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Manor Road (off Manor Lane)
Hawarden
Deeside
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Atkins Global Ltd
Project Jonah site office
Llan Coed House
Suite 24
Coed Darcy
Llandarcy
SA10 6HJ

Attention: Scott Bowler

CERTIFICATE OF ANALYSIS

Date of report Generation:	18 October 2019
Customer:	Atkins Global Ltd
Sample Delivery Group (SDG):	191005-74
Your Reference:	
Location:	Llanwern
Report No:	526000

This report has been revised and directly supersedes 525755 in its entirety.

We received 7 samples on Saturday October 05, 2019 and 6 of these samples were scheduled for analysis which was completed on Friday October 18, 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

SDG:	191005-74	**Client Reference:**		**Report Number:**	526000
Location:	Llanwern	**Order Number:**	LLA678	**Superseded Report:**	525755

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
20879896	D1-C		0.00 - 0.00	04/10/2019
20879907	D2-C		0.00 - 0.00	04/10/2019
20879922	D2-S		0.00 - 0.00	04/10/2019
20879859	40 NITRIC ACID BOTTLE FILTERED			
20879862	SL-N		0.00 - 0.00	04/10/2019
20879883	SL-S		0.00 - 0.00	04/10/2019
20879872	SL-W		0.00 - 0.00	04/10/2019

Maximum Sample/Coolbox Temperature (°C) : **9.6**

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.

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.

Validated

CERTIFICATE OF ANALYSIS

SDG:	191005-74	**Client Reference:**		**Report Number:**	526000
Location:	Llanwern	**Order Number:**	LLA678	**Superseded Report:**	525755

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

Lab Sample No(s)											20879896							20879907				20879922
Customer Sample Reference											D1-C							D2-C				D2-S
AGS Reference																						
Depth (m)											0.00 - 0.00							0.00 - 0.00				0.00 - 0.00
Container											0.5l glass bottle (ALE227)	1plastic (ALE221)	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)	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)	250ml Amber Gl. PTFE/PE (ALE219)
Sample Type											SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 6												X								X						
Anions by Kone (w)	All	NDPs: 0 Tests: 6										X									X						X	
BOD True Total	All	NDPs: 0 Tests: 6										X									X						X	
COD Unfiltered	All	NDPs: 0 Tests: 6										X									X						X	
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 6										X									X						X	
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 6								X																X			
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 6						X								X									X				
Dissolved Organic/Inorganic Carbon	All	NDPs: 0 Tests: 6	X								X								X										
Dissolved Oxygen by Probe	All	NDPs: 0 Tests: 6		X								X									X						X	
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 6			X								X									X						X
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 6			X								X									X						X
Fluoride	All	NDPs: 0 Tests: 6		X								X									X						X	
GRO by GC-FID (W)	All	NDPs: 0 Tests: 6								X								X								X			
Hexavalent Chromium (w)	All	NDPs: 0 Tests: 6		X								X									X						X	
Mercury Dissolved	All	NDPs: 0 Tests: 6						X								X									X				

20879883	SL-S		0.00 - 0.00	Vial (ALE297)	SW													x		
				NaOH (ALE245)	SW						x									
				HNO3 Unfiltered (ALE204)	SW															
				HNO3 Filtered (ALE204)	SW							x								x
				H2SO4 (ALE244)	SW	x														
				250ml Amber Gl. PTFE/PE (ALE219)	SW										x	x				
				1lplastic (ALE221)	SW		x	x	x	x				x			x		x	
				1000ml glass bottle (ALE220)	SW								x							
20879862	SL-N		0.00 - 0.00	Vial (ALE297)	SW													x		
				NaOH (ALE245)	SW						x									
				HNO3 Unfiltered (ALE204)	SW															
				HNO3 Filtered (ALE204)	SW							x								x
				H2SO4 (ALE244)	SW	x														
				250ml Amber Gl. PTFE/PE (ALE219)	SW										x	x				
				1lplastic (ALE221)	SW		x	x	x	x				x			x		x	
				1000ml glass bottle (ALE220)	SW								x							
20879922	D2-S		0.00 - 0.00	Vial (ALE297)	SW													x		
				NaOH (ALE245)	SW						x									
				HNO3 Unfiltered (ALE204)	SW															
				HNO3 Filtered (ALE204)	SW							x								x
				H2SO4 (ALE244)	SW	x														

Validated

CERTIFICATE OF ANALYSIS

SDG:	191005-74	Client Reference:		Report Number:	526000
Location:	Llanwern	Order Number:	LLA678	Superseded Report:	525755

