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Tata Steel Projects
Shotton Works
Deeside
Flintshire
CH5 2NH

Attention: Dan Cunnah

CERTIFICATE OF ANALYSIS

Date of report Generation: 03 June 2020
Customer: Tata Steel Projects
Sample Delivery Group (SDG): 200520-114
Your Reference:
Location: Shotton
Report No: 554058

This report has been revised and directly supersedes 553490 in its entirety.

We received 12 samples on Wednesday May 20, 2020 and 12 of these samples were scheduled for analysis which was completed on Wednesday June 03, 2020. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

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

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

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

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

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

Approved By:

Sonia McWhan

Operations Manager





CERTIFICATE OF ANALYSIS

Validated

SDG: 200520-114
Location: Shotton

Client Reference:
Order Number: 7410

Report Number: 554058
Superseded Report: 553490

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
22175803	BH1			20/05/2020
22175804	BH2			20/05/2020
22175805	BH8			20/05/2020
22175806	BH9			20/05/2020
22175807	BH10			20/05/2020
22175808	BH11			20/05/2020
22175809	BH12			20/05/2020
22175810	BH13			20/05/2020
22175811	BH14			20/05/2020
22175813	BH15			20/05/2020
22175815	Cell 2			20/05/2020
22175816	Cell 3-4			20/05/2020

Maximum Sample/Coolbox Temperature (°C) :

19.6

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.



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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

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)	Customer Sample Reference	AGS Reference	Depth (m)	Container	Sample Type	Cyanide Comp/Free/Total/Thiocyanate	Dissolved Metals by ICP-MS	Mercury Dissolved	Mineral Oil C10-40 Aqueous (W)	Organotins in Aqueous Samples	Pesticides (Suite I) by GCMS	Pesticides (Suite II) by GCMS	Pesticides (Suite III) by GCMS	SVOC MS (W) - Aqueous	VOC MS (W)		
	22175806	BH9			NaOH (ALE245)	GW	X											
	22175805	BH8			HNO3 Filtered (ALE204)	GW												
	22175804	BH2			250ml Amber Gl. PTFE/PE (ALE219)	GW												
	22175803	BH1			0.5l glass bottle (ALE227)	GW												
					Vial (ALE297)	GW												
					NaOH (ALE245)	GW												
				HNO3 Filtered (ALE204)	GW													
				250ml Amber Gl. PTFE/PE (ALE219)	GW													
				0.5l glass bottle (ALE227)	GW													
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				NaOH (ALE245)	GW													
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Order Number: 7410

Report Number: 554058
Superseded Report: 553490

Results Legend			Customer Sample Ref.		BH1	BH2	BH8	BH9	BH10	BH11
#	ISO17025 accredited.		Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference		Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
M	mCERTS accredited.				20/05/2020	20/05/2020	20/05/2020	20/05/2020	20/05/2020	20/05/2020
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				20/05/2020	20/05/2020	20/05/2020	20/05/2020	20/05/2020	20/05/2020
(F)	Trigger breach confirmed				200520-114	200520-114	200520-114	200520-114	200520-114	200520-114
1-3+5@	Sample deviation (see appendix)				22175803	22175804	22175805	22175806	22175807	22175808
Component	LOD/Units	Method								
Cadmium (diss.filt)	<0.08 µg/l	TM152			0.514	1.54	<0.08	0.24	<0.08	1.68
					#	#	#	#	#	#
Mineral oil >C10 C40 (aq)	<100 µg/l	TM172			<100	<100	<100	<100	<100	217
Mercury (diss.filt)	<0.01 µg/l	TM183			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
					#	#	#	#	#	#
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
					#	#	#	#	#	#
Dibutyl tin	<5 ng/l	TM328			<7.5	<7.5	<10	<10	<10	<10
Tributyl tin	<1 ng/l	TM328			<1.5	<1.5	<2	<2	<2	<2
Tetrabutyl tin	<2 ng/l	TM328			<3	<3	<4	<4	<4	<4
Triphenyl tin	<1 ng/l	TM328			<1.5	<1.5	<2	<2	<2	<2
Surrogate	%	TM328			101	89.1	81	80.4	87.8	75.8
Trifluralin	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
alpha-HCH	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
gamma-HCH (Lindane)	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Heptachlor	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aldrin	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
beta-HCH	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Isodrin	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Heptachlor epoxide	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
o,p'-DDE	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Endosulphan I	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
trans-Chlordane	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
cis-Chlordane	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
p,p'-DDE	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Dieldrin	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
o,p'-DDD (TDE)	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Endrin	<0.01 µg/l	TM343			<0.01	<0.01	<0.02	<0.01	<0.02	<0.02
o,p'-DDT	<0.01 µg/l	TM343			<0.02	<0.02	<0.04	<0.02	<0.04	<0.04
p,p'-DDD (TDE)	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Endosulphan II	<0.02 µg/l	TM343			<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
p,p'-DDT	<0.01 µg/l	TM343			<0.02	<0.02	<0.04	<0.02	<0.04	<0.04
p,p'-Methoxychlor	<0.01 µg/l	TM343			<0.02	<0.02	<0.06	<0.02	<0.06	<0.06
Endosulphan Sulphate	<0.02 µg/l	TM343			<0.02	<0.02	<0.04	<0.02	<0.04	<0.04
Permethrin I	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01



