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SA10 6HJ

**Attention:** Scott Bowler

## CERTIFICATE OF ANALYSIS

<b>Date of report Generation:</b>	02 October 2019
<b>Customer:</b>	Atkins Global Ltd
<b>Sample Delivery Group (SDG):</b>	190918-52
<b>Your Reference:</b>	
<b>Location:</b>	Llanwern
<b>Report No:</b>	523907

We received 28 samples on Wednesday September 18, 2019 and 28 of these samples were scheduled for analysis which was completed on Wednesday October 02, 2019. 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: 190918-52  
Location: Llanwern

Client Reference:  
Order Number: LLA668

Report Number: 523907  
Superseded Report:

## Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
20744824	D0-C		0.00 - 0.00	17/09/2019
20744932	D1-C		0.00 - 0.00	17/09/2019
20744946	D2-C		0.00 - 0.00	17/09/2019
20744839	D1-N		0.00 - 0.00	17/09/2019
20744855	D2-N		0.00 - 0.00	17/09/2019
20744881	D3-N		0.00 - 0.00	17/09/2019
20744998	D1-S		0.00 - 0.00	17/09/2019
20744982	D2-S		0.00 - 0.00	17/09/2019
20744906	D3-S		0.00 - 0.00	17/09/2019
20744740	KW-C		0.00 - 0.00	17/09/2019
20744920	KW-N		0.00 - 0.00	17/09/2019
20744958	Pond-N		0.00 - 0.00	17/09/2019
20744971	Pond-S		0.00 - 0.00	17/09/2019
20744795	R1-C		0.00 - 0.00	17/09/2019
20744754	R2-C		0.00 - 0.00	17/09/2019
20745142	R3-C		0.00 - 0.00	17/09/2019
20745088	R4-C		0.00 - 0.00	17/09/2019
20744783	R1-E		0.00 - 0.00	17/09/2019
20745186	R2-E		0.00 - 0.00	17/09/2019
20745125	R3-E		0.00 - 0.00	17/09/2019
20745073	R4-E		0.00 - 0.00	17/09/2019
20744769	R2-W		0.00 - 0.00	17/09/2019
20745169	R3-W		0.00 - 0.00	17/09/2019
20745106	R4-W		0.00 - 0.00	17/09/2019
20744808	R1-W / D0-N		0.00 - 0.00	17/09/2019
20745052	SL-N		0.00 - 0.00	17/09/2019
20745024	SL-S		0.00 - 0.00	17/09/2019
20745039	SL-W		0.00 - 0.00	17/09/2019

### 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.

**15.3**

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.**



# CERTIFICATE OF ANALYSIS

Validated

SDG: 190918-52  
Location: Llanwern

Client Reference:  
Order Number: LLA668

Report Number: 523907  
Superseded Report:

## Results Legend

**X** Test  
**N** 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

<div>Results Legend</div> <div><div>X</div> Test</div> <div><div>N</div> No Determination Possible</div> <div>Sample Types -</div> <div>S - Soil/Solid</div> <div>UNS - Unspecified Solid</div> <div>GW - Ground Water</div> <div>SW - Surface Water</div> <div>LE - Land Leachate</div> <div>PL - Prepared Leachate</div> <div>PR - Process Water</div> <div>SA - Saline Water</div> <div>TE - Trade Effluent</div> <div>TS - Treated Sewage</div> <div>US - Untreated Sewage</div> <div>RE - Recreational Water</div> <div>DW - Drinking Water Non-regulatory</div> <div>UNL - Unspecified Liquid</div> <div>SL - Sludge</div> <div>G - Gas</div> <div>OTH - Other</div>	Lab Sample No(s)		Customer Sample Reference		AGS Reference		Depth (m)		Container		Sample Type	
	20744946		D2-C				0.00 - 0.00		250ml Amber Gl. PTFE/PE (ALE219)		SW	
	20744932		D1-C				0.00 - 0.00		1l plastic (ALE221)		SW	
									0.5l glass bottle (ALE227)		SW	
									ViaI (ALE297)		SW	
									NaOH (ALE245)		SW	
									HNO3 Unfiltered (ALE204)		SW	
								HNO3 Filtered (ALE204)		SW		
								H2SO4 (ALE244)		SW		
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								0.5l glass bottle (ALE227)		SW		
								ViaI (ALE297)		SW		
</												





# CERTIFICATE OF ANALYSIS

Validated

SDG: 190918-52  
Location: Llanwern

Client Reference:  
Order Number: LLA668

Report Number: 523907  
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

			20744824	20744932	20744946
			DO-C	D1-C	D2-C
			0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
			0.5l glass bottle (ALE227)	0.5l glass bottle (ALE227)	250ml Amber Gl. PTFE/PE (ALE219)
			SW	SW	SW
Mercury Unfiltered	All	NDPs: 0 Tests: 28			
PAH in waters by GC-MS (diss.filt)	All	NDPs: 0 Tests: 28			
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 28			
pH Value	All	NDPs: 0 Tests: 28			
Phenols by HPLC (W)	All	NDPs: 0 Tests: 28			
Phosphate by Kone (w)	All	NDPs: 0 Tests: 28			
Redox Potential	All	NDPs: 0 Tests: 28			
Sulphide	All	NDPs: 0 Tests: 28			
Sulphur Dissolved by ICP-OES	All	NDPs: 0 Tests: 28			
Suspended Solids	All	NDPs: 0 Tests: 28			
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 28			
Total Dissolved Solids	All	NDPs: 0 Tests: 28			
Total Metals by ICP-MS	All	NDPs: 0 Tests: 28			
Total Organic and Inorganic Carbon	All	NDPs: 0 Tests: 28			
TPH CWG (W)	All	NDPs: 0 Tests: 28			





20744881	D3-N		0.00 - 0.00	0.5l glass bottle (ALE227)	SW		
20744855	D2-N		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		
				1l plastic (ALE221)	SW	X	
				0.5l glass bottle (ALE227)	SW		
				Vial (ALE297)	SW		X
				NaOH (ALE245)	SW		
20744839	D1-N		0.00 - 0.00	HNO3 Filtered (ALE204)	SW		
				H2SO4 (ALE244)	SW		
				250ml Amber Gl. PTFE/PE (ALE219)	SW		
				1l plastic (ALE221)	SW	X	
				0.5l glass bottle (ALE227)	SW		
				Vial (ALE297)	SW		
				NaOH (ALE245)	SW		
				HNO3 Filtered (ALE204)	SW		
				H2SO4 (ALE244)	SW		
				250ml Amber Gl. PTFE/PE (ALE219)	SW		
20744946	D2-C		0.00 - 0.00	1l plastic (ALE221)	SW		
				0.5l glass bottle (ALE227)	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		
				1l plastic (ALE221)	SW	X	
				0.5l glass bottle (ALE227)	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  
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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: 28

X

X

X

VOC MS (W)

All

NDPs: 0  
Tests: 28

X

X

20744920	KM-N		0.00 - 0.00	0.5l glass bottle (ALE227)	SW			
20744740	KM-C		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			
				1l plastic (ALE221)	SW	X		
				0.5l glass bottle (ALE227)	SW			
				Vial (ALE297)	SW			X
				NaOH (ALE245)	SW			
				HNO3 Unfiltered (ALE204)	SW			
20744906	D3-S		0.00 - 0.00	HNO3 Filtered (ALE204)	SW			
				H2SO4 (ALE244)	SW			
				250ml Amber Gl. PTFE/PE (ALE219)	SW			
				1l plastic (ALE221)	SW	X		
				0.5l glass bottle (ALE227)	SW			
				Vial (ALE297)	SW			X
				NaOH (ALE245)	SW			
20744982	D2-S		0.00 - 0.00	NaOH (ALE245)	SW			X
				HNO3 Unfiltered (ALE204)	SW			
				HNO3 Filtered (ALE204)	SW			
				250ml Amber Gl. PTFE/PE (ALE219)	SW			
				1l plastic (ALE221)	SW	X		
				0.5l glass bottle (ALE227)	SW			













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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: 28

X

X

X

VOC MS (W)

All

NDPs: 0  
Tests: 28

X

X

20745142	R3-C		0.00 - 0.00	0.5l glass bottle (ALE227)	SW			
20744754	R2-C		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			
20744795	R1-C		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			
20744971	Pond-S		0.00 - 0.00	Vial (ALE297)	SW			X
				NaOH (ALE245)	SW			
				HNO3 Unfiltered (ALE204)	SW			
				HNO3 Filtered (ALE204)	SW			













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Lab Sample No(s)

Customer  
Sample Reference

AGS Reference

Depth (m)

Container

Sample Type

Turbidity in waters

All

NDPs: 0  
Tests: 28

X

X

X

VOC MS (W)

All

NDPs: 0  
Tests: 28

X

X

20745073	R4-E		0.00 - 0.00	1lplastic (ALE221)	SW		X		
				0.5l glass bottle (ALE227)	SW				
20745125	R3-E		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				
				Vial (ALE297)	SW				X
				NaOH (ALE245)	SW				
20745186	R2-E		0.00 - 0.00	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				
				Vial (ALE297)	SW				
20744783	R1-E		0.00 - 0.00	NaOH (ALE245)	SW				X
				HNO3 Filtered (ALE204)	SW				











# CERTIFICATE OF ANALYSIS

Validated

SDG: 190918-52  
Location: Llanwern

Client Reference:  
Order Number: LLA668

Report Number: 523907  
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: 28

VOC MS (W)

All

NDPs: 0  
Tests: 28

20745073

R4-E

0.00 - 0.00

250ml Amber Gl.  
PTFE/PE (ALE219)

SW

H2SO4 (ALE244)

SW

HNO3 Filtered  
(ALE204)

SW

HNO3 Unfiltered  
(ALE204)

SW

NaOH (ALE245)

SW

Vial (ALE297)

SW

0.5l glass bottle  
(ALE227)

SW

1l plastic (ALE221)

SW

PTFE/PE (ALE219)

SW

250ml Amber Gl.  
PTFE/PE (ALE219)

SW

H2SO4 (ALE244)

SW

HNO3 Filtered  
(ALE204)

SW

HNO3 Unfiltered  
(ALE204)

SW

NaOH (ALE245)

SW

Vial (ALE297)

SW

0.5l glass bottle  
(ALE227)

SW

1l plastic (ALE221)

SW

PTFE/PE (ALE219)

SW

250ml Amber Gl.  
PTFE/PE (ALE219)

SW

H2SO4 (ALE244)

SW

HNO3 Filtered  
(ALE204)

SW

HNO3 Unfiltered  
(ALE204)

SW

NaOH (ALE245)

SW

Vial (ALE297)

SW

20745169

R3-W

0.00 - 0.00

HNO3 Filtered  
(ALE204)

SW

H2SO4 (ALE244)

SW

HNO3 Filtered  
(ALE204)

SW

All

All

20745052	SL-N		0.00 - 0.00	1lplastic (ALE221)	SW		X		
				0.5l glass bottle (ALE227)	SW				
20744808	R1-W / D0-N		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				
				Vial (ALE297)	SW				X
				NaOH (ALE245)	SW				
				HNO3 Unfiltered (ALE204)	SW				
				HNO3 Filtered (ALE204)	SW				
20745106	R4-W		0.00 - 0.00	H2SO4 (ALE244)	SW				
				250ml Amber Gl. PTFE/PE (ALE219)	SW				
				1lplastic (ALE221)	SW		X		
				0.5l glass bottle (ALE227)	SW				
				Vial (ALE297)	SW				
				NaOH (ALE245)	SW				X
20745169	R3-W		0.00 - 0.00	HNO3 Unfiltered (ALE204)	SW				
				250ml Amber Gl. PTFE/PE (ALE219)	SW				
				1lplastic (ALE221)	SW		X		
				0.5l glass bottle (ALE227)	SW				
				Vial (ALE297)	SW				X
				NaOH (ALE245)	SW				





# CERTIFICATE OF ANALYSIS

Validated

SDG: 190918-52  
Location: Llanwern

Client Reference:  
Order Number: LLA668

Report Number: 523907  
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

			20745052	20745024	20745039
			SL-N	SL-S	SL-W
			0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
			250ml Amber Gl. PTFE/PE (ALE219)	250ml Amber Gl. PTFE/PE (ALE219)	250ml Amber Gl. PTFE/PE (ALE219)
			SW	SW	SW
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 28	X	X	X
Anions by Kone (w)	All	NDPs: 0 Tests: 28		X	
BOD True Total	All	NDPs: 0 Tests: 28		X	
COD Unfiltered	All	NDPs: 0 Tests: 28		X	
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 28		X	
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 28		X	
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 28	X	X	X
Dissolved Organic/Inorganic Carbon	All	NDPs: 0 Tests: 28		X	
Dissolved Oxygen by Probe	All	NDPs: 0 Tests: 28		X	
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 28	X	X	X
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 28	X	X	X
Fluoride	All	NDPs: 0 Tests: 28		X	
GRO by GC-FID (W)	All	NDPs: 0 Tests: 28		X	
Hexavalent Chromium (w)	All	NDPs: 0 Tests: 28		X	
Mercury Dissolved	All	NDPs: 0 Tests: 28	X	X	X





# CERTIFICATE OF ANALYSIS

Validated

SDG: 190918-52  
Location: Llanwern

Client Reference:  
Order Number: LLA668

Report Number: 523907  
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

			20745052	20745024	20745039
			SL-N	SL-S	SL-W
			0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
			250ml Amber Gl. PTFE/PE (ALE219)	250ml Amber Gl. PTFE/PE (ALE219)	250ml Amber Gl. PTFE/PE (ALE219)
			SW	SW	SW
Mercury Unfiltered	All	NDPs: 0 Tests: 28			
PAH in waters by GC-MS (diss.filt)	All	NDPs: 0 Tests: 28			
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 28			
pH Value	All	NDPs: 0 Tests: 28			
Phenols by HPLC (W)	All	NDPs: 0 Tests: 28			
Phosphate by Kone (w)	All	NDPs: 0 Tests: 28			
Redox Potential	All	NDPs: 0 Tests: 28			
Sulphide	All	NDPs: 0 Tests: 28			
Sulphur Dissolved by ICP-OES	All	NDPs: 0 Tests: 28			
Suspended Solids	All	NDPs: 0 Tests: 28			
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 28			
Total Dissolved Solids	All	NDPs: 0 Tests: 28			
Total Metals by ICP-MS	All	NDPs: 0 Tests: 28			
Total Organic and Inorganic Carbon	All	NDPs: 0 Tests: 28			
TPH CWG (W)	All	NDPs: 0 Tests: 28			





# CERTIFICATE OF ANALYSIS

Validated

SDG: 190918-52  
Location: Llanwern

Client Reference:  
Order Number: LLA668

Report Number: 523907  
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  
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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: 28

VOC MS (W)

All

NDPs: 0  
Tests: 28

20745052

SL-N

0.00 - 0.00

250ml Amber Gl.  
PTFE/PE (ALE219)

H2SO4 (ALE244)

HNO3 Filtered  
(ALE204)

HNO3 Unfiltered  
(ALE204)

NaOH (ALE245)

Vial (ALE297)

0.5l glass bottle  
(ALE227)

1plastic (ALE221)

PTFE/PE (ALE219)

250ml Amber Gl.  
PTFE/PE (ALE219)

H2SO4 (ALE244)

HNO3 Filtered  
(ALE204)

HNO3 Unfiltered  
(ALE204)

NaOH (ALE245)

Vial (ALE297)

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(ALE227)

1plastic (ALE221)

PTFE/PE (ALE219)

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PTFE/PE (ALE219)

H2SO4 (ALE244)

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(ALE204)

HNO3 Unfiltered  
(ALE204)

NaOH (ALE245)

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PTFE/PE (ALE219)

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PTFE/PE (ALE219)

H2SO4 (ALE244)

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(ALE204)

HNO3 Unfiltered  
(ALE204)

NaOH (ALE245)

Vial (ALE297)

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(ALE227)

1plastic (ALE221)

PTFE/PE (ALE219)

