Ministry of the Environment, Conservation and Parks

Laboratory Services Branch

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Ministère de l'Environnement, de la Protection de la nature et des Parcs

Direction des services de laboratoire

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Toronto ON M9P 3V6
Tél: 416 235-5743
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Ontario

Certificate of Analysis

Workorder: December 18:Former GM Property (13886)

Chain: L13559

Workorder Description:

Client: West-Central Region - Niagara District Office

Profile: Surface Water

Line Item: Impact Assessments

Report To: Kim Groombridge
DWECD-WCR-Niagara Dist. Office
301 St. Paul St
Garden City Tr 9th Fl Suite 15
St Catharines, L2R 7R4
Canada

Date Reported: 1/12/2024 3:28:37 PM

Date Approved: 1/12/2024 3:27:10 PM

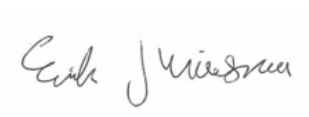
The results relate only to the items tested as received.

Customer service feedback for this test report and/or other services by LaSB may be provided by calling the HelpDesk at 416-235-6030, the Customer Service Manager at 416-235-5831, or through LabOnline.

Laboratory Services Branch is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA) for specific tests listed on the scope of accreditation. Accreditation is matrix- and parameter-specific. A complete listing of accredited test methods, matrices, and parameters is available from www.cala.ca. The tests on this report may not necessarily be included in the scope of accreditation.

Calculated results for IBC3196 (Ion Balance) and DTKN3424 (Total Kjeldahl Nitrogen) are provided in the test report only if all required parameters were requested/measured.

Approved for release by:



Erik Wiersma

Ontario

Certificate of Analysis

Workorder: **Chain:** L13559

Sample Summary

Lab ID	Field ID	Matrix	Method	Tests Ordered	Container Condition	Sampling Date & Time	Received Date & Time	Sampled By
13886001	Woodruff	WO	E3188, E3218, E3421, E3480, E3488	DS3188TSD, PAH3480, PCBC3488, PHCF2X3421, TSD3188		12/18/2023 13:10	12/20/2023 09:46	Andrea Lloyd

Sample Description

FOrmer GM site final discharge PCB samples

Certificate of Analysis

Ontario

Workorder: **Chain:** L13559

Analytical Results

Lab ID: 13886001 **Date Collected:** 12/18/2023 1:10:00 PM
Field ID: Woodruff **Matrix:** Water

Parameter	Result	Units	RDL	Rmk	Analyzed
GENERAL CHEMISTRY					
E3218					
Conductivity	1930	µS/cm	2		12/20/2023
ORGANIC CHEMISTRY					
E3421					
F2 Fraction (C10 to C16)	<100	µg/L	100		01/02/2024
F3 Fraction (C16 to C34)	<500	µg/L	500		01/02/2024
F4 Fraction (C34 to C50)	<500	µg/L	500		01/02/2024
E3480					
1-Methylnaphthalene	<10	ng/L	10		12/29/2023
2-Methylnaphthalene	<10	ng/L	10		12/29/2023
Acenaphthene	<10	ng/L	10		12/29/2023
Acenaphthylene	<10	ng/L	10		12/29/2023
Anthracene	<10	ng/L	10		12/29/2023
Benz(a)anthracene	<20	ng/L	20		12/29/2023
Benzo(a)pyrene	<2.0	ng/L	2.0		12/29/2023
Benzo(b)fluoranthene	<10	ng/L	10		12/29/2023
Benzo(e)pyrene	<10	ng/L	10		12/29/2023
Benzo(g,h,i)perylene	<20	ng/L	20		12/29/2023
Benzo(k)fluoranthene	<10	ng/L	10		12/29/2023
Chrysene	<10	ng/L	10		12/29/2023
Dibenz(a,h)anthracene	<20	ng/L	20		12/29/2023
Fluoranthene	<10	ng/L	10		12/29/2023
Fluorene	<10	ng/L	10		12/29/2023
Indeno(1,2,3-cd)pyrene	<20	ng/L	20		12/29/2023
Naphthalene	<10	ng/L	10		12/29/2023