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Client Reference:
Order Number: 7410

Report Number: 554058
Superseded Report: 553490

Results Legend			Customer Sample Ref.		BH1	BH2	BH8	BH9	BH10	BH11
#	ISO17025 accredited.		Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference		Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
M	mCERTS accredited.				20/05/2020	20/05/2020	20/05/2020	20/05/2020	20/05/2020	20/05/2020
sq	Aqueous / settled sample.									
dis.filt	Dissolved / filtered sample.									
tot.unfilt	Total / unfiltered sample.									
*	Subcontracted - refer to subcontractor report for accreditation status.									
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery									
(F)	Trigger breach confirmed									
1-3*§@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
Permethrin II	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Dichlorvos	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Mevinphos	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Tecnazene	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Hexachlorobenzene	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Diazinon	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Triallate	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Atrazine	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Simazine	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Disulfoton	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Propetamphos	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chlorpyrifos-methyl	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Dimethoate	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Pirimiphos-methyl	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chlorpyrifos	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Methyl Parathion	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Malathion	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fenthion	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fenitrothion	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Triadimefon	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Pendimethalin	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Parathion	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chlorfenvinphos	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Ethion	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Carbophenothion	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Triazophos	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phosalone	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Azinphos methyl	<0.02 µg/l	TM344			<0.02	<0.02	<0.06	<0.02	<0.06	<0.06
Azinphos ethyl	<0.02 µg/l	TM344			<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Quintozene (PCNB)	<0.01 µg/l	TM345			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Telodrin	<0.01 µg/l	TM345			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chlorothalonil	<0.01 µg/l	TM345			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Etrimphos	<0.01 µg/l	TM345			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01