250ml Amber Gl.  
PTFE/PE (ALE219)

H2SO4 (ALE244)

HNO3 Filtered  
(ALE204)

HNO3 Unfiltered  
(ALE204)

NaOH (ALE245)

Vial (ALE297)

0.5l glass bottle  
(ALE227)

1plastic (ALE221)

PTFE/PE (ALE219)

250ml Amber Gl.  
PTFE/PE (ALE219)

H2SO4 (ALE244)

HNO3 Filtered  
(ALE204)

HNO3 Unfiltered  
(ALE204)

NaOH (ALE245)

Vial (ALE297)

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1plastic (ALE221)

PTFE/PE (ALE219)

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PTFE/PE (ALE219)

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(ALE204)

HNO3 Unfiltered  
(ALE204)

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PTFE/PE (ALE219)

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HNO3 Unfiltered  
(ALE204)

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PTFE/PE (ALE219)

H2SO4 (ALE244)

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(ALE204)

HNO3 Unfiltered  
(ALE204)

NaOH (ALE245)

Vial (ALE297)

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(ALE227)

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PTFE/PE (ALE219)

250ml Amber Gl.  
PTFE/PE (ALE219)

H2SO4 (ALE244)

HNO3 Filtered  
(ALE204)

HNO3 Unfiltered  
(ALE204)

NaOH (ALE245)

Vial (ALE297)

0.5l glass bottle  
(ALE227)

1plastic (ALE221)

PTFE/PE (ALE219)

250ml Amber Gl.  
PTFE/PE (ALE219)

H2SO4 (ALE244)

HNO3 Filtered  
(ALE204)

HNO3 Unfiltered  
(ALE204)

NaOH (ALE245)

Vial (ALE297)

0.5l glass bottle  
(ALE227)

1plastic (ALE221)

PTFE/PE (ALE219)

250ml Amber Gl.  
PTFE/PE (ALE219)

H2SO4 (ALE244)

HNO3 Filtered  
(ALE204)

HNO3 Unfiltered  
(ALE204)

NaOH (ALE245)

Vial (ALE297)

0.5l glass bottle  
(ALE227)

1plastic (ALE221)

PTFE/PE (ALE219)

250ml Amber Gl.  
PTFE/PE (ALE219)

H2SO4 (ALE244)

HNO3 Filtered  
(ALE204)

HNO3 Unfiltered  
(ALE204)

NaOH (ALE245)

Vial (ALE297)

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(ALE227)

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PTFE/PE (ALE219)

250ml Amber Gl.  
PTFE/PE (ALE219)

H2SO4 (ALE244)

HNO3 Filtered  
(ALE204)

HNO3 Unfiltered  
(ALE204)

NaOH (ALE245)

Vial (ALE297)

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(ALE227)

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PTFE/PE (ALE219)

250ml Amber Gl.  
PTFE/PE (ALE219)

H2SO4 (ALE244)

HNO3 Filtered  
(ALE204)

HNO3 Unfiltered  
(ALE204)

NaOH (ALE245)

Vial (ALE297)

0.5l glass bottle  
(ALE227)

1plastic (ALE221)

PTFE/PE (ALE219)

250ml Amber Gl.  
PTFE/PE (ALE219)

H2SO4 (ALE244)

HNO3 Filtered  
(ALE204)

HNO3 Unfiltered  
(ALE204)

NaOH (ALE245)

Vial (ALE297)

0.5l glass bottle  
(ALE227)

1plastic (ALE221)

PTFE/PE (ALE219)

250ml Amber Gl.  
PTFE/PE (ALE219)

H2SO4 (ALE244)

HNO3 Filtered  
(ALE204)

HNO3 Unfiltered  
(ALE204)

NaOH (ALE245)

Vial (ALE297)

0.5l glass bottle  
(ALE227)

1plastic (ALE221)

PTFE/PE (ALE219)

250ml Amber Gl.  
PTFE/PE (ALE219)

H2SO4 (ALE244)

HNO3 Filtered  
(ALE204)

HNO3 Unfiltered  
(ALE204)

NaOH (ALE245)

Vial (ALE297)

0.5l glass bottle  
(ALE227)

1plastic (ALE221)

PTFE/PE (ALE219)

250ml Amber Gl.  
PTFE/PE (ALE219)

H2SO4 (ALE244)

HNO3 Filtered  
(ALE204)

HNO3 Unfiltered  
(ALE204)

NaOH (ALE245)

Vial (ALE297)

0.5l glass bottle  
(ALE227)

1plastic (ALE221)

PTFE/PE (ALE219)

250ml Amber Gl.  
PTFE/PE (ALE219)

H2SO4 (ALE244)

HNO3 Filtered  
(ALE204)

HNO3 Unfiltered  
(ALE204)

NaOH (ALE245)

Vial (ALE297)

0.5l glass bottle  
(ALE227)

1plastic (ALE221)

PTFE/PE (ALE219)

250ml Amber Gl.  
PTFE/PE (ALE219)

H2SO4 (ALE244)

HNO3 Filtered  
(ALE204)

HNO3 Unfiltered  
(ALE204)

NaOH (ALE245)

Vial (ALE297)

0.5l glass bottle  
(ALE227)

1plastic (ALE221)

PTFE/PE (ALE219)

250ml Amber Gl.  
PTFE/PE (ALE219)

H2SO4 (ALE244)

HNO3 Filtered  
(ALE204)

HNO3 Unfiltered  
(ALE204)

NaOH (ALE245)

Vial (ALE297)

0.5l glass bottle  
(ALE227)

1plastic (ALE221)

PTFE/PE (ALE219)

250ml Amber Gl.  
PTFE/PE (ALE219)

H2SO4 (ALE244)

HNO3 Filtered  
(ALE204)

HNO3 Unfiltered  
(ALE204)

NaOH (ALE245)

Vial (ALE297)

0.5l glass bottle  
(ALE227)

1plastic (ALE221)

PTFE/PE (ALE219)

250ml Amber Gl.  
PTFE/PE (ALE219)

H2SO4 (ALE244)

HNO3 Filtered  
(ALE204)

HNO3 Unfiltered  
(ALE204)

NaOH (ALE245)

Vial (ALE297)

0.5l glass bottle  
(ALE227)

1plastic (ALE221)

PTFE/PE (ALE219)

250ml Amber Gl.  
PTFE/PE (ALE219)

H2SO4 (ALE244)

HNO3 Filtered  
(ALE204)

HNO3 Unfiltered  
(ALE204)

NaOH (ALE245)

Vial (ALE297)

0.5l glass bottle  
(ALE227)

1plastic (ALE221)

PTFE/PE (ALE219)

250ml Amber Gl.  
PTFE/PE (ALE219)

H2SO4 (ALE244)

HNO3 Filtered  
(ALE204)

HNO3 Unfiltered  
(ALE204)

NaOH (ALE245)

Vial (ALE297)

0.5l glass bottle  
(ALE227)

1plastic (ALE221)

PTFE/PE (ALE219)

250ml Amber Gl.  
PTFE/PE (ALE219)

H2SO4 (ALE244)

HNO3 Filtered  
(ALE204)

HNO3 Unfiltered  
(ALE204)

NaOH (ALE245)

Vial (ALE297)

0.5l glass bottle  
(ALE227)

1plastic (ALE221)

PTFE/PE (ALE219)

250ml Amber Gl.  
PTFE/PE (ALE219)

H2SO4 (ALE244)

HNO3 Filtered  
(ALE204)

HNO3 Unfiltered  
(ALE204)

NaOH (ALE245)

Vial (ALE297)

0.5l glass bottle  
(ALE227)

1plastic (ALE221)

PTFE/PE (ALE219)

20745039	SL-W		0.00 - 0.00	Vial (ALE297)	SW				X
				NaOH (ALE245)	SW				
				HNO3 Unfiltered (ALE204)	SW				



# CERTIFICATE OF ANALYSIS

Validated

**SDG:** 190918-52  
**Location:** Llanwern

**Client Reference:**  
**Order Number:** LLA668

**Report Number:** 523907  
**Superseded Report:**

Results Legend			Customer Sample Ref.	D0-C	D1-C	D2-C	D1-N	D2-N	D3-N
#	ISO17025 accredited.								
M	mCERTS accredited.								
sq	Aqueous / settled sample.								
diss.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	0.00 - 0.00 Surface Water (SW) 17/09/2019 00:00 18/09/2019 190918-52 20744824	0.00 - 0.00 Surface Water (SW) 17/09/2019 00:00 18/09/2019 190918-52 20744932	0.00 - 0.00 Surface Water (SW) 17/09/2019 00:00 18/09/2019 190918-52 20744946	0.00 - 0.00 Surface Water (SW) 17/09/2019 00:00 18/09/2019 190918-52 20744839	0.00 - 0.00 Surface Water (SW) 17/09/2019 00:00 18/09/2019 190918-52 20744855	0.00 - 0.00 Surface Water (SW) 17/09/2019 00:00 18/09/2019 190918-52 20744881
Suspended solids, Total	<2 mg/l	TM022		8.5	9.5	6	8.5	5.5	142
				#	#	#	#	#	#
BOD, unfiltered	<1 mg/l	TM045		2.21	2.7	<1	2.55	2.51	2.18
				#	#	#	#	#	#
Oxygen, dissolved	<0.3 mg/l	TM046		10.2	10.5	10.3	11.6	11.1	10.9
Carbon, Organic (diss.filt)	<3 mg/l	TM090		9.53	9.33	9.59	9.23	9.96	17.7
Organic Carbon, Total	<3 mg/l	TM090		8.2	8.05	7.84	8.14	9.81	16.4
				#	#	#	#	#	#
Ammoniacal Nitrogen as NH4	<0.3 mg/l	TM099		<0.3	<0.3	<0.3	<0.3	<0.3	5.1
				#	#	#	#	#	#
Sulphide	<0.01 mg/l	TM101		<0.01	<0.01	<0.01	<0.01	<0.01	0.0198
				2	2	2	2	2	2
Fluoride	<0.5 mg/l	TM104		0.692	1.19	0.643	1.27	0.801	0.857
COD, unfiltered	<7 mg/l	TM107		33	29.8	30.3	28.3	28.4	53.2
				#	#	#	#	#	#
Redox potential	mV	TM110		74	105	187	106	98	107
Conductivity @ 20 deg.C (diss.filt)	<0.014 mS/cm	TM120		0.637	0.632	0.648	0.639	0.564	1.46
Dissolved solids, Total (meter)	<5 mg/l	TM123		503	508	486	500	449	1100
				#	#	#	#	#	#
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
							2		
Arsenic (diss.filt)	<0.5 µg/l	TM152		3.03	3.07	2.6	3.67	3.73	10.9
				#	#	#	#	#	#
Arsenic (tot.unfilt)	<2 µg/l	TM152		3.34	3.56	2.98	3.91	4.02	12.1
				#	#	#	2 #	#	#
Barium (diss.filt)	<0.2 µg/l	TM152		41.4	50.5	93.4	51.6	38.3	26.9
				#	#	#	#	#	#
Barium (tot.unfilt)	<0.5 µg/l	TM152		52.3	62.7	111	59.7	43.5	119
				#	#	#	2 #	#	#
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
				#	#	#	2 #	#	#
Boron (diss.filt)	<10 µg/l	TM152		182	196	97	190	208	459
				#	#	#	#	#	#
Boron (tot.unfilt)	<20 µg/l	TM152		238	242	125	243	260	562
				#	#	#	2 #	#	#
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
				#	#	#	2 #	#	#
Chromium (tot.unfilt)	<3 µg/l	TM152		<3	<3	<3	<3	<3	3.1
				#	#	#	2 #	#	#
Chromium (diss.filt)	<1 µg/l	TM152		<1	<1	<1	<1	<1	1.14
				#	#	#	#	#	#
Copper (tot.unfilt)	<1 µg/l	TM152		4.83	1.95	3.77	2.62	1.55	4.63
				#	#	#	2 #	#	#
Lead (tot.unfilt)	<1 µg/l	TM152						<1	6.87
								#	#
Copper (diss.filt)	<0.3 µg/l	TM152		3.51	1.4	2.87	1.48	0.903	2.23
				#	#	#	#	#	#
Manganese (tot.unfilt)	<1 µg/l	TM152		74.9	130	606	69.2	160	128
				#	#	#	2 #	#	#
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		2.68	1.71	5.5	1.56	2	2.68
				#	#	#	2 #	#	#
Manganese (diss.filt)	<3 µg/l	TM152		5.95	52.3	321	45.2	18.6	5.72
				#	#	#	#	#	#



# CERTIFICATE OF ANALYSIS

Validated

SDG: 190918-52  
Location: Llanwern

Client Reference:  
Order Number: LLA668

Report Number: 523907  
Superseded Report:

Results Legend			Customer Sample Ref.	D0-C	D1-C	D2-C	D1-N	D2-N	D3-N
#	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.			17/09/2019	17/09/2019	17/09/2019	17/09/2019	17/09/2019	17/09/2019
diss.filt	Dissolved / filtered sample.			00:00	00:00	00:00	00:00	00:00	00:00
tot.unfilt	Total / unfiltered sample.			18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
*	Subcontracted - refer to subcontractor report for accreditation status.			190918-52	190918-52	190918-52	190918-52	190918-52	190918-52
**	% 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			20744824	20744932	20744946	20744839	20744855	20744881
(F)	Trigger breach confirmed								
1-3*5@	Sample deviation (see appendix)								
Component	LOD/Units	Method							
Phosphorus (tot.unfilt)	<20 µg/l	TM152	39.8	63.3	113	46.8	53.9	1260	
			#	#	#	2 #	#	#	
Selenium (tot.unfilt)	<1 µg/l	TM152	1.37	1.58	1.52	2.04	<1	1.45	
			#	#	#	2 #	#	#	
Nickel (diss.filt)	<0.4 µg/l	TM152	1.6	0.403	4.79	1.12	0.786	1.33	
			#	#	#	#	#	#	
Phosphorus (diss.filt)	<10 µg/l	TM152	<10	11.3	50	<10	<10	745	
			#	#	#	#	#	#	
Selenium (diss.filt)	<1 µg/l	TM152	1.37	1.52	1.57	2.11	<1	1.48	
			#	#	#	#	#	#	
Vanadium (tot.unfilt)	<5 µg/l	TM152	11.4	10.1	30.1	13.8	<5	17.1	
			#	#	#	2 #	#	#	
Zinc (tot.unfilt)	<5 µg/l	TM152	11.9	5.63	8.84	8.54	<5	25.4	
			#	#	#	2 #	#	#	
Vanadium (diss.filt)	<1 µg/l	TM152	8.95	8.09	25	11.2	3.55	13.5	
			#	#	#	#	#	#	
Zinc (diss.filt)	<1 µg/l	TM152	<1	4.73	1.77	<1	<1	<1	
			#	#	#	#	#	#	
Lead (tot.unfilt)	<0.001 mg/l	TM152	0.00267	0.00118	0.00168	<0.001			
			#	#	#	2 #			
Magnesium (Dis.Filt)	<0.036 mg/l	TM152	8.78	8.82	2.91	7.92	12.9	14.8	
			#	#	#	#	#	#	
Calcium (Dis.Filt)	<0.2 mg/l	TM152	67.7	88.2	40.6	89.4	60	26.9	
			#	#	#	#	#	#	
Iron (Dis.Filt)	<0.019 mg/l	TM152	<0.019	<0.019	0.0842	<0.019	<0.019	0.0234	
			#	#	#	#	#	#	
Hardness, Total as CaCO3	<0.65 mg/l	TM152	205	257	114	256	203	128	
Magnesium (Tot. Unfilt.)	<0.05 mg/l	TM152	10.1	10.5	3.42	9.34	14.9	17.7	
			#	#	#	2 #	#	#	
Calcium (Tot. Unfilt.)	<0.057 mg/l	TM152	73.4	95.5	46.8	100	68.2	88.2	
			#	#	#	2 #	#	#	
Iron (Tot. Unfilt.)	<0.024 mg/l	TM152	0.515	0.344	0.426	0.208	0.127	1.08	
			#	#	#	2 #	#	#	
Naphthalene (diss.filt)	<0.01 µg/l	TM178	<0.01	<0.01	<0.01	<0.01	<0.01	0.0382	
			♦	♦	♦	♦	♦	♦	
Acenaphthene (diss.filt)	<0.005 µg/l	TM178	0.00806	<0.005	<0.005	<0.005	0.00982	<0.005	
			♦	♦	♦	♦	♦	♦	
Acenaphthylene (diss.filt)	<0.005 µg/l	TM178	<0.005	<0.005	<0.005	<0.005	<0.005	0.0126	
			♦	♦	♦	♦	♦	♦	
Fluoranthene (diss.filt)	<0.005 µg/l	TM178	<0.005	<0.005	<0.005	<0.005	<0.005	0.071	
			♦	♦	♦	♦	♦	♦	
Anthracene (diss.filt)	<0.005 µg/l	TM178	<0.005	<0.005	<0.005	<0.005	<0.005	0.0143	
			♦	♦	♦	♦	♦	♦	
Phenanthrene (diss.filt)	<0.005 µg/l	TM178	0.00502	0.0174	0.0133	0.0165	<0.005	0.072	
			♦	♦	♦	♦	♦	♦	
Fluorene (diss.filt)	<0.005 µg/l	TM178	<0.005	<0.005	<0.005	<0.005	0.00542	0.012	
			♦	♦	♦	♦	♦	♦	
Chrysene (diss.filt)	<0.005 µg/l	TM178	<0.005	<0.005	<0.005	<0.005	<0.005	0.0268	
			♦	♦	♦	♦	♦	♦	
Pyrene (diss.filt)	<0.005 µg/l	TM178	<0.005	<0.005	0.00754	<0.005	<0.005	0.114	
			♦	♦	♦	♦	♦	♦	
Benzo(a)anthracene (diss.filt)	<0.005 µg/l	TM178	<0.005	<0.005	<0.005	<0.005	<0.005	0.0211	
			♦	♦	♦	♦	♦	♦	
Benzo(b)fluoranthene (diss.filt)	<0.005 µg/l	TM178	<0.005	<0.005	<0.005	<0.005	<0.005	0.0435	
			♦	♦	♦	♦	♦	♦	
Benzo(k)fluoranthene (diss.filt)	<0.005 µg/l	TM178	<0.005	<0.005	<0.005	<0.005	<0.005	0.0151	
			♦	♦	♦	♦	♦	♦	
Benzo(a)pyrene (diss.filt)	<0.002 µg/l	TM178	<0.002	<0.002	<0.002	<0.002	<0.002	0.0246	
			♦	♦	♦	♦	♦	♦	
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	0.0119	
			♦	♦	♦	♦	♦	♦	







