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SA10 6HJ

Attention: Scott Bowler

CERTIFICATE OF ANALYSIS

Date of report Generation:	15 February 2020
Customer:	Atkins Global Ltd
Sample Delivery Group (SDG):	200131-106
Your Reference:	
Location:	Llanwern
Report No:	541566

We received 17 samples on Friday January 31, 2020 and 17 of these samples were scheduled for analysis which was completed on Saturday February 15, 2020. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.

Incorrect sampling dates and/or sample information will affect the validity of results.

The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

Sonia McWhan

Operations Manager





CERTIFICATE OF ANALYSIS

Validated

SDG: 200131-106
Location: Llanwern

Client Reference:
Order Number: LLA711

Report Number: 541566
Superseded Report:

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
21597989	D5-C1		0.00 - 0.00	29/01/2020
21598019	D5-C2		0.00 - 0.00	29/01/2020
21597726	D5-N1		0.00 - 0.00	29/01/2020
21597965	D5-N2		0.00 - 0.00	29/01/2020
21597951	D5-N3		0.00 - 0.00	29/01/2020
21597920	D5-N4		0.00 - 0.00	29/01/2020
21598038	D5-S1		0.00 - 0.00	29/01/2020
21598056	D5-S2		0.00 - 0.00	29/01/2020
21598084	D5-S3		0.00 - 0.00	29/01/2020
21597744	D5-S4		0.00 - 0.00	29/01/2020
21597763	MD-N		0.00 - 0.00	29/01/2020
21597777	MD-S		0.00 - 0.00	29/01/2020
21597795	Pond-N		0.00 - 0.00	29/01/2020
21597814	Pond-S		0.00 - 0.00	29/01/2020
21597892	SL-N		0.00 - 0.00	29/01/2020
21597837	SL-S		0.00 - 0.00	29/01/2020
21597869	SL-W		0.00 - 0.00	29/01/2020

Maximum Sample/Coolbox Temperature (°C) :

ISO5667-3 Water quality - Sampling - Part3 -

During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

7.8

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.

21597951	D5-N3	0.00 - 0.00	H2SO4 (ALE244)	SW			
			250ml Amber Gl. PTFE/PE (ALE219)	SW			
			1lplastic (ALE221)	SW	X		
			1000ml glass bottle (ALE220)	SW			
			ZnAc (ALE246)	SW			
			Vial (ALE297)	SW		X	
			NaOH (ALE245)	SW			
			HNO3 Unfiltered (ALE204)	SW			
			HNO3 Filtered (ALE204)	SW			
			H2SO4 (ALE244)	SW			
21597965	D5-N2	0.00 - 0.00	250ml Amber Gl. PTFE/PE (ALE219)	SW			
			1lplastic (ALE221)	SW	X		
			1000ml glass bottle (ALE220)	SW			
			ZnAc (ALE246)	SW			
			Vial (ALE297)	SW			
			NaOH (ALE245)	SW			
			HNO3 Unfiltered (ALE204)	SW			
			HNO3 Filtered (ALE204)	SW			
			H2SO4 (ALE244)	SW			
			250ml Amber Gl. PTFE/PE (ALE219)	SW			
21597726	D5-N1	0.00 - 0.00	1lplastic (ALE221)	SW			
			1000ml glass bottle (ALE220)	SW			
			ZnAc (ALE246)	SW			
			Vial (ALE297)	SW			
			NaOH (ALE245)	SW			X
			HNO3 Unfiltered (ALE204)	SW			
			HNO3 Filtered (ALE204)	SW			
			H2SO4 (ALE244)	SW			
			250ml Amber Gl. PTFE/PE (ALE219)	SW			
			1lplastic (ALE221)	SW	X		



CERTIFICATE OF ANALYSIS

Validated

SDG: 200131-106
Location: Llanwern

Client Reference:
Order Number: LLA711

Report Number: 541566
Superseded Report:

Results Legend



Test


No Determination
Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)

Customer
Sample Reference

AGS Reference

Depth (m)

Container

Sample Type

Turbidity in waters

All

NDPs: 0
Tests: 17

VOC MS (W)

All

NDPs: 0
Tests: 17

21597951

D5-N3

0.00 - 0.00

1000ml glass bottle
(ALE220)

SW

21597920

D5-N4

0.00 - 0.00

1000ml glass bottle
(ALE220)

SW

21598038

D5-S1

0.00 - 0.00

1000ml glass bottle
(ALE220)

SW

HNO3 Filtered
(ALE204)

SW

H2SO4 (ALE244)

SW

250ml Amber Gl.
PTFE/PE (ALE219)

SW

1000ml glass bottle
(ALE220)

SW

1000ml glass bottle
(ALE220)

SW

1000ml glass bottle
(ALE220)

SW

1000ml glass bottle
(ALE220)

SW

1000ml glass bottle
(ALE220)

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1000ml glass bottle
(ALE220)

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1000ml glass bottle
(ALE220)

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1000ml glass bottle
(ALE220)

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1000ml glass bottle
(ALE220)

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(ALE220)

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1000ml glass bottle
(ALE220)

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1000ml glass bottle
(ALE220)

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(ALE220)

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1000ml glass bottle
(ALE220)

SW

1000ml glass bottle
(ALE220)

SW

1000ml glass bottle
(ALE220)

SW

1000ml glass bottle
(ALE220)

SW

21598084	D5-S3	0.00 - 0.00	Vial (ALE297)	SW			X
			NaOH (ALE245)	SW			
			HNO3 Unfiltered (ALE204)	SW			
			HNO3 Filtered (ALE204)	SW			
			H2SO4 (ALE244)	SW			
			250ml Amber Gl. PTFE/PE (ALE219)	SW			
			1lplastic (ALE221)	SW	X		
			0.5l glass bottle (ALE227)	SW			
			ZnAc (ALE246)	SW			
			Vial (ALE297)	SW			X
21598056	D5-S2	0.00 - 0.00	NaOH (ALE245)	SW			
			HNO3 Unfiltered (ALE204)	SW			
			HNO3 Filtered (ALE204)	SW			
			H2SO4 (ALE244)	SW			
			250ml Amber Gl. PTFE/PE (ALE219)	SW			
			1lplastic (ALE221)	SW	X		
			0.5l glass bottle (ALE227)	SW			
			ZnAc (ALE246)	SW			
			Vial (ALE297)	SW			
			NaOH (ALE245)	SW			
21598038	D5-S1	0.00 - 0.00	HNO3 Unfiltered (ALE204)	SW			
			Vial (ALE297)	SW			X
			NaOH (ALE245)	SW			
			HNO3 Unfiltered (ALE204)	SW			
			250ml Amber Gl. PTFE/PE (ALE219)	SW			
			1lplastic (ALE221)	SW			
			0.5l glass bottle (ALE227)	SW			
			ZnAc (ALE246)	SW			
			Vial (ALE297)	SW			
			NaOH (ALE245)	SW			



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Results Legend



Test


No Determination
Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
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TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
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DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)

Customer
Sample Reference

AGS Reference

Depth (m)

Container

Sample Type

Turbidity in waters

All

NDPs: 0
Tests: 17

VOC MS (W)

All

NDPs: 0
Tests: 17

21598084

D5-S3

0.00 - 0.00

ZnAc (ALE246)
Vial (ALE297)
NaOH (ALE245)
HNO3 Unfiltered (ALE204)
HNO3 Filtered (ALE204)
H2SO4 (ALE244)
250ml Amber Gl. PTFE/PE (ALE219)
11plastic (ALE221)
0.5l glass bottle (ALE227)
ZnAc (ALE246)

SW

X

21597744

D5-S4

0.00 - 0.00

ZnAc (ALE246)
Vial (ALE297)
NaOH (ALE245)
HNO3 Unfiltered (ALE204)
HNO3 Filtered (ALE204)
H2SO4 (ALE244)
250ml Amber Gl. PTFE/PE (ALE219)
11plastic (ALE221)
0.5l glass bottle (ALE227)
ZnAc (ALE246)

SW

X

21597763

MD-N

0.00 - 0.00

ZnAc (ALE246)
Vial (ALE297)
NaOH (ALE245)
HNO3 Unfiltered (ALE204)
HNO3 Filtered (ALE204)
H2SO4 (ALE244)
250ml Amber Gl. PTFE/PE (ALE219)
11plastic (ALE221)
0.5l glass bottle (ALE227)
ZnAc (ALE246)

SW

X

21597814	Pond-S		0.00 - 0.00	250ml Amber Gl. PTFE/PE (ALE219)	SW			
				1lplastic (ALE221)	SW	X		
				0.5l glass bottle (ALE227)	SW			
21597795	Pond-N		0.00 - 0.00	ZnAc (ALE246)	SW			
				Vial (ALE297)	SW		X	
				NaOH (ALE245)	SW			
				HNO3 Unfiltered (ALE204)	SW			
				HNO3 Filtered (ALE204)	SW			
				H2SO4 (ALE244)	SW			
				250ml Amber Gl. PTFE/PE (ALE219)	SW			
				1lplastic (ALE221)	SW	X		
				0.5l glass bottle (ALE227)	SW			
21597777	MD-S		0.00 - 0.00	ZnAc (ALE246)	SW			
				Vial (ALE297)	SW			X
				NaOH (ALE245)	SW			
				HNO3 Unfiltered (ALE204)	SW			
				HNO3 Filtered (ALE204)	SW			
				H2SO4 (ALE244)	SW			
				250ml Amber Gl. PTFE/PE (ALE219)	SW			
				1lplastic (ALE221)	SW	X		
				0.5l glass bottle (ALE227)	SW			



CERTIFICATE OF ANALYSIS

Validated

SDG: 200131-106
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Client Reference:
Order Number: LLA711

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Superseded Report:

Results Legend



Test


No Determination
Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)

Customer
Sample Reference

AGS Reference

Depth (m)

Container

Sample Type

Turbidity in waters

All

NDPs: 0
Tests: 17

VOC MS (W)

All

NDPs: 0
Tests: 17

21597837

SL-S

0.00 - 0.00

H2SO4 (ALE244)

SW

21597892

SL-N

0.00 - 0.00

H2SO4 (ALE244)

SW

250ml Amber Gl.
PTFE/PE (ALE219)

SW

1plastic (ALE221)

SW

0.5l glass bottle
(ALE227)

SW

ZnAc (ALE246)

SW

Vial (ALE297)

SW

NaOH (ALE245)

SW

HNO3 Unfiltered
(ALE204)

SW

HNO3 Filtered
(ALE204)

SW

H2SO4 (ALE244)

SW

250ml Amber Gl.
PTFE/PE (ALE219)

SW

1plastic (ALE221)

SW

0.5l glass bottle
(ALE227)

SW

ZnAc (ALE246)

SW

Vial (ALE297)

SW

NaOH (ALE245)

SW

HNO3 Unfiltered
(ALE204)

SW

HNO3 Filtered
(ALE204)

SW

H2SO4 (ALE244)

SW

X

X

X

X

21597869	SL-W		0.00 - 0.00	ZnAc (ALE246)	SW				
				Vial (ALE297)	SW				X
				NaOH (ALE245)	SW				
				HNO3 Unfiltered (ALE204)	SW				
				HNO3 Filtered (ALE204)	SW				
				H2SO4 (ALE244)	SW				
				250ml Amber Gl. PTFE/PE (ALE219)	SW				
				1lplastic (ALE221)	SW		X		
				0.5l glass bottle (ALE227)	SW				
				ZnAc (ALE246)	SW				
21597837	SL-S		0.00 - 0.00	Vial (ALE297)	SW				X
				NaOH (ALE245)	SW				
				HNO3 Filtered (ALE204)	SW				



CERTIFICATE OF ANALYSIS

Validated

SDG: 200131-106
Location: Llanwern

Client Reference:
Order Number: LLA711

Report Number: 541566
Superseded Report:

Results Legend			Customer Sample Ref.		D5-C1	D5-C2	D5-N1	D5-N2	D5-N3	D5-N4
#	ISO17025 accredited.		Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference		0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
M	mCERTS accredited.				Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)
sq	Aqueous / settled sample.				29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020
diss.filt	Dissolved / filtered sample.				00:00	00:00	00:00	00:00	00:00	00:00
tot.unfilt	Total / unfiltered sample.				31/01/2020	31/01/2020	31/01/2020	31/01/2020	31/01/2020	31/01/2020
*	Subcontracted - refer to subcontractor report for accreditation status.				200131-106	200131-106	200131-106	200131-106	200131-106	200131-106
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery				21597989	21598019	21597726	21597965	21597951	21597920
(F)	Trigger breach confirmed									
1-3+5@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
Suspended solids, Total	<2 mg/l	TM022			9	9	16.5	18	24	12.5
					#	#	#	#	#	#
BOD, unfiltered	<1 mg/l	TM045			1.36	1.22	1.38	1.07	1.2	1.46
					#	#	#	#	#	#
Oxygen, dissolved	<0.3 mg/l	TM046			7.82	8.81	9.11	8.45	7.9	7.53
Carbon, Organic (diss.filt)	<3 mg/l	TM090			7.44	7.31	8.13	8.14	7.54	7.35
Organic Carbon, Total	<3 mg/l	TM090			7.3	7.36	8.36	8	7.66	6.17
					#	♦ #	#	#	#	#
Ammoniacal Nitrogen as NH4	<0.3 mg/l	TM099			0.829	1.31	0.302	<0.3	0.356	1
					#	#	#	#	#	#
Sulphide	<0.01 mg/l	TM101			<0.01	<0.01	<0.01	0.0125	<0.01	<0.01
Fluoride	<0.5 mg/l	TM104			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
COD, unfiltered	<7 mg/l	TM107			12.1	12.7	<7	<7	16.6	<7
					#	#	#	#	#	#
Redox potential	mV	TM110			155	158	165	176	161	152
Conductivity @ 20 deg.C (diss.filt)	<0.014 mS/cm	TM120			0.547	0.44	0.47	0.45	0.497	0.396
Dissolved solids, Total (meter)	<5 mg/l	TM123			406	358	379	374	377	321
					#	#	#	#	#	#
Antimony (diss.filt)	<1 µg/l	TM152			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
Antimony (tot.unfilt)	<4 µg/l	TM152			<4	<4	<4	<4	<4	<4
					#	#	#	#	#	#
Arsenic (diss.filt)	<0.5 µg/l	TM152			1.03	1.49	0.872	0.621	0.711	0.966
					#	#	#	#	#	#
Arsenic (tot.unfilt)	<2 µg/l	TM152			<2	<2	<2	<2	<2	<2
					#	#	#	#	#	#
Barium (diss.filt)	<0.2 µg/l	TM152			60.9	49.9	60.1	58.9	60.3	46.7
					#	#	#	#	#	#
Barium (tot.unfilt)	<0.5 µg/l	TM152			72.6	61.5	77.6	71.9	70.6	59.4
					#	#	#	#	#	#
Beryllium (diss.filt)	<0.1 µg/l	TM152			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
					#	#	#	#	#	#
Beryllium (tot.unfilt)	<1 µg/l	TM152			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
Boron (diss.filt)	<10 µg/l	TM152			48.1	59.1	44.8	37.6	38.7	39.2
					#	#	#	#	#	#
Boron (tot.unfilt)	<20 µg/l	TM152			47.5	56.4	42.9	34.9	37.8	39.9
					#	#	#	#	#	#
Cadmium (diss.filt)	<0.08 µg/l	TM152			<0.08	<0.08	<0.08	<0.08	<0.08	<0.08
					#	#	#	#	#	#
Cadmium (tot.unfilt)	<0.5 µg/l	TM152			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
					#	#	#	#	#	#
Chromium (tot.unfilt)	<3 µg/l	TM152			<3	<3	<3	<3	<3	<3
					#	#	#	#	#	#
Chromium (diss.filt)	<1 µg/l	TM152			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
Copper (tot.unfilt)	<1 µg/l	TM152			3.12	3.16	3.72	3.88	3.78	3.1
					#	#	#	#	#	#
Lead (tot.unfilt)	<1 µg/l	TM152			<1	1.93	1.44			
					#	#	#			
Copper (diss.filt)	<0.3 µg/l	TM152			1.87	2.33	2.16	2.49	2.16	1.9
					#	#	#	#	#	#
Manganese (tot.unfilt)	<1 µg/l	TM152			73.7	57.8	76.1	67.5	67.2	40.7
					#	#	#	#	#	#
Lead (diss.filt)	<0.2 µg/l	TM152			<0.2	<0.2	0.249	<0.2	<0.2	<0.2
					#	#	#	#	#	#
Nickel (tot.unfilt)	<1 µg/l	TM152			2.22	2.23	2.74	2.82	2.55	2.39
					#	#	#	#	#	#
Manganese (diss.filt)	<3 µg/l	TM152			59.4	40.8	61.2	56.1	48.6	22.5
					#	#	#	#	#	#



CERTIFICATE OF ANALYSIS

Validated

SDG: 200131-106
Location: Llanwern

Client Reference:
Order Number: LLA711

Report Number: 541566
Superseded Report:

Results Legend			Customer Sample Ref. Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	D5-C1	D5-C2	D5-N1	D5-N2	D5-N3	D5-N4
#	ISO17025 accredited.			0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
M	mCERTS accredited.			Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)
aq	Aqueous / settled sample.			29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020
diss.filt	Dissolved / filtered sample.			00:00	00:00	00:00	00:00	00:00	00:00
tot.unfilt	Total / unfiltered sample.			31/01/2020	31/01/2020	31/01/2020	31/01/2020	31/01/2020	31/01/2020
*	Subcontracted - refer to subcontractor report for accreditation status.			200131-106	200131-106	200131-106	200131-106	200131-106	200131-106
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery			21597989	21598019	21597726	21597965	21597951	21597920
(F)	Trigger breach confirmed								
1-3*5@	Sample deviation (see appendix)								
Component	LOD/Units	Method							
Phosphorus (tot.unfilt)	<20 µg/l	TM152	110	86.9	132	140	120	58.5	
			#	#	#	#	#	#	
Selenium (tot.unfilt)	<1 µg/l	TM152	1.25	1.57	<1	<1	1.04	1.47	
			#	#	#	#	#	#	
Nickel (diss.filt)	<0.4 µg/l	TM152	1.63	1.47	1.87	1.79	1.91	1.76	
			#	#	#	#	#	#	
Phosphorus (diss.filt)	<10 µg/l	TM152	42.8	37.2	56.8	70.6	46.6	14.2	
			#	#	#	#	#	#	
Selenium (diss.filt)	<1 µg/l	TM152	<1	1.31	<1	<1	<1	<1	
			#	#	#	#	#	#	
Vanadium (tot.unfilt)	<5 µg/l	TM152	7.09	12.5	<5	<5	<5	6.85	
			#	#	#	#	#	#	
Zinc (tot.unfilt)	<5 µg/l	TM152	17.9	19.3	18.9	17.9	11.6	20.2	
			#	#	#	#	#	#	
Vanadium (diss.filt)	<1 µg/l	TM152	5.7	10.9	3.68	2.31	2.54	5.43	
			#	#	#	#	#	#	
Zinc (diss.filt)	<1 µg/l	TM152	3.48	3.02	4.03	3.95	3.39	1.8	
			#	#	#	#	#	#	
Lead (tot.unfilt)	<0.001 mg/l	TM152				0.0012	<0.001	<0.001	
						#	#	#	
Magnesium (Dis.Filt)	<0.036 mg/l	TM152	8.82	6.43	8.9	8.62	8.5	7.15	
			#	#	#	#	#	#	
Calcium (Dis.Filt)	<0.2 mg/l	TM152	87.8	71.3	83.9	81.8	81.1	60.2	
			#	#	#	#	#	#	
Iron (Dis.Filt)	<0.019 mg/l	TM152	0.0396	0.0381	0.0559	0.0654	0.0597	0.0216	
			#	#	#	#	#	#	
Hardness, Total as CaCO3	<0.65 mg/l	TM152	256	205	246	240	238	180	
Magnesium (Tot. Unfilt.)	<0.05 mg/l	TM152	8.82	6.51	8.96	8.52	8.5	7.21	
			#	#	#	#	#	#	
Calcium (Tot. Unfilt.)	<0.057 mg/l	TM152	94	76.6	88.8	85.6	86.6	65.8	
			#	#	#	#	#	#	
Iron (Tot. Unfilt.)	<0.024 mg/l	TM152	0.584	0.468	0.889	0.968	0.746	0.357	
			#	#	#	#	#	#	
Naphthalene (diss.filt)	<0.01 µg/l	TM178	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
			♦	♦	♦	♦	♦	♦	
Acenaphthene (diss.filt)	<0.005 µg/l	TM178	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
			♦	♦	♦	♦	♦	♦	
Acenaphthylene (diss.filt)	<0.005 µg/l	TM178	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
			♦	♦	♦	♦	♦	♦	
Fluoranthene (diss.filt)	<0.005 µg/l	TM178	<0.005	<0.005	0.00718	0.0058	<0.005	<0.005	
			♦	♦	♦	♦	♦	♦	
Anthracene (diss.filt)	<0.005 µg/l	TM178	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
			♦	♦	♦	♦	♦	♦	
Phenanthrene (diss.filt)	<0.005 µg/l	TM178	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
			♦	♦	♦	♦	♦	♦	
Fluorene (diss.filt)	<0.005 µg/l	TM178	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
			♦	♦	♦	♦	♦	♦	
Chrysene (diss.filt)	<0.005 µg/l	TM178	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
			♦	♦	♦	♦	♦	♦	
Pyrene (diss.filt)	<0.005 µg/l	TM178	0.00901	0.0125	0.0113	0.00912	0.01	0.0215	
			♦	♦	♦	♦	♦	♦	
Benzo(a)anthracene (diss.filt)	<0.005 µg/l	TM178	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
			♦	♦	♦	♦	♦	♦	
Benzo(b)fluoranthene (diss.filt)	<0.005 µg/l	TM178	<0.005	<0.005	0.00665	<0.005	<0.005	<0.005	
			♦	♦	♦	♦	♦	♦	
Benzo(k)fluoranthene (diss.filt)	<0.005 µg/l	TM178	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
			♦	♦	♦	♦	♦	♦	
Benzo(a)pyrene (diss.filt)	<0.002 µg/l	TM178	<0.002	<0.002	0.00374	<0.002	<0.002	<0.002	
			♦	♦	♦	♦	♦	♦	
Dibenzo(a,h)anthracene (diss.filt)	<0.005 µg/l	TM178	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
			♦	♦	♦	♦	♦	♦	
Benzo(g,h,i)perylene (diss.filt)	<0.005 µg/l	TM178	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
			♦	♦	♦	♦	♦	♦	



CERTIFICATE OF ANALYSIS

Validated

SDG: 200131-106
Location: Llanwern

Client Reference:
Order Number: LLA711

Report Number: 541566
Superseded Report:

Results Legend			Customer Sample Ref.		D5-S1	D5-S2	D5-S3	D5-S4	MD-N	MD-S
#	ISO17025 accredited.		Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference		0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
M	mCERTS accredited.				Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)
sq	Aqueous / settled sample.				29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020
diss.filt	Dissolved / filtered sample.				00:00	00:00	00:00	00:00	00:00	00:00
tot.unfilt	Total / unfiltered sample.				31/01/2020	31/01/2020	31/01/2020	31/01/2020	31/01/2020	31/01/2020
*	Subcontracted - refer to subcontractor report for accreditation status.				200131-106	200131-106	200131-106	200131-106	200131-106	200131-106
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery				21598038	21598056	21598084	21597744	21597763	21597777
(F)	Trigger breach confirmed									
1-3*5@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
Suspended solids, Total	<2 mg/l	TM022			6.05	5	4	3.5	11	11.7
					#	#	#	#	#	#
BOD, unfiltered	<1 mg/l	TM045			1.22	1.35	<1	<1	<1	<1
					#	#	#	#	#	#
Oxygen, dissolved	<0.3 mg/l	TM046			8.29	7.38	8.75	9.64	10.5	10.1
Carbon, Organic (diss.filt)	<3 mg/l	TM090			7.02	7.67	6.75	7.57	5.18	3.77
Organic Carbon, Total	<3 mg/l	TM090			6.88	6.77	6.45	6.85	3.12	<3
					◆ #	◆ #	#	#	#	#
Ammoniacal Nitrogen as NH4	<0.3 mg/l	TM099			1.84	1.84	0.572	0.459	<0.3	<0.3
					#	#	#	#	#	#
Sulphide	<0.01 mg/l	TM101			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluoride	<0.5 mg/l	TM104			0.606	0.604	0.548	0.58	<0.5	<0.5
COD, unfiltered	<7 mg/l	TM107			19.6	15.2	<7	13.7	<7	<7
					#	#	#	#	#	#
Redox potential	mV	TM110			189	179	174	174	151	149
Conductivity @ 20 deg.C (diss.filt)	<0.014 mS/cm	TM120			0.439	0.428	0.462	0.476	0.395	0.379
Dissolved solids, Total (meter)	<5 mg/l	TM123			347	353	383	381	312	304
					#	#	#	#	#	#
Antimony (diss.filt)	<1 µg/l	TM152			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
Antimony (tot.unfilt)	<4 µg/l	TM152			<4	<4	<4	<4	<4	<4
					#	#	#	#	#	#
Arsenic (diss.filt)	<0.5 µg/l	TM152			2.21	1.97	1.7	1.79	0.542	<0.5
					#	#	#	#	#	#
Arsenic (tot.unfilt)	<2 µg/l	TM152			2.64	2.77	2.16	2.17	<2	<2
					#	#	#	#	#	#
Barium (diss.filt)	<0.2 µg/l	TM152			40.9	39.9	42.3	41.7	95.4	91.6
					#	#	#	#	#	#
Barium (tot.unfilt)	<0.5 µg/l	TM152			50.5	49.7	50.2	49.3	112	109
					#	#	#	#	#	#
Beryllium (diss.filt)	<0.1 µg/l	TM152			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
					#	#	#	#	#	#
Beryllium (tot.unfilt)	<1 µg/l	TM152			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
Boron (diss.filt)	<10 µg/l	TM152			72.3	75.3	76	79.5	18.7	17.9
					#	#	#	#	#	#
Boron (tot.unfilt)	<20 µg/l	TM152			71.8	72	73.5	80.5	25.3	<20
					#	#	#	#	#	#
Cadmium (diss.filt)	<0.08 µg/l	TM152			<0.08	<0.08	<0.08	<0.08	<0.08	<0.08
					#	#	#	#	#	#
Cadmium (tot.unfilt)	<0.5 µg/l	TM152			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
					#	#	#	#	#	#
Chromium (tot.unfilt)	<3 µg/l	TM152			<3	<3	<3	<3	<3	<3
					#	#	#	#	#	#
Chromium (diss.filt)	<1 µg/l	TM152			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
Copper (tot.unfilt)	<1 µg/l	TM152			3.09	3.09	2.89	2.93	2.04	2.1
					#	#	#	#	#	#
Lead (tot.unfilt)	<1 µg/l	TM152				2.01		1.29		1.43
						#		#		#
Copper (diss.filt)	<0.3 µg/l	TM152			2.3	2.14	2.13	2.38	0.863	0.931
					#	#	#	#	#	#
Manganese (tot.unfilt)	<1 µg/l	TM152			46.3	43.1	43.6	44.6	63.6	64.1
					#	#	#	#	#	#
Lead (diss.filt)	<0.2 µg/l	TM152			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
					#	#	#	#	#	#
Nickel (tot.unfilt)	<1 µg/l	TM152			2.25	2.19	1.88	2.08	1.23	1.58
					#	#	#	#	#	#
Manganese (diss.filt)	<3 µg/l	TM152			19.1	17.5	24.6	29	40.1	40
					#	#	#	#	#	#



CERTIFICATE OF ANALYSIS

Validated

SDG: 200131-106
Location: Llanwern

Client Reference:
Order Number: LLA711

Report Number: 541566
Superseded Report:

Results Legend			Customer Sample Ref.	D5-S1	D5-S2	D5-S3	D5-S4	MD-N	MD-S	
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference		0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
M	mCERTS accredited.			Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)
aq	Aqueous / settled sample.			29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020
diss.filt	Dissolved / filtered sample.			00:00	00:00	00:00	00:00	00:00	00:00	00:00
tot.unfilt	Total / unfiltered sample.			31/01/2020	31/01/2020	31/01/2020	31/01/2020	31/01/2020	31/01/2020	31/01/2020
*	Subcontracted - refer to subcontractor report for accreditation status.			200131-106	200131-106	200131-106	200131-106	200131-106	200131-106	200131-106
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery			21598038	21598056	21598084	21597744	21597763	21597777	
(F)	Trigger breach confirmed									
1-3*5@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
Phosphorus (tot.unfilt)	<20 µg/l	TM152	51.7	49.7	54.4	50.7	80.9	87.9		
			#	#	#	#	#	#		
Selenium (tot.unfilt)	<1 µg/l	TM152	1.73	2	1.54	1.51	<1	<1		
			#	#	#	#	#	#		
Nickel (diss.filt)	<0.4 µg/l	TM152	1.67	1.75	1.51	1.78	0.423	0.507		
			#	#	#	#	#	#		
Phosphorus (diss.filt)	<10 µg/l	TM152	30	26.8	26.5	30.7	47.3	46.1		
			#	#	#	#	#	#		
Selenium (diss.filt)	<1 µg/l	TM152	1.87	1.52	1.17	1.3	<1	<1		
			#	#	#	#	#	#		
Vanadium (tot.unfilt)	<5 µg/l	TM152	19.6	19	15	15.8	<5	<5		
			#	#	#	#	#	#		
Zinc (tot.unfilt)	<5 µg/l	TM152	221	13.2	12.5	10.3	12.6	15.3		
			#	#	#	#	#	#		
Vanadium (diss.filt)	<1 µg/l	TM152	17.5	17.4	12.8	14.9	<1	<1		
			#	#	#	#	#	#		
Zinc (diss.filt)	<1 µg/l	TM152	1.86	1.98	1.1	2.07	1.53	1.37		
			#	#	#	#	#	#		
Lead (tot.unfilt)	<0.001 mg/l	TM152	0.00219		0.00153		0.00168			
			#		#		#			
Magnesium (Dis.Filt)	<0.036 mg/l	TM152	4.44	4.38	5.77	5.7	12.3	12.2		
			#	#	#	#	#	#		
Calcium (Dis.Filt)	<0.2 mg/l	TM152	62.5	58.9	73.3	72.1	58	57		
			#	#	#	#	#	#		
Iron (Dis.Filt)	<0.019 mg/l	TM152	0.0449	0.0401	0.0312	0.0337	0.0263	0.0202		
			#	#	#	#	#	#		
Hardness, Total as CaCO3	<0.65 mg/l	TM152	175	165	207	204	196	193		
Magnesium (Tot. Unfilt.)	<0.05 mg/l	TM152	4.59	4.63	5.8	5.6	12.3	12.1		
			#	#	#	#	#	#		
Calcium (Tot. Unfilt.)	<0.057 mg/l	TM152	68.1	67.3	75.4	75.2	60.6	59		
			#	#	#	#	#	#		
Iron (Tot. Unfilt.)	<0.024 mg/l	TM152	0.32	0.291	0.315	0.262	0.439	0.508		
			#	#	#	#	#	#		
Naphthalene (diss.filt)	<0.01 µg/l	TM178	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		
			♦	♦	♦	♦		♦		
Acenaphthene (diss.filt)	<0.005 µg/l	TM178	<0.005	<0.005	<0.005	<0.005	0.00595	<0.005		
			♦	♦	♦	♦		♦		
Acenaphthylene (diss.filt)	<0.005 µg/l	TM178	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		
			♦	♦	♦	♦		♦		
Fluoranthene (diss.filt)	<0.005 µg/l	TM178	<0.005	<0.005	<0.005	<0.005	0.00616	<0.005		
			♦	♦	♦	♦		♦		
Anthracene (diss.filt)	<0.005 µg/l	TM178	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		
			♦	♦	♦	♦		♦		
Phenanthrene (diss.filt)	<0.005 µg/l	TM178	<0.005	<0.005	<0.005	<0.005	0.00649	<0.005		
			♦	♦	♦	♦		♦		
Fluorene (diss.filt)	<0.005 µg/l	TM178	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		
			♦	♦	♦	♦		♦		
Chrysene (diss.filt)	<0.005 µg/l	TM178	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		
			♦	♦	♦	♦		♦		
Pyrene (diss.filt)	<0.005 µg/l	TM178	0.0169	0.0164	0.0136	0.0113	0.00532	<0.005		
			♦	♦	♦	♦		♦		
Benzo(a)anthracene (diss.filt)	<0.005 µg/l	TM178	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		
			♦	♦	♦	♦		♦		
Benzo(b)fluoranthene (diss.filt)	<0.005 µg/l	TM178	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		
			♦	♦	♦	♦		♦		
Benzo(k)fluoranthene (diss.filt)	<0.005 µg/l	TM178	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		
			♦	♦	♦	♦		♦		
Benzo(a)pyrene (diss.filt)	<0.002 µg/l	TM178	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002		
			♦	♦	♦	♦		♦		
Dibenzo(a,h)anthracene (diss.filt)	<0.005 µg/l	TM178	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		
			♦	♦	♦	♦		♦		
Benzo(g,h,i)perylene (diss.filt)	<0.005 µg/l	TM178	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		
			♦	♦	♦	♦		♦		



CERTIFICATE OF ANALYSIS

Validated

SDG: 200131-106
Location: Llanwern

Client Reference:
Order Number: LLA711

Report Number: 541566
Superseded Report:

Results Legend			Customer Sample Ref.		Pond-N	Pond-S	SL-N	SL-S	SL-W	
#	ISO17025 accredited.		Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference		0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	
M	mCERTS accredited.				Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	
sq	Aqueous / settled sample.				29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020	
diss.filt	Dissolved / filtered sample.				00:00	00:00	00:00	00:00	00:00	
tot.unfilt	Total / unfiltered sample.				31/01/2020	31/01/2020	31/01/2020	31/01/2020	31/01/2020	
*	Subcontracted - refer to subcontractor report for accreditation status.				200131-106	200131-106	200131-106	200131-106	200131-106	
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery				21597795	21597814	21597892	21597837	21597869	
(F)	Trigger breach confirmed									
1-3+5@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
Suspended solids, Total	<2 mg/l	TM022			6	4.25	8.05	11.5	10.6	
					#	#	#	#	#	
BOD, unfiltered	<1 mg/l	TM045			2.45	1.47	1.86	1.71	1.71	
					#	#	#	#	#	
Oxygen, dissolved	<0.3 mg/l	TM046			9.35	10.2	10.1	9.81	10.3	
Carbon, Organic (diss.filt)	<3 mg/l	TM090			8.18	6.47	8.11	9.13	8.08	
Organic Carbon, Total	<3 mg/l	TM090			8.59	7.24	8.23	8.92	8.55	
					#	◆ #	#	◆ #	#	
Ammoniacal Nitrogen as NH4	<0.3 mg/l	TM099			<0.3	<0.3	3.51	3.57	3.51	
					#	#	#	#	#	
Sulphide	<0.01 mg/l	TM101			<0.01	<0.01	0.0195	0.0129	0.0206	
Fluoride	<0.5 mg/l	TM104			<0.5	0.826	0.932	0.926	0.917	
COD, unfiltered	<7 mg/l	TM107			<7	<7	21.6	11.9	22.9	
					#	#	#	#	#	
Redox potential	mV	TM110			169	168	158	150	160	
Conductivity @ 20 deg.C (diss.filt)	<0.014 mS/cm	TM120			0.531	0.524	0.781	0.784	0.825	
Dissolved solids, Total (meter)	<5 mg/l	TM123			452	421	631	640	674	
					#	#	#	#	#	
Antimony (diss.filt)	<1 µg/l	TM152			<1	<1	<1	<1	<1	
					#	#	#	#	#	
Antimony (tot.unfilt)	<4 µg/l	TM152			<4	<4	<4	<4	<4	
					#	#	#	2 #	#	
Arsenic (diss.filt)	<0.5 µg/l	TM152			0.608	0.647	3.33	3.25	3.22	
					#	#	#	#	#	
Arsenic (tot.unfilt)	<2 µg/l	TM152			<2	<2	3.75	3.1	3.7	
					#	#	#	2 #	#	
Barium (diss.filt)	<0.2 µg/l	TM152			48.3	40.8	55.5	56.4	55.6	
					#	#	#	#	#	
Barium (tot.unfilt)	<0.5 µg/l	TM152			55.2	47.3	62.8	61.3	63.8	
					#	#	#	2 #	#	
Beryllium (diss.filt)	<0.1 µg/l	TM152			<0.1	<0.1	<0.1	<0.1	<0.1	
					#	#	#	#	#	
Beryllium (tot.unfilt)	<1 µg/l	TM152			<1	<1	<1	<1	<1	
					#	#	#	2 #	#	
Boron (diss.filt)	<10 µg/l	TM152			121	165	51.5	51.4	53.8	
					#	#	#	#	#	
Boron (tot.unfilt)	<20 µg/l	TM152			119	157	49.6	47.8	49.2	
					#	#	#	2 #	#	
Cadmium (diss.filt)	<0.08 µg/l	TM152			<0.08	<0.08	<0.08	<0.08	<0.08	
					#	#	#	#	#	
Cadmium (tot.unfilt)	<0.5 µg/l	TM152			<0.5	<0.5	<0.5	<0.5	<0.5	
					#	#	#	2 #	#	
Chromium (tot.unfilt)	<3 µg/l	TM152			<3	<3	<3	<3	<3	
					#	#	#	2 #	#	
Chromium (diss.filt)	<1 µg/l	TM152			<1	<1	<1	<1	<1	
					#	#	#	#	#	
Copper (tot.unfilt)	<1 µg/l	TM152			<1	<1	1.72	1.73	1.59	
					#	#	#	2 #	#	
Lead (tot.unfilt)	<1 µg/l	TM152			1.75	5.46				
					#	#				
Copper (diss.filt)	<0.3 µg/l	TM152			0.36	<0.3	1.34	1.47	1.86	
					#	#	#	#	#	
Manganese (tot.unfilt)	<1 µg/l	TM152			104	256	7.59	2.46	2.45	
					#	#	#	2 #	#	
Lead (diss.filt)	<0.2 µg/l	TM152			0.201	1.05	<0.2	<0.2	<0.2	
					#	#	#	#	#	
Nickel (tot.unfilt)	<1 µg/l	TM152			1.09	<1	6.19	5.96	6.01	
					#	#	#	2 #	#	
Manganese (diss.filt)	<3 µg/l	TM152			75.4	210	<3	<3	<3	
					#	#	#	#	#	



CERTIFICATE OF ANALYSIS

Validated

SDG: 200131-106
Location: Llanwern

Client Reference:
Order Number: LLA711

Report Number: 541566
Superseded Report:

Results Legend			Customer Sample Ref.		Pond-N	Pond-S	SL-N	SL-S	SL-W	
#	ISO17025 accredited.		Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference		0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	
M	mCERTS accredited.				Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	
aq	Aqueous / settled sample.				29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020	
diss.filt	Dissolved / filtered sample.				00:00	00:00	00:00	00:00	00:00	
tot.unfilt	Total / unfiltered sample.				31/01/2020	31/01/2020	31/01/2020	31/01/2020	31/01/2020	
*	Subcontracted - refer to subcontractor report for accreditation status.				200131-106	200131-106	200131-106	200131-106	200131-106	
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery				21597795	21597814	21597892	21597837	21597869	
(F)	Trigger breach confirmed									
1-3*5@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
Phosphorus (tot.unfilt)	<20 µg/l	TM152			55.7	25.8	<20	<20	<20	
					#	#	#	2 #	#	
Selenium (tot.unfilt)	<1 µg/l	TM152			<1	<1	2.75	2.55	2.87	
					#	#	#	2 #	#	
Nickel (diss.filt)	<0.4 µg/l	TM152			0.777	0.955	5.27	5.67	5.21	
					#	#	#	#	#	
Phosphorus (diss.filt)	<10 µg/l	TM152			13.2	12.3	<10	<10	<10	
					#	#	#	#	#	
Selenium (diss.filt)	<1 µg/l	TM152			<1	<1	2.14	2.39	2.25	
					#	#	#	#	#	
Vanadium (tot.unfilt)	<5 µg/l	TM152			<5	<5	16.1	15	15.9	
					#	#	#	2 #	#	
Zinc (tot.unfilt)	<5 µg/l	TM152			31.7	13.7	5.48	<5	5.49	
					#	#	#	2 #	#	
Vanadium (diss.filt)	<1 µg/l	TM152			<1	<1	15.5	14.9	15.4	
					#	#	#	#	#	
Zinc (diss.filt)	<1 µg/l	TM152			1.23	2.05	<1	<1	<1	
					#	#	#	#	#	
Lead (tot.unfilt)	<0.001 mg/l	TM152					0.00119	<0.001	<0.001	
							#	2 #	#	
Magnesium (Dis.Filt)	<0.036 mg/l	TM152			16.5	20.4	0.188	0.213	0.203	
					#	#	#	#	#	
Calcium (Dis.Filt)	<0.2 mg/l	TM152			81.1	64.2	86.6	87.5	87.4	
					#	#	#	#	#	
Iron (Dis.Filt)	<0.019 mg/l	TM152			0.0398	0.0442	<0.019	<0.019	<0.019	
					#	#	#	#	#	
Hardness, Total as CaCO3	<0.65 mg/l	TM152			271	244	217	220	219	
Magnesium (Tot. Unfilt.)	<0.05 mg/l	TM152			16.5	20.2	0.274	0.259	0.263	
					#	#	#	2 #	#	
Calcium (Tot. Unfilt.)	<0.057 mg/l	TM152			84.9	66.5	94.6	86.4	92.3	
					#	#	#	2 #	#	
Iron (Tot. Unfilt.)	<0.024 mg/l	TM152			0.314	0.426	0.194	0.0792	0.0847	
					#	#	#	2 #	#	
Naphthalene (diss.filt)	<0.01 µg/l	TM178			<0.01	<0.01	0.146	0.166	0.153	
					♦	♦	♦	♦	♦	
Acenaphthene (diss.filt)	<0.005 µg/l	TM178			0.0113	0.0141	0.0631	0.0774	0.0648	
					♦	♦	♦	♦	♦	
Acenaphthylene (diss.filt)	<0.005 µg/l	TM178			<0.005	<0.005	0.0164	0.0187	0.0178	
					♦	♦	♦	♦	♦	
Fluoranthene (diss.filt)	<0.005 µg/l	TM178			<0.005	<0.005	0.0371	0.0419	0.0361	
					♦	♦	♦	♦	♦	
Anthracene (diss.filt)	<0.005 µg/l	TM178			<0.005	<0.005	0.0113	0.0121	0.00965	
					♦	♦	♦	♦	♦	
Phenanthrene (diss.filt)	<0.005 µg/l	TM178			0.00782	0.00924	0.114	0.125	0.111	
					♦	♦	♦	♦	♦	
Fluorene (diss.filt)	<0.005 µg/l	TM178			<0.005	0.00611	0.0373	0.0408	0.0363	
					♦	♦	♦	♦	♦	
Chrysene (diss.filt)	<0.005 µg/l	TM178			<0.005	<0.005	<0.005	<0.005	<0.005	
					♦	♦	♦	♦	♦	
Pyrene (diss.filt)	<0.005 µg/l	TM178			<0.005	<0.005	0.0198	0.0217	0.0175	
					♦	♦	♦	♦	♦	
Benzo(a)anthracene (diss.filt)	<0.005 µg/l	TM178			<0.005	<0.005	<0.005	<0.005	<0.005	
					♦	♦	♦	♦	♦	
Benzo(b)fluoranthene (diss.filt)	<0.005 µg/l	TM178			<0.005	<0.005	<0.005	<0.005	<0.005	
					♦	♦	♦	♦	♦	
Benzo(k)fluoranthene (diss.filt)	<0.005 µg/l	TM178			<0.005	<0.005	<0.005	<0.005	<0.005	
					♦	♦	♦	♦	♦	
Benzo(a)pyrene (diss.filt)	<0.002 µg/l	TM178			<0.002	<0.002	<0.002	<0.002	<0.002	
					♦	♦	♦	♦	♦	
Dibenzo(a,h)anthracene (diss.filt)	<0.005 µg/l	TM178			<0.005	<0.005	<0.005	<0.005	<0.005	
					♦	♦	♦	♦	♦	
Benzo(g,h,i)perylene (diss.filt)	<0.005 µg/l	TM178			<0.005	<0.005	<0.005	<0.005	<0.005	
					♦	♦	♦	♦	♦	

SDG:	200131-106
Location:	Llanwern

Client Reference:
Order Number: LLA711

Report Number: 541566
Superseded Report:

PAH Spec MS - Aqueous (W)

[illegible]



CERTIFICATE OF ANALYSIS

Validated

SDG: 200131-106
Location: Llanwern

Client Reference:
Order Number: LLA711

Report Number: 541566
Superseded Report:

SVOC MS (W) - Aqueous

Results Legend			Customer Sample Ref.	D5-C1	D5-C2	D5-N1	D5-N2	D5-N3	D5-N4
#	ISO17025 accredited.	mCERTS accredited.							
M	Aqueous / settled sample.		Depth (m)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
dis.filt	Dissolved / filtered sample.		Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)
tot.unfilt	Total / unfiltered sample.		Date Sampled	29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020
*	Subcontracted - refer to subcontractor report for accreditation status.		Sample Time	00:00	00:00	00:00	00:00	00:00	00:00
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery		Date Received	31/01/2020	31/01/2020	31/01/2020	31/01/2020	31/01/2020	31/01/2020
(F)	Trigger breach confirmed		SDG Ref	200131-106	200131-106	200131-106	200131-106	200131-106	200131-106
1-3+5@	Sample deviation (see appendix)		Lab Sample No.(s)	21597989	21598019	21597726	21597965	21597951	21597920
	AGS Reference								
Component	LOD/Units	Method							
1,2,4-Trichlorobenzene (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
1,2-Dichlorobenzene (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
1,3-Dichlorobenzene (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
1,4-Dichlorobenzene (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
2,4,5-Trichlorophenol (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
2,4,6-Trichlorophenol (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
2,4-Dichlorophenol (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
2,4-Dimethylphenol (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
2,4-Dinitrotoluene (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
2,6-Dinitrotoluene (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
2-Chloronaphthalene (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
2-Chlorophenol (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
2-Methylnaphthalene (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
2-Methylphenol (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
2-Nitroaniline (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
2-Nitrophenol (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
3-Nitroaniline (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
4-Bromophenylphenylether (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
4-Chloro-3-methylphenol (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
4-Chloroaniline (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
4-Chlorophenylphenylether (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
4-Methylphenol (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
4-Nitroaniline (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
4-Nitrophenol (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
Azobenzene (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
bis(2-Chloroethyl)ether (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
bis(2-Chloroethoxy)methane (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
bis(2-Ethylhexyl) phthalate (aq)	<2 µg/l	TM176		<2	<2	<2	<2	<2	<2
				#	#	#	#	#	#
Butylbenzyl phthalate (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
Benzo(k)fluoranthene (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
Carbazole (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
Dibenzofuran (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
n-Dibutyl phthalate (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#