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

Lab Sample No(s)			20879896								20879907								20879922		
Customer Sample Reference			D1-C								D2-C								D2-S		
AGS Reference																					
Depth (m)			0.00 - 0.00								0.00 - 0.00								0.00 - 0.00		
Container			0.5l glass bottle (ALE227)	1lplastic (ALE221)	250ml Amber Gl. PTFE/PE (ALE219)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	HNO3 Unfiltered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	1lplastic (ALE221)	250ml Amber Gl. PTFE/PE (ALE219)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	HNO3 Unfiltered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	1lplastic (ALE221)	250ml Amber Gl. PTFE/PE (ALE219)
Sample Type			SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW
Mercury Unfiltered	All	NDPs: 0 Tests: 6						X								X					
PAH in waters by GC-MS (diss.filt)	All	NDPs: 0 Tests: 6	X								X								X		
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 6			X								X								X
pH Value	All	NDPs: 0 Tests: 6		X								X								X	
Phenols by HPLC (W)	All	NDPs: 0 Tests: 6				X								X							
Phosphate by Kone (w)	All	NDPs: 0 Tests: 6		X								X								X	
Redox Potential	All	NDPs: 0 Tests: 6	X								X								X		
Sulphide	All	NDPs: 0 Tests: 6		X								X								X	
Sulphur Dissolved by ICP-OES	All	NDPs: 0 Tests: 6		X								X								X	
Suspended Solids	All	NDPs: 0 Tests: 6		X								X								X	
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 6	X								X								X		
Total Dissolved Solids	All	NDPs: 0 Tests: 6		X								X								X	
Total Metals by ICP-MS	All	NDPs: 0 Tests: 6						X								X					
Total Organic and Inorganic Carbon	All	NDPs: 0 Tests: 6				X								X							
TPH CWG (W)	All	NDPs: 0 Tests: 6	X								X								X		

20879883	SL-S		0.00 - 0.00	Vial (ALE297)	SW																
				NaOH (ALE245)	SW																
				HNO3 Unfiltered (ALE204)	SW	X														X		
				HNO3 Filtered (ALE204)	SW																
				H2SO4 (ALE244)	SW					X										X	
				250ml Amber Gl. PTFE/PE (ALE219)	SW			X													
				1lplastic (ALE221)	SW				X		X		X	X	X		X				
				1000ml glass bottle (ALE220)	SW		X					X				X					X
20879862	SL-N		0.00 - 0.00	Vial (ALE297)	SW																
				NaOH (ALE245)	SW																
				HNO3 Unfiltered (ALE204)	SW	X														X		
				HNO3 Filtered (ALE204)	SW																
				H2SO4 (ALE244)	SW					X										X	
				250ml Amber Gl. PTFE/PE (ALE219)	SW			X													
				1lplastic (ALE221)	SW				X		X		X	X	X		X				
				1000ml glass bottle (ALE220)	SW		X					X				X					X
20879922	D2-S		0.00 - 0.00	Vial (ALE297)	SW																
				NaOH (ALE245)	SW																
				HNO3 Unfiltered (ALE204)	SW	X														X		
				HNO3 Filtered (ALE204)	SW																
				H2SO4 (ALE244)	SW					X										X	

Validated

CERTIFICATE OF ANALYSIS

SDG:	191005-74	**Client Reference:**		**Report Number:**	526000
Location:	Llanwern	**Order Number:**	LLA678	**Superseded Report:**	525755

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

Lab Sample No(s)									20879896											20879907			20879922
Customer Sample Reference									D1-C											D2-C			D2-S
AGS Reference																							
Depth (m)									0.00 - 0.00											0.00 - 0.00			0.00 - 0.00
Container									0.5l glass bottle (ALE227)	1lplastic (ALE221)	250ml Amber Gl. PTFE/PE (ALE219)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	HNO3 Unfiltered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	1lplastic (ALE221)	250ml Amber Gl. PTFE/PE (ALE219)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	HNO3 Unfiltered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	1lplastic (ALE221)	250ml Amber Gl. PTFE/PE (ALE219)
Sample Type									SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW
Turbidity in waters	All	NDPs: 0 Tests: 6								X									X							X	
VOC MS (W)	All	NDPs: 0 Tests: 6														X									X			

20879883	SL-S		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	
				1000ml glass bottle (ALE220)	SW			
20879862	SL-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	
				1000ml glass bottle (ALE220)	SW			
20879922	D2-S		0.00 - 0.00	Vial (ALE297)	SW			x
				NaOH (ALE245)	SW			
				HNO3 Unfiltered (ALE204)	SW			
				HNO3 Filtered (ALE204)	SW			
				H2SO4 (ALE244)	SW			

Validated

CERTIFICATE OF ANALYSIS

SDG:	191005-74	**Client Reference:**		**Report Number:**	526000
Location:	Llanwern	**Order Number:**	LLA678	**Superseded Report:**	525755

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

Lab Sample No(s)			20879872						
Customer Sample Reference			SL-W						
AGS Reference									
Depth (m)			0.00 - 0.00						
Container			1000ml glass bottle (ALE220)	1lplastic (ALE221)	250ml Amber Gl. PTFE/PE (ALE219)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	HNO3 Unfiltered (ALE204)	NaOH (ALE245)	Vial (ALE297)
Sample Type			SW	SW	SW	SW	SW	SW	SW	SW
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 6				X				
Anions by Kone (w)	All	NDPs: 0 Tests: 6		X						
BOD True Total	All	NDPs: 0 Tests: 6		X						
COD Unfiltered	All	NDPs: 0 Tests: 6		X						
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 6		X						
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 6							X	
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 6					X			
Dissolved Organic/Inorganic Carbon	All	NDPs: 0 Tests: 6	X							
Dissolved Oxygen by Probe	All	NDPs: 0 Tests: 6		X						
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 6			X					
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 6			X					
Fluoride	All	NDPs: 0 Tests: 6		X						
GRO by GC-FID (W)	All	NDPs: 0 Tests: 6								X
Hexavalent Chromium (w)	All	NDPs: 0 Tests: 6		X						
Mercury Dissolved	All	NDPs: 0 Tests: 6					X			

Validated

CERTIFICATE OF ANALYSIS

SDG:	191005-74	**Client Reference:**		**Report Number:**	526000
Location:	Llanwern	**Order Number:**	LLA678	**Superseded Report:**	525755