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#	ISO17025 accredited.		Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference		Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Land Leachate (LE)	Land Leachate (LE)
M	mCERTS accredited.				20/05/2020	20/05/2020	20/05/2020	20/05/2020	20/05/2020	20/05/2020
aq	Aqueous / settled sample.									
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(F)	Trigger breach confirmed				200520-114	200520-114	200520-114	200520-114	200520-114	200520-114
1-3+5@	Sample deviation (see appendix)				22175809	22175810	22175811	22175813	22175815	22175816
Component	LOD/Units	Method								
Cadmium (diss.filt)	<0.08 µg/l	TM152			0.202	<0.08	<0.08	<0.08	<0.08	<0.08
					#	#	#	#	#	#
Mineral oil >C10 C40 (aq)	<100 µg/l	TM172			<100	<100	<100	903	822	<100
Mercury (diss.filt)	<0.01 µg/l	TM183			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
					#	#	#	#	#	#
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
					#	#	#	#	#	#
Dibutyl tin	<5 ng/l	TM328			<10	<10	<10	<10	<15	<10
Tributyl tin	<1 ng/l	TM328			<2	<2	<2	<2	<3	<2
Tetrabutyl tin	<2 ng/l	TM328			<4	<4	<4	<4	<6	<4
Triphenyl tin	<1 ng/l	TM328			<2	<2	<2	<2	<3	<2
Surrogate	%	TM328			82.6	84.2	78.6	54.6	79.7	50.5
Trifluralin	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
alpha-HCH	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
gamma-HCH (Lindane)	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Heptachlor	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aldrin	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
beta-HCH	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Isodrin	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Heptachlor epoxide	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
o,p'-DDE	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Endosulphan I	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
trans-Chlordane	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
cis-Chlordane	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
p,p'-DDE	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Dieldrin	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
o,p'-DDD (TDE)	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Endrin	<0.01 µg/l	TM343			<0.02	<0.02	<0.02	<0.02	<0.01	<0.02
o,p'-DDT	<0.01 µg/l	TM343			<0.04	<0.04	<0.04	<0.04	<0.02	<0.04
p,p'-DDD (TDE)	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Endosulphan II	<0.02 µg/l	TM343			<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
p,p'-DDT	<0.01 µg/l	TM343			<0.04	<0.04	<0.04	<0.04	<0.02	<0.04
p,p'-Methoxychlor	<0.01 µg/l	TM343			<0.06	<0.06	<0.06	<0.06	<0.02	<0.06
Endosulphan Sulphate	<0.02 µg/l	TM343			<0.04	<0.04	<0.04	<0.04	<0.02	<0.04
Permethrin I	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01



CERTIFICATE OF ANALYSIS

Validated

SDG: 200520-114
Location: Shotton

Client Reference:
Order Number: 7410

Report Number: 554058
Superseded Report: 553490

Results Legend			Customer Sample Ref.		BH12	BH13	BH14	BH15	Cell 2	Cell 3-4
#	ISO17025 accredited.		Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference		Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Land Leachate (LE)	Land Leachate (LE)
M	mCERTS accredited.				20/05/2020	20/05/2020	20/05/2020	20/05/2020	20/05/2020	20/05/2020
sq	Aqueous / settled sample.									
dis.filt	Dissolved / filtered sample.									
tot.unfilt	Total / unfiltered sample.									
*	Subcontracted - refer to subcontractor report for accreditation status.									
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery				20/05/2020	20/05/2020	20/05/2020	20/05/2020	20/05/2020	20/05/2020
(F)	Trigger breach confirmed				200520-114	200520-114	200520-114	200520-114	200520-114	200520-114
1-3*§@	Sample deviation (see appendix)				22175809	22175810	22175811	22175813	22175815	22175816
Component	LOD/Units	Method								
Permethrin II	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Dichlorvos	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
Mevinphos	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
Tecnazene	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
Hexachlorobenzene	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
Diazinon	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
Triallate	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
Atrazine	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
Simazine	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
Disulfoton	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
Propetamphos	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
Chlorpyrifos-methyl	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
Dimethoate	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
Pirimiphos-methyl	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
Chlorpyrifos	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
Methyl Parathion	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
Malathion	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
Fenthion	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
Fenitrothion	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
Triadimefon	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
Pendimethalin	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
Parathion	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
Chlorfenvinphos	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
Ethion	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
Carbophenothion	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
Triazophos	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
Phosalone	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
Azinphos methyl	<0.02 µg/l	TM344			<0.06	<0.06	<0.06	<0.1	<0.06	<0.02
Azinphos ethyl	<0.02 µg/l	TM344			<0.02	<0.02	<0.02	<0.1	<0.02	<0.02
Quintozene (PCNB)	<0.01 µg/l	TM345			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Telodrin	<0.01 µg/l	TM345			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chlorothalonil	<0.01 µg/l	TM345			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Etrimphos	<0.01 µg/l	TM345			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01