# CERTIFICATE OF ANALYSIS

Validated

**SDG:** 190918-52  
**Location:** Llanwern

**Client Reference:**  
**Order Number:** LLA668

**Report Number:** 523907  
**Superseded Report:**

Results Legend			Customer Sample Ref.	D1-S	D2-S	D3-S	KW-C	KW-N	Pond-N
#	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.			17/09/2019	17/09/2019	17/09/2019	17/09/2019	17/09/2019	17/09/2019
diss.filt	Dissolved / filtered sample.			00:00	00:00	00:00	00:00	00:00	00:00
tot.unfilt	Total / unfiltered sample.			18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
*	Subcontracted - refer to subcontractor report for accreditation status.			190918-52	190918-52	190918-52	190918-52	190918-52	190918-52
**	% 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			20744998	20744982	20744906	20744740	20744920	20744958
(F)	Trigger breach confirmed								
1-3+5@	Sample deviation (see appendix)								
Component	LOD/Units	Method							
Suspended solids, Total	<2 mg/l	TM022	3	124	8	14	13.5	53.5	
			#	#	#	#	#	#	
BOD, unfiltered	<1 mg/l	TM045	<1	8.22	5	2.16	4.02	3.12	
			#	#	#	#	#	#	
Oxygen, dissolved	<0.3 mg/l	TM046	10.4	8.85	9.34	10.6	10.8	10.4	
Carbon, Organic (diss.filt)	<3 mg/l	TM090	9.24	10.8	10.9	8.82	8.91	12.9	
Organic Carbon, Total	<3 mg/l	TM090	8.73	10.6	9.63	8.12	9.21	11.4	
			#	#	#	#	#	#	
Ammoniacal Nitrogen as NH4	<0.3 mg/l	TM099	<0.3	<0.3	1.84	0.399	<0.3	<0.3	
			#	#	#	#	#	#	
Sulphide	<0.01 mg/l	TM101	<0.01	<0.01	0.021	<0.01	<0.01	<0.01	
			2	2	2	2	2	2	
Fluoride	<0.5 mg/l	TM104	1.12	0.763	1.32	0.94	0.923	0.973	
COD, unfiltered	<7 mg/l	TM107	29.3	109	37.1	31.9	37.7	60.4	
			#	#	#	#	#	#	
Redox potential	mV	TM110	90	177	107	98	75	207	
Conductivity @ 20 deg.C (diss.filt)	<0.014 mS/cm	TM120	0.665	0.614	0.495	0.493	0.496	0.63	
Dissolved solids, Total (meter)	<5 mg/l	TM123	505	495	404	375	390	496	
			#	#	#	#	#	#	
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	2.91	2.58	5.33	2.96	2.77	1.21	
			#	#	#	#	#	#	
Arsenic (tot.unfilt)	<2 µg/l	TM152	3.24	7.72	5.82	3.4	3.31	2.35	
			#	#	#	#	#	#	
Barium (diss.filt)	<0.2 µg/l	TM152	63.2	79.9	55.2	53.7	52.9	94.3	
			#	#	#	#	#	#	
Barium (tot.unfilt)	<0.5 µg/l	TM152	68.6	173	59.9	59.2	59.3	137	
			#	#	#	#	#	#	
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	196	117	111	137	146	238	
			#	#	#	#	#	#	
Boron (tot.unfilt)	<20 µg/l	TM152	241	151	143	172	192	305	
			#	#	#	#	#	#	
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	10	<3	<3	<3	4.56	
			#	#	#	#	#	#	
Chromium (diss.filt)	<1 µg/l	TM152	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	
Copper (tot.unfilt)	<1 µg/l	TM152	1.45	13.9	2.43	2.56	2.3	2.89	
			#	#	#	#	#	#	
Lead (tot.unfilt)	<1 µg/l	TM152		44.4	1.08	<1			
				#	#	#			
Copper (diss.filt)	<0.3 µg/l	TM152	0.819	0.623	1.32	1.97	2.05	<0.3	
			#	#	#	#	#	#	
Manganese (tot.unfilt)	<1 µg/l	TM152	178	2170	39.6	49.7	75.8	547	
			#	#	#	#	#	#	
Lead (diss.filt)	<0.2 µg/l	TM152	<0.2	<0.2	0.239	<0.2	<0.2	<0.2	
			#	#	#	#	#	#	
Nickel (tot.unfilt)	<1 µg/l	TM152	1.56	10.5	2.61	2.32	2.27	3.79	
			#	#	#	#	#	#	
Manganese (diss.filt)	<3 µg/l	TM152	121	539	19.7	6.88	13.1	337	
			#	#	#	#	#	#	



# CERTIFICATE OF ANALYSIS

Validated

SDG: 190918-52  
Location: Llanwern

Client Reference:  
Order Number: LLA668

Report Number: 523907  
Superseded Report:

Results Legend			Customer Sample Ref.	D1-S	D2-S	D3-S	KW-C	KW-N	Pond-N	
#	ISO17025 accredited.									
M	mCERTS accredited.									
aq	Aqueous / settled sample.									
diss.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								
Phosphorus (tot.unfilt)	<20 µg/l	TM152	112	553	151	54.5	51.2	132		
			#	#	#	#	#	#		
Selenium (tot.unfilt)	<1 µg/l	TM152	1.11	1.52	3.5	1.92	1.72	<1		
			#	#	#	#	#	#		
Nickel (diss.filt)	<0.4 µg/l	TM152	1.1	1.95	2.26	1.52	1.61	<0.4		
			#	#	#	#	#	#		
Phosphorus (diss.filt)	<10 µg/l	TM152	81.5	93.4	27.9	<10	<10	28.6		
			#	#	#	#	#	#		
Selenium (diss.filt)	<1 µg/l	TM152	1.06	<1	3.06	1.84	1.67	<1		
			#	#	#	#	#	#		
Vanadium (tot.unfilt)	<5 µg/l	TM152	<5	63.3	16.7	34.1	32.1	<5		
			#	#	#	#	#	#		
Zinc (tot.unfilt)	<5 µg/l	TM152	7.29	181	9.16	7.03	9.69	145		
			#	#	#	#	#	#		
Vanadium (diss.filt)	<1 µg/l	TM152	4.35	12.9	16.3	31.3	28.7	<1		
			#	#	#	#	#	#		
Zinc (diss.filt)	<1 µg/l	TM152	1.46	4.72	1.62	<1	<1	2.06		
			#	#	#	#	#	#		
Lead (tot.unfilt)	<0.001 mg/l	TM152	<0.001				<0.001	0.0455		
			#				#	#		
Magnesium (Dis.Filt)	<0.036 mg/l	TM152	10	3	0.359	4.43	5.1	25.1		
			#	#	#	#	#	#		
Calcium (Dis.Filt)	<0.2 mg/l	TM152	91.6	64.5	49.4	64.9	67.4	55.9		
			#	#	#	#	#	#		
Iron (Dis.Filt)	<0.019 mg/l	TM152	0.0313	0.103	<0.019	<0.019	<0.019	0.0262		
			#	#	#	#	#	#		
Hardness, Total as CaCO3	<0.65 mg/l	TM152	270	174	125	180	190	243		
Magnesium (Tot. Unfilt.)	<0.05 mg/l	TM152	11.5	4.41	0.508	5.37	6	28		
			#	#	#	#	#	#		
Calcium (Tot. Unfilt.)	<0.057 mg/l	TM152	101	98.7	56.4	75.1	77.1	66.3		
			#	#	#	#	#	#		
Iron (Tot. Unfilt.)	<0.024 mg/l	TM152	0.193	3.75	0.132	0.158	0.202	3.84		
			#	#	#	#	#	#		
Naphthalene (diss.filt)	<0.01 µg/l	TM178	<0.01	<0.01	<0.01	0.0539	<0.01	<0.01		
			♦	♦	♦	♦	♦	♦		
Acenaphthene (diss.filt)	<0.005 µg/l	TM178	<0.005	<0.005	<0.005	0.0321	0.0216	0.0084		
			♦	♦	♦	♦	♦	♦		
Acenaphthylene (diss.filt)	<0.005 µg/l	TM178	<0.005	<0.005	<0.005	0.00926	0.00607	<0.005		
			♦	♦	♦	♦	♦	♦		
Fluoranthene (diss.filt)	<0.005 µg/l	TM178	<0.005	<0.005	0.00649	0.0185	0.00718	<0.005		
			♦	♦	♦	♦	♦	♦		
Anthracene (diss.filt)	<0.005 µg/l	TM178	<0.005	<0.005	<0.005	0.00907	<0.005	<0.005		
			♦	♦	♦	♦	♦	♦		
Phenanthrene (diss.filt)	<0.005 µg/l	TM178	0.0131	<0.005	0.0667	0.0337	0.0159	0.00835		
			♦	♦	♦	♦	♦	♦		
Fluorene (diss.filt)	<0.005 µg/l	TM178	<0.005	<0.005	<0.005	0.0208	0.00724	<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	<0.005	0.00511	0.00683	0.0111	<0.005	<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	0.0115	<0.005	<0.005		
			♦	♦	♦	♦	♦	♦		
Benzo(k)fluoranthene (diss.filt)	<0.005 µg/l	TM178	<0.005	<0.005	<0.005	0.00685	<0.005	<0.005		
			♦	♦	♦	♦	♦	♦		
Benzo(a)pyrene (diss.filt)	<0.002 µg/l	TM178	<0.002	<0.002	<0.002	0.00725	<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:** 190918-52  
**Location:** Llanwern

**Client Reference:**  
**Order Number:** LLA668

**Report Number:** 523907  
**Superseded Report:**

Results Legend			Customer Sample Ref.	Pond-S	R1-C	R2-C	R3-C	R4-C	R1-E
#	ISO17025 accredited.								
M	mCERTS accredited.								
sq	Aqueous / settled sample.								
diss.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						
Suspended solids, Total	<2 mg/l	TM022	0.00 - 0.00	33.5	16.5	9.5	26	13.5	16.5
			Surface Water (SW)	#	#	#	#	#	#
BOD, unfiltered	<1 mg/l	TM045	0.00 - 0.00	2.07	2.02	3.32	6.73	4.04	3.37
			Surface Water (SW)	#	#	#	#	#	#
Oxygen, dissolved	<0.3 mg/l	TM046	0.00 - 0.00	10.6	11.6	11	10.9	10.5	10.5
			Surface Water (SW)						
Carbon, Organic (diss.filt)	<3 mg/l	TM090	0.00 - 0.00	9.54	9.89	9.28	9.66	10.2	9.53
			Surface Water (SW)						
Organic Carbon, Total	<3 mg/l	TM090	0.00 - 0.00	8.06	8.17	9.45	9.68	9.72	8.3
			Surface Water (SW)	#	#	#	#	#	#
Ammoniacal Nitrogen as NH4	<0.3 mg/l	TM099	0.00 - 0.00	<0.3	<0.3	0.321	1.12	2.53	<0.3
			Surface Water (SW)	#	#	#	#	#	#
Sulphide	<0.01 mg/l	TM101	0.00 - 0.00	0.0318	<0.01	0.034	0.0297	0.0182	0.0106
			Surface Water (SW)	2	2	2	2	2	2
Fluoride	<0.5 mg/l	TM104	0.00 - 0.00	1.22	0.82	1.35	1.32	1.2	1.26
			Surface Water (SW)						
COD, unfiltered	<7 mg/l	TM107	0.00 - 0.00	27.2	29.5	40.4	50.4	48	35.4
			Surface Water (SW)	#	#	#	#	#	#
Redox potential	mV	TM110	0.00 - 0.00	172	86	103	78	108	76
			Surface Water (SW)						
Conductivity @ 20 deg.C (diss.filt)	<0.014 mS/cm	TM120	0.00 - 0.00	0.467	0.698	0.61	0.645	0.649	0.625
			Surface Water (SW)						
Dissolved solids, Total (meter)	<5 mg/l	TM123	0.00 - 0.00	379	556	495	492	527	496
			Surface Water (SW)	#	#	#	#	#	#
Antimony (diss.filt)	<1 µg/l	TM152	0.00 - 0.00	<1	<1	<1	<1	<1	<1
			Surface Water (SW)						
Antimony (tot.unfilt)	<4 µg/l	TM152	0.00 - 0.00	<4	<4	<4	<4	<4	<4
			Surface Water (SW)						2
Arsenic (diss.filt)	<0.5 µg/l	TM152	0.00 - 0.00	2.04	2.57	3.89	3.93	3.46	3.64
			Surface Water (SW)	#	#	#	#	#	#
Arsenic (tot.unfilt)	<2 µg/l	TM152	0.00 - 0.00	2.67	3.14	4.17	5.18	3.91	3.81
			Surface Water (SW)	#	#	#	#	#	2 #
Barium (diss.filt)	<0.2 µg/l	TM152	0.00 - 0.00	23.5	42.1	52.4	56.6	66.3	51.9
			Surface Water (SW)	#	#	#	#	#	#
Barium (tot.unfilt)	<0.5 µg/l	TM152	0.00 - 0.00	34	53.5	61.8	78.2	74.7	59.9
			Surface Water (SW)	#	#	#	#	#	2 #
Beryllium (diss.filt)	<0.1 µg/l	TM152	0.00 - 0.00	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			Surface Water (SW)	#	#	#	#	#	#
Beryllium (tot.unfilt)	<1 µg/l	TM152	0.00 - 0.00	<1	<1	<1	<1	<1	<1
			Surface Water (SW)	#	#	#	#	#	2 #
Boron (diss.filt)	<10 µg/l	TM152	0.00 - 0.00	281	210	192	189	208	190
			Surface Water (SW)	#	#	#	#	#	#
Boron (tot.unfilt)	<20 µg/l	TM152	0.00 - 0.00	346	284	247	247	257	252
			Surface Water (SW)	#	#	#	#	#	2 #
Cadmium (diss.filt)	<0.08 µg/l	TM152	0.00 - 0.00	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08
			Surface Water (SW)	#	#	#	#	#	#
Cadmium (tot.unfilt)	<0.5 µg/l	TM152	0.00 - 0.00	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			Surface Water (SW)	#	#	#	#	#	2 #
Chromium (tot.unfilt)	<3 µg/l	TM152	0.00 - 0.00	5.94	<3	<3	<3	<3	<3
			Surface Water (SW)	#	#	#	#	#	2 #
Chromium (diss.filt)	<1 µg/l	TM152	0.00 - 0.00	<1	<1	<1	<1	<1	<1
			Surface Water (SW)	#	#	#	#	#	#
Copper (tot.unfilt)	<1 µg/l	TM152	0.00 - 0.00	2.41	4.25	1.64	2.22	2.08	2.02
			Surface Water (SW)	#	#	#	#	#	2 #
Lead (tot.unfilt)	<1 µg/l	TM152	0.00 - 0.00		1.86		1.88		
			Surface Water (SW)		#		#		
Copper (diss.filt)	<0.3 µg/l	TM152	0.00 - 0.00	<0.3	3.03	1.12	1.32	1.74	1.16
			Surface Water (SW)	#	#	#	#	#	#
Manganese (tot.unfilt)	<1 µg/l	TM152	0.00 - 0.00	217	130	75.7	404	131	58
			Surface Water (SW)	#	#	#	#	#	2 #
Lead (diss.filt)	<0.2 µg/l	TM152	0.00 - 0.00	0.872	<0.2	<0.2	<0.2	<0.2	<0.2
			Surface Water (SW)	#	#	#	#	#	#
Nickel (tot.unfilt)	<1 µg/l	TM152	0.00 - 0.00	5.47	2.74	1.95	2.69	2.05	2.62
			Surface Water (SW)	#	#	#	#	#	2 #
Manganese (diss.filt)	<3 µg/l	TM152	0.00 - 0.00	44.7	31.7	34.3	64.3	52.2	52.8
			Surface Water (SW)	#	#	#	#	#	#