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

Lab Sample No(s)			20879872							
Customer Sample Reference			SL-W							
AGS Reference										
Depth (m)			0.00 - 0.00							
Container			1000ml glass bottle (ALE220)	1lplastic (ALE221)	250ml Amber Gl. PTFE/PE (ALE219)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	HNO3 Unfiltered (ALE204)	NaOH (ALE245)	Vial (ALE297)
Sample Type			SW	SW	SW	SW	SW	SW	SW	SW
Mercury Unfiltered	All	NDPs: 0 Tests: 6						X		
PAH in waters by GC-MS (diss.filt)	All	NDPs: 0 Tests: 6	X							
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 6			X					
pH Value	All	NDPs: 0 Tests: 6		X						
Phenols by HPLC (W)	All	NDPs: 0 Tests: 6				X				
Phosphate by Kone (w)	All	NDPs: 0 Tests: 6		X						
Redox Potential	All	NDPs: 0 Tests: 6	X							
Sulphide	All	NDPs: 0 Tests: 6		X						
Sulphur Dissolved by ICP-OES	All	NDPs: 0 Tests: 6		X						
Suspended Solids	All	NDPs: 0 Tests: 6		X						
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 6	X							
Total Dissolved Solids	All	NDPs: 0 Tests: 6		X						
Total Metals by ICP-MS	All	NDPs: 0 Tests: 6						X		
Total Organic and Inorganic Carbon	All	NDPs: 0 Tests: 6				X				
TPH CWG (W)	All	NDPs: 0 Tests: 6	X							

Validated

CERTIFICATE OF ANALYSIS

SDG:	191005-74	**Client Reference:**		**Report Number:**	526000
Location:	Llanwern	**Order Number:**	LLA678	**Superseded Report:**	525755

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

Lab Sample No(s)			20879872						
Customer Sample Reference			SL-W						
AGS Reference									
Depth (m)			0.00 - 0.00						
Container			1000ml glass bottle (ALE220)	1lplastic (ALE221)	250ml Amber Gl. PTFE/PE (ALE219)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	HNO3 Unfiltered (ALE204)	NaOH (ALE245)	Vial (ALE297)
Sample Type			SW	SW	SW	SW	SW	SW	SW	SW
Turbidity in waters	All	NDPs: 0 Tests: 6		X						
VOC MS (W)	All	NDPs: 0 Tests: 6								X

Validated

CERTIFICATE OF ANALYSIS

SDG:	191005-74	**Client Reference:**		**Report Number:**	526000
Location:	Llanwern	**Order Number:**	LLA678	**Superseded Report:**	525755

Results Legend

#	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+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	D1-C	D2-C	D2-S	SL-N	SL-S	SL-W
			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
			Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)
			Date Sampled	04/10/2019	04/10/2019	04/10/2019	04/10/2019	04/10/2019	04/10/2019
			Sample Time	00:00	00:00	00:00	00:00	00:00	00:00
			Date Received	05/10/2019	05/10/2019	05/10/2019	05/10/2019	05/10/2019	05/10/2019
			SDG Ref	191005-74	191005-74	191005-74	191005-74	191005-74	191005-74
			Lab Sample No.(s)	20879896	20879907	20879922	20879862	20879883	20879872
			AGS Reference						
Suspended solids, Total	<2 mg/l	TM022		5 #	3.5 #	25 #	17.5 #	26 #	27.5 #
BOD, unfiltered	<1 mg/l	TM045		<1 #	<1 #	<1 #	3 #	3.98 #	2.73 #
Oxygen, dissolved	<0.3 mg/l	TM046		9.32	7.78	7.78	9.86	8.23	9.66
Carbon, Organic (diss.filt)	<3 mg/l	TM090		9	9.98	9.63	10.4	10.3	10.8
Organic Carbon, Total	<3 mg/l	TM090		9 #	10.8 #	10.2 #	9.33 ♦ #	10 #	12.1 #
Ammoniacal Nitrogen as NH4	<0.3 mg/l	TM099		0.541 #	1.11 #	0.751 #	1.09 #	0.834 #	0.991 #
Sulphide	<0.01 mg/l	TM101		0.0182 2	<0.01 2	<0.01 2	<0.01 2	<0.01 2	0.0122 2
Fluoride	<0.5 mg/l	TM104		1.32	0.707	0.709	0.905	0.917	0.876
COD, unfiltered	<7 mg/l	TM107		22.4 #	28.1 #	25.8 #	27.8 #	31.8 #	36.4 #
Redox potential	mV	TM110		196	197	164	203	203	208
Conductivity @ 20 deg.C (diss.filt)	<0.014 mS/cm	TM120		0.664	0.693	0.631	0.558	0.606	0.563
Dissolved solids, Total (meter)	<5 mg/l	TM123		509 #	514 #	530 #	460 #	459 #	466 #
Antimony (diss.filt)	<1 µg/l	TM152		<1			<1	<1	
Antimony (tot.unfilt)	<4 µg/l	TM152		<4	<4 2	<4	<4 2	<4	<4
Arsenic (diss.filt)	<0.5 µg/l	TM152		2.85 #	2.43 #	2.37 #	4.2 #	4.04 #	4.31 #
Arsenic (tot.unfilt)	<2 µg/l	TM152		3.37 #	2.63 2 #	2.92 #	4.78 2 #	4.74 #	4.64 #
Barium (diss.filt)	<0.2 µg/l	TM152		56.3 #	66.4 #	69.2 #	57.8 #	62.4 #	59.4 #
Barium (tot.unfilt)	<0.5 µg/l	TM152		69.5 #	73.7 2 #	103 #	67.7 2 #	70.4 #	67.8 #
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 2 #	<1 #	<1 2 #	<1 #	<1 #
Boron (diss.filt)	<10 µg/l	TM152		168 #	183 #	184 #	137 #	172 #	181 #
Boron (tot.unfilt)	<20 µg/l	TM152		220 #	160 2 #	158 #	150 2 #	152 #	173 #
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 2 #	<0.5 #	<0.5 2 #	<0.5 #	<0.5 #
Chromium (tot.unfilt)	<3 µg/l	TM152		<3 #	<3 2 #	<3 #	<3 2 #	<3 #	<3 #
Chromium (diss.filt)	<1 µg/l	TM152		1.66 #	<1 #	<1 #	<1 #	<1 #	<1 #
Copper (tot.unfilt)	<1 µg/l	TM152		2.59 #	4.99 2 #	5.96 #	3.45 2 #	3.35 #	1.4 #
Lead (tot.unfilt)	<1 µg/l	TM152					3.55 2 #	4.1 #	
Copper (diss.filt)	<0.3 µg/l	TM152		3.63 #	5.38 #	4.46 #	2.63 #	<0.3 #	2.65 #
Manganese (tot.unfilt)	<1 µg/l	TM152		77.5 #	58.4 2 #	299 #	40.8 2 #	37.2 #	29.3 #
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		2.26 #	2.13 2 #	3.32 #	4.25 2 #	3.49 #	3.02 #
Manganese (diss.filt)	<3 µg/l	TM152		43.5 #	50.7 #	33.1 #	<3 #	3.26 #	4.4 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	191005-74	**Client Reference:**		**Report Number:**	526000
Location:	Llanwern	**Order Number:**	LLA678	**Superseded Report:**	525755

