Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528700
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Website: www.alsenvironmental.co.uk

Atkins Global Ltd
Project Jonah site office
Llan Coed House
Suite 24
Coed Darcy
Llandarcy
SA10 6HJ

Attention: John Fitzgerald

CERTIFICATE OF ANALYSIS

Date of report Generation:	28 January 2021
Customer:	Atkins Global Ltd
Sample Delivery Group (SDG):	210121-69
Your Reference:	
Location:	Llanwern
Report No:	584666

We received 6 samples on Thursday January 21, 2021 and 6 of these samples were scheduled for analysis which was completed on Thursday January 28, 2021. 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:	210121-69	**Client Reference:**		**Report Number:**	584666
Location:	Llanwern	**Order Number:**	108282	**Superseded Report:**	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
23586036	D5-C		0.00 - 0.00	20/01/2021
23586052	D3-S		0.00 - 0.00	20/01/2021
23586019	KW-C		0.00 - 0.00	20/01/2021
23585960	ML-N		0.00 - 0.00	20/01/2021
23585975	ML-S		0.00 - 0.00	20/01/2021
23586002	R3-C		0.00 - 0.00	20/01/2021

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

Validated

CERTIFICATE OF ANALYSIS

SDG:	210121-69	**Client Reference:**		**Report Number:**	584666
Location:	Llanwern	**Order Number:**	108282	**Superseded Report:**	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

Lab Sample No(s)																				23586036	23586052	23586019
Customer Sample Reference																				D5-C	D3-S	KW-C
AGS Reference																						
Depth (m)																				0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Container																				1lplastic (ALE221)	ZnAc (ALE246)	0.5l glass bottle (ALE227)
																				1lplastic (ALE221)	Vial (ALE297)	1lplastic (ALE221)
																				250ml Amber Gl. PTFE/PE (ALE219)	ZnAc (ALE246)	
																				H2SO4 (ALE244)	NaOH (ALE245)	
																				HNO3 Filtered (ALE204)	Vial (ALE297)	
																				HNO3 Unfiltered (ALE204)	ZnAc (ALE246)	
																				NaOH (ALE245)		
																				Vial (ALE297)		
																				ZnAc (ALE246)		
																				0.5l glass bottle (ALE227)		
																				1lplastic (ALE221)		
Sample Type																				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					
Dissolved Organic/Inorganic Carbon	All	NDPs: 0 Tests: 6	X									X									X	
Dissolved Oxygen by Probe	All	NDPs: 0 Tests: 6		X										X								X
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 6			X										X							
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 6			X										X							
Fluoride	All	NDPs: 0 Tests: 6		X										X								X
GRO by GC-FID (W)	All	NDPs: 0 Tests: 6								X									X			
Hexavalent Chromium (w)	All	NDPs: 0 Tests: 6		X										X								X
Mercury Dissolved	All	NDPs: 0 Tests: 6					X										X					

23585975	ML-S		0.00 - 0.00	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		
				0.5l glass bottle (ALE227)	SW										X								
23585960	ML-N		0.00 - 0.00	ZnAc (ALE246)	SW																		
				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		
				0.5l glass bottle (ALE227)	SW										X								
23586019	KW-C		0.00 - 0.00	ZnAc (ALE246)	SW																		
				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				

Validated

CERTIFICATE OF ANALYSIS

SDG:	210121-69	**Client Reference:**		**Report Number:**	584666
Location:	Llanwern	**Order Number:**	108282	**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

Lab Sample No(s)																					23586036	23586052	23586019
Customer Sample Reference																					D5-C	D3-S	KW-C
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)	ZnAc (ALE246)	0.5l glass bottle (ALE227)	1lplastic (ALE221)	250ml Amber Gl. PTFE/PE (ALE219)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	ZnAc (ALE246)	0.5l glass bottle (ALE227)	1lplastic (ALE221)
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							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							X
Phenols by HPLC (W)	All	NDPs: 0 Tests: 6				X																											X					
Phosphate by Kone (w)	All	NDPs: 0 Tests: 6		X																		X									X							X
Redox Potential	All	NDPs: 0 Tests: 6	X																		X									X							
Sulphide	All	NDPs: 0 Tests: 6									X																						X					
Sulphur Dissolved by ICP-OES	All	NDPs: 0 Tests: 6		X																		X									X							X
Suspended Solids	All	NDPs: 0 Tests: 6		X																		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							X
Total Metals by ICP-MS	All	NDPs: 0 Tests: 6						X														X									X							
Total Organic and Inorganic Carbon	All	NDPs: 0 Tests: 6				X																			X								X					
TPH CWG (W)	All	NDPs: 0 Tests: 6	X																		X									X							

23585975	ML-S		0.00 - 0.00	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	X	
				0.5l glass bottle (ALE227)	SW		X						X					X			X
23585960	ML-N		0.00 - 0.00	ZnAc (ALE246)	SW									X							
				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		
				0.5l glass bottle (ALE227)	SW		X						X					X			X
23586019	KW-C		0.00 - 0.00	ZnAc (ALE246)	SW									X							
				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													

Validated

CERTIFICATE OF ANALYSIS

SDG:	210121-69	**Client Reference:**		**Report Number:**	584666
Location:	Llanwern	**Order Number:**	108282	**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

