

Final Analytical Report

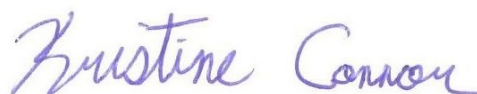
Attention: Mark Miller
AMEC Environment & Infrastructure
#6, 5102 50 Avenue
Yellowknife, NT X1A 2P7

Results for File: EC-68270
Project Number: YX00901.008
Project Name: GNWT-DOT-JC
Date Received: 2014/10/03
Date of Report: 2014/10/10

Report reviewed by:

A handwritten signature in blue ink that reads "Jesse Dang".

Jesse Dang, B.Sc.
Manager
Laboratory Services

A handwritten signature in blue ink that reads "Kristine Connor".

Kristine Connor
Client Services Representative
Laboratory Services

** All samples will be disposed of after 30 days following analysis. Please contact the lab if you require additional sample storage time. (Samples deemed hazardous will be returned to the client at their own expense or disposal will be arranged.) **

Water Analysis - Hydrocarbons

Project No. YX00901.008

Final
File No. EC-68270

Analyst	Date of Analysis (yyyy/m/d)	Analytical Parameter	Units	Reference Method	Lab #:	14-14188	14-14189	14-14190
					Client ID:	James Creek - Upstream	James Creek - Public	James Creek - Downstream
					Sample Date:	2014/09/23 0:00	2014/09/23 0:00	2014/09/23 0:00
					MDL			
BM	2014/10/03	Benzene	mg/L (ppm)	EPA 8260B	0.001	< 0.001	< 0.001	< 0.001
BM	2014/10/03	Toluene	mg/L (ppm)	EPA 8260B	0.001	< 0.001	< 0.001	< 0.001
BM	2014/10/03	Ethylbenzene	mg/L (ppm)	EPA 8260B	0.001	< 0.001	< 0.001	< 0.001
BM	2014/10/03	Total Xylenes	mg/L (ppm)	EPA 8260B	0.003	< 0.003	< 0.003	< 0.003
BM	2014/10/03	F1 (C6-C10)	mg/L (ppm)	CCME	0.050	< 0.050	< 0.050	< 0.050
BM	2014/10/03	Surrogate Recovery	%	--	0.1	93.7	88.5	94.7
PC	2014/10/03	F2 (EPH C10-C16)	mg/L (ppm)	EPA 3520C/CCME	0.030	< 0.030	< 0.030	< 0.030
PC	2014/10/03	F3 (EPH C16-C34)	mg/L (ppm)	EPA 3520C/CCME	0.030	< 0.030	< 0.030	< 0.030
PC	2014/10/03	F4 (EPH C34-C50)	mg/L (ppm)	EPA 3520C/CCME	0.030	< 0.030	< 0.030	< 0.030
BM	2014/10/03	F1 - BTEX	mg/L (ppm)	CCME	0.050	< 0.050	< 0.050	< 0.050

Water Analysis

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Analyst	Date of Analysis (yyyy/m/d)	Analytical Parameter	Units	Reference Method	Lab #:	14-14188	14-14189	14-14190
					Client ID:	James Creek - Upstream	James Creek - Public	James Creek - Downstream
					Sample Date:	2014/09/23 0:00	2014/09/23 0:00	2014/09/23 0:00
					MDL	0.1	< 0.1	< 0.1
AP	2014/10/10	Oil & Grease	mg/L (ppm)	APHA 5520-c		< 0.1	< 0.1	< 0.1

Quality Control Standard

Project No. YX00901.008

File No. EC-68270

Water Analysis - Hydrocarbons

Analyst	Date of Analysis (yyyy/m/d)	Analytical Parameter	Units	Reference Method	MDL	Analyzed Value	Advisory Range	Target Value	Reference No.
BM	2014/10/03	Benzene	%	EPA 8260B	0.001	90.9	85-115	100.000	Spike Recovery
BM	2014/10/03	Toluene	%	EPA 8260B	0.001	93.3	85-115	100.000	Spike Recovery
BM	2014/10/03	Ethylbenzene	%	EPA 8260B	0.001	96.6	85-115	100.000	Spike Recovery
BM	2014/10/03	Total Xylenes	%	EPA 8260B	0.002	94.3	85-115	100.000	Spike Recovery
BM	2014/10/03	F1 (C6-C10)	%	CCME	0.050	92.2	85-115	100.000	Spike Recovery
PC	2014/10/03	F2 (EPH C10-C16)	%	EPA 3520/CCME	0.030	87.6	75-120	100.000	Spike Recovery
PC	2014/10/03	F3 (EPH C16-C34)	%	EPA 3520/CCME	0.030	88.5	75-120	100.000	Spike Recovery
PC	2014/10/03	F4 (EPH C34-C50)	%	EPA 3520/CCME	0.030	91.2	75-120	100.000	Spike Recovery