Results Legend

#	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+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	D1-C	D2-C	D2-S	SL-N	SL-S	SL-W
			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
			Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)
			Date Sampled	04/10/2019	04/10/2019	04/10/2019	04/10/2019	04/10/2019	04/10/2019
			Sample Time	00:00	00:00	00:00	00:00	00:00	00:00
			Date Received	05/10/2019	05/10/2019	05/10/2019	05/10/2019	05/10/2019	05/10/2019
			SDG Ref	191005-74	191005-74	191005-74	191005-74	191005-74	191005-74
			Lab Sample No.(s)	20879896	20879907	20879922	20879862	20879883	20879872
			AGS Reference						
Phosphorus (tot.unfilt)	<20 µg/l	TM152		76.3 #	51.6 2 #	324 #	46.4 2 #	44.2 #	47 #
Selenium (tot.unfilt)	<1 µg/l	TM152		2.75 #	2.95 2 #	2.92 #	2.49 2 #	2.46 #	2.02 #
Nickel (diss.filt)	<0.4 µg/l	TM152		1.6 #	1.6 #	1.67 #	2.33 #	4.03 #	2.33 #
Phosphorus (diss.filt)	<10 µg/l	TM152		28.5 #	19.7 #	30.8 #	10.6 #	14 #	<10 #
Selenium (diss.filt)	<1 µg/l	TM152		2.65 #	2.55 #	2.38 #	2.2 #	2.18 #	2.12 #
Vanadium (tot.unfilt)	<5 µg/l	TM152		22.4 #	18.2 2 #	19.4 #	24.4 2 #	25.9 #	24.6 #
Zinc (tot.unfilt)	<5 µg/l	TM152		10.4 #	8.75 2 #	37.5 #	21.6 2 #	27.6 #	43.2 #
Vanadium (diss.filt)	<1 µg/l	TM152		20.9 #	16.2 #	16.1 #	24 #	22.1 #	24.2 #
Zinc (diss.filt)	<1 µg/l	TM152		1.71 #	3.92 #	4.14 #	<1 #	<1 #	1.09 #
Lead (tot.unfilt)	<0.001 mg/l	TM152		0.00266 #	<0.001 2 #	0.0065 #			0.00255 #
Magnesium (Dis.Filt)	<0.036 mg/l	TM152		9.17 #	9.73 #	10 #	6.11 #	7.86 #	6.94 #
Calcium (Dis.Filt)	<0.2 mg/l	TM152		95.6 #	104 #	99.4 #	75.8 #	77.9 #	79.8 #
Iron (Dis.Filt)	<0.019 mg/l	TM152		0.0288 #	0.0457 #	0.0407 #	<0.019 #	<0.019 #	<0.019 #
Hardness, Total as CaCO3	<0.65 mg/l	TM152		277	300	297	215	227	225
Magnesium (Tot. Unfilt.)	<0.05 mg/l	TM152		11.7 #	10.2 2 #	10.2 #	7.35 2 #	7.45 #	8.33 #
Calcium (Tot. Unfilt.)	<0.057 mg/l	TM152		101 #	110 2 #	115 #	83.3 2 #	91.6 #	82.5 #
Iron (Tot. Unfilt.)	<0.024 mg/l	TM152		0.44 #	0.22 2 #	1.01 #	0.803 2 #	0.805 #	0.564 #
Naphthalene (diss.filt)	<0.01 µg/l	TM178		0.0183	<0.01	0.0104	0.0405	0.046	0.0506
Acenaphthene (diss.filt)	<0.005 µg/l	TM178		0.0279	0.0166	0.0114	0.032	0.0333	0.0328
Acenaphthylene (diss.filt)	<0.005 µg/l	TM178		0.0108	0.00911	<0.005	0.0136	0.0129	0.012
Fluoranthene (diss.filt)	<0.005 µg/l	TM178		0.0168	0.0203	0.0221	0.0239	0.0265	0.0227
Anthracene (diss.filt)	<0.005 µg/l	TM178		0.013	0.0108	0.0172	0.0175	0.0136	0.0132
Phenanthrene (diss.filt)	<0.005 µg/l	TM178		0.0192	0.0224	0.0236	0.0335	0.0331	0.0329
Fluorene (diss.filt)	<0.005 µg/l	TM178		0.0116	0.0128	0.00976	0.0197	0.021	0.0208
Chrysene (diss.filt)	<0.005 µg/l	TM178		0.016	0.0167	0.0184	0.0173	0.0171	0.0167
Pyrene (diss.filt)	<0.005 µg/l	TM178		0.0201	0.0298	0.0319	0.0206	0.0217	0.0187
Benzo(a)anthracene (diss.filt)	<0.005 µg/l	TM178		0.021	0.0174	0.0183	0.0186	0.0149	0.0147
Benzo(b)fluoranthene (diss.filt)	<0.005 µg/l	TM178		0.0103	0.0116	0.0162	0.0108	0.0121	0.0101
Benzo(k)fluoranthene (diss.filt)	<0.005 µg/l	TM178		0.0109	0.0123	0.0121	0.0107	0.0111	0.0106
Benzo(a)pyrene (diss.filt)	<0.002 µg/l	TM178		0.00929	0.0101	0.0114	0.00829	0.00974	0.00761
Dibenzo(a,h)anthracene (diss.filt)	<0.005 µg/l	TM178		<0.005	0.00657	0.00628	<0.005	0.00663	<0.005
Benzo(g,h,i)perylene (diss.filt)	<0.005 µg/l	TM178		0.0148	0.0169	0.0181	<0.005	0.0142	0.0157