Lab Sample No(s)											23586036										23586052	23586019
Customer Sample Reference											D5-C										D3-S	KW-C
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)	ZnAc (ALE246)	0.5l glass bottle (ALE227)	1lplastic (ALE221)	250ml Amber Gl. PTFE/PE (ALE219)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	ZnAc (ALE246)	0.5l glass bottle (ALE227)	1lplastic (ALE221)
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		

23585975	ML-S		0.00 - 0.00	HNO3 Filtered (ALE204)	SW				
				H2SO4 (ALE244)	SW				
				250ml Amber Gl. PTFE/PE (ALE219)	SW				
				1lplastic (ALE221)	SW		X		
				0.5l glass bottle (ALE227)	SW				
23585960	ML-N		0.00 - 0.00	ZnAc (ALE246)	SW				
				Vial (ALE297)	SW				X
				NaOH (ALE245)	SW				
				HNO3 Unfiltered (ALE204)	SW				
				HNO3 Filtered (ALE204)	SW				
				H2SO4 (ALE244)	SW				
				250ml Amber Gl. PTFE/PE (ALE219)	SW				
				1lplastic (ALE221)	SW		X		
				0.5l glass bottle (ALE227)	SW				
23586019	KW-C		0.00 - 0.00	ZnAc (ALE246)	SW				
				Vial (ALE297)	SW				X
				NaOH (ALE245)	SW				
				HNO3 Unfiltered (ALE204)	SW				
				HNO3 Filtered (ALE204)	SW				
				H2SO4 (ALE244)	SW				
				250ml Amber Gl. PTFE/PE (ALE219)	SW				

Validated

CERTIFICATE OF ANALYSIS

SDG:	210121-69	**Client Reference:**		**Report Number:**	584666
Location:	Llanwern	**Order Number:**	108282	**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

Lab Sample No(s)			23585975											23586002
Customer Sample Reference			ML-S											R3-C
AGS Reference														
Depth (m)			0.00 - 0.00											0.00 - 0.00
Container			NaOH (ALE245)	Vial (ALE297)	ZnAc (ALE246)	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)	ZnAc (ALE246)
Sample Type			SW	SW	SW	SW	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									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									X	
Hexavalent Chromium (w)	All	NDPs: 0 Tests: 6					X							
Mercury Dissolved	All	NDPs: 0 Tests: 6								X				

Validated

CERTIFICATE OF ANALYSIS

SDG:	210121-69	**Client Reference:**		**Report Number:**	584666
Location:	Llanwern	**Order Number:**	108282	**Superseded Report:**	

Results Legend

X Test

N No Determination Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
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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)													23585975	23586002
Customer Sample Reference													ML-S	R3-C
AGS Reference														
Depth (m)													0.00 - 0.00	0.00 - 0.00
Container													NaOH (ALE245)	Vial (ALE297)	ZnAc (ALE246)	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)	ZnAc (ALE246)
Sample Type													SW	SW	SW	SW	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																			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:	210121-69	**Client Reference:**		**Report Number:**	584666
Location:	Llanwern	**Order Number:**	108282	**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
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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)			23585975											23586002
Customer Sample Reference			ML-S											R3-C
AGS Reference														
Depth (m)			0.00 - 0.00											0.00 - 0.00
Container			NaOH (ALE245)	Vial (ALE297)	ZnAc (ALE246)	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)	ZnAc (ALE246)
Sample Type			SW	SW	SW	SW	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									X	

Validated

CERTIFICATE OF ANALYSIS

SDG:	210121-69	**Client Reference:**		**Report Number:**	584666
Location:	Llanwern	**Order Number:**	108282	**Superseded Report:**	