Water Analysis

Analyst	Date of Analysis (yyyy/m/d)	Analytical Parameter	Units	Reference Method	MDL	Analyzed Value	Advisory Range	Target Value	Reference No.
AP	2014/10/10	Oil & Grease	%	APHA 5520-c	1.0	92.2	85-115	100.0	Spike Recovery

Analytical Comments

Project No. YX00901.008

File No. EC-68270

All Analytical results pertain to samples analyzed as received.

APHA: Standard Method for the Examination of Water and Wastewater, 2005. 21st Ed. American Public Health Association.

CCME (EPH) - Canadian Council of Ministers of the Environment - Method for Canada Wide Standards for Petroleum Hydrocarbon in Soil, Tier 1 Method, Revision 5.0. The method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.

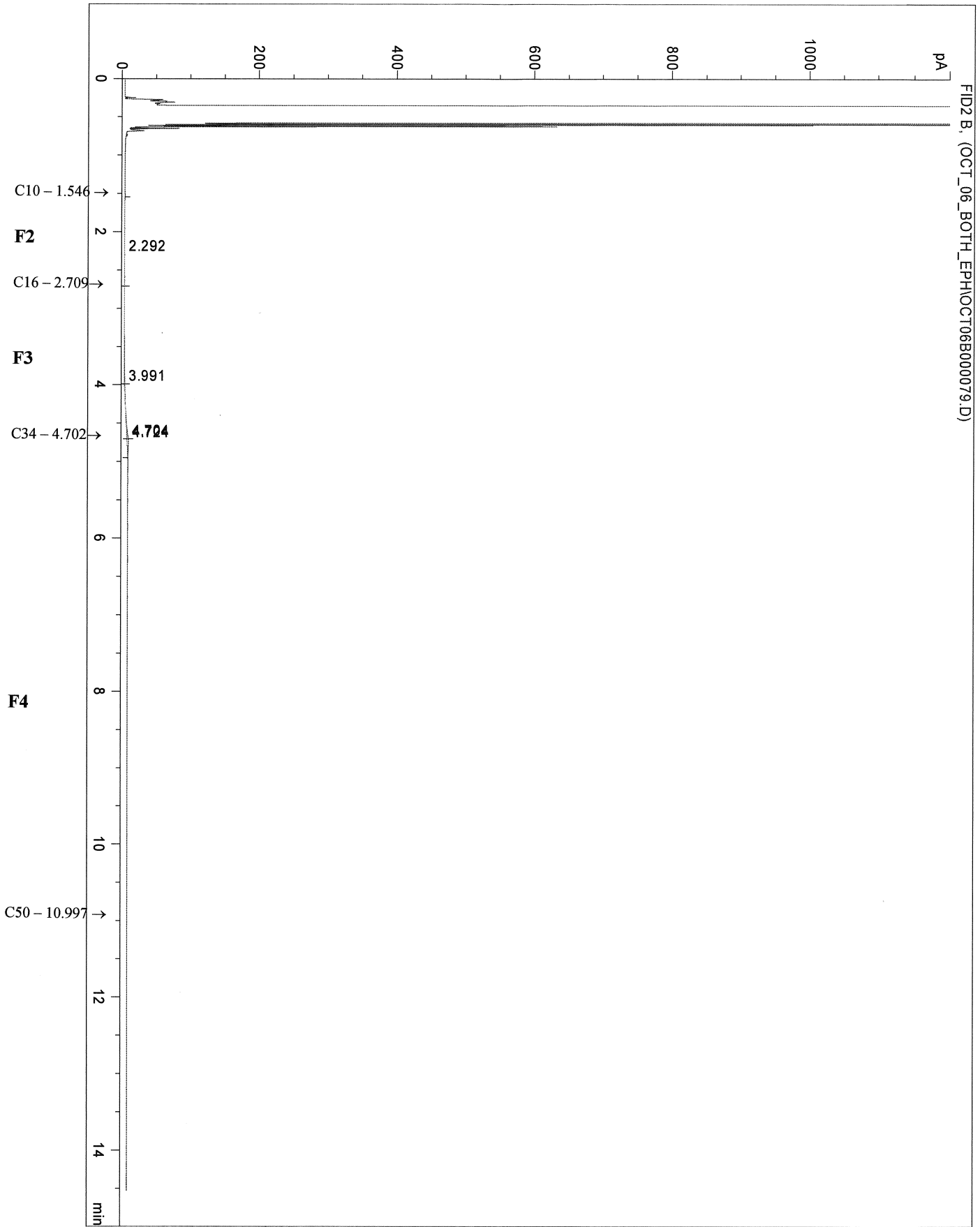
Chromatography returned to baseline by C50.