CERTIFICATE OF ANALYSIS

Validated

SDG: 200520-114
Location: Shotton

Client Reference:
Order Number: 7410

Report Number: 554058
Superseded Report: 553490

SVOC MS (W) - Aqueous

Results Legend			Customer Sample Ref.		BH1	BH2	BH8	BH9	BH10	BH11
#	ISO17025 accredited.		Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference		Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
M	mCERTS accredited.				20/05/2020	20/05/2020	20/05/2020	20/05/2020	20/05/2020	20/05/2020
aq	Aqueous / settled sample.									
diss.filt	Dissolved / filtered sample.									
tot.unfilt	Total / unfiltered sample.									
*	Subcontracted - refer to subcontractor report for accreditation status.									
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery									
(F)	Trigger breach confirmed									
1-3+5@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
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
					#	#	#	#	#	#
Acenaphthylene (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
Acenaphthene (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
Anthracene (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	6.55	<2	<2	<2	<2
					#	#	#	#	#	#
Butylbenzyl phthalate (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
Benzo(a)anthracene (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#



CERTIFICATE OF ANALYSIS

Validated

SDG: 200520-114
Location: Shotton

Client Reference:
Order Number: 7410

Report Number: 554058
Superseded Report: 553490

SVOC MS (W) - Aqueous

Results Legend			Customer Sample Ref.		BH1	BH2	BH8	BH9	BH10	BH11
#	ISO17025 accredited.		Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference		Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
M	mCERTS accredited.				20/05/2020	20/05/2020	20/05/2020	20/05/2020	20/05/2020	20/05/2020
aq	Aqueous / settled sample.									
diss.filt	Dissolved / filtered sample.									
tot.unfilt	Total / unfiltered sample.									
*	Subcontracted - refer to subcontractor report for accreditation status.				20/05/2020	20/05/2020	20/05/2020	20/05/2020	20/05/2020	20/05/2020
**	% 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				200520-114	200520-114	200520-114	200520-114	200520-114	200520-114
(F)	Trigger breach confirmed				22175803	22175804	22175805	22175806	22175807	22175808
1-3+9@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
Benzo(b)fluoranthene (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
					#	#	#	#	#	#
Benzo(a)pyrene (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
Benzo(g,h,i)perylene (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
Carbazole (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
Chrysene (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
Dibenzofuran (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
n-Butyl phthalate (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
Diethyl phthalate (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
Dibenzo(a,h)anthracene (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
					#	#	#	#	#	#
Fluoranthene (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
Fluorene (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
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
					#	#	#	#	#	#
Naphthalene (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
Phenanthrene (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
					#	#	#	#	#	#
Pyrene (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#



CERTIFICATE OF ANALYSIS

Validated

SDG: 200520-114
Location: Shotton

Client Reference:
Order Number: 7410

Report Number: 554058
Superseded Report: 553490

SVOC MS (W) - Aqueous

Results Legend			Customer Sample Ref.		BH12	BH13	BH14	BH15	Cell 2	Cell 3-4
#	ISO17025 accredited.		Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference		Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Land Leachate (LE)	Land Leachate (LE)
M	mCERTS accredited.				20/05/2020	20/05/2020	20/05/2020	20/05/2020	20/05/2020	20/05/2020
aq	Aqueous / settled sample.									
diss.filt	Dissolved / filtered sample.									
tot.unfilt	Total / unfiltered sample.									
*	Subcontracted - refer to subcontractor report for accreditation status.				20/05/2020	20/05/2020	20/05/2020	20/05/2020	20/05/2020	20/05/2020
**	% 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				200520-114	200520-114	200520-114	200520-114	200520-114	200520-114
(F)	Trigger breach confirmed				22175809	22175810	22175811	22175813	22175815	22175816
1-3+5@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
1,2,4-Trichlorobenzene (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<1
					#	#	#	#		
1,2-Dichlorobenzene (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<1
					#	#	#	#		
1,3-Dichlorobenzene (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<1
					#	#	#	#		
1,4-Dichlorobenzene (aq)	<1 µg/l	TM176			<1	<1	<1	<1	2.57	<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
					#	#	#	#		
Acenaphthylene (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<1
					#	#	#	#		
Acenaphthene (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<1
					#	#	#	#		
Anthracene (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	3.33	<2	<2
					#	#	#	#		
Butylbenzyl phthalate (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<1
					#	#	#	#		
Benzo(a)anthracene (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<1
					#	#	#	#		