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
1-4+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	D5-C	D3-S	KW-C	ML-N	ML-S	R3-C
			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	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021
			Sample Time	00:00	00:00	00:00	00:00	00:00	00:00
			Date Received	21/01/2021	21/01/2021	21/01/2021	21/01/2021	21/01/2021	21/01/2021
			SDG Ref	210121-69	210121-69	210121-69	210121-69	210121-69	210121-69
			Lab Sample No.(s)	23586036	23586052	23586019	23585960	23585975	23586002
			AGS Reference						
Suspended solids, Total	<2 mg/l	TM022		18.5 #	61 #	36 #	54.5 #	40.5 #	37 #
BOD, unfiltered	<1 mg/l	TM045		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Oxygen, dissolved	<0.3 mg/l	TM046		10.6	10.6	8.96	10.6	10.5	9.46
Carbon, Organic (diss.filt)	<3 mg/l	TM090		7.56	7.19	7.17	7.45	7.45	6.56
Organic Carbon, Total	<3 mg/l	TM090		5.88 #	6.37 #	6.23 #	<3 #	6.22 #	5.31 #
Ammoniacal Nitrogen as NH4	<0.3 mg/l	TM099		0.676 #	1.36 #	0.309 #	1.28 #	1.38 #	0.361 #
Sulphide	<0.01 mg/l	TM101		0.0379	0.0439	0.0209	<0.01	<0.01	0.0279
Fluoride	<0.5 mg/l	TM104		0.835	0.545	<0.5	0.587	0.63	<0.5
COD, unfiltered	<7 mg/l	TM107		20.2 #	28.2 #	23.2 #	23.5 #	31.5 #	18.8 #
Redox potential	mV	TM110		113	153	129	146	122	127
Conductivity @ 20 deg.C (diss.filt)	<0.02 mS/cm	TM120		0.634	0.544	0.554	0.539	0.528	0.408
Dissolved solids, Total (meter)	<5 mg/l	TM123		513 #	427 #	450 #	419 #	421 #	332 #
Antimony (diss.filt)	<1 µg/l	TM152		1.69 #	<1 #	<1 #	<1 #	<1 #	<1 #
Antimony (tot.unfilt)	<4 µg/l	TM152		<4 #	<4 2 #	<4 #	<4 #	<4 2 #	<4 #
Arsenic (diss.filt)	<0.5 µg/l	TM152		2.15 #	1.95 #	1.3 #	1.68 #	1.73 #	1.96 #
Arsenic (tot.unfilt)	<2 µg/l	TM152		2.62 #	3.24 2 #	2.25 #	2.47 #	2.47 2 #	2.98 #
Barium (diss.filt)	<0.2 µg/l	TM152		54.3 #	54.8 #	50.3 #	44.1 #	43.7 #	34.4 #
Barium (tot.unfilt)	<0.5 µg/l	TM152		63.1 #	87.9 2 #	64.5 #	58.7 #	57.6 2 #	51.5 #
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 #	<1 2 #	<1 #
Boron (diss.filt)	<10 µg/l	TM152		122 #	105 #	89.6 #	108 #	111 #	98.2 #
Boron (tot.unfilt)	<20 µg/l	TM152		115 #	142 2 #	83.1 #	101 #	140 2 #	88.7 #
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 #	<0.5 2 #	<0.5 #
Chromium (tot.unfilt)	<3 µg/l	TM152		<3 #	3.89 2 #	<3 #	<3 #	<3 2 #	<3 #
Chromium (diss.filt)	<1 µg/l	TM152		2.35 #	<1 #	<1 #	<1 #	<1 #	<1 #
Copper (tot.unfilt)	<1 µg/l	TM152		4.79 #	3.09 2 #	3.8 #	2.01 #	<1 2 #	5.48 #
Lead (tot.unfilt)	<1 µg/l	TM152		2.99 #		5.57 #	2.99 #	2.8 2 #	
Copper (diss.filt)	<0.3 µg/l	TM152		3.45 #	1.76 #	1.88 #	1.07 #	0.971 #	2.32 #
Manganese (tot.unfilt)	<1 µg/l	TM152		51.5 #	242 2 #	147 #	95.6 #	96.6 2 #	118 #
Lead (diss.filt)	<0.2 µg/l	TM152		<0.2 #	<0.2 #	<0.2 #	<0.2 #	<0.2 #	0.342 #
Nickel (tot.unfilt)	<1 µg/l	TM152		1.86 #	3.76 2 #	2.15 #	2.27 #	2.8 2 #	2.86 #
Manganese (diss.filt)	<3 µg/l	TM152		10.2 #	80.5 #	95.7 #	35.8 #	32.5 #	58.9 #

CERTIFICATE OF ANALYSIS

SDG:	210121-69	**Client Reference:**		**Report Number:**	584666
Location:	Llanwern	**Order Number:**	108282	**Superseded Report:**	