# CERTIFICATE OF ANALYSIS

Validated

SDG: 190918-52  
Location: Llanwern

Client Reference:  
Order Number: LLA668

Report Number: 523907  
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	Pond-S	R1-C	R2-C	R3-C	R4-C	R1-E
#	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.			17/09/2019	17/09/2019	17/09/2019	17/09/2019	17/09/2019	17/09/2019
diss.filt	Dissolved / filtered sample.			00:00	00:00	00:00	00:00	00:00	00:00
tot.unfilt	Total / unfiltered sample.			18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
*	Subcontracted - refer to subcontractor report for accreditation status.			190918-52	190918-52	190918-52	190918-52	190918-52	190918-52
**	% 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			20744971	20744795	20744754	20745142	20745088	20744783
(F)	Trigger breach confirmed								
1-3*5@	Sample deviation (see appendix)								
Component	LOD/Units	Method							
Phosphorus (tot.unfilt)	<20 µg/l	TM152	84.4	46.1	57.9	228	71.7	62.7	
			#	#	#	#	#	2 #	
Selenium (tot.unfilt)	<1 µg/l	TM152	<1	1.44	2.26	2.41	2.59	2.09	
			#	#	#	#	#	2 #	
Nickel (diss.filt)	<0.4 µg/l	TM152	0.83	1.54	1.09	1.15	1.39	1.13	
			#	#	#	#	#	#	
Phosphorus (diss.filt)	<10 µg/l	TM152	35.1	<10	<10	<10	<10	<10	
			#	#	#	#	#	#	
Selenium (diss.filt)	<1 µg/l	TM152	<1	1.21	2.18	2.3	2.23	1.9	
			#	#	#	#	#	#	
Vanadium (tot.unfilt)	<5 µg/l	TM152	<5	7.43	15.8	22.7	20.9	12.7	
			#	#	#	#	#	2 #	
Zinc (tot.unfilt)	<5 µg/l	TM152	90.5	9.54	<5	8.58	<5	7.35	
			#	#	#	#	#	2 #	
Vanadium (diss.filt)	<1 µg/l	TM152	<1	4.09	13.4	17.3	19.5	10.6	
			#	#	#	#	#	#	
Zinc (diss.filt)	<1 µg/l	TM152	3.08	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	
Lead (tot.unfilt)	<0.001 mg/l	TM152	0.0246		<0.001		<0.001	<0.001	
			#		#		#	2 #	
Magnesium (Dis.Filt)	<0.036 mg/l	TM152	23.3	11.6	7.18	6.81	7.5	8.06	
			#	#	#	#	#	#	
Calcium (Dis.Filt)	<0.2 mg/l	TM152	23.1	86.2	89.2	90.5	95.5	89.5	
			#	#	#	#	#	#	
Iron (Dis.Filt)	<0.019 mg/l	TM152	0.0453	<0.019	<0.019	0.0332	0.0304	0.0225	
			#	#	#	#	#	#	
Hardness, Total as CaCO3	<0.65 mg/l	TM152	154	263	253	254	270	257	
Magnesium (Tot. Unfilt.)	<0.05 mg/l	TM152	25	13.6	8.35	8.55	8.4	9.33	
			#	#	#	#	#	2 #	
Calcium (Tot. Unfilt.)	<0.057 mg/l	TM152	29.3	94.9	98.5	112	109	97.4	
			#	#	#	#	#	2 #	
Iron (Tot. Unfilt.)	<0.024 mg/l	TM152	1.31	0.833	0.223	1.18	0.327	0.165	
			#	#	#	#	#	2 #	
Naphthalene (diss.filt)	<0.01 µg/l	TM178	0.011	<0.01	<0.01	<0.01	<0.01	<0.01	
			♦		♦	♦	♦	♦	
Acenaphthene (diss.filt)	<0.005 µg/l	TM178	0.0142	0.00744	<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	<0.005	0.0146	<0.005	<0.005	
			♦		♦	♦	♦	♦	
Anthracene (diss.filt)	<0.005 µg/l	TM178	<0.005	<0.005	<0.005	0.00755	0.0092	<0.005	
			♦		♦	♦	♦	♦	
Phenanthrene (diss.filt)	<0.005 µg/l	TM178	0.00859	0.00597	0.02	0.029	0.0139	0.0185	
			♦		♦	♦	♦	♦	
Fluorene (diss.filt)	<0.005 µg/l	TM178	0.00629	<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	<0.005	<0.005	<0.005	0.025	0.0246	<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	0.0128	<0.005	<0.005	
			♦		♦	♦	♦	♦	
Benzo(k)fluoranthene (diss.filt)	<0.005 µg/l	TM178	<0.005	<0.005	<0.005	0.0055	<0.005	<0.005	
			♦		♦	♦	♦	♦	
Benzo(a)pyrene (diss.filt)	<0.002 µg/l	TM178	<0.002	<0.002	<0.002	0.00607	<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: 190918-52  
Location: Llanwern

Client Reference:  
Order Number: LLA668

Report Number: 523907  
Superseded Report:

Results Legend			Customer Sample Ref.		R2-E	R3-E	R4-E	R2-W	R3-W	R4-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	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.				17/09/2019	17/09/2019	17/09/2019	17/09/2019	17/09/2019	17/09/2019
diss.filt	Dissolved / filtered sample.				00:00	00:00	00:00	00:00	00:00	00:00
tot.unfilt	Total / unfiltered sample.				18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
*	Subcontracted - refer to subcontractor report for accreditation status.				190918-52	190918-52	190918-52	190918-52	190918-52	190918-52
**	% 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				20745186	20745125	20745073	20744769	20745169	20745106
(F)	Trigger breach confirmed									
1-3+5@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
Suspended solids, Total	<2 mg/l	TM022			8	12.5	21.5	14	30.5	12
					#	#	#	#	#	#
BOD, unfiltered	<1 mg/l	TM045			3.64	3.54	3.74	3.71	5.02	3.45
					#	#	#	#	#	#
Oxygen, dissolved	<0.3 mg/l	TM046			10.6	10.4	9.72	10.6	10.6	10.3
Carbon, Organic (diss.filt)	<3 mg/l	TM090			9.53	9.54	10.4	9.6	9.47	9.41
Organic Carbon, Total	<3 mg/l	TM090			9.05	9.54	10.6	8.64	8.75	8.77
					#	#	#	#	#	#
Ammoniacal Nitrogen as NH4	<0.3 mg/l	TM099			0.489	1.28	0.405	<0.3	0.577	1.31
					#	#	#	#	#	#
Sulphide	<0.01 mg/l	TM101			<0.01	<0.01	<0.01	<0.01	<0.01	0.0281
					2	2	2	2	2	2
Fluoride	<0.5 mg/l	TM104			1.36	1.38	0.988	1.31	1.4	1.44
COD, unfiltered	<7 mg/l	TM107			29.1	38.7	37.4	42.1	48.4	50.7
					#	#	#	#	#	#
Redox potential	mV	TM110			92	87	106	85	105	115
Conductivity @ 20 deg.C (diss.filt)	<0.014 mS/cm	TM120			0.614	0.614	0.562	0.638	0.639	0.624
Dissolved solids, Total (meter)	<5 mg/l	TM123			499	493	446	499	526	537
					#	#	#	#	#	#
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			3.85	4.27	3.07	3.61	3.86	4.18
					#	#	#	#	#	#
Arsenic (tot.unfilt)	<2 µg/l	TM152			4.32	4.81	3.5	3.88	4.44	4.73
					#	#	#	#	#	#
Barium (diss.filt)	<0.2 µg/l	TM152			53.4	59.4	61.6	52	55.7	58.6
					#	#	#	#	#	#
Barium (tot.unfilt)	<0.5 µg/l	TM152			63.9	62.9	74.3	64.9	69.3	64.4
					#	#	#	#	#	#
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			193	193	171	191	185	191
					#	#	#	#	#	#
Boron (tot.unfilt)	<20 µg/l	TM152			246	252	241	258	255	241
					#	#	#	#	#	#
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			1.99	1.78	2.58	1.79	1.88	1.83
					#	#	#	#	#	#
Lead (tot.unfilt)	<1 µg/l	TM152						<1		
								#		
Copper (diss.filt)	<0.3 µg/l	TM152			1.29	1.62	1.87	1.1	1.49	1.52
					#	#	#	#	#	#
Manganese (tot.unfilt)	<1 µg/l	TM152			199	121	280	106	212	114
					#	#	#	#	#	#
Lead (diss.filt)	<0.2 µg/l	TM152			0.496	<0.2	<0.2	<0.2	<0.2	<0.2
					#	#	#	#	#	#
Nickel (tot.unfilt)	<1 µg/l	TM152			6.85	1.94	2.32	1.69	3.93	2.42
					#	#	#	#	#	#
Manganese (diss.filt)	<3 µg/l	TM152			137	67.5	28.5	52.6	92.1	64.5
					#	#	#	#	#	#





# CERTIFICATE OF ANALYSIS

Validated

SDG: 190918-52  
Location: Llanwern

Client Reference:  
Order Number: LLA668

Report Number: 523907  
Superseded Report:

Results Legend			Customer Sample Ref.	R2-E	R3-E	R4-E	R2-W	R3-W	R4-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	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.			17/09/2019	17/09/2019	17/09/2019	17/09/2019	17/09/2019	17/09/2019
diss.filt	Dissolved / filtered sample.			00:00	00:00	00:00	00:00	00:00	00:00
tot.unfilt	Total / unfiltered sample.			18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
*	Subcontracted - refer to subcontractor report for accreditation status.			190918-52	190918-52	190918-52	190918-52	190918-52	190918-52
**	% 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			20745186	20745125	20745073	20744769	20745169	20745106
(F)	Trigger breach confirmed								
1-3*5@	Sample deviation (see appendix)								
Component	LOD/Units	Method							
Phosphorus (tot.unfilt)	<20 µg/l	TM152	75.5	106	69	71.9	145	75.8	
			#	#	#	#	#	#	
Selenium (tot.unfilt)	<1 µg/l	TM152	2.6	2.43	2.05	2.19	2.66	2.73	
			#	#	#	#	#	#	
Nickel (diss.filt)	<0.4 µg/l	TM152	1.1	1.41	1.59	1.05	1.99	1.54	
			#	#	#	#	#	#	
Phosphorus (diss.filt)	<10 µg/l	TM152	<10	<10	<10	<10	<10	<10	
			#	#	#	#	#	#	
Selenium (diss.filt)	<1 µg/l	TM152	2.28	2.64	2	2.05	2.04	2.62	
			#	#	#	#	#	#	
Vanadium (tot.unfilt)	<5 µg/l	TM152	14.9	23	29.4	13.4	18.5	23.4	
			#	#	#	#	#	#	
Zinc (tot.unfilt)	<5 µg/l	TM152	7.2	<5	5.76	6.48	5.89	<5	
			#	#	#	#	#	#	
Vanadium (diss.filt)	<1 µg/l	TM152	12.7	22	25.3	10.6	13.7	19.8	
			#	#	#	#	#	#	
Zinc (diss.filt)	<1 µg/l	TM152	1.09	<1	<1	<1	2.08	<1	
			#	#	#	#	#	#	
Lead (tot.unfilt)	<0.001 mg/l	TM152	<0.001	<0.001	<0.001		0.00313	<0.001	
			#	#	#		#	#	
Magnesium (Dis.Filt)	<0.036 mg/l	TM152	7.29	6.27	6.67	7.85	6.79	6.07	
			#	#	#	#	#	#	
Calcium (Dis.Filt)	<0.2 mg/l	TM152	86	85.1	80.9	91.9	89.7	82.8	
			#	#	#	#	#	#	
Iron (Dis.Filt)	<0.019 mg/l	TM152	0.0314	0.0402	<0.019	<0.019	0.0263	0.0334	
			#	#	#	#	#	#	
Hardness, Total as CaCO3	<0.65 mg/l	TM152	245	239	230	262	252	232	
Magnesium (Tot. Unfilt.)	<0.05 mg/l	TM152	8.27	7.1	7.81	9.52	8.38	7.23	
			#	#	#	#	#	#	
Calcium (Tot. Unfilt.)	<0.057 mg/l	TM152	97.9	96.3	94.2	105	96	98	
			#	#	#	#	#	#	
Iron (Tot. Unfilt.)	<0.024 mg/l	TM152	0.197	0.292	0.381	0.246	0.718	0.294	
			#	#	#	#	#	#	
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	0.0217	<0.005	<0.005	<0.005	
			♦		♦	♦	♦		
Acenaphthylene (diss.filt)	<0.005 µg/l	TM178	<0.005	<0.005	0.0144	<0.005	<0.005	<0.005	
			♦		♦	♦	♦		
Fluoranthene (diss.filt)	<0.005 µg/l	TM178	<0.005	<0.005	0.0221	0.00676	<0.005	<0.005	
			♦		♦	♦	♦		
Anthracene (diss.filt)	<0.005 µg/l	TM178	<0.005	0.00535	0.0153	<0.005	0.0056	0.00734	
			♦		♦	♦	♦		
Phenanthrene (diss.filt)	<0.005 µg/l	TM178	0.0199	0.0295	0.0236	0.0163	0.021	0.0348	
			♦		♦	♦	♦		
Fluorene (diss.filt)	<0.005 µg/l	TM178	<0.005	<0.005	0.0124	<0.005	<0.005	<0.005	
			♦		♦	♦	♦		
Chrysene (diss.filt)	<0.005 µg/l	TM178	<0.005	<0.005	0.0177	<0.005	<0.005	<0.005	
			♦		♦	♦	♦		
Pyrene (diss.filt)	<0.005 µg/l	TM178	<0.005	0.0146	0.0209	0.0109	0.00614	0.0147	
			♦		♦	♦	♦		
Benzo(a)anthracene (diss.filt)	<0.005 µg/l	TM178	<0.005	<0.005	0.023	<0.005	<0.005	<0.005	
			♦		♦	♦	♦		
Benzo(b)fluoranthene (diss.filt)	<0.005 µg/l	TM178	<0.005	<0.005	0.0449	<0.005	<0.005	<0.005	
			♦		♦	♦	♦		
Benzo(k)fluoranthene (diss.filt)	<0.005 µg/l	TM178	<0.005	<0.005	0.0218	<0.005	<0.005	<0.005	
			♦		♦	♦	♦		
Benzo(a)pyrene (diss.filt)	<0.002 µg/l	TM178	<0.002	<0.002	0.0203	<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:** 190918-52  
**Location:** Llanwern

