume)									
1	10	K	GAD 20	10	5.31	53.10	Water Samples DIMS 15x10x15IN (bulk)	5T	
Prepaid / Port payé 53.10		Weight Charge / Taxation au poids 0.00		Collect / Port dû 0.00		Other Charges / Autres frais 53.10			
Valuation charge / Taxation à la valeur 0.00		Tax / Taxe 0.00		Total other Charges Due Agent / Total des autres frais dus à l'agent 0.00		Delivery Charge 12.00 Nav Canada Charge 2.66 Fuel Surcharge 15.93 Goods/Service Tax 4.18			
Total other Charges Due Carrier / Total des autres frais dus au transporteur 0.00		Total prepaid / Total port payé 53.10		Total collect / Total port dû 0.00		Shipper certifies that the particulars on the face hereof are correct and that insofar as any part of the consignment contains dangerous goods, such part is properly described by name and is in proper condition for carriage by air according to the applicable Dangerous Goods Regulations. L'expéditeur certifie que les indications portées sur le présent document sont exactes et que dans la mesure où une partie quelconque de l'expédition contient des marchandises dangereuses, cette partie d'expédition est correctement dénommée et bien préparée pour le transport par air conformément à la réglementation applicable.			
Currency Conversion Rates / Taux de conversion monétaire 0.7		Charges at Destination / Frais à l'arrivée 0.00		Signature of Shipper or his Agent / Signature de l'expéditeur ou de son agent 		Signature of Issuing Carrier or its Agent / Signature du transporteur émetteur ou de son agent 			
For Carrier's Use only at Destination / Réservé au transporteur à destination 		Executed on / Fait le 3/23/2013		(Date) at / (Lieu) 10:29		991552			

ORIGINAL 2 (FOR CONSIGNEE)

518 YVO 78498184

CS002 (10/01)