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
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	D5-C	D3-S	KW-C	ML-N	ML-S	R3-C
			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	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021
			Sample Time	00:00	00:00	00:00	00:00	00:00	00:00
			Date Received	21/01/2021	21/01/2021	21/01/2021	21/01/2021	21/01/2021	21/01/2021
			SDG Ref	210121-69	210121-69	210121-69	210121-69	210121-69	210121-69
			Lab Sample No.(s)	23586036	23586052	23586019	23585960	23585975	23586002
			AGS Reference						
Phosphorus (tot.unfilt)	<20 µg/l	TM152		26.7 #	117 2 #	126 #	57.7 #	65 2 #	168 #
Selenium (tot.unfilt)	<1 µg/l	TM152		1.58 #	1.82 2 #	1.19 #	1.24 #	1.45 2 #	1.27 #
Nickel (diss.filt)	<0.4 µg/l	TM152		1.69 #	1.22 #	1.06 #	1.57 #	1.78 #	1.14 #
Phosphorus (diss.filt)	<10 µg/l	TM152		12.7 #	32.5 #	60.7 #	18.7 #	15.9 #	93.1 #
Selenium (diss.filt)	<1 µg/l	TM152		1.51 #	1.14 #	<1 #	1.01 #	<1 #	1.2 #
Vanadium (tot.unfilt)	<5 µg/l	TM152		26.7 #	23.2 2 #	8.42 #	9.63 #	11.7 2 #	10.4 #
Zinc (tot.unfilt)	<5 µg/l	TM152		12.7 #	48.9 2 #	22.5 #	11.5 #	13 2 #	45.1 #
Vanadium (diss.filt)	<1 µg/l	TM152		28.2 #	15.2 #	5.98 #	8.81 #	9.64 #	7.94 #
Zinc (diss.filt)	<1 µg/l	TM152		1.31 #	1.24 #	2.3 #	<1 #	<1 #	2.62 #
Lead (tot.unfilt)	<0.001 mg/l	TM152			0.0145 2 #				0.0066 #
Magnesium (Dis.Filt)	<0.036 mg/l	TM152		3.57 #	8.48 #	8.99 #	9.48 #	9.15 #	7.48 #
Calcium (Dis.Filt)	<0.2 mg/l	TM152		64.8 #	79.3 #	96 #	76 #	72.2 #	65.1 #
Iron (Dis.Filt)	<0.019 mg/l	TM152		0.0207 #	<0.019 #	0.0242 #	0.0195 #	0.0221 #	0.0486 #
Hardness, Total as CaCO3	<0.65 mg/l	TM152		177	233	277	229	218	193
Magnesium (Tot. Unfilt.)	<0.05 mg/l	TM152		3.72 #	10.5 2 #	9.48 #	9.97 #	10.7 2 #	8.38 #
Calcium (Tot. Unfilt.)	<0.057 mg/l	TM152		65.6 #	95.5 2 #	95.5 #	85.8 #	93.1 2 #	69.2 #
Iron (Tot. Unfilt.)	<0.024 mg/l	TM152		0.35 #	2.71 2 #	1.4 #	0.869 #	0.886 2 #	1.85 #
Naphthalene (diss.filt)	<0.01 µg/l	TM178		0.0543	0.248	0.0531	0.103	0.117	0.0111
Acenaphthene (diss.filt)	<0.005 µg/l	TM178		0.0766	0.0414	0.0673	0.0974	0.112	<0.005
Acenaphthylene (diss.filt)	<0.005 µg/l	TM178		0.00717	0.0194	0.0135	0.0222	0.0233	0.00544
Fluoranthene (diss.filt)	<0.005 µg/l	TM178		0.0474	0.104	0.044	0.0439	0.0488	0.0266
Anthracene (diss.filt)	<0.005 µg/l	TM178		0.0157	0.025	0.0165	0.0142	0.0158	0.0119
Phenanthrene (diss.filt)	<0.005 µg/l	TM178		0.102	0.0953	0.0448	0.0705	0.0849	0.0385
Fluorene (diss.filt)	<0.005 µg/l	TM178		0.032	0.0357	0.0217	0.0387	0.0428	0.00602
Chrysene (diss.filt)	<0.005 µg/l	TM178		<0.005	0.0406	0.0221	0.01	<0.005	0.017
Pyrene (diss.filt)	<0.005 µg/l	TM178		0.0472	0.088	0.0417	0.0466	0.0504	0.0296
Benzo(a)anthracene (diss.filt)	<0.005 µg/l	TM178		<0.005	0.0483	0.0256	0.0116	<0.005	0.0237
Benzo(b)fluoranthene (diss.filt)	<0.005 µg/l	TM178		<0.005	0.0382	0.0234	<0.005	<0.005	0.0195
Benzo(k)fluoranthene (diss.filt)	<0.005 µg/l	TM178		<0.005	0.0216	0.0153	<0.005	<0.005	0.0147
Benzo(a)pyrene (diss.filt)	<0.002 µg/l	TM178		<0.002	0.0227	0.0141	<0.002	<0.002	0.0135
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	0.0221	<0.005	<0.005	<0.005	<0.005
Indeno(1,2,3-cd)pyrene (diss.filt)	<0.005 µg/l	TM178		<0.005	0.018	<0.005	<0.005	<0.005	<0.005

CERTIFICATE OF ANALYSIS

SDG:	210121-69	**Client Reference:**		**Report Number:**	584666
Location:	Llanwern	**Order Number:**	108282	**Superseded Report:**	

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
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	D5-C	D3-S	KW-C	ML-N	ML-S	R3-C
			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	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021
			Sample Time	00:00	00:00	00:00	00:00	00:00	00:00
			Date Received	21/01/2021	21/01/2021	21/01/2021	21/01/2021	21/01/2021	21/01/2021
			SDG Ref	210121-69	210121-69	210121-69	210121-69	210121-69	210121-69
			Lab Sample No.(s)	23586036	23586052	23586019	23585960	23585975	23586002
			AGS Reference						
PAH Sum of EPA 16 detected (Diss filt)	<0.082 µg/l	TM178		0.383	0.868	0.403	0.458	0.495	0.218
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	<0.02 2	<0.02
Phosphate (Ortho as PO4)	<0.05 mg/l	TM184		<0.05 #	0.075 #	0.157 #	<0.05 #	<0.05 #	0.249 #
Sulphate	<2 mg/l	TM184		132 #	91.9 #	77.7 #	118 #	124 #	61.4 #
Chloride	<2 mg/l	TM184		103 #	37.2 #	35.5 #	35.5 #	35.5 #	23.1 #
Turbidity	<0.1 ntu	TM195		16.2 #	94.2 #	44 #	27.4 #	44.9 #	48.8 #
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		40.5	27.9	23.2	35.3	37.2	18.1
Chromium, Hexavalent	<0.03 mg/l	TM241		<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
pH	<1 pH Units	TM256		9.35 #	8.49 #	7.94 #	8.46 #	8.5 #	7.79 #
Phenol	<0.002 mg/l	TM259		<0.002	<0.002	<0.002	0.01	0.01	<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: 210121-69 **Client Reference:** **Report Number:** 584666
Location: Llanwern **Order Number:** 108282 **Superseded Report:**