**Client Reference:**  
**Order Number:** LLA668

**Report Number:** 523907  
**Superseded Report:**

Results Legend			Customer Sample Ref.	R1-W / D0-N	SL-N	SL-S	SL-W		
#	ISO17025 accredited.								
M	mCERTS accredited.								
sq	Aqueous / settled sample.								
diss.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							
Suspended solids, Total	<2 mg/l	TM022	14.5	16.5	39	42			
			#	#	#	#			
BOD, unfiltered	<1 mg/l	TM045	2.05	3.42	3.32	3.77			
			#	#	#	#			
Oxygen, dissolved	<0.3 mg/l	TM046	10.7	10.8	10	10.8			
Carbon, Organic (diss.filt)	<3 mg/l	TM090	9.23	11.2	11.3	11.1			
Organic Carbon, Total	<3 mg/l	TM090	8.26	10.5	10.2	10.2			
			#	#	#	#			
Ammoniacal Nitrogen as NH4	<0.3 mg/l	TM099	<0.3	0.649	0.62	0.742			
			#	#	#	#			
Sulphide	<0.01 mg/l	TM101	0.0187	0.0167	0.0247	0.0182			
			2	2	2	2			
Fluoride	<0.5 mg/l	TM104	0.722	0.986	0.994	1.03			
COD, unfiltered	<7 mg/l	TM107	35.3	41.8	43	39.2			
			#	#	#	#			
Redox potential	mV	TM110	211	98	102	83			
Conductivity @ 20 deg.C (diss.filt)	<0.014 mS/cm	TM120	0.666	0.57	0.571	0.576			
Dissolved solids, Total (meter)	<5 mg/l	TM123	531	449	452	492			
			#	#	#	#			
Antimony (diss.filt)	<1 µg/l	TM152	<1	<1	<1	<1			
Antimony (tot.unfilt)	<4 µg/l	TM152	<4	<4	<4	<4			
Arsenic (diss.filt)	<0.5 µg/l	TM152	2.85	4.5	4.71	4.74			
			#	#	#	#			
Arsenic (tot.unfilt)	<2 µg/l	TM152	3.47	5.12	5.47	5.7			
			#	#	#	#			
Barium (diss.filt)	<0.2 µg/l	TM152	40.8	64.4	65	63.4			
			#	#	#	#			
Barium (tot.unfilt)	<0.5 µg/l	TM152	54.7	78.9	83.3	81.5			
			#	#	#	#			
Beryllium (diss.filt)	<0.1 µg/l	TM152	<0.1	<0.1	<0.1	<0.1			
			#	#	#	#			
Beryllium (tot.unfilt)	<1 µg/l	TM152	<1	<1	<1	<1			
			#	#	#	#			
Boron (diss.filt)	<10 µg/l	TM152	187	156	158	157			
			#	#	#	#			
Boron (tot.unfilt)	<20 µg/l	TM152	244	204	209	209			
			#	#	#	#			
Cadmium (diss.filt)	<0.08 µg/l	TM152	<0.08	<0.08	<0.08	<0.08			
			#	#	#	#			
Cadmium (tot.unfilt)	<0.5 µg/l	TM152	<0.5	<0.5	<0.5	<0.5			
			#	#	#	#			
Chromium (tot.unfilt)	<3 µg/l	TM152	<3	<3	<3	<3			
			#	#	#	#			
Chromium (diss.filt)	<1 µg/l	TM152	<1	<1	<1	<1			
			#	#	#	#			
Copper (tot.unfilt)	<1 µg/l	TM152	5.66	3.44	4.68	4.14			
			#	#	#	#			
Lead (tot.unfilt)	<1 µg/l	TM152			4.32				
					#				
Copper (diss.filt)	<0.3 µg/l	TM152	3.56	2.52	2.44	2.4			
			#	#	#	#			
Manganese (tot.unfilt)	<1 µg/l	TM152	102	36.5	70.6	63.6			
			#	#	#	#			
Lead (diss.filt)	<0.2 µg/l	TM152	<0.2	<0.2	<0.2	<0.2			
			#	#	#	#			
Nickel (tot.unfilt)	<1 µg/l	TM152	3.22	3.39	3.59	4.84			
			#	#	#	#			
Manganese (diss.filt)	<3 µg/l	TM152	7.67	<3	<3	<3			
			#	#	#	#			



# CERTIFICATE OF ANALYSIS

Validated

**SDG:** 190918-52  
**Location:** Llanwern

**Client Reference:**  
**Order Number:** LLA668

**Report Number:** 523907  
**Superseded Report:**

Results Legend		Customer Sample Ref.	R1-W / D0-N	SL-N	SL-S	SL-W		
#	ISO17025 accredited.	<b>Depth (m)</b> <b>Sample Type</b> <b>Date Sampled</b> <b>Sample Time</b> <b>Date Received</b> <b>SDG Ref</b> <b>Lab Sample No.(s)</b> <b>AGS Reference</b>	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)		
aq	Aqueous / settled sample.		17/09/2019	17/09/2019	17/09/2019	17/09/2019		
diss.filt	Dissolved / filtered sample.		00:00	00:00	00:00	00:00		
tot.unfilt	Total / unfiltered sample.		18/09/2019	18/09/2019	18/09/2019	18/09/2019		
*	Subcontracted - refer to subcontractor report for accreditation status.		190918-52	190918-52	190918-52	190918-52		
**	% 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		20744808	20745052	20745024	20745039		
(F)	Trigger breach confirmed							
1-3*5@	Sample deviation (see appendix)							
Component	LOD/Units	Method						
Phosphorus (tot.unfilt)	<20 µg/l	TM152	51.4	52	60.9	66.2		
			#	#	#	#		
Selenium (tot.unfilt)	<1 µg/l	TM152	1.46	2.28	2.58	2.4		
			#	#	#	#		
Nickel (diss.filt)	<0.4 µg/l	TM152	1.62	2.17	2.13	2.27		
			#	#	#	#		
Phosphorus (diss.filt)	<10 µg/l	TM152	<10	<10	<10	<10		
			#	#	#	#		
Selenium (diss.filt)	<1 µg/l	TM152	1.19	2.09	2.07	2.23		
			#	#	#	#		
Vanadium (tot.unfilt)	<5 µg/l	TM152	11.7	28.6	30.2	30.1		
			#	#	#	#		
Zinc (tot.unfilt)	<5 µg/l	TM152	12.8	20.5	19.7	24.9		
			#	#	#	#		
Vanadium (diss.filt)	<1 µg/l	TM152	7.99	24.5	24.8	24.5		
			#	#	#	#		
Zinc (diss.filt)	<1 µg/l	TM152	9.59	<1	<1	<1		
			#	#	#	#		
Lead (tot.unfilt)	<0.001 mg/l	TM152	0.00286	0.00547		0.00757		
			#	#		#		
Magnesium (Dis.Filt)	<0.036 mg/l	TM152	9.19	6.77	6.86	6.72		
			#	#	#	#		
Calcium (Dis.Filt)	<0.2 mg/l	TM152	72.6	80.2	81.1	79.9		
			#	#	#	#		
Iron (Dis.Filt)	<0.019 mg/l	TM152	<0.019	<0.019	<0.019	<0.019		
			#	#	#	#		
Hardness, Total as CaCO3	<0.65 mg/l	TM152	219	229	231	227		
Magnesium (Tot. Unfilt.)	<0.05 mg/l	TM152	11	8.11	8.53	8.66		
			#	#	#	#		
Calcium (Tot. Unfilt.)	<0.057 mg/l	TM152	81.9	89.5	94.3	93.8		
			#	#	#	#		
Iron (Tot. Unfilt.)	<0.024 mg/l	TM152	0.787	0.746	0.969	1.43		
			#	#	#	#		
Naphthalene (diss.filt)	<0.01 µg/l	TM178	<0.01	0.0354	0.0235	0.0293		
			♦		♦	♦		
Acenaphthene (diss.filt)	<0.005 µg/l	TM178	0.0131	0.0163	0.013	0.0176		
			♦		♦	♦		
Acenaphthylene (diss.filt)	<0.005 µg/l	TM178	<0.005	<0.005	<0.005	<0.005		
			♦		♦	♦		
Fluoranthene (diss.filt)	<0.005 µg/l	TM178	<0.005	0.00681	<0.005	0.00693		
			♦		♦	♦		
Anthracene (diss.filt)	<0.005 µg/l	TM178	<0.005	0.00644	<0.005	<0.005		
			♦		♦	♦		
Phenanthrene (diss.filt)	<0.005 µg/l	TM178	0.00791	0.0263	0.0194	0.0183		
			♦		♦	♦		
Fluorene (diss.filt)	<0.005 µg/l	TM178	<0.005	0.0115	0.00999	0.0124		
			♦		♦	♦		
Chrysene (diss.filt)	<0.005 µg/l	TM178	<0.005	<0.005	<0.005	<0.005		
			♦		♦	♦		
Pyrene (diss.filt)	<0.005 µg/l	TM178	<0.005	<0.005	<0.005	<0.005		
			♦		♦	♦		
Benzo(a)anthracene (diss.filt)	<0.005 µg/l	TM178	<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		
			♦		♦	♦		
Benzo(k)fluoranthene (diss.filt)	<0.005 µg/l	TM178	<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		
			♦		♦	♦		
Dibenzo(a,h)anthracene (diss.filt)	<0.005 µg/l	TM178	<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		
			♦		♦	♦		

















# CERTIFICATE OF ANALYSIS

Validated

SDG: 190918-52  
Location: Llanwern

Client Reference:  
Order Number: LLA668

Report Number: 523907  
Superseded Report:

## SVOC MS (W) - Aqueous

Results Legend			Customer Sample Ref.	DO-C	D1-C	D2-C	D1-N	D2-N	D3-N
#	ISO17025 accredited.	mCERTS accredited.							
M	Aqueous / settled sample.		Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	0.00 - 0.00 Surface Water (SW) 17/09/2019 00:00 18/09/2019 190918-52 20744824	0.00 - 0.00 Surface Water (SW) 17/09/2019 00:00 18/09/2019 190918-52 20744932	0.00 - 0.00 Surface Water (SW) 17/09/2019 00:00 18/09/2019 190918-52 20744946	0.00 - 0.00 Surface Water (SW) 17/09/2019 00:00 18/09/2019 190918-52 20744839	0.00 - 0.00 Surface Water (SW) 17/09/2019 00:00 18/09/2019 190918-52 20744855	0.00 - 0.00 Surface Water (SW) 17/09/2019 00:00 18/09/2019 190918-52 20744881
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							
1,2,4-Trichlorobenzene (aq)	<1 µg/l	TM176		<1	<1	<2	<1	<1	<1
				#	#	#	#	#	#
1,2-Dichlorobenzene (aq)	<1 µg/l	TM176		<1	<1	<2	<1	<1	<1
				#	#	#	#	#	#
1,3-Dichlorobenzene (aq)	<1 µg/l	TM176		<1	<1	<2	<1	<1	<1
				#	#	#	#	#	#
1,4-Dichlorobenzene (aq)	<1 µg/l	TM176		<1	<1	<2	<1	<1	<1
				#	#	#	#	#	#
2,4,5-Trichlorophenol (aq)	<1 µg/l	TM176		<1	<1	<2	<1	<1	<1
				#	#	#	#	#	#
2,4,6-Trichlorophenol (aq)	<1 µg/l	TM176		<1	<1	<2	<1	<1	<1
				#	#	#	#	#	#
2,4-Dichlorophenol (aq)	<1 µg/l	TM176		<1	<1	<2	<1	<1	<1
				#	#	#	#	#	#
2,4-Dimethylphenol (aq)	<1 µg/l	TM176		<1	<1	<2	<1	<1	<1
				#	#	#	#	#	#
2,4-Dinitrotoluene (aq)	<1 µg/l	TM176		<1	<1	<2	<1	<1	<1
				#	#	#	#	#	#
2,6-Dinitrotoluene (aq)	<1 µg/l	TM176		<1	<1	<2	<1	<1	<1
				#	#	#	#	#	#
2-Chloronaphthalene (aq)	<1 µg/l	TM176		<1	<1	<2	<1	<1	<1
				#	#	#	#	#	#
2-Chlorophenol (aq)	<1 µg/l	TM176		<1	<1	<2	<1	<1	<1
				#	#	#	#	#	#
2-Methylnaphthalene (aq)	<1 µg/l	TM176		<1	<1	<2	<1	<1	<1
				#	#	#	#	#	#
2-Methylphenol (aq)	<1 µg/l	TM176		<1	<1	<2	<1	<1	<1
				#	#	#	#	#	#
2-Nitroaniline (aq)	<1 µg/l	TM176		<1	<1	<2	<1	<1	<1
				#	#	#	#	#	#
2-Nitrophenol (aq)	<1 µg/l	TM176		<1	<1	<2	<1	<1	<1
				#	#	#	#	#	#
3-Nitroaniline (aq)	<1 µg/l	TM176		<1	<1	<2	<1	<1	<1
				#	#	#	#	#	#
4-Bromophenylphenylether (aq)	<1 µg/l	TM176		<1	<1	<2	<1	<1	<1
				#	#	#	#	#	#
4-Chloro-3-methylphenol (aq)	<1 µg/l	TM176		<1	<1	<2	<1	<1	<1
				#	#	#	#	#	#
4-Chloroaniline (aq)	<1 µg/l	TM176		<1	<1	<2	<1	<1	<1
4-Chlorophenylphenylether (aq)	<1 µg/l	TM176		<1	<1	<2	<1	<1	<1
				#	#	#	#	#	#
4-Methylphenol (aq)	<1 µg/l	TM176		<1	<1	<2	<1	<1	<1
				#	#	#	#	#	#
4-Nitroaniline (aq)	<1 µg/l	TM176		<1	<1	<2	<1	<1	<1
				#	#	#	#	#	#
4-Nitrophenol (aq)	<1 µg/l	TM176		<1	<1	<2	<1	<1	<1
Azobenzene (aq)	<1 µg/l	TM176		<1	<1	<2	<1	<1	<1
				#	#	#	#	#	#
bis(2-Chloroethyl)ether (aq)	<1 µg/l	TM176		<1	<1	<2	<1	<1	<1
				#	#	#	#	#	#
bis(2-Chloroethoxy)methane (aq)	<1 µg/l	TM176		<1	<1	<2	<1	<1	<1
				#	#	#	#	#	#
bis(2-Ethylhexyl) phthalate (aq)	<2 µg/l	TM176		<2	<2	<4	<2	<2	<2
				#	#	#	#	#	#
Butylbenzyl phthalate (aq)	<1 µg/l	TM176		<1	<1	<2	<1	<1	<1
				#	#	#	#	#	#
Benzo(k)fluoranthene (aq)	<1 µg/l	TM176		<1	<1	<2	<1	<1	<1
				#	#	#	#	#	#
Carbazole (aq)	<1 µg/l	TM176		<1	<1	<2	<1	<1	<1
				#	#	#	#	#	#
Dibenzofuran (aq)	<1 µg/l	TM176		<1	<1	<2	<1	<1	<1
				#	#	#	#	#	#
n-Dibutyl phthalate (aq)	<1 µg/l	TM176		<1	<1	<2	<1	<1	<1
				#	#	#	#	#	#