APPENDIX E

PIPER PLOTS

for

WELLS

WW02-A

WW02-B

WW04-A

WW05-A

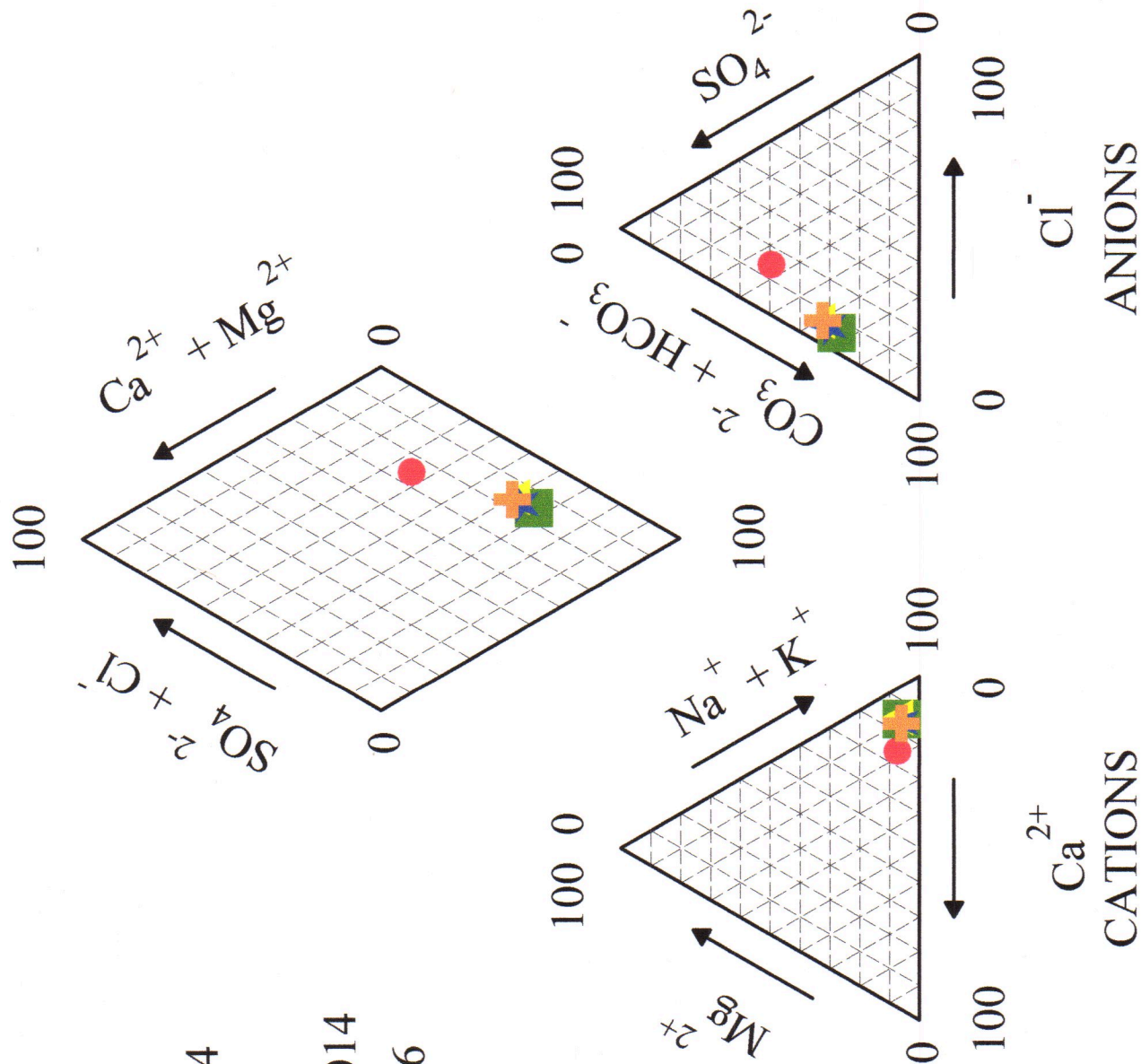
WW02-A Piper Plot

EXPLANATION

- March 2013
- February 2014
- ▲ June 2014
- ★ September 2014
- ✚ February 2016

458

523



WW02-B

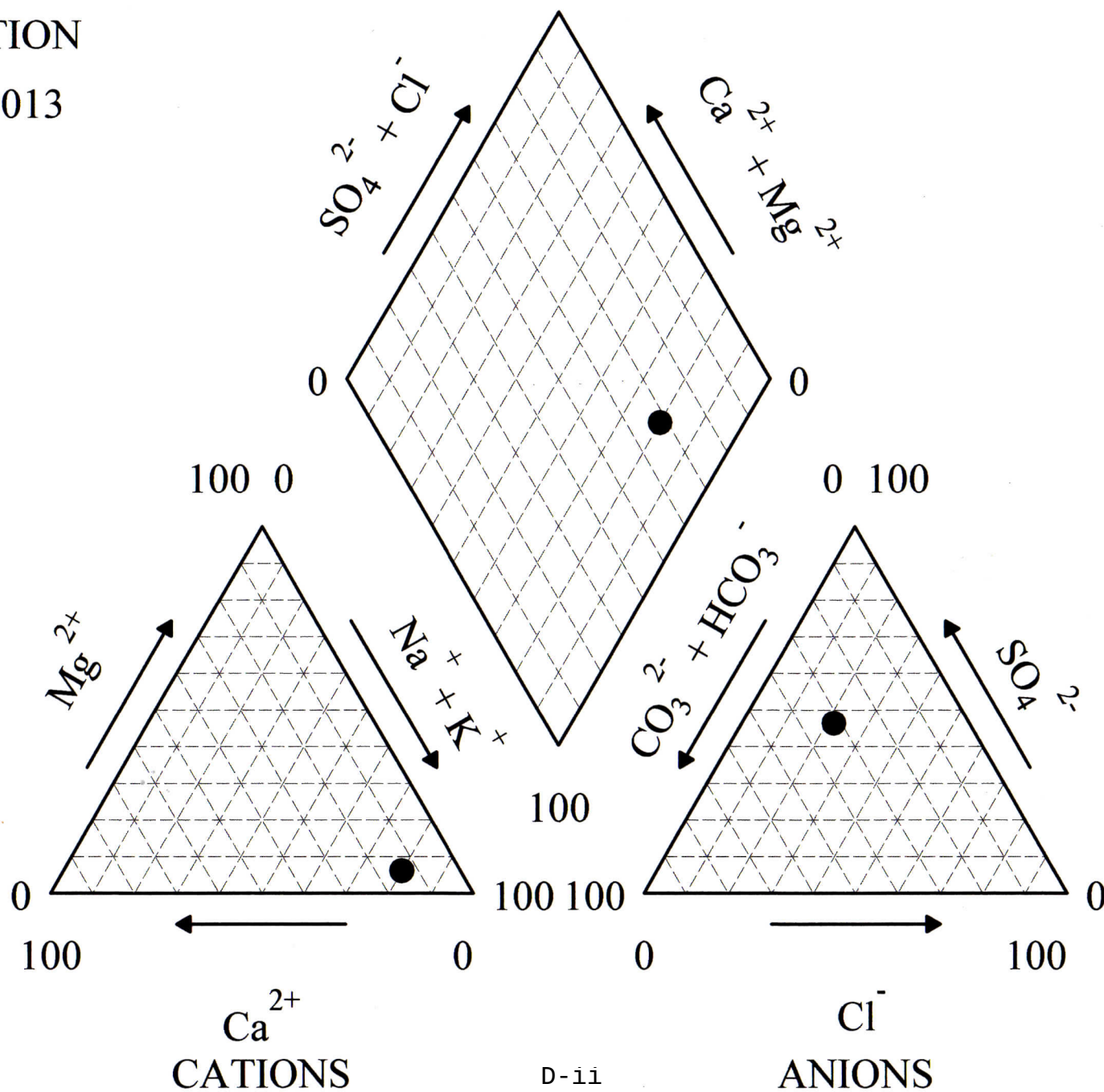
100

EXPLANATION

● March 2013

● 177

● 177