CERTIFICATE OF ANALYSIS

Validated

SDG: 200520-114
Location: Shotton

Client Reference:
Order Number: 7410

Report Number: 554058
Superseded Report: 553490

SVOC MS (W) - Aqueous

Results Legend			Customer Sample Ref.		BH12	BH13	BH14	BH15	Cell 2	Cell 3-4
#	ISO17025 accredited.		Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference		Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Land Leachate (LE)	Land Leachate (LE)
M	mCERTS accredited.				20/05/2020	20/05/2020	20/05/2020	20/05/2020	20/05/2020	20/05/2020
aq	Aqueous / settled sample.									
dis.filt	Dissolved / filtered sample.									
tot.unfilt	Total / unfiltered sample.									
*	Subcontracted - refer to subcontractor report for accreditation status.				20/05/2020	20/05/2020	20/05/2020	20/05/2020	20/05/2020	20/05/2020
**	% 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				200520-114	200520-114	200520-114	200520-114	200520-114	200520-114
(F)	Trigger breach confirmed				22175809	22175810	22175811	22175813	22175815	22175816
1-3+5@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
Benzo(b)fluoranthene (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
					#	#	#	#		
Benzo(a)pyrene (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<1
					#	#	#	#		
Benzo(g,h,i)perylene (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<1
					#	#	#	#		
Carbazole (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<1
					#	#	#	#		
Chrysene (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
					#	#	#	#		
Diethyl phthalate (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<1
					#	#	#	#		
Dibenzo(a,h,i)anthracene (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
					#	#	#	#		
Fluoranthene (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<1
					#	#	#	#		
Fluorene (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<1
					#	#	#	#		
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
					#	#	#	#		
Naphthalene (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
Phenanthrene (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
					#	#	#	#		
Pyrene (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<1
					#	#	#	#		



CERTIFICATE OF ANALYSIS

Validated

SDG: 200520-114
Location: ShottonClient Reference:
Order Number: 7410Report Number: 554058
Superseded Report: 553490

VOC MS (W)

Results Legend			Customer Sample Ref.		BH1	BH2	BH8	BH9	BH10	BH11
#	ISO17025 accredited.		Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference		Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
M	mCERTS accredited.				20/05/2020	20/05/2020	20/05/2020	20/05/2020	20/05/2020	20/05/2020
aq	Aqueous / settled sample.				20/05/2020	20/05/2020	20/05/2020	20/05/2020	20/05/2020	20/05/2020
diss.filt	Dissolved / filtered sample.				200520-114	200520-114	200520-114	200520-114	200520-114	200520-114
tot.unfilt	Total / unfiltered sample.				22175803	22175804	22175805	22175806	22175807	22175808
*	Subcontracted - refer to subcontractor report for accreditation status.									
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery									
(F)	Trigger breach confirmed									
1-3+5@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
Dibromofluoromethane**	%	TM208			105	105	107	105	105	104
Toluene-d8**	%	TM208			100	101	99.6	100	100	100
4-Bromofluorobenzene**	%	TM208			99	98.3	98.8	100	98.9	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

Validated

SDG: 200520-114
Location: ShottonClient Reference:
Order Number: 7410Report Number: 554058
Superseded Report: 553490

VOC MS (W)