<b>SDG:</b>	190918-52
<b>Location:</b>	Llanwern

**Client Reference:**  
**Order Number:** LLA668

**Report Number:** 523907  
**Superseded Report:**

## SVOC MS (W) - Aqueous

[illegible]



# CERTIFICATE OF ANALYSIS

Validated

SDG: 190918-52  
Location: Llanwern

Client Reference:  
Order Number: LLA668

Report Number: 523907  
Superseded Report:

## SVOC MS (W) - Aqueous

Results Legend			Customer Sample Ref.	D1-S	D2-S	D3-S	KW-C	KW-N	Pond-N
#	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
sq	Dissolved / filtered sample.		Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)
dis.filt	Total / unfiltered sample.		Date Sampled	17/09/2019	17/09/2019	17/09/2019	17/09/2019	17/09/2019	17/09/2019
tot.unfilt	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	18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
**	Trigger breach confirmed		SDG Ref	190918-52	190918-52	190918-52	190918-52	190918-52	190918-52
(F)	Sample deviation (see appendix)		Lab Sample No.(s)	20744998	20744982	20744906	20744740	20744920	20744958
1-3+5@	AGS Reference		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: 190918-52  
Location: Llanwern

Client Reference:  
Order Number: LLA668

Report Number: 523907  
Superseded Report:

## SVOC MS (W) - Aqueous

Results Legend			Customer Sample Ref.	Pond-S	R1-C	R2-C	R3-C	R4-C	R1-E
#	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	17/09/2019	17/09/2019	17/09/2019	17/09/2019	17/09/2019	17/09/2019
*	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	18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
(F)	Trigger breach confirmed		SDG Ref	190918-52	190918-52	190918-52	190918-52	190918-52	190918-52
1-3+5@	Sample deviation (see appendix)		Lab Sample No.(s)	20744971	20744795	20744754	20745142	20745088	20744783
	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: 190918-52  
Location: Llanwern

Client Reference:  
Order Number: LLA668

Report Number: 523907  
Superseded Report:

## SVOC MS (W) - Aqueous

Results Legend			Customer Sample Ref.	R2-E	R3-E	R4-E	R2-W	R3-W	R4-W
#	ISO17025 accredited.	mCERTS accredited.							
M	Aqueous / settled sample.		Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	0.00 - 0.00 Surface Water (SW) 17/09/2019 00:00 18/09/2019 190918-52 20745186	0.00 - 0.00 Surface Water (SW) 17/09/2019 00:00 18/09/2019 190918-52 20745125	0.00 - 0.00 Surface Water (SW) 17/09/2019 00:00 18/09/2019 190918-52 20745073	0.00 - 0.00 Surface Water (SW) 17/09/2019 00:00 18/09/2019 190918-52 20744769	0.00 - 0.00 Surface Water (SW) 17/09/2019 00:00 18/09/2019 190918-52 20745169	0.00 - 0.00 Surface Water (SW) 17/09/2019 00:00 18/09/2019 190918-52 20745106
dis.filt	Disolved / 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							
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:** 190918-52  
**Location:** Llanwern

**Client Reference:**  
**Order Number:** LLA668

**Report Number:** 523907  
**Superseded Report:**

## SVOC MS (W) - Aqueous

Results Legend			Customer Sample Ref.	R1-W / D0-N	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							
1,2,4-Trichlorobenzene (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
				#	#	#	#		
1,2-Dichlorobenzene (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
				#	#	#	#		
1,3-Dichlorobenzene (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
				#	#	#	#		
1,4-Dichlorobenzene (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
				#	#	#	#		
2,4,5-Trichlorophenol (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
				#	#	#	#		
2,4,6-Trichlorophenol (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
				#	#	#	#		
2,4-Dichlorophenol (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
				#	#	#	#		
2,4-Dimethylphenol (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
				#	#	#	#		
2,4-Dinitrotoluene (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
				#	#	#	#		
2,6-Dinitrotoluene (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
				#	#	#	#		
2-Chloronaphthalene (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
				#	#	#	#		
2-Chlorophenol (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
				#	#	#	#		
2-Methylnaphthalene (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
				#	#	#	#		
2-Methylphenol (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
				#	#	#	#		
2-Nitroaniline (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
				#	#	#	#		
2-Nitrophenol (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
				#	#	#	#		
3-Nitroaniline (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
				#	#	#	#		
4-Bromophenylphenylether (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
				#	#	#	#		
4-Chloro-3-methylphenol (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
				#	#	#	#		
4-Chloroaniline (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
4-Chlorophenylphenylether (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
				#	#	#	#		
4-Methylphenol (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
				#	#	#	#		
4-Nitroaniline (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
				#	#	#	#		
4-Nitrophenol (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
Azobenzene (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
				#	#	#	#		
bis(2-Chloroethyl)ether (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
				#	#	#	#		
bis(2-Chloroethoxy)methane (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
				#	#	#	#		
bis(2-Ethylhexyl) phthalate (aq)	<2 µg/l	TM176		<2	<2	<2	<2		
				#	#	#	#		
Butylbenzyl phthalate (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
				#	#	#	#		
Benzo(k)fluoranthene (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
				#	#	#	#		
Carbazole (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
				#	#	#	#		
Dibenzofuran (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
				#	#	#	#		
n-Dibutyl phthalate (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
				#	#	#	#		





# CERTIFICATE OF ANALYSIS

Validated

SDG: 190918-52  
Location: Llanwern

Client Reference:  
Order Number: LLA668

Report Number: 523907  
Superseded Report:

## TPH CWG (W)

Results Legend			Customer Sample Ref.		D0-C	D1-C	D2-C	D1-N	D2-N	D3-N
#	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	mCERTS accredited.				Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)
sq	Aqueous / settled sample.				17/09/2019	17/09/2019	17/09/2019	17/09/2019	17/09/2019	17/09/2019
dis.filt	Dissolved / filtered sample.				00:00	00:00	00:00	00:00	00:00	00:00
tot.unfilt	Total / unfiltered sample.				18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
*	Subcontracted - refer to subcontractor report for accreditation status.				190918-52	190918-52	190918-52	190918-52	190918-52	190918-52
**	% 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				20744824	20744932	20744946	20744839	20744855	20744881
(F)	Trigger breach confirmed									
1-3+5@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
GRO Surrogate % recovery**	%	TM245			104	93	105	107	100	102
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: 190918-52  
Location: Llanwern

Client Reference:  
Order Number: LLA668

Report Number: 523907  
Superseded Report:

## TPH CWG (W)

Results Legend			Customer Sample Ref.		D1-S	D2-S	D3-S	KW-C	KW-N	Pond-N
#	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	mCERTS accredited.				Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)
sq	Aqueous / settled sample.				17/09/2019	17/09/2019	17/09/2019	17/09/2019	17/09/2019	17/09/2019
dis.filt	Dissolved / filtered sample.				00:00	00:00	00:00	00:00	00:00	00:00
tot.unfilt	Total / unfiltered sample.				18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
*	Subcontracted - refer to subcontractor report for accreditation status.				190918-52	190918-52	190918-52	190918-52	190918-52	190918-52
**	% 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				20744998	20744982	20744906	20744740	20744920	20744958
(F)	Trigger breach confirmed									
1-3+5@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
GRO Surrogate % recovery**	%	TM245			112	109	98	97	99	109
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	12	<10	<10	<10	<10
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174			<10	12	<10	<10	<10	<10
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174			<10	12	<10	<10	<10	<10
Aliphatics >C16-C35 Aqueous	<10 µg/l	TM174			<10	<10	<10	<10	<10	<10



# CERTIFICATE OF ANALYSIS

Validated

SDG: 190918-52  
Location: Llanwern

Client Reference:  
Order Number: LLA668

Report Number: 523907  
Superseded Report:

## TPH CWG (W)

Results Legend			Customer Sample Ref.	Pond-S	R1-C	R2-C	R3-C	R4-C	R1-E
#	ISO17025 accredited.								
M	mCERTS accredited.								
sq	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	0.00 - 0.00 Surface Water (SW) 17/09/2019 00:00 18/09/2019 190918-52 20744971	0.00 - 0.00 Surface Water (SW) 17/09/2019 00:00 18/09/2019 190918-52 20744795	0.00 - 0.00 Surface Water (SW) 17/09/2019 00:00 18/09/2019 190918-52 20744754	0.00 - 0.00 Surface Water (SW) 17/09/2019 00:00 18/09/2019 190918-52 20745142	0.00 - 0.00 Surface Water (SW) 17/09/2019 00:00 18/09/2019 190918-52 20745088	0.00 - 0.00 Surface Water (SW) 17/09/2019 00:00 18/09/2019 190918-52 20744783
GRO Surrogate % recovery**	%	TM245		96	106	111	108	110	99
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: 190918-52  
Location: Llanwern

Client Reference:  
Order Number: LLA668

Report Number: 523907  
Superseded Report:

## TPH CWG (W)

Results Legend			Customer Sample Ref.		R2-E	R3-E	R4-E	R2-W	R3-W	R4-W
#	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	mCERTS accredited.				Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)
sq	Aqueous / settled sample.				17/09/2019	17/09/2019	17/09/2019	17/09/2019	17/09/2019	17/09/2019
dis.filt	Dissolved / filtered sample.				00:00	00:00	00:00	00:00	00:00	00:00
tot.unfilt	Total / unfiltered sample.				18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
*	Subcontracted - refer to subcontractor report for accreditation status.				190918-52	190918-52	190918-52	190918-52	190918-52	190918-52
**	% 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				20745186	20745125	20745073	20744769	20745169	20745106
(F)	Trigger breach confirmed									
1-3+5@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
GRO Surrogate % recovery**	%	TM245			104	105	103	94	100	93
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: 190918-52  
Location: Llanwern

Client Reference:  
Order Number: LLA668

Report Number: 523907  
Superseded Report:

## TPH CWG (W)

Results Legend			Customer Sample Ref.	R1-W / D0-N	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*§@	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		95	101	89	108		
GRO >C5-C12	<50 µg/l	TM245		<50	<50	<50	<50		
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245		<3	<3	<3	<3		
Benzene	<7 µg/l	TM245		<7	<7	<7	<7		
Toluene	<4 µg/l	TM245		<4	<4	<4	<4		
Ethylbenzene	<5 µg/l	TM245		<5	<5	<5	<5		
m,p-Xylene	<8 µg/l	TM245		<8	<8	<8	<8		
o-Xylene	<3 µg/l	TM245		<3	<3	<3	<3		
Sum of detected Xylenes	<11 µg/l	TM245		<11	<11	<11	<11		
Sum of detected BTEX	<28 µg/l	TM245		<28	<28	<28	<28		
Aliphatics >C5-C6	<10 µg/l	TM245		<10	<10	<10	<10		
Aliphatics >C6-C8	<10 µg/l	TM245		<10	<10	<10	<10		
Aliphatics >C8-C10	<10 µg/l	TM245		<10	<10	<10	<10		
Aliphatics >C10-C12	<10 µg/l	TM245		<10	<10	<10	<10		
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174		<10	<10	<10	<10		
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174		<10	<10	<10	<10		
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174		<10	<10	<10	<10		
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174		<10	<10	<10	<10		
Aromatics >EC5-EC7	<10 µg/l	TM245		<10	<10	<10	<10		
Aromatics >EC7-EC8	<10 µg/l	TM245		<10	<10	<10	<10		
Aromatics >EC8-EC10	<10 µg/l	TM245		<10	<10	<10	<10		
Aromatics >EC10-EC12	<10 µg/l	TM245		<10	<10	<10	<10		
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174		<10	<10	<10	<10		
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174		<10	<10	<10	<10		
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174		<10	<10	<10	<10		
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174		<10	<10	<10	<10		
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174		<10	<10	<10	<10		
Aliphatics >C16-C35 Aqueous	<10 µg/l	TM174		<10	<10	<10	<10		



# CERTIFICATE OF ANALYSIS

Validated

SDG: 190918-52  
Location: Llanwern

Client Reference:  
Order Number: LLA668

Report Number: 523907  
Superseded Report:

## VOC MS (W)

Results Legend			Customer Sample Ref.		D0-C	D1-C	D2-C	D1-N	D2-N	D3-N
#	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.				17/09/2019	17/09/2019	17/09/2019	17/09/2019	17/09/2019	17/09/2019
dis.filt	Dissolved / filtered sample.				00:00	00:00	00:00	00:00	00:00	00:00
tot.unfilt	Total / unfiltered sample.				18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
*	Subcontracted - refer to subcontractor report for accreditation status.				190918-52	190918-52	190918-52	190918-52	190918-52	190918-52
**	% 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				20744824	20744932	20744946	20744839	20744855	20744881
(F)	Trigger breach confirmed									
1-3*§@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
Dibromofluoromethane**	%	TM208			107	107	110	105	111	109
Toluene-d8**	%	TM208			98	98.2	96.9	97.6	96.9	96.2
4-Bromofluorobenzene**	%	TM208			96.7	97.9	98.2	97	99.5	98.1
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: 190918-52  
Location: Llanwern

Client Reference:  
Order Number: LLA668

Report Number: 523907  
Superseded Report:

## VOC MS (W)

Results Legend			Customer Sample Ref.		D0-C	D1-C	D2-C	D1-N	D2-N	D3-N
#	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.				17/09/2019	17/09/2019	17/09/2019	17/09/2019	17/09/2019	17/09/2019
diss.filt	Dissolved / filtered sample.				00:00	00:00	00:00	00:00	00:00	00:00
tot.unfilt	Total / unfiltered sample.				18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
*	Subcontracted - refer to subcontractor report for accreditation status.				190918-52	190918-52	190918-52	190918-52	190918-52	190918-52
**	% 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				20744824	20744932	20744946	20744839	20744855	20744881
(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
					#	#	#	#	#	#
Dibromochloromethane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
1,2-Dibromoethane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
Chlorobenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
1,1,1,2-Tetrachloroethane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
Ethylbenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
m,p-Xylene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
o-Xylene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
Styrene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
Bromoform	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
Isopropylbenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
1,1,2,2-Tetrachloroethane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
1,2,3-Trichloropropane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
Bromobenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
Propylbenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
2-Chlorotoluene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
1,3,5-Trimethylbenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
4-Chlorotoluene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
tert-Butylbenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
1,2,4-Trimethylbenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
sec-Butylbenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
4-iso-Propyltoluene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
1,3-Dichlorobenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
1,4-Dichlorobenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
n-Butylbenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
1,2-Dichlorobenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
1,2-Dibromo-3-chloropropane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
1,2,4-Trichlorobenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
Hexachlorobutadiene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
tert-Amyl methyl ether (TAME)	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
Naphthalene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
1,2,3-Trichlorobenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#





# CERTIFICATE OF ANALYSIS

Validated

SDG: 190918-52  
Location: Llanwern

Client Reference:  
Order Number: LLA668

Report Number: 523907  
Superseded Report:

## VOC MS (W)

Results Legend			Customer Sample Ref.		D1-S	D2-S	D3-S	KW-C	KW-N	Pond-N
#	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.				17/09/2019	17/09/2019	17/09/2019	17/09/2019	17/09/2019	17/09/2019
dis.filt	Dissolved / filtered sample.				00:00	00:00	00:00	00:00	00:00	00:00
tot.unfilt	Total / unfiltered sample.				18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
*	Subcontracted - refer to subcontractor report for accreditation status.				190918-52	190918-52	190918-52	190918-52	190918-52	190918-52
**	% 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				20744998	20744982	20744906	20744740	20744920	20744958
(F)	Trigger breach confirmed									
1-3*§@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
Dibromofluoromethane**	%	TM208			106	108	113	114	111	111
Toluene-d8**	%	TM208			97.5	98	96.2	96.3	97.1	96.7
4-Bromofluorobenzene**	%	TM208			98.5	96.2	99.2	100	97.7	95.1
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	1.25	<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: 190918-52  
Location: Llanwern