Certificate of Analysis

Ontario

Workorder: **Chain:** L13559

Analytical Results

Lab ID: 13886001 **Date Collected:** 12/18/2023 1:10:00 PM
Field ID: Woodruff **Matrix:** Water

Parameter	Result	Units	RDL	Rmk	Analyzed
Perylene	<10	ng/L	10		12/29/2023
Phenanthrene	<10	ng/L	10		12/29/2023
Pyrene	<10	ng/L	10		12/29/2023

Surrogates

Analyte	Units	Recovery	Control Limits
Acenaphthene-d10 (S)	%	105.7	25 - 150
Benz(a)anthracene-d12 (S)	%	118.4	25 - 150
Benzo(a)pyrene-d12 (S)	%	107.1	25 - 150
Benzo(g,h,i)perylene-d12 (S)	%	104.6	25 - 150
Fluoranthene-d10 (S)	%	111.5	25 - 150
Phenanthrene-d10 (S)	%	109.7	25 - 150

E3488

PCB4/PCB10	<2.0	ng/L	2.0		01/11/2024
PCB6	<2.0	ng/L	2.0		01/11/2024
PCB8	<2.0	ng/L	2.0		01/11/2024
PCB15	<2.0	ng/L	2.0		01/11/2024
PCB16	<2.0	ng/L	2.0		01/11/2024
PCB18	<2.0	ng/L	2.0		01/11/2024
PCB19	<2.0	ng/L	2.0		01/11/2024
PCB22	<2.0	ng/L	2.0		01/11/2024
PCB28/PCB31	<2.0	ng/L	2.0		01/11/2024
PCB33	<2.0	ng/L	2.0		01/11/2024
PCB37	<2.0	ng/L	2.0		01/11/2024
PCB40	<1.0	ng/L	1.0		01/11/2024
PCB41	<1.0	ng/L	1.0		01/11/2024
PCB44	<1.0	ng/L	1.0		01/11/2024
PCB49	<1.0	ng/L	1.0		01/11/2024
PCB52	<1.0	ng/L	1.0		01/11/2024

Certificate of Analysis

Ontario

Workorder: **Chain:** L13559

Analytical Results

Lab ID: 13886001 **Date Collected:** 12/18/2023 1:10:00 PM
Field ID: Woodruff **Matrix:** Water

Parameter	Result	Units	RDL	Rmk	Analyzed
PCB54	<1.0	ng/L	1.0		01/11/2024
PCB60/gamma-Chlordane	<2.0	ng/L	2.0		01/11/2024
PCB66	<1.0	ng/L	1.0		01/11/2024
PCB70	<1.0	ng/L	1.0		01/11/2024
PCB74/H-epoxide	<2.0	ng/L	2.0		01/11/2024
PCB77	<1.0	ng/L	1.0		01/11/2024
PCB81	<1.0	ng/L	1.0		01/11/2024
PCB84	<1.0	ng/L	1.0		01/11/2024
PCB85	<1.0	ng/L	1.0		01/11/2024
PCB87	<1.0	ng/L	1.0		01/11/2024
PCB90/PCB101	<2.0	ng/L	2.0		01/11/2024
PCB95	<1.0	ng/L	1.0		01/11/2024
PCB97	<1.0	ng/L	1.0		01/11/2024
PCB99	<1.0	ng/L	1.0		01/11/2024
PCB104	<1.0	ng/L	1.0		01/11/2024
PCB105	<1.0	ng/L	1.0		01/11/2024
PCB110	<1.0	ng/L	1.0		01/11/2024
PCB114/cis-Nonachlor	<2.0	ng/L	2.0		01/11/2024
PCB118	<1.0	ng/L	1.0		01/11/2024
PCB119	<1.0	ng/L	1.0		01/11/2024
PCB123	<1.0	ng/L	1.0		01/11/2024
PCB126	<1.0	ng/L	1.0		01/11/2024
PCB128	<1.0	ng/L	1.0		01/11/2024
PCB129	<1.0	ng/L	1.0		01/11/2024
PCB135	<1.0	ng/L	1.0		01/11/2024
PCB137	<1.0	ng/L	1.0		01/11/2024
PCB138	<1.0	ng/L	1.0		01/11/2024