EPA: U.S. Environmental Protection Agency. 1997. Test Methods of Evaluation of Solid Waste 3rd Ed through Update III. Office Solid Waste Emergency Response, U.S. Environmental Protection Agency, Washington, D.C.

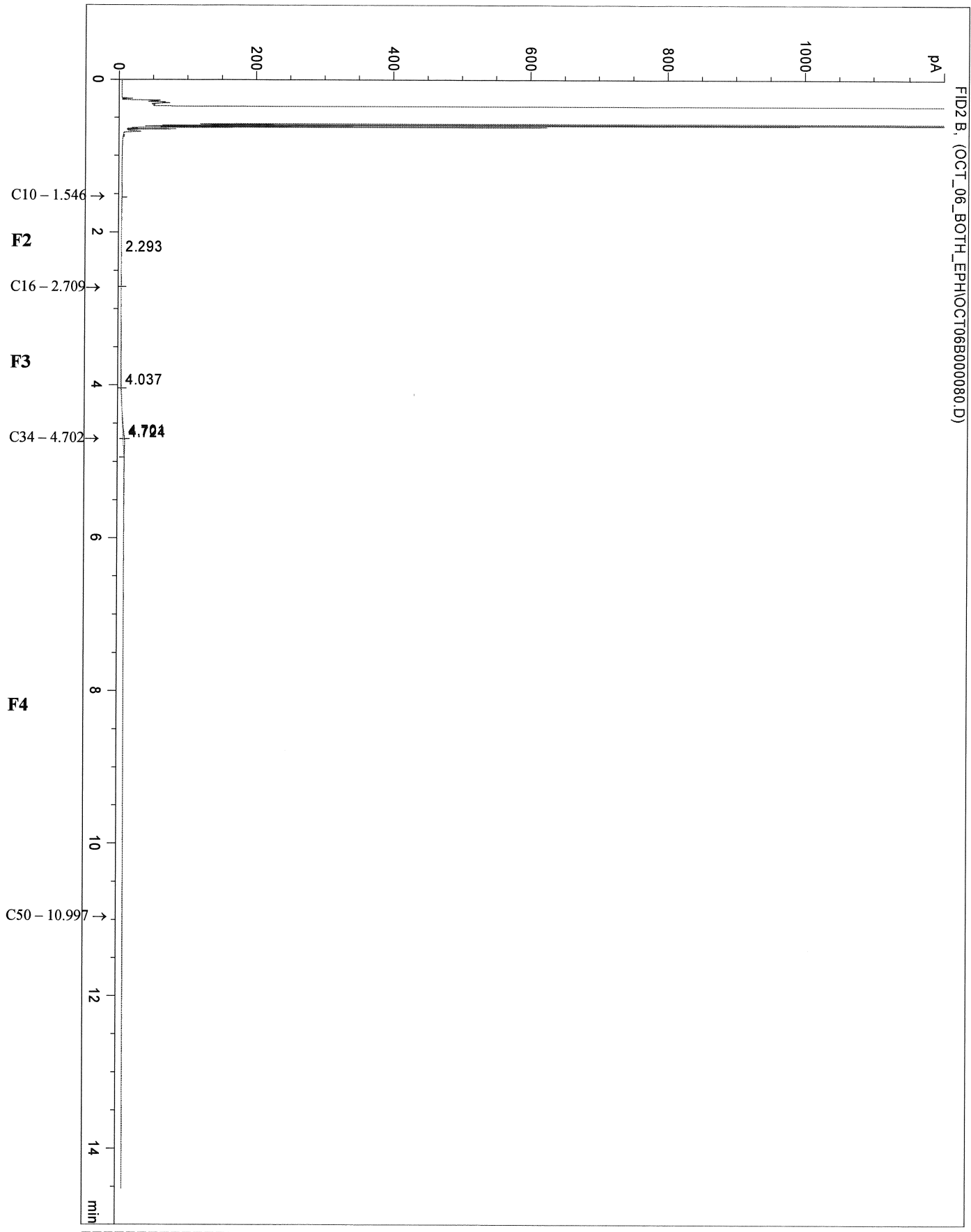
EPH: Extractable Petroleum Hydrocarbon - not corrected for PAH content.