CERTIFICATE OF ANALYSIS

Validated

SDG: 200131-106
Location: Llanwern

Client Reference:
Order Number: LLA711

Report Number: 541566
Superseded Report:

SVOC MS (W) - Aqueous

Results Legend			Customer Sample Ref.	D5-S1	D5-S2	D5-S3	D5-S4	MD-N	MD-S
#	ISO17025 accredited.	mCERTS accredited.							
M	Aqueous / settled sample.		Depth (m)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
dis.filt	Dissolved / filtered sample.		Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)
tot.unfilt	Total / unfiltered sample.		Date Sampled	29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020
*	Subcontracted - refer to subcontractor report for accreditation status.		Sample Time	00:00	00:00	00:00	00:00	00:00	00:00
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery		Date Received	31/01/2020	31/01/2020	31/01/2020	31/01/2020	31/01/2020	31/01/2020
(F)	Trigger breach confirmed		SDG Ref	200131-106	200131-106	200131-106	200131-106	200131-106	200131-106
1-3+5@	Sample deviation (see appendix)		Lab Sample No.(s)	21598038	21598056	21598084	21597744	21597763	21597777
	AGS Reference								
Component	LOD/Units	Method							
1,2,4-Trichlorobenzene (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	◆ #
1,2-Dichlorobenzene (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	◆ #
1,3-Dichlorobenzene (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	◆ #
1,4-Dichlorobenzene (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	◆ #
2,4,5-Trichlorophenol (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	◆ #
2,4,6-Trichlorophenol (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	◆ #
2,4-Dichlorophenol (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	◆ #
2,4-Dimethylphenol (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	◆ #
2,4-Dinitrotoluene (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	◆ #
2,6-Dinitrotoluene (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	◆ #
2-Chloronaphthalene (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	◆ #
2-Chlorophenol (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	◆ #
2-Methylnaphthalene (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	◆ #
2-Methylphenol (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	◆ #
2-Nitroaniline (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	◆ #
2-Nitrophenol (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	◆ #
3-Nitroaniline (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	◆ #
4-Bromophenylphenylether (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	◆ #
4-Chloro-3-methylphenol (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	◆ #
4-Chloroaniline (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
4-Chlorophenylphenylether (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	◆ #
4-Methylphenol (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	◆ #
4-Nitroaniline (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	◆ #
4-Nitrophenol (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
Azobenzene (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	◆ #
bis(2-Chloroethyl)ether (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	◆ #
bis(2-Chloroethoxy)methane (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	◆ #
bis(2-Ethylhexyl) phthalate (aq)	<2 µg/l	TM176		<2	<2	<2	<2	<2	<2
				#	#	#	#	#	◆ #
Butylbenzyl phthalate (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	◆ #
Benzo(k)fluoranthene (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	◆ #
Carbazole (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	◆ #
Dibenzofuran (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	◆ #
n-Dibutyl phthalate (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	◆ #

13:52:25 15/02/2020



CERTIFICATE OF ANALYSIS

Validated

SDG: 200131-106
Location: Llanwern

Client Reference:
Order Number: LLA711

Report Number: 541566
Superseded Report:

SVOC MS (W) - Aqueous

Results Legend			Customer Sample Ref.	Pond-N	Pond-S	SL-N	SL-S	SL-W	
#	ISO17025 accredited.	mCERTS accredited.							
M	Aqueous / settled sample.		Depth (m)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	
aq	Disolved / filtered sample.		Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	
dis.filt	Total / unfiltered sample.		Date Sampled	29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020	
tot.unfilt	Subcontracted - refer to subcontractor report for accreditation status.		Sample Time	00:00	00:00	00:00	00:00	00:00	
*	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery		Date Received	31/01/2020	31/01/2020	31/01/2020	31/01/2020	31/01/2020	
**	Trigger breach confirmed		SDG Ref	200131-106	200131-106	200131-106	200131-106	200131-106	
(F)	Sample deviation (see appendix)		Lab Sample No.(s)	21597795	21597814	21597892	21597837	21597869	
1-3+5@			AGS Reference						
Component	LOD/Units	Method							
1,2,4-Trichlorobenzene (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	
				#	#	#	◆ #	◆ #	
1,2-Dichlorobenzene (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	
				#	#	#	◆ #	◆ #	
1,3-Dichlorobenzene (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	
				#	#	#	◆ #	◆ #	
1,4-Dichlorobenzene (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	
				#	#	#	◆ #	◆ #	
2,4,5-Trichlorophenol (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	
				#	#	#	◆ #	◆ #	
2,4,6-Trichlorophenol (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	
				#	#	#	◆ #	◆ #	
2,4-Dichlorophenol (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	
				#	#	#	◆ #	◆ #	
2,4-Dimethylphenol (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	
				#	#	#	◆ #	◆ #	
2,4-Dinitrotoluene (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	
				#	#	#	◆ #	◆ #	
2,6-Dinitrotoluene (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	
				#	#	#	◆ #	◆ #	
2-Chloronaphthalene (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	
				#	#	#	◆ #	◆ #	
2-Chlorophenol (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	
				#	#	#	◆ #	◆ #	
2-Methylnaphthalene (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	
				#	#	#	◆ #	◆ #	
2-Methylphenol (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	
				#	#	#	◆ #	◆ #	
2-Nitroaniline (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	
				#	#	#	◆ #	◆ #	
2-Nitrophenol (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	
				#	#	#	◆ #	◆ #	
3-Nitroaniline (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	
				#	#	#	◆ #	◆ #	
4-Bromophenylphenylether (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	
				#	#	#	◆ #	◆ #	
4-Chloro-3-methylphenol (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	
				#	#	#	◆ #	◆ #	
4-Chloroaniline (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	
4-Chlorophenylphenylether (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	
				#	#	#	◆ #	◆ #	
4-Methylphenol (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	
				#	#	#	◆ #	◆ #	
4-Nitroaniline (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	
				#	#	#	◆ #	◆ #	
4-Nitrophenol (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	
Azobenzene (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	
				#	#	#	◆ #	◆ #	
bis(2-Chloroethyl)ether (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	
				#	#	#	◆ #	◆ #	
bis(2-Chloroethoxy)methane (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	
				#	#	#	◆ #	◆ #	
bis(2-Ethylhexyl) phthalate (aq)	<2 µg/l	TM176		<2	<2	<2	<2	<2	
				#	#	#	◆ #	◆ #	
Butylbenzyl phthalate (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	
				#	#	#	◆ #	◆ #	
Benzo(k)fluoranthene (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	
				#	#	#	◆ #	◆ #	
Carbazole (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	
				#	#	#	◆ #	◆ #	
Dibenzofuran (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	
				#	#	#	◆ #	◆ #	
n-Dibutyl phthalate (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	
				#	#	#	◆ #	◆ #	



CERTIFICATE OF ANALYSIS

Validated

SDG: 200131-106
Location: Llanwrn

Client Reference:
Order Number: LLA711

Report Number: 541566
Superseded Report:

TPH CWG (W)

Results Legend			Customer Sample Ref.		D5-C1	D5-C2	D5-N1	D5-N2	D5-N3	D5-N4
#	ISO17025 accredited.		Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	TM245	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
M	mCERES accredited.				Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)
sq	Aqueous / settled sample.				29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020
dis.filt	Dissolved / filtered sample.				00:00	00:00	00:00	00:00	00:00	00:00
tot.unfilt	Total / unfiltered sample.				31/01/2020	31/01/2020	31/01/2020	31/01/2020	31/01/2020	31/01/2020
*	Subcontracted - refer to subcontractor report for accreditation status.				200131-106	200131-106	200131-106	200131-106	200131-106	200131-106
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery				21597989	21598019	21597726	21597965	21597951	21597920
(F)	Trigger breach confirmed									
1-3+5@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
GRO Surrogate % recovery**	%	TM245			103	112	106	104	104	104
GRO >C5-C12	<50 µg/l	TM245			<50	<50	<50	<50	<50	<50
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245			<3	<3	<3	<3	<3	<3
Benzene	<7 µg/l	TM245			<7	<7	<7	<7	<7	<7
Toluene	<4 µg/l	TM245			<4	<4	<4	<4	<4	<4
Ethylbenzene	<5 µg/l	TM245			<5	<5	<5	<5	<5	<5
m,p-Xylene	<8 µg/l	TM245			<8	<8	<8	<8	<8	<8
o-Xylene	<3 µg/l	TM245			<3	<3	<3	<3	<3	<3
Sum of detected Xylenes	<11 µg/l	TM245			<11	<11	<11	<11	<11	<11
Sum of detected BTEX	<28 µg/l	TM245			<28	<28	<28	<28	<28	<28
Aliphatics >C5-C6	<10 µg/l	TM245			<10	<10	<10	<10	<10	<10
Aliphatics >C6-C8	<10 µg/l	TM245			<10	<10	<10	<10	<10	<10
Aliphatics >C8-C10	<10 µg/l	TM245			<10	<10	<10	<10	<10	<10
Aliphatics >C10-C12	<10 µg/l	TM245			<10	<10	<10	<10	<10	<10
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174			<10	<10	<10	<10	<10	<10
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174			<10	<10	<10	<10	<10	<10
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174			<10	<10	<10	<10	<10	<10
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174			<10	<10	<10	<10	<10	<10
Aromatics >EC5-EC7	<10 µg/l	TM245			<10	<10	<10	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/l	TM245			<10	<10	<10	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/l	TM245			<10	<10	<10	<10	<10	<10
Aromatics >EC10-EC12	<10 µg/l	TM245			<10	<10	<10	<10	<10	<10
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174			<10	<10	<10	<10	<10	<10
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174			<10	<10	<10	<10	<10	<10
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174			<10	<10	<10	<10	<10	<10
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174			<10	<10	<10	<10	<10	<10
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174			<10	<10	<10	<10	<10	<10
Aliphatics >C16-C35 Aqueous	<10 µg/l	TM174			<10	<10	<10	<10	<10	<10



CERTIFICATE OF ANALYSIS

Validated

SDG: 200131-106
Location: Llanwrn

Client Reference:
Order Number: LLA711

Report Number: 541566
Superseded Report:

TPH CWG (W)

Results Legend			Customer Sample Ref.		D5-S1	D5-S2	D5-S3	D5-S4	MD-N	MD-S
#	ISO17025 accredited.		Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference		0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
M	mCERTS accredited.				Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)
sq	Aqueous / settled sample.				29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020
dis.filt	Dissolved / filtered sample.				00:00	00:00	00:00	00:00	00:00	00:00
tot.unfilt	Total / unfiltered sample.				31/01/2020	31/01/2020	31/01/2020	31/01/2020	31/01/2020	31/01/2020
*	Subcontracted - refer to subcontractor report for accreditation status.				200131-106	200131-106	200131-106	200131-106	200131-106	200131-106
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery				21598038	21598056	21598084	21597744	21597763	21597777
(F)	Trigger breach confirmed									
1-3+5@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
GRO Surrogate % recovery**	%	TM245			105	117	107	112	115	101
GRO >C5-C12	<50 µg/l	TM245			<50	<50	<50	<50	<50	<50
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245			<3	<3	<3	<3	<3	<3
Benzene	<7 µg/l	TM245			<7	<7	<7	<7	<7	<7
Toluene	<4 µg/l	TM245			<4	<4	<4	<4	<4	<4
Ethylbenzene	<5 µg/l	TM245			<5	<5	<5	<5	<5	<5
m,p-Xylene	<8 µg/l	TM245			<8	<8	<8	<8	<8	<8
o-Xylene	<3 µg/l	TM245			<3	<3	<3	<3	<3	<3
Sum of detected Xylenes	<11 µg/l	TM245			<11	<11	<11	<11	<11	<11
Sum of detected BTEX	<28 µg/l	TM245			<28	<28	<28	<28	<28	<28
Aliphatics >C5-C6	<10 µg/l	TM245			<10	<10	<10	<10	<10	<10
Aliphatics >C6-C8	<10 µg/l	TM245			<10	<10	<10	<10	<10	<10
Aliphatics >C8-C10	<10 µg/l	TM245			<10	<10	<10	<10	<10	<10
Aliphatics >C10-C12	<10 µg/l	TM245			<10	<10	<10	<10	<10	<10
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174			<10	<10	<10	<10	<10	<10
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174			<10	<10	<10	<10	<10	<10
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174			<10	<10	<10	<10	<10	<10
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174			<10	<10	<10	<10	<10	<10
Aromatics >EC5-EC7	<10 µg/l	TM245			<10	<10	<10	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/l	TM245			<10	<10	<10	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/l	TM245			<10	<10	<10	<10	<10	<10
Aromatics >EC10-EC12	<10 µg/l	TM245			<10	<10	<10	<10	<10	<10
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174			<10	<10	<10	<10	<10	<10
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174			<10	<10	<10	<10	<10	<10
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174			<10	<10	<10	<10	<10	<10
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174			<10	<10	<10	<10	<10	<10
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174			<10	<10	<10	<10	<10	<10
Aliphatics >C16-C35 Aqueous	<10 µg/l	TM174			<10	<10	<10	<10	<10	<10