Results Legend			Customer Sample Ref.	BH1	BH2	BH8	BH9	BH10	BH11
#	ISO17025 accredited.	mCERTS accredited.							
M	Aqueous / settled sample.		Depth (m)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
sq	Dissolved / filtered sample.		Sample Type	20/05/2020	20/05/2020	20/05/2020	20/05/2020	20/05/2020	20/05/2020
tot.unfilt	Total / unfiltered sample.		Date Sampled	20/05/2020	20/05/2020	20/05/2020	20/05/2020	20/05/2020	20/05/2020
*	Subcontracted - refer to subcontractor report for accreditation status.		Sample Time	200520-114	200520-114	200520-114	200520-114	200520-114	200520-114
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery		Date Received	22175803	22175804	22175805	22175806	22175807	22175808
(F)	Trigger breach confirmed		SDG Ref						
1-3+5@	Sample deviation (see appendix)		Lab Sample No.(s)						
	AGS Reference								
Component	LOD/Units	Method							
Tetrachloroethene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
Dibromochloromethane	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
1,2-Dibromoethane	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
Chlorobenzene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
1,1,1,2-Tetrachloroethane	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
Ethylbenzene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
m,p-Xylene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
o-Xylene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
Styrene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
Bromoform	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
Isopropylbenzene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
1,1,2,2-Tetrachloroethane	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
1,2,3-Trichloropropane	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
Bromobenzene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
Propylbenzene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
2-Chlorotoluene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
1,3,5-Trimethylbenzene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
4-Chlorotoluene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
tert-Butylbenzene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
1,2,4-Trimethylbenzene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
sec-Butylbenzene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
4-iso-Propyltoluene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
1,3-Dichlorobenzene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
1,4-Dichlorobenzene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
n-Butylbenzene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
1,2-Dichlorobenzene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
1,2-Dibromo-3-chloropropane	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
1,2,4-Trichlorobenzene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
Hexachlorobutadiene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
tert-Amyl methyl ether (TAME)	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
Naphthalene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
1,2,3-Trichlorobenzene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				#	#	#	#	#	#
1,3,5-Trichlorobenzene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1



CERTIFICATE OF ANALYSIS

Validated

SDG: 200520-114
Location: Shotton

Client Reference:
Order Number: 7410

Report Number: 554058
Superseded Report: 553490

VOC MS (W)

Results Legend			Customer Sample Ref.		BH12	BH13	BH14	BH15	Cell 2	Cell 3-4
#	ISO17025 accredited.		Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference		Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Land Leachate (LE)	Land Leachate (LE)
M	mCERTS accredited.				20/05/2020	20/05/2020	20/05/2020	20/05/2020	20/05/2020	20/05/2020
aq	Aqueous / settled sample.				20/05/2020	20/05/2020	20/05/2020	20/05/2020	20/05/2020	20/05/2020
diss.filt	Dissolved / filtered sample.				200520-114	200520-114	200520-114	200520-114	200520-114	200520-114
tot.unfilt	Total / unfiltred sample.				22175809	22175810	22175811	22175813	22175815	22175816
*	Subcontracted - refer to subcontractor report for accreditation status.									
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery									
(F)	Trigger breach confirmed									
1-3+5@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
Dibromofluoromethane**	%	TM208			106	105	106	107	106	103
Toluene-d8**	%	TM208			99.8	99.5	101	99.4	101	100
4-Bromofluorobenzene**	%	TM208			97.5	98.2	100	99.7	100	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



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VOC MS (W)

Results Legend			Customer Sample Ref.		BH12	BH13	BH14	BH15	Cell 2	Cell 3-4
#	ISO17025 accredited.		Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference		Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Land Leachate (LE)	Land Leachate (LE)
M	mCERTS accredited.				20/05/2020	20/05/2020	20/05/2020	20/05/2020	20/05/2020	20/05/2020
sq	Aqueous / settled sample.									
dis.filt	Dissolved / filtered sample.									
tot.unfilt	Total / unfiltered sample.									
*	Subcontracted - refer to subcontractor report for accreditation status.				20/05/2020	20/05/2020	20/05/2020	20/05/2020	20/05/2020	20/05/2020
**	% 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				200520-114	200520-114	200520-114	200520-114	200520-114	200520-114
(F)	Trigger breach confirmed				22175809	22175810	22175811	22175813	22175815	22175816
1-3+§@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
Tetrachloroethene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
Dibromochloromethane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
1,2-Dibromoethane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
Chlorobenzene	<1 µg/l	TM208			<1	<1	<1	<1	3.53	<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	2.56	<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
					#	#	#	#	#	#



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Table of Results - Appendix

Method No	Reference	Description
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS
TM172	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	EPH in Waters
TM176	EPA 8270D Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of SVOCs in Water by GCMS
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
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
TM328		
TM343	EPA 8270D - Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of Selected Pesticides (Suite I) in Liquids by GCMS
TM344	EPA 8270D – Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of selected pesticides (Suite II) by GCMS
TM345	EPA 8270D – Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of selected pesticides (Suite III) by GCMS

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).