Certificate of Analysis

Ontario

Workorder: **Chain:** L13559

Analytical Results

Lab ID: 13886001 **Date Collected:** 12/18/2023 1:10:00 PM
Field ID: Woodruff **Matrix:** Water

Parameter	Result	Units	RDL	Rmk	Analyzed
PCB141	<1.0	ng/L	1.0		01/11/2024
PCB149	<1.0	ng/L	1.0		01/11/2024
PCB151	<1.0	ng/L	1.0		01/11/2024
PCB153	<1.0	ng/L	1.0		01/11/2024
PCB155	<1.0	ng/L	1.0		01/11/2024
PCB156	<1.0	ng/L	1.0		01/11/2024
PCB157	<1.0	ng/L	1.0		01/11/2024
PCB158	<1.0	ng/L	1.0		01/11/2024
PCB167	<1.0	ng/L	1.0		01/11/2024
PCB168	<1.0	ng/L	1.0		01/11/2024
PCB169	<1.0	ng/L	1.0		01/11/2024
PCB170	<1.0	ng/L	1.0		01/11/2024
PCB171/DMDT	<2.0	ng/L	2.0		01/11/2024
PCB174	<1.0	ng/L	1.0		01/11/2024
PCB177	<1.0	ng/L	1.0		01/11/2024
PCB178	<1.0	ng/L	1.0		01/11/2024
PCB180	<1.0	ng/L	1.0		01/11/2024
PCB183	<1.0	ng/L	1.0		01/11/2024
PCB187	<1.0	ng/L	1.0		01/11/2024
PCB188	<1.0	ng/L	1.0		01/11/2024
PCB189	<1.0	ng/L	1.0		01/11/2024
PCB191	<1.0	ng/L	1.0		01/11/2024
PCB193	<1.0	ng/L	1.0		01/11/2024
PCB194	<1.0	ng/L	1.0		01/11/2024
PCB199	<1.0	ng/L	1.0		01/11/2024
PCB200	<1.0	ng/L	1.0		01/11/2024
PCB201	<1.0	ng/L	1.0		01/11/2024

Certificate of Analysis

Ontario

Workorder: **Chain:** L13559

Analytical Results

Lab ID: 13886001 **Date Collected:** 12/18/2023 1:10:00 PM
Field ID: Woodruff **Matrix:** Water

Parameter	Result	Units	RDL	Rmk	Analyzed
PCB202	<1.0	ng/L	1.0		01/11/2024
PCB203	<1.0	ng/L	1.0		01/11/2024
PCB205	<1.0	ng/L	1.0		01/11/2024
PCB206	<1.0	ng/L	1.0		01/11/2024
PCB207	<1.0	ng/L	1.0		01/11/2024
PCB208	<1.0	ng/L	1.0		01/11/2024
PCB Total	<10	ng/L	10		01/11/2024

Surrogates

Analyte	Units	Recovery	Control Limits
PCB209 (S)	%	103	50 - 150

PHYSICAL CHEMISTRY

E3188

Solids; dissolved	1190	mg/L	10		12/20/2023
Solids; suspended	<1.0	mg/L	1.0		12/20/2023
Solids; total	1190	mg/L	10	CRO	12/20/2023

Certificate of Analysis

Ontario

Workorder: **Chain:** L13559

Legend

Code	Definition
RDL	RDL refers to the Reported Detection Limit for each analyte being measured. The RDL listed on the Certificate of Analysis has been adjusted where required based on variations in the final volume and/or initial sample weight/volume analysed.
CRO	CALCULATED RESULT ONLY

Certificate of Analysis

Workorder: **Chain:** L13559

Workorder Summary

Sample Comments

13886001 (Woodruff) - Production sample

Good flow in man hole, no abnormal odour or colour. Split PCB sample with consultant (MTE). Sample taken by Trevor Machmer. PAH3480 was preserved.