Validated

CERTIFICATE OF ANALYSIS

SDG:	191005-74	**Client Reference:**		**Report Number:**	526000
Location:	Llanwern	**Order Number:**	LLA678	**Superseded Report:**	525755

Results Legend	
#	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+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	D1-C	D2-C	D2-S	SL-N	SL-S	SL-W
			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
			Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)
			Date Sampled	04/10/2019	04/10/2019	04/10/2019	04/10/2019	04/10/2019	04/10/2019
			Sample Time	00:00	00:00	00:00	00:00	00:00	00:00
			Date Received	05/10/2019	05/10/2019	05/10/2019	05/10/2019	05/10/2019	05/10/2019
			SDG Ref	191005-74	191005-74	191005-74	191005-74	191005-74	191005-74
			Lab Sample No.(s)	20879896	20879907	20879922	20879862	20879883	20879872
			AGS Reference						
Indeno(1,2,3-cd)pyrene (diss.filt)	<0.005 µg/l	TM178		<0.005	0.00703	0.00961	<0.005	<0.005	0.0071
PAH Sum of EPA 16 detected (Diss filt)	<0.082 µg/l	TM178		0.22	0.221	0.237	0.267	0.294	0.286
Mercury (diss.filt)	<0.01 µg/l	TM183		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Mercury (tot.unfilt)	<0.02 µg/l	TM183		<0.02	<0.02 2	<0.02	<0.02 2	<0.02	<0.02
Phosphate (Ortho as PO4)	<0.05 mg/l	TM184		<0.05 #	<0.05 #	<0.05 #	<0.05 #	<0.05 #	<0.05 #
Sulphate	<2 mg/l	TM184		176 #	160 #	158 #	218 #	219 #	221 #
Chloride	<2 mg/l	TM184		31 #	33 #	36.3 #	25.8 #	25.7 #	26 #
Turbidity	<0.1 ntu	TM195		10.2 ♦ #	4.85 ♦ #	19.2 ♦ #	11.1 ♦ #	15.1 ♦ #	16.4 ♦ #
Cyanide, Total	<0.05 mg/l	TM227		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Cyanide, Free	<0.05 mg/l	TM227		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Cyanide, Complex	<0.05 mg/l	TM227		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Sulphur Dissolved	<1 mg/l	TM228		57.3	52.7	51.2	72.2	73.1	74.2
Chromium, Hexavalent	<0.03 mg/l	TM241		<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
pH	<1 pH Units	TM256		7.9 #	8.08 #	7.72 #	8.98 #	9.19 #	8.61 #
Phenol	<0.002 mg/l	TM259		<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cresols	<0.006 mg/l	TM259		<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Xylenols	<0.008 mg/l	TM259		<0.008	<0.008	<0.008	<0.008	<0.008	<0.008
Phenols, Total Detected monohydric	<0.016 mg/l	TM259		<0.016	<0.016	<0.016	<0.016	<0.016	<0.016

Validated

CERTIFICATE OF ANALYSIS

SDG:	191005-74	**Client Reference:**		**Report Number:**	526000
Location:	Llanwern	**Order Number:**	LLA678	**Superseded Report:**	525755

PAH Spec MS - Aqueous (W)