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
1-4+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	D5-C	D3-S	KW-C	ML-N	ML-S	R3-C
			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	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021
			Sample Time	00:00	00:00	00:00	00:00	00:00	00:00
			Date Received	21/01/2021	21/01/2021	21/01/2021	21/01/2021	21/01/2021	21/01/2021
			SDG Ref	210121-69	210121-69	210121-69	210121-69	210121-69	210121-69
			Lab Sample No.(s)	23586036	23586052	23586019	23585960	23585975	23586002
			AGS Reference						
Naphthalene (aq)	<0.01 µg/l	TM178		0.258 #	0.0548 #	0.089 #	0.0621 #	0.0574 #	0.0636 #
Acenaphthene (aq)	<0.005 µg/l	TM178		0.025 #	0.0739 #	0.0415 #	0.0437 #	0.0431 #	0.00856 #
Acenaphthylene (aq)	<0.005 µg/l	TM178		0.0982 #	0.00934 #	0.0331 #	0.0217 #	0.0195 #	0.0255 #
Fluoranthene (aq)	<0.005 µg/l	TM178		0.611 #	0.0706 #	0.229 #	0.107 #	0.0865 #	0.143 #
Anthracene (aq)	<0.005 µg/l	TM178		0.191 #	0.0152 #	0.0599 #	0.0252 #	0.0268 #	0.0436 #
Phenanthrene (aq)	<0.005 µg/l	TM178		0.552 #	0.0942 #	0.18 #	0.0966 #	0.0802 #	0.142 #
Fluorene (aq)	<0.005 µg/l	TM178		0.106 #	0.0339 #	0.0361 #	0.0231 #	0.0218 #	0.0248 #
Chrysene (aq)	<0.005 µg/l	TM178		0.359 #	0.0258 #	0.155 #	0.0495 #	0.0471 #	0.0988 #
Pyrene (aq)	<0.005 µg/l	TM178		0.521 #	0.0543 #	0.183 #	0.0955 #	0.0829 #	0.107 #
Benzo(a)anthracene (aq)	<0.005 µg/l	TM178		0.294 #	0.0229 #	0.117 #	0.0463 #	0.0374 #	0.0777 #
Benzo(b)fluoranthene (aq)	<0.005 µg/l	TM178		0.455 #	0.0223 #	0.165 #	0.0496 #	0.0492 #	0.0893 #
Benzo(k)fluoranthene (aq)	<0.005 µg/l	TM178		0.17 #	0.012 #	0.0731 #	0.0243 #	0.0259 #	0.0425 #
Benzo(a)pyrene (aq)	<0.002 µg/l	TM178		0.213 #	0.011 #	0.0885 #	0.0277 #	0.0261 #	0.0445 #
Dibenzo(a,h)anthracene (aq)	<0.005 µg/l	TM178		0.046 #	<0.005 #	0.0203 #	<0.005 #	<0.005 #	<0.005 #
Benzo(g,h,i)perylene (aq)	<0.005 µg/l	TM178		0.246 #	0.0188 #	0.107 #	0.0413 #	0.037 #	0.0562 #
Indeno(1,2,3-cd)pyrene (aq)	<0.005 µg/l	TM178		0.179 #	0.00941 #	0.0676 #	0.0222 #	0.0252 #	0.0349 #
PAH, Total Detected USEPA 16 (aq)	<0.082 µg/l	TM178		4.32 #	0.528 #	1.64 #	0.736 #	0.666 #	1 #

CERTIFICATE OF ANALYSIS

SDG:	210121-69	**Client Reference:**		**Report Number:**	584666
Location:	Llanwern	**Order Number:**	108282	**Superseded Report:**	