CERTIFICATE OF ANALYSIS

Validated

SDG: 200131-106
Location: Llanwern

Client Reference:
Order Number: LLA711

Report Number: 541566
Superseded Report:

TPH CWG (W)

Results Legend			Customer Sample Ref.	Pond-N	Pond-S	SL-N	SL-S	SL-W	
#	ISO17025 accredited.								
M	mCERTS accredited.								
aq	Aqueous / settled sample.								
dis.filt	Dissolved / filtered sample.								
tot.unfilt	Total / unfiltered sample.								
*	Subcontracted - refer to subcontractor report for accreditation status.								
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery								
(F)	Trigger breach confirmed								
1-3*5@	Sample deviation (see appendix)								
Component	LOD/Units	Method	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference						
GRO Surrogate % recovery**	%	TM245		0.00 - 0.00 Surface Water (SW) 29/01/2020 00:00 31/01/2020 200131-106 21597795	0.00 - 0.00 Surface Water (SW) 29/01/2020 00:00 31/01/2020 200131-106 21597814	0.00 - 0.00 Surface Water (SW) 29/01/2020 00:00 31/01/2020 200131-106 21597892	0.00 - 0.00 Surface Water (SW) 29/01/2020 00:00 31/01/2020 200131-106 21597837	0.00 - 0.00 Surface Water (SW) 29/01/2020 00:00 31/01/2020 200131-106 21597869	
				113	107	119	102	116	
GRO >C5-C12	<50 µg/l	TM245		<50	<50	<50	<50	<50	
				#	#	#	3 #	#	
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245		<3	<3	<3	<3	<3	
				#	#	#	3 #	#	
Benzene	<7 µg/l	TM245		<7	<7	<7	<7	<7	
				#	#	#	3 #	#	
Toluene	<4 µg/l	TM245		<4	<4	<4	<4	<4	
				#	#	#	3 #	#	
Ethylbenzene	<5 µg/l	TM245		<5	<5	<5	<5	<5	
				#	#	#	3 #	#	
m,p-Xylene	<8 µg/l	TM245		<8	<8	<8	<8	<8	
				#	#	#	3 #	#	
o-Xylene	<3 µg/l	TM245		<3	<3	<3	<3	<3	
				#	#	#	3 #	#	
Sum of detected Xylenes	<11 µg/l	TM245		<11	<11	<11	<11	<11	
							3		
Sum of detected BTEX	<28 µg/l	TM245		<28	<28	<28	<28	<28	
							3		
Aliphatics >C5-C6	<10 µg/l	TM245		<10	<10	<10	<10	<10	
							3		
Aliphatics >C6-C8	<10 µg/l	TM245		<10	<10	<10	<10	<10	
							3		
Aliphatics >C8-C10	<10 µg/l	TM245		<10	<10	<10	<10	<10	
							3		
Aliphatics >C10-C12	<10 µg/l	TM245		<10	<10	<10	<10	<10	
							3		
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	
Aromatics >EC5-EC7	<10 µg/l	TM245		<10	<10	<10	<10	<10	
							3		
Aromatics >EC7-EC8	<10 µg/l	TM245		<10	<10	<10	<10	<10	
							3		
Aromatics >EC8-EC10	<10 µg/l	TM245		<10	<10	<10	<10	<10	
							3		
Aromatics >EC10-EC12	<10 µg/l	TM245		<10	<10	<10	<10	<10	
							3		
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	
Aliphatics >C16-C35 Aqueous	<10 µg/l	TM174		<10	<10	<10	<10	<10	



CERTIFICATE OF ANALYSIS

Validated

SDG: 200131-106
Location: Llanwern

Client Reference:
Order Number: LLA711

Report Number: 541566
Superseded Report:

VOC MS (W)

Results Legend			Customer Sample Ref.		D5-C1	D5-C2	D5-N1	D5-N2	D5-N3	D5-N4
#	ISO17025 accredited.		Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference		0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
M	mCERTS accredited.				Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)
sq	Aqueous / settled sample.				29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020
dis.filt	Dissolved / filtered sample.				00:00	00:00	00:00	00:00	00:00	00:00
tot.unfilt	Total / unfiltered sample.				31/01/2020	31/01/2020	31/01/2020	31/01/2020	31/01/2020	31/01/2020
*	Subcontracted - refer to subcontractor report for accreditation status.				200131-106	200131-106	200131-106	200131-106	200131-106	200131-106
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery				21597989	21598019	21597726	21597965	21597951	21597920
(F)	Trigger breach confirmed									
1-3*§@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
Dibromofluoromethane**	%	TM208			116	112	114	118	116	113
Toluene-d8**	%	TM208			99	96.9	99.9	97.7	99.6	99.4
4-Bromofluorobenzene**	%	TM208			97.4	95.8	98.6	97.5	97	97.8
Dichlorodifluoromethane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
Chloromethane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
Vinyl chloride	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
Bromomethane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
Chloroethane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
Trichlorofluoromethane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
Carbon disulphide	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
Dichloromethane	<3 µg/l	TM208			<3	<3	<3	<3	<3	<3
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
trans-1,2-Dichloroethene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
2,2-Dichloropropane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
Bromochloromethane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
Chloroform	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
1,1,1-Trichloroethane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
1,1-Dichloropropene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
Carbontetrachloride	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
Benzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
Trichloroethene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
1,2-Dichloropropane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
Dibromomethane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
Bromodichloromethane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
cis-1,3-Dichloropropene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
Toluene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
trans-1,3-Dichloropropene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
1,3-Dichloropropane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1



CERTIFICATE OF ANALYSIS

Validated

SDG: 200131-106
Location: Llanwrn

Client Reference:
Order Number: LLA711

Report Number: 541566
Superseded Report:

VOC MS (W)

Results Legend			Customer Sample Ref.	D5-C1	D5-C2	D5-N1	D5-N2	D5-N3	D5-N4
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference		0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
M	mCERTS accredited.			Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)
aq	Aqueous / settled sample.			29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020
diss.filt	Dissolved / filtered sample.			00:00	00:00	00:00	00:00	00:00	00:00
tot.unfilt	Total / unfiltered sample.			31/01/2020	31/01/2020	31/01/2020	31/01/2020	31/01/2020	31/01/2020
*	Subcontracted - refer to subcontractor report for accreditation status.			200131-106	200131-106	200131-106	200131-106	200131-106	200131-106
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery			21597989	21598019	21597726	21597965	21597951	21597920
(F)	Trigger breach confirmed								
1-3*5@	Sample deviation (see appendix)								
Component	LOD/Units	Method							
Tetrachloroethene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
Dibromochloromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
1,2-Dibromoethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
Chlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
1,1,1,2-Tetrachloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
Ethylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
m,p-Xylene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
o-Xylene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
Styrene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
Bromoform	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
Isopropylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
1,1,2,2-Tetrachloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
1,2,3-Trichloropropane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
Bromobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
Propylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
2-Chlorotoluene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
1,3,5-Trimethylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
4-Chlorotoluene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
tert-Butylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
1,2,4-Trimethylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
sec-Butylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
4-iso-Propyltoluene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
1,3-Dichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
1,4-Dichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
n-Butylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
1,2-Dichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
1,2-Dibromo-3-chloropropane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
1,2,4-Trichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
Hexachlorobutadiene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
tert-Amyl methyl ether (TAME)	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
Naphthalene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
1,2,3-Trichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#



CERTIFICATE OF ANALYSIS

Validated

SDG: 200131-106
Location: Llanwern

Client Reference:
Order Number: LLA711

Report Number: 541566
Superseded Report:

VOC MS (W)

Results Legend			Customer Sample Ref.		D5-S1	D5-S2	D5-S3	D5-S4	MD-N	MD-S
#	ISO17025 accredited.		Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference		0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
M	mCERTS accredited.				Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)
sq	Aqueous / settled sample.				29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020
dis.filt	Dissolved / filtered sample.				00:00	00:00	00:00	00:00	00:00	00:00
tot.unfilt	Total / unfiltered sample.				31/01/2020	31/01/2020	31/01/2020	31/01/2020	31/01/2020	31/01/2020
*	Subcontracted - refer to subcontractor report for accreditation status.				200131-106	200131-106	200131-106	200131-106	200131-106	200131-106
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery				21598038	21598056	21598084	21597744	21597763	21597777
(F)	Trigger breach confirmed									
1-3*§@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
Dibromofluoromethane**	%	TM208			113	109	115	112	111	109
Toluene-d8**	%	TM208			98.6	97	99	100	99.8	97.6
4-Bromofluorobenzene**	%	TM208			97.1	96.9	96.8	97.7	98.6	96.6
Dichlorodifluoromethane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
Chloromethane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
Vinyl chloride	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
Bromomethane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
Chloroethane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
Trichlorofluoromethane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
Carbon disulphide	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
Dichloromethane	<3 µg/l	TM208			<3	<3	<3	<3	<3	<3
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
trans-1,2-Dichloroethene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
2,2-Dichloropropane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
Bromochloromethane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
Chloroform	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
1,1,1-Trichloroethane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
1,1-Dichloropropene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
Carbontetrachloride	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
Benzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
Trichloroethene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
1,2-Dichloropropane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
Dibromomethane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
Bromodichloromethane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
cis-1,3-Dichloropropene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
Toluene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
trans-1,3-Dichloropropene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
1,3-Dichloropropane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1

13:52:25 15/02/2020



CERTIFICATE OF ANALYSIS

Validated

SDG: 200131-106
Location: Llanwern

Client Reference:
Order Number: LLA711

Report Number: 541566
Superseded Report:

VOC MS (W)

Results Legend			Customer Sample Ref.	D5-S1	D5-S2	D5-S3	D5-S4	MD-N	MD-S	
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference		0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
M	mCERTS accredited.			Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)
aq	Aqueous / settled sample.			29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020
diss.filt	Dissolved / filtered sample.			00:00	00:00	00:00	00:00	00:00	00:00	00:00
tot.unfilt	Total / unfiltered sample.			31/01/2020	31/01/2020	31/01/2020	31/01/2020	31/01/2020	31/01/2020	31/01/2020
*	Subcontracted - refer to subcontractor report for accreditation status.			200131-106	200131-106	200131-106	200131-106	200131-106	200131-106	200131-106
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery			21598038	21598056	21598084	21597744	21597763	21597777	
(F)	Trigger breach confirmed									
1-3*5@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
Tetrachloroethene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	#	
Dibromochloromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	#	
1,2-Dibromoethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	#	
Chlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	#	
1,1,1,2-Tetrachloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	#	
Ethylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	#	
m,p-Xylene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	#	
o-Xylene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	#	
Styrene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	#	
Bromoform	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	#	
Isopropylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	#	
1,1,2,2-Tetrachloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	#	
1,2,3-Trichloropropane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	#	
Bromobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	#	
Propylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	#	
2-Chlorotoluene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	#	
1,3,5-Trimethylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	#	
4-Chlorotoluene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	#	
tert-Butylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	#	
1,2,4-Trimethylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	#	
sec-Butylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	#	
4-iso-Propyltoluene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	#	
1,3-Dichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	#	
1,4-Dichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	#	
n-Butylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	#	
1,2-Dichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	#	
1,2-Dibromo-3-chloropropane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
1,2,4-Trichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	#	
Hexachlorobutadiene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	#	
tert-Amyl methyl ether (TAME)	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	#	
Naphthalene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	#	
1,2,3-Trichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	#	