Method Summary

E3188

THE DETERMINATION OF SOLIDS IN LIQUID MATRICES BY GRAVIMETRY

E3218

THE DETERMINATION OF CONDUCTIVITY, pH, AND ALKALINITY IN WATER AND EFFLUENTS BY POTENTIOMETRY

E3421

THE DETERMINATION OF PETROLEUM HYDROCARBONS (C6-C50) AND VOLATILE HYDROCARBONS (BTEX) IN WATER BY A COMBINATION OF PURGE AND TRAP GC-FID-MS COMBINED

E3480

THE DETERMINATION OF POLYCYCLIC AROMATIC HYDROCARBONS IN WATER BY GAS CHROMATOGRAPHY MASS SPECTROMETRY

E3488

THE DETERMINATION OF POLYCHLORINATED BIPHENYL CONGENERS (PCBc), ORGANOHALOGENATED PESTICIDES AND CHLOROBENZENES (CB) IN WATER BY TWO-DIMENSIONAL GAS CHROMATOGRAPHY MICRO-ELECTRON CAPTURE DETECTION (GCxGC-µECD)

Additional Information

Sample 13886001 - UTM Coordinates Info

Easting	-79.261324
Location Description	Concrete manhole chamber, second last access point before discharge
NAD	83
Northing	43.161715
Zone	17

Workorder: **Chain:** L13559

QC Results

QC Batch: INOI/5615 **Analysis Method:** E3218
Preparation Method: E3218
Associated Lab IDs: 13886001

Method Blank(171987)

Parameter	Result	Units	RDL
Conductivity	<2	µS/cm	2

Workorder: **Chain:** L13559

QC Results

QC Batch: ORGI/2874
Preparation Method: E3480
Associated Lab IDs: 13886001

Analysis Method: E3480

Method Blank(171634)

Parameter	Result	Units	RDL
Naphthalene	<10	ng/L	10
2-Methylnaphthalene	<10	ng/L	10
1-Methylnaphthalene	<10	ng/L	10
Acenaphthylene	<10	ng/L	10
Acenaphthene	<10	ng/L	10
Fluorene	<10	ng/L	10
Phenanthrene	<10	ng/L	10
Anthracene	<10	ng/L	10
Fluoranthene	<10	ng/L	10
Pyrene	<10	ng/L	10
Benz(a)anthracene	<20	ng/L	20
Chrysene	<10	ng/L	10
Benzo(b)fluoranthene	<10	ng/L	10
Benzo(k)fluoranthene	<10	ng/L	10
Benzo(e)pyrene	<10	ng/L	10
Benzo(a)pyrene	<2.0	ng/L	2.0
Perylene	<10	ng/L	10
Indeno(1,2,3-cd)pyrene	<20	ng/L	20
Dibenz(a,h)anthracene	<20	ng/L	20
Benzo(g,h,i)perylene	<20	ng/L	20

Surrogates

Parameter	Units	Recovery	Control Limits
Acenaphthene-d10 (S)	%	100.8	25 - 150
Benz(a)anthracene-d12 (S)	%	103.4	25 - 150
Benzo(a)pyrene-d12 (S)	%	95.7	25 - 150
Benzo(g,h,i)perylene-d12 (S)	%	105.8	25 - 150
Fluoranthene-d10 (S)	%	101.2	25 - 150
Phenanthrene-d10 (S)	%	103.1	25 - 150

Workorder: **Chain:** L13559

QC Results

QC Batch: ORGI/2895
Preparation Method: E3488
Associated Lab IDs: 13886001

Analysis Method: E3488

Method Blank(172589)