Client Reference:  
Order Number: LLA668

Report Number: 523907  
Superseded Report:

## VOC MS (W)

Results Legend			Customer Sample Ref.		D1-S	D2-S	D3-S	KW-C	KW-N	Pond-N
#	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.				17/09/2019	17/09/2019	17/09/2019	17/09/2019	17/09/2019	17/09/2019
diss.filt	Dissolved / filtered sample.				00:00	00:00	00:00	00:00	00:00	00:00
tot.unfilt	Total / unfiltered sample.				18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
*	Subcontracted - refer to subcontractor report for accreditation status.				190918-52	190918-52	190918-52	190918-52	190918-52	190918-52
**	% 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				20744998	20744982	20744906	20744740	20744920	20744958
(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
					#	#	#	#	#	#
Dibromochloromethane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
1,2-Dibromoethane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
Chlorobenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
1,1,1,2-Tetrachloroethane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
Ethylbenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
m,p-Xylene	<1 µg/l	TM208			<1	<1	1.09	<1	<1	<1
					#	#	#	#	#	#
o-Xylene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
Styrene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
Bromoform	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
Isopropylbenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
1,1,2,2-Tetrachloroethane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
1,2,3-Trichloropropane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
Bromobenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
Propylbenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
2-Chlorotoluene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
1,3,5-Trimethylbenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
4-Chlorotoluene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
tert-Butylbenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
1,2,4-Trimethylbenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
sec-Butylbenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
4-iso-Propyltoluene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
1,3-Dichlorobenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
1,4-Dichlorobenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
n-Butylbenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
1,2-Dichlorobenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
1,2-Dibromo-3-chloropropane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
1,2,4-Trichlorobenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
Hexachlorobutadiene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
tert-Amyl methyl ether (TAME)	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
Naphthalene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
1,2,3-Trichlorobenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#





# CERTIFICATE OF ANALYSIS

Validated

SDG: 190918-52  
Location: Llanwern

Client Reference:  
Order Number: LLA668

Report Number: 523907  
Superseded Report:

## VOC MS (W)

Results Legend			Customer Sample Ref.		Pond-S	R1-C	R2-C	R3-C	R4-C	R1-E
#	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.				17/09/2019	17/09/2019	17/09/2019	17/09/2019	17/09/2019	17/09/2019
dis.filt	Dissolved / filtered sample.				00:00	00:00	00:00	00:00	00:00	00:00
tot.unfilt	Total / unfiltered sample.				18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
*	Subcontracted - refer to subcontractor report for accreditation status.				190918-52	190918-52	190918-52	190918-52	190918-52	190918-52
**	% 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				20744971	20744795	20744754	20745142	20745088	20744783
(F)	Trigger breach confirmed									
1-3*§@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
Dibromofluoromethane**	%	TM208			105	110	108	106	107	107
Toluene-d8**	%	TM208			97.8	98.3	98.4	97.1	97.6	97.3
4-Bromofluorobenzene**	%	TM208			96.9	98.9	97.9	96.2	96.4	95.9
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: 190918-52  
Location: Llanwern

Client Reference:  
Order Number: LLA668

Report Number: 523907  
Superseded Report:

## VOC MS (W)

Results Legend			Customer Sample Ref.		Pond-S	R1-C	R2-C	R3-C	R4-C	R1-E
#	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.				17/09/2019	17/09/2019	17/09/2019	17/09/2019	17/09/2019	17/09/2019
diss.filt	Dissolved / filtered sample.				00:00	00:00	00:00	00:00	00:00	00:00
tot.unfilt	Total / unfiltered sample.				18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
*	Subcontracted - refer to subcontractor report for accreditation status.				190918-52	190918-52	190918-52	190918-52	190918-52	190918-52
**	% 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				20744971	20744795	20744754	20745142	20745088	20744783
(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
					#	#	#	#	#	#
Dibromochloromethane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
1,2-Dibromoethane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
Chlorobenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
1,1,1,2-Tetrachloroethane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
Ethylbenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
m,p-Xylene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
o-Xylene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
Styrene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
Bromoform	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
Isopropylbenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
1,1,2,2-Tetrachloroethane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
1,2,3-Trichloropropane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
Bromobenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
Propylbenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
2-Chlorotoluene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
1,3,5-Trimethylbenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
4-Chlorotoluene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
tert-Butylbenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
1,2,4-Trimethylbenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
sec-Butylbenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
4-iso-Propyltoluene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
1,3-Dichlorobenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
1,4-Dichlorobenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
n-Butylbenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
1,2-Dichlorobenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
1,2-Dibromo-3-chloropropane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
1,2,4-Trichlorobenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
Hexachlorobutadiene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
tert-Amyl methyl ether (TAME)	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
Naphthalene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
1,2,3-Trichlorobenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#





# CERTIFICATE OF ANALYSIS

Validated

SDG: 190918-52  
Location: Llanwern

Client Reference:  
Order Number: LLA668

Report Number: 523907  
Superseded Report:

## VOC MS (W)

Results Legend			Customer Sample Ref.		R2-E	R3-E	R4-E	R2-W	R3-W	R4-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	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.				17/09/2019	17/09/2019	17/09/2019	17/09/2019	17/09/2019	17/09/2019
dis.filt	Dissolved / filtered sample.				00:00	00:00	00:00	00:00	00:00	00:00
tot.unfilt	Total / unfiltered sample.				18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
*	Subcontracted - refer to subcontractor report for accreditation status.				190918-52	190918-52	190918-52	190918-52	190918-52	190918-52
**	% 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				20745186	20745125	20745073	20744769	20745169	20745106
(F)	Trigger breach confirmed									
1-3*§@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
Dibromofluoromethane**	%	TM208			109	108	119	114	110	108
Toluene-d8**	%	TM208			96.6	98.1	98.3	96.5	97.1	97.9
4-Bromofluorobenzene**	%	TM208			98.6	96.8	100	99.4	97.6	93.8
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: 190918-52  
Location: Llanwern

Client Reference:  
Order Number: LLA668

Report Number: 523907  
Superseded Report:

## VOC MS (W)

Results Legend			Customer Sample Ref.	R2-E	R3-E	R4-E	R2-W	R3-W	R4-W
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference							
M	mCERTS accredited.								
aq	Aqueous / settled sample.								
diss.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							
Tetrachloroethene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	
Dibromochloromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	
1,2-Dibromoethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	
Chlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	
1,1,1,2-Tetrachloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	
Ethylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	
m,p-Xylene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	
o-Xylene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	
Styrene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	
Bromoform	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	
Isopropylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	
1,1,2,2-Tetrachloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	
1,2,3-Trichloropropane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	
Bromobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	
Propylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	
2-Chlorotoluene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	
1,3,5-Trimethylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	
4-Chlorotoluene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	
tert-Butylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	
1,2,4-Trimethylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	
sec-Butylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	
4-iso-Propyltoluene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	
1,3-Dichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	
1,4-Dichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	
n-Butylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	
1,2-Dichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	
1,2-Dibromo-3-chloropropane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
1,2,4-Trichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	
Hexachlorobutadiene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	
tert-Amyl methyl ether (TAME)	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	
Naphthalene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	
1,2,3-Trichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
			#	#	#	#	#	#	





# CERTIFICATE OF ANALYSIS

Validated

SDG: 190918-52  
Location: Llanwern

Client Reference:  
Order Number: LLA668

Report Number: 523907  
Superseded Report:

## VOC MS (W)

Results Legend			Customer Sample Ref.		R1-W / D0-N	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		
M	mCERTS accredited.				Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)		
sq	Aqueous / settled sample.				17/09/2019	17/09/2019	17/09/2019	17/09/2019		
dis.filt	Dissolved / filtered sample.				00:00	00:00	00:00	00:00		
tot.unfilt	Total / unfiltered sample.				18/09/2019	18/09/2019	18/09/2019	18/09/2019		
*	Subcontracted - refer to subcontractor report for accreditation status.				190918-52	190918-52	190918-52	190918-52		
**	% 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				20744808	20745052	20745024	20745039		
(F)	Trigger breach confirmed									
1-3*§@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
Dibromofluoromethane**	%	TM208			110	108	108	109		
Toluene-d8**	%	TM208			97.3	97.7	97.2	98.2		
4-Bromofluorobenzene**	%	TM208			98.7	95.8	94.2	96.5		
Dichlorodifluoromethane	<1 µg/l	TM208			<1	<1	<1	<1		
Chloromethane	<1 µg/l	TM208			<1	<1	<1	<1		
Vinyl chloride	<1 µg/l	TM208			<1	<1	<1	<1		
Bromomethane	<1 µg/l	TM208			<1	<1	<1	<1		
Chloroethane	<1 µg/l	TM208			<1	<1	<1	<1		
Trichlorofluoromethane	<1 µg/l	TM208			<1	<1	<1	<1		
1,1-Dichloroethene	<1 µg/l	TM208			<1	<1	<1	<1		
Carbon disulphide	<1 µg/l	TM208			<1	<1	<1	<1		
Dichloromethane	<3 µg/l	TM208			<3	<3	<3	<3		
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208			<1	<1	<1	<1		
trans-1,2-Dichloroethene	<1 µg/l	TM208			<1	<1	<1	<1		
1,1-Dichloroethane	<1 µg/l	TM208			<1	<1	<1	<1		
cis-1,2-Dichloroethene	<1 µg/l	TM208			<1	<1	<1	<1		
2,2-Dichloropropane	<1 µg/l	TM208			<1	<1	<1	<1		
Bromochloromethane	<1 µg/l	TM208			<1	<1	<1	<1		
Chloroform	<1 µg/l	TM208			<1	<1	<1	<1		
1,1,1-Trichloroethane	<1 µg/l	TM208			<1	<1	<1	<1		
1,1-Dichloropropene	<1 µg/l	TM208			<1	<1	<1	<1		
Carbontetrachloride	<1 µg/l	TM208			<1	<1	<1	<1		
1,2-Dichloroethane	<1 µg/l	TM208			<1	<1	<1	<1		
Benzene	<1 µg/l	TM208			<1	<1	<1	<1		
Trichloroethene	<1 µg/l	TM208			<1	<1	<1	<1		
1,2-Dichloropropane	<1 µg/l	TM208			<1	<1	<1	<1		
Dibromomethane	<1 µg/l	TM208			<1	<1	<1	<1		
Bromodichloromethane	<1 µg/l	TM208			<1	<1	<1	<1		
cis-1,3-Dichloropropene	<1 µg/l	TM208			<1	<1	<1	<1		
Toluene	<1 µg/l	TM208			<1	<1	<1	<1		
trans-1,3-Dichloropropene	<1 µg/l	TM208			<1	<1	<1	<1		
1,1,2-Trichloroethane	<1 µg/l	TM208			<1	<1	<1	<1		
1,3-Dichloropropane	<1 µg/l	TM208			<1	<1	<1	<1		



# CERTIFICATE OF ANALYSIS

Validated

**SDG:** 190918-52  
**Location:** Llanwern

**Client Reference:**  
**Order Number:** LLA668

**Report Number:** 523907  
**Superseded Report:**

## VOC MS (W)

Results Legend		Customer Sample Ref.	R1-W / D0-N	SL-N	SL-S	SL-W		
#	ISO17025 accredited.	<b>Depth (m)</b> <b>Sample Type</b> <b>Date Sampled</b> <b>Sample Time</b> <b>Date Received</b> <b>SDG Ref</b> <b>Lab Sample No.(s)</b> <b>AGS Reference</b>	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)		
aq	Aqueous / settled sample.		17/09/2019	17/09/2019	17/09/2019	17/09/2019		
diss.filt	Dissolved / filtered sample.		00:00	00:00	00:00	00:00		
tot.unfilt	Total / unfiltered sample.		18/09/2019	18/09/2019	18/09/2019	18/09/2019		
*	Subcontracted - refer to subcontractor report for accreditation status.		190918-52	190918-52	190918-52	190918-52		
**	% 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		20744808	20745052	20745024	20745039		
(F)	Trigger breach confirmed							
1-3*5@	Sample deviation (see appendix)							
Component	LOD/Units	Method						
Tetrachloroethene	<1 µg/l	TM208	<1	<1	<1	<1		
			#	#	#	#		
Dibromochloromethane	<1 µg/l	TM208	<1	<1	<1	<1		
			#	#	#	#		
1,2-Dibromoethane	<1 µg/l	TM208	<1	<1	<1	<1		
			#	#	#	#		
Chlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1		
			#	#	#	#		
1,1,1,2-Tetrachloroethane	<1 µg/l	TM208	<1	<1	<1	<1		
			#	#	#	#		
Ethylbenzene	<1 µg/l	TM208	<1	<1	<1	<1		
			#	#	#	#		
m,p-Xylene	<1 µg/l	TM208	<1	<1	<1	<1		
			#	#	#	#		
o-Xylene	<1 µg/l	TM208	<1	<1	<1	<1		
			#	#	#	#		
Styrene	<1 µg/l	TM208	<1	<1	<1	<1		
			#	#	#	#		
Bromoform	<1 µg/l	TM208	<1	<1	<1	<1		
			#	#	#	#		
Isopropylbenzene	<1 µg/l	TM208	<1	<1	<1	<1		
			#	#	#	#		
1,1,2,2-Tetrachloroethane	<1 µg/l	TM208	<1	<1	<1	<1		
			#	#	#	#		
1,2,3-Trichloropropane	<1 µg/l	TM208	<1	<1	<1	<1		
			#	#	#	#		
Bromobenzene	<1 µg/l	TM208	<1	<1	<1	<1		
			#	#	#	#		
Propylbenzene	<1 µg/l	TM208	<1	<1	<1	<1		
			#	#	#	#		
2-Chlorotoluene	<1 µg/l	TM208	<1	<1	<1	<1		
			#	#	#	#		
1,3,5-Trimethylbenzene	<1 µg/l	TM208	<1	<1	<1	<1		
			#	#	#	#		
4-Chlorotoluene	<1 µg/l	TM208	<1	<1	<1	<1		
			#	#	#	#		
tert-Butylbenzene	<1 µg/l	TM208	<1	<1	<1	<1		
			#	#	#	#		
1,2,4-Trimethylbenzene	<1 µg/l	TM208	<1	<1	<1	<1		
			#	#	#	#		
sec-Butylbenzene	<1 µg/l	TM208	<1	<1	<1	<1		
			#	#	#	#		
4-iso-Propyltoluene	<1 µg/l	TM208	<1	<1	<1	<1		
			#	#	#	#		
1,3-Dichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1		
			#	#	#	#		
1,4-Dichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1		
			#	#	#	#		
n-Butylbenzene	<1 µg/l	TM208	<1	<1	<1	<1		
			#	#	#	#		
1,2-Dichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1		
			#	#	#	#		
1,2-Dibromo-3-chloropropane	<1 µg/l	TM208	<1	<1	<1	<1		
1,2,4-Trichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1		
			#	#	#	#		
Hexachlorobutadiene	<1 µg/l	TM208	<1	<1	<1	<1		
			#	#	#	#		
tert-Amyl methyl ether (TAME)	<1 µg/l	TM208	<1	<1	<1	<1		
			#	#	#	#		
Naphthalene	<1 µg/l	TM208	<1	<1	<1	<1		
			#	#	#	#		
1,2,3-Trichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1		
			#	#	#	#		







# CERTIFICATE OF ANALYSIS

Validated

**SDG:** 190918-52  
**Location:** Llanwern

**Client Reference:**  
**Order Number:** LLA668

**Report Number:** 523907  
**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: 190918-52  
Location: Llanwern

Client Reference:  
Order Number: LLA668

Report Number: 523907  
Superseded Report:

## Test Completion Dates

Lab Sample No(s)  
Customer Sample Ref.