SVOC MS (W) - Aqueous

Results Legend

#	ISO17025 accredited.
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aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
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**	% 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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Component	LOD/Units	Method	Customer Sample Ref.	D5-C	D3-S	KW-C	ML-N	ML-S	R3-C
			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	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021
			Sample Time	00:00	00:00	00:00	00:00	00:00	00:00
			Date Received	21/01/2021	21/01/2021	21/01/2021	21/01/2021	21/01/2021	21/01/2021
			SDG Ref	210121-69	210121-69	210121-69	210121-69	210121-69	210121-69
			Lab Sample No.(s)	23586036	23586052	23586019	23585960	23585975	23586002
			AGS Reference						
1,2,4-Trichlorobenzene (aq)	<1 µg/l	TM176		<1 #	<4 #	<1 #	<1 #	<1 #	<1 #
1,2-Dichlorobenzene (aq)	<1 µg/l	TM176		<1 #	<4 #	<1 #	<1 #	<1 #	<1 #
1,3-Dichlorobenzene (aq)	<1 µg/l	TM176		<1 #	<4 #	<1 #	<1 #	<1 #	<1 #
1,4-Dichlorobenzene (aq)	<1 µg/l	TM176		<1 #	<4 #	<1 #	<1 #	<1 #	<1 #
2,4,5-Trichlorophenol (aq)	<1 µg/l	TM176		<1 #	<4 #	<1 #	<1 #	<1 #	<1 #
2,4,6-Trichlorophenol (aq)	<1 µg/l	TM176		<1 #	<4 #	<1 #	<1 #	<1 #	<1 #
2,4-Dichlorophenol (aq)	<1 µg/l	TM176		<1 #	<4 #	<1 #	<1 #	<1 #	<1 #
2,4-Dimethylphenol (aq)	<1 µg/l	TM176		<1 #	<4 #	<1 #	<1 #	<1 #	<1 #
2,4-Dinitrotoluene (aq)	<1 µg/l	TM176		<1 #	<4 #	<1 #	<1 #	<1 #	<1 #
2,6-Dinitrotoluene (aq)	<1 µg/l	TM176		<1 #	<4 #	<1 #	<1 #	<1 #	<1 #
2-Chloronaphthalene (aq)	<1 µg/l	TM176		<1 #	<4 #	<1 #	<1 #	<1 #	<1 #
2-Chlorophenol (aq)	<1 µg/l	TM176		<1 #	<4 #	<1 #	<1 #	<1 #	<1 #
2-Methylnaphthalene (aq)	<1 µg/l	TM176		<1 #	<4 #	<1 #	<1 #	<1 #	<1 #
2-Methylphenol (aq)	<1 µg/l	TM176		<1 #	<4 #	<1 #	<1 #	<1 #	<1 #
2-Nitroaniline (aq)	<1 µg/l	TM176		<1 #	<4 #	<1 #	<1 #	<1 #	<1 #
2-Nitrophenol (aq)	<1 µg/l	TM176		<1 #	<4 #	<1 #	<1 #	<1 #	<1 #
3-Nitroaniline (aq)	<1 µg/l	TM176		<1 #	<4 #	<1 #	<1 #	<1 #	<1 #
4-Bromophenylphenylether (aq)	<1 µg/l	TM176		<1 #	<4 #	<1 #	<1 #	<1 #	<1 #
4-Chloro-3-methylphenol (aq)	<1 µg/l	TM176		<1 #	<4 #	<1 #	<1 #	<1 #	<1 #
4-Chloroaniline (aq)	<1 µg/l	TM176		<1	<4	<1	<1	<1	<1
4-Chlorophenylphenylether (aq)	<1 µg/l	TM176		<1 #	<4 #	<1 #	<1 #	<1 #	<1 #
4-Methylphenol (aq)	<1 µg/l	TM176		<1 #	<4 #	<1 #	<1 #	<1 #	<1 #
4-Nitroaniline (aq)	<1 µg/l	TM176		<1 #	<4 #	<1 #	<1 #	<1 #	<1 #
4-Nitrophenol (aq)	<1 µg/l	TM176		<1	<4	<1	<1	<1	<1
Azobenzene (aq)	<1 µg/l	TM176		<1 #	<4 #	<1 #	<1 #	<1 #	<1 #
bis(2-Chloroethyl)ether (aq)	<1 µg/l	TM176		<1 #	<4 #	<1 #	<1 #	<1 #	<1 #
bis(2-Chloroethoxy)methane (aq)	<1 µg/l	TM176		<1 #	<4 #	<1 #	<1 #	<1 #	<1 #
bis(2-Ethylhexyl) phthalate (aq)	<2 µg/l	TM176		<2 #	<8 #	<2 #	<2 #	<2 #	<2 #
Butylbenzyl phthalate (aq)	<1 µg/l	TM176		<1 #	<4 #	<1 #	<1 #	<1 #	<1 #
Benzo(k)fluoranthene (aq)	<1 µg/l	TM176		<1 #	<4 #	<1 #	<1 #	<1 #	<1 #
Carbazole (aq)	<1 µg/l	TM176		<1 #	<4 #	<1 #	<1 #	<1 #	<1 #
Dibenzofuran (aq)	<1 µg/l	TM176		<1 #	<4 #	<1 #	<1 #	<1 #	<1 #
n-Dibutyl phthalate (aq)	<1 µg/l	TM176		<1 #	<4 #	<1 #	<1 #	<1 #	<1 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	210121-69	**Client Reference:**		**Report Number:**	584666
Location:	Llanwern	**Order Number:**	108282	**Superseded Report:**	