Parameter	Result	Units	RDL
PCB4/PCB10	<2.0	ng/L	2.0
PCB6	<2.0	ng/L	2.0
PCB8	<2.0	ng/L	2.0
PCB15	<2.0	ng/L	2.0
PCB16	<2.0	ng/L	2.0
PCB18	<2.0	ng/L	2.0
PCB19	<2.0	ng/L	2.0
PCB22	<2.0	ng/L	2.0
PCB28/PCB31	<2.0	ng/L	2.0
PCB33	<2.0	ng/L	2.0
PCB37	<2.0	ng/L	2.0
PCB40	<1.0	ng/L	1.0
PCB41	<1.0	ng/L	1.0
PCB44	<1.0	ng/L	1.0
PCB49	<1.0	ng/L	1.0
PCB52	<1.0	ng/L	1.0
PCB54	<1.0	ng/L	1.0
PCB60/gamma-Chlordane	<2.0	ng/L	2.0
PCB66	<1.0	ng/L	1.0
PCB70	<1.0	ng/L	1.0
PCB74/H-epoxide	<2.0	ng/L	2.0
PCB77	<1.0	ng/L	1.0
PCB81	<1.0	ng/L	1.0
PCB84	<1.0	ng/L	1.0
PCB85	<1.0	ng/L	1.0
PCB87	<1.0	ng/L	1.0
PCB90/PCB101	<2.0	ng/L	2.0
PCB95	<1.0	ng/L	1.0
PCB97	<1.0	ng/L	1.0
PCB99	<1.0	ng/L	1.0
PCB104	<1.0	ng/L	1.0
PCB105	<1.0	ng/L	1.0
PCB110	<1.0	ng/L	1.0
PCB114/cis-Nonachlor	<2.0	ng/L	2.0
PCB118	<1.0	ng/L	1.0

Workorder: **Chain:** L13559

QC Results

QC Batch: ORGI/2895
Preparation Method: E3488
Associated Lab IDs: 13886001
Analysis Method: E3488

Parameter	Result	Units	RDL
PCB119	<1.0	ng/L	1.0
PCB123	<1.0	ng/L	1.0
PCB126	<1.0	ng/L	1.0
PCB128	<1.0	ng/L	1.0
PCB129	<1.0	ng/L	1.0
PCB135	<1.0	ng/L	1.0
PCB137	<1.0	ng/L	1.0
PCB138	<1.0	ng/L	1.0
PCB141	<1.0	ng/L	1.0
PCB149	<1.0	ng/L	1.0
PCB151	<1.0	ng/L	1.0
PCB153	<1.0	ng/L	1.0
PCB155	<1.0	ng/L	1.0
PCB156	<1.0	ng/L	1.0
PCB157	<1.0	ng/L	1.0
PCB158	<1.0	ng/L	1.0
PCB167	<1.0	ng/L	1.0
PCB168	<1.0	ng/L	1.0
PCB169	<1.0	ng/L	1.0
PCB170	<1.0	ng/L	1.0
PCB171/DMDT	<2.0	ng/L	2.0
PCB174	<1.0	ng/L	1.0
PCB177	<1.0	ng/L	1.0
PCB178	<1.0	ng/L	1.0
PCB180	<1.0	ng/L	1.0
PCB183	<1.0	ng/L	1.0
PCB187	<1.0	ng/L	1.0
PCB188	<1.0	ng/L	1.0
PCB189	<1.0	ng/L	1.0
PCB191	<1.0	ng/L	1.0
PCB193	<1.0	ng/L	1.0
PCB194	<1.0	ng/L	1.0
PCB199	<1.0	ng/L	1.0
PCB200	<1.0	ng/L	1.0
PCB201	<1.0	ng/L	1.0
PCB202	<1.0	ng/L	1.0