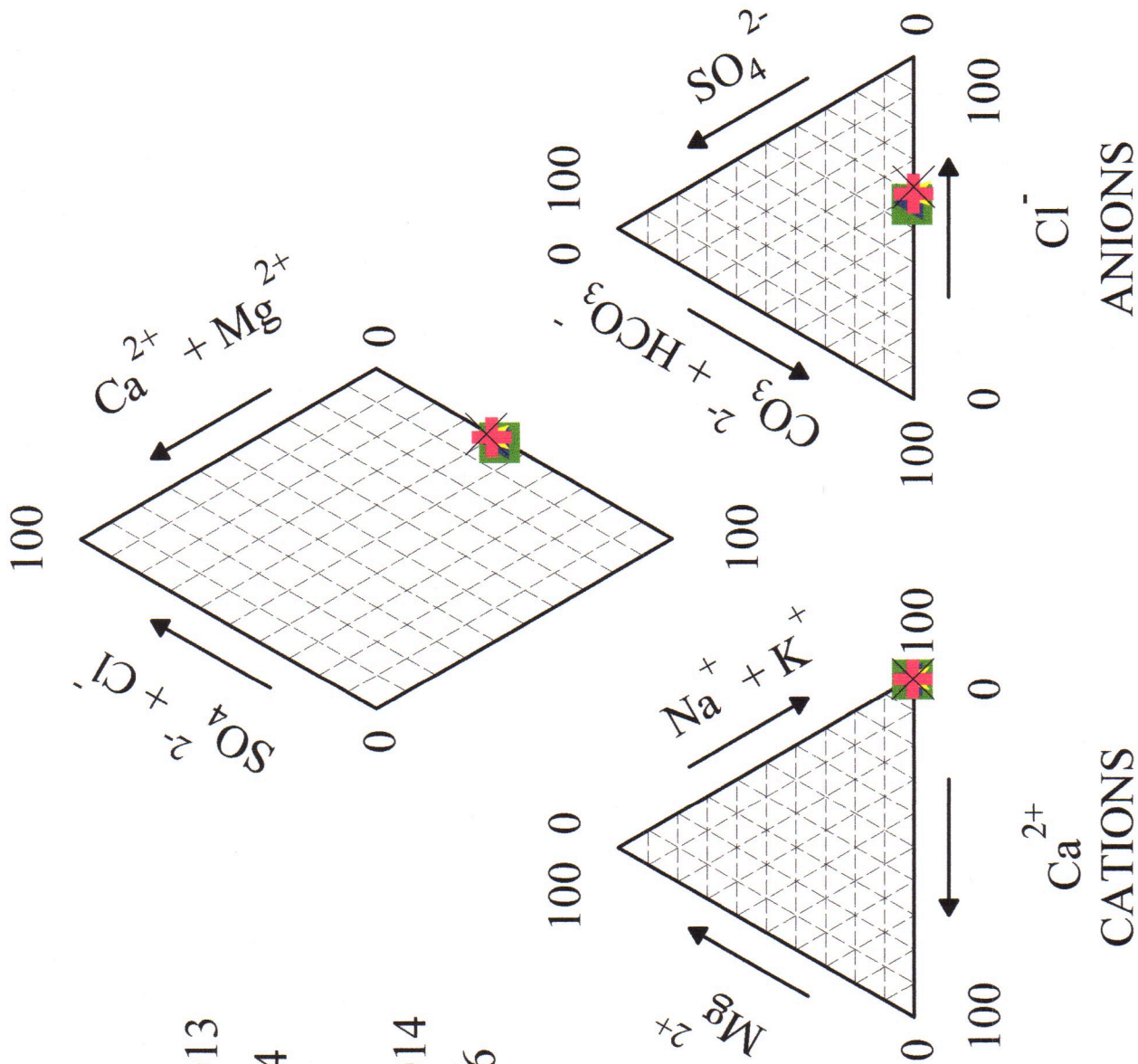
WW04-A Piper Plot

EXPLANATION

- June 2013
- September 2013
- ▲ February 2014
- ★ June 2014
- ✚ September 2014
- ✕ February 2016

3340

3960



WW05-A Piper Plot

EXPLANATION

- March 2013
- June 2013
- ▲ February 2013
- ★ June 2014
- ✚ September 2014
- ✕ February 2016

● 257

● 534