Extraction and analysis limits for holding time for Hydrocarbons were not met.

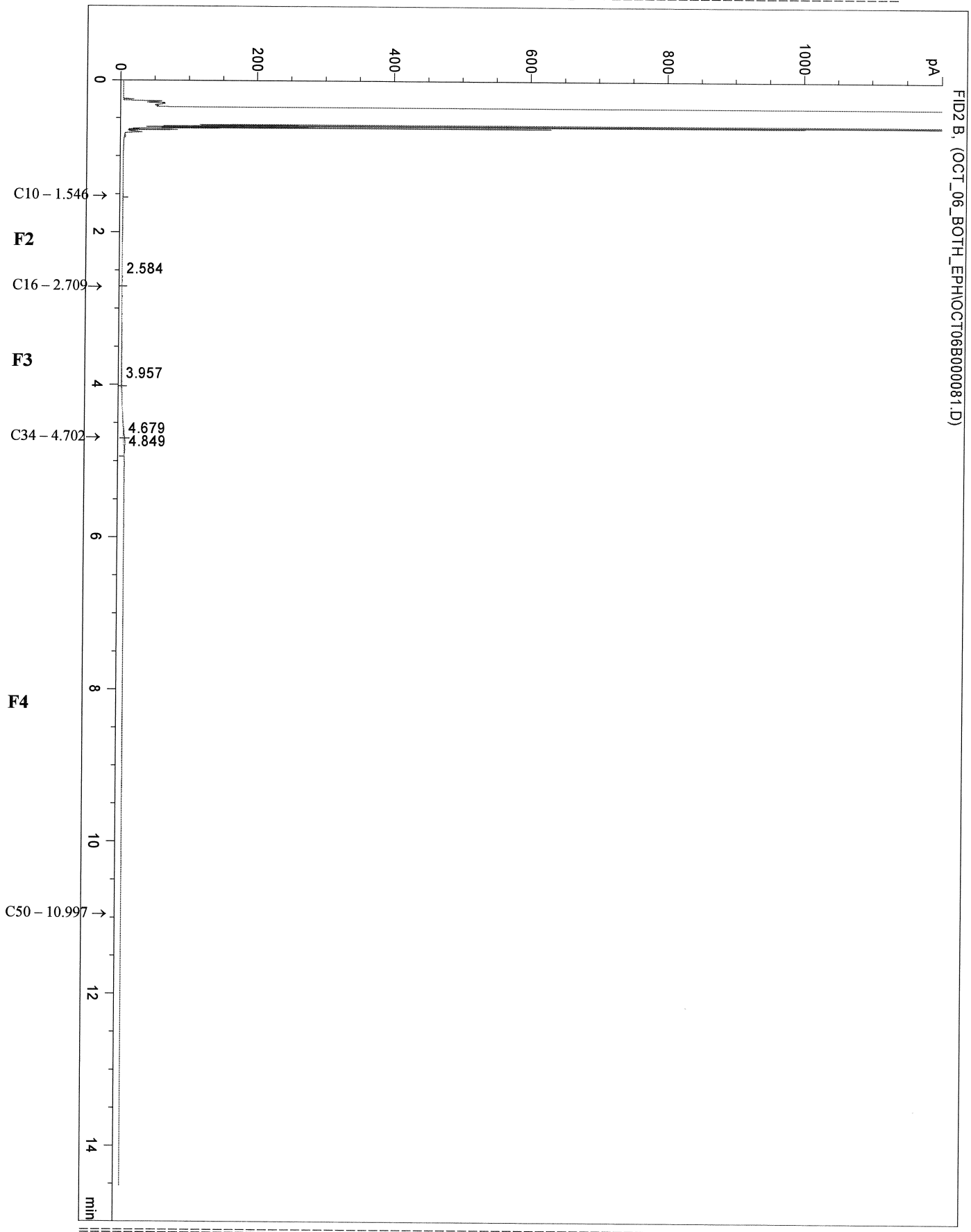
MDL - Method Detection Limit



*** End of Report ***



*** End of Report ***



*** End of Report ***



EDMONTON CHEMISTRY LAB 30494

Chain of Custody Record/Analysis Request

EL-68270 1

ISSUING OFFICE: GNVLT - DOT - Spurs Check

Tracking #:

ANALYSIS REQUIRED (Note preferred method)

QUOTE NUMBER

Project Name: Spurs Check

Project Manager: Dan Armstrong

Project Number: 1X00901.008

Sampler: SPV AC

Phone No.:

Client Sample ID

AMEC E & E Lab Sample ID FOR LAB USE ONLY	Date Collected dd-mm-yy	Time Collected hh:mm	Matrix	# of Containers
<u>14-14186</u>	<u>23/08/14</u>	<u>09:00</u>	<u>H₂O</u>	<u>3</u>
<u>9</u>	<u>"</u>	<u>"</u>	<u>"</u>	<u>3</u>
<u>90</u>	<u>"</u>	<u>"</u>	<u>"</u>	<u>3</u>

BTEX, F1

F2-F4, PHC

OIL & GREASE

50% RUSH (Please Notify Lab!)

100% RUSH (Please Notify Lab!)

REQUIREMENTS

AB Tier 1

AB Tier 2

CCME

BCME

Other

RECEIVER COMMENTS

RELINQUISHED BY:	RECEIVED BY:	REPORT FORMAT	CLIENT COMMENTS / SPECIAL INSTRUCTIONS
Signature: <u>[Signature]</u>	Signature: <u>[Signature]</u>	Digital pdf <input type="checkbox"/> Excel <input type="checkbox"/> Hardcopy <input type="checkbox"/>	<p><u>Please note!</u></p> <p><u>Sample ID on labels</u></p> <p><u>switched with</u></p> <p><u>sample.</u></p> <p><u>We say AM to Spurs Home.</u></p>
Printed Name: <u>Dan Armstrong</u>	Printed Name: <u>Mark Miller</u>	Digital pdf <input type="checkbox"/> Hardcopy <input type="checkbox"/>	
Firm: <u>GVT - DOT - CA</u>	Date/Time: <u>1 Oct 2014 14:00</u>	Temperature °C: <u>9</u>	
Date/Time: <u>Oct. 1 '14 14:00hrs</u>			

9.9% L

be

handlog

Spurs

10:10 am

03-2014

Castor, Colin

From: Miller, Mark
Sent: October-03-14 1:01 PM
To: Castor, Colin
Cc: Connor, Kristine
Subject: RE: James Creek.

Hi Colin,
Yes, please proceed.
Those samples were client collected.
I sent them as soon as they arrived, so the delay was on their end.
Thanks,
Mark

Mark Miller, CET
Branch Manager
AMEC - Environment & Infrastructure
Scotia Centre, 5102 - 50th Ave., Suite 104
P.O. Box 2245, Stn. Main, Yellowknife, NT X1A 2P7 Canada
Tel +1(867)920-4140 Cell +1(867)445-3854 Fax +1(867)920-4402
mark.miller@amec.com
amec.com

From: Castor, Colin
Sent: October-03-14 11:56 AM
To: Miller, Mark
Cc: Connor, Kristine
Subject: RE: James Creek.

Actually Mark I forgot to mention as well that the organic portion (Btex F1-F4) is past hold time (seven days, sampled on September 23).

Let me know if you would still like to proceed.

Colin.

From: Castor, Colin
Sent: October-03-14 11:52 AM
To: Miller, Mark
Cc: Connor, Kristine
Subject: FYI: James Creek.

Hey Mark,

Just a heads up we received the above quoted project and one of the 40mL Btex F1 vials (Upstream) was broken in transit. We can still run that portion with just one vial so nothing changes.

The cooler was packed pretty well so it looked like just a freak accident.

Cheers,

Colin Castor
Sample Coordinator
AMEC
Environment & Infrastructure
5667 70 Street, Edmonton, AB, T6B 3P6, Canada