Workorder: **Chain:** L13559

QC Results

QC Batch: ORGI/2895
Preparation Method: E3488
Associated Lab IDs: 13886001

Analysis Method: E3488

Parameter	Result	Units	RDL
PCB203	<1.0	ng/L	1.0
PCB205	<1.0	ng/L	1.0
PCB206	<1.0	ng/L	1.0
PCB207	<1.0	ng/L	1.0
PCB208	<1.0	ng/L	1.0
PCB Total	<10	ng/L	10

Surrogates

Parameter	Units	Recovery	Control Limits
PCB209 (S)	%	108.2	50 - 150

Workorder: **Chain:** L13559

QC Results

QC Batch: TOXI/3596
Preparation Method: E3421
Associated Lab IDs: 13886001

Analysis Method: E3421

Method Blank(171721)

Parameter	Result	Units	RDL
F2 Fraction (C10 to C16)	<100	µg/L	100
F3 Fraction (C16 to C34)	<500	µg/L	500
F4 Fraction (C34 to C50)	<500	µg/L	500

Certificate of Analysis

Workorder: **Chain:** L13559

Chain of Custody

L13559

Workorder ID: December 18:Former GM Property
Submitter: Andrea Lloyd
Phone:
Lab Site: LaSB

Client: West-Central Region - Niagara District Office
Contact: Kim Groombridge
Phone: 905-323-5353
Email: kim.groombridge@ontario.ca

Laboratory Services Branch
Ministry of the Environment, Conservation and Parks
125 Resources Road
Toronto ON M9P 3V6
Phone 416 235-5743
Fax 416 235-5744

Pos	Field ID	Collection Site	Matrix	Collector	Collected		Containers										
					Date	Time	Total Number of Containers	B-126	B-149								
1	**Woodruff**		WO	Andrea Lloyd	12/18/2023	13:10	5	3	2								

Transfers	Released By	Date/Time	Received By	Date/Time
1				
2				
3				
4				
5				

Delivery Method: _____

Airbill No: _____

Chain of Custody

Ontario

L13559

Workorder ID: December 18:Former GM Property **Client:** West-Central Region - Niagara District Office

Woodruff

Special Instructions

Good flow in man hole, no abnormal odour or colour. Split PCB sample with consultant (MTE). Sample taken by Trevor Machmer. PAH3480 was preserved.

Containers

Container ID: 706823
Container Type: B-149 - BOTTLE: Clear round PET, 500mL wide mouth, 63mm unlined PP cap, w/label (cs120)
Preservative: NONE - None

Tests Requested:

DS3188 - SOLIDS; DISSOLVED ONLY

Container ID: 706824
Container Type: B-126 - BOTTLE: 1 L AMBER FLINT GLASS, Boston Round, narrow mouth, w/Teflon Lined Cap, MECP Label
Preservative: NOTES - None (Read Notes)

Tests Requested:

PAH3480 - PAHs In Water by GC/MS

Container ID: 706825
Container Type: B-126 - BOTTLE: 1 L AMBER FLINT GLASS, Boston Round, narrow mouth, w/Teflon Lined Cap, MECP Label
Preservative: NONE - None

Tests Requested:

PCBC3488 - PCBs in Water by GCxGC-ECD

Chain of Custody

Ontario

Workorder ID: December 18:Former GM Property **Client:** West-Central Region - Niagara District Office

Woodruff

Containers

Container ID:	706826		
Container Type:	B-126 - BOTTLE: 1 L AMBER FLINT GLASS, Boston Round, narrow mouth, w/Teflon Lined Cap, MECP Label	**Preservative:**	NONE - None

Tests Requested:

PHCF2X3421 - PHC F2 to F4 in water

Container ID:	706827		
Container Type:	B-149 - BOTTLE: Clear round PET, 500mL wide mouth, 63mm unlined PP cap, w/label (cs120)	**Preservative:**	NONE - None

Tests Requested:

TSD3188 - TOTAL, SUSPENDED & DISS SOL

Additional Data

Zone:	17
Northing:	43.161715
Easting:	-79.261324
NAD:	83
Location Description:	Concrete manhole chamber, second last access point before discharge