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Test Completion Dates

Lab Sample No(s)	22175803	22175804	22175805	22175806	22175807	22175808	22175809	22175810	22175811	22175813
Customer Sample Ref.	BH1	BH2	BH8	BH9	BH10	BH11	BH12	BH13	BH14	BH15
AGS Ref.										
Depth										
Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
Cyanide Comp/Free/Total/Thiocyanate	27-May-2020	27-May-2020	27-May-2020	27-May-2020	27-May-2020	27-May-2020	27-May-2020	27-May-2020	27-May-2020	27-May-2020
Dissolved Metals by ICP-MS	27-May-2020	26-May-2020	27-May-2020	27-May-2020	27-May-2020	27-May-2020	27-May-2020	27-May-2020	27-May-2020	27-May-2020
Mercury Dissolved	28-May-2020	26-May-2020	28-May-2020	28-May-2020	26-May-2020	26-May-2020	28-May-2020	28-May-2020	28-May-2020	28-May-2020
Mineral Oil C10-40 Aqueous (W)	28-May-2020	28-May-2020	28-May-2020	28-May-2020	28-May-2020	28-May-2020	28-May-2020	28-May-2020	28-May-2020	28-May-2020
Organotins in Aqueous Samples	28-May-2020	28-May-2020	28-May-2020	28-May-2020	28-May-2020	28-May-2020	28-May-2020	28-May-2020	28-May-2020	28-May-2020
Pesticides (Suite I) by GCMS	02-Jun-2020	02-Jun-2020	02-Jun-2020	02-Jun-2020	02-Jun-2020	02-Jun-2020	02-Jun-2020	02-Jun-2020	02-Jun-2020	02-Jun-2020
Pesticides (Suite II) by GCMS	03-Jun-2020	03-Jun-2020	03-Jun-2020	03-Jun-2020	03-Jun-2020	03-Jun-2020	03-Jun-2020	03-Jun-2020	03-Jun-2020	03-Jun-2020
Pesticides (Suite III) by GCMS	02-Jun-2020	02-Jun-2020	02-Jun-2020	02-Jun-2020	02-Jun-2020	02-Jun-2020	02-Jun-2020	02-Jun-2020	02-Jun-2020	02-Jun-2020
SVOC MS (W) - Aqueous	27-May-2020	27-May-2020	27-May-2020	28-May-2020	28-May-2020	28-May-2020	28-May-2020	28-May-2020	28-May-2020	28-May-2020
VOC MS (W)	21-May-2020	21-May-2020	21-May-2020	21-May-2020	21-May-2020	21-May-2020	21-May-2020	21-May-2020	21-May-2020	21-May-2020

Lab Sample No(s)	22175815	22175816
Customer Sample Ref.	Cell 2	Cell 3-4
AGS Ref.		
Depth		
Type	Land Leachate	Land Leachate
Cyanide Comp/Free/Total/Thiocyanate	27-May-2020	27-May-2020
Dissolved Metals by ICP-MS	27-May-2020	27-May-2020
Mercury Dissolved	28-May-2020	28-May-2020
Mineral Oil C10-40 Aqueous (W)	28-May-2020	28-May-2020
Organotins in Aqueous Samples	28-May-2020	28-May-2020
Pesticides (Suite I) by GCMS	02-Jun-2020	02-Jun-2020
Pesticides (Suite II) by GCMS	03-Jun-2020	03-Jun-2020
Pesticides (Suite III) by GCMS	02-Jun-2020	02-Jun-2020
SVOC MS (W) - Aqueous	27-May-2020	27-May-2020
VOC MS (W)	21-May-2020	21-May-2020



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Appendix

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

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

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

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

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

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

7. Results relate only to the items tested.

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

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

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

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

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

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

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

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

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

General

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* (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.