Results Legend

#	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+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	D1-C	D2-C	D2-S	SL-N	SL-S	SL-W
			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
			Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)
			Date Sampled	04/10/2019	04/10/2019	04/10/2019	04/10/2019	04/10/2019	04/10/2019
			Sample Time	00:00	00:00	00:00	00:00	00:00	00:00
			Date Received	05/10/2019	05/10/2019	05/10/2019	05/10/2019	05/10/2019	05/10/2019
			SDG Ref	191005-74	191005-74	191005-74	191005-74	191005-74	191005-74
			Lab Sample No.(s)	20879896	20879907	20879922	20879862	20879883	20879872
			AGS Reference						
Naphthalene (aq)	<0.01 µg/l	TM178		0.0363 #	0.0195 #	0.0337 #	0.0496 #	0.0519 #	0.0596 #
Acenaphthene (aq)	<0.005 µg/l	TM178		0.0416 #	0.026 #	0.0173 #	0.0318 #	0.0298 #	0.038 #
Acenaphthylene (aq)	<0.005 µg/l	TM178		0.0156 #	0.0128 #	0.0237 #	0.0141 #	0.0145 #	<0.005 #
Fluoranthene (aq)	<0.005 µg/l	TM178		0.0343 #	0.038 #	0.112 #	0.0351 #	0.0382 #	0.0457 #
Anthracene (aq)	<0.005 µg/l	TM178		0.0184 #	0.0148 #	0.031 #	0.0165 #	0.0178 #	0.0163 #
Phenanthrene (aq)	<0.005 µg/l	TM178		0.0326 #	0.0303 #	0.0698 #	0.0415 #	0.0407 #	0.0441 #
Fluorene (aq)	<0.005 µg/l	TM178		0.0194 #	0.0153 #	0.0204 #	0.0227 #	0.0215 #	0.0231 #
Chrysene (aq)	<0.005 µg/l	TM178		0.0171 #	0.0214 #	0.0605 #	0.0194 #	0.0219 #	0.0225 #
Pyrene (aq)	<0.005 µg/l	TM178		0.0332 #	0.0462 #	0.0963 #	0.0299 #	0.0314 #	0.0386 #
Benzo(a)anthracene (aq)	<0.005 µg/l	TM178		0.0241 #	0.0227 #	0.0608 #	0.0152 #	0.0215 #	0.0219 #
Benzo(b)fluoranthene (aq)	<0.005 µg/l	TM178		0.0151 #	0.0215 #	0.0588 #	0.0141 #	0.0173 #	0.0219 #
Benzo(k)fluoranthene (aq)	<0.005 µg/l	TM178		0.0142 #	0.0167 #	0.0359 #	0.0116 #	0.0123 #	0.0134 #
Benzo(a)pyrene (aq)	<0.002 µg/l	TM178		0.013 #	0.0142 #	0.0378 #	0.00987 #	0.0125 #	0.0161 #
Dibenzo(a,h)anthracene (aq)	<0.005 µg/l	TM178		<0.005 #	0.0076 #	0.0113 #	0.00565 #	0.00637 #	<0.005 #
Benzo(g,h,i)perylene (aq)	<0.005 µg/l	TM178		0.0214 #	0.0223 #	0.0501 #	0.0161 #	0.0201 #	0.0206 #
Indeno(1,2,3-cd)pyrene (aq)	<0.005 µg/l	TM178		<0.005 #	0.0124 #	0.0286 #	0.00915 #	0.00979 #	<0.005 #
PAH, Total Detected USEPA 16 (aq)	<0.082 µg/l	TM178		0.336 #	0.342 #	0.748 #	0.342 #	0.368 #	0.382 #

CERTIFICATE OF ANALYSIS

SDG:	191005-74	**Client Reference:**		**Report Number:**	526000
Location:	Llanwern	**Order Number:**	LLA678	**Superseded Report:**	525755

SVOC MS (W) - Aqueous

Results Legend

#	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+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	D1-C	D2-C	D2-S	SL-N	SL-S	SL-W
			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
			Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)
			Date Sampled	04/10/2019	04/10/2019	04/10/2019	04/10/2019	04/10/2019	04/10/2019
			Sample Time	00:00	00:00	00:00	00:00	00:00	00:00
			Date Received	05/10/2019	05/10/2019	05/10/2019	05/10/2019	05/10/2019	05/10/2019
			SDG Ref	191005-74	191005-74	191005-74	191005-74	191005-74	191005-74
			Lab Sample No.(s)	20879896	20879907	20879922	20879862	20879883	20879872
			AGS Reference						
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 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	191005-74	**Client Reference:**		**Report Number:**	526000
Location:	Llanwern	**Order Number:**	LLA678	**Superseded Report:**	525755

SVOC MS (W) - Aqueous

Results Legend	
#	ISO17025 accredited.
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1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	D1-C	D2-C	D2-S	SL-N	SL-S	SL-W
			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
			Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)
			Date Sampled	04/10/2019	04/10/2019	04/10/2019	04/10/2019	04/10/2019	04/10/2019
			Sample Time	00:00	00:00	00:00	00:00	00:00	00:00
			Date Received	05/10/2019	05/10/2019	05/10/2019	05/10/2019	05/10/2019	05/10/2019
			SDG Ref	191005-74	191005-74	191005-74	191005-74	191005-74	191005-74
			Lab Sample No.(s)	20879896	20879907	20879922	20879862	20879883	20879872
			AGS Reference						
Diethyl phthalate (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Dimethyl phthalate (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
n-Dioctyl phthalate (aq)	<5 µg/l	TM176		<5 #	<5 #	<5 #	<5 #	<5 #	<5 #
Hexachlorobenzene (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Hexachlorobutadiene (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Pentachlorophenol (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
Phenol (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
n-Nitroso-n-dipropylamine (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Hexachloroethane (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Nitrobenzene (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Isophorone (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Hexachlorocyclopentadiene (aq)	<1 µg/l	TM176		<1	<1	<1	<1	<1	<1
Indeno(1,2,3-cd)pyrene (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
SVOC TIC (aq)		TM176		Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Total SVOC TIC	<10 µg/l	TM176		<10	<10	<10	<10	<10	<10