SVOC MS (W) - Aqueous

Results Legend	
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*	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
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	D5-C	D3-S	KW-C	ML-N	ML-S	R3-C
			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	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021
			Sample Time	00:00	00:00	00:00	00:00	00:00	00:00
			Date Received	21/01/2021	21/01/2021	21/01/2021	21/01/2021	21/01/2021	21/01/2021
			SDG Ref	210121-69	210121-69	210121-69	210121-69	210121-69	210121-69
			Lab Sample No.(s)	23586036	23586052	23586019	23585960	23585975	23586002
			AGS Reference						
Diethyl phthalate (aq)	<1 µg/l	TM176		<1 #	<4 #	<1 #	<1 #	<1 #	<1 #
Dimethyl phthalate (aq)	<1 µg/l	TM176		<1 #	<4 #	<1 #	<1 #	<1 #	<1 #
n-Dioctyl phthalate (aq)	<5 µg/l	TM176		<5 #	<20 #	<5 #	<5 #	<5 #	<5 #
Hexachlorobenzene (aq)	<1 µg/l	TM176		<1 #	<4 #	<1 #	<1 #	<1 #	<1 #
Hexachlorobutadiene (aq)	<1 µg/l	TM176		<1 #	<4 #	<1 #	<1 #	<1 #	<1 #
Pentachlorophenol (aq)	<1 µg/l	TM176		<1	<4	<1	<1	<1	<1
Phenol (aq)	<1 µg/l	TM176		<1	<4	<1	<1	<1	<1
n-Nitroso-n-dipropylamine (aq)	<1 µg/l	TM176		<1 #	<4 #	<1 #	<1 #	<1 #	<1 #
Hexachloroethane (aq)	<1 µg/l	TM176		<1 #	<4 #	<1 #	<1 #	<1 #	<1 #
Nitrobenzene (aq)	<1 µg/l	TM176		<1 #	<4 #	<1 #	<1 #	<1 #	<1 #
Isophorone (aq)	<1 µg/l	TM176		<1 #	<4 #	<1 #	<1 #	<1 #	<1 #
Hexachlorocyclopentadiene (aq)	<1 µg/l	TM176		<1	<4	<1	<1	<1	<1
Indeno(1,2,3-cd)pyrene (aq)	<1 µg/l	TM176		<1 #	<4 #	<1 #	<1 #	<1 #	<1 #
SVOC TIC (aq)		TM176		Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Total SVOC TIC	<10 µg/l	TM176		85.3	<40	<10	<10	<10	<10
Eicosane	µg/l	TM176		45.9					
Tritetracontane	µg/l	TM176		39.4					

Validated

CERTIFICATE OF ANALYSIS

SDG: 210121-69 **Client Reference:** **Report Number:** 584666
Location: Llanwern **Order Number:** 108282 **Superseded Report:**

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
1-4+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	D5-C	D3-S	KW-C	ML-N	ML-S	R3-C
			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	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021
			Sample Time	00:00	00:00	00:00	00:00	00:00	00:00
			Date Received	21/01/2021	21/01/2021	21/01/2021	21/01/2021	21/01/2021	21/01/2021
			SDG Ref	210121-69	210121-69	210121-69	210121-69	210121-69	210121-69
			Lab Sample No.(s)	23586036	23586052	23586019	23585960	23585975	23586002
			AGS Reference						
GRO Surrogate % recovery**	%	TM245		104	113	106	108	114	108
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		34	<10	<10	<10	<10	<10
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174		34	<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		34	<10	<10	<10	<10	<10
Aliphatics >C16-C35 Aqueous	<10 µg/l	TM174		34	<10	<10	<10	<10	<10

CERTIFICATE OF ANALYSIS

SDG: 210121-69 **Client Reference:** **Report Number:** 584666
Location: Llanwern **Order Number:** 108282 **Superseded Report:**

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
1-4+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	D5-C	D3-S	KW-C	ML-N	ML-S	R3-C
			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	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021
			Sample Time	00:00	00:00	00:00	00:00	00:00	00:00
			Date Received	21/01/2021	21/01/2021	21/01/2021	21/01/2021	21/01/2021	21/01/2021
			SDG Ref	210121-69	210121-69	210121-69	210121-69	210121-69	210121-69
			Lab Sample No.(s)	23586036	23586052	23586019	23585960	23585975	23586002
			AGS Reference						
Dibromofluoromethane**	%	TM208		114	116	110	114	111	113
Toluene-d8**	%	TM208		99.3	97.1	96.8	98.5	97.5	96.3
4-Bromofluorobenzene**	%	TM208		95.3	96.9	97.3	96.7	99.2	97.9
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

SDG: 210121-69 **Client Reference:** **Report Number:** 584666
Location: Llanwern **Order Number:** 108282 **Superseded Report:**

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
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	D5-C	D3-S	KW-C	ML-N	ML-S	R3-C
			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	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021
			Sample Time	00:00	00:00	00:00	00:00	00:00	00:00
			Date Received	21/01/2021	21/01/2021	21/01/2021	21/01/2021	21/01/2021	21/01/2021
			SDG Ref	210121-69	210121-69	210121-69	210121-69	210121-69	210121-69
			Lab Sample No.(s)	23586036	23586052	23586019	23585960	23585975	23586002
			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 #
1,3,5-Trichlorobenzene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1

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:	210121-69	**Client Reference:**		**Report Number:**	584666
Location:	Llanwern	**Order Number:**	108282	**Superseded Report:**	