CERTIFICATE OF ANALYSIS

Validated

SDG: 200131-106
Location: Llanwern

Client Reference:
Order Number: LLA711

Report Number: 541566
Superseded Report:

VOC MS (W)

Results Legend			Customer Sample Ref.		Pond-N	Pond-S	SL-N	SL-S	SL-W	
#	ISO17025 accredited.		Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference		0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	
M	mCERTS accredited.				Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	
sq	Aqueous / settled sample.				29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020	
dis.filt	Dissolved / filtered sample.				00:00	00:00	00:00	00:00	00:00	
tot.unfilt	Total / unfiltered sample.				31/01/2020	31/01/2020	31/01/2020	31/01/2020	31/01/2020	
*	Subcontracted - refer to subcontractor report for accreditation status.				200131-106	200131-106	200131-106	200131-106	200131-106	
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery				21597795	21597814	21597892	21597837	21597869	
(F)	Trigger breach confirmed									
1-3*§@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
Dibromofluoromethane**	%	TM208			110	110	31.8	54.6	84.2	
Toluene-d8**	%	TM208			97.6	98.2	99.4	99	100	
4-Bromofluorobenzene**	%	TM208			97.3	96.8	97.8	98.6	102	
Dichlorodifluoromethane	<1 µg/l	TM208			<1	<1	<1	<1	<1	
Chloromethane	<1 µg/l	TM208			<1	<1	<1	<1	<1	
Vinyl chloride	<1 µg/l	TM208			<1	<1	<1	<1	<1	
Bromomethane	<1 µg/l	TM208			<1	<1	<1	<1	<1	
Chloroethane	<1 µg/l	TM208			<1	<1	<1	<1	<1	
Trichlorofluoromethane	<1 µg/l	TM208			<1	<1	<1	<1	<1	
1,1-Dichloroethene	<1 µg/l	TM208			<1	<1	<1	<1	<1	
Carbon disulphide	<1 µg/l	TM208			<1	<1	<1	<1	<1	
Dichloromethane	<3 µg/l	TM208			<3	<3	<3	<3	<3	
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208			<1	<1	<1	<1	<1	
trans-1,2-Dichloroethene	<1 µg/l	TM208			<1	<1	<1	<1	<1	
1,1-Dichloroethane	<1 µg/l	TM208			<1	<1	<1	<1	<1	
cis-1,2-Dichloroethene	<1 µg/l	TM208			<1	<1	<1	<1	<1	
2,2-Dichloropropane	<1 µg/l	TM208			<1	<1	<1	<1	<1	
Bromochloromethane	<1 µg/l	TM208			<1	<1	<1	<1	<1	
Chloroform	<1 µg/l	TM208			<1	<1	<1	<1	<1	
1,1,1-Trichloroethane	<1 µg/l	TM208			<1	<1	<1	<1	<1	
1,1-Dichloropropene	<1 µg/l	TM208			<1	<1	<1	<1	<1	
Carbontetrachloride	<1 µg/l	TM208			<1	<1	<1	<1	<1	
1,2-Dichloroethane	<1 µg/l	TM208			<1	<1	<1	<1	<1	
Benzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	
Trichloroethene	<1 µg/l	TM208			<1	<1	<1	<1	<1	
1,2-Dichloropropane	<1 µg/l	TM208			<1	<1	<1	<1	<1	
Dibromomethane	<1 µg/l	TM208			<1	<1	<1	<1	<1	
Bromodichloromethane	<1 µg/l	TM208			<1	<1	<1	<1	<1	
cis-1,3-Dichloropropene	<1 µg/l	TM208			<1	<1	<1	<1	<1	
Toluene	<1 µg/l	TM208			<1	<1	<1	<1	<1	
trans-1,3-Dichloropropene	<1 µg/l	TM208			<1	<1	<1	<1	<1	
1,1,2-Trichloroethane	<1 µg/l	TM208			<1	<1	<1	<1	<1	
1,3-Dichloropropane	<1 µg/l	TM208			<1	<1	<1	<1	<1	



CERTIFICATE OF ANALYSIS

Validated

SDG: 200131-106
Location: Llanwern

Client Reference:
Order Number: LLA711

Report Number: 541566
Superseded Report:

VOC MS (W)

Results Legend		Customer Sample Ref.	Pond-N	Pond-S	SL-N	SL-S	SL-W	
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	
M	mCERTS accredited.		Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	
aq	Aqueous / settled sample.		29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020	
diss.filt	Dissolved / filtered sample.		00:00	00:00	00:00	00:00	00:00	
tot.unfilt	Total / unfiltered sample.		31/01/2020	31/01/2020	31/01/2020	31/01/2020	31/01/2020	
*	Subcontracted - refer to subcontractor report for accreditation status.		200131-106	200131-106	200131-106	200131-106	200131-106	
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery		21597795	21597814	21597892	21597837	21597869	
(F)	Trigger breach confirmed							
1-3*5@	Sample deviation (see appendix)							
Component	LOD/Units	Method						
Tetrachloroethene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
			#	#	#	#	#	
Dibromochloromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
			#	#	#	#	#	
1,2-Dibromoethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
			#	#	#	#	#	
Chlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
			#	#	#	#	#	
1,1,1,2-Tetrachloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
			#	#	#	#	#	
Ethylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
			#	#	#	#	#	
m,p-Xylene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
			#	#	#	#	#	
o-Xylene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
			#	#	#	#	#	
Styrene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
			#	#	#	#	#	
Bromoform	<1 µg/l	TM208	<1	<1	<1	<1	<1	
			#	#	#	#	#	
Isopropylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
			#	#	#	#	#	
1,1,2,2-Tetrachloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
			#	#	#	#	#	
1,2,3-Trichloropropane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
			#	#	#	#	#	
Bromobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
			#	#	#	#	#	
Propylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
			#	#	#	#	#	
2-Chlorotoluene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
			#	#	#	#	#	
1,3,5-Trimethylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
			#	#	#	#	#	
4-Chlorotoluene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
			#	#	#	#	#	
tert-Butylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
			#	#	#	#	#	
1,2,4-Trimethylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
			#	#	#	#	#	
sec-Butylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
			#	#	#	#	#	
4-iso-Propyltoluene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
			#	#	#	#	#	
1,3-Dichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
			#	#	#	#	#	
1,4-Dichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
			#	#	#	#	#	
n-Butylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
			#	#	#	#	#	
1,2-Dichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
			#	#	#	#	#	
1,2-Dibromo-3-chloropropane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,2,4-Trichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
			#	#	#	#	#	
Hexachlorobutadiene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
			#	#	#	#	#	
tert-Amyl methyl ether (TAME)	<1 µg/l	TM208	<1	<1	<1	<1	<1	
			#	#	#	#	#	
Naphthalene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
			#	#	#	#	#	
1,2,3-Trichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
			#	#	#	#	#	



CERTIFICATE OF ANALYSIS

Validated

SDG: 200131-106
Location: Llanwern

Client Reference:
Order Number: LLA711

Report Number: 541566
Superseded Report:

Table of Results - Appendix

Method No	Reference	Description
TM022	Method 2540D, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part120 1981;BS EN 872	Determination of total suspended solids in waters
TM045	MEWAM BOD5 2nd Ed.HMSO 1988 / Method 5210B, AWWA/APHA, 20th Ed., 1999; SCA Blue Book 130	Determination of BOD5 (ATU) Filtered by Oxygen Meter on liquids
TM046	Method 4500G, AWWA/APHA, 20th Ed., 1999	Measurement of Dissolved Oxygen by Oxygen Meter
TM090	Method 5310, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 415.1 & 9060	Determination of Total Organic Carbon/Total Inorganic Carbon in Water and Waste Water
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM101	Method 4500B & C, AWWA/APHA, 20th Ed., 1999	Determination of Sulphide in soil and water samples using the Kone Analyser
TM104	Method 4500F, AWWA/APHA, 20th Ed., 1999	Determination of Fluoride using the Kone Analyser
TM107	ISO 6060-1989	Determination of Chemical Oxygen Demand using COD Dr Lange Kit
TM110	BS 1377: Part 3 1990	Redox Potential
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter
TM123	BS 2690: Part 121:1981	The Determination of Total Dissolved Solids in Water
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS
TM174	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Waters by GC-FID
TM176	EPA 8270D Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of SVOCs in Water by GCMS
TM178	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM195	Colour and Turbidity of water. Methods for the Examination of Waters and Associated Materials. HMSO, 1981, ISBN 0 11 751955 3.	Determination of Turbidity in Waters & Associated Matrices
TM208	Modified: US EPA Method 8260b & 624	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters
TM227	Standard methods for the examination of waters and wastewaters 20th Edition, AWWA/APHA Method 4500.	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate
TM228	US EPA Method 6010B	Determination of Major Cations in Water by iCap 6500 Duo ICP-OES
TM241	Methods for the Examination of Waters and Associated Materials; Chromium in Raw and Potable Waters and Sewage Effluents 1980.	The Determination of Hexavalent Chromium in Waters and Leachates using the Kone Analyser
TM245	By GC-FID	Determination of GRO by Headspace in waters
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter
TM259	by HPLC	Determination of Phenols in Waters and Leachates by HPLC

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).



CERTIFICATE OF ANALYSIS

Validated

SDG: 200131-106
Location: Llanwern

Client Reference:
Order Number: LLA711

Report Number: 541566
Superseded Report:

Test Completion Dates

Lab Sample No(s)
Customer Sample Ref.