Validated

CERTIFICATE OF ANALYSIS

SDG:	191005-74	**Client Reference:**		**Report Number:**	526000
Location:	Llanwern	**Order Number:**	LLA678	**Superseded Report:**	525755

TPH CWG (W)

Results Legend

#	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+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	D1-C	D2-C	D2-S	SL-N	SL-S	SL-W
			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
			Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)
			Date Sampled	04/10/2019	04/10/2019	04/10/2019	04/10/2019	04/10/2019	04/10/2019
			Sample Time	00:00	00:00	00:00	00:00	00:00	00:00
			Date Received	05/10/2019	05/10/2019	05/10/2019	05/10/2019	05/10/2019	05/10/2019
			SDG Ref	191005-74	191005-74	191005-74	191005-74	191005-74	191005-74
			Lab Sample No.(s)	20879896	20879907	20879922	20879862	20879883	20879872
			AGS Reference						
GRO Surrogate % recovery**	%	TM245		108	106	95	100	102	107
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

Validated

CERTIFICATE OF ANALYSIS

SDG:	191005-74	**Client Reference:**		**Report Number:**	526000
Location:	Llanwern	**Order Number:**	LLA678	**Superseded Report:**	525755

VOC MS (W)

Results Legend

#	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+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	D1-C	D2-C	D2-S	SL-N	SL-S	SL-W
			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
			Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)
			Date Sampled	04/10/2019	04/10/2019	04/10/2019	04/10/2019	04/10/2019	04/10/2019
			Sample Time	00:00	00:00	00:00	00:00	00:00	00:00
			Date Received	05/10/2019	05/10/2019	05/10/2019	05/10/2019	05/10/2019	05/10/2019
			SDG Ref	191005-74	191005-74	191005-74	191005-74	191005-74	191005-74
			Lab Sample No.(s)	20879896	20879907	20879922	20879862	20879883	20879872
			AGS Reference						
Dibromofluoromethane**	%	TM208		120	116	112	113	111	107
Toluene-d8**	%	TM208		102	102	102	102	101	102
4-Bromofluorobenzene**	%	TM208		103	102	101	99	101	101
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

SDG:	191005-74	**Client Reference:**		**Report Number:**	526000
Location:	Llanwern	**Order Number:**	LLA678	**Superseded Report:**	525755

VOC MS (W)

Results Legend	
#	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+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	D1-C	D2-C	D2-S	SL-N	SL-S	SL-W
			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
			Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)
			Date Sampled	04/10/2019	04/10/2019	04/10/2019	04/10/2019	04/10/2019	04/10/2019
			Sample Time	00:00	00:00	00:00	00:00	00:00	00:00
			Date Received	05/10/2019	05/10/2019	05/10/2019	05/10/2019	05/10/2019	05/10/2019
			SDG Ref	191005-74	191005-74	191005-74	191005-74	191005-74	191005-74
			Lab Sample No.(s)	20879896	20879907	20879922	20879862	20879883	20879872
			AGS Reference						
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 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	191005-74	**Client Reference:**		**Report Number:**	526000
Location:	Llanwern	**Order Number:**	LLA678	**Superseded Report:**	525755

VOC MS (W)

Results Legend	
#	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
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1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	D1-C	D2-C	D2-S	SL-N	SL-S	SL-W
			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
			Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)
			Date Sampled	04/10/2019	04/10/2019	04/10/2019	04/10/2019	04/10/2019	04/10/2019
			Sample Time	00:00	00:00	00:00	00:00	00:00	00:00
			Date Received	05/10/2019	05/10/2019	05/10/2019	05/10/2019	05/10/2019	05/10/2019
			SDG Ref	191005-74	191005-74	191005-74	191005-74	191005-74	191005-74
			Lab Sample No.(s)	20879896	20879907	20879922	20879862	20879883	20879872
			AGS Reference						
1,3,5-Trichlorobenzene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1

CERTIFICATE OF ANALYSIS

SDG:	191005-74	**Client Reference:**		**Report Number:**	526000
Location:	Llanwern	**Order Number:**	LLA678	**Superseded Report:**	525755

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

SDG:	191005-74	**Client Reference:**		**Report Number:**	526000
Location:	Llanwern	**Order Number:**	LLA678	**Superseded Report:**	525755