Test Completion Dates

Lab Sample No(s)	23586036	23586052	23586019	23585960	23585975	23586002
Customer Sample Ref.	D5-C	D3-S	KW-C	ML-N	ML-S	R3-C
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	26-Jan-2021	26-Jan-2021	26-Jan-2021	26-Jan-2021	26-Jan-2021	26-Jan-2021
Anions by Kone (w)	27-Jan-2021	27-Jan-2021	27-Jan-2021	27-Jan-2021	27-Jan-2021	27-Jan-2021
BOD True Total	26-Jan-2021	27-Jan-2021	28-Jan-2021	27-Jan-2021	26-Jan-2021	26-Jan-2021
COD Unfiltered	26-Jan-2021	26-Jan-2021	27-Jan-2021	27-Jan-2021	27-Jan-2021	27-Jan-2021
Conductivity (at 20 deg.C)	26-Jan-2021	26-Jan-2021	26-Jan-2021	26-Jan-2021	26-Jan-2021	26-Jan-2021
Cyanide Comp/Free/Total/Thiocyanate	25-Jan-2021	25-Jan-2021	25-Jan-2021	25-Jan-2021	25-Jan-2021	25-Jan-2021
Dissolved Metals by ICP-MS	23-Jan-2021	23-Jan-2021	23-Jan-2021	23-Jan-2021	23-Jan-2021	23-Jan-2021
Dissolved Organic/Inorganic Carbon	25-Jan-2021	25-Jan-2021	25-Jan-2021	25-Jan-2021	25-Jan-2021	25-Jan-2021
Dissolved Oxygen by Probe	25-Jan-2021	26-Jan-2021	25-Jan-2021	25-Jan-2021	25-Jan-2021	26-Jan-2021
EPH CWG (Aliphatic) Aqueous GC (W)	27-Jan-2021	27-Jan-2021	27-Jan-2021	27-Jan-2021	27-Jan-2021	27-Jan-2021
EPH CWG (Aromatic) Aqueous GC (W)	27-Jan-2021	27-Jan-2021	27-Jan-2021	27-Jan-2021	27-Jan-2021	27-Jan-2021
Fluoride	22-Jan-2021	22-Jan-2021	22-Jan-2021	22-Jan-2021	22-Jan-2021	22-Jan-2021
GRO by GC-FID (W)	27-Jan-2021	27-Jan-2021	27-Jan-2021	27-Jan-2021	27-Jan-2021	27-Jan-2021
Hexavalent Chromium (w)	22-Jan-2021	22-Jan-2021	22-Jan-2021	22-Jan-2021	22-Jan-2021	22-Jan-2021
Mercury Dissolved	21-Jan-2021	21-Jan-2021	21-Jan-2021	21-Jan-2021	21-Jan-2021	21-Jan-2021
Mercury Unfiltered	26-Jan-2021	25-Jan-2021	21-Jan-2021	26-Jan-2021	26-Jan-2021	26-Jan-2021
PAH in waters by GC-MS (diss.filt)	25-Jan-2021	25-Jan-2021	25-Jan-2021	25-Jan-2021	25-Jan-2021	25-Jan-2021
PAH Spec MS - Aqueous (W)	27-Jan-2021	27-Jan-2021	27-Jan-2021	27-Jan-2021	27-Jan-2021	27-Jan-2021
pH Value	22-Jan-2021	22-Jan-2021	22-Jan-2021	22-Jan-2021	22-Jan-2021	22-Jan-2021
Phenols by HPLC (W)	26-Jan-2021	25-Jan-2021	26-Jan-2021	26-Jan-2021	26-Jan-2021	26-Jan-2021
Phosphate by Kone (w)	22-Jan-2021	22-Jan-2021	22-Jan-2021	22-Jan-2021	22-Jan-2021	22-Jan-2021
Redox Potential	21-Jan-2021	21-Jan-2021	21-Jan-2021	21-Jan-2021	21-Jan-2021	21-Jan-2021
Sulphide	22-Jan-2021	22-Jan-2021	22-Jan-2021	22-Jan-2021	22-Jan-2021	22-Jan-2021
Sulphur Dissolved by ICP-OES	25-Jan-2021	25-Jan-2021	25-Jan-2021	25-Jan-2021	25-Jan-2021	25-Jan-2021
Suspended Solids	25-Jan-2021	25-Jan-2021	25-Jan-2021	25-Jan-2021	25-Jan-2021	25-Jan-2021
SVOC MS (W) - Aqueous	28-Jan-2021	28-Jan-2021	28-Jan-2021	28-Jan-2021	28-Jan-2021	28-Jan-2021
Total Dissolved Solids	22-Jan-2021	22-Jan-2021	22-Jan-2021	22-Jan-2021	22-Jan-2021	22-Jan-2021
Total Metals by ICP-MS	23-Jan-2021	25-Jan-2021	23-Jan-2021	23-Jan-2021	25-Jan-2021	23-Jan-2021
Total Organic and Inorganic Carbon	22-Jan-2021	22-Jan-2021	22-Jan-2021	25-Jan-2021	22-Jan-2021	22-Jan-2021
TPH CWG (W)	27-Jan-2021	27-Jan-2021	27-Jan-2021	27-Jan-2021	27-Jan-2021	27-Jan-2021
Turbidity in waters	22-Jan-2021	22-Jan-2021	22-Jan-2021	22-Jan-2021	22-Jan-2021	22-Jan-2021
VOC MS (W)	27-Jan-2021	27-Jan-2021	27-Jan-2021	27-Jan-2021	27-Jan-2021	27-Jan-2021

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**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

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 asbestos present is not determined unless specifically requested.

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 (2017).*

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.