AGS Ref.
Depth
Type

	21597989	21598019	21597726	21597965	21597951	21597920	21598038	21598056	21598084	21597744
	D5-C1	D5-C2	D5-N1	D5-N2	D5-N3	D5-N4	D5-S1	D5-S2	D5-S3	D5-S4
	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Ammoniacal Nitrogen	05-Feb-2020	05-Feb-2020	05-Feb-2020	05-Feb-2020	05-Feb-2020	05-Feb-2020	05-Feb-2020	05-Feb-2020	05-Feb-2020	05-Feb-2020
Anions by Kone (w)	08-Feb-2020	08-Feb-2020	08-Feb-2020	08-Feb-2020	08-Feb-2020	08-Feb-2020	08-Feb-2020	08-Feb-2020	08-Feb-2020	08-Feb-2020
BOD True Total	06-Feb-2020	06-Feb-2020	06-Feb-2020	06-Feb-2020	06-Feb-2020	06-Feb-2020	06-Feb-2020	06-Feb-2020	06-Feb-2020	06-Feb-2020
COD Unfiltered	09-Feb-2020	09-Feb-2020	09-Feb-2020	09-Feb-2020	09-Feb-2020	09-Feb-2020	09-Feb-2020	09-Feb-2020	09-Feb-2020	09-Feb-2020
Conductivity (at 20 deg.C)	07-Feb-2020	07-Feb-2020	07-Feb-2020	07-Feb-2020	07-Feb-2020	07-Feb-2020	07-Feb-2020	07-Feb-2020	07-Feb-2020	07-Feb-2020
Cyanide Comp/Free/Total/Thiocyanate	10-Feb-2020	11-Feb-2020	12-Feb-2020	11-Feb-2020	10-Feb-2020	11-Feb-2020	11-Feb-2020	12-Feb-2020	11-Feb-2020	10-Feb-2020
Dissolved Metals by ICP-MS	10-Feb-2020	11-Feb-2020	11-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020	11-Feb-2020	11-Feb-2020	11-Feb-2020	11-Feb-2020
Dissolved Organic/Inorganic Carbon	08-Feb-2020	09-Feb-2020	08-Feb-2020	08-Feb-2020	08-Feb-2020	08-Feb-2020	08-Feb-2020	09-Feb-2020	08-Feb-2020	09-Feb-2020
Dissolved Oxygen by Probe	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020
EPH CWG (Aliphatic) Aqueous GC (W)	13-Feb-2020	13-Feb-2020	13-Feb-2020	13-Feb-2020	13-Feb-2020	13-Feb-2020	15-Feb-2020	13-Feb-2020	13-Feb-2020	13-Feb-2020
EPH CWG (Aromatic) Aqueous GC (W)	13-Feb-2020	13-Feb-2020	13-Feb-2020	13-Feb-2020	13-Feb-2020	13-Feb-2020	15-Feb-2020	13-Feb-2020	13-Feb-2020	13-Feb-2020
Fluoride	04-Feb-2020	04-Feb-2020	04-Feb-2020	04-Feb-2020	04-Feb-2020	04-Feb-2020	04-Feb-2020	04-Feb-2020	04-Feb-2020	04-Feb-2020
GRO by GC-FID (W)	07-Feb-2020	11-Feb-2020	07-Feb-2020	07-Feb-2020	07-Feb-2020	07-Feb-2020	07-Feb-2020	07-Feb-2020	07-Feb-2020	07-Feb-2020
Hexavalent Chromium (w)	04-Feb-2020	04-Feb-2020	04-Feb-2020	07-Feb-2020	07-Feb-2020	07-Feb-2020	04-Feb-2020	04-Feb-2020	04-Feb-2020	07-Feb-2020
Mercury Dissolved	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020
Mercury Unfiltered	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020
PAH in waters by GC-MS (diss.filt)	11-Feb-2020	11-Feb-2020	11-Feb-2020	11-Feb-2020	11-Feb-2020	11-Feb-2020	11-Feb-2020	11-Feb-2020	11-Feb-2020	11-Feb-2020
PAH Spec MS - Aqueous (W)	11-Feb-2020	11-Feb-2020	11-Feb-2020	11-Feb-2020	11-Feb-2020	11-Feb-2020	11-Feb-2020	11-Feb-2020	11-Feb-2020	11-Feb-2020
pH Value	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020
Phenols by HPLC (W)	07-Feb-2020	07-Feb-2020	07-Feb-2020	07-Feb-2020	07-Feb-2020	07-Feb-2020	07-Feb-2020	07-Feb-2020	06-Feb-2020	06-Feb-2020
Phosphate by Kone (w)	03-Feb-2020	03-Feb-2020	03-Feb-2020	03-Feb-2020	03-Feb-2020	03-Feb-2020	03-Feb-2020	03-Feb-2020	03-Feb-2020	03-Feb-2020
Redox Potential	06-Feb-2020	06-Feb-2020	06-Feb-2020	06-Feb-2020	06-Feb-2020	06-Feb-2020	06-Feb-2020	06-Feb-2020	06-Feb-2020	06-Feb-2020
Sulphide	03-Feb-2020	04-Feb-2020	04-Feb-2020	04-Feb-2020	04-Feb-2020	04-Feb-2020	04-Feb-2020	04-Feb-2020	04-Feb-2020	03-Feb-2020
Sulphur Dissolved by ICP-OES	05-Feb-2020	10-Feb-2020	10-Feb-2020	05-Feb-2020	10-Feb-2020	10-Feb-2020	05-Feb-2020	05-Feb-2020	05-Feb-2020	05-Feb-2020
Suspended Solids	05-Feb-2020	04-Feb-2020	04-Feb-2020	03-Feb-2020	04-Feb-2020	05-Feb-2020	06-Feb-2020	05-Feb-2020	05-Feb-2020	05-Feb-2020
SVOC MS (W) - Aqueous	05-Feb-2020	05-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020
Total Dissolved Solids	05-Feb-2020	05-Feb-2020	05-Feb-2020	05-Feb-2020	05-Feb-2020	05-Feb-2020	05-Feb-2020	05-Feb-2020	05-Feb-2020	05-Feb-2020
Total Metals by ICP-MS	06-Feb-2020	06-Feb-2020	06-Feb-2020	06-Feb-2020	06-Feb-2020	06-Feb-2020	06-Feb-2020	06-Feb-2020	06-Feb-2020	06-Feb-2020
Total Organic and Inorganic Carbon	05-Feb-2020	06-Feb-2020	05-Feb-2020	05-Feb-2020	05-Feb-2020	05-Feb-2020	06-Feb-2020	06-Feb-2020	05-Feb-2020	05-Feb-2020
TPH CWG (W)	13-Feb-2020	13-Feb-2020	13-Feb-2020	13-Feb-2020	13-Feb-2020	13-Feb-2020	15-Feb-2020	13-Feb-2020	13-Feb-2020	13-Feb-2020
Turbidity in waters	03-Feb-2020	03-Feb-2020	03-Feb-2020	03-Feb-2020	03-Feb-2020	03-Feb-2020	03-Feb-2020	03-Feb-2020	03-Feb-2020	03-Feb-2020
VOC MS (W)	07-Feb-2020	06-Feb-2020	07-Feb-2020	07-Feb-2020	07-Feb-2020	07-Feb-2020	07-Feb-2020	06-Feb-2020	07-Feb-2020	07-Feb-2020



CERTIFICATE OF ANALYSIS

Validated

SDG: 200131-106
Location: Llanwern

Client Reference:
Order Number: LLA711

Report Number: 541566
Superseded Report:

Lab Sample No(s)
Customer Sample Ref.

AGS Ref.
Depth
Type

	21597763	21597777	21597795	21597814	21597892	21597837	21597869
	MD-N	MD-S	Pond-N	Pond-S	SL-N	SL-S	SL-W
	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Ammoniacal Nitrogen	05-Feb-2020	05-Feb-2020	05-Feb-2020	05-Feb-2020	05-Feb-2020	05-Feb-2020	05-Feb-2020
Anions by Kone (w)	08-Feb-2020	08-Feb-2020	07-Feb-2020	08-Feb-2020	08-Feb-2020	07-Feb-2020	08-Feb-2020
BOD True Total	06-Feb-2020	06-Feb-2020	06-Feb-2020	06-Feb-2020	06-Feb-2020	06-Feb-2020	06-Feb-2020
COD Unfiltered	09-Feb-2020	09-Feb-2020	09-Feb-2020	09-Feb-2020	09-Feb-2020	09-Feb-2020	09-Feb-2020
Conductivity (at 20 deg.C)	07-Feb-2020	07-Feb-2020	07-Feb-2020	07-Feb-2020	07-Feb-2020	07-Feb-2020	07-Feb-2020
Cyanide Comp/Free/Total/Thiocyanate	11-Feb-2020	11-Feb-2020	10-Feb-2020	12-Feb-2020	11-Feb-2020	11-Feb-2020	11-Feb-2020
Dissolved Metals by ICP-MS	11-Feb-2020	11-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020
Dissolved Organic/Inorganic Carbon	09-Feb-2020	09-Feb-2020	08-Feb-2020	08-Feb-2020	08-Feb-2020	09-Feb-2020	08-Feb-2020
Dissolved Oxygen by Probe	07-Feb-2020	07-Feb-2020	07-Feb-2020	07-Feb-2020	07-Feb-2020	07-Feb-2020	07-Feb-2020
EPH CWG (Aliphatic) Aqueous GC (W)	13-Feb-2020	13-Feb-2020	13-Feb-2020	13-Feb-2020	13-Feb-2020	13-Feb-2020	13-Feb-2020
EPH CWG (Aromatic) Aqueous GC (W)	13-Feb-2020	13-Feb-2020	13-Feb-2020	13-Feb-2020	13-Feb-2020	13-Feb-2020	13-Feb-2020
Fluoride	04-Feb-2020	04-Feb-2020	04-Feb-2020	04-Feb-2020	04-Feb-2020	04-Feb-2020	04-Feb-2020
GRO by GC-FID (W)	07-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020	07-Feb-2020	10-Feb-2020	07-Feb-2020
Hexavalent Chromium (w)	04-Feb-2020	04-Feb-2020	04-Feb-2020	04-Feb-2020	04-Feb-2020	07-Feb-2020	04-Feb-2020
Mercury Dissolved	10-Feb-2020	10-Feb-2020	11-Feb-2020	10-Feb-2020	10-Feb-2020	11-Feb-2020	10-Feb-2020
Mercury Unfiltered	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020
PAH in waters by GC-MS (diss.filt)	05-Feb-2020	11-Feb-2020	11-Feb-2020	11-Feb-2020	11-Feb-2020	11-Feb-2020	11-Feb-2020
PAH Spec MS - Aqueous (W)	11-Feb-2020	11-Feb-2020	11-Feb-2020	11-Feb-2020	11-Feb-2020	11-Feb-2020	11-Feb-2020
pH Value	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020
Phenols by HPLC (W)	07-Feb-2020	07-Feb-2020	07-Feb-2020	07-Feb-2020	07-Feb-2020	07-Feb-2020	07-Feb-2020
Phosphate by Kone (w)	03-Feb-2020	03-Feb-2020	03-Feb-2020	03-Feb-2020	03-Feb-2020	03-Feb-2020	03-Feb-2020
Redox Potential	06-Feb-2020	06-Feb-2020	06-Feb-2020	06-Feb-2020	06-Feb-2020	06-Feb-2020	06-Feb-2020
Sulphide	03-Feb-2020	03-Feb-2020	03-Feb-2020	03-Feb-2020	04-Feb-2020	03-Feb-2020	04-Feb-2020
Sulphur Dissolved by ICP-OES	05-Feb-2020	05-Feb-2020	10-Feb-2020	10-Feb-2020	05-Feb-2020	10-Feb-2020	10-Feb-2020
Suspended Solids	05-Feb-2020	06-Feb-2020	05-Feb-2020	06-Feb-2020	06-Feb-2020	03-Feb-2020	06-Feb-2020
SVOC MS (W) - Aqueous	05-Feb-2020	11-Feb-2020	10-Feb-2020	10-Feb-2020	05-Feb-2020	11-Feb-2020	11-Feb-2020
Total Dissolved Solids	05-Feb-2020	05-Feb-2020	05-Feb-2020	05-Feb-2020	05-Feb-2020	05-Feb-2020	05-Feb-2020
Total Metals by ICP-MS	06-Feb-2020	06-Feb-2020	06-Feb-2020	06-Feb-2020	06-Feb-2020	07-Feb-2020	06-Feb-2020
Total Organic and Inorganic Carbon	05-Feb-2020	05-Feb-2020	05-Feb-2020	06-Feb-2020	05-Feb-2020	06-Feb-2020	05-Feb-2020
TPH CWG (W)	13-Feb-2020	13-Feb-2020	13-Feb-2020	13-Feb-2020	13-Feb-2020	13-Feb-2020	13-Feb-2020
Turbidity in waters	03-Feb-2020	03-Feb-2020	03-Feb-2020	03-Feb-2020	03-Feb-2020	03-Feb-2020	03-Feb-2020
VOC MS (W)	07-Feb-2020	06-Feb-2020	06-Feb-2020	06-Feb-2020	07-Feb-2020	07-Feb-2020	11-Feb-2020



CERTIFICATE OF ANALYSIS

SDG:	200131-106	Client Reference:		Report Number:	541566
Location:	Llanwrn	Order Number:	LLA711	Superseded Report:	

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH₄ by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

18. Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
3	Deviation from method
§	Sampled on date not provided
♦	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to late arrival of instructions or samples

19. Asbestos

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Standing Committee of Analysts, *The Quantification of Asbestos in Soil* (2107).

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.