Test Completion Dates

Lab Sample No(s)	20879896	20879907	20879922	20879862	20879883	20879872
Customer Sample Ref.	D1-C	D2-C	D2-S	SL-N	SL-S	SL-W
AGS Ref.						
Depth	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Type	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Ammoniacal Nitrogen	09-Oct-2019	09-Oct-2019	09-Oct-2019	09-Oct-2019	09-Oct-2019	09-Oct-2019
Anions by Kone (w)	11-Oct-2019	10-Oct-2019	14-Oct-2019	14-Oct-2019	11-Oct-2019	14-Oct-2019
BOD True Total	12-Oct-2019	12-Oct-2019	12-Oct-2019	12-Oct-2019	12-Oct-2019	12-Oct-2019
COD Unfiltered	14-Oct-2019	15-Oct-2019	15-Oct-2019	14-Oct-2019	14-Oct-2019	14-Oct-2019
Conductivity (at 20 deg.C)	09-Oct-2019	09-Oct-2019	17-Oct-2019	17-Oct-2019	09-Oct-2019	17-Oct-2019
Cyanide Comp/Free/Total/Thiocyanate	10-Oct-2019	08-Oct-2019	10-Oct-2019	10-Oct-2019	08-Oct-2019	10-Oct-2019
Dissolved Metals by ICP-MS	15-Oct-2019	16-Oct-2019	16-Oct-2019	15-Oct-2019	16-Oct-2019	16-Oct-2019
Dissolved Organic/Inorganic Carbon	09-Oct-2019	09-Oct-2019	09-Oct-2019	08-Oct-2019	08-Oct-2019	08-Oct-2019
Dissolved Oxygen by Probe	11-Oct-2019	11-Oct-2019	11-Oct-2019	10-Oct-2019	11-Oct-2019	11-Oct-2019
EPH CWG (Aliphatic) Aqueous GC (W)	12-Oct-2019	12-Oct-2019	12-Oct-2019	12-Oct-2019	12-Oct-2019	12-Oct-2019
EPH CWG (Aromatic) Aqueous GC (W)	12-Oct-2019	12-Oct-2019	12-Oct-2019	12-Oct-2019	12-Oct-2019	12-Oct-2019
Fluoride	06-Oct-2019	06-Oct-2019	06-Oct-2019	06-Oct-2019	06-Oct-2019	06-Oct-2019
GRO by GC-FID (W)	14-Oct-2019	14-Oct-2019	14-Oct-2019	14-Oct-2019	14-Oct-2019	14-Oct-2019
Hexavalent Chromium (w)	07-Oct-2019	07-Oct-2019	07-Oct-2019	07-Oct-2019	07-Oct-2019	07-Oct-2019
Mercury Dissolved	07-Oct-2019	09-Oct-2019	09-Oct-2019	07-Oct-2019	07-Oct-2019	09-Oct-2019
Mercury Unfiltered	08-Oct-2019	08-Oct-2019	08-Oct-2019	08-Oct-2019	08-Oct-2019	08-Oct-2019
PAH in waters by GC-MS (diss.filt)	11-Oct-2019	11-Oct-2019	11-Oct-2019	11-Oct-2019	11-Oct-2019	11-Oct-2019
PAH Spec MS - Aqueous (W)	11-Oct-2019	11-Oct-2019	11-Oct-2019	11-Oct-2019	11-Oct-2019	11-Oct-2019
pH Value	15-Oct-2019	15-Oct-2019	15-Oct-2019	15-Oct-2019	15-Oct-2019	15-Oct-2019
Phenols by HPLC (W)	11-Oct-2019	12-Oct-2019	12-Oct-2019	12-Oct-2019	14-Oct-2019	12-Oct-2019
Phosphate by Kone (w)	07-Oct-2019	07-Oct-2019	07-Oct-2019	07-Oct-2019	07-Oct-2019	07-Oct-2019
Redox Potential	10-Oct-2019	10-Oct-2019	15-Oct-2019	08-Oct-2019	10-Oct-2019	08-Oct-2019
Sulphide	16-Oct-2019	16-Oct-2019	16-Oct-2019	16-Oct-2019	16-Oct-2019	16-Oct-2019
Sulphur Dissolved by ICP-OES	10-Oct-2019	10-Oct-2019	10-Oct-2019	10-Oct-2019	10-Oct-2019	10-Oct-2019
Suspended Solids	15-Oct-2019	14-Oct-2019	15-Oct-2019	14-Oct-2019	15-Oct-2019	15-Oct-2019
SVOC MS (W) - Aqueous	14-Oct-2019	11-Oct-2019	11-Oct-2019	14-Oct-2019	11-Oct-2019	14-Oct-2019
Total Dissolved Solids	11-Oct-2019	11-Oct-2019	11-Oct-2019	11-Oct-2019	11-Oct-2019	11-Oct-2019
Total Metals by ICP-MS	16-Oct-2019	16-Oct-2019	14-Oct-2019	16-Oct-2019	14-Oct-2019	18-Oct-2019
Total Organic and Inorganic Carbon	10-Oct-2019	10-Oct-2019	10-Oct-2019	14-Oct-2019	10-Oct-2019	10-Oct-2019
TPH CWG (W)	14-Oct-2019	14-Oct-2019	14-Oct-2019	14-Oct-2019	14-Oct-2019	14-Oct-2019
Turbidity in waters	07-Oct-2019	07-Oct-2019	07-Oct-2019	07-Oct-2019	07-Oct-2019	07-Oct-2019
VOC MS (W)	11-Oct-2019	11-Oct-2019	11-Oct-2019	11-Oct-2019	11-Oct-2019	11-Oct-2019

Appendix General

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

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

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

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

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

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

7. Results relate only to the items tested.

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

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

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

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

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

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

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

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

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

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

18. **Sample Deviations**

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

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

19. **Asbestos**

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

Identification of Asbestos in Bulk Materials & Soils

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

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

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

Visual Estimation Of Fibre Content

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

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2107).*

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

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