AGS Ref.  
Depth  
Type

	20744824	20744932	20744946	20744839	20744855	20744881	20744998	20744982	20744906	20744740
	D0-C	D1-C	D2-C	D1-N	D2-N	D3-N	D1-S	D2-S	D3-S	KW-C
	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	26-Sep-2019	26-Sep-2019	26-Sep-2019	26-Sep-2019	26-Sep-2019	26-Sep-2019	26-Sep-2019	26-Sep-2019	26-Sep-2019	26-Sep-2019
Anions by Kone (w)	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019
BOD True Total	25-Sep-2019	25-Sep-2019	25-Sep-2019	24-Sep-2019	24-Sep-2019	25-Sep-2019	25-Sep-2019	25-Sep-2019	25-Sep-2019	25-Sep-2019
COD Unfiltered	27-Sep-2019	27-Sep-2019	20-Sep-2019	20-Sep-2019	20-Sep-2019	20-Sep-2019	26-Sep-2019	20-Sep-2019	27-Sep-2019	26-Sep-2019
Conductivity (at 20 deg.C)	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019
Cyanide Comp/Free/Total/Thiocyanate	24-Sep-2019	27-Sep-2019	24-Sep-2019	24-Sep-2019	24-Sep-2019	27-Sep-2019	24-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019
Dissolved Metals by ICP-MS	01-Oct-2019	28-Sep-2019	30-Sep-2019	01-Oct-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	28-Sep-2019	30-Sep-2019	30-Sep-2019
Dissolved Organic/Inorganic Carbon	20-Sep-2019	20-Sep-2019	24-Sep-2019	20-Sep-2019	23-Sep-2019	20-Sep-2019	20-Sep-2019	24-Sep-2019	23-Sep-2019	20-Sep-2019
Dissolved Oxygen by Probe	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019
EPH CWG (Aliphatic) Aqueous GC (W)	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019
EPH CWG (Aromatic) Aqueous GC (W)	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019
Fluoride	20-Sep-2019	20-Sep-2019	20-Sep-2019	20-Sep-2019	20-Sep-2019	20-Sep-2019	20-Sep-2019	20-Sep-2019	20-Sep-2019	20-Sep-2019
GRO by GC-FID (W)	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019
Hexavalent Chromium (w)	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019
Mercury Dissolved	20-Sep-2019	29-Sep-2019	20-Sep-2019	19-Sep-2019	20-Sep-2019	20-Sep-2019	20-Sep-2019	29-Sep-2019	20-Sep-2019	19-Sep-2019
Mercury Unfiltered	23-Sep-2019	23-Sep-2019	23-Sep-2019	23-Sep-2019	23-Sep-2019	23-Sep-2019	23-Sep-2019	23-Sep-2019	23-Sep-2019	23-Sep-2019
PAH in waters by GC-MS (diss.filt)	01-Oct-2019	01-Oct-2019	01-Oct-2019	01-Oct-2019	01-Oct-2019	01-Oct-2019	01-Oct-2019	01-Oct-2019	01-Oct-2019	01-Oct-2019
PAH Spec MS - Aqueous (W)	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019
pH Value	26-Sep-2019	26-Sep-2019	25-Sep-2019	24-Sep-2019	24-Sep-2019	24-Sep-2019	26-Sep-2019	26-Sep-2019	25-Sep-2019	25-Sep-2019
Phenols by HPLC (W)	26-Sep-2019	27-Sep-2019	26-Sep-2019	26-Sep-2019	25-Sep-2019	26-Sep-2019	24-Sep-2019	27-Sep-2019	26-Sep-2019	26-Sep-2019
Phosphate by Kone (w)	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019
Redox Potential	19-Sep-2019	20-Sep-2019	25-Sep-2019	20-Sep-2019	20-Sep-2019	20-Sep-2019	19-Sep-2019	25-Sep-2019	20-Sep-2019	20-Sep-2019
Sulphide	20-Sep-2019	20-Sep-2019	20-Sep-2019	20-Sep-2019	20-Sep-2019	20-Sep-2019	20-Sep-2019	20-Sep-2019	20-Sep-2019	20-Sep-2019
Sulphur Dissolved by ICP-OES	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019
Suspended Solids	27-Sep-2019	25-Sep-2019	25-Sep-2019	25-Sep-2019	25-Sep-2019	25-Sep-2019	25-Sep-2019	26-Sep-2019	25-Sep-2019	25-Sep-2019
SVOC MS (W) - Aqueous	25-Sep-2019	27-Sep-2019	27-Sep-2019	26-Sep-2019	26-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019
Total Dissolved Solids	24-Sep-2019	24-Sep-2019	24-Sep-2019	24-Sep-2019	24-Sep-2019	24-Sep-2019	24-Sep-2019	24-Sep-2019	24-Sep-2019	24-Sep-2019
Total Metals by ICP-MS	01-Oct-2019	01-Oct-2019	01-Oct-2019	01-Oct-2019	02-Oct-2019	02-Oct-2019	01-Oct-2019	02-Oct-2019	02-Oct-2019	01-Oct-2019
Total Organic and Inorganic Carbon	23-Sep-2019	24-Sep-2019	24-Sep-2019	23-Sep-2019	23-Sep-2019	23-Sep-2019	19-Sep-2019	24-Sep-2019	24-Sep-2019	23-Sep-2019
TPH CWG (W)	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019
Turbidity in waters	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019
VOC MS (W)	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	26-Sep-2019	27-Sep-2019	27-Sep-2019



# CERTIFICATE OF ANALYSIS

Validated

SDG: 190918-52  
Location: Llanwern

Client Reference:  
Order Number: LLA668

Report Number: 523907  
Superseded Report:

Lab Sample No(s)  
Customer Sample Ref.

AGS Ref.  
Depth  
Type

	20744920	20744958	20744971	20744795	20744754	20745142	20745088	20744783	20745186	20745125
	KW-N	Pond-N	Pond-S	R1-C	R2-C	R3-C	R4-C	R1-E	R2-E	R3-E
	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	26-Sep-2019	26-Sep-2019	26-Sep-2019	26-Sep-2019	26-Sep-2019	26-Sep-2019	26-Sep-2019	26-Sep-2019	26-Sep-2019	26-Sep-2019
Anions by Kone (w)	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019
BOD True Total	25-Sep-2019	25-Sep-2019	25-Sep-2019	25-Sep-2019	25-Sep-2019	24-Sep-2019	25-Sep-2019	25-Sep-2019		25-Sep-2019
COD Unfiltered	24-Sep-2019	26-Sep-2019	20-Sep-2019	20-Sep-2019	20-Sep-2019	27-Sep-2019	26-Sep-2019	26-Sep-2019		26-Sep-2019
Conductivity (at 20 deg.C)	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019		27-Sep-2019
Cyanide Comp/Free/Total/Thiocyanate	27-Sep-2019	27-Sep-2019	27-Sep-2019	24-Sep-2019	24-Sep-2019	24-Sep-2019	24-Sep-2019	24-Sep-2019	24-Sep-2019	27-Sep-2019
Dissolved Metals by ICP-MS	30-Sep-2019	28-Sep-2019	28-Sep-2019	01-Oct-2019	01-Oct-2019	01-Oct-2019	30-Sep-2019	01-Oct-2019		30-Sep-2019
Dissolved Organic/Inorganic Carbon	20-Sep-2019	23-Sep-2019	23-Sep-2019	20-Sep-2019	23-Sep-2019	20-Sep-2019	20-Sep-2019	20-Sep-2019	20-Sep-2019	20-Sep-2019
Dissolved Oxygen by Probe	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019		27-Sep-2019
EPH CWG (Aliphatic) Aqueous GC (W)	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019		30-Sep-2019
EPH CWG (Aromatic) Aqueous GC (W)	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019		30-Sep-2019
Fluoride	20-Sep-2019	20-Sep-2019	20-Sep-2019	20-Sep-2019	20-Sep-2019	20-Sep-2019	20-Sep-2019	20-Sep-2019		20-Sep-2019
GRO by GC-FID (W)	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019		27-Sep-2019
Hexavalent Chromium (w)	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019		19-Sep-2019
Mercury Dissolved	19-Sep-2019	29-Sep-2019	29-Sep-2019	20-Sep-2019	20-Sep-2019	25-Sep-2019	20-Sep-2019	20-Sep-2019		20-Sep-2019
Mercury Unfiltered	23-Sep-2019	23-Sep-2019	23-Sep-2019	23-Sep-2019	23-Sep-2019	23-Sep-2019	23-Sep-2019	23-Sep-2019	23-Sep-2019	23-Sep-2019
PAH in waters by GC-MS (diss.filt)	01-Oct-2019	01-Oct-2019	01-Oct-2019	30-Sep-2019	01-Oct-2019	01-Oct-2019	01-Oct-2019	01-Oct-2019	01-Oct-2019	30-Sep-2019
PAH Spec MS - Aqueous (W)	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019		30-Sep-2019
pH Value	26-Sep-2019	26-Sep-2019	26-Sep-2019	25-Sep-2019	26-Sep-2019	26-Sep-2019	26-Sep-2019	25-Sep-2019		26-Sep-2019
Phenols by HPLC (W)	25-Sep-2019	26-Sep-2019	21-Sep-2019	26-Sep-2019	26-Sep-2019	26-Sep-2019	26-Sep-2019	27-Sep-2019	26-Sep-2019	24-Sep-2019
Phosphate by Kone (w)	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019		19-Sep-2019
Redox Potential	19-Sep-2019	26-Sep-2019	26-Sep-2019	19-Sep-2019	20-Sep-2019	19-Sep-2019	20-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019
Sulphide	20-Sep-2019	20-Sep-2019	20-Sep-2019	20-Sep-2019	27-Sep-2019	20-Sep-2019	20-Sep-2019	20-Sep-2019		20-Sep-2019
Sulphur Dissolved by ICP-OES	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019		19-Sep-2019
Suspended Solids	25-Sep-2019	25-Sep-2019	26-Sep-2019	25-Sep-2019	25-Sep-2019	25-Sep-2019	25-Sep-2019	25-Sep-2019		27-Sep-2019
SVOC MS (W) - Aqueous	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019
Total Dissolved Solids	24-Sep-2019	24-Sep-2019	24-Sep-2019	24-Sep-2019	24-Sep-2019	24-Sep-2019	24-Sep-2019	24-Sep-2019		24-Sep-2019
Total Metals by ICP-MS	02-Oct-2019	02-Oct-2019	02-Oct-2019	02-Oct-2019	01-Oct-2019	01-Oct-2019	01-Oct-2019	01-Oct-2019	02-Oct-2019	01-Oct-2019
Total Organic and Inorganic Carbon	19-Sep-2019	23-Sep-2019	24-Sep-2019	24-Sep-2019	19-Sep-2019	23-Sep-2019	23-Sep-2019	23-Sep-2019	19-Sep-2019	23-Sep-2019
TPH CWG (W)	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019
Turbidity in waters	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019		19-Sep-2019
VOC MS (W)	27-Sep-2019	26-Sep-2019	26-Sep-2019	26-Sep-2019	26-Sep-2019	27-Sep-2019	26-Sep-2019	26-Sep-2019		26-Sep-2019

Lab Sample No(s)  
Customer Sample Ref.

AGS Ref.  
Depth  
Type

	20745073	20744769	20745169	20745106	20744808	20745052	20745024	20745039
	R4-E	R2-W	R3-W	R4-W	R1-W / D0-N	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	0.00 - 0.00
	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Ammoniacal Nitrogen	26-Sep-2019	26-Sep-2019	26-Sep-2019	26-Sep-2019	26-Sep-2019	26-Sep-2019	26-Sep-2019	26-Sep-2019
Anions by Kone (w)	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019
BOD True Total	25-Sep-2019	24-Sep-2019	25-Sep-2019	24-Sep-2019	25-Sep-2019	25-Sep-2019	25-Sep-2019	24-Sep-2019
COD Unfiltered	27-Sep-2019	20-Sep-2019	20-Sep-2019	20-Sep-2019	20-Sep-2019	27-Sep-2019	20-Sep-2019	20-Sep-2019
Conductivity (at 20 deg.C)	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019
Cyanide Comp/Free/Total/Thiocyanate	24-Sep-2019	24-Sep-2019	24-Sep-2019	24-Sep-2019	24-Sep-2019	24-Sep-2019	24-Sep-2019	24-Sep-2019
Dissolved Metals by ICP-MS	30-Sep-2019	01-Oct-2019	01-Oct-2019	30-Sep-2019	01-Oct-2019	01-Oct-2019	02-Oct-2019	02-Oct-2019
Dissolved Organic/Inorganic Carbon	20-Sep-2019	20-Sep-2019	20-Sep-2019	20-Sep-2019	23-Sep-2019	20-Sep-2019	20-Sep-2019	20-Sep-2019
Dissolved Oxygen by Probe	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019
EPH CWG (Aliphatic) Aqueous GC (W)	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019
EPH CWG (Aromatic) Aqueous GC (W)	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019
Fluoride	20-Sep-2019	20-Sep-2019	20-Sep-2019	20-Sep-2019	20-Sep-2019	20-Sep-2019	20-Sep-2019	20-Sep-2019
GRO by GC-FID (W)	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019
Hexavalent Chromium (w)	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019
Mercury Dissolved	19-Sep-2019	19-Sep-2019	19-Sep-2019	20-Sep-2019	20-Sep-2019	25-Sep-2019	25-Sep-2019	25-Sep-2019
Mercury Unfiltered	23-Sep-2019	23-Sep-2019	23-Sep-2019	23-Sep-2019	23-Sep-2019	23-Sep-2019	23-Sep-2019	23-Sep-2019
PAH in waters by GC-MS (diss.filt)	01-Oct-2019	01-Oct-2019	01-Oct-2019	30-Sep-2019	01-Oct-2019	30-Sep-2019	01-Oct-2019	01-Oct-2019
PAH Spec MS - Aqueous (W)	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019
pH Value	24-Sep-2019	24-Sep-2019	25-Sep-2019	26-Sep-2019	26-Sep-2019	26-Sep-2019	26-Sep-2019	26-Sep-2019
Phenols by HPLC (W)	24-Sep-2019	27-Sep-2019	26-Sep-2019	26-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	24-Sep-2019
Phosphate by Kone (w)	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019
Redox Potential	20-Sep-2019	19-Sep-2019	20-Sep-2019	20-Sep-2019	26-Sep-2019	20-Sep-2019	20-Sep-2019	19-Sep-2019
Sulphide	20-Sep-2019	20-Sep-2019	20-Sep-2019	20-Sep-2019	27-Sep-2019	20-Sep-2019	20-Sep-2019	20-Sep-2019
Sulphur Dissolved by ICP-OES	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019
Suspended Solids	25-Sep-2019	25-Sep-2019	25-Sep-2019	25-Sep-2019	26-Sep-2019	27-Sep-2019	26-Sep-2019	27-Sep-2019
SVOC MS (W) - Aqueous	25-Sep-2019	25-Sep-2019	27-Sep-2019	27-Sep-2019	27-Sep-2019	25-Sep-2019	26-Sep-2019	26-Sep-2019
Total Dissolved Solids	24-Sep-2019	24-Sep-2019	24-Sep-2019	24-Sep-2019	24-Sep-2019	24-Sep-2019	24-Sep-2019	24-Sep-2019
Total Metals by ICP-MS	02-Oct-2019	02-Oct-2019	01-Oct-2019	01-Oct-2019	01-Oct-2019	02-Oct-2019	01-Oct-2019	01-Oct-2019
Total Organic and Inorganic Carbon	19-Sep-2019	23-Sep-2019	23-Sep-2019	23-Sep-2019	23-Sep-2019	23-Sep-2019	23-Sep-2019	23-Sep-2019
TPH CWG (W)	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019	30-Sep-2019
Turbidity in waters	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019	19-Sep-2019
VOC MS (W)	27-Sep-2019	27-Sep-2019	27-Sep-2019	26-Sep-2019	26-Sep-2019	26-Sep-2019	26-Sep-2019	26-Sep-2019



# CERTIFICATE OF ANALYSIS

<b>SDG:</b>	190918-52	<b>Client Reference:</b>		<b>Report Number:</b>	523907
<b>Location:</b>	Llanwern	<b>Order Number:</b>	LLA668	<b>Superseded Report:</b>	

## 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 NH<sub>4</sub> 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.**